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1.0 EXECUTIVE SUMMARY

1.1 Introduction

This document presents the results of the Community and Environmental Assessment Process (CEAP) related to the proposed Fire Training Center (FTC) and Biosolids Recycling Center (BRC) at Valmont Butte. It is the document that will be used in the public, advisory board and City Council consideration of whether to proceed with these proposed projects at this location.

Alternatives to the proposed programs and site are described and evaluated. The Valmont Butte site and the proposed projects are described. The input received as part of the public process is cataloged as well as staff responses. Community and environmental impacts are documented along with their proposed mitigation measures.

Policy options available to the City Council include:

1. Pursuing the Fire Training Center and Biosolids Recycling Center as proposed at the Valmont Butte site. Based on information available to staff at this time, this is the staff-recommended option. Depending on input from the Indian consultation as well as the public and advisory boards review process, staff may change this recommendation.
2. Pursuing the Fire Training Center and Biosolids Recycling Center at the Valmont Butte site but with a different site layout or set of mitigation measures.
3. Pursuing an alternative approach to fire training or biosolids treatment. These options are explored in Section 3.0, Program Alternatives.
4. Pursuing an alternative site for either fire training or biosolids composting. These options are explored in Section 4.0, Site Alternatives.

1.2 CEAP Process

If the Fire Training Center and the Biosolids Recycling Center are constructed at the Valmont Butte site, it would be at the end of a process that includes completion of the Community and Environmental Assessment Process; annexation and initial zoning; a site and use review; review of technical documents such as engineering plans; and building permits.

Issues have been raised about the appropriateness of these facilities at the Valmont Butte site, primarily due to the presence of cultural and natural features. The City Manager has committed to a process that fully considers these impacts and gives City Council the necessary information to make a “go – no go” decision.

The CEAP is an appropriate process to facilitate this decision. It is designed to take a conceptual proposal and evaluate its community and environmental impacts, and proposed mitigation measures.

The CEAP process starts with the preparation of a report which is then reviewed by an interdepartmental city staff team. The report and comments of the staff team are forwarded to the city board with responsibility over the project area. In this case, this means the Water Resources Advisory Board for the Biosolids Recycling Center and the Planning Board for the Fire Training Center. The Environmental Advisory Board, Landmarks Preservation Advisory Board and Open Space Board of Trustees will also review the CEAP.

Normally, the boards' actions would be final unless called up by City Council. Due to the public interest in the Valmont Butte proposal, the decision will be scheduled for Council consideration. The board and Council reviews will also include public hearings.

One feature being added to this particular process is a Community Review Group (CRG) that represents the interests of local area residents, local business managers and owners, and individuals with expertise in specific areas of interest. The purpose of this review is to provide a way for interested persons as well as experts to participate in the Community and Environmental Assessment Process. Over a series of six meetings, the Community Review Group read and critiqued the CEAP report. More information about the CRG can be found in Section 2.0, Public Process.

1.3 Site Ownership

The Valmont Butte proposal consists of three distinct uses by the City of Boulder's Open Space and Mountain Parks (OSMP), Public Works Department and the Fire Department. In September 2000, the three city departments jointly purchased the 101.6-acre parcel of land, located at Valmont Road and 63rd Street. The Public Works Department is proposing to construct a Biosolids Recycling Center on 38.3 acres at the eastern end of the property. The Fire Department is proposing to construct a Fire Training Center on 36.4 acres at the center portion of the property. OSMP's 26.9-acre portion of the property encompasses the Valmont Butte and would serve as a buffer on the north and west sides of the property to be protected under the City Charter for Open Space purposes. The Public Works Department selected the eastern most section of the property because of the existing Valmont Road access and its proximity to the City of Boulder's Wastewater Treatment Plant (WWTP). The Valmont Butte site is shown in Figure 1.

1.4 Open Space and Mountain Parks

The Open Space and Mountain Parks Department participated in the city's acquisition of the Valmont Butte property primarily to protect the escarpment areas and geologic features of the butte.

The 26.9-acre ridge line and adjacent north-facing slope of Valmont Butte that have been purchased for OSMP management encompasses the basalt dike that runs south of Valmont Road. This ridge and its rocky outcrops are unique and important natural features of the Boulder region, rising to approximately 5,391 feet above sea level. The OSMP portion of the property is protected from any development under the City Charter.

1.5 Biosolids Recycling Center (BRC)

The Public Works Department Utilities Division has been evaluating biosolids management program alternatives for over 30 years. The city has been making program changes involving better and safer biosolids treatment to better serve the community and the environment when new technologies were available. The proposed Biosolids Recycling Center represents an exceptional opportunity for the city to upgrade its facilities to meet nationwide trends and more stringent permit regulations.

The city's Wastewater Treatment Plant, located at 4049 N. 75th St., generates biological solids as a result of treating the city's wastewater. The WWTP location in relation to the Valmont Butte site is shown on Figure 8. The current biosolids management program produces "Class B" that are reused primarily through land application to agricultural land in Adams County located approximately 60 miles east of Boulder. The land-applied material meets the definition of "Class B" biosolids, as required by the Colorado Department of Public Health and Environment (CDPHE), Water Quality Control Commission.

The city has been evaluating its biosolids management program options for many years. As a result of a detailed study in 1997, the city decided to pursue a management program to produce biosolids that met the higher quality specifications of "Class A" material. Composting was the process selected to meet the "Class A" requirements.

The WWTP is currently in need of an upgrade to address the "solids stream" operations. The existing dewatering equipment needs replacement because it is beyond its useful life, and its poor reliability compromises critical plant operations.

The city has proposed to develop a Biosolids Recycling Center on the Valmont Butte site. The proposed development would be consistent with the area's commercial and industrial nature, and consistent with the neighboring recycling

and reuse operations. The Valmont Butte site has many attributes, which make it a suitable location for the proposed facilities.

- Close proximity to the WWTP
- Adequate size land parcel
- Site includes significant land buffer from nearby residential uses
- City annexation possible
- Site could be easily served by utilities
- Site's natural topography would permit facilities to be located out of visual sight from local community
- Site was reasonably priced at less than \$26,000/acre
- Proposed uses consistent with surrounding industrial land uses
- The site provides an opportunity for the city to meet multi-use goals by partnering with other city departments

The proposed BRC facility layout would use approximately 10 acres (27 percent) of the 38.3-acre BRC portion of the site, thereby minimizing the impact on wildlife habitat, open spaces, natural resources and cultural resources. The conceptual site plan for the proposed BRC at the Valmont Butte site is shown in Figure 10.

Components of the Biosolids Recycling Center would include the following. A more detailed description of these facilities is included in Section 6.2.

- AA Liquid Biosolids Storage Tank
- BB Bulking Agent Storage Building
- CC Dewatering Building
- DD Composting Building
- EE Curing and Storage Building
- FF Centrate Storage Tank
- GG Odor Control Systems
- HH Paved Drying Area
- II Maintenance Building
- JJ Administration Building

1.5.1 Proposed Biosolids Pipeline

The proposed BRC would involve the construction of a biosolids pipeline to convey liquid biosolids from the WWTP to the new dewatering and composting facilities located at the Valmont Butte site. Two biosolids "transport" options were evaluated in the preliminary design: trucking and piping. The piping and trucking alternatives had a similar long-term life cycle cost; therefore, the recommendation was largely based on non-monetary criteria. The piping option was recommended over the trucking option in order

to reduce potential truck traffic along 75th Street and Valmont Road.

Three pipeline alignments were evaluated between the WWTP and the Valmont Butte site. (Figure 15) All three pipeline alignments would begin from the WWTP's solids facilities. All three pipeline alignments would enter the Valmont Butte site at the northeast access at Valmont Road and terminate at a biosolids storage tank. These three alignments are listed below.

- A 75th Street to Valmont Road
- B 75th Street to abandoned railroad tracks alignment to Valmont Road
- C Overland alignment south of the WWTP to Valmont Road

Alternative A would be the recommended pipeline alignment because it represents the least impact to the environment and to residential homes in the community. The 75th Street to Valmont Road pipeline alignment would not impact Walden Ponds, located immediately south of the WWTP, nor would it require easement access from Valmont Road residents.

The proposed pipeline alignment is 2.5 miles in length. The pipeline alignment would follow the WWTP access road to 75th Street. The pipeline would be located in the county right-of-way along 75th Street to Valmont Road and be located in the county right-of-way along Valmont Road to the Valmont Butte site entrance, located 0.8 miles east of 61st Street.

The pipeline would likely be constructed of 6-inch diameter ductile iron pipe. The pipeline would be designed to include various control valves and a leak detection system to provide additional operational safety.

1.6 Fire Training Center (FTC)

The Fire Training Center proposed for the Valmont Butte site is one of three fire training facilities planned to be strategically positioned throughout Boulder County to keep fire units in or near their home districts while training. The proposed Valmont Butte Fire Training Center would be the main fire training center. A second smaller facility would be located in Longmont and the third located in Nederland.

The FTC is proposed to be located on the 36.4-acre central portion of the Valmont Butte site. The City of Boulder purchased the land in 2000 with the agreement that the county would fund the construction of the training facilities.

The FTC would potentially be used by many of the fire departments in the county including the City of Boulder, Boulder Rural, Cherryvale, Louisville and Lafayette. Because the proposed Valmont Butte site is located more centrally to these departments, it would be used more frequently by them than the existing Lee Hill site. The fire departments in the northeastern part of the county (Longmont, Mountain View, Niwot and Lyons) would train at the facility in Longmont.

The purpose of the FTC is to provide a location to train fire fighters in a controlled environment on the hazards they may encounter while performing their duties for the residents of their jurisdiction. In order to meet current requirements, a wide range of training must be made available. Classrooms for basics and theory, props to simulate structure fires, flammable liquid fires and liquefied petroleum gas fires enable training on the proper and safe techniques of fire control. The proposed training tower gives fire fighters the opportunity to practice raising ladders and perform rescues; the driving course would continually improve fire apparatus handling skills.

The use of the FTC would vary by department. County fire departments range from fully paid staffs to all-volunteer organizations. The center would be used up to seven days a week with normal operation hours between 6 a.m. - 11 p.m. The fire training facilities will be staffed by up to five employees, while the Wildland Fire building will have a peak staff during warmer months of up to 12 employees.

Training academies for up to 30 new fire fighters are conducted twice a year, March – June and September – December. During these times the classrooms and auditorium would be used Monday through Friday with hours ranging from 6 a.m. - 6 p.m. and occasional evenings. It is projected that the 100-seat auditorium may be used at full capacity an estimated 20 times a year and at 30 percent to 40 percent of its capacity two to three times a month. There are times during regional emergencies when the FTC could be used around-the-clock for a command post or event-staging area.

The Valmont Butte site has many attributes which make it a suitable location for the proposed facilities. These attributes include the following:

- Close proximity to the WWTP
- Adequate size land parcel
- Site includes significant land buffer from nearby residential uses
- City annexation possible
- Site could be easily served by utilities
- Site's natural topography would permit facilities to be located out of visual sight from local community
- Site was reasonably priced at less than \$26,000/acre
- Proposed uses consistent with surrounding industrial land uses

- The site provides an opportunity for the city to meet multi-use goals by partnering with other city departments

The proposed FTC would utilize approximately 12 acres or 32 percent of the 36.4-acre FTC portion of the site, thereby minimizing the impact on wildlife habitat, open spaces, and natural and cultural resources. The conceptual site plan for the proposed improvements at the Valmont Butte site is shown in Figure 10. A detailed description of the FTC facilities is included in Section 6.3. Components of the FTC would include:

- A Educational/Administration Building with attached storage bays for emergency vehicles
- B Wildland Fire Building
- C Pavilion
- D Burn Building
- E Tower
- F Extrication Pads
- G Concrete Driving Course
- H Pump Pit
- I Propane/Natural Gas Props
- J Potable Water Storage Tank

1.7 Summary of Potential Impacts and Proposed Mitigation*

1.7.1 Overview

Both the BRC and FTC have been conceptually laid out to be as compact as possible in an effort to minimize impacts to the site. (Figure 10) Total building and impervious coverage and future development would comprise only 22.2 percent of the site. The construction of the buildings, fire training props and concrete driving course as well as other construction activities on the site would result in the permanent loss of vegetation and wildlife habitat on those portions of the site. The construction of the FTC concrete driving course would also harden and stabilize portions of the capped tailings ponds that are now exposed. During and after the construction activities, the OSMP land would remain undisturbed. Potential disturbance impacts related to the operation of machinery during construction in and around Valmont Dike is low. The City of Boulder would use mitigation measures to minimize the impacts caused by the construction activities.

** A thorough discussion of potential impacts and proposed mitigation can be found in Section 7.*

1.7.2 Visual

The 36.4-acre Fire Training Center site and the 38.3-acre Biosolids Recycling Center site are clustered to the maximum extent possible to minimize visual impacts to the adjacent land.

The BRC and FTC facilities would be buffered by the open land encompassing the Valmont Butte on the north, the Valmont Mill on the west and Xcel Energy property on the south and east. Development adjacent to the cemetery would be held back from its north and east boundaries.

All of the proposed buildings would remain obscured by the Valmont Butte formation from 61st Street at Boulder Creek, but the BRC buildings and FTC burn building and tower would be partially visible from Valmont Road just east of the main entrance to the BRC and FTC. Figure 12 presents visual simulations of the proposed improvements as they would appear from Valmont Road and from 61st Street.

1.7.3 Cultural/Historic Resources

A cultural landscape management area (CLMA) on the western edge of the project area would incorporate many of the known cultural and historic resources on the site while providing a buffer between future development and the adjacent Valmont Cemetery. The Open Space preservation of the significant land forms and the areas least disturbed on the Valmont Butte property, including portions of the site that contain a variety of native vegetation, wildlife habitat and Indian resources, contribute to the cultural, historic and natural qualities of life of the Boulder Valley.

The historic Valmont Mill facilities on the western side of the property would be preserved and protected through development restrictions and city landmark status. Grants would be sought to assist in restoration and repair to stabilize significant structures.

1.7.4 Utility Services

Utilities including water, sewer, electric, gas and communications are available to the site with minor extensions. By combining the BRC and FTC facilities, these utilities can be provided for both facilities more cost effectively.

1.7.5 Air Quality

The city has evaluated the proposed facilities' impacts on air quality and has determined that potential air quality impacts would likely occur from

two scenarios: short-term impacts experienced during the facilities' construction and long-term impacts from the facilities' operations.

1.7.5.1 Boulder Recycling Center

The BRC's composting facilities would be fully enclosed. Air quality would be protected by the addition of two-stage, state-of-the-practice odor control facilities on the dewatering and the composting process. Extensive odor-modeling analysis evaluated the potential odor impacts from three different composting technologies located on the east end of the Valmont Butte site. Figure 17 shows the 12 receptor locations used in the odor-modeling evaluation. Based on the odor-modeling scenarios evaluated, no odor impacts are predicted to occur at any of the 12 receptor locations.

A BRC that is located nearby will also eliminate the need to truck biosolids to Adams County, resulting in a reduction of vehicle exhaust emissions to the air.

1.7.5.2 Fire Training Center

Smoke generation would be limited by the amount and type of material used for live fire training. During a burn, light to moderate smoke is produced. When water is applied, smoke and steam emit until the fire is extinguished. This amount of smoke dissipates quickly, and with the size of the site proposed at Valmont, no off-site migration is projected.

1.7.6 Transportation

A September 2004 traffic study conducted by Fox Higgins Transportation Group determined that the site uses would generate approximately 145 daily and 50 vehicle trips during peak hours. This level of traffic would be comfortably accommodated by Valmont Road.

The Fox Higgins study also presented the following findings:

- The site driveway should be constructed to include separate outbound left- and right-turn lanes.
- No additional improvements to the Valmont Road corridor are warranted by the normal operation of the site.
- The 100-seat auditorium has the potential to add a spike of inbound or outbound traffic of 90 to 100 vehicles per hour when fully utilized, but this is only projected to occur 20 times per year.

1.7.6.1 Site Access

Access already exists to and from the site. Access to both the BRC and the FTC would be provided at the northeastern corner of the property off Valmont Road. Emergency access to the BRC and FTC would be provided via Valmont Drive or 63rd Street.

1.7.6.2 Site Uses

The proposed Biosolids Recycling Center would staff up to eight employees. Biosolids would arrive to the site by a pipeline. Trucks would deliver wood chips and other supplies needed for operation. Treated compost would be trucked off of the site.

The proposed Fire Training Center would be staffed by up to five employees and would serve fire departments from around the region. A wildland fire building would have a peak staff of up to 12 employees during warmer months.

1.7.7 Noise

Similar to odor generation, potential noise generation would likely occur from two scenarios: short-term impacts experienced during the facilities' construction and long-term impacts from the facilities' operation. Noise generation from construction associated with the proposed BRC and FTC facilities would likely be no louder than background noise caused by daily traffic along Valmont Road and the local industrial facilities.

1.7.7.1 BRC

There will be long-term noise generation associated with the daily operations of the BRC; however, the same approach of utilizing enclosed buildings to minimize site odors would greatly reduce site noise generation as well.

1.7.7.2 FTC

The most common source of noise would be the engines of fire trucks as they are driven or used to pump water at training exercises. Driving would not be at high speeds so the noise created is no more than what might be heard as a large truck drives along a city street. Sirens and horns are not used in driving training.

More activity on the site and under some conditions the associated noise may impact the visitors to the cemetery and the use of the site by wildlife. A management plan for the FTC would commit to limiting or halting operations during scheduled cemetery burials.

Major outside training areas have been located at the opposite end of the site 1,000 feet from the cemetery. At that distance most of the noise associated with training exercises would have decreased to be near or below ambient noise levels.

1.7.8 Hazardous Materials

On-site hazardous materials were identified on the site in the Phase I Environmental Assessment completed September 2000 by the EPA. The city will develop and implement a plan to properly dispose of or destroy the hazardous materials noted in the EPA inventory.

1.7.8.1 BRC

At the BRC, materials that might be classified or handled as hazardous are products which would be used for equipment maintenance and the composting process. These types of wastes would be disposed of at an off-site EPA-permitted hazardous waste facility; therefore, no impacts associated with these materials are anticipated. Once the BRC is in operation, the only material that might create unsafe conditions is the polymer feed chemical which would be contained inside a curbed area to prevent unplanned mixing with water. The project would meet all city, state and federal standards for environmental protection, health and safety.

1.7.8.2 FTC

Materials that could be considered hazardous at the FTC would be limited to consumer products used for routine maintenance and house keeping.

1.7.9 Security

The entire property is now posted with “no trespassing” signs and is closed to all public access except by registered members of federally recognized tribes, adjacent property owners and their caretakers (Valmont Cemetery, Xcel and telecommunications site), city staff, consultants to the city and members of the public invited as part of the public review process. One of the primary benefits of the proposed FTC and BRC projects would be the additional security provided to the cultural and natural features of the site. The presence of city and county personnel on this site during the day would contribute to security of the buildings, including the historic mill and the adjacent cemetery.

1.7.10 Resource Conservation

The equipment required to dewater and treat the biosolids, and to pump domestic water to the project site would require approximately 1,800 hp. The compost process would require more electrical power than the current Class B biosolids processing program though power consumption of the dewatering facility would be similar regardless of location. The use of diesel fuel to transport biosolids to eastern Adams County under the existing land application program would be eliminated.

The Class A composting material produced at the BRC would be distributed and marketed for soil conditioner and fertilizer. This diverts recyclable materials from landfills and offers an alternative to chemical fertilizers.

Building construction will be in conformance with adopted City of Boulder energy codes to include a variety of resource conservation techniques and features. Green building features would be considered and utilized, where applicable, in the construction of the biosolids compost and dewatering facilities. In addition, energy-saving devices such as high efficiency motors and lighting systems would be incorporated into the design.

1.7.11 Vegetation

There would be short-term impacts on the existing vegetation from construction activities; however, Best Management Practices (BMPs) would be used to minimize these impacts.

Removing noxious weeds and planting native vegetation to improve vegetative recovery after construction will improve the Valmont Butte property. Landscaping improvements on the site will incorporate native species whenever possible.

Planting design will be in accordance with Xeriscape principles and Boulder's landscape standards. Selected plants would be compatible with Colorado's regional climate and microclimate conditions on the site. Conversion of bare ground as a result of construction and landscaping improvements will likely reduce wind erosion on the site.

While not specifically intended to improve habitat, the improvements at the Valmont Butte site would include placement of facilities and cover materials over an existing ore mill tailings cap. This would make it more difficult for wildlife, particularly prairie dogs, to contact the capped materials.

1.7.12 Birds

Removal of the existing pole-sized Russian olive and cottonwood trees in the location of the FTC would result in the loss of several magpie nests and potential nesting sites for other birds. The proposed construction of the FTC would include the introduction of new trees to replace those removed. Project activity on the site would comply with provisions of the Migratory Bird Treaty Act (MBTA). The rock outcrops on Valmont Dike that may be used as perch sites by raptors have been preserved as open space.

1.7.12.1 Burrowing Owl

Although no burrowing owls have been observed on the Valmont Butte site, the city would commit to using best practices when dealing with potential burrowing owl locations. It is possible to kill burrowing owls inadvertently during construction or earth moving projects. In an effort to avoid accidental killing of burrowing owls, the Colorado Division of Wildlife has drafted suggestions for conducting clearance surveys in areas subject to construction projects during the period from March 1 through October 31.

1.7.12.2 Bald Eagle

The site does not contain a nest site or essential winter roost site as defined by the Northern States Bald Eagle Recovery Plan (USFWS 1983).

1.7.13 Black-tailed Prairie Dogs

The prairie dog population has expanded significantly at the Valmont Butte site over the past 3 to 5 years, as has been the case throughout the Boulder Valley. Approximately 56.6 acres have been mapped on the site containing a range of approximately 700 to over 1,100 prairie dogs (City of Boulder 2003a). This represents approximately 56 percent of the entire property.

The BRC and the FTC have been designed to minimize, to the greatest extent possible, impacts to the prairie dog colony. Although not all of the prairie dog colony would be disturbed, the proposed project would necessitate the removal, relocation and/or humane euthanasia of a significant number of the prairie dogs. Every effort will be made to relocate as many prairie dogs as possible; however, the city does not have any areas of OSMP land available for prairie dog relocation at this time or in the foreseeable future.

Reduction in size of the prairie dog colony could adversely affect potentially significant foraging area for raptors, including the bald eagle.

Those prairie dogs impacted by the project would be handled in accordance with policies and guidance established by city policy. Prairie dogs located in areas unaffected by the proposed project would remain where they are on the site.

The City of Boulder is currently developing an interdepartmental policy for managing prairie dogs on city lands. See Section 7.13 for more information about prairie dog management.

1.7.14 Wetlands/Water Issues

1.7.14.1 Wetlands

Wetlands on the site occur in a small drainage on the east side of the site. Wetland vegetation in the drainage is likely supported via seepage from the Leggett-Owen Reservoir. No permanent wetland impacts are anticipated. Should any disturbance occur, all disturbed wetland and buffer areas would be restored. Restoration would include seeding, planting and/or sprigging with appropriate, native vegetation to meet the requirements of applicable federal and city permits.

1.7.14.2 Water Quality Issues

During Construction

During construction, temporary impacts to groundwater quality associated with trench dewatering activities along the pipeline ROW may occur. Dewatering Best Management Practices at the construction site would minimize these impacts to the maximum extent possible.

After Construction

Impacts to water quality will be minimal as a result of the construction of the BRC and the FTC. Within the BRC site, there would be two ponds: one for the retention of stormwater runoff from the biosolids process buildings and driveways (Biofilter Leachate Compost Area Runoff Retention Pond), and one for water quality detention for both the BRC and FTC.

The runoff from the retention pond would be controlled so that it does not discharge from the facility. The water quality detention pond would be designed to capture sediment and runoff flows from

its watershed and to avoid impacts to the small wetland at the northeast corner of the site. Discharge from the detention pond would be at a rate similar to the rate experienced from the site prior to development. The reduced discharge rate would reduce erosion, increase infiltration from precipitation and reduce peak flows from drainage.

Any impacts to the surface water quality would be mitigated by: a) four existing manmade earthen barriers that would capture runoff during a storm event, and b) a storm water management plan that would be implemented.

The existing ephemeral stream at the northeastern corner of the property appears to flow only in direct response to high-intensity precipitation or snowmelt and drains into Butte Mill Ditch. It would not be impacted during or after the completion of the project.

The proposed BRC and FTC facilities would impact some vegetation on the site and therefore would increase the amount of impervious ground. The net result would be an increase in the rate and amount of surface runoff that may contain a variety of petroleum products picked up from parking lots and roads on the site. The proposed water quality detention pond at the eastern portion of the site would remove a majority of these substances prior to outfall into the receiving creek.

1.7.14.3 Fire Training Center Water Use

Water would be the primary combustion-extinguishing agent used by the fire departments. Water used for pump testing would be reused from a buried tank. A hose connects the truck's pump to the tank, water is withdrawn, and the stream from the hose is directed back into the same tank. The site design would collect and capture runoff into a water quality detention pond at the east end of the BRC site.

1.7.15 EPA Site Reassessment

During the CRG process, the Environmental Protection Agency (EPA) was contacted regarding environmental concerns at the Valmont Butte site. The EPA was not satisfied that a 1999 Colorado Department of Public Health and Environment Valmont Butte site analysis adequately addressed the various environmental concerns.

For this reason, the EPA decided to move ahead with a site reassessment. URS Operating Services and the EPA completed a hazardous materials

inventory on the site Aug. 18 - 20, 2004, with field sampling conducted Aug. 23 - Sept. 3, 2004.

1.7.15.1 Conclusions

The EPA reassessment, released in January 2005, reported that “analytical results do not indicate there would be a significant risk related to the intended use of the property.” The assessment also stated that the risks to human health or the environment on adjacent lands are insignificant, and though on-site contamination is present, it can be appropriately managed. The EPA recommended that good management practices be followed during the development and ongoing operations proposed for the property to mitigate pre-existing on-site contamination.

The EPA report urged that on-site contamination from historic milling activities be addressed. Present day on-site findings include:

- Primary contaminants present in the tailings pond and soil from the milling activities are radium-226, lead and arsenic.
- In some places the tailings are not covered and/or have been brought to the surface by prairie dogs.
- The probability of metals leaching out the tailings into groundwater is not significant, and there is no evidence that water is entering any downstream surface pathway.
- Hazardous substances remain on the site in transformers, drums and other containers but there is no evidence of hazardous releases from these sources.
- Although one of the wells sampled north of the site showed an elevated arsenic level, it could not be attributed to the site. No other elevated findings were found in other domestic wells sampled.

1.8 Conclusion

The Fire and Public Works departments are in need of new facilities to continue to provide critical services important to the Boulder community. The Fire Department is in need of a new fire training facility in which to train fire fighters in preparation for emergency response to life threatening situations. The Public Works Department is in need of updated facilities to provide advanced treatment for the solids stream generated at the wastewater treatment plant (WWTP).

1.8.1 Critical Facilities

The Fire Department's needs are immediate because the existing fire training center is old, undersized, in need of extensive repair, and cannot meet Boulder County's existing needs for the numerous municipal fire departments and fire protection districts. The existing two-acre facility has become surrounded by development, eliminating the potential to expand the facility's size. Additionally, the site's existing location in north Boulder requires a significant commute for fire fighters located in southern and eastern Boulder County.

Boulder County residents recognized this need for new fire training facilities by passing a county-wide sales tax fund in 2001 to provide \$6.2 million dollars for the development of three county fire training centers. The majority of the funds are allocated for the primary fire training center to be located in the central part of county to serve the Boulder community.

The Public Works Department needs to upgrade its WWTP solids processing facilities to produce a final product which would have a beneficial use for the community and would meet more stringent environmental regulations. The WWTP currently transports its Class B biosolids 65 miles to east Adams County where the solids are agriculturally (land) applied. Land application sites are becoming less available because of significant Colorado Front Range development and stricter land application regulations.

Nationwide, biosolids management trends are moving towards additional processing and treatment to produce a higher quality "Class A" product which is safe for home and garden use as a soil amendment and fertilizer. The proposed composting facility meets multiple city goals through recycling, conservation, addressing city needs within the community, and interfacing with multiple city departments to achieve these goals.

1.8.2 Comprehensive Alternative Site Analysis

The city has comprehensively evaluated options to meet the Fire and Public Works departments' needs. The city has, on more than one occasion, screened available Boulder County land to identify potential sites to develop a Fire Training Center and a Biosolids Recycling Center. The city purchased the Valmont Butte site in September 2000 for the express purpose of constructing the FTC and BRC, and preserving additional acreage for the Open Space and Mountain Parks Department.

The Valmont Butte site is centrally located in Boulder County and in close proximity to the WWTP. This site is of adequate size, has a natural land buffer from the local community, and could easily be served by water,

sewer and power utilities. The site could be annexed by the city. The Valmont Butte site has been comprehensively compared with 14 other Boulder County sites and has been found to have numerous advantages over every other site. The city has invested \$2,575,000 dollars (less than \$26,000/acre) in the Valmont Butte site for the purchase price alone, not including the analysis, evaluation and public process associated with the CEAP completed to date.

1.8.3 Summary

It is critical that the city move ahead with the proposed FTC and BRC facilities to ensure that these services for the Boulder community are provided well into the future. Boulder County real estate is very expensive and large parcels of land, which permit development consistent with the zoning regulations, are seldom available. It is unlikely that the city would have such a great opportunity to meet so many city goals through the acquisition of a single piece of property. The Valmont Butte site represents an opportunity for the city to ensure the viability of critical city services in a way that is consistent with the goals, priorities and values of the Boulder and Boulder County communities.

2.0 PUBLIC PROCESS

2.1 Overview

Community involvement is widely recognized as critical in any city project. Staff is committed to conduct an open and inclusive public process that would provide a high level of project information and to obtain meaningful involvement so that concerns may be aired and issues addressed. The purchase of Valmont Butte and the evaluation of use proposals are no exceptions.

In 1998/1999, the city's Public Works and Environmental Affairs departments began working with Western Disposal Services to address solid waste and yard waste disposal through a jointly owned and operated composting facility. The city and Western Disposal began to identify potential sites for such a composting facility. The Valmont Butte Corporation, owner of the Valmont Butte site, approached the city and Western Disposal regarding a possible sale of the property.

The city and Western Disposal did not wish to compete against one another in purchasing the property. Therefore, the city took the lead in developing a purchase agreement for the property, and in September 2000, the city purchased the Valmont Butte site for \$2,575,000.

The proposed use of the Valmont Butte site for biosolids processing and fire training was presented publicly when the city purchased the Valmont Butte property. Purchase of the property was discussed at an Open Space Board of Trustees meeting on Aug. 9, 2000, when public input was received and details about the proposed use of the land was presented. The purchase and proposed use of the Valmont Butte property were also part of the staff briefing at the Aug. 21, 2000 Water Resources Advisory Board (WRAB) meeting.

The purchase and proposed projects were discussed at two City Council meetings, Aug. 15, 2000, and Sept. 5, 2000. These meetings were open to the public, and public input was taken. Council minutes are available documenting these presentations.

Notice of all of these public meetings appeared prior to the meetings in the *Sunday News from City Hall* section in the *Daily Camera*. The *Daily Camera* published an article on the subject on Sept. 30, 2001.

2.2 Project Proposals

The city's Community and Environmental Assessment Process (CEAP) is the basis for the review of these projects. In the end, five advisory boards will make a recommendation to City Council concerning whether to pursue these projects at this location. Staff is planning a community open house, a consolidated advisory

board hearing, and a study session of the City Council, followed by its public hearing and decision.

In 2003, the city Utilities Division began meeting with interested persons about the proposed recycling center. It became clear from questions raised that a comprehensive approach was needed that would address all parts of the proposal. The city developed a thorough and inclusive review of these proposals with robust public participation as an integral element.

Following community input, the city decided to create a more comprehensive and integrated process to address community interest and to respond to community feedback. To ensure that the city's various projects and departments were providing regular community feedback regarding the Valmont Butte site, the city's decided to address the separate Valmont Butte site development proposals as the a single Valmont Butte proposal.

2.2.1 Public Meetings

City staff conducted a series of public meetings in the fall of 2003 in an effort to provide the local community information and an opportunity to comment on the city's proposed plans for the Valmont Butte site. Notices were sent to over 100 residents and businesses covering a one-half mile radius from the Valmont Butte site. All public meetings were also advertised in the *Daily Camera's News from City Hall* prior to the meetings.

2.2.1.1 October 2003

A public meeting was held on Oct. 1, 2003, in the meeting room at the Boulder County Recycling Center at 1901 63rd St. in Boulder to provide a forum for informing citizens and soliciting public input regarding the proposed Biosolids Recycling Center. City Fire Department staff were in attendance to provide information on the proposed FTC facility.

There were approximately 30 people in attendance at this meeting. City staff presented a 30-minute project slide presentation followed by three and one-half hours of questions and answers (Q&A). The associated Q&A document from questions raised at the meeting was mailed to the community along with a notice for the second public meeting. The Q&A documented is attached as Appendix B.

2.2.1.2 November 2003

A second public meeting was held at the Valmont Community Presbyterian Church, 3262 61st St. on Nov. 12, 2003. There were

approximately 60 people in attendance at this meeting. The purpose of the second public meeting was to discuss the Q&A document, provide the community with an updated project schedule and articulate steps the community could take to stay involved with the project. This meeting was a follow-up to the first public meeting to answer questions generated at that meeting and to entertain new questions and comments. Public Works and Fire Department staff presented information and answered questions on the proposed BRC and FTC facilities respectively. Attachment C is a Q&A document from the November 2003 meeting.

2.2.2 Water Resources Advisory Board (WRAB)

An overview of the BRC project was presented to the Water Resources Advisory Board at its regular meeting on Aug. 18, 2003, held at the Municipal Service Center, 5050 E. Pearl St.

The Valmont Butte proposal was presented a second time to the WRAB at the Dec. 15, 2003 meeting. Various members of the Valmont community were in attendance and had an opportunity to ask the board questions.

2.2.3 Site Tours

The city conducted several site tours in order to provide the City Council and interested board members an opportunity to visit the site and get a better understanding of existing site conditions and the proposed facilities. The two-hour tours were conducted on April 17, 2004 and June 8, 2004. The tour format involved a walk through the site that included verbal presentations by city staff and Valmont community members at several key locations. These presentations included the following:

- Historic mill overview
- OSMP property and intended uses
- Valmont Cemetery
- FTC and the proposed uses
- BRC and proposed uses

City staff provided presentations on the historic mill, OSMP property, and the proposed FTC and BRC facilities. Additionally, Carol Affleck (Rural Historic Valmont) provided an overview of the Valmont Cemetery. For each tour presentation, city staff marked the proposed buildings with stakes and ribbons to show the approximate size and location of the proposed facilities. A questions and answers period followed each presentation.

2.2.4 Other Public Process/Outreach Efforts

Creative and cost-effective methods to reach the various audiences, inform them about the proposed projects and gather input have been and would continue to be utilized. A Web site, www.valmontbutte.net, was created on the city's Web page. Complete descriptions with renderings of each proposal, updates on the CEAP, site security issues, and opportunities for public input and involvement can be found on the Web site, which is updated on a regular basis.

A Valmont "e-news" group has been created, which allows city staff to e-mail updates, notices of meetings and other topics of interest related to the Valmont Butte site and to the proposals. So far, over 125 persons have signed up for and receive messages on the Valmont Butte group e-mail list.

City staff has conducted regular, informal briefings with City Council, the media and city boards. Staff regularly responds to e-mails and letters received from the community. Mailings of minutes, notices of meetings or other pertinent information are mailed and e-mailed as necessary.

These efforts would continue and expand, if needed, as the CEAP moves forward. The public process is constantly evaluated and refined, based upon input received from the public, the city boards and City Council.

2.3 Community Review Group (CRG) Process

As part of the Valmont Butte proposal, the city developed a Community Review Group which was charged with reviewing and providing comments on the draft CEAP in an effort to help develop a comprehensive document. The CRG involved about 29 members (excluding city staff) and represented various interests and groups including the following:

- Valmont community residents
- Local business owners (LaFarge, Xcel energy, EcoCycle, Western Disposal, etc.)
- Local interested groups (Indian representation, Colorado Commission on Indian Affairs, Boulder County Nature Association, Rural Historic Valmont, Valmont Cemetery Association)
- Fire and biosolids community experts
- City board members (Environmental Advisory Board, Open Space Board of Trustees, Planning Board, and Water Resources Advisory Board)
- City Council members

The charge to the Valmont Butte Proposal Community and Environmental Assessment Process Community Review Group was to assist city staff in

improving the information that will form the basis of the city decision-makers' determination on whether Valmont Butte is an appropriate location for the Biosolids Recycling Center and the Fire Training Center.

In order to improve the CEAP information, the following questions guided the work of the Community Review Group:

1. Is there further information that could be included in the CEAP document?
2. Is there information in the CEAP document that needs further clarification?
3. Are there impacts from the proposals that need to be addressed in a different way?
4. Are there other ideas for additional mitigation measures you would like considered? e.g., "I think it would be a good idea for the city to consider doing x in order to mitigate the impact of y....."
5. What other options are there for accomplishing the goals of the city in other ways? e.g., "Here is an idea other than the current proposal for the city to consider....."

The following people volunteered their time for this effort:

City Council Representatives: Crystal Gray, Tom Eldridge
Open Space Board of Trustees: Bruce Bland
Planning Board: Elise Jones, Simon Mole
Water Resources Advisory Board: Jeannette Hillery
Environmental Advisory Board: Kathie Joyner
Boulder County Land Use: Pete Fogg, Denise Grimm
Valmont community: Carol Affleck, Lee Ann McGinty, Cynthia Mitchell, Don Rogers
Farmers: Cathy Bauers, Bob Munson
Indian Tribal monitor: Gary Brown
Colorado Commission on Indian Affairs: Karen Wilde Rogers, Steven Moore
Indian community members: Nick Halsey, Sue Savage
Mining history expert: Jay Fell
Xcel Energy, Valmont Plant: Tom Hess
Western Disposal: Gary Horton
EcoCycle: Eric Lombardi
La Farge Recycled Concrete Plant: Myron Moorhead
Boulder Rural Fire Department: Bruce Mygatt
Historic Boulder: Chuck Sanders
Boulder County Nature Association: Scott Severs
CU Department of Civil, Environmental and Architectural Engineering: JoAnn Silverstein

2.3.1 Meetings

Initially, five, three-hour CRG meetings were held at the East Boulder Community Center on Wednesdays beginning in March and proceeding

through May 2004. Each meeting had a specific outline and agenda, with presentations that reflected the various CRG interests. The meeting format included a “U-shaped” table to facilitate discussion among group members. City staff and associated consultants were in attendance at the meetings to answer questions and provide clarification when requested.

The intention of the CRG process was to provide a forum for input regarding the Valmont Butte Proposal. In order to develop complete and thorough information from the community concerning the impacts of the proposed projects, the CRG reviewed initial drafts of the conceptual site layout and CEAP document.

Appendix D is a *CRG Question and Answer* document which addresses questions/comments raised over the course of the five meetings. This resulted in some 250 comments, concerns and issues for staff’s consideration and response.

CRG feedback has been incorporated into the CEAP to ensure a comprehensive analysis of the issues. The CEAP document in its current form includes information, suggestions and comments from the CRG on a myriad of issues. The CEAP document will be distributed to the CRG members prior to a sixth meeting scheduled for March 2005.

2.4 Indian Consultation

Due to the significance of Indian resources on the site, as well as the city’s commitment to consult with Indian tribes on issues associated with the management and use of public land where Indian resources are known to exist, a formal Indian consultation will take place in April 2005.

An earlier Indian consultation between the city and Tribal Representatives was held in Boulder on Feb. 19, 2004. At that consultation, the city asked for guidance concerning access to the Valmont Butte site.

Under the guidelines recommended during consultation with tribal representatives, the city has since followed a procedure to allow use of the site for ceremonial purposes by registered members of federally recognized tribes. At the consultation, the tribal representatives also recommended that the entire site be closed to any other type of public access until after the CEAP process was complete and decisions could be made about the future use of the site.

At the February 2004 consultation, the tribal representatives appointed Gary Brown, Tribal Monitor and member of the Northern Arapaho tribe to participate in the CEAP process and to speak as an expert on Indian cultural preservation issues.

The viewpoint of the tribes as a whole can only be obtained through the formal consultation process. It is hoped that all questions can be answered at the 2-3 day formal consultation in April 2005 which will take place in the Boulder area. Invitations will be issued to the 13 tribes that are parties to the two existing Memoranda of Understanding (MOUs) with the city. Representatives of the Colorado Commission on Indian Affairs (CCIA) have also expressed an interest in inviting other authorized tribes to the consultation. Staff is working with the CCIA to issue these invitations.

3.0 PROGRAM ALTERNATIVES

3.1 Open Space and Mountain Parks

Purchase of the 26.9-acre ridgeline and outcrop of the butte for OSMP purposes was appropriate given its visual prominence, the qualities that led to its designation as a Natural Landmark in the Boulder County Comprehensive Plan (BCCP) and its relatively undisturbed state. The balance of the property does not meet Open Space criteria due to the extensive site disturbance and long-term occupation by a series of industrial uses. Proposed preservation of 78 percent of the entire property, including FTC and BRC sites, as open/landscape area would retain open land characteristics on most of the land. The proposed weed management and revegetation on the disturbed areas of the site would enhance other open land characteristics and potentially improve habitat and wildlife use of the area.

This acquisition met the following Open Space Charter purposes:

- a) Preservation...of natural areas characterized by or including terrain, geologic formations...that are unusual, spectacular, historically important, scientifically valuable, or unique.
- b) Preservation...of scenic areas or vistas.
- c) Utilization...of land for limiting urban sprawl and disciplining growth.
- d) Utilization... of non-urban land for spatial definition of urban areas.

3.2 Biosolids Recycling Center

3.2.1 Overview

Wastewater treatment and residuals management is a critical operation for any community. The city's Public Works Department provides this service for the Boulder community. The city's Wastewater Treatment Plant has been in operation since 1960. Since that time, the plant has undergone numerous upgrades to address more stringent regulations. Municipalities are continually upgrading existing treatment processes and new ones to meet more stringent effluent permit regulations set forth by the Colorado Department of Public Health and Environment. The City of Boulder is proposing these new facilities to meet revised CDPHE regulations.

The city's dewatering facilities at the WWTP are currently undersized and beyond their useful life. The centrifuge units are in need of replacement to meet current demand, and to address significant operational and maintenance issues. Whether the city maintains its current land application program or transitions to a biosolids composting operation, the dewatering facilities would have to be replaced in the immediate future.

The primary BRC project goals are:

- To ensure the WWTP's long-term solids-processing ability to meet CDPHE regulations.
- To develop new biosolids processing facilities to produce a Class A product.
- To develop a Class A product which would have greater beneficial reuse options for the community.
- To abandon the Class B land application program.

This project has been identified in the city's 1997 *Biosolids Management Study* (RTW 1997) and the more recent *City of Boulder, Wastewater Utility Plan* (Brown & Caldwell 2002) adopted in 2003. The project meets multiple city goals as described below.

1. **Wastewater Treatment:** The BRC would allow the WWTP to operate within its permitted limits, established by the Colorado Department of Health, Colorado Discharge Permit System, (CDPS) No. CO-0024147. Without a means to manage the biological solids created during the treatment of Boulder's wastewater, the treatment facility would not be able to treat the wastewater to the levels required by the permit.
2. **Water Quality:** Enhancements for water quality include producing a higher quality biosolids product that is more protective of the environment where the materials are recycled. The proposed BRC represents a significant increase in solids processing capacity and reliability; therefore, it would help to protect water quality in Boulder Creek by ensuring the solids handling process does not create bottlenecks or upsets in the liquid treatment processes at the WWTP.
3. **Biosolids Management:** The BRC would provide the city a means to produce "Class A" materials, the highest quality biosolids product achievable. By producing a high-quality product, the city is providing the most protection to the environment and public possible. "Class A" biosolids have the widest range of end uses and therefore can be managed more reliably. The higher quality product has more potential to be recycled.

Because of its increased size, the new dewatering equipment would not fit in the existing dewatering building. For this reason, dewatering modifications at the WWTP would likely involve the construction of a new building in addition to the two or three new centrifuge units. The estimated cost associated with the dewatering modifications alone is \$7 million.

The WWTP produces Class B biosolids from the digestion process. In order to meet the regulatory requirements for the highest quality material (Class A), additional processing is needed. It is expected that over time, the use of Class B materials would be discouraged or not be allowed by local and potentially state or federal regulations, thus necessitating additional treatment of all biosolids to the higher quality level. Composting is proposed as the additional treatment process since it produces the high level of quality to meet the regulatory considerations. The compost process also produces a material that is desirable for use as a soil amendment/additive. The addition of compost as a soil conditioner to any area improves the water-holding properties of the soil and reduces run off to nearby surface water or groundwater. This type of product therefore enhances the city's ability to recycle and practice beneficial reuse.

The BRC would be used for:

- storing and dewatering liquid biosolids;
- storing dewatered biosolids cake and woodchips (or other similar amendments);
- composting the dewatered biosolids to produce Class A material suitable for reuse as a soil amendment or conditioner; and
- storing the finished compost product.

The liquid biosolids to be dewatered and composted would be produced at the WWTP. The liquid biosolids would be pumped via a new 6-inch pipeline to the BRC. Liquid biosolids storage, centrate handling/management facilities and other ancillary systems required to complete the system would be required at the BRC.

3.2.2 Program History

1968 to 1980: The solids removed or generated at the WWTP were lime-stabilized and land-filled.

1980: The WWTP was expanded to include anaerobic digestion facilities, which provided more efficient pathogen reduction and allowed the city to begin applying Class B biosolids (an EPA designation) in Boulder County. Class B biosolids can be used as a fertilizer and soil amendment on agricultural lands.

1993: Public Works Utilities and Open Space completed a screening of existing Open Space land to determine if biosolids recycling was feasible on several parcels. Additionally, Utilities completed a screenings study of Boulder County land to determine acceptable locations for possible land

purchase. Discussions with Boulder County Open Space were initiated to see if there was interest in a joint purchase.

1994: Public Works Utilities purchased 160 acres at 95th Street and Lookout Road. After purchasing this property, the city considered a large-scale property acquisition program which would involve the purchase of various properties (1,400-1,600 acres) located between Lookout Road and Mineral Road, and between 79th Street and State Highway 287.

A CEAP was completed in 1994. The CEAP recommended that staff continue to purchase Boulder County property. The Utilities Advisory Board (what is now WRAB) felt that the CEAP was incomplete and that additional analysis was required. City Council, however, confirmed the direction of purchasing additional property for land application in Boulder County and directed staff to look at other approaches for biosolids recycling.

1995: The city began trucking biosolids to eastern Adams County for agricultural (land) application.

City Council's request to research other recycling approaches precipitated the 1996 Biosolids Management Study. The city did not purchase additional property in Boulder County for land application pending the results of this study.

1996: The City of Boulder hired RTW Engineers to complete a Biosolids Management Study. This study evaluated 10 Class A stabilization alternatives. Class A biosolids involves providing additional treatment beyond the Class B requirements, and further breaking down the organic material and destroying pathogens. In the compost process, Class B biosolids are mixed with wood chips, aerated and allowed to compost for several weeks to produce the Class A biosolids. The finished compost can be used on home gardens, lawns and parks. The two preferred Class A management alternatives selected by city staff, with input from a Citizen Study Review Group, were: 1) a city-owned and operated composting facility, or 2) a privately owned and operated windrow composting facility. Based on the results of this study and the success of the land application program in eastern Adams County, the city abandoned plans for acquiring additional property for land application in Boulder County. Instead, city staff focused attention on the preferred Class A management alternatives.

1998 and 1999: The city's Public Works and Environmental Affairs departments began working with Western Disposal Services to address solid waste and yard waste disposal through a jointly owned and operated composting facility. The city and Western Disposal began to identify

potential sites for such a composting facility. The Valmont Butte Corporation, owner of the Valmont Butte site, approached the city and Western Disposal regarding a possible sale of the property. The city and Western Disposal agreed to not compete against each other in the purchase of the property, so the city took the lead in developing a purchase agreement.

August 2000: The land purchase was approved by City Council on Aug. 15, 2000. Western Disposal may play a role in the future as a supplier of yard waste or woodchips (compost amendment material) to the facility but does not have a property interest in the Valmont Butte site.

September 2000: The city purchased the Valmont Butte site for \$2,575,000 million as a joint purchase of the Public Works, Fire, and Open Space and Mountain Parks (OSMP) departments.

2002: The city of Boulder hired RTW Engineers to provide the studies, analysis and design for using the Valmont Butte site to accommodate a Biosolids Recycling Center.

2003: Public Works/Utilities completed several project tasks including an alternatives analysis, which culminated in a Preliminary Design Report. Upon completion of the Preliminary Design Report, staff conducted public meetings in October and November in an effort to reach out to the local community to gather input and to better understand the community's concerns. Staff presented updates to the Water Resources Advisory Board in August and December.

Over the years, the City of Boulder Utilities Division purchased three properties for the biosolids program. All of these sites were agricultural properties initially intended for a Class B agricultural land application program:

- Biddle property located at 75th Street and Arapahoe Road (67 acres), purchased in 1966
- The Oddfellows property located at Lookout Road & 82nd Street (80 acres), purchased September 1991
- 95th Street and Lookout Road (160 acres), purchased June 1994

These three properties and the Valmont Butte property were reviewed for potential development of a Class A composting facility. The Public Works Department sold these three properties to the OSMP Department in 2000 upon the purchase of the Valmont Butte site.

3.2.3 Program Alternatives

The Public Works Department Utilities Division has identified and evaluated five program alternatives to address the city's biosolids management program needs. These alternatives include the following:

1. Continue existing program
2. Privatized composting
3. Dewatering and composting facilities at the WWTP
4. Dewatering facilities at WWTP and composting facilities off site
5. Dewatering and composting facilities off site

Alternatives 1 and 2 involve short-term solutions with unknown long-term consequences. Alternatives 3, 4 and 5 involve a major transition from the city's existing biosolids management program through the development of Class A biosolids composting process. These alternatives, which are similar in equipment and costs, differ significantly by the proposed location. The following sections provide a brief description of the alternative followed by a list of pros and cons.

3.2.3.1 Program Alternative 1 - Continue Existing Program

Alternative 1 involves continuing the existing Class B biosolids agricultural (land) application program. Under this alternative, the city would continue to truck dewatered biosolids to eastern Adams County. This alternative would require the installation of new dewatering equipment to replace the existing units, as well as various other "solids stream" plant modifications to address the upcoming liquid stream expansion's plant impacts.

Pros:

1. This alternative addresses the WWTP's short-term dewatering needs.
2. The city would maintain control of its biosolids management program.
3. This alternative would be the least expensive option.

Cons:

1. This alternative does not address the city's long-term biosolids management program needs.
2. This alternative merely postpones the city's direction to maintain its leadership and stay atop nationwide biosolids management program trends by transitioning to a Class A operation.
 - a. The city would only experience greater difficulty attempting to acquire Boulder County land in the future.

- b. There are fewer land application sites available every year because growth and development along the Front Range communities have made rural land increasingly scarce.
- c. More stringent local, state and federal land application regulations are forcing communities such as Boulder to transition to a Class A biosolids process.

3.2.3.2 Program Alternative 2 - Privatized Composting

Alternative 2 involves contracting with a privately owned and operated company to compost the city's biosolids. The 1997 Biosolids Management Study identified privatized composting as one of the preferred alternatives. This alternative would involve a private contractor picking up the city's biosolids at the WWTP and trucking the biosolids to its composting facility. The private contractor would then market the compost product.

This alternative would require the installation of new dewatering equipment to replace the existing units, as well as various other "solids stream" plant modifications to address the upcoming liquid stream expansion's plant impacts.

Pros:

1. This alternative addresses the WWTP's short-term biosolids management program needs.
2. This alternative would permit a reduction in the biosolids management program vehicle fleet because the biosolids would be transported by others.
3. This alternative would be one of the least expensive options.

Cons:

1. This alternative does not address the city's long-term biosolids management program needs.
2. This alternative leaves the city vulnerable by relinquishing control of its biosolids management program.
 - a. The city's fate is in the hands of a single private contractor as there is only one located in Colorado
 - b. By abandoning the land application program, the city would have to sever its relationship with the farmers in Adams County.
 - c. In the event the privatized compost contractor ceases operations, the city would no longer have the ability to dispose of its biosolids.
 - This vulnerability would be apparent not only in the city's difficulty addressing its short-term

needs but also in meeting its long-term needs as available Boulder County land parcels would be more expensive and more scarce.

- d. Since only one privately operated compost contractor operates in Colorado, the city is vulnerable not only to that company's viability but also to potential price fluctuations.
 - e. This short-term solution does not address the city's 20-year fiscal planning needs.
3. This alternative continues to address the city's biosolids management program needs outside of Boulder County.
 4. The city would have to buy the Class A compost product back from the private contractor in order to reuse the material within the city for landscaping projects at parks, etc.
 5. The private contractor would commingle Boulder's biosolids with other materials from other sources for composting and potentially increase the city's overall liability. The city would require a performance bond, pollution damage insurance and environmental risk indemnification to minimize concern.

3.2.3.3 Program Alternative 3 - Dewatering and composting facilities at the WWTP

Alternative 3 would involve locating the biosolids dewatering and composting facilities at the WWTP. The 1997 Biosolids Management Study identified this as one of the other preferred alternatives. Upon further analysis, it became apparent that locating the proposed facilities off site would more adequately address the various WWTP needs.

Pros:

1. New dewatering and composting facilities would address the biosolids management program's short- and long-term needs
2. The city would be providing additional treatment of its biosolids to produce a Class A compost product with significantly greater end use options.
3. The city would have secured a long-term solution to one of its critical facilities.
4. This alternative would not require an off-site land parcel
5. This alternative would not require a pipeline or transport vehicles to convey the biosolids to a remote site.

Cons:

1. The WWTP has limited available acreage for additional "solids stream" facilities, as all available acreage must be preserved for future "liquid stream" expansions. Future liquid stream expansions would be necessary to meet more stringent effluent

- discharge permit regulations. The city is currently designing a \$30 million liquid stream expansion.
2. To accommodate the biosolids composting facilities at the WWTP, the flood berm which surrounds and protects the plant would have to be expanded.
 - Expanding the flood berm would require FEMA approval because of its impact on the Boulder Creek floodplain.
 3. The WWTP has current permitted odor regulations. Siting the biosolids composting facilities at the WWTP would require more expensive odor control facilities than if the facilities were located elsewhere for the following reasons:
 - a. Baseline odors are already generated at the plant.
 - b. The current permit does not allow site odor increase.
 - c. Odor dispersion in valleys (such as Boulder Creek) is generally less favorable than other locations.
 - d. Residential communities are located close to the WWTP.
 4. The proposed facilities would likely encounter significant opposition from the surrounding community.
 5. Construction costs to match the WWTP's existing buildings architectural design would likely be higher.
 6. Since this alternative would be expensive, it would require a significant wastewater utility rate increase for city residents.
 7. There would likely be community opposition from Gunbarrel and Heatherwood residents.

3.2.3.4 Program Alternative 4 - Dewatering facilities at the WWTP and composting facilities off site

Alternative 4 would involve constructing new dewatering facilities at the WWTP and locating the composting facilities off site. This alternative would require that dewatered biosolids be trucked off site rather than conveyed through a pipeline (Alternative 5). The biosolids transport alternatives (trucking versus piping) were evaluated in great detail in Technical Memorandum (TM) No. 1, later summarized in TM 2 and the Preliminary Design Report.

The cost analysis showed that the piping alternative would have a slightly lower present worth cost compared to the trucking alternative; however, the capital costs for trucking would be significantly lower than pumping. Conversely, the annual operating costs for trucking would be much higher than for pumping. The selection of a preferred alternative was therefore largely based on the non-monetary considerations.

Pros:

1. New dewatering and composting facilities would address the biosolids management program's short- and long-term needs.
2. The city would be providing additional treatment of its biosolids to produce a Class A compost product with significantly greater end use options.
3. The city would have secured a long-term solution to one of its critical facilities.
4. This alternative would not require the temporary disruption and related impact of 75th Street and other local roads from the construction of a pipeline to transport biosolids off site.

Cons:

1. Trucking the biosolids along 75th Street and other local roads was seen as having a greater community impact than piping the biosolids through an underground pipeline.
2. Modifying the WWTP dewatering building or constructing a new one to accommodate larger centrifuges represented a greater challenge than constructing new facilities off site.
3. Constructing the dewatering and composting facilities at different sites would present WWTP staffing difficulties at two locations.
4. The proposed facilities would likely encounter significant opposition from local community.
5. This alternative would be expensive and would require a significant wastewater utility rate increase for city residents.

3.2.3.5 Program Alternative 5 - Dewatering and composting facilities off site

Alternative 5 would involve constructing new dewatering and composting facilities off site. These facilities are shown on the Conceptual Site Layout. (Figure 10)

This alternative would involve piping liquid biosolids in a new pipeline from the WWTP to an alternative site. The biosolids would be pumped to a storage tank located on site. New dewatering equipment (centrifuges) would remove a significant amount of water from the biosolids. The water removed in the dewatering process, centrate, would be conveyed back to the WWTP through a pipeline for additional treatment.

The biosolids would then be mixed with wood chips and composted for period of 21 days. At the end of the composting process, the compost material would be moved to a curing building for an additional 30 days. After the curing process, the compost material would be moved to the product-storage building, where

the compost would be available for pick up by local landscapers and city departments. The storage building would be designed to accommodate six months of compost through the winter months when there is limited compost demand.

Pros:

1. New dewatering equipment and composting facilities would address the biosolids management program's short- and long-term needs.
2. The city would be providing additional treatment of its biosolids to produce a Class A compost product with significantly greater end-use options.
3. The city would have secured a long-term solution to one of its critical facilities.
4. This alternative would not require biosolids-related truck traffic along 75th Street and other local roads because the biosolids would be conveyed in a pipeline to an off-site facility.
5. The biosolids management staff would be located at one facility.
6. Odor dispersion modeling will be more favorable at an off-site location not located in a creek valley.
7. Unlike the WWTP, an off-site location may permit city annexation.

Cons:

1. The proposed facilities have encountered local community opposition.
2. This alternative would be expensive and would require a significant wastewater utility rate increase for city residents.
3. This alternative would require a pipeline or transport vehicles to convey the biosolids to a remote site.

3.3 Fire Training Center

3.3.1 Overview

Fire training is a critical component of a comprehensive community fire protection plan. Originally, fire fighters only gained experience on the job fighting fires. In later years, live fire training was conducted in acquired buildings scheduled for demolition. In 1982, two Boulder fire fighters lost their lives and one was seriously injured when a live fire training session in an acquired building went out of control. Due to this tragedy, live burns are no longer conducted in acquired buildings. Eight years later, in 1990, a burn building was constructed at the Boulder Regional Fire Training

Center on Lee Hill Road to provide controlled, live fire training experience.

A new Fire Training Center would meet the following city goals:

1. Provide fire protection 24 hours per day with full-time trained personnel. – The FTC would allow the continued comprehensive training of city fire fighters to meet this goal from the Boulder Valley Comprehensive Plan. Trained fire fighters operate more efficiently and safely.
2. Have response time to the location of an emergency within six minutes from the time the call is received. – The centrally located FTC provides better opportunity to meet this Boulder Valley Comprehensive Plan Service Standard while fire fighters train. Fire units attending training can provide additional support for initial response crews for major incidents if they are close enough to the city.
3. Intergovernmental cooperation and solutions. – The Boulder Valley Comprehensive Plan encourages intergovernmental cooperation. Since 1974 the Boulder Fire Department has partnered with Boulder County and the other county fire departments in regional fire training. County-wide support for regional fire training was reiterated in 2001 when voters approved a tax to fund fire training, a part of which was the construction of this fire training center.

A new Fire Training Center would help Boulder County fire departments meet the following challenges:

- The existing FTC at Lee Hill Road is undersized, outdated, and in need of extensive repairs and modifications. The current facility is significantly undersized (two acres). Use of the facility has increased dramatically over the years to keep pace with the county's expanding fire departments and the increased range of services they provide the residents. The training needs of the county fire departments cannot be met with the existing facility.
- Over the years, land surrounding the existing Fire Training Center, which was vacant when built in 1974, has been developed. The site is not well-buffered. There are now many homes in the area, some within 100 feet of the Training Center property. (Figure 5) As development moved closer, the Fire Department modified its training methods to be a good neighbor. This has significantly compromised the Fire Training Center's capabilities.
- The burn building has been heavily used for 14 years. Engineers advise all functionality would be lost within a year or two. Replacement of that building would cost several hundred thousand dollars.

- Classrooms are limited in size and in poor condition due to age and use. Heating and air conditioning units regularly do not work. Restroom facilities are inadequate, and plumbing needs to be replaced.
- All of the hard surface driving area around the building is cracked or has been removed because it was a hazard.
- There is no area for driver training.
- The propane-training prop is too close to the residential area to be used regularly, and there is no other option for relocation on this site.

While better codes and fire safety education have reduced the number of structure fires over the past 25 years, we still have fires. In addition to other fire training exercises, live fire training is essential to ensure fire crew safety and competency. Competency also results in reduced community fire loss. For a detailed description of the various components of fire training, see Section 6.3, Fire Training Center Components.

For the past three years, 2001 – 2003 the average overall facility use was 296 days per year, and live burns were conducted in the burn building 80 days per year. This includes the full range of uses, from a classroom used for a small meeting to outside training exercises utilizing several fire engines.

3.3.2 Program History

1974: The Boulder Regional Fire Training Center Board was formed in a cooperative agreement with the city of Boulder and Boulder County. The current three-acre Fire Training Center site on Lee Hill Road was provided by Boulder County. Over the years, the city of Boulder funded construction of the burn building, tower and other training “props.” The Boulder Valley School District provides temporary classroom buildings at the site.

November 1996: The City of Boulder Fire Department Master Plan was approved by City Council. One of the plan recommendations identified the need to move and expand the Training Center.

1997: City Council appointed a citizen Public Safety committee to help guide implementation of the Fire Master Plan. The citizen committee recommended that a training center land purchase be included in the proposed “public safety sales tax.” It was a part of that proposal which was approved by voters in November 1997.

1998 - 2000: The Fire Department explored suitable, available sites to relocate the Fire Training Center.

April 2000: The Boulder Regional Fire Training Center Board of Directors proposed a county-wide sales tax to the Boulder County Commissioners to fund the construction of three fire training facilities in Boulder County.

April 2001: The County Commissioners accepted the proposal and authorized a ballot measure to fund three fire training centers strategically located throughout the county.

Aug. 15, 2000: The Boulder City Council approved the purchase of land at the Valmont Butte site including a portion for a fire training center.

September 2000: The city of Boulder's Public Works, Fire, and Open Space and Mountain Parks departments purchased the Valmont Butte site.

November 2001: The ballot measure funding three fire training centers was approved by the voters.

2003: Longmont purchased land dedicated for use as a training center site as its contribution to the county-wide fire training plan. In addition, the cities agreed to manage and supervise construction of these two centers in accordance with procedures established for the construction of city facilities to ensure full accountability of the public's money. Nederland is seeking land for its facility at this time.

2001 - 2004: At the Valmont Butte site, asbestos was removed from the historic mill buildings; the mill site was secured; tenants were moved; a fence was erected around the mill buildings; a gate was installed off 63rd Street; the utilities were turned off; and the CEAP process was initiated.

3.3.3 Program Alternatives

The Boulder Fire Department has identified and evaluated six program alternatives to address county-wide fire-training needs. These alternatives include the following:

1. Acquire Lee Hill property and replace existing facilities
2. Acquire Lee Hill property and adjacent properties for expanded new resources
3. Off-duty personnel attend fire training program outside of Boulder County
4. On-duty personnel attend fire training program outside of Boulder County
5. Limit fire fighting capabilities to only rescue of trapped persons
6. Acquire a different property that would be large enough to meet the growing needs for county fire training

3.3.3.1 Program Alternative 1 – Acquire Lee Hill property

Alternative 1 proposes the acquisition of the two acres of land at the existing Lee Hill training center and replaces the existing buildings and fire training props.

Pros:

1. The site is accessible from existing transportation routes.
2. The site is already being used as a Fire Training Center.
3. The neighbors are familiar with and accept the operation.
4. The site utilities are already in place.

Cons:

1. Although the site has been used as a fire training center for 30 years, it is not strategically located for use by Louisville, Lafayette and Cherryvale.
2. The site is not adequately buffered from residential development. Development around the site has resulted in residential properties within 100 feet of the Fire Training Center property line.
3. The existing site is very small, only two acres, and could accommodate only a fraction of the needed props and classroom/administration space and would not accommodate the driving course.
4. To acquire the two acres on which the training center is situated is estimated to cost from \$1 million (\$500,000/acre) to \$1.5 million (\$750,000/acre).

3.3.3.2 Program Alternative 2 – Acquire Lee Hill and surrounding properties

Alternative 2 proposes the acquisition of the two acres of land under the existing training center on Lee Hill and approximately eight of the surrounding light industrial properties to the northeast and west and replace the existing buildings.

Pros:

1. The site is accessible from existing transportation routes.
2. The site is already being used as a Fire Training Center.
3. The neighbors are familiar with and accept the operation.
4. Site utilities are already in place.

Cons:

1. Although the site has been used as a fire training center for 30 years, it is not strategically located for use by Louisville, Lafayette and Cherryvale.
2. The site is not adequately buffered from residential development. Development around the site has resulted in

houses within 100 feet of the Fire Training Center property line.

3. To acquire the two acres on which the training center is situated together with eight additional acres of contiguous properties is estimated to range from \$5 million to \$7.5 million (approximately \$500,000/acre to \$750,000/acre).
4. The expanded site would remain very close to residential development.

3.3.3.3 Program Alternative 3 – Off-duty Personnel Train in Another Community

Alternative 3 proposes that fire fighters train at a fire training center in another community during their off-duty times leaving regularly scheduled crew to provide emergency response in the city.

Pros:

1. Coverage for emergency calls would not be compromised.

Cons:

1. Fire fighters regular work hours are 56 hours a week and requiring them to come in during off-duty hours to train may be difficult.
2. Overtime is expensive. Overtime costs for training would increase by \$275,000 annually.
3. To maintain emergency coverage, two additional fire trucks must be purchased for fire fighters training at the remote facility; the initial capital cost would be \$1 million, about \$500,000 per truck. Additional vehicle storage space would need to be added to existing fire stations costing about \$700,000.
4. Longer travel distance to another community increases carbon dioxide emissions and other emissions from the diesel engines of the fire trucks.
5. More miles driven increases fuel and maintenance costs.

3.3.3.4 Program Alternative 4 – On-duty Personnel Train in Another Community

Alternative 4 proposes the fire fighters train at a fire training center in another community using extra on-duty crews to cover while other on-duty crews are at training.

Pros:

1. Coverage for emergency calls is not compromised.
2. Additional crews are available in the event of a major emergency.

Cons:

1. Eight additional FTE's would be required to operate fire trucks to cover a fire station response area while the regular crew is attending training. This would create an ongoing additional operational cost of \$830,233 annually.
2. To maintain emergency coverage, two additional fire trucks must be purchased. At about \$500,000 per truck, the initial capital cost would be \$1million. Additional vehicle storage space would need to be added to existing fire stations costing about \$700,000.
3. Longer travel distance to another community increases carbon dioxide emissions and other emissions from the diesel engines of the fire trucks.
4. More miles driven increases fuel and maintenance costs.

3.3.3.5 Program Alternative 5 – Limit Fire Fighting

Alternative 5 proposes that building interior fire fighting be limited to facilitate only the rescue of trapped persons.

Pros:

1. There is no need to conduct regular live fire training.
2. Limited fire training can be conducted in fire stations or around other buildings in the community.

Cons:

1. The risk to community and fire fighters increases due to lack of training. Fire ground and training ground injuries to fire fighters would increase.
2. Without interior fire fighting, property loss from fire would increase and insurance costs to Boulder County residents would soar.

3.3.3.6 Program Alternative 6 – Acquire a different site (preferred)

Alternative 6 proposes that the existing fire training center be relocated to a location of adequate size and strategically located to the City of Boulder, Boulder Rural, Cherryvale, Louisville and Lafayette.

Pros:

1. The site would be strategically located to the City of Boulder, Boulder Rural, Cherryvale, Louisville and Lafayette.

2. The site could provide adequate distance and buffers to existing or potential residential development.
3. The site could be served by the existing transportation system.
4. Coverage for emergency calls is not compromised by response crews being too far from their response area.
5. No extra on-duty crews would be required to cover fire response area while other on-duty crews attend training.
6. It would not be necessary to purchase additional fire trucks.
7. Fire fighters would not be required to attend fire training during off-duty hours.
8. The site could be of adequate size to allow all fire training functions to be accomplished at one location.

Cons:

1. The proposed facilities may encounter local community opposition.
2. The cost of a new site, other than the already city-owned Valmont site, may exceed money available.
3. There is a lack of available sites that meet all of the criteria.

4.0 SITE ALTERNATIVES

4.1 Biosolids Recycling Center

4.1.1 Overview

In 1993, the Public Works and Open Space departments completed a screening of existing Open Space land to determine if biosolids recycling was feasible on several parcels. Additionally, the Utilities Division completed a screenings study of Boulder County land to determine acceptable locations for possible land purchase. Lastly, discussions with Boulder County Open Space were initiated to see if there was interest in a joint purchase.

In 1994, the city considered a large-scale property acquisition program, which would involve the purchase of various properties (1,400-1,600 acres) located between Lookout Road and Mineral Road, and between 79th Street and State Highway 287. The criteria used in the evaluation of these properties included the following:

- Located in Boulder County
- Located within close proximity to the WWTP
- Ability to acquire contiguous parcels
- Ability to acquire 1,000-2,000 acres

The goal of the city's land acquisition program was to secure a large contiguous land parcel to ensure a viable biosolids land application site located in Boulder County to meet the city's long-term needs. The parcels identified meet the evaluation criteria as they are located 2-3 miles from the WWTP.

In 1994, a CEAP was completed that recommended that staff continue to purchase Boulder County property. The Utilities Advisory Board (now the Water Resources Advisory Board) felt that the CEAP was incomplete and that additional analysis was required. City Council, however, confirmed the direction of purchasing additional property for land application in Boulder County and directed staff to look at other approaches for biosolids recycling.

City Council's request to research other recycling approaches precipitated the 1996 Biosolids Management Study. The city did not purchase additional property in Boulder County for land application pending the results of this study. The 1996 Biosolids Management Study recommended that the city move in the direction of a Class A biosolids composting process.

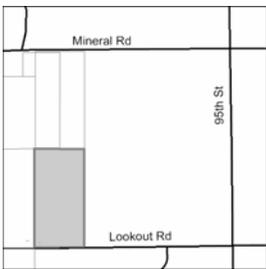
Figure 7 shows the location of the four land parcels purchased by the city for Public Works purposes. The alternative properties are discussed below.

4.1.2 Alternative 1 – Biddle Property



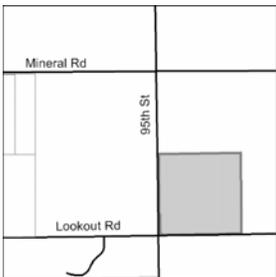
The Public Works Department purchased the Biddle property in 1966. The Biddle property is a 67-acre parcel located on the west side of 75th Street, just north of Valmont Road. The original intention for this purchase was to utilize the property as a Class B biosolids land application site. This site’s close proximity to the WWTP made the site an attractive location.

4.1.3 Alternative 2 – Oddfellows Property



The Public Works Department purchased the Oddfellows property in September 1991 for biosolids land application. The Oddfellows property is an 80-acre parcel located at Lookout Road and 82nd Street. This site’s close proximity to the WWTP made the site an attractive location and consistent with the city’s approach to purchase a large section of land located northeast of the WWTP.

4.1.4 Alternative 3 – 95th Street and Lookout Road



The Public Works Department purchased a 160-acre parcel of land located east of 95th Street and north of Lookout Road in 1995 for biosolids land application. This site’s close proximity to the WWTP made the site an attractive location and consistent with the city’s approach to purchase a large section of land located northeast of the WWTP.

4.1.5 Alternative 4 – Valmont Butte Site

Upon purchasing the Valmont Butte site in 2000, the Public Works Department sold the above mentioned three properties to the Open Space and Mountain Parks Department. The Valmont Butte site represented a parcel of land well-suited for the dewatering and composting facilities.

The Valmont Butte site was selected as the city’s preferred site location for the following reasons.

- Close proximity to the WWTP
- Adequate size land parcel
- Site includes significant land buffer from nearby residential uses
- City annexation possible
- Site could be easily served by utilities
- Site’s natural topography would permit facilities to be located out of visual sight from local community



- Site was reasonably priced at less than \$26,000/acre
- Proposed uses consistent with surrounding industrial land uses
- The site provides an opportunity for the city to meet multi-use goals by partnering with other city departments

4.2 Fire Training Center

Since the approval of the Public Safety tax in 1997, the City of Boulder has been evaluating potential sites to locate a new fire training center. The various sites evaluated are described below.

4.2.1 Overview

Four sites were considered for the relocation and expansion of the Boulder Fire Training Facility. (Figure 6) The criteria used for the evaluation of each site were:

- Proximity to all involved fire districts to maintain reasonable emergency response times. Fire emergency response coverage is provided by fire trucks at fire stations strategically located throughout the community. Fire station locations are planned to ensure that the first fire truck to arrive at an emergency scene can do so within seven minutes from the time the emergency was reported. When the crew of a particular fire station is not available because they are attending a fire, a neighboring fire station must extend its coverage area to include that of the unavailable unit. This also increases the response time and therefore puts the public and property at increased risk.
- Location provides adequate distance and/or buffers to existing or potential residential development. Land forms to block views of facility from residential areas and/or minimum 500 feet distance from existing or potential residential areas.
- Minimal environmental considerations (vegetation, wildlife, geotechnical, etc.)
- Minimum 10-acre site to accommodate a majority of functions and provide adequate buffers. If all 10 acres are useable, all components of the FTC can be built except a full driving course. Optimal site size is 16 – 20 acres, including a 500-foot by 500-foot driving course.
- Functional access via existing transportation system to and from the site.
- Easily served by existing utilities (water, sewer, gas, electric, etc.).
- Minimal impacts to cultural resources.

The proposed FTC would be one of three fire training centers to be built in

Boulder County. Having three facilities would reduce the use impact currently experienced by the existing training center and place training centers closer to each fire department. County fire departments would be able to use any of the three facilities. However, unless a specific training prop is not available, departments would use the facility closest to their response district.

Fire Department personnel and City of Boulder Real Estate Services staff collaborated on a search for alternative sites between 1998 and 2000. All of the sites that met the minimum criteria and that were available at that time were considered. In addition, in June 2004 a follow-up site search was conducted. The results of this search are summarized in Section 4.3, Updated Alternative Site Analysis.

Following is an in-depth evaluation of the five sites considered.

4.2.2 Alternative 1 – North 26th Street, North of Violet Avenue, Former City Dump Site (15 acres)



- Proximity to all involved fire districts to maintain reasonable emergency response times. *Too remote for Cherryvale, Louisville, and Lafayette departments. Too far north. Location is not closer to the city of Boulder than the Valmont site. The Boulder FTC would be one of three built in Boulder County as a result of the temporary sales tax for fire training. The Boulder FTC would serve fire departments located in the central part of the county. To serve the central fire departments the best site in terms of response times for crews attending training to respond to emergencies in their jurisdiction is a site centrally located to each fire department. Thus, sites north of the city might be close to Boulder Rural Fire Protection District yet quite some distance from Cherryvale Fire Protection District.*
- Location provides adequate distance and/or buffers to existing or potential residential development. *Site would not allow provision of adequate distance and/or buffers.*
- Minimal environmental considerations. *Acreage included old city dump site and shooting range.*
- Minimum 10-acre site to accommodate a majority of functions and provide adequate buffers. *Site could provide the minimum required acreage for full program at approximately 15 acres and would allow a minimal buffer zone.*
- Functional access via existing transportation system to and from the site. *Reasonable access available to this site. The North 26th Street site is served only by 28th Street. Access to this site is circuitous for Cherryvale and fire units in south Boulder.*
- Easily served by existing utilities (water, sewer, gas and electric). *Gas and electric available on this site. Significant water and sewer*

extensions would be required. Closest from 28th Street (approximately 3,632 feet).

- Minimal impact to cultural resources. *There are no known cultural resources on this site.*

4.2.3 Alternative 2 – Beech Aircraft Site Foothills Highway

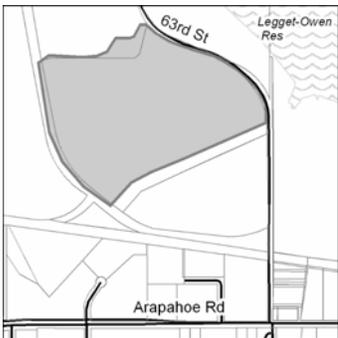


- Proximity to all involved fire districts to maintain reasonable emergency response times. *Too remote for City of Boulder, Boulder Rural, Cherryvale, Louisville, and Lafayette departments. Too far north. To serve the central fire departments the best site(s) in terms of response times for crews attending training to respond to emergencies in their jurisdictions would be a site centrally located to each fire department. Thus, sites north of the city might be close to Boulder Rural Fire Protection District yet quite some distance from Cherryvale Fire Protection District, Louisville, and Lafayette. An illustration of this would be the comparison of Cherryvale conducting driving tests at the Beech site and at the Valmont site. Traveling from Cherryvale Fire Station 1 at 7700 Baseline to the Beech site took 20 minutes. From this station to Valmont Butte site took seven minutes. It is an additional 10 minutes from the Fire Station in Rock Creek.*
- Location provides adequate distance and/or buffers to existing or potential residential development. *Lake Valley Estates subdivision is directly east of this location.*
- Minimal environmental considerations. *Contaminated ground from previous operation on this site. (Hydrazine and other chemicals) Potential high cost to mitigate hazardous materials. The site is a former manufacturing and testing site of flight assemblies including fueling of rockets. These activities ended in 1999. At the time the city explored the purchase of the site for the FTC and was advised that there is soil and groundwater contamination on the site. Acetone, 1,1,2-trichloro-1, 2,2-trifluoroethane (Freon 113 and trichloroethene (TCE) and its decomposition products cis-1, 2-dichloroethene and vinyl chloride exists at depth in soil, bedrock and groundwater near the Clean Room Annex and Impoundment Area. A dissolved phase plume in groundwater generally flows to the south and the eastward approximately 1,000 feet, along the northern edge of a small valley and continues east of the highway. At the missile fueling site, residual concentrations of chlorinated solvents including trichloroethene (TCE), cis-1,2-DCE, vinyl chloride, Freon 113 and hydrazine fuels (unsymmetrical dimethylhydrazine and its decomposed product n-nitrosodimethylamine exist in soil and groundwater down gradient of the fueling building. The contaminant plume emanating from the fueling are in shallow groundwater follows the intermittent drainage course and extends down valley about 500 feet.*

Other areas on the site are identified containing lower levels of various types of contaminants including petroleum hydrocarbons and chromium. Remediation projects are active and ongoing at this site.

- Minimum 10-acre site to accommodate a majority of all functions and provide adequate buffers. *There are numerous buildings on the site that would need to be removed or significantly remodeled to be functional for fire training. None could be used for live fire training or training tower operations. The site is under several different ownerships making the acquisition of enough usable property questionable.*
- Functional access via existing transportation system to and from the site. *Reasonable access to this site exists from Foothills Highway.*
- Easily served by existing utilities (water, sewer, gas and electric). *Sewer, gas and electric provided. Water supply may not be adequate for training needs.*
- Minimal impact to cultural resources. *There are no known cultural resources on this site.*

4.2.4 Alternative 3 – West of 63rd Street / South of Stazio Ball Fields (13 acres of the 57-acre site)



- Proximity to all involved fire districts to maintain reasonable emergency response times. *Good centralized location for access by the City of Boulder, Boulder Rural, Cherryvale, Louisville and Lafayette fire districts.*
- Location provides adequate distance and/or buffers to existing or potential residential development. *No potential or existing residential development in the immediate area. Would be part of larger Western Disposal and related development complex.*
- Minimal environmental considerations. *The close proximity to wetlands and required buffer areas was more extensive than originally anticipated.*
- Minimum 10-acre site to accommodate a majority of all functions and provide adequate buffers. *Configuration of the site and location of overhead power lines (within a 100-foot wide easement) constrains development of the FTC. Does not provide site area for driving course. High voltage overhead power limits safe usable space for a ladder truck operation. Overhead power transmission lines and roadway improvements pushed development costs beyond the budget, resulting in the expending of half of the available funds before any actual training center improvements could be built.*
- Easy access via existing transportation system to and from the site. *Reasonable access available to this site. Major roads intersect near this site and provide direct routes to and from the centrally located fire departments. At the time this site was considered major road*

improvements in 63rd Street were going to be required. These roadway improvements alone were estimated at \$1.6 million.

- Easily served by existing utilities (water, sewer, gas and electric). Gas and electric nearby on this site. Existing water and sewer service are located approximately 1,000 feet from the Stazio Ballfield site. At any site where the FTC is required to finance all significant infrastructure extension costs, less money would then be available to construct training facilities and props.
- Minimal impacts to cultural resources. There are no known cultural resources on this site.

4.2.5 Alternative 4 – Valmont Butte (36.4 acres)

During research of the Stazio site the Boulder Fire Department became aware that the owners of the Valmont Butte property might be interested in selling. The Valmont Butte site offered a relatively isolated location and an adequate amount of land with significant separation from developed property. It is situated where encroachment by other development is very unlikely.



- Proximity to all involved fire districts to maintain reasonable emergency response times. Central location for access by City of Boulder, Boulder Rural, Cherryvale, Louisville and Lafayette fire departments.
- Location provides adequate distance and/or buffers to existing or potential residential development. No potential for additional residential development near this site. Separated from residential on the north by distance and topography. Following is an analysis of adjacent land uses: **North** – the Valmont community, a concrete batch mixing plant and a trucking company. **West** – a concrete recycling batch mixing plant, Boulder County Hazardous Waste Collection facility, a yard waste recycling lot, Western Disposal waste transfer station and the Stazio sports complex. **South** – the 3-acre Valmont Pioneer Cemetery, Xcel Energy fly ash disposal site (active), Valmont and Leggett-Owen Reservoirs and Hillcrest Lake, Xcel Energy Valmont Station 226 megawatts power generating plant. **East** – Xcel Energy fly ash disposal site (closed).
- Minimal environmental considerations. Site already significantly impacted by prior uses (milling, quarrying and a log milling operation for the construction of log buildings). In contrast to the various highly toxic contaminants at the Beech site, the contamination at the Valmont site is low level naturally occurring radioactive materials in the form of ore mill tailings. In 1999, the Colorado Department of Health and Environment oversaw and approved the closure of the site and determined, other than maintenance of the earthen cap no further action was necessary. An EPA reassessment,

conducted in 2004 and released in January 2005, reported that “analytical results do not indicate there would be a significant risk related to the intended use of the property.” The assessment also stated that the risks to human health or the environment on adjacent lands are insignificant, and though on-site contamination is present, it can be appropriately managed. The EPA recommended that good management practices be followed during the development and ongoing operations proposed for the property to mitigate pre-existing on-site contamination.

- *Minimum 10-acre site to accommodate majority of functions and provide adequate buffers. Usable acreage in excess of minimum, with room to provide adequate buffers and to accommodate all training needs.*
- *Functional access via existing transportation system to and from the site. Vehicular access to and from the site via Valmont Road (utilizing the existing access to be shared with the BRC). Major roads intersect near the Valmont site and provide direct routes to and from the surrounding fire departments. Secondary emergency access would be provided from 63rd Street.*
- *Easily served by existing utilities (water, sewer, gas and electric). Gas and electric are available on site. Water and sewer services are located approximately 1,000 feet from the southwest corner of the Valmont Butte site. Water and sewer at the Valmont site as proposed is a joint expense of both Fire and Public Works and as a result there is significant cost savings. At any site where the Fire Training Center is located independent of the BRC, the infrastructure costs become the sole responsibility of Fire. As such, the higher the infrastructure costs the less money there is available to construct training facilities and props.*
- *Minimal impacts to cultural resources. There are known cultural resources on this site and adjacent to this site. Given the size of the site, it is anticipated that the proposed fire training facility could be located and designed to respect these resources.*

Alternative Site #4 at Valmont Butte meets a significant number of the criteria set out by the selection committee. A “Conceptual Site Layout” was initially prepared in the fall of 2003 (and illustrated by RTW, Inc.) to test the viability of accommodating all required functions/components of the FTC on the site. This diagram was very conceptual in nature with “bubbles” indicating the various uses and their relationships to each other. A more refined site plan was prepared in January 2004 and revised in February 2004, illustrating actual building footprints, parking, vehicular circulation and all other programmatic components of the FTC. A revised concept study was generated in July 2004 to address the CRG comments and concerns. (Figure 10)

4.3 Updated Alternative Site Analysis

As part of the CEAP process, the City of Boulder completed an updated Alternative Site Analysis to identify potential alternative site locations for the proposed BRC and FTC facilities. This analysis was undertaken based on feedback from the Community Review Group and to ensure that the city develop a current evaluation of potential sites.

The city hired Strategic Planning Inc., a real estate consulting firm familiar with Boulder County zoning and land development regulations, to identify potential properties which could serve as an alternate to the Valmont Butte site.

The city currently owns the Valmont Butte site. Therefore, the selection of an alternative site would require an “exit strategy” for the property for the Fire and Public Works departments.

4.3.1 Site Criteria

City staff worked with Strategic Planning Inc. to develop site criteria, which were used in the property search. The site criteria were developed to assist in the screening process by identifying critical site parameters including parcel size, location, access, proximity to utilities, availability, etc. The criteria are as follows:

1. Located in Boulder County
2. Appropriate adjacent land use zoning
3. Minimum 26 acres for both facilities
 - a. 10 acres for BRC
 - b. 16 acres for FTC
4. Strategic location for both facilities
 - a. Centrally located among fire protection districts (FTC)
 - b. Located within 4-mile radius of WWTP (BRC)
 - c. Within 2 miles of city utilities
5. Adequate visual screening potential
6. Adequate land buffer potential
7. Limited future potential adjacent development
8. Roadway access
9. Ability to mitigate environmental and cultural issues
10. Cost

4.3.2 Site Analysis

The analysis yielded 15 properties including the Valmont Butte site and the city’s WWTP. Figure 8, Current Alternative Sites Considered, shows the location of the 15 sites.

The list of alternative sites identified in this analysis includes several sites identified by the Fire and/or Public Works departments in previous site evaluations. For example, the Foothills Business Park and Raytheon sites were previously evaluated as one site (known as the Beech Aircraft site) by the Fire Department.

Table 1 shows a listing of the alternative sites and includes site information.

Table 1 Alternative Site Analysis

| NO. | SITE | ACREAGE | POTENTIAL USE | DISTANCE FROM WWTP (MILES) | AVAILABILITY OF CITY UTILITIES WITHIN 2 MILES OF SITE* | ADEQUATE LAND BUFFER | VISIBILITY SCREENING | FUTURE ADJACENT POTENTIAL DEVELOPMENT |
|-----|----------------------|---------|---------------|----------------------------|--|----------------------|----------------------|---------------------------------------|
| 1 | AREA III - CITY PARK | 160 | BOTH | 5 | NO | NO | NO | YES |
| 2 | ATLAS FLOORING | 30 | FTC | 5.5 | NO | NO | NO | YES |
| 3 | BIDDLE | 67 | BOTH | 0.95 | NO | NO | NO | NO |
| 4 | BRICKYARDS | 12 | FTC | 3 | NO | NO | NO | YES |
| 5 | COHIG | 112 | FTC | 9 | NO | YES | NO | NO |
| 6 | DUMP SITE | 15 | FTC | 5 | NO | NO | NO | YES |
| 7 | FOOTHILLS BUS PARK | 101 | FTC | 7.5 | NO | YES | NO | NO |
| 8 | MARSHALL LANDFILL | 160 | FTC | 9 | NO | YES | NO | NO |
| 9 | NOAA | 78 | FTC | 9 | NO | YES | NO | NO |
| 10 | RAYTHEON | 39 | FTC | 7.5 | NO | YES | NO | NO |
| 11 | SCHNEIDER | 16 | FTC | 6.5 | NO | YES | NO | YES |
| 12 | UTE INDUSTRIAL PARK | 80 | BOTH | 2.5 | NO | NO | NO | NO |
| 13 | VALMONT BUTTE SITE | 102 | BOTH | 2.5 | NO | YES | YES | NO |
| 14 | WESTERN DISPOSAL | 54 | BOTH | 3.5 | YES | NO | NO | YES |
| 15 | WWTP | 79 | BRC | 0 | YES | NO | NO | YES |

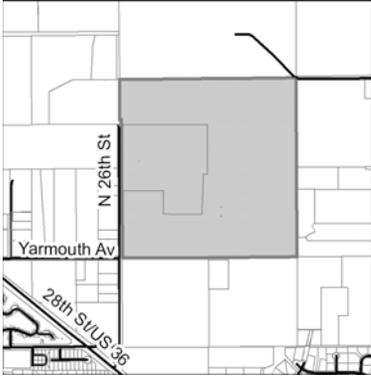
*The extension of city utilities (water, sewer, etc) to land parcels located in Area III typically requires annexation of those parcels to the city.

It is the city's intention to have Gary Brown, Indian Tribal Monitor and CRG member, provide a cultural analysis of the alternative sites at the time of or before the Indian consultation.

The 15 sites identified in the analysis are listed below with a description of the site location. Following the description is a list of pros and cons based on the site evaluation criteria. All of the alternatives with the exception of

the Valmont Butte site would require the sale of the FTC and/or BRC portions of the Valmont Butte site.

4.3.2.1 Area III – City Park (160 acres)



The Area III - City Park property is located just north of the city limits on 26th Street and Violet Avenue. The site was purchased by the Parks and Recreation Department for a future community park site.

Pros:

1. Adequate size to accommodate both BRC and FTC

Cons:

1. Not centrally located among fire protection districts
2. Located outside 4-mile WWTP radius
3. Close proximity to residential development along 28th Street and to the east and southeast (Orange Orchard Subdivision)
4. No land buffer potential
5. No visual screening potential
6. Future potential adjacent development
7. Not available – intended for city Parks & Recreation purposes
8. Would require selling FTC and BRC portion of the Valmont Butte site

4.3.2.2 Atlas Flooring (30 acres)



The Atlas Flooring site is located just north of the city limits on 28th Street, north of Lee Hill Drive.

Pros:

1. Adequate size to accommodate both BRC and FTC

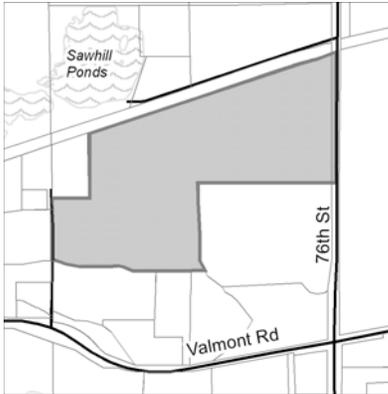
Cons:

1. Not centrally located among fire protection districts
2. Located outside 4-mile WWTP radius
3. Close proximity to residential development along 28th Street
4. Future potential adjacent development
5. No land buffer potential
6. No visual screening potential
7. Would require selling FTC and BRC portion of the Valmont Butte site

4.3.2.3 Biddle Property (67 acres)

The Biddle property is located on the west side of 75th Street, north of Valmont Road and south of Sawhill Ponds.

Pros:



1. Adequate size to accommodate both BRC and FTC
2. Centrally located among fire protection districts
3. Located within 4-mile WWTP radius
4. Limited future potential adjacent development

Cons:

1. Intended for OSMP purposes
2. No land buffer potential
3. No visual screening potential
4. Would require selling FTC and BRC portion of the Valmont Butte site

4.3.2.4 Brickyards (12 acres)



The Brickyards site is located on 63rd Street just south of Valmont Road.

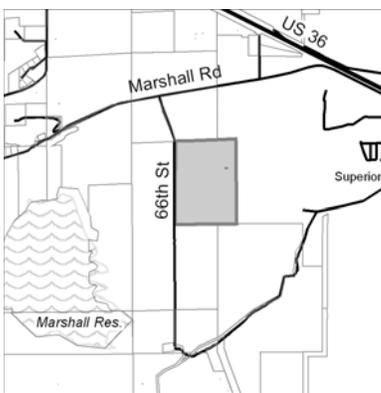
Pros:

1. Centrally located among fire protection districts
2. Located within 4-mile radius of WWTP
3. Acreage sufficient to accommodate BRC

Cons:

1. Not adequate size to accommodate both BRC and FTC
2. No land buffer potential
3. No visual screening potential
4. Used by Western Disposal for ReSource recycle yard
 - a. City working with Western to allocate more acreage to ReSource
5. Would require selling either the FTC or BRC portion of the Valmont Butte site

4.3.2.5 Cohig (112 acres)



The Cohig site is located south of the city limits off Marshall Road, adjacent to the Marshall Landfill.

Pros:

1. Adequate size to accommodate both BRC and FTC
2. Limited future potential adjacent development

Cons:

1. Not centrally located among fire protection districts
2. Located outside 4-mile WWTP radius
3. No land buffer potential
4. No visual screening potential
5. Would require selling FTC and BRC portion of the Valmont Butte site

4.3.2.6 Dump Site (15 acres)

The dump site is located just north of the city limits on North 26th Street.

Pros:

1. City owned
2. Unrestricted use
3. Acreage sufficient to accommodate BRC

Cons:

1. Size not adequate to accommodate both BRC and FTC
2. Not centrally located among fire protection districts
3. Located outside 4-mile WWTP radius
4. Close proximity to residential development along 26th and 28th streets
5. Future potential adjacent development
6. No land buffer potential
7. No visual screening potential
8. Would require selling FTC portion of the Valmont Butte site



4.3.2.7 Foothills Business Park (101 acres)

The Foothills Business Park is located north of the city limits on the west side of U.S. 36. [The Foothills Business Park and Raytheon sites were previously evaluated as one site (known as the Beech Aircraft site) by the Fire Department.]

Pros:

1. Adequate size to accommodate both BRC and FTC
2. Limited future potential adjacent development

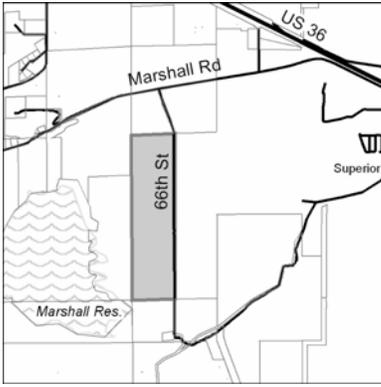
Cons:

1. Not centrally located among fire protection districts
2. Located outside 4-mile WWTP radius
3. No land buffer potential
4. No visual screening potential
5. Petroleum hydrocarbons and other chemical contamination on site. (See Section 4.2.3.)
6. Would require selling FTC and BRC portion of the Valmont Butte site



4.3.2.8 Marshall Landfill (160 acres)

The Marshall Landfill is located south of the city limits off Marshall Road.



Pros:

1. Adequate size to accommodate both BRC and FTC
2. Limited future potential adjacent development

Cons:

1. Not centrally located among fire protection districts
2. Located outside 4-mile WWTP radius
3. No land buffer potential
4. No visual screening potential
5. Undevelopable land due to landfill management restrictions
6. Would require selling FTC and BRC portion of the Valmont Butte site

4.3.2.9 NOAA (78 acres)

The NOAA site is located south of the city limits off Marshall Road, adjacent to the Marshall Landfill.

Pros:

1. Adequate size to accommodate both BRC and FTC
2. Limited future potential adjacent development

Cons:

1. Not centrally located among fire protection districts
2. Located outside 4-mile WWTP radius
3. No land buffer potential
4. No visual screening potential
5. Used for federal agency purposes
6. Would require selling FTC and BRC portion of the Valmont Butte site



4.3.2.10 Raytheon (39 acres)

The Raytheon site is located north of the city limits on the west side of U.S. 36. [The Foothills Business Park and Raytheon sites were previously evaluated as one site (known as the Beech Aircraft site) by the Fire Department.]

Pros:

1. Adequate size to accommodate both BRC and FTC
2. Limited future potential adjacent development

Cons:

1. Not centrally located among fire protection districts
2. Located outside 4-mile WWTP radius
3. No land buffer potential
4. No visual screening potential



5. Petroleum hydrocarbons and other chemical contamination on site (See Section 4.2.3.)
6. Would require selling FTC and BRC portion of the Valmont Butte site

4.3.2.11 Schneider (30 acres/16 acres usable)

The Schneider site is located north of the city limits off of U.S. 36. Pros:



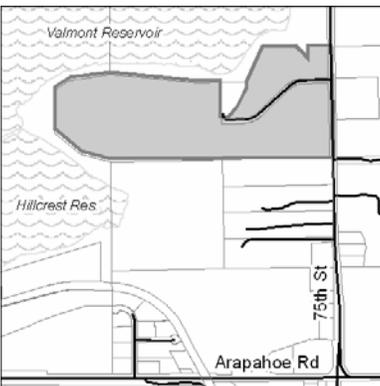
1. Limited future potential adjacent development

Cons:

1. Useable acreage not adequate size to accommodate both BRC and FTC
2. Not centrally located among fire protection districts
3. Located outside 4-mile WWTP radius
4. Close proximity to residential development along 26th and 28th streets
5. Future potential adjacent development
6. No land buffer potential
7. No visual screening potential
8. Would require selling FTC and BRC portion of the Valmont Butte site

4.3.2.12 Ute Industrial Park (80 acres)

The Ute Industrial Park is located on the west side of 75th Street, south of Valmont Road. The site is located at the eastern edge of Valmont Reservoir.



Pros:

1. Adequate size to accommodate both BRC and FTC
2. Centrally located among fire protection districts
3. Located within 4-mile WWTP radius

Cons:

1. No land buffer potential
2. No visual screening potential
3. Used for OSMP purposes
4. Bird sanctuary located on and around site
5. Adjacent rural residential development
6. Would require selling FTC and BRC portion of Valmont Butte site

4.3.2.13 Valmont Butte Site (102 acres)



The Valmont Butte site is located along Valmont Road between 61st Street and 75th Street. The site currently has access off Valmont Road as well as 63rd Street.

Pros:

1. Adequate size to accommodate both BRC and FTC
2. Centrally located among fire protection districts
3. Located within 4-mile WWTP radius
4. Adequate land buffer
5. Adequate visual screening
6. Limited future potential adjacent development
7. Available (proportionally owned by city OSMP, Fire and Public Works departments)

Cons:

1. Potential impacts to cultural and environmental resources

4.3.2.14 Western Disposal (13 acres of the 57-acre site)



The Western Disposal site is located on 63rd Street between Arapahoe Road and Valmont Road.

Pros:

1. Centrally located among fire protection districts
2. Within 4-mile WWTP radius

Cons:

1. No land buffer potential
2. No visual screening potential
3. Used by Western Disposal for yard composting purposes
4. Potential impact to wetlands
5. Adequate size to accommodate BRC only
6. Extensive off-site roadway improvement costs
7. Would require selling FTC and BRC portion of Valmont Butte site

4.3.2.15 WWTP (79 acres)

The WWTP is located on the west side of 75th Street, just south of Jay Road along Boulder Creek. This site was evaluated as an alternative to the Valmont Butte site in the *Preliminary Design Report* (RTW Engineers – October 2003) and the CEAP. A more detailed discussion on the WWTP options can be found in the CEAP Section 2 – Program Alternatives.

Pros:



1. Immediate proximity to the WWTP and therefore would not require a biosolids pipeline

Cons:

1. Site not available for FTC
2. Site too small for BRC (available acreage being used for liquid stream expansions)
3. No land buffer potential
4. No visual screening potential
5. Location would require significant odor control because of existing facilities and proximity to residential areas.
6. Would require selling BRC portion of Valmont Butte site

4.3.3 Site Recommendation

In this analysis, the Valmont Butte site most closely meets the identified site criteria. For this reason, the Valmont Butte site is the recommended site location for the proposed BRC and FTC facilities at this time. Given the criteria for selection of the BRC and the FTC and since the original purchase of the Valmont Butte Property, staff is not aware of other sites being available in the market with comparable attributes of size, location and land use designation.

4.3.4 “Best” Alternative Site Recommendation

Through the Alternatives Site Analysis, the Valmont Butte proposal team has identified a “best” alternative site to the Valmont Butte site to accommodate the proposed BRC and FTC facilities. The recommended alternative site at this time is the Biddle property. The Biddle property is located on the west side of 75th Street between the WWTP and Valmont Road. The Biddle property was selected as the Valmont Butte site alternative because, other than the Valmont Butte site, it more completely meets the many criteria identified for the proposed BRC and FTC facilities than the other sites evaluated. The Biddle property is located centrally to the many fire protection districts, within a 4-mile radius of the WWTP, and is of adequate size to accommodate the proposed BRC and FTC facilities.

The Biddle property was previously owned by the Public Works Department for over 30 years and identified for the biosolids land application program after its purchase in 1966. This property has been owned by the city’s Open Space and Mountain Parks Department since 2000.

The following is a summary of the pros and cons associated with the Biddle property.

Pros:

1. Adequate size to accommodate both BRC and FTC
2. Centrally located among fire protection districts
3. Located within 4-mile WWTP radius
4. Limited future potential adjacent development

Cons:

1. No land buffer potential
2. No visual screening potential
3. Significant community opposition likely
 - Heatherwood and Gunbarrel communities are vocal opponents to WWTP projects
4. Less favorable odor dispersion because of location in Boulder Creek valley
5. Located closer to residential homes and local farms
6. Currently owned by OSMP
7. High groundwater table

4.3.4.1 Potential Utilization

Sale of the Biddle property by Public Works to Open Space in 2000 established it as "open space land" under the City Charter. Therefore, in order to use the land for other than Open Space purposes, it would have to be formally disposed of under a set of procedures also defined in the City Charter. These include:

- A 10-day advanced public notice of the proposed disposition
- Approval by at least three of the five members of the Open Space Board of Trustees (OSBT)
- Approval by the City Council
- A 60-day waiting period giving the citizens opportunity to appeal the disposal (5 percent of registered electors) and refer the decision to the voters under procedures also defined in the City Charter.

A request of the OSBT to use all or most of the Biddle property for Public Works purposes would be a first in the history of these programs. The ownership history of the property is unique, having been purchased for Public Works purposes and maintained by Public Works for years until its relatively recent sale in 2000 for Open Space purposes. The Biddle property purchase by the city in 1966 was clearly intended for Public Works purposes, and the property was retained by Public Works until 2000 for these purposes. However, its location adjacent to similarly managed Open Space land and its management in traditional agricultural use relate to certain open space values. No parcel of this size has ever

been transferred by the OSBT. Land transfers are rare and typically only involve an edge or a corridor that is part of a much larger project area. These issues can only be resolved at a policy level starting with Open Space Board of Trustees.

4.3.4.2 Site Investigations

The city has contracted with ERO Resources and Terracon Engineers to perform various site investigations at the Biddle property to evaluate the site's characteristics. ERO Resources performed site investigations addressing wildlife habitat, plant inventories and wetlands delineations in the fall of 2004. Terracon Engineers will perform various geotechnical investigations in the spring of 2005.

The results of the Terracon analysis and subsequent report, once completed, will be available on the Valmont Web site at www.valmontbutte.net

5.0 VALMONT BUTTE SITE DESCRIPTION

5.1 Overview

The Valmont Butte site is located at 3000 N. 63rd St., at the eastern edge of the current Boulder city limits and within unincorporated Boulder County. It is located approximately four miles east of the Boulder central business district in an area that includes industrial, residential and agricultural uses.

County zoning on the approximately 102-acre site is split, with about 79 acres on the south side of the butte zoned General Industrial and 23 acres on the north side of the butte zoned Agricultural. The Boulder Valley Comprehensive Plan (BVCP) land use designation (adopted jointly by the city and the county) for the site is Open Space, Acquired and Open Space, Other. The site is also designated as Area III, Rural Preservation. (Figure 20)

The site has been used for a variety of industrial uses since the turn of the century, including a milling operation that was in operation until 1991. A variety of smaller office and manufacturing operations were on site until the property was purchased by the City of Boulder in 2000. Cultural and historic resources on the site include buildings associated with the mill complex and evidence of use of the site by Indian tribes. A cemetery is adjacent to the site.

While some scenic and wildlife habitat values still exist on portions of the site, much of the vegetation and habitat have been seriously compromised by extensive human use of the area.

5.1.1 Site Description

The 102-acre site is located in the south half of the southeast quarter of Section 22, T. 1 N., R. 70 W. and extends into the southwest quarter of Section 23. The geographic coordinates of the site are approximately 40° 01' 50" north latitude and 105° 12' 12" west longitude [U.S. Geological Survey (USGS) 1979; U.S. Department of Commerce, Bureau of the Census (USDOC) 2000].

Valmont Dike has been identified as a Natural Landmark in the Boulder County Comprehensive Plan since its original adoption in 1978 due to its visual and scenic prominence as a landscape feature. The dike is also identified as a Unique Geological Feature in the Boulder Valley Comprehensive Plan. The dike is included in the property purchased by Open Space and Mountain Parks.

The elevation of the site ranges from approximately 5,391 feet above mean sea level (amsl) on the summit of the butte at the northwest corner down to approx 5,170 feet amsl in the basin of the north central portion of

the site (*Alisto Engineering Group 2000; USGS 1979*). The topographic plateau that crosses the western portion of the site coupled with the dike along the northern site boundary forms a small basin where the tailings were deposited behind manmade earthen dams. The basin topography prevents off-site drainage into the site.

Slope ratios range from approximately 2:1 (horizontal to vertical) to flatter. Four earthen barriers surround the property; manmade earthen berms are located on or near the east and west boundaries; Valmont Dike is on the north; and a hill rising approximately 50 feet above the tailings ponds lies on the southern boundary. The originally more distinct Valmont Buttes were connected by one or more manmade berms parallel to Valmont Road as part of the site development for the tailings ponds required for the milling operations.

The mill site covers about eight acres and is located along the southern flank of the highest portion of the site. East of the mill buildings are the dry primary tailings pond (approximately 12.5 acres) and the secondary tailings pond (approximately 4.5 acres). The vegetation is predominantly weedy grasslands and a tree thicket dominated by small-diameter Russian olive and plains cottonwoods. An earthen dam (the primary tailings pond dam), approximately 30 feet high, contains the tailings at the east end of the primary tailings pond. A second dam (the secondary tailings pond dam), approximately 20 feet high, is located about 1,000 feet east of the primary dam and contains the secondary tailings pond. The dike, including three dams located in fractured areas of the dike, forms the north flank of the tailings ponds.

Vehicle access to the site is currently provided from both Valmont Drive and Butte Mill Road which ties into 63rd Street.

5.1.1.1 Geology and Hydrogeology

The prominent Valmont Dike, a vertical igneous intrusion into shale, defines the east-west axis on the north side of the Valmont Butte site. Geologically, molten basalt was thrust upward through the older Pierre Shale at right angles. Over time, the softer shale was eroded by the actions of climate and nearby Boulder Creek, leaving the harder rock. Valmont Dike stands in stark contrast to the flatter character that dominates the majority of the area.

The possibility of contaminated subsurface waters leaving the primary tailing area is very low for several reasons. Bedrock identified in seven on-site bores by Ecology and Environment, Inc. (E&E) and Terracon investigations suggest that a bedrock trough under the tailings ponds dips to the east [*Ecology and Environment, Inc. (E&E) 1985; Terracon 2003*]. However, the soil

that comprises the primary tailings is a mixture of very fine-grained sand, silt, and clay, with silt and clay dominating. The permeability and porosity of silt and clay soils is very low; therefore, the mobility of water through the site is very low. The underlying native rock, identified as the Pierre Shale, is described in the January 2005 EPA report as a siltstone and was dry in each boring that encountered the siltstone. There is evidence in the bores that water is contained within the area, with the mounding of water in the center of the primary tailings area.

Residences north of the site are not served by a public drinking water system and many use shallow alluvial domestic wells less than 40 feet below ground surface (bgs) for drinking water.

5.1.1.2 Hydrology

Surface water from the western portion of the property where the mill is located drains to a ditch along 63rd Street and Valmont Road. This stormwater drainage ditch flows under the Jones Donnelly Ditch into South Boulder Creek at the outlet of the KOA lake. South Boulder Creek, with an average flow rate of 30 cubic feet per second (cfs), flows to the north where it enters Boulder Creek. Boulder Creek has an average flow rate of 111 cfs (*USGS 1997b*).

Surface water from the small area west of the cemetery drains to the south to Xcel property. Surface water from the remainder of the site south of the dike flows to the east. Water flows on or into each of the tailings ponds pools on the ponds until it infiltrates or more likely evaporates.

Surface water east of both tailings ponds flows into the wetlands area at the east boundary of the site, into a ditch on the south side of Valmont Road, through a culvert under Valmont Road and under Butte Mill Ditch, and into the Keeter Pond. Surface water draining from the north slope of the dike flows into the ditch on the south side of Valmont Road and depending on flow direction, through one of two culverts under Valmont Road and under Butte Mill Ditch and into either the Ready-Mix pond or the Keeter Pond on the north side of Valmont Road. The ponds are in contact with the alluvial aquifer.

The closest surface water body is Butte Mill Ditch, which flows through the residential properties on the north side of Valmont Road and is used for irrigation east of the site. A culvert empties into the ditch that drains the area around two silos that are located

at 6379 Valmont Rd. Farmers located downgrade from this area are concerned about potential impacts that might occur during high precipitation conditions. The Butte Mill Ditch has an average flow rate of five cfs (*Boulder County Water Commission 1998*). The site is located outside the 100-year and 500-year floodplains [*Federal Emergency Management Agency (FEMA) 1995*].

Wetlands on the site occur in a small drainage on the east side of the site. Vegetation in the drainage consists of broad-leafed cattail (*Typha latifolia*), showy milkweed (*Asclepias speciosa*), Canada thistle (*Cirsium arvense*), smooth brome, Russian olive and plains cottonwood. Wetland vegetation in the drainage may be supported via seepage from Leggett-Owen Reservoir, one of three manmade reservoirs to the south on the Xcel property.

5.1.1.3 Meteorology

The site is located in a semiarid climate zone. The mean annual precipitation as totaled from the University of Delaware (UD) database is 15 inches. The net annual precipitation as calculated from precipitation and evapotranspiration data obtained from the UD database is 2.6 inches (University of Delaware, Center for Climate Research, Department of Geology 1986). The two-year, 24-hour rainfall event for this area is 1.5 inches (Dunne, Thomas and Luna B. Leopold 1978; UOS 2000). Wind-rose data from the Boulder Municipal Airport indicate average annual wind speed is 8.5 to 11 miles per hour (mph) with the predominant wind direction from the south and south-southwest at least 20 percent of the time. Valmont Butte and Valmont Reservoir may influence local wind patterns.

5.1.2 Environmental Assessments of the Site

1985: An assessment was performed by the United States Environmental Protection Agency and the Colorado Department of Public Health and Environment's Hazardous Materials and Waste Management Division. The purpose was to determine whether there was groundwater contamination at the site as a result of the leaching of tailings. The assessment was designed to identify the presence of groundwater in the near surface material and if groundwater was present, to characterize the water quality.

The team found no groundwater and reasoned that there was no justifiable expectation of finding water at a great depth. The absence of groundwater provided evidence that the recharge to the basin was negligible and that evaporation from the ponds in existence at that time exceeded infiltration. EPA made a decision not to monitor wells at the site based on the fact that

the formation was not saturated, and therefore, there was no apparent potential for contaminant movement via the groundwater route. (*Decision Analysis - Assurance of Equivalent Protection to Public Health and Environment in the Absence of a Colorado Radioactive Materials License, CDPHE, Oct. 6, 1999*)

September 2000: Alisto Engineering Group conducted a *Phase I Environmental Site Assessment (ESA)* of the Valmont Butte site for the City of Boulder's Real Estate Services. The purpose of the ESA was to identify potential sources of contamination or environmental issues and concerns associated with the past and current use of the property that may impact its future use by the City of Boulder.

The Phase I ESA noted that the limited site investigation completed by the EPA concluded that the cover material on the tailings pond is adequate to eliminate exposure pathways. Although several regulated facilities were identified within the extended search radius, none was considered an environmental concern to the site based on location and depth of groundwater. (*Alisto Engineering Group Phase I ESA – September 2000*).

September 2003: Terracon Environmental Engineers performed a *Limited Intrusive Environmental Site Assessment* under contract with RTW Engineers on behalf of the City of Boulder's Public Works Department Utilities Division. The purpose of the evaluation was to gather geotechnical information at the Valmont Butte Site by installing groundwater monitoring wells and collecting soil boring data.

Information on groundwater contamination was taken from the *Limited Intrusive Environmental Site Assessment* prepared July 11, 2003 and revised Sept. 30, 2003 by Terracon (See Bibliography). Four groundwater-monitoring wells were installed in June 2003. Groundwater samples were collected from monitoring wells MW-1 and MW-4. Groundwater was not observed in monitoring wells MW-2 and MW-3 at the time of the sampling. The observations, findings and conclusions of the groundwater sampling results are provided in Section 5 of the *Limited Intrusive Environmental Site Assessment*.

December 2003: ERO Resources Corporation conducted an assessment of the natural areas and features of the Valmont Butte property. It was updated in February 2004 to incorporate the FTC site and updated again in September 2004 to incorporate additional site investigations that occurred over the course of the summer of 2004. More detailed investigations were conducted by Terracon and reported in its *Geotechnical Engineering Report*.

August 2004: The EPA began a site reassessment, and the results were released in January 2005. The reassessment was conducted to gather

additional data about possible water and soil contamination both on and off the site. The reassessment stated that the risks to human health or the environment on adjacent lands are insignificant, and although on-site contamination is present, it can be appropriately managed. The EPA recommended that good management practices be followed during the development and ongoing operations proposed for the property to mitigate pre-existing on-site contamination. (*January 2005 EPA Analytical Results Report*)

5.2 Historic Site Use

5.2.1 Indian

Indian tribes historically used the site, and significant cultural resources are present. Prior to 1881, when the last of the remaining native tribes was removed from the area, the region around and including the site was used by the Arapahos and the Utes as campgrounds and hunting areas. Historical accounts describe an antelope roundup held in the vicinity of Valmont Dike in 1860 and the use of land around Valmont Butte and east of the cemetery for a winter campground. There are anecdotal accounts of Indian burials in the study area; locations are unknown. Artifacts collected from the site in 1959 and curated at the CU Museum are typical of artifacts from an Indian camp or habitation site. The Valmont Butte is now used by Indians under a permit from the City of Boulder for cultural purposes including sweat lodge ceremonies.

When pioneers arrived in the Boulder Valley in 1858, it was the winter camp of the Arapaho. The land belonged to the Arapaho and Cheyenne by treaty. Pioneer accounts clearly indicate the Arapaho camped at times around the buttes, now called Valmont Butte, and near Valmont Lake (aka Leggett Reservoir, Owens Lake and Pancost Lake) and that the area was used by the Arapaho for both camping and hunting. Settlers reported that the area near Valmont Butte was the site of a communal antelope hunt by some 400 Arapaho in 1860.

Evidence of use of the site by Indians includes archaeological material. These resources were documented, mapped and recorded by RMC Consultants, assisted by Gary Brown, a Northern Arapaho and Indian tribal monitor, on Jan. 16, 2004. The archeological material was viewed and interpreted on Feb. 18, 2004 by representatives of nine American Indian tribes and the presidents of the Medicine Wheel Coalition and the United Tribes of Colorado. Recommendations from the consulting Indians include ensuring no disturbance of the cultural resources and closing the site to public access until the current evaluation is completed. Collection, curation and removal of any known cultural resources at Valmont Butte are contrary to the wishes of the consulting tribes and organizations.

Several local families, particularly families whose ancestors were pioneer settlers of the Valmont area, report they have found or collected Indian artifacts from the study area. These artifacts have not been documented or studied.

There are informal accounts by pioneer Valmont families and local historians of Indian graves around Valmont Butte, and some people have asserted that there may be burials in the study area. However, human skeletal materials have not been recovered or documented from the study area.

If all previously undisturbed land in the study area remains undisturbed, that would ensure that any previously undisturbed cultural deposits would also remain undisturbed. It seems impossible that archaeological material would still exist in the area disturbed by the tailings ponds and unlikely that it would still be present in the area disturbed by the mill. (*Appendix A, Public Report, Archaeology and History of Valmont Butte, Peter J. Gleichman*)

The issue of the butte potentially being a "sacred site" is complex. The butte may well have been used for ceremonies in the past. For example, certain Lakota pipe carriers considered every butte or topographical prominence on the plains to be sacred. They were good places to pray, and thus holy or "sacred" to particular pipe carriers. Some buttes were certainly more important than others were, and it can be assumed that some Indians considered Valmont Butte sacred at some time.

Whether it is sacred to a tribal group is currently undetermined. Some local Indians appear to consider the importance of the butte to supersede the historic milling use and tailings ponds exemplified by the fact that ceremonies are currently conducted there. Other Indians may consider the subsequent historic uses such as quarrying the butte stone or the presence of the mill and associated tailings to have desecrated the site, making it no longer important.

5.2.2 Euro-American

Homesteading, farming and ranching were the first Euro-American activities in the Valmont Butte area.

The quarrying of stone from the west end of the Butte itself began in the 1870s and continued through the early years of the 20th century. Valmont's rock quarry provided a valuable source of stone for buildings, roads and sidewalks for Denver and other Front Range communities.

Other industrial activities in the immediate vicinity, though not necessarily on the proposed project site, included brick manufacturing, gravel mining,

concrete batch plants, and the Public Service Company's coal-fired power plant. Many of these uses remain today.

The area has been studied and described in several assessments. The most recent assessment is appended. (*Appendix A, Public Report, Archaeology and History of Valmont Butte, Peter J. Gleichman*)

The western portion of the site (approximately eight acres) was the location of a mined ore mill for nearly 60 years. The property is still occupied by the original mill building, an office building, assay office, wash room, pump house, converted garage and other small buildings housing support operations. A 14-acre and a 3-acre tailing pond as well as associated dams are located to the east of the mill buildings and near the center of the property.

The Valmont Mill is an intact example of an early flotation mill used for processing gold, silver and fluorspar. The St. Joe Mining Company constructed the Valmont Mill as a gold mill in 1935. The mill, perched on the edge of the dike, was in an ideal location for a gravitational flotation mill. The ore concentrator drew water up the hill to the site for use in its flotation process. Gravitational pull causes ore and water to flow down and through the concentrating process with the least amount of effort. The flotation process was reconfigured to concentrate fluorspar in 1938. In the early 1940s, market conditions prompted Allied Chemical to purchase and enlarge the mill. By the late 1970s, the mill was reconfigured again to extract gold from mine tailings. In 1991, due to high rent costs and intermittent operation, the mill was closed. Since the closing of the mill in 1991, the property has continued to be used for offices and a production housing (log-home) facility. In 2000, when the city acquired the property, four construction companies rented office, shop, and storage space in buildings on site. A mineral club had a storage building on site. There was an individual living in a building on site rent free in exchange for providing site security. A company that manufactured log buildings had offices in a building and used a large area of land just south and east of the buildings for log storage, preparation and building assembly. The last tenant moved from the site in November 2003.

Early flotation mills, such as the Valmont example, are a vanishing cultural resource. A 1998 study found that only about 25 mills of similar size and operation were remaining in the United States. The Valmont Mill reflects the evolution of mining technology and retains a high degree of historic integrity, including a nearly complete collection of machinery and equipment inside the mill. It is an outstanding representation of a small 50- to 200-ton ore processing facility, and the virtually intact complex displays all the buildings and processes illustrative of flotation milling.

A 2001 survey of the site determined that the main mill building and adjacent water system pump house are eligible for the National Register of Historic Places (Mead & Bunyak, 2001). Other buildings on the site are also valuable for illustrating the milling process despite some loss of historic integrity and may meet criteria for local landmark designation. Of particular interest are the water storage building and the Sioos Spur rail line. These features help illustrate integral parts of the milling process (water source and conveyance, respectively). The tailings ponds, located below and to the east of the mill complex, were also an integral feature of the milling process. When capped in 1999, in response to environmental concerns, the historic integrity of those features was compromised to the point that they are no longer eligible for local landmark designation. Other buildings on the site appear less essential to illustrating the milling process; they are newer buildings or have lost historic integrity. Nonetheless, all buildings associated with the mill operation have been included in a conceptual historic site boundary. Actual boundary determination and the treatment of individual buildings would be determined through the landmark designation and alteration review processes.

The Valmont Cemetery is located just south of and adjacent to the Valmont Butte proposal study area. The cemetery is one of Colorado's oldest, with grave markers dating back as far as 1865. Land for the cemetery was deeded in 1873. The Valmont Cemetery is owned by the descendants of the pioneer families buried there, and operated by the Valmont School District #4 Cemetery Association, a registered nonprofit organization. The Cemetery is believed to be eligible for local and potentially national historic designation.

5.3 Adjacent Land Uses

The BRC and FTC facilities proposed for the Valmont Butte site are consistent with the industrial nature of the Valmont area and neighboring facilities. The Valmont Butte site is surrounded on all sides by industrial and commercial facilities. The Adjacent Land Uses shows the various industrial and commercial facilities located in the Valmont area. (Figure 9)

5.3.1 Valmont Road

Numerous industrial facilities are located on the north side of the Valmont Butte site along Valmont Road between Butte Mill Road and 75th Street. These facilities include the Pioneer Sand and Gravel Company, located at 6379 Valmont R. on seven acres. Also at 6379 Valmont Rd. is Keeter Trucking, occupying 10 acres. Further east, the LaFarge asphalt batch plant is located at 6405 Valmont Rd., occupying 34 acres. On the northwest corner of 61st Street and Valmont Road in the Loveland Ready

Mix Concrete facility, occupying 13 acres. To the west of 61st Street, the LaFarge Concrete plant is located on 17 acres. Lastly, there is an auto salvage yard at the northwest corner of 61st Street and Valmont Road, occupying two acres.

The Valmont town site is situated among these facilities and the Indian Road Business Park in the vicinity of 61st Street and Valmont Road. The town of Valmont was platted in 1865 at the confluence of North and South Boulder creeks, north of the Valmont Butte. Early settlers combined the words “valley” and “mountain” to form the name of the community. During the mid-1860s, Valmont was a rival of Boulder as the commercial center of the valley. The town was the home of the county’s first newspaper, along with a post office, school (still extant) and a number of businesses. In 1896, Valmont’s population was about 225 persons. By 1963, the community consisted of only the Valmont Church and 11 residences. Today, remnants of the original town site are still visible, mixed among newer residences.

5.3.2 Butte Mill Road and 63rd Street

Butte Mill Road is just west of 61st Street. Various industrial facilities are located in the vicinity of Butte Mill Road on the south side of Valmont Road. Western Disposal owns three land parcels along 63rd Street. The first site is located at 5880 Butte Mill Rd. This facility is the Western Disposal refuse transfer station which serves the Boulder Valley community and prepares refuse for transport to the Denver regional facility. This facility is located on 16 acres. Two other facilities are located on this site including Western Disposal’s yard waste collection center and the Boulder County Hazardous Materials drop-off center. The Western Disposal facility is open six days a week.

Southwest of the Valmont Butte site, 63rd Street connects Valmont Road to Arapahoe Road. Along 63rd Street there are numerous industrial facilities as well. The northern most land parcel along 63rd Street is known as the “Brickyards site.” The Brickyards site is 12 acres and has been identified as the future site for EcoCycle and the Center for Hard to Recycle Materials (CHaRM). The southern most portion (one acre) of this parcel is currently operated by ReSource (formerly ReSource 2000) for its building materials recycling center. On either side of the Xcel Energy Boulder Service Center, located at 2655 N. 63rd St., are the Stazio Ballfields, owned and operated by the City of Boulder.

South of the Stazio Ballfields is the third Western Disposal site, located on 57 acres. The western portion of this site is currently used for yard waste recycling. The eastern portion of this site is proposed for yard, wood waste and construction recycling. The Boulder County Recycling Center

at 1901 63rd St. is located south of the Western Disposal site. The Boulder County Recycling Center recycles various solid waste materials and is open seven days a week, 24 hours a day. The facility, which is located on 21 acres, handles approximately 42,000 tons of solid waste per year.

5.3.3 Xcel Energy, Valmont Cemetery, and South

On the east side of 63rd Street, the Xcel Energy Valmont Station is located at 1800 N. 63rd St. The Valmont Station is a 226-megawatt coal/natural gas-fired power plant. Power generated at this facility is fed into the Xcel Energy grid to serve various Front Range communities. The Xcel Energy site is 855 acres. The historic Valmont Cemetery is also located on the south side of the Valmont Butte site.

In summary, there are over dozen local industrial facilities comprising over 1,000 acres in area immediately surrounding the Valmont Butte site.

5.4 Vegetation

5.4.1 Overview

Vegetation species and communities were assessed in December 2003, June 2004 and August 2004. Today, vegetation patterns on the site are based to some extent on soils and topography but primarily on past and present land uses.

A shrubland community occurs on the north-facing hillside of the escarpment that is Valmont Dike. The flatter areas on the north side of Valmont Dike area consist primarily of weedy grasslands that are a result of past land uses including extensive grading, berming and terracing to accommodate the milling operation and tailings ponds, and later grading and capping of the tailings ponds. The south side of the site contains a disturbed upland area dominated by forbs.

The vegetation patterns are discussed below. A plant species list is included in Table 2.

Table 2 Valmont Butte Plant Species List Based on June and August 2004 Site Visits

| Scientific Name | Common Name | Native/Introduced | Growth Habit |
|-----------------------------|-------------------|-------------------|--------------|
| Shrubland Community | | | |
| <i>Woody Species</i> | | | |
| <i>Cercocarpus montanus</i> | mountain mahogany | Native | Shrub |
| <i>Prunus americana</i> | American plum | Native | Tree/Shrub |

| Scientific Name | Common Name | Native/Introduced | Growth Habit |
|------------------------------------|-------------------------|-------------------|--------------|
| <i>Prunus virginianus</i> | chokecherry | Native | Tree/Shrub |
| <i>Rhus aromatica trilobata</i> | skunkbrush | Native | Shrub |
| <i>Ribes cereum</i> | currant | Native | Shrub |
| <i>Symphoricarpos occidentalis</i> | snowberry | Native | Shrub |
| Understory | | | |
| <i>Agropyron cristatum</i> | crested wheatgrass | Introduced | Grass |
| <i>Agropyron intermedium</i> | intermediate wheatgrass | Introduced | Grass |
| <i>Artemisia ludoviciana</i> | cudweed sagewort | Native | Subshrub |
| <i>Bouteloua curtipendula</i> | sideoats grama | Native | Grass |
| <i>Bouteloua gracilis</i> | blue grama | Native | Grass |
| <i>Bromus inermis</i> | smooth brome | Introduced | Grass |
| <i>Bromus tectorum</i> | downy brome | Introduced | Grass |
| <i>Cylindropuntia imbricata</i> | tree cholla | Native | Subshrub |
| <i>Lactuca serriola</i> | prickly lettuce | Introduced | Forb |
| <i>Liatris punctata</i> | blazing star | Native | Forb |
| <i>Opuntia polyacantha</i> | plains pricklypear | Native | Subshrub |
| <i>Pascopyron smithii</i> | western wheatgrass | Native | Grass |
| <i>Sedum</i> spp. | stonecrop | Native | Forb |
| <i>Solidago missouriensis</i> | Missouri goldenrod | Native | Forb |
| <i>Sporobolus cryptandrus</i> | sand dropseed | Native | Grass |
| <i>Stipa comata</i> | needle-and-thread | Native | Grass |
| <i>Tragopogon dubius</i> | western salsify | Introduced | Forb |
| WEEDY GRASSLANDS | | | |
| <i>Acer negundo</i> | boxelder | Native | Tree |
| <i>Agropyron cristatum</i> | crested wheatgrass | Introduced | Grass |
| <i>Agropyron intermedium</i> | intermediate wheatgrass | Introduced | Grass |
| <i>Alyssum</i> spp. | madwort | Introduced | Forb |
| <i>Argemone polyanthemos</i> | annual pricklepoppy | Native | Forb |
| <i>Artemisia ludoviciana</i> | cudweed sagewart | Native | Subshrub |
| <i>Bouteloua gracilis</i> | blue grama | Native | Grass |
| <i>Bromus inermis</i> | smooth brome | Introduced | Grass |
| <i>Bromus tectorum</i> | downy brome | Introduced | Grass |
| <i>Carduus nutans</i> | musk thistle | Introduced | Forb |
| <i>Centaurea diffusa</i> | diffuse knapweed | Introduced | Forb |

| Scientific Name | Common Name | Native/Introduced | Growth Habit |
|--------------------------------|----------------------|-------------------|--------------|
| <i>Centaurea maculosa</i> | spotted knapweed | Introduced | Forb |
| <i>Convolvulus arvensis</i> | field bindweed | Introduced | Forb |
| <i>Helianthus</i> spp. | sunflower | Native | Forb |
| <i>Kochia scoparia</i> | kochia | Introduced | Forb |
| <i>Liatris punctata</i> | blazing star | Native | Forb |
| <i>Opuntia polyacantha</i> | plains pricklypear | Native | Subshrub |
| <i>Pinus ponderosa</i> | ponderosa pine | Native | Tree |
| <i>Populus deltoides</i> | plains cottonwood | Native | Tree |
| <i>Robinia pseudo acacia</i> | black locust | Native | Tree |
| <i>Salix fragilis</i> | crack willow | Introduced | Tree |
| <i>Sisymbrium altissimum</i> | tall tumbled mustard | Introduced | Forb |
| <i>Sporobolus cryptandrus</i> | sand dropseed | Native | Grass |
| <i>Stipa comata</i> | needle-and-thread | Native | Grass |
| <i>Ulmus pumila</i> | Siberian elm | Introduced | Tree |
| <i>Yucca glauca</i> | yucca | Native | Shrub |
| WEEDY FORB COMMUNITY | | | |
| <i>Amaranthus</i> spp. | pigweed | Introduced | Forb |
| <i>Ambrosia artemisiifolia</i> | common ragweed | Native | Forb |
| <i>Asclepias speciosa</i> | showy milkweed | Native | Forb |
| <i>Aster</i> spp. | Aster | | Forb |
| <i>Bromus tectorum</i> | downy brome | Introduced | Grass |
| <i>Carduus nutans</i> | musk thistle | Introduced | Forb |
| <i>Centaurea diffusa</i> | diffuse knapweed | Introduced | Forb |
| <i>Chenopodium</i> spp. | goosefoot | Introduced | Forb |
| <i>Cirsium arvense</i> | Canada thistle | Introduced | Forb |
| <i>Convolvulus arvensis</i> | field bindweed | Introduced | Forb |
| <i>Cynoglossum officinale</i> | houndstongue | Introduced | Forb |
| <i>Dipsacus</i> spp. | teasel | Introduced | Forb |
| <i>Elaeagnus angustifolia</i> | Russian olive | Introduced | Tree |
| <i>Erodium cicutarium</i> | redstem filaree | Introduced | Forb |
| <i>Euphorbia myrsinites</i> | myrtle spurge | Introduced | Forb |
| <i>Gaura coccinea</i> | scarlet beeblossom | Native | Forb |
| <i>Grindelia squarrosa</i> | curlycup gumweed | Native | Forb |
| <i>Gutierrezia sarothrae</i> | broom snakeweed | Native | Subshrub |

| Scientific Name | Common Name | Native/Introduced | Growth Habit |
|--------------------------------|----------------------|-------------------|--------------|
| <i>Helianthus</i> spp. | sunflower | | Forb |
| <i>Heterotheca villosa</i> | hairy goldenaster | Native | Forb |
| <i>Kochia scoparia</i> | kochia | Introduced | Forb |
| <i>Lactuca serriola</i> | prickly lettuce | Introduced | Forb |
| <i>Liatris punctata</i> | blazing star | Native | Forb |
| <i>Linum lewisii</i> | blue flax | Native | Forb |
| <i>Melilotus albus</i> | white sweetclover | Introduced | Forb |
| <i>Melilotus officinalis</i> | yellow sweetclover | Introduced | Forb |
| <i>Nepeta cataria</i> | catnip | Introduced | Forb |
| <i>Onopordum acanthium</i> | Scotch thistle | Introduced | Forb |
| <i>Populus deltoides</i> | plains cottonwood | Native | Tree |
| <i>Psoralea tenuiflora</i> | scurfpea | Native | Forb |
| <i>Rosa arkansans</i> | plains rose | Native | Shrub |
| <i>Rumex crispus</i> | curly dock | Introduced | Forb |
| <i>Salix exigua</i> | sandbar willow | Native | Shrub |
| <i>Sisymbrium altissimum</i> | tall tumbled mustard | Introduced | Forb |
| <i>Solidago missouriensis</i> | Missouri goldenrod | Native | Forb |
| <i>Verbascum thapsus</i> | common mullein | Introduced | Forb |
| <i>Verbena bracteata</i> | prostrate vervain | Native | Forb |
| <i>Yucca glauca</i> | yucca | Native | Shrub |
| FORB UPLAND COMMUNITY | | | |
| <i>Artemisia dracuncululus</i> | wild tarragon | Native | Forb |
| <i>Artemisia frigida</i> | prairie sagewort | Native | Subshrub |
| <i>Convolvulus arvensis</i> | field bindweed | Introduced | Forb |
| <i>Dalea purpurea</i> | purple prairieclover | Native | Forb |
| <i>Eriogonum effusum</i> | spreading buckwheat | Native | Subshrub |
| <i>Ferocactus</i> spp. | barrel cactus | Native | Subshrub |
| <i>Gutierrezia sarothrae</i> | broom snakeweed | Native | Subshrub |
| <i>Helianthus annuus</i> | annual sunflower | Native | Forb |
| <i>Helianthus</i> spp. | sunflower | | Forb |
| <i>Heterotheca villosa</i> | hairy goldenaster | Native | Forb |
| <i>Liatris punctata</i> | blazing star | Native | Forb |
| <i>Opuntia polyacantha</i> | plains pricklypear | Native | Subshrub |
| <i>Psoralea tenuiflora</i> | scurfpea | Native | Forb |

| Scientific Name | Common Name | Native/Introduced | Growth Habit |
|-----------------------------------|----------------------|-------------------|--------------|
| <i>Yucca glauca</i> | yucca | Native | Shrub |
| YUCCA/SUBSHRUB COMMUNITY | | | |
| <i>Arabis</i> spp. | rockcress | | Forb |
| <i>Artemisia frigida</i> | prairie sagewort | Native | Subshrub |
| <i>Convolvulus arvensis</i> | field bindweed | Introduced | Forb |
| <i>Dalea purpurea</i> | purple prairieclover | Native | Forb |
| <i>Eriogonum effusum</i> | spreading buckwheat | Native | Subshrub |
| <i>Gaura coccinea</i> | scarlet beeblossom | Native | Forb |
| <i>Gutierrezia sarothrae</i> | broom snakeweed | Native | Subshrub |
| <i>Helianthus annuus</i> | annual sunflower | Native | Forb |
| <i>Heterotheca villosa</i> | hairy goldenaster | Native | Forb |
| <i>Liatris punctata</i> | blazing star | Native | Forb |
| <i>Lygodesmia juncea</i> | skeletonweed | Introduced | Forb |
| <i>Opuntia polyacantha</i> | plains pricklypear | Native | Subshrub |
| <i>Penstemon</i> spp. | penstemon | Native | Forb |
| <i>Plantago patagonica</i> | woolly plantain | Native | Forb |
| <i>Portulaca</i> spp. | purslane | Introduced | Forb |
| <i>Psoralea tenuiflora</i> | scurfpea | Native | Forb |
| <i>Rosa arkansans</i> | plains rose | Native | Shrub |
| <i>Salsola iberica</i> | Russian thistle | Introduced | Forb |
| <i>Yucca glauca</i> | yucca | Native | Shrub |
| RIPARIAN/WETLAND COMMUNITY | | | |
| <i>Acer negundo</i> | boxelder | Native | Tree |
| <i>Asclepias speciosa</i> | showy milkweed | Native | Forb |
| <i>Bromus tectorum</i> | downy brome | Introduced | Grass |
| <i>Cirsium arvense</i> | Canada thistle | Introduced | Forb |
| <i>Cynoglossum officinale</i> | houndstongue | Introduced | Forb |
| <i>Elaeagnus angustifolia</i> | Russian olive | Introduced | Tree |
| <i>Kochia scoparia</i> | kochia | Introduced | Forb |
| <i>Lepidium latifolium</i> | perennial pepperweed | Introduced | Forb |
| <i>Nepeta cataria</i> | catnip | Introduced | Forb |
| <i>Onopordum acanthium</i> | Scotch thistle | Introduced | Forb |
| <i>Populus deltoides</i> | plains cottonwood | Native | Tree |
| <i>Rhus aromatica trilobata</i> | skunkbrush | Native | Shrub |

| Scientific Name | Common Name | Native/Introduced | Growth Habit |
|------------------------------|----------------------|-------------------|--------------|
| <i>Rosa woodsii</i> | Woods rose | Native | Shrub |
| <i>Rumex crispus</i> | curly dock | Introduced | Forb |
| <i>Sisymbrium altissimum</i> | tall tumbled mustard | Introduced | Forb |
| <i>Typha latifolia</i> | broad-leaved cattail | Native | Forb |
| <i>Ulmus pumila</i> | Siberian elm | Introduced | Tree |
| <i>Verbascum thapsus</i> | common mullein | Introduced | Forb |

5.4.2 Shrubland Community

A shrubland community characterized by isolated patches of woodlands occurs along the north side of Valmont Dike. Shrubland vegetation includes:

- skunk bush (*Rhus aromatica trilobata*),
- American plum (*Prunus americana*),
- snowberry (*Symphoricarpos occidentalis*),
- currant (*Ribes cereum*),
- mountain mahogany (*Cercocarpus montanus*), and
- other woody species in the shrubland community.
- tree cholla (*Cylindropuntia imbricata*), a tall, tree-like cactus rarely found north of Colorado Springs, was found in a small patch on the rocky northern slope of the Valmont Dike.

This type of shrubland community represents a small but significant component of the vegetation types in the area near Valmont Dike. Woodland patches in a matrix of grassland provide structural diversity that can be an important habitat characteristic for many animal species. The understory of the shrubland community includes:

- forb species such as cudweed sagewort (*Artemisia ludoviciana*) and small camas (*Camassia quamash*),
- native grasses such as sideoats grama (*Bouteloua curtipendula*) and needle-and-thread (*Stipa comata*),
- introduced pasture grasses such as crested wheatgrass (*Agropyron cristatum*), intermediate wheatgrass (*Agropyron intermedium*) and smooth brome (*Bromus inermis*), and
- grasses that are noxious weeds such as downy brome (*Bromus tectorum*).

5.4.3 Weedy Grassland Community

Weedy grasslands dominate most of the lower slope of Valmont Dike to Valmont Drive and the slopes on either side of the entrance to the site. Within this community, scattered clumps of Siberian elm (*Ulmus pumila*), box elder (*Acer negundo*), black locust (*Robinia pseudoacacia*) and plains cottonwood (*Populus deltoides*) are found. The weedy grassland community contains a small portion of the black-tailed prairie dog colony that occupies much of the site. (Figure 3)

- Dominant grass species include downy brome, crested wheatgrass, intermediate wheatgrass and smooth brome.
- Native species include prickly pear cactus (*Opuntia polyacantha*), cudweed sagewort and annual pricklepoppy (*Argemone polyanthemus*).
- Invasive plants include musk thistle (*Carduus nutans*), tall tumblemustard (*Sisymbrium altissimum*), field bindweed (*Convolvulus arvensis*) and kochia (*Kochia scoparia*).

5.4.4 Weedy Forb Community

The flatter areas on the south side of Valmont Dike, former industrial areas and reclaimed settling ponds, consist primarily of weedy forbs that are a result of past land uses and reclamation activities. A tree-dominated community exists within the weedy forb community in the middle of the site. A weedy forb community, the result of the heavy industrialization on the site, dominates most of the area south of Valmont Dike.

In addition to being dominated by non-native and/or invasive plants, this area has considerably more bare ground than the other plant communities. This community is composed of plants similar to plants of the weedy grassland community but without any grass species.

Dominant forbs for this community are field bindweed, myrtle spurge (*Euphorbia myrsinites*), yellow sweet clover (*Melilotus officinalis*), diffuse knapweed (*Centaurea diffusa*) and kochia.

The former tailings ponds in the center of the site contain a tree thicket dominated by small-diameter Russian olive (*Elaeagnus angustifolia*) and plains cottonwood.

Species in the understory include yellow sweet clover, white sweet clover (*Melilotus alba*), plains rose (*Rosa arkansana*), curly dock (*Rumex crispus*) and catnip (*Nepeta cataria*).

Adjacent to the tree thicket to the east is an area dominated by teasel (*Dipsacus*) and to the west is an area dominated by Scotch thistle (*Onopordum acanthium*). A fox den and several magpie nests were observed in the tree thicket and mule deer scat was observed on the east

side. The weedy forb community contains most of the black-tailed prairie dog colony that occupies much of the site. (Figure 3)

5.4.5 Forb Upland Community

The forb upland community, located on the south side above the former tailings ponds, is distinguishable from the weedy forb community because of its predominantly native forb cover. The dominant plants in this community are wild tarragon (*Artemisia dracunculus*), hairy false golden aster (*Heterotheca villosa*), annual sunflower (*Helianthus annuus*) and spreading buckwheat (*Eriogonum effusum*). (Figure 3)

5.4.6 Yucca/Subshrub Community

The south side of the site contains a forb upland community with a prominent yucca (*Yucca glauca*) component on the slopes. The yucca/subshrub community occurs on several of the side slopes with the site.

This community differs from the shrubland community in that it contains more bare ground and lacks the quantity and diversity of shrub species. The dominant plants are yucca, prairie sagewort (*Artemisia frigida*), broom snakeweed (*Gutierrezia sarothrae*) and spreading buckwheat. (Figure 3)

5.4.7 Riparian/Wetland Community

A small riparian/wetland area occurs in a small drainage on the east side of the site. Vegetation in the drainage consists of broad-leaved cattail (*Typha latifolia*), showy milkweed (*Asclepias speciosa*), Canada thistle (*Cirsium arvense*), Wood's rose (*Rosa woodsii*), skunk bush, Russian olive and plains cottonwood. Wetland vegetation in the drainage may be supported via seepage from Leggett-Owen Reservoir. (Figure 3)

5.5 Wildlife

The site was assessed in December 2003 and August 2004 for potential wildlife habitat including threatened, endangered and candidate species. Species probably found on the site such as striped skunk (*Mephitis mephitis*), spotted skunk (*Spilogale putorius*), raccoon (*Procyon lotor*), red fox (*Vulpes fulva*) and coyote (*Canis latrans*) have adapted well and actually thrive in and near urban and agricultural areas. These species are often referred to as human "commensal" species - species that derive some direct benefit from humans and human-altered habitats.

Small rodents that likely occur in the small drainage on the east side of the site include deer mouse (*Peromyscus maniculatus*), prairie vole (*Microtus*

ochrogaster), meadow vole (*Microtus pennsylvanicus*), house mouse (*Mus musculus*) and western harvest mouse (*Reithrodontomys megalotis*). Den holes along the north side of the site appear to be occupied by woodrats (*Neotoma*) based on droppings observed.

Typical bird species observed during the site visits included European starling (*Sturnus vulgaris*), black-billed magpie (*Pica pica*), mourning dove (*Zenaida macroura*), belted kingfisher (*Ceryle alcyon*), northern flicker (*Colaptes auratus*), house finch (*Carpodacus mexicanus*) and red-tailed hawk (*Buteo jamaicensis*).

The black-billed magpie and European starling are species commonly associated with urban or suburban areas. Several bird species including raptors such as golden eagle, prairie falcon and red-tailed hawk probably use the rocky portions of Valmont Dike as a perch site. This is evidenced by white wash observed on rocks at the apex of Valmont Dike.

Separate surveys for burrowing owls and migrating raptors were conducted during August 2004 and at the end of September 2004. During the burrowing owl survey, all wildlife observed was also recorded. A list of wildlife species observed during the December 2003 site visit and no burrowing owls were observed. The burrowing owl survey and fall migration survey is included in Table 3.

Table 3 Valmont Butte Wildlife Species List

| Scientific Name | Common Name |
|------------------------------|--|
| Mammals | |
| <i>Canis latrans</i> | coyote |
| <i>Cynomys ludovicianus</i> | black-tailed prairie dog |
| <i>Odocoileus hemionus</i> | mule deer |
| <i>Procyon lotor</i> | raccoon |
| <i>Sylvilagus auduboni</i> | desert cottontail |
| Birds | |
| <i>Agelaius phoeniceus</i> | red-winged blackbird |
| <i>Ardea herodias</i> | great blue heron |
| <i>Buteo jamaicensis</i> | red-tailed hawk (adult) [‡] |
| <i>Buteo jamaicensis</i> | red-tailed hawk (immature) |
| <i>Carduelis tristis</i> | American goldfinch |
| <i>Carpodacus mexicanus</i> | house finch [†] |
| <i>Ceryle alcyon</i> | belted kingfisher |
| <i>Charadrius vociferus</i> | killdeer |
| <i>Colaptes auratus</i> | northern flicker [†] |
| <i>Columba livida</i> | rock dove (common pigeon) [†] |
| <i>Corvus brachyrhynchos</i> | American crow |

| | |
|-------------------------------|---------------------------------------|
| <i>Dendroica coronata</i> | yellow-rumped warbler [†] |
| <i>Eremophila alpestris</i> | horned lark |
| <i>Falco sparverius</i> | American kestrel [†] |
| <i>Hirundo pyrrhonota</i> | cliff swallow |
| <i>Melospiza melodia</i> | song sparrow [‡] |
| <i>Phalacrocorax auritus</i> | double-crested cormorant [‡] |
| <i>Pica pica</i> | black-billed magpie [†] |
| <i>Quiscalus quiscula</i> | common grackle |
| <i>Spizella arborea</i> | American tree sparrow [‡] |
| <i>Sturnella neglecta</i> | western meadowlark [†] |
| <i>Sturnus vulgaris</i> | European starling [†] |
| <i>Turdus migratorius</i> | American robin [†] |
| <i>Tyrannus verticalis</i> | western kingbird [†] |
| <i>Zenaida macroura</i> | mourning dove [†] |
| <i>Zonotrichia leucophrys</i> | white-crowned sparrow [‡] |

[†]Species also observed during fall migration survey.

[‡]Species observed only during fall migration survey.

5.5.1 Threatened species

One threatened species with the potential to perch and forage on the site is the bald eagle. The burrowing owl is also recognized as a threatened species by the State of Colorado.

5.5.1.1 Bald eagle

According to the Colorado Natural Diversity Information Source (NDIS) database, the site is within the winter range and a winter foraging area for the federally threatened bald eagle (*Haliaeetus leucocephalus*). Over-wintering bald eagles are typically present in this area of Colorado from mid-November through the end of March. Bald eagles have been observed at Valmont Reservoir (Brennan 2003). The site does not contain a nest site or essential winter roost site as defined by the Northern States Bald Eagle Recovery Plan, U.S. Fish and Wildlife Service (USFWS 1983).

The Colorado Natural Heritage Program (CNHP) lists the bald eagle as globally apparently secure (G4) and as state-critically imperiled during the breeding season and state-vulnerable during the non-breeding season (S1B and S3N). CNHP is Colorado's primary comprehensive biological diversity data center, gathering information and field observations to help develop state-wide conservation priorities. The classification scheme that The Natural Heritage Network uses to track rare species and natural communities is a standardized ranking system that allows the

Heritage Network members and cooperators to target the most at-risk species and ecosystems for inventory, protection, research and management. Species and ecosystems are ranked on the Global (G), National (N), and Sub national/State/Province (S) levels. The basic ranks used to classify species and ecosystems are:

- 1 = Critically Imperiled (Example: G1 = Globally Ranked Critically Imperiled)
- 2 = Imperiled (Example: N2 = Nationally Ranked Imperiled)
- 3 = Vulnerable to Extirpation (Example: S3 = State Ranked Vulnerable to Ext.)
- 4 = Apparently Secure
- 5 = Demonstrably Widespread, Abundant, and Secure

The Colorado Division of Wildlife (CDOW) lists the bald eagle as threatened (NDIS 2003).

5.5.1.2 Burrowing owl

The burrowing owl (*Athene cunicularia*) is a migratory bird species protected by international treaty under the Migratory Bird Treaty Act (MBTA) of 1918 (16 U.S.C. 703-712). The MBTA makes it unlawful to take, possess, buy, sell, purchase or barter any migratory bird listed in 50 CFR Part 10, including feathers or other parts, nests, eggs or products, except as allowed by implementing regulations (50 CFR 21). The burrowing owl is listed as threatened by the State of Colorado.

The burrowing owl is a small migratory owl that may occupy prairie dog towns in Colorado during the summer breeding season. Burrowing owls nest in sparsely vegetated areas on the plains (typically prairie dog towns in eastern Colorado).

Burrowing owls are generally present in Colorado between March 1 and October 31. Federal and state laws, including the MBTA, prohibit the killing of burrowing owls. Disturbance and killing of related species could take place during prairie dog relocation. If construction or earth-moving projects occurred in occupied prairie dog areas, inadvertent killing of prairie dogs and other wildlife inhabiting the burrows would be possible.

In an effort to avoid accidental killing of owls, the Colorado Department of Wildlife (CDOW) has drafted suggestions for conducting clearance surveys in areas subject to construction projects during the period from March 1 - October 31. These suggestions as well as any applicable rules or regulations would be followed in the event of prairie dog relocation.

The site is not one of the known locations in Boulder County where burrowing owls nest (Brennan 2003). In addition, a survey for burrowing owls was conducted on Aug. 3 and 4, 2004. No burrowing owls were observed on the site during the survey. Proposed project activity on the site would follow suggestions established by the CDOW. See Section 7.12.1, Suggestions for Handling Burrowing Owl Issues.

5.5.2 Black-tailed prairie dog

The black-tailed prairie dog (*Cynomys ludovicianus*), previously a candidate species for listing as threatened, is widespread on the site. Habitat for the black-tailed prairie dog is present on the site. The City of Boulder estimates the population to be approximately 700 to over 1,100 prairie dogs. (City of Boulder 2003a)

Due to population declines across its historical range, the black-tailed prairie dog was proposed to be listed as a threatened species under the Endangered Species Act (ESA). On Feb. 4, 2000, the U.S. Fish and Wildlife Service (Service) issued a 12-month petition finding, which concluded that the listing of the black-tailed prairie dog as threatened is warranted, but an immediate proposal to list it is precluded by other, higher priority actions. This finding established the black-tailed prairie dog as a candidate species for federal listing for protection under ESA.

An updated evaluation of the best available scientific information has led the Service to determine that the black-tailed prairie dog is not likely to become an endangered species within the foreseeable future, and no longer meets the definition of threatened under the ESA. Based on this determination, the prairie dog would be removed as a candidate for listing under the ESA.

A finding that the black-tailed prairie dog does not warrant listing was published in the Federal Register on Aug. 18, 2004 (FR 69 No. 159). This eliminates the requirement that any federal action, including permitting actions, consider the prairie dog as a listed species under the ESA; however, state and local regulations and guidelines pertaining to prairie dogs remain in place. In addition, species such as burrowing owl, prairie rattlesnake and mountain plover are closely linked to prairie dog burrow systems for food and/or cover. Prairie dogs provide an important prey resource for numerous predators including badger, coyote, fox, golden eagle, ferruginous hawk and other raptors.

Approximately 56.6 acres (56 percent) of the Valmont Butte site is occupied by a prairie dog colony. The proposed development of the FTC and BRC would impact approximately 34.7 acres (61 percent of the total area occupied by prairie dogs) including 11.5 acres of the prairie dog

colony that reside above the tailings ponds caps that are proposed for development.

See Section 7.13 for a discussion about prairie dog management.

6.0 PROPOSED PROJECTS

6.1 Open Space and Mountain Parks

Management goals for the OSMP land include preservation of the natural values on the site and improvement of the site's habitat conditions where feasible, including Integrated Pest Management (IPM) techniques to address weeds and other non-native species. Natural and cultural resources of this site would also be preserved and protected through specific management strategies. Development of public access to the site, if any, would be determined through appropriate review processes. The site is discontinuous from any other OSMP land, and currently there is no direct pedestrian access to the OSMP property.

6.2 Biosolids Recycling Center Components

The proposed BRC project is to construct new dewatering and composting facilities at the Valmont Butte site, located on the south side of the Valmont Butte. The eastern portion of the site would be used for the biosolids facilities. All biosolids dewatering and composting facilities at the BRC would require approximately 10 acres of the total 38.3 acres. This location is preferred because the site is in close proximity to the WWTP (the source of biosolids) and to a major yard waste drop-off site, which is a potential compost amendment. There is an existing transportation system to and from the site, and it is close to the city of Boulder and potential compost product customers. Primary access would be provided at the northeastern corner of the property off Valmont Drive, where a new secured gate would be installed. Secondary/emergency access would be at the west end of the property via Valmont Road or 63rd Street.

The proposed Biosolids Recycling Center would include the following components. A brief discussion of each component is included below. Figure 10, Conceptual Site Layout, shows the location of the various components. The components' lettering listed below corresponds to the Figure 10 labeling.

- AA Liquid Biosolids Storage Tank
- BB Bulking Agent Storage Building
- CC Dewatering Building
- DD Composting Building
- EE Curing and Storage Building
- FF Centrate Storage Tank
- GG Odor Control Systems
- HH Paved Drying Area
- II Maintenance Building
- JJ Administration Building
- WWTP Improvements (off site)
- Biosolids Pipeline (off site)

6.2.1 Liquid Biosolids Storage Tank (AA)

The liquid biosolids tank would be located on the western side of the BRC property. It would receive digested liquid biosolids pumped from the WWTP. The tank would hold up to 500,000 gallons of biosolids (five-day capacity in the year 2025)

6.2.2 Bulking Agent Storage Building (BB)

The bulking agent consists of clean woody matter such as ground tree limbs, wood chips, sawdust and similar materials. The building would be a three-sided structure with pushballs and a roof. It would be used to store up to 60 days worth of bulking agent for the composting process.

6.2.3 Dewatering Building (CC)

The dewatering building would house several processes at the BRC. It would be a two-story structure with the upper level dedicated to dewatering and the lower level to material handling, mixing and initial compost operations. Dewatering centrifuges, electrical systems and a control room would be on the upper level. Chemical feed systems for the centrifuges, mixers for the bulking agent/biosolids and materials storage bunkers would be on the lower level. The material bunkers would be located below the centrifuges to allow the dewatered biosolids to drop from the upper level to the floor below, where the material would be picked up with front-end loaders and placed in stationary mixers to be blended with the bulking agent.

The mixers would be used to blend biosolids, recycled woodchips and new bulking agents to create the initial mix to be used in the compost process. The compost mix would be moved to the bay loading area in the composting building by a front-end loader. All material handling would be inside the building. The building would be completely enclosed with odor control fans to collect all of the air from inside the building and send it to odor treatment.

6.2.4 Composting Building (DD)

The composting building would be a totally enclosed metal building housing composting bays and screening equipment. Compost would be produced in concrete “bins” approximately 200-feet long, 10-feet wide, with an operating depth of seven feet. The compost building would be connected directly to the dewatering building, with the east side of the dewatering building sharing the west end of the composting building.

A turning device would move through the compost mix providing blending and aeration. The mix would remain in the bays for 21 days. Aeration to the compost mixture is provided by a trench/header in the

floor and low-pressure fans. As the mixer moves through the compost, the material is moved to the east end of the bay upon completion of the 21-day composting process, where a front-end loader picks up the material and places it in a screen. The screen is used to separate the larger woodchips to be reused in the composting process; it also produces a very uniform compost product. Composting provides an aerobic environment for conversion of organic material while at the same time operating at temperatures above 131 degrees Fahrenheit to inactivate potential pathogens. The building would be completely enclosed with odor control fans to collect all of the air from inside the building and send it to odor treatment

6.2.5 Curing and Storage Building (EE)

Curing is provided to assure a stable product with low odors. The curing process would be completely enclosed, with aeration provided by fans and trenches similar to the composting process. The air from this building is collected and sent to odor treatment. After curing for 30 days, the finished compost is moved to a storage area in the same structure. Space to store the finished compost over the winter would be provided.

6.2.6 Centrate Storage Tank (FF)

Centrate is the liquid produced in the dewatering process. The liquid would be returned to the sewer system for treatment at the WWTP. However, to avoid slug loads to the WWTP, an equalization tank would be provided. This tank would allow the centrate to be slowly discharged to the WWTP at times of low loadings. The tank would be designed to store seven days of centrate production in the design year. It would have a capacity of approximately 550,000 gallons and be completely enclosed with odor control fans to collect all of the air from inside the tank and send it to odor treatment.

6.2.7 Odor Control Systems (GG)

A two-stage odor control system consisting of a biological humidification chamber and biofilters would be provided to treat all of the air removed from the dewatering, composting, and curing buildings as well as the biosolids and centrate storage tanks. The humidification system pretreats the air collected in the processes to provide ideal operating conditions for the biofilters. The biofilters function by allowing the air collected from the various areas to be exposed to media that adsorb odorous compounds. Microorganisms in the media then break down these odorous compounds.

The humidifiers are circular vessels, 12 feet in diameter and approximately 10 feet tall. They would be housed in a building

architecturally similar to the other structures with dimensions of 36 feet by 50 feet. The biofilters would be located north of the dewatering building and would be approximately 134 feet by 263 feet and approximately 6 feet in height. Because the height would be relatively low, they would be landscaped to blend with the overall site.

6.2.8 Paved Drying Area (HH)

A 200- foot by 75-foot paved area would be provided adjacent to the curing storage building. This paved area would be used to store residuals from the city's water treatment plants. These residuals would be delivered intermittently and allowed to dry to as low a moisture level as possible. They would only be used when water plant residuals are not handled separately. The dried water plant materials may be mixed with compost for reuse.

6.2.9 Maintenance Building (II)

Because there are several large pieces of equipment (centrifuges, mixers, compost turners) and rolling stock (front-end loaders) at the BRC, a maintenance facility would be provided. The building would house two drive-through maintenance bays, offices, tool storage, toilets and a workshop. The structure would be a metal building with architecture similar to the composting building.

6.2.10 Administration Building (JJ)

A new administration building that also serves as a visitor center is proposed. It would include space for training, conferences, break room, mechanical equipment, laundry, restrooms, office space, records storage and lavatory (men's and women's facilities). The building would be constructed as a two-story structure with an unfinished second floor for future use.

6.2.11 WWTP Improvements (off site)

In support of the biosolids processing improvements, several systems at the WWTP would be upgraded. These upgrades are required to match the capacity of the proposed dewatering and composting processes, to replace old equipment and to improve the operations at the WWTP.

Due to age, condition and poor reliability of the existing centrifuge units, the city has initiated an interim project to upgrade and/or replace selected equipment located at the WWTP. The interim centrifuge project includes the following improvements:

- Replacement of existing heat exchangers

- Recirculation sludge pumps (2 replacements/1 new)
- Heat exchanger water pumps (3 replacements)
- New polymer storage system
- New ferric chloride feed system
- Solids processing building HVAC improvements

Future WWTP solids stream modifications, which would coincide with the development of the BRC, would include the following:

- Biosolids screen (1 new)
- Biosolids screen feed pumps (2 relocated existing pumps/1 new)

6.2.12 Biosolids Pipeline (off site)

In developing the Biosolids Recycling Center Program Alternative 5 (Off-site Dewatering and Composting facilities), the city evaluated two options regarding the transport of liquid biosolids from the city's WWTP to an off-site dewatering and composting facility: a trucking and piping option. This evaluation is documented in RTW Engineers' Technical Memorandum (TM) 2 and in their Preliminary Design Report.

The Valmont Butte site was selected as the preferred site alternative (Section 4.1.5). In evaluating the biosolids pipeline option, three potential alignments were identified between the WWTP and the Valmont Butte site. (Figure 15)

For comparison purposes with the trucking option, the longest pipeline alignment was evaluated. This 2.5-mile alignment would be located in 75th Street between the WWTP entrance and Valmont Road, and along Valmont Road between 75th Street and the northeast entrance to the Valmont Butte site. The pipeline would be constructed of 6-inch diameter ductile iron pipe and located within the 75th Street and Valmont Road right-of-way.

The long-term life costs of the trucking and pipeline options were similar. The trucking option has low capital costs but high operations costs. Conversely, the piping option has higher capital costs but lower operational costs. The piping option was recommended because it was seen as less invasive over the long term by reducing truck traffic along 75th Street and Valmont Road.

For the piping option, liquid biosolids would be pumped from the WWTP's existing biosolids holding tanks to the new BRC's liquid storage tank. Pumping from the WWTP to the BRC would occur for one-to-five days a week, 24-hours-a-day. New facilities would likely include:

- Pumping system (2 new pumps)
- Pipeline (glass-lined ductile iron or fiberglass)

- Clean outs and pipeline cleaning facilities located in manholes
- Woody amendment material, polymer for dewatering, ferric chloride for struvite control and miscellaneous materials would be delivered by trucks. Access to the BRC would be provided off Valmont Drive on the north side of the property.

The construction of the biosolids pipeline would likely require various permits, including a county 1041 permit.

6.3 Fire Training Center Components

The 36.4-acre Fire Training Center portion of the Valmont Butte proposal is accessed via the existing Valmont Road at the east end of the site with an emergency only access from 63rd Street at the southwest corner of the site. The 63rd Street drive would continue to provide regular access to the Valmont Cemetery and Valmont Mill/Butte areas. In collaboration with cemetery representatives, improvements would be made to the cemetery parking areas and signage incorporated to direct cemetery visitors. This access would also serve the potential future Valmont Mill visitor center/restrooms.

To respect the cemetery and its visitors and to minimize impacts to the historic mill site, the conceptual site plan has placed facilities (administration and classrooms) with the least outside activities on the western side of the lower bench of the FTC site. Activity areas with higher outside usage are located on the eastern end of the site. This places the burn building and training tower at the far east end of the FTC site and below the cemetery.

The FTC site is divided east to west into two relatively flat areas physically separated by the east face of an earthen berm. The upper (west) portion of the site would include the mill office, housing a potential future visitor center, a parking area and the underground potable water storage tank. There would be no new above-ground structures in this portion of the site. The existing dirt access road that currently provides vehicle access to the lower portion of the site on the south side would be converted to a pedestrian path.

The lower (east) portion of the FTC site would contain the administration/classrooms building and the wildland fire building with associated parking and vehicle storage. The tower and the burn building would each require approximately 100-foot radius of hard surface material around them to provide adequate support for fire vehicle maneuverability. The viewing pavilion has been situated to allow for close observation of the activities at the tower and burn building. It would provide a place for rest, rehabilitation and support for training operations. The concrete driving course would be almost exclusively over the tailings pond cap and the pavement would protect this area from precipitation and restrict wildlife (prairie dogs in particular) contact with the tailings. The driving course has been located to minimize impacts to the existing trees. Additional

props (extrication pads, pump pit and propane props) are located around the periphery of the driving course to minimize the need for additional pavement. One small future training area is planned on the south side of the driving course to allow for potential expansion.

The detention pond for the FTC development would be located at the east (lowest) end of and within the BRC site. Grading and drainage studies are yet to be prepared for the FTC site so the actual size of the detention pond is not known. The components depicted on the conceptual site plan are based upon available funding estimates made at the time the county-wide sales tax for fire training was approved by voters in November of 2001. The plan is flexible and would be matched to funds available at the end of the temporary sales tax in 2004. Any components left unbuilt would be constructed when additional funds become available.

The proposed Fire Training Center would include the following components. A discussion of each component is included below. Figure 10, Conceptual Site Layout, shows the location of the various components. The components' lettering listed below corresponds to the Figure 10 labeling.

6.3.1 Educational/Administration Building (A)

The educational/administration building, proposed to be located at the west end of the lower portion of the FTC site, would contain the essential components for administration, support and delivery of training. The building would be a two-story structure with attached bays for storage and placement of apparatus during adverse weather periods. The educational/administration building is divided into four distinct areas: office space, educational, support, and garage/storage areas. The building would house the training divisions of the various county fire departments. Additional office space would be maintained for use by other training coordinators within the county such as emergency medical service, hazardous materials response and specialized rescue.

The proposed educational areas include one main auditorium with a seating capacity of 100 people, with presentation, lighting, and sound systems. The auditorium would also be equipped with vehicle access for training and presentation purposes. There would be four smaller classrooms capable of seating 25-30 students each. One room would be a designated computer lab with individual workstations and another designed for incident simulations. Included in the educational area would be a library with audiovisual equipment, professional literature, and computer access to Internet and databases. The center would also provide a public meeting space.

Support areas include rest room/locker facilities, kitchen and dormitory areas. Other services in the support area include an audiovisual center for storage, operation, and development of training aids.

The garage/storage areas would be attached to the main building and permit fire apparatus to park inside during winter months. The bays would be drive-through to reduce the potential for backing accidents. The garage area would also provide storage for additional apparatus and or equipment.

In summary, the proposed building would contain approximately 12,400 square feet and include bay area and storage, a 100-person auditorium, library/audiovisual room, eight offices, dormitories, kitchen break area, entryway, locker rooms and four classrooms.

6.3.2 Wildland Fire Building (B)

The City of Boulder Fire Department funds a seasonal wildland fire crew who are an initial fire attack group for wildland fires occurring on or near city-owned land, including Open Space and Mountain Parks. When not involved in fire fighting, the crew performs mitigation work on city land, thinning forests and conducting prescribed burns to reduce the intensity of wild fires. The crew currently works out of several locations. Offices, vehicle storage, and tool repair and storage are each in different buildings. The proposed Wildland Fire building would consolidate all of the crew and their support into one location. It would provide approximately 1,500 square feet of offices, garage space for four to six wildland fire vehicles and shop space for maintenance and repair of small equipment.

6.3.3 Pavilion (C)

The 400-square foot pavilion is the control center for the training grounds. This structure would be one-story with an observation area on the roof. The observation area would be a vantage point to watch over the entire area when multiple agencies are on the training grounds. The pavilion would also house restrooms, an air compressor for bottle refilling and a fire extinguisher refilling station.

6.3.4 Burn Building (D)

The burn building would be metal with noncombustible heat-resistive linings. The structure would be two stories (1,800 square feet) with a partial basement (300 square feet). The building allows simulation of fire attack, ventilation, search & rescue, forcible entry, laddering, overhaul, salvage and utility control. The burn building would use combustible wood materials, such as pallets or excelsior.

This building would have a different layout and be about 500 feet larger than the existing 2,500 square foot Lee Hill burn building.

6.3.5 Tower (E)

The tower would be a 960-square foot, five-story structure with a ground level vestibule, smoke tower and fixed fire protection systems. The tower would permit departments to perform high-rise operations, use aerial ladders, practice rappelling, and fire ground operations in high-rise occupancies.

6.3.6 Extrication Pads (F)

Two 400-square foot concrete extrication pads provide a location for fire firefighters to train on the proper methods of removing automobile crash victims from damaged vehicles. These pads are large enough to hold a vehicle and extrication equipment. Automobiles are placed on the pads and damaged to simulate a collision. Fire crews then use hydraulic tools and cutters to “open” the vehicle and remove simulated victims. The pads provide a stable, clean and safe area to work from and are designed to provide containment of leaking vehicle fluids for proper disposal. All extrication pads shall have an underlining that would act as a barrier to prevent environmental contamination.

6.3.7 Concrete Driving Course (G)

The 250,000-square foot driving course would be a concrete pad capable of supporting fire apparatus weights under significant driving conditions. The pad could also be used as an overflow parking area for the facility. The course would be capable of providing driver training to other city and county departments. Potential departments who would benefit from this are: fire, ambulance and rescue services. Presently there is not a driving course for fire apparatus anywhere in the metro area.

Having a central training facility where classroom and outside training can be conducted near fire department response areas is critical. Proximity to all involved fire districts to maintain reasonable response times is also vital. Experience has shown that concrete designed to support the weight of a fire vehicle, in some cases up to 75,000 lbs, is the only surface material that would work. Because the fire departments are required to provide fire protection on a 24 hour per day basis, removing a crew from service of protecting the community and sending them 20-30 miles away to do driver training is unrealistic. The alternative is to have extra fire trucks and require crews to attend driver training off duty and on overtime, a very expensive option.

6.3.8 Pump Pit (H)

The 120-square foot pump pit area would provide a location for apparatus to conduct drafting operations and pump testing. The pump pit would

permit easy access for apparatus, reduce trip hazards and prevent contamination from surrounding surface water runoff. The tank must be large enough to permit the largest capacity pumper in the county to use the pit.

6.3.9 Propane/Natural Gas Props (I)

The proposed combustible gas area would be a multifunctional area. It would be a contained, gas-fired burner with a metal overlay. The system would use a water/gas mixture to simulate flammable spill fires as are found in bulk storage plants but without the environmental impacts. Other props in the combustible gas area include a gas-supplied automobile-fire simulator, tank and gas distribution tree. These props allow training on various operations involving propane tanks and valves. The automobile fire simulator permits car-fire training without having to obtain actual vehicles. The advantage is that environmental impacts are reduced with gas-powered systems while still permitting training in these critical areas.

6.3.10 Potable Water Storage Tank (J)

Potable water is planned to be delivered to the site from the city's system. In order to provide adequate volume for fire protection, a new underground storage tank would be installed. The tank would have a capacity of 450,000 gallons and be located within the upper (west) end of the FTC site.

6.3.11 Future Training Area

At the southeastern corner of the concrete driving course a "Future Training Area" is reserved for the addition of training props that may be needed to maintain future fire fighter skills. There is no activity or fire training prop currently planned for this area.

7.0 POTENTIAL IMPACTS AND PROPOSED MITIGATION

7.1 Overview

The proposed project includes construction of a Biosolids Recycling Center located at the eastern end of the project area, construction of a Fire Training Center located in the center of the project area, and management and preservation of the Open Space property bounded on the northern and western ends of the project area. A cultural landscape management area (CLMA) on the western edge of the project area would incorporate many of the known cultural and historic resources on the site while providing a buffer between future development and the adjacent Valmont Cemetery.

Both the BRC and FTC have been conceptually laid out to be as compact as possible in an effort to minimize impacts to the site. The construction of the buildings, fire training props and concrete driving course as well as other construction activities on the site would result in the permanent loss of vegetation and wildlife habitat on those portions of the site; however, it would also harden and stabilize portions of the capped tailings ponds that are now exposed. During and after the construction activities, the OSMP land would remain undisturbed. Potential disturbance impacts related to the operation of machinery during construction in and around Valmont Dike is low. The City of Boulder would use mitigation measures to minimize the impacts caused by the construction activities. (Figure 10)

7.2 Visual

The improvements within both the 36.4-acre Fire Training Center site and the 38.3-acre Biosolids Recycling Center site are clustered to the maximum extent possible to minimize impacts to the adjacent land. All construction areas would be limited to those portions of the site that have previously been disturbed. Total building and impervious coverage and future development would comprise only 22.2 percent of the site. A photo simulation of the site, looking east/northeast from the cemetery entrance towards the proposed FTC and BRC buildings, has been created to illustrate the impact of the proposed improvements. (Figure 13) Two visual simulations have been created to illustrate the impacts from off-site locations: 1) looking south from 61st Street at Boulder Creek, and 2) looking west from Valmont Road just east of the site entry. (Figure 12)

Because the site is buffered by the Xcel Energy power plant property to the south and east and by the Valmont Butte to the north and west, the BRC would only be minimally visible to the public from Valmont Road east of the entry and Valmont Cemetery. This is because the BRC would be located in a depression that is bounded on the north and west by Valmont Butte (approximately 200-foot high),

on the south and east by a recontoured mesa (approximately 50-foot high hill), and on the east by an earthen berm.

The unique visual resources found on the project area are the Valmont Butte and Valmont Dike which would not be impacted by the project. Views from the cemetery, the mill site and the ceremonial site on Valmont Butte would be visually impacted by the project; this is proposed to be mitigated through sensitive placement and design of buildings and other improvements.

Adjustments made to the Conceptual Site Layout as a result of the spring 2004 feedback from the CRG included the relocation of the administrative/classroom and wildland fire buildings from the upper level of the site, east down the hill to the toe of the slope of the lower level. The majority of the fire training props were moved to the far east end of the site, mitigating the impact of the burn building, tower and pavilion on the existing mill site and Valmont Cemetery. The burn building is now approximately 1,100 feet from the northeast corner of the Valmont Cemetery (versus 200 feet). The administrative/classroom and wildland fire buildings would be partially visible from the cemetery gate. (Figure 13)

All of the proposed buildings would remain obscured by the Valmont Butte formation from 61st Street at Boulder Creek; however, the BRC buildings and FTC burn building and tower would be partially visible from Valmont Road just east of the main entrance to the BRC and FTC. (Figure 12)

The architecture of the FTC and BRC buildings would be complementary to the industrial nature of the Valmont Mill in order to minimize the visual intrusion into the mill site and the surrounding landscape. (Figure 11)

Removing noxious weeds and planting native vegetation to improve the vegetative recovery after construction would improve the aesthetics of the site.

7.3 Cultural/Historic Resources

The establishment of a proposed cultural landscape management area (CLMA) is recommended. The area would incorporate a majority of the known cultural and historic resources located on the subject property and provide a buffer between future development and the adjacent Valmont Cemetery. Re-establishment of a prairie landscape, damaged by consistent industrial use over the past 60+ years, is also recommended within this area. A smaller portion of the CLMA is proposed for designation as a local historic site, incorporating buildings associated with the Valmont Mill. (Figure 4)

Designation of the mill site as a local landmark could open the door to grant funding for stabilization, restoration and planning. Landmark designation would also necessitate review of any exterior alterations on the designated site, ensuring protection of this resource. First steps should include initiation of the landmark designation process upon annexation and seeking a State Historic Fund historic

structures assessment grant. Grant funding to develop a long-term management plan for the site should also be pursued. The management plan would be an essential tool in addressing the future use of the landmarked area and to take advantage of its educational potential. Cooperative agreements for the management of the historic components of the site, including partnerships with other governmental entities and/or nonprofit organizations, are recommended.

In order to mitigate impacts of the proposed facilities on the cemetery and to avoid disruption of any pioneer family graves that might be beyond the fenced boundary of the cemetery on city-owned property, a 100-foot buffer is planned around the cemetery boundary. A focus of vegetation management in the CLMA would be the reduction of weeds and reintroduction of native species consistent with the ecological conditions of the site.

A management plan for the new facilities would commit to limiting or halting operations during scheduled cemetery burials. An improved roadway and parking area adjacent to the cemetery are included in the city proposal and would be available for cemetery use.

The Gleichman Report (Appendix A) offers several recommendations regarding the treatment of historic Euro-American resources on or near the Valmont Butte site that have been incorporated into the current proposal:

- The butte has been protected through Open Space acquisition. The Valmont Mill would be landmarked in order to preserve and protect this resource.
- A buffer is provided around the Valmont Cemetery to avoid impacting any potential unmarked graves in the area. The exception to this buffer is the existing cemetery parking lot, an already disturbed area that is proposed for resurfacing.
- Some new development would be visible from within the cemetery. The visual impact of that development would be mitigated through the use of landscape screening, buffers and compatible building design that are sympathetic to the character of the historic mill buildings and the site.

7.4 Utility Services

The proposed project area would increase the need for water and sanitary sewer services, fire protection, energy use, transportation improvements and telecommunications at this location. These services would be provided to the project area by extending existing facilities. All utility locates and applicable permits to protect the above-mentioned services would be obtained prior to construction. Temporary impacts during construction of these extensions are anticipated including brief interruptions in service, noise and construction traffic. No other impacts after the completion of the project are anticipated as a result of the project.

Water service would be provided by installing a new 12-inch diameter pipeline connecting to an existing water line in 61st Street near Indian Road. Sewer service would be provided by a 15-inch diameter extension connecting to the existing sewer in Valmont Road, near Butte Mill Road. Electrical and natural gas service would be provided from Xcel Energy. Gas piping would be connected at the west end of the site, and electrical would be provided from the primary line that runs along the southern boundary of the site. Communications infrastructure needs have not been designed at this time, but physical access to the communications infrastructure is adjacent and/or near the site. Thus the goal of providing efficient utility extensions would be met; however, impacts during construction of these extensions could occur, including brief interruptions in service and traffic.

7.5 Air Quality

The city has evaluated the proposed facilities' impacts on air quality and has determined that potential air quality impacts would likely occur from two scenarios: short-term impacts experienced during the facilities' construction and long-term impacts from the facilities' operation.

Short-term air quality construction-related impacts would primarily be associated with dust. These impacts can be minimized to a great extent using Best Management Practices (BMP's). Key construction related BMP's include:

- Maintaining moist soil conditions during excavation
- Controlling stormwater quality runoff through hay bale staking
- Providing adequate storage and cover for on-site materials

Long-term air quality impacts would primarily be associated with odor generated at the facilities. These potential impacts would be minimized through the design process and daily operations.

7.5.1 BRC

The proposed composting facilities would be fully enclosed in four-sided buildings with roofs. This design approach would ensure that odors generated through the composting process are captured within the enclosed buildings. All compost buildings would use a "negative aeration" design, whereby air is pulled into the building from outside rather than pushed out of the building. This approach minimizes process air released to the outside without treatment. All the air captured in these compost buildings would be treated through a two-stage odor control system. The two-stage odor control system would include a humidification chamber and a biofilter. Biofilters have become the industry standard for treating large volumes of air because of their effectiveness. Upon treatment through the biofilter, the air would be released to atmosphere.

A BRC that is located nearby will also eliminate the need to truck biosolids to Adams County, resulting in a reduction of vehicle exhaust emissions to the air.

7.5.1.1 Odor Modeling

As part of the Biosolids Recycling Center preliminary design process, the city had its engineering consultants complete an odor modeling analysis for the proposed facilities. The purpose of this evaluation was to determine potential odor impacts at the site and the surrounding community.

The odor modeling was performed using the United States Environmental Protection Agency-recommended Industrial Source Complex Short Term (ISCST3) air dispersion model. Five years of meteorological data from the Boulder Airport were used in the model. A five-square-kilometer area surrounding the site of the proposed facility was modeled with 12 receptor locations examined for off-site odor impacts. Figure 17 shows the location of the 12 receptor sites. The modeled receptors were identified on an aerial map and represent the nearest commercial and residential receptors to the proposed facility.

The Colorado Air Quality Control Commission, Regulation No. 2: Odor Emissions identifies two odor standards. For areas used predominantly for residential or commercial purposes, an odor concentration of seven dilutions to threshold (D/T) or greater at the facility boundary is considered a violation of the odor standard. For other land uses, such as agricultural areas, the standard is 15 D/T. A seven D/T means that odorous air has been mixed with seven or more volumes of odor free air. The proposed Biosolids Recycling Center facilities would be designed to exceed the more restrictive standard of 7 D/T.

The odor modeling analysis evaluated the potential odor impacts from three different composting technologies located on the east end of the Valmont Butte site. Based on the odor modeling scenarios evaluated, no odor impacts are predicted to occur at any of the 12 receptor locations. The predicted odor concentrations at the 12 receptors for all three compost technologies were significantly below 7 D/T.

7.5.2 FTC

Smoke generation would be limited by the amount and type of material used for live fire training. Wooden pallets are the predominant fuel used inside the burn building. Only the amount necessary to produce the desired

training situation is burned, usually four to six pallets per burn. Burn time for each training exercise varies; however, it is most often between five and 10 minutes before extinguishment. During the burn, light to moderate smoke is produced. When water is applied, smoke and steam emit until the fire is extinguished. This amount of smoke dissipates quickly. With the size of the site proposed at Valmont, no off-site smoke migration is projected. Additionally, burning is limited during November through March in accordance with the High Pollution Advisory Program “no burn” days.

The existing two-acre Lee Hill FTC facility is surrounded by residential and commercial properties, and currently operates with a residential neighborhood that is within 100 feet of the training center property. The proposed burn building at the Valmont Butte site is approximately 1,100 feet from the northeast corner of the Valmont Cemetery.

Complaints from both residential and commercial Lee Hill neighbors have included smoke migration, noise and water spraying off site. In 2001, there were nine complaints, five in 2002 and three in 2003, indicating a significant reduction in complaints three of the past four years.

7.6 Transportation

Vehicular traffic associated with the proposed BRC and FTC facilities would represent an insignificant increase in traffic along Valmont Road and other neighboring minor arterial roadways. Fox Higgins Transportation Group prepared a Traffic Study in September 2004 to evaluate the potential traffic impacts of this project. The following is a summary of their conclusions and recommendations.

7.6.1 Site Access

The Valmont Butte site’s main access would be located along the south side of Valmont Road, approximately 3,700 feet east of the North 61st Street intersection. All normal site vehicular access would utilize this main site driveway. An emergency vehicle-only access would be provided onto the existing roadway off of 63rd Street, south of the site. This road would continue to provide access to the cemetery and other users.

7.6.2 Site Uses

The proposed Biosolids Recycling Center would include a staff of up to eight employees. The biosolids would arrive on the site by either a pipeline or tanker trucks. Trucks would deliver wood chips and other supplies for the composting operation and treated compost would be trucked off of the site.

The proposed Fire Training Center would include a variety of fire training facilities (including a 100-seat auditorium). The training facilities would serve fire departments from around the region. The site would also house a Wildland Fire building. The fire training facilities would be staffed by up to five employees, while the Wildland Fire building would have a peak staff during warmer months of up to 12 employees.

It is projected that the auditorium may be used at full capacity an estimated 20 times per year, and at 30 percent to 40 percent of its capacity 2-3 times per month.

The traffic study has projected and evaluated the traffic to be generated by the proposed Valmont Butte Fire Training Center and Biosolids Recycling Center. Significant conclusions and recommendations include:

- The site uses would generate approximately 145 daily and 50 evening additional vehicle trips that would be accommodated by Valmont Road.
- The site driveway should be constructed to include separate outbound left- and right-turn lanes.
- No additional improvements to the Valmont Road corridor are warranted by the normal operation of the site.
- The 100-seat auditorium has the potential to add a spike of inbound or outbound traffic of 90 to 100 vehicles per hour when fully utilized, and this is projected to occur 20 times a year.
- An auditorium event that results in this additional outbound traffic in the evening peak hour would cause additional delays for vehicles exiting the site. Scheduling of auditorium use could avoid this situation.
- The eastbound to southbound right-turning movement into the site would not warrant the addition of a right-turn deceleration lane on Valmont Road under normal operation. This finding is based on turn lane warrants in the CDOT State Highway Access Code and other national guidelines.
- The westbound to southbound left-turn movement into the site would not warrant a left-turn lane in Valmont Road under normal operation. This finding is also based on turn lane warrants in the CDOT State

7.7 Noise

Similar to odor generation, potential noise generation would likely occur from two scenarios: short-term impacts experienced during the facilities' construction and long-term impacts from the facilities' operations.

Short-term noise generation would be typical of construction projects. Typical construction hours are from 7 a.m. - 4 p.m. For most city projects, weekend work is periodic and must be approved by the project manager on an as needed basis. Noise generation from construction associated with the proposed BRC and FTC facilities would likely be no louder than background noise because of daily traffic noise along Valmont Road, the local industrial facilities and the noise generated by airplanes flying directly overhead.

Long-term noise impacts would primarily be associated with daily operation at the proposed BRC and FTC facilities. These potential impacts would be minimized through the design process and daily operations.

7.7.1 BRC

The short-term noise impacts would be the result of daily construction operations associated with the construction of the BRC facilities. This construction would entail excavation, building, and pipeline construction. The estimated construction duration associated with the BRC is 12-18 months.

The long-term noise generation would be associated with the daily operations of the BRC. The same approach of utilizing enclosed buildings to minimize site odors would greatly reduce site noise generation as well. The composting process utilizes heavy equipment for the dewatering process. The site's dewatering equipment would generate the most noise from the facility. However, noise generated by this equipment would not likely be audible outside the building because the BRC's buildings would be fully enclosed and insulated.

Work outside the buildings would involve heavy equipment. Rubber-tired loaders would be used to move the wood chips and compost product from one building to another on a daily basis.

7.7.2 FTC

During construction, noise related to heavy equipment operation would be generated during the daytime hours causing temporary impacts to the neighborhood nearby.

At the completion of the construction, the most common source of noise would be the engines of fire trucks as they are driven or used to pump water at training exercises. Driving would not be at high speeds so the noise created is no more than what might be heard as a large truck drives along a city street. Sirens and horns are not used in driving training. While pumping water, the truck engines run at a moderate speed to turn the water pump. During fire training exercises, the pumps run only while pumping water. Each exercise may last 10 minutes, after which the

engines are returned to an idle. Occasionally, training activities take place at night.

Ambient noise is the normal ongoing noise in any environment, indoors or out of doors, without any extra sound sources. Ambient noise levels are usually measured in dBA, an abbreviation for decibels adjusted. Daytime ambient noise levels are greater than the nighttime levels.

Ambient noise levels measured along Valmont Road north of the FTC site and taken around 10 p.m. in October 2004 found levels between 39-49 dBA depending upon traffic on Valmont Road.

Noise emitted by a typical fire training exercise did not exceed 85 dBA at 25 feet when surveyed in October 2004 at the Lee Hill site. Generally sound decreases at an approximate rate of 6 decibels for every doubling of distance from the noise source. Therefore, by 400 feet from the source, on flat ground, the noise level would be about 62 dBA.

At the nearest residential property to the training center property the noise level would be about 55 dBA even without considering the mitigating effect of Valmont Butte. An additional noise reduction of about 10 dBA might be expected.

The major hands-on fire training props and buildings are planned to be located on the eastern end of the FTC site, about 1,000 feet from Valmont Cemetery.

Almost all fire training, except for about 15 to 20 times a year, is conducted during daylight hours. When conducted, nighttime trainings end by 10 p.m.

With the natural berm of the Butte and the distances, the noise perceived at adjacent properties should be negligible, if heard at all.

A management plan for the FTC would commit to limiting or halting operations during scheduled cemetery burials.

7.8 Hazardous Materials

Hazardous materials were identified on the site in the Phase I Environmental Assessment completed September 2000. The materials identified in the Phase I EA have since been further documented as part of the EPA's Hazardous Materials Inventory conducted on site Aug. 18-20, 2004. EPA has produced a Hazardous Categorization Report documenting and summarizing the hazardous materials inventory conducted on site. This report was delivered to the city in January 2005.

7.8.1 BRC

At the proposed BRC site, materials that might be classified as hazardous or are handled as hazardous are products which would be used for equipment maintenance and the composting process. These materials include some greases, solvents, paints, diesel fuel, flammable liquids, ferric chloride and possibly other materials determined to be hazardous by the EPA under the Resource Conservation and Recovery Act. These types of wastes are to be disposed of at an off-site EPA-permitted hazardous waste facility; therefore, no impacts associated with these materials are anticipated.

Once the BRC is in operation, the only material that might create unsafe conditions is the polymer feed chemical. The polymer would be properly contained inside a curbed area to prevent unplanned mixing with water. The accidental spillage of polymer on the floor in a foot-traffic area can cause slippery conditions. The project would meet all city, state and federal standards for environmental protection, health and safety. It is anticipated there would be no significant impact as a result of the project.

7.8.2 FTC

Materials that could be considered hazardous would be limited to consumer products used for routine maintenance and house keeping. This includes paint, equipment cleaning solvents and cleaning materials. Small quantities, less than five gallons, of gasoline fuel for power saws and other small power equipment may be kept on site. One to two gallons of hydraulic oil to maintain power cutters and spreaders used for rescues would be stored. All flammable materials would be stored in appropriate flammable liquid cabinets. Liquefied petroleum gas, 500 – 1,000 gallons, would be in a storage tank at the propane training and is used to fuel the training props in that area.

7.9 Security

The entire property is now posted with “no trespassing” signs and is closed to all public access except access by registered members of federally recognized tribes. However, some unauthorized persons have entered the site from time to time for camping, gatherings, target practice and to vandalize the buildings. One of the primary benefits of the proposed FTC and BRC projects would be the additional security provided to the cultural and natural features of the site. The presence of city and county personnel on this site during the day would also contribute to the security of the buildings, including the historic mill and the adjacent cemetery, thereby reducing the potential for vandalism and defacement of the structures and grave stones.

7.10 Resource Conservation

The construction of the BRC and the FTC would be designed to include water distribution facilities dewatering equipment, fire flow requirements and other potable water requirements. The equipment required to dewater and treat the biosolids and to pump domestic water to the project site would require approximately 1,800 hp and would increase energy use at the proposed project.

Facilities are proposed for storing and dewatering liquid biosolids, storing biosolids cake and woodchips, and composted Class A material. The Class A composting material would be distributed and marketed for soil conditioner and fertilizer. The BRC would be classified as Class I, Type 3, Compost Facility regulated by CDPHE, Waste Management Division.

Building construction would be in conformance with adopted City of Boulder energy codes, to include resource conservation techniques and features such as daylight design, low flow water fixtures, and high efficiency mechanical systems. Exterior development would be designed to minimize heat islands and landscape elements would feature low water usage plantings with drip irrigation systems.

7.11 Vegetation

There would be short-term impacts on the existing vegetation from construction activities as the BRC and FTC are developed. Every effort would be made to minimize these impacts through use of Best Management Practices (BMPs), which would be incorporated into the project designs. For a list of BMPs, see the City of Boulder Design and Construction Standards (DCS) at www.ci.boulder.co.us/buildingservices/dcs/index.htm.

Vegetation including grasses, shrubs and forbs in the pipeline right-of-way (ROW) would be temporarily disturbed. All disturbed vegetation would be restored. No mature trees would be impacted by the project.

Construction of the pipeline tie-in to the proposed Valmont Butte site would result in temporary disturbance (noise, dust, altered traffic flow) to the neighborhood immediately surrounding the site. Best Management Practices at the construction site would minimize these impacts to the maximum extent possible.

A temporary increase in soil erosion associated with construction activities along the pipeline ROW may occur. BMPs of the Storm Water Management Plan at the construction site would minimize these impacts to the maximum extent possible.

The FTC and BRC site plans have been designed to be as compact as possible in an effort to minimize impacts to the site. The construction of the FTC and BRC buildings, the concrete driving course, other paved areas and miscellaneous construction activities on the site would result in the permanent loss of

approximately 22 percent of the vegetation, wildlife and wildlife habitat on the site.

A number of pole-sized Russian olive and cottonwood trees would be removed as a result of construction activities associated with the FTC. Trees slated for removal are not considered mature.

Landscaping improvements on the site would incorporate native species whenever possible. Planting design would be in accordance with Xeriscape principles and Boulder's landscape standards. Selected plants would be compatible with Colorado's regional climate and microclimate conditions on the site. Conversion of bare ground as a result of construction on the site and landscaping improvements would likely reduce wind erosion on the site.

Maintenance of the vegetation after project completion would be performed by selective mechanical removal of noxious weed species, with limited use of herbicides, using appropriate Integrated Pest Management (IPM) strategies.

7.12 Birds

Removal of the existing poles-sized Russian olive and cottonwood trees in the location of the FTC would result in the loss of several magpie nests and potential nesting sites for other birds. The proposed construction of the FTC would include the introduction of new trees to replace those removed. Project activity on the site would comply with provisions of the Migratory Bird Treaty Act (MBTA). The rock outcrops on Valmont Dike that may be used as perch sites by raptors have been preserved as open space.

7.12.1 Burrowing Owl

Although no burrowing owls have been observed at the Valmont Butte site, the city would commit to using best practices when dealing with potential burrowing owl locations.

Burrowing owls are present in Colorado between March 1 and October 31. Federal and state laws, including the Migratory Bird Treaty Act, prohibit the killing of burrowing owls. It is possible to kill burrowing owls inadvertently during construction or earth-moving projects. In an effort to avoid accidental killing of burrowing owls, the Colorado Division of Wildlife has drafted suggestions for conducting clearance surveys in areas subject to construction projects during the period from March 1 through October 31:

- Burrowing owl surveys are to be conducted between March 1 and October 31 (this period coincides with the summer residency period for burrowing owls in Colorado).

- Arrive at the site at least one-half hour before sunrise and get positioned.
- On two consecutive mornings from sunrise to two hours after sunrise, view the prairie dog town from a good vantage point using high quality binoculars. The owls may be standing on a mound or around a burrow, or often may be perched on fence posts or telephone poles on or near the town.
- Surveys must be done in good weather with calm winds, no precipitation and cloud cover less than 75 percent. Poor weather causes the owls to be less active. If weather interferes, the viewing mornings do not need to be consecutive.
- If no burrowing owls are seen in two consecutive mornings of searching, it is likely that owls are not using the town.

If burrowing owls are found, then there are two options:

1. Wait until November 1 or until it can be confirmed that the owls have left the area before moving forward with the project.
2. There must be no human encroachment or disturbance within 75 yards of the nest site from April 1 - July 31. This period is necessary to avoid disturbing nesting owls. However, owls may be present at burrows up to a month before egg laying and several months after young have fledged. It is recommended that efforts to remove prairie dogs or reclaim abandoned towns do not occur between March 1 - October 31 when owls may be present. Although owls may occur throughout a prairie dog colony, they have a propensity to frequent the colony margins. Buffer zones should be applied to the colony perimeter (Craig 2002).

7.12.2 Bald Eagle

The site does not contain a nest site or essential winter roost site as defined by the Northern States Bald Eagle Recovery Plan (USFWS 1983).

7.13 Black-tailed Prairie Dogs

Occupation of the Valmont Butte site by prairie dogs has expanded significantly over the past three to five years, as has been the case throughout the Boulder Valley. Approximately 56.6 acres have been mapped on the site containing a range of approximately 700 to over 1,100 prairie dogs (City of Boulder 2003a). This represents approximately 56 percent of the property.

The BRC and BTC facilities will minimize, to the greatest extent possible, impacts to the prairie dog colony. As noted in Table 4 the proposed development of the FTC and BRC would impact approximately 38.0 acres (67 percent) of the

total area occupied by the prairie dog colony, allowing approximately 18.6 acres of the prairie dog colony to remain on the site in their current location.

Approximately 11.5 acres of the prairie dog colony are located within the 17-acre tailings ponds. The tailings ponds are particularly inappropriate for prairie dogs because the prairie dogs are bringing the tailings material to the surface. In its most recent study, the EPA recommended the removal of the prairie dogs within the capped tailing ponds. It is the city of Boulder’s intention to do this.

Table 4 Prairie Dog Summary

| | Area (acres) | % Of Total Site | % Of Prairie Dog Colony | Estimated Prairie Dog Population | |
|---|--------------|-----------------|-------------------------|----------------------------------|----------|
| | | | | Low | High |
| | 101.6 acres | 100% | | 12 pd/ac | 20 pd/ac |
| Existing Prairie Dog Colony | 56.6 acres | 56% | 100% | 679 | 1132 |
| Prairie Dog Colony Relocate Off Site and/or Euthanize | 38 acres | 37% | 67% | 456 | 760 |
| Prairie Dog Colony Retained | 18.6 acres | 18% | 32% | 223 | 372 |
| Prairie Dog Colony Residing Over Tailings Pond | 11.5 acres | 11% | 20% | 138 | 230 |

Although not all of the prairie dog colony would be disturbed, the proposed project would necessitate the removal and relocation of a significant number of the existing prairie dogs. Reduction in size of the prairie dog colony could adversely affect potentially significant foraging area for raptors, including the bald eagle.

Prairie dogs on the site would be handled in accordance with policies and guidance established by city policy as well as state and federal regulations related to prairie dog relocations. In coordination with the Open Space and Mountain Parks Department, an effort would be made to relocate as many prairie dogs as possible if OSMP lands were available; however, the city does not have any areas

of OSMP land available for prairie dog relocation at this time or in the foreseeable future.

The Colorado Revised Statutes 35-7-203 Release of Destructive Rodent Pests requires that the Board of County Commissioners in the receiving county approve any proposal to release prairie dogs from outside their county. An amendment to the Colorado Constitution (0-4-283, XVIII, Section 13) prohibits the taking of wildlife by trap or poison. The taking of rodents, including prairie dogs, is specifically allowed. However, incidental take of non-rodent animals (e.g., burrowing owls, snakes, salamanders, frogs and toads) associated with prairie dog poisoning could be considered a violation of this constitutional provision.

The city of Boulder staff is currently developing an interdepartmental policy for managing prairie dogs on city lands. The policy would outline the process for decision-making on prairie dog management and set limits for use of lethal control. This policy document is expected to be completed in early summer 2005. The Valmont Butte project managers would follow the established protocol.

The decision-making process would follow five steps (endorsed by the City Council at its Jan. 18, 2005 meeting):

- a. Minimize conflicts with wildlife through non-removal methods where possible (barriers). *Due to the nature of the proposed facilities, it would be unfeasible to construct this project utilizing non-removal methods.*
- b. Remove animals on a portion of the site and construct barriers to prevent colonization in undesirable areas of the site. *Approximately 38 acres of the existing 56.6 acre prairie dog colony would need to be removed and appropriate barriers constructed along the southeast - west road to prevent recolonization in the developed areas of the site.*
- c. Relocate if receiving sites are available. *The Valmont Butte project managers would make every effort to identify potential receiving sites for the relocation of the affected prairie dogs on the Valmont Butte site.*
- d. Trap and donate prairie dogs to the U.S. Fish and Wildlife Service for use in the black-footed ferret reintroduction program, raptor rehabilitation program or an equivalent program. *The Valmont Butte project managers would make every effort to maximize the donation of the affected prairie dogs to an animal recovery program; however, it is unlikely that this would constitute a significant portion of the prairie dogs.*
- e. If lethal control is necessary, trap and euthanize the animals in a humane manner. Specific euthanizing methods would be developed by the staff team. *The Valmont Butte project managers would abide by those methods recommended by the interdepartmental policy for managing prairie dogs on city lands.*

7.14 Wetlands/Water Issues

7.14.1 Wetlands

Wetlands on the site occur in a small drainage on the east side of the site. Vegetation in the drainage consists of broad-leafed cattail, showy milkweed, Canada thistle, woods rose, skunk bush, Russian olive and plains cottonwood. Wetland vegetation in the drainage is likely supported via seepage from the Leggett-Owen Reservoir.

No permanent wetland impacts are anticipated. An application for a City of Boulder Wetland Permit would be submitted for the proposed project. Consultation with the U.S. Army Corps of Engineers is anticipated to determine whether the wetland is jurisdictional. The stormwater quality detention pond would be designed to avoid impacts to the wetland. Should any disturbance occur, all disturbed wetland and buffer areas would be restored. Restoration would include seeding, planting, and/or sprigging with appropriate, native vegetation to meet the requirements of applicable permits.

7.14.2 Water Quality Issues

During Construction

During construction, temporary impacts to groundwater quality associated with trench dewatering activities along the pipeline ROW may occur. Dewatering BMPs at the construction site would minimize these impacts to the maximum extent possible. The relatively shallow depth of burial for the pipelines should reduce the amount of trench dewatering required.

After Construction

Impacts to water quality will be minimal as a result of construction of the BRC and the FTC. Within the area of the BRC site, there would be two ponds - one for the retention of stormwater runoff from the biosolids process buildings and driveways (Biofilter Leachate Compost Area Runoff Retention Pond) and one for water quality detention.

The retention pond would be located northeast of the BRC paved drying area. This runoff would be controlled so that it does not discharge from the facility. The water quality detention ponds would be located at the northeastern portion of the Valmont Butte property and would be designed to capture sediment and runoff flows from its watershed. Discharge from the detention pond to the ephemeral stream would be at a rate similar to the rate experienced from the site prior to development. The reduced discharge rate would reduce erosion, increase infiltration from precipitation and reduce peak flows from drainage.

The water quality detention pond would be designed to avoid impacts to the wetland. Should any disturbance occur, any disturbed wetland and buffer areas would be restored. Restoration would include seeding, planting and/or sprigging with appropriate native vegetation to meet the requirements of applicable permits.

There would be impacts to the surface water quality but they would be mitigated by: a) the four existing manmade earthen barriers that would capture runoff during a storm event, and b) the implementation of a storm water management plan. At the northeastern portion of the Valmont Butte project area there is an existing ephemeral stream that appears to flow only in direct response to high-intensity precipitation or snowmelt. This ephemeral stream is a northerly-flowing stream that drains into Butte Mill Ditch and would not be impacted during or after the completion of the project.

The proposed BRC and FTC buildings, fire props and concrete driving course would impact some vegetation on the site and therefore increase the amount of impervious ground. The net result would be an increase in the rate and amount of surface runoff. Stormwater runoff may contain a variety of petroleum products picked up from parking lots and roads on the site. The proposed water quality detention pond at the east portion of the site would remove a majority of these substances prior to outfall into the receiving creek. An outfall would be incorporated into the design of the water quality detention pond. The outfall would result in attenuated flows and releases at existing levels. All applicable permits to protect water quality would be obtained prior to construction.

The impacts to the groundwater caused by the construction activities would be minimal since the construction of both facilities is proposed to be located above-ground on concrete slab on grade and within enclosed structures, thereby isolating the release of leachate into the groundwater.

A waiver for implementing a groundwater-monitoring plan would be requested since the proposed compost processing activities and FTC are not expected to impact groundwater within the Pierre Shale. Any dewatering activities, if needed, would follow Best Management Practice measures (BPMs).

7.14.3 Fire Training Center Water Use

Water would be the primary combustion extinguishing agent used by the fire departments. Each fire truck has a tank to bring a limited amount of water to a fire. Most training exercises use short bursts of water from a hose. Water used for pump testing would be reused from a buried tank. A hose connects the truck's pump to the tank, water is withdrawn, and the stream from the hose is directed back into the same tank. The site design

would collect and capture runoff into a water quality detention pond at the east end of the BRC site.

Water use during 15 live fire training drills at the Lee Hill Fire Training Center was monitored during three days in August 2004. The procedure for each drill included a fire set in the lower level northwest corner room of the burn building using six to eight wooden pallets per drill. The pallets were randomly stacked together and initially ignited by a burning road flare. After approximately a 10-minute burn time, a crew of three people on a fire engine began the drill. From a remote location the crew drove the fire engine and parked near the northeast corner of the burn building. Two crew members got into their protective clothing and pulled a one and three-fourths inch hose from the fire engine to the second floor entry door of the burn building. The third crew member prepared the pump to operate and connected a two and one-half inch supply hose from the fire engine to a fire hydrant approximately 200 feet away.

For these drills a portable water meter was connected to the fire hydrant, and the supply hose from the fire engine was connected to the water meter so that all water used passed through the meter.

When prepared, the two-person crew would pick up the hose at the door and proceed into the burn building. Once inside, they descended a flight of stairs located the fire and applied enough water to reduce the flames to a smoldering state. They then searched the area, located a simulated victim and returned outside the burn building with the simulated victim.

At this point the drill was terminated. If water was drawn from the tank on the fire engine, the tank was refilled prior to disconnecting the supply hose from the fire hydrant and water meter.

Readings were taken on the water meter prior to the start of each drill and at the end of each drill after the supply hose was disconnected. This process was repeated for each of the monitored drills. The results indicate an average of 200 gallons of water was used for each drill.

Table 5 FTC Live Fire Water Use

| Date | Time | Meter Reading Start | Meter Reading End | Use | Date | Time | Meter Reading Start | Meter Reading End | Use |
|-----------|-------|---------------------|-------------------|-------|------------------------|-------|----------------------|-------------------|---------------------------------|
| 8/3/2004 | 8:20 | 19,100 | 19,200 | 100 | 8/6/2004 | 8:21 | 20,223 | 20,564 | 341 |
| | 8:49 | 19,260 | 19,346 | 86 | | 8:50 | 20,564 | 20,724 | 160 |
| | 9:30 | 19,346 | 19,496 | 150 | | 9:48 | 20,726 | 20,810 | 84 |
| | 10:40 | 19,535 | 19,760 | 225 | | 10:16 | 20,810 | 21,182 | 372 |
| | 11:15 | 19,760 | 19,806 | 46 | | 11:10 | 20,884 | 21,312 | 428 |
| | 12:04 | 19,806 | 20,217 | 411 | | | | | 1,385 |
| | | | | 1,018 | | | | | |
| 8/27/2004 | 8:57 | 23,045 | 23,144 | 99 | Number of Burns | 15 | Total Gallons | 2,998 | Average Gallons per Burn |
| | 9:25 | 23,144 | 23,310 | 166 | | | | | |
| | 9:50 | 23,312 | 23,544 | 232 | | | | | |
| | 10:21 | 23,544 | 23,642 | 98 | | | | | |
| | | | | 595 | | | | | |

7.15 EPA Site Reassessment

During the CRG process, the Environmental Protection Agency (EPA) was contacted regarding environmental concerns at the Valmont Butte site. In April 2004, city staff met with the EPA on site to provide a site tour, background information and a description of the city’s proposed facilities. Upon visiting the site, the EPA decided to complete a site reassessment of the Valmont Butte site.

7.15.1 Background

In 1999, before the city purchased the Valmont Butte site, the Colorado Department of Public Health and Environment (CDPHE) performed a site assessment of the Valmont Butte site. The purpose of their site assessment was to evaluate any site environmental issues. In December 1999, CDPHE terminated the radioactive materials license issued to the Hendricks Mining Company, and noted the following:

“The Department performed radiological surveys of the property and required that the tailings deposits to be covered with clean fill dirt ranging in depth from 3-14 feet with the thickest cover at the center of the tailings. A more complete description of the remedial action can be found in a decision analysis entitled, Assurance of Equivalent Protection to Public Health and Environment in the absence of a Colorado Radioactive Materials License for the Valmont Butte site. In addition, the Department and the Valmont Butte Corporation entered into an agreement and declaration of covenants as a legal document to be executed and delivered as an instrument for recording against the title to the property. The covenants are perpetual and, run with the property, and are binding on the owners and their successors. With these covenants

in place and with the remedial actions performed at the site, the Department finds that equal protection of public health and safety or property is assured in the absence of a radioactive materials license.”

The EPA was not satisfied that the 1999 CDPHE Valmont Butte site analysis adequately addressed the various environmental concerns. For this reason, the EPA decided to move ahead with the site reassessment.

7.15.2 Analysis

The EPA developed a field sampling plan to guide field operations during the site reassessment. This document was prepared by URS Operating Services, EPA’s environmental contractor. The objective of the site reassessment was to gather information of the current site conditions with regard to EPA’s Hazard Ranking System (HRS) and removal criteria.

URS and EPA completed a hazardous materials inventory on the site between Aug. 18 - Aug. 20, 2004. Field sampling was conducted between Aug. 23 - Sept. 3, 2004. The field sampling included a preliminary pathway analysis addressing:

- Waste characterization
- Air pathway
- Groundwater pathway
- Surface water pathway
- Soil exposure pathway

7.15.3 Conclusions

URS and EPA completed several reports summarizing the various field investigations conducted in August and September 2004. These reports were delivered to the city in January 2005, and include the following:

- Sampling Activities Report – a summary of field activities and deviations from the Field Sampling Plan
- Hazardous Categorization Report – a summary of the hazardous materials inventory conducted in August
- Final Analytical Results Report – a summary of the field investigations conducted in August/September and subsequent lab results findings

The city intends to follow the EPA recommendation that good management practices be followed during the development and ongoing operations proposed for the property to mitigate pre-existing on-site contamination.

Complete results of the EPA 2004 Reassessment can be found at www.valmontbutte.net.

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Other consultants or relevant contacts:

Consultants on this project include:

- Rothberg, Tamburini and Winsor, Inc. – Engineering planning and design (BRC)
- Tetrattech, Inc. – Compost process engineering, odor control

- Terracon, Inc – Geotechnical engineering
- ERO – Biological assessments
- Native Cultural Services, Peter J. Gleichman - Cultural/archaeological assessment
- RRC Associates, Inc. - Planning (Fire Training Center)
- Strategic Planning, Inc
- Fox Higgins

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