Proposed 138kV Transmission Line 820
Transmission Adequacy and Security

April 20, 2001

Austin, TX

Entergy

Technical System Planning

- Responsible for long-term area planning for EGSI's transmission system
- Perform studies to determine the security and adequacy of the EGSI transmission system per the
  - North American Electric Reliability Council (NERC) Planning Standards
  - Entergy Planning Guidelines
- Develop and propose solutions to solve transmission needs

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Elements of the EGSI Transmission System

- The EGSI transmission system is comprised of, among other elements,
  - transmission lines
  - autotransformers
  - switches
  - circuit breakers
  - substation bus work
- The capacity of the EGSI transmission system is limited by the thermal capacity of these elements.

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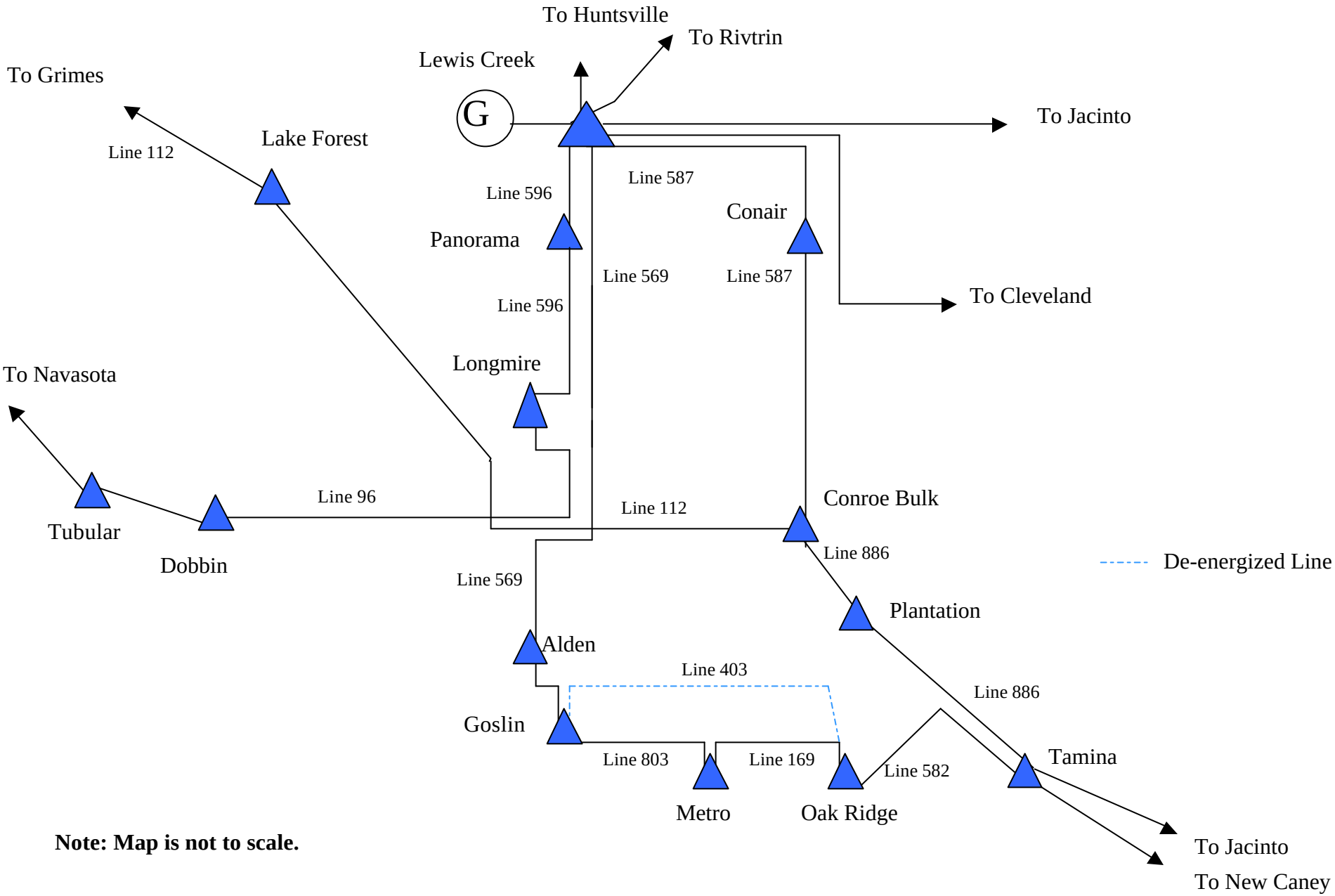
Existing Transmission System in Montgomery County



Note: Map is not to scale.

What's driving the need for Line 820?

- High load growth will have used the available *capacity* of the transmission lines in the area, making the system *inadequate* to the serve the projected load in 2002.

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What are the projected outcomes of the high load growth?

- Under the loss of a single transmission line in the area, some of the remaining lines will load to more than 140% of its design capacity and substation voltages as low as 86% of nominal will be experienced.
  - Line loading over 100% of capacity is unacceptable
  - Substation voltages less than 92% of nominal is unacceptable

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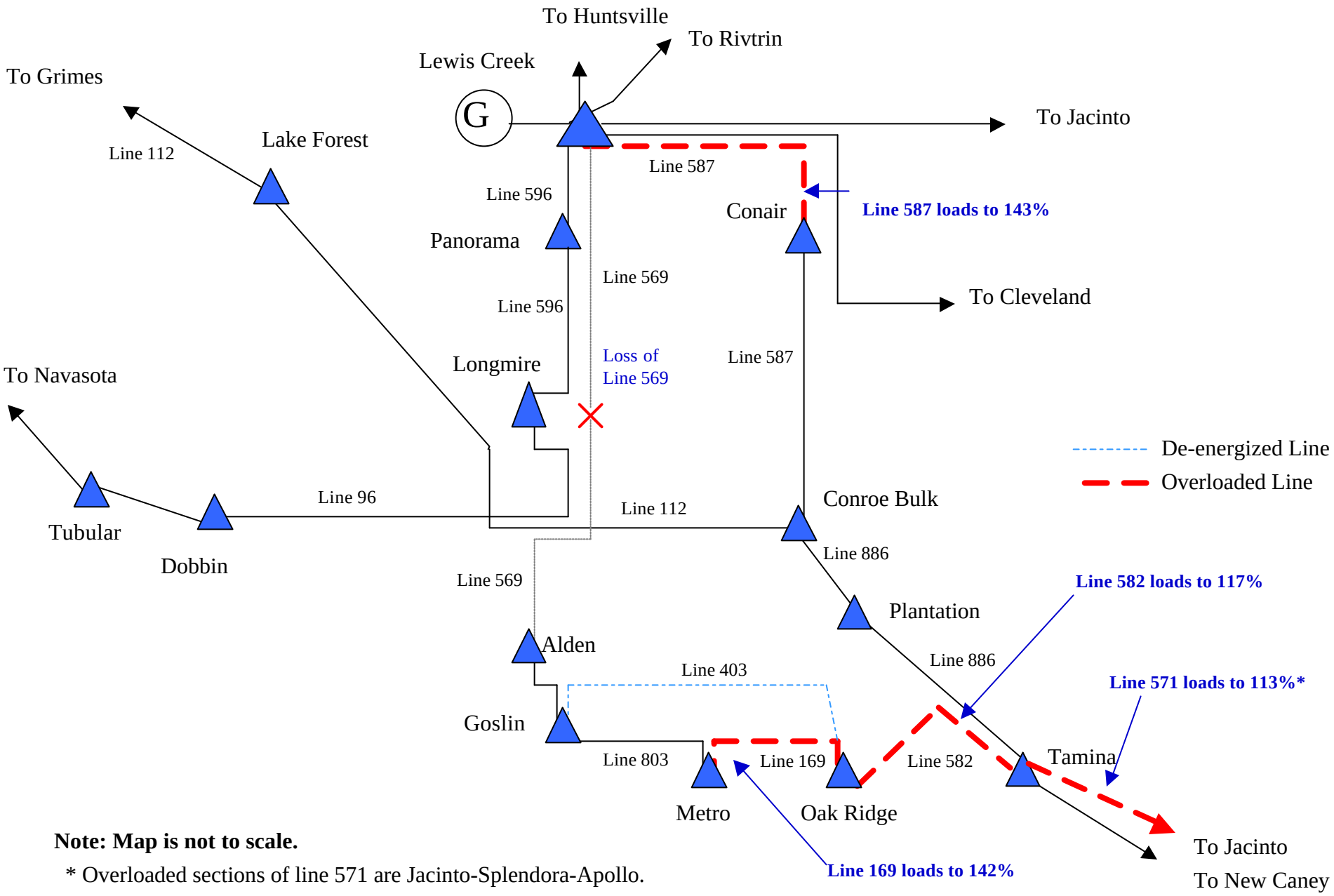
Loss of Lewis Creek - Alden
Summer Peak 2002



Note: Map is not to scale.

* Overloaded sections of line 571 are Jacinto-Splendora-Apollo.

Why are overloads and undervoltages unacceptable?

- Overloads and undervoltages are violations of Entergy's planning criteria.
- Overloads could lead to damaged transmission system elements.
- Overloaded transmission lines could sag and pose a hazard to the general public, distribution underbuild, and other nearby facilities.
- Undervoltages will lead to power quality problems.

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What is at risk?

- Under the worst case contingency, it is projected that approximately 163MW of load would have to be shed to relieve the resulting line overloads and undervoltages.
  - 163MW equates to approximately 20,000 customers

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What is the purpose of the proposed 138kV Line 820?

- Provide an additional transmission source into the south central Montgomery County area
- Tie the southern and northern portions of Montgomery County together so they can be mutually supportive
- Provide voltage support

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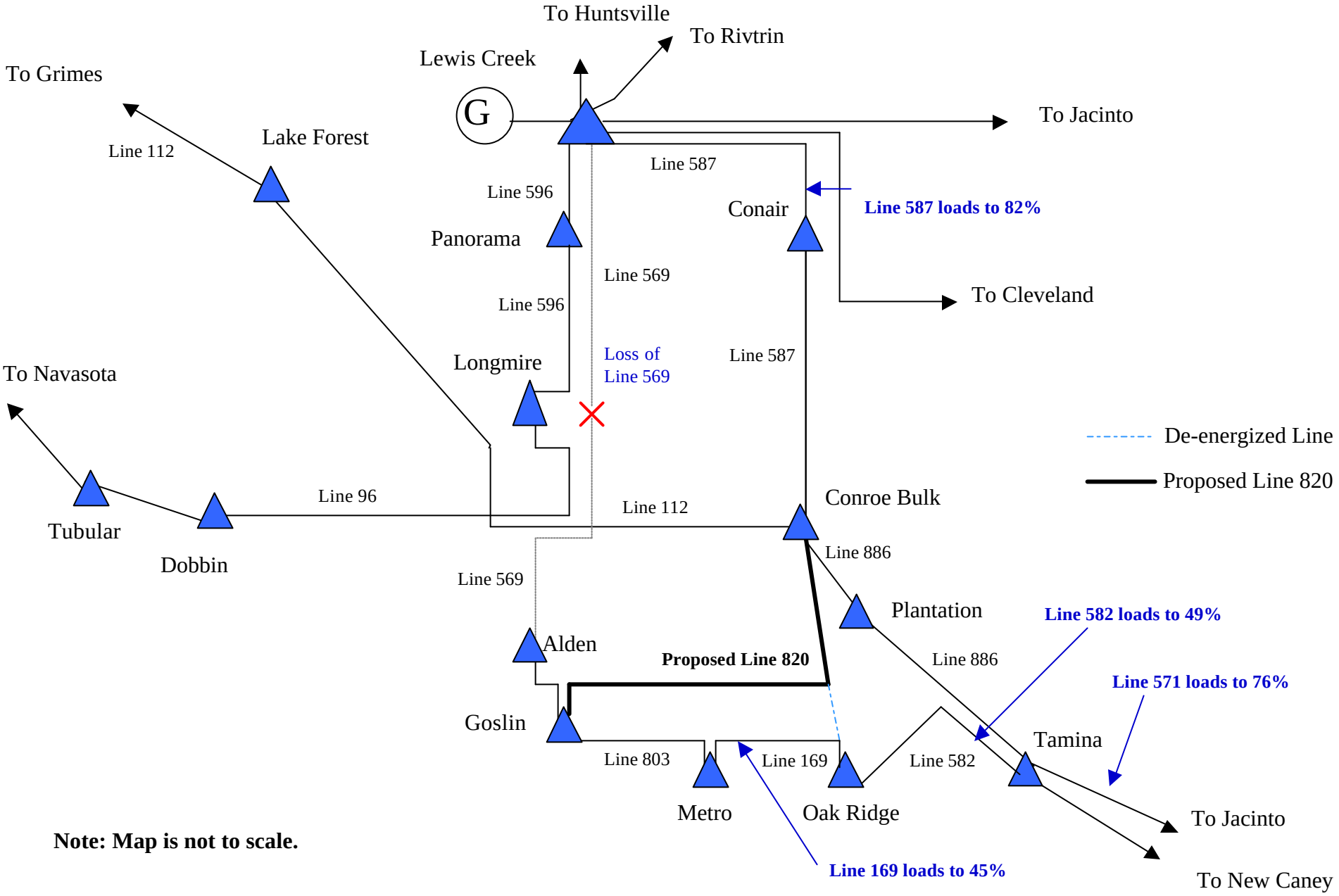
Loss of Lewis Creek - Alden: Summer Peak 2002 with New Line from Conroe Bulk to Goslin



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