APPENDIX B

ROUTING SUMMARY REPORTS

United Power System Improvement Project Phase III

Bromley to Prairie Center 115kV Transmission Line

Routing Summary

TRI-STATE
Generation and Transmission Association, Inc.
A Touchstone Energy® Cooperative

1100 W. 116th Ave.
Westminster, CO 80234

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Acronyms and Abbreviations

BNSF	Burlington Northern-Santa Fe Railway
CDOT	Colorado Department of Transportation
CPW	Colorado Parks and Wildlife
GIS	Geographic Information System
I-76	Interstate 76
kV	Kilovolt
ROW	Right-of-Way
RUS	Rural Utilities Service
T-S	Tri-State Generation and Transmission Association, Inc.
USFWS	U.S. Fish and Wildlife

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1. Introduction

Tri-State Generation and Transmission Association, Inc. (Tri-State), in cooperation with its member system United Power, Inc. (United Power), proposes to build a new 115-kilovolt (kV) transmission line in the City of Brighton and unincorporated Adams County. The new transmission line (Project) would connect the existing Prairie Center Substation to the existing Bromley Substation, completing the third and final phase of the United Power System Improvement Project. The land area between the two substations is generally bisected in a southwest-northeast direction by Interstate 76 (I-76) and the Burlington Northern Santa Fe (BNSF) Railway. Major features on each side of this established transportation corridor, which played a critical part in the evaluation of potential line routes, included Barr Lake State Park and residential areas to the east and Prairie Center development, Platte Valley Medical Center, and other government, commercial, and residential uses to the west (Figure 1).

The purpose of this report is to summarize the process used to select the preferred location for the proposed Project that was submitted for review and approval by the City of Brighton and Adams County as part of the Project permitting process. At the onset of the Project, Tri-State proposed to select a preferred line route using a methodology whereby alternative alignments are analyzed quantitatively through the use of opportunity and constraint maps and comparative impact matrices. However, efforts to carry out this methodology in a systematic and meaningful manner were unsuccessful because of the relatively short distance between the Bromley and Prairie Center Substations (approximately 5 miles), highly constrained and diverse nature of the study area (defined below in Section 2), and divergent values and opinions of the affected stakeholders. It was therefore necessary to employ a more qualitative approach focusing on the assessment and balance of issues and interests raised by the City of Brighton, Adams County, potentially affected landowners, interested government agencies, and other stakeholders during the course of the route selection process.

In 2003, the Project was initially discussed with the public and stakeholders in conjunction with the United Power Phase I and Phase II projects. The routing process described in this document relied upon the information gained during these initial discussions, but also incorporates new data and information to account for changes in land use, zoning, and environmental conditions. The preferred line route was selected through a process that included the following steps.

1. Study area identification
2. Data collection and mapping
3. Preliminary route identification and analysis
4. Route refinement
5. Selection of preferred and alternative routes

Each of these steps is described in further detail in the following sections.

2. Study Area Identification

The study area boundary, as shown in Figure 1, was established based on the Project's endpoints (Bromley and Prairie Center substations) and a reasonable area around those endpoints within which potential line routes could be identified, including alignments outside of the I-76/BNSF corridor, such as Picadilly Road east of Barr Lake State Park and local roads west of I-76. Prominent geographic features or potential constraints to routing transmission lines, such as Barr Lake State Park and major commercial/residential developments in the City of Brighton, also influenced how the study area was defined.

3. Data Collection and Mapping

Resource data within the study area were collected to assist in identifying potential locations for the proposed transmission line. Relevant data included information about natural resources, land use, and historic resources. The Colorado Department of Transportation (CDOT) was consulted regarding the required crossing of I-76, and the U.S. Fish and Wildlife Service (USFWS) was contacted to obtain a list of threatened, endangered, and sensitive species. Digital geographic data were collected from resource management agencies, state and local governments, counties, and utilities and were incorporated into separate maps illustrating the resources within the study area. Key features in the study area, such as structures identified as occupied residences, helipads, existing and developing land uses, communications towers, and irrigation pivots, were mapped in a geographic information system (GIS). Other key information collected, mapped and reviewed included:

- Jurisdictional boundaries
- Transportation features, including roads and associated rights-of-way (ROWs), airports, helipads, and railroads
- Communications facilities, including antennae and microwave towers
- Historic sites
- Hydrologic features, including canals, streams, designated wetlands, and floodplains
- Vegetation types
- Conservation areas such as Potential Conservation Areas and conservation easements
- Wildlife habitat for the following species: American white pelican, bald eagle, Canada geese, great blue heron, mule deer, and black-tailed prairie dog
- Zoning and future land use designations
- Oil and gas wells

The datasets were then used to create an opportunities and constraint map to illustrate areas of more opportunity for transmission line routing. Given the highly constrained nature of the study area, however, the opportunities and constraints map did not provide a clear indication of possible line locations.

United Power System Improvement Project: Phase I / I

Project Area

Legend

- Project Study Area
- Adams County Juctice Center
- Platte Valley Medical Center Helipad
- Prairie Center Development

Utilities

- Existing Substation
- Existing 230 kV Double Circuit Transmission Line
- Existing Gas Pipeline
- Completed Phase I Transmission Line
- Completed Phase II Transmission Line

Jurisdiction
(CSU NREL)

- Colorado Department of Wildlife - White Horse State Wildlife Area
- City of Brighton Owned and Managed
- Conservation Easement
- State of Colorado
- Colorado Department of Natural Resources - Barr Lake State Park

0 0.25 0.5
Miles
Scale 1:18,000 (when printed at 22x34)

Revised: 11/20/2013
Sources:
CDOT, BLM, NAIP, ESRI, CDOW
File Name: Study_Area
MXD Path: P:\3995_United_Power_Phase_III\GIS\Layouts\Routing_Summary\Study_Area.mxd

Location Map

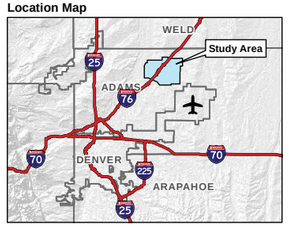

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Figure 1: Study Area

4. Preliminary Route Identification and Analysis

Preliminary routes were identified within the study area and evaluated for feasibility. Based this assessment, some routes were eliminated and others were selected to be carried forward for more detailed evaluation. The steps used to identify and analyze the preliminary routes were:

1. Identification of route segments
2. Identification of preliminary routes
3. Analysis of preliminary routes

4.1 Identification of Route Segments

Route segments were identified within the study area using the resource data and maps described in Section 3.

The route segments identified followed existing linear features (e.g., roads, railroads, pipelines, and utility lines) wherever possible to minimize conflicts with existing and proposed land use or other resources in the area. The network of route segments is shown in Figure 2 and listed in Table 1. Certain route segments were eliminated based on further review of resource maps and field reconnaissance (Table 2).

Remaining segments were connected to form preliminary route alternatives to be carried forward for further analysis, as discussed in the following section.

Table 1:
Route Segments Identified

Route Segment	Linear Feature Followed	Route Segment	Linear Feature Followed
1	Follows existing east/west transmission line constructed for double circuit and a fence line along the K-Mart distribution center	21	Frontage road, I-76
2	Bromley Lane and Buckley Road	22	136th Avenue
3	Prairie Center Parkway	23	Buckley Road
4	Parcel line (partial)—Identified as an alternative to Bromley Lane route	24	136th Avenue
5	Buckley Road	25	136th Avenue
6	Prairie Center Parkway	26	136th Avenue
7	Parcel Line—Identified as an alternative to Bromley Lane route segment	27	Frontage road, parcel lines
8	Does not follow linear feature—connects two segments that follow parcel lines	28	Parcel lines near Buckley Road overpass, Buckley Road
9	Buckley Road	29	Buckley Road
10	Parcel lines	30	Parcel lines
11	Parcel lines, irrigation ditch, Potomac Street	31	I-76 crossing identified at narrow spot in CDOT/ railroad ROW

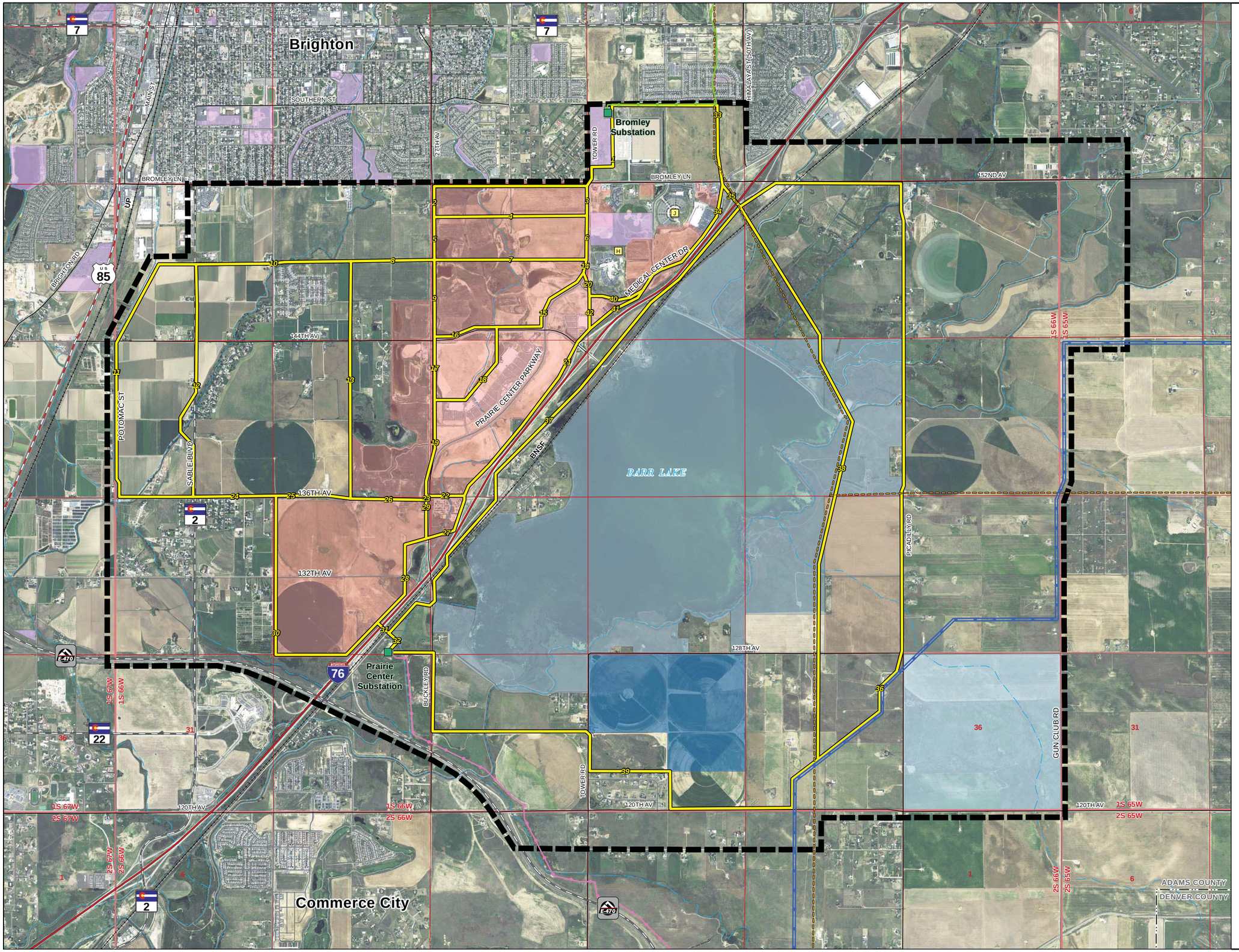
Table 1:
Route Segments Identified

Route Segment	Linear Feature Followed	Route Segment	Linear Feature Followed
12	Sable Boulevard	32	Connection with electrical infrastructure at Prairie Center Substation
13	Parcel lines	33	Existing transmission corridor,[1] existing natural gas pipeline corridor
14	Prairie Center Parkway	34	Medical Center Drive
15	Prairie Center Parkway, 144th Avenue	35	I-76 crossing near Bromley Lane
16	144th Avenue	36	152nd Avenue, Picadilly Road, existing Xcel Energy 230kV transmission line
17	Buckley Road	37	Frontage road, I-76, railroad, United Power distribution line
18	Parcel lines behind Prairie Center shops	38	Existing natural gas pipeline corridor
19	Buckley Road	39	230kV transmission line, 120th Avenue, parcel lines, and Buckley Road
20	Prairie Center Parkway	40	Medical Center Drive

[1] The existing transmission corridor along segment 33 is the Bromley-Henry Lake 115kV transmission line (United Power Phase I), which was built to double-circuit standards when it was constructed, with one circuit left open for future use. The Phase III transmission conductors would be installed on the open circuit.

Table 2:
Route Segments Eliminated

Segment	Comments
7	Bisects Zoned Residential/Open Space
11	Parallels canal for significant distance, adds length when compared to Segment 12
38	Crosses Barr Lake State Park and conservation easement
13	Limited space for easement between residential area and Residential zoned/platted north of 144th Ave.
16, 25, 26	Elimination of other segments resulted in these no longer providing linkage between segments selected for preliminary route alternatives



Preliminary Route Segments

Legend

- Project Study Area
- Preliminary Route Segment
- Adams County Juctice Center
- Platte Valley Medical Center Helipad
- Prairie Center Development

Utilities

- Existing Substation
- Existing 230 kV Double Circuit Transmission Line
- Existing Gas Pipeline
- Completed Phase I Transmission Line
- Completed Phase II Transmission Line

Transportation

- Interstate
- U.S. Highway
- State Highway
- Major Road
- Local Road
- Railroad

Hydrology

- Perennial Stream
- Intermittent Stream
- Canal or Ditch

Jurisdiction
(CSU NREL)

- Colorado Department of Wildlife - White Horse State Wildlife Area
- City of Brighton Owned and Managed
- Conservation Easement
- State of Colorado
- Colorado Department of Natural Resources - Barr Lake State Park

0 0.25 0.5
Miles
Scale 1:18,000 (when printed at 22x34)

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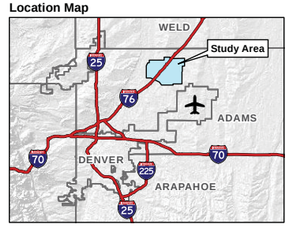
Sources:
CDOT, BLM, NAIP, ESRI, CDOW
File Name: Prelim_Route_Segments
MXD Path: P:\3995_United_Power_Phase_II\GIS\Layouts\Routing_Summary\Prelim_Route_Segments.mxd

Location Map



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United Power System Improvement Project: Phase III

Figure 2: Preliminary Route Segments

4.2 Identification of Preliminary Routes

Route segments selected for further assessment were connected to form seven preliminary route alternatives shown in Figure 3. A description of each of the preliminary routes follows.

4.2.1 Route 1 (Pink)

Segments 33-35-36-39

Route 1 crosses I-76 just south of the Bromley Lane overpass over I-76 and is located east and south of Barr Lake State Park. The longest of the seven alternatives, it follows mostly linear features, including Bromley Lane, Picadilly Road, a 230kV transmission line owned by Xcel Energy, and property lines. The portion of Route 1 between Picadilly Road and the Prairie Center Substation is located in close proximity to the final alignment of the United Power Phase II transmission line. This route crosses land with conservation easements and a State Wildlife Area.

4.2.2 Route 2 (Aqua)

Segments 33-35-37-32

Route 2 crosses I-76 at one location just south of the Bromley Lane overpass over I-76. The remainder of the route is located on the eastern side of I-76 between the interstate and the railroad, adjacent to Barr Lake State Park. The route follows existing linear corridors as much as possible, including the Frontage Road, I-76, BNSF railroad, and the United Power distribution line. If Route 2 were constructed, the United Power distribution line would be placed underground. Route 2 avoids property associated with Barr Lake State Park. Route 2 is also located in proximity to residences in the neighborhood between I-76 and Barr Lake near the intersection of I-76.

One advantage of Route 2 is the potential for Tri-State to purchase CDOT-owned remnant parcels located adjacent to I-76 on which to construct the transmission line. Discussions about the potential purchase of the remnant parcels with CDOT are ongoing.

4.2.3 Route 3 (Yellow)

Segments 33-34-21-22-23-29-28-31-32

Route 3 is mostly located on the western side of I-76; it crosses I-76 just northwest of the Prairie Center Substation. Route 3 is located east of and adjacent to commercial developments associated with Prairie Center.

One potential constraint is a gas well located near the Holiday Inn in Section 15, in the narrowest area between the Holiday Inn and CDOT ROW. Generally, transmission lines are routed at least 200 feet away from oil and gas wells to avoid conflict with vertical drilling equipment, which can exceed the height of the transmission towers and conductors. A modified route (segment 40) was identified around the western side of the hotel if the well proved prohibitive. Additional considerations associated with this route included existing buried utility easements and drainage control measures which could limit available space for

the transmission line along some portions of the route. Smaller commercial/retail properties near the northern section of the route would also need to be evaluated regarding the potential to accommodate a transmission line easement without limiting their build out potential.

4.2.4 Route 4 (Orange)

Segments 1-3-6-14-15-18-19-23-29-28-31-32

Route 4 exits the Bromley Substation along the fence line at the K-Mart distribution center and follows Tower Road to the south. Route 4 passes to the west of the existing Prairie Center commercial developments and then follows Buckley Road south to the Prairie Center Substation. Route 4 would go by the area planned for a future school and is located in closer proximity to areas that are zoned residential and commercial but not yet developed. Route 4 is also located within 0.25 mile of the Platte Valley Medical Center helipad.

4.2.5 Route 5 (5A—Purple, 5B—Green)

Segments 5A: 1-2-5-9-17-19-23-29-28-31-32

Segments 5B: 1-3-4-5-9-17-19-23-29-28-31-32

Routes 5A and 5B differ only in their proximity to Bromley Lane and utilization of segments 2 (Route 5A) or segments 3 and 4 (Route 5B). After crossing to the southern side of Bromley Lane, Route 5A follows Bromley Lane for 1 mile before turning south to follow Buckley Road. During discussions with the City of Brighton in 2004, the city expressed concern about routing the proposed transmission line along Bromley Lane. Route 5B, identified as an alternative to routing the transmission line directly adjacent to Bromley Lane, is located south of commercial-zoned areas on the southwestern corner of the Tower Road/Bromley Lane intersection and the southeastern corner of the Bromley/Buckley intersection. Although Route 5B is in proximity to Bromley Lane, it crosses an area zoned residential but not yet subdivided.

The City of Brighton 2020 Comprehensive Plan (City of Brighton 2009) identifies a “Bromley Lane Corridor Area” as a major planning area with a stated land use objective:

> *The Bromley Lane Corridor would become one of the major east/west arterials in Brighton. It would carry significant amounts of traffic from both the Core City, from Bromley Park to the east and from developments to the south of the corridor. The corridor must be planned carefully. The concept for Bromley Lane is a boulevard with a wide planted median, limited curb cuts, multiple transportation mode opportunities, that mix open areas and moderate density residential uses with business, office and retail, along, in most cases, the south side. Development would occur in nodes rather than a complete linear commercial strip along Bromley Lane. Portions of the road corridor would undeveloped and protected so as to provide breaks of open space between developed areas.*

Preliminary Routes

Legend

- Project Study Area
- Adams County Juctice Center
- Platte Valley Medical Center Helipad
- Prairie Center Development
- Platte Valley Medical Center Helipad 1/4 mile Buffer

Utilities

- Existing Substation
- Existing 230 kV Double Circuit Transmission Line
- Existing Gas Pipeline
- Completed Phase I Transmission Line
- Completed Phase II Transmission Line

Routes

- Route 1
- Route 2
- Route 3
- Route 4
- Route 5A
- Route 5B (Alternative Route 5A)
- Route 6
- Route 7
- Segment Not Associated With a Route

Jurisdiction
(CSU NREL)

- Colorado Department of Wildlife - White Horse State Wildlife Area
- City of Brighton Owned and Managed
- Conservation Easement
- State of Colorado
- Colorado Department of Natural Resources - Barr Lake State Park

0 0.25 0.5
Miles
Scale 1:18,000 (when printed at 22x34)

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Sources:
CDOT, BLM, NAIP, ESRI, CDOW
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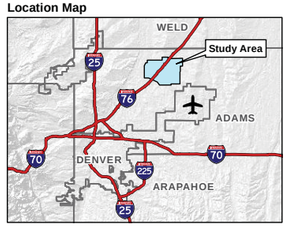
Location Map



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United Power System Improvement Project: Phase III

Figure 3: Preliminary Routes

Specific policies that guide development of the Bromley Lane Corridor area are also provided in the City of Brighton 2020 Comprehensive Plan, but these policies do not appear to be prohibitive to transmission line construction or operation.

South of Bromley Lane, Routes 5A and 5B follow Buckley Road to I-76. The City of Brighton Transportation Master Plan (2002) calls for the widening of Buckley Road through the Project study area. Currently, a ditch runs parallel to the east of Buckley Road. Routing would have to consider the widening plans, as well as avoid the ditch.

The Future Land Use Map in the City of Brighton 2020 Comprehensive Plan also shows the location of a proposed high school on the western side of Buckley Road across from the Prairie Center development (just south of the 144th Avenue/Buckley Road intersection). Across Buckley Road from the proposed high school site (on the eastern side of Buckley Road), the future land use designation is “Mixed Use.” The current zoning is Open Space and Residential, in which transmission lines are allowed as conditional uses.

4.2.6 Route 6 (Blue)

Segments 1-3-4-5-8-10-12-24-30-31-32

Route 6, identified as a western alternative for the Project, crosses predominantly agricultural areas and borders residential areas. It follows roads (including Sable Boulevard, also designated as Colorado State Highway 2) and 136th Avenue, but it also uses section or parcel lines. Constraints associated with this route include proximity to existing residences along section lines and Sable Boulevard: This route had the highest existing number of residences within 500 feet of the centerline (75 residences) compared to all the other routes. Route 6 is also the second longest route option (7.6 miles long), thereby affecting more landowners compared to shorter routes.

4.2.7 Route 7 (Brown)

Segments 1-3-6-14-20-42-21-22-29-28-31-32

Route 7 exits to the south and crosses Bromley Lane at the Tower Road intersection. Route 7 then follows the western side of Prairie Center Parkway between Bromley Lane and the Platte Valley Medical Center, continuing south along a property line west of the Holiday Inn to Route 3. Route 7 is also located within 0.5 mile of the Platte Valley Medical Center helipad. Route 7 utilizes a less developed corridor than the Medical Center Drive corridor utilized by Route 3, and is located in closer proximity to the Platte Valley Medical Center, itself compared to Route 3. The portion of the planned Prairie Center development that Route 7 crosses is zoned Residential.

4.3 Analysis of Preliminary Routes

Each of the preliminary routes were evaluated and compared based on qualitative and quantitative factors related to engineering, land use, social and economic, and environmental considerations. As a result of this evaluation, several of the preliminary line routes were

eliminated from further consideration, while others were selected to for further study and input from affected stakeholders. Key factors that distinguished routes from one another are discussed in this section.

Route 1 was eliminated primarily because of its length (10.3 miles), which was approximately double that of the routes along the I-76 corridor. This route also crossed conservation easements which may not necessarily exclude transmission line development but are a consideration if there are other routes that do not cross such easements. The centerline for Route 1 was also located within 75–500 feet of 55 existing residences.

Routes 2 and 3 along the I-76 corridor were retained as route options. These potential routes provide direct routes between the Prairie Center and Bromley substations, and were 5.2 and 5.3 miles long, respectively. I-76 provides an opportunity for routing as an existing linear corridor through the study area, and has frontage roads on both sides for access. In addition to I-76 itself, other linear opportunities within the corridor exist on the eastern side of the highway, including the BNSF railroad and an existing United Power distribution line. The existing United Power distribution line would be removed and buried as part of the Project. Removing the distribution line and replacing it with the proposed transmission line would serve to consolidate overhead transmission and distribution facilities in the area. Land use on the eastern side of the highway is mixed between commercial, residential, parks and open space, and conservation. Land use on the western side of the highway is mainly commercial development associated with the Prairie Center development. Also located on the western side of I-76 are the Adams County Judicial Center, the Platte Valley Medical Center, and planned residential and commercial use areas. The centerline for Route 2 is located within 75 feet of one residence, and within 75-500 feet of nine residences. The centerline for Route 3 is located within 75 feet of four residences, with no residences within 75 feet.

Route 5A is 4.8 miles long, and though likely feasible, would require the transmission line to be located parallel to Bromley Lane. The City of Brighton Community Development Department indicated that it would prefer not to locate the transmission line along Bromley Lane, which is considered the “gateway” to the city. Route 5B is also 4.8 miles long and avoids Bromley Lane, but it bisects a planned residential area associated with the Prairie Center development. Because the transmission line could be designed to accommodate Buckley Road widening plans, and because the Prairie Center development plans for the east side of Buckley Road between Bromley Lane and The Home Depot store are in the early stages of planning, Routes 5A and 5B were retained as options.

Route 6, the route located furthest west, was also eliminated primarily because of its length (7.6 miles) and the greater number of affected landowners. Route 6 also conflicted with the City of Brighton planning staff interest in avoiding placement of the line along Bromley Lane, and it had the highest number of existing residences within 500 feet of the centerline (75 residences) compared to all other routes.

Routes 4 and 7 were eliminated after consultation with the Platte Valley Medical Center. The Platte Valley Medical Center operates a helipad on the northeastern side of its facility. To avoid conflict with airspace around the helipad, the Medical Center requested a 0.25 mile exclusion zone around the helipad site. Routes 4 and 7 were 4.5 and 4.2 miles long, respectively. There are three existing residences within 75–500 feet of the Route 4 centerline, and eight existing residences within 75–500 feet of the Route 7 centerline. No existing residences were located within 75 feet of the Route 4 or Route 7 centerlines.

Table 3 provides a summary of key comparative data used in the decision-making process to eliminate or retain route options.

Table 3:
Summary of Key Comparative Data for Preliminary Routes

	Route							
Parameter	1	2	3	4	5A	5B	6	7
Route Length (miles)	10.3	5.2	5.3	4.5	4.8	4.8	7.6	4.2
Existing Residences within 75 feet of a route centerline	0	1	0	0	0	0	0	0
Existing Residences within 75–500 feet of a route centerline	55	9	4	3	22	4	75	7
Located within 0.25 mile of Platte Valley Medical Center Helipad?	No	No	No	Yes	No	No	No	Yes

5. Route Refinement

Refinement of the remaining routes required the following additional steps:

1. Meetings with landowners and permitting authorities
2. Engineering feasibility analysis
3. Public open house

5.1 Meetings with Landowners and Permitting Authorities

Tri-State met with the following landowners and permitting authorities to further identify potential routing issues along the remaining preliminary line routes.

- Adams County Planning and Development Department
- City of Brighton Community Development Department
- Barr Lake State Park
- Colorado Parks and Wildlife
- Rocky Mountain Bird Observatory
- BNSF
- CDOT

- Swink/Carlson, the landowner of a parcel of land on the northwestern corner of Bromley Lane and North Frontage Road that has been proposed for residential or commercial development in the past
- THF Realty (owner of the Prairie Center development)
- USFWS

Meetings with Swink and THF Realty were held at this stage because, according to the City of Brighton, both landowners had considered, or were currently considering, development proposals for lands crossed by Routes 2 and 3 that would affect the feasibility of the remaining routes. (As described in Section 5.3, other landowners along the routes were notified of the proposed Project and invited to the October 2011 public open house.)

Table 4 lists interests and concerns communicated to Tri-State and United Power from the landowners and permitting authorities.

Table 4:
Interests/Concerns Communicated by Project Participants (Utilities, Landowners, and Permitting Authorities)

Interests/Concerns	Routing Considerations
Protection of Barr Lake State Park, particularly bird habitat	Avoid direct impact to Barr Lake State Park, including planned parking lot and future trail system along Lark Bunting Road. Avoid impacts to avian habitat in the Barr Lake environs wherever possible. Avoid impacts to bald eagles.
Adherence to BNSF's utility accommodation policy (BNSF 2011)	Comply with BNSF Utility Accommodation Policy for wire line crossings. Avoid pole placement and paralleling within BNSF property for longer than 500 feet.
Traffic safety, adherence to utility accommodation policy, I-76 crossing should have least impact on CDOT operations	Avoid pole placement in CDOT travel lanes, minimize crossings, and minimize longitudinal intrusions into travel lanes to less than 500 feet. Place structures as close to the ROW edge as possible.
Visual impact of transmission poles at Bromley Lane, I-76 crossing (at "gateway exit")	Minimize visual impact to Bromley Lane and I-76 exit at Bromley Lane with strategic pole placement and design.
Protection of visitor experience at the Rocky Mountain Bird Observatory and Barr Lake State Park	Avoid direct impact to Barr Lake State Park, including planned parking lot and trail system along Lark Bunting Road. Avoid impacts to avian habitat in the Barr Lake environs wherever possible. Avoid impacts to bald eagles. Minimize impact to visual environment around Rocky Mountain Bird Observatory (located on Lark Bunting Road inside the boundaries of Barr Lake State Park) to protect visitor experience.
Avoid bisecting property	Follow property line or consolidate utility corridor with existing utilities.
Avoid impact to Prairie Center planned developments	Avoid bisecting planned areas wherever possible. Restrict overhead routing to areas agreed to by THF Realty (Prairie Center development).
Minimize impact to consumers	Minimize route length, minimize impacts to residences. Where routing is necessary on private property, locate poles/alignment as close to property line as possible.
Ensure an open dialogue with stakeholders by providing clear and complete information about the routing process.	Document and present routing process for public comment.

Table 4:
Interests/Concerns Communicated by Project Participants (Utilities, Landowners, and Permitting Authorities)

Interests/Concerns	Routing Considerations
Minimize costs, which get passed on to consumers	Minimize length, use of expensive poles.
Maximize reliability	Avoid using the same corridor as United Power Phase II.
Minimize risk of having to move poles in the future	Avoid pole placements in CDOT travel lanes. Minimize pole placement in CDOT ROW, particularly in areas likely to expand/change.

5.2 Engineering Feasibility Analysis

Tri-State and United Power hired an engineering consultant to complete preliminary engineering for Route 2, Route 3, and Routes 5A/5B. The information was used to ensure the routes were compliant with CDOT and BNSF utility accommodation policies, to identify feasible crossings of roadways (such as Buckley Road, Bromley Lane, and I-76), and to ensure that the route options avoided impacts to residences, as much as possible.

Preliminary engineering analysis (including development of preliminary plan and profile drawings) was conducted for Route 2 and 3. Route 2 was studied to ensure the route could be feasibly located between railroad and CDOT ROWs. Route 3 was studied to ensure the transmission line could be feasibly located among other utilities located on the western side of I-76 and parcels planned for commercial development that were associated with the Prairie Center development. The first draft of the engineering analysis contained an I-76 crossing configuration for Route 2 that consisted of a 1,308-foot span across I-76, just south of the bridge over Bromley Lane. CDOT shared this information with the Federal Highway Administration, which requested a design showing a shortened span length with a pole placed on the eastern side of the western frontage road. The updated design has a span length of 664 feet across I-76.

Pole spotting was conducted for Route 5A to identify potential pole locations along Bromley and Buckley Roads, particularly at the intersection of Bromley Lane/Prairie Center Parkway where transmission poles must be sited to avoid stoplights, lighting poles, and commercial buildings. The analysis also accounted for the City of Brighton's plans to widen Buckley Road from a two-lane road to a four-lane divided roadway with landscaping. The analysis confirmed that routing along Buckley Road was feasible from an engineering perspective. Route 5B was not included in the pole spotting effort where it deviates from Route 5A south of Bromley Lane. Because it crosses an open field, routing issues warranting additional engineering analysis were not identified.

5.3 Public Open House (October 2011)

Tri-State and United Power held a public open house on October 19, 2011, to share information on the proposed Project with community residents and stakeholders. The meeting was held in Brighton, Colorado, at the Hampton Inn, from 5 p.m. to 8 p.m.

Figure 4 shows the remaining routes (Route 2, Route 3, and Route 5A/5B) that were presented at the open house. To provide distinction between the remaining routes, they were renamed as follows:

- Route 2 became the “East I-76 Route”
- Route 3 became the “West I-76 Route”
- Route 5A/5B remained the same
- All other routes were shown as “Considered but Eliminated”

Certain route segments that were not part of any named route were shown on Figure 4 in the public meeting as potential crossover segments that could be used to combine different sections of different routes, in case an alternative I-76 crossing location became necessary. These route segments are shown as “Alternative I-76 Crossing Options” in Figure 4. One Alternative I-76 Crossing Option was shown just southeast of the Lowe’s store on Medical Center Drive. A second Alternative I-76 Crossing Option was shown east of the Prairie Center Shopping Mall.

Property owners within the study area shown in Figure 1 and within 0.5 mile of either an alternative route or a “considered but eliminated” route were mailed postcard notifications of the meeting16 days prior to the meeting. At the request of United Power, the notification area was extended beyond 0.5 mile in a neighborhood northeast of the study area bounded by Himalaya Street (50th Avenue), East 160th Street (Colorado State Route 7), and North Frontage Road along Interstate 76 (I-76). Other stakeholders who are not landowners, such as the Rocky Mountain Bird Observatory, and public officials from the City of Brighton and Adams County were notified by direct mail letters. The public was also notified through advertisements in print editions of *The Banner* and *The Brighton Blade* and online in The Daily Post of the *Brighton Local Color* magazine.

The open house featured display boards, sheet maps of the Project route alternatives, fact sheets, and photographic simulations and map books. Tri-State, United Power, and their consultants were available to discuss the Project.

Comment forms and sign-in sheets were provided for stakeholders to record their comments and attendance. Eighteen individuals signed in at the neighborhood meeting. Additional comments were collected after the meeting by mail and email. A total of five written comments in the form of comment forms and letters were received.

The main comments from the open house concerned potential impacts to wildlife, birds, land value, businesses, and visual impacts. In general, commenters were concerned about the avian use of Barr Lake State Park and proximity of the eastern I-76 route to Barr Lake State Park. In addition, negative effects on land values or new businesses were also discussed. A copy of the public open house summary, which contains includes all comments received, is available by request to Tri-State (Tri-State 2011).

Preliminary Routes

Legend

- Project Study Area
- Adams County Juctice Center
- Platte Valley Medical Center Helipad
- Prairie Center Development

Utilities

- Existing Substation
- Existing 230 kV Double Circuit Transmission Line
- Existing Gas Pipeline
- Completed Phase I Transmission Line
- Completed Phase II Transmission Line

Hydrology

- Perennial Stream
- Intermittent Stream
- Canal or Ditch

Jurisdiction
(CSU NREL)

- Colorado Department of Wildlife - White Horse State Wildlife Area
- City of Brighton Owned and Managed
- Conservation Easement
- State of Colorado
- Colorado Department of Natural Resources - Barr Lake State Park

Routes

- Route Segment End Point
- East I-76 Route
- West I-76 Route
- Alternative I-76 Crossing Option
- Route 5A
- Route 5B
- Considered, But Eliminated

0 0.25 0.5
Miles
Scale 1:18,000 (when printed at 22x34)

Revised: 11/20/2013
Sources:
CDOT, BLM, NAIP, ESRI, CDOW
File Name: Prelim_Routes_Public
MXD Path: P:\3995_United_Power_Phase_III\GIS\Layouts\Routing_Summary\Prelim_Routes_Public.mxd

Location Map

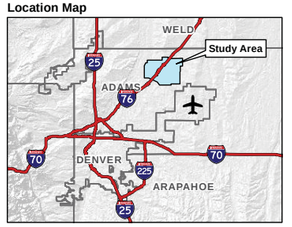

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Figure 4: Preliminary Routes Shown at Public Open House, October 2011

5.4 Additional Coordination with Adams County and City of Brighton

After the public open house, Tri-State and United Power met with Adams County and City of Brighton planning staff members to discuss the comments received and determine a path forward for selecting a preferred alternative that would be acceptable to the two jurisdictions. As a result of the meeting, a new alternative was requested by Adams County to avoid the residential area between Barr Lake and I-76 (located east of the intersection of East 136th Ave. and I-76) and better distribute the line's impact between the two jurisdictions. The new alternative follows the Preferred Alternative the East I-76 route from the Bromley Substation for approximately 3.2 miles to a point just north of the residential area. It then crosses the Interstate utilizing the southern "Alternative I-76 Crossing Option" (identified on maps as a segment, but not as part of any route during the October 2011 public meeting) and follows the same alignment as the West I-76 route for 2.0 miles to the Prairie Center Substation.

The City of Brighton planning staff indicated a preference for the East I-76 alternative while Adams County chose not to express a preference.

6. Selection of Preferred and Alternative Routes

The alternative line routes ultimately considered for designation as Tri-State's "preferred alternative" represent distinctively different values and opinions as to their benefits and impacts. This diversity, combined with the highly constrained nature of the Project area, made the task of finding a suitable location for the proposed project very difficult. The reality is that there was no ideal location that avoids all issues or satisfies all interests. The objective of the routing process was therefore to select an alignment that demonstrates the best possible balance of environmental, land use, engineering and economic factors.

After careful consideration of inputs received by the City of Brighton, Adams County, property owners and other stakeholders, the East I-76 route was chosen as the Preferred Alternative. The West I-76 route was selected as Alternative A and the new alternative involving three crossings of Interstate 76 was selected as Alternative B. Routes 5A and 5B were eliminated from further consideration to avoid visual and land use related impacts along Bromley Lane, considered by the City of Brighton to be the "gateway" to the city and avoid potential impacts to the Prairie Center development, which was a critical concern of the City of Brighton Community Development Department. The Preferred Alternative, Alternative A, and Alternative B are shown on Figure 5.

The Preferred Alternative was selected for the following reasons:

- The route is located within an established transportation/utility corridor.
- The route follows existing linear facilities including an existing transmission line, an oil/gas pipeline, I-76, BNSF Railway, a local county road and an existing electric distribution line (which will be removed and placed underground to reduce the number of overhead lines in the area).

- The route is located between I-76 and the railroad for the majority of its length. .
- The route offers Tri-State the opportunity to purchase and utilize remnant parcels currently owned by CDOT along I-76 for construction and operation of the transmission line.
- The route avoids direct impacts to Barr Lake State Park.
- The route minimizes and mitigates potential impacts to avian species and other wildlife.
- The route is located on the opposite side of the highway from the Platte Valley Medical Center helipad.
- The route impacts the fewest number of properties (11 properties compared to 26 properties for Alternative A and 14 properties for Alternative B)

Alternative A was not selected because of the following reasons:

- The route would result in greater land use and economic impacts to prime development property (especially smaller properties near I-76).
- The route is located within a narrow area between the I-76 right-of-way and existing and proposed development associated with Prairie Center (area already occupied by existing road and underground utility easements).
- The route creates a greater risk of conflict with the Platte River Medical Center helipad.
- The route impacts more properties.

Alternative B was not selected because it crosses I-76 three times within a distance of 3.5 miles, a potential action not supported by CDOT or the City of Brighton Police Department.

The Preferred Alternative, Alternative A, and Alternative B were carried forward into the local permitting phase of the project and evaluated in the Environmental Assessment prepared in accordance with requirements of the U.S Dept. of Agriculture, Rural Utilities Service (RUS).

7. References

BNSF (Burlington Northern-Santa Fe Railway). 2011. Burlington Northern Santa Fe Utility Accommodation Policy. Dated May 18. http://www.bnsf.com/communities/faqs/pdf/utility.pdf. . Engineering Services, Kansas City, Kansas.

City of Brighton. 2009. *The City of Brighton 2020 Comprehensive Plan.* Online. Available: http://www.brightonco.gov/egov/docs/1149698820761.htm. Accessed March 6, 2012.

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Tri-State (Tri-State Generation and Transmission, Inc.). Bromley–Prairie Center 115kV Transmission Line Public Open House Summary Report for October 19, 2011. United Power Transmission System Improvement Project—Phase III. Available upon request from Tri-State.

Preferred and Alternative Routes

Legend

- Project Study Area
- Adams County Juctice Center
- Platte Valley Medical Center Helipad
- Prairie Center Development

Utilities

- Existing Substation
- Existing 230 kV Double Circuit Transmission Line
- Existing Gas Pipeline
- Completed Phase I Transmission Line
- Completed Phase II Transmission Line

Routes

- Preferred Route
- Alternative A
- Alternative B
- Considered, But Eliminated

Jurisdiction
(CSU NREL)

- Colorado Department of Wildlife - White Horse State Wildlife Area
- City of Brighton Owned and Managed
- Conservation Easement
- State of Colorado
- Colorado Department of Natural Resources - Barr Lake State Park

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Revised: 11/20/2013
Sources:
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Location Map

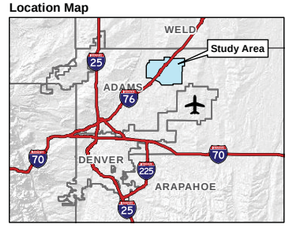

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Figure 5: Preferred and Alternative Routes, April 2012