

Appendix E

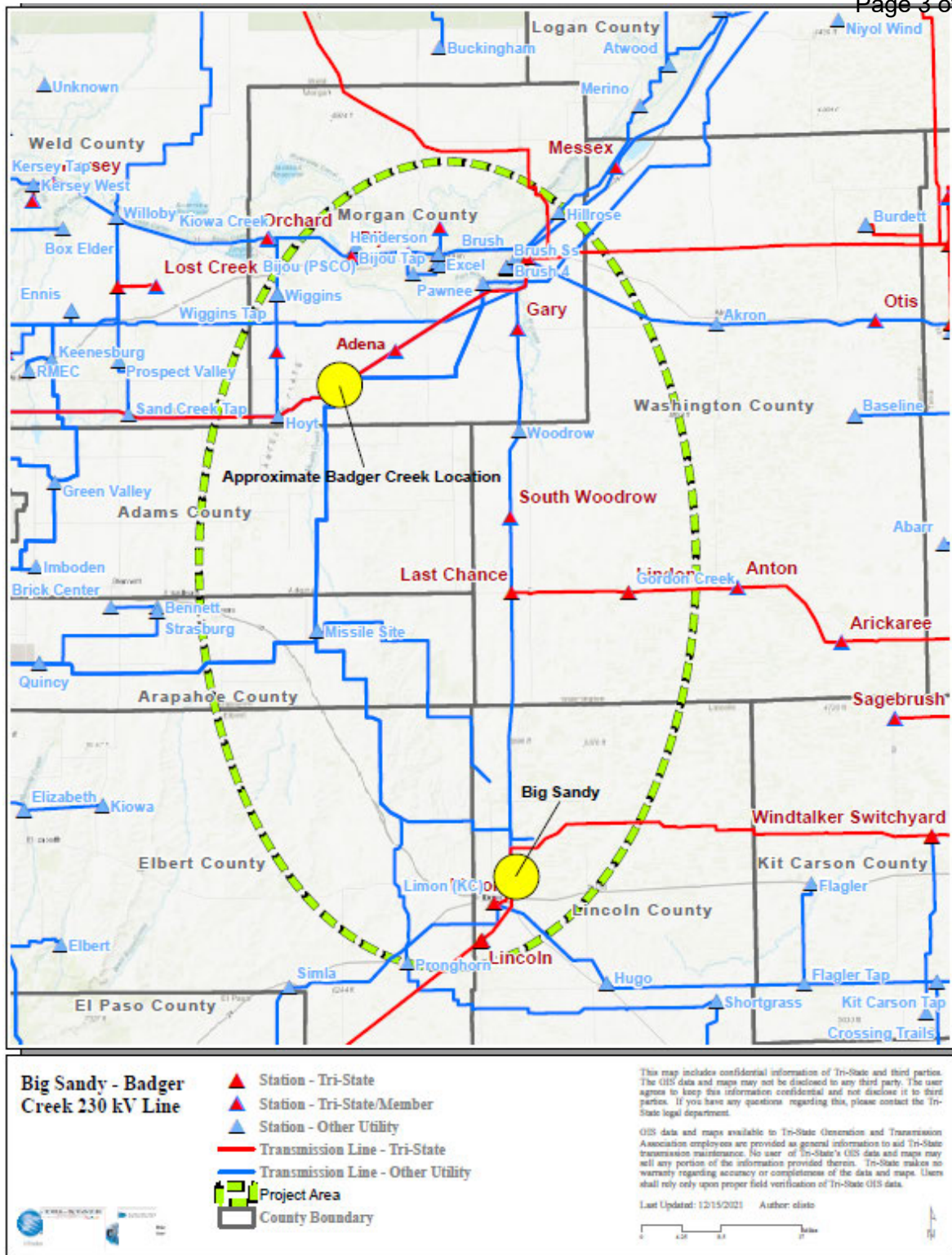
Tri-State Generation and Transmission Association, Inc. 10-Year Transmission Projects

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Big Sandy-Badger Ck 230 kV Line

Project Sponsor:	Tri-State Generation and Transmission Association
Additional Project Participants:	
Project Description:	Construct a 230 kV transmission line from Big Sandy Substation to a new Badger Ck Substation
Voltage Class:	230 kV
Facility Rating:	642 MVA
Point of Origin/Location:	Big Sandy
Point of Termination:	Badger Creek
Intermediate Points:	
Length of Line (in Miles):	80.0
Type of Project:	Transmission Line
Development Status:	Planned
Routing:	
Subregional Planning Group:	CCPG
Purpose of Project:	Improve load-serving capability, reduce generation curtailments, and support renewable resource development in eastern Colorado
Project Driver (Primary):	Generation
Project Driver (Secondary):	Reliability
Estimated Cost (in 2021 Dollars):	\$86,400,000
Schedule:	
Construction Date:	
Planned In-Service Date:	2028
Regulatory Info:	
Regulatory Date:	
Permitting Info:	
Permitting Date:	
Contact Information:	Ryan Hubbard
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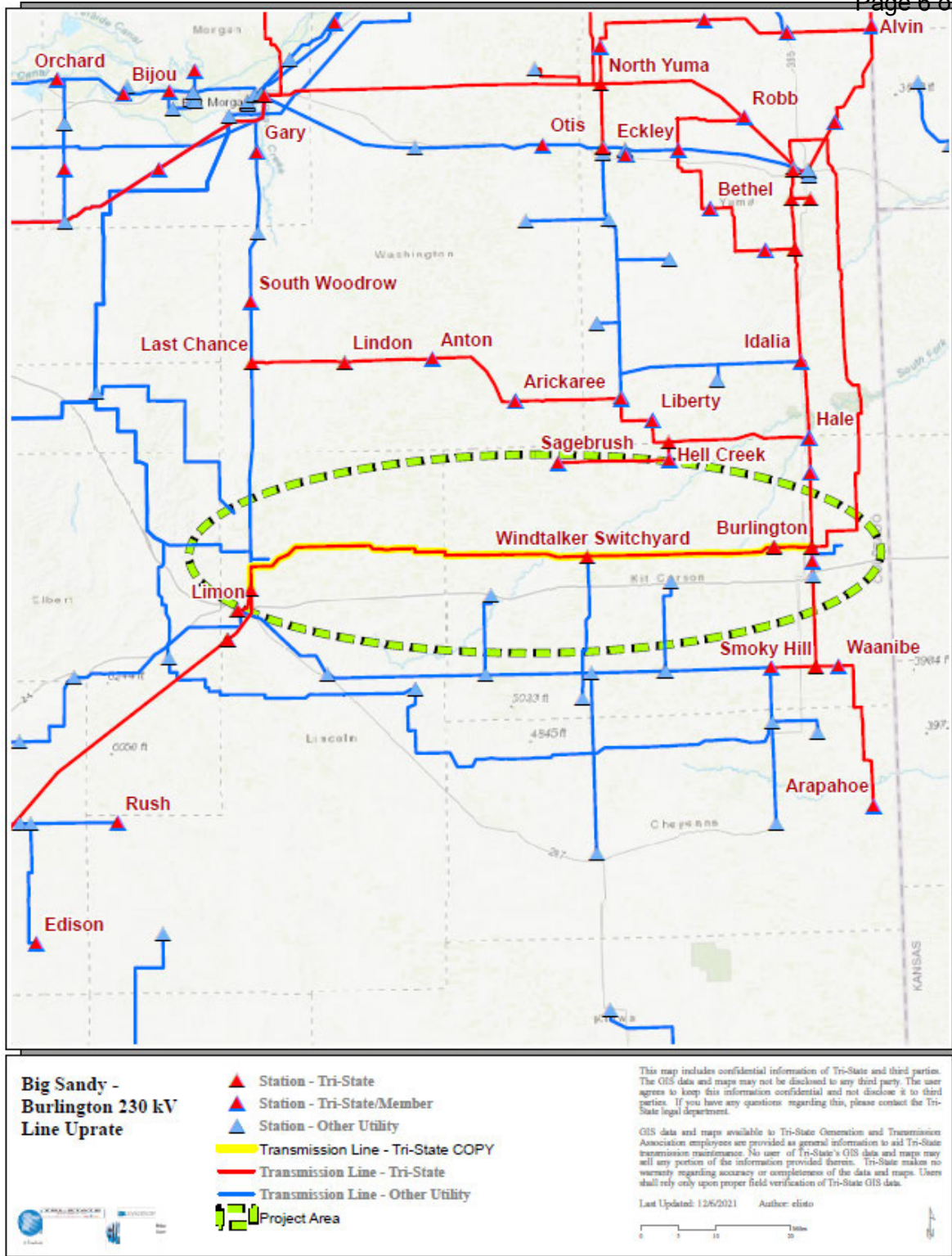


Big Sandy-Badger Ck 230 kV Line

The proposed Big Sandy-Badger Ck 230 kV line is intended to increase reliability in the project area, improve load-serving capability, reduce curtailment of eastern Colorado network resources under prior outage conditions, and allow the potential development of new renewable generation resources in the area. This will be accomplished by adding a new 230 kV line from the existing Big Sandy substation to a new Badger Ck switching station in eastern Colorado. Badger Ck switching station will sectionalize the existing Henry Lake-Story 230 kV line near Hoyt, Colorado.

Big Sandy-Burlington 230 kV Line Uprate

Project Sponsor:	Tri-State Generation and Transmission Association
Additional Project Participants:	
Project Description:	Structure replacements along the existing Big Sandy-Windtalker-Landsman Ck-Burlington 230 kV line
Voltage Class:	230 kV
Facility Rating:	445 MVA
Point of Origin/Location:	Big Sandy
Point of Termination:	Burlington
Intermediate Points:	Windtalker, Landsman Ck
Length of Line (in Miles):	81.0
Type of Project:	Transmission line
Development Status:	Planned
Routing:	
Subregional Planning Group:	CCPG
Purpose of Project:	Reduce generation curtailments and support renewable resource development in eastern Colorado
Project Driver (Primary):	Generation
Project Driver (Secondary):	Reliability
Estimated Cost (in 2021 Dollars):	\$7,650,000
Schedule:	
Construction Date:	
Planned In-Service Date:	2028
Regulatory Info:	
Regulatory Date:	
Permitting Info:	
Permitting Date:	
Contact Information:	Ryan Hubbard
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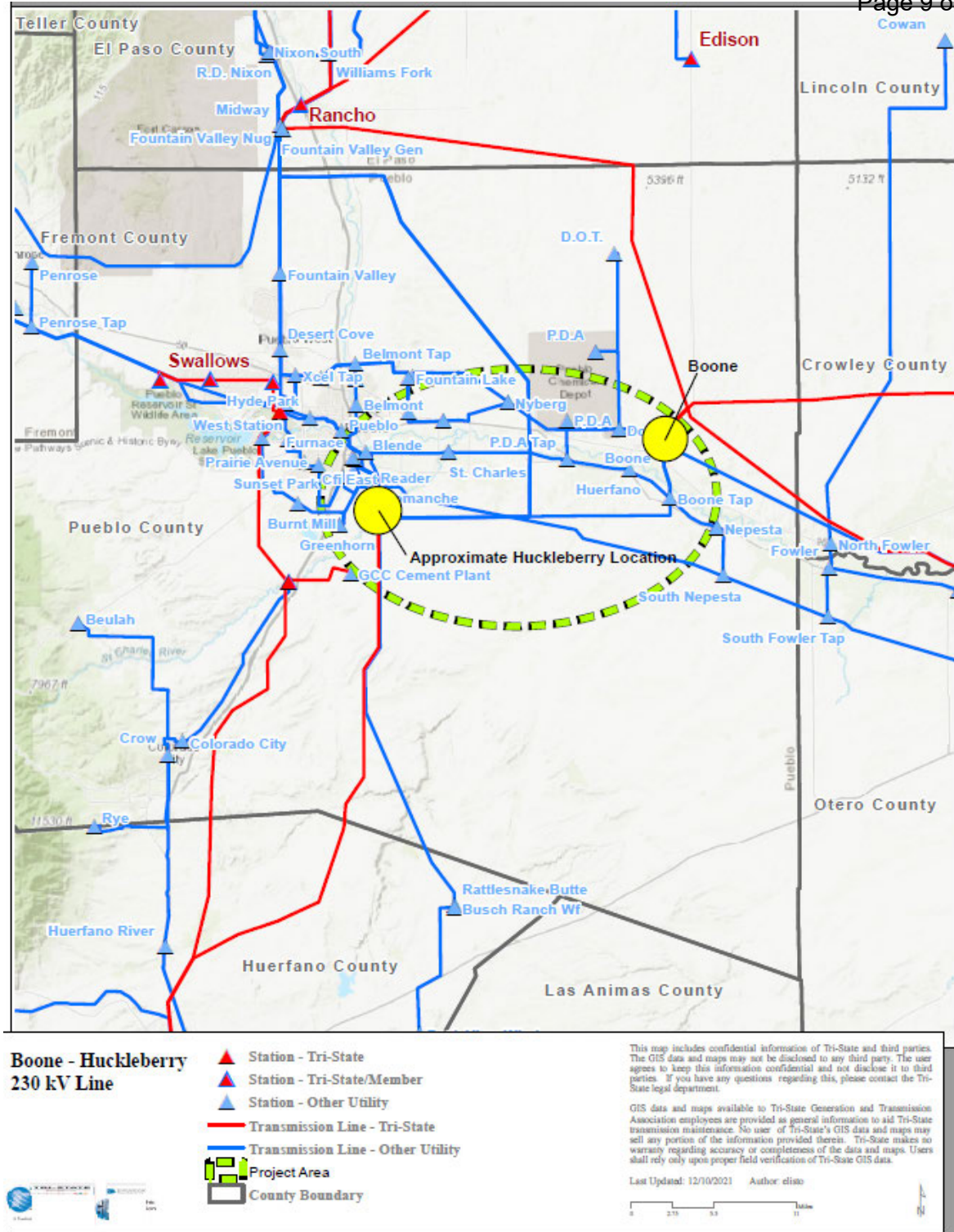


Big Sandy-Burlington 230 kV Line Uprate

The 81-mile long Burlington-Windtalker-Landsman Ck-Burlington 230 kV line is old and undersized based on modern design standards. To ensure continued reliability of the eastern Colorado transmission system, Tri-State is uprating the existing Burlington-Burlington 230 kV line through structure modifications/replacements to allow at least 75 deg operation. This project will improve reliability of the eastern Colorado transmission system and allow the potential development of new renewable generation resources in the area.

Boone-Huckleberry 230 kV Line

Project Sponsor:	Tri-State Generation and Transmission Association
Additional Project Participants:	
Project Description:	Construct a 230 kV transmission line from Boone Substation to a new Huckleberry Substation
Voltage Class:	230 kV
Facility Rating:	642 MVA
Point of Origin/Location:	Boone
Point of Termination:	Huckleberry
Intermediate Points:	
Length of Line (in Miles):	30.0
Type of Project:	Transmission line
Development Status:	Planned
Routing:	
Subregional Planning Group:	CCPG
Purpose of Project:	Provide ability to move geographically diversion resources across Tri-State four-state service area
Project Driver (Primary):	Generation
Project Driver (Secondary):	
Estimated Cost (in 2021 Dollars):	\$40,300,000
Schedule:	
Construction Date:	
Planned In-Service Date:	2026
Regulatory Info:	
Regulatory Date:	
Permitting Info:	
Permitting Date:	
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Boone-Huckleberry 230 kV Line

The proposed Boone-Huckleberry 230 kV line is intended to provide connectivity across Tri-State's four-state transmission system, which currently is not connected in southeast Colorado. The connection will allow geographically diverse generation resources to be moved across Tri-State's four-state service area. This will be accomplished by adding a new 230 kV line from the existing Boone substation to a new Huckleberry substation in southeast Colorado. Huckleberry substation will sectionalize the existing Comanche-Walsenburg 230 kV line south of Pueblo, Colorado.

Burlington-Burlington (KCEA) Rebuild

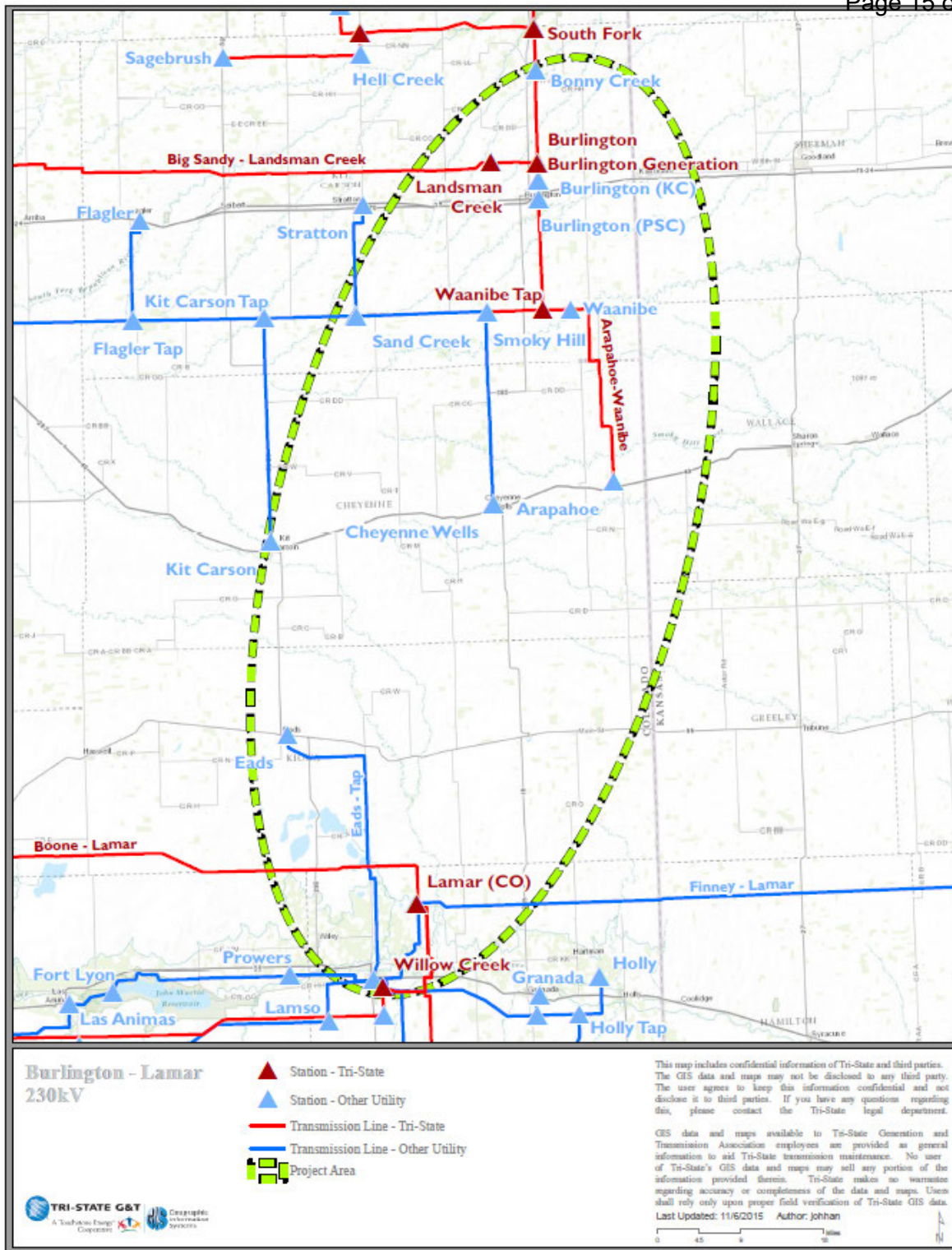
Project Sponsor:	Tri-State Generation and Transmission Association
Additional Project Participants:	
Project Description:	Rebuild the existing Burlington - Burlington (KCEA) 115 kV line
Voltage Class:	115 kV
Facility Rating:	242 MVA
Point of Origin/Location:	Burlington
Point of Termination:	Burlington (KCEA)
Intermediate Points:	
Length of Line (in Miles):	2.0
Type of Project:	Transmission line
Development Status:	Planned
Routing:	
Subregional Planning Group:	CCPG
Purpose of Project:	Increase conductor thermal rating.
Project Driver (Primary):	Reliability
Project Driver (Secondary):	
Estimated Cost (in 2021 Dollars):	\$718,000
Schedule:	
Construction Date:	
Planned In-Service Date:	2024
Regulatory Info:	
Regulatory Date:	
Permitting Info:	
Permitting Date:	
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Burlington-Burlington (KCEA) Rebuild

Under peak loading conditions, the K.C. Electric Association (KCEA) 69 kV system fed from Smoky Hill substation cannot be switched to the west to pick up additional load for the loss of the Limon source after the Smoky Hill transformer is replaced with a larger unit. To mitigate this limitation, Tri-State will rebuild the existing Burlington-Burlington (KCEA) line to increase the thermal rating of the line. The increased capacity will additionally help K.C. Electric Association serve new load in the area.

Burlington-Lamar 230 kV Line

Project Sponsor:	Tri-State Generation and Transmission Association
Additional Project Participants:	
Project Description:	Construct a 230 kV transmission line from Burlington Substation to Lamar Substation
Voltage Class:	230 kV
Facility Rating:	642 MVA
Point of Origin/Location:	Burlington
Point of Termination:	Lamar
Intermediate Points:	
Length of Line (in Miles):	107
Type of Project:	Transmission line
Development Status:	Planned
Routing:	
Subregional Planning Group:	CCPG
Purpose of Project:	Improve load-serving capability, remove generation operating restrictions and support renewable resource development in eastern Colorado.
Project Driver (Primary):	Reliability
Project Driver (Secondary):	Load serving
Estimated Cost (in 2021 Dollars):	\$106,500,000
Schedule:	
Construction Date:	
Planned In-Service Date:	2025
Regulatory Info:	CPCN granted
Regulatory Date:	
Permitting Info:	
Permitting Date:	
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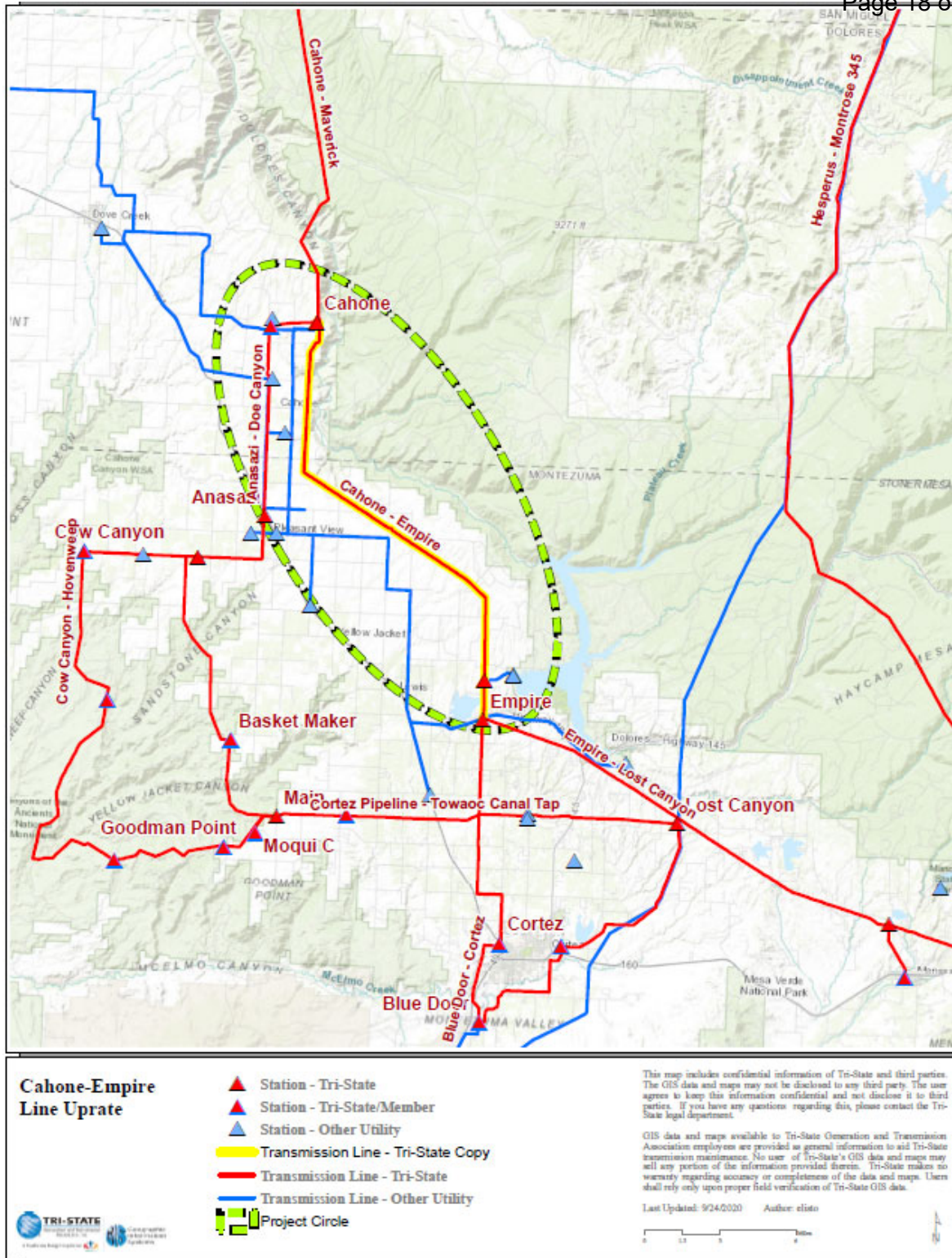


Burlington-Lamar 230 kV Line

Past studies in the Boone-Lamar area of Colorado have shown voltage collapse for the Boone-Lamar 230 kV line outage with cross-trips of all generation injected at Lamar 230 kV. In order to mitigate these violations and provide for future growth and potential new generation, Tri-State determined the best solution was to construct a new transmission line from the existing Burlington substation to the existing Lamar substation. This line was re-evaluated in CCPG's Responsible Energy Plan Task Force.

Cahone-Empire 115 kV Line Uprate

Project Sponsor:	Tri-State Generation and Transmission Association
Additional Project Participants:	
Project Description:	Structure replacements along the existing Cahone-Great Cut Tap-Empire 115 kV line, and terminal upgrades at Cahone.
Voltage Class:	115 kV
Facility Rating:	135 MVA
Point of Origin/Location:	Cahone
Point of Termination:	Empire
Intermediate Points:	Great Cut Tap
Length of Line (in Miles):	19.6
Type of Project:	Transmission line
Development Status:	Planned
Routing:	
Subregional Planning Group:	CCPG
Purpose of Project:	Increase conductor thermal rating.
Project Driver (Primary):	Reliability
Project Driver (Secondary):	
Estimated Cost (in 2021 Dollars):	\$900,000
Schedule:	
Construction Date:	
Planned In-Service Date:	2023
Regulatory Info:	
Regulatory Date:	
Permitting Info:	
Permitting Date:	
Contact Information:	Ryan Hubbard
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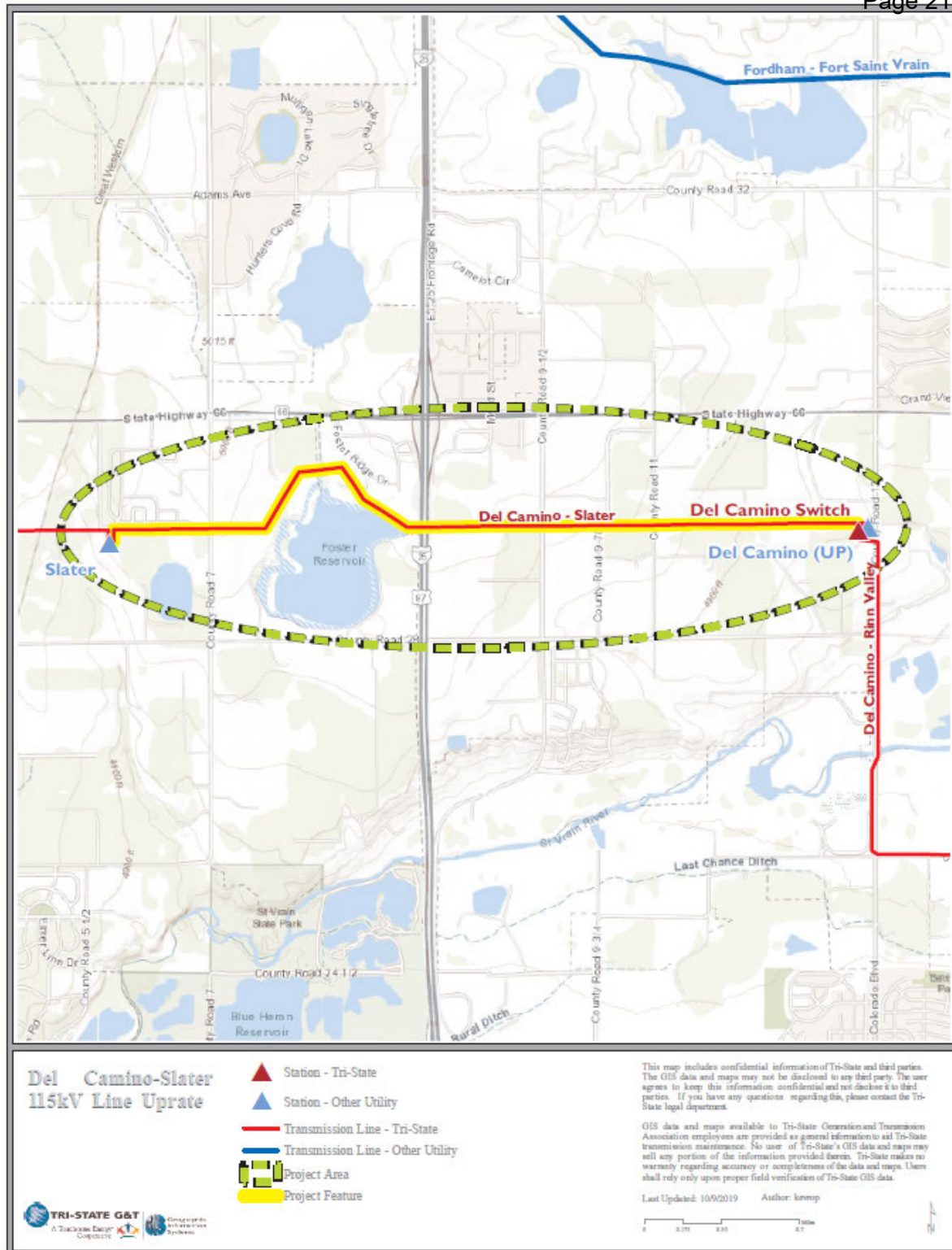


Cahone-Empire Line Uprate

This project will replace structures on limiting spans on the Cahone – Great Cut Tap – Empire 115 kV to allow 100 deg C operation. The project also will include terminal equipment upgrades at Cahone to allow 100 deg C operation of the line. The increased line rating will address existing operational and maintenance constraints on this line.

Del Camino-Slater 115 kV Line Uprate

Project Sponsor:	Tri-State Generation and Transmission Association
Additional Project Participants:	
Project Description:	Reconductor portions of the existing Del Camino-Slater 115 kV line
Voltage Class:	115 kV
Facility Rating:	131 MVA
Point of Origin/Location:	Del Camino Switch
Point of Termination:	Slater
Intermediate Points:	
Length of Line (in Miles):	3.6
Type of Project:	Transmission line
Development Status:	Under construction
Routing:	
Subregional Planning Group:	CCPG
Purpose of Project:	Increase conductor thermal rating
Project Driver (Primary):	Reliability
Project Driver (Secondary):	Load serving
Estimated Cost (in 2021 Dollars):	\$1,400,000
Schedule:	
Construction Date:	
Planned In-Service Date:	2022
Regulatory Info:	
Regulatory Date:	
Permitting Info:	
Permitting Date:	
Contact Information:	Ryan Hubbard
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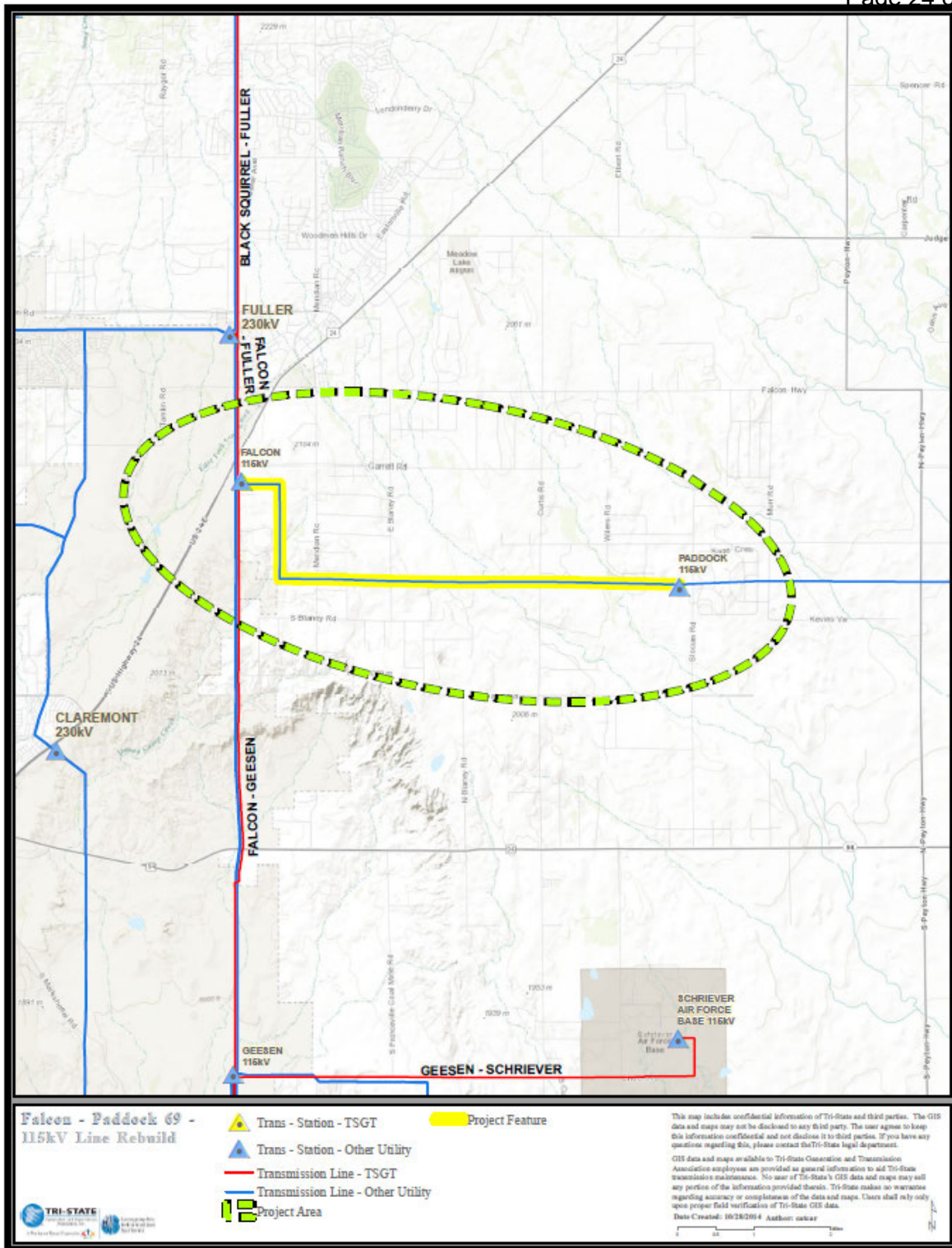


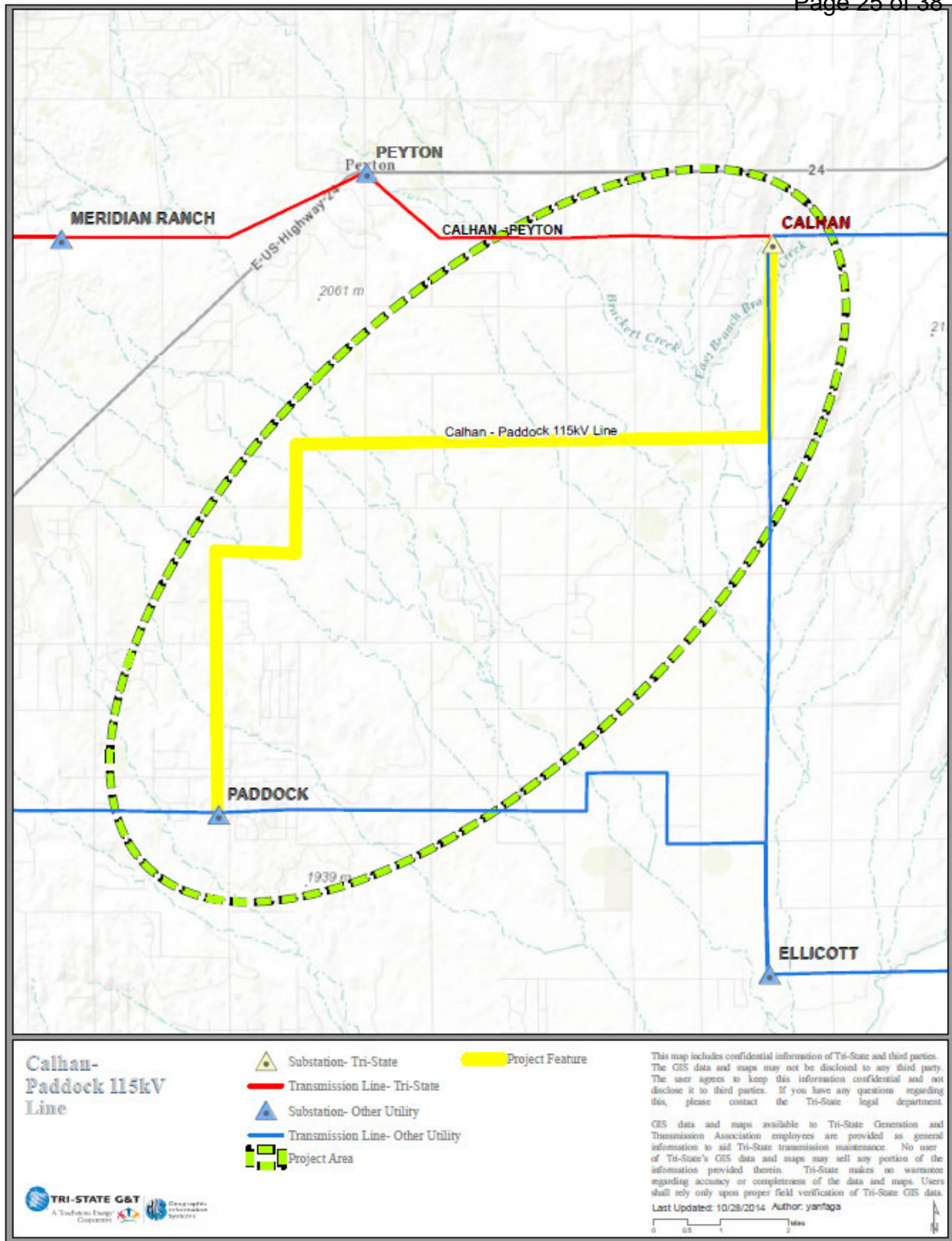
Del Camino-Slater 115 kV Line Uprate

This project will replace all the remaining spans of 397.5 ACSR conductor on the Del-Camino Slater line with 477 ACSR. The increased line rating will address the limited load-serving capability of the line and allow continued area load growth.

Falcon-Paddock-Calhan 115 kV Line

Project Sponsor:	Tri-State Generation and Transmission Association
Additional Project Participants:	
Project Description:	Rebuild of existing 69 kV line between Falcon and Calhan.
Voltage Class:	115 kV
Facility Rating:	242 MVA
Point of Origin/Location:	Falcon
Point of Termination:	Calhan
Intermediate Points:	Paddock
Length of Line (in Miles):	25.0
Type of Project:	Transmission line and substation
Development Status:	Conceptual
Routing:	
Subregional Planning Group:	CCPG
Purpose of Project:	Increase conductor thermal rating and create 115 kV loop
Project Driver (Primary):	Reliability
Project Driver (Secondary):	
Estimated Cost (in 2021 Dollars):	TBD
Schedule:	
Construction Date:	
Planned In-Service Date:	TBD
Regulatory Info:	
Regulatory Date:	
Permitting Info:	
Permitting Date:	
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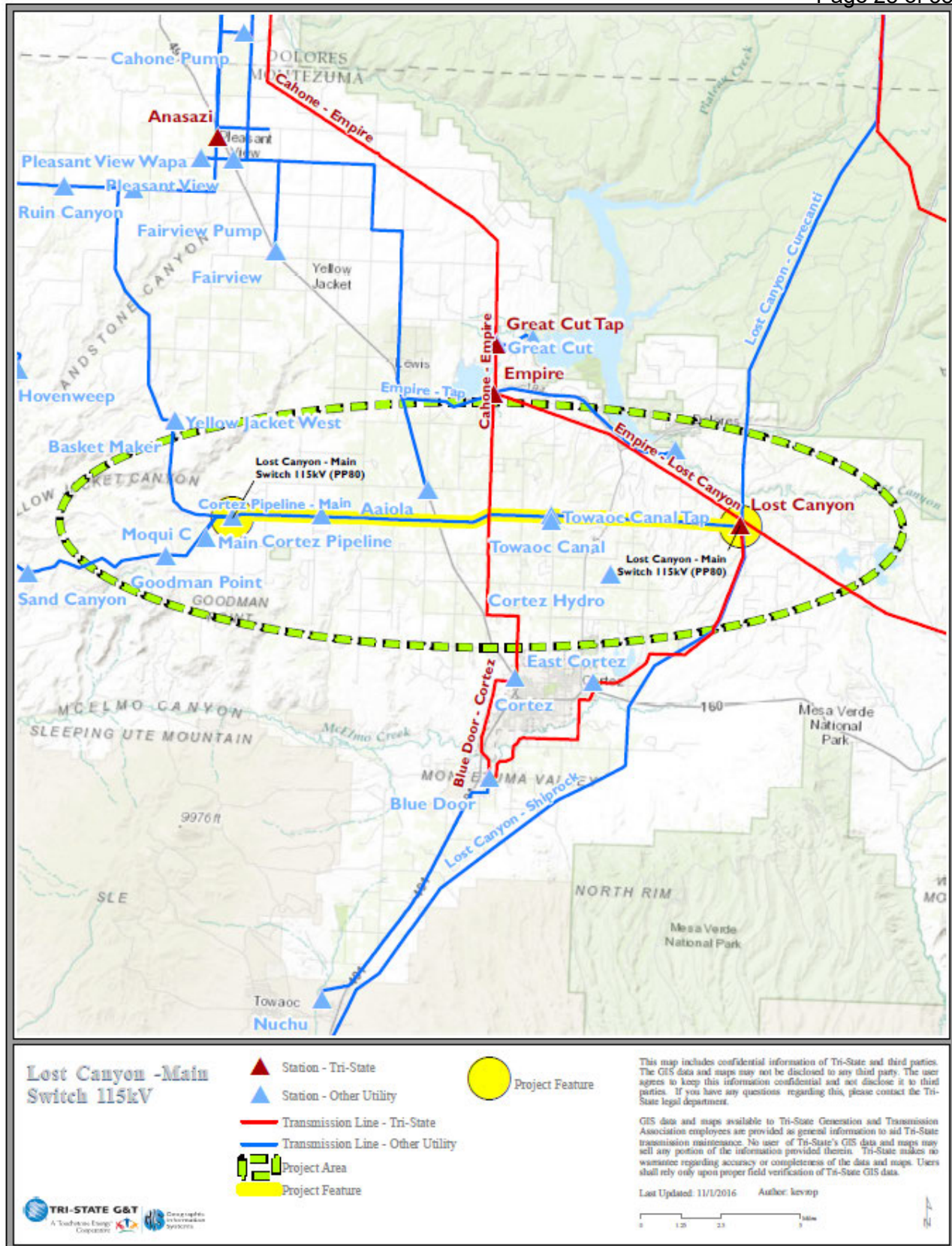


Falcon-Paddock-Calhan 115 kV Line

The current Falcon – Paddock – Calhan 69 kV transmission line will be rebuilt to create a 115 kV loop in MVEA’s central system. The 115 kV line will improve system reliability by looping the existing radial 115 kV and 69 kV substations in MVEA’s system and provide increased voltage support. The 115 kV line also will help serve Mountain View Electric Association’s (MVEA) customer load growth in the area. The project is being built and financed solely by Tri-State.

Lost Canyon-Main Switch 115 kV Line

Project Sponsor:	Tri-State Generation and Transmission Association
Additional Project Participants:	
Project Description:	New 115 kV transmission line between Lost Canyon and Main Switch substations
Voltage Class:	115 kV
Facility Rating:	238 MVA
Point of Origin/Location:	Lost Canyon
Point of Termination:	Main Switch
Intermediate Points:	
Length of Line (in Miles):	16.0
Type of Project:	Transmission line
Development Status:	Conceptual
Routing:	
Subregional Planning Group:	CCPG
Purpose of Project:	Increase load-serving capability of the CO2 Loop
Project Driver (Primary):	Load serving
Project Driver (Secondary):	Reliability
Estimated Cost (in 2021 Dollars):	TBD
Schedule:	
Construction Date:	
Planned In-Service Date:	TBD
Regulatory Info:	
Regulatory Date:	
Permitting Info:	
Permitting Date:	
Contact Information:	Ryan Hubbard
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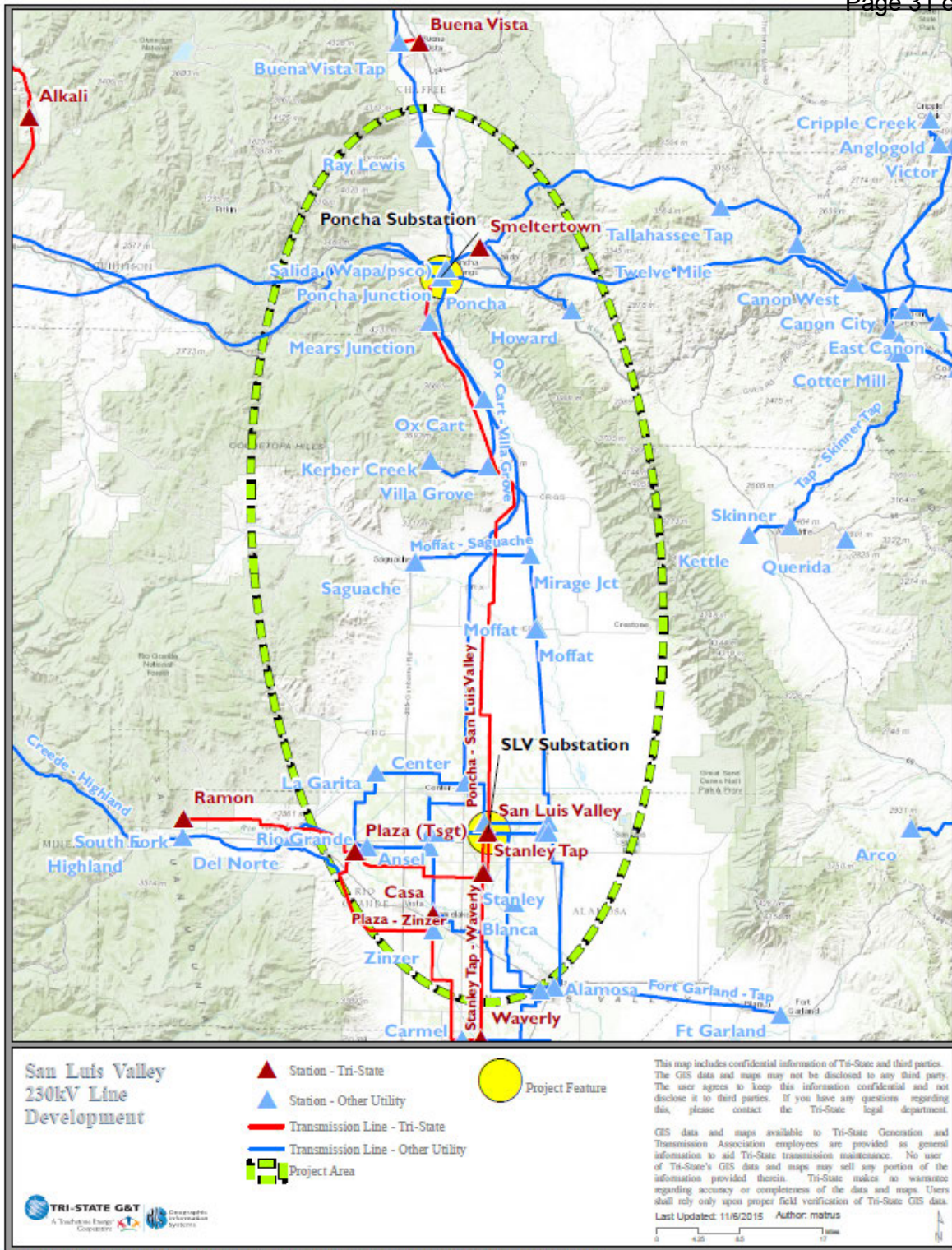
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Lost Canyon – Main Switch 115 kV Line

There is heavy load growth and resource development in the CO2 Loop consisting of the Yellow Jacket Switch-Main Switch-Sand Canyon-Hovenweep-Yellow Jacket 115 kV system. Constructing the new Lost Canyon-Main Switch 115 kV line will provide support to reliably meet future load growth and resource development for the CO2 Loop in southwestern Colorado.

San Luis Valley-Poncha 230 kV Line #2

Project Sponsor:	Tri-State Generation and Transmission Association
Additional Project Participants:	Xcel Energy
Project Description:	Construct a second 230 kV transmission line from San Luis Valley to Poncha
Voltage Class:	230 kV
Facility Rating:	631 MVA
Point of Origin/Location:	San Luis Valley
Point of Termination:	Poncha
Intermediate Points:	
Length of Line (in Miles):	62
Type of Project:	Transmission line
Development Status:	Redevelopment
Routing:	
Subregional Planning Group:	CCPG
Purpose of Project:	Provide reliable and adequate load support to San Luis Valley
Project Driver (Primary):	Reliability
Project Driver (Secondary):	
Estimated Cost (in 2021 Dollars):	TBD
Schedule:	
Construction Date:	
Planned In-Service Date:	TBD
Regulatory Info:	
Regulatory Date:	
Permitting Info:	
Permitting Date:	
Contact Information:	Ryan Hubbard
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San Luis Valley-Poncha 230 kV #2

New high-voltage transmission must be built in the San Luis Valley (SLV) region of south-central Colorado to restore electric system reliability and customer load-serving capability, and to accommodate development of potential generation resources. Tri-State Generation and Transmission (Tri-State) and Public Service Company of Colorado (Public Service) facilitated a study effort through the Colorado Coordinated Planning Group (CCPG) to perform an evaluation of the transmission system immediately in and around the SLV and develop system alternatives that would improve the transmission system between the SLV and Poncha Springs (Poncha), Colo. Both Tri-State and Public Service have electric customer loads in the SLV region that are served radially from transmission that originates at or near Poncha. The study concluded that, at a minimum, an additional 230 kV line is needed to increase system reliability. Studies show that this could be accomplished by either adding a new 230 kV line or rebuilding an existing lower voltage line to and operating it at 230 kV. This conceptual project is being reevaluated in the CCPG San Luis Valley Subcommittee to explore alternatives to 230 kV transmission development.

Slater Double Circuit Conversion

Project Sponsor:	Tri-State Generation and Transmission Association
Additional Project Participants:	
Project Description:	Rebuild the Del Camino Tap – Slater 115 kV line as a double circuit line, creating separate Slater-Meadow and Slater-Longs Peak 115 kV lines.
Voltage Class:	115 kV
Facility Rating:	244 MVA
Point of Origin/Location:	Del Camino Tap
Point of Termination:	Slater
Intermediate Points:	
Length of Line (in Miles):	1.6
Type of Project:	Transmission line
Development Status:	Planned
Routing:	
Subregional Planning Group:	CCPG
Purpose of Project:	Remove three-terminal line between Slater, Longs Peak, and Meadow
Project Driver (Primary):	Reliability
Project Driver (Secondary):	Load serving
Estimated Cost (in 2021 Dollars):	\$4,100,000
Schedule:	
Construction Date:	
Planned In-Service Date:	2024
Regulatory Info:	
Regulatory Date:	
Permitting Info:	
Permitting Date:	
Contact Information:	Ryan Hubbard
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Phone	303-254-3025

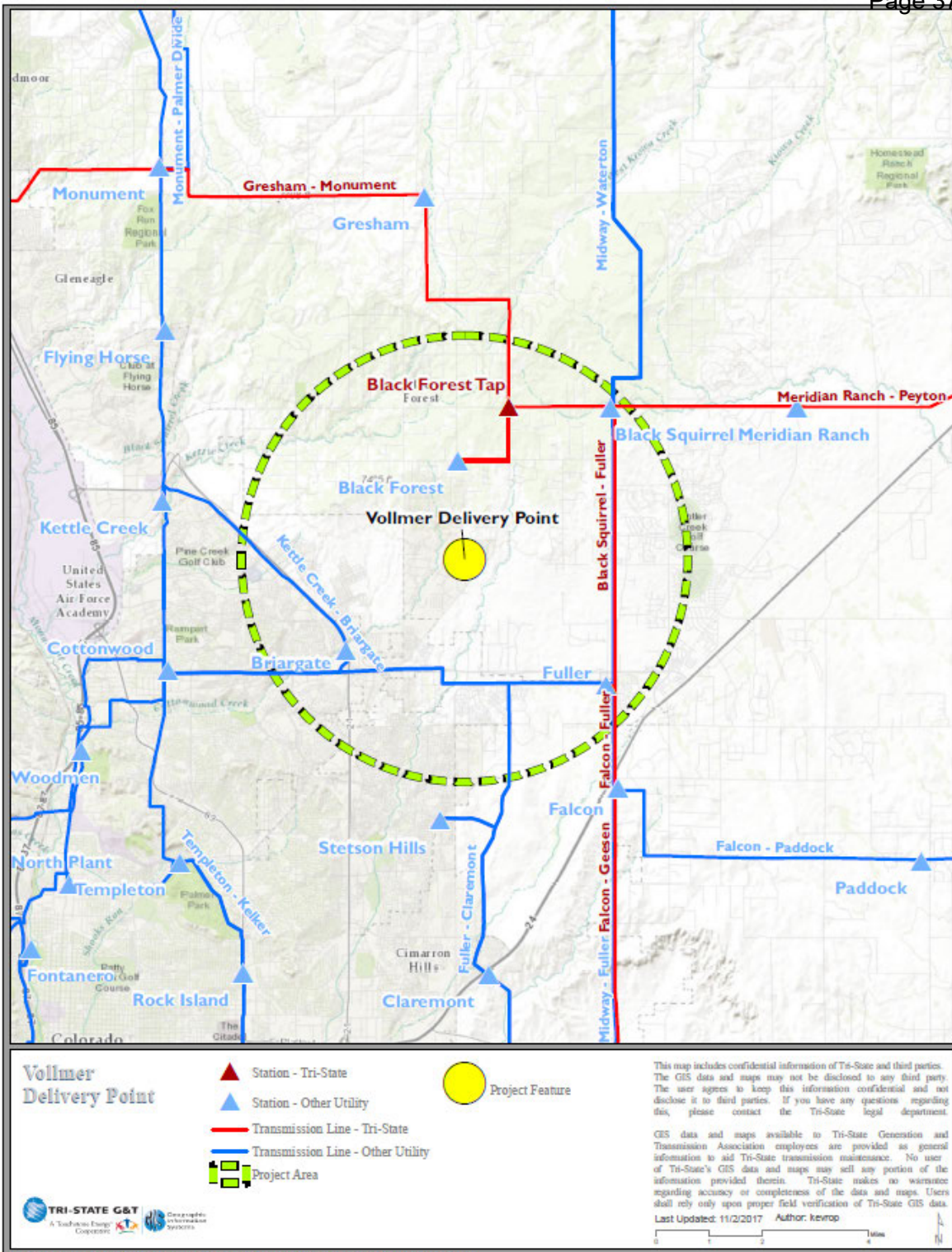


Slater Double Circuit Conversion

This project will rebuild the Del Camino Tap – Slater 115 kV line as a double circuit line. This will result in the removal of the three-terminal line between Longs Peak, Meadow, and Slater substations, and the creation of separate Longs Peak – Slater and Meadow – Slater 115 kV lines. The project will increase reliability on the area transmission system and improve operational and maintenance challenges.

Vollmer Project

Project Sponsor:	Tri-State Generation and Transmission Association
Additional Project Participants:	
Project Description:	Construct approximately 2 miles of 115 kV transmission to serve the planned Vollmer substation
Voltage Class:	115 kV
Facility Rating:	143 MVA
Point of Origin/Location:	Vollmer
Point of Termination:	Jackson Fuller, Black Squirrel
Intermediate Points:	
Length of Line (in Miles):	2
Type of Project:	Transmission line and substation
Development Status:	Under construction
Routing:	
Subregional Planning Group:	CCPG
Purpose of Project:	Increase load-serving capability
Project Driver (Primary):	Load serving
Project Driver (Secondary):	
Estimated Cost (in 2021 Dollars):	\$7,100,000
Schedule:	
Construction Date:	
Planned In-Service Date:	2022
Regulatory Info:	
Regulatory Date:	
Permitting Info:	
Permitting Date:	
Contact Information:	Ryan Hubbard
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Vollmer Project

There is development in outside of Colorado Springs. This project will add approximately 2 miles of 115 kV transmission to serve the planned Vollmer substation. The line and substation addition will increase load-serving capability for Mountain View Electric Association.