



# Jefferson County Reliability Project

ATC Customer Meeting  
November 19, 2009



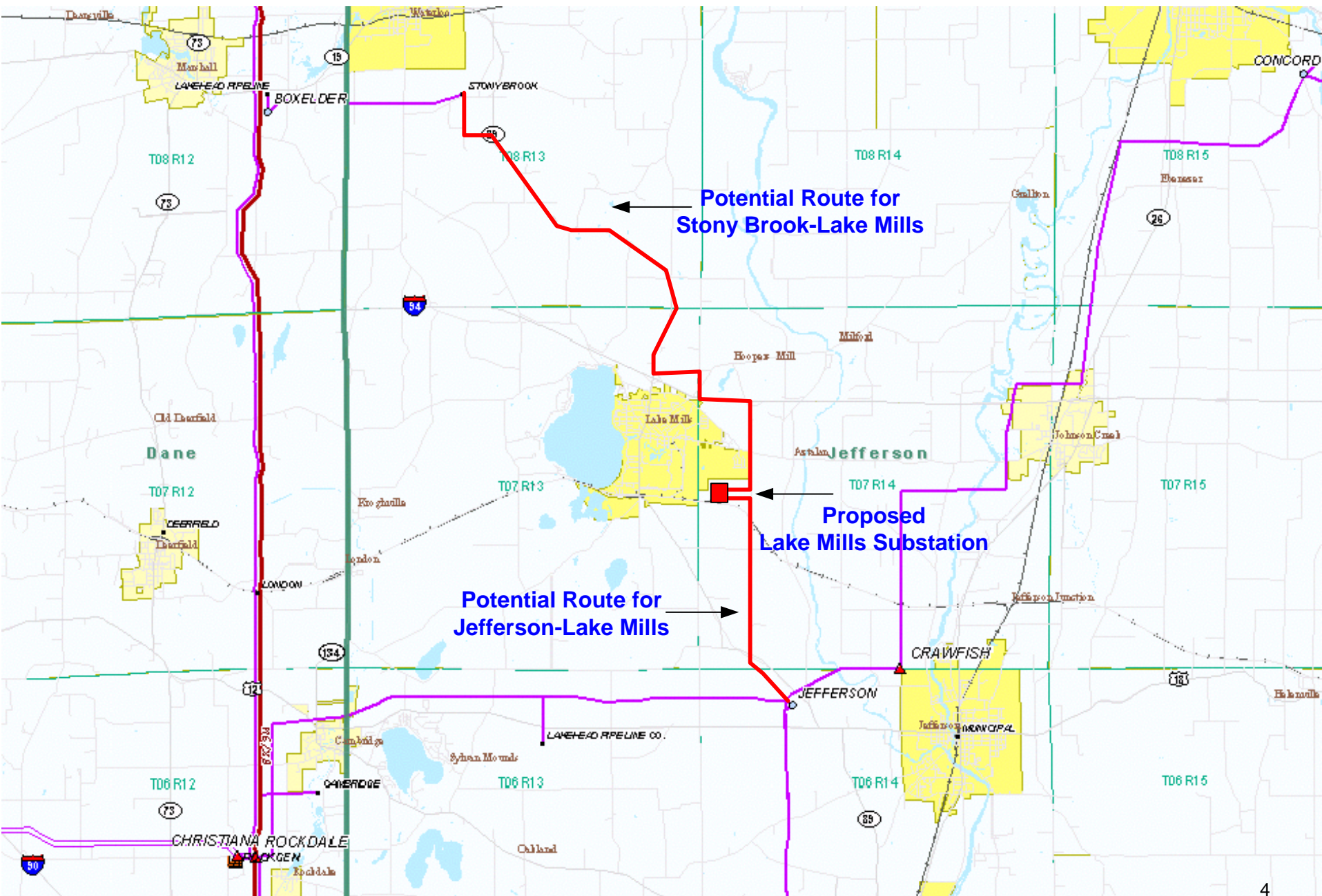
# Project Need

- Western Jefferson and Eastern Dane Counties have experienced steady residential, commercial, and light industrial load growth. This growth is expected to continue at a rate of 3% per year. Much of this load is currently served from the Rockdale Substation
- The transmission system in the area is vulnerable to low voltages with an outage of Rockdale – Boxelder line X-8 or Rockdale – Jefferson line 6632
  - Under contingency conditions, voltages at Academy, Boxelder, Stony Brook, London, Cambridge, and Jefferson Substations could drop below 90% during summer of 2008
- Lake Mills Light & Water has submitted a T-D interconnection request for a new substation in the City of Lake Mills

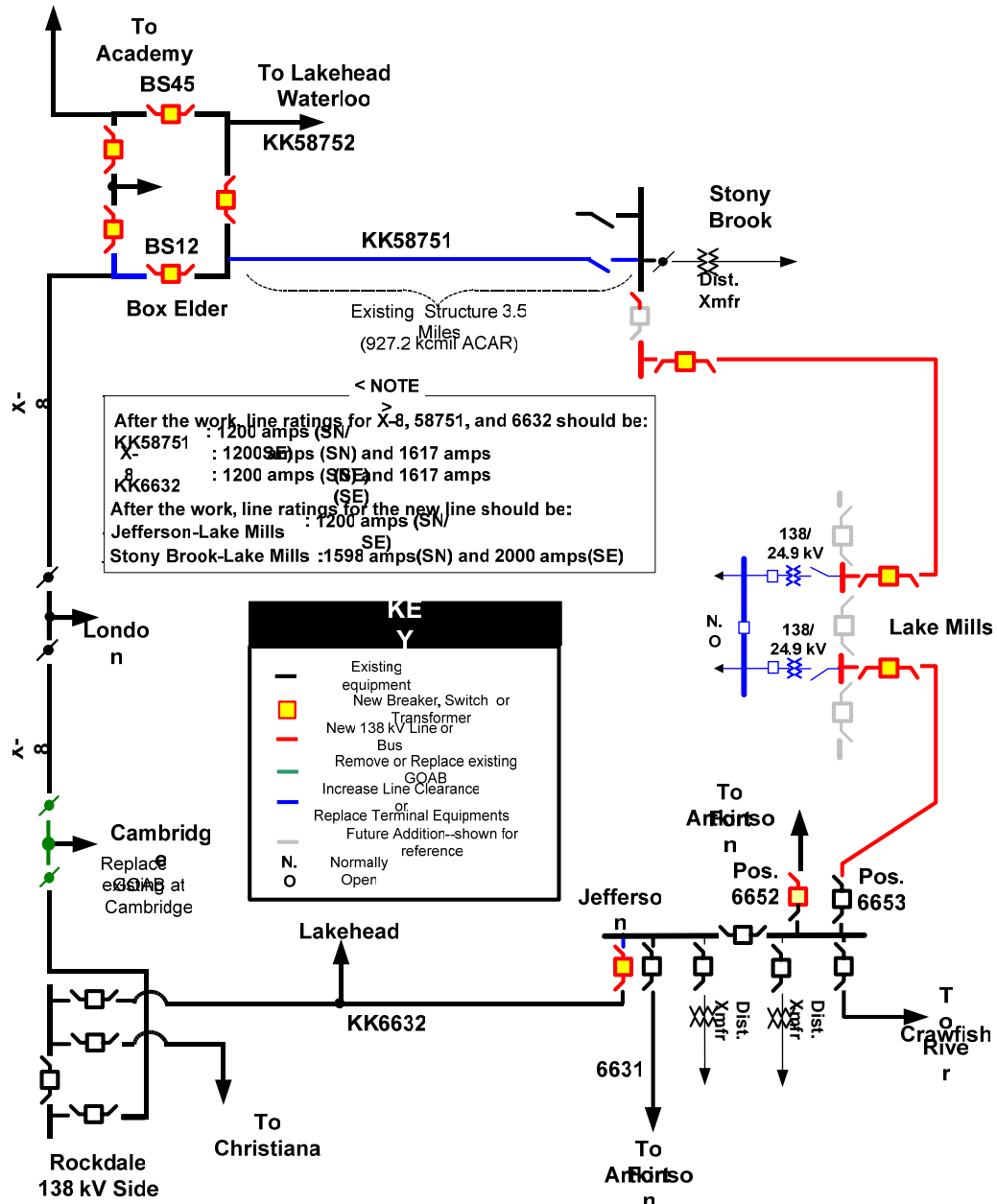


# Selected Alternative

- 138kV line from Jefferson to Stony Brook
  - Improves reliability and supports anticipated load growth in the area
  - Provides for adequate voltages at Academy, Boxelder, Stony Brook, London, Cambridge, and Jefferson Substations under contingency conditions
  - Provides network service to Stony Brook Substation
  - Allows for network service to the proposed Lake Mills Substation
  - Approximately 15 miles
  - Estimated Capital Cost \$22M

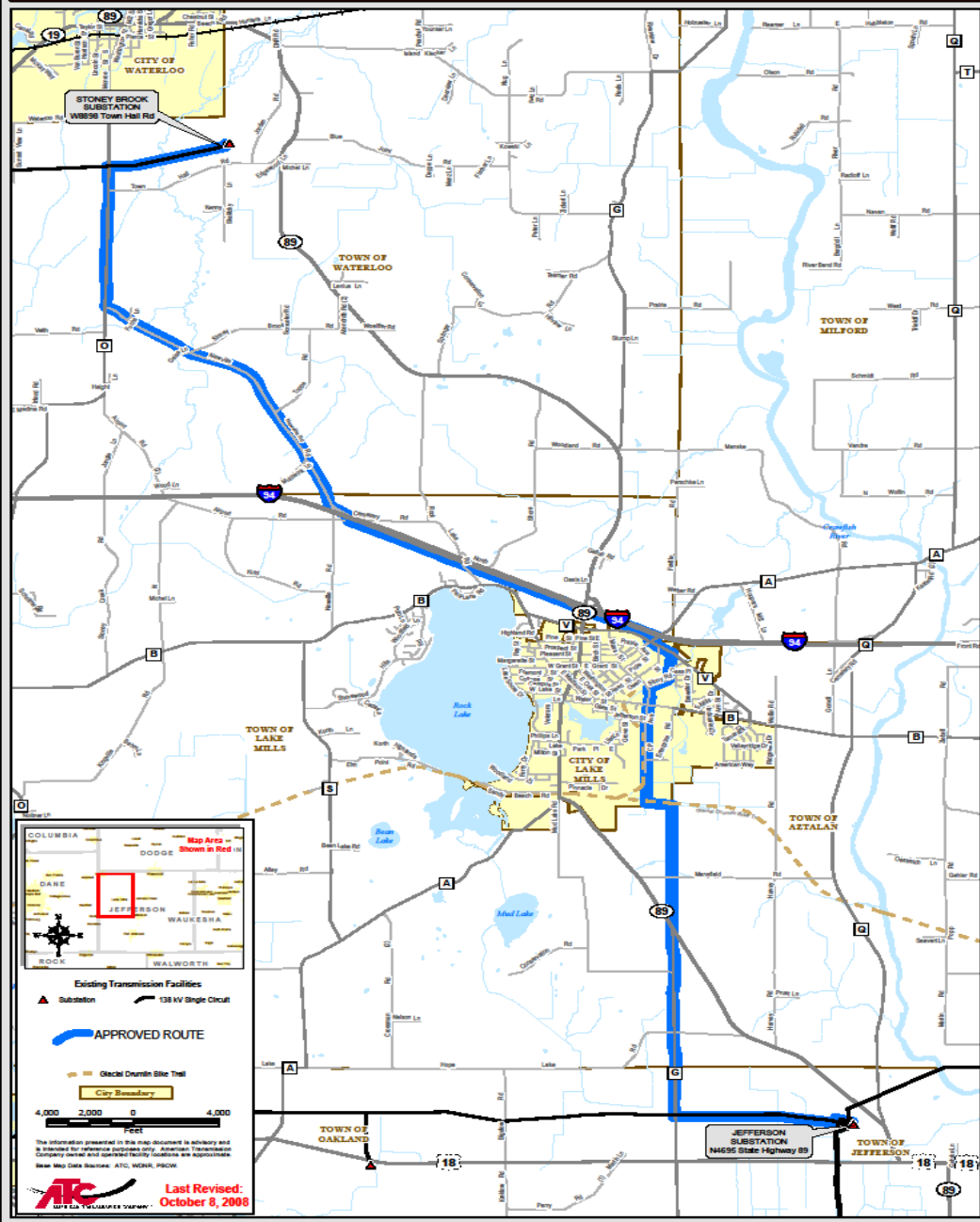


# A New Jefferson-Lake Mills-Stony Brook 138 kV line with a New Lake Mills Substation and Line Upgrades ( Line X-8, 58751 and 6632)



# APPROVED ROUTE

*Jefferson County Electric Reliability Project*



# Project Description

- Construct a new single circuit 138kV line from Jefferson SS to Stony Brook SS
  - Total line length ~ 16 miles / New ROW required ~14 miles
  - Primarily single circuit steel poles with T2 Hawk 477 kcmil conductor
  - Distribution underbuild make ready/incremental upgrade costs for approximately 10 miles
  - New line positions at Jefferson and Stony Brook Substations
  - Route accommodates Lake Mills T-D interconnection (Tyranena SS)
- Uprate existing Boxelder to Stony Brook 138kV line 58751 to 1200A summer normal/emergency by:
  - Replacing several line structures to increase clearance
  - Adding a circuit breaker to create a new ring bus position at Boxelder
  - Replacing terminal equipment at Boxelder and Stony Brook



# Project Description

- Uprate existing Rockdale to Boxelder 138kV line X-8 to 1200A summer normal and 1617A summer emergency by:
  - Replacing the existing ring bus circuit breakers and disconnect switches at Boxelder with 3000 amp breakers and switches
  - Replacing the existing X-8 CCVTs, Wave Traps, and Line Tuners at Rockdale and Boxelder
- Uprate existing Rockdale to Jefferson 138kV line 6632 to 1200A summer normal and 1617A summer emergency by:
  - Replacing the existing 6632 CCVTs, Wave Traps, and Line Tuners at Rockdale and Jefferson



# Project Timeline

Started pre-cert activities	Mid 2003
Project introduced to public	March 2004
ATC Board approval	June 2005
CPCN application submitted	July 2005
CPCN application complete	August 2005
PSCW approval granted	August 2006
Started construction	September 2008
In service	October 2009
Restoration complete	Spring 2010



# Challenges

- Amount of new right of way required
- Construction in the vicinity of a substantial Heron Rookery and conservation easements along HWY 89
- Significant We Energies and Lake Mills Municipal Utility underbuild and/or underground construction of existing distribution circuits
- Addition of facilities at Stony Brook SS will require it becoming a Joint Owned Substation and some assets will need to be transferred from We Energies to ATC
- Significant coordination required with WISDOT for routes along I-94 and HWY 89
- Neutral to Earth Voltage (NEV) Study
- Legal challenges to PSCW Order



# Statistics

- 16 circuit miles of T2 Hawk (477 kcmil)
- 19 miles of 24-fiber OPGW with 8 in-line splices and 3 station dead-end splices
- 144 SC steel poles, 9 DC steel poles, 7 wood H-frames, 1 wood 3-pole guyed, 1 wood 3-phase transposition pole
- 66 SC foundations, 9 DC foundations
- 92 parcels, 7 condemnations, 6 appeals
- 25,000 m-h OH construction; 9,000 m-h tree clearing; 8,000 m-h foundations
- No safety incidents, recordable or otherwise

# Financials

<u>Initial PA</u>	<u>Re-PA</u>	<u>Current</u>
<u>EAC</u>		
\$33.7M	\$31.7M	\$30.1M
- Pre-Certification effort		\$ 1.1M
- Construction		\$ 12.0M
- Materials		\$ 8.1M
- Real Estate		\$ 3.4M
- Engineering		\$ 2.5M
- Legal & Regulatory		\$ 1.4M
- All other		\$ 1.6M



# Questions



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