

# Lowry Range: Integrated Resource Management Plan

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Colorado State Board of Land Commissioners  
1127 Sherman Street, Suite 300  
Denver, CO 80203

## Executive Summary

The Colorado State Board of Land Commissioners (also known as the State Land Board and the SLB) was established in 1876 to manage more than 3 million acres of land and 4 million acres of mineral rights that the federal government gave to Colorado to generate revenue primarily for public education. The Board's activities generate significant annual revenue for its trust beneficiaries, primarily through agricultural leases, mineral development and interest earned on invested funds. In recent years, the Board has expanded its efforts to increase revenue through commercial development activities wind energy development and leasing land for recreational activities.

The 25,590-acre Lowry Range property is located in unincorporated Arapahoe County at the southeastern edge of the greater metropolitan Denver area. It was previously part of the former 100,000-acre Lowry Bombing and Gunnery Range that the federal government used during World War II and the Korean and Vietnam wars for artillery and aircrew training. Due to its large intact nature and location, the Lowry Range was nominated for and designated into the SLB's Stewardship Trust program in 1998. Currently, the SLB leases portions of the Lowry Range for oil and gas production, mining (sand and gravel extraction), grazing, and recreation (model airplane clubs and horseback riding).

Lands included in the Stewardship Trust are intended to preserve the opportunity for long-term benefits and returns to the trust beneficiaries. To that end, the SLB has prepared this integrated resource management plan (IRMP or "the Plan") to guide the management, use and development of the resources that exist on the Lowry Range. The Plan provides a framework for achieving the Board's vision to manage the Lowry Range in a manner that enhances natural resource quality, optimizes revenue generation, protects long-term value and preserves the flexibility to respond appropriately to future opportunities. The Plan also describes specific goals for the property as well as actions that will be taken to support the accomplishment of those goals.

It is important to understand that while the preparation and adoption of this Plan has long been a priority for the SLB, its development at this time is partially the result of recent events related to oil and gas development on the property. Although oil and gas have been produced in limited commercial quantities on the Lowry Range since the mid-1930s, beginning in early 2010, new techniques of drilling horizontally and using hydraulic fracturing resulted in renewed interest in the geologic basin that underlies the Lowry Range. In 2011, the SLB initiated a process to select an oil and gas production company to develop the mineral interests underlying approximately 21,048-acres of the Lowry Range. Expanded oil and gas operation on the Range are expected to begin as soon as 2014 and, if successful, continue for a period of 50+ years.

The potential scale and intensity of the mineral exploration and extraction activities described above made the preparation of this Plan a necessity, not only to clearly describe the manner in which the property will be protected, but to ensure that the interests of all current and future lessees are clearly understood, the efficiency of on-site activities are maximized and the safety of all users and visitors is protected. To that end, it is the SLB's intention to hold all lessees on the Lowry Range to a very high standard of performance, to minimize the impact that their activities have on the property and to ensure that the property shows a net positive impact at the completion of any given use.

Finally, this Plan is intended to be a working document for setting priorities and enabling the SLB to adapt to changing fiscal, social and environmental conditions. It provides guidance and direction at a strategic level and additional effort will be required to develop the tactics associated with the implementation of specific on-site activities. This is by design and will allow SLB staff and managers the flexibility to pursue each goal and action with the tools, techniques and resources that are determined to be the most appropriate at the time of actual implementation.

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## Chapter One

### Introduction and Background

#### The Colorado State Land Board

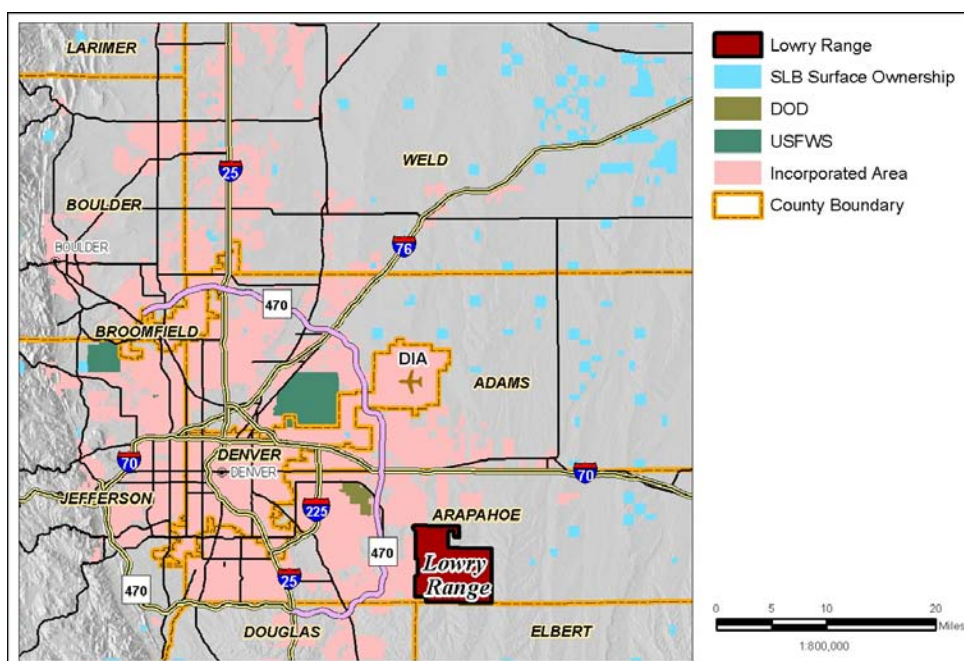
In 1875, the United States Congress reserved certain lands to be granted to the future State of Colorado for the support of common schools. The Colorado State Board of Land Commissioners (SLB) is constitutionally charged with the administration of those state trust lands, with the specific responsibility to provide for the prudent management of all of the lands in order to produce reasonable and consistent income over time. The Land Board currently owns 2.88 million acres of surface lands.

From these lands, the SLB designated approximately 300,000 acres into the Stewardship Trust. Lands included in the Stewardship Trust are intended to preserve the opportunity for long-term benefits and returns to the state. To that end, the SLB may allow existing uses to continue and/or permit new uses, including mineral development, agriculture and grazing, so long as those uses protect and enhance the beauty, natural values, open space, and wildlife habitat of the Stewardship Trust property. A large portion of the Lowry Range was designated into the Stewardship Trust in 1998.

#### The Lowry Range

The 25,590-acre Lowry Range is located in unincorporated Arapahoe County at the southeastern edge of the greater metropolitan Denver area (Exhibit 1). The property is part of the former 100,000-acre Lowry Bombing and Gunnery Range that the federal government used during World War II and the Korean and Vietnam wars for artillery and aircrew training. The SLB acquired the property in three separate transactions with the Department of Defense in 1964, 1966 and 1991.

*Exhibit 1: Lowry Range Location Map*



Since its acquisition, the SLB has sponsored multiple studies to evaluate the potential for portions of the property to be developed into residential, commercial and/or mixed-use neighborhoods. In 2007, the SLB entered into an

agreement with Lend Lease Communities LLC, to develop approximately 4,000 acres of the property for residential and commercial use. The developer terminated the agreement in 2009 over concerns that it would not be able to secure an adequate and sustainable water supply for the project.

Currently, the SLB leases portions of the Lowry Range for oil and gas production, mining (sand and gravel extraction), grazing, and recreation (model airplane clubs and horseback riding). The remainder of the Lowry Range is predominantly undeveloped and does not currently allow for public access.

### **Integrated Resource Management Plans**

This integrated resource management plan (IRMP or “the Plan”) provides a framework for achieving the SLB’s vision for the Lowry Range. It includes clear goals; an inventory and assessment of natural, cultural, and recreation resources; and describes specific, implementable strategies, management recommendations and action items. It is intended to be a working document for setting priorities and enabling the SLB to adapt to changing fiscal, social and environmental conditions.

The Plan strives to incorporate sound ecosystem management principles. It provides for the management of natural resources, including wildlife, and plants; allows multipurpose use of resources; and provides lessee and/or public access necessary and appropriate for those uses. Finally, the Plan provides for integration and consistency among the various activities occurring (or that will occur) on the Lowry Range.

### **The Planning Process**

The SLB staff developed the Lowry Range IRMP through an iterative process of data gathering, analysis, writing, review and revision. The Plan was reviewed and approved by the SLB Commissioners prior to implementation. The Plan will be reviewed and updated on a regular basis throughout its effective life.

### **Plan Administration**

The SLB is solely responsible for the management of the Lowry Range and the implementation of this Plan. In addition, the specific activities of a particular lessee may also be subject to regulation by various local, state or federal agencies. Oil and gas operations for example are subject to the rules and regulations of the Colorado Oil and Gas Conservation Commission (COGCC). This Plan does not eliminate or reduce the standard of care and practice established by any other jurisdictional authority.

In 2012, the SLB created the *Lowry Range Management and Enhancement Fund* for the purpose of funding conservation and restoration oriented activities on the property. The fund is an investment account in which the principal amount is intended to remain intact while all or some portion of the investment income is used to fund programs and activities on the property.

The programs and activities that may be financed by the Fund include, but are not limited to:

- Resource restoration and management.
- Management of noxious and invasive weed species.
- Capital projects that will contribute to the improvement of the health, integrity and sustainability of the natural resources that exist on the property.
- Preparation of consultant studies required to understand and monitor natural features, flora and fauna, and the condition of the property.
- Other projects and tasks that will result in the proper use, protection and/or improvement of the natural resources that exist on the property.

To assist the SLB with the advancement of its conservation and stewardship objectives for the property, the Colorado State Board of Land Commissioners established the Lowry Range Stewardship Advisory Committee in 2012. The committee is charged with developing specific recommendations and an annual work plan to guide the on-going restoration of the property.

The Lowry Range Stewardship Advisory Committee is composed of between five and seven members. It includes and is led by a member of the SLB staff. The other members of the committee are selected based on their knowledge and expertise in at least one of the following areas:

- Natural resource management
- Range and grazing management
- Wildlife and habitat conservation
- Ecosystem services
- Land conservation
- Local government (an individual with a land use and conservation focus)

On an annual basis the Committee is required to prepare and present for SLB Commissioner approval, a conservation focused work plan that describes the projects recommended for completion on the Lowry Range during the upcoming year as well as the budget required to accomplish the work. The criteria used by the Committee to evaluate proposals and frame recommendations includes, but is not be limited to:

- *Natural Resource Emphasis:* Projects will clearly support the SLB's goal to restore and rehabilitate natural resources that have been impacted on the Lowry Range.
- *Feasible and Cost Effective:* Projects will be technically feasible and have a high likelihood of success.
- *Partnership Opportunities:* Where possible, projects will utilize matching funds, in-kind services and/or resources from other organizations to accomplish the proposed work.
- *Sustainable:* Projects will result in long-term benefits.
- *Consistent with SLB Goals:* Projects will be consistent with the vision and goals described by the *Lowry Range IRMP*.
- *Applicable to Other SLB Properties:* The SLB's administration of the Lowry Range is intended to demonstrate the organizations commitment to the long-term stewardship of its surface assets. As such, the property can provide an effective test bed for innovative development and conservation strategies.

The number of projects funded and the level of funding will be based on the availability of funds and how well each project supports the SLB's goals for the Lowry Range. In some instances, projects may be too large to be completed within a single budget year and will be implemented over a period of multiple years. In other instances, it may be determined that no projects will be funded in a given year.

If at any time the Board determines that the *Lowry Range Management and Enhancement Fund* is no longer needed to ensure the proper funding of conservation and restoration activities on the property, the fund may be terminated and the remaining monies repurposed with an affirmative vote by four members of the State Board of Land Commissioners.

### **Lowry Range Financial Model**

The IRMP provides guidance and direction at a strategic level. This is by design and will allow SLB staff and managers the flexibility to pursue each goal and action with the tools, techniques and resources that are determined to be the most appropriate at the actual time of implementation. To make informed management decisions over the life of the Plan, it is also necessary to understand how decisions and actions will affect the general financial performance of the property. To that end, Appendix 2 includes a simple 10-year financial model that summarizes lease revenues, management costs and the property's annual contribution to the state trust funds.

## Chapter Two

### Long-Term Vision and Goals

#### Mission of the Colorado State Board of Land Commissioners

As its constitutional and statutory mission, the State Land Board protects, enhances, and manages Colorado's permanent endowments of assets for the reasonable and consistent generation of revenue to the ongoing benefit of Colorado's public schools and public facilities. Economic productivity in perpetuity is dependent on sound stewardship, which includes the protection and enhancement of the beauty, natural values, open space and wildlife habitat of those lands.

#### Lowry Range Vision

The Lowry Range is one of the last, large contiguous undeveloped parcels on Colorado's Front Range. It is also one of the largest parcels in the SLB's portfolio and one of the largest parcels under single ownership next to a major metropolitan area in the United States. The property's size, location and significant natural values make it unique among SLB assets.

It is important to describe a vision for the Lowry Range that will not only guide the SLB's efforts, but also clearly communicate its long-term intentions for the property to future Boards and other interested stakeholders. To that end, the following long-term vision has been developed to guide the stewardship, development and management of the property.

*"The Lowry Range will be managed by the Colorado State Board of Land Commissioners to enhance natural resource quality, optimize revenue generation, protect long-term value and preserve the flexibility to respond appropriately to future opportunities."*

#### Long-Range Goals

The following long-range goals were developed through the planning process and will guide the specific strategies and activities required to achieve the vision for the property. The goals are organized under four major headings: Resource Conservation, Resource Development, Education and Partnering and Outreach.

##### Resource Conservation

- Goal 1. Protect and restore the ecological integrity of the Lowry Range.
- Goal 2. Develop management plans for species and ecological systems that warrant focused conservation attention.

##### Resource Development

- Goal 3. Pursue new and sustainable revenue opportunities that are consistent with the Board's long-term vision for the property.
- Goal 4. Manage uses and lessees in a manner that will minimize conflict.
- Goal 5: Ensure that the land shows a net positive impact at the cessation of any given use.

##### Education

- Goal 6. Increase the use of the Lowry Range for purposes of outdoor and environmental education.

##### Partnering and Outreach

- Goal 7. Collaborate with regional and local governments in a manner that accomplishes the Board's vision and goals.

Goal 8. Identify and educate key stakeholders to create broad support for the long-term vision for the Lowry Range.

Goal 9. Partner with other organizations and agencies to increase the expertise and resources contributing to the management of the property.

Chapter Four includes an expanded discussion of the preceding goals as well as an explanation of the specific actions and priorities that will be used to guide the management of the property.



## Chapter Three

### Existing Conditions

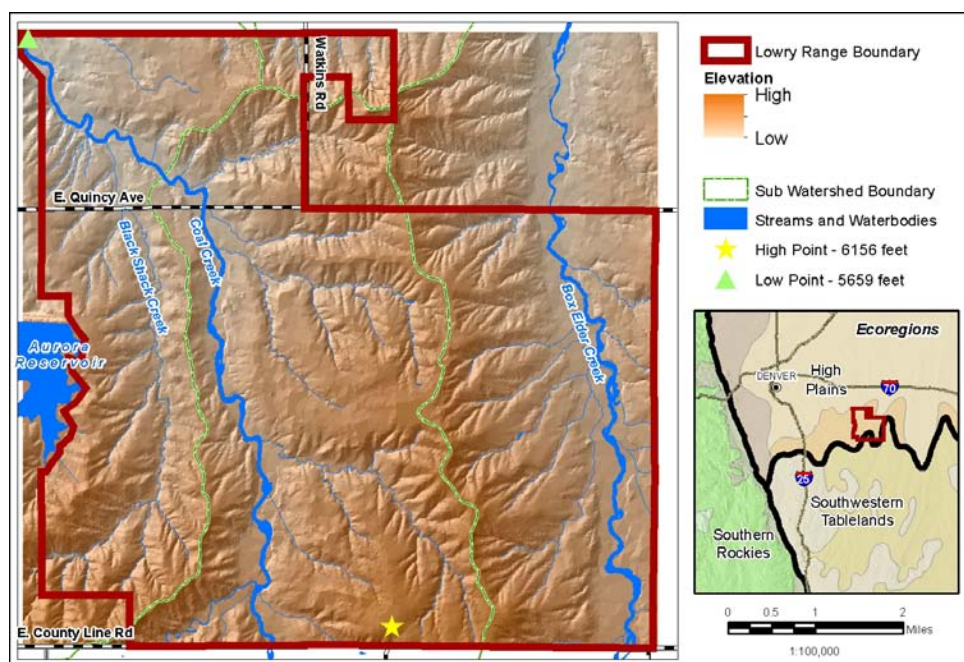
#### Introduction

This section describes the present state of the natural, cultural and infrastructure resources on the Lowry Range.

#### Land Included in this IRMP

The Lowry Range is located on the southeastern edge of the Denver metropolitan area. It encompasses approximately 40-square miles, or 25,590-acres of rolling prairie grassland. Elevations on the property range from a low point of 5,659-feet in the northwestern corner to a high point of 6,156-feet near the south-central property line (Exhibit 2). The elevation of the property, several hundred feet above the City of Denver, results in spectacular and uninterrupted views of the Front Range from Pikes Peak in the south to Longs Peak in the north.

*Exhibit 2: Elevation Map*



The Lowry Range is located within the Central Shortgrass Prairie, which is characterized by rolling plains and tablelands, dissected by streams, and dominated by shortgrass and mixed grass landscapes. Small patches of remnant foothills and piedmont grasslands occur in areas where soils and moisture regime are suitable. The property is located within the Natural Resources Conservation Service (NRCS) High Plains and Southwest Tablelands ecoregions.

Due to its location and large size, the Lowry Range has been recognized by the SLB as well as local and regional governments as having the potential to play a key role in a regional open space system that provides natural and recreational connections to places that neighboring towns and landowners have conserved or are in the process of conserving. The large, intact nature and location of the property in relatively close proximity to the Denver metropolitan area were the primary reasons the Lowry Range was nominated for and designated into the Stewardship Trust in 1998.

## Resources

### Air Quality

The Denver metro area's air quality has improved significantly from the 1970s, when the city was ranked only behind Los Angeles for having the dirtiest air in the country. Since that time, air quality has become a major focus with the establishment of the Metropolitan Air Quality Council (MAQC) in 1985 and new requirements established for tailpipe emissions, oxygenated fuels in automobiles, wood burning and street sanding.

Activities and uses on Lowry Range that have the potential to impact air quality include mining, oil and gas production and wildfire. It is the intention of the SLB that any managed activities taking place on the Lowry Range will meet or exceed all local and state standards for emissions and air quality.

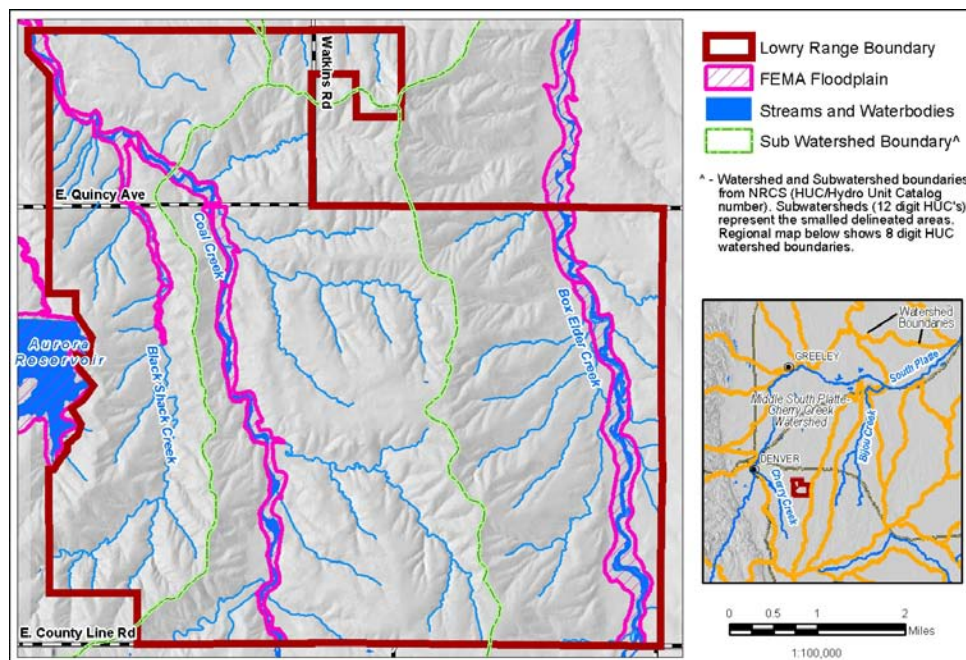
### Water

Water is one of the most important resources on the Lowry Range. Among other things, it has a direct and fundamental impact on the health and vitality of the riparian corridors that provide habitat to many wildlife species. Water quality and quantity and the health of the associated riparian and wetland ecosystems are critical management concerns and will be carefully monitored as part of the management of the property.

#### 1) Surface Water

Two significant prairie streams bisect the Lowry Range from south to north. Coal Creek flows through the west side of the property and Box Elder Creek flows near the eastern boundary (Exhibit 3). The headwaters of both streams are located in Elbert County near the Town of Elizabeth and the Lowry Range as a whole lies within the South Platte River watershed. Box Elder Creek is a direct tributary of the South Platte River some 55-miles to the north, while Coal Creek joins with Toll Gate Creek to form Sand Creek before entering the South Platte River just north of Denver. A third major creek channel, Black Shack Creek, is dry much of the year and does not support significant vegetation. It flows into Coal Creek just north of Quincy Road.

Exhibit 3: Surface Drainage and 100-Year Flood Zone



Both Box Elder and Coal Creek are intermittent streams that consistently carry surface water in the spring and after major storm events. The active creeks meander within relatively broad floodplains that contain multiple

channels. Box Elder's floodplain is up to ½ mile wide and Coal Creek's floodplain is generally narrower, up to ¼ mile wide. Approximately 1500-acres of the Lowry Range are located within the 100-year flood zone that is associated with Box Elder Creek, Coal Creek and Black Shack Creek (Exhibit 3).

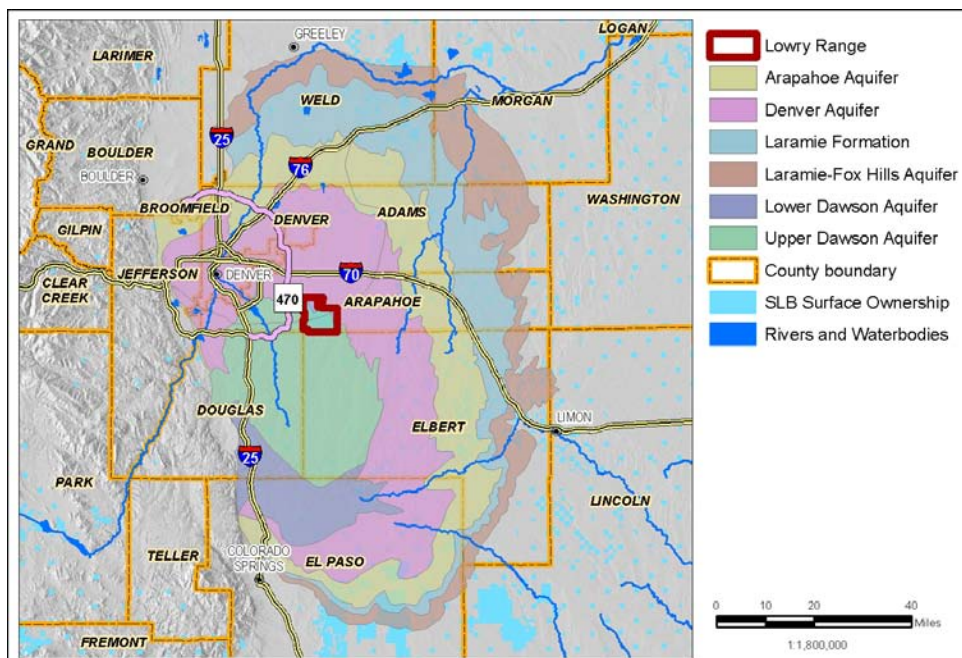
Box Elder has a large contributory drainage basin of approximately 83,745-acres. Coal Creek has a much smaller watershed of approximately 23,584-acres.

## 2) Groundwater

The Lowry Range is located above portions of the Denver and Upper Dawson Aquifers, which serve as important sources of water supply in the region (Exhibit 4). The Denver and Dawson aquifers outcrop at the surface in certain locations of Douglas County and can thus be either confined or unconfined aquifers depending on the location in the basin. The Denver aquifer consists primarily of volcanic rock while the Dawson is high in granitic fragments. Aquifer production rates vary significantly in the Denver and Dawson aquifers depending on the amount of sandstone encountered in any specific location.

Throughout the property, groundwater flows from underlying saturated bedrock toward lower topographic areas, and where it intersects the ground surface it appears as springs, seeps and ponds. It flows directly to alluvium within the creek channels or is evaporated and/or transpired. The groundwater table within the bedrock is generally parallel with topography, sloping from the central ridge on the property toward the Coal Creek and Box Elder Creek drainages. Depth to water varies from just over 60-feet beneath the highest areas of the property to less than 30-feet on the flanks of the ridge, and at or near the surface in the more deeply incised tributaries and along the flanks of the floodplains.

*Exhibit 4: Water Aquifers*



In 2009, ERO Resources Corporation (ERO) completed a study of the existing surface water and shallow groundwater hydrology and water-dependent ecosystems that occur on the portion of the Lowry Range located south of East Quincy Avenue. That study included the following major findings.

- Groundwater supported communities such as spring/seep areas along various tributaries and areas along the periphery of the main creek channels are dependent on direct precipitation and infiltration within the study area.



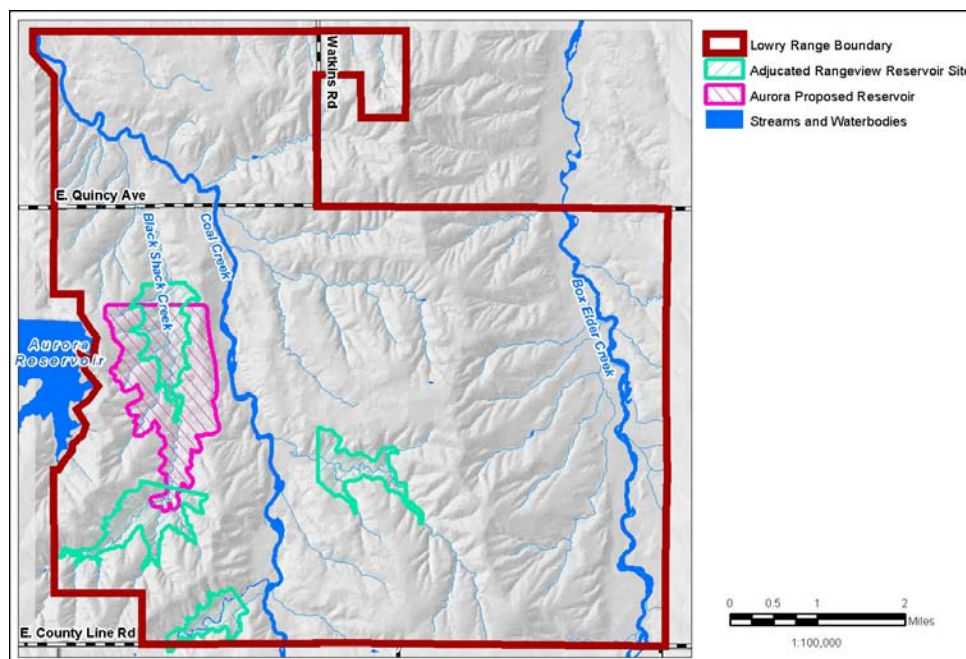
- Alluvial groundwater levels in the two creeks are dependent on recharge from upstream surface and groundwater. Alluvial (shallow) groundwater levels vary considerably from season to season and as a result of storm events.
- Surface flows occur in Coal Creek only for a matter of hours after very large snowmelt upstream or within the property and as a result of storm events. Surface flows last much longer in Box Elder Creek, but the creek will dry up during extended seasonal dry periods.
- The riparian vegetation associations at the southern end of Box Elder Creek would be the most severely affected by groundwater diversions at or near County Line Road. Groundwater diversions at either end of Coal Creek and at Quincy Avenue along Box Elder Creek would have lesser but similar effects.
- Surface water diversions that reduce or eliminate large storm event flows would decrease or prevent cottonwood and willow establishment along Box Elder and Coal creeks.

It is important to note that the SLB has leased certain water development and utility service rights on the Lowry Range to the Rangeview Metropolitan District (Rangeview). Rangeview's water resources include a combination of approximately 26,000 acre-feet of deep groundwater located below the Lowry Range, 29,000 acre-feet of surface reservoir storage rights (distributed between ten adjudicated reservoir sites), and over 8,100 acre-feet of renewable surface water supplies in Coal Creek and Box Elder Creek.

### 3) Water Storage

The Aurora Reservoir is located on the western edge of the Lowry Range. Completed in January 1990, the reservoir impounds a maximum of 31,650 acre-feet of water that is used to meet peak daily and seasonal water demands for the City of Aurora. Water for the reservoir is supplied through the City of Aurora transmission pipelines from Rampart Reservoir. The reservoir also provides recreational benefits to the city and surrounding areas.

*Exhibit 5: Rangeview Reservoir Locations and Proposed City of Aurora Reservoir*



In 2010, the SLB approved a two-year planning lease with the City of Aurora allowing it to conduct engineering tests on the Lowry Range for the purpose of determining whether the property is a suitable location for a new

reservoir with a storage capacity of approximately 44,000 acre-feet (Exhibit 5). The new reservoir would be part of a larger initiative called WISE, which stands for Water, Infrastructure and Supply Efficiency.

Seventeen entities, including Denver Water, have joined together on the proposed WISE project to supply customers with more water while minimizing the need to buy new water rights. The partnership will create additional water supply by combining unused capacities from Aurora’s Prairie Waters Project with other unused water supplies from Denver and Aurora. During the years Denver and Aurora don’t need all of the available water, the 15 Douglas County entities that make up the South Metro Water Supply Authority will be able to buy the unused water to help reduce their reliance on nonrenewable groundwater.

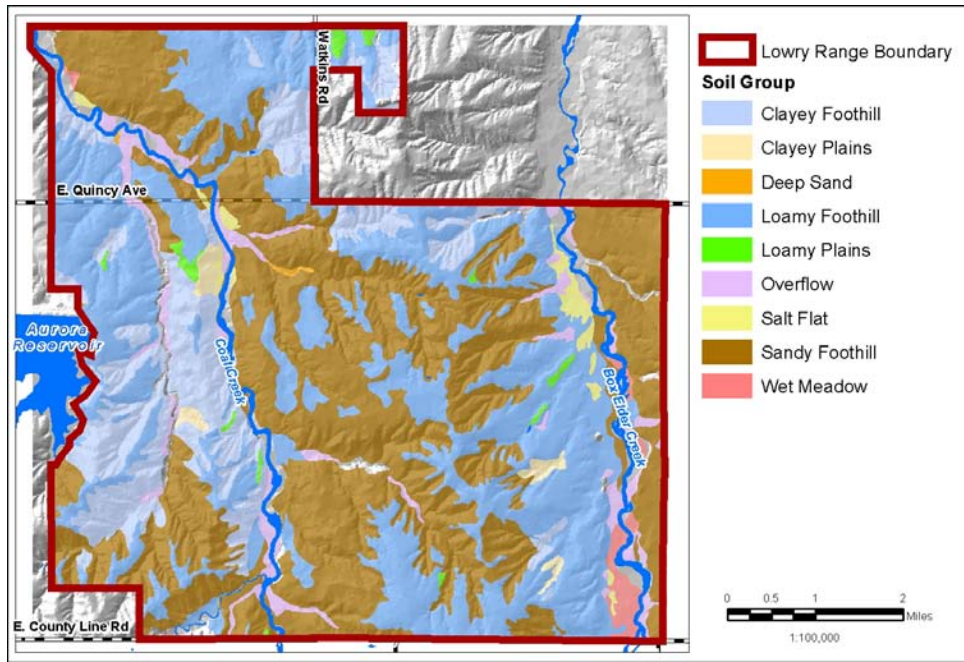
As was mentioned previously, Rangeview has the rights to 29,000 acre-feet of surface reservoir storage that is distributed between four adjudicated reservoir sites located on the Lowry Range. The footprint of the proposed Aurora Reservoir is positioned in the same location as one of the four Rangeview reservoirs and will therefore require coordination and agreement between the City and Rangeview prior to development.

**Geology and Soils**

The property is underlain by the late Cretaceous-early Paleocene age Denver Formation consisting of shale, silty claystone, and interbedded sandstone up to 350 feet thick. The Denver Formation crops out in a few of the incised tributaries and a few excavated areas on the property, but bedrock is generally encountered 10 to 20-feet below the surface.

The soils on the Lowry Range were formed from weathered sedimentary substrates, including hard shale and sandstones, alluvial sediments, and loose material deposited by wind. The soils are characterized as sandy loam, silt loam, clay, loam, clay loam, loamy alluvial and sandy alluvial deposits (Exhibit 6) (U.S.D.A. Natural Resource Conservation Service 1971). The floodplains of the two creeks consist of interbedded Quaternary silts, clays, sand, and gravel, but are dominantly well-sorted medium to coarse sand up to nearly 50 feet thick.

*Exhibit 6: Soils Map*





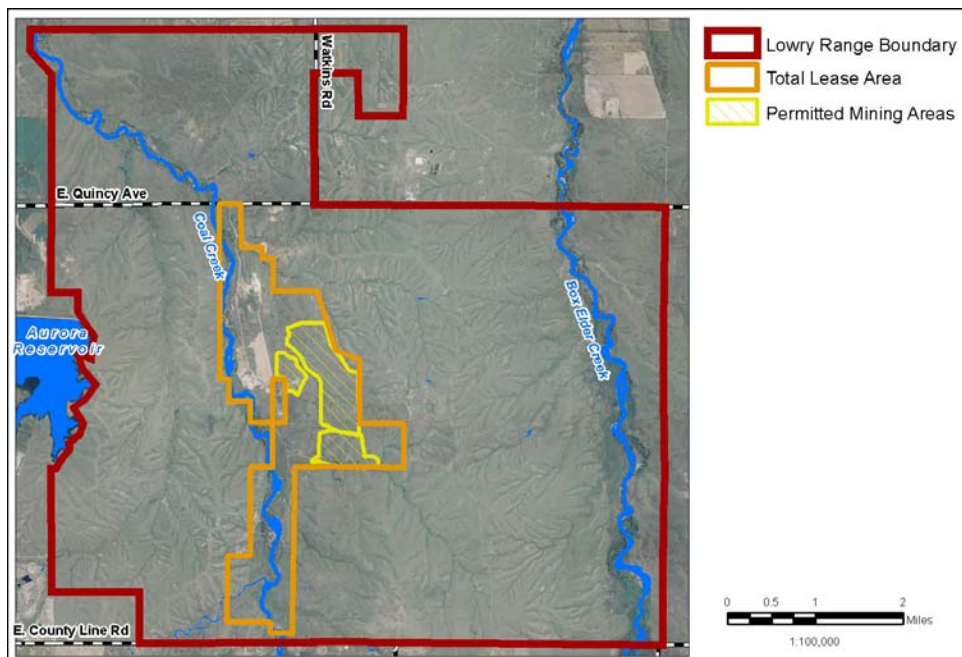
### Minerals

Mineral extraction has taken place on what is now the SLB owned Lowry Range since at least the early part of the 20<sup>th</sup> century. The two primary areas of mineral resource development are sand and gravel mining and oil and gas production.

#### 1) Sand and Gravel

Beginning in 1988, the SLB leased an area along the east side of Coal Creek south of East Quincy Avenue for purposes of sand mining. The lease was originally held by Tri-Western and subsequently assigned to the Schmidt Construction Company in 1996. The lease includes approximately 2,760-acres although current mining operations impact less than 300-acres of the property (Exhibit 7). While mining operations can negatively impact water resources, vegetation and wildlife, responsible and proactive management can help mitigate these impacts. The goal of the SLB is to monitor ongoing mining operations to ensure that any negative impacts to the water table are avoided and that cottonwood and willow habitats along Coal Creek remain intact.

*Exhibit 7: Sand and Gravel Lease Area*



#### 2) Coal

Coal mining in Colorado dates back to 1859 when the first mine was established between Denver and Boulder. No occurrences of coal have been mapped on the Lowry Range. However, the site does overlie the Denver and Laramie Formations that are known to contain sub-bituminous coal in locations north of the property. In addition, there are approximately 400-acres of federally owned coal reserves situated in 3 separate locations on the Lowry Range. The first location consists of approximately 160-acres in the southeast corner of Section 10, the second location consists of approximately 160-acres in the southwest corner of Section 20 and the third location consists of approximately 80-acres situated adjacent to the western edge of Section 22.

SLB Minerals Director Mark Davis prepared an evaluation of the quality and quantity of coal resources located below the Lowry Range in 2008. That evaluation concluded that the value of the federal coal reserve was slight and the possibility of development was minimal. Nevertheless, a long-term goal of the

SLB is to negotiate with the Federal Government to either surrender their coal reserves below the Lowry Range or to trade them for reserves located below other SLB lands where surface conditions are more conducive to the eventual coal extraction.

### 3) Oil and Gas

Oil and gas has been produced in limited commercial quantities on the Lowry Range since the mid-1930s. By the later part of the 1980s the SLB had issued oil and gas leases for approximately 5,440-acres of the mineral estate underlying the property.

Beginning in early 2010, new techniques of drilling horizontally and using hydraulic fracturing to crack the brittle Niobrara shale rock formation resulted in renewed interest in the geologic basin that underlies the Lowry Range. In 2011, in response to increased leasing activity on lands overlying the Niobrara formation, the SLB initiated a process to select an oil and gas production company to develop the mineral interests underlying approximately 21,048-acres of the Lowry Range. Expanded oil and gas operation on the Range are expected to begin as soon as 2014 and, if successful, continue for a period of 50+ years.

The responsible development of Colorado's oil and gas natural resources is the primary responsibility of the Colorado Oil and Gas Conservation Commission (COGCC). To that end, the COGCC publishes and administers rules and regulations that apply to all oil and gas operators in the state. Beginning in 2012, the SLB has required new oil and gas leases, lease stipulations and surface use agreements on the Lowry Range to include more restrictive rules, regulations and best management practices.

While it may be difficult to impose the policies and practices included in this IRMP on the owners and operators of oil and gas leases that predate the approval of this Plan, it is the SLB's goal to hold all operators on the Lowry Range to the highest standard possible in order to minimize the impact that their activities have on the property. To that end, the standards included in this document will be used to guide decisions regarding the renewal of existing leases, structure of future leases, and the establishment of new lease terms that will facilitate the accomplishment of the SLB's goals for the property.

Mineral development coupled with sound reclamation practices will provide continued economic benefit to the SLB and an opportunity to demonstrate best management practices for other mineral extraction operators in the region and on other SLB properties. The SLB expects to work closely with all mineral lessees in order to show positive benefits to the property at the end of mineral asset development.

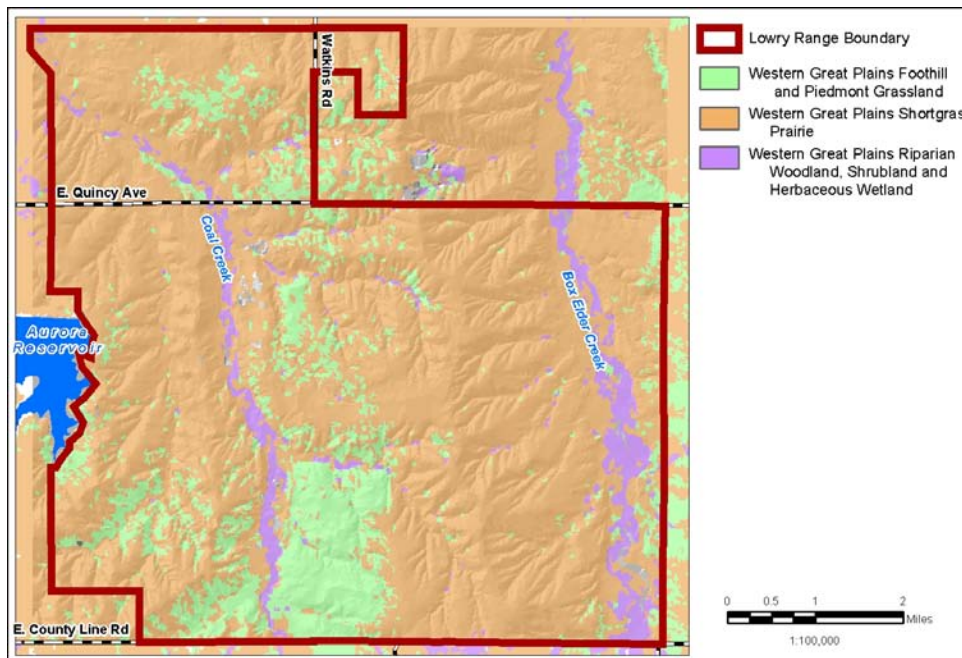
### Vegetation, Grazing and Weed Management

Grassland resources on the Lowry Range provide high quality wildlife habitat, opportunities for cattle grazing and help to hold the soil in place (thereby reducing dust and maintaining air quality) As a result, the implementation of specific programs to monitor, manage and restore the health of the various grassland systems on the property is a high priority.

#### 1) Vegetation

The Lowry Range is comprised of prairie grassland and plains riparian systems. Based on the *Lowry Range Biological Survey 2010 Update* prepared by the Colorado Natural Heritage Program (CNHP), there are three ecological systems present on the property: Western Great Plains Foothill and Piedmont Grasslands, Western Great Plains Shortgrass Prairie, and Western Great Plains Riparian Forest, Shrubland, and Herbaceous Wetland (Exhibit 8).

Exhibit 8: Ecological Systems



#### 2) Weed Management

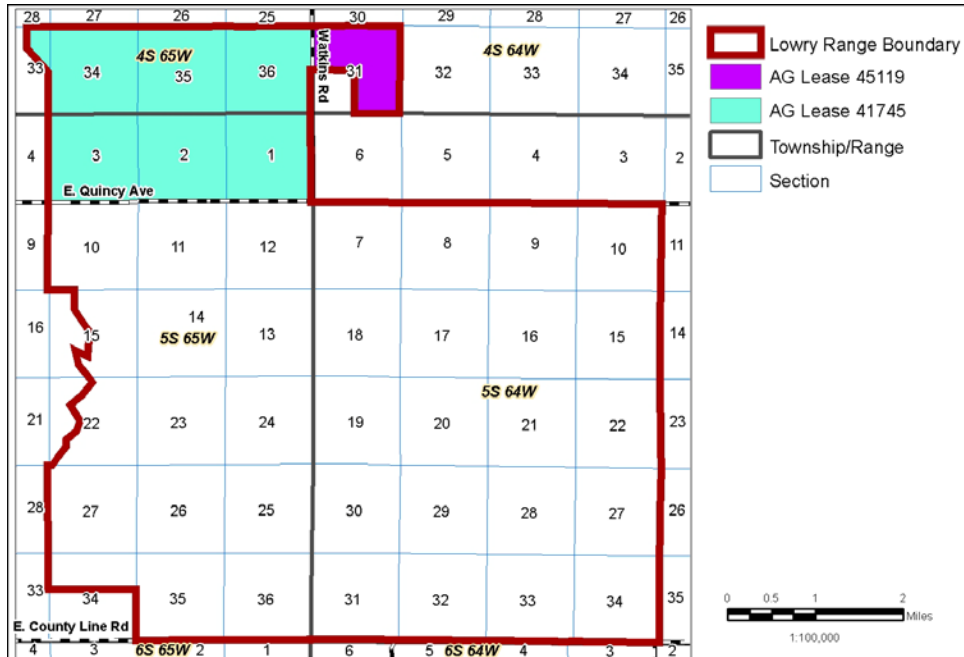
Non-native noxious weeds currently affect significant portions of the Lowry Range. Non-native species are altering the Lowry Range ecosystem, reducing rangeland productivity, impacting wildlife habitat and threatening the survival of native species. The SLB will develop and implement an *Integrated Weed Management Plan* for the Lowry Range and establish a coordinated plan for the SLB and its lessees to treat existing weed infestations and minimize their recurrence. Upon completion, the weed management plan will be placed in Appendix 5 at the end of this document.

#### 3) Grazing

The Lowry Range has a long history of ranching and grazing activity and has provided the SLB with a steady source of revenue since the property was acquired. However, in the late 1990s and early 2000, overly aggressive grazing practices contributed to the biological and structural degradation of a significant portion of the Piedmont Grasslands ecosystem, the shortgrass prairie and the riparian corridor south of East Quincy Avenue.

In 2007, the SLB removed cattle from that part of the property and the grasslands have subsequently shown signs of significant recovery. The SLB continues to maintain grazing leases on approximately 4,200-acres of the Lowry Range located north of East Quincy Avenue (Exhibit 9).

*Exhibit 9: Grazing Leases*



The SLB intends to develop and implement a grazing management plan for the Lowry Range. Upon completion, the grazing plan will be placed in Appendix 6 at the end of this document.

**Wildlife**

The large, contiguous and undeveloped nature of the Lowry Range provides the habitat and ecological processes necessary to support distinct populations of several important wildlife species. Systematic biological inventories conducted by the CNHP staff in 2005, 2010 and 2011 documented the presence of 50 common animal species on the Lowry Range. In addition the survey documented 12 animals that are rare, imperiled or vulnerable globally or within the state of Colorado (Exhibit 10).

*Exhibit 10: Vertebrate Species of Conservation Priority Observed at the Lowry Range*

Latin Name	Common Name
<b>AMPHIBIANS</b>	
Rana pipiens	northern leopard frog
<b>BIRDS</b>	
Asio flammeus	short-eared owl
Athene cunicularia	burrowing owl
Buteo regalis	ferruginous hawk
Charadrius montanus	mountain plover
Circus cyaneus	northern harrier

Latin Name	Common Name
Falco mexicanus	prairie falcon
Lanius ludovicianus	loggerhead shrike
MAMMALS	
Cynomys ludovicianus	black-tailed prairie dog
Thomomys talpoides macrotis	northern pocket gopher
Vulpes velox	swift fox

The presence of viable populations of both common and uncommon animal populations on the property contributes to the overall function, integrity and diversity of the Lowry Range ecosystem. Protecting these existing wildlife resources is a high conservation priority.

### Cultural

The area now known as the Lowry Range provided sustenance and spiritual connection for Native Americans as well as later opportunities for early pioneers. During World War II the site became an important training ground for American troops, a use that units of the Colorado Army National Guard continue to this day. Portions of the property also played an important role in national defense during the Cold War.

#### 1) Early Human Habitation

It is likely that nomadic humans passed along the east face of the Rocky Mountains beginning as early as 12,000 B.C. but there is little specific evidence of human habitation on the plains adjacent to the Colorado Front Range until the early 1800s when the area was intermittently occupied and contested by various tribes of Native Americans including the Cheyenne, Arapahoe, Lakota Sioux, Comanche, Kiowa, and Plains Apaches.

#### 2) Euro-American Settlement

Between 1841 and 1859, more than 300,000 people and 1 ½ million of their farm animals emigrated across the plains toward California and Oregon. In 1858, gold was discovered along the banks of Cherry Creek and emigration to the Front Range began in earnest. It is estimated that in 1859 alone, more than 100,000 people set out for the Colorado goldfields. It was not long after this that the governor of Kansas, James W. Denver, organized the general area of the gold strikes into Arapahoe County.

The pioneers generally traveled to Colorado over one of three routes. The central route was actually a collection of smaller routes that proceeded almost due west across the plains. One of these, the Smoky Hill Route, passed directly south of the Lowry Range. Denver burgeoned rapidly as prospectors headed into the mountains in search of the mother lode and by the 1870s, the final Native American societies had essentially been removed from eastern Colorado.

In the early part of the 20<sup>th</sup> century, the land surrounding the Lowry Range was still very rural. At one time there were as many as 70 individual home sites located on or near the property but cattle and sheep vastly outnumbered humans. There is some history of commercial activity on the site, specifically a general store that was located at the corner of Quincy and Watkins road until the arrival of the railroads in the late 1880s.

#### 3) U.S. Armed Forces Training

During the Great Depression of the 1930s, the city government of Denver was very interested in attracting federal projects in an attempt to alleviate the ailing economy. Among these were the \$40 million Lowry Air Base, and the Lowry Bombing and Gunnery Range southeast of the city. After acquiring the property from numerous private owners, Denver sold it to the War Department in 1938.



The Lowry Bombing and Gunnery Range opened in 1942 as an Army Airfield, and was part of the Army Air Corp's Western Technical Training Command during WWII, at which time it was used to conduct armament and bombing training. At its greatest extent, the Lowry Bombing and Gunnery Range covered approximately 100 square miles. The training consisted of bombing practice with both (non-explosive) practice bombs and high explosive ordinance at numerous bombing and gunnery targets across the site. (Source: Former Lowry Bombing and Gunnery Range website, [www.flbgr.org](http://www.flbgr.org).) After World War II, the military also used the Lowry Range to support training exercises during both the Korean and Vietnam wars.

#### 4) National Defense During the Cold War

On March 13, 1958, the Air Force Ballistic Committee approved the selection of the Lowry Air Force Base to be the first Titan I ICBM base. The launch sites were to be located on the bombing range east of Denver. This was conveniently close to the Titan I manufacturer, the Martin Company (now Lockheed Martin) located in Littleton, Colorado.

The excavation work for the complex was started in May 1959 using an open cut method with depths ranging from 38 to 72-feet. The missile silo shafts were excavated to a depth of 163-feet. The construction of the underground facilities was of reinforced concrete and structural steel with steel lined tunnels. An unusual requirement was the blast proofing of elements incorporated into the work with the major mechanical and electrical elements shock-mounted to withstand all explosions except a direct hit.

Missile Wing (ICBM-Titan) was established on September 5, 1958. It was activated on September 25, 1958 and assigned to the 1<sup>st</sup> Missile Division, Fifteenth Air Force. It was a very short-lived wing. It trained in the operation of the Titan intercontinental ballistic missile and became partially operational on December 10, 1958 but was replaced by the 451<sup>st</sup> Strategic Missile Wing before it could become fully operational.

Between 1960 and 1980, the federal government began to sell or transfer the majority of the Lowry Bombing and Gunnery Range to other non-Federal parties, including the approximately 26,000 acres that now comprises the SLB holdings in Arapahoe County.

In June of 1991, the Lowry Range was established as a Formerly Used Defense Site (FUDS) and became eligible for environmental remediation funding. The FUDS program addresses risks to human health and the environment due to past military activities. Cleanup of unexploded ordinance left on the property has been underway since the mid-1990s and is expected to continue until 2018.

#### **Public Use and Recreation**

Current recreational uses of the Lowry Range have proven to be both a reliable (if modest) source of revenue for the SLB and compatible with the overall ecological health of the property.

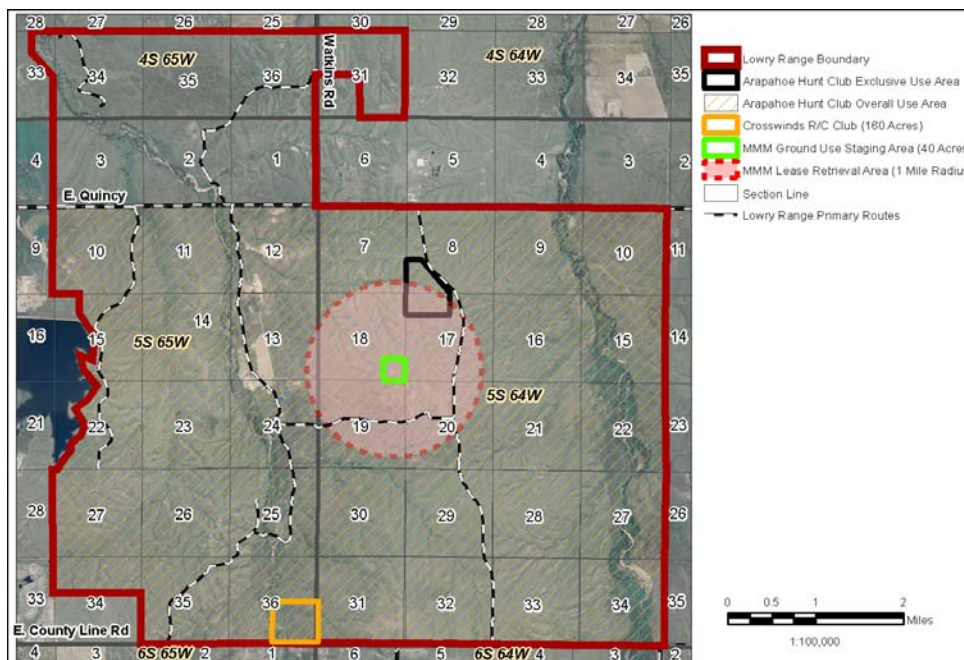
At present time there are two model airplane clubs that lease portions of the property. The Crosswinds remote control airplane club facilities include a gravel parking lot, paved runway, bleachers and storage lockers on 40-acres located on the southern side of the property, adjacent to County Line Road and just east of Coal Creek (Exhibit 11).

The Model Museum Flying Club (MMM) model airplane club facilities include a small dirt parking area and portable toilet on a 40-acre parcel located along the ridge road on the east-central part of the property (Exhibit 11 on the following page). The MMM activities consist of flying and retrieving free flight model airplanes and the location of their lease allows the glider planes to take advantage of the updrafts that form on this particular part of the property.

Beginning in 1988, the Arapahoe Hunt Club, a private horseback riding and hunt club, has held an exclusive lease for 160-acres located along the ridge road in the east-central portion of the Lowry Range (Exhibit 11 on the following page). The site accommodates a dirt parking area, clubhouse, caretaker's home, kennels and barns. The kennels house nearly 70 English foxhounds who are exercised daily, but only hunt during the winter season that runs from Labor Day through the middle of April. The Club shares access to the remaining 21,410-acres of the Lowry Range located between East Quincy Avenue and County Line Road with other lessees.

Recreation uses represent a relatively untapped revenue source on Lowry Range and it is anticipated that the SLB may consider additional recreational leases in the future. In that regard, there is the potential for additional revenue generation associated with open space, trails and outdoor education facilities. The key issues associated with accommodating recreational uses on the Lowry Range are managing potential conflicts between users and minimizing any negative impacts to wildlife or other natural resources.

*Exhibit 11: Public Use and Recreation Lease Locations*



### Education

The natural and cultural resources on the Lowry Range have the potential to support educational opportunities that allow students to explore and learn about sciences and history and to experience a large-scale natural environment that is close to their classrooms and homes. A variety of opportunities are conceivable and a preliminary list of possibilities are included here.

- Support to regional school districts in order to enhance classroom experiences and help teachers close achievement gaps for learners that thrive in informal environments or that otherwise would not have access to out-of-classroom experiences. Provide facilities for teacher workshops, tools for advanced organizers, and continuing learning opportunities for interested students.
- Work with The Nature Conservancy (TNC), Colorado State University (CSU) and the Colorado Cattlemen's Association (CCA) to implement the Ranching Legacy Program (RLP). The RLP was created in 2010 to provide the next generation of ranchers with an enhanced understanding of effective management techniques, successful business practices and the value of healthy ecological systems. The program combines academics, practical experience and mentoring by experienced CCA members with on the ground experience at TNC ranches and other sites. Due to its size and proximity to the program sponsors and mentors, the Lowry Range lends itself to the creation of a proving ground where the SLB could offer participants in the program access to economically viable leases.
- Work with TNC and Holistic Management International to determine whether the Lowry Range might be used as a demonstration site for achieving triple-bottom line results by using livestock to restore grasslands, enhance ecological function and bio-diversity and increase forage and economic returns.

### Improvements

There are a limited number of physical improvements on the Lowry Range and many that do exist belong to one or more of the current lessees. The following is a general summary of the improvements that exist on the property.

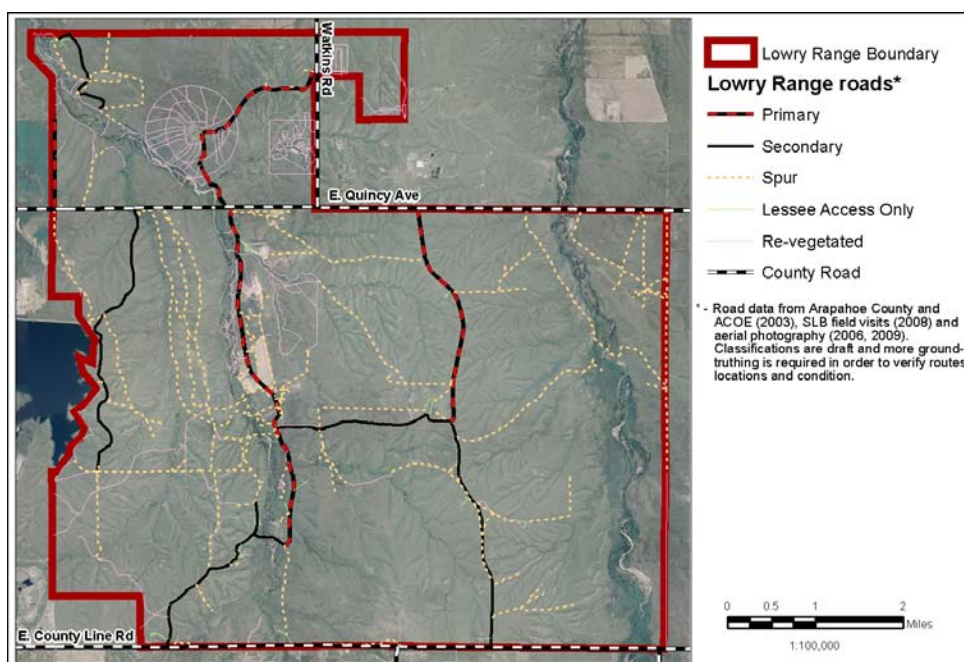
#### 1) Buildings and Structures

There are approximately two-dozen buildings and structures on the Lowry Range. Building types can generally be described as lessee owned buildings and facilities or abandoned agricultural structures (primarily outbuildings) and old military facilities that are now owned by the SLB. Other improvements on the property include over 60-miles of perimeter fencing and interior cross fencing. A long-term goal of the SLB is to remove the abandoned structures and restore the sites to a natural condition.

#### 2) Roads and Parking

There are approximately 3-miles of paved roads and 20-miles of unpaved roads on the Lowry Range. Spur roads or "two-tracks" are quite extensive and total almost 70-miles. Many of the roads on the Lowry Range are in fair to poor condition. It is the SLB's intention to minimize the number of roads on the property and to work with lessees to eliminate roads that no longer serve a specific purpose. Improvements to certain existing roads will be encouraged and allowed by the SLB in order to minimize roadway impacts on the property and to provide for the increased safety of all users (Exhibit 12).

*Exhibit 12: Road Improvements*



For inventory purposes, roads on and adjacent to the property have been organized into the following categories:

- **County Roads:** Public roads that provide access to (and across) the property include East Quincy Avenue, East County Line Road and Watkins Road. All three are two lane asphalt roads.
- **Primary Roads:** Primary roads are typically two lanes wide and have improved gravel surfaces. A portion of the primary road that runs north/south along the ridge between Coal Creek and Box Elder Creek, from East Quincy Avenue to the Titan Missile silo is paved with asphalt. Primary roads are generally accessible and passable with a typical passenger vehicle.

- Secondary Roads: Roads in this category are typically one or two lanes wide. They sometimes have improved gravel surfaces but are more often simply dirt. Secondary roads can become rutted and grades can be relatively steep requiring 4-wheel drive in adverse weather conditions.
- Spur Roads: This category includes “two tracks” that have been established through periodic use by four wheeled vehicles. The routes are not graded or surfaced and generally require a 4-wheel drive vehicle to use safely. Many of these routes are old and no longer serve their original purpose. As a result, a careful evaluation is likely to determine that many existing spur roads could be eliminated and restored to a natural condition.
- Lessee Controlled / Restricted Access: There are currently a limited number of private roads on the property although that number can be expected to increase as additional oil and gas development occurs. Roads currently designated as lessee controlled include those associated with the abandoned cement plant and access roads to specific oil and gas well pads.
- Re-Vegetated Roads: There are approximately 57-miles of roads on the property that have been closed to traffic and re-vegetated.

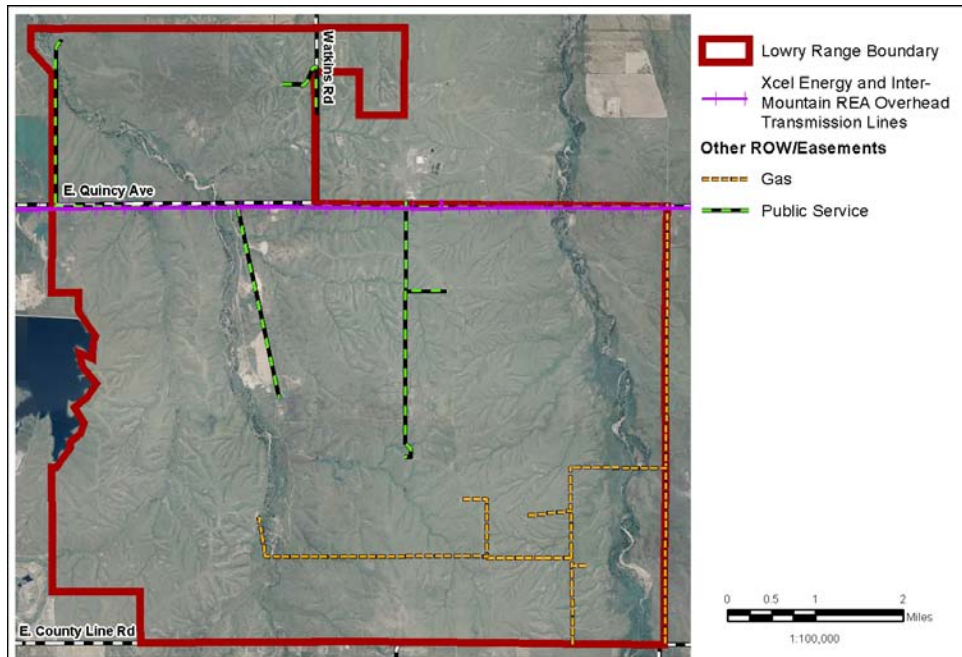
### 3) Utilities

Utility infrastructure on the Lowry Range consists primarily of electric power, water wells and water lines. The following is an overview of the specific electric and water improvements on the property.

#### a) Electric

Electric service infrastructure on the Lowry Range includes both major transmission lines and on-site electric service lines (Exhibit 13).

*Exhibit 13: Electric Infrastructure Improvements*



Both Xcel Energy and the Intermountain Rural Electric Association own and operate major transmission lines that run along the south side of East Quincy Avenue. The transmission lines are located on the Lowry Range in perpetual right-of-way easements granted by the SLB. The right-of-way easements do not prohibit surface access by the SLB or other lessees but they do limit certain surface uses such as oil and



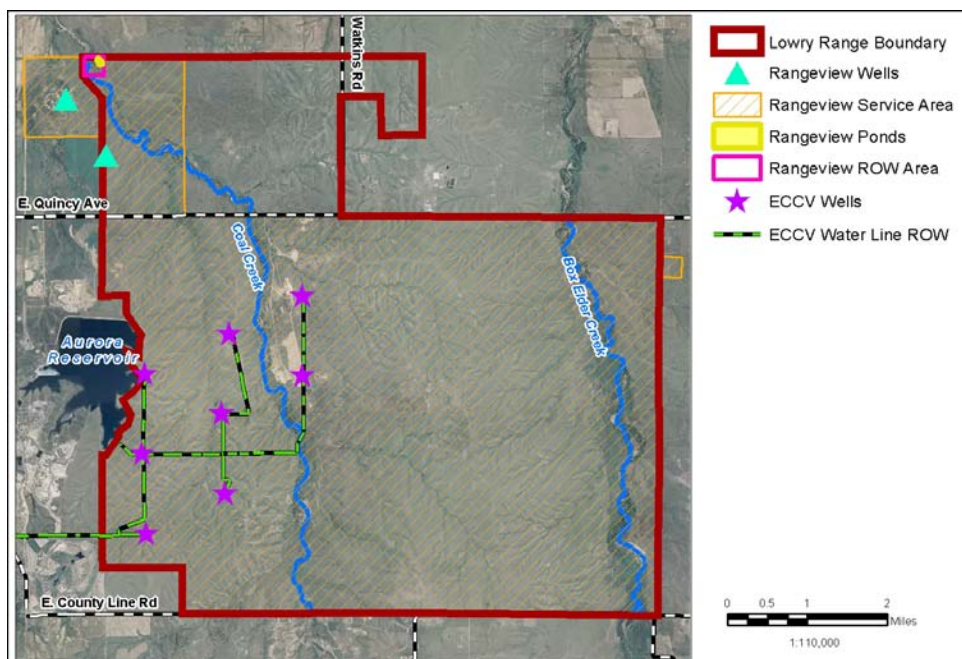
gas development. In addition, the scale of the power lines is quite large and they have a negative impact on the visual quality of the landscape along East Quincy Avenue.

On-site electric service provides power to the facilities of various Lowry Range lessees including the Arapahoe Hunt Club, Schmidt Construction, Crosswinds Model Airplane Club and various oil and gas operators. The SLB will work with these lessees to ensure that their needs for lighting are met while minimizing the impact that those lights have on views of the night sky from Lowry Range.

#### b) Water

The majority of the water infrastructure on the Lowry Range is located along the western edge of the property and was developed by and belongs to either Rangeview or the East Cherry Creek Valley Water and Sanitation District (ECCV) (Exhibit 14).

Exhibit 14: Water Infrastructure



The Rangeview improvements serve the nearby Arapahoe County Fairgrounds and the Ridge View Academy Charter School. Rangeview has the right to develop additional water resources, water delivery systems and facilities, and wastewater collection and treatment facilities to serve customers located in its service area. The Rangeview service area covers approximately 24,000 acres of the Lowry Range.

The East Cherry Creek Valley Water and Sanitation District (ECCV) provides service to approximately 50,000 customers located in the eastern portions of the City of Centennial and unincorporated Arapahoe County. Its assets on the Lowry Range include water wells and water lines.

There are other minor water infrastructure improvements on the property that have been developed by individual lessees to specifically serve their needs. These include a water well that serves the Arapahoe Hunt Club facilities, 15 water tanks for livestock and 12-miles of underground pipelines that serve those tanks.

### **Residential and Commercial Real Estate Development**

The SLB has commissioned or participated in several land use studies and processes to evaluate the potential for real estate development on the property. The most significant of these studies and reports completed between



2000 and 2004 are summarized below.

- University of Colorado Real Estate Panel, July 2000
- Vision Process for the Lowry Range (RNL Design), May 2000
- Lowry Range Property Development Study (RNL Design), August 2003
- Advancing the Disposition of the Lowry Range: Economic and Business Considerations (Coley/Forrest, Inc.), July 2003
- Lowry Range Ecological Issues Brief (ERO Resources), July 2003
- Development Process Overview and Timing (THK & Associates), October 2003
- Urban Land Institute Advisory Services Program, June 2004

In 2006, these efforts culminated in an RFO/RFP process and the selection of a real estate company with the expertise and financial capability to implement the SLB's development goals for the property.

In 2007, the SLB entered into an agreement with Lend Lease Communities to develop approximately 4,000 acres of the property located north of East Quincy Avenue for residential and commercial use. The plan was to feature the latest in environmentally friendly design and take roughly 20-years to complete. At the same time, the SLB selected the Arapahoe Grasslands Conservation Team to implement a plan for the long-term conservation, restoration and sustainable use of the approximately 22,000-acres of land located south of East Quincy Avenue.

Between 2007 and 2009, a significant investment of time and money was made by all of the parties in an effort to advance the proposed plans. Numerous studies were prepared to understand the physical, cultural and financial issues associated with development and implementation. Significant milestones were achieved when Arapahoe County adopted the *Lowry Range Subarea Plan* that included specific goals for accommodating "quality and sustainable urban development on the Lowry Range" and the Denver Regional Council of Governments (DRCOG) agreed to extend the urban growth boundary to accommodate the proposed development of the property.

Throughout the course of the land planning effort, Lend Lease Communities, the SLB, Rangeview and the City of Aurora debated the best way to secure an adequate and sustainable water supply for the project. Ultimately unable to find a solution, Lend Lease Communities terminated its agreement with the SLB in 2009.

Although the Lend Lease Communities plan did not come to fruition, the SLB retains ownership of the studies that were completed between 2007 and 2009. In addition, the Arapahoe County Subarea plan remains in place. Collectively, these studies, plans and approvals may have significant value to the SLB should real estate development on the Lowry Range become a future priority.

### **Radio Towers**

The SLB issued a lease to Entravision Communication Corporation to accommodate seven 265-foot tall radio towers sited on approximately 31-acres on the northern edge of the property adjacent to Yale Avenue. Associated with the towers are hundreds of small wires that radiate outward from the base of each tower. The wires are located several inches underground and are an integral part of the radio tower. The towers have minimal impact to the conservation resources on the Lowry Range and provide few potential conflicts with other users.

### **Other Resource Issues**

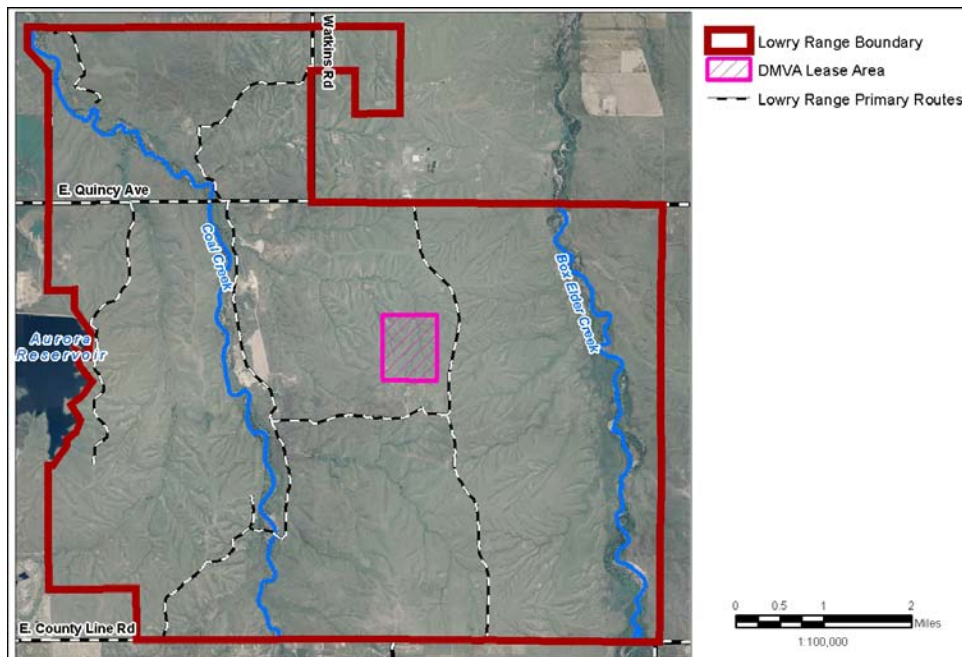
There are three resource related issues on Lowry Range related to current and past military activity. They are the use of the property for National Guard helicopter flight training, the occurrence of Unexploded Ordinance (UXO) and the presence of a decommissioned and abandoned Titan Missile silo complex.

- 1) Department of Military and Veterans Affairs

In 2009, the SLB executed a new lease with the Department of Military and Veterans Affairs (DMVA) for the purpose of accommodating Colorado Army National Guard helicopter flight training on and above the Lowry

Range (Exhibit 15). The primary activity involves flight training for helicopter pilots that are based out of Buckley Air Force Base in Aurora, just three miles to the north. This activity is of considerable importance to the National Guard due to the ideal physical conditions found on the Lowry Range and its close proximity to Buckley. Alternative sites are located some distance away resulting in much greater costs for the military.

*Exhibit 15: Colorado Army National Guard Lease Location*



The lease allows the National Guard to conduct flight-training operations over 21,570-acres of the Lowry Range. It also provides for the physical use of a 300-acre site on which they may construct and maintain a helicopter landing pad, small storage building and earthen berm.

The National Guard has been conducting training activities at the Lowry Range for over 40-years without degradation of the natural resource values on the property. The SLB believes that the continued use by the National Guard is compatible with other anticipated uses on the property and can be continued without negatively affecting its biological, physical or recreational resources.

## 2) Unexploded Ordinance (UXO)

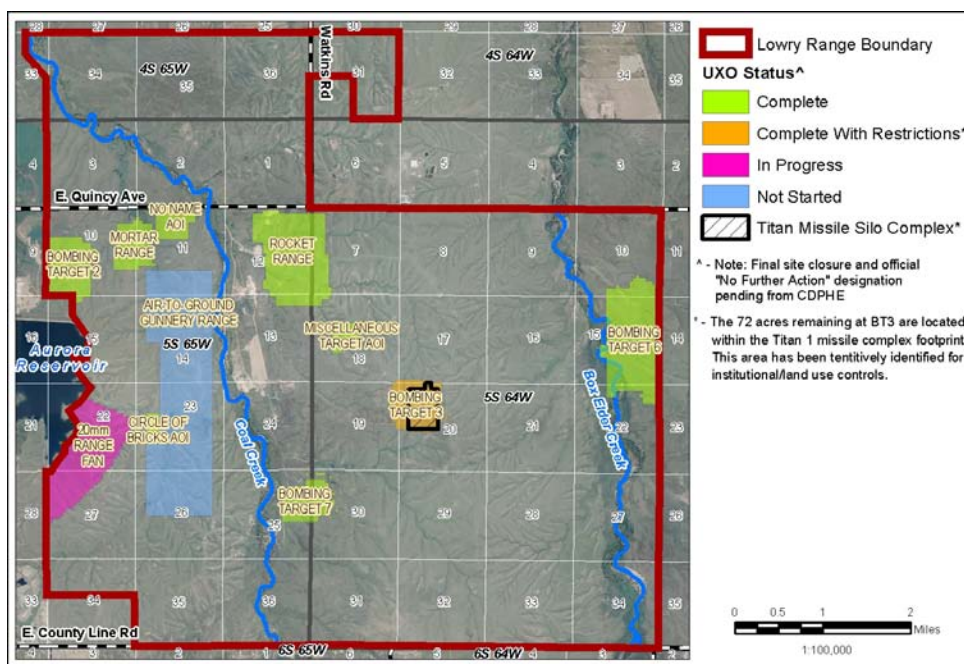
As previously discussed, the Lowry Bombing and Gunnery Range was used for target practice by the US Air Force from the 1930s until the early 1960s. In 1998, the U.S. Army Corps of Engineers, Omaha District (USACE) began cleanup operations intended to reduce the risk that unexploded munitions could pose to either present or future users on the SLB-owned portion of the old bombing range. At the beginning of the remediation effort eleven former target sites were identified. As of April 2012, nine of the eleven target sites have undergone remediation (Exhibit 16). Cleanup of the two remaining sites is expected to be complete by 20018.

While most areas of the Lowry Range are or will be designated as “presumptively clean”, the possibility of finding additional munitions on the property will always exist. It is therefore the responsibility of individual lessees to develop operations and safety plans that address the potential risks associated with UXO and to coordinate their activities with ongoing remediation efforts.

The munitions component of each lessees operations and safety plan will need to address protocols for sites that are considered presumptively clean, former target sites that have been remediated, and sites that have not

yet undergone remediation efforts. For sites that are considered presumptively clean and for former sites already remediated, lessees will be required to go through ordnance safety and recognition training with the USACE contractor. This is typically a training class that may last an hour or two, and assists workers in recognizing potential pieces of munitions or items of concern from the site. Should an item of concern be located, the safety plan will outline the specific steps to be taken by the onsite workers and supervisors to protect human health and safety. This may involve protocols for stopping work in the area, contacting the USACE's contractor to evaluate the item, and determining if work can continue.

Exhibit 16: UXO Remediation Status and Titan Missile Silo Location



For the target sites still undergoing remediation, the protocols are more stringent. Currently, the two sites undergoing remediation are the Air-to-Ground Gunnery Range (AGGR) and the 20mm Range Fan, which is a target of about 300 acres adjacent to the AGGR on the west side of the property. Within these areas, an operation plan must be developed with assistance from State Land Board staff, USACE staff, USACE contractor representatives, and regulatory representatives from the Colorado Department of Public Health and Environment (CDPHE).

Any lessee that anticipates activity within the AGGR or 20mm Range Fan will be responsible for retaining consultants and certified UXO technicians who can both advise and inform the preparation of the operations and safety plan and ensure the successful and safe implementation of the plan on the site. For development of these plans, SLB staff will help the lessee work with the USACE, the onsite contractor and CDPHE as the regulatory agency.

3) Titan Missile Site

The former Lowry AFB Titan Missile Site 1, Complex 1B is located largely within Section 20, Township 5 South, Range 64 West (Exhibit 16). Construction of the missile complex began in September 1958 and was completed in June 1961. In approximately 1965, the complex became inactive (Woodward-Clyde, 1994).

The original Complex 1B included three launch stations located in separate reinforced-concrete structures. In addition to the three launch stations the complex included missile silos, equipment terminals, propellant terminals, propellant systems, an underground guidance center, underground utility and service facilities,

underground powerhouse, interconnecting underground tunnels, sewage stabilization cells, a chemical waste clarifier and five concrete seal chambers.

The powerhouse contained four diesel generators and associated equipment for production of the electrical power required by the facility. The chemical waste clarifier and five concrete seal chambers may have contained chemicals of concern and contaminated wastes from the missile complex operations. Sump pumps located inside of each missile silo pumped all fluid discharge to the concrete seal chambers. The chemical waste clarifier was located near the control center and processed the collected effluent from the control center and powerhouse.

Four underground storage tanks (USTs) formerly used to store fuel for the missiles and electrical generators remain at the complex. The USTs consist of one 40,000-gallon kerosene-based missile fuel tank, two 67,000-gallon diesel fuel tanks and one 5,000-gallon diesel fuel tank. The USTs at Complex 1B were inspected, cleaned, filled with inert material and closed in place in 1999.

Several site investigations have been conducted to characterize the surface and subsurface contamination that may have resulted from historic site operations. Investigation has included sampling and analysis of surface and subsurface soil, and groundwater. Based on results of those investigations, groundwater and soil have been identified as potential environmental media of concern at Complex 1B. Under a separate remediation action, the contaminated soil was removed from the site.

Groundwater is the only remaining contaminated medium relevant to Complex 1B. Volatile Organic Compounds (VOCs) detected in the groundwater during the most recent sampling event included tetrachloroethene (PCE) and trichloroethene. During the sampling event of 2004, PCE and TCE exceeded their respective Colorado Basic Standards for Groundwater (CBSGs).

Currently, a groundwater remediation project is underway, under contract from the USACE and regulatory monitoring by CDPHE and USEPA. The contaminated shallow groundwater plumes do not occupy a significant portion of the property, but are clearly marked with monitoring wells and should be avoided. These plumes are less than or equal to 200 feet below the surface.

### **Summary of Leases and Rights-of-Way on the Lowry Range**

As described in the preceding sections, numerous leases and rights-of-way exist on the Lowry Range. The tables included in Exhibit 17 and Exhibit 18 provide a summary of the existing leases as well as the key terms associated with each lease. A summary of the rights-of-way that exist on the property is included in Appendix 3. The data included in the Exhibits and in Appendix 3 was the most current available as of April 2012.

*Exhibit 17: Lowry Range Subsurface Lease Summary (Water, Minerals, Oil & Gas)*

Lease #	Lessee	Purpose	Acres	Year of Initial Lease	Year of Expiration
OT37280	Rangeview Metropolitan District	Water development	24,567	1982	2032
GL264	Schmidt Construction Company	Sand and gravel	2,760	1988	2014
OG70/8032	Three Forks Resources LLC	Oil and gas	640	1970	Held by production
OG70/8015	Three Forks Resources LLC	Oil and gas	640	1970	Held by production
OG91/8198	Three Forks Resources LLC	Oil and gas	400	1970	Held by production
OG89/6121	Renegade Oil & Gas LLC	Oil and gas	640	1989	Shut-in

Lease #	Lessee	Purpose	Acres	Year of Initial Lease	Year of Expiration
OG80/5508	Renegade Oil & Gas LLC	Oil and gas	640	1980	Held by production
OG70/8016	Renegade Oil & Gas LLC	Oil and gas	636	1970	Shut-in
OG05/8368	R Renegade Oil & Gas LLC	Oil and gas	640	2005	Held by production
OG05/8369	Renegade Oil and Gas LLC	Oil and gas	640	2005	Held by production
OG70/8033	Renegade Oil & Gas LLC	Oil and gas	240	1970	Held by production
OG83/8037	Timberline Energy Inc.	Oil and gas	160	1983	Held by production
OG1960.12	ConocoPhillips	Oil and gas	21,048	2012	Held by production

Exhibit 18: Lowry Range Surface Lease Summary

Lease #	Lessee	Purpose	Acres	Year of Initial Lease	Year of Expiration
AG41745	Running Creek Ranch	Grazing	3,892	1991	2014
AG45119	William Blauw	Grazing	487	2005	2012
COMM42586	Crosswinds R/C Club	Remote control powered model airplanes	40	1991	2015
OT42160	Model Museum Flying Club (MMM)	Glider model airplanes	1,758 (flyover) 40 (surface)	1992	2012
COMM39443	Arapahoe Hunt Club	Equestrian	21,570	1987	2014
COMM49023	Entravision	Radio towers	31.49	2006	2021
OT80129	Colorado Dept. of Veterans Affairs	Low level flight training	21,570 (flyover) 300 (surface)	1968	2108
OT80143	City of Aurora	Water planning	2,480	2010	2012



## Chapter Four

### Resource Protection and Development Strategies

#### Introduction

The previous section of this IRMP described the resources that exist on the Lowry Range. This section considers the future of the Lowry Range and recommends strategies that when implemented, will advance the realization of each stated goal.

As previously noted, the Lowry Range is significant for its large size, intact nature and close proximity to the Denver metropolitan area. Two of the most significant threats to the natural systems on the property are habitat fragmentation and the incursion of non-native plant species that compromise the quality and function of the native ecosystem. While past uses have contributed to the biological and structural degradation of ecological resources on the property, it is the intention of the SLB to manage future activities in a manner that will contribute to the restoration of the resource.

The size and location of the Lowry Range will also result in numerous opportunities to investigate, review and potentially pursue revenue-generating activities on the property. An important element of the Lowry Range vision is to preserve the flexibility necessary to respond appropriately to future opportunities. To that end, one of the most important things that the SLB can do in the short and intermediate time frame is to identify lessees that are interested in establishing long-term cooperative relationships to achieve both the development and protection of the resources that exist on the property.

#### Goals, Strategies and Actions

The goals and strategies described below address existing and developing issues, challenges, and opportunities on the Lowry Range. The goals are the same as were described briefly in Chapter 2. They are described in more detail here. Each goal is supported by a number of strategies which in turn are supported by specific actions. In addition, each strategy has been assigned a priority of very high, high, medium or low to help guide decisions related to annual budgeting and work plans.

##### Goal 1: Protect and restore the ecological integrity of the Lowry Range.

The Lowry Range includes three specific ecosystems that require focused attention and protection. These are the Shortgrass Prairie, Tallgrass Prairie and the riparian corridors associated with Coal Creek and Box Elder Creek. These ecosystems provide habitat for a variety of prairie wildlife species, including some that are rare or in serious decline. In addition, large blocks of open space and grasslands like those found on the Lowry Range are more likely than small blocks to be self-sustaining – supporting the habitat needs of a wider range of both plant and animal species. The SLB will work to maximize the sustainable value of the existing natural resources on the Lowry Range.

##### Strategy 1.1 Improve Central Shortgrass and Piedmont Tallgrass prairie systems.

From an ecological perspective, native grasslands like those found on the Lowry Range are considered among the most important ecosystems in North America. The tallgrass, mixed, and shortgrass prairies of the mid-continent region are among the world's most endangered ecosystems. Even in Colorado's arid Central shortgrass prairie, remaining patches of native prairie are often small and fragmented.

Native prairie plants adapt to the often-harsh conditions of the ecosystem. The plants have to tolerate high winds, the absence of shade, and the pressure of disturbances such as herbivores and lightning-caused fire. As such, prairie plants have long, extensive root networks that anchor both the soil and the plants themselves to the ground. As much as 65% of a prairie's biomass is beneath the surface, even at summer's end when above ground growth is at its peak. Additionally, the soil structure that exists beneath native prairies is significantly different from tilled or even restored prairie lands, giving it an increased capacity to utilize and



store nutrients and support the diversity – both numerically and biologically – of microbial and invertebrate life that far surpasses that of the vegetation and vertebrates above ground.

Even though the native grasslands that remain in Colorado may have largely escaped urban development and suburban encroachment, fire suppression and invasion by nonnative plant species present a serious and ongoing threat to their ecological health. Aggressive and opportunistic, non-native plants take advantage of areas disturbed by human activity or simply outcompete native species for resources resulting in the deterioration and fragmentation of prairie grasslands. As a consequence, many of the wildlife species that depend on prairie habitats have also experienced serious population declines.

While the majority of the Lowry Range is comprised of central shortgrass prairie, the property's central gravel ridge supports an area of remnant native tallgrass Piedmont grassland in excess of 6,600-acres. In addition, the tallgrass species is found in smaller patches throughout the property. As a whole, the Lowry Range represents a valuable example of the Central Shortgrass and Piedmont Tallgrass prairie systems.

Protecting and enhancing the shortgrass and tallgrass prairie systems on the Lowry Range will not, even at a scale of several thousand acres, guarantee the long-term success and survival of the grassland ecosystems described above. However, it will almost certainly provide for the habitat needs of a wider range of plant and animal species on the property, including some that are rare or in serious decline. The SLB will develop specific guidelines for grazing and other on-site activities in order to advance the restoration of the prairie grasses and the underlying ecological processes that support them.

#### Strategy 1.2 Protect and enhance the quality of the riparian corridors.

Riparian corridors in the eastern plains of Colorado provide important migration, breeding and feeding habitats for hundreds of species of birds, as well as mammals, amphibians and invertebrates. The riparian corridors associated with Box Elder Creek and Coal Creek create two green ribbons of species-rich habitat in the otherwise dry and open shortgrass prairie landscape. Riparian areas such as these make up less than 2% of Colorado's land area, yet are used by more than 80% of Colorado's bird species. Of the 33 different types of habitat in Colorado, Colorado Parks and Wildlife identifies lowland riparian systems as the "most species rich".

These riparian areas also play an important role in the filtering of water. The permanent vegetation improves or maintains water quality by trapping and removing various nonpoint source pollutants such as contaminants from herbicides and pesticides; nutrients from fertilizers; and sediment from upland soils; from both overland and shallow subsurface flow.

The contributory drainage basins of both Box Elder Creek and Coal Creek extend well off of the Lowry Range property, in the case of Box Elder Creek almost 15-miles to the south. As a result, many of the activities that will directly impact the quality of the water in the creeks occur well before the water reaches the SLB property. As opportunities present themselves, the SLB should be an advocate for watershed scale planning that will consider the potential impacts of development upstream of the Lowry Range. At a minimum, efforts will be made on the Lowry Range to restore those parts of the riparian corridors whose natural function has been negatively impacted by past activities on the property.

Sometime in the late 1980s and early 1990s, sand and gravel mining on the Lowry Range breached the natural clay layer protecting the shallow groundwater tables that fed the cottonwood riparian gallery along Coal Creek south of East South Quincy Avenue, causing devastating deterioration of the old cottonwood trees. EPA regulations required restoration of the clay layer and planting of new cottonwood trees, but the results were not entirely successful and additional effort is still required.

Overgrazing has also resulted in negative impacts to the Coal Creek riparian corridor, particularly south of East Quincy Avenue. Parts of the stream corridor were over-grazed and other parts were channelized, removing some of the stream's natural capacity to provide water to the outer areas of the riparian corridor and filter sediments and nutrients as the water moves downstream.

Nevertheless, the Coal Creek and Box Elder Creek corridors remain attractive locations for public access and recreational activities such as bird watching, hiking, biking and horseback riding. While potentially desirable, the SLB recognizes that public access and recreation trails can negatively affect wildlife in a variety of ways. Simply introducing humans and human companion animals such as domestic dogs into a habitat where they previously were infrequent or rare, can change the ecology of a system. Some effects are fleeting, while others are substantial and long lasting. Even if access and use is purposely limited, compliance is not guaranteed. People often make their own paths to sensitive areas, impacting both the condition and composition of native vegetation as well as the wildlife habitat.

At some point in time the SLB may decide to allow new uses within the Coal Creek and Box Elder Creek corridors. However, this IRMP places a priority on the role of the corridors as a habitat for native wildlife over human use, whether for purposes of agriculture or recreation.

#### Strategy 1.3 Develop and implement a sustainable grazing program.

Grazing is an essential element of healthy grassland ecosystems and was originally provided by large herds of bison intensively grazing certain areas and then leaving them for periods of months or years while pronghorn and deer fed more selectively on forbs. Grazing remains the preferred primary tool for recreating and maintaining a healthy grassland ecosystem. The purpose of a sustainable grazing plan is to mimic certain aspects of those original feeding patterns in order to restore a healthy and functioning native prairie that will support a large number of grassland species, including birds, mammals, amphibians and invertebrates.

There are 14 pastures located on the southern part of the Lowry Range ranging in size from 131-acres to 2,550-acres. Permanent wire fencing separates the pastures. Seven of the pastures include livestock watering facilities while the other seven pastures rely on livestock access to Coal Creek and Box Elder Creek for water. The pastures have not been used for grazing since the summer of 2007. The result has been the re-emergence of tallgrass prairie plant species on parts of the property. Isolated areas of tall bunchgrasses are not uncommon and the growth of new cottonwood trees on the southern portions of Coal Creek is also evident.

It is the intention of the SLB to use rotational, deferred, or continuous grazing on the entire Lowry Range to create both quality forage for cattle and wildlife, and to create grassland habitat of varying grass heights and conditions for grassland birds and other prairie species. A key part of the plan will be to install additional fencing, either permanent or temporary, as well as additional livestock watering facilities on the southern part of Lowry Range so that the stream corridors can be fenced off (from livestock) as needed to facilitate their restoration.

#### Strategy 1.4 Explore the use of prescribed burns.

Fire has always been a part of prairie existence. Most native grasslands benefit from fire and its suppression has been cited as a notable cause of habitat degradation. Fire removes the litter accumulation that alters the soil temperature by preventing sunlight from reaching the ground, controls competing vegetation, returns valuable nutrients to the soil, and maintains grasslands as open habitat by preventing natural succession to wooded communities. Plants may not be able to germinate if minimal ground temperatures are not met, nor can the low temperatures needed for vernalization (the subjection of seeds or seedlings to low temperature in order to hasten plant development and flowering) occur if litter levels are too great.

Fire has not been used as a range or habitat management practice at Lowry since it was acquired by the SLB in the 1960s. According to SLB records, fires have occurred on parts of the range in the past and as recently as 2008. Although the use of controlled fire burns is an important tool for restoration of the native prairie, prescribed burning is a highly regulated technique that can only be conducted in compliance with all state and local laws and with trained technicians. In addition, it is recognized that other permitted uses on the property such as oil and gas development limit the ability to use fire on the Lowry Range.

For the reasons described above, this Plan recommends that the use of controlled burning be explored further but assigns a low priority to its implementation.

Strategy 1.5 Control invasive and exotic plant species with an integrated weed management plan.

The establishment and spread of invasive non-native plants is one of the most serious problems facing the Lowry Range. Noxious weed infestations, primarily leafy spurge and cheatgrass, have contributed to the loss of agricultural productivity and ecological functions on the property. From the time the Lowry Range was acquired, invasive species existed throughout the property, particularly on areas disturbed by military training activities. Since that time, overgrazing on parts of the site and the increase of weeds on and off site has increased the problem.

Invasive weeds threaten the biological diversity and integrity of ecological systems by displacing native plant species and even releasing substances in the soil that prevent re-establishment of native species. Weeds can drastically alter the ecological checks and balances that have developed over thousands of years. The growth and spread of weeds can alter fire patterns and intensity, resulting in major ecosystem changes. Some nitrogen-fixing invasive plant species increase soil nitrogen levels to the point that other non-native plant species outcompete native species that have evolved in nutrient-poor soils. Weeds can affect soil erosion and aquatic habitat in nearby streams and ponds. Many invasive plant species provide poorer habitat and food sources for wildlife species and livestock than their displaced native counterparts.

Today, while conditions vary across the property, all parts of the Lowry Range are affected to some degree by invasive weeds. Some areas have severe infestations while other areas suffer from only minor occurrences. Weedy patches can be found throughout the property, dominated by cheatgrass and scattered musk thistle. While they may be in low abundance in some areas, they should be treated to avoid spreading. Both major stream corridors and most stream channels have thick stands of leafy spurge. The labor and financial resources available to the SLB will likely not be sufficient to completely eradicate all of the invasive weeds on the Lowry Range. Therefore, it is critical that the SLB coordinate its efforts with adjacent property owners (especially those upstream) and to use the limited resources available to focus control efforts where they will do the most good.

The following table includes a summary of the strategies described above as well as a list of specific actions that support each strategy. The priority assigned to each strategy is included in the right hand column.

Table 4.1

#	Strategy and Actions	Priority
1.1	<p>Improve Central Shortgrass and Piedmont Tallgrass prairie systems.</p> <ul style="list-style-type: none"> <li>➤ Locate existing range monitoring transects and use the previously collected data to establish baselines.</li> <li>➤ Add additional range monitoring transects as needed.</li> <li>➤ Monitor transects every year using Colorado Resource Monitoring Initiative (CRMI) criteria.</li> <li>➤ Close-off unnecessary 2-track roads (and other access) and prohibit off road vehicular travel.</li> </ul>	Very High
1.2	<p>Protect and enhance the quality of the riparian corridors.</p> <ul style="list-style-type: none"> <li>➤ Use existing CNHP site inventories to establish baseline conditions.</li> <li>➤ Examine the channelized areas in northern Coal Creek and determine whether they should be restored.</li> <li>➤ Maintain and improve native riparian vegetation.</li> <li>➤ Install alternative water sources for cattle to eliminate their reliance on streams.</li> </ul>	High

#	Strategy and Actions	Priority
	<ul style="list-style-type: none"> <li>➤ Install wildlife-friendly fencing to protect stream corridor from cattle and allow regeneration of cottonwood and willow seedlings and other herbaceous understory according to the approved <i>Grazing Management Plan</i>.</li> <li>➤ Maintain natural channel-floodplain connectivity (by not hardening riverbanks or building in floodplain).</li> <li>➤ Locate recreation paths to minimize impacts to wildlife and plant resources.               <ul style="list-style-type: none"> <li>○ Limit public access to stream banks.</li> <li>○ Minimize trail crossings across streams and locate them away from critical habitat or home ranges.</li> <li>○ Require that recreational trails use soft surface materials.</li> <li>○ Design stream crossings to ensure that wildlife can easily avoid or pass around.</li> <li>○ Prohibit lighting along riparian corridors (close trails at dusk).</li> </ul> </li> <li>➤ Control non-native invasive plants and animals.</li> <li>➤ Prohibit domestic dogs on the Lowry Range and aggressively control feral cats (if present).</li> </ul>	
1.3	<p>Develop and implement a sustainable grazing program</p> <ul style="list-style-type: none"> <li>➤ Prepare and adopt a <i>Grazing Management Plan</i>.</li> <li>➤ Develop a capital improvement plan for accomplishing rotational grazing objectives.</li> <li>➤ Repair permanent fencing as needed.</li> <li>➤ Require movable fencing to increase effectiveness of rotational and targeted grazing.</li> <li>➤ Improve existing livestock watering infrastructure and install new livestock watering components.</li> </ul>	Very High
1.4	<p>Explore the use of prescribed burns to improve the ecological integrity of the grassland and riparian corridors.</p>	Low
1.5	<p>Control invasive and exotic plant species through the design and implementation of an <i>Integrated Weed Management Plan</i>.</p> <ul style="list-style-type: none"> <li>➤ Inventory the property for invasive species.</li> <li>➤ Formulate management goals and objectives and set priorities for weed management.</li> <li>➤ Develop and implement an integrated weed management and monitoring program that enables tracking of weed management actions and progress over time.</li> <li>➤ Select specific management actions. For example:               <ul style="list-style-type: none"> <li>○ Use goats/sheep to graze exotic species.</li> </ul> </li> </ul>	Very High

#	Strategy and Actions	Priority
	<ul style="list-style-type: none"> <li>○ Survey and treat riparian corridors and drainage channels containing leafy spurge and other invasive species.</li> <li>○ Survey and investigate potential treatments for patches of cheatgrass and musk thistle throughout the property.</li> <li>○ Identify non-native tree species for removal.</li> </ul>	

**Goal 2: Develop management plans for species and ecological systems that warrant focused conservation attention.**

While Goal 1 addresses the conservation and stewardship of large-scale ecological systems on the Lowry Range, Goal 2 more specifically addresses animal species that are identified as “species of concern” or “rare and imperiled” and therefore warrant focused conservation attention.

Strategy 2.1 Protect and enhance Northern Pocket Gopher, Black-tailed Prairie Dog and Swift Fox communities.

In 2010, the Colorado Natural Heritage Program documented a population of the rare *macrotis* subspecies of the northern pocket gopher on the middle portion of the southern Lowry Range. The presence of a viable population on the property contributes to the overall function, integrity and diversity of the Lowry Range ecosystem. As such protecting the northern pocket gopher is a high conservation priority.

The Lowry Range contains one of the few healthy and comparatively large black-tailed prairie dog complexes still remaining in close proximity to the Denver metro area. The presence of several large prairie dog communities on the Lowry Range significantly increases the zoological diversity of the shortgrass prairie ecosystem by attracting not only predators that prey on the prairie dog but also many other animals that depend on the burrows they create for habitat. The latter include burrowing owls, mountain plover, tiger salamander, and horned toads. A healthy and functioning black tailed prairie dog community is also a prerequisite for the potential reintroduction of the threatened and endangered black-footed ferret (See Strategy 2.6).

The swift fox (*Vulpes velox*) is native to the shortgrass and mixed-grass prairie ecosystem in eastern Colorado and has been found on the Lowry Range. Protection of the open shortgrass prairie ecosystem is essential for the swift fox as it provides diverse prey, long viewing distances for detecting predators, and firm and friable soils that allow multiple den sites for year round use.

Strategy 2.2 Protect and enhance the use of the Lowry Range as a wildlife corridor and habitat for Pronghorn, Mule Deer and White-tailed Deer.

Pronghorn live primarily on the open grassland where they eat native forbs and sub-shrubs. They are in almost constant motion and need large habitat blocks on which they can move about freely. Fragmented open space caused by fences, roads, energy development and human disturbance is the main threat to Pronghorn and has driven pronghorn out of much of their traditional habitat. The continued year round presence of Pronghorn on the Lowry Range is evidence of the relative health of the native grasslands. While the SLB can do little to protect the pronghorn’s habitat off the Lowry Range, it will place a high priority on protecting the significant open space on the property against further fragmentation.

Both Box Elder Creek and Coal Creek are home to white-tailed deer and mule deer. They travel along the length of the stream corridors and along its edges and are rarely seen in the interior of the property far away from their protective cover. There is developing concern that whitetails are both hybridizing with mule deer and/or displacing them. The SLB may consider strategies for managing the whitetail population on the property to minimize these issues.

### Strategy 2.3 Protect and enhance grassland bird habitat.

Since grassland ecosystems are dependent on the periodic disturbance (grazing and fire) that has been altered by human settlement, grassland birds are increasingly dependent on controlled grazing, prescribed burning, and strategic mowing/haying to create and maintain the health of their habitats.

Grassland birds prefer a wide range of grass heights and densities, with some species preferring short sparse vegetation, and others preferring taller, more dense vegetation. For this reason, land managers working to protect and enhance habitat for a wide variety of grassland birds aim to create a mosaic of grassland habitat achieved through rotational management system in which each part of large grassland areas receive some form of management (grazing, mowing, or controlled burn) on a regular schedule. This provides a variety of habitat types across the property in every year and attempts to provide suitable habitat for birds across the full grassland management spectrum.

Large blocks of undisturbed grassland allow grassland birds to fulfill most courtship, nesting, brood-rearing, feeding, escape, and loafing cover requirements during the nesting season. For many bird species, large habitat blocks also provide winter and migration cover. Through better management of its grasslands the Lowry Range can provide a diversity of grassland growth forms that increase the sites attractiveness to a variety of grassland birds. To the degree that it can support this diverse suite of grassland habitats, and even the successional growth stages that occur within grassland landscapes, the greater the number of grassland bird species that the property will be able to support.

### Strategy 2.4 Protect and enhance riparian habitat for nesting and migrating song birds.

On the Lowry Range, the Box Elder and Coal Creek corridors host a disproportionately high number of wildlife species and perform a disparate number of ecological functions when compared to the rest of the Range. As described earlier (under Strategy 1.2), lowland riparian corridors are the most "species-rich" type of habitat in Colorado and play a disproportionately important role in providing habitat for resident and migrating birds and many other species. Not discounting the role these stream corridors play for year round inhabitants, they come alive with intense activity during the spring and fall migrations of songbirds that include Lazuli Buntings, Yellow Warblers, Black headed Grosbeaks, Western Wood Pee-wees and more.

Due to the role they play in biological diversity and the threat they face by severe degradation, riparian areas have been identified as the most critical habitat for conservation of Neotropical migrants and resident birds in the west. These riparian habitats provide important breeding and over wintering grounds, migration stopover areas, and corridors for dispersal. The habitat they provide plays a role in the life history for many native and migrant bird species. The vegetation associated with riparian corridors is critical to the quality of in-stream habitat and its role in supporting aquatic life by providing shade, food, and nutrients that form the foundation of the food chain. Riparian vegetation also supplies in-stream habitat when downed trees and shrubs scour pools and form logjams important for fish, amphibians, reptiles and aquatic insects.

Steady human encroachment through suburbanization, agricultural development, and even recreational use has led to widespread habitat loss and fragmentation of stream corridors in Colorado and elsewhere, threatening biodiversity, particularly many songbird species that rely on continuous habitat for survival. The degradation and loss of these continuous riparian corridors has been cited as the most important cause of population decline among land bird species in western North America.

Ironically, open agricultural lands that serve important functions for grassland birds, often serve as barriers for songbird dispersal, preventing migrations, cutting-off important food or habitat sources, and inhibiting gene flow between populations. As a result, it's important to preserve the connectivity that these riparian habitat corridors provide for breeding habitat for songbirds and other species.

The ecological arguments for conserving birds as a component of biodiversity emphasize the critical role that birds play in ecological systems. Birds are critical components of natural ecosystems, and they occupy an extremely diverse range of niches including within riparian systems. By managing for the diversity of birds and



how they use the riparian areas during various portions of their life cycle, the SLB can protect many other elements of biodiversity and the natural processes that are an integral part of the riparian ecosystem.

Finally, birds are sensitive indicators of ecosystem health because of their high metabolic rate, their relatively high position in the food chain and their distribution across a wide variety of habitats. Breeding birds, in particular, rely on the physical, chemical and biological health of their habitats and act as excellent sentinels of natural trends, the sustainability of human land use, and overall environmental health. They are relatively easy and cost effective to monitor and they provide an excellent means by which to track larger changes in natural systems. Regular, long term monitoring of demographic processes in birds (reproduction, survivorship and species richness) enables land managers to proactively address root causes of population declines and increases.

For all these reasons, the protection of the riparian corridors on the Lowry Range is an important goal of the Lowry Range IRMP. Of particular concern is the potential influence of public recreational trails on breeding bird communities in the mixed-grass prairie ecosystem. Recent studies in Colorado have found that recreational trails negatively affected bird species composition by reducing specialist species along the trail corridor and increasing nest predation. One aim of this IRMP is to locate public access and recreational trails carefully so as to avoid habitat fragmentation and reduce the impact on the use of the stream corridors on native and migrating birds and to limit allowable uses on the trails.

#### Strategy 2.5 Protect Raptor Communities (Burrowing Owl, Bald Eagle and Ferruginous Hawks)

The riparian corridors on the Lowry Range serve as important nesting habitats for a variety of raptors that live and hunt on the property. In May 2004, Colorado Parks and Wildlife organized a raptor survey of the Coal Creek riparian corridor. Thirty-one raptors were spotted during the five-hour effort. Of these 12 were Red-tailed hawks, eight were American Kestrels, seven were Great Horned Owls, one was a Northern Harrier, and one was a Swainson's hawk. Two individuals, an owl and a buteo, were not identified as species. Four stick nests were located, two of which were active Red-tailed hawk nests.

Two concerns were identified as a result of the survey. The first was raptor activity was noticeably absent in the mile adjacent to the most active portion of the gravel mining activity. The second was that there was no cottonwood regeneration along the creek, probably as a result of grazing activity. Since the time of the original survey, the removal of grazing from the southern part of the Lowry Range, has resulted in a significant increase in the amount of cottonwood regeneration.

Known raptor nesting sites on the Lowry Range include a Bald Eagle nest located near Coal Creek at the far NW corner of the property. The nest has been active since at least 2007, with nestlings documented over the years. This area of the Lowry Range is subject to the Bald and Golden Eagle Protection Act (1940), the National Bald Eagle Management Guidelines established by the US Fish and Wildlife Service, the Migratory Bird Treaty Act (1918; Amended 1972), and Colorado state law.

Guidelines released by Colorado Parks and Wildlife emphasize the importance of a 'holistic' approach in protecting raptor habitats. It is equally important to protect both individual raptor nest sites and their surrounding foraging areas. The Division's guidelines include recommended buffer zones and seasonal restrictions for 10 specific raptor species. This Plan recommends that all CPW guidelines be followed on the Lowry Range and that additional raptor surveys be conducted to determine what trends may be occurring among raptor populations on the property.

#### Strategy 2.6 Protect Northern Leopard Frog Habitat

The Northern Leopard Frog (*Rana pipiens*) is one of the two most threatened species on the Lowry Range. It is classified as a Tier 1 "species of most concern" and is currently a candidate for federal protection in the western United States. Found mostly along the riparian stream corridors, the northern leopard frog prefers ephemeral ponds of seasonal water and uses three different habitats during its life cycle: tadpole habitat (up to three months spent as tadpoles in shallow breeding ponds), summer habitat (feeding by adults in upland areas) and winter habitat (overwintering in lakes, streams, and ponds). The use of these three distinct habitats involves

complicated movement patterns during the year during various stages in its life history. Northern leopard frogs were found in numerous locations along both the Coal Creek and Box Elder Creek riparian corridors during the 2005 field inventories.

Native to the western United States, leopard frog numbers are now but a fraction of their historical population along Colorado's Front Range. While once common throughout nearly all of Colorado, Northern leopard frogs have been wiped out in many areas and face mounting threats in the areas where they still survive. The apparent decline of the Northern leopard frog has coincided with increases in: 1) habitat loss and alteration, 2) invasion by bullfrogs and 3) emerging infectious disease.

Biological invasions and the emergence of infectious diseases represent two of the greatest threats confronting native amphibians including the northern leopard frog. The introduction and spread of American bullfrogs (*Rana catesbeiana*) is responsible for outcompeting and preying on a broad diversity of native species. They are also suspected of hosting and spreading the pathogen *Batrachochytrium dendrobatidis* that has led to devastating amphibian population losses and is considered one of the greatest threats to global amphibian diversity.

Unlike many wetland areas along the Front Range, no American bullfrogs have yet been found on the Lowry Range. Continued monitoring for the invasive species will be a management priority.

#### Strategy 2.7 Explore the reintroduction of Black-Footed Ferrets to the Lowry Range.

The black footed-ferret is a member of the weasel family Mustelidae, and is the only ferret native to North America. It is also one of the most rare and endangered mammals on earth. The historic range of the black-footed ferret coincides with that of the prairie dog, their primary source of food and shelter. While the US Fish and Wildlife Service (FWS) has classified the ferret as an endangered species since 1967, under a federal law that was the precursor to the Endangered Species Act of 1973, reintroduction sites are exempt from many of its provisions. This is critical because it would allow for the reintroduction of the Black-Footed ferret on the Lowry Range without jeopardizing the other opportunities contemplated by this INRP.

The Lowry Range has the potential to be an exceptional ferret reintroduction site because of its large intact shortgrass prairie habitat and the significant number of black-tailed prairie dog colonies located in it. The prairie dog colonies on the Lowry Range meet the 2,000-acre threshold considered by the FWS to be the minimum size suitable for a Black-Footed Ferret reintroduction site. Few such sites are available and there are currently only 19 ferret reintroduction sites located in eight states, Canada and Mexico.

The ultimate goal of the 1988 National Black-Footed Ferret Recovery Plan is to establish a viable, self-sustaining population that requires only very limited management support. A reintroduction of the ferrets on the Lowry Range would assist in achieving national recovery plan objectives while increasing the biodiversity on the property and restoring a natural predator of the black-tailed prairie dog. This Plan recommends that additional study be completed to understand whether the reintroduction of the ferret onto the Lowry Range is a sound and reasonable action.

#### Strategy 2.8 Implement comprehensive monitoring programs.

Monitoring is an integral component of natural resource management on the Lowry Range and provides an important tool for measuring the success of the IRMP. Monitoring is the process of measuring key characteristics of the resources on the property in order to learn the effect of on-going activity as well as the relative success of implemented management strategies and actions.

The natural resource inventories completed on the Lowry Range by the CNHP in 2005 and 2010 along with five-years of range monitoring data collected by Natural Resource Options between 2005 and 2010 capture a snapshot of the property's ecological health and provide a baseline for restoration efforts. Monitoring programs on the Lowry Range will be designed to provide specific information on trends associated with the three major ecosystems and key species discussed in the preceding sections.

The following table includes a summary of the strategies described above as well as a list of specific actions that support each strategy. The priority assigned to each strategy is included in the right hand column.

Table 4.2

#	Strategy and Actions	Priority
2.1	<p>Protect and enhance Northern Pocket Gopher, Black-tailed Prairie Dog, Swift Fox and Ferruginous Hawk communities.</p> <ul style="list-style-type: none"> <li>➤ Conduct regular site surveys as necessary to identify the boundaries and quality of areas occupied by the species identified above.</li> <li>➤ Prepare and implement a prairie dog management plan that identifies areas where prairie dog colonies will be maintained and protected and areas where prairie dogs will be controlled.</li> <li>➤ Locate recreation trails to minimize impacts to existing occupied habitat areas or other identified but unoccupied habitat to avoid future conflicts.</li> <li>➤ Prohibit use of anti-coagulants or other poisons on black-tailed prairie dogs to avoid secondary poisoning to swift fox and raptors.</li> </ul>	Very High
2.2	<p>Protect and enhance the function of Lowry Range as a wildlife corridor and habitat for Pronghorn, Mule Deer and White-tailed Deer.</p> <ul style="list-style-type: none"> <li>➤ Install wildlife friendly fencing as replacement of permanent fencing is required.</li> <li>➤ Remove unnecessary fencing.</li> <li>➤ Ensure that any new permanent fencing minimizes impacts to travel corridors between Pronghorn concentration areas.</li> </ul>	Medium
2.3	<p>Protect and enhance grassland bird habitat.</p> <ul style="list-style-type: none"> <li>➤ Protect designated prairie dog communities as hosts to burrowing owls, horned larks, mountain plovers and other grassland birds.</li> <li>➤ Limit vehicular travel to designated roads and trails.</li> <li>➤ Maintain large unbroken blocks of undisturbed habitat for use by grassland birds.</li> <li>➤ Use native seed when reseeding disturbed areas.</li> <li>➤ Utilize rotational grazing to create a variety of grassland successional growth stages that will provide a diversity of structural characteristics (height, density, and open ground and plants types).</li> <li>➤ Mountain Plover Management Actions:                             <ul style="list-style-type: none"> <li>• Protect mountain plover nesting sites (as some individuals return to the same sites year after year).</li> <li>• Protect large prairie dog towns (Mountain Plovers tend to occur at highest densities on towns of 15 to 125-acres).</li> </ul> </li> <li>➤ Restrict oil, gas, and recreational activities near Mountain Plover habitat during the peak-breeding season (April-July).</li> </ul>	High

#	Strategy and Actions	Priority
2.4	<p>Protect and enhance riparian habitat for nesting and migrating songbirds.</p> <ul style="list-style-type: none"> <li>➤ To the extent possible, restore the natural hydrological processes of the riparian system.</li> <li>➤ Manage and restore riparian corridor tree species to promote natural regeneration, structural diversity and volume of the understory.</li> <li>➤ Avoid impacts on the natural hydrology of meadows, streams, and river channels, particularly in high-priority areas managed for riparian species.</li> <li>➤ Manage upslope areas so that hydrologic function is maintained.</li> <li>➤ Limit restoration activities and disturbance events such as grazing, disking, herbicide application, and high water events during the breeding season. When such actions are absolutely necessary during the breeding season, time disturbance to minimize its impacts on nesting birds.</li> <li>➤ Control and attempt to eradicate non-native animal species.</li> <li>➤ Avoid the use of pesticides.</li> <li>➤ Limit the “zone of influence” associated with recreational trails by limiting speed of travel, prohibiting motorized vehicles, prohibiting domestic dogs and keeping intensity of use low and predictable.</li> </ul>	Medium
2.5	<p>Protect Raptor Communities</p> <ul style="list-style-type: none"> <li>➤ Follow Colorado Parks &amp; Wildlife “Recommended Buffer Zones and Seasonal Restrictions for Colorado Raptors”.</li> <li>➤ Protect and manage large trees and other features in a manner that enhances their utility to raptors.</li> <li>➤ Provide a vegetation buffer of at least 1,600 feet around raptor nests.</li> <li>➤ Protect raptor nest sites with buffer of 1,600 feet from human activity and noise.</li> <li>➤ Replace raptor nests that are damaged or lost.</li> </ul>	High
2.6	<p>Protect Northern Leopard Frog Habitat.</p> <ul style="list-style-type: none"> <li>➤ If bullfrogs are found, take immediate steps to eradicate.</li> <li>➤ Restrict summer cattle grazing in riparian areas to 150-300 meters from known northern leopard frog breeding and migrating areas.</li> </ul>	Very High
2.7	<p>Explore the reintroduction of Black-Footed Ferrets to the Lowry Range.</p> <ul style="list-style-type: none"> <li>➤ Complete prairie dog and grassland survey to determine suitability of Lowry Range for ferret reintroduction.</li> <li>➤ Join with partners to secure legislative approval if reintroduction is warranted scientifically and the site is selected.</li> <li>➤ Prepare a black-footed ferret reintroduction plan for the Lowry Range.</li> </ul>	Low



#	Strategy and Actions	Priority
	➤ Release and monitor black footed ferrets.	
2.8	<p>Implement comprehensive monitoring programs.</p> <p>➤ Identify other agencies and resource partners with the expertise to provide guidance and (potentially) the resources necessary to design and implement appropriate monitoring programs on the property. Initial monitoring targets may include:</p> <ul style="list-style-type: none"> <li>• Black-tailed prairie dogs</li> <li>• Raptor nests</li> <li>• Bullfrogs</li> <li>• Develop biannual monitoring programs for the following:</li> <li>• Pronghorn</li> <li>• Mule and white-tail deer</li> <li>• Raptors (short-eared owl, ferruginous hawks, bald eagles, northern harrier, prairie falcon)</li> <li>• Grassland birds (burrowing owls, mountain plover, larks)</li> <li>• Songbirds (loggerhead shrike, warblers)                             <ul style="list-style-type: none"> <li>○ Conduct selective monitoring at critical sites to determine the effects of cowbird parasitism on the Warbling Vireo, Common Yellowthroat, Blue Grosbeak and Yellow Warbler.</li> <li>○ Conduct selective monitoring at key sites to determine the factors influencing nest success of the Song Sparrow, Lazuli Bunting, Yellow Warbler, Willow Flycatcher and Warbling Vireo.</li> </ul> </li> <li>• Amphibians (plains spadefoot, woodhouse's toad, western chorus frog, tiger salamander)</li> <li>• Invertebrates (rare butterflies and skippers that rely on tallgrasses as hosts)</li> </ul> <p>➤ Conduct monitoring on a regular basis for 3 to 5 years at selected sites in order to identify and analyze trends.</p>	High

**Goal 3: Pursue new and sustainable revenue opportunities that are consistent with the Board’s long-term vision for the property.**

A critical component of the SLB’s vision for the Lowry Range is that the property be managed in a manner that preserves the flexibility to respond appropriately to future opportunities. This approach explicitly acknowledges that the most suitable use of the property in the future will undoubtedly be affected by changing trends in demographics, economics, energy, transportation, commercial real estate, housing, technology and other disciplines. As a result, opportunities for resource development on the Lowry Range will need to be continually reviewed and assessed.

In the near term, the use and development of the property can proceed in a manner that is compatible with the goal of long-term conservation and value creation. Grazing, for example, is widely accepted as an essential grasslands management tool and improvements to grazing operations will aid in restoring the property’s plant communities. Oil and gas production can be managed to minimize surface impacts while funding activities associated with the restoration of the sites natural values.

This goal is focused on the development of new opportunities and sources of revenue. It is not meant to suggest that historic sources of revenue should or must be replaced. Rather it acknowledges that continually changing circumstances will result in markets and opportunities that did not previously exist.

The following table includes a summary of the strategies that will be pursued as well as a list of specific actions that support each strategy. The priority assigned to each strategy is included in the right hand column.

Table 4.3

#	Strategy and Actions	Priority
3.1	Generate new revenue from open space and recreation activities. <ul style="list-style-type: none"> <li>➤ Determine the feasibility of an open space lease that will accommodate public access to the portion of the property adjacent to Coal Creek north of East Quincy Avenue.</li> </ul>	High
3.2	Generate revenue from conservation easements. <ul style="list-style-type: none"> <li>➤ Identify the parameters for conservation easements located along Coal Creek and Box Elder Creek.</li> <li>➤ Determine the potential value of the easements.</li> <li>➤ Identify potential purchasers of the easements.</li> </ul>	Low
3.3	Generate revenue from ecosystem services. <ul style="list-style-type: none"> <li>➤ Identify opportunities for pilot projects.</li> <li>➤ Determine the potential costs and revenues.</li> <li>➤ Compare to other options (such as the sale of conservation easements).</li> </ul>	Medium
3.4	Generate revenue from water storage. <ul style="list-style-type: none"> <li>➤ Determine the City's interest in pursuing the proposed East Aurora Reservoir (based on the results of the engineering studies completed in 2012).</li> <li>➤ Identify a preferred SLB business model (land sale, lease, etc.)</li> <li>➤ Negotiate agreement, secure board approval and execute.</li> </ul>	High
3.5	Review all current leases and identify opportunities to enhance current revenue sources. <ul style="list-style-type: none"> <li>➤ Review current leases.</li> <li>➤ Meet with individual lessees to understand current and future business objectives.</li> <li>➤ Prepare list of lease modifications to be negotiated as leases come up for renewal.</li> <li>➤ Identify any leases that should be renegotiated or terminated (bought out) prior to their scheduled termination.</li> </ul>	Medium

#	Strategy and Actions	Priority
3.6	<p>Develop a land use plan that accurately captures the Board's long-range vision for the property.</p> <ul style="list-style-type: none"> <li>➤ Meet with industry experts to understand opportunities.</li> <li>➤ Evaluate potential impacts to other site resources.</li> <li>➤ Develop long-term strategy.</li> </ul>	Low
3.7	<p>Investigate the feasibility of accommodating utility scale renewable energy projects on the property.</p> <ul style="list-style-type: none"> <li>➤ Meet with industry experts to understand opportunities.</li> <li>➤ Evaluate potential impacts to other site resources.</li> <li>➤ Develop long-term strategy.</li> </ul>	Low

**Goal 4: Manage uses and lessees in a manner that will minimize conflict.**

The SLB currently leases portions of the Lowry Range for oil and gas production, mining (sand and gravel extraction), grazing, and recreation (model airplanes, hunting and horseback riding). It is likely that some, if not all, of these uses will continue in the future and that new uses may be introduced over time. While the Lowry Range currently does not accommodate public access, opportunities for open space and recreation leases on portions of the property have been identified. It is important that the interests of all lessees are clearly understood (by both the SLB and other lessees), the efficiency of on-site activities are maximized and the safety of all users and visitors is protected.

The following table includes a summary of the strategies that will be pursued as well as a list of specific actions that support each strategy. The priority assigned to each strategy is included in the right hand column.

Table 4.4

#	Strategy and Actions	Priority
4.1	<p>Hold Annual Resource Review Meeting with oil and gas operators.</p> <ul style="list-style-type: none"> <li>➤ Schedule and hold meetings.</li> <li>➤ Identify opportunities for operational improvement and/or additional collaboration.</li> <li>➤ Manage the location of drill pads and other oil and gas facilities to minimize the impact on other existing and potential uses.</li> </ul>	Very High
4.2	<p>Work closely with the US Army Corp of Engineers and UXO contractor.</p> <ul style="list-style-type: none"> <li>➤ Attend coordination meetings as required.</li> <li>➤ Participate in all discussions related to lessee access to UXO sites.</li> </ul>	Very High
4.3	<p>Schedule and hold <u>individual</u> meetings with all existing lessees.</p> <ul style="list-style-type: none"> <li>➤ Review current operations.</li> <li>➤ Develop a clear understanding of how each lessee uses the property.</li> </ul>	High

	<ul style="list-style-type: none"> <li>➤ Review any/all safety plans that have been prepared.</li> <li>➤ Identify opportunities for improved coordination and implement.</li> </ul>	
4.4	<p>Schedule and hold an annual meeting with <u>all lessees</u> in attendance.</p> <ul style="list-style-type: none"> <li>➤ Review current operations and describe how each lessee uses the property.</li> <li>➤ Review the annual work plan for each lessee.</li> <li>➤ Identify any existing conflicts.</li> <li>➤ Develop and implement a plan to eliminate conflicts.</li> </ul>	Very High
4.5	<p>Establish common anniversary dates for all Lowry Range leases so that renewals can be completed with the greatest amount of coordination.</p> <ul style="list-style-type: none"> <li>➤ Determine the best date for annual lease renewals.</li> <li>➤ Include common renewal dates in every new or renewed lease.</li> </ul>	High

**Goal 5: Ensure that the land shows a net positive impact at the cessation of any given use.**

The SLB is responsible for managing an endowment of land and mineral assets held in a perpetual, inter-generational public trust for the support of public schools in Colorado. To that end, the SLB seeks to identify lessees and other collaborators that are interested in establishing long-term cooperative relationships to achieve both the development and protection of the resources that exist on the property. A successful relationship requires that both parties are committed to utilizing the best practices and technologies available in order to attain the highest level of economic productivity of the resource as well as sound stewardship principles that will contribute to the protection and enhancement of the beauty, natural values, open space and wildlife habitat that exist on the property.

The following table includes a summary of the strategies that will be pursued as well as a list of specific actions that support each strategy. The priority assigned to each strategy is included in the right hand column.

*Table 4.5*

#	Strategy and Actions	Priority
5.1	<p>Identify specific goals for the property and determine which outcomes lessees will be responsible for.</p> <ul style="list-style-type: none"> <li>➤ Evaluate baseline studies and identify opportunities for improvement.</li> <li>➤ Establish specific goals for positive impact after cessation of any given activity.</li> <li>➤ Work with individual lessees to design programs that will achieve the desired results.</li> </ul>	High
5.2	<p>Improve the stewardship requirements in SLB leases.</p> <ul style="list-style-type: none"> <li>➤ Research BMP's used by other organizations.</li> <li>➤ Prepare BMP's for use on the Lowry Range.</li> <li>➤ Make BMP's a requirement of all leases.</li> </ul>	High



5.3	Dedicate the resources necessary to monitor and manage lessee activity on the property. <ul style="list-style-type: none"> <li>➤ Prepare a checklist of items that should be reviewed by SLB staff.</li> <li>➤ Schedule and complete a site reconnaissance a minimum of once per quarter.</li> <li>➤ Develop specific plans to resolve issues identified during the site reconnaissance.</li> </ul>	High
5.4	Identify and remediate impacts from past uses. <ul style="list-style-type: none"> <li>➤ Inventory abandoned buildings, dumps and other remnants of past lessee activities.</li> <li>➤ Budget for and implement annual cleanup projects.</li> </ul>	

**Goal 6: Increase the use of the Lowry Range for purposes of outdoor and environmental education.**

The SLB has a statutory responsibility to allow access to some of its properties for purposes of outdoor education. The location, size, quality and history of the Lowry Range present an outstanding setting for K-12 educational activities where students can discover not only scientific processes and explore natural beauty, but also find tangible evidence of human relationships to the prairie from nomadic hunter gathers to high-tech military operations.

The following table includes a summary of the strategies that will be pursued as well as a list of specific actions that support each strategy. The priority assigned to each strategy is included in the right hand column.

*Table 4.6*

#	Strategy and Actions	Priority
6.1	Collaborate with CSU, TNC and the Colorado Cattlemen's Association (CCA) to evaluate the feasibility of implementing the Colorado Legacy Ranching Program at Lowry Range.	High
6.2	Collaborate with TNC and Holistic Management International to determine the feasibility of implement demonstration projects for achieving triple bottom line outcomes by using livestock to restore grasslands, enhance ecological function and increase forage and economic returns.	Very High
6.3	Explore the potential to partner with the Plains Conservation Center (PCC) to use Lowry as a resource and teaching site.	Medium
6.4	Pursue opportunities to develop educational partnerships with other agencies (Public Schools, Division of Parks and Wildlife, etc.) to facilitate the use of Lowry Range for outdoor education activities.	Medium

**Goal 7: Collaborate with regional and local governments in a manner that accomplishes the Board’s vision and goals.**

The Lowry Range exists within a jurisdictional context of regional and local governments and agencies. As a state agency, the SLB has a significant amount of authority over the decision-making processes that affect the property. However, the SLB also has a responsibility to understand the interests and goals of its neighbors. Developing relationships and identifying opportunities to work collaboratively with regional and local governments as well as other state agencies will help ensure that the SLB has the knowledge required to make informed decisions regarding how the resources on the Lowry Range may be best developed and/or protected.

The following table includes a summary of the strategies that will be pursued as well as a list of specific actions that support each strategy. The priority assigned to each strategy is included in the right hand column.

*Table 4.7*

#	Strategy and Actions	Priority
7.1	Develop strong and effective relationships. <ul style="list-style-type: none"> <li>➤ Identify jurisdictional entities with responsibility for activities on or adjacent to the Lowry Range.</li> <li>➤ Schedule and hold regular meetings with key individuals within those organizations.</li> <li>➤ Pursue opportunities to collaborate when common interests can be aligned.</li> </ul>	High

**Goal 8: Identify and educate key stakeholders to create broad based support for the long-term vision for the Lowry Range.**

The mission and responsibilities of the SLB are often not well understood. A proactive effort to establish effective relationships with a broad cross section of interested citizens and stakeholders can help the SLB avoid future conflicts and develop a base of support for future plans and activities.

The following table includes a summary of the strategies that will be pursued as well as a list of specific actions that support each strategy. The priority assigned to each strategy is included in the right hand column.

*Table 4.8*

#	Strategy	Priority
8.1	Deliver a clear and consistent message regarding the SLB’s vision for the Lowry Range. <ul style="list-style-type: none"> <li>➤ Develop a specific public communications strategy for Lowry Range.</li> <li>➤ Seek speaking and presentation opportunities where the Lowry Range story can be shared.</li> <li>➤ Develop a “brochure” that tells the “Lowry Range” story.</li> </ul>	Medium

**Goal 9: Partner with other organizations and agencies to increase the expertise and resources contributing to the management of the property.**

The SLB is a relatively small organization responsible for managing a very large and diverse portfolio of real estate assets. As such, it may be beneficial to look outside the organization for resources that provide additional capability in specific areas of skill, expertise or practice. Building relationships with other organizations and agencies will allow the SLB to function with a higher level of competence across a broad range of disciplines.

The following table includes a summary of the strategies that will be pursued as well as a list of specific actions that support each strategy. The priority assigned to each strategy is included in the right hand column.

Table 4.9

#	Strategy	Priority
9.1	Establish the Lowry Range Stewardship Advisory Committee. <ul style="list-style-type: none"> <li>➤ Identify and recruit members with the desired expertise.</li> <li>➤ Schedule and hold regular meetings for purposes of preparing annual actions plans and budgets</li> </ul>	Very High
9.2	Identify resource management or restoration projects that will attract matching funds, in-kind services and/or resources from other organizations. <ul style="list-style-type: none"> <li>➤ Identify potential projects.</li> <li>➤ Identify potential partners.</li> <li>➤ Complete a minimum of one project each year with some amount of outside participation.</li> </ul>	Low
9.3	Establish "strategic alliances" with peer agencies and organizations. <ul style="list-style-type: none"> <li>➤ Identify appropriate partner organizations</li> <li>➤ Identify venues for interaction and collaboration (boards, task forces, working groups, etc.)</li> <li>➤ Explore the use of Memorandums of Understanding (MOU's) between agencies to bring a higher level of commitment to the alliances.</li> </ul>	High

## Chapter Five

### Property Administration and Security

#### Introduction

This section describes property management considerations related to property administration, site security and site access.

#### Property Administration

The day-to-day administration of the Lowry Range is divided between the SLB and its lessees. The following is a summary of their respective responsibilities.

1) Colorado State Land Board

The SLB is responsible for managing all leases and lessee activity on the Lowry Range. In many instances, the SLB delegates responsibility for the actual day-to-day management of the property to its lessees. Access to the property is limited to SLB staff, lessees and their respective 3<sup>rd</sup> party contractors.

2) US Army Corp of Engineers (USACE)

The US Corp of Engineers is responsible for controlling access to all areas of the site occupied by the USACE and designated for the ongoing remediation and cleanup to remove UXO materials. As described in Chapter 3, the USACE will work with individual lessees to develop use specific operations and safety plans.

3) Oil and Gas Lessees

Oil and gas lessees are allowed reasonable use of the Lowry Range for access to and the development of oil and gas resources. Access provisions include the use of designated roads as well as the establishment of rights-of-way and easements for new access roads, well pads, pipelines, production facilities, telephone and utility lines, tanks, and fixtures.

In conjunction with the development of new oil and gas leases on the Lowry Range in 2012, the SLB implemented a system of land mapping and classification that allowed the property to be described based on one of four levels (Tiers) of permitted surface occupancy (Exhibit 19). The following is a summary of the four Tiers of permitted surface occupancy associated with the new oil and gas leases on the Lowry Range.

a) Tier 1 Lands – No Surface Occupancy (NSO)

Tier 1 lands are generally described as all lands located within three-tenths miles (1,584-feet) from the centerline of Box Elder Creek and Coal Creek. They also include lands that overlie the surface footprint of any adjudicated Rangeview reservoir, the surface of the proposed Aurora Reservoir the Department of Military and Veterans Affairs lease and the footprint of the Titan Missile silo complex.

b) Tier 2 Lands – Controlled Surface Occupancy (CSO)

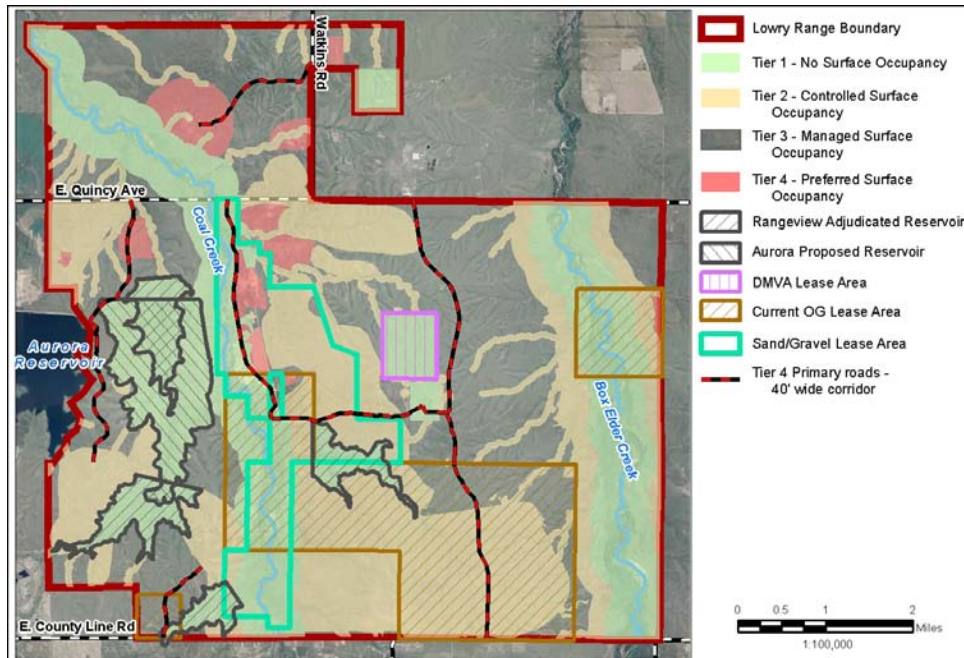
Tier 2 lands require the maximum restrictions on occupancy consistent with conservation and stewardship principles. Tier 2 lands include the land located between three-tenths of a mile and five-tenths of a mile (a total of .2 miles or 1,056-additional feet) from the centerline of Box Elder Creek. They also include 200-feet on either side of the centerline of the major tributaries to Box Elder Creek and Coal Creek, identified Black-tailed prairie dog colonies, portions of the Piedmont Grasslands and all land located within a 300-foot radius of the sub-surface water monitoring wells drilled within and adjacent to the Titan Missile complex.

c) Tier 3 Lands – Managed Surface Occupancy (MSO)

Tier 3 lands are considered suitable for oil and gas operations consistent with the COGCC rules, specific lease terms, lease stipulations and surface use agreements.

## d) Tier 4 Lands – Preferred Surface Occupancy (PSO)

Tier 4 lands include areas of the site where previous and/or existing activities have resulted in a level of site disturbance that is significant. To the extent practical, new oil and gas operations will be encouraged to locate facilities on these previously disturbed areas of the property.

*Exhibit 19: Surface Use Restrictions*

Oil and gas operators, their employees and all 3<sup>rd</sup> party contractors hired by the operator will be required to conduct themselves in strict compliance with the rules and regulations of the COGCC, their oil and gas leases, lease stipulations and surface use agreements.

### Property Security

Because of the large size and rural nature of the Lowry Range, there may be challenges associated with ensuring the general safety of all lessees, visitors and staff. There are also concerns associated with protecting the plant and wildlife resources on the property. Safety and security concerns generally fall into three areas:

- Safety for all lessees, visitors and staff.
- Protection of site improvements.
- Prevention of resource damage that could include wildlife poaching, off-road vehicle travel and harassment of wildlife.

The following is a description of the protection strategies that will be implemented on the Lowry Range.

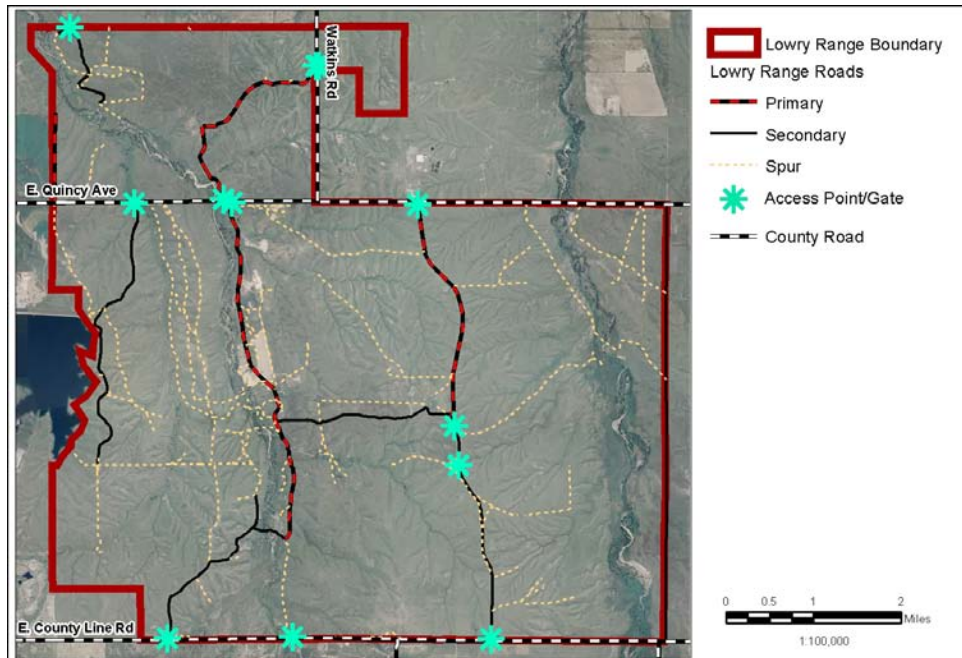
#### 1) Access Control

The SLB will work closely with all Lowry Range lessees to manage property access in a coordinated manner that provides adequate protection for all users and minimizes conflicts. Property access will be controlled through gated entrance points located on East Quincy Avenue, County Line Road, Watkins Road and East Yale Avenue as generally illustrated by Exhibit 20. The perimeter of the property will be posted along fences as SLB property and “not an access”. While it is understood that wire fencing is not tamper-proof, it is not desirable to



improve fencing as an impediment to human access as it could become a barrier to wildlife and would likely be cost prohibitive.

*Exhibit 20: Lowry Range Access Points*



## 2) Fire Protection

The Lowry Range is located in the Cunningham Fire Protection District. The district serves an area of over 14-square miles in central Arapahoe County and the eastern portion of the City of Centennial. The district has over 70 uniformed employees including firefighters, EMTs and paramedics trained for all types of emergencies. Facilities include 3-staffed stations, a quartermaster facility and an administration building. Station 62 is closest to the Lowry Range and is located at 16758 East Smoky Hill Road near the intersection of East Smoky Hill Road and South Buckley Road.

## 3) Enforcement of Applicable Laws and Regulations

It will be important to coordinate law enforcement activities with the Arapahoe County Sheriff's Office as well as with Colorado Parks and Wildlife on wildlife protection issues. Should public access to the property be allowed under the management of other outside entities such as the City of Aurora Parks and Open Space, there will be a need to coordinate those activities with its park rangers as well.

## 4) General Protection Guidelines

Lessees and staff will be trained to be aware of and report to the SLB any activity that jeopardizes the safety of users or the protection of natural resources. Signs requesting that lessees and their employees report an unusual activity to SLB staff will be displayed at appropriate locations. Specific responsibility may be assigned to SLB staff to perform routine inventory of sensitive sites as well as any sign, fence or other security measures used to help protect property resources.

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## **Appendix 2: Lowry Range Financial Model**

(To be prepared by June 1, 2012)



### **Appendix 3: Lowry Range Rights-of-Way**

6-

**Colorado State Land Board  
Accounting Lease Report - RENTS**

2/1/2012

Type of Lease:	POWER	Application Number:	ROW 2123	21
District:	Real Estate Section	Description:	a 115kV electric transmission line	
Applicant: INTERMOUNTAIN REA				
Date Accepted:	Status: Active contract	Production Status: Not defined		
Date Approved:	00/00/0000	Term:	years	
Date Cancelled:	00/00/0000	Start Date:	02/26/1975	End Date:

**Participant Names and Mailing Addresses:**

<b>COMPANY</b>	ID: 54363	INTERMOUNTAIN REA	(303) 999-9999	Interest
- Lessee of Record	5496 N. US HWY 85	SEDALIA CO USA	80135-	100.0

**Description of Land:**

	Section	Description	County	Trust	Layer	AUM	Acres
T5S R64W 6	7	ALL	Arapahoe	S	Surface	0	0.00
	8	ALL	Arapahoe	S	Surface	0	0.00
	9	ALL	Arapahoe	S	Surface	0	0.00
	10	ALL	Arapahoe	S	Surface	0	0.00
T5S R65W 6	10	ALL	Arapahoe	S	Surface	0	0.00
	11	ALL	Arapahoe	S	Surface	0	0.00
	12	ALL	Arapahoe	S	Surface	0	85.03
<b>Totals:</b>						<b>0</b>	<b>85.03</b>

Internal Report Name : d\_contr\_acctg\_lease\_noroy\_report

2.

**Colorado State Land Board  
Accounting Lease Report - RENTS**

2/1/2012

Type of Lease:	POWER	Application Number:	ROW 2325	23
District:	Right of Way Program Manager	Description:	230kV Electric Transmission lines	
Applicant: PUBLIC SERVICE CO COLO/PO BOX				
Date Accepted:	Status: Canceled	Production Status: Not defined		
Date Approved:	00/00/0000	Term	years	
Date Cancelled:	07/06/2011	Start Date:	01/11/1979	End Date:

**Participant Names and Mailing Addresses:**

<b>COMPANY</b>	ID: 52796	PUBLIC SERVICE CO COLO/PO BOX	(303) 392-1618	Interest
- Lessee of Record		P O BOX 840		
		DENVER CO USA	80201-	100.0

**Description of Land:**

	Section	Description	County	Trust	Layer	AUM	Acres
T5S R64W	6						
	7	N2N2	Arapahoe	S	Surface	0	0.00
	8	N2N2	Arapahoe	S	Surface	0	0.00
	9	N2N2	Arapahoe	S	Surface	0	0.00
	10	N2N2	Arapahoe	S	Surface	0	109.20
T5S R65W	6						
	10	N2N2	Arapahoe	S	Surface	0	0.00
	11	N2N2	Arapahoe	S	Surface	0	0.00
	12	N2N2	Arapahoe	S	Surface	0	81.90
<b>Totals:</b>						<b>0</b>	<b>191.10</b>

Internal Report Name : d\_contr\_acctg\_lease\_noroy\_report

5.

**Colorado State Land Board  
Accounting Lease Report - RENTS**

2/1/2012

Type of Lease:	POWER	Application Number:	ROW 2478	24
District:	Real Estate Section	Description:	Electric Distribution	
Applicant: PUBLIC SERVICE CO COLO/PO BOX				
Date Accepted:	Status: Active contract	Production Status: Not defined		
Date Approved:	00/00/0000	Term	years	
Date Cancelled:	00/00/0000	Start Date:	08/18/1982	End Date:

**Participant Names and Mailing Addresses:**

<b>COMPANY</b>	ID: 52796	PUBLIC SERVICE CO COLO/PO BOX	(303) 392-1618	Interest
- Lessee of Record		P O BOX 840		
		DENVER CO USA	80201-	100.0

**Description of Land:**

	Section	Description	County	Trust	Layer	AUM	Acres
T4S R65W 6	34	W2W2	Arapahoe	S	Surface	0	0.00
T5S R65W 6	3	W2W2	Arapahoe	S	Surface	0	0.00
	10	NW4NW4	Arapahoe	S	Surface	0	2.35
<b>Totals:</b>						<b>0</b>	<b>2.35</b>

Internal Report Name : d\_contr\_acctg\_lease\_noroy\_report

4.

**Colorado State Land Board  
Accounting Lease Report - RENTS**

2/1/2012

Type of Lease:	COMMUNICATIONS	Application Number:	ROW 2491	24
District:	Real Estate Section	Description:	Communications Buried	
Applicant: MTN STATES TEL & TEL CO/DENVER				
Date Accepted:	Status: Active contract	Production Status: Not defined		
Date Approved:	00/00/0000	Term	years	
Date Cancelled:	00/00/0000	Start Date:	09/01/1982	End Date:

**Participant Names and Mailing Addresses:**

<b>COMPANY</b>	ID: 51531	MTN STATES TEL & TEL CO/DENVER	(307) 778-3864	Interest
- Lessee of Record		6101 YELLOWSTONE RD NO 117 CHEYENNE WY USA 82009-		100.0

**Description of Land:**

	Section	Description	County	Trust	Layer	AUM	Acres
T4S R65W 6	33	NE4NE4	Arapahoe	S	Surface	0	0.00
	34	W2W2	Arapahoe	S	Surface	0	0.00
T5S R65W 6	3	W2W2	Arapahoe	S	Surface	0	3.83
<b>Totals:</b>						<b>0</b>	<b>3.83</b>

Internal Report Name : d\_contr\_acctg\_lease\_noroy\_report

5.

**Colorado State Land Board  
Accounting Lease Report - RENTS**

2/1/2012

Type of Lease:	POWER	Application Number:	ROW 2496	24
District:	Right of Way Program Manager	Description:	Electric Transmission	
Applicant: EMPIRE ELECTRIC ASSN INC				
Date Accepted:	Status: Active contract	Production Status: Primary term		
Date Approved:	00/00/0000	Term	years	
Date Cancelled:	00/00/0000	Start Date:	09/01/1982	End Date:

**Participant Names and Mailing Addresses:**

<b>COMPANY</b>	ID: 54414	EMPIRE ELECTRIC ASSN INC	(303) 565-4444	Interest
- Lessee of Record	801 N BROADWAY P O DRAWER K			
	CORTEZ CO USA		81321-	100.0

**Payment History Listing:**

Record Type	Revenue Code	Period Start/	Period End	Acct Period	Receipt #	Bill Amt	Pay Amt
Document Date	Reference #	Payor Nbr/Payor Name	Description				
Payment	SFE - Surface Fees	08/24/2011	08/24/2011	02/ 2012	DN055838		\$150.00
08/24/2011	4105777	57724	TRI STATE GEN & TRANS/DENVER		assignment application fee		

**Description of Land:**

Section	Description	County	Trust	Layer	AUM	Acres
T37N R16W N						
27	N2SW4	Montezuma S		Surface	0	4.72
<b>Totals:</b>					<b>0</b>	<b>4.72</b>

Internal Report Name : d\_contr\_acctg\_lease\_noroy\_report



6.

**Colorado State Land Board  
Accounting Lease Report - RENTS**

2/1/2012

Type of Lease:	ENERGY	Application Number:	ROW	2533	25
District:	Real Estate Section	Description:	Gas Distribution Line < 10 feet		
Applicant: NORTH AMERICAN RESOURCES CO					
Date Accepted:	Status: Active contract	Production Status: Not defined			
Date Approved:	00/00/0000	Term	years		
Date Cancelled:	00/00/0000	Start Date:	08/02/1983	End Date:	

**Participant Names and Mailing Addresses:**

<b>COMPANY</b>	ID: 61462	PANCANADIAN ENERGY, INC	(406) 497-8709	Interest
- Lessee of Record		370 17TH STREET SUITE 1700		
		DENVER CO USA	80202-	100.0

**Payment History Listing:**

Record Type	Revenue Code	Period Start/	Period End	Acct Period	Receipt #	Bill Amt	Pay Amt
Document Date	Reference #	Payor Nbr/Payor Name	Description				
Payment(Conv)	ROW - Consideration	09/08/1998	09/08/1998	03 / 1999	MM1454		\$1,419.00
09/08/1998	MM1454 61462	NORTH AMERICAN RESOURCES CO Trust: S					
Payment(Conv)	ROW - Consideration	09/08/1998	09/08/1998	03 / 1999	MM1454		\$10,388.00
09/08/1998	MM1454 61462	NORTH AMERICAN RESOURCES CO Trust: S					
Payment(Conv)	ROW - Consideration	01/01/1993	01/31/1993	07 / 1993	KK0931		\$3,150.00
01/25/1993	KK0931 56074	KOCH INDST\HYDROCARBON\KANS\Trust: S					
Fee Payment	SFE - Surface Fees	11/03/1992	11/03/1992	05 / 1993	KK0052		\$150.00
11/03/1992	KK0052 56157	GARY-WILLIAMS ENERGY CORP Trust: O					
Fee Payment	SFE - Surface Fees	11/24/1989	11/24/1989	05 / 1990	I 8980		\$25.00
11/24/1989	I 8980 55830	GULF ENERGY GATHER/PROCESS CTrust: O					

**Description of Land:**

Section	Description	County	Trust	Layer	AUM	Acres
T5S R64W 6						
21	SE4SE4	Arapahoe	S	Surface	0	0.00
22	S2S2	Arapahoe	S	Surface	0	0.00
28	E2E2	Arapahoe	S	Surface	0	0.00
31	N2N2	Arapahoe	S	Surface	0	0.00
32	N2N2	Arapahoe	S	Surface	0	0.00
33	N2N2	Arapahoe	S	Surface	0	0.00
34	NW4NW4	Arapahoe	S	Surface	0	0.00
T5S R65W 6						
25	SE4	Arapahoe	S	Surface	0	0.00
36	N2NE4	Arapahoe	S	Surface	0	21.10
<b>Totals:</b>					<b>0</b>	<b>21.10</b>

Internal Report Name : d\_contr\_acctg\_lease\_noroy\_report

7.

**Colorado State Land Board  
Accounting Lease Report - RENTS**

2/1/2012

Type of Lease:	ENERGY	Application Number:	ROW 2544	25
District:	Real Estate Section	Description:	Gas Distribution Line < 10 feet	
Applicant: NORTH AMERICAN RESOURCES CO				
Date Accepted:	Status: Active contract	Production Status: Not defined		
Date Approved:	00/00/0000	Term	years	
Date Cancelled:	00/00/0000	Start Date:	11/18/1983	End Date:

**Participant Names and Mailing Addresses:**

<b>COMPANY</b>	ID: 61462	PANCANADIAN ENERGY, INC	(406) 497-8709	Interest
- Lessee of Record	370 17TH STREET SUITE 1700	DENVER CO USA	80202-	100.0

**Payment History Listing:**

Record Type	Revenue Code	Period Start/	Period End	Acct Period	Receipt #	Bill Amt	Pay Amt
Document Date	Reference #	Payor Nbr/Payor Name	Description				
Payment(Conv)	ROW - Consideration	09/08/1998	09/08/1998	03 / 1999	MM1454		\$492.00
09/08/1998	MM1454 61462	NORTH AMERICAN RESOURCES CO Trust: S					
Payment(Conv)	ROW - Consideration	01/01/1993	01/31/1993	07 / 1993	KK0931		\$250.00
01/25/1993	KK0931 56074	KOCH INDSTHYDROCARBONKANS/Trust: S					
Fee Payment	SFE - Surface Fees	11/03/1992	11/03/1992	05 / 1993	KK0052		\$150.00
11/03/1992	KK0052 56157	GARY-WILLIAMS ENERGY CORP Trust: O					
Fee Payment	SFE - Surface Fees	11/24/1989	11/24/1989	05 / 1990	I 8980		\$25.00
11/24/1989	I 8980 55830	GULF ENERGY GATHER/PROCESS CTrust: O					

**Description of Land:**

Section	Description	County	Trust	Layer	AUM	Acres
T5S R64W 6						
28	ALL	Arapahoe	S	Surface	0	0.62
<b>Totals:</b>					<b>0</b>	<b>0.62</b>

Internal Report Name : d\_contr\_acctg\_lease\_noroy\_report

8.

**Colorado State Land Board  
Accounting Lease Report - RENTS**

2/1/2012

Type of Lease:	WATER & SEWER	Application Number:	ROW	2667	26
District:	Real Estate Section	Description:	a Water Reservoir		
Applicant:	AURORA*CITY OF				
Date Accepted:	Status: Active contract	Production Status:	Not defined		
Date Approved:	00/00/0000	Term	years		
Date Cancelled:	00/00/0000	Start Date:	04/06/1987	End Date:	

**Participant Names and Mailing Addresses:**

<b>COMPANY</b> ID: 55533	AURORA*CITY OF	(303) 999-9999	Interest
- Lessee of Record	1470 S HAVANA ST STE 212		
	AURORA CO USA	80012-	100.0

**Description of Land:**

Section	Description	County	Trust	Layer	AUM	Acres
T5S R65W 6						
15		Arapahoe	S	Surface	0	0.00
22		Arapahoe	S	Surface	0	0.00
<b>Totals:</b>					<b>0</b>	<b>0.00</b>

Internal Report Name : d\_contr\_acctg\_lease\_noroy\_report

9.

**Colorado State Land Board  
Accounting Lease Report - RENTS**

2/1/2012

Type of Lease:	WATER & SEWER	Application Number:	ROW	2675	26		
District:	Real Estate Section	Description:	Water Reservoir				
Applicant:	AURORA*CITY OF						
Date Accepted:	Status: Active contract	Production Status:	Not defined				
Date Approved:	00/00/0000	Term	years				
Date Cancelled:	00/00/0000	Start Date:	08/17/1987	End Date:			
<b>Participant Names and Mailing Addresses:</b>							
<i>COMPANY</i>	ID: 54470	AURORA*CITY OF	(303) 999-9999	Interest			
- Lessee of Record		MUNICIPAL BLDG					
		AURORA CO USA	99999-	100.0			
<b>Description of Land:</b>							
	Section	Description	County	Trust	Layer	AUM	Acres
T5S R65W 6							
	15	N2S2,S2N2	Arapahoe	S	Surface	0	2.37
					<b>Totals:</b>	<b>0</b>	<b>2.37</b>

Internal Report Name : d\_contr\_acctg\_lease\_noroy\_report

10.

**Colorado State Land Board  
Accounting Lease Report - RENTS**

2/1/2012

Type of Lease:	WATER & SEWER	Application Number:	ROW	2691	26
District:	Real Estate Section	Description:	a Water Reservoir		
Applicant:	AURORA*CITY OF				
Date Accepted:	Status: Active contract	Production Status:	Not defined		
Date Approved:	00/00/0000	Term	years		
Date Cancelled:	00/00/0000	Start Date:	04/20/1988	End Date:	

**Participant Names and Mailing Addresses:**

COMPANY	ID: 55533	AURORA*CITY OF	(303) 999-9999	Interest
- Lessee of Record	1470 S HAVANA ST STE 212	AURORA CO USA	80012-	100.0

**Description of Land:**

Section	Description	County	Trust	Layer	AUM	Acres
T5S R65W 6						
27	NWNW	Arapahoe	S	Surface	0	2.32
<b>Totals:</b>					<b>0</b>	<b>2.32</b>

Internal Report Name : d\_contr\_acctg\_lease\_noroy\_report

/1.

**Colorado State Land Board  
Accounting Lease Report - RENTS**

2/1/2012

Type of Lease:	ENERGY	Application Number:	ROW 2723	27
District:	Real Estate Section	Description:	Gas Transmission Line	
Applicant: KOCH INDST\HYDROCARBON\KANSAS				
Date Accepted:	Status: Active contract	Production Status: Not defined		
Date Approved:	00/00/0000	Term	years	
Date Cancelled:	00/00/0000	Start Date:	05/04/1989	End Date:

**Participant Names and Mailing Addresses:**

<b>COMPANY</b>	ID: 56074	KOCH INDST\HYDROCARBON\KANSAS	(316) 832-8089	Interest
- Lessee of Record	P O BOX 2256			
	WICHITA KS USA		67201-	100.0

**Payment History Listing:**

Record Type	Revenue Code	Period Start/	Period End	Acct Period	Receipt #	Bill Amt	Pay Amt
Document Date	Reference #	Payor Nbr/Payor Name	Description				
Payment(Conv)	ROW - Consideration	01/01/1993	01/31/1993	07 / 1993	KK0931		\$1,643.00
01/25/1993	KK0931 56074	KOCH INDST\HYDROCARBON\KANS/Trust: S					
Fee Payment	SFE - Surface Fees	11/03/1992	11/03/1992	05 / 1993	KK0052		\$150.00
11/03/1992	KK0052 56157	GARY-WILLIAMS ENERGY CORP Trust: O					
Fee Payment	SFE - Surface Fees	11/24/1989	11/24/1989	05 / 1990	I 8980		\$25.00
11/24/1989	I 8980 55830	GULF ENERGY GATHER/PROCESS CTrust: O					

**Description of Land:**

Section	Description	County	Trust	Layer	AUM	Acres
T5S R64W 6						
10	E2E2	Arapahoe	S	Surface	0	3.65
15	E2E2	Arapahoe	S	Surface	0	3.65
22	E2E2	Arapahoe	S	Surface	0	3.65
<b>Totals:</b>					<b>0</b>	<b>10.95</b>

Internal Report Name : d\_contr\_acctg\_lease\_noroy\_report



12.

**Colorado State Land Board  
Accounting Lease Report - RENTS**

2/1/2012

Type of Lease:	ENERGY	Application Number:	ROW	2814	28
District:	Real Estate Section	Description:	Gas Distribution Line < 10 feet		
Applicant: KOCH INDSTHYDROCARBONKANSAS					
Date Accepted:	Status: Active contract	Production Status: Not defined			
Date Approved:	00/00/0000	Term	30 years		
Date Cancelled:	00/00/0000	Start Date:	02/12/1991	End Date: 02/12/2021	

**Participant Names and Mailing Addresses:**

<b>COMPANY</b>	ID: 56074	KOCH INDSTHYDROCARBONKANSAS	(316) 832-8089	<b>Interest</b>
- Lessee of Record	P O BOX 2256			
	WICHITA KS USA		67201-	100.0

**Payment History Listing:**

Record Type	Revenue Code	Period Start/	Period End	Acct Period	Receipt #	Bill Amt	Pay Amt
Document Date	Reference #	Payor Nbr/Payor Name	Description				
Payment(Conv)	ROW - Consideration	01/01/1993	01/31/1993	07 / 1993	KK0931		\$400.00
01/25/1993	KK0931	56074	KOCH INDSTHYDROCARBONKANS/Trust: S				
Fee Payment	SFE - Surface Fees	11/03/1992	11/03/1992	05 / 1993	KK0052		\$150.00
11/03/1992	KK0052	56157	GARY-WILLIAMS ENERGY CORP Trust: O				
Payment(Conv)	ROW - Consideration	02/22/1991	02/22/1991	08 / 1991	J 3459		\$200.00
02/22/1991	J 3459	56157	GARY-WILLIAMS ENERGY CORP Trust: S				
Fee Payment	SFE - Surface Fees	02/12/1991	02/12/1991	08 / 1991	J 3343		\$10.00
02/12/1991	J 3343	56157	GARY-WILLIAMS ENERGY CORP Trust: O				
Payment(Conv)	ROW - Consideration	02/12/1991	02/12/1991	08 / 1991	J 3343		\$5,440.00
02/12/1991	J 3343	56157	GARY-WILLIAMS ENERGY CORP Trust: S				
Fee Payment	SFE - Surface Fees	11/27/1990	11/27/1990	05 / 1991	J 2530		\$75.00
11/27/1990	J 2530	56157	GARY-WILLIAMS ENERGY CORP Trust: O				

**Description of Land:**

Section	Description	County	Trust	Layer	AUM	Acres
T5S R65W 6						
35		Arapahoe	S	Surface	0	0.00
36	N2NW4	Arapahoe	S	Surface	0	2.85
<b>Totals:</b>					<b>0</b>	<b>2.85</b>

Internal Report Name : d\_contr\_acctg\_lease\_noroy\_report

13.

**Colorado State Land Board  
Accounting Lease Report - RENTS**

2/1/2012

Type of Lease:	ENERGY	Application Number:	ROW 2937	29
District:	Real Estate Section	Description:	Gas Transmission Line	
Applicant: KOCH INDSTHYDROCARBONKANSAS				
Date Accepted:	Status: Active contract	Production Status: Not defined		
Date Approved:	00/00/0000	Term	20 years	
Date Cancelled:	00/00/0000	Start Date:	11/10/1993	End Date: 11/10/2013

**Participant Names and Mailing Addresses:**

<b>COMPANY</b>	ID: 56074	KOCH INDSTHYDROCARBONKANSAS	(316) 832-8089	<b>Interest</b>
- Lessee of Record		P O BOX 2256		
		WICHITA KS USA	67201-	100.0

**Payment History Listing:**

Record Type	Revenue Code	Period Start/	Period End	Acct Period	Receipt #	Bill Amt	Pay Amt
Document Date	Reference #	Payor Nbr/Payor Name		Description			
Payment(Conv)	ROW - Consideration	11/30/1993	11/30/1993	06 / 1994	KK4197		\$15,716.00
11/30/1993	KK4197	56074	KOCH INDSTHYDROCARBONKANS/Trust: S				
Fee Payment	SFE - Surface Fees	06/16/1993	06/16/1993	12 / 1993	KK2590		\$75.00
06/16/1993	KK2590	56074	KOCH INDSTHYDROCARBONKANS/Trust: O				

**Description of Land:**

Section	Description	County	Trust	Layer	AUM	Acres
T5S R64W 6						
27		Arapahoe	S	Surface	0	6.00
34		Arapahoe	S	Surface	0	3.02
<b>Totals:</b>					<b>0</b>	<b>9.02</b>

Internal Report Name : d\_contr\_acctg\_lease\_noroy\_report

14.

**Colorado State Land Board  
Accounting Lease Report - RENTS**

2/1/2012

Type of Lease:	ENERGY	Application Number:	ROW 3007	30
District:	Real Estate Section	Description:	Oil Flow or Sales Line	
Applicant: DIAMOND SHAMROCK CORPORATION				
Date Accepted:	Status: Active contract	Production Status: Not defined		
Date Approved:	00/00/0000	Term	25 years	
Date Cancelled:	00/00/0000	Start Date:	09/13/1995	End Date: 09/13/2020

**Participant Names and Mailing Addresses:**

<b>COMPANY</b> ID: 56869	DIAMOND SHAMROCK CORPORATION	(719) 542-0163	Interest
- Lessee of Record	POB 631		
	AMARILLO TX USA 79105-		100.0

**Payment History Listing:**

Record Type	Revenue Code	Period Start/	Period End	Acct Period	Receipt #	Bill Amt	Pay Amt
Document Date	Reference #	Payor Nbr/Payor Name	Description				
Payment(Conv)	ROW - Consideration	12/14/1995	12/14/1995	06 / 1996	LL2205		\$65,440.00
12/14/1995	LL2205 60816	UNION BANK & TRUST/OKLA	Trust: S				
Fee Payment	SFE - Surface Fees	04/14/1994	04/14/1994	10 / 1994	KK5883		\$75.00
04/14/1994	KK5883 57606	COATES FIELD SERVICE	Trust: O				

**Description of Land:**

Section	Description	County	Trust	Layer	AUM	Acres
T5S R64W 6						
10	E2E2	Arapahoe	S	Surface	0	3.44
15	E2E2	Arapahoe	S	Surface	0	3.64
22	E2E2	Arapahoe	S	Surface	0	3.64
27	E2E2	Arapahoe	S	Surface	0	3.64
34	E2E2	Arapahoe	S	Surface	0	4.00
<b>Totals:</b>					<b>0</b>	<b>18.36</b>

Internal Report Name : d\_contr\_acctg\_lease\_noroy\_report

15.

**Colorado State Land Board  
Accounting Lease Report - RENTS**

2/1/2012

Type of Lease:	POWER	Application Number:	ROW	3017	30
District:	Real Estate Section	Description:	Electric Transmission		
Applicant: PUBLIC SERVICE CO COLO/7TH AV					
Date Accepted:	Status: Active contract	Production Status: Not defined			
Date Approved:	00/00/0000	Term	30 years		
Date Cancelled:	00/00/0000	Start Date:	02/28/1996	End Date:	02/28/2026

**Participant Names and Mailing Addresses:**

<b>COMPANY</b>	ID: 53934	PUBLIC SERVICE CO COLO/7TH AV	(303) 999-9999	Interest
- Lessee of Record	2701 W 7TH AV			
	DENVER CO USA	80204-		100.0

**Payment History Listing:**

Record Type	Revenue Code	Period Start/	Period End	Acct Period	Receipt #	Bill Amt	Pay Amt
Document Date	Reference #	Payor Nbr/Payor Name	Description				
Payment(Conv)	ROW - Consideration	03/11/1996	03/11/1996	09 / 1996	LL3074		\$500.00
03/11/1996	LL3074	53934	PUBLIC SERVICE CO COLO/7TH AV Trust: S				
Fee Payment	SFE - Surface Fees	02/06/1996	02/06/1996	08 / 1996	LL2694		\$100.00
02/06/1996	LL2694	53934	PUBLIC SERVICE CO COLO/7TH AV Trust: O				

**Description of Land:**

Section	Description	County	Trust	Layer	AUM	Acres
T5S R64W 6						
8	NW4	Arapahoe	S	Surface	0	1.10
<b>Totals:</b>					<b>0</b>	<b>1.10</b>

Internal Report Name : d\_contr\_acctg\_lease\_noroy\_report

16.

**Colorado State Land Board  
Accounting Lease Report - RENTS**

2/1/2012

Type of Lease:	TRANSPORTATION	Application Number:	ROW	3091	30
District:	Real Estate Section	Description:	Roads		
Applicant: HUMAN SERVICES DEPARTMENT OF					
Date Accepted:	Status: Active contract	Production Status: Not defined			
Date Approved:	00/00/0000	Term	years		
Date Cancelled:	00/00/0000	Start Date:	08/21/1998	End Date:	

**Participant Names and Mailing Addresses:**

<i>COMPANY</i> ID: 61725	HUMAN SERVICES DEPARTMENT OF	(303) 866-7280	Interest
- Lessee of Record	1575 SHERMAN STREET		
	DENVER CO USA 80203-		100.0

**Description of Land:**

Section	Description	County	Trust	Layer	AUM	Acres
T4S R65W 6						
34		Arapahoe	S	Surface	0	12.50
T5S R65W 6						
3		Arapahoe	S	Surface	0	3.90
<b>Totals:</b>					<b>0</b>	<b>16.40</b>

Internal Report Name : d\_contr\_acctg\_lease\_noroy\_report

17.

**Colorado State Land Board  
Accounting Lease Report - RENTS**

2/1/2012

Type of Lease:	WATER & SEWER	Application Number:	ROW	3141	31
District:	Real Estate Section	Description:	WASTE		
Applicant: RANGEVIEW METRO DISTLAKEWOOD					
Date Accepted:	Status: Active contract	Production Status: Not defined			
Date Approved:	00/00/0000	Term	years		
Date Cancelled:	00/00/0000	Start Date:	12/13/1999	End Date:	

**Participant Names and Mailing Addresses:**

<b>COMPANY</b>	ID: 55933	RANGEVIEW METRO DISTLAKEWOOD	(303) 987-0835	Interest
- Lessee of Record		141 UNION BLVD STE 150		
		LAKEWOOD CO USA	80228-1556	100.0

**Payment History Listing:**

Record Type	Revenue Code	Period Start/	Period End	Acct Period	Receipt #	Bill Amt	Pay Amt
Document Date	Reference #	Payor Nbr/Payor Name	Description				
Payment(Conv)	ROW - Consideration	12/14/1999	12/14/1999	06/ 2000	MM5417		\$1,875.00
12/14/1999	MM5417	62221	PURE CYCLE CORPORATION	Trust: S			

**Description of Land:**

Section	Description	County	Trust	Layer	AUM	Acres
T4S R65W 6						
33	IN NENE	Arapahoe	S	Surface	0	37.49
<b>Totals:</b>					<b>0</b>	<b>37.49</b>

Internal Report Name : d\_contr\_acctg\_lease\_noroy\_report



18.

**Colorado State Land Board  
Accounting Lease Report - RENTS**

2/1/2012

Type of Lease:	COMMUNICATIONS	Application Number:	ROW 3186	31
District:	Real Estate Section	Description:	2-2" Fiber Optic Conduits	
Applicant: TOUCH AMERICA COMMUNICATIONS				
Date Accepted:	Status: Active contract	Production Status: Not defined		
Date Approved:	07/19/2002	Term	30 years	
Date Cancelled:	00/00/0000	Start Date:	02/15/2002	End Date: 02/15/2032

**Participant Names and Mailing Addresses:**

<b>COMPANY</b>	ID: 61979	TOUCH AMERICA COMMUNICATIONS	(999) 999-9999	Interest
- Lessee of Record		130 NORTH MAIN BUTTE MT USA	59701-	100.0

**Payment History Listing:**

Record Type	Revenue Code	Period Start/	Period End	Acct Period	Receipt #	Bill Amt	Pay Amt
Document Date	Reference #	Payor Nbr/Payor Name	Description				
Payment(Conv)	ROW - Consideration	07/02/2002	07/02/2002	01 / 2003	NN3936		\$63,640.00
07/02/2002	NN3936	62797	TA PURCHASING CO LLC	Trust: S			
Payment(Conv)	BDR - Bond Deposit Recei	05/03/1999	05/03/1999	11 / 1999	MM3676		\$10,000.00
05/03/1999	MM3676	61979	TOUCH AMERICA COMMUNICATIONS	Trust: O			
Payment(Conv)	ROW - Consideration	05/03/1999	05/03/1999	11 / 1999	MM3676		\$63,715.00
05/03/1999	MM3676	61979	TOUCH AMERICA COMMUNICATIONS	Trust: S			
Fee Payment	SFE - Surface Fees	05/03/1999	05/03/1999	11 / 1999	MM3676		\$75.00
05/03/1999	MM3676	61979	TOUCH AMERICA COMMUNICATIONS	Trust: O			

**Description of Land:**

Section	Description	County	Trust	Layer	AUM	Acres
T4S R64W 6						
31	NW	Arapahoe	S	Surface		1.00
T5S R64W 6						
7	N2N2	Arapahoe	S	Surface		2.00
8	N2N2	Arapahoe	S	Surface		2.00
9	N2N2	Arapahoe	S	Surface		2.00
10	N2N2	Arapahoe	S	Surface		1.99
T14S R63W 6						
29	SE	El Paso	S	Surface		1.00
32	E2E2, SE	El Paso	S	Surface		1.00
T15S R63W 6						
16	SW	El Paso	S	Surface		2.63
T21S R63W 6						
29	NE, NESE	Pueblo	S	Surface		1.52

Internal Report Name : d\_contr\_acctg\_lease\_noroy\_report

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Colorado State Land Board  
Accounting Lease Report - RENTS  
2/1/2012

Description of Land:		County	Trust	Layer	AUM	Acres	
T258	R32W 6						
18	N2	Las Animas	S	Surface		1.81	
T285	R36W 6						
26	NE, S2	Huerfano	S	Surface		2.29	
T275	R34W 6						
18	E2E2	Huerfano	S	Surface		1.10	
T285	R34W 6						
18	N2	Huerfano	S	Surface		2.48	
T315	R32W 5						
10	R2E2	Las Animas	S	Surface		2.07	
T338	R30W 5						
18	NE, N2NW	Las Animas	S	Surface		1.31	
T348	R30W 6						
25	S2	Las Animas	S	Surface		1.74	
T348	R30W 6						
28	N2N2	Las Animas	S	Surface		2.00	
					<b>Totals:</b>	<b>9</b>	<b>20.87</b>

Internal Report Name : d:\rents\_rents\_lease\_rents\_report

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**Colorado State Land Board  
Accounting Lease Report - RENTS**

2/1/2012

Type of Lease:	WATER & SEWER	Application Number:	ROW 3315	33
District:	Real Estate Section	Description:	Water Pipeline	
Applicant: RANGEVIEW METROPOLITAN DISTRICT				
Date Accepted:	Status: Active contract	Production Status: Not defined		
Date Approved:	12/20/2005	Term	years	
Date Cancelled:	00/00/0000	Start Date:	01/18/2006	End Date:

**Participant Names and Mailing Addresses:**

<b>COMPANY</b>	ID: 95228	RANGEVIEW METROPOLITAN DISTRICT	Interest
- Lessee of Record	8451 DELAWARE STREET		
	THORNTON CO USA	80260-	100.0

**Payment History Listing:**

Record Type	Revenue Code	Period Start/	Period End	Acct Period	Receipt #	Bill Amt	Pay Amt
Document Date	Reference #	Payor Nbr/Payor Name		Description			
Payment	SFE - Surface Fees	12/20/2005	12/20/2005	06/ 2006	DN017413		\$100.00
12/22/2005	9408	62221	PURE CYCLE CORPORATION	ROW APP FEE			
Payment	ROW - Consideration	12/20/2005	05/01/2081	06/ 2006	DN017412		\$278.59
12/22/2005	9411	62221	PURE CYCLE CORPORATION				

**Description of Land:**

Section	Description	County	Trust	Layer	AUM	Acres
T5S R65W 6						
3	SW (SEE METES AND BOUNDS FOR DETAIL)	Arapahoe	S	Surface		4.92
<b>Totals:</b>					<b>0</b>	<b>4.92</b>

Internal Report Name : d\_contr\_acctg\_lease\_noroy\_report

20.

**Colorado State Land Board  
Accounting Lease Report - RENTS**

2/1/2012

Type of Lease:	WATER & SEWER	Application Number:	ROW	3316	33
District:	Real Estate Section	Description:	Water Well Site		
Applicant: RANGEVIEW METROPOLITAN DISTRICT					
Date Accepted:	Status: Active contract	Production Status: Not defined			
Date Approved:	12/20/2005	Term	years		
Date Cancelled:	00/00/0000	Start Date:	01/18/2006	End Date:	

**Participant Names and Mailing Addresses:**

COMPANY	ID: 95228	RANGEVIEW METROPOLITAN DISTRICT	Interest
- Lessee of Record	8451 DELAWARE STREET	THORNTON CO USA 80260-	100.0

**Payment History Listing:**

Record Type	Revenue Code	Period Start/	Period End	Acct Period	Receipt #	Bill Amt	Pay Amt
Document Date	Reference #	Payor Nbr/Payor Name		Description			
Payment	SFE - Surface Fees	11/17/2011	11/17/2011	05/ 2012	DN057598		\$100.00
11/17/2011	4467	98638	LEHMAN*SCOTT E		ROW application fee		
Payment	SFE - Surface Fees	12/20/2005	12/20/2005	06/ 2006	DN017413		\$100.00
12/22/2005	9408	62221	PURE CYCLE CORPORATION		ROW APP FEE		
Payment	ROW - Consideration	12/20/2005	05/01/2081	06/ 2006	DN017412		\$58.46
12/22/2005	9411	62221	PURE CYCLE CORPORATION				

**Description of Land:**

Section	Description	County	Trust	Layer	AUM	Acres
T5S R65W 6						
3	(SEE METES AND BOUNDS FOR DETAIL)	Arapahoe	S	Surface		1.03
<b>Totals:</b>					<b>0</b>	<b>1.03</b>

Internal Report Name : d\_contr\_acctg\_lease\_noroy\_report

21.

**Colorado State Land Board  
Accounting Lease Report - RENTS**

2/1/2012

Type of Lease:	POWER	Application Number:	ROW	3487
District:	Right of Way Program Manager	Description:	electric transmission line upgrades	
Applicant: PUBLIC SERVICE COMPANY OF COLORADO				
Date Accepted:	Status: Active contract	Production Status: Primary term		
Date Approved:	07/06/2011	Term	30 years	
Date Cancelled:	00/00/0000	Start Date:	02/04/2011	End Date: 02/04/2041

**Participant Names and Mailing Addresses:**

<b>COMPANY</b>	ID: 98000	PUBLIC SERVICE COMPANY OF COLORADO	(303) 571-6547	Interest
- Lessee of Record	1800 LARIMER STREET, SUITE 700	DENVER CO USA	80202-	100.0

**Payment History Listing:**

Record Type	Revenue Code	Period Start/	Period End	Acct Period	Receipt #	Bill Amt	Pay Amt
Document Date	Reference #	Payor Nbr/Payor Name	Description				
Payment	BDR - Bond Deposit Receip	02/04/2011	02/04/2041	02/ 2012	DN055766		\$20,000.00
08/18/2011	560128	63392 XCEL ENERGY	Cash reclamation bond				
Payment	ROW - Consideration	02/04/2011	02/04/2041	01/ 2012	DN055014		\$137,876.00
07/11/2011	548345	63392 XCEL ENERGY	ROW consideration				
Payment	SFE - Surface Fees	11/18/2010	11/18/2010	05/ 2011	DN050585		\$100.00
11/18/2010	108753	97670 PUBLIC SERVICE COMPANY OF COL	ROW application fee				

**Description of Land:**

Section	Description	County	Trust	Layer	AUM	Acres
T5S R63W 6						
17	SEE METES & BOUNDS	Arapahoe	S	Surface	0	13.53
T5S R64W 6						
7	SEE METES & BOUNDS	Arapahoe	S	Surface	0	27.46
8	SEE METES & BOUNDS	Arapahoe	S	Surface	0	27.23
9	SEE METES & BOUNDS	Arapahoe	S	Surface	0	27.38
10	SEE METES & BOUNDS	Arapahoe	S	Surface	0	27.11
T5S R65W 6						
10	SEE METES & BOUNDS	Arapahoe	S	Surface	0	27.38
11	SEE METES & BOUNDS	Arapahoe	S	Surface	0	27.43
12	SEE METES & BOUNDS	Arapahoe	S	Surface	0	27.07
<b>Totals:</b>					<b>0</b>	<b>204.59</b>

Internal Report Name : d\_contr\_acctg\_lease\_noroy\_report

**Appendix 4: Lowry Range Annual Management Work Plan**

(To be prepared for review and approval by the Board each year)



## **Appendix 5: Lowry Range Integrated Weed Management Plan**

(To be prepared by Fall 2012)

## **Appendix 6: Lowry Range Grazing Plan**

(Interim plan to be prepared by June 2012. Final plan to be prepared in 2013.)