

St. Vrain Trail Master Plan



Prepared by

**Boulder County
Parks and Open Space Department**

with

ERO Resources Corporation

**Adopted by Boulder County Commissioners
January 6, 2004**

St. Vrain Trail Master Plan

This Plan is the product of a collaborative effort between the Boulder County Parks and Open Space staff, City of Longmont staff, consultant staff, key stakeholders, and local residents. The individuals listed below have contributed to this plan and will continue to work toward the goals of natural resource protection and recreational enhancement in the St. Vrain River corridor.

This plan was made possible by a grant from Great Outdoors Colorado (GOCO).

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Introduction

Purpose of the Plan

The purpose of the St. Vrain Trail Master Plan (Plan) is to identify the most viable alternative for a recreational trail adjacent to the St. Vrain River corridor between Longmont and Lyons. The goal is to create a safe, high quality recreational trail along the corridor that minimizes impacts to sensitive environmental resources. Ecological sustainability is an important component of this plan because of the many sensitive resources found along this portion of St. Vrain corridor. This Plan will provide Boulder County with trail options and implementation strategies that will result in a feasible trail connection that can be expanded and enhanced over time.

Nothing in this plan shall preclude the consideration of routes not shown at the time of adoption should new information and changing conditions, including the willingness of property owners to sell land or grant easements, make them practical. In addition, nothing in this plan shall preclude the reconsideration of routes shown herein if new information and changing conditions makes them more problematic.

Project Background

A trail along the St. Vrain River corridor between Longmont and Lyons has been envisioned in the Boulder County Comprehensive Plan since 1978 and City of Longmont plans since 1993. The County Trails Map identifies a conceptual trail alignment along the Burlington Northern/Santa Fe (BNSF) Railroad, just north of the St. Vrain River. In 1999, the County was awarded a grant from Great Outdoors Colorado (GOCO) for the St. Vrain Legacy Project. This Plan is one component of the Legacy Project.

The St. Vrain Legacy Project is a multi-jurisdictional partnership, funded in part by a grant from GOCO, whose goal is to accomplish land and water conservation along 15 miles of the St. Vrain River, from Lyons to the east Boulder County line. The project is intended to facilitate riparian habitat preservation and enhancement, wildlife habitat protection, threatened and endangered species protection, water acquisition and management to promote minimum stream



View of Longs Peak from Golden Ponds Park.



View of Gage Open Space.

flows, recreational trails and fishing opportunities, agricultural land preservation, and environmental education opportunities.

St. Vrain Corridor

The planning area consists of a 6½-mile corridor along the St. Vrain River between Longmont and Lyons. The river corridor and study area run in a northwest-southeast orientation. The northwestern end of the study area is located at the intersection of U.S. Highway 36 and State Highway 66, about 1 mile southeast of the town of Lyons. The southeastern end of the study area is the City of Longmont's Golden Ponds Park and Nature Area. Golden Ponds is currently the western terminus of the St. Vrain Greenway Trail through Longmont. Elevations range between 5,000 feet at Golden Ponds Park to 5,260 feet at U.S. 36.

The principal feature of the study area is the St. Vrain River and its associated riparian corridor. This corridor supports important habitat for the federally threatened Preble's meadow jumping mouse, and various species of raptors. The study area also contains important agricultural resources, having been designated as important agricultural lands by Boulder County. The first homestead in the county is located in the study area.

In addition to agricultural use, the most recognizable land use in the study area is aggregate mining. Mining of sand and gravel has taken place in this area for over 30 years, and is likely to continue for many years to come. Past mining activities have resulted in numerous lakes and ponds throughout the study area.

This Plan was completed by ERO Resources Corporation and Mundus Bishop Design (ERO team) in collaboration with Boulder County Parks and Open Space Department (BCPOS) staff.

How to Use this Plan

Future trail implementation efforts in the St. Vrain corridor should be based on the information and recommendations laid out in this Plan. As environmental, social, and political conditions change during the course of project implementation, this Plan also can be used as a reference for adaptive decision-making.

The *Existing Conditions* section provides an overview of the natural, cultural and recreational resources in the study area, as well as current land use. The *Trail Recommendations* section outlines the trail alignments recommended for implementation. Finally, the *Implementation* section provides guidance to assist in the trail design and construction process. Detailed descriptions of the trail alignments that were considered during the planning process, as well as a rationale for the trail recommendations are found in Appendix C - *Potential Trail Alignments*.

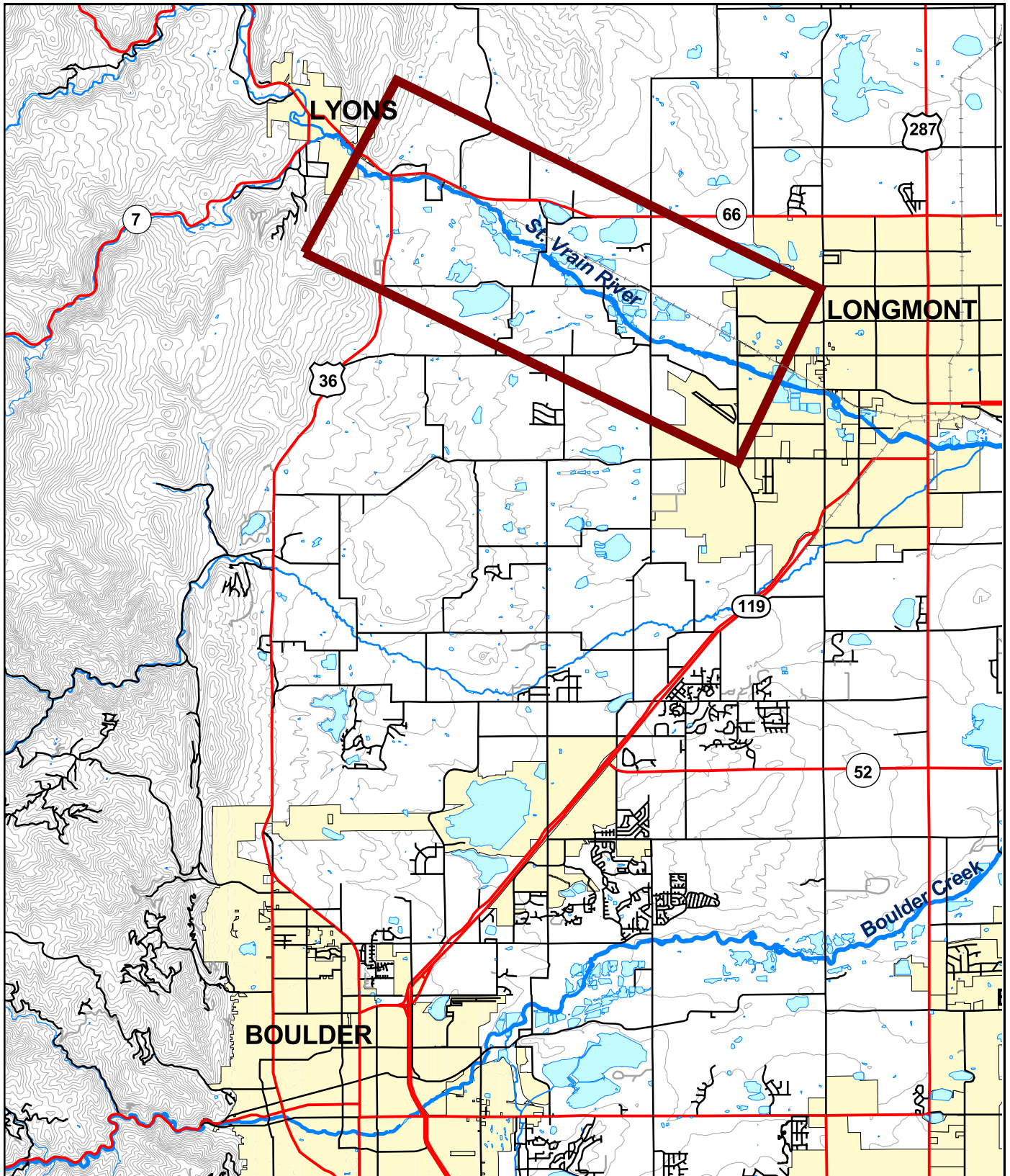
Definitions

Multi-Use Trail:

A trail that can accommodate a variety of uses, including hiking, running, bicycling and equestrian use.

St. Vrain Corridor:

The general area that was considered for this plan, about 1-2 miles on either side of the St. Vrain River. (Not to be confused with *riparian* corridor, which describes the streamside vegetation community).



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St. Vrain Study Area

Boulder County, Colorado



1 Inch = 2 Miles

**Figure 1.
St. Vrain Corridor Location**

Prepared for: Boulder County
Parks and Open Space
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December 2003

Planning Process

At the beginning of the project, the ERO team worked closely with BCPOS staff to develop an effective and efficient planning process.

The main components of the planning process included:

- **October 2002** - An early kick-off meeting to set the process in motion
- **October/November 2002** - Data collection and document review to understand the corridor resources and opportunities, and define goals and objectives
- **November 2002** - A field trip to better understand the corridor and develop trail alignment alternatives
- **December 2002** - A working group meeting to discuss and refine trail alignment alternatives
- **January/February 2003** – Discussions with key landowners to solicit feedback on trail alignment alternatives
- **March 2003** – First public open house in Longmont to present draft trail alternatives to the public and solicit feedback
- **April 2003** – First presentation of Draft Plan to Parks and Open Space Advisory Committee (POSAC)
- **August-September 2003** – Public open houses in Longmont and Lyons with presentations to Longmont Parks and Recreation Advisory Board and Lyons Pathways Commission
- **September 2003** – Additional field review to investigate and refine trail recommendations
- **October 2003** – Presentation of revised Draft Plan to Longmont Parks and Recreation Advisory Board, Longmont City Council, and POSAC
- **November 2003** – Presentation of revised Draft Plan to Longmont City Council, and Boulder County Commissioners
- **January 2004** – Adoption of Master Plan by Boulder County Commissioners

Vision and Goals

Early in the development of this Plan, BCPOS staff and the ERO team worked together to articulate the vision and goals that provided the philosophical foundation for the planning process.

Project Vision

The St. Vrain River corridor between Longmont and Lyons contains important and productive agricultural lands and a robust riparian corridor that provides habitat for a variety of wildlife species. Along the corridor, the St. Vrain Trail provides safe passage for a variety of public uses. This high quality trail allows visitors from various communities to enjoy the natural amenities and rural character of the St. Vrain corridor, while minimizing impacts to those resources.

Project Goals

1. Identify trail alternatives that are environmentally and economically feasible

- Utilize existing disturbances (such as paths and roads) to the greatest extent possible
- Minimize impacts to wetland and riparian communities, or any other critical natural areas, including Preble's meadow jumping mouse habitat and raptor nesting and foraging areas
- Minimize St. Vrain River crossings and trail segments within the riparian corridor
- Utilize County-owned lands, existing easements, and rights-of-way to the greatest extent possible to minimize land acquisition requirements
- Minimize the need for elevated or below grade crossings to avoid sensitive resources or road rights-of-way
- Minimize impacts to significant agricultural lands

2. Identify trail alternatives that provide a safe, high quality user experience

- Develop a functional off-street connection between Longmont and Lyons

- Accommodate the needs and design standards of individual jurisdictions
- Minimize exposure to car and railroad traffic
- Minimize at-grade road and railroad crossings and, where necessary, locate crossings at safe locations
- Provide a visually interesting, intriguing, and diverse trail experience
- Provide recreational and transportation access between the various communities and established recreational sites

3. Identify trail alternatives that are socially and politically feasible

- Gather, consider, and incorporate preferences of the public
- Engage key stakeholders and landowners early in the process
- Establish and maintain policies and procedures that make Boulder County a good neighbor in the corridor

Public Involvement Process

Public involvement allowed the BCPOS staff and the ERO team to make informed decisions that incorporate the opinions, ideas, and expertise of stakeholders and members of the general public. Once the planning team identified potential alignments (described in the *Potential Trail Alignments* section), the public involvement process included two phases, stakeholder outreach and public meetings.

Stakeholder Outreach

After a set of potential trail alignments was identified in December 2002, BCPOS staff met individually with stakeholders who may be directly affected, positively or negatively, by the trail project. The purpose of these meetings was to solicit feedback and advice on the potential trail alignments that had been identified, and to ascertain the willingness of individual stakeholders to work with Boulder County toward trail implementation.



Citizens review preliminary trail alignments at the March 25 public meeting.

In January and February 2003, BCPOS staff met individually with the following stakeholders:

- About 23 private landowners
- LaFarge, Inc.
- CEMEX, Inc.

These meetings were useful in narrowing and refining the range of potential trail alternatives.

In September 2003, planning team members met in the field with representatives from LaFarge, Inc. to discuss the potential for a trail within the Lyons mining area.

Public Meetings

Once the potential trail alternatives were refined by the planning team and stakeholder involvement, the general public was given three opportunities to provide guidance and feedback on potential trail alignments.

- The first public meeting was held on March 25, 2003 at Westview Middle School in Longmont.
- The second public meeting was held on August 11, 2003 at Longmont City Hall.
- The third public meeting was held on September 8, 2003 at Lyons City Hall.

All three meetings followed an informal, open house format, and included a brief presentation describing the planning project as a whole, the resources and significance of the St. Vrain corridor, trail opportunities and constraints, and potential trail alignments. The second and third meetings were followed by formal presentations to the respective advisory boards for Longmont and Lyons. Public comments and concerns expressed in these meetings are summarized in Appendix A.

Relevant Planning Guidance

The Boulder County Comprehensive Plan outlines specific policies for trail development and natural resource conservation in the corridor. This Plan is a continuation of previous components of the

St. Vrain Legacy Project, including the City of Longmont's St. Vrain Greenway Master Plan – East Corridor Update, and various open space acquisitions within the study area. These and other relevant planning documents are summarized below.

Boulder County Comprehensive Plan

The most recent (1999) amendment to the Boulder County Comprehensive Plan recognizes that the St. Vrain corridor contains significant resources for the continued livelihood of the valley, county, and region. These resources include significant wildlife habitats, agricultural lands, recreational opportunities, and commercial mineral deposits. In addition, the St. Vrain River is an important source of water for agricultural, domestic, and industrial uses. The Comprehensive Plan identifies the character of the St. Vrain corridor region as agricultural (Boulder County 1999).

Trails – The Comprehensive Plan directs that trails shall be planned, designed, and constructed to avoid or minimize the degradation of natural and cultural resources, especially riparian areas and associated wildlife habitats. The St. Vrain River riparian corridor west of Airport Road is a riparian area proposed for preservation within which trail development is inappropriate (OS 6.01).

The Comprehensive Plan's County Trails Map identifies a conceptual trail alignment through the study area, located alongside the existing BNSF railroad right-of-way. The Plan's Transportation section directs that the county shall encourage the planning and construction of bikeways and pedestrian walkways as an integral part of the transportation system (TR 6.01). Trails shall provide for pedestrian, equestrian, bicycle, and/or other uses where each is warranted. Incompatible uses shall be adequately separated (TR 6.06).

Environmental Conservation Area – The Environmental Conservation Area map establishes the corridor as a Stream Habitat Connector where conservation or preservation is encouraged. It also identifies the Hygiene Plains Cottonwood area as a Natural Landmark. A Natural Landmark is defined as a prominent landscape feature that distinguishes a specific locality in Boulder County and is important for its scenic, visual, and aesthetic values. The objectives of the County are to mitigate negative impacts to Landmarks and

provide assistance, incentives and regulations for landowners to maintain Natural Landmarks.

Critical Wildlife Area – Upstream of 63rd Street, the St. Vrain corridor is designated as a Critical Wildlife Area, as depicted on the Comprehensive Plan’s Environmental Resources map. The Comprehensive Plan directs that proposed land uses shall be compatible with the ecosystem of critical wildlife habitats and not pose detrimental impacts to such habitats (ER 4.03).

Significant Riparian Corridor – The Environmental Resources map also recognizes the St. Vrain corridor between 75th Street and Airport Road as a Significant Riparian Corridor. The Comprehensive Plan directs that the county shall work toward minimizing human impacts to riparian ecosystems from development, roads, and trails (ER 6.03). The Plan directs that the management of riparian areas shall encourage natural processes, native species, restoration, elimination of undesirable exotic species, minimal human impact, and long-term monitoring (ER 6.05).

Significant Agricultural Lands – The Comprehensive Plan’s Significant Agricultural Lands map recognizes the majority of the agricultural land in study area to be Lands of Statewide Importance. Some of the eastern portions of the study area are recognized to be Lands of National Importance. In addition, the Mineral Resource Areas map identifies much of the corridor as an Aggregate Resource Area.

St. Vrain Greenway Master Plan

In 1993, the City of Longmont adopted a Master Plan for the St. Vrain corridor from Longmont to 75th Street. This plan outlined goals and objectives to help coordinate efforts to preserve and enhance the St. Vrain corridor as a community amenity. This plan envisioned a conceptual greenway that followed the St. Vrain River to the west toward Lyons along the south side of the river. Boulder County had concerns about this alignment and agreed to work with the City of Longmont to revisit this area and consider other alignments. This concept has also been included in the Longmont Area Comprehensive Plan (Longmont 2002).

St. Vrain Greenway Plan – East Corridor Update

In 2001, the City of Longmont completed a master plan for the east corridor of the St. Vrain Greenway Trail between downtown Longmont and the confluence with Boulder Creek to the east. The primary goals of this plan were to preserve and enhance the natural character of the river corridor, maximize recreational opportunities, use the river corridor to link Longmont neighborhoods and activity centers, and to preserve and enhance the quality of the river as a visual corridor. This plan articulated trail routes, trail cross-sections, design elements and restoration guidelines for the eastern portion of Longmont's St. Vrain River corridor. It was adopted by Longmont in July 2001 and by Boulder County in August 2001 (Design Workshop 2001).

Longmont Area Comprehensive Plan

In 1995, the city of Longmont completed the Longmont Area Comprehensive Plan. This plan outlines the City's goals and policies for a number of topics, including proposed bikeways and greenways (Longmont 2002). The portion of the St. Vrain corridor east of 75th Street is within the City's planning area. A targeted Comprehensive Plan is expected to be completed in 2003.

Town of Lyons Parks, Open Space, and Trails Plan

Completed in 2000, this plan outlines concepts for parks and trails serving the Town of Lyons. Recommendations include a multi-use trail along the north side of the St. Vrain River to U.S. 36, and south along the Boulder Feeder Canal (Shapins 2000).

Lyons Comprehensive Land Use and Mining Plan

In 1996, Western Mobile (now LaFarge, Inc.) developed a master plan for mineral extraction in the western portion of the study area. The Lyons master plan seeks to protect and improve sensitive wildlife habitat while extracting and reclaiming mineral deposits (Western Mobile 1996).

Golden's Comprehensive Mining Plan

In 1994, Golden's Andesite Mining Company submitted a mining plan and Special Use Permit application for four sites in the southeastern portion of the study area (RMC 1994). The four sites are the

Neighbors site, Redmond site, Fredstrom site, and Hygiene site. This document has provided useful information about sensitive natural resources in the southeastern segment of the corridor, as well as conceptual reclamation plans and phasing that may be useful in implementing the St. Vrain Trail. Since completion of this plan, the Hygiene site has been reclaimed, and Aggregate Industries, Inc. has taken over mining operations and/or plans at the other three sites.

Existing Conditions

The first step in developing this Plan was to gain an understanding of the existing conditions within the study area. Utilizing existing documentation, field review, and the expertise of planning team members, the ERO team inventoried existing land use and ownership, sensitive natural resources, cultural resources, information discussed with adjacent landowners, and recreation amenities within the study area. This inventory helped the planning team understand the opportunities and constraints related to the development of an environmentally sensitive recreational trail.



James Ditch in the Lyons mining area.

Natural Resources

The study area contains important natural resources, including significant agricultural lands, extensive riparian habitat, and a variety of important wildlife species. The following is a brief description of the significant natural resources found within the St. Vrain River corridor.

Significant environmental resources in the corridor are shown on Figure 2, the Natural Resources Inventory map. The Natural Resource Composite map (Figure 3) shows a simplified evaluation of how sensitive resources that are found along the corridor are concentrated, and how those sensitive resources relate to the potential trail alignments. The composite map was generated considering riparian habitat, wetlands, Preble's meadow jumping mouse habitat, prairie dog colonies, County-designated Critical Wildlife Habitat, and County-designated Natural Areas.

Soils

Niwot and Loveland soils dominate the St. Vrain corridor. Niwot soils are generally located within and immediately adjacent to the St. Vrain River channel and low terraces. These soils have a surface of sandy clay loam to light clay loam or loam, which is generally underlain by pale-brown gravelly sand. Loveland soils generally occur on the outer terraces and lowlands outside of the immediate St. Vrain corridor. These soils have a surface ranging from sandy clay loam to clay loam, which is generally underlain by grayish-brown light clay loam, and light brownish-gray gravelly sand.

The soil survey for the study area reports moderate to severe limitations for paths and trails in the Niwot soils, largely because it tends to be poorly drained. Likewise, Loveland soils pose moderate limitations because of the clay loam or sandy clay loam surface layer. Loveland soils are also reported to have moderate shrink-swell potential (USDA 1975).

It should be noted that limitations for paths and trails were determined assuming natural surface trails with no grading or resurfacing (USDA 1975). Both Boulder County (Pella Crossing) and the City of Longmont (Golden Ponds Park) have successfully implemented multi-use trails, both hard and soft surface, within areas dominated by Niwot and Loveland soils.

Geologic Hazards

The Boulder County Comprehensive Plan identifies a moderate geologic hazard along the St. Vrain River floodplain. This hazard is due to the potential for flooding and expansive soils. Most of the remainder of the study area is considered to have minor geologic constraints due to the potential for expansive soils and landslides, mudslides, mudfalls or debris fans (Boulder County 1999). These hazards do not pose a threat to the successful implementation of a multi-use trail in the study area, and can be mitigated by appropriate trail design and maintenance.

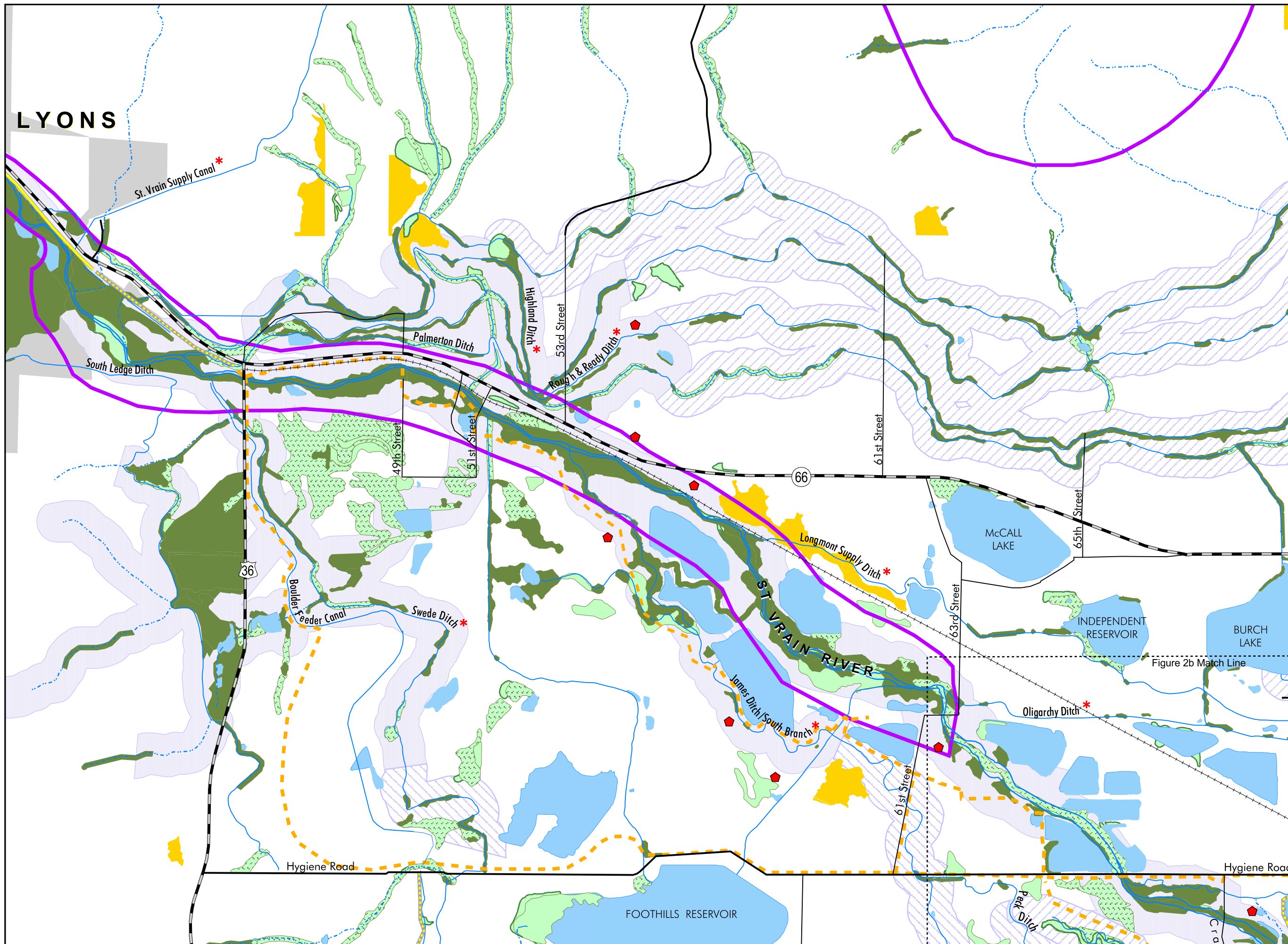
Vegetation

Three major vegetation habitat types are located within the St. Vrain corridor. These include riparian forest, upland grasslands, and various types of wetlands.

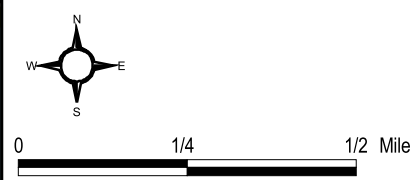
Riparian Forest – The riparian forest community follows the St. Vrain River channel throughout most of the study area. It is also prominent along many of the tributary streams and ditches west of 75th Street. This community is dominated by various willow species along the stream channel, surrounded by cottonwoods on the riparian benches. Native tree species include plains cottonwood (*Populus deltoides*), narrowleaf cottonwood (*Populus angustifolia*), coyote willow (*Salix exigua*), and peach-leaf willow (*Salix*

St. Vrain Trail Master Plan

Figure 2a -- Northwest Corridor Resources



- Recommended Trail Options
- Existing Trail
- Previously Proposed Trail
- Prebles Meadow Jumping Mouse Management Area
- PMJM Possible Linkage
- PMJM Suitable Contiguous Habitat
- 2001 Prairie Dog Colony
- Boulder County - Critical Wildlife Area
- Emergent Wetland
- Wet Meadow
- Riparian Vegetation
- Historic Farms
- Streams and Ditches
- (Denotes Historic Ditch)
- Highway
- Paved Road
- Railroad



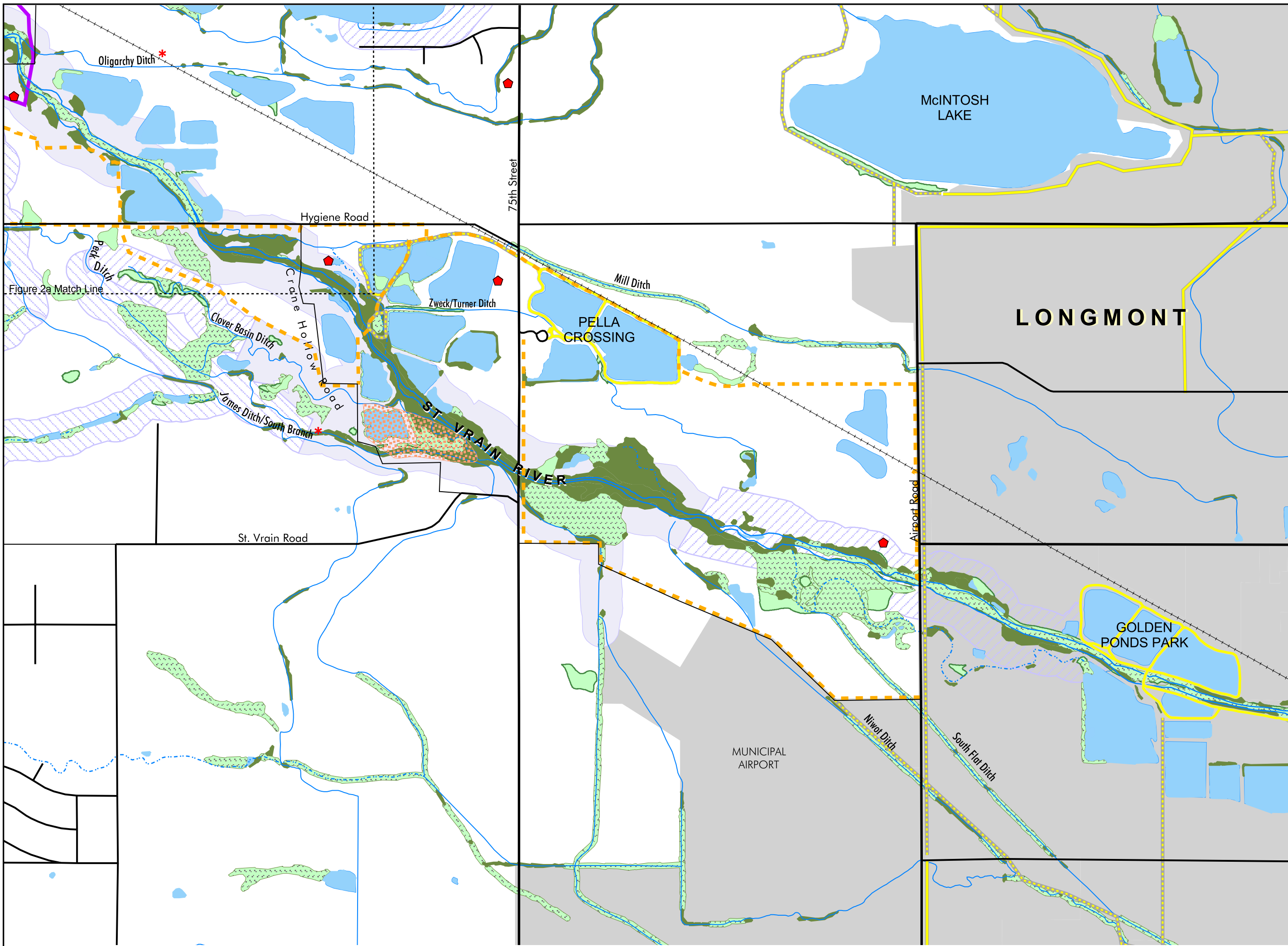
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File: 2078/GIS/Fieldmaps.apr
 Map produced: January 2004

St. Vrain Trail Master Plan

Figure 2b -- Southeast Corridor Resources



- - - - Recommended Trail Options
- Existing Trail
- - - - Previously Proposed Trail Alignment
- Prebles Meadow Jumping Mouse Management Area
- PMJM Possible Linkage
- PMJM Suitable Contiguous Habitat
- 2001 Prairie Dog Colony
- Boulder County - Critical Wildlife Area
- Boulder County - Landmark Area
- Emergent Wetland
- Wet Meadow
- Riparian Vegetation
- ★ Historic Farms
- Streams and Ditches
- ★ (Denotes Historic Ditch)
- Highway
- Paved Road
- Railroad
- Figure Match Line



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amygdaloides). Common non-native tree species include black locust (*Robinia pseudoacacia*) and Russian olive (*Elaeagnus angustifolia*).

The understory is generally dominated by native grasses such as needle-and-thread grass (*Stipa comata*), wild licorice (*Glycyrrhiza lepidota*), and blue vervain (*Verbena hastata*), introduced prairie grasses such as smooth brome (*Bromus inermis*) and meadow fescue (*Festuca pratensis*), and weedy species such as diffuse knapweed (*Centaurea diffusa*) and Canada thistle (*Cirsium arvense*) (Meaney 2001; ERO 2001a; Beane 2000). In some areas, scattered shrubs such as snowberry (*Symphoricarpos occidentalis*), chokecherry (*Prunus virginiana*) and hawthorn (*Crataegus erythropoda*) complement the understory (Jones 1997; Beane 2000). While the riparian forest runs the extent of the St. Vrain throughout the study area, more significant patches occur in areas near the western end of the study area.

Changes in hydrology and land use have resulted in reduced cottonwood regeneration resulting in many mature and standing dead cottonwood trees with relatively few young cottonwoods and willows (Beane 2000; RMC 1994). This lack of regeneration threatens the continued health of this community. These problems are apparent throughout Colorado's Front Range, and within the St. Vrain corridor they are attributed to stream alterations and diversions that have eliminated the successional forces that naturally stimulate riparian forest regeneration (RMC 1994).

Weed infestations also have contributed to the degradation of riparian forests in the study area. Understory grasses have, in some cases, been completely taken over by noxious weeds such as diffuse knapweed, perennial sweet pea (*Lathyrus latifolius*), St. Johnswort (*Hypericum perforatum*), mullein (*Verbascum thapsus*), and bouncing bet (*Saponaria officinalis*) (Meaney 2001; ERO 2001a).

Riparian forests within the study area provide important habitat for numerous wildlife species. Trail development alternatives will seek to minimize further disturbance and fragmentation of these habitats while, where possible, allowing limited visual access that can help promote a greater appreciation of these habitats and their conservation.



Riparian vegetation along the St. Vrain River.



Grassland community along the St. Vrain corridor.

Upland Grasslands – Upland grasslands within the study area are characterized by native and introduced grasses such as blue grama (*Bouteloua gracilis*), crested wheatgrass (*Agropyron cristatum*), junegrass (*Koeleria macracantha*) and smooth brome. In some areas, there are scattered stands of big bluestem (*Andropogon gerardii*) (ERO 2001a). Other plants include yucca (*Yucca glauca*), prickly pear (*Opuntia polyacantha*), and needle-and-thread grass. Dominant noxious weeds include cheatgrass (*Bromus tectorum*), diffuse knapweed, ragweed (*Ambrosia artemisiifolia*), field bindweed (*Convolvulus arvensis*), Canada thistle, mullein and yellow toadflax (*Linaria vulgaris*) (ERO 2001a; Beane 2000). Some heavily disturbed areas, such as the Braly Homestead site, are dominated by a monoculture of cheatgrass (Meaney 2001). Reclaimed areas, including mining areas, are generally dominated by smooth brome, crested wheatgrass (*Agropyron cristatum*), intermediate wheatgrass (*Agropyron intermedium*), orchard grass (*Dactylis glomerata*), and various weed species (ERO 2001a).

Upland grasslands in the study area are important to the ecological and agricultural integrity of the study area. Trail development alternatives will carefully avoid fragmenting high quality habitat patches, functional pastures, and the interconnections between grasslands and other community types. In addition, trail design and implementation will avoid the further spread of weeds.

Wetlands – Wetlands in the study area consist mainly of streamside wetlands, wet meadows, and occasional emergent marshes. Streamside wetlands generally include various types of willow and a variety of sedges and rushes. Streamside wetlands occur throughout the study area along the bottomlands adjacent to St. Vrain River and along some ditches.

Wet meadows in the study area generally consist of sedges, rushes, and mesic grasses. Some of the more significant wet meadow complexes in the study area include an area to the northwest of the cement plant near the western end of the study area, several areas on the Gage Open Space property, and two bottomland areas along the south side of the creek between 75th Street and Airport Road on the eastern end of the study area. Typical plant species include three

square (*Schoenoplectus pungens*), prairie cordgrass (*Spartina pectinata*), Nebraska sedge (*Carex nebrascensis*), Emory's sedge (*Carex emoryi*), hard-stem bulrush (*Schoenoplectus lacustris* subsp. *Acutus*), and arctic rush (*Juncus arcticus*). Wet meadows generally occur among upland grasslands and irrigated pastures dominated by blue grama, crested wheatgrass, and smooth brome (ERO 2001a).

Emergent wetlands consisting primarily of cattail (*Typha latifolia*), sedges, and rushes are scattered throughout the study area. These wetlands are intermixed with both streamside wetlands and wet meadows in areas where favorable conditions exist. Emergent wetlands are more prevalent along the St. Vrain to the west of 75th Street, while stream side wetlands are more dominant in the historical river meanders east of 75th Street.

The wetlands in the study area provide diverse habitats for a variety of wildlife species, and are important in sustaining water supplies for aquatic species and downstream users. It is important that trail development alternatives minimize any direct or indirect impacts to wetlands within the study area. Wetland impacts may be subject to permitting and approval by the U.S. Army Corps of Engineers, the U.S. Environmental Protection Agency, or the U.S. Fish and Wildlife Service.

Sensitive Plant Species

Many of the wetland areas along the St. Vrain corridor provide potential habitat for Ute ladies'-tresses orchid (*Spiranthes diluvialis*) and Colorado butterfly plant (*Gaura neomexicana* ssp. *coloradensis*). Both of these species are listed as threatened under the Endangered Species Act, and are known to occur in wetland riparian habitats along Colorado's Front Range. While the St. Vrain corridor contains an abundance of potential habitat for these species, they have not been identified in recent surveys of the Lyons mining area (Beane 2000) and Marlatt Open Space (ERO 2001b).

Common Wildlife Species

The St. Vrain River corridor provides habitat for a broad range of wildlife species. Common mammal species include whitetail deer (*Odocoileus virginianus*), coyote (*Canis latrans*), red fox (*Vulpes vulpes*), striped skunk (*Mephitis mephitis*), raccoon (*Procyon lotor*), fox squirrel

(*Sciurus niger*), eastern cottontail (*Sylvilagus floridanus*), and various mice and voles. In addition to the various raptor species listed below, numerous birds utilize the corridor for nesting and foraging habitat (ERO 2001a).

Sensitive Wildlife Species

The St. Vrain River corridor provides important habitat for several sensitive wildlife species, including the Preble's meadow jumping mouse, black-tailed prairie dog, and several raptor and fish species.

Preble's Meadow Jumping Mouse – The Preble's meadow jumping mouse (*Zapus hudsonius preblei*) (Preble's) was listed as a threatened species in 1998 under the Endangered Species Act (ESA). Preble's occurs in habitat adjacent to streams and waterways along the Front Range of Colorado and southeastern Wyoming. The U.S. Fish and Wildlife Service determined that Preble's habitat generally occurs within the riparian zone, primarily defined by the 100-year floodplain, and adjacent uplands extending out about 100 meters. According to the Colorado Natural Heritage Program (CNHP), the St. Vrain River corridor contains a "fair" occurrence of Preble's (NDIS 2003). The U.S. Fish and Wildlife Service did not include the St. Vrain corridor in its Critical Habitat designation for Preble's (USFWS 2003a).

Preble's is known to occur at several locations in the study area west of 75th Street. Habitat for the mouse has been identified along most of St. Vrain River, as well as many of the ditches and wetlands in the western portion of the study area. Many of these areas have been identified as Mouse Management Areas in the Draft Boulder County Habitat Conservation Plan (HCP) (Boulder County 2002).

The Draft HCP defines three Preble's habitat designations, as shown on Figure 2:

- **Mouse Management Areas** – Areas of known occupation by Preble's, as documented from trapping surveys. Designated 1 mile upstream and 1 mile downstream from known capture sites, including any tributaries or ditches that are confluent with the main drainage.
- **Possible Linkages** – Areas where Preble's populations once occurred as a single unit, but are now fragmented.

- **Suitable Contiguous Habitat** – Areas with suitable habitat where Preble's have either not been captured or where trapping has not occurred, and is contiguous to a known population.

Preble's habitat and occurrences associated with the Lyons mining site in the western end of the study area are well documented. Within the proposed mining area, LaFarge has committed to habitat mitigation outside of the proposed mining areas (Beane 2000). With the overall goal of no net loss of Preble's habitat during mining operations and a long-term gain in the quantity and quality of habitat, the following mitigation measures are being pursued:

- Avoidance of habitat
- Preservation of habitat and travel corridors
- Restoration and enhancement of disturbed areas
- Creation of new habitat

Much of the pre-mining mitigation is underway, focusing on improving the riparian corridor vegetation along the South Branch/James Ditch. This habitat is being enhanced through a combination of weed management, fencing to exclude livestock, and planting native grasses, forbs and shrubs (Beane 2000).

Trail design and implementation will need to be very sensitive to Preble's habitat in the St. Vrain corridor by using existing roads, trails and disturbances to the greatest extent possible and avoiding many habitat areas altogether. This is especially true in the western portions of the corridor, where LaFarge has committed significant resources to protecting and enhancing Preble's habitat. In cases where avoidance of habitat is not possible, habitat mitigation may be an option for trail development.

Black-tailed Prairie Dog – The black-tailed prairie dog is a candidate for listing as a threatened species. Candidate species are plants and animals for which the U.S. Fish and Wildlife Service has sufficient information on their biological status and threats to propose them as endangered or threatened under the ESA, but for which development of a proposed listing regulation is precluded by other higher priority listing activities. Candidate species receive no statutory protection under the ESA (USFWS 2003b).

Existing prairie dog colonies on County-owned lands are shown on Figure 2. The most significant colonies occur in the western portions of the site near the Braly Open Space area, north of the railroad tracks in the Toteve/Western Mobile Open Space area. Other colonies have been observed within the Lyons mining site/Western Mobile Open Space.

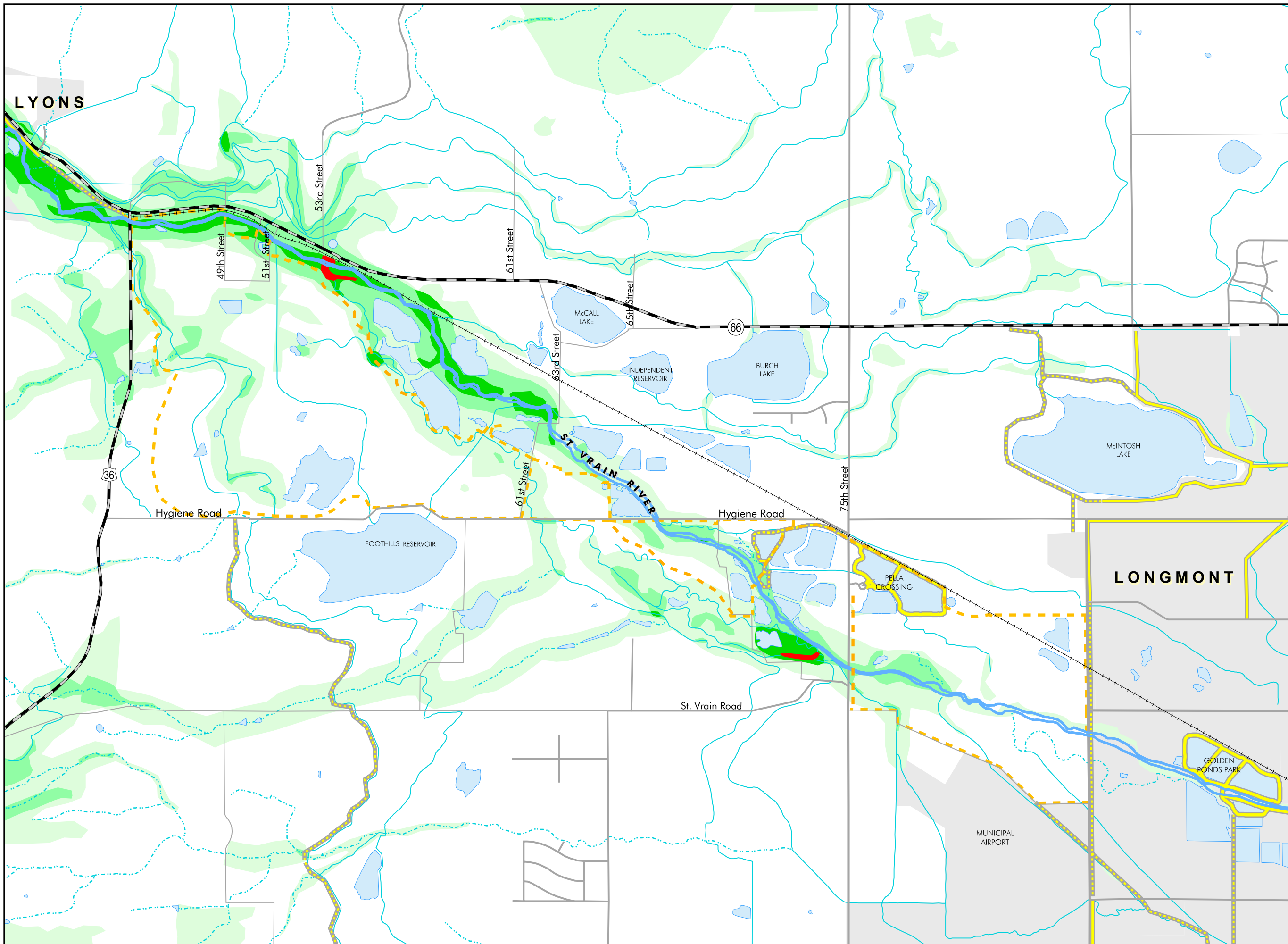
Raptors – The St. Vrain corridor provides nesting and/or foraging habitat for several sensitive raptor species, including bald eagle (*Haliaeetus leucocephalus*), golden eagle (*Aquila chrysaetos*), ferruginous hawk (*Buteo regalis*), peregrine falcon (*Falco peregrinus*), prairie falcon (*Falco mexicanus*), and short-eared owl (*Asio flammeus*). Bald eagles were seen constructing a “winter nest” near the South Branch (in the western portion of the study area) in 1995, while golden eagles have been identified nesting nearby. Bald eagles, golden eagles, and ferruginous hawks depend on prairie dogs for foraging (Jones 1997).

Other, more common raptor species identified within the corridor include red-tailed hawks (*Buteo jamaicensis*), American kestrels (*Falco sparverius*), and great horned owls (*Bubo virginianus*). These species are habitat generalists, and are less vulnerable to human impacts if sufficient habitat is available (Jones 1997).

Other Sensitive Wildlife Species – According to the Colorado Division of Wildlife, the St. Vrain supports the highest biodiversity of native minnow species in the South Platte basin of Colorado, including such species as common shiner (*Luxilus cornutus*), brassy minnow (*Hybognathus hankinsoni*), stoneroller (*Campostoma anomalum*), stonecat (*Noturus flavus*), and lake chub (*Couesius plumbeus*) (VanBuren 2002). The brassy minnow, common shiner, and stonecat are listed as State Threatened. The St. Vrain also supports the cylindrical papershell (*Anodontooides ferussacianus*), a mollusk considered by the CNHP to be imperiled within the state (S2) (NDIS 2003).

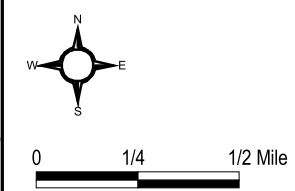
St. Vrain Trail Master Plan

Figure 3
Resource Composite



- Very High Resource Occurrence
- High Resource Occurrence
- Moderate Resource Occurrence
- Some Resource Occurrence
- Recommended Trail Option
- Existing Trail
- Previously Proposed Trail
- Highway
- Paved Road
- Railroad
- Streams and Ditches

- Resources Considered:**
- Riparian Habitat
 - Wetlands
 - Preble's Meadow Jumping Mouse Habitat
 - Prairie Dog Colonies
 - Designated Critical Wildlife Habitat
 - Designated Natural Areas



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Protective Natural Resource Classifications and Designations

The St. Vrain corridor has been recognized by several entities for its natural resources. As mentioned above in the *Planning Guidance* section, the Boulder County Comprehensive Plan has recognized portions of the corridor as a Significant Riparian Corridor, Critical Wildlife Area, and an Environmental Conservation Area (Boulder County 1999). The CNHP has recognized the corridor as a Potential Conservation Area with high biodiversity significance (B3). This designation is given because of occurrences of Preble's and rare fish in the corridor. The CNHP goes on to state that "all necessary ecological processes that support the inclusive elements are included in the site, though additional portions of the main creek and adjoining creeks and ditches beyond site boundaries may be necessary for long-term element protection" (NDIS 2003).

Land Use and Ownership

The St. Vrain River corridor between Lyons and Longmont is rural in character. The predominant land uses are agriculture, open space, and sand and gravel mining. Several rural industrial complexes including a cement plant, a batch plant, and railroad loading facilities are located in the western end of the study area. An active railroad corridor runs through the study area parallel to the north side of the St. Vrain River. The small community of Hygiene is located near the eastern end of the corridor, at the intersection of 75th Street and Hygiene Road.

Land ownership in the corridor is dominated by Boulder County Open Space, City of Longmont Open Space, LaFarge, Inc., CEMEX Inc., and various agricultural landowners.

Boulder County Open Space

Boulder County Open Space owns 1,380 acres of land within the corridor, and has conservation easements over an additional 212 acres of private land. Boulder County's principal land holdings include the following:

- Pella Crossing - 90 acres
- Marlatt Open Space – 161 acres



Mining conveyor serving the CEMEX plant.

- Gage Open Space – 256 acres
- Ramey Property - 22 acres
- Braly Open Space – 75 acres

Western Mobile Open Space and Fredstrom Open Space will become County open space properties following the completion of mining in those areas. The County Transportation Department owns a 73- acre portion of the Gage property for the purposes of gravel mining.

City of Longmont Open Space

The City of Longmont owns the 137- acre Golden Ponds Natural Area at the eastern edge of the study area. This property lies adjacent to the City of Longmont and is the western terminus of the existing St. Vrain Greenway Trail. Although Golden Ponds is not annexed to Longmont, it is owned by the City, functions as a key park along the St. Vrain corridor, and is within the City’s planning area.

LaFarge, Inc.

LaFarge, Inc. (formerly Western Mobile) owns or has rights to mine a large area in the northwestern portion of the study area. This mining area is known as the Lyons Site. The Lyons Site consists of about 1,000 acres of land between Highway 66 on the north, Hygiene Road on the south, U.S. 36 to the west, and 61st Street to the east. The site comprehensive plan calls for an “open valley” reclamation concept, which minimizes the creation of open water in favor of diverse habitat types (Western Mobile 1996).

Aggregate Industries, Inc.

Aggregate Industries, Inc. owns mineral rights in three major areas along the corridor. These areas are described as follows.

Redmond/Neighbors site – This 240-acre site is located immediately west of the City of Longmont’s Golden Ponds Natural Area on the eastern end of the study area. The Redmond portion of the site is located north of the St. Vrain River, while the Neighbors portion is located to the south. The original comprehensive mining plan for this site recommended that the riparian corridor, including

several historical river meanders, be preserved. In addition, the reclamation plan showed conceptual recreation access along the St. Vrain corridor. Following mining, portions of the site will be restored to lake and wetland habitats, while other portions of the site will be converted to residential land use (RMC 1994). This site is currently being mined. In 1977, Boulder County acquired the right to request a trail easement along the south side of the St. Vrain River, adjacent to the river channel.

Fredstrom site – This 305-acre site is located along the St. Vrain River to the south of Pella Crossing Open Space, on the east side of 75th Street. It is currently used for agriculture. A high quality riparian corridor exists along the north side of the creek, and will be excluded from future mining. Mining is planned to occur in the agricultural portions of the site, as well as the riparian area to the south of the creek. These areas will be restored to lakes, wetland, and riparian communities. Mining on the Fredstrom site is planned to begin once the Neighbors site is completed (RMC 1994).

CEMEX, Inc.

CEMEX owns much of the land on the south side of St. Vrain River in the western end of the study area. At this location, CEMEX operates a large cement plant. CEMEX operates two large mining areas, one on the south side of the cement plant (within the trail corridor) and one on the north side of Highway 66 in the Dowe Flats area. The cement plant and its associated mines, roads, and conveyors give the western portion of the study area a rural industrial character.

Burlington Northern/Santa Fe Railroad

The Burlington Northern/Santa Fe (BNSF) Railroad operates the railroad line that parallels the north side of St. Vrain River from Longmont to U.S. 36. This railroad line serves the CEMEX cement plant and is planned to be used to haul aggregate materials that will be mined from LaFarge's Lyons Site.

Throughout most of the study area, the railroad right-of-way ranges between about 50 feet and 100 feet wide. The railroad right-of-way itself is owned by several private entities including Highland Properties, LLC, Fisher Farms Development, LLC, and the Hagedorn

family. An in-depth analysis of the feasibility of completing a trail within the railroad corridor is included in Appendix B.

Cultural Resources

Numerous historic and archaeological sites occur within or near the study area. More than 61 sites inventoried and cataloged with the Colorado Historical Society are field eligible for the National Register of Historic Places (NRHP). Sites occur on both public and private lands.

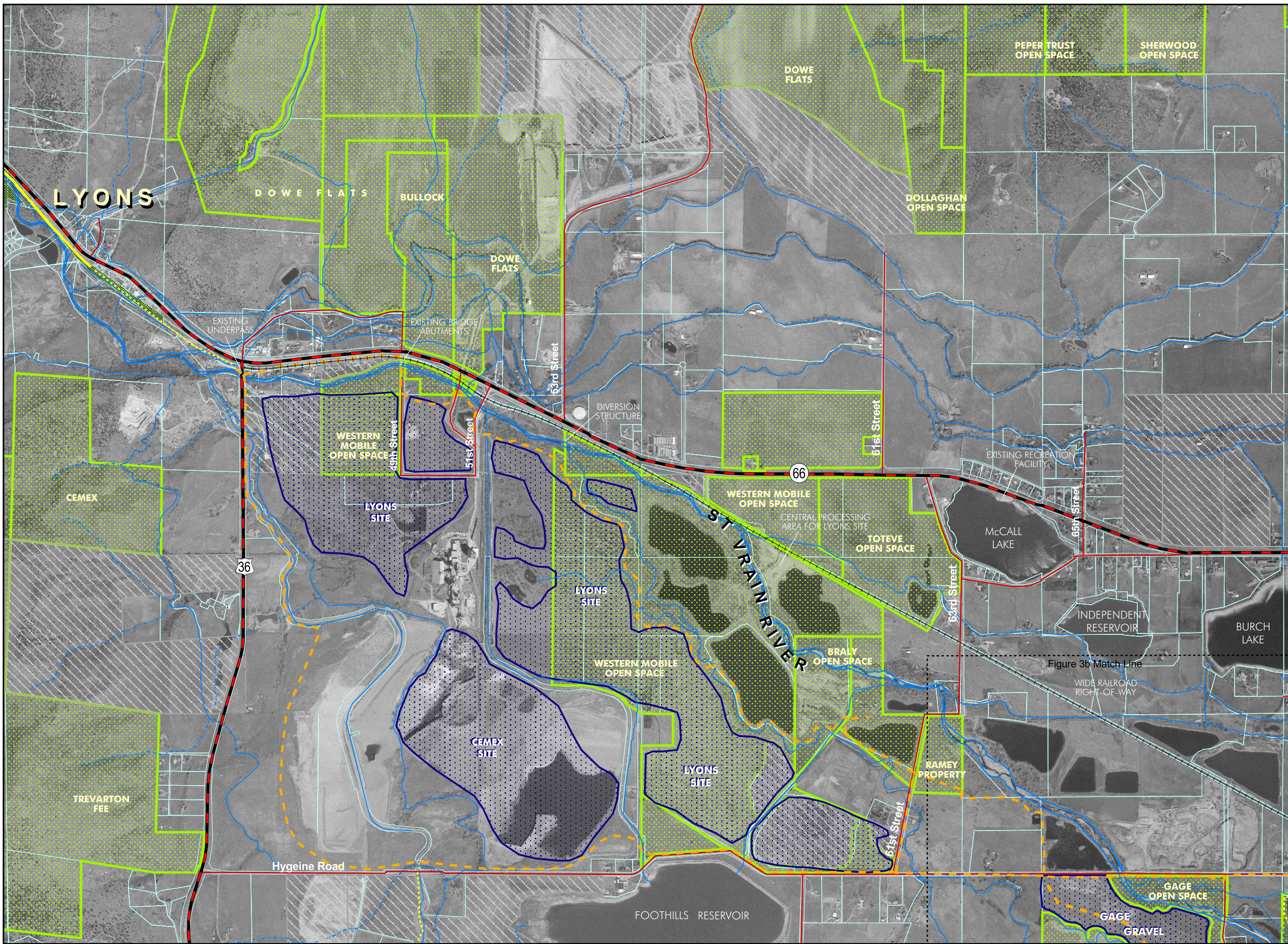
Of the 61 cultural resource sites, 12 are homesteads or farms. The Colorado Historical Society has recognized two farms, the Montgomery Farm and the Zweck Farm, as Colorado Centennial Farms (Colorado Historical Society 2001). This designation recognizes farms and ranches that have remained in the same family for more than 100 years, are working enterprises, and have a minimum of 160 acres. The following historical homesteads and farmsteads are described in Appendix D:

- Zweck Farm
- Montgomery Farm
- Dunn Property
- Leonard Property
- W.W. Marlatt and Company Property
- Garner/Harroun Dairy Farm
- Ramey Farm
- Henning Farm
- Adams Place
- Jacob Buvy Farmstead
- Atkin's Farmstead, "Chuck's Place"
- Tom Fox Farmstead

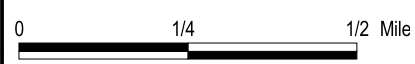
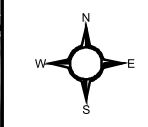
In addition to the homesteads and farms, there are 23 named irrigation ditches that are field eligible for the National Register of Historic Places. The sites and ditches are identified in Figure 2, and described in Appendix D.

St. Vrain Trail Master Plan

Figure 4a -- Northwest
Corridor Analysis



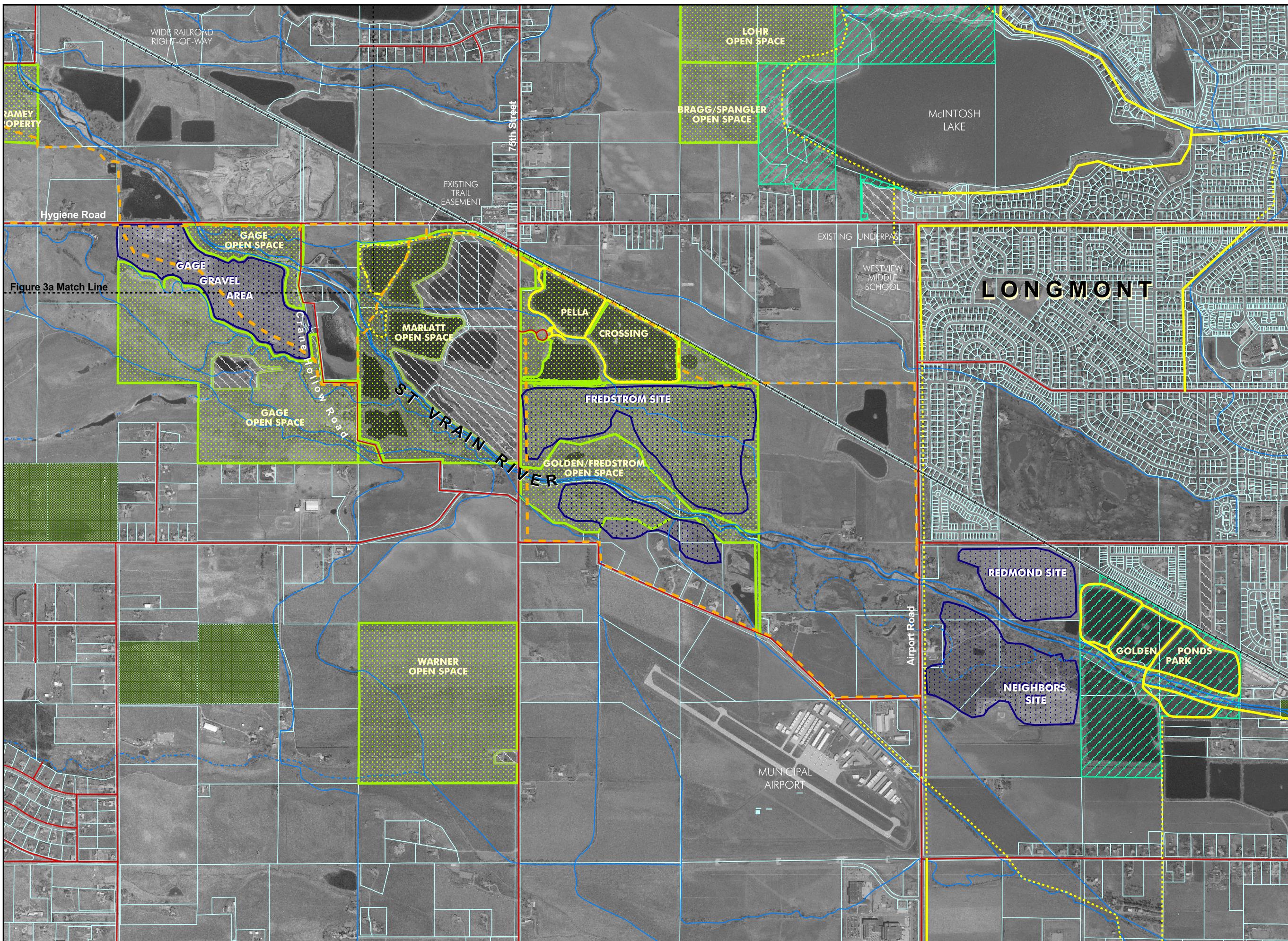
- Recommended Trail Option
- Existing Trail
- Previously Proposed Trail Alignment
- Boulder County Open Space
- Boulder County Conservation Easement
- Other Open Space
- Parcel Boundary
- Existing or Planned Mining Area
- Highway
- Paved Road
- Railroad
- Streams and Ditches



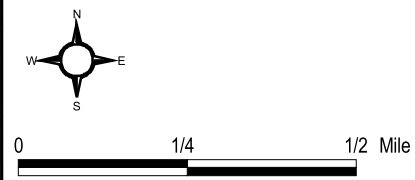
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St. Vrain Trail Master Plan

Figure 4b -- Southeast Corridor Analysis



- Recommended Trail Option
- Existing Trail
- Previously Proposed Trail Alignment
- Boulder County Open Space
- Boulder County Conservation Easement
- Longmont Open Space
- Other Open Space
- Parcel Boundary
- Existing or Planned Mining Area
- Highway
- Paved Road
- Railroad
- Streams and Ditches



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 Map produced: January 2004

Twenty-one archaeological historical sites have been identified in or near the study area. Most of the sites are located in the Dowe Flats area north of Highway 66, which was not considered for any trail alignments. Because of the risk of potential vandalism, the Colorado Office of Archaeological and Historic Preservation only provides information related to the township, range and section where the site is located. Of the 21 sites, only one site is located within an area that was considered for trail alignments. That site is an open camp dating from between 1880 and 1920, consisting of a historic fence, and several historic artifacts identified during the inventory of the Lyons Site.

The Boulder County Comprehensive Plan identifies the St. Vrain corridor as a historic travel route, but does not identify the study area as an archaeologically sensitive area.

Recreational Facilities

The St. Vrain River corridor currently contains several recreational amenities that serve the surrounding communities. Implementation of the St. Vrain Trail through the study area provides an opportunity to better connect those amenities to each other and the surrounding communities.

Parks and Open Space

As mentioned above in the *Land Use and Ownership* section, the City of Longmont and Boulder County currently own a significant amount of land in the corridor for the purposes of open space preservation and/or recreational use. These amenities include the following sites:

Golden Ponds Park – Owned by the City of Longmont at the eastern end of the study area, this 137- acre open space parcel consists of three ponds surrounded by recreational trails and facilities. This park is currently the western terminus for the City of Longmont’s St. Vrain Greenway Trail. Facilities include parking, picnic tables, a fishing platform, two restrooms, and 1.4 miles of both paved and unpaved trails.

Pella Crossing – Located on the east side of 75th Street south of Hygiene Road, Pella Crossing is owned by Boulder County. This park is characterized by three large lakes. Park facilities include



Existing Town of Lyons trail.

parking, restrooms, picnic facilities, and 2.1 miles of soft surface crusher fines trails.

Marlatt Open Space – County-owned Marlatt Open Space is located on the west side of 75th Street, across from Pella Crossing. The County is in the process of completing a trail that will provide access to some of the lakes on this property.

McCall Lake – Owned and operated by the City of Longmont, this site is located along the south side of Highway 66 near 63rd Street. Facilities include a parking area and restrooms.

Town of Lyons Trail – At the west end of the St. Vrain corridor, the Town of Lyons trail system begins about ¼ mile west of U.S. 36, providing access to Bohn Park and downtown Lyons. The town has recently acquired additional right of way to extend the trail east to U.S. 36.

Bicycle Routes

Many of the roads in and around the study area are commonly used routes for bicycle enthusiasts. Highway 66 and U.S. 36 are both regional bicycle connections with paved shoulders (Boulder County 1999). Cyclists also commonly use Hygiene Road and 75th Street. The Boulder County Comprehensive Plan shows proposed shoulder expansions along 75th Street (Boulder County 1999). The existing St. Vrain Greenway Trail serves the City of Longmont east of Golden Ponds Park, and provides an important connection between the City and the study area.

Trail Recommendations

This section provides specific trail implementation recommendations for the St. Vrain Trail from Longmont to Lyons. These recommendations are based on analyses of trail opportunities and constraints, consultations with BCPOS staff, and public involvement. Trail recommendations are presented below by planning segment.

The recommended trail development plan, shown on Figure 5, outlines the recommended route and alternate routes for Boulder County and other stakeholders to pursue during the implementation process. It is important to note that the exact locations of trail routes described below and shown on Figure 5 are conceptual, and are based on conditions evaluated during the planning process. During the implementation phase of this project, BCPOS will work with other jurisdictions, landowners, public agencies, and other stakeholders to design and engineer the final trail alignment and cross section. As a result of this process, actual trail locations at the time of construction may vary slightly from those described below. Final design and alignment decisions will be made at the discretion of BCPOS staff in order to ensure a safe, high quality experience, to comply with appropriate permitting requirements, and to protect the significant resources of the St. Vrain corridor.

Nothing in this plan shall preclude the consideration of routes not shown at the time of adoption should new information and changing conditions including the willingness of property owners to sell land or grant easements make them practical. In addition, nothing in this plan shall preclude the reconsideration of routes shown herein if new information and changing conditions makes them more problematic.

The Boulder County Board of County Commissioners has requested that before any specific trail segment is built, it must first come back before the Board for approval.



Existing trail through Pella Crossing.

Planning Segments

All of the potential trail alignments that were considered during the planning process are described in detail in Appendix C and shown on Figure C1. Trail alignments are organized into five planning segments. These segments, from southeast to northwest, are:

- A. Golden Ponds Park to Airport Road
- B. Airport Road to 75th Street
- C. 75th Street to Crane Hollow Road
- D. Crane Hollow Road to 61st/63rd Street
- E. 61st/63rd Street to 51st Street
- F. 51st Street to U.S. 36

St. Vrain Trail Description

The recommended trail plan, from east to west, exits Golden Ponds Park to access an underpass at Airport Road. It then follows the west side of Airport Road north and then west to access Pella Crossing Open Space, or heads south along St. Vrain Road and then north towards Pella Crossing. (The final configuration between Airport Road and Pella Crossing will be determined based on ongoing landowner discussions.)

From Pella Crossing, the St. Vrain trail crosses under 75th Street to reach Marlatt Open Space. Following the northern edge of Marlatt, the trail exits to the north and then follows the south side of Hygiene Road for ¼ mile to Crane Hollow Road. After crossing Crane Hollow Road, the trail enters the Gage Open Space. Following the northern edge of the Gage property, the trail crosses over the St. Vrain River alongside Hygiene Road, and then crosses under Hygiene Road to the north.

After crossing Hygiene Road, the trail heads north toward the St. Vrain River and then turns west to access the Ramey Open Space Property. From Ramey, the trail crosses 61st Street to access Braly Open Space, following the southern edge of a pond toward the James Ditch.

The trail continues along the north edge of the James Ditch for about ½ mile until it reaches an existing bridge. From the bridge, the trail crosses through the active Lyons mining area to the northwest toward 51st Street. After crossing 51st Street, the trail follows the south side of the St. Vrain River, crossing under the CEMEX haul road, to 49th Street where it crosses over the river.

From the 49th Street bridge, the St. Vrain trail follows the railroad right-of-way along the south side of Highway 66 to reach the existing underpass at U.S. 36 and the Town of Lyons trail system.

Recommended Trail Length: 7.5 miles

Estimated Recommended Trail Cost: \$2,220,000

(Estimates are approximate and do not include easement acquisition costs. Final trail length and cost will vary depending decisions regarding alternate and conceptual trail routes and other factors.)

Definitions

Recommended Route:

Primary trail route that is recommended for implementation.

Alternate Route:

Secondary trail routes that should be considered if the recommended route is not feasible.

Amenities:

Constructed facilities such as parking, restrooms, and interpretive signage designed to enhance the trail user experience.

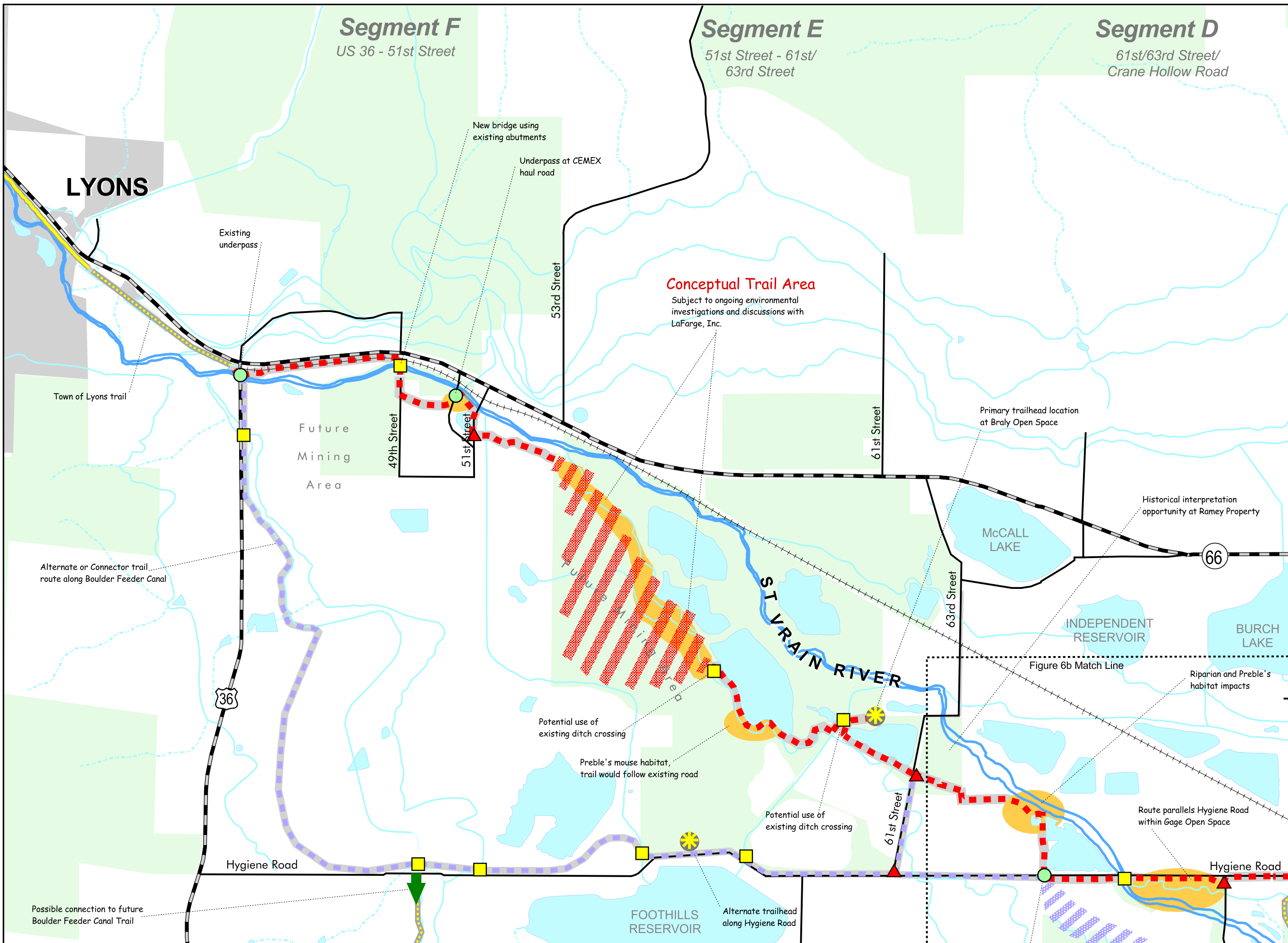
Infrastructure:

Engineering features such as road crossings, bridges, and underpasses that are designed to improve the safety and connectivity of the trail.

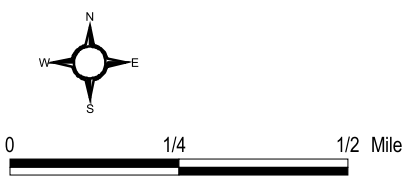
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St. Vrain Trail Master Plan

Figure 5a -- Northwest Master Plan



- St. Vrain Trail Plan**
- Recommended Route
 - Alternate Route
 - Conceptual Trail Area
- Other Trails**
- Existing Trail
 - Previously Proposed Trail
- Trailheads**
- Existing
 - Proposed
- Infrastructure**
- Underpass
 - Stream Crossing
 - Road Crossing
 - Connection to Other Trails
 - Environmental Impact Area
 - Open Space
 - Highway
 - Paved Road
 - Railroad



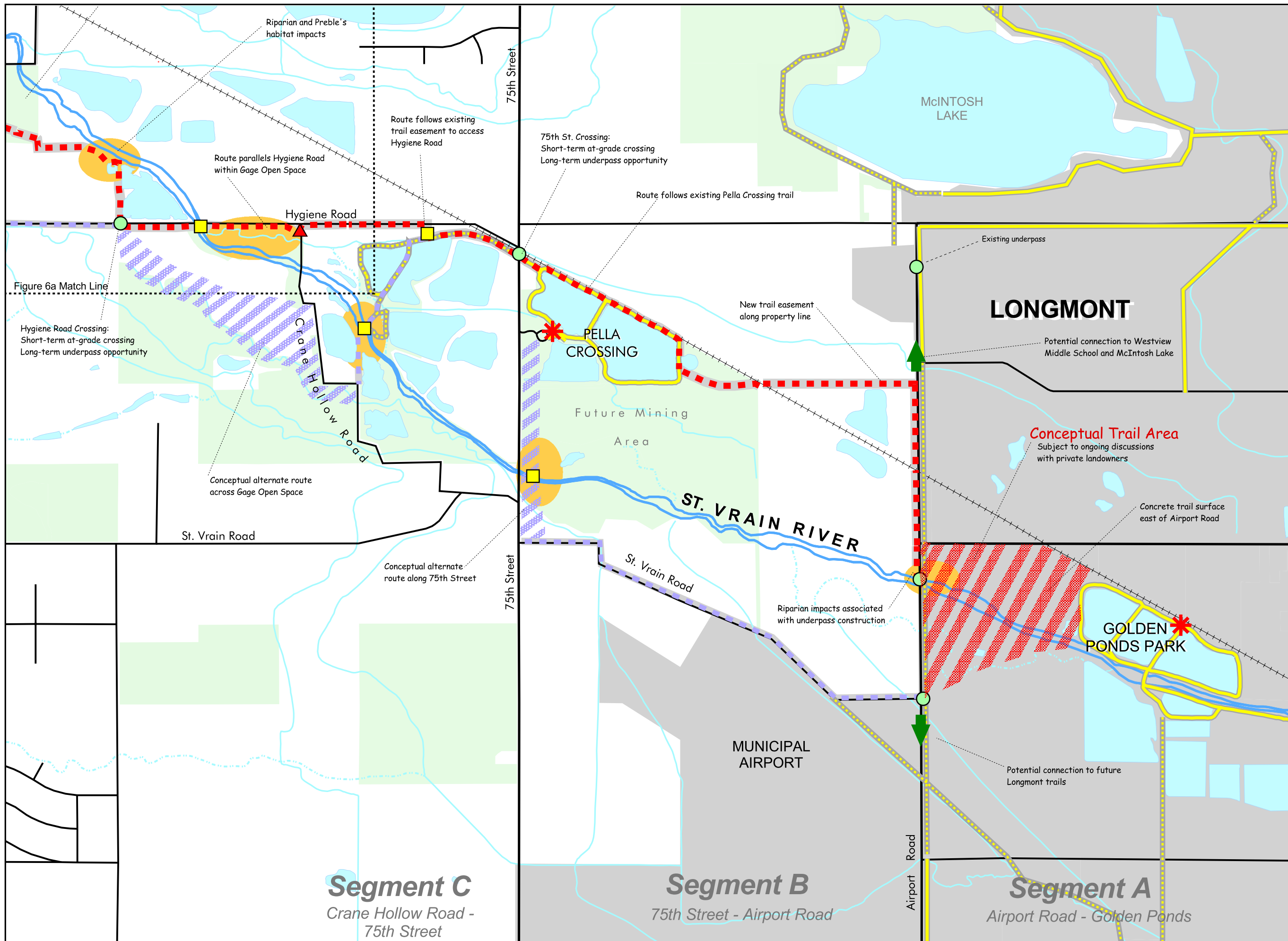
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Boulder County

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 Map produced: January 2004

St. Vrain Trail Master Plan

Figure 5b -- Southeast Master Plan



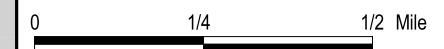
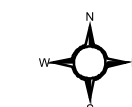
- St. Vrain Trail Plan**
- Recommended Route
 - Alternate Route
 - Conceptual Trail Area

- Other Trails**
- Existing Trail
 - Proposed Trail

- Trailheads**
- Existing
 - Proposed

- Infrastructure**
- Underpass
 - Stream Crossing
 - Road Crossing

- Connection to Other Trails
- Environmental Impact Area
- Open Space
- Highway
- Paved Road
- Railroad



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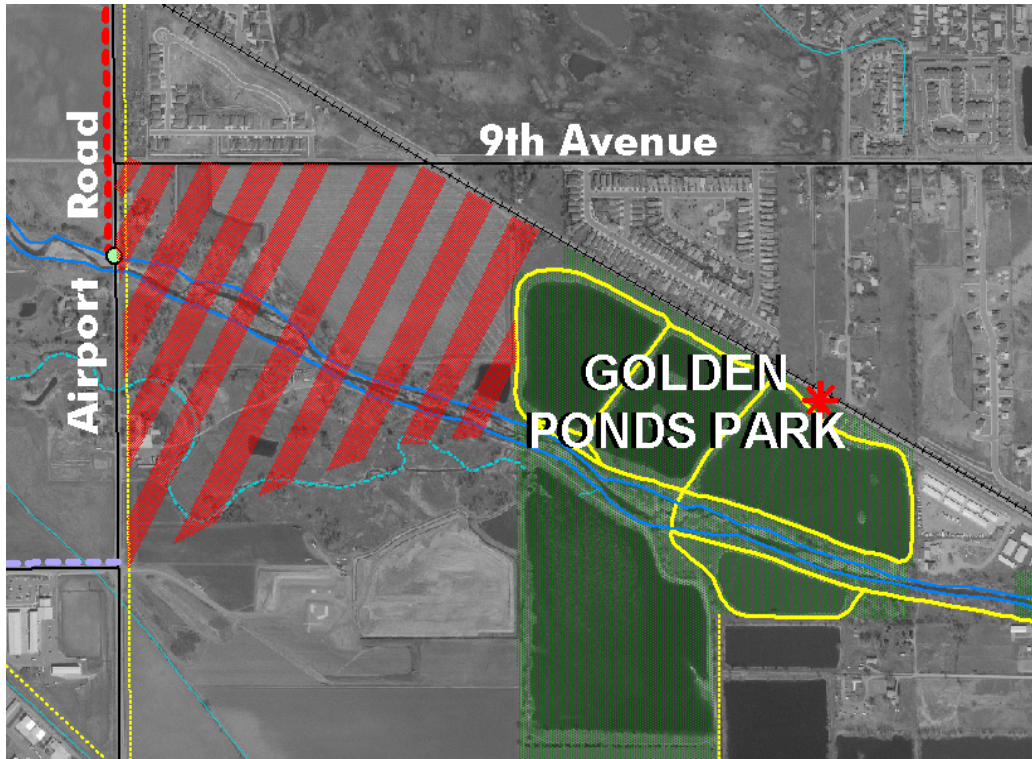


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Segment A: Golden Ponds Park to Airport Road

	Alignment	Length	Amenities	Infrastructure	Estimated Cost*
Conceptual Route	Uncertain	About 3000 ft (0.5 mi)	Signing	Underpass (Airport Road)	\$197,000

*Estimated costs are described in detail in the *Implementation* section.



Conceptual trail area in Segment A.

Conceptual Trail Area

Due to concerns expressed by landowners in this area, BCPOS and the City of Longmont will continue to investigate and pursue a variety of trail alignment options through Segment A. Some of these options include, from north to south:

- **9th Avenue (Alignment A-2)** – A trail that follows the south side of 9th Avenue between Golden Ponds Park and Airport Road. This option may entail a trail underpass at the 9th Avenue/Airport Road intersection.
- **Redmond Mining Site (Alignment A-4)** – This route follows the gradient between the riparian preservation area



Proposed underpass location at the Airport Road bridge.

and the future reclaimed mining land on the north side of the St. Vrain River. The trail would likely access a new underpass at the Airport Road bridge.

- **Riparian Easement (Alignment A-5)** – This route uses a County trail easement through the riparian corridor on the south side of the river. It may require a bridge to access an underpass at Airport Road.
- **Neighbors Mining Site (Alignment A-6)** – This route follows the south side of the riparian corridor across reclaimed mining land towards a new underpass at Airport Road and Alternate route B-4.

Through Segment A, the trail is recommended to have a hard surface to better accommodate urban trail uses and Longmont trail standards. Parallel, soft surface trails are recommended in order to accommodate runners and equestrians (see *Implementation* section).

Amenities

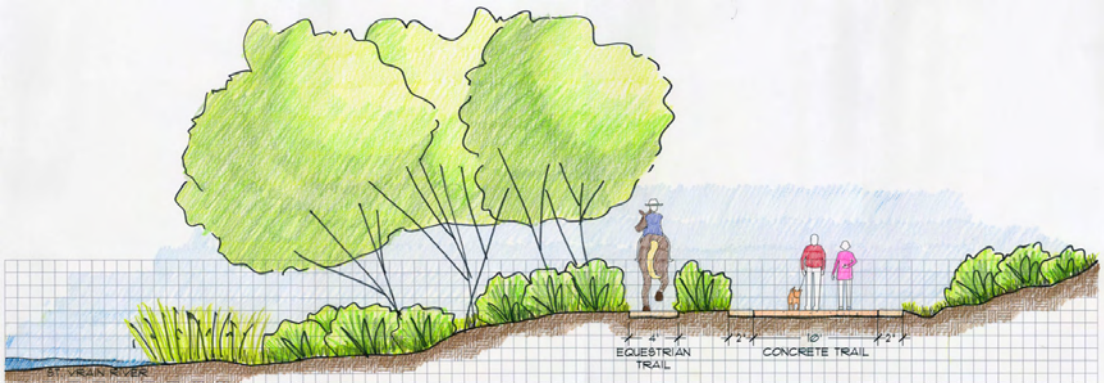
This segment would be served by the existing trailhead at Golden Ponds Park. Trail signage should be consistent with City of Longmont standards for the St. Vrain Greenway, and facility development should be consistent with the City of Longmont’s master plan for the greenway.

Infrastructure

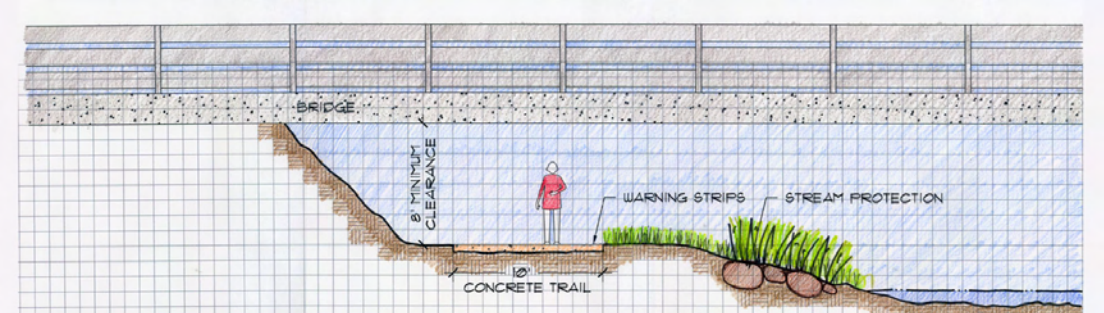
Underpass - The Airport Road bridge over the St. Vrain River is the desired location for a below-grade crossing of Airport Road (consisting of either a bridge underpass, as illustrated below, or a box culvert). The upcoming Airport Road expansion project provides an opportunity to incorporate a below-grade crossing. Depending on the final alignment option that is pursued, other underpass locations, including 9th Avenue and St. Vrain Road, may be possible.

Trail Connector

Airport Road – Trail routes in this area provide opportunities to connect to existing and planned trails along Airport Road to the north and south.



Longmont trail concept on the north side of the St. Vrain River west of Golden Ponds.

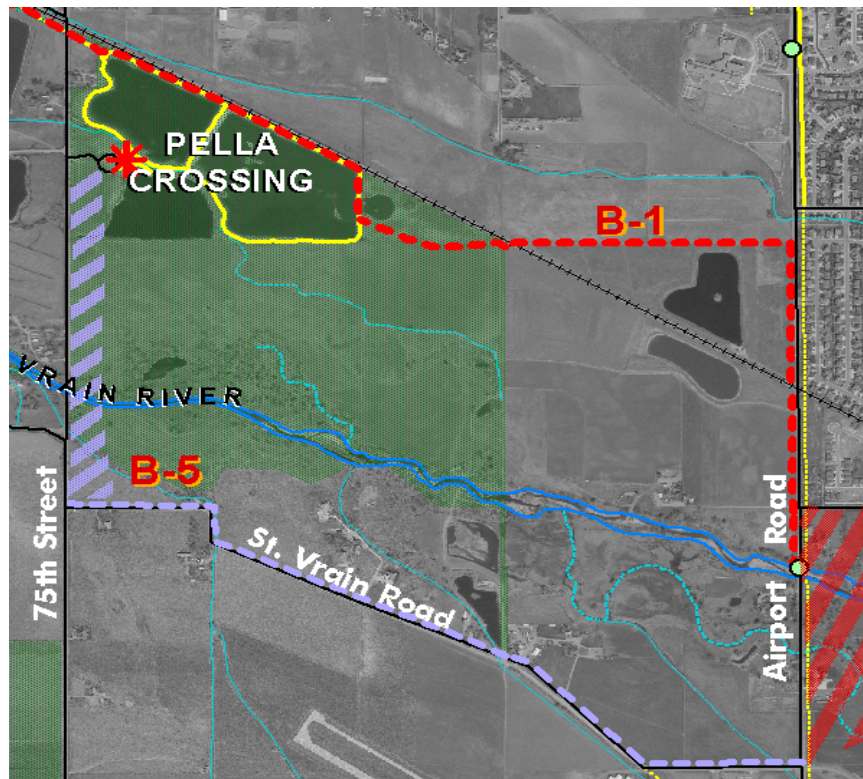


Bridge underpass concept at Airport Road.

Segment B: Airport Road to 75th Street

	Alignment	Length	Amenities	Infrastructure	Estimated Cost*
Recommended Route	B-1	10,461 ft. (2 miles)	Pella Crossing	Underpass (75 th St.)	\$457,000
Alternate Route	B-5	13,000 ft. (2.5 miles)	Pella Crossing	Underpass (75 th Street) Bridge over St. Vrain River	\$640,000

*Estimated costs are described in detail in the *Implementation* section.



Recommended trail alignments in Segment B.

Segment B includes privately owned land between Airport Road and Pella Crossing Open Space. The recommended route follows a northern route across private land toward Pella Crossing, while the alternate route follows a southern route along St. Vrain Road. Both routes would access Pella Crossing, where the trail would follow the existing trail west to 75th Street.

Recommended Route

Trail Alignment B-1 – From the proposed Airport Road underpass, this route follows a separate grade along the west side of Airport

Road north to a point about ¼ mile north of the railroad crossing. From there, the trail would head west along the private property line, crossing the railroad a second time to access Pella Crossing. This segment would require a trail easement.* The trail along Airport Road may include a paved trail that conforms to the City of Longmont’s standards, otherwise it would be a soft-surface trail.

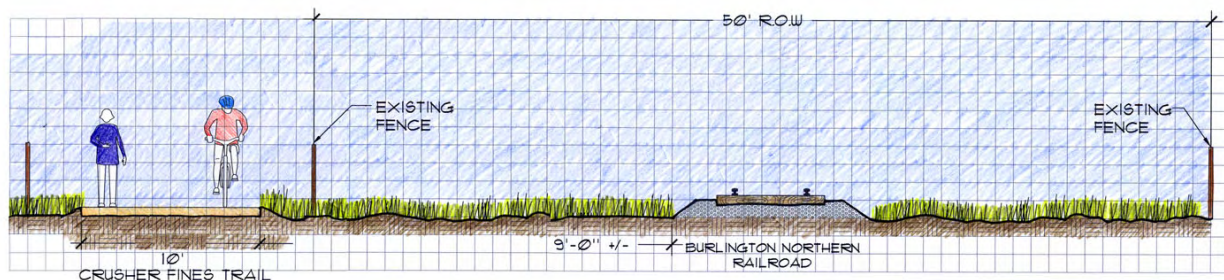
This route avoids crossing a functional agricultural operation, and can provide some connectivity to City of Longmont trails to the north. However, this route would require a railroad crossing along Airport Road and a second railroad crossing at a new location.

A similar, but more direct alignment, B-2, was considered during the planning process, but was eliminated because it would fragment an existing agricultural operation and could create an additional burden on the landowner, who has expressed concerns with the route.

Alternate Route

Trail Alignment B-5 – Accessed from the south side of the St. Vrain River through Segment A, this route would follow alongside St. Vrain Road to 75th Street. After crossing the river, this route would follow the eastern edge of 75th Street north to reach Pella Crossing. (A direct connection to Crane Hollow Road, bypassing Pella Crossing can also be considered, but is not recommended).

Advantages of this alternate route include potential access to BCPOS’s future maintenance facility along St. Vrain Road, and its partial use of County-owned right-of-way. However, the disadvantages of this route include the following:



Trail concept for alignment B-2.

* The additional costs of acquiring a trail easement are not included in the estimated trail cost.

-
- It provides a less direct route between Airport Road and Pella Crossing
 - It would be located entirely along roads
 - Trail use would impact several adjacent landowners along St. Vrain Road
 - A new underpass at St. Vrain Road would need to be fully excavated (instead of using an existing embankment or bridge)
 - The trail would require an additional bridge over the St. Vrain River
 - A trail may complicate future mining of the Fredstrom site
 - A trail on the Fredstrom property would violate the conditions of the gift agreement between Boulder County and the former landowner

Amenities

Pella Crossing – The existing facilities (parking, restrooms, interpretive signage) at Pella Crossing are well suited to serve both routes as a trailhead.

Infrastructure

Railroad Crossings – Alternate route B-I would require two at-grade railroad crossings. The first crossing would be along Airport Road, and would need to consider safety issues related to both the railroad and traffic on Airport Road. The second crossing would be a new railroad crossing, and would likely require new signals and/or gates. Both crossings would require close coordination with the BNSF Railroad. The additional expense of acquiring and constructing the railroad crossings are not included in the cost estimates.

Road Crossing – In the short term, an at-grade crossing is recommended for 75th Street. Further design is necessary to ensure a safe crossing. Traffic flow, signage, and other improvements would be designed individually during trail implementation. As both trail use and road volume increases in the future, an underpass should be considered (see below).

use and road volume increases in the future, an underpass should be considered (see below).

Underpass – In the long term, an underpass should be considered for the trail crossing at 75th Street. The Boulder County Transportation Department is planning to reconstruct 75th Street through this area in 2004. This construction may provide an opportunity for BCPOS and the County Transportation Department to collaborate on the design and funding of an underpass. An underpass at Airport Road is discussed under Segment A.

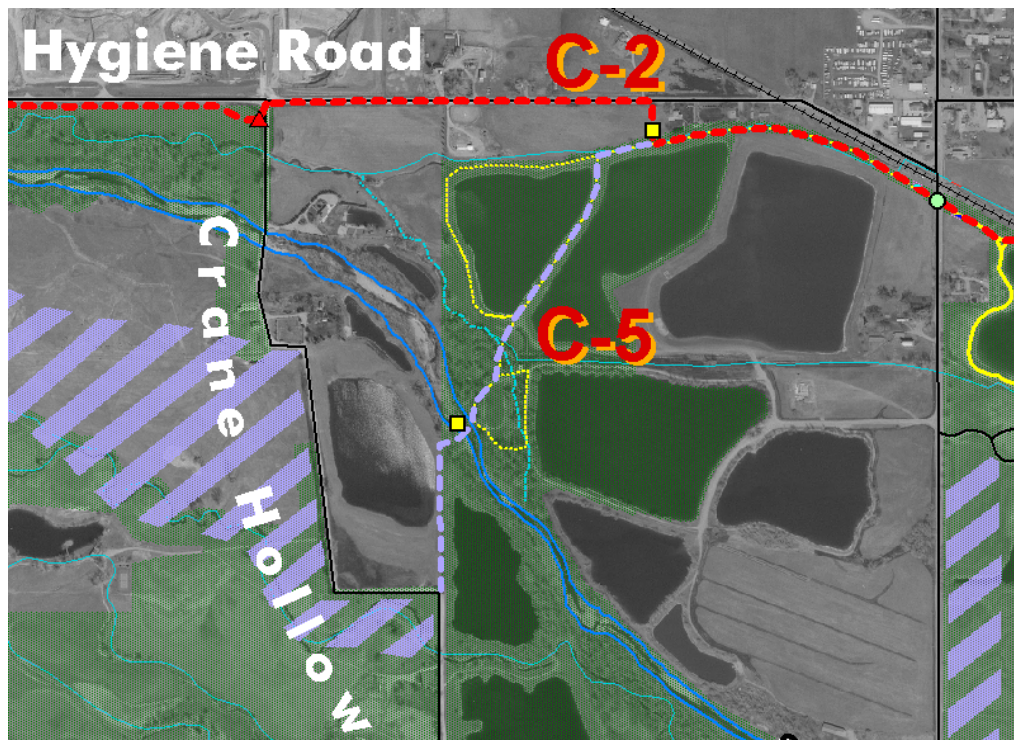
Trail Connector

Airport Road – Trail route B-I would provide an opportunity to connect to Westview Middle School and McIntosh Lake trails to the north.

Segment C: 75th Street to Crane Hollow Road

	Alignment	Length	Amenities	Infrastructure	Estimated Cost*
Recommended Route	C-2	3,870 ft. (0.7 mi.)	None	At-grade Crossing (Crane Hollow Road)	\$58,600
Alternate Route	C-5	4,470 ft. (0.8 mi.)	None	Bridge over St. Vrain River	\$163,000

* Estimated costs are described in detail in the *Implementation* section.



Recommended trail alignments in Segment C.

Recommended Trail Route

Trail Alignment C-2 – From Marlatt Open Space, this route would head north toward Hygiene Road along an existing trail easement. From the south side of Hygiene Road, it would then head west to reach Crane Hollow Road.

Advantages of this route are that it is direct and would use an existing trail easement. However, its drawbacks include its location along a busy road, the required acquisition of additional trail

easements from private landowners, and its affects on landowners next to the existing trail easement.

Alternate Trail Route

Trail Alignment C-5 – This route would follow the existing Marlatt Open Space trail to the St. Vrain River, where a new crossing would be constructed. After crossing the river, this route would follow the western edge of Marlatt Open Space south to Crane Hollow Road where it would connect to Alternate route D-8 (described below).

Amenities

No amenities are recommended in Segment C. The recommended route would be served by the existing facilities at Pella Crossing.

Infrastructure

Road Crossing – The recommended trail route would require a crossing of Crane Hollow Road. While Crane Hollow is a rural road with relatively little traffic, further design is necessary to ensure a safe crossing. Traffic flow, signage, and other improvements would be designed individually during trail implementation.

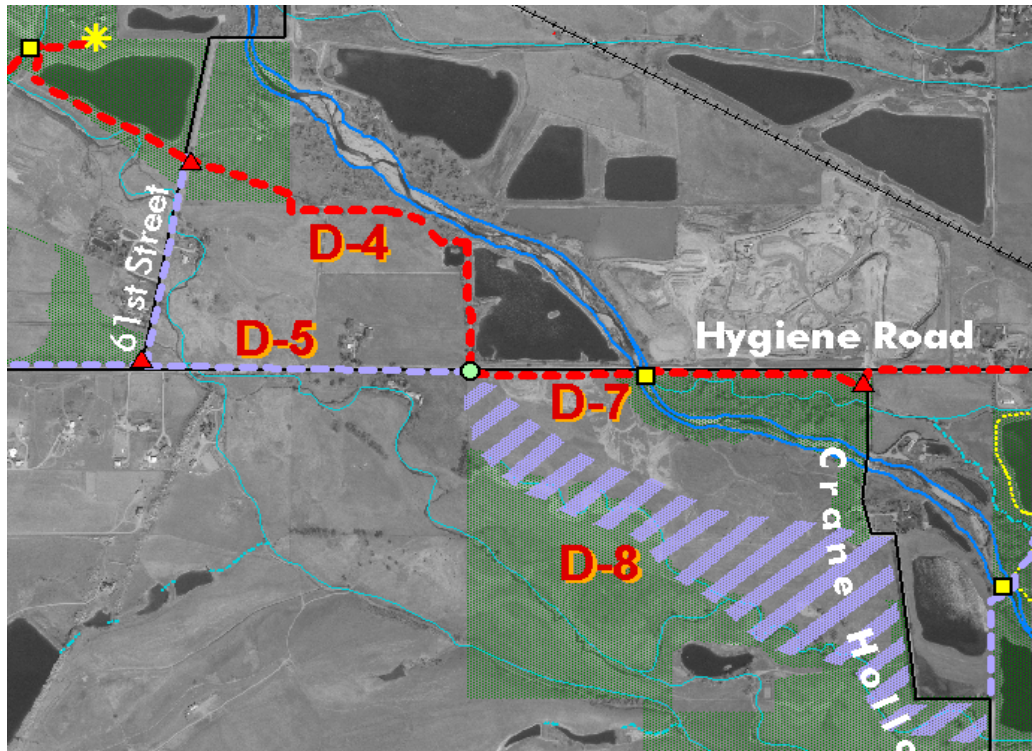
Ditch Crossing – The recommended route would require a small structure to cross the ditch that runs along the north side of Marlatt Open Space.

Bridge – The alternate route would require a new bridge over the St. Vrain River to access the western edge of Marlatt Open Space.

Segment D: Crane Hollow Road to 61st/63rd Street

	Alignment	Length	Amenities	Infrastructure	Estimated Cost*
Recommended Routes	D-7	3067 ft. (0.6 mi.)	None	Crossing of St. Vrain River Underpass (Hygiene Road)	\$425,000
	D-4	3398 ft. (0.6 mi.)	None	At-grade Crossing (61 st Street)	\$94,700
Alternate Routes	D-8	5,200 ft. (~1 mi.)	Signing	Underpass (Hygiene Road)	\$376,000
	D-5	4149 ft. (0.8 mi.)	Signing	At-grade Crossing (61 st Street)	\$201,300

*Estimated costs are described in detail in the *Implementation* section.



Recommended trail alignments in Segment D.

Recommended Trail Routes

Trail Alignment D-7 – This route would be a continuation from alignment C-2. From Crane Hollow Road, the trail would enter the northeast corner of Gage Open Space and head west parallel to the south side of Hygiene Road. The trail would cross the St. Vrain River adjacent to the Hygiene Road bridge, and continue west

through the County-owned Gage Gravel Area. From the northwestern corner of the Gage Gravel Area, the trail would cross Hygiene Road to the north to access recommended alignment D-4.

Trail Alignment D-4 – This route would be a continuation from recommended route D-7. From Hygiene Road, the trail would head north along an existing road toward the St. Vrain River. As it approaches the river, the trail would again head west to access the County-owned Ramey property and 61st Street. This segment is almost exclusively on privately owned land, and would require the acquisition of trail easements from property owners.

Alternate Trail Route

Trail Alignment D-8 – From the end of alternate route C-5 at Crane Hollow Road, this route would follow Crane Hollow Road west and north before crossing the Gage Open Space and gravel areas to the northwest towards Hygiene Road. The route across the Gage property is conceptual at this point, subject to further review by BOCC staff.

Trail Alignment D-5 – From the end of recommended Trail Alignment D-7, this alternate route follows the northern edge of the Hygiene Road right-of-way to the west toward 61st Street. Due to the narrow County-owned right-of-way along this section of Hygiene Road, this route would likely require the acquisition of an additional trail easement across private land.

From Hygiene Road, this route provides an alternate means of access to the recommended route west of Braly Open Space. From Hygiene Road, this route would follow 61st Street north as an on-road bike route. This may be feasible due to the low traffic on 61st Street, but should be designed and implemented as a short-term alternative in cooperation with the County Transportation Department.

Amenities

Ramey Property – The Ramey Property may provide an opportunity for historical and nature interpretation. This interpretation could utilize the historic structures on the property as well as the adjacent riparian corridor to educate visitors about the

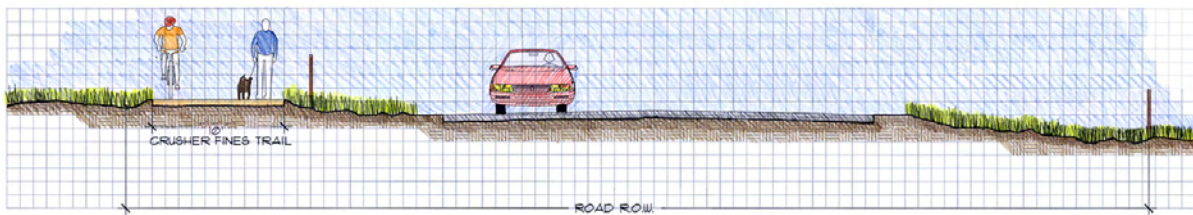
historic and natural heritage of the St. Vrain corridor. Interpretive use of this property would complement the Recommended Trail Route as well as the proposed trailhead at Braly Open Space (described below under *Segment E*).

Infrastructure

Road Crossing – An at-grade crossing of Hygiene Road is recommended for the short term, while an underpass should be considered in the long term. An additional at-grade crossing of 61st Street would require safety measures, as described below.

Underpass – As described above, a trail underpass at Hygiene Road should be considered in the long term.

Traffic Safety – The recommended trail route crosses 61st Street, while the alternate route follows the road for about ¼ mile. The low traffic volumes that are currently found on this road will require signage to ensure the safety of trail users. If future traffic volumes increase, formalized road crossings and/or a grade separated trail should be considered. In either case, traffic should be considered during final design to determine the appropriate level of improvements.

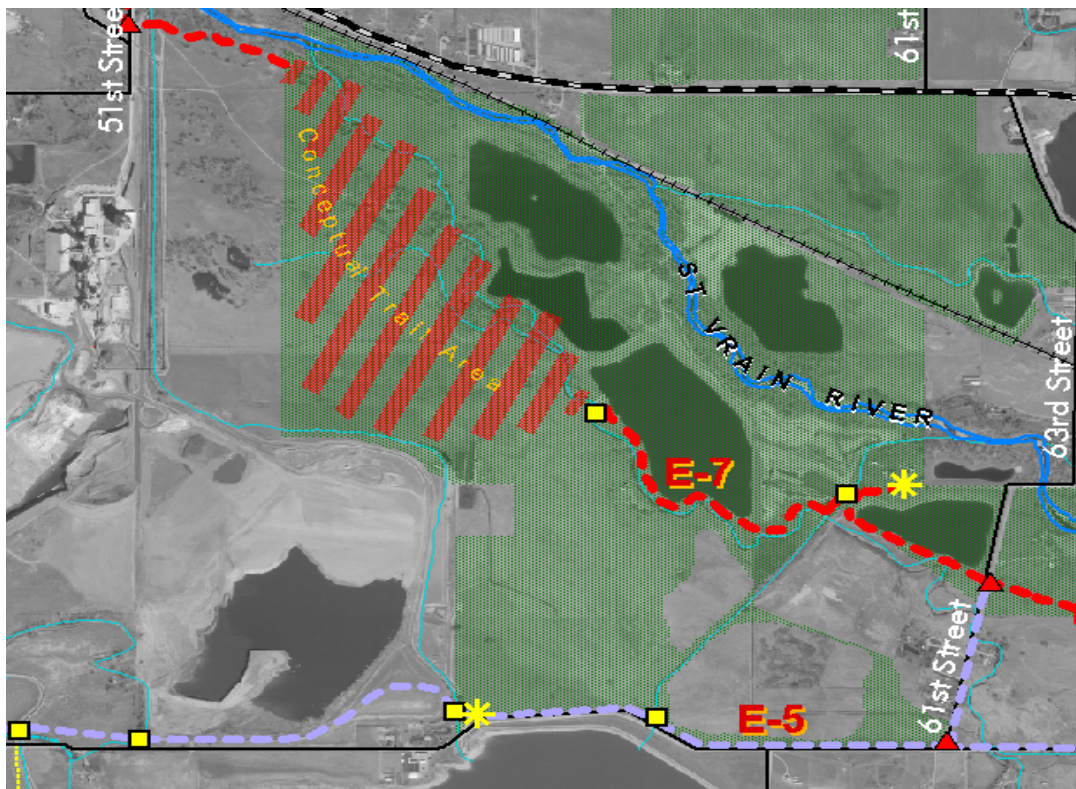


Trail concept along Hygiene Road.

Segment E: 61st/63rd Street to 51st Street

	Alignment	Length	Amenities	Infrastructure	Estimated Cost*
Recommended Route	E-7	Approx. 12,000 ft. (2.3 mi.)	Trailhead (Braly Open Space) Interpretive displays	- Bridge – James Ditch - Fencing - At-grade crossing (51 st Street)	\$630,000
Alternate Route	E-5	4260 ft. (0.8 mi.)	Trailhead (Foothills Reservoir)	Ditch crossing	\$404,500

*Estimated costs are described in detail in the *Implementation* section.



Recommended trail alignments in Segment E.

Recommended Trail Route

Trail Alignment E-7 – From 61st Street, the recommended trail route enters Braly Open Space to the south of the first pond, and then follows the north side of the James Ditch to an existing bridge/headgate structure. After crossing the bridge, the trail would

follow a conceptual trail route across the Lyons mining area to reach 51st Street to the northwest.

A final trail alignment through this area is subject to ongoing discussions with LaFarge, Inc., and consideration of sensitive environmental resources including Preble's habitat and mitigation areas, and raptor nesting areas.

Preliminary trail possibilities through this area include the following:

- Following a narrow corridor between the active mining areas and Preble's mitigation areas along the James Ditch
- A trail corridor that is designed into the mining reclamation areas further to the west of the James Ditch, avoiding sensitive habitat areas
- A combination of the above, with a short-term trail along the James Ditch that would be abandoned and revegetated in the long-term in favor of a trail across the mining reclamation area

Alternate Trail Routes

Trail Alignment E-5 – From 61st Street and Hygiene Road (the recommended route for Segment D), this route continues along the north side of Hygiene Road until it reaches an access road near Foothills Reservoir. This route is located within or adjacent to the County-owned right-of-way for Hygiene Road, and would include a trail that is separated from the road and shoulder. In places where the Hygiene Road right-of-way is too narrow for a separated trail, easements from adjacent landowners may be needed.

Amenities

Braly Open Space Trailhead – The existing farmstead and structures at Braly Open Space would make an ideal location for a trailhead and interpretive center serving the western portion of the study area. Amenities could include parking, restrooms, an interpretive center, and interpretive signage. This site could also support secondary walking trails and fishing access to the pond to the south. Interpretive themes could include corridor resources, information about nearby mining activities, and post-mining reclamation. Restoration and interpretation of the adjacent and historic Ramey Property could also complement the facilities and programs at this trailhead.



Existing bridge over the James Ditch (Alignment E-7).

Infrastructure

Bridges – The recommended trail route (E-7) would use the existing bridge and headgate structure to cross the James Ditch. While the bridge platform appears to be sufficient to accommodate a trail, the bridge would need to be retrofitted for trail use. Use of this bridge would need to be in cooperation with the ditch company, LaFarge, Inc., and other landowners/stakeholders.

Fencing – The concept of the recommended trail route is to remain open to trail users during ongoing mining operations. Such a trail would require fencing that would keep trail users away from the mining area and associated facilities. Fencing options include a



Trail concept through portions of Segment E.

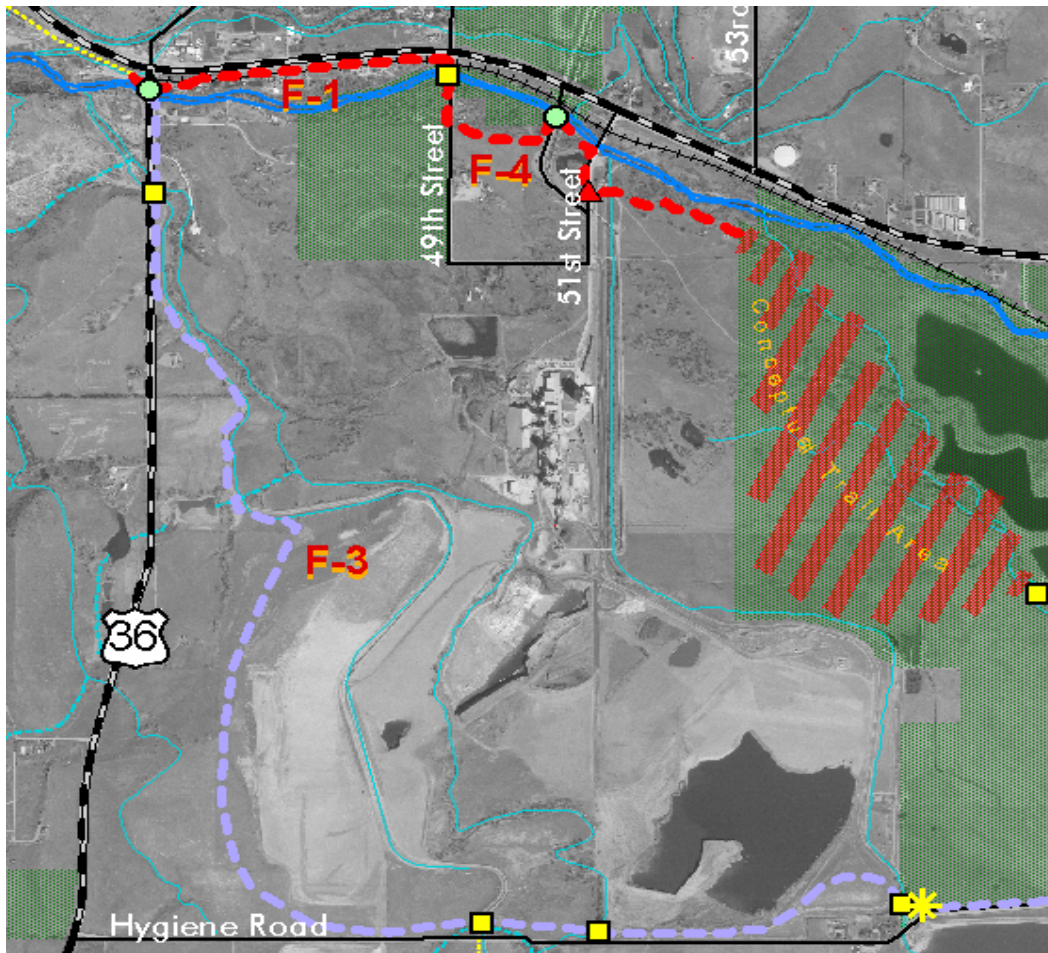
standard chain-link security fence, or an agricultural top rail fence (described in the *Implementation* section). While the top rail design is recommended, the choice of fencing would need to be coordinated with LaFarge, Inc.

Road Crossing – At the western end of this planning segment, the recommended trail route would cross 51st Street. This street is currently an access route for the CEMEX plant, though it is not the primary haul road. Depending on future traffic conditions, appropriate crossing design and signage and other safety measures will be needed to ensure a safe crossing. Traffic flow, signage, and other improvements would be designed individually during trail implementation.

Segment F: 51st Street to U.S. 36

	Alignment	Length	Amenities	Infrastructure	Estimated Cost*
Recommended Route	F-4	2,621 ft. (0.5 mi.)	Signing	New underpass (CEMEX haul road) New bridge at 49 th Street	\$297,000
	F-1	2,650 ft. (0.5 mi.)	Signing	None	
Alternate Route	F-3	14,809 ft. (2.8 mi.)	Signing	4 Ditch Crossings New St. Vrain crossing	\$1,073,000

*Estimated costs including trail, facilities are described in detail in the *Implementation* section.



Recommended trail alignments in Segment F.

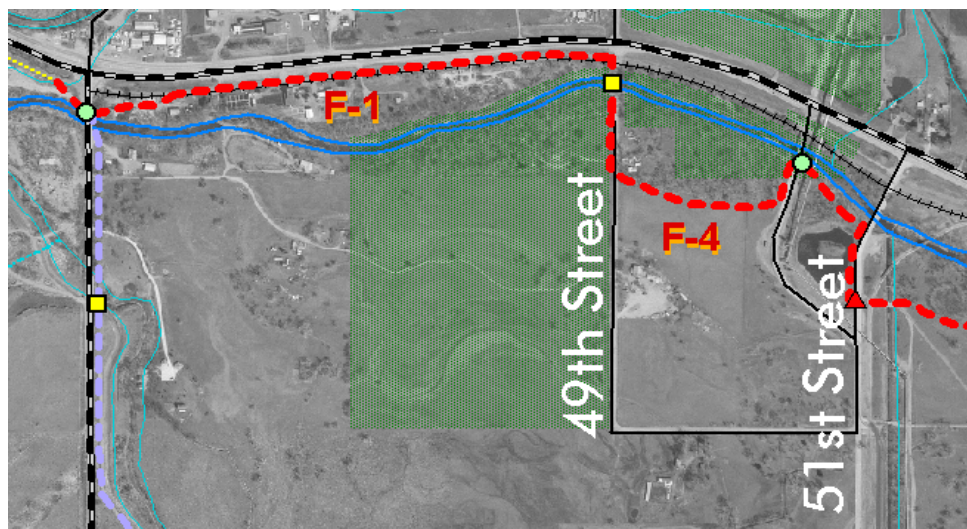
Recommended Trail Route

Trail Alignments F-4 and F-1 – From 51st Street, the recommended trail route would follow the southern edge of the St. Vrain riparian corridor and cross under the CEMEX haul road, through a newly constructed underpass. From the underpass, this route would exit the riparian corridor to the south before heading west to 49th Street. This route would avoid sensitive habitat, but may require coordination with LaFarge during mining operations.

Alternate Trail Route

Trail Alignment F-3 – From Hygiene Road near Foothills Reservoir (E-6), this route enters the CEMEX property to the north of Hygiene Road then parallels the north side of Hygiene Road to the west for about 1 mile. From there it heads north through the CEMEX property toward the Boulder Feeder Canal until it reaches U.S. 36. This route then follows the east side of U.S. 36 for about ¼ mile until it reaches an underpass at St. Vrain River.

Most of this route is located on CEMEX property and the Boulder Feeder Canal road, and will require close coordination with appropriate landowners and stakeholders. In addition, the portion along U.S. 36 would require close coordination with the Colorado Department of Transportation and adjacent landowners.



Close-up of recommended trail route in Segment F.

Amenities

Hygiene Road/Foothills Trailhead – If alternate trail Alignment F-3 were pursued, a trailhead facility could be located along Hygiene Road near the eastern end of Segment F. Trail amenities could include general and horse trailer parking, restrooms, and interpretive signage about the natural resources of the area as well as mining and reclamation plans for the Lyons Site. A trailhead at this location was originally proposed in Western Mobile’s 1996 Comprehensive Mining Plan. This trailhead is an alternative to the Braly Open Space location that is recommended in Segment E.

Infrastructure

Underpass – The recommended trail route would require a trail underpass at the CEMEX haul road. While preliminary investigations indicate that there is sufficient space to put a trail under the bridge, further engineering studies would need to be conducted.

Bridge – The recommended trail route would require an approximately 60-foot span between the former 49th Street road bridge abutments. Alternate route F-3 would also require a new approximately 100-foot span adjacent to the U.S. 36 bridge. A shared crossing of the St. Vrain River along the U.S. 36 shoulder is not recommended, due to traffic and safety issues.

Stream and Ditch Crossings – In addition to the St. Vrain River bridge described above, alternate route F-3 (from Hygiene Road) would require three short bridges to cross several ditches. It may be possible for some of these crossings to share a bridge with either Hygiene Road or U.S. 36.

Trail Connector

Boulder Feeder Canal Trail – Alternate Trail Alignment F-3 along Hygiene Road would intercept the northern portion of the proposed Boulder Feeder Canal trail. These trails would then share the connection to the north toward U.S. 36.

Implementation

This section provides guidelines for trail design, cost estimates for different trail types, environmental permitting guidance, and general guidance on project phasing. This section can be used as a reference during the final design and construction.

Trail Design

General Trail Characteristics

The trail character for the St. Vrain Trail from Longmont to Lyons will express the rural characteristics of its surrounding landscape of agricultural fields and open natural lands. The trail corridor will generally be narrow, limited primarily to the area required for the trail itself. The trail surface will be 10 feet wide in most places.

Most of the trail surface will be crusher fines pavement constructed over a compacted subgrade, and graded to provide a smooth trail experience. The easternmost portions of the trail (east of Airport Road), as well as underpasses and stream and ditch crossings, will be paved with a concrete surface.* This surface will be built over a compacted subgrade approximately 6 inches thick. Slopes will generally follow the natural gradient.

The multi-use trail will facilitate and encourage use by walkers, bicyclists, equestrians, runners, dog-walkers, and other appropriate passive, non-motorized uses. These uses will be subject to Boulder County's multi-use trail standards. Certain uses at certain times of the year may be restricted to protect sensitive environmental resources. Trail closures will be at the discretion of the Boulder County Parks and Open Space Department, under the guidance of a forthcoming management plan for the St. Vrain corridor.

Trail Types

The St. Vrain Trail from Longmont to Lyons consists of three basic trail types; the existing Longmont Urban Trail, the Longmont Rural Through Trail that conform to the City of Longmont trail standards,

*The paved trail section may also include the west side of Airport Road in Segment B. This will be determined at the discretion of BCPOS and City of Longmont staff.



Example of a road right-of-way (St. Vrain Road).



Example of an existing road in the Lyons mining area.

and the Boulder Rural Trail that meets Boulder County Open Space standards.

Longmont Urban Trail (Golden Ponds) – The St. Vrain Greenway trail within Golden Ponds Park will be a concrete trail that will meet the standards set in the St. Vrain Greenway East Corridor Update (Design Workshop 2001).

Longmont Rural Through Trail – The proposed St. Vrain Trail west of the Golden Ponds area to Airport Road will meet the standards set for the “Rural Through Trail” as described in Longmont’s St. Vrain Greenway East Corridor Update (Design Workshop 2001). This trail will be 8 feet wide with a concrete surface. An equestrian trail that will be separated from the rural trail by approximately 4 feet will be included and will be identified by trail markers that meet City of Longmont standards.

Boulder Rural Trail – The majority of the St. Vrain Trail will be located within Boulder County. The Boulder Rural Trail will consist of a 10-foot wide trail, and will be built of crushed gravel fines, approximately 6 inches thick, set over a landscape fabric. (The trail width may be reduced to an 8-foot width in some places to minimize environmental impacts or easement requirements.) The trail will meet standards set forth by Boulder County Open Space.

Trail Conditions

While the trail generally consists of three distinct trail types, the existing conditions in which the trail will be constructed vary. These variable conditions have been organized into six typical trail conditions. Each trail condition describes the typical ancillary features and construction requirements that will be necessary to build the trail.

Road Rights-of-Way – Some portions of the recommended and alternate routes are located along county roads such as Airport Road and Hygiene Road. The trail will follow the trail standards identified by the Boulder Rural Trail or the Longmont Rural Through Trail as described above. In addition to building the trail to conform to the trail cross section, the trail should be set as far from the roadway as is possible. To further improve safety, a grade

separation should be built. This may mean raising the elevation of the trail cross section. Further discussions with Boulder County Transportation Department are necessary to ensure that transportation issues are resolved and that safety measures are taken to provide a safe trail experience. In some cases where road rights-of-way are narrow, an easement or additional right-of-way may be required. Costs for easements or right-of-way acquisition is not included in cost estimates.

Existing Roads– Some of the recommended and alternate trail routes are located along existing dirt roads on County-owned and private lands. Generally, the trail will continue to follow the existing road alignment, the road will be narrowed, and the typical trail cross section as described under Boulder Rural Trail will be built. This will require re-grading, trail construction and re-vegetation.

New Trail – In some areas, the recommended trail route crosses land that is previously undisturbed by roads or other corridors. One example is the long segment of new trail that is recommended on the Gage Open Space and in the Lyons mining area. The trail cross section for these new trail areas, as described under Boulder Rural Trail, will require grading, trail construction and re-vegetation along the length of the trail. In some areas, trail easements may be needed. These easements are not included in trail cost estimates.

On-Road Trail Route – Private property concerns in Segment D may make the recommended trail route difficult to implement in the short-term. A proposed alternate route in this area would follow 61st Street for about ¼ mile between Hygiene Road and Braly Open Space. This dirt road appears to have little traffic. If this on-road trail route is needed in the short term, specific signage would be required to direct trail users, alert motorists about trail users on the road, as well as other safety considerations. Safety measures should be designed in cooperation with County transportation staff. This trail condition is not recommended, but could be used as a short-term solution if the recommended route is not feasible. As both trail and road use increase in the future, other routes or a separated grade trail within the road right-of-way should be considered.



Open pasture in Segment F – Example of where a new trail would be required.



Railroad corridor adjacent to Highway 66 (recommended route F-1).

Railroad Right-of-Way – The recommended trail routes and several alternate routes in Segment F follow portions of the BNSF railroad right-of-way. This portion of the rail line is active, but is used as a rail spur to store or maneuver rail cars. The westernmost portion of this rail spur does not appear to be actively used. Although this portion of the BNSF railroad corridor has been identified as part of the recommended trail route, discussions with BNSF have been limited. To begin to develop a trail along this rail line, further discussions with BNSF will need to be undertaken to understand the availability of unused track in this area, or opportunities to use portions of the right-of-way.

If a rails-*to*-trails or rails-*with*-trails agreement between Boulder County Open Space and BNSF is reached for Segment F, the St. Vrain Trail within the rails-*to*-trails corridor will follow the trail standards identified by the Boulder Rural Trail as described above. In the case of a rails-*with*-trails scenario, several safety measures also will be required, including separating the trail from the tracks through the use of a barrier such as a fence, vegetation, a berm, or a ditch.

Trail Amenities

Signage – A standardized system of signing should be developed to identify the St. Vrain Trail within Boulder County and to provide regulatory and other information. Within the City of Longmont, signing should conform to the standards identified in the St. Vrain Greenway Master Plan – East Corridor Update (Design Workshop 2001).

For the Boulder County trail segments, a “family of signs” should be developed for the St. Vrain Trail that complements the signing that is already in place further to the east in Longmont. The “family of signs” should be compatible with other Boulder County Open Space signs and should follow the standards set forth by the Manual on Uniform Traffic Control Devices (MUTCD) for trails and crossings. In addition, the system should include the Front Range Trail signage blaze.

At a minimum, the “family of signs” should include:

- Highway/road signs to direct users to the Greenway.
- Rules and regulations signs located at trailheads and access points to provide users with general information.
- Regulatory signs that conform to MUTCD standards.
- Trail Marker signs that identify facilities and provide details about particular locations.
- Interpretive signs to provide information about the area’s rich natural and cultural resources.



Existing underpass at US 36.

Trailheads – Access to the St. Vrain Trail is anticipated to be from adjacent streets and neighborhoods as well as from the connections along the trail at Lyons and at the City of Longmont. A number of trailheads have been identified for use in accessing the trail and are proposed for strategic locations along the trail corridor. The proposed trailhead locations include the existing Golden Ponds Park and Pella Crossing trailheads, and potential sites at Braly Open Space, and along Hygiene Road.

In general, trailheads should provide parking (including parking for horse trailers) and amenities that enhance the trail experience. At a minimum, trailheads should provide information on the trail route and the rules and regulations for trail use. Bicycle parking and trash receptacles should also be provided. Where possible, restroom facilities and water should be provided.

Trail Infrastructure

Road Underpass – Throughout the length of the St. Vrain Trail, there will be several instances where trail users will need to cross major roads. Underpass crossings are recommended in the following locations:

- Airport Road
- CEMEX Haul Road
- U.S. 36 (existing)
- 75th Street (long-term –new excavation)
- Hygiene Road (long-term – new excavation)

The elements of a road underpass include earthwork, a concrete trail, riprap or other types of stabilization if it is along a stream edge,

slope protection for the area uphill of the underpass, and an accessible route from the adjacent road to the underpass. The proposed long-term underpass structures at 75th Street and Hygiene Road would require excavation of a tunnel and approaches, while the others would utilize existing bridges.

At-Grade Road Crossings – The trail plan includes several planned or potential at-grade road crossings. These crossings range from major thoroughfares (75th Street) to minor access points (driveways). Prominent at-grade road crossings are recommended at the following locations:

- Crane Hollow Road
- 61st Street
- 51st Street
- 75th Street (short-term)
- Hygiene Road (short-term)

Each crossing will have to be designed and engineered individually, considering factors such as traffic flow, signage, and necessary safety improvements. These crossings need to be designed and constructed as part of the trail implementation to ensure appropriate traffic flows and user safety. (In the long term, an underpass should be considered at 75th Street and Hygiene Road.)

Bridges and Low Flow Crossings – About 10 crossings have been identified for the various trail alignments. Two types of crossings are anticipated; trail bridges over the St. Vrain River and pedestrian low flow crossings over the historic irrigation ditches. Lengths of bridge and low flow crossings will need to be determined during the design of each trail, and will vary depending on the engineering requirements for each location. It is anticipated that bridges over the St. Vrain River will need to convey 100-year stream flows. Low flow crossings may be constructed as small bridges or as pre-manufactured concrete box. Because the majority of the irrigation ditches are considered eligible for the National Register of Historic Places, proposed ditch crossings may require review by Boulder County’s Historic Preservation Advisory Board.

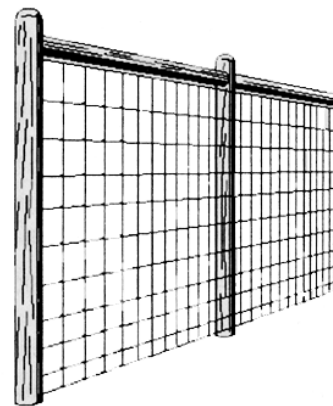
Fencing – Top rail fencing, consisting of pressure-treated wood posts and a rail along the top should be considered for use along the trail corridor where fencing is necessary for safety or security. Top

rail fences can be used with a wire mesh, high tensile wire, or bolted panels, and are recommended for use in Segment E where a security fence may be needed. (Top rail fencing provides a functional and attractive alternative to traditional chain-link security fencing.) Other types of fencing that is commonly used by BCPOS and the City of Longmont would also be appropriate, and should be determined prior to project implementation.

Estimated Construction Costs

Estimates of probable construction costs have been developed according to the recommended trail routes. The estimates are based on similar projects, including the City of Longmont's St. Vrain Greenway Master Plan East Corridor Update (Design Workshop 2001), and are calculated using 2003 dollars. These estimates are preliminary, based on reconnaissance-level study, and are only valid for budgeting purposes. Further construction cost estimates should be developed as each trail section is designed and engineered.

A summary of trail element costs is included in the following table. To calculate a probable construction cost for a trail segment, combine the probable cost for the *Trail Type* with the *Trail Condition*. For example, if the trail type is the Boulder Rural Trail and is located within a road right-of-way, combine the costs for both to develop an overall linear foot cost.



Top rail fencing should be considered in Segment E and throughout the trail corridor.

Trail Element Costs	
Trail Type	
City of Longmont's Urban Through Trail (Golden Ponds Park)	\$ 42 / LF
Rural Through Trail (includes equestrian trail)	\$ 27 / LF
Boulder's Rural Trail	\$ 22 / LF
Trail Condition (add to Trail Type)	
Road Right-of-Way	\$4 / LF
Existing Open Space Road	No additional cost
New Trail	\$4 / LF (earthwork)
Trail Easement	\$7.50 / LF
Railroad Right-of-Way	\$4 / LF (earthwork) + \$11 / LF if fencing is required

Trail Element Costs (continued)	
Amenities	
Highway/road signs	\$ 2,500 Each
Trail signage	\$500 Each
Interpretive signs	\$3,000 each
Kiosks	\$5,000 each
Trailheads	\$ 6.00 / SF
Restroom Buildings	\$75,000 Each
Infrastructure	
Road Underpass	\$ 45,000 each (existing bridge) \$200,000 (new excavation)
Bridges	\$ 900 / LF
Low Flow Crossings	\$600 / LF
Fencing	\$10 / LF
Restoration / Revegetation	\$2 / SF

Design and engineering costs, and land or easement acquisition costs have not been included in the cost estimates. An additional 10% should be added to the estimates for costs related to design, engineering, and project management.

Potential Environmental Impacts

The ERO team and BCPOS staff took special care to recommend trail options that minimize impacts to sensitive environmental resources within the St. Vrain River corridor. However, implementation of this plan likely will result in some localized impacts. Based on a preliminary review of the recommended route described above, potential environmental impacts are as follows.

The estimates of impacts are based on a general assessment of the study area, its resources, and the recommended trail plan. Trail design and implementation will require site-specific surveys to assess the presence or absence of sensitive environmental resources, and associated permitting.

Primary Environmental Impact Areas

Implementation of the recommended trail route will result in some localized environmental impacts. Some of these areas are apparent at this time, while others may not be known until actual construction

plans are considered. Some of the more prominent anticipated impact areas, as shown on Figure 5, are described below.

Airport Road Underpass – Construction of a trail underpass at Airport Road (Segment A) likely would result in direct impacts to a small area of wetlands and riparian vegetation along the north bank of St. Vrain River. These impacts are likely to be less than 1 acre in size. If the bridge is reconstructed as part of the Airport Road improvements, these impacts may be part of the overall road work.

Gage Open Space – Implementation of the recommended trail alignment D-7 would disturb portions of a hay meadow on Gage Open Space that may provide upland habitat for Preble's. While the meadow is periodically mowed for hay, it is within the Preble's Meadow Jumping Mouse Management Area and is close to confirmed mouse locations. This trail section would be subject to the conditions of the Boulder County HCP, and would likely require mitigation.

D-4 Trail Alignment – This recommended trail route between Hygiene Road and the Ramey Property may impact some riparian vegetation, small wetlands, or other habitat within the Preble's Meadow Jumping Mouse Management Area. When this alignment is pursued, these impacts should be minimized at the design stage, and would be subject to the conditions of the Boulder County HCP. Impacts to wetland, riparian, and/or Preble's habitat likely will require some form of mitigation.

Ramey Property – The implementation of a long-term trail connection or trailhead facility on the Ramey Property likely would require some habitat disturbance within the Preble's Meadow Jumping Mouse Management Area. While most of this site consists of non-native grasslands, site design will need to minimize new impacts to habitat and may require mitigation subject to the conditions of the Boulder County HCP.

Lyons Mining Area – The conceptual trail route through this area (alignment E-7), as well as a connection from the proposed James Ditch crossing, would include portions of the Preble's Meadow Jumping Mouse Management Area associated with the James Ditch.

The trail would be located at the outer edge of a habitat complex that includes the James Ditch, the St. Vrain River, ponds, and associated riparian areas, which may reduce the impacts (compared to other potential routes through the area). A final trail route that runs further west into the proposed mining areas would have reduced impacts. Disturbances from this trail route would have to be mitigated subject to the conditions of the Boulder County HCP as well as existing mitigation agreements between LaFarge and the U.S. Fish and Wildlife Service.

Other Potential Environmental Impacts

In addition to the impact areas described above, trail implementation may result in other localized impacts. The location and nature of these impacts will become apparent during the trail design and construction stages. Potential impacts include the following:

Roadside Wetlands – Trail construction within the rights-of-way for Airport Road (Segment B) and Hygiene Road (Segments D and E) may result in limited impacts to small, isolated wetlands associated with drainage ditches. Impacts along Airport Road likely would be attributed to road expansion.

Ditch Crossings – Some of the recommended, alternate, or connector trail routes will require new crossings of agricultural ditches. These crossings would likely impact small areas of wetlands and/or riparian vegetation, and may be subject to permitting and mitigation requirements under the Clean Water Act, as well as the conditions of the Boulder County HCP in ditches associated with Preble's habitat. Many ditches in the St. Vrain corridor are listed as field eligible for the National Register of Historic Places, and may require compliance with pertinent regulations.

Preble's Habitat – Some of the recommended trail routes are generally located within Preble's meadow jumping mouse habitat, as defined by the Boulder County HCP. While the HCP will account for existing roads and disturbances, any trails within these habitat areas will be subject to a review of potential impacts, the conditions outlined in the HCP, and possible mitigation.

Permitting Requirements

The development of new trails may require permits from regulatory agencies to protect sensitive environmental resources. Permitting requirements will need to be assessed during the final trail design and implementation. The following general guidelines may apply.

Wetlands – Most wetlands within the St. Vrain corridor are under the jurisdiction of the U.S. Army Corps of Engineers (Corps). Any activities requiring the placement of fill, or other disturbance of wetlands or open water may require Corps authorization, under Section 404 of the Clean Water Act. The Corps issues permits and authorization on a case-by-case basis following review of specific projects.

Preble's Meadow Jumping Mouse – Trail development within potential Preble's meadow jumping mouse habitat will require consultation with the U.S. Fish and Wildlife Service, in accordance with the Endangered Species Act. When the Boulder County HCP is completed, Boulder County will enforce the conditions stipulated in the HCP. Depending on the location and nature of the disturbance, trail construction may be exempt from HCP requirements, may require mitigation of habitat, or may be restricted due to habitat concerns.

Migratory Birds – Prior to removing any trees associated with the construction of trails or associated facilities, it will be necessary to conduct migratory bird surveys pursuant to the Migratory Bird Treaty Act. Surveys generally entail a visual inspection of trees for active or inactive migratory bird nest sites. Subsequent removal of trees with nests requires a nest depredation permit from the U.S. Fish and Wildlife Service. Removal of active nests is typically not permitted.

Cultural Resources – Cultural resources are protected under the Boulder County Land Use Code, and the Historic Preservation Advisory Board is the referral agency for all land use proposals where a possible impact to a historic or archaeological site has been identified. Trail development plans that would change, modify, or are located on or near cultural resources should be reviewed by the Boulder County Historic Preservation Advisory Board. This will

include crossings of historic irrigation ditches as well as potential modifications to historic farm sites.

Project Phasing

The St. Vrain corridor through the study area presents a mosaic of land uses, landowners, and environmental conditions. These are some of the very factors that make it a special place. However, they also present considerable obstacles to the implementation of a continuous trail system that provides a high quality recreation experience and is sensitive to environmental considerations. Some of these constraints include:

- Current and future mining activities
- Landownership and use
- Potential road and highway improvements

Realizing these constraints, the following phasing schedule will provide guidelines for implementing the recommended trail plan.

I to 5 Years

I. Work with the City of Longmont, private landowners and other stakeholders to define and implement a trail through Segments A and B between Golden Ponds Park and Pella Crossing.

- ❑ Develop an agreed upon trail route between Golden Ponds and Airport Road and begin design and construction.
- ❑ Construct a trail underpass at the Airport Road bridge or other relevant location.
- ❑ Incorporate an adjacent trail into plans for the Airport Road expansion.
- ❑ Acquire appropriate trail easements or agreements between Airport Road and Pella Crossing.
- ❑ Begin acquiring and/or moving trail easements between Marlatt Open Space and Crane Hollow Road.
- ❑ Begin design of a bridge or shared crossing over the St. Vrain River at Hygiene Road (Gage Open Space).
- ❑ Initiate discussions with landowners in Segment D regarding trail routes, easements, and plan implementation.

5-YEAR GOAL: Construct and complete trail between Golden Ponds and Marlatt Open Space.

2. Work with Town of Lyons, Lafarge, Inc., CEMEX, BNSF, and other private landowners to begin implementing trail recommendations for Segments E and F between the Town of Lyons and Braly Open Space.

- ❑ Continue discussions with LaFarge to agree upon a trail route through the Lyons mining area that can be implemented during ongoing mining activities.
- ❑ Identify environmental consequences and mitigation requirements associated with a trail route through the Lyons mining area.
- ❑ Initiate discussions with BNSF and CEMEX to identify rails-to-trails or rails-with-trails options for Segment F.
- ❑ Work with Town of Lyons to facilitate the connection of town trails to the U.S. 36 underpass.
- ❑ Identify funding for plan implementation through Segments E and F.

5-YEAR GOAL: Obtain the appropriate agreements, relationships, and funding to begin construction of the recommended trail route through Segments E and F.

3 to 10 Years

1. Implement trail recommendations through Segments E and F between Braly Open Space and the Town of Lyons.

- ❑ Continue to work with LaFarge, CEMEX, and other landowners to begin trail construction.
- ❑ Begin plans for a regional trailhead, recreation, and interpretive facility at the Braly Open Space location.

10-YEAR GOAL: Construct and complete trail between Braly Open Space and the Town of Lyons.

2. Work with landowners to implement trail recommendations through Segments C and D between Marlatt Open Space and Braly Open Space.

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- ❑ Acquire and/or move trail easements between Marlatt Open Space and Crane Hollow Road.
 - ❑ Construct trail and bridge on Gage Open Space.
 - ❑ Acquire trail easements between Hygiene Road and the Ramey property.
 - ❑ If necessary, implement signage needs for a short-term on-road trail route along 61st Street.
 - ❑ Identify funding for plan implementation through Segments C and D.

10-YEAR GOAL: Obtain the appropriate agreements, relationships, and funding to begin construction of the recommended trail route through Segments C and D.

10 to 15 Years

Complete implementation of the recommended trail route, and begin plans to enhance trail facilities, secondary trails, and connections.

- ❑ Complete trail through segments C and D between Marlatt Open Space and Braly Open Space.
- ❑ Construct trailhead, recreation, and interpretive facilities at the Braly Open Space location.
- ❑ Begin plans for secondary loop trails associated with the St. Vrain Trail.
- ❑ Establish trail connections to the Boulder Feeder Canal trail, Rabbit Mountain Open Space, and other trail systems.

15-YEAR GOAL: Complete implementation of the St. Vrain Trail Master Plan and focus efforts on recreational and environmental enhancement along the St. Vrain corridor.

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Appendix A

Public Meeting Notes

Public Meeting #1 - Westview Middle School, March 25, 2003

Results of Q&A Session

- *How much funding does the County have allocated for the project?*
Nothing currently. \$30,000 budgeted for 2005.
- *How much was the GOCO grant and what percent was for the trail?*
GOCO Legacy grant was \$3.275 million, with only \$25,000 allotted for trail planning.
- *Who will manage and maintain the trail?*
BCPOS will be the main management agency, while Lyons and Longmont will manage sections at either end of the corridor.
- *What is the cost of trail construction?*
BCPOS does not have any figures at this point in time. Still in initial planning stages.
- *Will dogs be allowed since there will be equestrians?*
Regulations will likely mirror those in other BCPOS parks = dogs on leash. There could be potential for certain areas to be closed to dogs due to wildlife/habitat concerns.
- *How is BCPOS going to gather information from residents about issues such as migration corridors and trailer parking issues?*
BCPOS conducted meetings with affected landowners and is utilizing consultants to gather and analyze resource data. Specific comments are welcomed. There will also be additional opportunities for public input.
- *How often do trains run on the proposed rail corridor?*
Currently, only a few per day, but traffic will be increasing as mining activity increases over time. Mining is scheduled to be completed in 25-30 years. Separation (fencing, grade change, distance) between the trail and rail line is necessary for safety.
- *Why have certain trail segments already been removed from consideration without public input, and what was the process for this action?*
Staff and consultants used environmental considerations, landowner concerns, and overall feasibility as the basis for removal. BCPOS invites comments on these routes to help further explore their feasibility.

- *What % of proposed trail alignments are on existing roads and road R-O-Ws?*

BCPOS doesn't have specific numbers. Road R-O-W alignments were kept as short-term options in case other alignments are not feasible or cannot be implemented until the long-term.

- *What about places for parking?*

BCPOS will utilize existing lots and explore need for other trailheads and parking areas.

(Responding comment) - BCPOS should involve adjacent landowners and area residents in determining these trailhead and parking locations.

General Comments

(grouped by category)

Wildlife Habitat

- Consider migratory birds.
- Construct trailheads in already disturbed/mined areas, such as the Braly property.
- Really appreciate the care BCPOS seems to be taking to plan this trail. Preserving natural habitats and safe areas for wildlife (who were here first) is of utmost importance- even before our desire to enjoy the natural wilderness and beauty. Thanks for your hard work and care.
- BCPOS' comment about eagles and wildlife...a bald eagle took one of my chickens a month ago.
- A coyote took three the week before that. Our property is a raccoon crossing (onto Marlatt Open Space) and a fox birthing area.

Private Property Concerns

- Do not want a short or long-term trail marked on the map through my property.
- As a landowner on (until tonight) a proposed (now existing) trail within 25 feet of my kitchen door, I feel sold out by the County and the City of Longmont. Hygiene has revisited incorporation by Longmont for more than half a century. This process seems a "sour grapes" method of destroying a beautiful AGRICULTURAL area.
- We will no longer have privacy in our back yard. The one part of the proposed trail will be about 12 feet from our kitchen window. What about weed control and trash?
- Wow, these guys are really negative [*Referring to other comments*]. I guess you can scratch them- their reasoning seems to be pretty self-centered.

Trail Surface and Design

- Need a few trailheads.
- Prefer soft surface, especially to accommodate equestrian use.
- Expand trailhead near Pella Crossing. Also consider Marlatt for a trailhead.
- Consider an additional trailhead near 61st Street (look both at existing County property and additional acquisition).
- Opposed to rails-with-trails. Rails-to-trails is best option and should be pursued.
- Trailer parking should be identified in a trailhead plan.
- Soft surface trail is preferred. If a hard surface is selected, then a parallel soft surface trail should be added.
- Prefer a trail surface of crusher fines.
- What is the purpose of the trail? Is it for recreation (hiking, bicycling, equestrian) or commuters (bicycling, etc.). If the trail is multi-use, how do we provide the most appropriate trail surface for these varying uses? Horses need semi loose soil and also leave manure as they walk. They also spook easily by bicycles. The bicycle needs a much firmer surface and definitely not the manure. The walker moves the slowest and surface depends on the type of walker or even hard pavement for wheelchairs. One trail cannot provide for all of these uses, so which use gets priority. Or do we have three trails in the same R-O-W?
- Flooding could be a problem with Route A, especially with a soft surface trail.

Trail User Experience

- Prefer the trail be “off the beaten path”.
- Trails should be kept away from roads as much as possible to maximize visitor experience. However, to complete the project quickly, road R-O-Ws are acceptable as short-term solutions.
- Prefer the trail to be located away from roads as much as possible. Humans are weary of the sight and sound of auto traffic. We cannot fully experience the natural environment, that hopefully the trail is being developed for, when close to roads. To be able to hear birds, frogs, and the wind, and smell the countryside should be a large part of the goal of this trail.
- Is it possible to construct a fence or natural barrier (shrubs) between the trail and roadway to provide protection for trail users from automobile noise and possible auto accidents (especially near Hwy. 66 where cars travel at a high rate of speed).

Trail Alignment Selection

- Prefer an off-road trail route, not Route B.
- Prefer the route already removed from consideration.
- Because of impacts on the riparian habitat west of Crane Hollow Road, I prefer Route B or the alternate routes over Route A.
- Should pursue a north trail connection (Rabbit Mountain?) and also to Lyons trail.
- Completion of the section between Golden Ponds and Pella Crossing should be the priority.
- The emphasis should be on developing one main, quality trail, but consider having alternate routes and loops as well.

Other

- Any plans for mosquito abatement?
- Utilize multiple sources of funding: County capital fund, GOCO, State Trails Fund, other grants.

Public Meeting # 2 – Longmont City Hall, August 11, 2003

Results of Q&A Session

- *Are parking and trailhead facilities included in the plan?*
Yes, conceptually. We're planning to also tie into existing opportunities.
- *How do we plan to implement a trail along Hygiene Road?*
The concept is to provide a separated trail, may need easements to do so.
- *What kind of surface is planned?*
Paved to Airport Road, then soft surface. This could change as implementation planning progresses. This plan indicates a vision for the trail.
- *How do we plan on keeping people off private property adjacent to the trail corridor?*
We can't enforce trespassing on private lands. As the trail is developed, the county and other agencies will actively manage the area with signs, fencing, and enforcement.
- *Will the county take liability responsibility for problems that occur on adjacent private lands?*
This is a legal question. Don't believe the county can take responsibility for happenings not on county land. (Dan Wolford explained one on one to the person that there are state statutes that limit liability to private landowners who grant public easements, etc.)

Written Comments

- How about Pickering Property. I understand they want to sell, trail would run right into Pella.
- Concern – If southern route – Keep off private property – How?
- I believe that the proposed trails should not be alongside existing roads as much as possible to allow the public to temporarily avoid the noise and sights that we constantly experience as city dwellers. Please strive for a long-term quality nature experience in designing the trail.
- St. Vrain is an important wildlife corridor – please keep trail as far away as possible in most areas. Also many species will not cross pavement or gravel roads. I believe dirt trails as in existing farm roads should be left in place if possible to avoid fragmentation of habitat.

Longmont Parks and Recreation Advisory Board Comments

- *Have there been discussions with the RR about using the ROW?*
Some initial discussions, but nothing formal. Also considering easements adjacent to ROW.
- *Is the reconfiguration of Airport Road mainly widening?*
Yes, mostly, plus bridge work. The area is 17th to Nelson. The project is considered an interim plan meeting immediate needs, it's not the full build-out. Bike path on east side.
- *I see two issues. The environmental considerations and user experience considerations seem to conflict. Leaning toward the concept further away from the riparian area to protect, likes that the trail plan does that. It's a tricky balancing act.*

Public Comment to Parks and Recreation Advisory Board

- *Ownership at 9th and Airport. Preferred route north along mining site, then along RR to Airport Road. Have offered an easement in triangle north of ninth. Need to incorporate bike trail east of Airport Road into plan.*
- *Areas are often enhanced by the existence of a trail. Don't always move the trail away from streams, that's the reason people want to be there. Trails along roads aren't safe. Want to enjoy nature. Will there be a connection to SW Longmont residential areas?*
Yes.
- *Would like to see spurs to see the River rather than a trail along the River. This wouldn't put up a barrier to wildlife. Keep the amenities and development of the trail more rural, preference for gravel.*
- *Airport Road's going to be five lanes. If the trail is put on the west side, we'd be crossing 5 lanes.*

- *Farmhouse on 9th and Airport. White tail deer seen in field just south of his property. Will be gone if trail is put in. Already have trespassing concerns. Has spoken with BCPOS staff and made an offer for an easement south along the RR.*
 - *Use more natural areas and try to keep off road so people can enjoy the natural areas.*
-

Public Meeting # 3 – Lyons City Hall, September 8, 2003

Results of Q&A Session

- *The plan looks to be highly influenced by users. Who are our intended users?*
Bikes, equestrians, hikers, non-motorized, etc. We're proposing a soft surface trail except in Longmont's section east of Airport Road. Could eventually be a link in the Colorado Front Range Trail, but currently we're planning for local use.
- *Equestrians may need additional parking needs. How much of the trail is open to equestrians?*
All. Staff was not informed about Lyons city trails, but they later stated that their corridor trail is multi-use and open to equestrians, however some of their paved city park trails are not.
- *What are the species in the sensitive areas?*
Preble's, eagle nests, other nesting raptors, red tail hawks.
- *Are there any evident endangered plant species we're trying to avoid?*
Watching out for Ute Ladies' Tresses, but haven't located any. A more detailed survey will be pursued after adoption of the plan.
- *If we negotiate easements, how many feet are needed for a trail?*
Minimum 20 feet, but it's very site specific.
- *Does the County have condemnation powers?*
Yes, but we don't plan to pursue that route.
- *Can funds from the legacy grant be used for easement acquisition?*
Don't believe there are funds remaining for that. Much of it was used for land acquisition along the corridor. Total grant was approximately 3.7 million. There may be a possibility for future grant funding to be applied to the project.
- *What in the plan for the mining phases?*
In general the mining will move West to East through the Lafarge / Cemex area. 1st phase timed for completion in 2013, the rest out to 2036, then possibly a few years for reclamation.

- *How many acres is the Lafarge mining site?*
Guessing, approximately 400 acres.
- *Is the entire mining area reverting to open space?*
Parts of it are, but not all. Large parts are privately owned by Cemex.
- *Are there parts that can happen sooner than later?*
Ramey and Braly may be pursued as independent site plans.
- *Are there negotiations happening with Cemex for the trail west of the ridge, so it's not 30 years out?*
We have had preliminary discussions, but not solid land negotiations. This alignment is intended to be more short term.
- *Is Hygiene Road going to be improved for a trail?*
Yes. We'd likely need to work with landowners for easements.
- *When will the maps start changing?*
When we begin the final review process. 1st step will be Longmont's planning area in October, then POSAC possibly at the end of October. Maps haven't changed since the draft plan was put out in March.

Other Comments

- There was an effort to put a trail along St. Vrain Road when it was paved. Approximately ¼ mile was installed, but beyond that landowners were unwilling to negotiate easements.
- The process could be moved along quicker if the County actually talked to landowners and listened to them.
- Would support a trail that goes part-way. Doesn't have to go all the way from Lyons to Longmont to be worthwhile.
- Not supportive of a trail adjacent to the road even with grade separation. When asked by another member of the public she recommended 100 to 200 yards of separation is what she feels is necessary between horses on trail and busy roads with truck traffic.

Written Comments

- Please make this trail open to equestrians. Please let horses and riders enjoy this connection between the two towns.

- I am pleased to find out that there has been a reconsideration of putting the trail along Hygiene Road. I feel that there are too many safety concerns (noise esp.) and quality of experience issues along the Hygiene Road corridor to make it worth the time and effort to implement this trail.
- Subject to valid environmental constraints, try to have the trail follow the St. Vrain River to the greatest extent possible.
- A trail along Hygiene Road would affect the 100 plus years of privacy the Bashers have had in that same location.
- Beautiful Maps.
- Concerns along Hygiene Road.
- Would like safe distance from roads for riders.

Lyons Pathway Commission Meeting Comments

- *Will we pursue implementing portions of the trail?*
Site dependent. Have to beware of promoting trespassing by building a trail up to private land.
- *Have we created a hierarchical rating for implementation?*
Not at this time. We'll need to look into that further.
- *When would be a good time for Lyons to schedule construction of their portion west of 36?*
Don't know timing on implementation yet.
- *Why can't we stay along the River south of Zweck's near Longmont?*
Landowner concerns, environmental constraints, housing along River on both sides.
- *What do we expect as far as easements from landowners? Do we expect them to grant us the land?*
Usually it's a purchase of some kind.
- RR corridor West of 36 is under contract for purchase by Lyons. They expect the transaction to be complete within the next month.
- Trail could go in West of 36 by the end of 2004 when the water-line is completed if needed.
- Lyons needs better direction as far as time frames to be able to prioritize trail implementation on their end.
- Continue to coordinate project planning with Gary throughout adoption of the plan.
- Prefer a route along the River as opposed to along Hygiene Road.

Public Meeting # 4 – Longmont City Hall, October 13, 2003

Motion passed by Longmont Parks and Recreation Advisory Board: “To recommend adoption of the revised draft master plan with the addition of an alternative southerly route within Longmont’s planning area.”

Public Meeting # 5 – Boulder County Courthouse, October 23, 2003

Motion passed by Boulder County Parks and Open Space Advisory Committee: “To recommend adoption of the revised draft master plan without specific endorsement of alternate trail routes.”

Public Meeting # 6 – Longmont City Hall, November 10, 2003

Motion passed by Longmont City Council: “To recommend adoption of the revised draft master plan and support continued analysis of trail alignments within Longmont’s planning area.”

Public Meeting # 7 – Boulder County Courthouse, November 25, 2003

Decision tabled to January 6, 2004 to allow a field trip by Boulder County Commissioners.

Public Meeting # 8 – Boulder County Courthouse, January 6, 2004

Motion passed by Boulder County Commissioners to adopt the St. Vrain Trail Master Plan with the following amendments:

1. Remove alignments B-2 and B-4 from consideration, add a conceptual alternate route (D-8) across the Gage property, and require that before any specific trail segment is built it must first come back before the Board for approval.
2. Include the following language: “Nothing in this plan shall preclude the consideration of routes not shown at the time of adoption should new information and changing conditions including the willingness of property owners to sell land or grant easements make them practical.”
3. Include the following language: “Nothing in this plan shall preclude the reconsideration of routes shown herein if new information and changing conditions makes them more problematic.”

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Appendix B

Railroad Considerations

This section is intended to document the rationale behind recommendations regarding use of the railroad corridor.

General Discussion

The concept of a trail through the St. Vrain corridor that follows the Burlington Northern/Santa Fe (BNSF) railroad right-of-way has been in place for many years and is represented in the Boulder County Comprehensive Plan. This railroad corridor is currently in use, serving the CEMEX plant, and will continue to be used to support mining operations at the Lyons mining site. While about two trains currently use these tracks each week, this use is likely to increase as mining operations get underway. The width of the railroad right-of-way varies between about 50 and 100 feet (Robson 2002).

In order to determine the feasibility of a trail along the railroad corridor, the ERO team conducted an assessment of this railroad corridor and how it would relate to other successful rails-to-trails and rails-*with*-trails projects throughout Colorado and nationwide. Based on this analysis it appears that rails-*with*-trails alignments (a trail alongside an active rail line) are most feasible for short distances in areas where the railroad corridor is wide, has a natural location for a trail, or has a way of separating the trail from the railroad such as with an irrigation ditch. These short segments can be helpful in making critical trail linkages in areas otherwise constrained by sensitive environmental resources or complicated land ownership conditions. However, rails-*with*-trails options covering extended distances are not feasible in the St. Vrain corridor and are not recommended.

If the railroad corridor is taken out of service or abandoned in the future, rails-to-trails options (trail along a former railroad line) would be feasible and should be considered. This is especially true in the western end of the study area where the existing railroad corridor presents a direct, high quality route through areas with environmental and land use constraints. However, it is important to note that rails-to-trails options may not be feasible for many years, if ever, and should not be held as the only option for a safe, functional long-term trail route.

Rails-*with*-Trails Analysis

According to the Rails to Trails Conservancy, 61 active railroad corridors support recreational trails across the country. They are located in 57 different communities and 23 states, and are known as rails-*with*-trails.

In general, the existing rails-with-trails in Colorado and along BNSF lines are predominantly urban trails that parallel the railroad corridor for distances that range from .25 to 3.6 miles. Of the eight corridors described, four trails partially parallel the railroad corridor and four parallel the corridor for their entire length. Of the 49.6 miles included in the eight trails, 13.85 miles parallel a railroad corridor. Ownership of the railroad corridor appears to offer greater flexibility in trail development, of the eight trails included five trails of the rights-of-way are owned by the agency that developed and maintains the trail.

The following describes the four rails-with-trails within Colorado and four rails-with-trails across the nation that are located within BNSF's rights-of-way. BNSF owns and operates the railroad corridor in the study area.

Rails with Trails - Colorado

Colorado has four trails, of the 61 that exist nation-wide, that are part of the Rails with Trails program. Located in four different communities, three of the four trails are urban and one is a suburban trail. All of the trails are multiple use and range in width from 8 to 10 feet. The length of each trail varies, ranging from 3 to 28 miles long. The distance that the trail parallels the railroad corridor also varies from .25 to 3 miles with only one of the four trails paralleling the corridor for the full length of the trail (Rock Island Trail).

Three of the rights-of-way for the trails in Colorado are owned by the railroad that operates on the rail corridor or that allows other lines to operate on the corridor. The exception is the Rock Island Trail where the corridor is owned by the city that manages the trail.

For all four trails, trail insurance and maintenance is provided by the agency that supports the trail and not by the railroad.

Animas River Greenway - Durango, Colorado – established 1989

The Greenway is 6 miles in length with .25 miles paralleling the railroad corridor, which is 50 feet wide. The Greenway is an urban trail with the number of annual users in excess of 100,000. The trail separated from the railroad tracks by 12 feet and a chain link fence. The rail line supports the excursion train, and is owned and operated by the Durango & Silverton Narrow Gauge, which has four trains per day and travels at 15 mph. Trail insurance and maintenance is provided by the City of Durango. The trail is designed to accommodate the needs of the railroad as well.

Platte River Trail/Greenway - Denver, Colorado

For 28 miles, the Platte River Greenway winds through the Denver metro area where 2.5 miles parallel the railroad corridor. The Greenway is an urban trail with approximately 250,000 users. The trail is separated from the railroad tracks by 30 feet and crosses the tracks four times, where

all crossings have warnings. The railroad corridor is owned by the Regional Transportation District and used by Denver Rail Heritage whom operates two trains per hour that travel at 10 mph. The trains are for recreational use. Trail insurance is provided by the City of Denver and maintenance is by the Platte River Greenway Foundation.

Rock Island Trail - Colorado Springs, Colorado – established 1991

The Rock Island Trail is the one of two trails in Colorado where the entire trail parallels the railroad corridor. The Rock Island Trail is an urban trail (with approximately 20,000 users) of a 10-foot width that uses the 100-foot right-of-way of the railroad for 3 miles. The trail is separated from the railroad tracks by 30 feet with additional grade separation and crosses the tracks four times. The railroad corridor is owned by the City of Colorado Springs who also owns and maintains the Rock Island Trail. The rail line is an industrial spur used by the Denver & Rio Grand and Western Railroads once a month. Trains travel at 20 mph. Trail insurance and maintenance is provided by the City of Colorado Springs.

Union Pacific Trail - Thornton, Colorado – established 1985

The Union Pacific Trail is the shortest rails-with-trail in Colorado, and the second (of the four) where the entire trail parallels the railroad corridor. The Union Pacific Trail is a suburban trail of a 10-foot width that uses the 200-foot right-of-way of the railroad for .5 mile. The trail is separated from the railroad tracks by 100 feet and a barbed wire fence. The railroad corridor is owned by the City of Colorado Springs who also owns and maintains the Rock Island Trail. Union Pacific owns and uses the rail corridor with two trains per week that travel at 30 mph. Trail insurance and maintenance is provided by Thornton.

Rails with Trails – Burlington Northern

Four trails are located within BNSF right-of-way along railroad corridors with active lines. The four trails, of the 61 that exist nation-wide, are located in the states of Washington and Minnesota. Located in four different communities, two of the four trails are urban and two are a suburban trail.

All of the trails are multiple use and range in width from 8 to 20 feet. The length of each trail varies, ranging from 1.5 to 4.5 miles long. Three of the four trails parallel the railroad corridor for the full length of the trail.

All four of the rights-of-way for the trails on corridors where BNSF operates are owned by the city or agency that manages the trail. In addition, trail insurance and maintenance is provided by the agency that supports the trail and not by the railroad for all four trails.

Cascade Trail - Burlington, Washington

The Cascade Trail is 1.5 miles in length with the entire trail paralleling the railroad corridor, which is 45 feet (verify) wide. The Cascade Trail is a suburban trail that is 10 feet wide and separated from the railroad tracks by 55 feet and vertical grades. The City of Burlington owns the railroad right-of-way and BNSF operates freight trains that run five times a day at 20 mph. The City of Burlington provides trail insurance and maintenance.

Cedar Lake Trail - Minneapolis, Minnesota

The Cedar Lake Trail is 3.6 miles in length with the entire trail paralleling the railroad corridor, which varies from 30 to 300 feet in width. The Cedar Lake Trail serves 50,000 users annually. It varies from an urban to suburban trail that is twenty feet wide and separated from the railroad tracks by 25 feet and a chain link fence for .75 of the 3.6 miles and crosses the tracks once. BNSF owns the railroad right-of-way and operates a mainline that runs between ten and twelve trains per day at 60 mph. The City of Minneapolis provides trail insurance and maintenance.

Duwamish Trail - Seattle, Washington – established 1988

The Duwamish Trail is 4.5 miles in length with 1.5 miles of the trail paralleling the railroad corridor, which is an 18-foot wide corridor. The Duwamish Trail varies from 8 to 10 feet in width that serves 275,000 users annually. It is an urban trail that is 10 feet wide and separated from the railroad tracks by 8 feet. The trail crosses the tracks three times. The City of Seattle and the Port of Seattle own the railroad right-of-way and BNSF operates an industrial spur that runs occasionally up to two to three trains per day at 10 mph. The City of Seattle provides trail insurance and maintenance.

Myrtle Edwards Park Trail - Seattle, Washington

The Myrtle Edwards Park Trail is 2.5 miles in length with 1 mile that parallels the railroad corridor, which is 100 feet wide. The Myrtle Edwards Park Trail is an urban trail that is 8 feet wide and separated from the railroad tracks by 25 feet and vertical grades. The City of Seattle Parks owns the railroad right-of-way and BNSF operates a mainline that runs three to four trains per day at 25 mph. The City of Seattle provides trail insurance and maintenance.

Reference:

Rails-to-Trails Conservancy. 2000. Rail-with-Trails Design, Management and Operating Characteristics of 61 Trails Along Active Railroads.

Appendix C

Potential Trail Alignments

On November 26, 2002 the ERO team and BCPOS staff spent an afternoon in the St. Vrain River corridor to better understand the trail opportunities and constraints and develop ideas about potential trail alternatives. In addition to the ideas that were generated during the field trip, the ERO team carefully considered the opportunities and constraints to trail development that were identified as part of the corridor analysis as described in the *Existing Conditions* section.

Some of the primary trail opportunities included the following:

- Existing trail and open space facilities
- Existing trail easements
- County-owned road rights-of-way
- Complementary trail plans connecting to the corridor

Some of the primary constraints to trail development included:

- Ecological sustainability along the riparian corridor
- Preble's meadow jumping mouse considerations
- Current and future mining activities
- Current use and width of the railroad corridor

Planning Segment Descriptions

Segment A – Golden Ponds Park to Airport Road

This segment is short, spanning about ½ mile between Golden Ponds, the western terminus of the existing St. Vrain Greenway Trail, and Airport Road. Most of this area is currently being mined as part of the Neighbors and Redmond site operated by Aggregate Industries, Inc. The mining is planned to be completed within the next 5 years, offering an opportunity to include a trail into the final reclamation. Preliminary reclamation plans called for riparian conservation along the St. Vrain River, the retention of several lake and wetland areas, and residential development beyond the riparian restoration areas. The reclamation plans acknowledge the concept of recreational access along the St. Vrain River (RMC 1994).

Most of the alignments in this segment depend on a below grade crossing under Airport Road. The planning and design process for Airport Road improvements are currently underway. While there

is still some uncertainty about the future of the St. Vrain bridge, (if it will be renovated and if it will be suitable for a trail underpass), the planning process will present an important opportunity to insure that appropriate trail facilities are constructed.

The City of Longmont Plans envision an off-street bikeway along Airport Road, as well as a future greenway trail along the Niwot Ditch to the south. Several trail alignments in this segment provide opportunities to connect the St. Vrain Trail to other City of Longmont trails.

Segment B – Airport Road to 75th Street

This 1-mile long segment is characterized by several large farms to the east, including the historic Zweck farmstead, and open space lands to the west. Open space areas include the Pella Crossing recreational facility to the northwest, and the Golden/Fredstrom Open Space along both sides of the St. Vrain River. The northern upland portions of the Golden/Fredstrom site are planned to be mined by Aggregate Industries. The trail alignments in this segment are located between the north side of the railroad corridor, and St. Vrain Road. A new Boulder County Parks and Open Space facility is planned to be located along St. Vrain Road.

All of the potential trail alignments would require an Airport Road crossing. Depending on the alternative being pursued, these crossings could include a below-grade crossing at the exiting St. Vrain River bridge, or crossings at either the Airport Road/9th Avenue intersection, or the Airport Road/St. Vrain Road intersection. As discussed above in Segment A, planned Airport Road upgrades could provide an opportunity for appropriate crossings.

Segment C – 75th Street to Crane Hollow Road

Depending on the alignment, this segment ranges in length from about 1,800 feet to 1 ½ miles. This segment is characterized by the Marlatt and Gage Open Space properties. A recreational trail is currently planned for the Marlatt property, with access from Pella Crossing. The western edge of this segment is Crane Hollow Road, a scenic, unpaved road that winds through the area between 75th Street and Hygiene Road.

Segment D – Crane Hollow Road to 61st/63rd Street

This short segment, ranging between ½ and 1 mile, is dominated by private land, with the exception of the Ramey Open Space property on the east side of 61st Street. Ramey Open Space includes the oldest original homestead in Boulder County. This segment includes the former Hygiene mining area (now reclaimed) and several lakes alongside St. Vrain River. The potential alternatives in this segment are bounded by the BNSF Railroad to the north, and Hygiene Road to the south.

All of the potential trail alignments in Segment D would require a crossing of Hygiene Road. Alignments that follow Hygiene Road would be located within the County-owned right-of-way where possible.

Segment E – 61st/63rd Street to 51st Street

With a distance of about 1½ miles, this segment is almost entirely contained within the Western Mobile, Toteve, and Braly Open Space properties. While much of the eastern portions of the Western Mobile and Braly properties consist of former mining ponds, the western portions of the Western Mobile property are planned for mining over the next 30 years.

The riparian corridor through this segment contains some of the corridor's most sensitive habitat for raptors and the Preble's meadow jumping mouse. The high occurrence of sensitive environmental resources in this area is illustrated in Figure 4. As part of the mining plans, Western Mobile has developed plans to mitigate the impacts to these resources that will occur during mining. This segment of the St. Vrain trail is the most difficult to implement in the near term due to these habitat concerns, mining plans over the next 30 years, and the constrained railroad corridor on the north side of the river.

Segment F – 51st Street to US 36

Spanning less than 1 mile, this westernmost planning segment is dominated by the Highway 66 corridor, open space properties along St. Vrain River, and the Lyons mining site to the south.

Options in this segment are largely dependent on land use and ownership conditions at the time of trail implementation. There is an existing underpass on the north side of the creek at US 36. The Town of Lyons envisions a trail along the railroad right-of-way from 51st Street west into Lyons. The railroad line in this area is currently used as a railroad spur.

Potential benefits of trail access from Hygiene Road to the south side of the creek include an opportunity to connect to the future Boulder Feeder Canal trail, and seclusion from the highways. Drawbacks include private property issues, and the need for a creek crossing or a new underpass at U.S. 36.

Analysis of Potential Alignments

During the planning process, each potential trail alignment was analyzed and rated to assist in narrowing the range of potential trail options. These ratings were used to provide guidance in developing the trail recommendations described in this plan. It is important to note that this analysis helped inform the decision making process, but it was not the sole factor. Other factors included the input of stakeholders and the general public, and the professional judgment of BCPOS staff and the ERO team.

Evaluation Criteria

The following criteria were considered in this analysis:

- **Ecological sustainability** – Avoidance of sensitive wildlife habitat areas or natural communities, use of previously disturbed corridors, and minimal habitat fragmentation and disturbance.
- **Trail quality** – Visual and/or physical access to natural and rural settings, diversity of trail experiences, trail continuity, trail connectivity, and limited exposure to car and railroad traffic.
- **Consideration of landowners** – Use of county-owned land to the greatest extent possible, avoidance of homes and their points of access, and sensitivity to the function and continuity of agricultural operations.
- **Safety** – Trail location and design that minimizes exposure of trail users to car, truck, and railroad traffic, minimizes at-grade road crossings, avoids exposure to industrial facilities, as well as steep slopes adjacent to water bodies.
- **Cost efficiency** – Trail location that minimizes the need for significant structures (such as bridges), land or easement acquisition, environmental permitting, traffic safety measures, or other factors that would increase implementation costs.
- **Overall feasibility** – A cumulative account of the above criteria and any other factors that may determine the feasibility of the alignment given existing conditions.

Evaluation Ranking

The ranking system is described as follows:

- **Exceptional** – The trail alignment represents an ideal situation where the criteria at hand are not compromised in any way.
- **High** – The trail alignment is very responsive to the criteria, with few compromises.
- **Moderate** – The trail alignment has both positive and negative implications on the criteria at hand, requiring trade-offs and judgment prior to implementation.
- **Low** – The trail alignment has little value in addressing the criteria at hand, and should be pursued only with thoughtful justification.
- **Unacceptable** – The trail alignment has serious limitations for the criteria at hand, and should only be pursued under unique circumstances.

The following table summarizes the evaluation of potential trail alignments within each planning segment. The potential trail alignments are shown on Figure C-1.

Appendix C: Potential Trail Alignments

Alignment	Ecological Sustainability	Trail Quality	Consideration of Landowners	Public Safety	Cost Efficiency	Overall Feasibility
A-1	⊙	✘		✘		
A-2		✘	⊙		⊙	⊙
A-3	⊙		✘	⊙		
A-4		⊙		⊙	⊙	⊙
A-5		⊙	⊙	⊙	✘	
A-6		⊙			✘	
A-7	✘	⊙	⊙			
B-1	⊙	✘		✘		
B-2	⊙				⊙	
B-3		⊙	✘	⊙		✘
B-4	✘		✘	⊙		✘
B-5		✘		✘		
C-1		⊙	✘	⊙		✘
C-2	⊙				⊙	⊙
C-3	⊙		⊙		⊙	⊙
C-4	✘	⊙		⊙		✘
C-5	✘	⊙	⊙	⊙		
D-1	✘	⊙	✘	⊙		
D-2		⊙	✘	⊙		
D-3	⊙					
D-4		⊙	✘	⊙		
D-5	⊙	✘	⊙			
D-6	✘	⊙		⊙		
D-7			⊙	⊙		⊙
D-8	✘	⊙	⊙	⊙		
E-1	⊙	⊙				
E-2	⊙	⊙		⊙		
E-3	✘	⊙	⊙	⊙		
E-4	✘	⊙			✘	
E-5	⊙					
E-6	⊙	✘		✘		
E-7		⊙			✘	
F-1	⊙				⊙	⊙
F-2	✘	⊙	⊙	⊙		
F-3		⊙				⊙
F-4	⊙	⊙		⊙		⊙

✘ = Low or Unacceptable (bad indicator for trail)

⊙ = Exceptional or High (good indicator for trail)

("Moderate" rankings are not shown.)

☐ = Recommended Trail Route

☐ = Alternate Trail Route

Segment A - Golden Ponds Park to Airport Road

Alignment A-1

From the northwest corner of Golden Ponds, this alignment follows alongside the railroad corridor across 9th Avenue to a crossing at Airport Road.

Ecological sustainability: EXCEPTIONAL – By following the railroad corridor, this alignment would have no significant environmental impacts.

Trail quality: LOW – This trail alignment would run through a narrow corridor between residential developments, following alongside an active railroad line. It would require two at-grade road crossings and would have no visual access to the St. Vrain corridor.

Consideration of landowners: MODERATE – While most of this segment is within the railroad right-of-way, its success hinges on the willingness of the railroad to allow the trail.

Public safety: UNACCEPTABLE – This alignment requires two at-grade crossings of major streets away from existing intersections. In addition, its close proximity to the active railroad line may pose additional safety concerns.

Cost efficiency: MODERATE – While most of this alignment could be constructed relatively easily within the railroad right-of-way, it could be expensive to build two at-grade road crossings.

Overall feasibility: MODERATE – With the cooperation of the railroad, implementation of most of this alignment is feasible. However, the road crossings make it much less feasible.

Alignment A-2

From Golden Ponds, this trail alignment would follow the south side of 9th Avenue to an at-grade crossing of Airport Road.

Ecological sustainability: EXCEPTIONAL – Trail construction would occur in a previously disturbed area and would not disturb any sensitive resources.








Trail quality: LOW – Trail would be urban in character, with little or no visual connection to the St. Vrain corridor and traffic considerations at Airport Road.

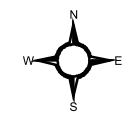
Consideration of landowners: HIGH – Most of this segment could be constructed within the City of Longmont's 9th Avenue right-of-way.

Public safety: MODERATE – While most of this segment would be constructed according to Longmont's traffic safety standards. However, an at-grade crossing of Airport Road would reduce the safety of this alignment.

St. Vrain Trail Master Plan

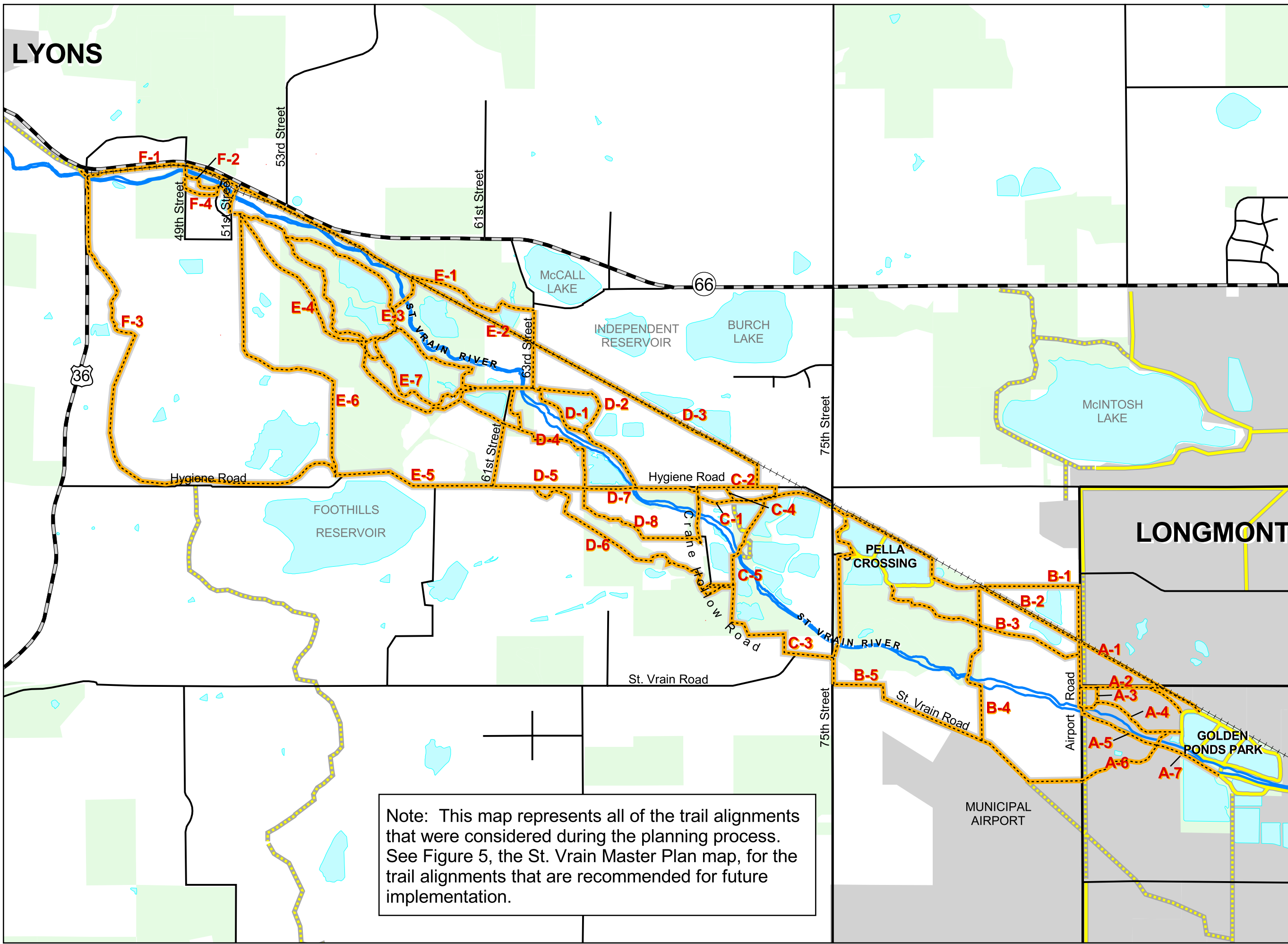
Figure C-1
Potential Trail Alignments

-  Potential Trail Alignment
-  Existing Trail
-  Previously Proposed Trail Alignment
-  Open Space
-  Highway
-  Paved Road
-  Railroad



0 0.5 Miles

Note: This map represents all of the trail alignments that were considered during the planning process. See Figure 5, the St. Vrain Master Plan map, for the trail alignments that are recommended for future implementation.



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Cost efficiency: HIGH – Implementation of this segment would not pose any technical or logistical difficulties that would raise costs.

Overall feasibility: HIGH – This segment could be implemented relatively easily based on landowner cooperation and with cooperation from the City of Longmont.

Alignment A-3

This trail alignment follows Alignment A-2 along the south side of 9th Avenue, then cuts south along the east side of the existing farmhouse to an underpass at the Airport Road/St. Vrain River bridge.

Ecological sustainability: MODERATE – Most of the trail would use previously disturbed areas, with the exception of the Airport Road crossing, which would disturb a small portion of riparian habitat.

Trail quality: MODERATE – Most of this alignment would be urban in character, until it turns south toward creek corridor.

Consideration of landowners: LOW – While most of this alignment could be constructed within the City of Longmont's 9th Avenue right-of-way, the connection to the Airport Road underpass would be on privately owned land, along the gradient between the farmhouse and the mining reclamation area. Adjacent landowners have expressed their disagreement with a trail in this area.

Public safety: HIGH – Unlike alignment A-1, a below-grade crossing of Airport Road would substantially increase the safety of this alignment.

Cost efficiency: MODERATE – While most of the trail would be inexpensive, the below-grade crossing would be very expensive (but could be implemented as part of planned Airport Road improvements).

Overall feasibility: MODERATE – The connection between 9th Avenue and the underpass would require consultation with private landowners.

Alignment A-4

This trail alignment would exit the west side of Golden Ponds Park, following the outer edge of the St. Vrain riparian corridor (north side) to an underpass at Airport Road. The trail could be worked into the post-mining reclamation of the site.

Ecological sustainability: MODERATE – Most of the trail would use previously disturbed areas, though its proximity to the riparian corridor could result in minor, indirect impacts. The underpass would disturb a small portion of riparian habitat.

Trail quality: EXCEPTIONAL – This alignment would provide visual access to the St. Vrain corridor, and would serve as a buffer between the natural environment the reclaimed areas.

Consideration of landowners: MODERATE – While most of this alignment would be on private land, a single landowner would be involved in the context of future mining reclamation. The landowner currently does not support this trail alignment, but future annexation to the City of Longmont may allow for other implementation possibilities.

Public safety: EXCEPTIONAL – This alignment would not approach any roads or other hazards.

Cost efficiency: HIGH – Most of this trail alignment could be graded as part of the reclamation process. However, the underpass would be very expensive (but could be implemented as part of planned Airport Road improvements).

Overall feasibility: HIGH – This alignment is highly feasible, but is contingent on cooperation with private landowners and other stakeholders and an underpass at Airport Road.

Alignment A-5

The County has a right to a trail easement from 1977, along the south side of St. Vrain River. This alignment would follow the easement through the riparian corridor to an underpass at Airport Road. A two-track road follows the river through most of this area.

Ecological sustainability: MODERATE – While most of this alignment could follow an existing road, it would still impact riparian vegetation and wildlife habitat along an extended length of the St. Vrain River.

Trail quality: EXCEPTIONAL – This alignment would provide immediate visual and physical access to St. Vrain River, and would be completely separated from surrounding land uses.

Consideration of landowners: HIGH – The County currently owns an easement for this trail segment, and adjacent landowners have expressed their preliminary support.

Public safety: HIGH – While this alignment would not approach any roads, its direct proximity to the creek could result in some safety considerations.

Cost efficiency: LOW – Implementation of this alignment and its associated impacts would require expensive construction, engineering, and permitting, including an additional bridge over the St. Vrain River.

Overall feasibility: MODERATE – While an easement does exist for this alignment, the environmental impacts associated with its construction and the additional costs of permitting and engineering reduce its feasibility.

Alignment A-6

From the southwest corner of Golden Ponds Park, this alignment begins on the north side of the river before crossing over toward the southwest along an existing ditch to the Airport Road/ St. Vrain Road intersection.

Ecological sustainability: MODERATE – Portions of this alignment, including a creek crossing, would disturb habitat along the riparian corridor.

Trail quality: HIGH – This alignment would provide immediate visual and physical access to St. Vrain River, as well as diverse terrain and land uses as it heads toward Airport Road.

Consideration of landowners: MODERATE – While most of this alignment is on private land, a large extent will be reclaimed from mining. The landowner does not support this alignment.

Public safety: MODERATE – Most of this alignment is far from roads or other hazards, except for a potential at-grade crossing of Airport Road.

Cost efficiency: LOW – This alignment would require a bridge over St. Vrain River, as well as costs associated with constructing a trail through the riparian area.

Overall feasibility: MODERATE – Riparian impacts associated with a stream crossing, as well as the cost of a bridge, make this alignment more difficult to implement. However, if connections to other segments require a connection to St. Vrain Road, this alignment provides a high-quality route to that point.

Alignment A-7

From the existing greenway trail, this alignment would continue along the south side of St. Vrain River (bypassing Golden Ponds Park), then head southwest along the route described above in Alignment A-6.

Ecological sustainability: LOW – This alignment would disturb riparian habitat along the south side of the creek.

Trail quality: EXCEPTIONAL – This alignment would provide immediate visual and physical access to St. Vrain River and continuity with the existing greenway trail, and would also provide access to Golden Ponds Park.

Consideration of landowners: HIGH – Some of this alignment is on land owned by the City of Longmont, while the rest is on private land that will be reclaimed from mining.

Public safety: MODERATE – Most of this alignment is far from roads or other hazards, except for a potential at-grade crossing of Airport Road.

Cost efficiency: MODERATE – This alignment would be hampered by the costs associated with constructing a trail through the riparian area.

Overall feasibility: MODERATE – While this alignment would not require a new bridge, the riparian impacts associated with its construction would make this alignment more difficult to implement. If connections to other segments require a connection to St. Vrain Road, this alignment provides a lower-cost alternative to Alignment A-6.

Segment B – Airport Road to 75th Street

Alignment B-1

From the west side of Airport Road, this alignment crosses the railroad tracks to the north and continues along Airport Road. At the northern Zweck property line, it heads directly west toward Pella Crossing, where it crosses the railroad tracks to enter the open space facility.

Ecological sustainability: HIGH – While portions of this alignment would require new trail construction, it would not significantly impact any environmental resources.

Trail quality: LOW – The quality of this alignment is compromised by the indirectness of the route and the two railroad crossings that would be required.

Consideration of landowners: MODERATE – By following the north property line of the Zweck farm, this alignment is sensitive to those property owners. However, a new railroad crossing may not be supported by the railroad.

Public safety: LOW – While this alignment does not have any road crossings, it does run along Airport Road for an extended length. In addition, the two railroad crossings that would be required would result in additional safety concerns.

Cost efficiency: MODERATE – While it may be less expensive to obtain a trail easement along the north edge of the Zweck property, those savings may be offset by the expansion of an existing railroad crossing and the construction of a new crossing.

Overall feasibility: MODERATE – While it may be feasible to construct a trail along Airport Road and the north edge of the Zweck property, the overall feasibility is compromised by the railroad crossings that would be needed.

Alignment B-2

This alignment follows the western edge of Airport Road to the north, then proceeds along the southern edge of the BNSF Railroad right-of-way to Pella Crossing. Most of this alignment would follow the east and north property lines of the Zweck farm, and may require a trail easement.

Ecological sustainability: EXCEPTIONAL – This alignment does not disturb and sensitive environmental resources, and would not disrupt the function and continuity of agricultural lands.

Trail quality: MODERATE – This trail alignment has little diversity or variation, and does not provide visual or physical access to the St. Vrain corridor. However, it does provide visual access to agricultural setting as it provides direct access to Pella Crossing.

Consideration of landowners: MODERATE – Most of this alignment would require an easement from a single private landowner; however, due to landowner input and preference, this route presents challenges.

Public safety: MODERATE – Since this alignment follows the side of Airport Road and the railroad corridor, measures would need to be implemented to ensure the safety of trail users.

Cost efficiency: HIGH – While this alignment would likely require costs associated with a trail easement, implementation costs would be relatively low.

Overall feasibility: MODERATE – This alignment is highly desirable and if the County is able to secure the cooperation of the private landowner, it would be feasible for development

Alignment B-3

Similar to Alignments 1 and 2, this alignment follows the western edge of Airport Road past 9th Avenue, then follows an existing road to the west across the Zweck property. This alignment continues across the Fredstrom mining site (post-reclamation) toward Pella Crossing.

Ecological sustainability: MODERATE – This alignment would not disturb any sensitive resources, but it would disrupt overall habitat function of the agricultural lands due to fragmentation.

Trail quality: HIGH – This alignment would provide an interesting route that winds through agricultural lands, providing direct access to Pella Crossing.

Consideration of landowners: LOW – The eastern half of this alignment would bisect the Zweck farm.

Public safety: HIGH – While this alignment follows Airport Road, the distance along the road is shorter than Alignment B-1, and it does not follow the railroad corridor.

Cost efficiency: MODERATE – While this alignment poses minimal issues for construction, the cost of an easement across the Zweck farm may be considerable.

Overall feasibility: LOW – The feasibility of this alignment is compromised by impacts to the Zweck farm, and future mining at the Fredstrom site.

Alignment B-4

From the Airport Road/St. Vrain Road intersection, this alignment follows St. Vrain Road to the west, then cuts north across St. Vrain River to the eastern edge of the Fredstrom mining site and on to Pella Crossing.

Ecological sustainability: LOW – This alignment includes a creek crossing, and would disturb habitat along the riparian corridor and fragment habitat north of the St. Vrain.

Trail quality: MODERATE – This alignment provides diverse trail experiences and provides visual and physical access to St. Vrain River. However, it does not provide a direct route, and may be compromised by future mining activities.

Consideration of landowners: LOW – This alignment runs near several residences and their points of access. Existing agreements may preclude trail use in this area. Several landowners have expressed concerns about this alignment.

Public safety: HIGH – After leaving St. Vrain Road, this alignment does not follow or cross any roads (but its proximity to future mining activities is a matter of concern).

Cost efficiency: MODERATE – This alignment would require a bridge over St. Vrain River, as well as costs associated with constructing a trail through the riparian area, as well as design improvements along St. Vrain Road to ensure user safety.

Overall feasibility: LOW – Riparian impacts associated with a stream crossing, as well as the cost of a bridge and potential mining complications make this alignment more difficult to implement as a primary trail route.

Alignment B-5

From the Airport Road/St. Vrain Road intersection, follow the length of St. Vrain Road to 75th Street. This alignment would then continue north along the east side of 75th Street.

Ecological sustainability: MODERATE – By following an existing roadway, this alignment would result in negligible environmental impacts as far as 75th Street. However, a new trail corridor and river crossing along 75th Street would result in localized impacts to the riparian corridor.

Trail quality: LOW – While St. Vrain Road winds through a rural area, it does not provide an off-street trail experience and does not provide access to Pella Crossing. The segment along 75th Street would not provide a pleasant trail experience.

Consideration of landowners: MODERATE – Most of this alignment is within County-owned right-of-way, However, the segment along 75th Street may impact future mining activities and may violate existing landowner agreements for the Fredstrom property.

Public safety: LOW – Following the entire length of St. Vrain Road and 75th Street, this alignment could pose safety concerns if not designed properly.

Cost efficiency: MODERATE – This alignment would require grade separation and safety measures within the right-of-way, as well as a new river crossing and environmental considerations.

Overall feasibility: MODERATE – Despite the sacrifices in trail quality, most of this alignment could be implemented easily. However, the portion along 75th Street may be more difficult due to land use or environmental constraints.

Segment C – 75th Street to Crane Hollow Road

Alignment C-1

This alignment enters the Marlatt Open Space from Pella Crossing access, and continues west along the Mill Ditch across private property to Crane Hollow Road.

Ecological sustainability: MODERATE – While most of this alignment follows a planned trail in a previously disturbed area, the western portion along Mill Ditch would require new impacts that are partially within the Preble's Meadow Jumping Mouse Management Area.

Trail quality: EXCEPTIONAL – This alignment provides continuity between Pella Crossing and Marlatt Open Space, and maintains a natural setting as it continues to Crane Hollow Road.

Consideration of landowners: UNACCEPTABLE – While most of this alignment would occur on County-owned land, the western portion of this alignment would bisect privately owned agricultural land.

Public safety: HIGH – Besides an at-grade crossing of 75th Street, this alignment is removed from any roads or other hazards until it reaches Crane Hollow Road, which has little traffic.

Cost efficiency: MODERATE – Construction costs for most of this alignment would be low, due to a flat grade, previous disturbance, and minimal sensitive resources. However, implementation costs for the privately owned portion of this alignment, including a trail easement, construction, and permitting, would be greater.

Overall feasibility: LOW – Complications involved in crossing privately owned land and potential environmental impacts hamper the feasibility of this alignment.

Alignment C-2

Similar to Alignment C-1, this short alignment enters Marlatt Open Space, then follows an existing trail easement north to Hygiene Road. It then follows the south side of Hygiene Road to Crane Hollow Road.

Ecological sustainability: HIGH – This alignment has little impact associated with sensitive natural or agricultural resources. It would, however, require new disturbance along the trail easement.

Trail quality: MODERATE – While this alignment provides continuity between Pella Crossing and Marlatt Open Space, it runs for an extended length along Hygiene Road.

Consideration of landowners: MODERATE – This short alignment would use County-owned open space, right-of-way, and a County trail easement, though it may require an additional easement from adjacent property owners who could be impacted.

Public safety: MODERATE – While most of this alignment is away from roads and other hazards, it requires an at-grade crossing at 75th Street (in the short-term) and runs along Hygiene Road for an extended distance.

Cost efficiency: HIGH – Construction costs for most of this alignment would be low, due to a flat grade, previous disturbance, and minimal sensitive resources, and it would have reduced easement costs.

Overall feasibility: HIGH – With existing ownership/easement and no environmental complications, implementation of this alignment is very feasible, though it is compromised by its impact on adjacent landowners.

Alignment C-3

From the St. Vrain Road/ 75th Street intersection, this alignment follows the extent of Crane Hollow Road to Hygiene Road. This alignment is accessed from Alignment B-5.

Ecological sustainability: EXCEPTIONAL – By following the full extent of Crane Hollow Road, this alternative does not impact any sensitive environmental resources.

Trail quality: MODERATE – While this alignment winds along the rural setting of Crane Hollow Road, it is entirely located along the road.

Consideration of landowners: HIGH – This alignment would occur entirely within the County-owned right-of-way, though it would require coordination with adjacent landowners.

Public safety: MODERATE – This alignment would require grade-separation and other design measures to ensure the safety of trail users along Crane Hollow Road.

Cost efficiency: HIGH – This alignment would not require any easements or acquisitions of land, but it would require grade separation and safety measures within the right-of-way.

Overall feasibility: HIGH – This alignment could be implemented fairly easily, but it would have to be pursued along with Alignment B-5.

Alignment C-4

From the northwest corner of Marlatt Open Space, this alignment heads north toward Hygiene Road, then parallels the south side of Hygiene Road to reach Crane Hollow Road.

Ecological sustainability: HIGH – While most of this alignment follows a planned trail in a previously disturbed areas, though the western portion would result in new disturbances.

Trail quality: HIGH – This alignment provides continuity between Pella Crossing and Marlatt Open Space, and maintains a natural setting until it nears Hygiene Road.

Consideration of landowners: MODERATE – While most of this alignment would occur on County-owned land, the western portion of this alignment would require a trail easement on private land.

Public safety: HIGH – Besides an at-grade crossing of 75th Street, this alignment is removed from any roads or other hazards until it reaches Crane Hollow Road, which has little traffic.

Cost efficiency: MODERATE – Construction costs for most of this alignment would be low, due to a flat grade, previous disturbance, and minimal sensitive resources. However, implementation costs for the privately owned portion of this alignment, including a trail easement, construction, and permitting, would be greater.

Overall feasibility: MODERATE – While portions of this alignment follows planned trails on county-owned land, the westernmost portion would require cooperation from two landowners and the acquisition of a trail easement.

Alignment C-5

From Marlatt Open Space, this alignment follows the planned open space trails to the southwest, crosses the St. Vrain River, then heads south along the west edge of Marlatt to reach Crane Hollow Road.

Ecological sustainability: LOW – While most of this alignment would use existing trails or follow a disturbed corridor, it would require a new river crossing and a trail alongside a previously designated conservation area.

Trail quality: HIGH – This alignment provides direct visual or physical access to a large extent of the Marlatt Open Space, though it follows a circuitous route for some through trail users.

Consideration of landowners: EXCEPTIONAL – This alignment would be located exclusively on County-owned open space land, and would follow the suggestion of nearby landowners.

Public safety: HIGH – Besides an at-grade crossing of Crane Hollow Road, this alignment is removed from any roads or other hazards.

Cost efficiency: MODERATE – While about half of this trail route is currently in place, it would require a new bridge, environmental permitting, and a new public process to allow the trail to follow the edge of a designated conservation area.

Overall feasibility: MODERATE – While this alignment lies exclusively on County-owned land, it does have some environmental and logistical concerns related to a new river crossing and use of a previously approved conservation area.

Segment D – Hygiene Road to 61st/63rd Street

Alignment D-1

This alignment would follow the north side of Hygiene Road to St. Vrain River, where it would follow an existing dirt road on the east bank of the creek to reach 63rd Street.

Ecological sustainability: LOW – While most of this alignment is located within the riparian corridor and the Preble’s Meadow Jumping Mouse Management Area, it follows an existing road that and would not result in any new habitat disturbance.

Trail quality: EXCEPTIONAL – This alignment follows a direct route along the St. Vrain corridor, providing visual and physical access to the creek.

Consideration of landowners: LOW – With the exception of Hygiene Road, most of this alignment is located on privately owned land. A trail along this alignment would separate the landowners from the St. Vrain.

Public safety: HIGH – Besides the short extent along Hygiene Road, this alignment does not approach any roads or other hazards, and is sufficiently separated from the St. Vrain River embankment.

Cost efficiency: MODERATE – While retrofitting the existing road to a trail would be fairly straightforward, the costs associated with environmental compliance may be significant.

Overall feasibility: MODERATE – While an existing road that could be used for at trail exists along this alignment, complications involved in crossing privately owned land and potential environmental impacts hamper the feasibility of this alignment.

Alignment D-2

This alignment is nearly the same as Alignment D-1, but near its northwestern edge it leaves the riparian corridor and circles around the north side of a pond on an existing track road.

Ecological sustainability: MODERATE – Similar to Alignment D-1, much of this alignment is located within the riparian corridor and the Preble’s Meadow Jumping Mouse Management Area, but follows existing roads and would not result in any new habitat disturbance. Unlike D-1, this circles out of the riparian area and mouse habitat, reducing potential environmental impacts.

Trail quality: EXCEPTIONAL – This alignment follows a direct route along the St. Vrain corridor, providing both visual and physical access to the creek and a diversity of views.

Consideration of landowners: LOW – With the exception of Hygiene Road, most of this alignment is located on privately owned land. A trail along this alignment would separate the landowners from the St. Vrain.

Public safety: HIGH - Besides the short extent along Hygiene Road, this alignment does not approach any roads or other hazards, as long as it is sufficiently separated from the lake shore.

Cost efficiency: MODERATE – While retrofitting the existing roads to a trail would be fairly straightforward, the costs associated with environmental compliance may be significant.

Overall feasibility: MODERATE – While existing roads exist along this alignment, complications involved in crossing privately owned land and potential environmental impacts hamper the feasibility of this alignment.

Alignment D-3

From Hygiene Road east of Crane Hollow Road, this alignment follows a private property line north to the railroad, then follows the south side of the BNSF right-of-way ROW to 63rd Street.

Ecological sustainability: EXCEPTIONAL– This alignment does not impact any sensitive resources. A crossing of the Oligarchy Ditch would be implemented without compromising the ditch’s value as a cultural resource.

Trail quality: MODERATE – While this alignment follows a direct and continuous route toward 63rd Street, it provides little variation in trail configuration or setting.

Consideration of landowners: MODERATE – This alignment is located entirely on private land. Implementation would require the cooperation of several landowners.

Public safety: MODERATE – While this alignment does follows Hygiene Road for only a small distance, its adjacency to the railroad corridor could pose safety concerns.

Cost efficiency: MODERATE – While this alignment does not pose any environmental design or permitting constraints, it would require a new graded surface through most of its extent, as well as a small bridge over the Oligarchy Ditch.

Overall feasibility: MODERATE – While there are few technical constraints to this alignment, its feasibility is hampered by potential landowner complications and trail grading costs.

Alignment D-4

This alignment follows the north side of Hygiene Road across St. Vrain River, then cuts north/northwest along existing roads and property lines to access Ramey Open Space and 61st Street.

Ecological sustainability: MODERATE – While most of this alignment is located within the riparian corridor and the Preble's Meadow Jumping Mouse Management Area, those portions follow existing roads and would not result in any new habitat disturbance.

Trail quality: HIGH – Despite an extensive length of trail along Hygiene Road, this alignment provides a varied experience, visual and physical access to the St. Vrain, and direct access to Ramey Open Space.

Consideration of landowners: LOW – With the exception of Hygiene Road, most of this alignment would involve on privately owned land and four separate landowners.

Public safety: HIGH – This alignment would be entirely away from roads, with the exception of an at-grade crossing of Hygiene Road in the short term, which would be converted to an underpass in the long term.

Cost efficiency: MODERATE – While retrofitting the existing road to a trail would be fairly straightforward, the costs associated with some of the newly graded trail portions and environmental compliance may be significant.

Overall feasibility: MODERATE – While this alignment partially utilizes existing roads, complications involved in crossing privately owned land and potential environmental impacts hamper the feasibility of this alignment.

Alignment D-5

This alignment follows the north side of Hygiene Road right-of-way west to 61st Street, and then follows 61st Street north. A variation of this alignment would continue to follow Hygiene Road to access Alignments E-5 and 6.

Ecological sustainability: EXCEPTIONAL – This alignment does not impact any sensitive resources.

Trail quality: LOW – Following the Hygiene Road right-of-way for at least 1 mile, this alignment offers almost no variation in trail configuration or setting.

Consideration of landowners: EXCEPTIONAL – This alignment is located entirely within the County-owned right-of-way.

Public safety: MODERATE - The portion of this alignment along Hygiene Road would require grade separation and other design considerations to ensure public safety. However, the portion between Hygiene Road and 61st Street is removed from any roads or other hazards.

Cost efficiency: MODERATE – While this alignment would not have any costs associated with land acquisition or environmental resources, it would require extensive grading and safety measures within the Hygiene Road right-of-way.

Overall feasibility: MODERATE – While grading and safety issues may complicate construction, there are no environmental or logistical factors that would impact the feasibility of this alignment. However, the alignment parallels an existing roadway.

Alignment D-6

From Crane Hollow Road at the Clover Basin Ditch, this alignment heads to the northwest, following the Clover Basin and Peck Ditches, across Gage Open Space toward Hygiene Road. This alignment is accessed from alignment C-3.

Ecological sustainability: LOW – As this alignment crosses Gage Open Space, it needs to cross a large wet meadow area and is almost entirely located within Preble’s Meadow Jumping Mouse Management Areas or Suitable Contiguous Habitat.

Trail quality: HIGH – This alignment provides a diverse trail experience as it winds through the rural setting of Crane Hollow Road and Gage Open Space.

Consideration of landowners: MODERATE – While most of this alignment would occur on County-owned land, the westernmost portion crosses privately owned agricultural land.

Public safety: HIGH – Between Crane Hollow Road and Hygiene Road, this alignment does not pose any considerable safety issues.

Cost efficiency: MODERATE – While this alignment would not require extensive trail access expenses, permitting and construction costs in the environmentally sensitive areas would be considerable.

Overall feasibility: MODERATE – Environmental and land ownership complications hamper the feasibility of this alignment.

Alignment D-7

From the Crane Hollow Road/Hygiene Road intersection, this alignment follows the northern edge of Gage Open Space, and crosses the St. Vrain River alongside Hygiene Road. This alignment is accessed from alignments C-2 or C-3.

Ecological sustainability: MODERATE – This alignment crosses an open meadow that is relatively close to known Preble’s habitat and is within the Preble’s Meadow Jumping Mouse Management Area.

Trail quality: MODERATE – While this alignment would allow limited access to County-owned open space, the trail would parallel Hygiene Road in order to minimize environmental impacts.

Consideration of landowners: EXCEPTIONAL – This alignment would be entirely on County-owned open space land.

Public safety: EXCEPTIONAL – This alignment does not pose any considerable safety issues.

Cost efficiency: MODERATE – While this alignment would not require extensive trail access expenses, permitting and construction costs in the environmentally sensitive areas may be high.

Overall feasibility: HIGH – Despite environmental concerns, this alignment could be implemented without substantial acquisition or engineering costs.

Alignment D-8

Connecting from alignment C-5 at Crane Hollow Road, this alignment would follow Crane Hollow Road north before heading northwest across the Gage Open Space property to reach Hygiene Road. (A potential variation could continue along Crane Hollow Road to reach alignment D-7.)

Ecological sustainability: LOW – This alignment crosses an irrigated pasture on the Gage property and could fragment several prominent wetland and wildlife habitat areas.

Trail quality: HIGH – This alignment would allow visual and physical access to County-owned open space, though it would, in combination with C-5, follow a circuitous route.

Consideration of landowners: EXCEPTIONAL – This alignment would be entirely on County-owned open space land, and follows the suggestion of nearby landowners.

Public safety: EXCEPTIONAL – This alignment does not pose any considerable safety issues.

Cost efficiency: MODERATE – While this alignment would not require extensive trail access expenses, permitting and construction costs in the environmentally sensitive areas may be high.

Overall feasibility: MODERATE – While this alignment does not pose any engineering or acquisition concerns, it does have concerns related to sensitive resources and coordination with the future of the County-owned Gage mining area.

Segment E – 61st/63rd Street to 51st Street

Alignment E-1

From 63rd Street, this alignment follows an existing ditch road across the Toteve Open Space for about 1 mile, then follows the BNSF Railroad right-of-way west to 51st Street. Because of the narrow width of the Railroad ROW, this alignment could only be implemented following the abandonment of the rail line.

Ecological sustainability: HIGH – While this alignment follows the existing railroad bed through the riparian corridor and within the Preble’s Mouse Management Area, it does not pose any new impacts to sensitive resources.

Trail quality: HIGH– This alignment follows a relatively direct and continuous route toward 51st Street, and allows for some variation in trail setting and visual access to the St. Vrain riparian corridor.

Consideration of landowners: MODERATE – Portions of this alignment are located on County-owned land. The remainder would require close coordination with BNSF Railroad and other parties who have an interest in the railroad corridor.

Public safety: MODERATE – This alignment is almost entirely away from roads, but its proximity to a ditch as well as a road crossing in an industrial area may pose safety concerns.

Cost efficiency: MODERATE – By following an existing road and the railroad bed, there are few logistical costs associated with trail construction. However, retrofitting the railroad bed to a trail surface may have substantial costs.

Overall feasibility: MODERATE – While there are few technical constraints to this alignment, it is not feasible until the railroad line is abandoned.

Alignment E-2

This alignment is similar to E-1, except it follows the BNSF right-of-way for the full extent of this segment, from 63rd Street to 51st Street.

Ecological sustainability: HIGH – While this alignment follows the existing railroad bed through the riparian corridor and within the Preble’s Mouse Management Area, it does not pose any new impacts to sensitive resources.

Trail quality: HIGH– This alignment follows a relatively direct and continuous route toward 51st Street, and allows for visual access to the St. Vrain riparian corridor.

Consideration of landowners: MODERATE – This alignment is located entirely within the railroad right-of-way and would require close coordination with BNSF Railroad and other parties who have an interest in the railroad corridor.

Public safety: HIGH – With the exception of a single road crossing, this alignment is entirely separated from roads and other hazards (provided that a future rails-to-trails option were pursued).

Cost efficiency: MODERATE – By following the railroad bed, there are few logistical costs associated with trail construction. However, retrofitting the railroad bed to a trail surface may have substantial costs.

Overall feasibility: MODERATE – While there are few technical constraints to this alignment, it is not feasible until the railroad line is abandoned.

Alignment E-3

From 61st Street, this alignment enters Braly Open Space and follows the existing roads that run between several ponds and the St. Vrain riparian corridor. It then crosses the James Ditch/South Branch and skirts between the Lyons mining area and the riparian corridor to reach 51st Street.

Ecological sustainability: LOW – While most of this alignment is located within the Preble’s Mouse Management Area, its use of existing roads minimizes new impacts to sensitive resources. It does require a new crossing of the South Branch/James Ditch, which would result in local impacts to environmental resources.

Trail quality: EXCEPTIONAL – This alignment follows a direct and continuous route through the Braly and Western Mobile Open Space properties, weaving among lakes and the riparian corridor allowing visual access to a variety of habitat areas.

Consideration of landowners: HIGH – Most of this alignment is located on County-owned land. However, this area will also be used extensively for mining, and will require coordination with the mining permit holders.

Public safety: HIGH – Between 61st Street and 51st Street, this alignment is completely separated from roads. However, during the duration of mining activities, it would be close to mining pits and other facilities which could pose safety concerns (these concerns would be alleviated after mining is completed).

Cost efficiency: MODERATE – The extensive use of existing roads will minimize costs associated with grading, however, this alignment will require an ecologically sensitive bridge over the James Ditch as well as extensive environmental permitting and consultation.

Overall feasibility: MODERATE – While there are few technical constraints to this alignment, its feasibility is constrained by issues associated with environmental compliance and mining.

Alignment E-4

From 61st Street, this alignment follows existing roads to the southwest corner of the Braly Open Space, crossing the James Ditch. This alignment then follows the south/west side of the James Ditch, across the Lyons mining site to an existing road that leads to 51st Street.

Ecological sustainability: LOW – Portions of this alignment fall within the Preble's Mouse Management Area and as it follows the sensitive riparian corridor along the James Ditch. In some areas, the use of existing roads would reduce new impacts to sensitive resources.

Trail quality: HIGH– This alignment follows a direct and continuous route through the Braly and Western Mobile Open Space properties, providing visual access to a variety of habitat areas.

Consideration of landowners: MODERATE – Most of this alignment is located on County-owned land. However, it crosses the Lyons mining site, which would require coordination with the mining permit holders, and their reclamation plans.

Public safety: MODERATE – Certain measures would have to be implemented for this alignment to be safe during mining activity. After mining is completed, this alignment poses few safety concerns.

Cost efficiency: LOW – While this alignment would partially utilize existing roads and an existing bridge over the James Ditch, the relatively extensive new trail and the costs associated with environmental compliance may be prohibitive.

Overall feasibility: MODERATE – While there are few technical constraints to this alignment, preliminary discussions indicate that this alignment may be feasible prior to the completion of mining activities.

Alignment E-5

From Hygiene Road and 61st Street (accessed from Alignment D-5), this alignment continues along Hygiene Road to an access road entry near Foothills Reservoir.

Ecological sustainability: HIGH – By bypassing the St. Vrain riparian corridor and other habitat areas, this alignment will not result in any new impacts to sensitive resources.

Trail quality: MODERATE – While this alignment follows Hygiene Road for a great distance and does not provide a direct route along the St. Vrain corridor. However, the portion of the trail in the valley to the east of US 36 would provide a diverse and interesting user experience, as well as direct access to the future Boulder Feeder Canal trail.

Consideration of landowners: MODERATE – Most of this alignment is located on County or State-owned right-of-way, or land owned by CEMEX. CEMEX has expressed preliminary support for this alignment on their property. However, the alignment runs near several residences and may require easements.

Public safety: MODERATE – While most of this alignment would be routed away from roads, mining, or other hazards, its adjacency to US 36 at its northwest end could pose considerable safety concerns.

Cost efficiency: MODERATE – While this alignment would require newly graded trail surface, there would be minimal environmental considerations. However, a connection to the existing underpass at US 36 may require a bridge and/or complicated engineering or property acquisition.

Overall feasibility: MODERATE – For most of the distance that it covers, there are few technical constraints to this alignment. However, the connection toward Lyons in the northwest corner of the study area appears to be difficult and may not be feasible.

Alignment E-6

From Hygiene Road (accessed from Alignment D-5 and E-5), this alignment follows an existing access road that runs north along the western edge of the Lyons mining site until it reaches 51st Street.

Ecological sustainability: HIGH – While small portions of this alignment run alongside sensitive cottonwood stands, it follows an existing road and does not pose any new impacts to sensitive resources.

Trail quality: LOW – While this alignment provides visual access to a variety of habitat areas, portions of this relatively indirect alignment run between the industrial character of the CEMEX plant and the future Lyons mining site.

Consideration of landowners: MODERATE – Some of this alignment is located on County-owned land. The alignment runs adjacent to the Lyons mining site and across land owned by CEMEX, Inc., which would require coordination regarding mining operations and safety.

Public safety: LOW – This alignment is adjacent to future mining areas for most of its length, and is also adjacent to the CEMEX conveyor system, which poses a considerable safety concern.

Cost efficiency: MODERATE – While this alignment could be implemented with little grading or technical requirements, it would likely require extensive fencing to protect trail users from mining activities and the adjacent conveyor system that serves the CEMEX facility.

Overall feasibility: MODERATE – While there are few technical constraints to this alignment, it would require extensive coordination and with CEMEX and other stakeholders and may not be possible for logistical reasons.

Alignment E-7

From 6¹st Street, this alignment follows existing roads through Braly Open Space and along the north side of the James Ditch. After crossing the James Ditch, this conceptual alignment would then access 5¹st Street across the Lyons mining area.

Ecological sustainability: MODERATE – Portions of this alignment fall within the Preble’s Mouse Management Area and could disturb the sensitive riparian corridor along the James Ditch. Using existing roads and possibly reclaimed mining areas reduce new impacts to sensitive resources.

Trail quality: EXCEPTIONAL– This alignment follows a direct and continuous route through the Braly and Western Mobile Open Space properties, providing visual access to a variety of habitat areas.

Consideration of landowners: MODERATE – Most of this alignment is located on County-owned land. However, it crosses the Lyons mining site, which would require coordination with the mining permit holders, and their reclamation plans. Preliminary discussions with CEMEX and LaFarge have been positive.

Public safety: MODERATE – This alignment may be implemented during active mining of the area, which would require special safety measures and coordination with LaFarge, Inc.

Cost efficiency: LOW – While this alignment would partially utilize existing roads and an existing bridge over the James Ditch, the relatively extensive new trail and the costs associated with environmental compliance may be high.

Overall feasibility: MODERATE – While there several technical and environmental constraints to this alignment, it may be feasible during the mining process.

Segment F – 51st Street to US 36

Alignment F-1

From 5¹st Street, this alignment follows the existing railroad right-of-way west to US 36. This alignment would require the abandonment of the railroad tracks as well as access to the existing

underpass at US 36. (The recommended variation of this alignment is from 49th Street to the west, connecting from either F-2 or F-4.)

Ecological sustainability: HIGH – While this alignment is technically within the Preble’s Mouse Management Area, it does not pose any new impacts to sensitive resources.

Consideration of landowners: MODERATE – This alignment would require the conversion of the existing rail line, as well as property acquisitions or an easement to access the US 36 underpass.

Trail quality: MODERATE – While this alignment is direct, it runs adjacent to Highway 66 and most of it is visually separated from the St. Vrain corridor.

Public safety: MODERATE – While most of this alignment could be safely separated from Highway 66, the required crossing of at least two active truck routes and multiple driveways pose considerable safety issues.

Cost efficiency: HIGH – By following the existing railroad bed, there are few technical costs associated with trail construction. However, retrofitting the railroad bed to a trail surface may have substantial costs. Access to the existing underpass may require expensive land acquisition.

Overall feasibility: HIGH – While there are few technical constraints to this alignment, it is not feasible until this portion of the railroad line is abandoned.

Alignment F-2

From 51st Street, this alignment remains on the south side of St. Vrain River, crosses under the CEMEX haul road, and follows Wallace Open Space to reach 49th Street, where it would cross the river to meet alignment F-1.

Ecological sustainability: LOW – Due to its proximity to the St. Vrain riparian corridor, this alignment would impact some sensitive environmental resources and habitats.

Trail quality: HIGH – This alignment would provide a direct route that is separated from major roads and provides direct visual access to the St. Vrain River corridor.

Consideration of landowners: HIGH – While the eastern portions of this alignment would cross land owned by CEMEX, the western portion would be on County-owned open space land.

Public safety: EXCEPTIONAL – This alignment would not pose any safety concerns.

Cost efficiency: MODERATE – While the construction of this alignment, including an underpass of the CEMEX haul road, would be relatively straightforward, the necessary environmental compliance would likely increase its cost.

Overall feasibility: MODERATE – While this alignment would require cooperation with CEMEX and consideration of environmental issues, this alignment uses county-owned land to reach 49th Street.

Alignment F-3

From a point on Hygiene Road near the Foothills Reservoir, this alignment enters the CEMEX property, and heads west alongside Hygiene Road until it crosses the Boulder Feeder Canal. From that point, it heads north, eventually joining the canal road and U.S. 36 to reach an underpass at the St. Vrain River.

Ecological sustainability: MODERATE – While portions of this alignment would constitute new disturbance, it poses only limited impacts to sensitive environmental resources.

Trail quality: HIGH – This alignment provides a connection to the future Boulder Feeder Canal trail, and an off-street alternative that is visually screened from ongoing mining activities on the CEMEX property.

Consideration of landowners: MODERATE – Most of this alignment is located on property owned by CEMEX, Inc., who has supported the concept of a trail route in this area. However, the alignment runs near several residences and their points of access.

Public safety: MODERATE – While most of this segment would be constructed away from roads and other hazards, the final portion would be located along the U.S. 36 right-of-way, which could pose some safety concerns.

Cost efficiency: MODERATE – While the construction of this alignment would be relatively straightforward, it would require some bridges, some new trail, and some environmental compliance, which would increase its cost.

Overall feasibility: HIGH – Given the preliminary support of the concept by CEMEX and the relatively minor constraints, implementation of this alignment appears to be feasible.

Alignment F-4

Similar to alignment F-2, this alignment follows the south side of the river to the CEMEX haul road. From the haul road underpass, it would swing further south onto the CEMEX property to reach 49th Street, where it would cross the river to meet alignment F-1.

Ecological sustainability: HIGH – Except for the underpass access, this route would largely avoid riparian habitat along the river.

Trail quality: HIGH – This alignment would provide a direct route that is separated from major roads and provides direct visual access to the St. Vrain River corridor.

Consideration of landowners: MODERATE –This route would require an easement from CEMEX and may impact LaFarge mining plans. Preliminary discussions with CEMEX have been positive. The alignment runs near an existing residence.

Public safety: HIGH – This alignment would not pose any safety concerns, unless it was in close proximity to mining operations.

Cost efficiency: MODERATE – This alignment would reduce environmental compliance costs (relative to F-2), but may entail some expenses related to easement acquisition.

Overall feasibility: HIGH – This alignment would avoid sensitive habitat along the St. Vrain, and discussions with CEMEX have indicated support.

Appendix D

Cultural Resources Overview

Summary

Numerous historic and archaeological sites occur within the study corridor with more than 61 sites inventoried and cataloged with the Colorado Historical Society that are field eligible for the National Register of Historic Places (NRHP). Sites occur on both public and private lands.

Of the 61 sites, 12 are homesteads or farmsteads. Two farmsteads are recognized as Colorado Centennial Farms by the Colorado Historical Society, an award that recognizes farms and ranches that have remained in the same family for more than 100 years, are working enterprises and have a minimum of 160 acres.

In addition to the homesteads, there are 23 named irrigation ditches that are field eligible for the National Register of Historic Places. Most of the sites and ditches are shown on Figure 2, *Corridor Resources*.

Twenty-one archaeological historical sites have been identified. Because of the risk of potential vandalism, the OAHF only provides information related to the township, range and section where the site is located. The sections where the archaeological sites are located are identified on the Plan.

Historic Sites - Homesteads

The following summary describes the location and general characteristics of each of the twelve homesteads or farmsteads that are field eligible for the NRHP.

Zweck Farm - (5BL.1993)

11007 North 85th Street

Zweck Farm is located on the west side of Airport Road at the St. Vrain River in T3N R69W Section 31 NW NW. The Zweck Farm is a privately owned, working family farm that is recognized as a Centennial Farm. The Zweck Farm has a number of significant historic resources, including several residences, a barn, granary, garage and a round silo. One of the residences dates to 1864.

Montgomery Farm – (5BL.4248)

5475 Ute Way

Montgomery Farm is located in T3N R70W Section 21 SE NE NE SE. Montgomery Farm is a working family farm that is certified as a Centennial Farm, and has several significant historic resources. The Montgomery House dates to 1880 and is a Late Victorian building with a

rectangular plan and gabled roof. A garage, barn, an outbuilding and a root cellar are also on the site.

Dunn Property – (5BL.5578)

12185 N. 75th Street

Located in Hygiene, T3N R70W Section 25 NE NE SW. The Dunn Property includes a number of significant historic resources. The Dunn House dates to 1900, a wash house, two chicken houses and a barn date to 1920, and a garage was built in 1940.

Leonard Property – (5BL.5637)

11666 Crane Hollow Drive

The historic resources associated with the Leonard Property are primarily residences. Three residences are field eligible for the NRHP and include houses built in 1865, 1871 and 1902. The two newer houses are of the Late-Victorian style.

W.W. Marlatt and Company Property – (5BL.5760)

11627 N. 75th Street, Hygiene

The single-family residence, located on the Marlatt Property is considered to be field eligible for the NRHP. The house is located in T3N R70W Section 36 NE SE NW, on lands dedicated as Boulder County Open Space. The house is of the Late-Victorian style, built in 1900 with a rectangular plan and cross-gabled roof.

Garner/Harroun Dairy Farm – (5BL.5783)

16635 N. 53rd Street, Longmont

The Garner/Harroun Dairy Farm is located on the northern edge of the study area in T3N R70W Section 21 NE NE NE. The Farm has 22 buildings of which five were built between 1890 and 1915. The earliest buildings include a residence in the Late-Victorian style, a bunkhouse, a shed and a privy.

Ramey Farm – (5BL.6936)

12104 N. 61st Street, Longmont

The Ramey Farm is considered to be the oldest and best preserved homestead in Boulder County, according to the Rapid Site Assessment conducted by Boulder County Open Space. Ramey Farm is located in T3N R70W Section 27 SE NE SE. Six buildings were built between 1862 and 1870, including the Ramey House (1862), a cellar (1862), a privy, a granary (1879), a barn (1865), and a buggy shed (1870). A chicken house was built in 1920.

Henning Farm – (5BL.7085)

Hygiene Road

The Henning Farm is located near Lyons in T3N R70W Section 27 NW NW NE SW. Henning

Farm has buildings from several different eras, beginning with a barn built in 1905. A shed was built between 1920 and 1929, and a scale house was added in the years between 1930 and 1939. The other buildings were built between 1940 and 1959, including a garage/bunkhouse (1950-59), a residence (1940-49), a shed (1950-59), an equipment shed (1950-59), and a silo (1950-59).

Adams Place – (5BL.7086)

Hygiene Road

Adams Place is currently an animal shelter, but was originally an historic homestead. The site is located in T3N R70W Section 27 NW NW NE SW. Historic archaeological fragments and structures have been documented on the property. Historic resources include a residence, a shed/garage, milking barn, an equipment shed, a stock tank, wagon fragments, machinery, milled lumber, cinder block fragments, fence wire, metal pipes, and screens.

Jacob Buvy Farmstead – (5BL.7090)

Hwy 66

The Jacob Buvy farmstead is located in T3N R70W Section 21 SE SW SE SE SW SE SE SE, within Western Mobile's sand and gravel operations. The site includes four buildings that were built prior to 1910, three built between 1950 and 1959, and one built in 1985. Historic resources include a residence (1899), a chicken house (1900) not in use, an abandoned barn (1910), a milk house (1950), a silo (1950) not in use, and a chicken house (1950-1959) not in use. A horse barn was built in 1985.

Atkin's Farmstead, Chuck's Place – (5BL.7139)

11855 N. 61st Street

Tom Fox Farmstead – (5BL.7140)

5608 Ute Hwy.

Historic Sites – Irrigation Ditches

The following summary describes the twenty-three irrigation ditches, portions of ditches or associated features that are field eligible for the NRHP. The following provides a brief description and the general location of each of the irrigation ditches or features.

St Vrain Supply Canal / Supply Ditch / Easley Lateral – (5BL.3110)

No date; located in T3N R70W Section 21 NW SW NE

St Vrain Supply Canal / Supply Ditch – (5BL.3110.1)

No date; located in T3N R70W Section 9 N ½ N ½ NE, SE NW NE, NW SW NE, SE SE NW, W ½ E ½ SW, SE SW SW; T3N R70W Section 16 W ½ NW NW, S ½ SE SW, S ½ SE SE, S edge

SW SW SE; T3N R70W Section 15 S ½ SW, S ½ SW SE; located in T3N R70W Section 21 N ½ NW, N ½ NW NE

Rough and Ready Ditch – (5BL.3113.1)

1862 irrigation ditch located in T3N R70W Section 21 SW NW NE;

Highland Ditch (segment) – (5BL.3114.1)

1862 irrigation ditch located in T3N R70W Section 21 NE NE NE and Section 22 N ½ N ½ NW;

Palmerton Ditch – (5BL.3115.1)

1862 irrigation ditch located in T3N R70W Section 21 NW SW NE;

Palmerton Consolidated Ditch – (5BL.3115.2)

1865 irrigation ditch located in T3N R70W Section 22 E NE SW SW S NW SE SW;

Longmont Supply Canal – (5BL.4476.4)

1865 irrigation ditch located in T3N R70W Section 22 SE SW SE SW SW SE SE SW;

Oligarchy Ditch Spreader – (5BL.4832.14); (5BL.4832.15); (5BL.4832.16); (5BL.4832.18); (5BL.4832.19); (5BL.4832.20); (5BL.4832.22); (5BL.4832.23); (5BL.4832.24)

Oligarchy Ditch Lateral – (5BL.4832.17); (5BL.4832.21)

No date; irrigation ditch located in T3N R70W Section 31 C SE NW NW;

Oligarchy Ditch Foothills Outlet – (5BL.4832.25)

1866 irrigation ditch located in T3N R70W Section 27 SW SE SW, SE NW SE SW, NW NE SE SW, NW NE SE SW, SE SE NE SW, NW SW NW SE, NW NW SE, SE SW NE, S SE NE;

Zweddwiek-Turner Ditch – (5BL.4836)

Irrigation ditch located in T3N R69W Section 31 E SE SE NE;

Mill Ditch – (5BL.4840.1); (5BL.4840.2)

Irrigation ditch located in T3N R69W Section 31 E SE SE NE;

Mill Ditch Spreader – (5BL.4840.3); (5BL.4840.4); (5BL.4840.5)

Irrigation ditch located in T3N R69W Section 31 SE NE SW NW, in T3N R69W Section 31 NE NE SW NW; irrigation ditch located in T3N R69W Section 31 SE NE SW NW;

James Ditch/South Branch – (5BL.4841.15)

Irrigation ditch located in T3N R70W Section 21 E NW SE SE SW NE SE SE, in T3N R69W Section 27 W NW NW SW SE NW NW;

Smead Ditch – (5BL.7075.1)

Irrigation ditch located in T3N R70W Section 20 N NE SE, W NE SE SE, W SE NE SE, E SE SE SE; irrigation ditch located in T3N R70W Section 21 N S NW SW, SW NE SW, N N SE SW, S S SW, NW SW SE, SE SW SE; irrigation ditch located in T3N R70W Section 28 N NW NW, S NE NW, W NE, N SW NE, N S SE NE; irrigation ditch located in T3N R70W Section 27 SW NW NW, SW SE NW NW, N NE SW NW, N NW SE NW, W NW SW, NE NW SW SW, NE SW SW, S NW SE SW, NE SW SE SW, SE SE SW, S SW SE, W SW SE SE.

Montgomery Private Ditch – (5BL.7076)

1865 irrigation ditch located in T3N R70W Section 21 NE SE SW SE, S SE SE, NE SE SE, S SE SW NW, NW NE SW, SE NE SW, S NW SE, S SW NE SE, NE SW SE; in T3N R70W Section 27 NW NW NW, NW SE NW NW.

Weese Private Ditch – (5BL.7077)

1870 irrigation ditch located in T3N R70W Section 27 SW SE NW NW, NE NE SW NW.

Foothills Reservoir Inlet – (5BL.7078.1)

1905 irrigation ditch located in T3N R70W Section 28 W W NW NE, NW SW NE, SW NE SW NE; T3N R70W Section 21 W W SE.

Goss Private Ditch – (5BL.7079)

1865 irrigation ditch located in T3N R70W Section 27 E SW SE NW;

Clough and True Ditch – (5BL.7080.1)

1862 irrigation ditch located in T3N R70W Section 27 NW NE SE, NE NE NW SE, SW SE SW NE, NE SW SW NE, SW NW SW NE, NE SE NW, S SW NE NW, SE NW NW, NW NW NW.

Baker and Weese Ditch – (5BL.7081)

1862 irrigation ditch located in T3N R70W Section 21 SE SW NE SE, SW SE NE SE; T3N R70W Section 22 NW NW SW SW, SE NW SW SW, SW NE SW SW, N SE SW SW, SW SW SE SW; T3N R70W Section 27 W NW NE NW, SE NW NE NW, E SW NE NW, NE NW SE NW, NW NE SE NW.

Chapman and McCaslin Ditch – (5BL.7082.1)

1865 irrigation ditch located in T3N R70W Section 27 SE SW SE SW, NE NW NE NW, NW NE NE NW.

Clough Private Ditch – (5BL.7083.1)

1863 irrigation ditch located in T3N R70W Section 27 SW NW SE, SW SE NW SE, NE SW SE, SW SE SE.

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