

Appendix B: Transmission Line Routing Criteria

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Transmission Line Routing Criteria

Categorize resource data based on regulatory requirements and the influence of a resource on the construction and operation of a transmission line.

- **Suitable Area (optimize use):**
 - Less likely to be negatively impacted by transmission line construction and/or operation
 - Includes compatible land uses and lack of sensitive resources
- **Sensitive Area (minimize use):**
 - May incur environmental impacts or result in land use conflicts
 - Preferable to avoid if more suitable areas are available elsewhere
 - If a sensitive area cannot be avoided, impacts can often be mitigated
- **Exclusion Area (when possible, do not use):**
 - Locations with the highest level of sensitivity, including
 - Areas with regulatory or legislative designations
 - Extreme physical constraints not compatible with transmission line construction and/or operation
 - Could result in increased environmental and land use impacts, significantly higher costs or is not feasible from an engineering or constructability perspective

Resource Name	Data Source(s)	Suitable Area (Optimize)	Sensitivity (Minimize)	Exclusion (Exclude When Possible)	Additional Information
2021 Aerial	National Agriculture Imagery Program Imagery (2021)				Informational Purposes only – will be used for route identification/routing
Jurisdiction	Colorado Ownership, Management, and Protection (2019)	Within compatible use portions of the following lands: <ul style="list-style-type: none"> • Bureau of Land Management (BLM) • U.S. Forest Service (USFS) • U.S. Fish & Wildlife Service • Department of Defense • Bureau of Reclamation • Bureau of Indian Affairs • National Park Service (NPS) • Private land • State land 	Within boundary of the following formally designated federal lands: <ul style="list-style-type: none"> • Areas of Critical Environmental Concern (ACEC) • National Wildlife Refuges • National Conservation Areas • National Land Trust Within boundary of formally designated state lands: <ul style="list-style-type: none"> • State Land Board Stewardship Trust land • State Wildlife Areas • State Parks or Recreation areas • State Habitat Areas Within boundary of formally designated private property: <ul style="list-style-type: none"> • Local parks or recreation areas 	Within boundary of formally designated federal lands (except those areas listed under "sensitivity" column): <ul style="list-style-type: none"> • Wilderness areas, wilderness study areas • Inventoried Roadless Areas • Research Natural Areas on NPS and USFS land • National Landmarks • National Monuments • National Recreation Areas • National Historic Sites • Military Reservation/Base Within boundary of Conservation Easements (including Wetland Reserve Program)	Suitable lands are identified as such because there is no legislation precluding utility development on federally managed and privately owned lands with uses compatible to utility development. These lands do not have special designation or management objectives that preclude development of a transmission line. Sensitive areas have unique natural resource or recreation qualities, but legislation does not necessarily preclude use of these lands for utility development. Development of transmission lines within these lands are on a case-by-case basis and are subject to management prescriptions developed by agencies (if the land is held by the state or federal government) or is subject to landowner permissions (if the land is privately held). Excluded land types are typically incompatible with utility development based on formal designation and management objectives for specific goals such as resource protection, conservation, recreation, etc. In general, legislation and formal designation prohibits utility development on these lands. No ACECs in study areas.

Resource Name	Data Source(s)	Suitable Area (Optimize)	Sensitivity (Minimize)	Exclusion (Exclude When Possible)	Additional Information
NLCD Land Cover	National Land Cover Database (2019)	Grassland/herbaceous Shrub/scrub Pasture/hay/cultivated crops Barren land	Developed land Forested areas (evergreen, deciduous, mixed) Wetlands/riparian areas (woody, emergent herbaceous)	Open water	Land Cover data are indicative of certain types of land use in areas that may be more or less compatible with transmission line construction and operation. For example, developed land typically has more intense land uses and a higher concentration of structures.
Zoning	*Source(s) dependent on segment	To be determined for each county on a segment-by-segment basis based on local code requirements			Spreadsheet being developed to identify specific county considerations to inform these criteria.
State Wildlife Action Plan	Colorado Parks and Wildlife (2015)	Categories 3, 4 & 5, No Data	Category 2	Category 1	Category 1: Habitats, including wildlife corridors, that are rare or fragile and are essential to achieving and/or maintaining wildlife species viability or exceptional diversity. This habitat is considered irreplaceable. Category 2: Habitat, including wildlife corridors, which is limiting to a fish or wildlife community, population, or metapopulation. Loss of any of this habitat or corridor could result in a significant local or population-level decline in species distribution, abundance, or productivity. Category 3: Habitat, including wildlife corridors, that contributes significantly to the maintenance of fish or wildlife communities, populations, or metapopulations. [This category covers broad areas that would not be possible to avoid.] Category 4: Common habitat. Category 5: Habitat significance unknown. Colorado Parks & Wildlife - State Wildlife Action Plan
Public Institutions	Homeland Infrastructure Foundation-Level Data (2021)			Area within 150' of facility location	Area within 75' of facility location Buildings are generally considered incompatible with transmission lines, as buildings cannot be built in the transmission line right-of-way (ROW). Smaller buildings can usually be avoided with minor adjustments to the location of transmission infrastructure. Public institutions are generally sited near other high-density land uses, such as residential developments.
Historic Places	National Register of Historic Places (2020)			Area within 150' of NRHP sites or districts	Area within 75' of NRHP site or district Avoid direct impact by not placing ROW over sites, consider potential visual impact to sites listed due to their visual character.
Avian Species Habitat	Colorado Parks and Wildlife (2021)			Within roosting/communal roosting habitat, lesser prairie chicken priority habitat, Foraging Areas, 1-mile of known raptor nest locations	Within avian production areas Avian species may be impacted if route is sited near nest locations. CPW buffers and construction timing restrictions may be triggered.
Ground Transportation	Colorado Department of Transportation (2021) Bureau of Transportation Statistics (2020)	Within 0.25 mile of: <ul style="list-style-type: none">• Interstates• U.S. highways• State highways• Major and local roads Greater than 0.5 mile away from existing rail line	Within 0.25 mile of scenic byway	Within 0.5 mile of existing rail line (paralleling)	Roads are existing linear corridors that often provide access for construction and maintenance subject to department of transportation (DOT) approvals and adherence to the DOT's standards and regulations. Federal Highway Administration (FHWA) Scenic Byways Policy: FR May 18, 1995 Volume 60, Number 96. A scenic byway is a public road with special scenic, historic, recreational, cultural, archaeological, and/or natural qualities that have been recognized as such through legislation or some other official declaration. Scenic byways may have associated scenic easements along the ROW that prohibit construction of utility structures or structures that degrade the scenic quality of the road. https://www.fhwa.dot.gov/hep/scenic_byways/index.cfm CDOT typically does not allow transmission lines to be located within interstate highway ROW, but some exceptions are allowed on a case-by-case basis. Construction and maintenance are difficult in or adjacent to interstate, U.S. or state highway ROW due to traffic, safety, and access. Paralleling rail lines at close distances for long lengths can raise concern regarding induced voltage on the rail line.

Resource Name	Data Source(s)	Suitable Area (Optimize)	Sensitivity (Minimize)	Exclusion (Exclude When Possible)	Additional Information
Air Transportation	Federal Aviation Administration (2021)			Within 50,000' of military airport Within 15,000' of public airport Within 5,000' of private airport Within 4,000' of heliport, balloon port, glider port	49 CFR Part 77, "Safe, Efficient Use and Preservation of the Navigable Airspace" provides Federal Aviation Administration (FAA) regulations for navigable airspace associated with airports. Federal Regulation Title 14 Part 77 establishes standards and notification requirements for objects affecting navigable airspace.
Water Resources	National Hydrography Dataset (2020) Federal Emergency Management Agency (2021) National Wetland Inventory (2020) Playa Lakes Joint Venture (2019)		Within wetland area Within 2,000' of lakes and perennial streams Within 0.25 mile of Natural River Inventory waterway	Within 100' of lakes and perennial streams Waterway (or 100' if not a polygon in water resources data)	Wetlands may be associated with "Waters of the United States" and are regulated under Section 404 of the Clean Water Act. http://water.epa.gov/lawsregs/guidance/wetlands/sec404.cfm Nationwide Rivers Inventory is a listing of free-flowing river segments in the U.S. that are believed to possess one or more "outstanding remarkable" values. Nationwide Rivers Inventory - Rivers (U.S. National Park Service) (nps.gov)
Water Wells	Colorado Division of Water Resources (2021)		Within 75' of water wells		
Oil and Gas Facilities	Colorado Oil and Gas Conservation Commission (2021) Ventyx (2021)			Within 0.5 mile of pipeline (paralleling) Within 250' of facility (well location, tank battery, pigging facilities)	Setback consideration for drilling of wells versus existing/operating wells may be different.
Extractive Industries and Landfills	Homeland Infrastructure Foundation-Level Data (2021) Colorado Division of Reclamation Mining and Safety (2021)			Within 0.25 mile of facility	Expansion plans not always known – follow up with owners/operators of specific facilities if routing nearby.
Topography	U.S. Geological Survey (2020)				Informational Purposes - gentle topography and slopes are desirable for transmission line corridors since steep slopes can present engineering challenges for construction and maintenance.
Slope	U.S. Geological Survey (2020)				Informational Purposes
Existing Electric Infrastructure	PSCo (2020) Federal Aviation Administration (2021) Homeland Infrastructure Foundation-Level Data (2021)	Within 0.25 mile of existing transmission line infrastructure	1,000' of FAA filed, not yet built turbine	Area within solar facility boundary. Area within distance 1.1 times the height of built wind turbine (turbine height assumed to be 500')	These resources provide linear corridors that are already developed and have existing access for construction and maintenance. Consider areas where collocating transmission lines is not preferred due to reliability concerns. Distribution lines are not mapped – aerial and field review to determine if any are routing factors.
Communication Facilities	Homeland Infrastructure Foundation-Level Data (2021)		Area within 300-500' of facility location	Area within 300' of facility location	Communication towers may have large guyed area and/or avoidance areas around the facility.
Agricultural Areas	U.S. Department of Agriculture (2020) U.S. Environmental Protection Agency (2021)			Concentrated Animal Feeding Operation (CAFO) (or within 500' if size not provided in data set)	CAFOs are dense operations that may not have space for transmission ROW, environmental concerns.
Parcels	*Source(s) dependent on segment				For Informational Purposes
Residential and Other Structures	Microsoft (2021) Homeland Infrastructure Foundation-Level Data (2021)		Area within 75-150' of structure	Area within 75' of structure	Assumes 150' ROW (75' either side of centerline) plus additional for structure/property size.
Public Land Survey	Bureau of Land Management (2020)				30' either side of center line held in reserve for future road expansion – For Informational Purposes

Resource Name	Data Source(s)	Suitable Area (Optimize)	Sensitivity (Minimize)	Exclusion (Exclude When Possible)	Additional Information
Prime Farmland	Natural Resources Conservation Service (2020)				For Informational Purposes – transmission line siting on farmland does prohibit agricultural use of the land. Consider impacts to irrigation ditches and canals that are used for flood irrigation. County/local designations may be a factor if data is identified or during conversations with jurisdictions.
EPA Registered Facilities	U.S. Environmental Protection Agency (2021)		Avoid area within 100' of registered facility		The Facility Registry Services (FRS) is a centrally managed database that identifies facilities, sites, or places subject to environmental regulations or of environmental interest.
Karst	U.S. Geological Survey (2017)				For Informational Purposes – covers too broad of an area to avoid. If known sinkhole locations are identified, they will be avoided.
Wildlife Species Habitat	Colorado Parks and Wildlife (2021)		Within production areas, severe winter range, or similar		
Recreation	Colorado Parks and Wildlife (2020)		Directly above trail, park, or path (assume width of 25' for trails or paths)		Trails/bike paths are not incompatible with electrical infrastructure development when they are located adjacent to such infrastructure. However, it would be preferable to avoid developing substations and transmission lines directly over these uses to limit the impact.
Soil Erodibility	Natural Resources Conservation Service Soil Survey Geographic Database (2020)				Data is not granular enough to support routing decisions – For Informational Purposes
Important Bird Areas	Audubon Society (2020)		Within area		
Critical Habitat	USFWS - None in study areas as of 5/3/21				No Critical Habitat within study areas.
Wild & Scenic Rivers	None within study areas or nearby as of 5/14/21				No Wild & Scenic Rivers within study areas.
Existing PSCo Land Rights	Xcel Energy	Utilize existing land rights where possible for all or a portion of the new ROW	n/a	n/a	Xcel Energy provided data
Other Utilities Future Projects	Projects mapped as information became known – used for route identification/refinement as applicable.				
Irrigated Lands	Pivots and other irrigation devices considered during route refinement stage				

Appendix C: Substation Siting Criteria

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Substation Siting Criteria

Categorize resource data based on regulatory requirements and the influence of a resource on the construction and operation of a substation.

- **Suitable Area (optimize use):**

- Less likely to be negatively impacted by substation construction and/or operation
- Includes compatible land uses and lack of sensitive resources

- **Sensitive Area (minimize use):**

- May incur environmental impacts or result in land use conflicts
- Preferable to avoid if more suitable areas are available elsewhere
- If a sensitive area cannot be avoided, impacts can often be mitigated

- **Exclusion Area (when possible, do not use):**

- Locations with the highest level of sensitivity, including
 - Areas with regulatory or legislative designations
 - Extreme physical constraints not compatible with substation construction and/or operation
- Could result in increased environmental and land use impacts, significantly higher costs or is not feasible from an engineering or constructability perspective

Resource Name	Data Source(s)	Suitable Area (Optimize)	Sensitivity (Minimize)	Exclusion (Exclude When Possible)	Additional Information
Parcel Location & Size		Parcels must be located within the Substation Siting Area defined for each substation and of suitable size (60 acres for Goose Creek, May Valley, and Longhorn).		Parcel less than 60 acres	Substations will require minimum acreages to accommodate all required equipment, meet setback requirements, and address any necessary screening or landscaping needs.
Presence of Building(s)		Vacant parcels / no existing buildings			Substations will require vacant parcels, i.e., no existing buildings. Parcels with existing buildings, or other development, typically will not provide enough remaining acreage if the building development were to remain or if it would require demolition.
2021 Aerial	National Agriculture Imagery Program Imagery (2021)				Informational Purposes – used for substation parcel identification
Jurisdiction	Colorado Ownership, Management, and Protection (2019)	<ul style="list-style-type: none"> • Private land 		Parcels within boundary of formally designated federal lands: <ul style="list-style-type: none"> • Bureau of Land Management (BLM) • U.S. Forest Service (USFS) • U. S. Fish & Wildlife Service • Department of Defense • Bureau of Reclamation • Bureau of Indian Affairs • National Park Service (NPS) • Wilderness areas, wilderness study areas • Inventoried Roadless Areas • Research Natural Areas on NPS and USFS land • National Landmarks • National Monuments • National Recreation Areas 	Substation sites should be located on private land which can be purchased in fee. Lease, ROW grants, or land exchanges are not desirable. Some federal and state land designations prohibit infrastructure development.

Resource Name	Data Source(s)	Suitable Area (Optimize)	Sensitivity (Minimize)	Exclusion (Exclude When Possible)	Additional Information
				<ul style="list-style-type: none"> • Areas of Critical Environmental Concern (ACEC) • National Wildlife Refuges • National Conservation Areas • National Land Trust <p>Parcels within boundary of Conservation Easements (including Wetland Reserve Program)</p> <p>Within boundary of formally designated state lands:</p> <ul style="list-style-type: none"> • State Land Board Stewardship Trust land • State Wildlife Areas • State Parks or Recreation areas • State Habitat Areas <p>Parcels within boundary of formally designated private property:</p> <ul style="list-style-type: none"> • Local parks or recreation areas 	
NLCD Land Cover	National Land Cover Database (2019)	Parcels located within: Grassland/herbaceous Shrub/scrub Pasture/hay/cultivated crops Barren land		Parcels located within: Developed land Forested areas (evergreen, deciduous, mixed) Open water Wetlands/riparian areas (woody, emergent herbaceous)	<p>Land Cover data are indicative of certain types of land use in areas that may be more or less compatible with substation construction and operation.</p> <p>For example, developed land typically has more intense land uses and a higher concentration of structures.</p>
Zoning	*Source(s) dependent on segment	To be determined for each county on a substation-by-substation basis based on local code requirements			For informational purposes
State Wildlife Action Plan	Colorado Parks and Wildlife (2015)	Parcels in Category 3, 4 & 5, No Data	Parcels in Categories 2	Parcels in Category 1	<p>Category 1: Habitats, including wildlife corridors, that are rare or fragile and are essential to achieving and/or maintaining wildlife species viability or exceptional diversity. This habitat is considered irreplaceable.</p> <p>Category 2: Habitat, including wildlife corridors, which is limiting to a fish or wildlife community, population, or metapopulation. Loss of any of this habitat or corridor could result in a significant local or population-level decline in species distribution, abundance, or productivity.</p> <p>Category 3: Habitat, including wildlife corridors, that contributes significantly to the maintenance of fish or wildlife communities, populations, or metapopulations. [This category covers broad areas that would not be possible to avoid.]</p> <p>Category 4: Common habitat.</p> <p>Category 5: Habitat significance unknown.</p> <p>Colorado Parks & Wildlife - State Wildlife Action Plan</p>
Public Institutions	Homeland Infrastructure Foundation-Level Data (2021)		Parcels within 150' of facility location	Parcels within 75' of facility location	Parcels with schools, libraries, churches, hospitals are excluded by vacant parcel/building criteria. Public institutions are generally sited near other high-density land uses, such as residential developments, which may be less compatible with substations.
Historic Places	National Register of Historic Places (2020)		Parcels 150' feet of NRHP sites or districts	Parcels within 75' of NRHP site or district	Avoid direct impact by not placing substation near sites, consider potential visual impact to sites listed due to their visual character.

Resource Name	Data Source(s)	Suitable Area (Optimize)	Sensitivity (Minimize)	Exclusion (Exclude When Possible)	Additional Information
Avian Species Habitat	Colorado Parks and Wildlife (2021)		Parcels within roosting/communal roosting habitat, lesser prairie chicken priority habitat, Foraging Areas, 1-mile of known raptor nest locations	Parcels within avian production areas	Avian species may be impacted if substation is sited near nest locations. CPW buffers and construction timing restrictions may be triggered.
Ground Transportation	Colorado Department of Transportation (2021) Bureau of Transportation Statistics (2020)	Parcels within 0.25 mile of: <ul style="list-style-type: none">• Interstates• U.S. highways• State highways• Major and local roads Parcels greater than 0.5 mile away from existing rail line	Parcels within 0.25 mile of scenic byway Parcels greater than 0.25 mile of: <ul style="list-style-type: none">• Interstates• U.S. highways• State highways• Major and local roads	Parcels within 0.5 mile of existing rail line	Roads are existing linear corridors that often provide access for construction and maintenance subject to department of transportation (DOT) approvals and adherence to the DOT's standards and regulations. Federal Highway Administration (FHWA) Scenic Byways Policy: FR May 18, 1995 Volume 60, Number 96. A scenic byway is a public road with special scenic, historic, recreational, cultural, archaeological, and/or natural qualities that have been recognized as such through legislation or some other official declaration. Scenic byways may have associated scenic easements along the ROW that prohibit construction of utility structures or structures that degrade the scenic quality of the road. https://www.fhwa.dot.gov/hep/scenic_byways/index.cfm Siting substations near rail lines can raise concern regarding induced voltage on the rail line. Adjacency to existing roads required for all new substations
Air Transportation	Federal Aviation Administration (2021)			Parcels within: Within 50,000 feet of military airport Within 15,000 feet of public airport Within 5,000 feet of private airport Within 4,000 feet of heliport, balloon port, glider port	49 CFR Part 77, "Safe, Efficient Use and Preservation of the Navigable Airspace" provides Federal Aviation Administration (FAA) regulations for navigable airspace associated with airports. Federal Regulation Title 14 Part 77 establishes standards and notification requirements for objects affecting navigable airspace.
Water Resources	National Hydrography Dataset (2020) Federal Emergency Management Agency (2021) National Wetland Inventory (2020) Playa Lakes Joint Venture (2019)	Parcels without significant areas occupied by water resources (water bodies, wetlands, floodplains, etc.)	Parcels within 2,000' of lakes and perennial streams Within 0.25 mile of Natural River Inventory waterway Within 100 feet of lakes and perennial streams	Parcels with waterway present (or 100' if not a polygon in water resources data) Within wetland area	Wetlands may be associated with "Waters of the United States" and are regulated under Section 404 of the Clean Water Act. http://water.epa.gov/lawsregs/guidance/wetlands/sec404.cfm Nationwide Rivers Inventory is a listing of free-flowing river segments in the U.S. that are believed to possess one or more "outstanding remarkable" values. Nationwide Rivers Inventory - Rivers (U.S. National Park Service) (nps.gov) Surface water resources are incompatible with electric substations due to operations/maintenance issues, environmental impacts, and permitting requirements. However, electric substations may be constructed on parcels crossed by water resources in upland areas to avoid impacts.
Water Wells	Colorado Division of Water Resources (2021)	Parcel Within 75' of water wells			Due to need for water during substation construction, water wells could present an opportunity for an onsite/nearby water source.
Oil and Gas Facilities	Colorado Oil and Gas Conservation Commission (2021) Ventyx (2021)			Parcels within 0.5 mile of pipeline Within 250' of facility (well location, tank battery, pigging facilities)	Setback consideration for drilling of wells versus existing/operating wells may be different.
Extractive Industries and Landfills	Homeland Infrastructure Foundation-Level Data (2021)			Parcels within 0.25 mile of facility	Expansion plans not always known – follow up with owners/operators of specific facilities if siting nearby.

Resource Name	Data Source(s)	Suitable Area (Optimize)	Sensitivity (Minimize)	Exclusion (Exclude When Possible)	Additional Information
	Colorado Division of Reclamation Mining and Safety (2021)				
Topography	U.S. Geological Survey (2020)				Informational Purposes Only- flat topography and slopes are desirable for substation siting since steep slopes can present engineering challenges for construction.
Slope	U.S. Geological Survey (2020)				Informational Purposes Only
Existing Electric Infrastructure	PSCo (2020) Federal Aviation Administration (2021) Homeland Infrastructure Foundation-Level Data (2021)	Parcels within 0.25 mile of existing transmission line infrastructure Within 2 miles of distribution infrastructure for station service Goose Creek: Within 2 miles of an existing renewable energy generation source gen-tie line	Parcel within 1,000' of FAA filed, not yet built turbine	Parcel within solar facility boundary. Parcel within distance 1.1 times the height of built wind turbine (turbine height assumed to be 500')	These resources provide linear corridors that are already developed and have existing access for construction and maintenance. Distribution lines are not mapped – aerial and field review to determine if any are siting factors. Distribution proximity required for all new substations (Canal Crossing, Goose Creek, May Valley, Longhorn)
Communication Facilities	Homeland Infrastructure Foundation-Level Data (2021)		Area within 300-500' of facility location	Area within 300' of facility location	Communication towers may have large guyed area and/or avoidance around areas the facility.
Agricultural Areas	U.S. Department of Agriculture (2020) U.S. Environmental Protection Agency (2021)			Concentrated Animal Feeding Operation (CAFO) (or within 500' if size not provided in data set)	CAFOs are dense operations that may present environmental concerns.
Residential and Other Structures	Microsoft (2021) Homeland Infrastructure Foundation-Level Data (2021)		Parcel within 75-150' of structure	Parcel within 75' of structure	
Public Land Survey	Bureau of Land Management (2020)				30' either side of center line held in reserve for future road expansion – For Informational Purposes
Prime Farmland	Natural Resources Conservation Service (2020)				For Informational Purposes – substation siting on farmland does prohibit agricultural use of the land. Consider impacts to irrigation ditches and canals that are used for flood irrigation. County/local designations may be a factor if data is identified or during conversations with jurisdictions.
EPA Registered Facilities	U.S. Environmental Protection Agency (2021)		Parcels within 100' of registered facility		The Facility Registry Services (FRS) is a centrally managed database that identifies facilities, sites, or places subject to environmental regulations or of environmental interest.
Karst	U.S. Geological Survey (2017)			Known sinkhole locations	
Wildlife Species Habitat	Colorado Parks and Wildlife (2021)		Parcels within production areas, severe winter range, or similar		
Recreation	Colorado Parks and Wildlife (2020)		Parcels containing trail, park, or path (assume width of 25' for trails or paths)		Trails/bike paths are not incompatible with electrical infrastructure development when they are located adjacent to such infrastructure.
Soil Erodibility	Natural Resources Conservation Service Soil Survey Geographic Database (2020)				Data is not granular enough to support siting decisions – For Informational Purposes
Important Bird Areas	Audubon Society (2020)		Parcels within area		
Critical Habitat	USFWS - None in study area as of 5/3/21	No Critical Habitat within study areas.			

Resource Name	Data Source(s)	Suitable Area (Optimize)	Sensitivity (Minimize)	Exclusion (Exclude When Possible)	Additional Information
Wild & Scenic Rivers	None within our study areas or nearby as of 5/14/21			No Wild & Scenic Rivers within study areas.	
Existing PSCo Land Rights	Xcel Energy	Existing PSCo land rights	n/a	n/a	Xcel provided data
Other Utilities Future Projects		Projects mapped as information became known – used for site identification/refinement as applicable.			
Irrigated Lands		Pivots and other irrigation devices considered during site refinement stage			

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Appendix D: Link Modification Tracker

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Link Modification Tracker

Link	No Change	Eliminated	Modified	Added	Comments
501	•	•			Eliminated due to SLB feedback indicating preference for Link 502
502	•				Alternative link
503		•			Eliminated due to removal of links 501, 5104, and 505
504	•				Alternative link
505	•	•			Split into 505+5117 for addition of Link 5137 Eliminated due to SLB feedback indicating preference for Link 502
506	•	•			Split into 506+5118 for addition of 5119
507	•	•			Eliminated due to removal of links 511 and 517
508	•	•			Eliminated due to removal of links 517 and 5115
509	•	•			Eliminated due to removal of links 517 and 5115
510	•				Alternative link
511		•	•		Split into 511+5120+5122 for addition of 5119 and 5121 Eliminated due to removal of Link 507 and crossing of Stewardship Trust Land (Bohart Ranch, Chico Basin Ranch)
512	•	•			Eliminated due to diagonal crossing and public feedback
513		•	•		Split into 513+5125 for addition of 5126
514		•	•		Split into 514+5123+5127 for addition of link 5124, 5128, and 5168 Eliminated due to lesser road adjacency than 5124
515		•	•		Split into 515+5131 per landowner comment for addition of 5132 and 5129 Split into 515+5156 for addition of 5111
516		•			Eliminated due to diagonal crossing
517		•	•		Split into 517+5146+5147+5145 for addition of 5115 that follows parcel lines Eliminated due to diagonal crossings
518		•	•		Split into 518+5150 for addition of 5149 and modified to stair step to the north to remove diagonal Preferred
519		•	•		Split into 519+5114+5151 for addition of 5113, 5152, and 5149 Eliminated due to removal of connecting links
520	•		•		Split into 520+5154+5110 for addition of 5152, 5155, and 5153 Split into 520+5165 for addition of Link 5164
521		•	•		Split into 521+5112 for addition of 5113 Eliminated due to diagonal crossing of parcels
522	•	•			Eliminated due to removal of links 523 and 524
523	•	•			Eliminated due to proximity of homes
524		•	•		Split into 524+5105 for addition of 5109 Eliminated due to small lots and proximity to homes, no road adjacency
525	•	•			Modified when Link 526 shifted north

Link	No Change	Eliminated	Modified	Added	Comments
					Eliminated due to small lots and proximity to homes, no road adjacency
526		•	•		Modified to shift north to avoid newly subdivided parcels
527			•		Split into 527+5107 for addition of 5108 Modified when Link 526 shifted north Preferred
528		•	•		Split into 528+5106 for addition of 5108 and 5109 Eliminated due to removal of connecting links
529		•			Eliminated due to removal of links 531, 532, 533
530			•		Modified to increase distance from houses and parallel existing transmission lines Split into 530+5157 for addition of 5158 Preferred
531	•	•			Eliminated due to proximity to homes
532	•	•			Eliminated due to removal of Links 531 and 533
533	•	•			Eliminated due to proximity to homes
534	•	•			Eliminated due to removal of Link 535
535		•	•		Modified to increase distance from homes, parallel existing transmission lines and follow section line Split into 535+5159 for addition of Link 5162 Eliminated due to diagonal crossing of small parcels
536		•			Eliminated due to routing inefficiencies
537		•			Eliminated due to the removal of Link 523
538	•				Preferred
539		•			Eliminated due to the removal of Link 548
540	•				Preferred
541	•	•			Eliminated due to water resource impacts
542	•	•			Eliminated due to topography that would cause engineering challenges
543	•	•			Eliminated due to water resource impacts
544	•	•			Eliminated due to removal of links 545 and 542
545	•	•			Eliminated due to water resource impacts
546	•				Preferred
547	•	•			Eliminated due to water resource impacts
548	•	•			Eliminated due to diagonal crossing
549	•				Preferred
550			•		Modified to follow south side of Hwy 86 Preferred
551	•				Alternative link
552	•	•			Eliminated due to proximity to homes
553	•				Alternative
554		•	•		Split into 554+599 for addition of 598 to increase distance from residences and subdivisions

Link	No Change	Eliminated	Modified	Added	Comments
					Eliminated in favor of Link 598
555		•			Eliminated due to diagonal and public comment
556		•	•		Split into 556+597+5101 for addition of 596 to avoid residences and a planned subdivision, and 5102 Eliminated due to planned residential subdivision
557		•	•		Split into 557+593+594 for addition of 596 and 592 Eliminated due to removal of connecting links
558	•				Alternative link
559	•				Alternative link
560			•		Modified at western end to connect with Link 595 that was moved to east side of CORE line, resulting in addition of link 5116 Alternative link
561		•	•		Split into 561+5139 for addition of 592 Eliminated due to proximity to subdivision and lack of collocation with other infrastructure
562	•				Once eliminated to avoid proximity to future subdivisions but reconsidered due to public comment to follow existing CORE transmission line and avoid proximity to existing homes Preferred
563			•		Split into 563+5140 for addition of 5100 Modified when Link 5100 shifted south and split into 5100+5160 Alternative link
564		•	•		Split into 564+589 for addition of 588 Eliminated due to removal of connector links and proximity to homes
565	•				Alternative link
566	•	•			Eliminated due to proximity to homes
567			•		Split into 567+5141 for addition of Link 591
568	•	•			Eliminated due to proximity to homes
569	•	•			Eliminated due to proximity to homes
570		•	•		Split into 570+590 for addition of 587 Eliminated due to subdivision development
571		•			Eliminated due to proximity to homes
572		•			Eliminated due to solar development, proximity to homes, a new development, and a landfill
573		•	•		Split into 573+586+584+583 for addition of 587, 580 and 582 Eliminated due to proximity to subdivision and boxing-in with existing transmission
574		•			Eliminated due to planned private airstrip, elimination of connecting links and boxing in homes with existing transmission
575		•			Eliminated due to proximity to homes, a landfill and new development
576		•	•		Split into 576+581 for addition of 582

Link	No Change	Eliminated	Modified	Added	Comments
					Eliminated in favor of routing closer to Quincy Ave
577			•		Modified per landfill/landowner request Preferred
578				•	Added as alternate option into Harvest Mile
579				•	Added to connect two options into Harvest Mile Alternative
580				•	Added based on feedback to evaluate feasibility of being adjacent to existing transmission on the south side of Quincy
581	•			•	Split from Link 576 Preferred
582				•	Added to evaluate paralleling Quincy Ave south of Link 576 Preferred
583		•		•	Split from Link 573
584				•	Split from Link 573
585				•	Alternative
586				•	Split from Link 573 Preferred
587				•	Added per landowner comment as an alternative to Link 570 to increase distance from homes along Link 570 Preferred
588				•	Added due to elimination of central links near Brick Center and to connect added link 5100
589				•	Split from Link 564 Modified per landowner request to follow parcel lines and road
590				•	Split from Link 570 Preferred
591				•	Added as an alternative to Link 562 to be road adjacent Alternative
592				•	Added as an alternative to Link 560 Alternative
593		•		•	Split from Link 557 Eliminated due to removal of connecting links
594				•	Split from Link 557 Alternative
595			•	•	Added based on public comment encouraging consideration of paralleling Highway 86 and an existing pipeline Split into 595+5166 for Link 560 modification Modified to follow east side of CORE line Preferred
596		•		•	Added as an alternative to Link 556 to avoid future subdivisions, residences and based on public comment Eliminated due to proximity of homes
597		•	•	•	Split from Link 556 Modified to follow road and parcel lines Eliminated due to removal of connecting links

Link	No Change	Eliminated	Modified	Added	Comments
598				•	Added to remove diagonal and as an alternative to Link 554
599				•	Split from Link 554
5100		•	•	•	Added per public comment to consider options further east Modified to follow section line per LOs and avoid NNL and CE Split into 5100+5160
5101		•		•	Split from Link 556 Eliminated during comparative analysis with other links based on potential cumulative impacts
5102		•		•	Added per public comment to consider options further west Eliminated due to proximity to residences and natural resource concerns
5103				•	Added based on public comment encouraging consideration of paralleling Highway 86 and an existing pipeline Preferred
5104		•		•	Added per public comment to consider options further west Eliminated due to proximity to homes and Elbert County Priority Economic Development Area
5105		•		•	Split from Link 524 Eliminated due to removal of connector links
5106		•		•	Split from Link 528 Eliminated due to removal of connector links
5107				•	Split from Link 527 Preferred
5108		•		•	Added to connect links 527 and 528 Eliminated due to removal of connecting links
5109		•		•	Added to connect links 524 and 528 Eliminated due to removal of connector links
5110			•	•	Split from Link 520 Modified when Link 526 shifted north Modified to shift north per landowner request Preferred
5111				•	Added per landowner comment Preferred
5112		•		•	Split from Link 521 Eliminated due to removal of connecting links
5113		•		•	Added as an alternative to Link 519 Eliminated due to diagonal parcel crossings and removal of connecting links
5114		•		•	Split from Link 519 Eliminated due to removal of connecting links
5115		•		•	Added as an alternate to Link 517 to follow parcel lines Eliminated due to USAFA training area
5116		•		•	Added as an alternate to Link 508 to follow parcel lines Eliminated due to removal of Link 517
5117		•		•	Split from Link 505 Eliminated due to removal of links 5115 and 517 and SLB preference for Link 502
5118		•		•	Split from Link 506 Eliminated due to removal of connector links

Link	No Change	Eliminated	Modified	Added	Comments
5119		•		•	Added per SLB input to be south of Link 511 Eliminated due to stewardship land trust crossing (Bohart/Chico Basin)
5120				•	Split from Link 511 Eliminated due to removal of links 511 and 5119
5121				•	Added to evaluate routing along existing transmission line
5122		•		•	Split from Link 511 Eliminated due to removal of connector links
5123		•		•	Split from Link 514
5124				•	Alternative
5125		•		•	Split from Link 513
5126				•	Added as an alternative to Link 513 to follow section lines based on landowner comment
5127				•	Split from Link 514 Alternative
5128		•		•	Added as an alternative to Link 516 diagonal
5129				•	Added as an alternative to Link 516 diagonal Preferred
5130				•	Added as an alternative to Link 516 diagonal Alternative
5131				•	Split from Link 515 Alternative
5132				•	Added to provide route options to added Sandstone Siting Area Preferred
5133				•	Added to provide route options through added Sandstone Substation Siting Area Preferred
5134				•	Added to provide route options through added Sandstone Substation Siting Area
5135			•	•	Added to provide route options to added Sandstone Siting Area Link modified to follow State Land boundary
5136				•	Added as an alternative to Link 516 diagonal
5137				•	Added to connect Links 505 and 506 when 5119 was added
5138		•		•	Added to connect links 509 and 5148 Eliminated due to removal of 517 and 5115
5139				•	Split from 561
5140			•	•	Split from Link 563 Modified when Link 5100 shifted south and split into 5100+5160
5141				•	Split from Link 567
5142				•	Added to provide route options through added Sandstone Substation Siting Area Preferred
5143				•	Added to provide route options through added Sandstone Substation Siting Area Preferred

Link	No Change	Eliminated	Modified	Added	Comments
5144				•	Added to provide route options through added Sandstone Substation Siting Area Preferred
5145		•		•	Split from Link 517 Eliminated due to diagonal parcel crossings and removal of connector links
5146		•		•	Split from Link 517 Eliminated due to removal of links 517 and 5115
5147		•		•	Split from Link 517 Eliminated due to removal of links 517 and 5115
5148		•		•	Eliminated due to removal of links 517 and 5115
5149				•	Preferred
5150		•	•	•	Split from Link 518 Modified to stair step and remove diagonal
5151		•		•	Split from Link 519 Eliminated due to removal of connecting links
5152				•	Added as an alternative to Link 520 to be road adjacent Split into 5152+5163 for addition of Link 5164
5153		•	•	•	Added as an alternative to 5155 to be road adjacent Eliminated due to natural resource concern Modified due to 5110 shift north per landowner request
5154			•	•	Split from Link 520 Modified due to 5110 shift north per landowner request Preferred
5155		•	•	•	Added per public comment to consider options further east Eliminated due to natural resource concerns and splitting parcels Modified due to 5110 shift north per landowner request
5156				•	Split from 515 per landowner comment Preferred
5157		•		•	Split from Link 530 to be along existing transmission Eliminated due to removal of connecting links
5158				•	Added as an alternative to diagonal along Link 535 Preferred
5159				•	Split from Link 535
5160		•	•	•	Split from Link 5100 Modified to avoid NNL and conservation easements
5161		•	•	•	Added to connect Link 5100 to 5162/5159 as option to get back to links to the west Link modified due to 5160 shift
5162				•	Added to connect links 5158 and 5100 to links to the west
5163				•	Split from Link 5152 Alternative
5164				•	Added as connector link between 520 and 5152 Preferred
5165				•	Split from Link 520 Preferred
5166				•	Split from Link 595
5167				•	Added to connect 5100 to links further west

Link	No Change	Eliminated	Modified	Added	Comments
5168				•	Added as an alternative to Link 513 to follow section lines based on landowner comment
5A				•	ERA Route, link removed due to landowner comments, line length and conservation easement
5B				•	ERA Route, link removed due to landowner comments, line length and conservation easement
5C				•	ERA Route, link removed due to landowner comments, line length and conservation easement
5D				•	ERA Route, link removed due to landowner comments, line length and conservation easement
5E				•	ERA Route, link removed due to landowner comments, line length and conservation easement
5F				•	ERA Route, link removed due to landowner comments, line length and conservation easement
5G				•	ERA Route, link removed due to landowner comments, line length and conservation easement
5H				•	ERA Route, link removed due to landowner comments, line length and conservation easement

Appendix E: Comparative Matrix

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