

American Transmission Company LLC

Northern Umbrella Plan (NUP) Projects Update

November 11, 2005



Agenda

- **Introductions**
- **Brief Summary of System Needs & Issues**
- **List of NUP Projects**
- **Individual Project Discussion & Update**

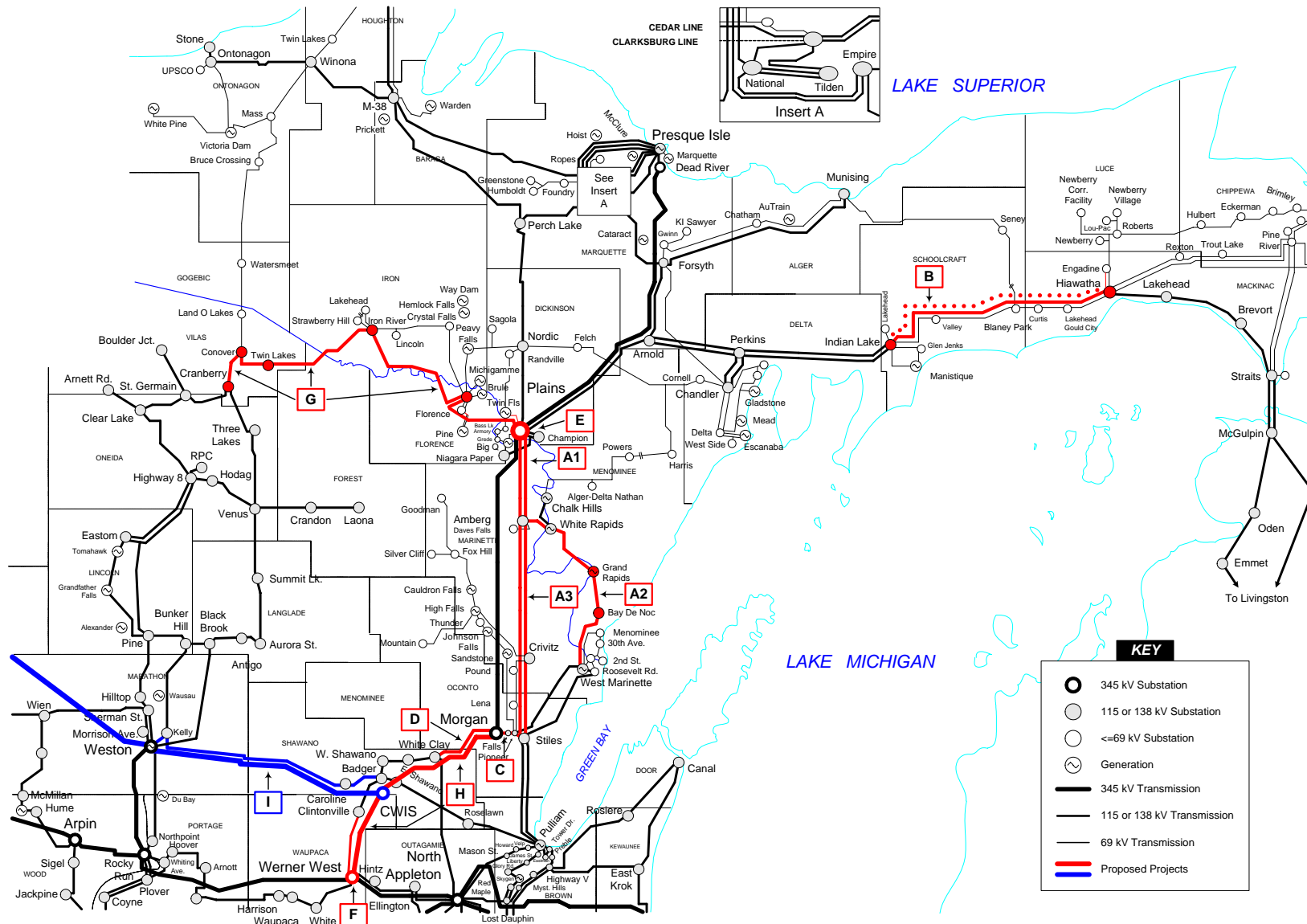
ATC Personnel Presenting & Participating

- **Teresa Mogensen, Director of Engineering & Construction**
- **Jane Petras, North Portfolio General Manager**
- **Patsy Baynard, Central Portfolio General Manager**
- **John McNamara, East Portfolio General Manager**
- **Tony Tewelis, Director of Customer Service**
- **Mike Burow, Customer Service Manager**
- **Dale Landgren, Vice President**

System Needs & Issues

- **Occurrence of Blackouts**
- **Redispatch costs/Binding constraints**
- **Rhineland Loop load serving and voltage issues**
- **Limited transfer capability between WI and MI**
- **Transmission Service Requests**
- **Eastern U.P. reliability and operating flexibility**
- **Low voltages in the western U.P.**
- **Transformer loadings in the Fox Valley area**
- **Impact of proposed Weston generation**
- **Presque Isle stability/U.P. export limitations**
- **Facility age and condition**

NUP Projects



NUP Projects

A: Plains – Stiles 138 kV Rebuild

B: Indian Lake – Hiawatha 69 kV to 138 kV Rebuild

C: Morgan – Stiles 138 kV Rebuild

D: Morgan – White Clay 138 kV Up-rate

E: Add 2nd Plains Transformer

F: New Werner West 345/138 kV Substation

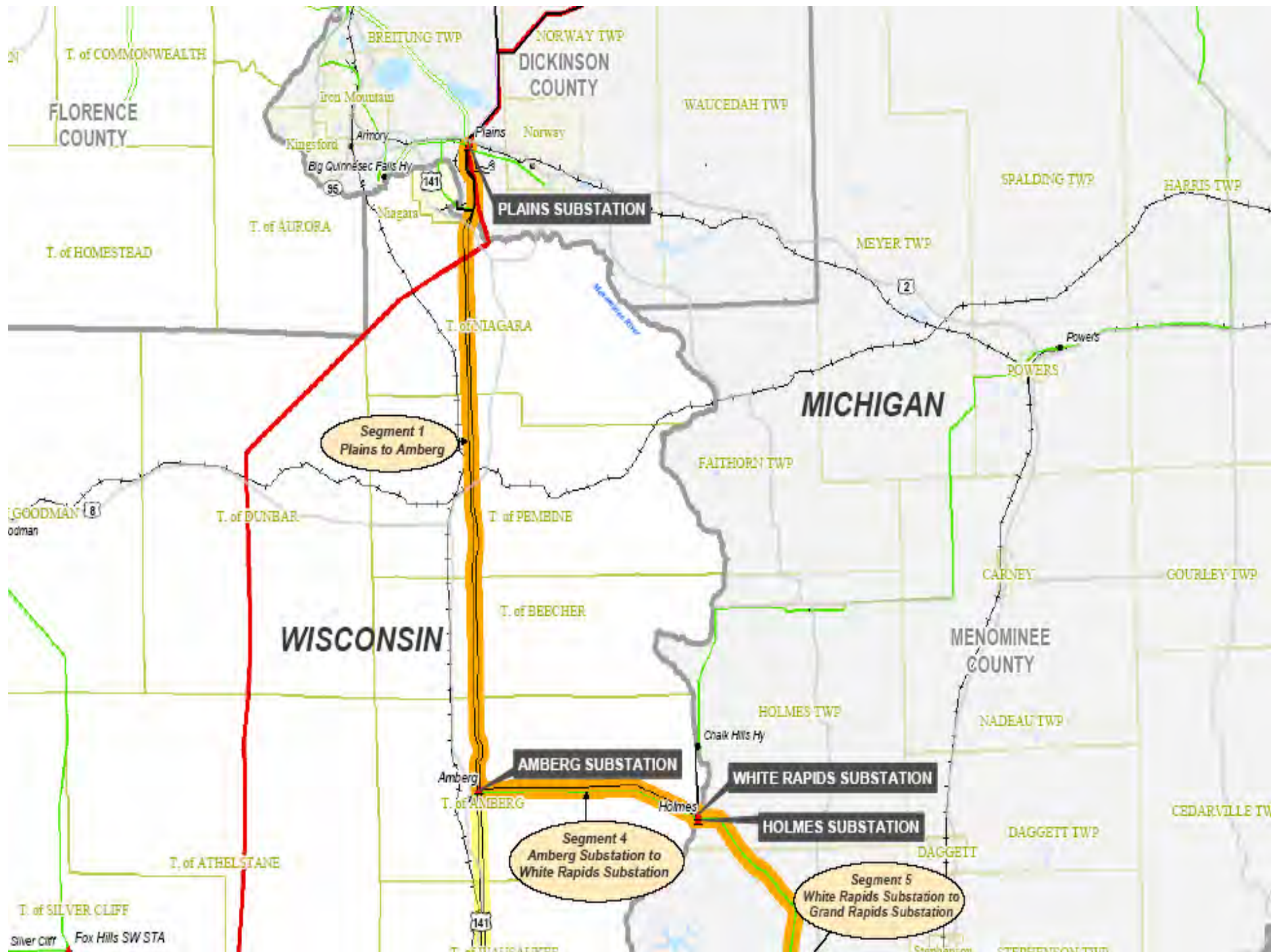
G: Cranberry – Conover – Plains Project

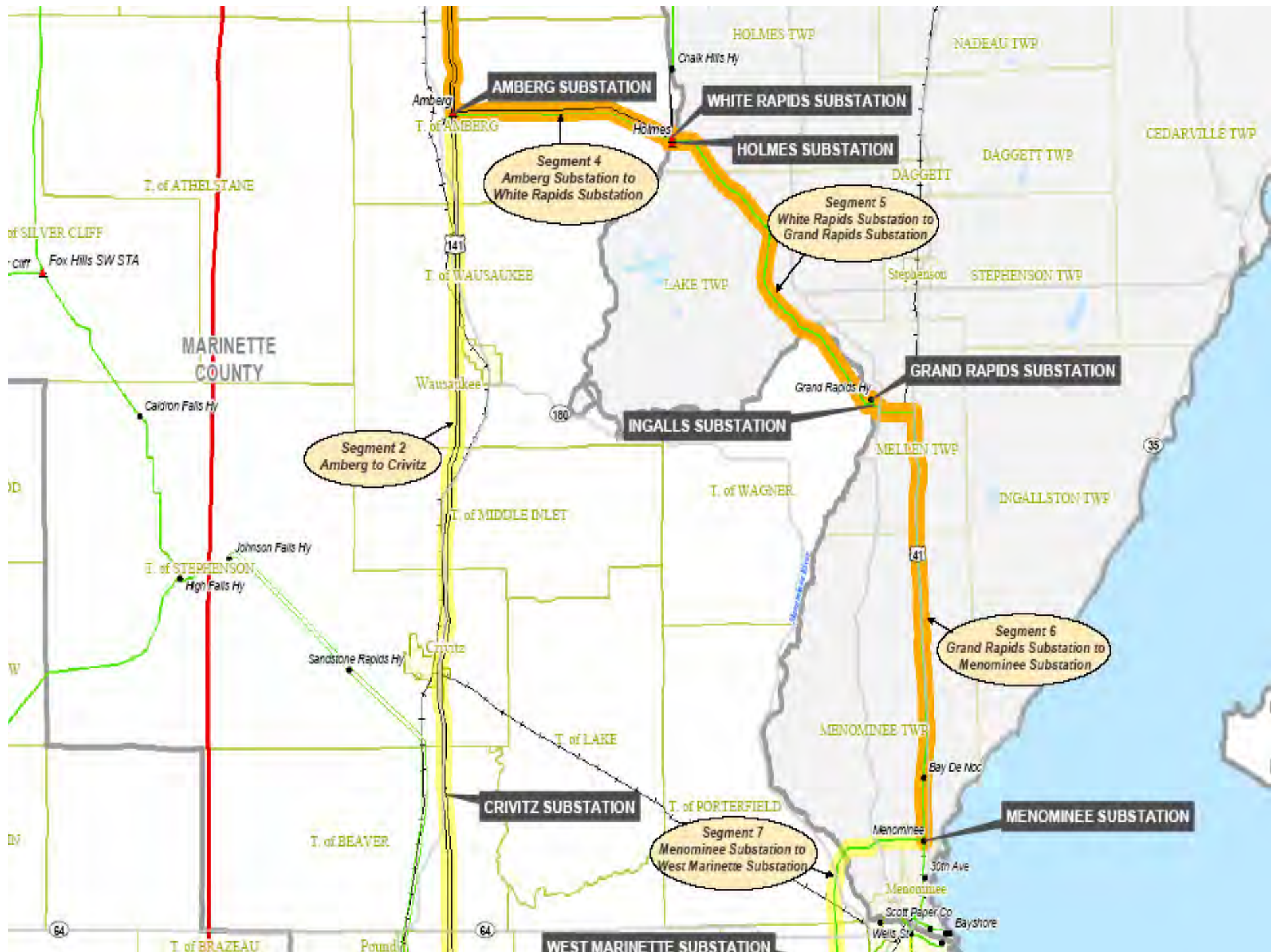
H: Morgan – Werner West 345 kV Line (including
Clintonville – Werner West 138 kV)

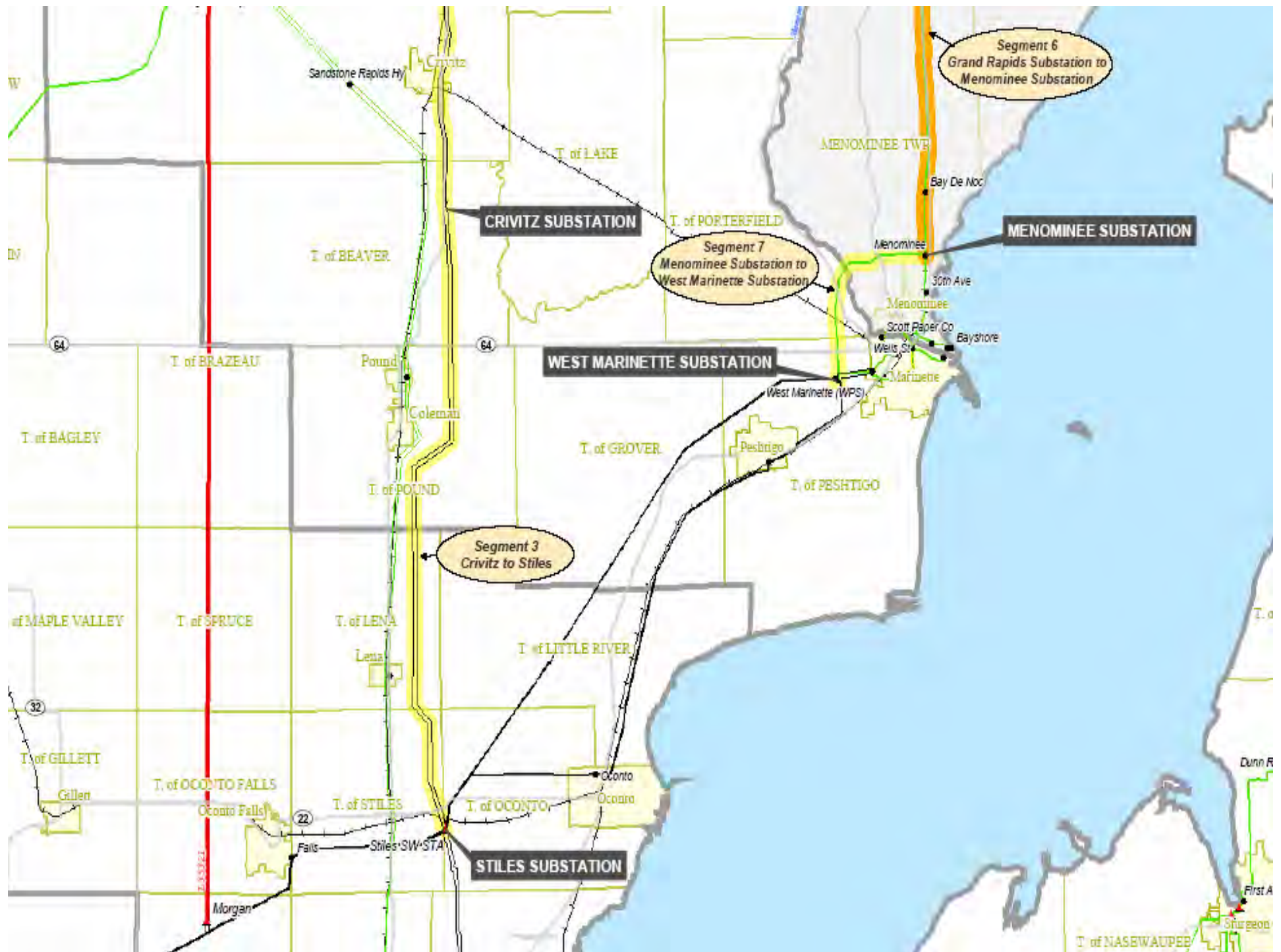
I: New Weston – Central Wisconsin 345 kV Line (for
generator interconnection)

Project Scope: Plains-Stiles 138 kV Line Rebuild

- Rebuild the 65 mile 138 kV Plains to Stiles double circuit lattice tower line, using new steel monopoles with T2-477 Hawk conductor
- Add a new line terminal at Plains substation
- Upgrade line terminals at Plains, Crivitz, and Stiles to a 2000 amp rating
- Rebuild 42 miles of 69 kV transmission line from West Marinette to White Rapids for 138 kV operation
- Reconductor 9 miles of the Amberg to White Rapids 138 kV line
- Rebuild substations at Amberg, White Rapids (Holmes), and Grand Rapids (Ingalls)
-
- Add a 138 kV line terminal at West Marinette substation







Project Costs: Plains-Stiles 138 kV Line Rebuild

- Current Approved = \$100.4 million
- Current Estimate = \$98.5 million
- Project to Date Spending = \$55.1 million

Project Schedule/Status: Plains-Stiles 138kV Rebuild

- Reconductor Amberg to White Rapids complete
- Rebuild White Rapids to West Marinette scheduled for completion December 2nd, 2005
- Rebuild Plains to Stiles
 - Plains-Amberg rebuild complete
 - Transfer of second circuit from temporary structures scheduled for completion by February 2006
 - Amberg–Stiles rebuild scheduled to start in December 2005 with completion scheduled for November 2006



Plains-Amberg
Corridor



Grand Rapids
Clear Span Bridge

A wide-angle photograph of a snowy, cleared area, likely a construction site for a power line corridor. In the center, a tall metal lattice tower stands prominently. To the left, a yellow excavator and a white truck are parked. To the right, a white pickup truck and a larger white truck are visible. The ground is covered in snow with visible tire tracks. The background is filled with dense evergreen trees under a clear blue sky.

Plains-Amberg Corridor



1/2005

Town of Niagara
Menominee
River Crossing



Temp
Line

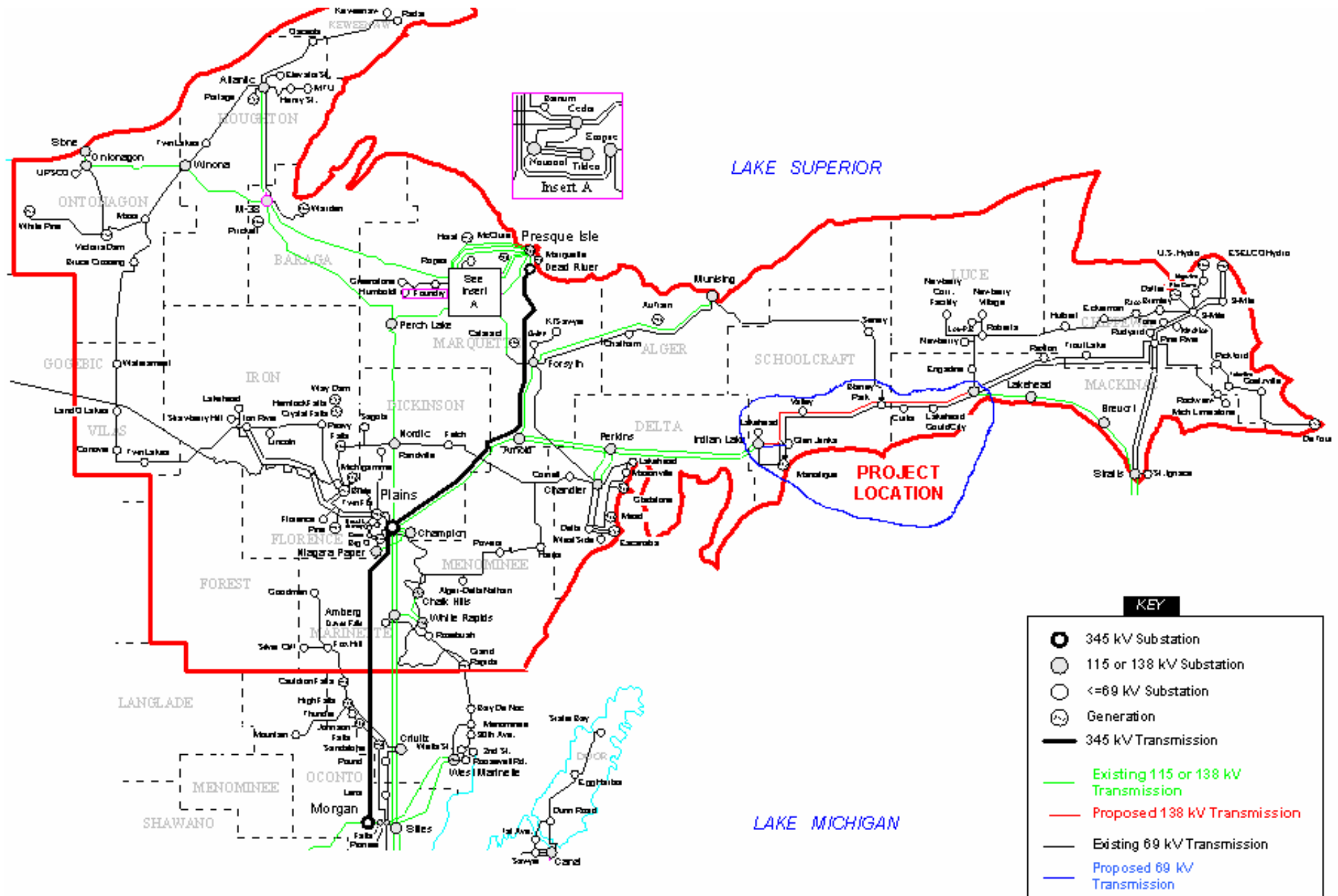
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Town of Niagara
Menominee
River Crossing

Project Scope: Indian Lake to Hiawatha 69 kV to 138 kV Rebuild

- Phase 1 – Rebuild ~ 2 miles of 69 kV line between Indian Lake and Glen Jenks substations to a quad circuit (Completed Fall of 2004)
- Phase 2 – Rebuild ~ 39 miles of 69 kV line between Glen Jenks and Hiawatha substations with triple circuit structures - installing two circuits constructed for 138 kV operation but operating one at 69 kV
- Phase 3 – Convert substations to 138 kV and operate both lines at 138 kV

Hiawatha – Indian Lake Project



Project Costs: Indian Lake to Hiawatha 69 kV to 138 kV Rebuild

- Phase 1: Final = \$6 million
- Phase 2: Current Approved = \$41.2 million
- Phase 2: Current estimate = \$44.8 million
- Phase 2: Project to Date Spending = \$35.5 million
- Phase 3 scope and estimate under development starting mid-2006

Project Schedule/Status: Indian Lake to Hiawatha 69 kV to 138 kV Rebuild (Phase 2)

- Line rebuild was started in November 2004
- Work is approximately 2/3 complete
- Forecasted to be complete and energized between April and June 2006
 - Existing contract requires June '06 in-service
 - However, the contractor is ahead of schedule and is trying to finish in April/May '06 timeframe to eliminate needing to contend with spring breakup and road limits.
 - Weather and working conditions will determine in-service date





Foundation Drilling







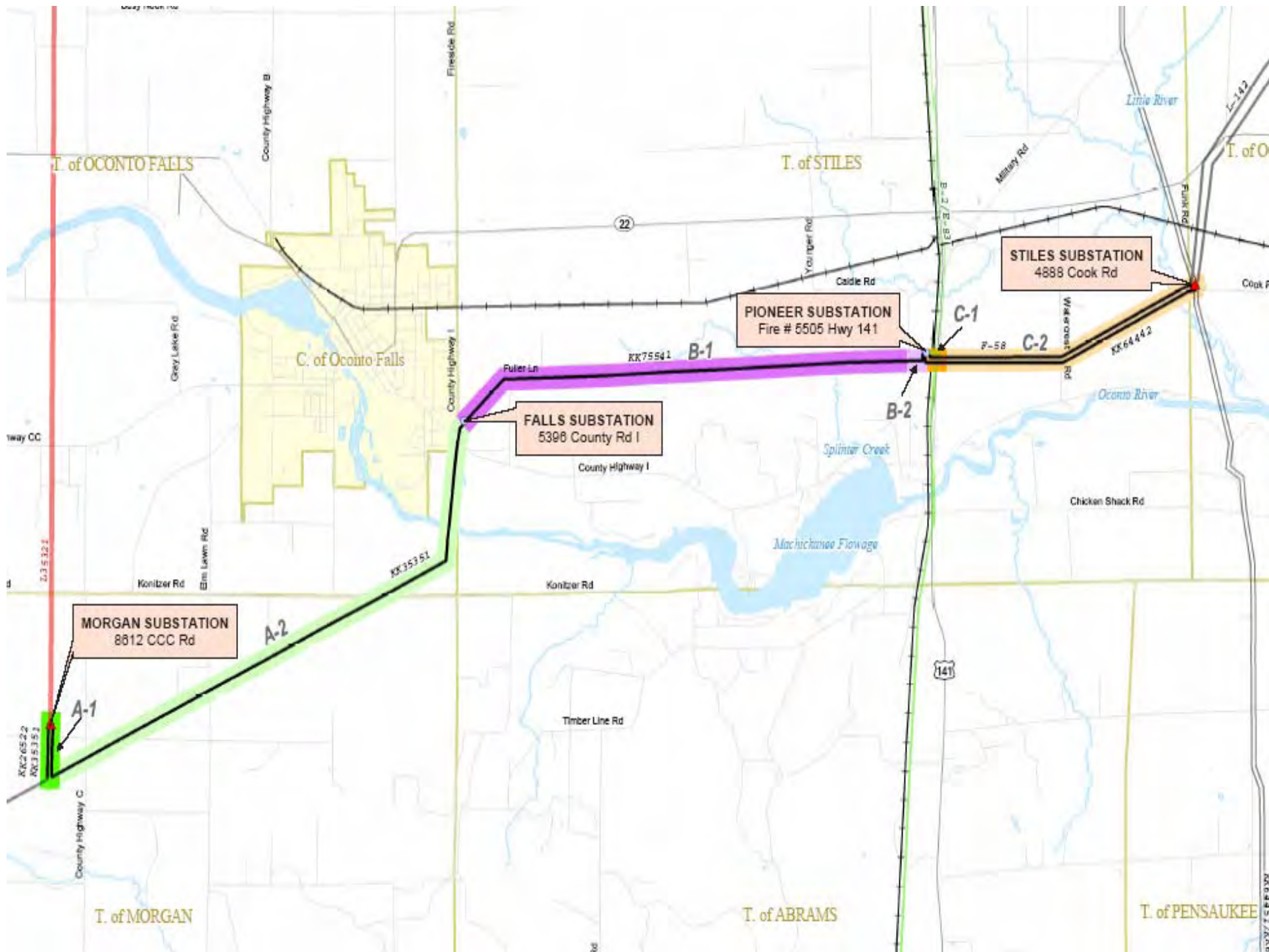
Creek Crossing





Project Scope: Morgan to Stiles Rebuild

- Rebuild existing 11 mile H-frame supported, single circuit 4/0 conductor, with double circuit mono-pole steel structures using T2 Hawk conductor
- Modify Morgan, Falls, Pioneer and Stiles to upgrade the substation equipment (e.g. breakers, switches, jumpers, etc.) to match the new line rating



Project Costs: Morgan to Stiles Rebuild

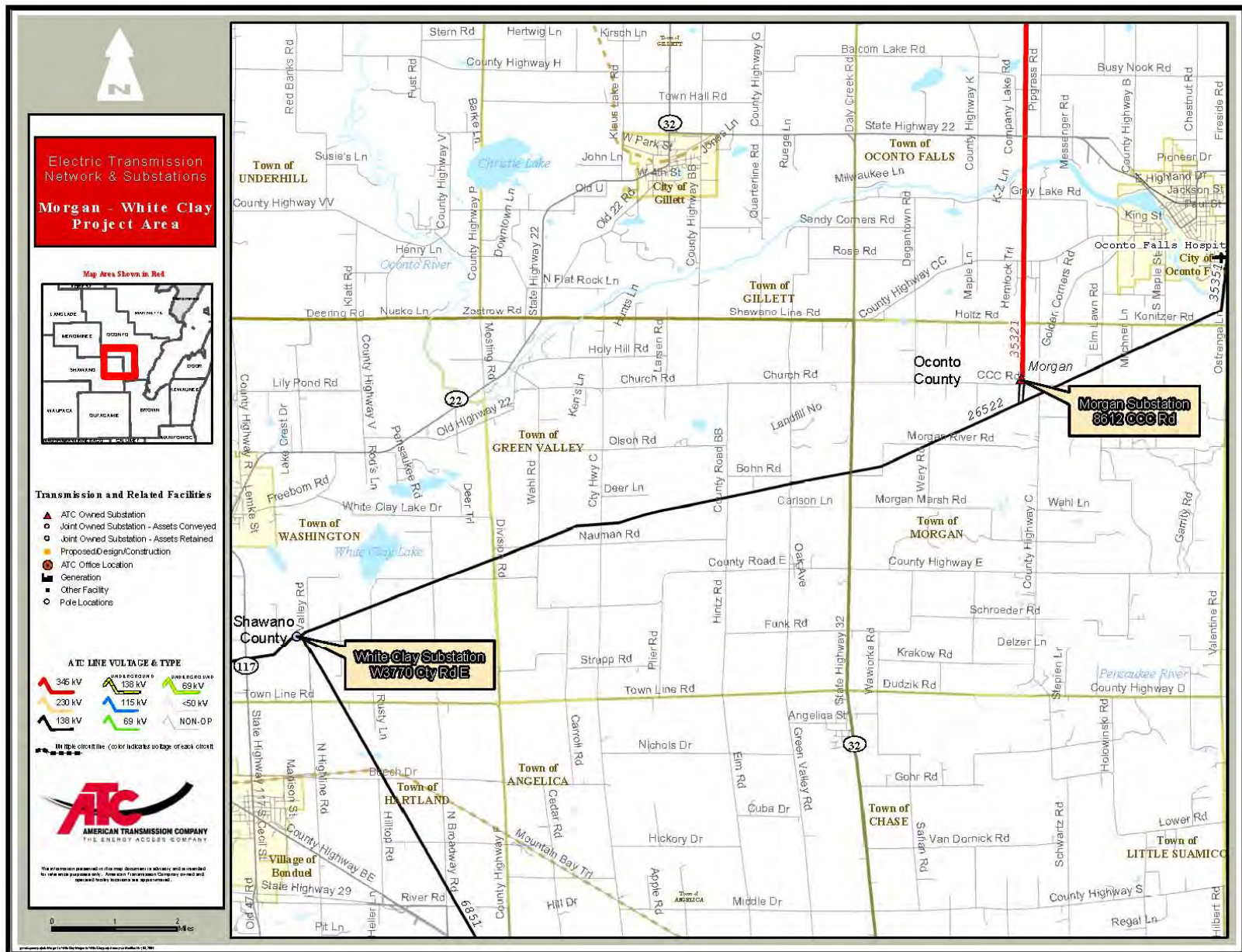
- Current approved = \$6.8 million
- Current Estimate = \$7.0 million
- Project to Date Spending = \$6.1 million

Project Schedule/Status: Morgan to Stiles Rebuild

- The rebuild of the existing 11 mile H-frame supported, single circuit 4/0 conductor, with double circuit mono-pole steel structures using T2 Hawk conductor is complete
- Modifications (e.g. breakers, switches, jumpers, etc.) required at Morgan, Falls, and Pioneer to upgrade the substation equipment to match the new line rating are also complete
- Modifications at Stiles substation to upgrade equipment to match the new line rating will be completed in Spring 2006

Project: Morgan to White Clay 138 kv Uprate

- Scope – Re-rate 12 miles of 138 kV line to increase the emergency rating
 - Address 24 spans with ground clearance violations using “phase raisers”
 - Replace a wave trap at White Clay SS
- Cost – \$ 447K
- Schedule/Status – Completed March ‘05



PHASERAISER®

U.S. PATENT NOS. 6,115,988 6,151,000 CANADIAN PATENT NOS. 2,252,115 2,297,318

STRUCTURE LIFTING SYSTEM



- Increase conductor clearance without taking the line out of service
- Add an additional circuit or underbuild
- Increase system capacity
- Increase revenues
- Raise single pole & H-Frame structures through 345kV an additional 3 to 20 feet
- Delay or eliminate the need for new lines or expensive structure changeouts

(15' Lift Shown)

LWS

Laminated Wood Systems, Inc.

800-949-3526 www.lwsinc.com

Safely raise single pole & H-frame structures through 345kV an additional 3 to 20 feet.

Available in galvanized, weathering or painted steel for maximum aesthetic appeal.



115kV Single Pole Structure Raised 10 feet



Before Lift



After Lift

345kV H-Frame Structure Raised 15 feet



Painted PhaseRaiser® Units



115kV Four-pole H-Frame Structure Raised 12 feet



161kV H-Frame Structure Raised 5 feet



230kV H-Frame Structure Raised 20 feet





08/11/2005

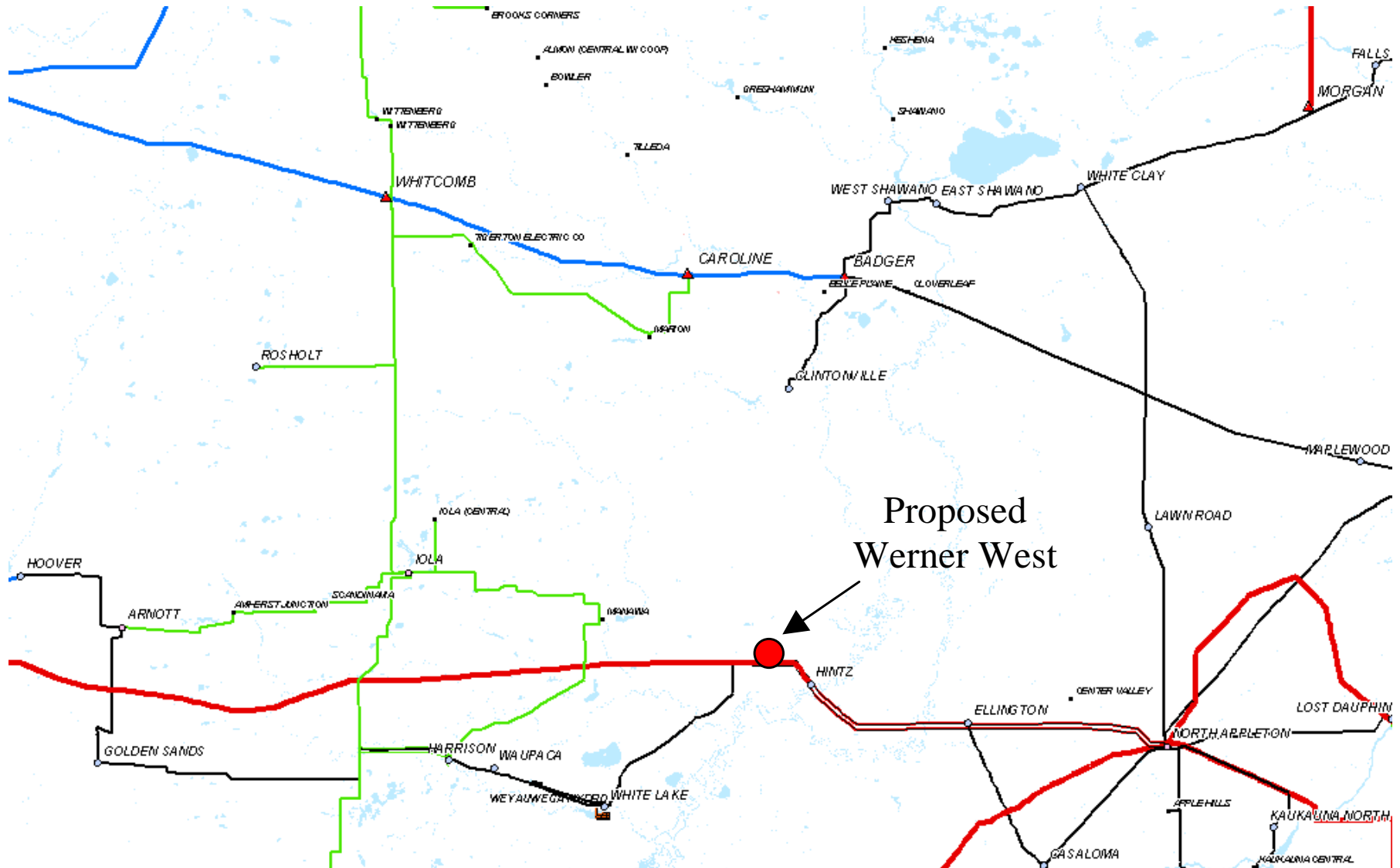
Project: Add 2nd Plains SS Transformer

- Scope – Add a 2nd 345/138 kV, 250MVA transformer
- Cost – Current Estimate is \$5.4 million
- Schedule/Status –
 - Will refine/finalize estimate and obtain authorization in early 2007
 - Start design late 2007
 - Install in 2008

Project Scope: New Werner West Substation

- Construct a 345/138 kV substation near New London
 - 5 position (2 future) 345 kV ring bus
 - 6 position (3 future) 138 kV ring bus
 - Site required ~ 12 acres
- Loop the Rocky Run-North Appleton 345 kV line into the new substation ~1/4 mile
- Loop the Werner-White Lake 138 kV line into the new substation ~1/4 mile
- Install a 345/138 kV, 500 MVA transformer

Project Area Map



Project Costs: New Werner West Substation

- Current Approved = \$15.3 million
- Current Estimate = \$15.3 million
- Project to Date Spending = \$1.3 million

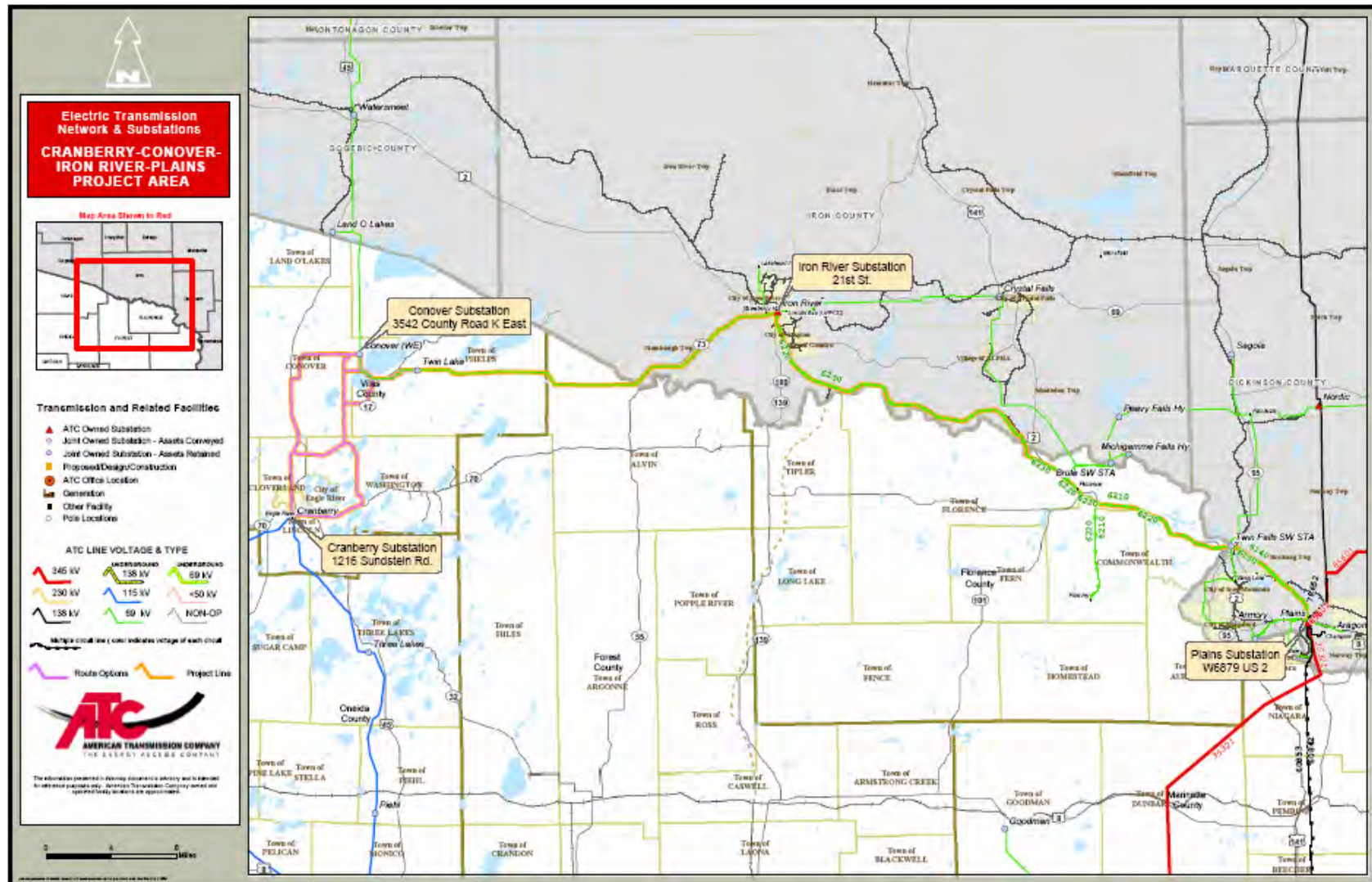
Project Schedule/Status: New Werner West Substation

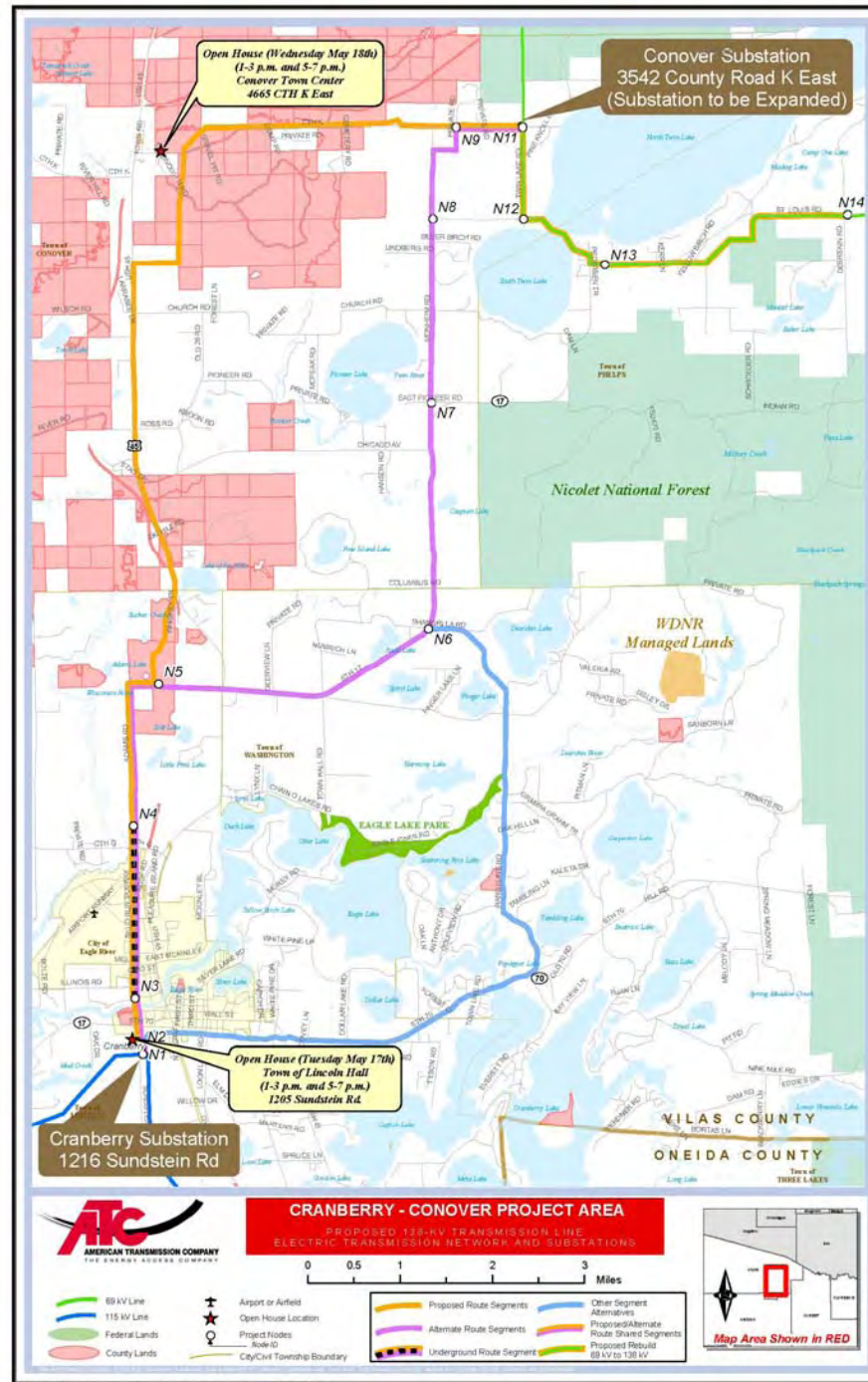
- Received Certificate of Authority from PSC in June 2005
- Slated for construction start in fall 2005 and project completion June 2006
 - Construction delayed due to delays in real estate acquisition
 - Commence construction spring 2006 and completion in December 2006
- Delayed inservice date has resulted in the need to uprate the Ellington – North Appleton 138 kV line in spring 2006
 - Need to address overloads expected in the summer of 2006
 - Constructability review and project scoping are underway to support this need
- Ordered all long lead equipment
- Engineering in final phase

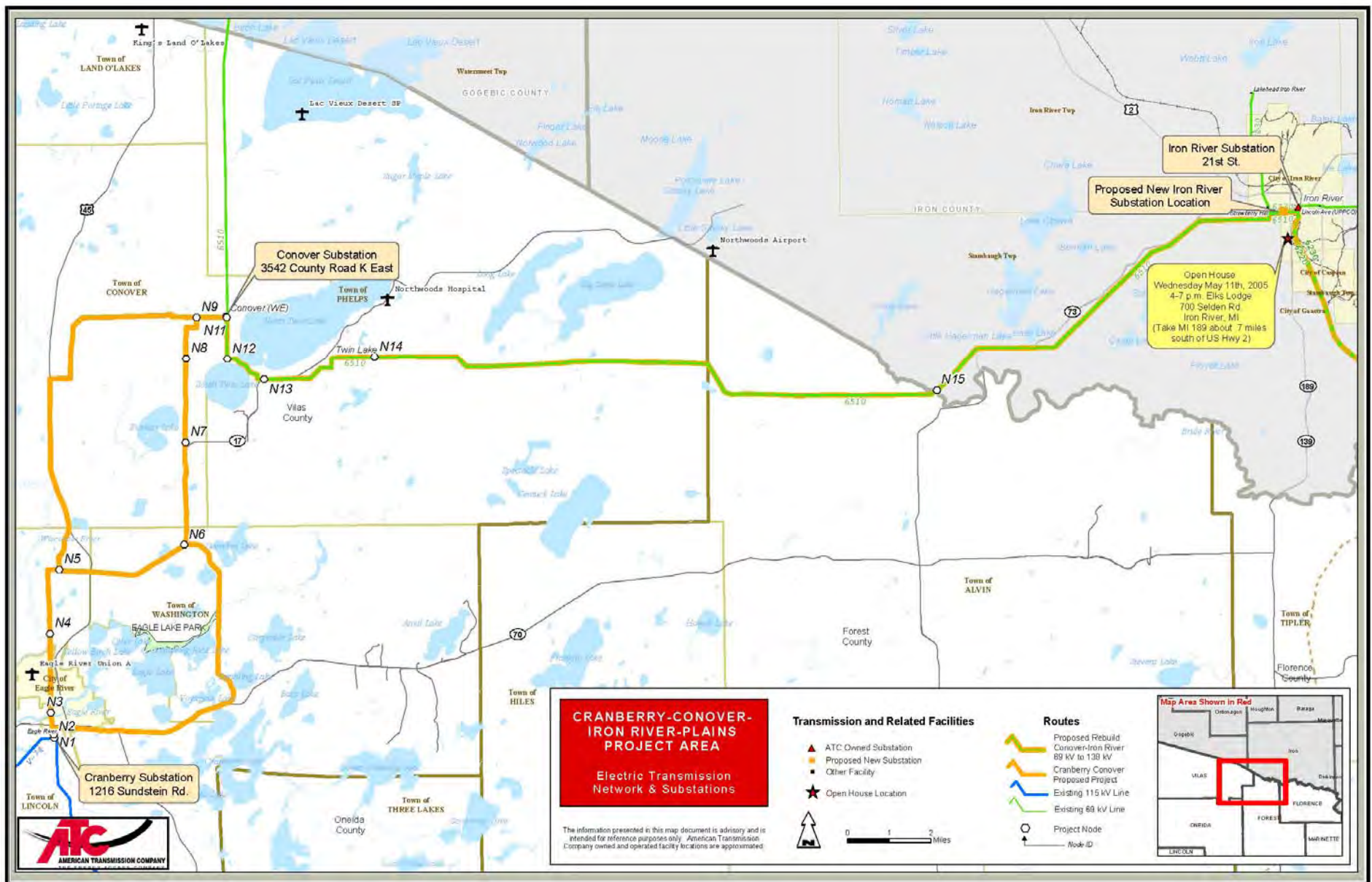
Project Scope: Cranberry-Conover-Plains

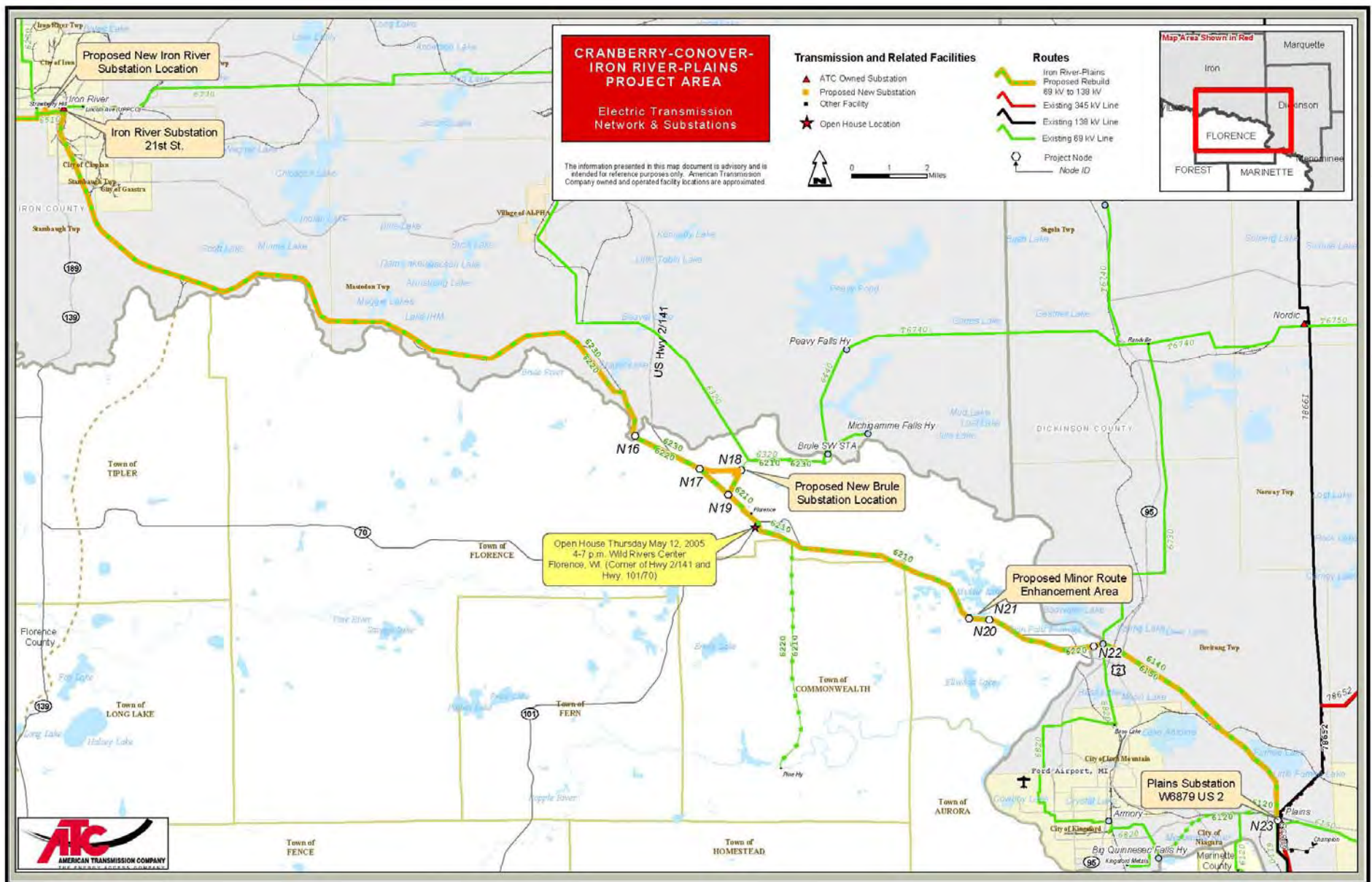
- New Cranberry-Conover 115 kV line
 - Construct a new 115 kV line, approximately 14 miles
 - Preferred route is described as the “Western” alternative which includes approximately 2 miles of underground cable
- Rebuild Conover-Plains 69 kV Line to 138 kV
 - Approximately 75 miles
 - Construct new substations at Conover and Iron River, expand substations at Cranberry, Bobcat

Cranberry – Conover – Plains Project









Project Costs: Cranberry-Conover-Plains

- Current Approved = \$118.2 million
- Current Estimate = \$118.2 million
- Project to Date Spending = \$1.7 million

Project Schedule/Status: Cranberry-Conover-Plains

Pre-certification activities	June 2004 – Sept 2006
ATC Executive approval	July 2005
ATC Board approval	July 2005
File CPCN application	November 2005
CPCN Order issued	September 2006
Construction activities	April 2007-Dec 2009
Project completion and in-service	Dec 2009

Twin Lakes Crossing



Twin Lakes Crossing



Twin Lakes Crossing



Twin Lakes Crossing



Railroad Lake Area



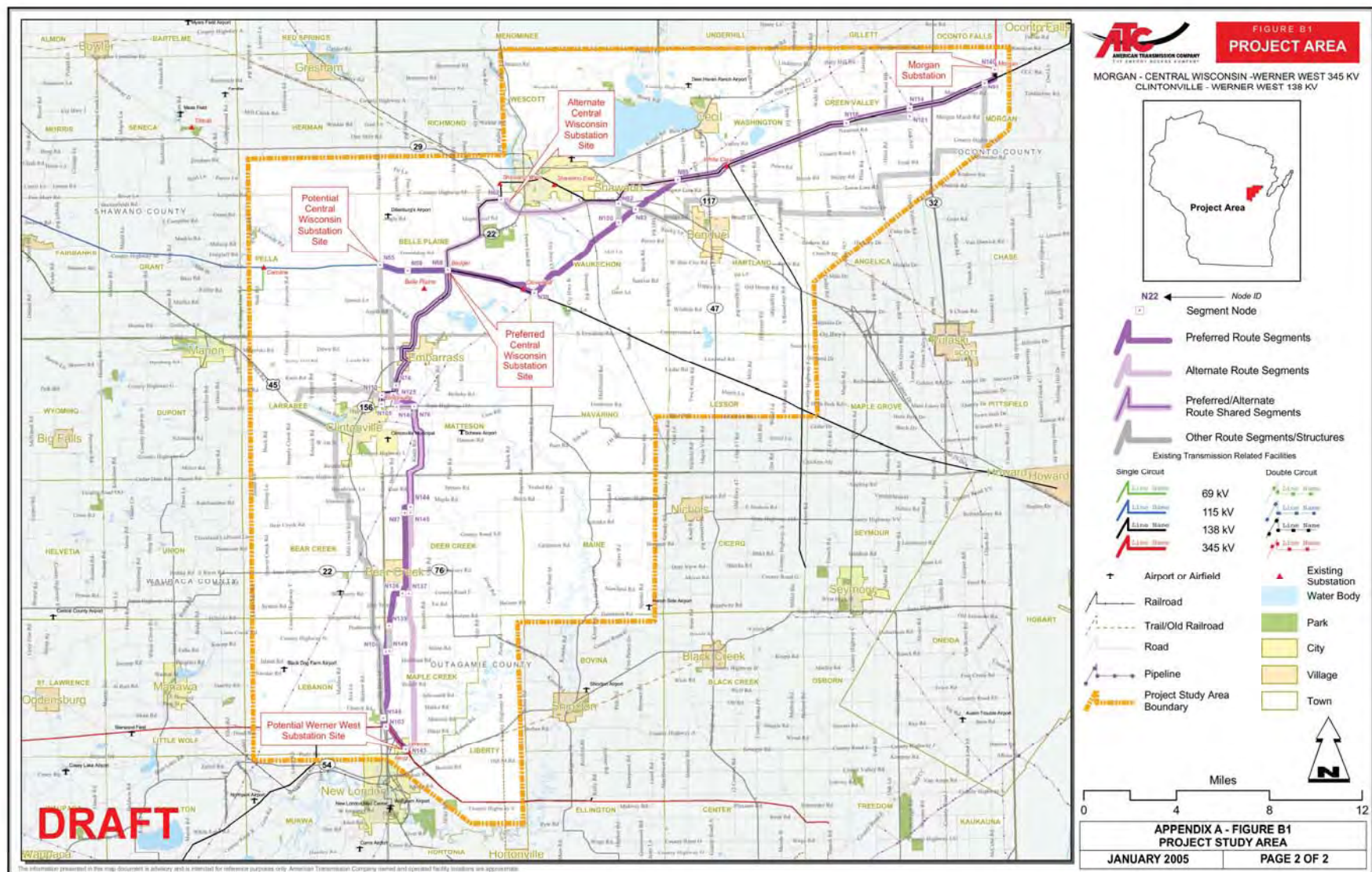


Railroad Lake Area



Project Scope: New Morgan-Werner West 345kV Line (including Clintonville-Werner 138kV)

- New Morgan – Werner West 345 kV line
 - Construct a new 345 kV line approximately 51 miles
 - Preferred route follows existing transmission, gas, highway and abandoned rail corridors while minimizing use of new right-of-way
 - Alternate route utilizes more new right-of-way
 - Co-locate a new 138 kV circuit from the proposed Werner West SS to Clintonville on double circuit structures (18.6 miles)
- Morgan substation
 - Complete the 345 kV ring bus at Morgan SS to accommodate the new 345 kV line
- Werner West substation
 - Connect the new 345 kV line to the 345 kV ring bus
 - Connect the new 138 kV line to the 138 kV ring bus
- Clintonville substation
 - Construct a 138 kV bus



**Project Costs: New Morgan-Werner West 345kV Line
(including Clintonville-Werner 138kV)**

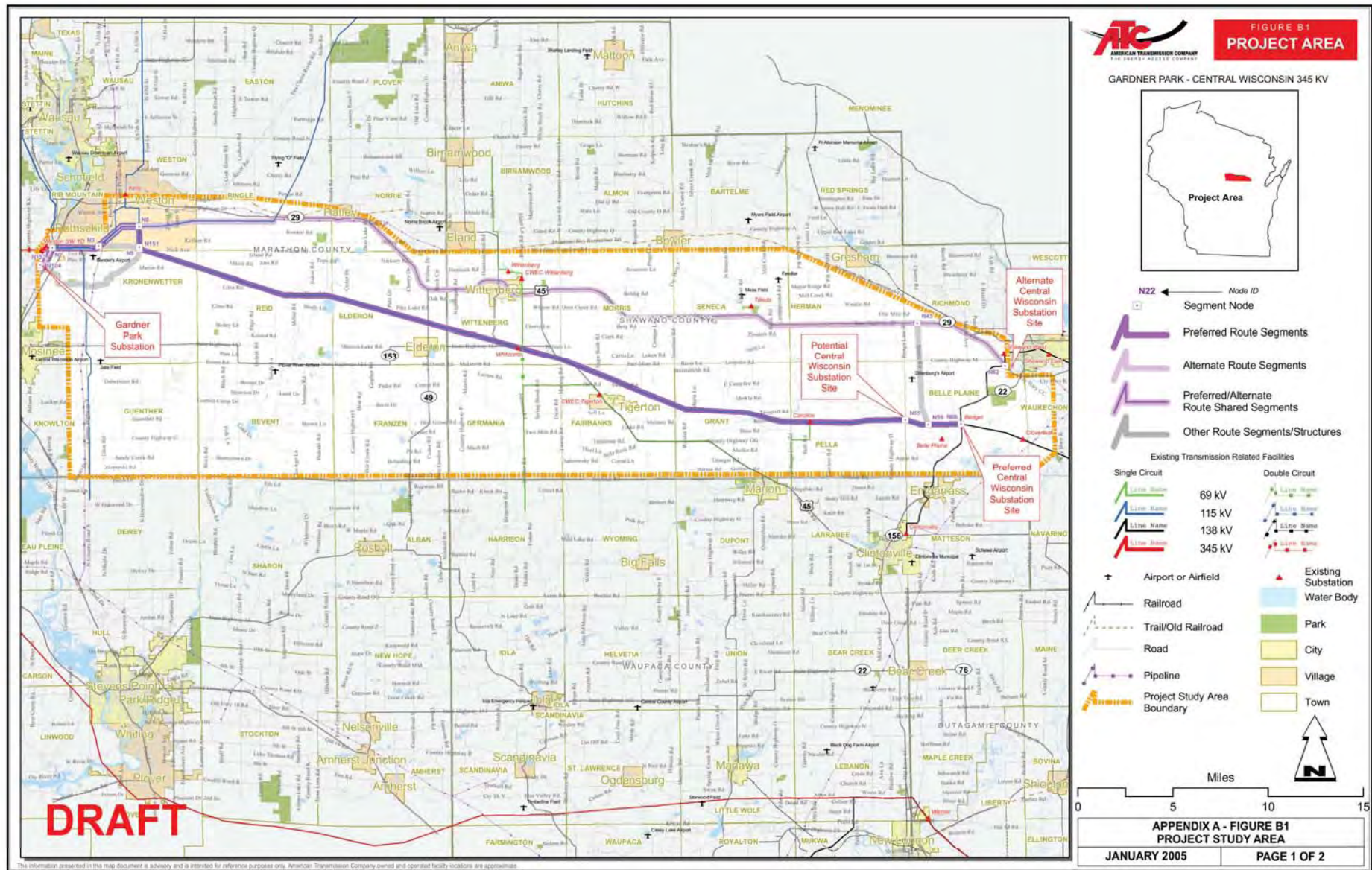
- Current Approved = \$132.3 million
- Current Estimate = \$132.3 million
- Project to Date Spending = \$0.617 million

**Project Schedule/Status: New Morgan-Werner West
345kV Line (including Clintonville-Werner 138kV)**

ATC Executive approval	2/2005
ATC Board approval	2/2005
File CPCN application	3/2005
CPCN anticipated issue	6/2006
Pre-construction activities	1/2006-6/2007
<i>(Surveying, engineering, real estate, material procurement)</i>	
Construction period	10/2006-12/2009
Project in-service	12/2009

Project Scope: New Gardner Park-Central WI 345kV line (includes Central WI Switching Station)

- New Gardner Park – Central Wisconsin 345 kV line
 - Construct a new 345 kV line
 - Preferred route (D/C 345/115 kV) is on an existing ATC transmission corridor
 - Alternate route (S/C 345 kV) is on new right-of-way adjacent to State Hwy 29
 - Approximately 50 miles
- New Central Wisconsin 345 kV switching station
 - New 345 kV switchyard near the Shawano/Belle Plaine area
 - 3 position 345 kV ring bus, 1 additional future 345 kV bus position
 - Site requires ~ 15 to 20 acres
- Gardner Park substation
 - Expand the 345 kV 4 position ring bus to a 6 position breaker and a half to accommodate Weston G4 and the new 345 kV line



This information presented in this map document is advisory and a reference purpose only. American Transmission Company owned and operated facility locations are approximate.

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Project Costs: New Gardner Park-Central WI 345 kV line (includes Central WI Switching Station)

- Current Approved = \$131.5 million
- Current Estimate = \$131.5 million
- Project to Date Spending = \$0.673 million

**Project Schedule/Status: New Gardner Park-Central WI
345kV line (includes Central WI Switching Station)**

ATC Executive approval	2/2005
ATC Board approval	2/2005
File CPCN application	3/2005
CPCN anticipated issue	6/2006
Pre-construction activities (Surveying, engineering, real estate, material, procurement)	1/2006-6/2007
Construction period	10/2006-12/2009
Project in-service	12/2009

Project Status Summary

Project	Key Need Drivers	Projected In-Service Date	Projected Cost	Status
A: Plains – Stiles 138 kV Rebuild	Physical condition; transfer capability; solution also results in a more robust parallel path for 2/3 of P-S corridor		\$98.5M	Project approved and under construction
•A1: Plains – Amberg		October 2005		Temporary line in service; reconstruction of permanent double-circuit line underway
•A2: Amberg – West Marinette		December 2005		Rebuild/conversion underway
•A3: Amberg – Stiles		November 2006		Scheduled to start when A1 and A2 are complete.
B: Indian Lake – Hiawatha 69 kV to 138 kV Rebuild	TLR mitigation; voltage support; physical condition; local load-serving in Manistique area; required operating guide that splits the U.P. system			Phase I complete; Phase II in progress
•Phase 1 – Rebuild Indian Lake – Glen Jenks		August 2004	\$6.1M	Complete
•Phase 2 – Rebuild as double circuit 138 kV, operate at 69 kV		June 2006	\$44.8M	Construction underway
•Phase 3 – Convert to 138 kV operation		2009	Under review	Scheduled for 2009, but need and scope is being reviewed
C: Morgan – Stiles 138 kV Rebuild as double circuit	Transfer capability	August 2005	\$7.0M	Project approved and under construction

Project Status Summary

Project	Key Need Drivers	Projected In-Service Date	Projected Cost	Status
D: Morgan – White Clay 138 kV uprate (eventual rebuild as part of Element H)	Transfer capability	March, 2005	\$0.4M	No PSCW approval required. Project Complete.
E: Add 2 nd Plains transformer (250 MVA 345/138 kV)	Transfer capability	2008	\$5.4M	No PSCW approval required. Scheduled for 2008.
F: New Werner West Substation with 345/138 kV transformer	TLR mitigation, system security	December, 2006	\$15.3M	CA approved by the PSC in June 2005, awaiting real estate transactions resulting in a 6 month delay.
G: Cranberry - Conover – Plains Project	Transfer capability; Transmission service; Reliability, physical condition	December 2009	\$118.2M	CPCN to be submitted to PSCW in Nov 2005
•Rebuild 69 kV Conover - Plains to 138 kV		2009		Work scheduled to begin in 2008
•New 115 kV Cranberry - Conover		2007		Work scheduled to begin in 2007
H: New Morgan – Werner West 345 kV line & Clintonville – Werner West 138 kV line	Transfer capability, reliability	2009	\$132.3M	CPCN submitted to PSCW in March 2005
I: New Gardner Park – Central Wisconsin 345 kV line & Central Wisconsin 345 kV switching station	Required for new Weston 4 generation	2009	\$131.5M	CPCN submitted to PSCW in March 2005

Wrap Up

QUESTIONS & FEEDBACK