

City of East Bethel

Planning Commission Agenda

7:00 PM

March 22, 2011



| | Item | |
|---------|-------------|--|
| 7:00 PM | 1.0 | Call to Order |
| 7:02 PM | 2.0 | Adopt Agenda |
| 7:04 PM | 3.0 | Public Hearing: Conditional Use Permit. A request by applicant, Great River Energy, to obtain a Conditional Use Permit for the placement of a transmission line in portions of the City of East Bethel. |
| 7:15 PM | 4.0 | Approve February 22, 2011 Planning Commission Meeting Minutes |
| 7:20 PM | 5.0 | Adjourn |



City of East Bethel Planning Commission Agenda Information

Date:

March 22, 2011

Agenda Item Number:

Item 3.0

Agenda Item:

Conditional Use Permit (CUP) Request by Great River Energy (GRE) for a Proposed 69kV Transmission Line to be Located in East Bethel

Requested Action:

Make Recommendation to City Council for a Conditional Use Permit (CUP) Request by Great River Energy (GRE) for a Proposed 69kV Transmission Line to be Located in East Bethel

Background Information:

According to GRE, GRE is a generation and transmission cooperative electric company that supplies wholesale power to 28 distribution cooperatives in Minnesota and Wisconsin, including Connexus and East Central Energy. The purpose of the project is to ensure the electric system meets the needs of growing areas including East Bethel, Linwood Township, Athens Township, Cambridge, Stanford Township, St. Francis and others, while also balancing the need to be fiscally responsible. Due to growth in East Bethel and surrounding areas, the region is at risk for interruption of electrical service; therefore, GRE proposes to construct a transmission line to address system deficiencies and proactively ensure the homes and businesses in these communities continue to receive reliable, quality electric service.

Ordinance 15, Second Series (adopted by City Council on January 6, 2010), establishes the requirements and criteria for conditional use permits for transmission lines in the City of East Bethel.

According to the ordinance, Phase 1 includes a work group process in which the work group will conduct an analysis of the proposed routes and present its report to the city's Planning Commission. The work group was established by City Council in September 2010 and has been holding work group meetings with GRE representatives since then.

According to the code, the *“work group will conduct an analysis of the alternatives and present its report to the city’s Planning Commission. The city’s Planning Commission, based on the work groups’ submittals and applicant presentation, will narrow the alternatives for the siting of the transmission line or facility. Following the Phase 1 process, the applicant may submit an application for a conditional use permit.”* On Monday, February 7, 2011, the work group unanimously made a recommendation of a route that was not originally presented (Attachment #3) to Planning Commission for the transmission line location. This route is known as “Route I.”

The work group made this recommendation by taking into consideration the minimal impacts to existing ecological areas, including Cedar Creek Natural History Area; it affects the least amount of people, and has fewer turns and angles than the other routes. The majority of the line would be in Athens Township and Linwood Township, with a small portion affecting the area on the northeast side of Fish Lake/Cedar Creek Natural History Area. This information was conveyed to GRE; they conducted an analysis of this proposed route which is part of Attachment #3.

Mr. Pete Criswell, East Bethel resident and member of the work group, has submitted a compilation of information as Attachment #9. The information includes photos to demonstrate the visual effects of 69kV transmission lines, a letter discussing the unanimous decision of the work group for Route I, and documentation supporting his decision to vote for Route I. Staff has also included a CD with the information so the commission members have the chance to see the photos in color, which in staff's opinion has a much more visual impact than the black and white photos attached to the staff report. Also as part of the information, staff has included a letter from Mr. Lou Cornicelli, East Bethel resident and member of the work group. Mr. Cornicelli reviewed Mr. Criswell's documents and believes the information submitted presents a compelling case as to why the work group recommended Route I. Staff highly encourages Planning Commission to review this document as it may provide hindsight of the thinking process of the work group and how they arrived at their decision.

On February 22, 2011, Planning Commission heard the recommendation (Attachment #5, Planning Commission Meeting Minutes, February 22, 2011). Work group members Mr. Cornicelli and Mr. Criswell attended the meeting. Mr. Cornicelli spoke on behalf of the work group by answering questions of the Planning Commission and explaining reasons behind the recommendation of Route I, such as the environmental impacts, impacts to property owners, and the effects the project has on the city.

At the meeting, GRE presented their preferred route known as Route A (Attachment #4). Some of the reasons GRE prefers Route A is because it is the shortest viable route, shortest length of transmission line to build, fewer easements to obtain, and the lowest construction costs. Ultimately, Planning Commission recommended Route A for the proposed line location. Therefore, GRE has submitted a request for a CUP to construct the 69kV transmission line along Route A.

According to GRE's application, the purpose of it is to request a CUP for: 1) rebuilding to double-circuit a portion of GRE's existing 69kV transmission line from Athens/East Bethel border, south to Coopers Corner substation on 237th Avenue NE; and 2) build a single circuit 69 kV line, with some under-build (distribution line on the structures beneath the transmission line) that would run from the Cooper's Corner substation east, along 237th Avenue, then south along Gopher Drive NE, and then east again along 229th Avenue NE, to the border of East Bethel at Sunset Road NE. The total length of the route is approximately 10.4 miles in which approximately 5.8 miles will be in East Bethel.

As part of the CUP process, the applicants are to provide statement of ownership in the properties along the proposed alignment. This particular request is a unique case. GRE does not own the property on which it plans to construct the transmission lines, but will acquire the use of the properties through easements and leases if the CUP is approved. If approved, GRE will be required to provide the city with documentation of the easement/lease information of properties within the City of East Bethel.

GRE has submitted an information packet as Attachment #10. The packet is a total of 77 pages, which consists of important, detailed information of the proposed project. The information includes an executive summary, purpose of the project, transmission line options, transmission line route selection methodology, proposed Route A, general right-of-way information, general environmental information, and general engineering information. Staff will present the information in greater detail as part of the public hearing.

Also, GRE will give a presentation of the project to the Planning Commission. The presentation has been provided for your review as Attachment # 2. GRE will have additional staff available to answer specific project questions.

The City Engineer has reviewed the request and accompanying materials. The engineer's letter has been attached for your review as Attachment #6. The engineer comments mainly address the compliance of East Bethel Code Chapter 74, Permits for Transmission Lines. Mr. Schaub of GRE submitted a response to the engineer comments on March 16, 2011 (Attachment #7). If the CUP is approved, staff will monitor the progress of compliance to Chapter 74 and other engineering comments to insure all comments are addressed to the satisfaction of the City Engineer.

On March 14, 2011, staff received a GRE Transmission Line Petition signed by 67 residents who strongly oppose the construction of the transmission line in the location proposed by GRE. The petition discusses the work group's reasoning for recommending Route I. The petition has been attached for your review as Attachment #8.

Attachments:

1. Application
2. 69kV Transmission Line Project Presentation by GRE
3. Route I – Work Group Recommended Route with Route Summary
4. Route A – Route Summary
5. February 22, 2011 Planning Commission Meeting Minutes
6. City Engineer Letter Dated March 14, 2011
7. GRE Letter Dated March 16, 2011, Response to City Engineer
8. GRE Transmission Line Petition
9. Transmission Line Information Submitted by Work Group Member Pete Criswell and Letter by Work Group Member Lou Cornicelli
10. GRE - Athens to Martin Lake 69kV Transmission Line Project

Fiscal Impact:

None at this time

Recommendations:

Planning Commission may make a recommendation of denial to City Council of a CUP request by GRE for a proposed 69kV transmission line to be located partially in East Bethel; the location is known as Route A, as depicted in Attachment #4. If Planning Commission recommends denial, staff suggests the commission state findings of fact to support the denial of the request.

Planning Commission may make a recommendation of approval to City Council of a CUP request by GRE for a proposed 69kV transmission line to be located partially in East Bethel; the location is known as Route A as depicted in Attachment #4. If Planning Commission recommends approval, staff suggests the commission state findings of fact to support the

approval of the request. In addition, staff suggests the approval is contingent upon the following conditions being met:

1. Applicant must satisfy the comments by the City Engineer, dated March 16, 2011 (Attachment #6) prior to proceeding with the installation of the transmission line.
2. Applicant must sign and execute a Conditional Use Permit Agreement prior to proceeding with the installation of the transmission line. Execution of the Conditional Use Permit Agreement must be completed no later than April 6, 2012. Conditional Use Permit Agreement will not be executed until all conditions of the approval are met. Failure to comply may result in the revocation of the Conditional Use Permit by City Council.
3. GRE shall provide the city with documentation of the easement/lease information of properties within the City of East Bethel to be filed with Anoka County.
4. GRE shall provide necessary information for the City's Emergency Management Plan as required by Fire Chief Mark DuCharme.

City Council Action

Motion by: _____

Second by: _____

Vote Yes: _____

Vote No: _____

No Action Required: _____

If you would like to see this document, please come to City Hall. Unfortunately, it is too large to upload to the City website.

Thank you.

If you have any questions, please call 763-367-7840 and talk to the City Planning Department.



East Bethel Fire Department

2241 221st Avenue NE
East Bethel, Minnesota 55011



Fire Chief Mark DuCharme
763-367-7886
mark.ducharme@ci.east-bethel.mn.us

Date: March 18, 2011
To: Stephanie Hanson, City Planner
From: Fire Chief Mark DuCharme
RE: Great River Energy (GRE) Transmission Line

Ms. Hanson;

Great River Energy (GRE) will need to provide certain information to be included in the City of East Bethel's Emergency Operation Plan.

This information includes:

- Type of hazards from the transmission line
- Emergency 24 hour 7 day a week contact telephone numbers
- Any area of evacuation in case of emergencies (down lines)
- GRE's Emergency Response Plan and estimated time to be on scene
- A map showing the route of the transmission line through the City of East Bethel
- In case of wildland fires, amount of heat and or flame exposure to line and towers that is acceptable.

This information would be incorporated into the City of East Bethel Emergency Operation Plan as a separate Annex.

Thank You



LAND USE APPLICATION

OFFICE USE ONLY
 Date Rec'd 3/4/11
 By [Signature]
 Fee \$ 500 app fee
\$1000 estrow
pd ch#45475181

Check appropriate box: VARIANCE CUP IUP FINAL PLAT
 BUSINESS CONCEPT PLAN PRELIMINARY PLAN SITE PLAN REVIEW OTHER _____

Application shall include the following items and be submitted thirty (30) days prior to scheduled meeting date.

Application is hereby made for CUP APPROVAL (provide narrative below describing proposed use).
FOR A 69 KV TRANSMISSION LINE (PLEASE SEE ACCOMPANYING DOCUMENTS)

LOCATION: PID _____ Legal: Lot _____ Block _____ Subdivision _____

PROPERTY ADDRESS: _____ PRESENT ZONING: _____

PROPERTY OWNER

CONTACT NAME SEE LETTER PHONE _____
 ADDRESS _____ FAX _____
 CITY/STATE/ZIP _____ E-MAIL _____

APPLICANT

CONTACT NAME GREAT RIVER ENERGY - PETER SCHAUB PHONE (763) 445-5976
 ADDRESS 12300 ELM CREEK BLVD. FAX (763) 445-6776
 CITY/STATE/ZIP MAPLE GROVE, MN 55369 E-MAIL PSCHAUB@GREENERGY.COM

I fully understand that I must meet with City Staff to review all submission requirements and conditions prior to official submission, and that all of the required information must be submitted at least thirty (30) days prior to the Planning/Zoning Commission and City Council scheduled meeting dates to ensure review by City Staff.

[Signature] FOR GREAT RIVER ENERGY 3-3-11
 Property Owner's Signature Printed Name Date

APPLICANTS

| OFFICE USE ONLY - DO NOT COMPLETE | | | |
|-----------------------------------|--|-----------------|-------|
| | Received | Approved/Denied | Notes |
| Community Dvlp. | <u>3/4/11</u> | _____ | |
| Planning Commission | <u>3/22/11</u> | _____ | |
| City Council | <u>4/6/11</u> | _____ | |
| | <u>5/2/11</u> 60 Day <u>7/1/11</u> 120 Day | | |

Attachment #1



GREAT RIVER
ENERGY®

12300 Elm Creek Boulevard • Maple Grove, Minnesota 55369-4718 • 763-445-5000 • Fax 763-445-5050 • www.GreatRiverEnergy.com

March 4, 2011

WO # 54101
Athens – Martin Lake

Stephanie Hanson, City Planner
East Bethel Planning Commission
2241 221st Avenue, NE
East Bethel, MN 55011

SUBJECT: Great River Energy 69 kV Transmission Line Route Conditional Use
Permit Application

Dear Commissioners and Ms. Hanson:

Please accept this letter and accompanying documents as Great River Energy's application for a Conditional Use Permit (CUP) for the construction of a 69 kV transmission line in East Bethel between the northern boundary of Athens Township and the eastern boundary of Linwood Township. Specifically, please find the following accompanying this letter:

- CUP/Land Permit Application
- check for \$1,500.00 for CUP fee and Escrow
- 10 copies of the CUP application/project explanation
- Landowner list and route photos with property lines

In brief, Great River Energy is a generation and transmission cooperative electric company that supplies wholesale power to 28 distribution cooperatives in Minnesota and Wisconsin, including Connexus Energy and East Central Energy. In order to meet increasing demands for electricity and improve reliability of electric service in part of the Connexus and East Central service areas, Great River Energy proposes to construct a 69 kV line from Great River Energy's Athens Substation, in Athens Township, to the Connexus Energy Martin Lake Substation in Linwood Township.

The purpose of this application is to request a conditional use permit (CUP) for: 1) rebuilding to double-circuit, a portion of Great River Energy's existing 69 kV SC transmission line from the Athens/East Bethel border, south to the Coopers Corner substation on 237th Avenue NE; and, 2) build a single circuit 69 kV line, with some underbuild (distribution line on the structures beneath the transmission line) that would run from the Coopers Corner substation east, along 237th Avenue, then south along Gopher Drive, NE, and then east again along 229th Avenue NE (a/k/a CSAH 26), to the

Direct Dial (763) 445-5976

E-mail pschaub@greenergy.com

Fax (763) 445-6776

East Bethel Planning Commission
March 4, 2011
Page 2

border of East Bethel at Sunset Road NE. The total length of the route is approximately 10.4 miles. Approximately 5.8 miles will be in East Bethel. The route is described in greater detail in the accompanying materials. Great River Energy does not own the property on which it constructs transmission lines but instead acquires use of the property through easements and leases. We do not currently have any interest in the property but will acquire such interests upon approval of the Conditional Use Permit.

We look forward to working with you and we hope this, and the other information we have provided to the city proves helpful. If you require additional information or have any questions regarding our application, please contact me at your earliest convenience. Thank you for your consideration in this matter.

Sincerely,

GREAT RIVER ENERGY



Peter M. Schaub
Sr. Field Representative

PS:\e\RT LINES\CO-LA (Athens - Martin Lake) #54101\East Bethel CUP App ltr 3_4_2011.doc



LAND USE APPLICATION

OFFICE USE ONLY
 Date Rec'd 3/4/11
 By [Signature]
 Fee \$ 500 app fee
\$1000 estrow
pd ch#45475181

Check appropriate box: VARIANCE CUP IUP FINAL PLAT
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PROPERTY OWNER

CONTACT NAME SEE LETTER PHONE _____
 ADDRESS _____ FAX _____
 CITY/STATE/ZIP _____ E-MAIL _____

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CONTACT NAME GREAT RIVER ENERGY - PETER SCHAUB PHONE (763) 445-5976
 ADDRESS 12300 ELM CREEK BLVD. FAX (763) 445-6776
 CITY/STATE/ZIP MAPLE GROVE, MN 55369 E-MAIL PSCHAUB@GREENERGY.COM

I fully understand that I must meet with City Staff to review all submission requirements and conditions prior to official submission, and that all of the required information must be submitted at least thirty (30) days prior to the Planning/Zoning Commission and City Council scheduled meeting dates to ensure review by City Staff.

[Signature] for GREAT RIVER ENERGY 3-3-11
 Property Owner's Signature Printed Name Date

APPLICANTS

| OFFICE USE ONLY - DO NOT COMPLETE | | | |
|-----------------------------------|--|-----------------|-------|
| | Received | Approved/Denied | Notes |
| Community Dvlp. | <u>3/4/11</u> | _____ | |
| Planning Commission | <u>3/22/11</u> | _____ | |
| City Council | <u>4/6/11</u> | _____ | |
| | <u>5/2/11</u> 60 Day <u>7/1/11</u> 120 Day | | |

Attachment #1



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March 4, 2011

WO # 54101
Athens – Martin Lake

Stephanie Hanson, City Planner
East Bethel Planning Commission
2241 221st Avenue, NE
East Bethel, MN 55011

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East Bethel Planning Commission
March 4, 2011
Page 2

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We look forward to working with you and we hope this, and the other information we have provided to the city proves helpful. If you require additional information or have any questions regarding our application, please contact me at your earliest convenience. Thank you for your consideration in this matter.

Sincerely,

GREAT RIVER ENERGY



Peter M. Schaub
Sr. Field Representative

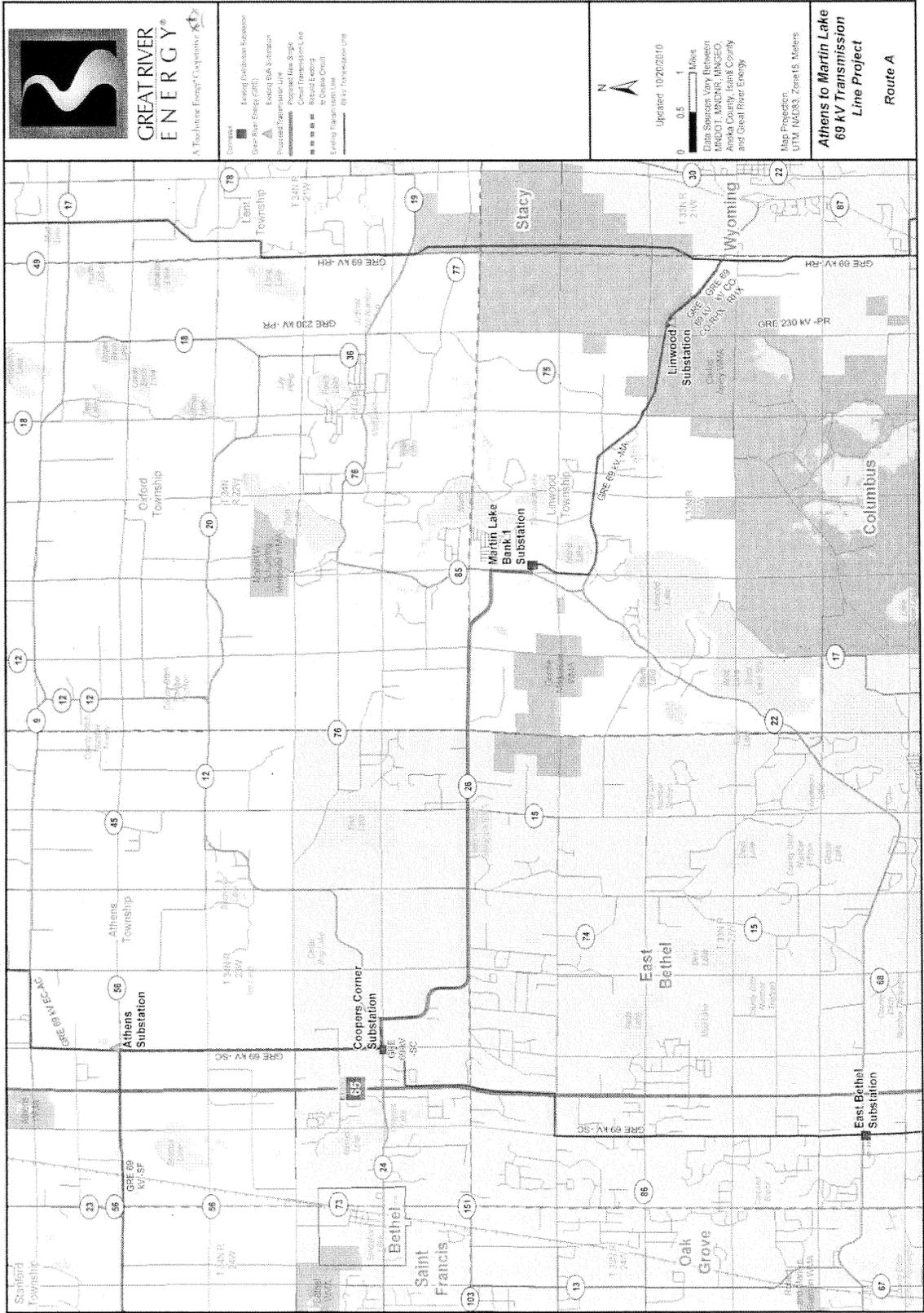
PS:\e\RT LINES\CO-LA (Athens - Martin Lake) #54101\East Bethel CUP App ltr 3_4_2011.doc

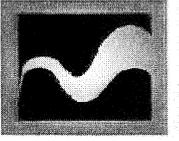
Great River Energy 69 kV Transmission Line Project

Route Conditional Use Permit Application



Route A





GREAT RIVER ENERGY

A Touchstone Energy Company

- Legend**
- Existing Distribution Substation
 - Great River Energy (GRE)
 - Existing Bulk Substation
 - Existing Transmission Line
 - 288V AC Transmission Line
 - Proposed Transmission Line
 - Proposed 69 kV AC Route
 - Anoka County Parcels



Updated: 2/28/2011

0 0.025 0.05 Miles

Data Sources: Vepi Business, MNGO, MNGO, MNGO, Anoka County, and Great River Energy

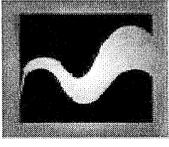
2010 Aerial Photos from MNGO.

Map Projection:
UTM, NAD83, Zone 15, Meters

**Athers to Martin Lake
69 kV Transmission
Line Project**

East Bethel Map 2





GREAT RIVER ENERGY
A Touchstone Energy Company

Components:
 Existing Distribution Substation
 Great River Energy (GRE)
 Existing Bulk Substation
 Existing Transmission Line
 69kV AC Transmission Line
 230kV AC Transmission Line
 Proposed Transmission Line
 69 kV AC Parallels
 Aetha County Parallels

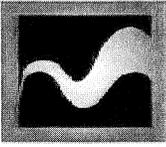
Updated: 2/29/2011
 0 0.025 0.05 Miles
 Data Sources: US, Business
 MDO P, INDIRE, INGENCO,
 Aerial, State, Land
 Color, State, Land
 2010 Aerial Photos from INGENCO.

Map Projection:
 UTM, NAD83, Zone 15, Meters

Athens to Martin Lake
 69 kV Transmission
 Line Project

East Bethel Map 4





GREAT RIVER ENERGY

A Touchstone Energy Company

- Existing Distribution Substation
- Great River Energy (GRE)
- Existing Bulk Substation
- Existing Transmission Line
- 69kV AC Transmission Line
- 230kV AC Transmission Line
- Proposed Transmission Line
- 69 W AC Right of Way
- Neelke County Parcels



Updated: 2/28/2011

0 0.025 0.05 Miles

Data Sources: Vary Between WADOT, MIDWR, MNGEO, Aerial Imagery, and Gre River Energy 2010 Aerial Photos from MNGEO.

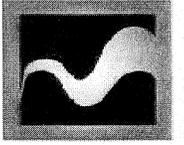
Map Projection: UTM, NAD83, Zone 15, Meters

Athens to Martin Lake 69 kV Transmission Line Project East Bethel Map 7



GREAT RIVER ENERGY

A Touchstone Energy Company



GREAT RIVER ENERGY
A Tallahassee Energy Corporation

Commons

- Existing Distribution Substation
- Great River Energy (GRE)
- Existing Bulk Substation
- Existing Transmission Line
- Existing Transmission Line
- 20kV AC Transmission Line
- Proposed Transmission Line
- Proposed Transmission Line
- 20kV AC Route
- Atoka County Parcels



Updated: 2/20/2011



Data Sources Vary Between
MADOT, MWDNR, MNGEO,
Atoka County, and
Great River Energy
2010 Aerial Photos from MNGEO.

Map Projection:
UTM, MADS1, Zone 15, Meters

**Athens to Martin Lake
69 kV Transmission
Line Project**

East Bethel Map 9

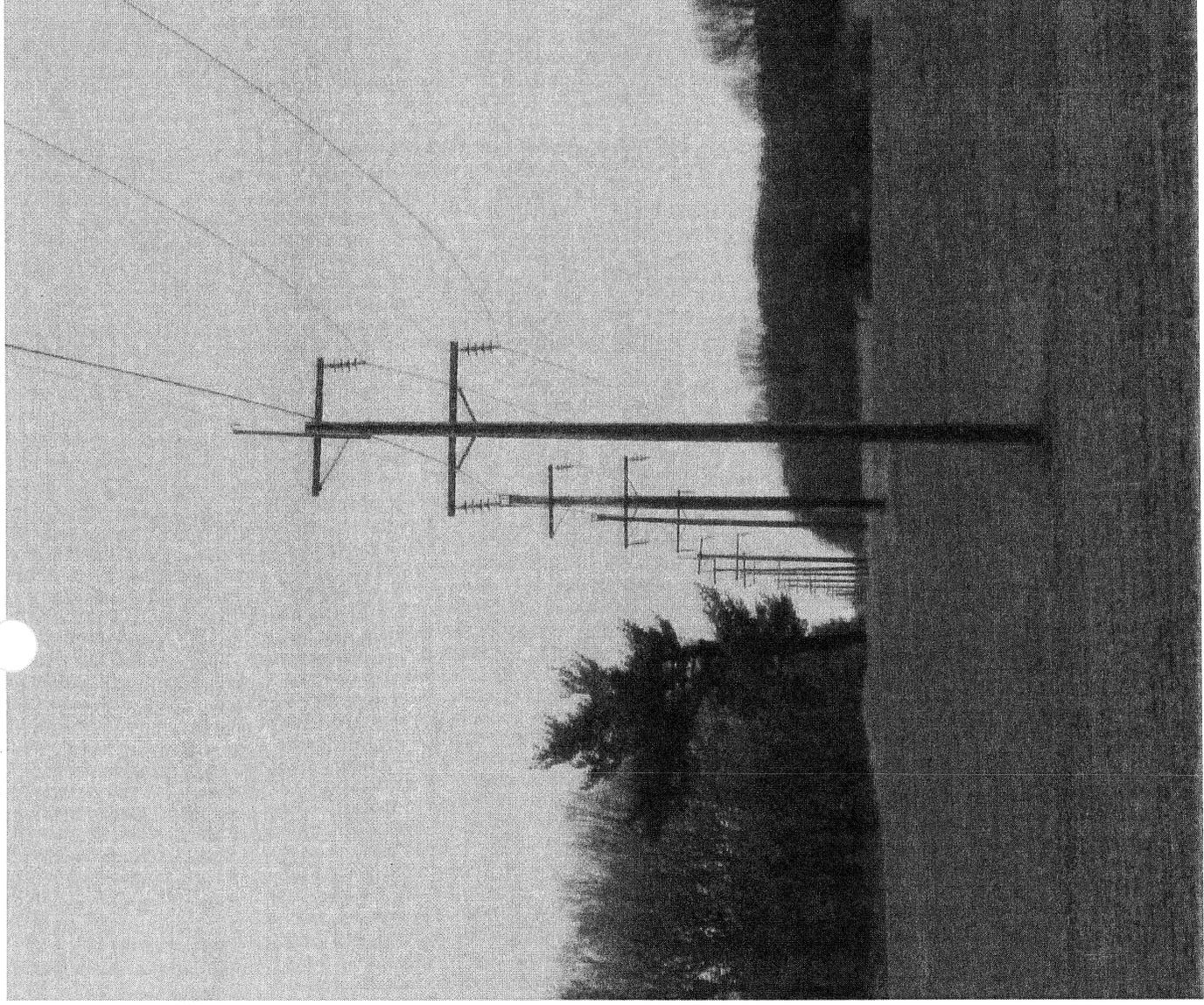


Summary of Route A Features

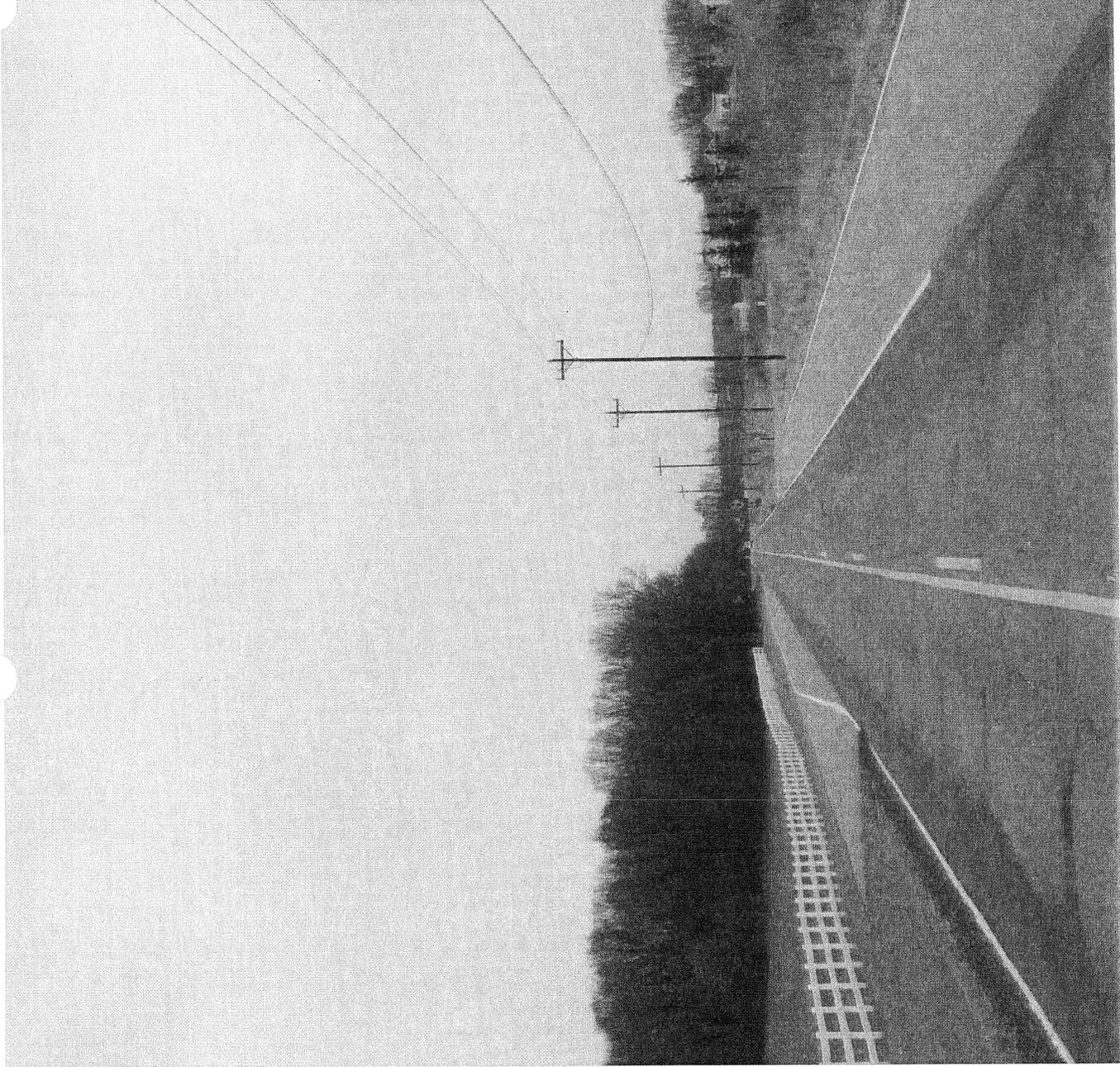
- ▶ Route length 10.4 miles - shortest viable route
- ▶ New transmission line to build – 7.4 miles (4.8 miles in East Bethel)
- ▶ Use three miles of existing transmission line corridor (one mile in East Bethel)
- ▶ Fewer easements – single landowner (Cedar Creek Reserve) for much of new route
- ▶ Lowest impact to historical and cultural resources
- ▶ Moderate impact to sensitive plants and high, but temporary impact to animal populations in the area
- ▶ Lower number of wetlands and public waters involved on new transmission line ROW
- ▶ Desirable soil conditions
- ▶ County Highway – wider cleared ROW entire route
- ▶ Two pinch points
- ▶ Fewer turns and angles than other routes
- ▶ Savings to Connexus - rebuild distribution line
- ▶ Existing distribution corridor along most of route
- ▶ Lowest construction cost ~ \$3,677,700.00)

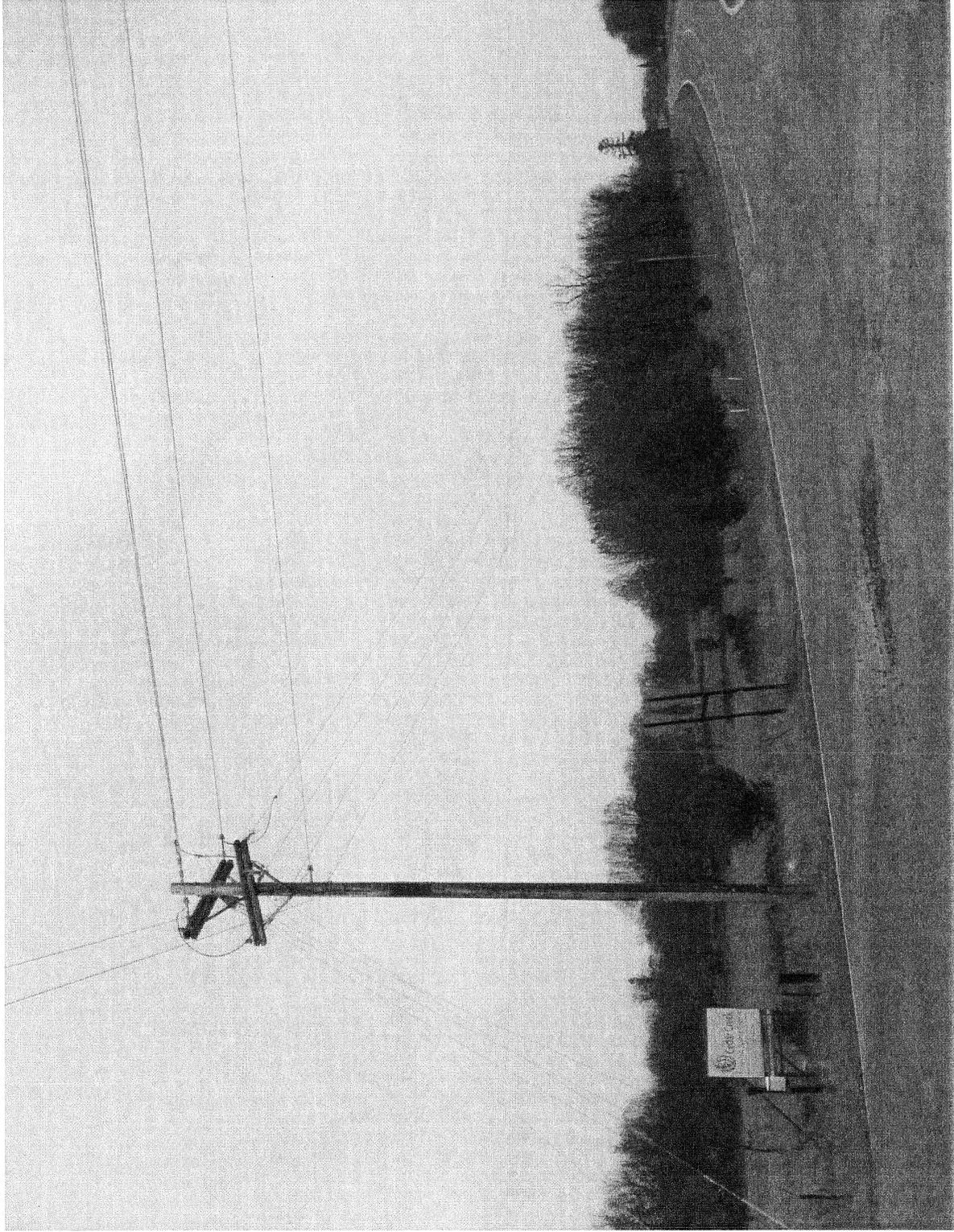


Existing Great River
Energy SC 69 kV
transmission line -
three miles from
Athens Substation to
Coopers Corner
Substation



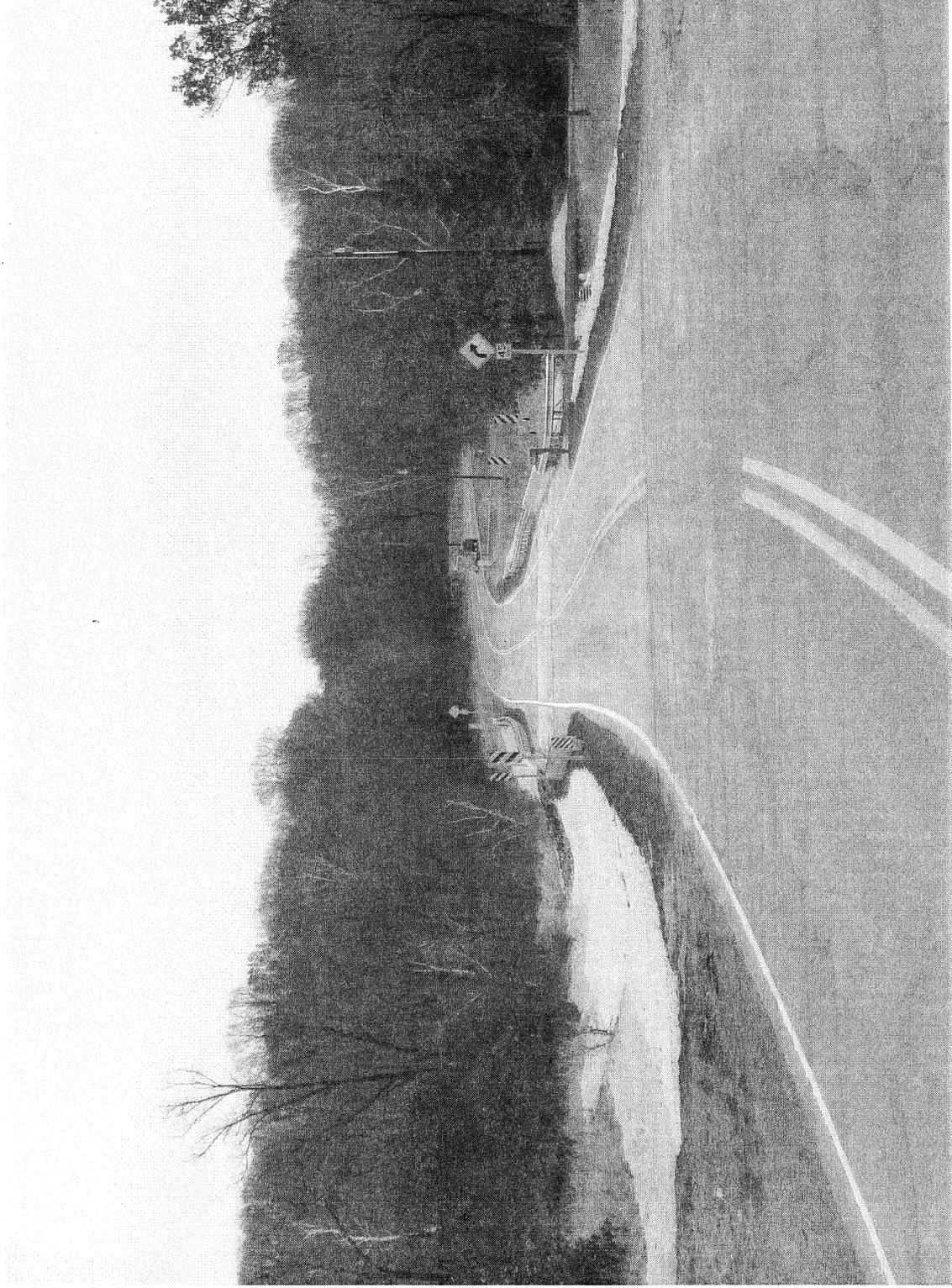
Existing Connexus
Energy distribution
line from Coopers
Corner along
CSAH 24

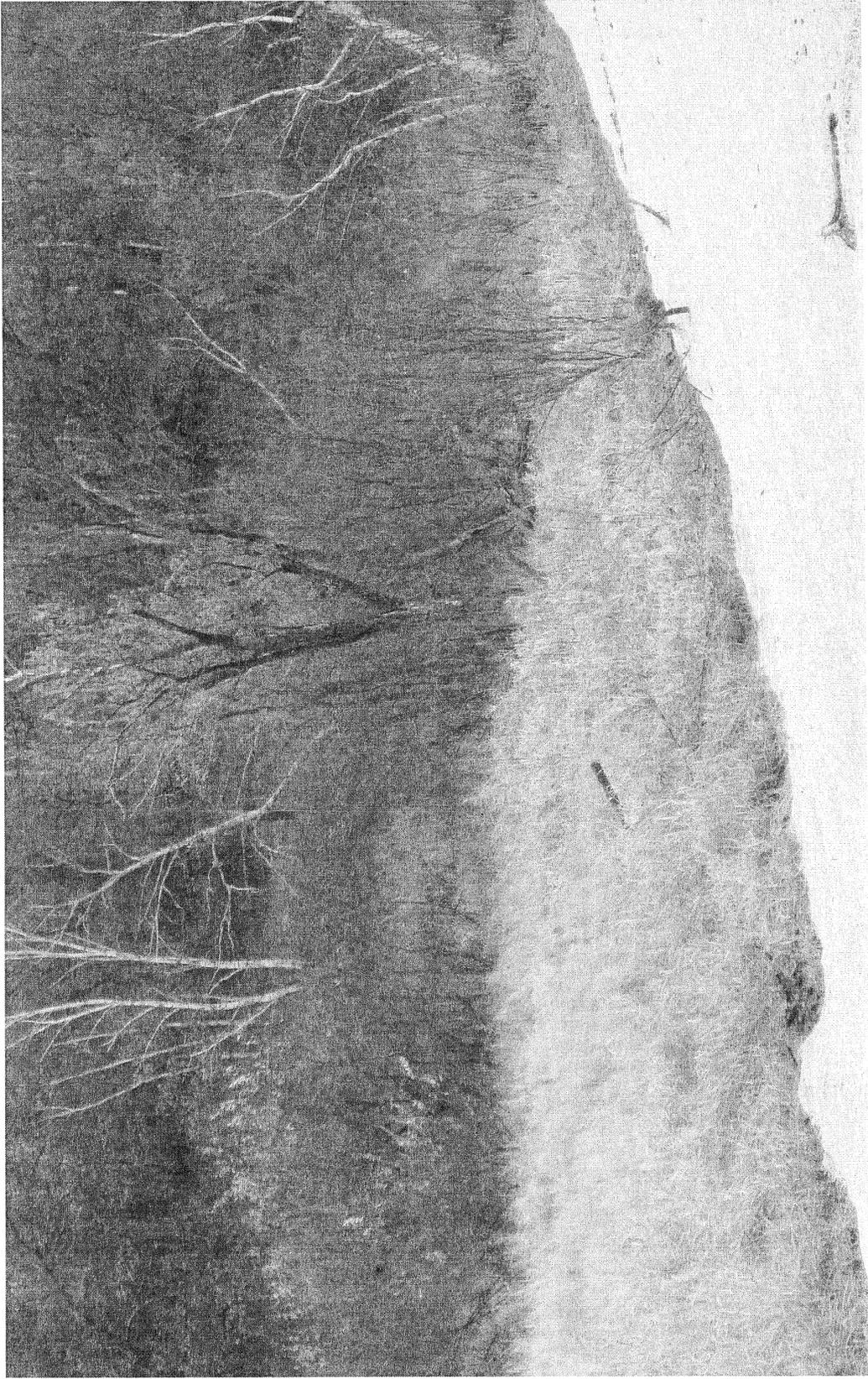




Facing east of Gopher Drive – at 237th Avenue

Cedar Creek along CSAH 26





Underground utilities currently in creek area



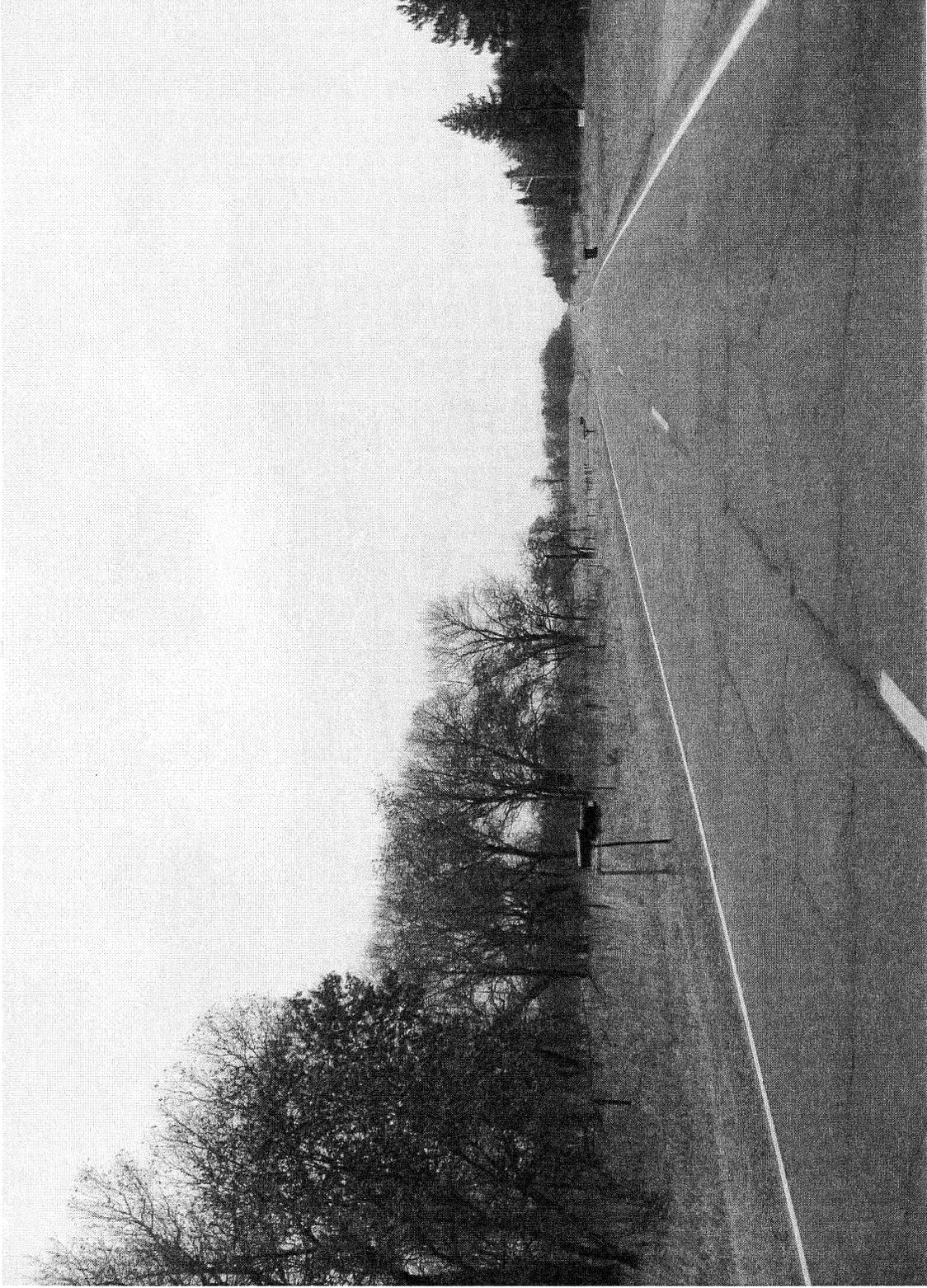
GREAT RIVER ENERGY®
A Trillionaire Energy Cooperative



West end of Cedar Creek Reserve – primarily wooded



GREAT RIVER ENERGY®
A Truist Energy Cooperative



Moving east, land opens to oak savanna



GREAT RIVER ENERGY®
A Tri-State Energy Cooperative



CSAH 26 – wide shoulders cleared, trees back from road ROW



Typo Creek Drive – south of CSAH 26



GREAT RIVER ENERGY[®]
A Trickle Creek Energy Cooperative

Route A

Public/Social Considerations

➤ *Homes*

- 0 homes within 100 feet of anticipated transmission centerline.
- 43 homes within 200 feet of anticipated transmission centerline.
- 84 homes within 300 feet of anticipated transmission centerline.

➤ *Public Facilities, Parks, Trails*

- This route does not cross parkland.
- According to the East Bethel Comprehensive Trails and Open Space Concept Plan, a bituminous surface trail is proposed for the southern edge of the Cedar Creek Ecosystem Science Reserve (“Cedar Creek Reserve”).



➤ *Tree/vegetation removal*

- The existing three-mile transmission corridor is maintained and minimal additional clearing would be required. Within the remaining 7.4 miles of the route, approximately 14 acres of trees/vegetation would need to be cleared.

➤ *Historic/Archaeological Sites*

- Two historic sites within ½ mile of the route (AN-LIN-001 and AN-LIN-004, both close to the Martin Lake Substation).
- No archaeological sites within ½ mile of Route A.



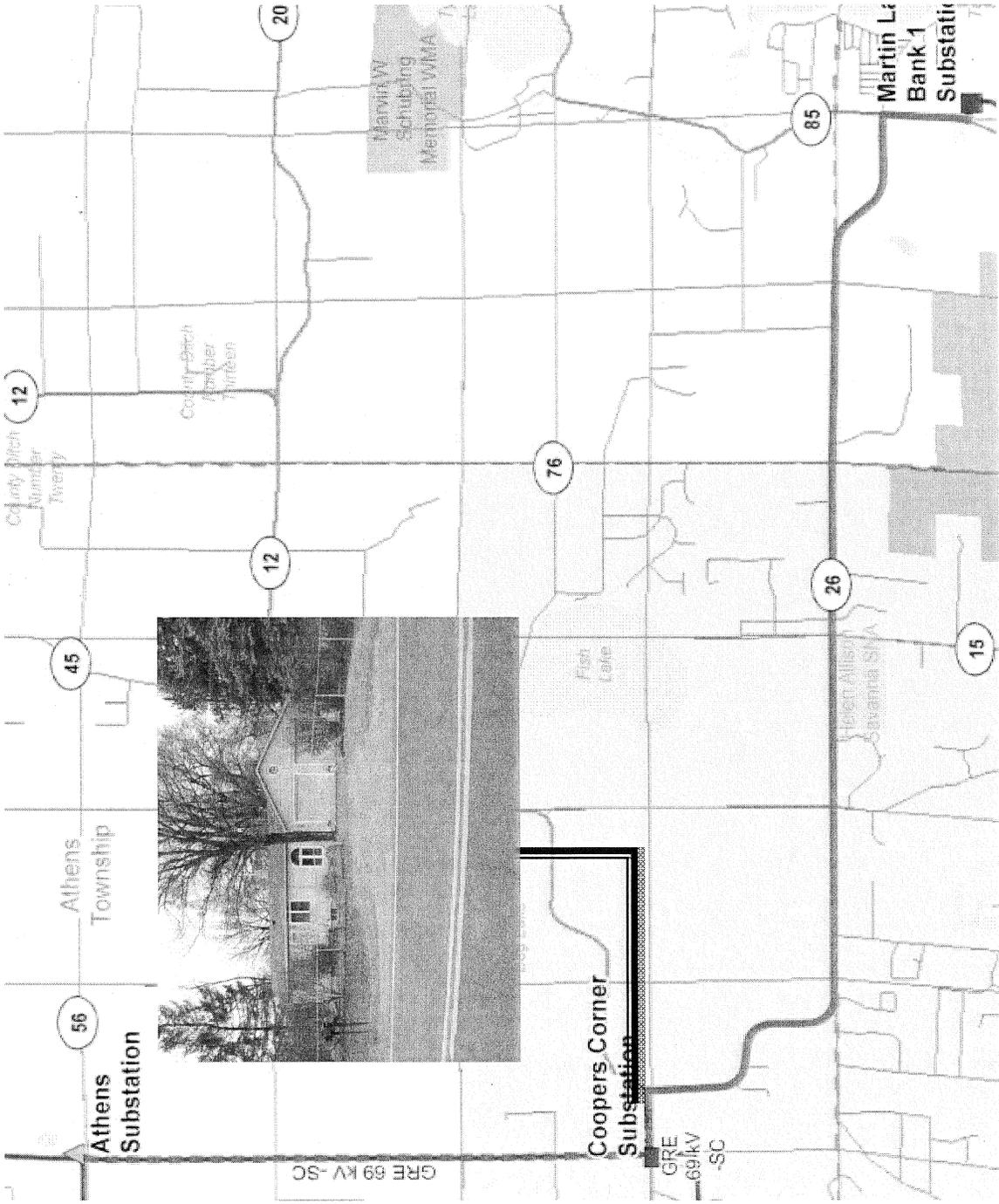
Environmental/Cultural Considerations

- Identification of avoidance areas – The University of Minnesota Cedar Creek property is an area of ecological significance. The Allison Savanna Scientific Natural Area and the Linwood School Forest are also along the route. This route has the lowest percentage of forested wetlands of all routes (0.11 % or 0.1 acres).
- Agricultural operations – this route should not affect agricultural operations.
- Impact to existing utilities – There are no negative impacts to existing utilities. The distribution line along the route will be upgraded (3.3 miles). This route affects the fewest miles of distribution line.

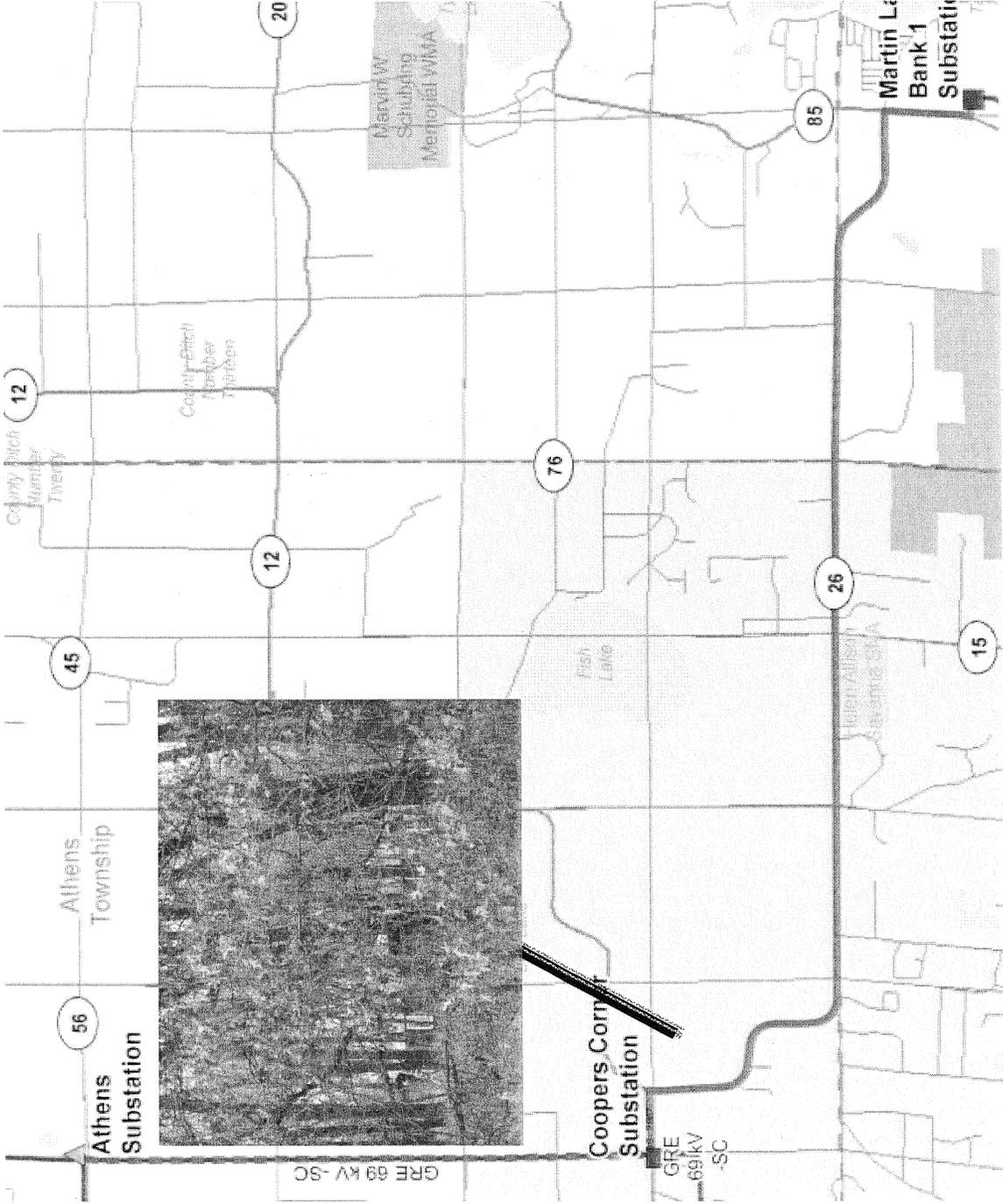
Engineering/Construction Considerations

- *Route Distance*
 - 10.4 miles total length
 - 7.4 miles new transmission line/new easements for estimated total of 34.8 acres
 - 3.0 miles existing SC 69 kV transmission line corridor – very few to no new easements required

Private home across from Cedar Creek Reserve



Private home surrounded by Cedar Creek Reserve

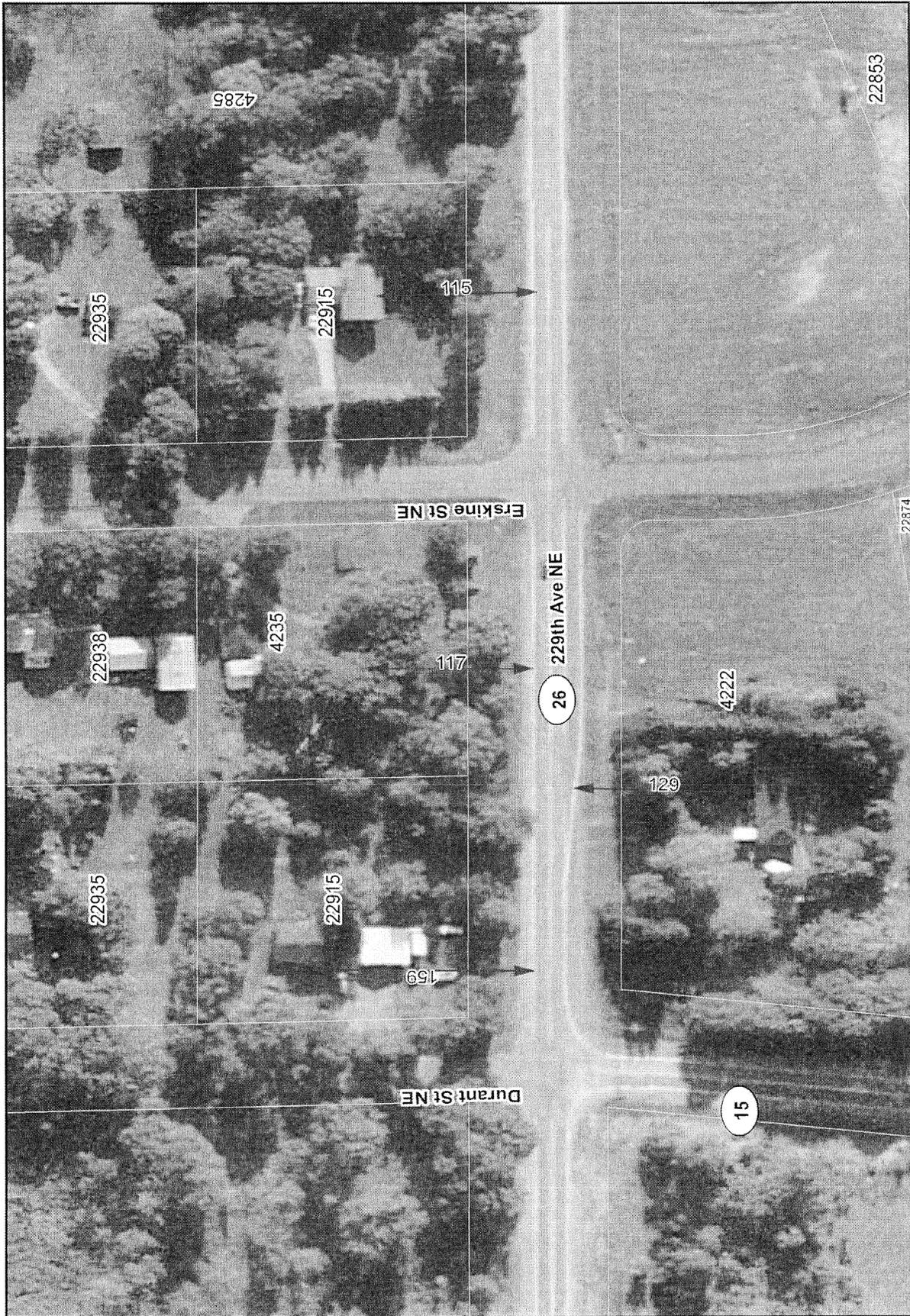


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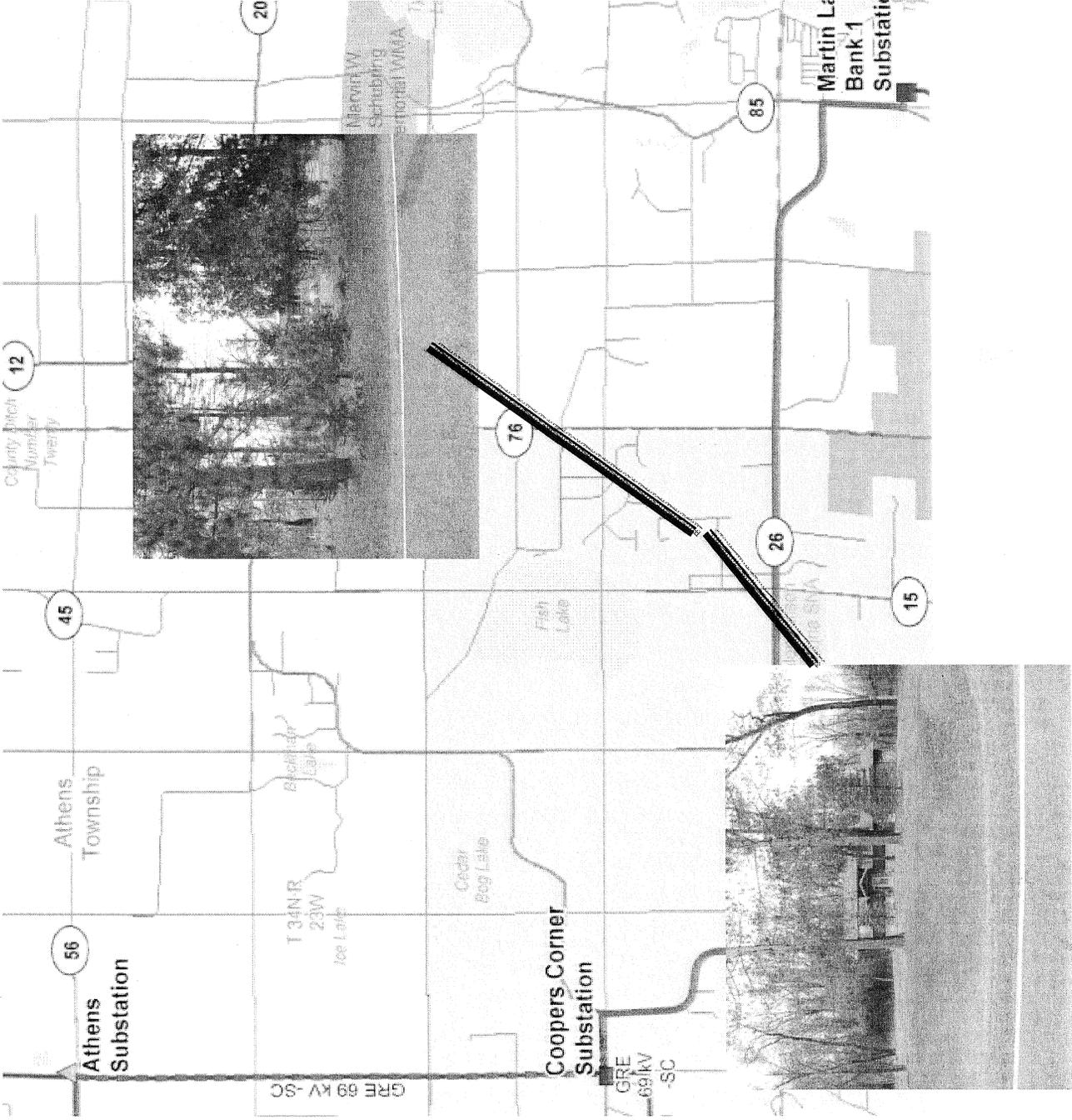
Pinch point - CSAH 26 and Durant Street



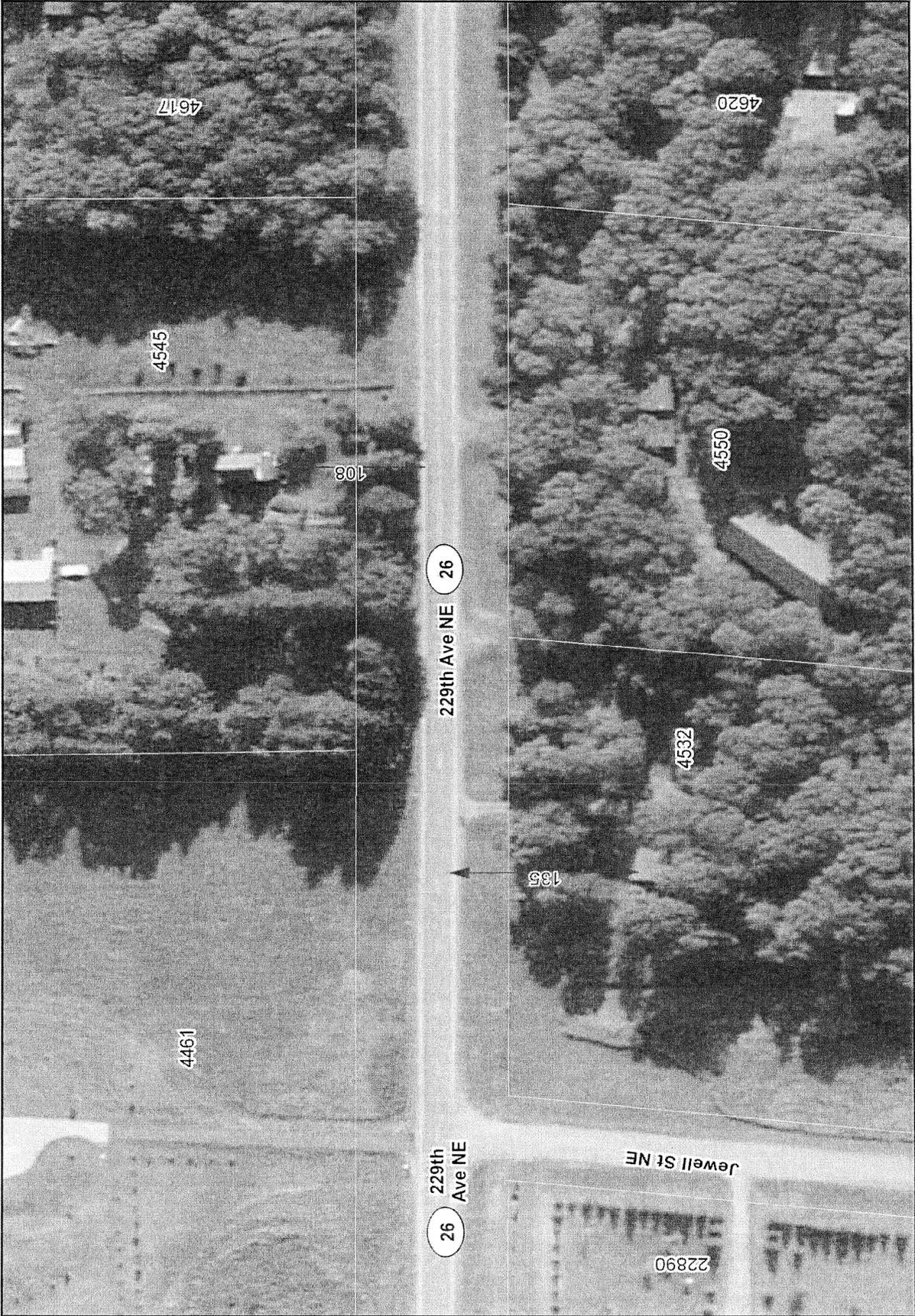
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Pinch point – CSAH 26 and Durant Street



Pinch point
 - CSAH 26
 and
 Jewel Street

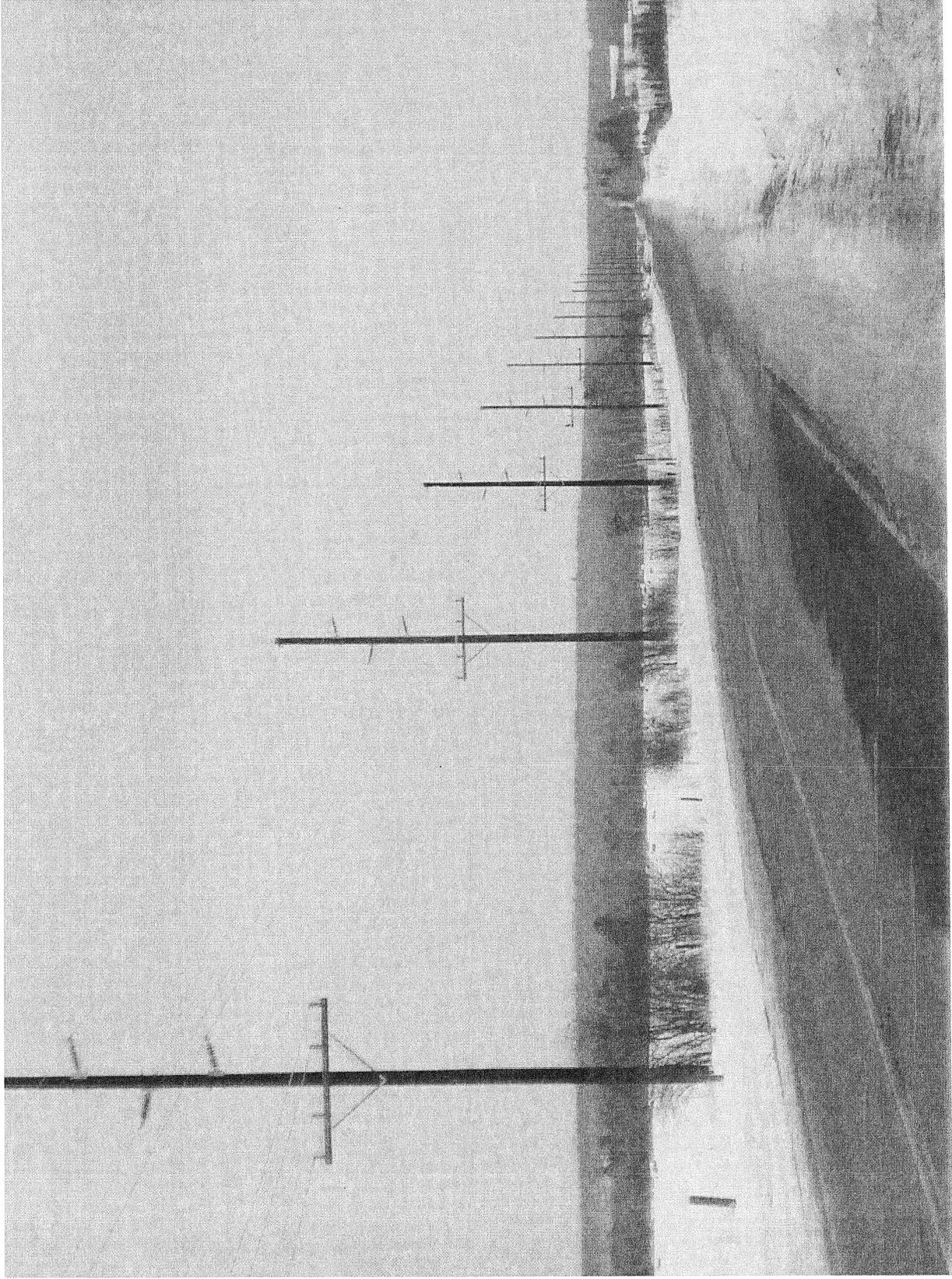


Pinch point – CSAH 26 and Jewel Street



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Example of Proposed Line with Distribution Underbuild



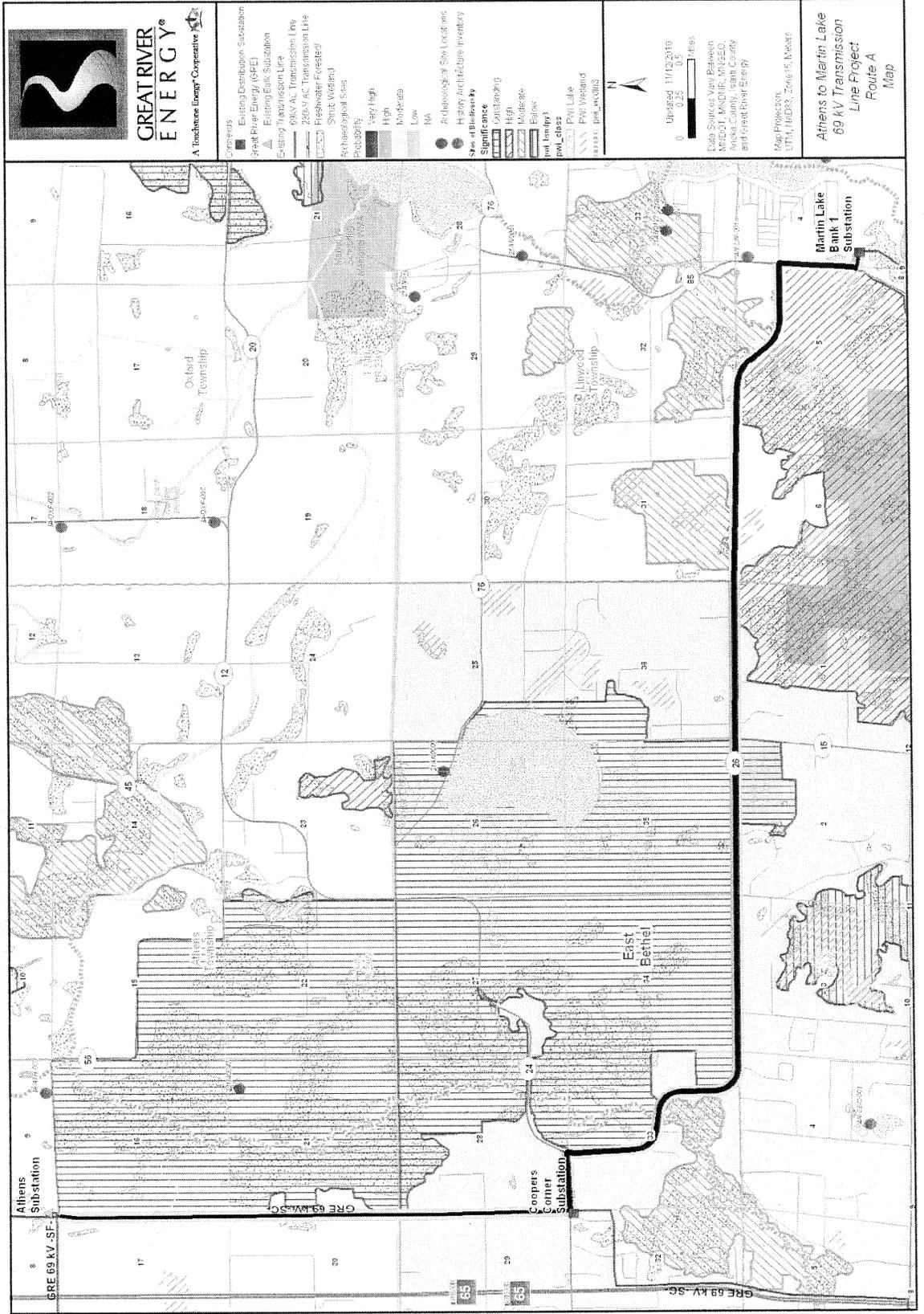
• *Structure Size*

Structures are designed to meet ground clearances as defined by the NESC. Great River Energy also adds additional feet to this clearance to account for hard packed snow and to anticipate any future environmental changes that may naturally occur. The standard clearance for a 69 kV transmission line is 23.5 feet. This clearance, along with the standard phase to phase (wire to wire) clearance as defined by the NESC, dictates the minimum structure height. Also, Longer spans (distance between poles) can cause larger sag in the conductors and affect the height of the pole. The addition of distribution underbuild on the poles under the phase wires adds to spacing requirements and adds to the pole height. The anticipated pole height for this route is 60 feet to 75 feet above ground level for structures that carry just the 69 kV phases and 70 feet to 80 feet above ground level for structures that have the distribution phases underbuilt under our 69 kV phases.

• *Span Lengths*

As stated above, span length directly impacts the structure size. On this route, structures that have distribution underbuild on the pole will have a maximum span length of 300 feet. To reduce the number of poles, the spans are designed to be between 250 feet and 300 feet. Terrain may dictate a shorter span length in some areas. For structures with the 69 kV transmission phases only, spans can be longer, but are usually limited to around 400 feet due to the strength of the insulators that are supporting the conductor at the poles. In extreme cases, the terrain or an environmental permit may dictate a longer span, such as a water crossing. In those instances, an H-Frame or two-pole structure would need to be utilized to span 700 feet to 1000 feet. There is a potential for one of these spans on the proposed Route as it crosses Cedar Creek.

Route A - Environmental



Species Listed in the Area of the Route

Red Shouldered Hawk - DNR has guidelines on when to do construction and precautions to take. The design of the structures and conductor spacing would keep raptors from electrocution.

Sandhill Crane - USFWS has guidelines on when to do construction and precautions to take. Bird diverters may be required in flyways.

Blanding Turtle, Gopher Snake, Jumping Spider, Leonards Skipper and Karner Blue - DNR has guidelines on when to do construction and precautions to take. Wherever possible construction would happen during the species dormant season

Oak Savanna, Dry Barrens Prairie, Wet Prairie, Walter's Barnyard Grass, Violets, Wild Indigo and all other rare native plant communities - Most of the plant communities would not be located in the transmission easement. In cases where they are DNR guidelines and mitigation would be followed. Spanning areas would also be a possibility for some species.

Agency Consultation for Project

- US Fish and Wildlife Service – consulted; no concerns noted. Rare species listing – Gray wolf.
- Minnesota Historical Society – not yet consulted. Will be consulted regarding excavation.
- US Army Corps of Engineers – not yet consulted but, will be consulted if the wetlands cannot be spanned or forested wetlands are involved.
- MnDOT – consulted, there are no airports in the area of Route A.
- DNR – consulted on the general concerns of the area.
- Cedar Creek Ecosystem Science Reserve, University of Minnesota - Have consulted with Jeffrey Corney, Ph.D.
- Anoka County and Isanti County Highway Departments - Consulted regarding plans for future highway expansion/improvements.



To avoid harming sensitive plant and animal life winter construction will be used wherever possible. Power lines have been designed to prevent electrocution of birds of prey. DNR will be consulted regarding bird diverters.



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Affect on VA/FHA Financing

VA Rules state:

- No part of any residential structure may be located within a high voltage electric transmission line easement.
- Any detached improvements even partially in a transmission line easement will not receive value for VA purposes.

FHA Rules state:

- No dwelling or related property improvement may be located within the engineering (*designed*) fall distance of any pole, tower or support structure of a high-voltage transmission line, For field analysis, the appraiser may use tower height as the fall distance.

Pursuant to the FHA Handbook 4150.2, Section 2-2(J):

- 1) If the dwelling or related property improvement is located within such an easement, the lender must obtain a letter from the owner or operator of the tower indicating that the dwelling and its related property improvements are not located within the tower's (engineered) fall distance in order to waive this requirement.

2) If the dwelling and related property improvements are located outside the easement, the property is considered eligible and no further action is necessary. The appraiser, however, is instructed to note and comment on the effect on marketability resulting from the proximity to such site hazards and nuisances.

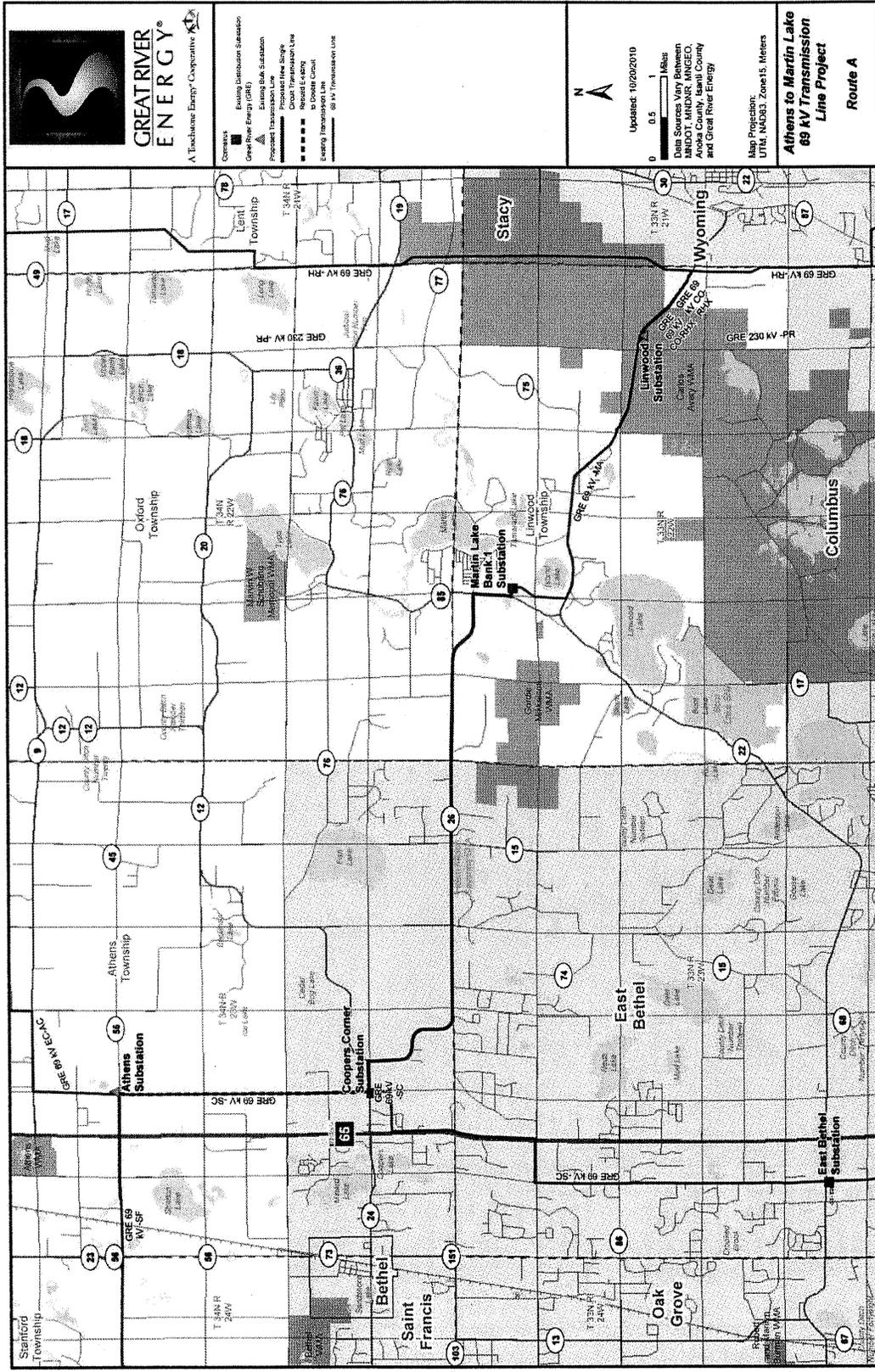
Summary of Route I Features

- ▶ Route length 13.7 miles
- ▶ 13.7 miles new transmission line to build
- ▶ Approximately 63 acres of new easements required
- ▶ Tree clearing – approximately acres
- ▶ Line not directly on environmentally sensitive areas
- ▶ Very tight pinch point on CSAH 9 – approximately 55 feet from house
- ▶ Pinch points along CSAH 12, Fawn Lake Dr. & Typo Creek Drive
- ▶ More culturally sensitive areas = greater uncertainty
- ▶ No direct benefit to Connexus system
- ▶ Construction cost - \$5,119,400.00



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Route A



Summary of Route A Features

- ▶ Route length 10.4 miles - shortest viable route
- ▶ Shortest length of new transmission line to build – 7.4 miles
- ▶ Use three miles of existing transmission line corridor
- ▶ Fewer easements – single landowner (Cedar Creek Reserve) for much of new route
- ▶ Lowest impact to historical and cultural resources
- ▶ Moderate impact to sensitive plants and high, but temporary impact to animal populations in the area
- ▶ Fewest number of wetlands and public waters involved on new transmission line ROW
- ▶ Second most desirable soil conditions
- ▶ County Highway – wider cleared ROW entire route
- ▶ Two pinch points
- ▶ Fewer turns and angles than other routes
- ▶ Savings to Connexus - rebuild distribution line
- ▶ Existing distribution corridor along most of route
- ▶ Lowest construction cost ≈ \$3,677,700.00)



GREAT RIVER ENERGY®
A Teasdale Energy Cooperative

EAST BETHEL PLANNING COMMISSION MEETING

February 22, 2011

The East Bethel Planning Commission met on February 22, 2011 at 7:00 P.M for their regular meeting at City Hall.

MEMBERS PRESENT: Eldon Holmes Lorraine Bonin Glenn Terry
Tim Landborg Dale Voltin Brian Mundle, Jr.

MEMBERS ABSENT: Julie Moline

ALSO PRESENT: Stephanie Hanson, City Planner
Steve Voss, City Council Member

Adopt Agenda Chairperson Terry called the February 22, 2011 meeting to order at 7:02 P.M.

Terry motioned to adopt the February 22, 2011 agenda. Landborg seconded; all in favor, motion carries.

Public Hearing:
Interim Use Permit.
A request by owner/applicant, Stephen L. Van Krevelen, to obtain an Interim Use Permit for a Home Occupation, that being a computer repair and IT support business. The location being 18333 Yancy St. NE, East Bethel, MN 55011, PIN 34 33 23 32 0015. The Zoning Classification Single Family Residential (R-1) District.

Property Owner/Applicant

Stephen Van Krevelen
18333 Yancy Street NE
East Bethel, MN 55092
Deer Path Farms, Lot 5, Block 4
PIN 34-33-23-32-0015

Hanson stated Mr. Van Krevelen is requesting an IUP for a home occupation to allow a home-based computer repair and IT support business known as Anoka Computer Center, LLC. The purpose of the business is to provide affordable personal computer repair, IT, and maintenance services to private parties and small businesses in the area. Mr. Van Krevelen has stated that the majority of the work will be completed off-site; however, some clients may visit the site.

Computer equipment and e-waste recycling will not be an offered service. The small amount of waste generated by hardware replacement parts will be recycled by Asset Recovery Corporation in St. Paul. According to Anoka County Environmental Services, a hazardous waste license is not required for this type of business.

Home occupations are a permitted use in the R1- Single Family Residential District as long as Mr. Van Krevelen can meet the requirements of the City Code and complies with the conditions of the IUP. The proposed home occupation will meet requirements of the ordinance so long as the IUP conditions are met. In the event the conditions are not being met, the IUP would be revoked.

Fiscal Impact:
Not Applicable

Recommendations:

Staff requests Planning Commission recommend approval to City Council for an IUP for a home occupation known as Anoka Computer Center, LLC, located at 18333 Yancy Street NE, Deer Path Farm, Lot 5, Block 4, PIN 34-33-23-32-0015, with the following conditions:

1. Home Occupation shall meet the specific home occupation standards set forth in the City Code Appendix A Section 10-18:
 - a. No more than three (3) persons, at least one (1) of whom shall reside within the principal dwelling, shall be employed by the Home Occupation.
 - b. No traffic shall be generated by any home occupation in a significantly greater volume than would normally be expected from a single-family residence.
 - c. Any sign associated with the home occupation shall be in compliance with the East Bethel City Code, Chapter 54. Signs. Home occupation signage must be no larger than two (2) square feet (City Code Chapter 54-4.3).
 - d. The home occupation shall not generate hazardous waste unless a plan for off-site disposal of the waste is approved.
 - e. A home occupation at a dwelling with an on-site sewage treatment system shall only generate normal domestic household waste unless a plan for off-site disposal of the waste is approved.
 - f. The home occupation shall not constitute, create, or increase a nuisance to the criteria and standards established in this ordinance.
 - g. There shall be no outdoor display or storage of goods, equipment, or materials for the home occupation.
 - h. Parking needs generated by the home occupation shall be provided on-site.
 - i. The area set aside for the home occupation in the principal structure shall not exceed 50 percent of the gross living area of the principal structure and the area set aside for the home occupation in the attached or detached accessory structures or garages shall not exceed total accessory structure space.
 - j. No structural alterations or enlargements shall be made for the sole purpose of conducting the home occupation.
 - k. There shall be no detriments to the residential character of the neighborhood due to the emission of noise, odor, smoke, dust, gas, heat, glare, vibration, electrical interference, traffic congestion, or any other nuisance resulting from the home occupation.
2. Violation of conditions and City Codes shall result in the revocation of the IUP.
3. All conditions must be met no later than April 16, 2011. An IUP Agreement shall be signed and executed no later than April 16, 2011. Failure to execute the IUP Agreement will result in the null and void of the IUP.

Public hearing opened at 7:10 p.m.

Question was asked as to how many cars would be visiting the location. Applicant stated about one or two. A second question was asked if the applicant owned a home business before, he said no, not on his own. Third question was if the services would be conducted in the house or in the garage? The applicant said they would be done in the house, but the majority of the work would be done at the customer's site.

Public hearing closed at 7:15 p.m.

Holmes motioned to recommend approval to City Council for an IUP for a home occupation known as Anoka Computer Center, LLC, located at 18333 Yancy Street NE, Deer Path Farm, Lot 5, Block 4, PIN 34-33-23-32-0015, with the following conditions:

- 1. Home Occupation shall meet the specific home occupation standards set forth in the City Code Appendix A Section 10-18:**
 - a. No more than three (3) persons, at least one (1) of whom shall reside within the principal dwelling, shall be employed by the Home Occupation.**
 - b. No traffic shall be generated by any home occupation in a significantly greater volume than would normally be expected from a single-family residence.**
 - c. Any sign associated with the home occupation shall be in compliance with the East Bethel City Code, Chapter 54. Signs. Home occupation signage must be no larger than two (2) square feet (City Code Chapter 54-4.3).**
 - d. The home occupation shall not generate hazardous waste unless a plan for off-site disposal of the waste is approved.**
 - e. A home occupation at a dwelling with an on-site sewage treatment system shall only generate normal domestic household waste unless a plan for off-site disposal of the waste is approved.**
 - f. The home occupation shall not constitute, create, or increase a nuisance to the criteria and standards established in this ordinance.**
 - g. There shall be no outdoor display or storage of goods, equipment, or materials for the home occupation.**
 - h. Parking needs generated by the home occupation shall be provided on-site.**
 - i. The area set aside for the home occupation in the principal structure shall not exceed 50 percent of the gross living area of the principal structure and the area set aside for the home occupation in the attached or detached accessory structures or garages shall not exceed total accessory structure space.**
 - j. No structural alterations or enlargements shall be made for the sole purpose of conducting the home occupation.**
 - k. There shall be no detriments to the residential character of the neighborhood due to the emission of noise, odor, smoke, dust, gas, heat, glare, vibration, electrical interference, traffic congestion, or any other nuisance resulting from the home occupation.**
- 2. Violation of conditions and City Codes shall result in the revocation of the IUP.**
- 3. All conditions must be met no later than April 16, 2011. An IUP Agreement shall be signed and executed no later than April 16, 2011. Failure to execute the IUP Agreement will result in the null and void of the IUP.**

Terry seconded; motion carries unanimously.

This will be heard at the 3/16/2011 City Council meeting.

**Great River Energy
Proposed 69kV
Transmission Line
Project, GRE
Presentation.**

Discussion of work group's recommendation of transmission line location. Make recommendation to Great River Energy of line location.

There were technical difficulties so GRE was not able to show their presentation on PowerPoint, but each Commission member does have the presentation book.

Hanson stated according to Great River Energy, the purpose of the project is to ensure the electric system meets the needs of growing areas including East Bethel, Linwood Township, Athens Township, Cambridge, Stanford Township, St. Francis and others, while also balancing the need to be fiscally responsible. Due to growth in East Bethel and surrounding areas, the region is at risk for interruption of electrical service; therefore, GRE proposes to construct a transmission line to address system deficiencies and proactively ensure the homes and businesses in these communities continue to receive reliable, quality electric service.

Ordinance 15, Second Series (adopted by City Council on January 6, 2010), establishes the requirements and criteria for conditional use permits for transmission lines in the City of East Bethel. The ordinance is attached for your review.

According to the ordinance, Phase 1 includes a work group process in which the work group will conduct an analysis of the proposed routes and present its report to the city's Planning Commission. The work group was established by City Council in September 2010 and has been holding work group meetings with GRE representatives since then.

According to the code, the *"work group will conduct an analysis of the alternatives and present its report to the city's Planning Commission. The city's Planning Commission, based on the work groups' submittals and applicant presentation, will narrow the alternatives for the siting of the transmission line or facility. Following the Phase 1 process, the applicant may submit an application for a conditional use permit."* On Monday, February 7, 2011, the work group made a recommendation to the Planning Commission for a transmission line location. GRE will be submitting a land use request for a CUP, as required by Ordinance 15, Second Series. The public hearing is tentatively scheduled for the March 22, 2011 Planning Commission meeting and will be considered by City Council on April 6, 2011.

After much discussion, the work group made a suggestion of a route that was not originally presented. It is recommending the location for the transmission line known as Route I (attachment 2). The work group made this recommendation by taking into consideration the minimal impacts to existing ecological areas, including Cedar Creek Natural History Area and the fewer turns and angles of the other routes. The majority of the line would be in Athens Township and Linwood Township, with a small portion affecting the area on the northeast side of Fish Lake/Cedar Creek Natural History Area. This information was conveyed to GRE; they conducted an analysis of this proposed route which is part of Attachment 1.

GRE has a preference for Route A in which the analysis is part of Attachment 1. GRE prefers Route A because it is the shortest viable route, shortest length of new transmission lines to build, fewer easements to obtain, lowest construction costs, etc. GRE staff will discuss the route during the presentation.

On February 16, 2011, GRE presented the proposed project to the City Council. Planning Commission members were invited to attend the presentation. The purpose of the presentation was to educate council and commission members on the project to ensure this particular project continues to move forward in an efficient manner. The presentation included, but was not limited to, a brief overview of the project, site location analysis, and a feasibility analysis.

GRE will give a brief overview of the project at the Planning Commission meeting on February 22, 2011 for the members that were unable to attend the City Council presentation, and also to summarize route features and limitations for recommended Route I and GRE's preferred Route A.

Fiscal Impact:

None at this time

Recommendation:

Staff requests Planning Commission to make a recommendation of a route to Great River Energy of the siting of the 69kV Transmission Line.

GRE staff provided an overview of the project and instructed the Commission if they had questions to ask them as they come up.

Bonin asked what would he be presenting. GRE staff stated they would be presenting information on Route A and Route I. Route A is the preferred route for GRE.

Terry asked why Route I was recommended by the work group, but they do not know what the group's process was to derive at Route I. GRE said if they pursued Route I, they would have to go back to Athens to work that route out. The GRE staff stated members of the work group would be better to state why they wanted Route I. A question was asked as to why the work group recommended Route I. Holmes was on the work group, and he said that basically the U of M personnel said they would not want Route A because of the destruction of the U of M land, there are a lot of issues to resolve and this wasn't an easy decision to reach. Holmes stated Route I affects the least amount of people.

GRE said the University of Minnesota didn't say they didn't want the route there and he doesn't want to put words in their mouth, but like any property owner they don't want it on their land. They are the biggest landowners, they operate something that is pretty unique, and it is for scientific research purposes. GRE has always had the understanding, if they could get a Conditional User Permit from the City, that the U of M would work with them. They were okay with Route A, but the U of M did say if Route B was selected, they would fight them tooth and nail. So just to be clear, Route A is not off the list because the U of M said no to that route.

A question was asked if Route A is a route where there are currently running lines. GRE staff said yes, it is where a route currently is running distribution lines, but these would be transmission lines. Do you need more easement to do

these transmission lines? Yes, they do take a little more easements.

The University of Minnesota thinks they can work with GRE, per the GRE staff. GRE has a forester on staff. The U of M position is like anyone else, if it can be on anyone else's property, put it there. Hanson said that all along the U of M stated GRE needs to work with the City first and then the U of M will back it up.

Bonin asked if the trees would be removed. GRE stated there possibly could be clear cutting, but that is the forester's call. The forester would work very closely with the property owners.

GRE staff stated as soon as they found out the work group recommended Route I, he called and talked to the property owner, the University of Minnesota. As Hanson said, the U of M told him that they want GRE to work with the City, and work something out. He understands that nobody wants this on their property and wishes it could go somewhere else. He stated that they have constituents too; so he has to work with them, explain to them why they will be building something that will cost two million dollars more. That is why they are pursuing the best route and most cost effective route.

Terry asked if there were any other reasons why it shouldn't be Route A, other than environmental. GRE staff stated that the environmental impact was greatly considered. When they look at environmental, Route I would be good from an environmental standpoint, but to single out Route I and say it has less environmental impact may be incorrect. The reason a lot of environmental impacts were listed for Cedar Creek is because researchers are continually studying it so there is much more information on that area environmentally.

GRE staff said if the City would give a CUP to GRE for Route A, the U of M would work with GRE. He has asked the work group to clarify the position. Bonin said aside from the fact that it is a shorter route, she suspects that Route I goes through a great deal of rural area. GRE staff said you are correct it does. Isanti County Road 9 will be doubled in size in the next few years, so that puts GRE in a difficult position for this project. The easements would have to go close to the houses on each side.

Holmes asked what are the future plans? GRE staff said they won't need to do anything more along that route for 20 to 30 years. If they can't put this route in, or it becomes too difficult to put it in, they will have to look at the entire region to figure out what they can do. They may look at higher voltage lines at that point. Holmes said with the higher voltage you won't have to go to the cities. GRE staff said that was correct, they would go to the State and the State would notify the residents and the City. If GRE could have declared this a 115 route, they probably would have done it. It would be much easier for GRE to do that. We have all along maintained this is a 69K project, being that it is a best use of resources. Bonin asked what areas it would serve. The actual area this will benefit will go from Cambridge to Elk River to East Bethel. What it has to do with is accomplishing the goals of hooking up Athens substation and Martin substation. They are trying to minimize the amount of line they have to build and maintain. Holmes said this is actually a back-up route, correct? GRE said the power to the area right now; this is bringing things up to a level that would be

satisfactory. Back in 2007 we came to a point where if we had issues, there could be rolling blackouts. This is not an emergency, but it is bringing things up to speed. Holmes said this is a loop system. GRE said yes, that is correct.

Holmes said the other two members of the Committee should come up and talk about why they suggested Route I. Terry said if the other members have something to state, please come up and address the group.

Lou Cornicelli – He helped write the ordinance and was also on the work group. They put a lot of time into researching this. The U of M helped develop Route I. The group looked at the 14 alternatives that GRE proposed and they took that to heart. The group looked at the environmental impacts, the impacts on property owners, the effect of what the City was getting from this project and they dismissed Route A very quickly. It affected Cedar Creek and also the houses along that route were very close. Route I is all parts of the other routes combined. The group didn't capriciously or arbitrarily come up with Route I. Route I was voted unanimously by the group. Route A comes with the most cost to the residents and the U of M. Route I is the least cost/impact to the residents of the City.

Bonin asked why Route I has to jog south and then west. He stated that there is a wildlife management area and they preferred to miss that.

A commissioner commented, the City has been talking about putting a trail along that whole property, as far as we know, there have been verbal agreements to put the trail in. It would be a 12-15 foot trail along Cedar Creek. It would be about 4 miles of people's direct housing. But on that route you only have one landowner to deal with. We could recommend Route I, but that may not go through any easier.

GRE representative commented that the one issue they have is to try to avoid historical issues. Coming down Typo Creek, just north of there, there are historical and architectural issues that have been raised.

Terry said he utilizes all the places referenced in Route A. He thinks it makes the most sense to go with Route A.

Terry made a motion to recommend to City Council to use Route A for the siting of the 69kV Transmission Line. Voltin seconded; all in favor, motion carries 4-1, Holmes opposed.

A question was asked on what the savings would be on Route A? 1.5 to 2 million. GRE representative said they don't have design done yet, but this is a best estimate compared with other projects of similar scope. There should be a matrix that states the costs for each project.

This will come to Planning Commission March 22 for a Conditional Use Permit.

Approve January 25,
2011 Planning
Commission Meeting
Minutes

Holmes motioned to approve the January 25, 2011 Planning Commission minutes as presented with above change. Voltin seconded; all in favor, motion carries.

Adjourn

Holmes made a motion to adjourn the meeting at 8:15 PM. Voltin seconded; all in favor, motion carries.

Submitted by:

Jill Teetzel
Recording Secretary

DRAFT

March 16, 2011

Stephanie Hanson, City Planner
City of East Bethel
2241 - 221st Avenue N.E.
East Bethel, MN 55011-9631

RE: Great River Energy Transmission Line Project
Conditional Use Permit Application

Dear Stephanie:

Attached is the revised Conditional Use Permit Application review for the above referenced project. The following item was submitted for review:

1. Application for City of East Bethel Conditional Use Permit, dated March 2011, prepared by Great River Energy.

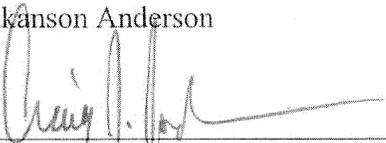
We have the following comments regarding the application:

1. Per Chapter 74, Article VI, Section 214(c)(7) of the City Code, the applicant shall provide a statement of ownership interest in the properties along the proposed alignment.
2. Per Chapter 74, Article VI, Section 214(c)(10) of the City Code, the applicant shall provide the necessary data to be incorporated into the City's Emergency Management Plan.
3. Per Chapter 74, Article VI, Section 214(i)(1) of the City Code, the applicant shall provide the description of any easements, as proposed, for the placement of the transmission line.
4. Per Chapter 74, Article VI, Section 214(j)(1) of the City Code, the applicant shall apply for site plan approval after receiving the Conditional Use Permit and before beginning construction. The applicant must have sufficient interest in the properties along the proposed alignment.
5. Per Chapter 74, Article VI, Section 214(j)(3) of the City Code, the applicant shall design the transmission line to minimize its visual impact.
6. Per Chapter 74, Article VI, Section 214(j)(4) of the City Code, the transmission line must not interfere with the use of public rights-of-way, including use for vehicular and pedestrian travel, snow storage, and lateral support.

7. Per Chapter 74, Article VI, Section 214(j)(5) of the City Code, the applicant and any subsequent owner shall continually maintain the transmission line in good condition, securing poles and/or guy wires to the ground, and replacing poles that are in a deteriorated condition.
8. Per Section 4.9.A(8) of the Zoning Ordinance, the applicant shall provide soil boring information for the pole locations.
9. The application discusses a literature review that was conducted by Trefoil. The applicant shall submit a copy of this review to the City.
10. As discussed in the application, the applicant shall obtain a water crossing license from the Department of Natural Resources for crossing Cedar Creek.
11. As discussed in the application, the applicant shall work with the Department of Natural Resources and the United States Fish and Wildlife Service to determine if the transmission line shield wires shall be marked to reduce avian collisions.
12. If the project disturbs more than an acre of soil, the applicant shall obtain a NPDES Permit from the MPCA prior to construction.
13. The applicant shall meet the requirements of the Wetland Conservation Act if any wetlands will be impacted by the project.

If you have any questions regarding this review please call me at 763-427-5860.

Sincerely,
Hakanson Anderson



Craig J. Jochum, City Engineer

cc: Jack Davis, Public Works Manager
Mark Vierling, City Attorney
Peter Schaub, Applicant



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March 16, 2011

WO # 54101
Athens – Martin Lake

East Bethel Planning Commission
Attn: Stephanie Hanson, City Planner
2241 221st Avenue, NE
East Bethel, MN 55011

SUBJECT: Hakanson Anderson review of Great River Energy 69 kV Transmission Line Route Conditional Use Permit Application.

Dear Commissioners and Ms. Hanson:

Great River Energy received a copy of the March 16, 2011, letter from Hakanson Anderson regarding their review of Great River Energy's CUP application. All of the items raised in the letter are dependent upon either the completion of a final route design and/or the approval of the route permit. Because of the time, resources and costs involved, we do not design the actual transmission line until we have a specific route. Therefore, we cannot complete the requirements listed in the Hakanson letter until the Conditional Use Permit is approved and we have a final line design. However, I would like to clarify some of the issues raised in the letter. Specifically, I would like to address the following:

1. *"statement of ownership"* – In the CUP cover letter I explained that Great River Energy does not currently have any ownership interest in the properties along the proposed route but, would acquire easements if the route is approved. Additionally, we included aerial maps of the proposed route with property identification numbers and a list identifying current owners, which we recently obtained from the County. I believe this should satisfy a "statement of ownership interest." Of course, if the route CUP is approved we will provide the city with easement information.
2. *"necessary data [for the] City's Emergency Management Plan."* - I have talked to Fire Chief DuCharme about what this might entail. Chief DuCharme said that he will need the following: contact telephone numbers; information on what the line is carrying; any specific hazards related to the line; information on safe distances in case a line goes down. I assured Chief DuCharme that if we build the line, we will provide this information as well as "as-built" drawings and any other information he thinks the City might need in an emergency.

Direct Dial (763) 445-5976

E-mail pschaub@grenergy.com

Fax (763) 445-6776

3. *"transmission line must not interfere with public rights-of-way, ..."* - The transmission line will be built outside public rights-of-way and will not interfere with travel, snow storage or lateral support.
4. *"Trefoil literature review."* - The literature review was completed by Houston Engineering. We will forward a copy of the review to the City.

With respect to all other items listed within the letter, Great River Energy will provide the necessary response as the information becomes available.

If you require additional information or have any questions regarding this letter or our application, please contact me at your earliest convenience.

Sincerely,

GREAT RIVER ENERGY



Peter M. Schaub
Sr. Field Representative

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3/14/11
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GRE Transmission Line Petition

We, the residents of East Bethel strongly oppose the construction of a transmission line along the route identified as "Route A". During 2010, the city of East Bethel commissioned a work group to evaluate transmission line routing options. The work group objectively and carefully considered all alternative routes provided by GRE. Those routes were evaluated on their merits using the criteria outlined by City Ordinance and worked in good faith that GRE was proposing viable alternatives. Ultimately, the work group unanimously recommended "Route I", which still connected the 2 substations but avoided sensitive environmental areas and the homes along CR-26, which are extremely close to the road. We strongly believe that "Route A" is not in the best interest of the city of East Bethel and will result in a range of negative attributes to the city and it's residents from the extensive visual impact to the 3 natural history areas along Route A which are valuable assets to the city and Linwood Township. We respectfully request the Planning Commission and City Council adopt the recommendations of the East Bethel Transmission Line Work Group and grant a Conditional Use Permit for "Route I".

| NAME | ADDRESS | PHONE | EMAIL |
|------------------------|-------------------------------|--------------|-------|
| <i>[Signature]</i> | 2009 233 rd Ave NE | 763-413-3490 | |
| Elaine Reis | 2124 233 rd Ave NE | 763-434-6757 | |
| Glen Thies | 2124 233 rd Ave NE | 763-434-6757 | |
| <i>[Signature]</i> | 23365 London St NE | 763 413 1426 | |
| Michelle Jensen | 23391 London St NE | 763-323-8115 | |
| Angie Johnson | 23429 London St NE | 763-712-1824 | |
| Sarah VanKemper | 23535 London St NE | 763-434-7156 | |
| Summer Scandariato | 23567 London St NE | 763-413-3346 | |
| Anthony Scandariato | " " " " | " " | |
| Angie Scandariato | 23617 London Ct NE | 763-434-332 | |
| Brynnis + Mary Tallman | 1955 236 th Ave NE | 763-434-6142 | |
| K7M | 1913 236 th Ave NE | 612-298-9407 | |

Attachment #8



GRE Transmission Line Petition

We, the residents of East Bethel strongly oppose the construction of a transmission line along the route identified as "Route A". During 2010, the city of East Bethel commissioned a work group to evaluate transmission line routing options. The work group objectively and carefully considered all alternative routes provided by GRE. Those routes were evaluated on their merits using the criteria outlined by City Ordinance and worked in good faith that GRE was proposing viable alternatives. Ultimately, the work group unanimously recommended "Route I", which still connected the 2 substations but avoided sensitive environmental areas and the homes along CR-26, which are extremely close to the road. We strongly believe that "Route A" is not in the best interest of the city of East Bethel and will result in a range of negative attributes to the city and it's residents from the extensive visual impact to the 3 natural history areas along Route A which are valuable assets to the city and Linwood Township. We respectfully request the Planning Commission and City Council adopt the recommendations of the East Bethel Transmission Line Work Group and grant a Conditional Use Permit for "Route I".

| NAME | ADDRESS | PHONE | EMAIL |
|------------------|----------------------------------|--------------|-------|
| Emily England | 3154 229 th Ave N.E. | 763-434-4878 | |
| Mercer England | 3154 229 th Ave N.E. | 763-434-4878 | |
| Albert Hunt | 3328 229 th Ave N.E. | 763-434-5504 | |
| Shelley Mann | 3421 228 th Ave N.E. | 763-434-2714 | |
| Kathy Larson | 22740 Tippecanoe | 763-434-1038 | |
| David Nelson | 22740 Tippecanoe | 763-434-1038 | |
| Dion Israelson | 22776 Tippecanoe St | 763-413-3364 | |
| George Ravnos | 4225 229 th Ave N.E. | 651-462-5918 | |
| Jamie LaCroix | 22915 Erskine St. N.E. | 651-462-3552 | |
| James Ingdudston | 4222, 229 th Ave N.E. | - | |
| Albert R. Bailey | 22890 Jewell St | 651-462-5879 | |
| Rosemary Bailey | 22890 Jewell St N.E. Bethel | 651-462-5879 | |



GRE Transmission Line Petition

We, the residents of East Bethel strongly oppose the construction of a transmission line along the route identified as "Route A". During 2010, the city of East Bethel commissioned a work group to evaluate transmission line routing options. The work group objectively and carefully considered all alternative routes provided by GRE. Those routes were evaluated on their merits using the criteria outlined by City Ordinance and worked in good faith that GRE was proposing viable alternatives. Ultimately, the work group unanimously recommended "Route I", which still connected the 2 substations but avoided sensitive environmental areas and the homes along CR-26, which are extremely close to the road. We strongly believe that "Route A" is not in the best interest of the city of East Bethel and will result in a range of negative attributes to the city and it's residents from the extensive visual impact to the 3 natural history areas along Route A which are valuable assets to the city and Linwood Township. We respectfully request the Planning Commission and City Council adopt the recommendations of the East Bethel Transmission Line Work Group and grant a Conditional Use Permit for "Route I".

| NAME | ADDRESS | PHONE | EMAIL |
|--------------------|---|----------------|------------------------|
| Schulz Wiegman | 4912-229 th Ave NE East Bethel | 651-462-1381 | rwin64@frontiernet.net |
| Merna Mason | 4922-229 th Ave NE E Bethel | 651-462-5808 | mmason@outdoors.net |
| Richard Edrason | 4922-229 th Ave NE E Bethel | 651-462-5808 | |
| Ron Corny | 4945 229 th AV NE E Bethel | 651-462-2821 | |
| Sally Corny | 4945-229 th Av. NE. E Bethel | 651-462-2821 | |
| Clifford Stepan | 4840 229 th Ave | 651-462-8787 | |
| HS | 4840-229 th Ave | 651-462-8787 | |
| Bonnie J. Seedorff | 4715 229 th Ave. N.E. | 651-462-5810 | |
| Ernest Seedorff | 4715 229 th Ave. NE | 651-462-5810 | |
| Bonnie Berg | 4647, 229 th Ave NE | 651-462-5532 | |
| Steven D Beckman | 4650 229 th Ave | 651-462-8453 | |
| Reuel Beckman | 4650 229 th Ave | 651-462-8453 | |
| Shao Yue | 4617 229 th AV NE | (651) 462-1639 | |
| Al Corny | 4912-229 th Ave NE | 651-462-1381 | rwin64@frontiernet.net |

RECEIVED
3/14/11
SH

GRE Transmission Line Petition

We, the residents of East Bethel strongly oppose the construction of a transmission line along the route identified as "Route A". During 2010, the city of East Bethel commissioned a work group to evaluate transmission line routing options. The work group objectively and carefully considered all alternative routes provided by GRE. Those routes were evaluated on their merits using the criteria outlined by City Ordinance and worked in good faith that GRE was proposing viable alternatives. Ultimately, the work group unanimously recommended "Route I", which still connected the 2 substations but avoided sensitive environmental areas and the homes along CR-26, which are extremely close to the road. We strongly believe that "Route A" is not in the best interest of the city of East Bethel and will result in a range of negative attributes to the city and it's residents from the extensive visual impact to the 3 natural history areas along Route A which are valuable assets to the city and Linwood Township. We respectfully request the Planning Commission and City Council adopt the recommendations of the East Bethel Transmission Line Work Group and grant a Conditional Use Permit for "Route I".

| NAME | ADDRESS | PHONE | EMAIL |
|----------------------|--|--------------|----------------------------------|
| Daniel Tracy | 22930 Packard St E. Bethel | 651-462-3163 | |
| Sam R. P. | 22929 PACKARD ST NE EAST BETHEL | MN 55005 | H-651-462-1373 C-612-710-5706 |
| Keith & Rette | 22950 packard st ne Bethel | MN 55005 | 763-238-8437 |
| Delene Richter | 22950 Packard St NE Bethel | MN 55005 | 763-238-8437 |
| Betsy Can | 4251-229th Ave NE E Bethel, MN | 55005 | 651-462-1591 |
| CRAIG OLDENBURG | 4353 229TH E. BETHEL, MN | 55005 | 763-434-3949 |
| Chris & Shawn Leslie | 4340 229th Ave NE E Bethel | MN 55005 | 763-739-3725 |
| Del Gehlke | 22915 Durant St NE E Bethel | MN 55005 | 462-1854 |
| Denny Summerbell | 23240 Gopher Dr E. Bethel, MN | 55005 | 763-1134-2591 |
| Brad Heckenlaible | 23124 Gopher Dr. NE E. Bethel, MN | 55005 | 763-413-7108 |
| Dan Kupis | 23050 Gopher Dr. NE E. Bethel | MN 55005 | 612-328-5034 |
| Curat Criswell | 2920 229th Ave. NE Bethel, MN | | |
| Scott A. Stabely | 2948-229th Ave N.E. Bethel | MN. | |
| Orlander Burman | 3014-229th Ave NE Bethel | | |
| Carla Kupisch | 3118-229th Ave NE Bethel | | |

GRE Transmission Line Petition

We, the residents of East Bethel strongly oppose the construction of a transmission line along the route identified as "Route A". During 2010, the city of East Bethel commissioned a work group to evaluate transmission line routing options. The work group objectively and carefully considered all alternative routes provided by GRE. Those routes were evaluated on their merits using the criteria outlined by City Ordinance and worked in good faith that GRE was proposing viable alternatives. Ultimately, the work group unanimously recommended "Route I", which still connected the 2 substations but avoided sensitive environmental areas and the homes along CR-26, which are extremely close to the road. We strongly believe that "Route A" is not in the best interest of the city of East Bethel and will result in a range of negative attributes to the city and its residents from the extensive visual impact to the 3 natural history areas along Route A which are valuable assets to the city and Linwood Township. We respectfully request the Planning Commission and City Council adopt the recommendations of the East Bethel Transmission Line Work Group and grant a Conditional Use Permit for "Route I".

| NAME | ADDRESS | PHONE | EMAIL |
|-----------------------|---------------------|--------------|-----------------|
| Bud Flagstad | 3200 209 Ave | 763-434-5860 | BSTFLAGSTAD@aol |
| Betty Flagstad | " " " | " " " | |
| Jordan Flagstad | 4950 239th AVE NE | 651-408-8621 | |
| Shanda Flagstad | " " " " | " " " " | |
| Amy Anderson | 23744 Sunset Rd NE | | |
| Art Anderson | " " " " | 651-462-5964 | |
| gk | 22874 Biskin St NE | 763-244-0904 | |
| Kelly Ferguson | 22853 Engline St NE | 763-234-0344 | |
| Maureen Butcher | 2816 229th Ave NE | 763 413-7225 | |
| Cheryl Thull | 22813 BATAAN ST. NE | 763-434-3207 | |
| Anna Sue | " " " | " " | |
| Ken Rett | 2436 229TH AVE | 763-957-0798 | |
| Laura Ohman-Schudlick | 23254 Gopher Dr. | | |
| Carolyn Criswell | 2053 23rd AVE | | |

Ms. Stephanie Hanson
East Bethel City Planner
2241 221st Avenue NE
East Bethel, MN 55011

March 15, 2011

Dear Ms. Hanson:

I went through the information submitted to you yesterday by Mr. Pete Criswell and I just wanted to write a brief letter of concurrence with his information. Pete and I both served on the work group and I for one am thankful for the opportunity to assist the city. As you know, the committee put a lot of time and thought into developing the Route "I" recommendation. While we all may have used a slightly different criteria to arrive at the recommendation, given it was unanimous, I feel strongly it was the most appropriate recommendation for the city of East Bethel.

Certainly, none of us on the work group spent as much time analyzing the data as Pete. I think the information he has provided presents a compelling case that Route I is the most appropriate, especially considering the long-term ramifications. I realize he's submitted a lot of information to review; however, I would urge that the planning commission and city council take the time to review the documentation. Any recommendation the planning commission makes and city council ultimately adopts will affect East Bethel residents in perpetuity. I hope they can find the time to go through Pete's information and reflect on the sound recommendation of the work group, rather than the information provided by the company interested in placing the transmission line.

If you have any questions, please don't hesitate to contact me. Again, thank you for the opportunity to serve my community.

Regards,

Lou Cornicelli
4620 229th Ave NE
East Bethel, MN 55005

Martin Lake-Athens Under-built 69 kV Transmission Line

The following 11 pictures demonstrate just how much an under-built 69 kV transmission line dominates the view along a road it's placed on. The pictures are all taken locally, some on Isanti County Road 8, west of Mau's Corner; some on Isanti Co. Rd. 56, west of Hwy 65; and some on Anoka Co. Rd. 22, east of Typo Creek Drive.

The next 6 pictures show views near the bridge over Cedar Creek on Gopher Drive and the School Forest Entrance.

Note: this document has imbedded pictures and maps. If viewing this on a pc, depending on processor speed, it may take a few seconds for the imbedded picture to appear after the page is opened and scrolling stopped.

Definition: An under-built transmission line has a distribution line running under the transmission line, on the same poles.

Pictures of under-built 69 kV transmission lines:

1. This is a picture of the Athens to Mau's Corner under-built 69 kV line on Isanti Co. Rd. 56 west of Hwy 65. It shows where the line crosses from the north side of the road to the south side of the road. Note all 8 lines are put into a vertical plane. Note also the guy wires used to brace the poles. In Chisago County the guy wires wouldn't be allowed, part of their emphasis on visual impact (something that should be in the East Bethel Ordinance).

(529)

Figure 1



2. Another picture of the road crossing for the under-built 69kv line on Co. Rd 56. This emphasizes the conversion of the under-built distribution line from the horizontal alignment to the vertical alignment.

(531)

Figure 2



3. A closer picture of the pole at the point of the road crossing, showing the lines and guy wires.

(532

Figure 3



4. This is another picture of the Co. Rd 56 road crossing. This shows the conversion from the vertical plane back to the horizontal plane for the under-built distribution line. This picture and picture 1 both display the under-built 69 kV line continuing down the road.

(534)

Figure 4



)

5. This is a picture of the under-built 69 kV line running west of Mau's corner to the Crown substation along Isanti Co Rd 8.

(536)

Figure 5



6. Another view of the under-built 69 kV transmission line along Isanti Co. Rd. 8
(537)

Figure 6



7. This is a close-up of one of the under-built poles along Co. Rd. 8

(540)

Figure 7



8. This is another road crossing. This one is crossing Hwy 47 at Isanti Co. Rd 53(south of Mau's Corner)

(543

Figure 8



9. This is another picture of the road crossing in picture 8. (crossing Hwy 47 at Isanti Co. Rd 53(south of Mau's Corner)

(544)

Figure 9



)

10. This is the 69 kV line on Anoka Co. Rd 22. It is being braced by a pole with guy wires added across the road because the line is entering a curve. The Chisago County Ordinance may be able to prevent something like this also.

(549)

Figure 10



)

11. This picture is taken on Anoka Co. Rd. 22 in front of the Covenant Church, The 69 kV line is crossing the road (with no under-build) to the north to run up to the Martin Lake Substation. The pole on the right is a normal distribution line pole and can be contrasted with the size of the 69 kV pole.

(551)

Figure 11



12. This and the next 2 pictures are pictures taken from the bridge over Cedar Creek on Gopher Drive.

This is a view across the bridge, looking to the north along Cedar Creek and into University property. The view would probably not be improved by an under-built transmission line passing overhead or nearby H-Poles.

(461

Figure 12



Many people in the area walk or bike along Gopher Drive, largely because of the view provided by the University land, especially in the area of the bridge. Most people hiking or biking by will stop on the bridge to rest or just look around. It's almost like the bridge is a little mini-park for East Bethel.

13. This is another view from the bridge looking NW along Gopher Drive. The stand of evergreens on the right along the curve would probably be cut way back. Right now there is a distribution pole only 8 feet from the road surface since the bypass lane was added to let people get by cars turning onto 233rd Ave. The new view would contain a set of H-poles to allow spanning the creek area, and the poles after conversion back to a running under-built transmission line, then going around the curve.

(462)



14. This is another view from the bridge looking SE along Gopher Drive. You can see the lines from the present distribution line on the right which runs south of the bridge. The trees along the road on the left of the picture on University property would be cut way back plus you would have the view of another H-poles set and the conversion back to a running under-built transmission line, then going around the curve.

(463)

Figure 14



15. This is the 1st of 3 pictures of the School Forest entrance on 227th Ave NE. It show how many trees would be lost and the effect on their entrance if the under-built 69 kV transmission line is run behind their parking lot.

(556)

Figure 15



16. This is the 2nd picture of the School Forest Entrance

(557)

Figure 16



17. This is the 3rd picture of the School Forest entrance.

(558)

Figure 17



Route A vs. Routes Gx, Hx, I

At the last meeting of the East Bethel Transmission Line Work Group, when we were to make a decision, the group was unanimous immediately, so there was no real discussion within the group as to why they individually came to their decisions. Because of time constraints and other reasons, the ability to just talk to each other is very limited throughout the whole process, which can be quite frustrating. I had made an attempt earlier to let them know what I knew but there wasn't time and everybody was apparently already comfortable with their own knowledge and ability to make a decision and probably with good reason, as they did come to the correct decision. All of the voting members were in agreement and their choice was consistent with the advice from Jeff Corney representing the interests of the University of Minnesota. Eldon Holmes was unable to attend the last work group meeting, but his vote at the Planning Committee meeting indicates that, if he had been there, the vote to not approve Route A would have still been unanimous.

I believe most of the work group made their decisions based primarily on what I refer to as the level 1 considerations (described below), which are certainly strong enough arguments to stand on their own, and overwhelmingly they favor the choice the work group made; and I would have voted the same even if I knew nothing else beyond it. But the rest of the work group may have had further reasons from their own backgrounds that I would not know about myself. Jeff Corney certainly would have had access to technical knowledge from the Electrical Engineering department at the University. I don't know if he contacted them, but he did indicate he had contacted other sources at the University during the process.

What I call the level 2 and level 3 considerations (also described below) could be considered as extra, beyond what's needed to make a decision, but I thought understanding them really gave me some insights to understand the situation. They can also be thought of as providing corroboration that the right choice was made based on the level 1 considerations.

It's unfortunate, that at the EB Planning Commission meeting, the commission only heard what GRE presented. I am certainly responsible for a share of the blame for that. The committee wanted someone to explain why the work group came to their recommendation. Lou Cornicelli and I had both decided to go down to watch the Planning Commission meeting. Lou did provide a response (how the work group was unanimous and had put in their time to try to come up with the right decision, etc.). I felt uncomfortable about trying to speak for the whole work group about why the group had decided as it did, because as noted above, we had never really adequately discussed individual reasons, and the considerations over such a long stretch of time can be really overwhelming to try to explain, as can be seen by the length of this document. Three of the members of the work group plus Jeff Corney of the University of Minnesota, have been involved with this for nearly 2 years now in one way or another. This missive describes some of what I knew personally and considered toward my own vote. There is no way to put everything involved, with complete background information, into one document, so I've chosen not to include some other things I knew about, to try to limit the size of this document. Also I haven't included

some items of concern (such as their stated **size of the poles they intend to use for the project**) because they apply to any route chosen.

Route A is the path between the Martin Lake substation and the Athens (Township) substation which runs west on Anoka Co. Rd. 26 from the Typo Creek Drive/227th Ave. NE intersection. Routes Gx, and Hx are multiple optional path versions of paths supplied by GRE/Connexus, which would go north on Typo Creek Drive from that intersection, instead of west. Because GRE, as usual, planned to drive the transmission line through the middle of a Wildlife Management Area(WMA) along the Gx, Hx routes to achieve minimum cost, the EB work group decided they should at least recommend a new route (Route I) which would not impact that WMA. The University of Minnesota, acting as a "good Neighbor", volunteered to let it cross near Fish Lake instead. I think it's safe to say that most in the workgroup thought the University shouldn't have to do that. It was obvious through all the meetings, that the University considered not only the effects of the transmission line on their own property but on all the other natural history areas in the vicinity.

Actually, East Bethel can't control what is done outside it's borders, and I would expect that even if EB is able to block Route A and it's impacts as described below (which is no sure thing), that GRE/Connexus would then go after the minimum cost north route again rather than Route I and it would be up to the entities that control the Marvin Schubring WMA to protect it as much as possible, similar to what the Linwood Township School Forest Committee and the Linwood Township Park Board did for the School Forest; and to what the Nature Conservancy did for the Helen Allison Savanna, and to what the University of Minnesota did for the Cedar Creek Eco-system Science Reserve (and HA Savanna and School Forest) through their recommendation to the EB work group, and to what the EB work group vote attempted to do for all 3 of the natural history areas along Route A.

Even from the beginning, the University has indicated that if the route ultimately ends up coming down 229th Ave, they would let it come down their side of the road, again acting as the good neighbor. Another reason for that is probably that the alternative is to run the under-built transmission line on the south side of the road along the length of the Helen Allison Savanna where the Nature Conservancy has already said they don't want it. Also, there is the fact that the visual impact of an under-built 69 kV transmission line affects **both** sides of the road and the whole experience of driving down the road, as can be seen from the included pictures. Also, along 229th Ave, the Cedar Creek property has much sparser trees along the eastern half than the western half. That means in the eastern half, an under-built 69 kV transmission line can be seen from far inside the University property, no matter which side of the road it's on. Similarly, in the western half along 229th Ave, there are large clearings which would allow the under-built 69 KV transmission to be visible from far inside the Cedar Creek ES Reserve.

Mr. Schaub, of GRE, has attempted to imply that because they volunteered as a good neighbor, the University doesn't feel strongly about a transmission line cutting a swath around their southern border, as in Route A. I don't think anyone that was at the final meeting was confused about what the University of Minnesota's recommendation was, or felt they were indecisive.

LEVEL 1 CONSIDERATIONS:

1. Understand the significance and visual impact of a 69 kV under-built transmission line.
2. Understand the significance of the Minnesota Transmission Line Non-Proliferation clause.
3. Recognize the value of the 3 Natural History areas involved to East Bethel, Linwood Township, and beyond. This one I hope isn't necessary, but I included it.

4. **The Fairness issue.**

5. Understand the motives of the GRE presentation and the method.

1. Understand the significance and visual impact of a 69 kV under-built transmission line

The included pictures are ample evidence of the significant visual impact an under-built 69 kV transmission line has on the road it runs along, and the areas around it. However, I do think that anyone who's going to make a decision about an under-built 69 kV line should see the real thing and drive over to Mau's corner and drive west to the Crown substation. I frequently drive that road in the summer and the effect is even more dramatic when there's greenery behind it. Also they should drive south from Mau's corner to County Rd 53 to see the vertical lines for a road cross. Back in 2008, when the line first went in, I hadn't driven it in a while, and so the next time I came, the whole line was suddenly there on Co. Rd. 8. The effect was startling as it dominates the road so much it changes your view of the experience of driving down the road. Note the visual impact to people living on **both** sides of the road and to people driving on the road. Pictures don't really do it justice.

Also I would suggest then driving Route A and picturing what was seen on Co. Rd 8 running along Cedar Creek ESR, the Allison Savannah, and the School Forest and having road crossings at the corner of Durant and 229th Ave. and at the corner of 237th and Gopher Drive. Also, they should note the S curves on the SW corner of Cedar Creek ESR between 229th Ave. and 237th Ave. along Gopher Drive, and picture them perhaps with what was done to brace some of the poles along the curves on Co. Rd 22.

Why are under-built transmission lines so ugly ?? Normally, the higher the voltage of a transmission line, the larger the wire size and therefore, the stronger the wire, and the more the line can span between poles; but when you have an under-built line, the pole spacing is limited by the much weaker distribution line, so you end up with the much bigger poles required by the transmission line, spaced by the requirements of the distribution line, and that's why you get the sensation of "that sure looks like a **lot** of **really big** poles", and why an under-built transmission line so dominates the view driving down the road.

Accordingly, in the GRE Athens to Martin Lake project document (Aug, 2010), GRE said they were planning to use poles that are 70 to 80 feet above ground for the under-built 69 kV line segments and that the number of poles would be approximately the same as the

present distribution line poles. Even at 50 or 55 feet, a transmission line has a dominant visual impact, as can be seen in the included pictures. The segment between the Cooper's Corner substation area and the Athens substation would be an under-built double-circuited 69 kV line. Also, to span Cedar Creek they plan to use H-Frame poles.

Although GRE also specified pole heights for segments without under-build, it should be noted that there are distribution poles all the way along Route A from at least Typo Creek Drive to the Cooper's Corner substation, and the only segment that wouldn't be under-built along route A is the Cooper's corner to Athens substation segment, which would be a double-circuited 69 kV line.

“Those under-builds are really ugly”



“Yes, I can't believe what they let us get away with there”.

The above quotes were made by Larry Peterson, Vice President of Connexus Energy(Ret.) during a meeting of the EB Transmission Line Ordinance Committee. They are in reference to the under-built 69 kV transmission lines around Mau's corner, which are in the Stanford Township jurisdiction.

GRE and Connexus Energy should be considered as one company. GRE does work for 27 other smaller electric cooperatives, but in this area (Anoka County) they operate like a division of Connexus.

Mr. Peterson had the Ordinance Committee use the Minnetonka Transmission Line Ordinance for the basis of the East Bethel Ordinance. Actually, it was the Minnetonka Ordinance as originally written in 1992. A friend I worked with for 20 years lived in Minnetonka in 1992, and whenever there was a meeting on the Mtkka transmission line, he would give us a report the next morning on what happened at the meeting, so I am aware of what happened and what the issues were for Mtkka. I have also talked to Desyl Peterson, the Mtkka City Attorney, who was also the City Attorney back in 1992, and to Ann Perry, the City Planner for Mtkka in 1992 (Ann said she did some work for East Bethel about 10 years ago).

There was an abandoned railroad bed that ran from Hopkins across SE Minnetonka and down well into Eden Prairie. The Mtkka and Eden Prairie residents had been using the railroad bed for a hiking trail, even though it wasn't city or county property. Xcel energy decided they wanted to run a transmission line along the railroad bed. The residents absolutely did not want a transmission line hanging above their heads on “their” hiking trail. I believe this was not even an under-built transmission line. Ann and Desyl said they pretty much developed the Mtkka ordinance as they went along, with the basic idea of taking some of the wording from the state Environmental Impact Statement(EIS) requirements.

Mtka did, later in the process, have consultants (an attorney specializing in transmission line issues and an electrical engineer specializing in transmission lines). Ann said you have to have these to handle a transmission line issue (Bill Neuman from Chisago County said the same thing).

All the meetings held either in Mtka or Eden Prairie were overflowing, with people packed inside and people outside in the parking lots. The city representatives also did not want the transmission line, and neither they nor the residents backed down. Actually the City Council never let it get to the work group stage as they handled all the meetings themselves. So in a way, the Mtka ordinance was never really tested but was used effectively because of the commitment of the city and the residents. There were many meetings over a long stretch of time, and the crowds didn't die down. It was a big story at the time and there was TV and newspaper coverage of what was going on, a local songwriter even made a musical tape to hand out, so a bit of a circus. Eventually Xcel Energy just stopped coming back.

Hennepin County did later buy the railroad bed and it's now an official trail. One lesson to be learned: don't hang a transmission line above a hiking trail, people don't like it.

Unfortunately Mtka has recently been informed that 18 years later, Xcel is coming back to reapply for a permit but will bypass the city and go directly to the PUC so their battles may not be over.

I spent a lot of time before the EB Transmission Line Ordinance Committee's first meeting, reading existing ordinances that are available on-line and concluded that the one that stood out from the rest is the Chisago County Transmission Line Ordinance. I talked to the Chisago County Attorney's office (they did not write the ordinance, just vetted it) and to Bill Neuman, who was involved in it all. He seems to have become the spokesman for their committee and I was impressed with his knowledge of the subject. As a county, they have some definite advantages, such as the experience gained from seeing more transmission line requests than any city would, and they definitely have more resources than any city would. Their ordinance is better because of the emphasis on the visual impact of transmission lines and the use of overlay districts to cover anything of significance. East Bethel needs to create overlay districts for all their natural history areas.

The Chisago Co. ordinance does do things in connection with the St. Croix River Valley, that East Bethel can't do, such as requiring burial or staying 4 miles away, but some of the things they do such as restricting guy wire usage or being able to require burial of a distribution line if it is updated, and utilizing overlay districts, should be incorporated into the EB ordinances.

CHISAGO COUNTY 2001 ORDINANCE

Chisago County Transmission Line Ordinance Committee (2000/2001)

1 county commissioner
2 from county zoning

Bill Neuman (Concerned River Valley Citizens)
other "citizens"
2 attorneys
2 transmission line designers (1 designed 500 kV DC line)

Plus info from Attorney in Red Wing specializing in transmission lines
(Carol Overland)

(County Attorney's office has 16 people)

2. Understand the significance of the Minnesota Transmission Line Non-Proliferation clause.

.....
Minnesota's Policy on Non-Proliferation – This policy, established by PEER vs MEQC, 1978, creates a preference for placing new transmission lines near existing infrastructures, as a way to minimize the proliferation of new corridors through the utilization of existing railroad and highway, including interstate, rights-of-way, as well as any existing transmission corridors.
.....

This means that any decision to allow a transmission line corridor to be established should be considered as making a permanent decision. Any future upgrade of the line or another line going through near the area would use the same route. When making a decision on a transmission line issue, you want to make the decision knowing not only what the immediate ramifications are, but also **what the potential is for that route far into the future.**

3. Recognize the value of the 3 Natural History areas

The 3 natural history areas on Route A all should be considered extremely valuable assets to the area. The Cedar Creek Ecosystem Science Reserve is the most well known by far. It is well known at the state, national, and even international levels. It's extremely easy to find out all kinds of information on it on-line and to try to put everything here would be overwhelming. Two of the more significant recognitions that it has had are its designation as a **National Natural Landmark** and its placement on the **National Registry of Historical Sites.**

The following paragraphs from the web, though a little redundant, reflect the above.

CEDAR CREEK

Cedar Creek Natural History Area, established in 1940, was designated a **National Natural Landmark** by the National Park Service in 1975. In 1977 it was included as an **Experimental Ecology Reserve** in a proposed national network, and in 1982 it was one of 11 sites in the United States

selected by the National Science Foundation for funding of Long Term Ecological Research (LTER).

Cedar Creek – original land purchases by a **Committee on the Preservation Of Natural Conditions** established in 1937 by the Minnesota Academy of Science.

The first 500 acres of Cedar Creek were acquired in the early 1940s with the understanding that they would be kept in their natural condition and used for scientific and educational purposes

Established in 1940 by the University of Minnesota, the site was designated a National Natural Landmark by the National Park Service in 1975 and 1980 under the Historic Sites Act.^[3] It received this designation in May 1975 from the United States Secretary of the Interior, giving it recognition as an outstanding example of the nation's natural history.

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MINNESOTA (8)

Anoka County

CEDAR CREEK NATURAL HISTORY AREA-ALLISON SAVANNA

(extends into Isanti County) Cedar Creek Natural History Area-Allison Savanna is a relatively undisturbed area where three biomes meet (tall grass prairie, eastern deciduous forest and boreal coniferous forest.) Supporting 61 species of mammals and 183 species of birds, the site is a nationally and internationally famous research center. Designated: 1975. Ownership: State, private

The **Historic Sites Act** of 1935 was enacted by the United States Congress largely to organize the myriad federally-own parks, monuments, and historic sites under the National Park Service and the United States Secretary of the Interior. However, it is also significant in that it declared for the first time "...that it is a national policy to preserve for public use historic sites, buildings, and objects of national significance..."^[1] Thus it is the first assertion of historic preservation as a government duty, which was only hinted at in the 1906 Antiquities Act.

Section 462 of the act enumerates a wide range of powers and responsibilities given to the National Park Service and the Secretary of the Interior, including:

- codification and institutionalization of the temporary Historic American Buildings Survey
- authorization to survey and note significant sites and buildings (this became National Historic Landmark program, which was integrated into the National Register after the 1966 National Historic Preservation Act)
- authorization to actually perform preservation work

Results of Cedar Creek research are contributions to our fundamental knowledge of the workings of nature and are being utilized by many organizations, including the Minnesota Department of Natural Resources, the Environmental Protection Agency, and The Nature Conservancy. In addition, Cedar Creek Ecosystem Science Reserve serves as a research and teaching facility for six colleges from the University (Biological Sciences, Agriculture, Forestry, Liberal Arts, Institute of Technology, and Veterinary Medicine) and for other colleges and universities both within and outside Minnesota.

In this time of increasing concern for the global environment in which humans live, it is important to recognize the value of past and future contributions of research facilities such as the Cedar Creek Ecosystem Science Reserve. Applications of research findings from Cedar Creek play an important role in sound management of our forests, farmlands, prairies, lakes, marshes and other natural resources.

Education at Cedar Creek has involved students studying for college and advanced degrees in the natural sciences. With ecology now one of the essential applied sciences of our time, we are capitalizing on Cedar Creek's scientific standing and embracing new roles at state and local levels. We are participating in local schoolyard projects and **have opened public tours of the rare habitats of the area. Cedar Creek is hoping to expand its community involvement with on-site workshops for secondary school teachers and students, by advancing our public tours, and by working with state and local governments for additional public access.**

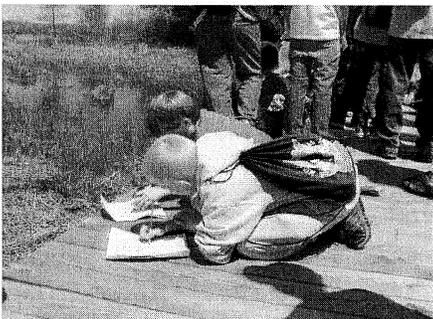
Education & Outreach

Tours



We welcome the public on guided tours of Cedar Creek to experience the diverse natural habitats of the area and to learn about our research. Each month from spring to fall our resident naturalist highlights interesting ecological topics of the season during the tours.

K-12 Programs



Cedar Creek Ecosystem Science Reserve offers ecosystem-based programming to K-12 student groups. Students who come to CCSR participate in a variety of activities, from tours through our varied ecosystems to research experiences. All activities are standards-driven and use the ecology of Minnesota and the unique

challenges posed by current environmental issues, such as global climate change, to teach core science concepts.

Summer Work



During the summer field season over 100 college students, post-graduate students, and scientists work on Cedar Creek experiments and projects. The college students work as ecological research interns, learning job skills as well as gaining experience in research methods, theory, and presentation. [Internship Opportunities](#)

Communication



It is important that scientists communicate their findings not only with other scientists, but also with governments and the public. Cedar Creek research is repeatedly featured in major media outlets, including the *New York Times*, the *London Telegraph*, *National Public Radio*, *Public Television*, and many more. Cedar Creek researchers give public talks at schools, universities, and museums, as well as testimony at state and national legislatures, and have participated in White House meetings.

My grandson's class (from Isanti Elementary School) went on a day long tour of Cedar Creek last year, and he talked about nothing else for days.

As can be seen from above, Cedar Creek's significance to the area goes well beyond its importance as a scientific research center.

It should be noted that the view most people in East Bethel have of the Cedar Creek Ecosystem Science Reserve is what they see driving along Co. Rd 26.

The Linwood School Forest has a website at http://lw.forestlake.k12.mn.us/teaching_learning/school_forest/

From the Linwood Township site:

Linwood Community Park and School Forest



School Forest Entrance

With the recent addition of forty acres added to the previous 170 acres, this is Linwood's largest park by far. The park has a variety of land formations from high to low ground and from heavily wooded to open spaces.

The park boasts many

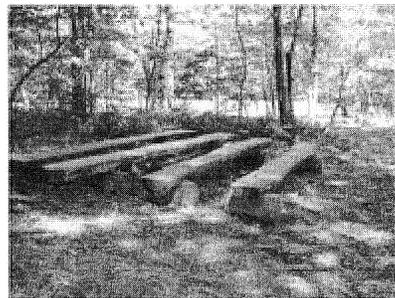


Typical Path

amenities including picnic tables and benches, a variety of trails for hiking and cross country skiing. Boardwalks are provided for crossing low areas.

Space for parking is provided at the north end of the park just off of 227th Avenue.

Per teachers' request, the School Forest has some new log benches. These benches are placed along



School Forest Benches

the Smoky Hills Trail just south of the dock. There are 4 benches arranged to make an outdoor classroom. This addition makes the School Forest the perfect spot for reading, journaling, artistic inspiration as well as science projects.

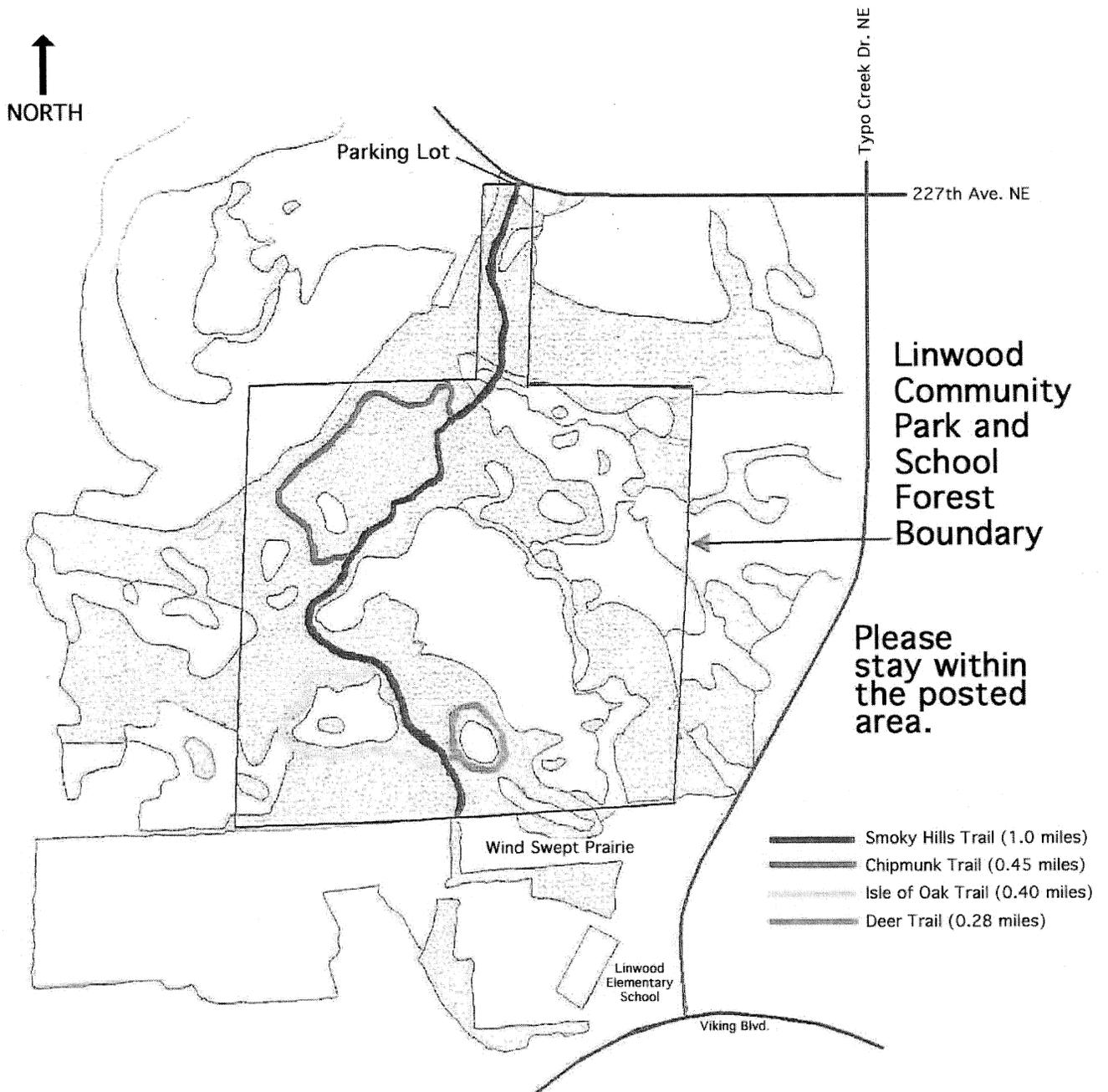
I have talked to Judy Hanna several times. She is the Town Clerk for Linwood Township and is on the School Forest Committee. She said the paths thru the School Forest are the same ones that were there 100 years ago. She also said the committee voted to say no to what GRE initially said they were going to do originally, which was to cut a swath across the front of the School Forest property and then around the east side of the property till it left between a couple lots out to Typo Creek Drive. She said that would have destroyed the School Forest. The Linwood Township Park Board backed them up and also voted no. If GRE cuts a swath around the parking lot by the entrance to the School Forest, that is also highly undesirable to the committee. Basically, they don't want Route A.

("Cut a swath" is the phrase Peter Schaub of GRE has used to describe cutting the trees to get the required clearances and running an under-built 69 kV line through the path.)

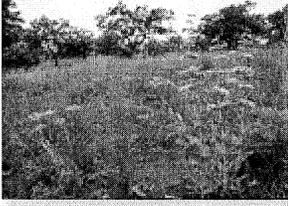
It should be noted that the decision East Bethel makes is really making a decision for both East Bethel and Linwood Township as Linwood Township, despite their concerns for the School Forest, would be unable to stop route A if East Bethel permits it. At the Planning meeting, Mr. Schaub stated that "since Linwood Township doesn't have zoning, we just have to let them know what we're going to do".

Map of School Forest

Figure 18



Helen Allison Savanna SNA (Scientific and Natural Area)



80 Acres

Located from MN Hwy 65 in Bethel 1 mile E on Co Hwy 24 (237th Ave. N), then 3.5 miles S and E on Co Hwy 26 (229th Ave. N), then 0.25 mile S on Co Rd 15. Parking on W side of road.

Anoka County Twp 33N Rng 23W Sec 02

Type: Deciduous Woods

ECS Subsection: Anoka Sand Plain

Description:

Helen Allison Savanna was named for Helen Allison Irvine, "Minnesota's grass lady," who wrote a text on the 180 grasses of Minnesota. This SNA lies within the Anoka sand plain, providing an excellent example of sand dune plant succession, with blowouts and dunes in various stages of stabilization by pioneer species. Community types found on the site include oak sand savanna, dry prairie with bur oak and pin oak, thickets of willow and aspen, and sedge marshes in scattered depressions. Trees and shrubs characteristic of a savannah are found here: pin oak, bur oak, American hazelnut, choke cherry, willow, and quaking aspen. Other savanna species include lead plant, smooth sumac, slender willow, steeple bush, aster, and goldenrod. Look on the dunes for pioneer sand plants such as sea-beach needle grass and hairy panic grass. Sedge meadows contain tussocks of Hayden's sedge, along with marsh fern and blue-joint grass. Other rare plant species occurring here include long-bearded hawkweed, rhombic-petaled evening primrose, and tall nut-rush. Prime times to visit are when the pasque flowers bloom in the spring and when the prairie grasses are at their finest in late summer. * indicates ownership in part or in whole by The Nature Conservancy.

Scientific & Natural Areas

The Scientific & Natural Areas (SNA) program preserves natural features and rare resources of exceptional scientific and educational value.

.Why the Conservancy Selected This Site

The major reason for acquiring the preserve was to protect the dwindling acreage of oak savanna. The Helen Allison Savanna Preserve is adjacent to the southern-most portion of the 5,460-acre Cedar Creek Natural History Area, which is managed by the University of Minnesota. Collaborative research has been conducted frequently by The Nature Conservancy, the Department of Natural Resources and the University of Minnesota.

What the Conservancy Has Done/Is Doing

In 1960, The Nature Conservancy acquired the land, thanks to a substantial donation by Helen Allison Irvine. She was known as Minnesota's "Grass Lady", and she wrote *The Key to Grasses of Minnesota*, a reference work on 180 species of grasses found in the state. Starting in 1962, about a third of the savanna has been burned each year on a rotating basis. University of Minnesota Botanist Dr. Donald Lawrence initiated the recovery of the old field area by hand seeding prairie species in the

1960's and 1970's. In 1979, the preserve was designated a Scientific and Natural Area by the State of Minnesota, following a thorough inventory of species.

Animals

A survey of avian life discovered 45 species of birds, including hawks, warblers, and waterfowl. The seldom-seen lark sparrow nests on the preserve. Amphibians and reptiles making their home at the Savanna include the eastern tiger salamander, spring peeper, gray treefrog, wood frog, and bullsnake (or gopher snake).

The Nature Conservancy currently owns and manages 57 preserves in Minnesota, encompassing more than 72,000 acres. (The Helen Allison Savanna is one of the 57)

The mission of The Nature Conservancy is to preserve the plants, animals and natural communities that represent the diversity of life on Earth by protecting the lands and waters they need to survive.



Winter scene at Allison Savanna

Some of the best remnants of Sand Savanna found in Minnesota occur at Cedar Creek and vicinity. They are found on old dune topography which was historically considered unfit for farming. The gently rolling topography of dry crests and moist swales contains an abundance of native grasses and forbs. They have never been plowed, but some pasturing has occurred in the past. Many of the tracts south of Fish Lake have been part of an experimental Burn Program since 1964. Additional Burn Units at the south end of North South Lab Road (NSLR) were added in the 1980s. Helen Allison Savanna is a beautiful 80 acre tract of sand savanna situated off the SE corner of Cedar Creek. It is owned by The Nature Conservancy (TNC) and administered by the Minnesota DNR as a Scientific and Natural Area (SNA). The gently rolling landscape contains scattered open grown Bur Oaks (*Quercus macrocarpa*) within a diverse matrix of native prairie grasses and forbs. It has never been plowed, only lightly pastured, and since 1964 has received periodic burns.

The following is a quote from a study on the environmental effects of transmission lines (<http://psc.wi.gov/thelibrary/publications/electric/electric10.pdf>) prepared by the Public Service Commission of Wisconsin :

"Determining the Degree of Potential Impacts

In general the degree of impact of a proposed transmission line is determined by the quality or uniqueness of the environment along the proposed route. The following factors determine the quality of the existing environment:

- . The degree of disturbance that already exists
- . The uniqueness of the resources
- . The threat of future disturbance

The degree of disturbance that already exists in a place is determined by how close the place resembles pre-settlement conditions. For example, an area may have been logged, drained, developed, cultivated, or otherwise substantially altered. Then, the extent of the alteration must be assessed.

Proposed transmission routes are reviewed for species or community types that are uncommon in the region or in the state. Does the resource possess a feature that makes it unique, such as its size or species diversity? Does the resource play a special role in the surrounding landscape?"

The Cedar Creek Ecosystem Science Reserve, the Helen Allison Savanna, and the School Forest are the epitome of uniqueness as referred to above and East Bethel, Anoka County, and Minnesota should have the same protective attitude towards them.

4.

FAIRNESS ISSUE

6 ENTITIES INVOLVED:

**ADVANTAGES GAINED IF ATHENS SUBSTATION
CONNECTED TO MARTIN LAKE SUBSTATION**

| | |
|---------------------------------|---|
| LINWOOD TOWNSHIP | GAINS 2 ND SOURCE FOR MARTIN LAKE SUBST. |
| SCHOOL FOREST | NONE |
| ATHENS TOWNSHIP | GAINS 3 RD SOURCE FOR ATHENS SUBSTATION (Cambridge Peaking plant not counted) |
| EAST BETHEL | NONE |
| HELEN ALLISON SAVANNA | NONE |
| UNIVERSITY OF MINNESOTA (CCESR) | NONE |

PATH A

WHO PAYS THE PRICE?

EAST BETHEL
UNIVERSITY OF MINNESOTA (CCESR)
HELEN ALLISON SAVANNA
LINWOOD TOWNSHIP
SCHOOL FOREST

WHO DOESN'T?

ATHENS TOWNSHIP

PATHS Gx, Hx, I

WHO PAYS THE PRICE?

ATHENS TOWNSHIP
LINWOOD TOWNSHIP
UNIVERSITY OF MINNESOTA (NE corner near Fish Lake)

WHO DOESN'T?

EAST BETHEL
HELEN ALLISON SAVANNA
SCHOOL FOREST

Thus Path I results in the entities that gain from connecting the Athens substation to the Martin Lake Substation, being the entities that pay the price

ENTITY VOTE

| ENTITY | PATH CHOICE |
|------------------------------------|--------------------|
| LINWOOD TOWNSHIP | I |
| SCHOOL FOREST | I |
| ATHENS TOWNSHIP | A |
| EAST BETHEL | I |
| UNIVERSITY OF MINNESOTA | I |
| HELEN ALLISON SAVANNA | I |
| "ST. FRANCIS, CROWN, MILACA, ETC." | I |

The vote of path I by Linwood Township is based on the first meeting with GRE at Linwood after the path was changed. Reaction at the meeting was overwhelmingly against the change, primarily because of the School Forest.

In 2008, Athens township , when first approached by GRE about the original path for the line to run to the Athens substation from the east, didn't want it running on their roads and said GRE should look to the south, effectively saying run it through East Bethel instead.

"Isanti/Cambridge, etc." was added to the vote list. Their only criteria would be the reliability/redundancy issue. Since path I doesn't involve a dbl-ccted line from 2 sources, they should vote for path I. The benefits gained from the new Linwood substation and Athens substation are that they provide a source to areas at which they are at the SE corner all the way up to Milaca as the NW corner (plus St. Francis), as described in the areas covered in the 2008 GRE LRTP.

GRE's intent is to just run the transmission line by East Bethel's Cooper Corner substation and not even hook into it as they indicated at the Planning Committee meeting. Thus East Bethel is just being used as a route to the Athens substation.

.....

PATH COMPARISON

| PATH | A | G,H,I |
|--|---|-------|
| SWATH CUT AROUND SW AND SOUTHERN BORDER OF CEDAR CREEK | X | |
| VISUAL IMPACT TO SW AND SOUTHERN BORDER OF CEDAR CREEK (BOTH FROM INSIDE AND OUTSIDE) | X | |
| VISUAL IMPACT TO HELEN ALLISON SAVANNA (BOTH FROM INSIDE AND OUTSIDE) | X | |
| VISUAL IMPACT TO CEDAR CREEK (STREAM) VIEW FROM BRIDGE | X | |
| VISUAL IMPACT TO SCHOOL FOREST ENTRANCE | X | |
| SWATH CUT AROUND ENTRANCE OF SCHOOL FOREST (ASSUMES NOT ORIGINAL PATH AROUND EAST EDGE) | X | |
| RELIABILITY ISSUE From GRE 2008 LONG RANGE TRANSMISSION PLAN: Furthermore, outage of either end of the Cambridge-Isanti-Athens 69 kV line causes deficient voltage levels in the Isanti and Cambridge areas (BREAK IN THE DBL CCTED LINE BETWEEN COOPER'S CORNER AND ATHENS WOULD RESULT IN THE LOSS OF 2 SOURCES TO CAMBRIDGE/ISANTI.) | X | |

5. Understand the motives of the GRE presentation and the method.

All cities are at an extreme disadvantage when it comes to handling a transmission line because odds are that no one on the committees has ever dealt with one and it is not their full-time job or area of expertise. In contrast, the transmission line company representatives have dealt with the same issues such as natural history areas, over and over again and it **is** their job. They have practiced how to phrase everything to slant it toward what they want and know what points to avoid. For instance in the 2 years that this has been going on, Mr. Schaub has never once said "visual impact" without putting either "only" or "just" in front of it, so you only hear "it's just a visual impact" or "it's only visual impact". Also, despite several requests at various times from various people during the process, for pictures of an actual 69 kV under-built line instead of pictures of only distribution lines, GRE was apparently unable to ever find any as none were ever provided. As you can note by the pictures attached to this document, it shouldn't really take very long to find some. It's an example of "don't provide anything detrimental to the cause".

GRE's goal was definitely not to present all the information needed to make a decision in an unbiased and balanced manner. Anything favoring their cause was exaggerated, and anything against the cause was minimized or not even presented. The phraseology used was definitely selected with their goal in mind. That kind of presentation is the norm.

At times the path comparisons by GRE became pretty humorous. For instance, one of the routes considered approached the Martin Lake substation from the west on Anoka Co. Rd. 22. One consideration pointed out in some detail was the fact that the route, which they didn't want to use, came within a half mile of the Linwood one room schoolhouse (the one that was a restaurant for a time) because the state lists it as a historical building, even though it wouldn't be seen from the schoolhouse. That's legitimate but contrast that with the fact that they could never find anything of historical significance on the route that they did want (route A) and wanted to cut a 3 ½ mile swath around and place an under-built 69 kV line on the CCESR, despite the fact that it is on the **National** Registry of Historical Sites.

The spreadsheet GRE and other transmission companies use in their presentations was developed by an Electrical Engineering professor at St. Mary's for the transmission line industry. The intent is to impress and overwhelm local governments, but it is only a spreadsheet with multiplying factors for each data point which reflect cost effects of each item considered. Thus it always reflects a choice based only on costs to the transmission line company. The multiplying factor for items of concern for the cities involved, are zero. For instance if the Sistine Chapel was on the route, it would have no effect on the spreadsheet unless it caused them to do something with a cost effect (e.g. have to do a road cross). Thus, the fact that Route A has 3 natural history areas on it has a multiplying factor still of zero. The fact that one of them is designated as a National Natural Landmark and is on the National Registry for Historical Sites, still gives a multiplying factor of zero.

In turn, one attribute given great consideration by GRE is the ability to obtain an easement by talking to one entity instead of many over the same distance. That minimizes the hassle for them, but should have little consideration of value to the city.

The effect of the spreadsheet is also to cause anyone evaluating it to spend an extensive amount of time buried in minutia (e.g. did they count the number of houses right? or looking at pinch points) which can lead to losing sight of the big picture. Whenever you're talking about the spreadsheet, you're only talking about what gives minimum cost and therefore maximum profit to the transmission line company, which is what they want you to be talking about.

One slide that was presented over and over again to the work group was the Summary of Route A Features slide. When nothing else was pertinent, rather than have a blank screen, that slide was put up so we could view it some more. A few things of note about that slide:

1. It is not a summary of route A's features, but only the features that GRE considers favorable to the choice of Route A.

2. The #2 item on the list is:

Shortest length of new transmission line to build – 7.4 miles

This statement should be considered as intentionally misleading to the extreme.

GRE does not intend to send power wirelessly between Cooper's Corner and the Athens substation. Indeed, the plan is to build a new double-circuited line along that segment.

If ever questioned about it, I expect the GRE cover story to be "we count the new line as replacing the existing Cooper's Corner to Athens line, and the Athens to Martin Lake line is just strung on the same poles".

Instead, the situation should be viewed in the reverse: the replacement of the existing line is getting a free ride on the poles for the Martin Lake to Athens connection.

The slide is definitely intended to give the impression that there is an extra 3 mile difference in length of new line between Route A and the Route Gx, Hx, or I paths. The length of new line for Route A should be considered as 10.4 miles When compared against the lengths for the other paths.

Additionally, there is the argument that any length of line along Isanti Co. Rd. 9 should not be counted against the Martin Lake to Athens project, as discussed later under level 2 considerations.

3. Another item on the slide is:

Lowest Impact to historical and cultural resources

This is based on a very technical definition of historical and cultural resources. Most people would consider the significant benefits of the cultural and historical significances of the Cedar Creek Eco-System Science Reserve, the Helen Allison Savanna, and the School Forest, as all discussed above, to be considered in such a statement, but they are not.

The cultural considerations referred to here is the possibility of Native American burial sites at a few points along some of the Gx, Hx, or I routes. As Noted by the work group, there are already distribution lines running in those areas. It is a hassle factor for GRE, but they do have the capability to handle the situation.

4. 2 more items on the slide:

Use three miles of existing transmission line corridor

Fewer easements – single landowner (Cedar Creek Reserve) for much of new route

These items are referring to the hassle factor to GRE of obtaining either

new easements or easements from more people. All hassle factor considerations should be viewed in light of the fact that they are temporary, and they are being utilized to make a decision that will have a permanent effect on the East Bethel area, and on 3 very extremely significant natural history resources.

Because the cities are at such a disadvantage, a city will normally hire consultants to help them with the issue and have them attend all meetings. A city should have at least 2 consultants, first an attorney who specializes in transmission line issues, and an electrical engineer whose specialty is transmission line design. For instance, Chisago County used Carol Overland as their attorney consultant and had 2 transmission line designers on their committee for their dealings with Excel Energy a few years ago(one of them was the designer of the 500 kV line running to Chisago County from Manitoba, unfortunately, he's no longer around). Carol Overland's website is at <http://legalelectric.org/> I have not contacted her but have read some of her testimony at the PUC that's on-line. The East Bethel Transmission Line Ordinance does say that the city has the right to hire a consultant to help handle the matter and that the transmission line company will pay their fees.

Level 2 considerations.

Level 2 involves recognizing the significance of the Athens substation and it's location on Isanti Co. Rd. 56. Isanti Co. Rd. 56 is important because of its relationship with Mau's Corner. The future potential for this corridor linking across between Hwy 169 and the Hwy 35 area is another reason East Bethel should want to avoid the link to the Athens substation.

Scenario 1: Athens to Hwy 35 north of Stacy Transmission Line

Most residents in East Bethel are probably aware that there are future plans to widen Anoka Co. Rd. 22 and use it to provide a 4 lane road between Hwy 169 at Elk River and Hwy 35. Probably not as many are aware that there are similar plans to provide a 4 lane road connecting Hwy 169 at Zimmerman to Hwy 35 north of Stacy using Sherburne Co. Rd 4, Isanti Co. Rd. 8, Isanti Co. Rd. 23, Isanti Co. Rd. 9, and Chisago Co. Rd. 17, and utilizing a new bridge to be built over the Rum River (where the Athens to Mau's Corner transmission line now crosses the river) connecting Isanti Co. Rd. 8 to Isanti Co. Rd 23. Because there are multiple counties and numbers involved, I'll refer to the combination as the Super Road. The Super Road would become a state-aid Hwy XX if/when implemented and could become an east-west equivalent of St. Hwy 65. The plans, to do this (referred to as a study) are all spelled out in the **Isanti County Transportation Plan 2006-2030 (May 2007)**, which is on the Isanti County website at <http://www.co.isanti.mn.us/highway/Final%20Report%20082007.pdf> and the Isanti County portion is shown on the map at page 7 of that document. Expanded views of that map are included with this letter.

As one who frequently has to travel the circuitous route that now exists between Cooper's Corner and Mau's Corner, the Super Road seems an inevitability, when you contrast that connection with the completely straight road between Mau's corner and Zimmerman.

The Isanti County Transportation plan identifies the paths for blending Isanti Co. Rd. 9 down to Isanti Co. Rd. 23 in 2 steps, one step west of Hwy 65 at the point that Isanti Co. Rd 23 turns north, and one east of Hwy 65 with 2 alternatives. Because Isanti Co. Rd. 23 lines up perfectly with Isanti Co. Rd 8 at Mau's corner, Super Road XY will be a completely straight road all the way from Hwy 169 to where it will bend to blend up to the present Isanti Co. Rd. 9. From there it will again be a fairly straight road all the way to Hwy 35.

The Super Rd. is an absolute dream road for a transmission line company because it is so straight, it has very few homes up close to the road, and it has no towns on it all the way from Zimmerman to Hwy 35. Sherburne Co. Rd. 4 on the west end of the Super Rd, is presently totally clear on the south side of the road all the way up to the intersection at Hwy 169. Contrast that with the present 69 kV Rush City-Cambridge-Princeton route which must jog around Cambridge and Princeton (see the north suburban map attached). The transmission line equivalent of the Super Road will be referred to as the Super Route. The Athens to Mau's Corner transmission line separates from the Super Road at the point that Isanti Co. Rd. 23 bends north, so the Super Route runs completely straight all the way from Hwy 169 to the Athens substation, without a curve in the roads for the complete distance.

It seems inevitable that a transmission line corridor will eventually be established along the entire Super Road route from Zimmerman to Hwy 35 (actually that seems true, whether the Super Road is built or not). Thus there will be a transmission line along Isanti Co. Rd. 9 either way, with a probable 230/69 kV substation near the 230 kV Blaine-Rush City 230 kV line similar to the Linwood substation built on Anoka Co. Rd 22. If this is true, then GRE can just tap the 69 kV line on Isanti Co. Rd. 9 with a line down Typo Creek Drive to provide a 2nd source for Martin Lake (The optimum point to do that may mean that Fish Lake need not even be involved). The above statement ignores the order with which the connections seem to be being planned, but it simply means that the costs of any line run along Isanti Co. Rd. 9 should be considered as part of the connection from Athens to Hwy 35 (north of) Stacy, rather than as costs to provide a 2nd source for Martin Lake. Thus the costs for providing the 2nd source for Martin Lake is just the tap line from Isanti Co. Rd. 9 to Martin Lake.

The fact that Isanti Co. Rd. 9 is planned for expansion in the future is not as devastating to GRE as has been implied. Note that the Mau's Corner to Crown line was built after the Isanti Co. Rd 8 possible expansion was known, and the Crown to Zimmerman connection will probably be made well before the possible expansion of Sherburne Co. Rd. 4. If the roads are widened as a State Hwy, the state would be charged for the costs of moving the lines. This would also be true for the Linwood-Martin Lake line on Anoka C. Rd. 22 if it is widened and its jurisdiction changed.

Scenario 2: No Athens to Hwy 35 north of Stacy Transmission Line

If there never is an Athens to Hwy 35 north of Stacy transmission line, then the situation is even uglier. That means the Super Route connecting the transmission line corridors at Hwy 169 and Hwy 35 (with its potential for upgrades) consists of:

- a. Zimmerman to Crown along Sherburne County Rd 4 and Isanti Co. Rd 8
- b. Crown to Athens along Isanti Co. Rd. 8, Isanti Co. Rd. 23, and Isanti Co. Rd 56
- c. Athens to Martin Lake (**via Route A or Route Gx,Hx,I**)
- d. Martin Lake to Linwood substation along Anoka Co. Rd 22

When making a decision on a transmission line issue, you want to make the decision knowing not only what the immediate ramifications are, but also what the potential is for that route far into the future.

As additional information:

Along the future Super Route, starting in 2008, the following has happened:

- a. In 2008, the Athens substation was added.
- b. In 2008, the Crown substation was added and a 69 kV under-built line was run from Mau's Corner to the Crown substation.

Also in 2008, the Linwood 230/69 kV bulk substation was added on Anoka Co. Rd 22 near the Blaine-Rush City 230 kV line. (2003-TC-N9)

According to the 2008 GRE Long Range Transmission Plan document, the following additional items are planned:

- a. A Rum River 69 kV substation is planned on Isanti Co. Rd. 56/23, shown as near the Rum River. It was planned for 2010 but apparently isn't there yet. The 2008 GRE LRTP does say there is a possibility it will be put inside the Athens substation. Also, a Rum River 69 kV 3 way switch was planned for 2010.
- b. A 2nd 69 kV Athens substation is planned to be built near the present Athens substation in 2012.
- c. A 2nd Linwood 230/69 kV substation(breaker) will be added near the 1st Linwood substation on Anoka Co. Rd. 22 in 2012.
- d. A 69 kV dbl-cct line (14.0 mi) will be added on Hwy 47 between Dalbo and St. Francis in 2012.

Once the line is added to connect the Martin Lake substation to the Athens substation, there will be a complete 69 kV transmission line corridor between the bulk substation in Linwood Township near the Blaine-Rush City 230 kV line and Elk River by the following roads:

- a. Anoka Co. Rd 22 to the Martin Lake substation.
- b. Route A or Route I to the Athens substation.
- c. Isanti Co. Rd. 56 to Isanti Co. Rd 23 to Isanti Co. Rd. 8 to the Crown substation.
- d. Isanti Co. Rd 7 to the Pipeline substation in Elk River.

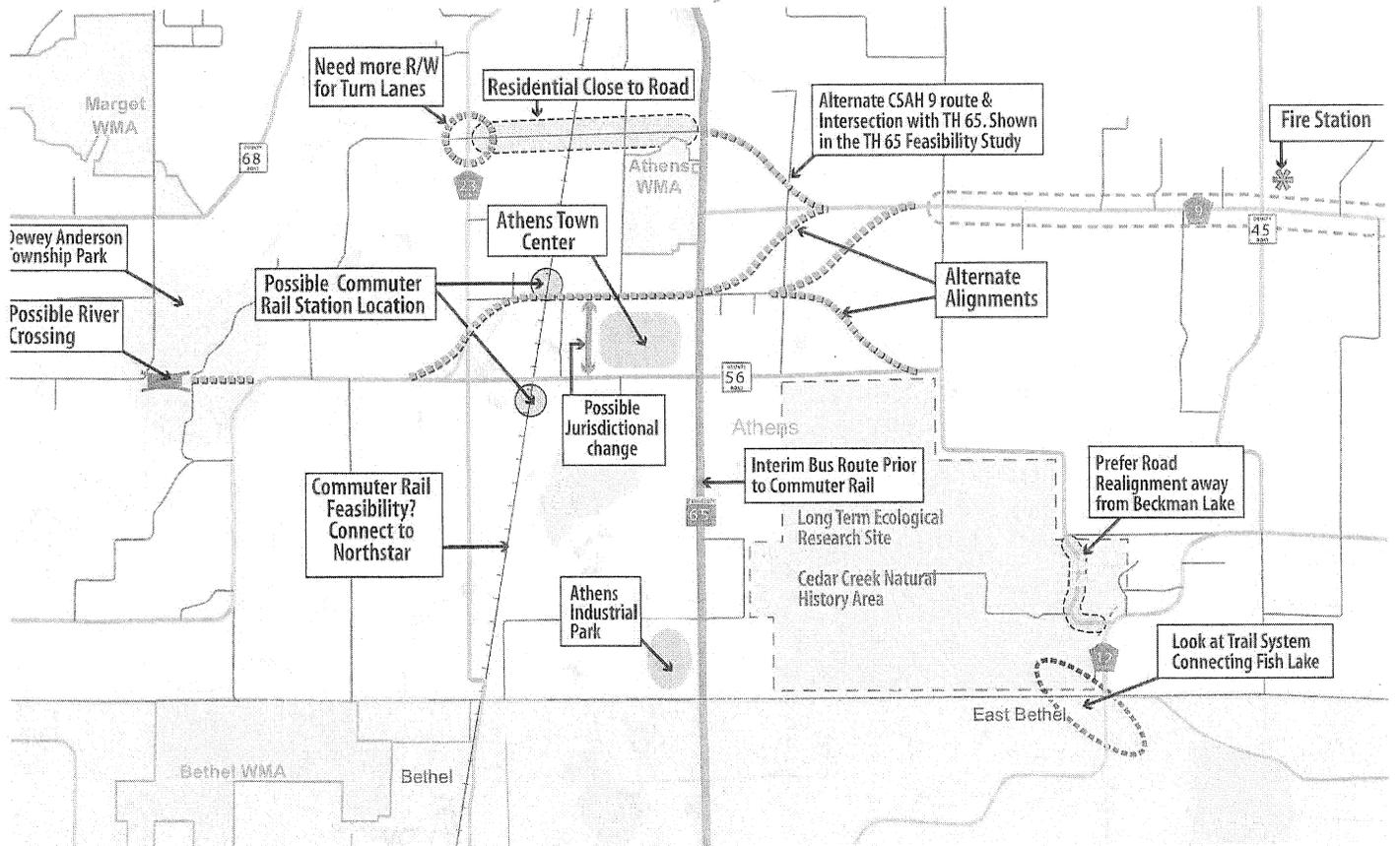
A link from the Crown substation to Zimmerman along Sherburne Co. Rd. 4 would complete a corridor all the way to Hwy 169 and down to Elk River. This link is listed as an option in the 2008 GRE LRTP, and will undoubtedly eventually be done.

One of the optional routes for the Martin Lake to Athens connection was to utilize Anoka Co. Rd. 22 to Hwy 65. Since GRE did not want to do that, they don't plan to utilize Co. Rd 22 as a transmission line corridor between Hwy 169 and Hwy 35, which means **the Super Route is the first and probably only route south of hwy 95 to connect the two very significant transmission line corridors, and it will be the shortest of those 2 paths to the Hwy 10/Elk River area. All of this adds up to the conclusion that East Bethel should want nothing to do with the link between the Martin Lake substation and the Athens substation.**

It also appears that the Super Route is going to be used as a major north/south splitting of the grid, similar to the way the planned Dalbo to St. Francis dbl-cct 69 kV line will provide an east/west splitting of the grid between Hwy 169 and Hwy 65. Note that in the 2008 GRE Long-Range Transmission Plan, the 2 East Bethel substations (Coopers Corner on 237th Ave. and East Bethel on Co. Rd. 22 are referred to only for the Soderville area; whereas the Linwood and Athens substations are referred to relative to areas where they are the southeast corner and cover all the way up to Milaca as the northwest corner. That explains why GRE plans to run the line right by the Cooper's Corner substation and not even tie into it.

Figure 19

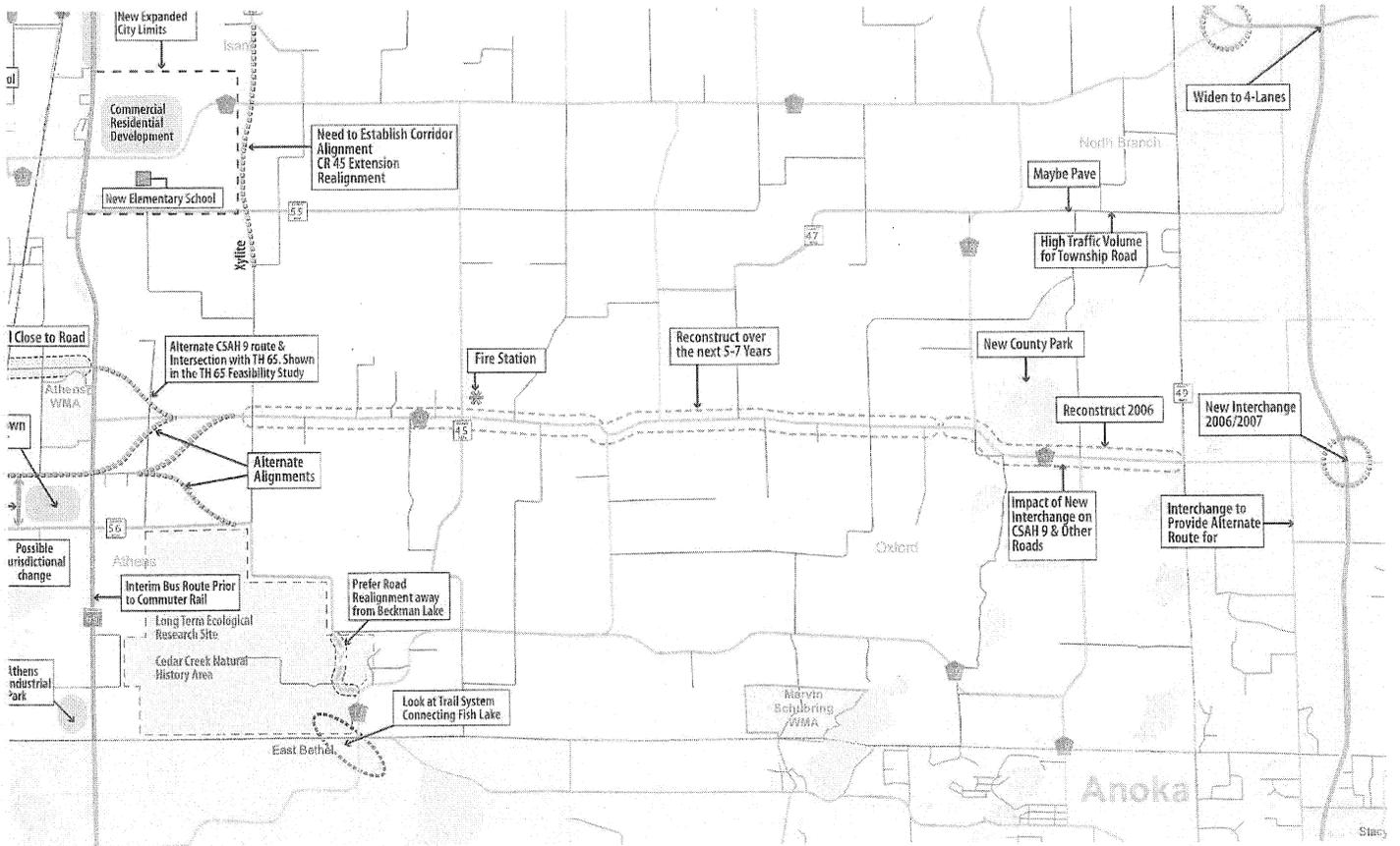
ISAWTE COUNTY
TRANSPORTATION PLAN
PAGE 7 (Figure 2) EXPANDED



3rd Map of Super Road (from Isanti County Transportation Plan)

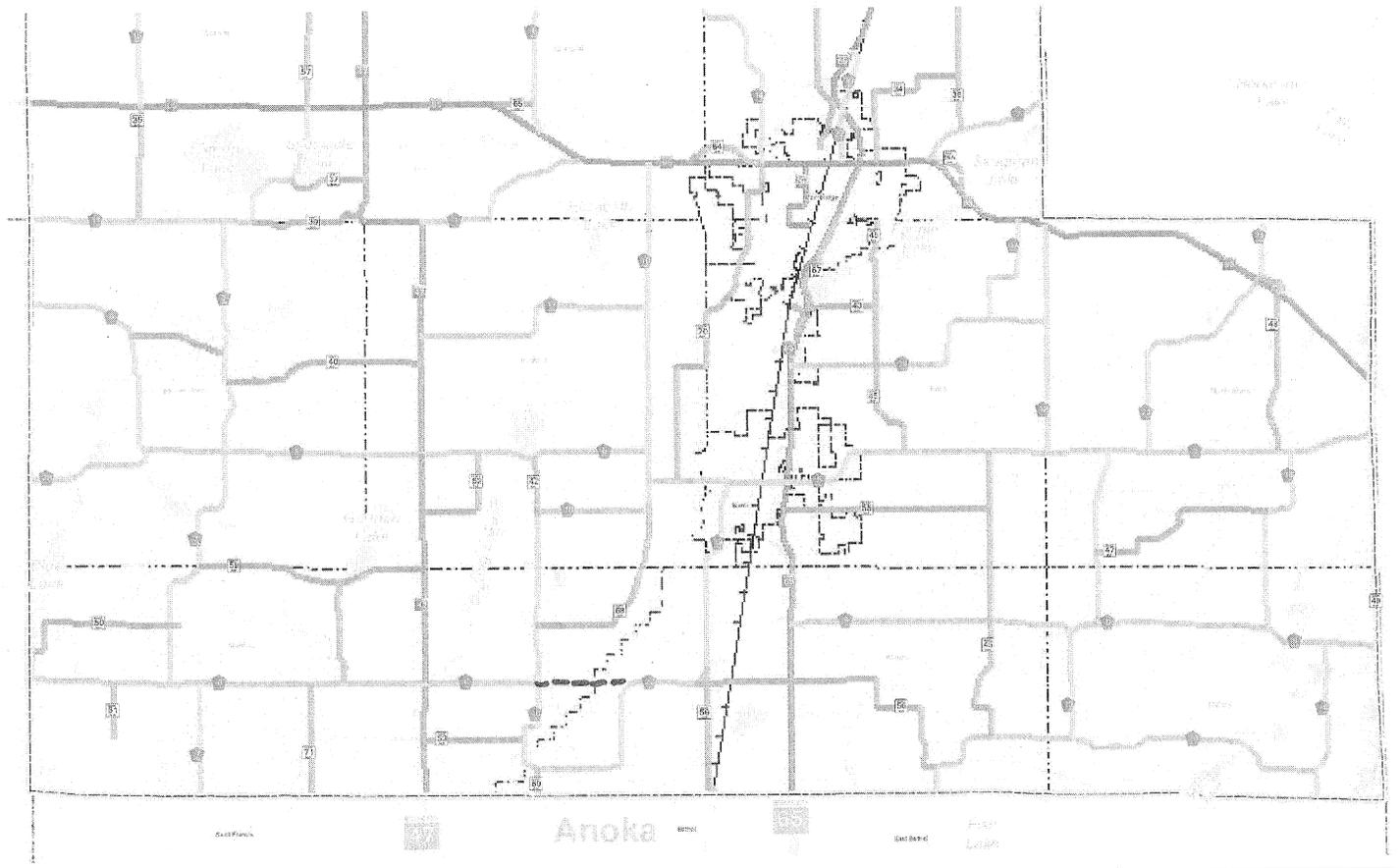
Figure 21

MAP 3



4th Map of Super Road (from Isanti County Transportation Plan)

Figure 22



(dashed line indicates future bridge location)

Level 3 considerations

CapX2020 (capital expenditures thru 2020), Green Power Express, and SMARTransmission are the plans for the future in transmission lines by the transmission line companies. They are driven by the growth in demand thru the Midwest and all the way to the east coast, and the federal and state mandates for renewable energy to provide a more significant portion of the electrical energy generated. It is becoming more and more difficult to add more generating capability in the east because of population densities. The utilities in the Dakotas, Iowa, Minnesota and Manitoba want to become energy suppliers to the states to the east using a 765 kV transmission line network (there are some studies that combine that with 800 kV DC or 1000 kV DC transmission lines but presently it seems the pure 765 kV system has won out).

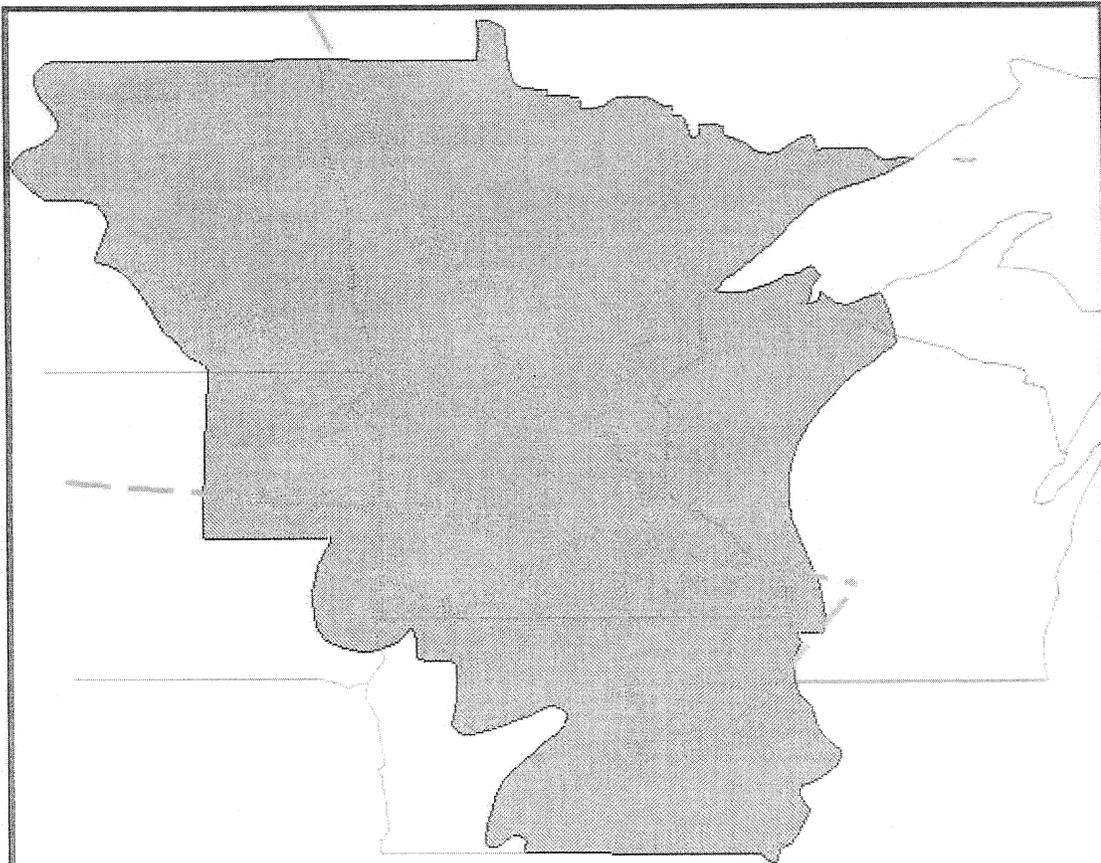
CapX2020 is documented in the following significant documents and site plus many other studies, presentations, plans, etc.:

- a. The CapX2020 Vision document (May 2005)
- b. Sections of the 2005, 2007, and 2009 Biennial Transmission Projects Reports
- c. The capx2020.com site

The Biennial Transmission Project Reports also show that a large number of upgrades have been done in the last few years, especially from 69 kV lines to 115 kV lines. Some of this is due to handling normal grid stress issues, but it is also noted that the transmission line companies are building the underlying infrastructure for the CapX2020 system.

The following is an attempt to give the relevant information about CapX2020 relative to Minnesota as compactly as possible.

CAPX2020 BASIC DIAGRAM



CAPX2020

MAY 2005 CAPX2020 VISION PLAN DEFINED SEGMENTS

CREATES 2ND TIER LOOP AROUND TWIN CITIES METRO AREA FED BY LINES FROM

- A. NORTH DAKOTA (FARGO TO ST. CLOUD)
- B. SOUTH DAKOTA (BROOKINGS TO HAMPTON)
- C. SW MN(BUFFALO RIDGE)
- D. SE MN
- E. NORTHERN IOWA (2 PATHS)
- F. MANITOBA(HYDROELECTRIC POWER)

OUTPUT OF LOOP TO WISCONSIN THRU LACROSSE

POWER REMOVED FROM LOOP BY “SPOKES” TO DISTRIBUTE POWER TO AREA BETWEEN 2 LOOPS AND TO SOME OUTSIDE THE 2ND TIER LOOP

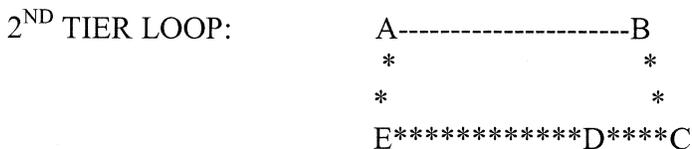
PHASE 1 LINES WILL BE 345 KV LINES WITH 115 KV SPOKES

PHASE 2 LINES WILL BE DBL 345 KV LINES WITH 115 KV SPOKES
DECISION MADE TO BYPASS PH1 & GO TO PH2 NOW

PHASE 3 LINES WILL BE UPGRADED TO 765 KV WITH 345 KV SPOKES
TIME FRAME OF CAPX2030
GREEN POWER EXPRESS & SMARTransmission ARE BOTH
DEPENDENT ON DEVELOPING 765 KV SYSTEMS.

ORIGINAL PLAN REMAINS INTACT BUT HAS HAD MAJOR ADDITIONS.

- e.g. 2ND 500 KV LINE FROM MANITOBA TO CHISAGO
ANOTHER DAKOTAS TO WISCONSIN LINE SOUTH OF BROOKING S LINE.
ST. CLOUD QUARRY SUBSTATION TO MONTICELLO
(nuclear plant output to St. Cloud and 2nd tier loop)



- A = QUARRY SUBSTATION IN WAITE PARK
- B = CHISAGO CITY
- C = PRAIRIE ISLAND (2nd nuclear plant)
- D = HAMPTON
- E = GRANITE FALLS

COMPLETION SCHEDULE OF CAPX2020 GROUP 1 SEGMENTS IS SHOWN IN TIMELINE SECTION.

THE WAITE PARK TO CHISAGO CITY SEGMENT IS EXPECTED TO BE ON HWY 95 OR NORTH OF HWY 95. IT IS A CAPX2020 GROUP 2 PROJECT.

THE FEDERAL GOV'T HAS THE POWER TO TAKE OVER CONTROL FOR THE PERMITTING OF ANY TRANSMISSION LINE PASSING POWER THRU A STATE (I.E. IF THEY FEEL THE STATE PUC ISN'T GETTING IT DONE FAST ENOUGH). SO FAR HAVEN'T DONE IT.

**RADIAL LINES (SPOKES) FROM WAITE PARK TO CHISAGO CITY SEGMENT =
HWY 65, HWY 47, HWY 169, HWY 35(?)** (not documented, but using common sense leads to this conclusion)

The web contains all kinds of information concerning CapX2020, Green Power Express, and SMARTransmission. In order to keep this reasonably short, I will leave it at that.

In the nearly 2 years since GRE changed their preferred route to run the under-built 69 kV line through East Bethel, no one from GRE/Connexus has ever mentioned CapX2020. This is another example of "don't present anything that goes against the cause".

The significance of the Capx2020 plans to East Bethel is that Hwy 65 will be a corridor for a "spoke" from the Waite Park to Chisago City segment of the 2nd tier loop, to the inner loop. Therefore, Hwy 65 will initially have a 115 kV line running down through Cambridge, Isanti, East Bethel, Soderville, etc., and if/when demand needs it, a double 115 kV line. Further, in the future, after the CapX2020 2nd tier loop is upgraded to 765 kV and load demand requires it, the 115 kV lines will be upgraded to 345 kV. This all belies the story that the Hwy 65 corridor will have problems in the future, further evidence that East Bethel gains nothing from the connection of the Martin Lake substation to the Athens substation.

The first evidence that GRE plans to run such a 115 kV line on Hwy 65 shows up in the 2008 GRE Long Range Transmission plan. It shows that in 2014 they plan to replace the present 2.5 miles of 69 kV line between Soderville and the East Bethel substation with a 115-69 kV line, so in a couple years, they should be notifying East Bethel of this project.

The 115-69 kV nomenclature means that they will replace the 69 kV wire (reconductor), but place it on new poles which are completely set up to double circuit a 115 kV line above it, but not string the wire for the 115 kV line. The 115 kV line can then be easily added later, when, for instance, the CapX2020 loop segment is in place to provide a 345/115 kV source.

Further, the LRTP shows that GRE plans to rebuild the Blaine to Soderville segment to a 115-69 kV line in 2024. There will be 2 more LRTP plans before 2020, one in 2013, and one in 2018; so, the timeline for this and other segments can be moved up, if needed, to coincide with the completion of the 2nd tier loop by 2020.

The 2008 GRE Long Range Transmission Plan document shows that the Cooper's Corner substation was not predicted to have either voltage deficiency or overload problems until the year 2020. These predictions were based on demand growth predictions that were made before the economic slump, when the Minnesota overall demand annual growth rate prediction was 2.49%. The Minnesota Legislature mandated that the utilities develop savings

programs to limit the demand growth rate to 1.5% annually, and the economic slump probably made that easy to achieve. Even in the Athens to Martin Lake project document from Aug, 2010, and indeed repeated in the CUP request being presented to the Planning Commission on March 22, the table shows the prediction of 2010 to be a boom year, seeing demand increasing 18.4% from the previous year. That didn't happen. The result is that the real date for Cooper's Corner substation to have problems has been slid considerably; thus the CapX2020 2nd tier loop which isn't driven by local demand growth, but by the utilities desire to transmit power east, should be in place before it has issues.

Two other interesting facts from the GRE 2008 LRTP to note is that in 2018, GRE plans to complete the 230 kV loop around the north suburban area by building a new Rush City-Cambridge-Princeton-Milaca 230 kV line. Further, they plan to build a new Chisago County-Rush City- Cambridge-Princeton-Benton County 345 kV line, double-circuiting it with the 230 kV line between Cambridge and Princeton along Hwy 95. So at about the time CapX2020 will be looking for a route for its dbl 345 kV lines around St. Cloud from the new Quarry substation to run east to the Chisago County corridor and Chisago City, GRE is establishing a 345/230 kV corridor along Hwy 95. Whether CapX2020 will actually partially share that corridor or find its own (it has to plan for the ROW for a later upgrade to a 765 kV line and CapX2020 is so big it can go wherever it wants), isn't publicly known yet.

It is interesting to note that the 230 kV line plus the 115 kV CapX2020 spoke line on Hwy 65 basically means that GRE plans to implement option 4 of the GRE proposal(the \$124M option) relative to the CapX2020 timeframe.

.....

I found the following **Timeline** document to be necessary and very helpful in keeping things straight, seeing the time relationships, and tying things together in the level 2 and 3 considerations. Also the included map of the North Suburban area as defined in the GRE 2008 LRTP really helps. This map is a view generated from the state map at

<http://www.gda.state.mn.us/maps/ElecTran07.pdf>

TIMELINE

1992

? MINNETONKA T LINE ORDINANCE

2001

AUG CHISAGO COUNTY T LINE ORDINANCE
NOV 2001 BIENNIAL REPORT

2002

2003

NOV 2003 BIENNIAL REPORT (BL-FL-RC IDENTIFIES 3 OPTIONS)(\$11M - \$18M - 9M)
(GRE RECOMMENDED #1)
(EAST BETHEL NOT TOLD OF PLAN)
(#2003-TC-N9 START)

| | | |
|-------------|----------|--|
| | DEC | GRE 2003 LONG RANGE PLAN (NO LONGER AVAILABLE) |
| 2004 | ALL YEAR | LPVPCEEBRC |
| | MAY | CAPX2020 GROUP STARTED |
| 2005 | MAY | CAPX2020 VISION PLAN RELEASED (IDENTIFIED SEGMENTS) CAPX2020 TECHNICAL UPDATE (MN LOAD GROWTH RATE OF 2.49% FOR 2009-2020) |
| | NOV | 2005 BIENNIAL REPORT (STATES OPTION #1 IS CHOICE) |
| 2006 | ? | EXTRA EMINENT DOMAIN POWERS GIVEN TO T LINE CO.S |
| 2007 | MAY | ISANTI COUNTY TRANSPORTATION PLAN 2006-2030 |
| | NOV | 2007 BIENNIAL REPORT |
| 2008 | JUL | WORK ON #2003-TC-N9 COMPLETED (\$6.75M SPENT) LINWOOD 230/69 KV SUBSTATION ON ANOKA CO. RD 22 |
| | SEP | JOINT COORDINATED SYSTEM PLAN (JUST A STUDY) (FULL PLAN FOR DELIVERY EAST) (INCLUDES 1000 KV HVDC) |
| | ? | CROWN SUBSTATION ADDED ON ISANTI CO. RD. 8. (69 KV LINE FROM MAU'S CORNER) |
| | ? | ATHENS SUBSTATION ADDED ON ISANTI CO. RD 56 |
| | ? | ATHENS TOWNSHIP SAID NO TO ORIGINAL ROUTE TO ATHENS SUBST. FROM EAST THRU ATHENS TOWNSHIP AND TOLD GRE TO LOOK TO THE SOUTH. |
| | DEC | GRE 2008 LONG RANGE PLAN |
| | DEC | EB COUNCIL INFORMED OF ORIG ROUTE |
| 2009 | FEB | HOUSTON ENG ROUTE ANALYSIS |
| | FEB | GREEN POWER EXPRESS ANNOUNCED (12,000 MW WIND) (3000 MI OF 765 KV LINES IN 7 STATES) |
| | MAR | CAPX2020 CAPACITY VALIDATION STUDY |
| | APR | OPEN HOUSE MEETING FOR EB RESIDENTS (NEW PATH) (EB CITY COUNCIL NOT TOLD OF MEETING) |
| | ? | SCHOOL FOREST COMMITTEE SAID NO TO GRE PLAN TO CUT SWATH ACROSS FRONT AND ALONG EASTERN EDGE OF SCHOOL FOREST. |
| | ? | HELEN ALLISON SAVANNA SAID NO TO RUNNING LINE ON THEIR LAND |
| | NOV | 2009 BIENNIAL REPORT |
| | DEC | XCEL PREDICTS THAT THEY WILL GET MN LEGISLATURE TO DROP BAN ON MORE NUCLEAR PLANTS IN 2010 |
| 2010 | MAY | EXTRA EMINENT DOMAIN POWERS GIVEN TO T LINE CO.'S RESCINDED |
| | JUL | SMARTransmission ANNOIUNCED BY UTILITY CARTEL INCLUDING XCEL, GRE |

(56,800 MW WIND) (10,985 MI OF 765 KV LINES IN 11 STATES)

AUG GRE PRESENTS ROUTE PLAN (WITH A & B) TO EAST BETHEL (LISTED 4 OPTIONS)
DEC GRE ATHENS-MARTIN LAKE ROUTE EVAL (ROUTES A-G1)
DEC NSP SYSTEM: 10-YEAR TRANSMISSION PLAN/ 20-YEAR SCENARIO
? RUM RIVER SUBSTATION (CO.RD 56)

2011

? BEMIDJI-GRAND RAPIDS CAPX GP1 SEG TO BE COMPLETE
DEC ST. CLOUD-MONTICELLO CAPX SEG TO BE OPERATIONAL

2012

? 2ND ATHENS SUBSTATION (CO RD 56)
? Athens 69 kV 3-way switch
? 2ND LINWOOD 230/69 KV SUBSTATION(BREAKER)
? DALBO-ST. FRANCIS 69 KV DBL CCT LINE (14.0 MI)

2013

2014

? SODERVILLE-EAST BETHEL 115-69 KV REBUILD (2.5 MI)

2015

? FARGO-ST. CLOUD CAPX GP1 SEG TO BE COMPLETE (TO QUARRY SUBST.)
? BROOKINGS-GRANITE FALLS-HAMPTON CAPX GP1 SEG TO BE COMPLETE
? HAMPTON-ROCHESTER-LACROSSE CAPX GP1 SEG TO BE COMPLETE

2016

? CAMBRIDGE EAST SUBSTATION

2017

? ORROCK 345/115 KV SOURCE

2018

? RUSH CITY- MILACA 230 KV LINE (CHART SHOWS 2020)
(THIS WOULD COMPLETE 230 KV LOOP AROUND NORTH SUBURBAN AREA)
? CHISAGO COUNTY- RUSH CITY 345 KV LINE (TIED TO CAPX)
? RUSH CITY- DALBO COUNTY 345 KV LINE
(DBL CCTED WITH RUSH CITY-DALBO 230 KV LINE)
? DALBO-BENTON COUNTY 345 KV LINE
? 345/230 KV SUBSTATION AT RUSH CITY

201?

? ST. CLD QUARRY SUBSTN-CHISAGO CITY XCAP GP2 SEG TO BE COMPLETE
(DBL 345 KV LINE)

2020

? COOPER'S CORNER PREDICTED TO HAVE OVERLOAD AND VOLTAGE
DEFICIENCY PROBLEMS (USING PRESLUMP NO.S)
DEC SCHEDULED COMPLETION OF ALL ORIG CAPX2020 PROJECTS

2024

? BLAINE-SODERVILLE 115-69 KV REBUILD (10.96 MI)

2027

? CARLOS AVERY SUBSTATION

20?? ? ANOKA CO. RD. 22 EXPANDED TO 4 LANES.

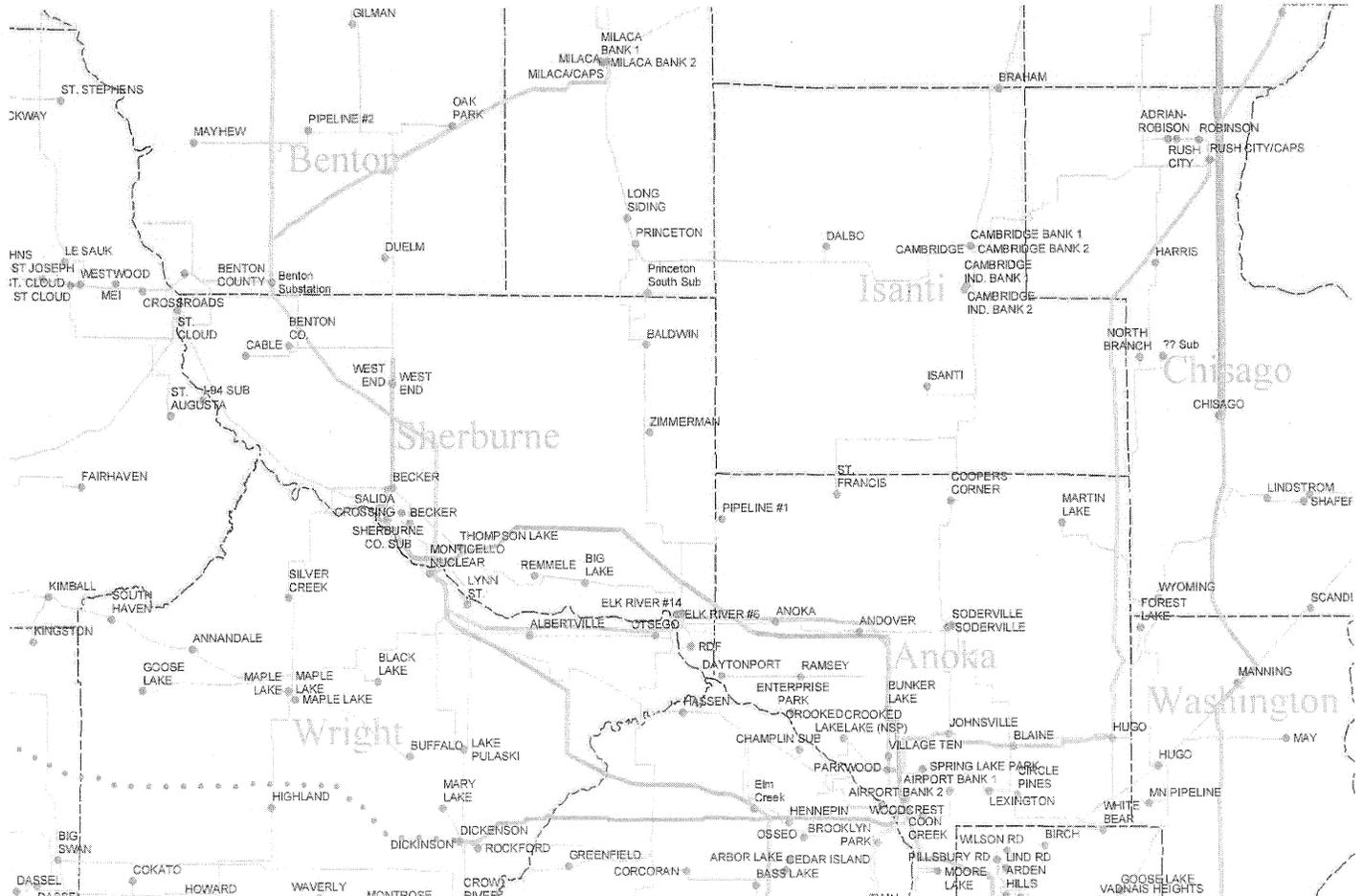
20?? ? ISANTI CO. RD. 9 EXPANDED TO 4 LANES AND DROPPED TO CO. RD 56/23.
ISANTI CO. RD. 8/SHERBURNE CO. RD. 4 EXPANDED TO 4 LANES.
NEW BRIDGE OVER RUM RIVER CONNECTING CO. RD 8 AND CO. RD 23/56
(ABOVE ITEMS PROVIDE 4 LANE HIGHWAY CONNECTING TH169 AT
ZIMMERMAN TO HWY 35 NORTH OF STACY)

COLOR CODE:

CAPX2020/GREEN POWER EXPRESS/SMARTransmission RELATED ITEMS
ITEMS FROM 2003 BIENNIAL REPORT OR THE NON-AVAILABLE GRE 2003 LONG RANGE PLAN
ITEMS FROM GRE 2008 LONG RANGE PLAN
ITEMS FROM ISANTI COUNTY TRANSPORTATION PLAN 2006-2030

North Suburban Transmission Line Map (2007)

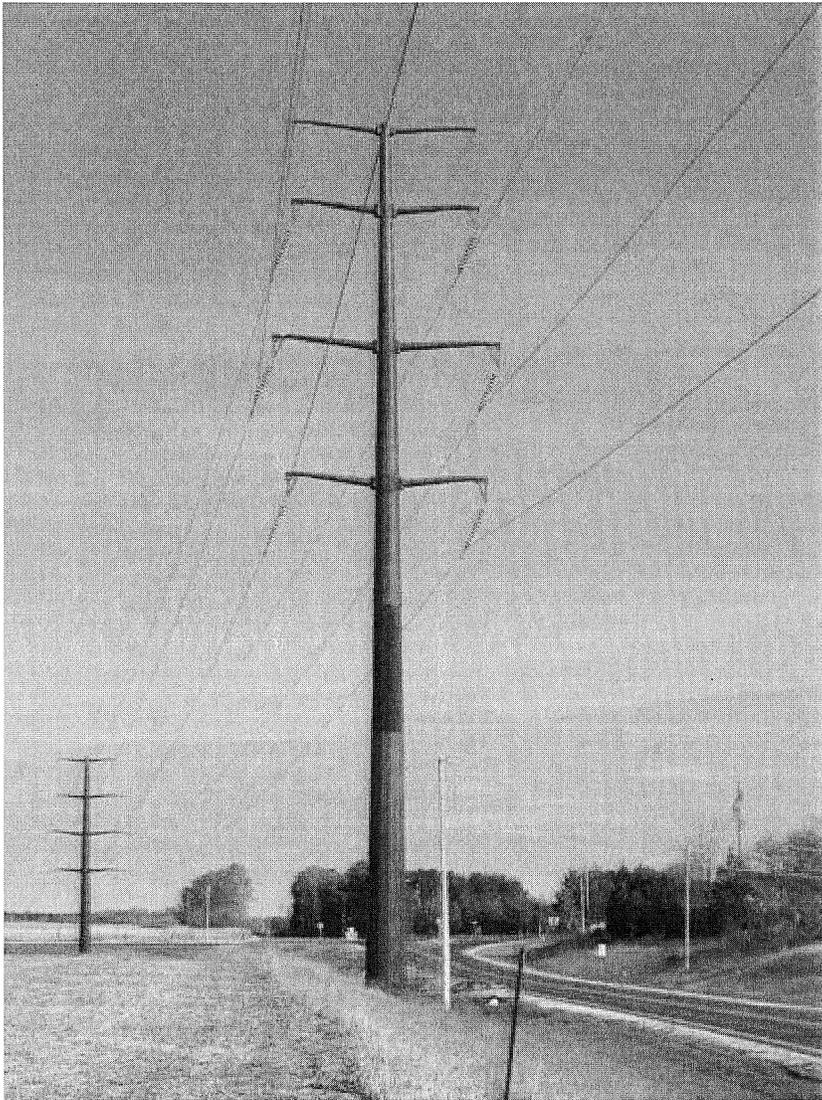
Figure 23



Grey = 69KV Blue = 230KV Black = 500KV
 Orange = 115KV Red = 345KV Dot/Lavender = 250KV DC
 Dot Purple = 400KV DC

BEYOND ROUTE A VS. ROUTE Gx, Hx, I

The following has little to do with the route choice considerations to connect Martin Lake to Athens, but knowledge of the CapX2020/2030 plans raises some significant questions relative to the fact that it shows future intent to have the Hwy 65 corridor contain a 345 kV transmission line (perhaps even eventually a double 345 kV transmission line) with it's ROW requirement of 200 feet (100 feet on each side) and grey steel poles that look like below: (actual poles can be seen on Hanson Blvd north of Bunker Lake Blvd. in Blaine)



At what point should East Bethel be planning for this ?? If someone owns a business on Hwy 65 or is thinking about one, you'd think they would want to know about it and where it would be. It's easier to plan if you know about it ahead of time, rather than try to fit it in later after more development has occurred without allotting for it.

The present 69 kV Blaine-Dalbo line has been allowed to extensively get outside the Hwy 65 ROW through East Bethel. A 345 kV line probably shouldn't be allowed to do that.

The MNDOT requirement for transmission lines in the ROW for a state Hwy is that they have to be placed in the outside 5 feet of the HWY ROW. I don't know if the present Hwy 65 ROW will be expanded wider in the future when Hwy 65 through East Bethel starts looking more like Hwy 65 through Blaine, or if that ROW width is known.

When GRE comes to East Bethel about upgrading the Soderville-East Bethel line to 115-69 kV in a couple years, is that a good time to grant a new route ROW for that line and plan for the continuation of that line through the rest of East Bethel, keeping it within the Hwy 65 future ROW and allowing for the ROW of a future 345 kV line ?? There are definitely some problems in doing that but definitely some real advantages if the line is planned that way at that time.

One problem is the presence of under-built distribution lines on segments of the present 69 kV line through East Bethel and how to handle them. In pulling the transmission line back inside the Hwy 65 ROW, the segments of the distribution lines have to be kept operational and some segments might move with the transmission lines and some might not, so some re-linking of distribution line segments by Connexus might be needed.

One place the present Blaine-Dalbo 69 kV line gets well outside the Hwy 65 corridor is from the Cooper's Corner substation to the Athens substation. Although the University granted the ROW for a 69 kV line along their western edge, they might not be happy about granting the ROW for a 345 kV line, and actually the sum of the ROW widths for a 345 kV line and a 69 kV line. Another reason the 345 kV spoke line should be restricted to the Hwy 65 ROW. (In this area, that would have to be coordinated with Athens Township).

TRANSMISSION LINE SITES: (items in red are more significant)

Minnesota's Electric Transmission Planning :

<http://www.minnelectrans.com/>

Biennial Transmission Projects Reports (2001, 2003, 2005, 2007, 2009)

<http://www.minnelectrans.com/reports.html>

CapX2020

<http://www.capx2020.com/index.html>

http://www.capx2020.com/Gallery/openhouse/Images/board_10.html

Minnesota County and Municipal Ordinances:

<http://www.lawlibrary.state.mn.us/ordinance.html>

<http://municode.com/Default.aspx>

Chisago County Transmission Line and Distribution Line Ordinance:

<http://www.co.chisago.mn.us/FileUpload/Library/0801badmin.htm>

Studies/Plans

CapX2020 Vision Plan May 2005

<http://www.capx2020.com/Images/5-11-05%20CapX2020%20Tech%20Update.pdf>

Capacity Validation Study March 2009

<http://www.minnelectrans.com/documents/capacity-study/cvsreport.pdf>

GRE Long-Range Transmission Plan Oct, 2008 (sec. E (north suburban) and sec. M(bulk))

<http://www.greatriverenergy.com/deliveringelectricity/planningforthefuture/doc083180.pdf>

Isanti County Transportation Plan 2006-2030 May 2007

<http://www.co.isanti.mn.us/highway/Final%20Report%20082007.pdf>

MAPS:

Minnesota State map of existing transmission lines (2007)

<http://www.gda.state.mn.us/maps/ElecTran07.pdf>

County maps showing existing transmission lines: (way behind, esp. on T lines)

<http://www.dot.state.mn.us/maps/cadd/county/anoka.pdf> (Anoka County)

<http://www.dot.state.mn.us/maps/cadd/county/isanti.pdf> (Isanti County)

<http://www.dot.state.mn.us/maps/cadd/county/sherburne.pdf> (Sherburne County)

<http://www.dot.state.mn.us/maps/cadd/county/chisago.pdf> (Chisago County)

http://capx2020.com/routemaps/FSC_8.9.10-2X.htm (Fargo to St. Cloud Optional Paths Map)

<http://capx2020.com/routemaps/SCM-routemaps.html> (St. Cloud to Monticello Final Path Map)

MISC. sites

<http://nocapx2020.info/>

<http://nocapx2020.info/wp-content/uploads/2008/12/capxbriefcettf12-5-08.pdf> (brief)

<http://nocapx2020.info/wp-content/uploads/2010/05/recommendation-20105-50577-01.pdf>

<http://nocapx2020.info/wp-content/uploads/2010/10/rowandeasementfactsheettocommission2c102610.pdf>

<http://nocapx2020.info/wp-content/uploads/2010/10/rowandeasementfactsheettocommission2c102610.pdf>

<http://legalelectric.org/> atty (Red Wing)

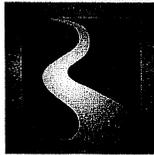
<http://www.oah.state.mn.us/cases/chisago/crvc.pdf>

<http://www.powerlinefacts.com/Vitelli.pdf> (Xcel response to med arg)

<http://www.dot.state.mn.us/utility/puc/letter-guidelines.pdf> (MNDOT requirements)

One final note: at the Planning Commission meeting, a Commission member asked Mr. Schaub if it was true that when they did do an upgrade to over 100 kV, would they then have to go to the state for further permits. Mr. Schaub's answer was yes, but that is not the full story. In Minnesota, when upgrading to a line in the 100 KV to 199 kV range (115 kV and 161 kV are the 2 choices used in MN) the transmission company can, at their discretion, opt for local control and come back to the city to obtain the permit, which they may be wont to do if they had received a weak response previously from the city. If local review is pursued, a permit from the PUC is not required.

(see <http://energyfacilities.puc.state.mn.us/Docket.html?id=3855>)



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March 4, 2011

WO # 54101
Athens – Martin Lake

Stephanie Hanson, City Planner
East Bethel Planning Commission
2241 221st Avenue, NE
East Bethel, MN 55011

SUBJECT: Great River Energy 69 kV Transmission Line Route Conditional Use
Permit Application

Dear Commissioners and Ms. Hanson:

Please accept this letter and accompanying documents as Great River Energy's application for a Conditional Use Permit (CUP) for the construction of a 69 kV transmission line in East Bethel between the northern boundary of Athens Township and the eastern boundary of Linwood Township. Specifically, please find the following accompanying this letter:

- CUP/Land Permit Application
- check for \$1,500.00 for CUP fee and Escrow
- 10 copies of the CUP application/project explanation
- Landowner list and route photos with property lines

In brief, Great River Energy is a generation and transmission cooperative electric company that supplies wholesale power to 28 distribution cooperatives in Minnesota and Wisconsin, including Connexus Energy and East Central Energy. In order to meet increasing demands for electricity and improve reliability of electric service in part of the Connexus and East Central service areas, Great River Energy proposes to construct a 69 kV line from Great River Energy's Athens Substation, in Athens Township, to the Connexus Energy Martin Lake Substation in Linwood Township.

The purpose of this application is to request a conditional use permit (CUP) for: 1) rebuilding to double-circuit, a portion of Great River Energy's existing 69 kV SC transmission line from the Athens/East Bethel border, south to the Coopers Corner substation on 237th Avenue NE; and, 2) build a single circuit 69 kV line, with some underbuild (distribution line on the structures beneath the transmission line) that would run from the Coopers Corner substation east, along 237th Avenue, then south along Gopher Drive, NE, and then east again along 229th Avenue NE (a/k/a CSAH 26), to the

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East Bethel Planning Commission
March 4, 2011
Page 2

border of East Bethel at Sunset Road NE. The total length of the route is approximately 10.4 miles. Approximately 5.8 miles will be in East Bethel. The route is described in greater detail in the accompanying materials. Great River Energy does not own the property on which it constructs transmission lines but instead acquires use of the property through easements and leases. We do not currently have any interest in the property but will acquire such interests upon approval of the Conditional Use Permit.

We look forward to working with you and we hope this, and the other information we have provided to the city proves helpful. If you require additional information or have any questions regarding our application, please contact me at your earliest convenience. Thank you for your consideration in this matter.

Sincerely,

GREAT RIVER ENERGY



Peter M. Schaub
Sr. Field Representative

PS:\ve\R:\T LINES\CO-LA (Athens - Martin Lake) #54101\East Bethel CUP App ltr 3_4_2011.doc

Great River Energy

ATHENS TO MARTIN LAKE 69 KV TRANSMISSION LINE PROJECT

Application for City of East Bethel Conditional Use Permit

MARCH 2011

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LIST OF ACRONYMS

| ACRONYMS | |
|---------------------|--|
| ASCE | American Society of Civil Engineers |
| Cedar Creek Reserve | Cedar Creek Ecosystem Science Reserve |
| Connexus | Connexus Energy |
| CSAH | County State Aid Highway |
| Corps | Army Corp of Engineers |
| db(A) | Decibels A-Weighting |
| DNR | Minnesota Department of Natural Resources |
| EPA | Environmental Protection Agency |
| EQB | Environmental Quality Board |
| G | Gauss |
| Hz | Hertz |
| IEEE | Institute for Electrical and Electronics Engineers |
| kV | Kilovolt |
| kV/m | Kilovolt per meter |
| mG | Milligauss |
| MnDOT | Minnesota Department of Transportation |
| NAC | Noise Area Classifications |
| PI | Point of Inflection |
| RF | Radio Frequency |
| WMA | Wildlife Management Areas |

Executive Summary

Great River Energy is proposing an upgrade to the area electric system in response to growth and development over the past decade in the city of East Bethel and neighboring communities. The project involves building a transmission power line to connect two substations, the Athens Substation in Athens Township and the Martin Lake Substation in Linwood Township. Of the proposed 10.4 mile power line, approximately 5.8 miles would be constructed within the boundaries of the city of East Bethel, with the rest in Athens and Linwood townships.

In proposing this project Great River Energy is serving its member-owners, including those in the city of East Bethel, by:

- Proactively addressing needs on the electric system
- Preparing for future community growth in the area, which will lead to a need for more electricity
- Exercising fiscal responsibility

This document provides detailed technical information that addresses the reasons this project has been proposed, as well as concerns outlined in the city of East Bethel's ordinance regulating transmission lines. Detailed information is included about the following:

- **Purpose of the project.** Based on current use of electricity and projected demand, the proposed Athens-to-Martin Lake 69-kV transmission line project is required to maintain the reliable operation of the electric transmission system. In an effort to manage the cost of electricity during these economic times, Great River Energy's budget for new projects has been reduced significantly. Only high priority projects are moving forward at this time, and this is one of those projects. See pages 4 through 8 for a review of the area electric transmission grid and weaknesses on the system.

Great River Energy is a not-for-profit wholesale electric cooperative owned by 28 member distribution cooperatives, including Connexus Energy and East Central Energy. Great River Energy has a responsibility to provide safe, reliable electric service to its member cooperatives so they can meet the needs of their member-consumers.

- **No-build alternative.** The risks involved in not connecting these two substations with a transmission line are serious. Pages 11 through 13 describe the following consequences:
 - Low voltage problems, which can damage the motors of appliances such as refrigerators and air conditioners.
 - Damage to very costly electric system equipment.
 - Possible need for rotating blackouts, which, though rarely needed, are serious.

- **Transmission line options.** Great River Energy examined four options for building a transmission line to remedy the system weaknesses. One option (the option being proposed) involves building a 10.4 mile, 69-kV transmission line to connect the Connexus Energy Martin Lake Substation and the Great River Energy Athens Substation. Although the other three options are possible to build from an engineering standpoint, they are poor options because they require building longer, higher voltage transmission lines, actually add exposure to lines and reduce reliability, would require construction outages and would have significantly greater environmental impact.

- **Where to build the line.** Determining where to build a power line is referred to as “routing.” Great River Energy, working with the East Bethel Work Group reviewed the area around the substations for preliminary routing options and identified 14 possible routes. The routes designated Route A and Route I were identified as the two primary options. Based on industry standard routing criteria, Route A, which involves rebuilding 3 miles of an existing transmission line and constructing approximately 7.4 miles of new line, is the best option for the following reasons:
 - Majority to be built on Cedar Creek Reserve rather than private property – fewer landowners and easements
 - Least impact to historical and cultural resources, plants, animals, wetlands and public waters
 - Best engineering option – best soil, fewest turns and curves
 - Shortest in length
 - Most cost effective
 - Opportunity for Connexus Energy to reduce costs by working with Great River Energy.

- **Other specifics required in ordinance.** Technical analysis of other information requested in the ordinance also is included.
 - Tree and vegetation removal – Utilities must maintain an area clear of any trees, objects, buildings, etc. for safety and reliability, and to meet regulations. Route A is far preferable with regard to tree clearing. Of the 5.8 miles that would be built within East Bethel, one mile is already clear. The other 4.8 miles would be along existing roadway, requiring much less clearing.
 - EMF – Electric and Magnetic Fields (EMF) exist wherever electricity is produced or used. Everyone is exposed to these fields every day. The *2002 Minnesota Department of Health White Paper on Electric and Magnetic Field Policy and Mitigation Options* states (see Page 36): “The Minnesota Department of Health concludes that the current body of evidence is insufficient to establish a cause and effect relationship between EMF and adverse health effects. However, as with many other environmental health issues, the possibility of a health risk from EMF cannot be dismissed.” The proposed transmission line will have a magnitude of electric field density that is well below the standard established by the Minnesota Environmental Quality Board that EMF should not exceed 8 kV/m at one meter above ground. EMF has been studied for more than 30 years by governmental and scientific institutions all over the world. On balance, scientific evidence does not indicate that exposure to EMF causes adverse health outcomes. See Appendix C.
 - Potential environmental impacts. Route A poses the least impact to historical and cultural resources. Being the shortest route, it also will have one of the lowest impacts on animal populations, wetlands and public waters. No impacts to public health and safety are anticipated as a result of the project. The calculated noise values are well below the Minnesota regulatory limits. No impacts to air quality are anticipated. The power line structures will have a narrow profile designed to be less intrusive than other types of structures. Care will be used to preserve the natural landscape. See Appendix B for further details.
 - Proposed timeline. The timeline will be dependent upon the final route selected. A conditional use permit is required by no later than early May, 2011, to allow sufficient time for land survey, land acquisition, environmental survey, line design and material acquisition before

construction could start, likely early August, to meet an in service date of March 31, 2012.

- Emergency Management Plan. Data to incorporate into the city's emergency management plan will be provided.

Great River Energy is responsible for ensuring the electric system meets the needs of the growing areas including East Bethel, Linwood Township, Athens Township, Cambridge, Stanford Township, St. Francis and others, while also balancing the need to be fiscally responsible. Great River Energy has proposed this project to proactively ensure the homes and businesses in these communities continue to receive the reliable, quality electric service they expect.

I. PURPOSE OF PROJECT

The purpose of this project is to maintain the reliable operation of the electric transmission system by: 1) building a transmission power line to connect two substations, the Athens Substation in Athens Township and the Martin Lake Substation in Linwood Township; and 2) providing another, redundant, source for the Martin Lake Substation.

1.0 System Deficiencies and Impacts

Due to growth in the City of East Bethel and surrounding areas, the region is at risk for interruption of electrical service. The transmission system that serves the areas along the Highway 65 and Anoka County Road 22 corridors (roughly the area between Cambridge, Elk River, and East Bethel – see Figure 2-1) is no longer able to reliably serve the projected demand levels. These system deficiencies lead to significant problems, including:

- **Low voltage:** Lights dimming unexpectedly is one thing that can happen when there are low voltage problems on the power line system. While dimming lights may be a minor inconvenience, sudden reductions in voltage can cause significant problems for industrial or manufacturing companies. Additionally, low voltage can damage motors in home appliances such as air conditioners, furnaces and refrigerators; the motors compensate for their power needs by drawing in more electric current. That creates more heat, sometimes so much that the motors burn out. Additionally, uncorrected low voltage problems can ultimately lead to a blackout.
- **Line overloading:** When a transmission line is overloaded, it can lead to outages. Transmission systems operate similarly to a home's fuse box or breaker panel. When more electricity is being used at one time than the wires can handle, the breaker or fuse shuts off the power flow to that area to avoid damage. Transmission systems work much the same way. When the demand for energy gets too high for an area of the system, the power flow shuts off to protect costly equipment. If there is no back-up source, there will be problems including failure of transmission lines and equipment, leading to outages.

The Connexus Energy Martin Lake Substation is fed from a single transmission supply with no backup capability. Thus, if this supply is disrupted, the Connexus members served from this substation would be without electrical service until the line is repaired. Great River Energy's preferred solution to address this deficiency involves connecting a second transmission line to the substation to provide redundancy, or backup, to the existing transmission line.

2.0 Review of the Electric Transmission Grid in the Area

The 69 kV transmission system serving East Bethel and the surrounding areas (see below) is sourced from the 230/69 kV substations at Rush City, Milaca, Elk River, Bunker Lake, and Blaine plus the 115/69 kV Parkwood Substation. These sources are tied together with 264.5 miles of transmission line. The 69 kV lines that directly serve the area total 57.1 miles, of which approximately nine miles are located within the East Bethel city limits.

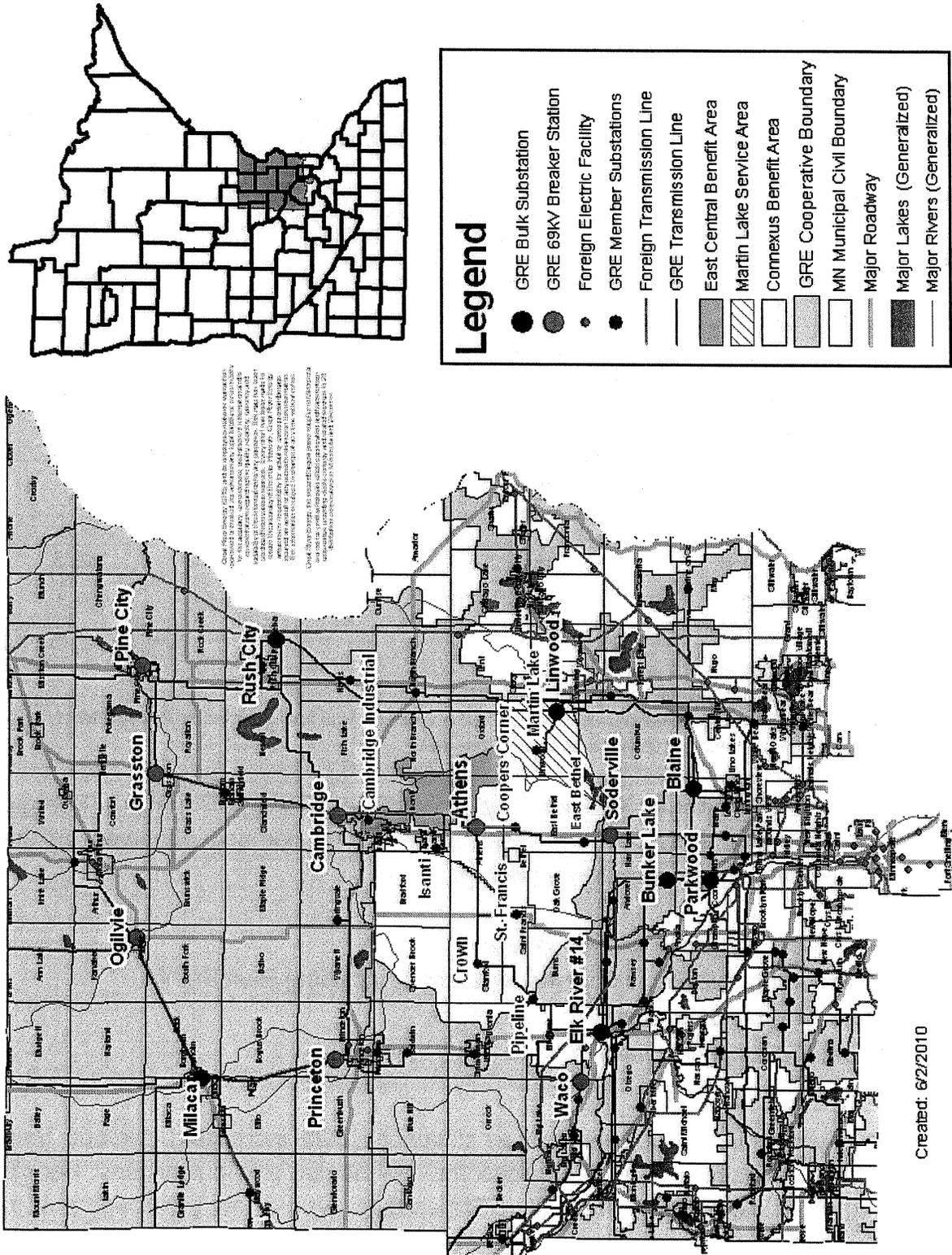
Additionally, the Connexus Energy Martin Lake Substation is served from a 4.25 mile, radial, 69 kV line sourced from the Great River Energy Linwood 230/69 kV Substation. This substation serves a portion of the east side of the City.

These transmission systems serve both the Connexus Energy and East Central Energy substations listed in Table 2-1. Figure 2-1 shows the transmission system configuration in the area.

Table 2-1 Area GRE Member System Substations

| Substation Name | Distribution Cooperative | Community |
|---------------------------|---------------------------------|-------------------|
| Cambridge Industrial Park | East Central Energy | Cambridge |
| Coopers Corner | Connexus Energy | East Bethel |
| Crown | Connexus Energy | Stanford Township |
| East Bethel | Connexus Energy | East Bethel |
| Isanti | Connexus Energy | Isanti |
| Martin Lake | Connexus Energy | Linwood |
| Pipeline | Connexus Energy | Burns Township |
| St. Francis | Connexus Energy | St. Francis |

Figure 2-1: Area Transmission System



2.1 Load Growth Data

Table 2-2 shows the historical electrical demand values plus the expected demand growth projections for the area transmission system.

Table 2-2 Area Historic and Expected Summer Electrical Demand (MW) by Substation

| Distribution Substation | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 Projection | 2015 Projection | 2020 Projection |
|---------------------------------|------|------|------|------|------|------|------|------|------|-----------------|-----------------|-----------------|
| Cambridge Industrial Park | 12.8 | 13.6 | 17.3 | 18.7 | 19.2 | 19.8 | 21.9 | 19.4 | 19.7 | 20.0 | 26.8 | 35.9 |
| Coopers Corner | 9.3 | 7.4 | 9.5 | 3.9 | 7.3 | 7.8 | 7.5 | 6.8 | 6.8 | 8.4 | 9.9 | 11.6 |
| Crown ¹ | - | - | - | - | - | - | - | 5.7 | 5.4 | 6.1 | 6.7 | 7.4 |
| East Bethel ² | - | - | - | 10.3 | 9.3 | 10.8 | 10.0 | 8.5 | 9.9 | 11.4 | 13.3 | 15.6 |
| Isanti | 12.1 | 14.7 | 13.1 | 14.2 | 14.7 | 16.4 | 15.4 | 12.3 | 13.1 | 16.2 | 18.9 | 22.1 |
| Martin Lake ³ | 7.0 | 6.9 | 9.1 | 8.0 | 8.6 | 9.0 | 8.2 | 7.6 | 7.2 | 9.7 | 11.2 | 13.0 |
| Pipeline | 2.4 | 2.7 | 3.5 | 5.9 | 5.1 | 3.3 | 3.1 | 2.8 | 0.8 | 3.4 | 3.4 | 3.4 |
| St. Francis | 17.4 | 17.2 | 19.3 | 20.2 | 21.8 | 22.1 | 21.6 | 15.8 | 17.3 | 21.0 | 28.0 | 37.3 |
| Total | 61.1 | 62.6 | 71.8 | 81.2 | 85.9 | 89.2 | 87.6 | 78.8 | 80.1 | 96.2 | 118.3 | 146.3 |
| Western Area Total ³ | 54.0 | 55.7 | 62.7 | 73.2 | 77.3 | 80.2 | 79.4 | 71.3 | 72.9 | 86.5 | 107.1 | 133.3 |

1 The Crown substation was first energized in 2008.

2 The East Bethel substation was first energized in 2004.

3 The Martin Lake substation demand is not included in the Western Area total demand as this substation is electrically isolated from the other substations serving the area.

Demand projections were developed by Great River Energy, Connexus Energy, and East Central Energy and are based on historical demand observed on the transmission system and adjusted based on:

- Historical consumer growth patterns
- Comprehensive Plans from the area cities, including East Bethel
- Metropolitan Council growth projections
- Recent economic considerations

The historic demand values have been driven by both increasing demand from existing consumers and by new services for new homes and businesses. People are using more electricity in the United States than even a few years ago due to increasing use of computers, televisions, cell phones and other electronic devices. Although many of the transmission lines customers rely on were built in the 1950s or 1960s, expectations for reliable electric power remain very high.

Weather is typically the most significant contributing factor to the system's peak demand in any given year. The days of highest energy use in any area are most often the hottest days of summer or the coldest days of winter when heating or cooling equipment is working hard to keep people comfortable. These are the days that determine how much capacity needs to be built into our electric system, even though that capacity is not needed every day. Although weather is a variable that cannot be forecast with certainty, Great River Energy, Connexus Energy, and East Central Energy have a responsibility to ensure the system has the capacity to handle electric demand resulting from likely weather patterns that may occur as well as other factors expected to contribute to growth in use of electricity in the area.

II. Transmission Line Options

3.1 Technical Analysis

Great River Energy has examined four different alternative transmission line projects that could remedy the system deficiencies. Great River Energy's preferred option is a 69 kV project. The other three are 115 kV projects. Because this is an application requesting approval of a single route under, the 69 kV line, Option 1, analysis of the 115 kV options is not included herein but, is described and analyzed in information previously submitted to the East Bethel City Council and Transmission line Work Group. As previously mentioned, it is possible to build the 115 kV options but, from an engineering standpoint they are poor options because: they require building longer, higher voltage transmission lines; add exposure to lines and reduce reliability; require construction outages; would have significantly greater environmental impact; and, have greatly increased costs.

Option 1 - Athens to Martin Lake 69 kV Transmission Line (Great River Energy's preferred solution)

This option involves the construction of approximately 10.4 miles of 69 kV transmission line between the Connexus Energy Martin Lake Substation and the Great River Energy Athens Substation (see Figure 3-1).

This option also provides a redundant transmission source to the Martin Lake Substation and allows for additional growth in electrical demand to be supported along the Highway 65 corridor via the Linwood Substation. Facilities could be easily integrated into the existing system with 69 kV construction.

3.2 Cost and System Efficiency Analysis

The estimated costs for each of the alternatives considered are tabulated in Table 3-1. These include the project costs incurred by Great River Energy, its member cooperatives, and other transmission-owning utilities that would need to modify their electrical facilities to accommodate the change.

Additionally, each of the projects will reduce the amount of line losses (energy generated but not deliverable) currently occurring.

Table 3-1 Estimated Cost Factors for Options 1- 4

| | Option 1: Martin Lake-Athens 69 kV line | Option 2: Chisago County-Coopers Corner 115 kV line | Option 3: Blaine-Coopers Corner-Martin Lake-Chisago County 115 kV line | Option 4: Blaine-Martin Lake-Athens-Dalbo 115 kV line |
|----------------|---|---|--|---|
| Estimated Cost | \$6,537,000 | \$39,700,000 | \$67,340,000 | \$124,480,000 |

4.0 The No-Build Alternative

The consequences of a no-build approach are described in this section. In general, the operational capacity of electric transmission and distribution systems is limited primarily by the need to prevent low voltages or equipment damage due to overloading of the conductors and transmission system equipment.

Low Voltage Problems

As described in Section 1, System Deficiencies and Impacts, low voltage can result in damage to motors and other equipment and can cause the malfunctioning of electric appliances and devices including computers and televisions.

Equipment Damage

For transmission lines, if too much electric current is transmitted through a conductor, it overheats and the excess heat causes the conductor to become elastic. Eventually, the conductor will stretch permanently, leading to unsafe clearances to surrounding objects and limiting future current-carrying capacity. As there is no way to reverse these effects, only rebuilding the line can restore its original capacity and safety clearances. For transformers and other equipment, if too much current is transferred through a device, it can overheat and prematurely fail. To prevent thermal overloads, Great River Energy must limit the current transmitted through its lines and equipment.

Rotating blackouts

When system demand is less than the system capacity can handle, consumers can be served without interruption. However, when system demand exceeds capacity, which by projection will happen in this region eventually if no additional

transmission facilities are constructed, the only method to protect against low voltage and system overloads is to reduce the demand to safe levels by initiating rotating blackouts.

For the transmission system serving East Bethel and the adjacent areas, rotating blackouts would not be expected under normal system configurations, but may be necessary during transmission line outage conditions under high system loading as low voltages and line overloads would be more prevalent.

With the passage of time, as the demand continues to increase, more outage events would cause delivery issues to occur, increasing the likelihood of needing to initiate rotating blackouts to reduce the system demand to acceptable levels. Eventually, demand would grow to the point where Great River Energy would no longer be able to maintain acceptable voltage during normal system conditions, which would lead to more time during the year that may require rotating blackout conditions.

Additionally, an outage of the Linwood-Martin Lake line would leave the Martin Lake Substation without electrical service. Under a no-build alternative where transmission redundancy is not achieved, as electrical demand grows and more people populate the area, the impact of an outage to this line would become more severe.

Significant demand reduction required

In order to make a no-build alternative feasible while maintaining quality, reliable electric service, the area electric demand would have to be reduced to below critical demand levels (the point at which low voltage or equipment overloading is first experienced) using rotating blackouts. Rotating blackouts would be implemented among all consumers served from this transmission system including those in East Bethel, St. Francis, Athens, Isanti, Oak Grove, Crown, Nowthen, and Cambridge (see Benefit Area detail in Figure 2-1).

The calculated critical demand level is 92.5 MW, above which Great River Energy cannot maintain acceptable service to the area consumers. When the projected growth provided on Table 2-2 is compared to the calculated critical demand level (92.5 MW), the following reductions in demand in the area (as demonstrated in Table 4-1) are required to support a no build alternative such that potential damage to the Great River Energy transmission system and end-use consumer equipment can be avoided.

Table 4-1: Demand Reduction Requirements

| Year | # Hours above Critical Demand | Required Demand Reduction in MW | % of Local Demand Reduction | Annual # of Days at Risk |
|-------------|--------------------------------------|--|------------------------------------|---------------------------------|
| 2012 | 6 | 1.60 | 1.70 | 1 |
| 2013 | 14 | 5.70 | 5.80 | 3 |
| 2014 | 63 | 10.00 | 9.76 | 11 |
| 2015 | 145 | 14.50 | 13.55 | 21 |
| 2016 | 240 | 19.30 | 17.26 | 26 |
| 2017 | 437 | 24.30 | 20.80 | 60 |
| 2018 | 989 | 29.50 | 24.18 | 158 |
| 2019 | 2182 | 35.00 | 27.45 | 267 |
| 2020 | 4974 | 40.80 | 30.61 | 357 |

The data show that as time passes, the system demand would be above what can safely be handled by the area transmission system for significant amounts of time during a year. This would also reduce the number of hours during the year in which Great River Energy could do maintenance on its transmission lines and equipment, as it could not be de-energized without curtailing demand. Reduced equipment maintenance may lead to more failures and prolonged outage conditions. Eventually, pre-outage demand reduction would need to be implemented via rotating blackouts to prevent damage and prevent total collapse of the transmission grid serving the communities mentioned above.

III. WHERE TO BUILD LINE

5.0 Transmission Line Route Selection Methodology

As already discussed, Great River Energy has determined that the best way to address the electric delivery issues in the area is to connect Great River Energy's Athens Substation with Connexus Energy's Martin Lake Substation thus providing a redundancy or a backup source of electricity into the Martin Lake Substation. Figure 5-1 shows the points to be connected.

Currently, Great River Energy has a 69 kV transmission line that connects the Athens Substation to the Coopers Corner Substation and then continues south to the East Bethel Substation. Connexus Energy has a 12.5 kV distribution line that begins at Coopers Corner and travels east and south along County State Aid Highway (CSAH) 26 to Typo Creek Drive NE in Linwood Township.

Routes evaluated were reviewed and analyzed both in the field and using various geographic data (e.g., aerial photos, topographic maps, public water inventory maps, etc.). The routes that follow existing right of way corridors are preferred to cross-country routes.

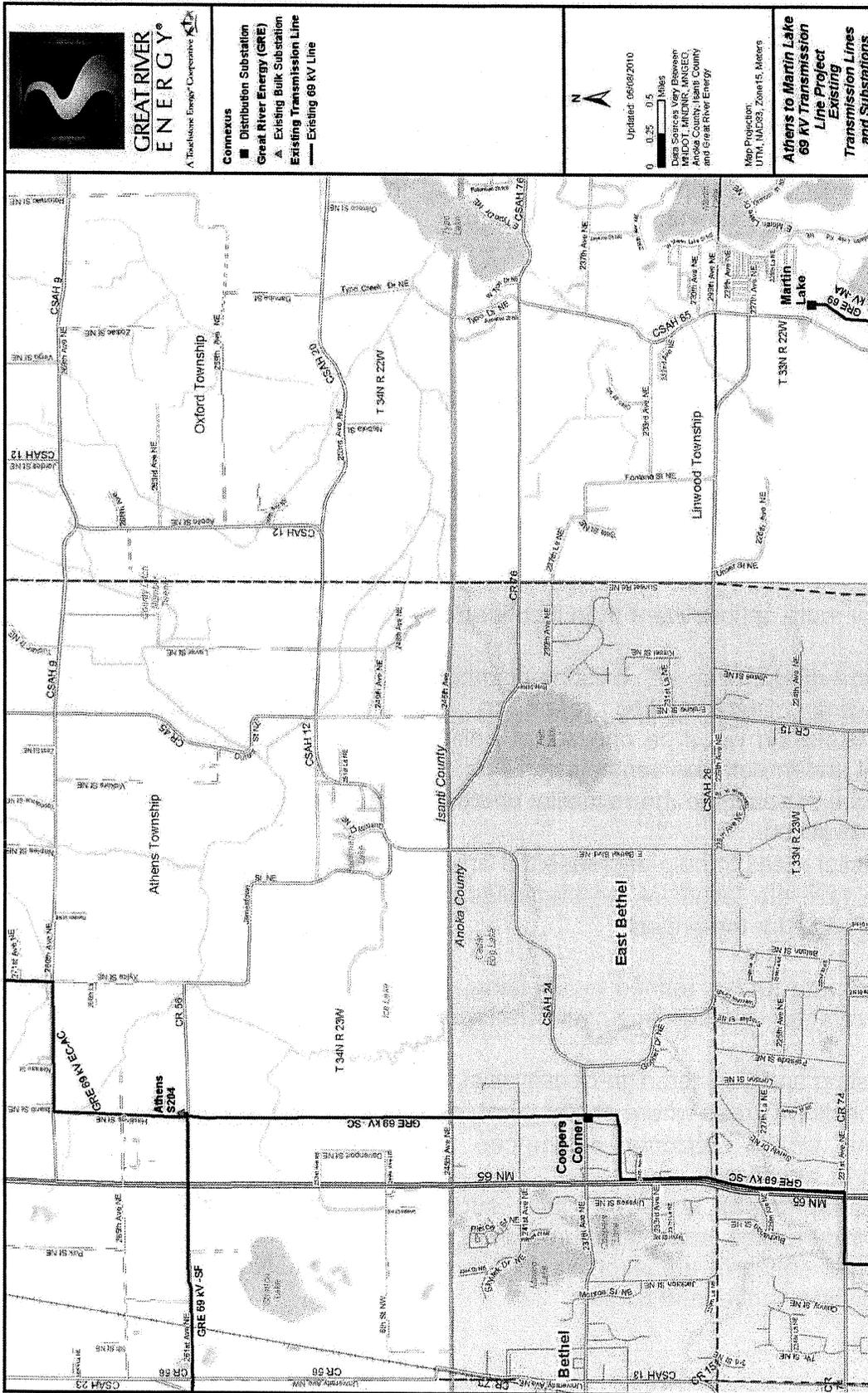
Preliminary route options were then identified based on opportunities to:

- Share right of way with existing distribution lines by underbuilding where practical. Underbuilding refers to including both distribution and transmission wires on one set of poles, with the distribution line being built underneath the transmission line.
- Reduce impacts to the reliability of existing transmission systems during construction.
- Parallel roads to help decrease the amount of right of way required.
- Minimize the length of the transmission line to reduce the impact area and costs for the project.

The routes were further refined by avoiding, to the extent possible and applicable, areas where a transmission line could create significant impacts such as:

- Existing and planned high-density residential areas.
- Agricultural areas where center pivot irrigation systems are used.
- Areas where horizontal clearances are limited because of trees or nearby structures.
- Environmentally sensitive sites, such as wetlands, archaeologically significant sites, areas with threatened or endangered species/species of special concern, areas of significant biological or cultural significance and state and federal lands.

Figure 5-1 69 kV Proposed Project Area



When selecting a route for a transmission line, Great River Energy considers the following for each viable route.

➤ **Public/Social considerations**

- Distance from centerline to homes and businesses
- Distance and impact to public facilities, parks, and trails
- Tree/vegetation removal
- Distance and impact to historic sites

➤ **Environmental/Cultural considerations**

- Compliance with federal, state and local regulations
- Adherence to sound environmental principles, i.e. avoid creating new corridors, minimize length of corridor
- Identification of avoidance areas (archaeologically significant sites such as burial sites, wildlife management areas (WMAs), protected wetlands, scientific research areas and populations of threatened and endangered species of concern)
- Tree and vegetation removal on non-residential property
- Agricultural operations, i.e. center pivot irrigation systems
- Impact to existing utilities

➤ **Engineering/Construction considerations**

- Adherence to sound engineering/construction principles
 - ✓ Safety
 - ✓ Reliability
 - ✓ Accessibility
- Engineering Considerations
 - ✓ Suitable soil conditions
 - ✓ Required angle structures
 - ✓ Structure size
 - ✓ Span lengths
 - ✓ Total line length
- Special construction requirements
- Cost effectiveness

6.0 Proposed Route (“Route A”)

Great River Energy’s Proposed Route for the project would consist of the following:

- Rebuild the three miles of Great River Energy’s existing single circuit 69 kV “SC” transmission line between the existing Great River Energy Athens Substation and the existing Connexus Energy Coopers Corner Substation to a double circuit 69 kV transmission line.
- Construct approximately 7.4 miles of new overhead 69 kV transmission line between the existing Connexus Energy Coopers Corner Substation and the existing Connexus Energy Martin Lake Substation.
- Remove, upgrade and attach approximately seven miles of existing Connexus Energy overhead distribution (12.5 kV) line to the new transmission line structures along CSAH 26.

Proposed Route A is shown in Figure 6-1.

6.1 Proposed Route A within East Bethel

A portion of the proposed project is located in East Bethel; the remainder of the project is located within Athens Township and Linwood Township. The portion of Route A that falls within East Bethel is described below (also see Figure 6-2):

- Rebuild approximately one mile of Great River Energy’s existing single circuit 69 kV “SC” transmission line to a double circuit 69 kV transmission line. The line would be reconstructed from the Athens Township/East Bethel boundary line south to the existing Connexus Energy Coopers Corner Substation.
- From the Coopers Corner Substation, Great River Energy would construct approximately 4.8 miles of new overhead, single circuit 69 kV transmission line along CSAH 26 to Sunset Road, the border with Linwood Township.
- Connexus Energy would remove, upgrade and attach approximately 4.8 miles of existing overhead distribution (12.5 kV) line to the new transmission line structures along CSAH 26.

Figure 6-1 Proposed Route A

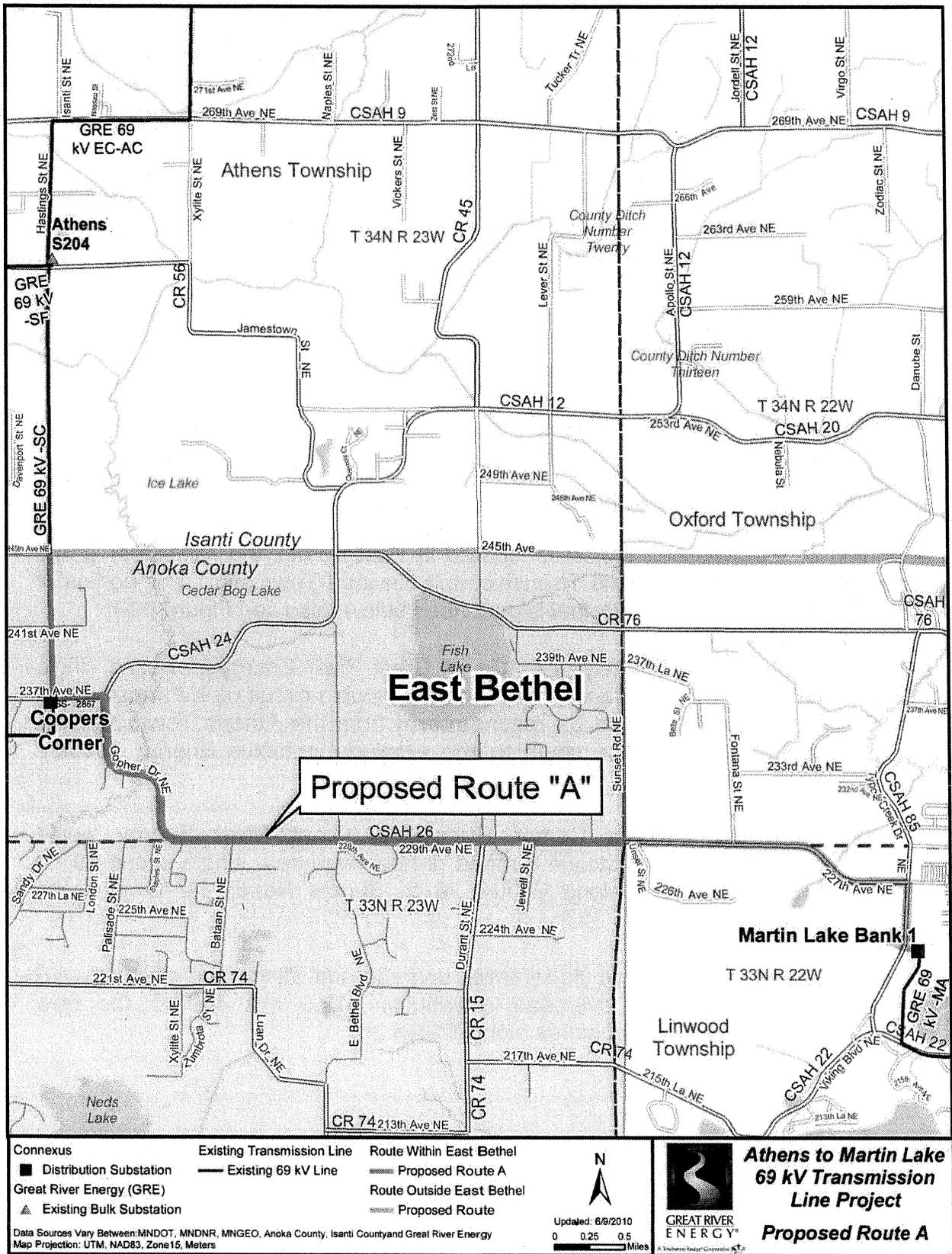
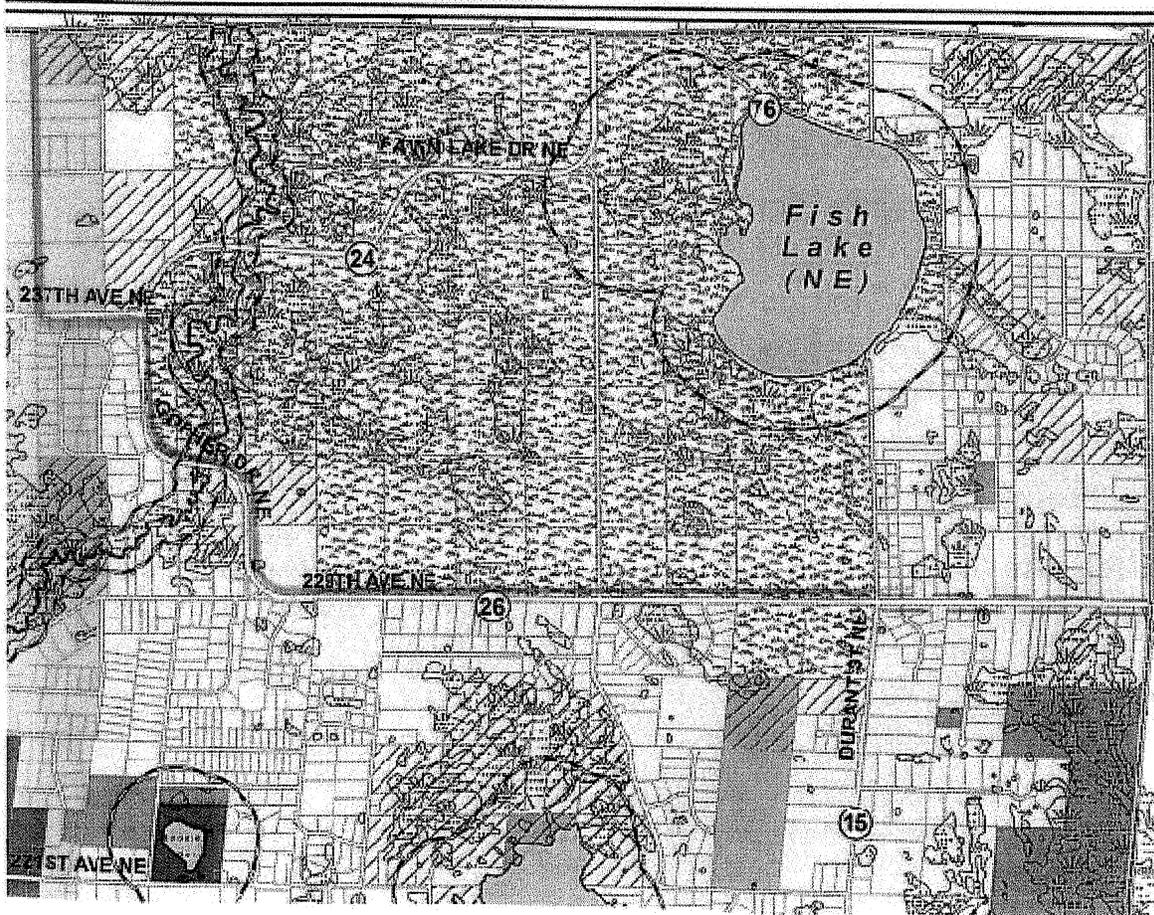


Figure 6-2 Route A In East Bethel

**OFFICIAL MAP
OF
THE CITY OF EAST BETHEL**



6.2 Review of Route A

Route A is Great River Energy's preferred route for a number of reasons as described in detail in the following pages. In short, the reasons are:

- Shortest in length
- Lowest number of turns and curves to the route
- Least impact to historical and cultural resources
- Most cost effective
- Majority would be on Cedar Creek Reserve instead of private property
- One of lowest impacts to plant and animal populations in the area
- One of lowest number of wetlands and public waters involved
- Most desirable soil conditions

6.2.1 Public/Social considerations

For general right of way information, please refer to Appendix A.

Distance from centerline to homes and businesses

➤ Homes*

- 0 homes within 100 feet of anticipated transmission centerline.
- 43 homes within 200 feet of anticipated transmission centerline.
- 84 homes within 300 feet of anticipated transmission centerline.

Maps showing Route A are provided in Figures 6-3 to 6-7.

**Because a specific design is not available until a route is definite, estimates for all routes were calculated by using road centerlines when a route followed a roadway.*

➤ Businesses

- The route does not run along commercial or industrial zoned property. It is not known how many businesses may be located in a residence or on agricultural property along the proposed route.

Figure 6-3 Aerial Map of Route A with Distances Shown – Map 01



Figure 6-4 Aerial Map of Route A with Distances Shown – Map 02



Figure 6-5 Aerial Map of Route A with Distances Shown – Map 03



Figure 6-6 Aerial Map of Route A with Distances Shown – Map 04



Distance and impact to public facilities, parks, trails

According to the East Bethel *Comprehensive Trails and Open Space Concept Plan*, there is a bituminous surface trail proposed for the southern edge of the Cedar Creek Ecosystem Science Reserve property (Cedar Creek Reserve) along CSAH 26. If the 69 kV transmission line were to be placed along this same southern edge of the Cedar Creek Reserve, clearing of an approximately 38-foot easement for the transmission line (from the edge of the road right-of-way) would at the same time, provide ground clearing and space for the proposed city trail. Locating the new transmission line on the Cedar Creek Reserve would also reduce the number of homes near the transmission line. The proposed transmission line along Route A would not impact any other public facilities, parks or trails within East Bethel to any greater extent than does the existing distribution line along CSAH 26.

Socioeconomics

➤ *Cultural Values*

Cultural values include those perceived community beliefs or attitudes in a given area that provide a framework for that community's unity. The communities in the vicinity of the project (City of East Bethel) appear to have cultural values corresponding with the economic activities of the area along County Road 65 and also the natural environmental features of the area.

Impacts and Mitigation

No negative impacts to cultural values are anticipated; therefore, no mitigation is necessary or proposed.

➤ *Public Services*

Public services provided in the East Bethel area (i.e., police, fire protection, waste collection, etc.) will not be affected by the proposed transmission project.

Impacts and Mitigation

No negative impacts to public services in the community are anticipated; therefore, no mitigation is necessary or proposed.

Land Use

Land use along the Proposed route consists mainly of forest, grassland, rural residential uses, croplands, and wetlands/ water (Figure 6-8). Wetlands, cultivated and forested land are discussed below.

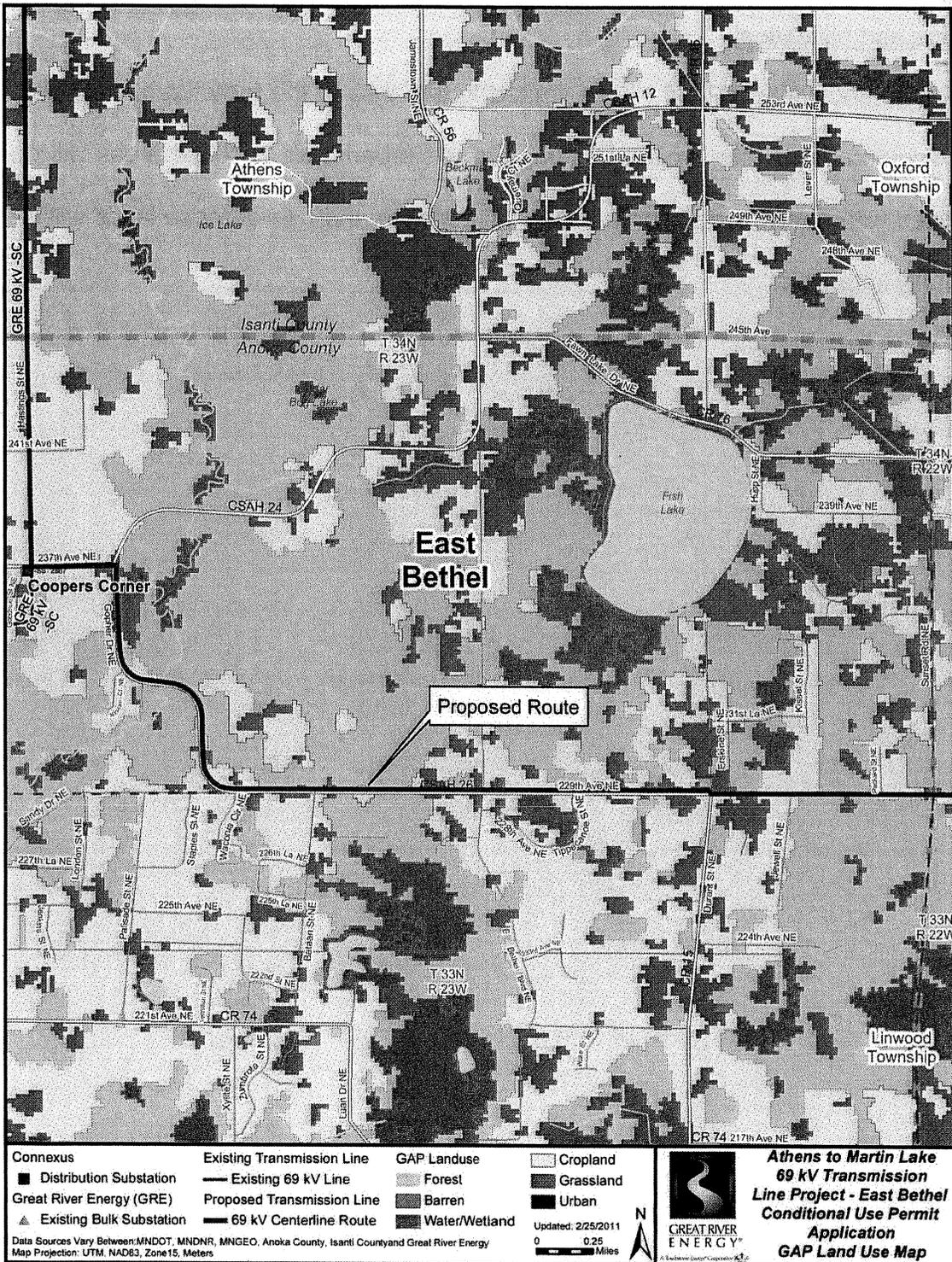
➤ *Undeveloped Land*

Undeveloped land, such as grassland occurs along the Proposed route (Figure 6-8).

Impacts and Mitigation

Impacts to undeveloped land will be limited to the area of the footprint of the poles. After construction of the Project is complete, disturbed soils in these areas will be stabilized with native vegetation as soon as possible and use of these lands will be minimally impacted.

Figure 6-8 Land Use Map



➤ *Zoning*

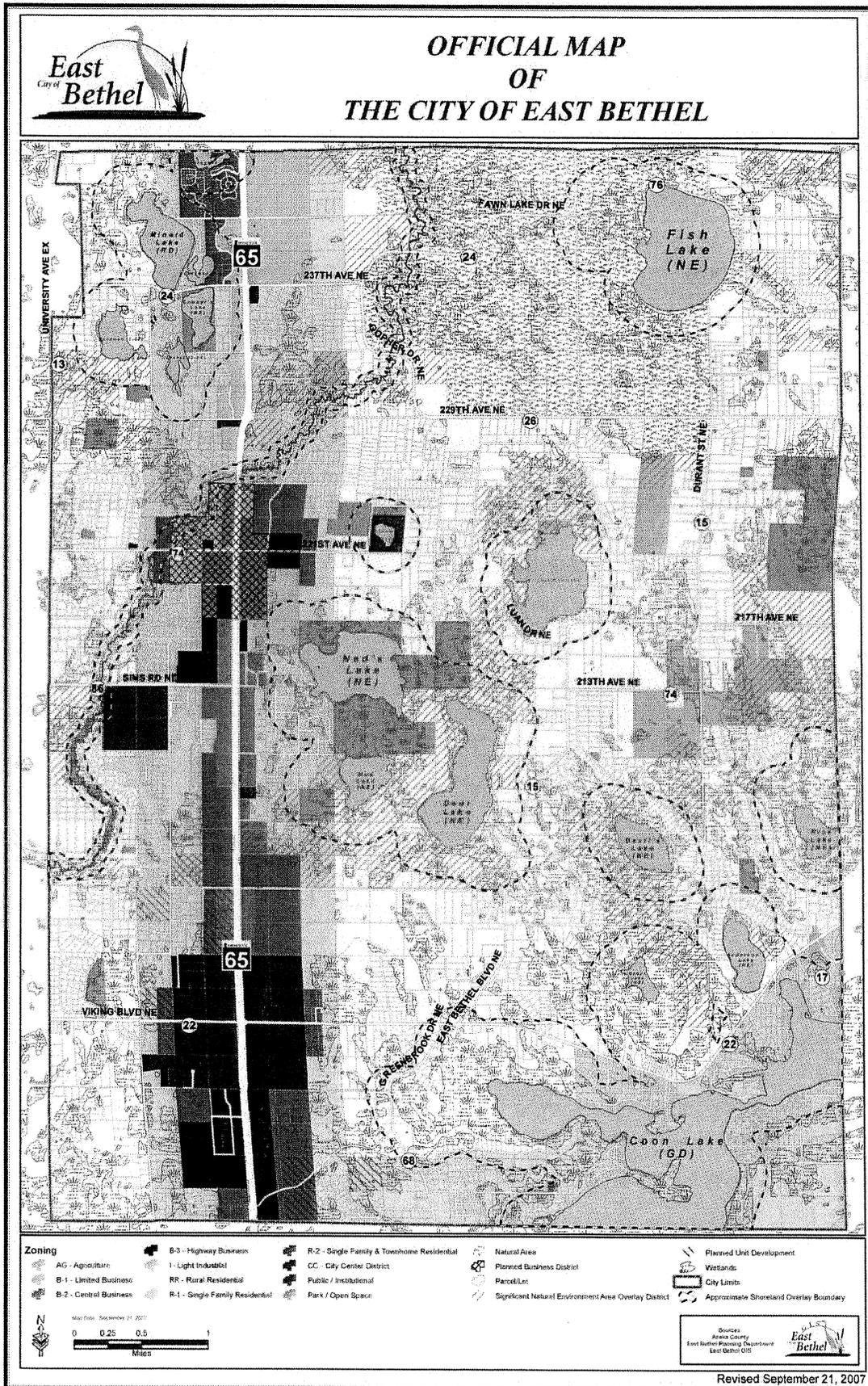
A zoning map of the Project area is provided in Figure 6-9. The Proposed route crosses areas designated under single family residential, rural residential and along the edge of natural areas.¹

Impacts and Mitigation

Potential land use impacts along the Proposed route due to the 69 kV transmission line will be limited. The Proposed route for the 69 kV transmission line will overtake existing distribution line right of way and parallel transmission and road right of way as much as possible. The new 69 kV transmission line does not represent an incompatible land use with those that exist in the area. Therefore, anticipated impacts of the proposed Project on land use are minimal and no mitigation measures are necessary or proposed.

¹ Zoning information obtained from http://www.ci.east-bethel.mn.us/index.asp?Type=B_BASIC&SEC={44BF1F8A-BB04-47E4-AA8B-974DE1F4C696}

Figure 6-9 Zoning Map



Effects on Land-Based Economies

➤ *Agriculture*

The only agricultural land along the proposed route is the existing transmission line (Figure 6-9). The majority of the areas along the route categorized as cropland are either developed homesteads or Cedar Creek property.

Impacts and Mitigation

The East Bethel portion of the Project will not cause any additional impact to agricultural land.

➤ *Forestry and Tree/vegetation removal*

Today the woodlands in Anoka County are mainly small tracts used for homesites and recreation areas.² Approximately 46 percent of the Proposed Route would cross forested land.

Taller tree species that endanger the safe and reliable operation of the transmission facility must be removed. However, lower growing vegetation located towards the edge of the easement generally would not be disturbed. Although Route A consists of approximately 5.8 miles within East Bethel, one mile is already cleared for the existing transmission line. Another, approximately 1.75 miles of the route, either has sparse or no tree-cover. Therefore, approximately 3 – 4 miles would need to be cleared of tall vegetation.

Impacts and Mitigation

The entire width of the transmission line right of way (35 feet each side of centerline) would need to be cleared of tall vegetation that could potentially grow into the conductors. Since the route runs along a roadway, only 38 feet would actually need to be cleared. Based on a rough estimate off the Land Use Map, the East Bethel portion of the proposed route will affect approximately 14 acres of forested land. This is only an estimate because it is not known on which side of the road the transmission line will be located for the entire route.

Great River Energy will replace or compensate for windbreaks as determined through negotiations with individual landowners. Additionally, Great River Energy will, pursuant to city ordinance, submit an application for a site use permit that will address tree/vegetation removal and replacement in greater detail.

² http://soildatamart.nrcs.usda.gov/Manuscripts/MN003/0/Anoka_MN.pdf page 78

➤ *Tourism*

Tourism in the Project area consists primarily of hiking and biking trails in the area.

The following attractions in the area: Fish Lake trail system, Linwood School Forest, Schuberling WMA and the Martin-Island-Linwood Lakes Regional Park Lake. None of these features will be affected by the Proposed route.

Impacts and Mitigation

Tourism will be unaffected by the proposed Project.

➤ *Mineable Resources*

There are no mining resources in the vicinity of the Proposed route.

Cultural Resources

The Minnesota Historical Society (MHS) was not contacted specifically on this route. They did receive an information letter on the general project area in 2009.

➤ *Archaeological and Historic Resources*

The MHS has indicated general concerns due to the resources that have been found in areas not far from this route. A literature review was conducted by Trefoil, a Minnesota archaeological consultant.

Impacts and Mitigation

No known historical resources were identified within the East Bethel portion of the Proposed route. Therefore, no impacts are anticipated during the installation of the transmission line. If any archaeological sites are identified during placement of the poles along the permitted route, construction work will be stopped and MHS staff consulted as to how to proceed.

Affect on VA/FHA Financing

➤ *VA Rules state:*

- No part of any residential structure may be located within a high voltage electric transmission line *easement*.
- Any detached improvements even partially in a transmission line *easement* will not receive value for VA purposes.

➤ *FHA Rules state:*

- No dwelling or related property improvement may be located within the *engineering (designed) fall distance* of any pole, tower or support structure of a high-voltage transmission line, For field analysis, the appraiser may use tower height as the fall distance.

Pursuant to the FHA Handbook 4150.2, Section 2-2(J):

1) If the dwelling or related property improvement is located within such an easement, the lender must obtain a letter from the owner or operator of the tower indicating that the dwelling and its related property improvements are not located within the tower's (engineered) fall distance in order to waive this requirement.

2) If the dwelling and related property improvements are located outside the easement, the property is considered eligible and no further action is necessary. The appraiser, however, is instructed to note and comment on the effect on marketability resulting from the proximity to such site hazards and nuisances.

Impacts and Mitigation

Great River Energy's policy is to avoid placing a dwelling or other building within a transmission line easement or, erecting a structure with an engineering fall zone that would impact a home or building. However, in the very unlikely event that there is no other alternative, Great River Energy would work with the property owner and compensate them for any diminution in value.

6.2.2 Environmental Considerations

For general environmental information, please refer to Appendix B.

Compliance with regulations

Construction of Route A would comply with all federal, state and local regulations. This would include adhering to the requirements of federal permits and state permits for construction and maintenance of the line, such as federal wetland permits and state water crossing licenses. Examples of local compliance would be county road permits and the submission of this document to initiate East Bethel's process.

The entire route follows either existing power lines or county roads and is the shortest route for the area.

Identification of avoidance areas

Cultural literature research shows this route impacts the fewest potential archaeologically significant sites in the area. No known historical resources were identified within the proposed route.

The Cedar Creek Reserve is owned by the University of Minnesota and is used as a scientific research facility. Cedar Creek Reserve also owns the most property within the proposed transmission line construction area. In discussions with the Cedar Creek Reserve Administrators about the proposed line, they indicated that

they would be willing to work with Great River Energy in routing the line along the southern edge of the property.

There are approximately fifteen wildlife and plant populations that are listed as species of concern in the area. However, Route A is on the edge of habitat ranges and should cause minimal impacts. Bird diverters would most likely be needed for this route because of the Red Shouldered Hawk population in the area. There are no Minnesota Department of Natural Resources (DNR) public wetlands on this route. One DNR public water body would be crossed.

Impact to existing utilities

This route would affect one mile of existing transmission line and 4.8 miles of Connexus Energy's distribution line on CSAH 26. Because the one mile of transmission line would be double circuited and the existing distribution line would be underbuilt on the new transmission line, the number of poles in the area would remain approximately the same.

The entire route follows either existing power lines or county roads and is the shortest route for the area. This route would benefit Connexus Energy because the distribution line on CSAH 26 is old and will need to be replaced. Replacing the distribution line in conjunction with this transmission line project will result in a savings for Connexus Energy because some of the costs of placing distribution line on the transmission line structures will be paid by Great River Energy. Additionally, all future costs for structure repair and easement clearing/maintenance will be borne by Great River Energy.

No other utilities should be affected.

Natural Environment

➤ Air Quality

The only potential air emissions from a transmission line result from corona, which may produce ozone and oxides of nitrogen. This can occur when the electric field intensity exceeds the breakdown strength of the air. For a 69 kV transmission line, the conductor surface gradient is typically below the air breakdown level. As such, it is unlikely that any measurable emissions would occur from the conductor surface.

Impacts and Mitigation

No impacts to air quality are anticipated due to the operation of the transmission line.

Temporary air quality impacts caused by construction vehicle emissions and fugitive dust from right of way clearing and construction are expected to occur. Exhaust emissions from diesel equipment will vary during construction, but will be

minimal and temporary. The magnitude of emissions is influenced heavily by weather conditions and the specific construction activity taking place. Appropriate dust control measures will be implemented.

➤ *Water Resources*

Hydrologic features in the Project area and along the Proposed route is shown in Figure 6-10.

- *Ground Water*

The DNR divides Minnesota into six groundwater provinces. This project is in Anoka County which falls into the Metro Province, which is described as sand aquifers in generally thick (greater than 100 feet) sandy and clayey glacial drift overlaying Precambrian sandstone and Paleozoic sandstone, limestone, and dolostone aquifers.³

- *Surface Water*

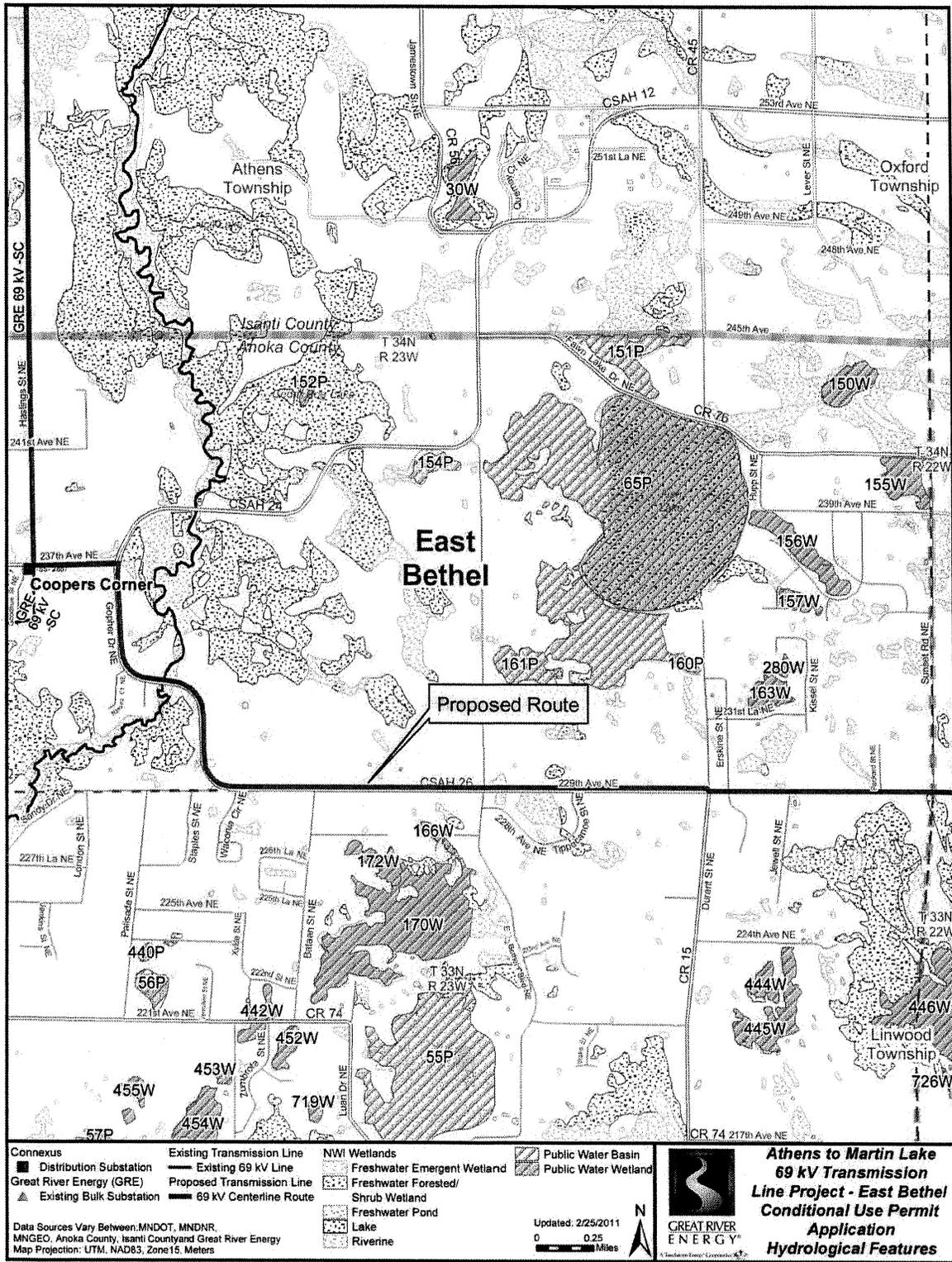
The Project area lies within the Rum River watershed of the Upper Mississippi River Basin.⁴

The Project would require a United States Army Corps of Engineers (Corps) permit under Section 10 of the Rivers and Harbors Act if the work involves a navigable water of the United States; however, no navigable water will be affected within the East Bethel portion of the Project.

³ http://files.dnr.state.mn.us/natural_resources/water/groundwater/provinces/gwprov.pdf (2009)

⁴ <http://www.pca.state.mn.us/water/basins/uppermiss/index.html> (2009)

Figure 6-10 Hydrologic Features in the Project Area



- *Lakes*

There are no lakes in the Project area.

- *Rivers, Streams and Ditches*

The Cedar Creek is in the area. There are no rivers, streams or ditches in the Project area.

- *Riparian Areas*

Riparian areas are ecosystems that occur along watercourses or at the fringe of water bodies. For purposes of this Application, the riparian areas are defined as the land within 300 feet of streams and within 1,000 feet of lakes. These distances were selected because they are consistent with the definition of shoreland in the DNR Statewide Standards. These statewide standards set guidelines for the use and development of shoreland (riparian) property around all lakes greater than 25 acres (10 acres in municipalities) and rivers with a drainage area of two miles or greater.

The East Bethel portion of the Project crosses a total of approximately 0.1 mile of riparian area, which is all in the Cedar Creek vicinity (Figure 6-10).

- *Public Waters*

Public Waters are wetlands, water basins and watercourses of significant recreational or natural resource value in Minnesota as defined in Minnesota Statutes Section 103G.005. The DNR has regulatory jurisdiction over these waters.

The Public Water Inventory (PWI) shows Cedar Creek (T34N, R23W, Section 33) in the Proposed Route. The transmission line will span this feature. Great River Energy will obtain the required water crossing license from the DNR.

- *Impaired Waters*

There are no impaired waters in the area.

➤ *Floodplains*

The transmission line would cross the Cedar Creek floodplain.

➤ *Wetlands*

Wetlands are important resources for flood abatement, wildlife habitat, and water quality. Wetlands that are hydrologically connected to the nation's navigable rivers are protected federally under Section 404 of the Clean Water Act. In Minnesota, wetlands are also protected under the Wetland Conservation Act (WCA).

The United States Fish and Wildlife Service (USFWS) produced maps of wetlands based on aerial photographs and NRCS soil surveys starting in the 1970s. These wetlands are known as the National Wetland Inventory (NWI). Wetlands listed on the NWI may be inconsistent with current wetland conditions; however, NWIs are the most accurate and readily available database of wetland resources within the Project area and were therefore used to identify wetlands along the Proposed Route. These maps show that there are a couple of small wetlands in the East Bethel portion of the project.

Impacts and Mitigation

No impacts to groundwater in the Project area are anticipated.

The Proposed route does not cross any of the lakes in the area, and no navigable waters will be affected by the Project.

Because all rivers, streams, and ditches will be spanned by transmission structures, no structures will be located within these features and no direct impacts to rivers, streams, or ditches are anticipated. Indirect impacts could include sedimentation reaching surface waters during construction due to ground disturbance by excavation, grading, construction traffic, and dewatering of holes drilled for transmission structures. This could temporarily degrade water quality due to turbidity. These impacts will be avoided and minimized using appropriate sediment control practices and Best Management Practices (BMPs).

Once the Project is completed, there would be no significant impact on surface water quality because wetland impacts will be minimized and mitigated, disturbed soil will be restored to previous conditions or better, and the amount of land area converted to an impervious surface will be small.

Sound water and soil conservation practices will be maintained during construction and operation of the Project to protect topsoil and adjacent water resources and minimize soil erosion. These practices may include:

- Containment of stockpiled material away from stream banks and lake shorelines.
- Stockpiling and respreading topsoil.
- Reseeding and revegetating disturbed areas.
- Implementing erosion and sediment controls.
- Structures and disturbed areas will be located as far away from rivers and streams as practicable.

The Project should have no impact on the impairment status of the waters in the Project area. There is potential to increase turbidity due to increase sedimentation from construction activities; however, appropriate erosion and sediment control measures will be implemented to avoid or minimize such impacts.

Construction of the transmission line is not expected to alter existing water drainage patterns or floodplain elevations due to the small cross section per pole and their relatively wide spacing.

Temporary impacts to wetlands may occur if they need to be crossed during construction of the transmission line. No staging or stringing set up areas will be placed within or adjacent to water resources, as practicable. Wetland impact avoidance measures that will be implemented during design and construction of the transmission line include spacing and placing the power poles at variable distances to span and avoid wetlands, where possible. When it is not possible to span the wetland, several measures will be utilized to minimize impacts during construction:

- When possible, construction in wetlands will be scheduled during frozen ground conditions.
- Construction crews will attempt to access the wetland with the least amount of physical impact to the wetland (*i.e.*, shortest route) and will access poles near/in wetlands from roadways whenever possible to minimize travel through wetland areas.
- The structures will be assembled on upland areas before they are brought to the site for installation, when practicable.
- When construction during winter is not possible, construction mats (wooden mats or the Dura-Base Composite Mat System) will be used to protect wetland vegetation. Additionally, all-terrain construction vehicles may be used, which are designed to minimize soil impact in damp areas.

Permanent impacts to wetlands occur where structures must be located within wetland boundaries. For the East Bethel portion of the Project, it is estimated that approximately no structures would be placed within wetlands.

➤ *Natural Vegetation*

The Project is located in North Central Hardwoods Ecoregion, which has undulating sandy plain with wetlands, some lakes, small grains, row crops, woodlands, and suburban development. This ecoregion is transitional between the predominantly forested Northern Lakes and Forests to the north and the agricultural ecoregions to the south.⁵

Impacts and Mitigation

No impacts to native vegetation are anticipated. Poles will not be placed in areas where native vegetation has been identified.

See Appendix A for impacts due to tree clearing along the transmission line right of way.

⁵ ftp://ftp.epa.gov/wed/ecoregions/mn/mn_map.pdf and <http://www.hort.purdue.edu/newcrop/cropmap/ecoreg/descript.html#51>

➤ *Flora & Fauna/Rare and Unique Natural Resources*

- Threatened and Endangered species

The USFWS website indicated that there are no threatened and endangered species present in Anoka County.⁶

- Rare and Unique Features

Rare and unique natural features include federal and state protected and rare species, remnant areas of native vegetation, significant natural resource sites, and significant natural features.

The DNR was also contacted requesting information on the possible effects of the proposed Project on rare and unique features in the Project area. The occurrences of these features were pulled from the DNR Heritage database and are shown on Figure 6-11. The majority of the features affected are animals. This includes the Red Shouldered Hawk, Blanding Turtle, Sand Hill Crane and various insects.

Impacts and Mitigation

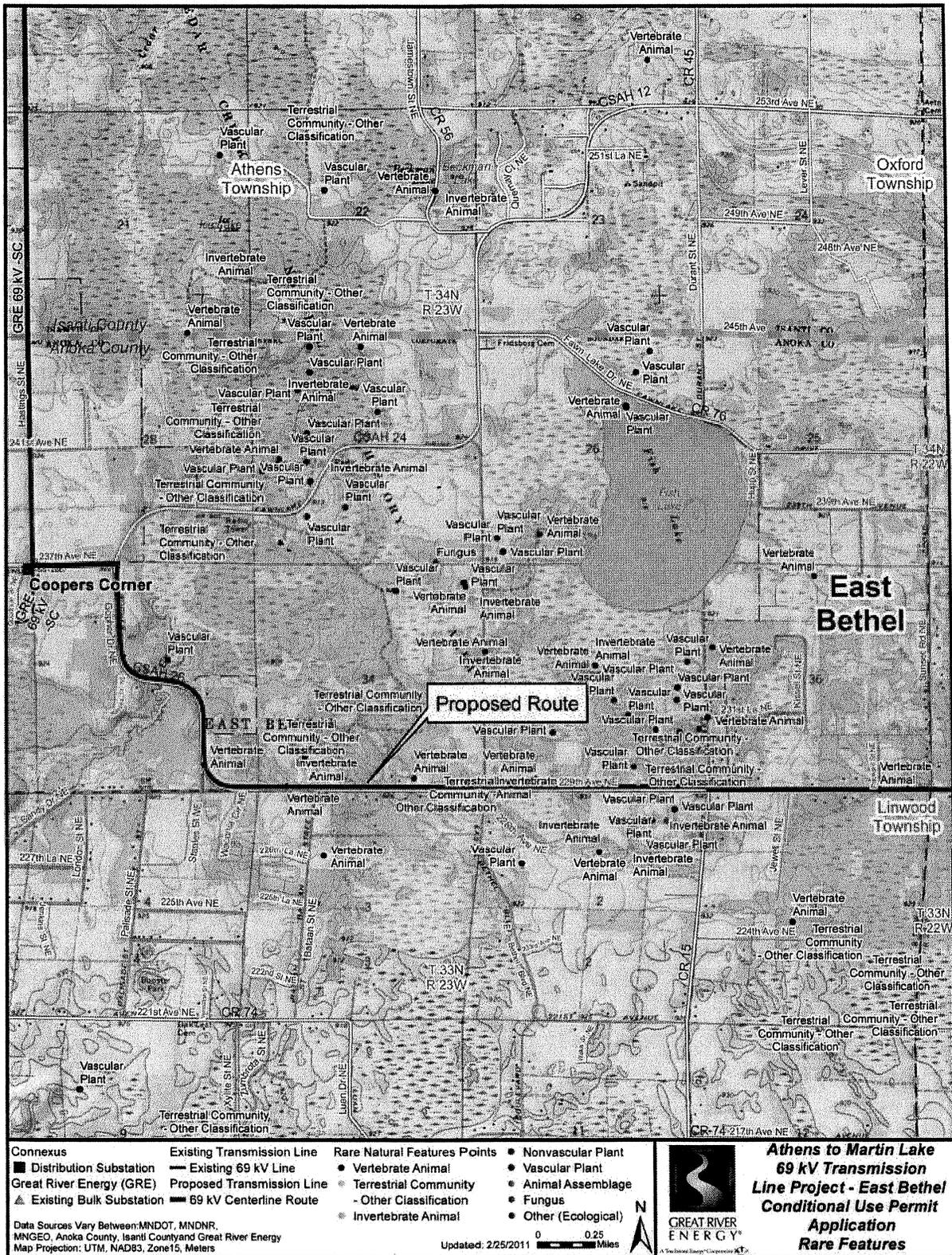
There is a potential for the temporary displacement of wildlife and loss of habitat with the new transmission line. Wildlife could be impacted within the immediate area of construction. The distance that animals will be displaced will depend on the species. Impacts to wildlife are anticipated to be short-term, as the transmission line will be constructed parallel to existing rights of way. Additionally, these animals will be typical of those found in forested and agricultural settings, and will not incur population level effects due to construction. When possible, impacts to wooded areas along the Proposed route will be avoided.

Raptors, waterfowl, and other bird species may also be affected by the construction and placement of the transmission lines. Avian collisions are a possibility after the completion of the transmission line and could potentially increase as a result of the proposed line. Waterfowl are typically more susceptible to transmission line collision, especially if the line is placed between agricultural fields that serve as resting areas or along major migration flyways.

⁶ US Fish and Wildlife Webpage Endangered Species.
<http://www.fws.gov/Midwest/Endangered/LISTS/minnesot-cty.html>

Additionally, large birds, such as raptors are sometimes impacted by power lines through electrocution. This is generally an electric distribution issue, as electrocution may occur when birds with large wingspans come in contact with either two conductors, or a conductor and grounding device. Great River Energy's 69 kV transmission line designs for this Project will create greater separation between conductors and grounding devices to minimize electrocution hazards. Great River Energy will address other avian issues by working with the DNR and USFWS to identify any areas that may require marking transmission line shield wires to reduce the likelihood of collisions.

Figure 6-11 Rare Features in the Project Area



Physiographic Features

➤ *Topography*

The topography of Anoka County is the result of glacial deposition. The area is characterized by nearly level topography. The elevation ranges from approximately 916 to 931 feet mean sea level.⁷

Impacts and Mitigation

Construction of the Project will not alter the topography along the route; therefore, no mitigation is necessary or proposed.

➤ *Geology*

The Anoka Sand Plain Subsection consists primarily consists of a flat, sandy lake plain and terraces along the Mississippi River. Much of the sand plain, once thought to be fluvial, is probably lacustrine in origin.

Surface glacial deposits are usually less than 200 feet thick. The subsection is underlain by Cambrian and Ordovician dolomite, sandstone, and shale.

Soils are derived primarily from fine the sands of the sandy plain. Most of these sandy soils are droughty, upland soils (Psamments), but there are organic soils (Hemists) in the ice block depressions and tunnel valleys, and poorly drained prairie soils (Aquolls) along the Mississippi River. Seventy to eighty percent of the soils are excessively well drained sands and another twenty percent are very poorly drained.

Sod and vegetable crops are extensively grown on drained peat and muck areas. Urban development is rapidly expanding into the subsection. Species associated with oak openings and oak barrens are found to be abundant in the sandplain although large areas of opening and barrens are uncommon.⁸

Impacts and Mitigation

Construction of the Project will not alter the geology along the route; therefore, no mitigation is necessary or proposed.

➤ *Soils*

This region is made up of excessively drained sand and sandy loam soils on landforms that include broad sandy lake plain, which contains small dunes, kettle lakes, and tunnel valleys. Topography is level to gently rolling. There are small inclusions of ground moraine and end moraine. The other important landform is a series of sandy terraces associated with historic levels of the Mississippi River.

⁷ Park Rapids, MN Map. <http://terraserver-usa.com>

⁸ <http://www.dnr.state.mn.us/ecs/222Mc/index.html>

Terraces are also associated with major tributaries of the Mississippi.⁹ Soils in the Project area (Figure 6-12) tend to be fine sands and fine sandy loams.¹⁰

Impacts and Mitigation

Potential impacts of construction are compaction of the soil and exposing the soils to wind and water erosion. Impacts to physiographic features should be minimal during and after installation of the transmission line structures and substation, and these impacts will be short term. There should be no long-term impacts resulting from this Project.

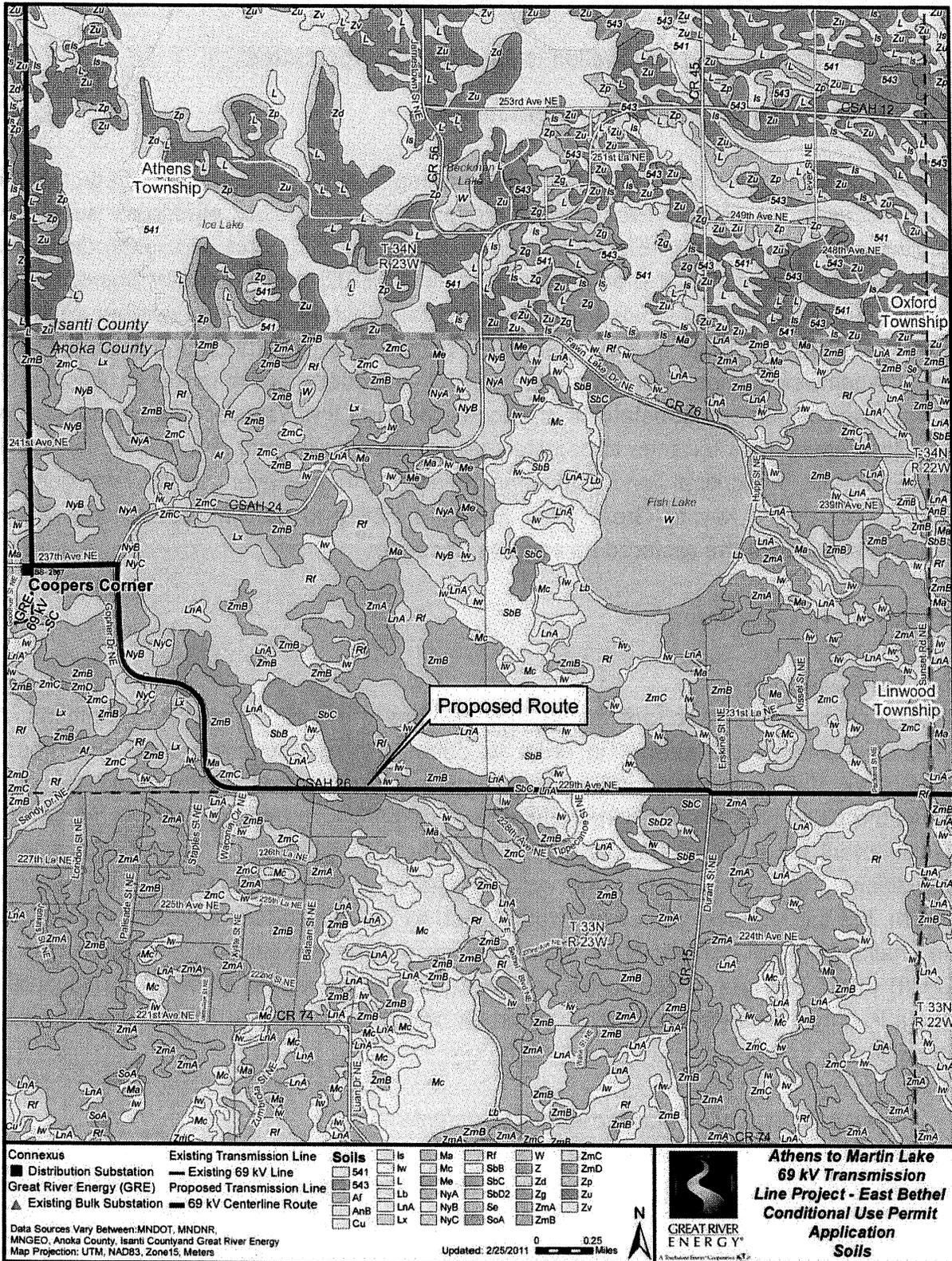
Soils will be revegetated as soon as possible to minimize erosion or some other method used during construction to prevent soil erosion.

If over an acre of soil will be disturbed during the construction of the transmission line, Great River Energy will obtain a NPDES construction stormwater permit from the MPCA and will prepare a SWPPP. Erosion control methods and BMPs will be utilized to minimize runoff during line construction.

⁹ <http://www.dnr.state.mn.us/ecs/222Mc/index.html>

¹⁰ <http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx>

Figure 6-12 Soil Types in the Project Area



6.2.3 Engineering/Construction considerations

For general engineering information, please refer to Appendix C.

Adherence to sound engineering practices

Great River Energy always adheres to sound engineering practices for safety, reliability and accessibility. Great River Energy closely follows industry standards such those outlined in the National Electrical Safety Code (NESC) and recommendations by Institute for Electrical and Electronics Engineers (IEEE) and American Society of Civil Engineers (ASCE). Power lines are designed to withstand extreme weather conditions and every effort is made to ensure safety in construction, operation and maintenance of our transmission lines. For example, careful consideration is made to ensure that transmission lines and substations are accessible and that vehicles can be maneuvered to allow regular maintenance to be safely and quickly performed. The same accessibility requirements are critical for maintaining reliability. In the event of an emergency or outage, access is key to Great River Energy's ability to quickly repair equipment so electric service can be restored as soon as possible.

Engineering considerations

➤ *Soil Conditions*

Soil conditions are important for several reasons. In soft or marshy conditions, the poles need to be set deeper in order to obtain the appropriate ground line moment (adequate stability to withstand maximum pulling force of line on pole) and support to keep the poles standing in extreme weather conditions and spring thaw. The standard embedment for a wood pole is 10% of the pole height plus 2 feet in average soil conditions. In the event that the soil conditions are not suitable for a considerable depth, the use of "side guy wires" would need to be utilized for the stability of the pole. In challenging soil conditions, a steel pole on a concrete caisson (straight sided drill shaft) foundation may need to be set to ensure for adequate stability. For Route A, there is only a small section near the creek crossing that would be of concern for soil conditions.

➤ *Point of Inflection / Required Angle Structures*

A structure at a point that causes the line to change direction is called a Point of Inflection (PI). Any PI over ½ degree of direction change requires guy wires on the pole to control the deflection and increase the strength of the pole from the bending moments incurred. In the event that there is not room for guy wires and anchors, an angle structure would need to be designed to handle the deflection and strength requirements. This can be a laminated wood pole or in extreme cases, a steel pole on a concrete caisson foundation. For Route A, there are four 90 degree turns that would require significant anchoring. Guyed structures would also be required on the two structures closest to the angle, each time the line changed from one side of the road to

the other (which has yet to be determined). Approximately three smaller angle structures may be required to follow along the curves of the roadways.

➤ *Structure Size*

Structures are designed to meet ground clearances as defined by the NESC. Great River Energy also adds additional feet to this clearance to account for hard packed snow and to anticipate any future environmental changes that may naturally occur. The standard clearance for a 69 kV transmission line is 23.5 feet. This clearance, along with the standard phase to phase (wire to wire) clearance as defined by the NESC, dictates the minimum structure height. Also, the longer the span (the distance between the poles) can cause larger sag in the conductors and affect the height of the pole. The addition of distribution underbuild on the poles under the phase wires adds to spacing requirements and adds to the pole height. The anticipated pole height for this route is 60 feet to 75 feet above ground level for structures that carry just the 69 kV phases and 70 feet to 80 feet above ground level for structures that have the distribution phases underbuilt under our 69 kV phases. Please see Figure 6-13 as an example of the proposed line with underbuild).

➤ *Span Lengths*

As stated above, span length directly impacts the structure size. On this route, structures that have distribution underbuild on the pole have a maximum span length of 300 feet. To reduce the number of poles, the spans are designed to be between 250 feet and 300 feet. Terrain may dictate a shorter span length in some areas. For structures with the 69 kV transmission phases only, spans can be longer, but are usually limited to around 400 feet due to the strength of the insulators that are supporting the conductor at the poles. In extreme cases, the terrain or an environmental permit may dictate a longer span, such as a water crossing. In those instances, an H-Frame or two-pole structure would need to be utilized to span 700 feet to 1000 feet. There is a potential for one of these spans on Route A as it crosses the creek on Gopher Drive NE.

➤ *Total Line Length*

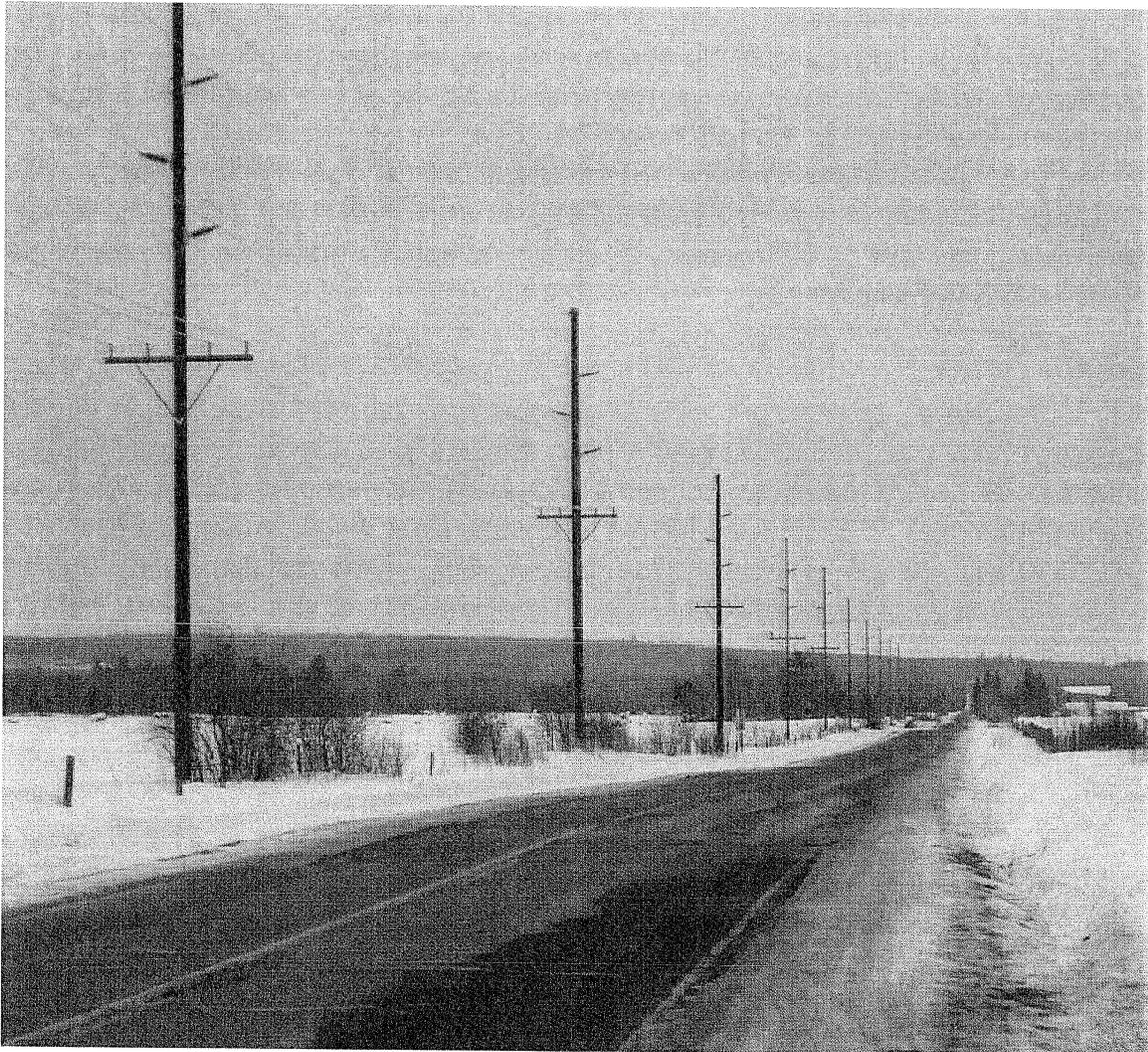
Total line length is also an important consideration. Additional line length adds more structures and cost to the project. The total length of Route A in East Bethel is approximately 5.8 miles.

➤ *Special Construction Requirements*

Great River Energy typically sites transmission lines along roadways to maintain access to those transmission lines at any time. Transmission lines that are sited in wet areas or cross country through fields and/or wetlands require special construction requirements. The most economical and environmental situation is to construct during winter, so the ground is frozen and damage is minimal. In wetland areas, winter construction is the only means for heavy construction vehicles to be supported. In the event Great River

Energy is unable to construct during frozen ground conditions, construction mats would need to be utilized to build a platform for support. This route would have the lowest wetland acreage at approximately 2.15 acres.

Figure 6-13 Example of Proposed Line with Distribution Underbuild



➤ *Cost Effectiveness*

Great River Energy does not own the land in fee simple upon which the transmission line is constructed but, generally acquires easements from the property owners.

- **Easement Acquisition:** Route A would be approximately 10.4 miles in total length with approximately 5.8 miles within East Bethel. There are easements in place for the one mile of existing transmission line from the Coopers Corner Substation to the Athens Township/East Bethel border. Therefore, only 4.8 miles of new easements would be required, which translates to approximately 22 acres of new easements for the line within East Bethel (34 acres total).

Constructing along Route A also would provide savings to Connexus member-customers because the existing Connexus Energy distribution line that runs along CSAH 26 is in need of upgrading. Current calculations indicate that under high demand circumstances, the line likely would not be reliable in providing sufficient electricity to users.

Therefore, by upgrading the line and placing it on Great River Energy structures, Great River Energy would cover a portion of the costs that would otherwise be borne by Connexus were they to upgrade the line themselves. Plus, Great River Energy would be responsible for future easement maintenance such as tree pruning and structure repair/replacement.

- **Electric and Magnetic Fields (EMF)**
As stated in the Executive Summary, EMF exist wherever electricity is produced or used and people are exposed to these fields every day. The *2002 Minnesota Department of Health White Paper on Electric and Magnetic Field Policy and Mitigation Options* states (see Page 36): "The Minnesota Department of Health concludes that the current body of evidence is insufficient to establish a cause and effect relationship between EMF and adverse health effects. However, as with many other environmental health issues, the possibility of a health risk from EMF cannot be dismissed."

The proposed transmission line will have a magnitude of electric field density that is well below the standard established by the Minnesota Environmental Quality Board that EMF should not exceed 8 kV/m at one meter above ground.

EMF has been studied for more than 30 years by governmental and scientific institutions all over the world. On balance, scientific evidence does not indicate that exposure to EMF causes adverse health outcomes. For the Athens to Martin Lake project, the maximum magnetic field at the center line of the proposed transmission line is calculated to be 16.65 mG when measured one meter (3.28 feet) above the ground. As you move to the edge of the right of way the magnetic field value drops off to 8.036 mG. The state of Minnesota does not

have any regulation on the strength of magnetic fields from very low frequency electric power lines. See Appendix C for further information regarding EMF.

- **Environmental permits:** Route A would involve conducting biological surveys and acquiring a DNR license for the public water crossings. The Corps would also require permits for discharge of fill in wetlands. The total cost would be approximately \$12,000.
- **Construction and Planning Costs:** Route A is estimated to cost \$3,677,700 to construct and approximately \$6,537,000 in total.

APPENDIX A

GENERAL RIGHT OF WAY INFORMATION

GENERAL RIGHT OF WAY INFORMATION

Right of Way Requirements

Transmission line right of way widths depend on conductor blowout (distance the wire moves when it is blown in the wind) and the recommended clearances to obstructions along the route. For this proposed transmission line, if placed along roadways, approximately 70 feet of right of way will be required, 35 feet on either side of the transmission centerline. If the line is routed cross country, approximately 100 feet of right of way will be needed in wooded areas. Along roads, the transmission line structures will be placed approximately three feet outside the road right of way, in which case easements approximately 38 feet wide will be needed from the property owner adjacent to the road.

Additional right of way may be required for longer spans or special design requirements based on a final survey.

Right of Way Acquisition Procedures

When a route permit is issued, land rights acquisition will commence following a survey and preliminary determination of the transmission centerline. As a general practice, landowners will be contacted to review project details and to discuss the initial phase of the transmission project, including survey and soil investigation. Upon completion of the survey and preliminary design, landowners will be contacted and easement/fee acquisition negotiations will commence.

During the acquisition phase of the project, landowners are given a copy of the conveyance documents, which generally include easements, deeds, structure design or photos, an offer of compensation and a plan showing the proposed transmission line relative to the landowner's property. In addition to permanent easements necessary for the construction the line, temporary easements may be obtained from certain landowners for temporary construction, access, or staging areas for temporary storage of poles, vehicles, or other related items. Landowners will be notified in the event site access for soil boring is required to determine soil suitability in areas where certain soil characteristics may require special transmission structure design.

Tree Clearing and Staking

After land easements have been secured, landowners will be notified of the initial construction phase of the project including schedules, ingress and egress to and from the planned facility, tree and vegetation removal, damage mitigation, and other related construction activities.

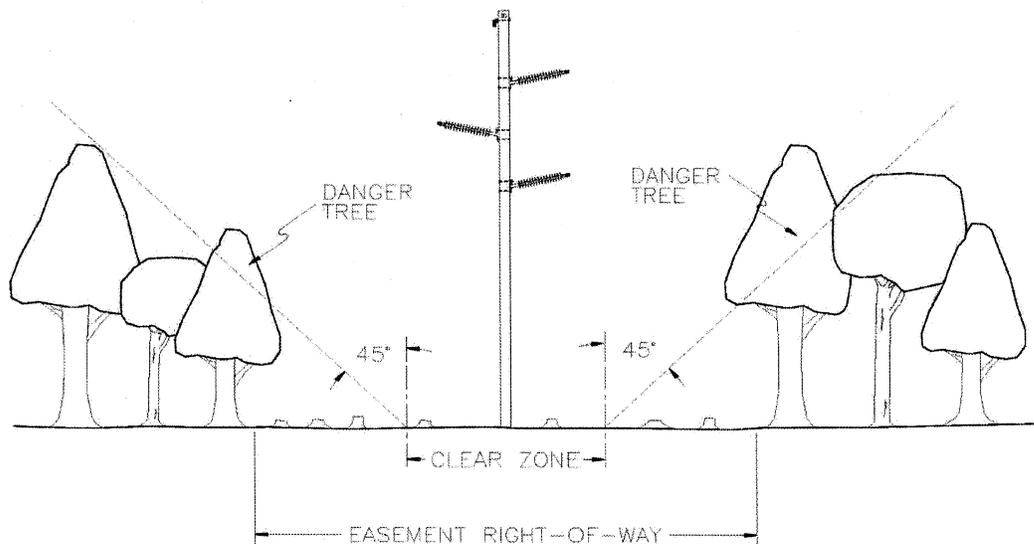
The first phase of construction activities will involve survey staking the centerline of the new transmission line, followed by removal of trees and other vegetation from

the right of way. Since 1996, three large-scale electric grid failures in the U.S. and Canada have been caused in part by trees, including the 2003 East Coast blackout that affected 50 million people. The federal government has since developed mandatory reliability standards including strict requirements for vegetation management to help prevent problems caused by tree contact with high voltage transmission lines. In turn, utilities have enhanced their vegetation management programs and begun taking a more proactive approach to maintaining clear zones around power lines.

As a general practice, low-growing brush or tree species are allowable at the outer limits of the easement area. Taller tree species that endanger the safe and reliable operation of the transmission facility are removed. Trees beyond the easement area that are in danger of falling into the energized transmission line must be removed to eliminate the hazard as shown in Figure A-1.

The second phase of construction will involve staking the location of structures, followed by structure installation and stringing of conductor wire.

Figure A-1 Standard Tree Removal Practices



Right of Way Restoration

Upon completion of construction activities, landowners will be contacted to determine whether or not construction damages have occurred. Areas that sustain construction damage will be restored as close to their pre-construction condition as possible. Landowners will be notified of the completion of the project, and asked to report any outstanding construction damage that has not been remedied or any other issue related to the construction of the transmission line. Once construction cleanup is complete and construction damages have been successfully mitigated, landowners will be sent a final contact letter signaling the close of the project and requesting notification of any outstanding issues related to the project.

APPENDIX B

GENERAL ENVIRONMENTAL INFORMATION

GENERAL ENVIRONMENTAL INFORMATION

Public Health and Safety

Proper safeguards would be implemented for construction and operation of the transmission facilities. We closely follow industry standards such as those outlined in the National Electrical Safety Code (NESC) and recommendations by Institute for Electrical and Electronics Engineers (IEEE) and American Society of Civil Engineers (ASCE). Power lines are designed to withstand extreme weather conditions and every effort is made to ensure safety in construction, operation and maintenance of our transmission lines. These standards are used for clearance to the ground, clearance to crossing utilities, strength of materials and right of way widths. Construction crews and/or contract crews would comply with these standards regarding installation of facilities and standard construction practices. Great River Energy's established safety procedures as well as industry safety procedures would be followed during and after installation of the transmission line, including clear signage during all construction activities.

The project would be equipped with protective devices to safeguard the public if an accident occurs and a structure or conductor falls to the ground. Great River Energy's existing substations are already equipped with breakers and relays located where existing 69 kV transmission lines connect to the substations. The Martin Lake and Cooper's Corner Substations include these same protections. The protective equipment is designed to de-energize the transmission line should such an event occur. Once design details are available, Great River Energy will ensure that Federal Aviation Administration requirements for the project are met.

Impacts and Mitigation

No impacts to public health and safety are anticipated as a result of the project. Great River Energy will ensure that safety requirements are met during the construction and operation of the facility. Additionally, when crossing roads or railroads during stringing operations, guard structures will be utilized to eliminate traffic delays and provide safeguards for the public. With implementation of these safeguards and protective measures, no additional mitigation should be needed.

Displacement

The transmission line will be designed to avoid displacement of existing residences or businesses.

Public Services

Public services provided in the area (i.e., police, fire protection, waste collection, etc.) will not be affected by the proposed transmission project.

Noise

The conductors on the transmission line are a potential source of audible noise from the project. The following information is based on studies on a 115 kV transmission line that would be similar in audible noise for a 69 kV transmission line.

Noise Measurement

Noise levels are measured on a logarithmic scale in units of decibels. Because human hearing is not equally sensitive to all frequencies of sound, it is customary to apply a weighting factor so the overall measured sound pressure level will relate as closely as possible to the ear's perception of the sound. The A-weighting network is typically used and the measured sound level is expressed in units of decibels A-weighted (dB(A)). In general terms, a noise level change of 3 dB(A) is imperceptible to human hearing. A 5 dB(A) change in noise level is clearly noticeable. A 10 dB(A) change in noise level is perceived as a doubling of noise loudness. Estimates of some common noise sources are presented in Table A-1.¹¹

Table A-1 Common Noise Levels

| Sound Level db(A) | Noise Source |
|-------------------|------------------------------|
| 140 | Jet Engine (at 25 meters) |
| 130 | Jet Aircraft (at 100 meters) |
| 120 | Rock and Roll Concert |
| 110 | Pneumatic Chipper |
| 100 | Jointer/Planer |
| 90 | Chainsaw |
| 80 | Heavy Truck Traffic |
| 70 | Business Office |
| 60 | Conversational Speech |
| 50 | Library |
| 40 | Bedroom |
| 30 | Secluded Woods |
| 20 | Whisper |

¹¹ *A Guide to Noise control in Minnesota*, Minnesota Pollution Control Agency (1999). <http://www.pca.state.mn.us/waste/pubs/noise.pdf>

Noise Regulations

The Noise Control Requirement states that noise contributors shall comply with the Noise Area Classifications (NAC) established in Minnesota Rules part 7030.0040,¹² which are shown in Table A-2.

The NAC is based on land use activity at the location of the receiver.¹³ For example, household units are defined under NAC (1), bus passenger terminals are defined under NAC (2), and transportation right of way is defined under NAC (3).¹⁴ NAC (1) also includes other noise-sensitive areas such as medical and other health services, religious services, educational services and camping areas.¹⁵

Table A-2 Noise Area Classifications¹⁶
Day (0700-2200) Night (2200-0700)

| NAC | L ₅₀ | L ₁₀ | L ₅₀ | L ₁₀ |
|-----|-----------------|-----------------|-----------------|-----------------|
| 1 | 60 | 65 | 50 | 55 |
| 2 | 65 | 70 | 65 | 70 |
| 3 | 75 | 80 | 75 | 80 |

Minnesota Rules part 7030 uses the decibel A-weighting network and applies statistical sound levels (L-Level Descriptors) to account for changes in sound levels over a period time as shown in Table A-2. The L₁₀ is defined as the noise level exceeded 10 percent of the time, or for six minutes in an hour. The L₅₀ is the noise level exceeded 50 percent of the time, or for thirty minutes in an hour. The L₅ is the noise level exceeded five percent of the time, or for three minutes in an hour.

Conductor Noise

Audible noise from electrical conductors is due to point source corona (minor breakdown of air insulating a conductor) and is a function of conductor voltage gradient. Noise emission from a transmission line occurs during heavy rain and wet conductor conditions. In foggy, damp, or rainy weather conditions, power lines can create a crackling sound due to the small amount of electricity ionizing the moist air near the wires. During heavy rain, the general background noise level is usually greater than the noise from the transmission line and few people are out near the line at these times. As a result, people do not normally notice audible noise from a transmission line during heavy rain. Transmission lines will typically produce audible noise at household background levels during light rain, dense fog, snow and other times when there is moisture in the air. During dry weather, audible noise from transmission lines is barely perceptible.

The proposed 69 kV line is a lower voltage that typically does not have an issue with corona and should not exceed approximately 12 dB(A) (essentially inaudible) at the edge of the right of way during fair weather conditions.

¹² Minn. R. 7030.0030 (2003).

¹³ Minn. R. 7030.0050 (2003).

¹⁴ Minn. R. 7030.0050 (2003).

¹⁵ Minn. R. 7030.0050 (2003).

¹⁶ Minn. R. 7030.0040 (2003).

The industry standard for utilities is calculated based on L₅₀ and L₅ for audible noise emissions. The worst-case scenario is when the transmission line is exposed to heavy rain conditions (one inch per hour). Anticipated levels for heavy rain conditions for 115 kV lines based on the results from the Bonneville Power Administration Corona and Field Effects Program version 3 (U.S. Department of Energy, Bonneville Power Administration (BPA), Undated) are listed in Table A-3.

Table A-3 BPA Program Results – Heavy Rain Case

| L ₅ | L ₅₀ | NAC Category |
|----------------|-----------------|-----------------------------|
| 17.7 dB(A) | 14.2 dB(A) | 1 (edge of right of way) |
| 18.8 dB(A) | 15.3 dB(A) | 3 (directly under the line) |

BPA has developed a general guideline based upon public response to alternating current (AC) transmission line audible noise. The guideline indicates that numerous complaints can be expected if the line noise exceeds approximately 58.5 dB(A) and that few complaints should be expected if audible noise is limited to 52.5 dB(A). The calculated values for the proposed project are well below the guidelines mentioned above and audible noise will be barely perceptible during fair weather.

Impacts and Mitigation

The calculated noise values for the proposed project are well below the Minnesota regulatory limits. No impacts are anticipated; therefore, no mitigation is necessary or proposed.

Air Quality

The only potential air emissions from a transmission line result from corona, which may produce ozone and oxides of nitrogen. This can occur when the electric field intensity exceeds the breakdown strength of the air. For a 69 kV transmission line, the conductor surface gradient is typically below the air breakdown level. As such, it is unlikely that any measurable emissions would occur from the conductor surface. No impacts to air quality are anticipated due to the operation of the transmission line.

Temporary air quality impacts caused by construction vehicle emissions and fugitive dust from right of way clearing and construction are expected to occur. Exhaust emissions from diesel equipment will vary during construction, but will be minimal and temporary. The magnitude of emissions is influenced heavily by weather conditions and the specific construction activity taking place. Appropriate dust control measures will be implemented.

Aesthetics

In general, aesthetic impacts are dependent on the response of the viewer. Viewer response is based on the sensitivity and exposure of the viewer to a particular viewshed. Sensitivity relates to the magnitude of the viewer's concern for the viewshed, while exposure is a function of the type, distance, perspective and duration of the view. Sensitivity can be described in terms of "levels of sensitivity." Three levels of sensitivity can be used to identify potential impact areas:

- Low Visual Sensitivity – motorists viewing transmission lines from the perspective of the roads they traverse.
- Moderate Visual Sensitivity – recreationalists, such as bird watchers, hikers, hunters and other individuals whose activity is specific to and who are sensitive to a finite geographic location, and who are sensitive to man-made structures and their impact on the natural environment.
- High Visual Sensitivity – residential viewers who own property within 500 feet of the Proposed Route alignment and are concerned about the structures and how they impact the view of the natural environment.

The structures proposed for the transmission line will have a narrow profile that is designed to be less intrusive than other types of structures.

The transmission line will be visible along the roads that it parallels. In some areas it will replace an existing distribution line, which will be attached to the new poles. Homes within 500 feet of the Proposed Route alignment will be the most likely to have their viewshed affected by the construction of a transmission line, and are therefore considered potentially high visual sensitivity resources.

Impacts and Mitigation

Although the new transmission line will be a contrast to surrounding land uses, Great River Energy will work with landowners to identify concerns related to the proposed transmission line. In general, mitigation includes enhancing positive effects as well as minimizing or eliminating negative effects.

- Location of structures, right of way and other disturbed areas will be determined with input from landowners or land management agencies to minimize visual impacts.
- Care will be used to preserve the natural landscape; construction and operation will be conducted to prevent any unnecessary destruction of the natural surroundings in the vicinity of the work.
- New transmission lines will parallel existing transmission lines and other rights of way, to the extent that such actions are practical and do not violate sound engineering principles or system reliability criteria.
- Structures will be placed at the maximum feasible distance from highway, trail and water crossings, within limits of structure design.
- Landowners will be compensated for removal of mature yard trees, either through easement negotiations or on a separate basis.

APPENDIX C

GENERAL ENGINEERING INFORMATION

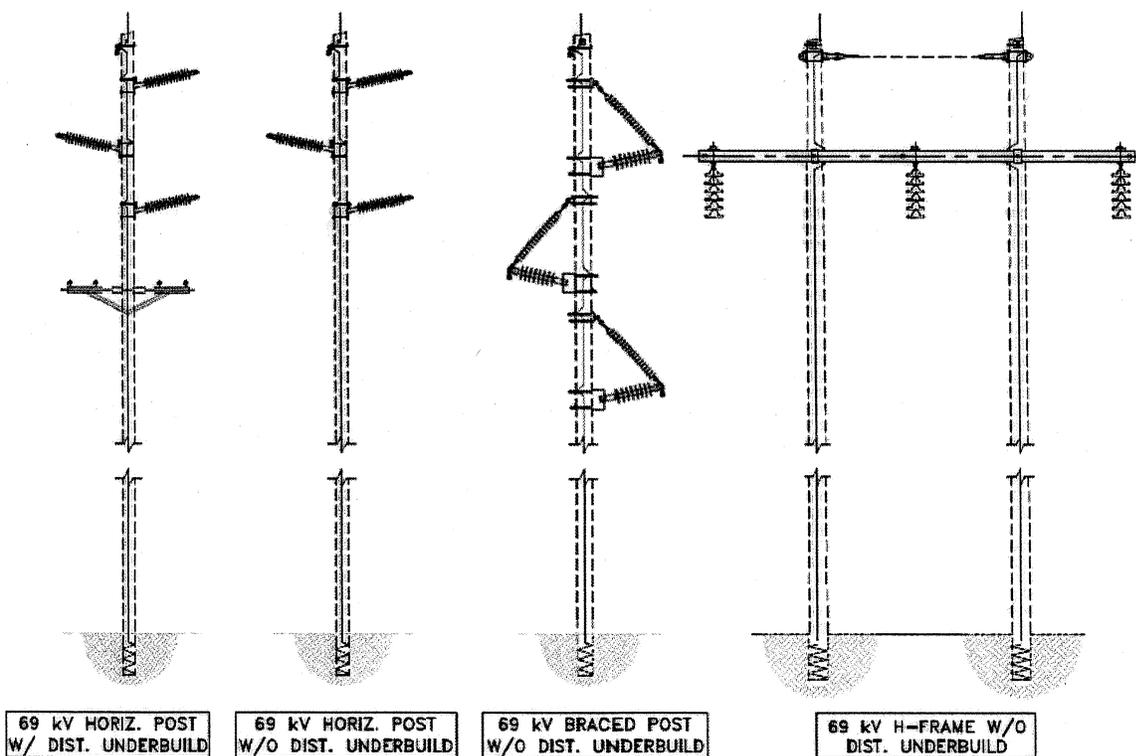
GENERAL ENGINEERING INFORMATION

Transmission Structures

Design voltage of the proposed transmission line is 69 kV (69,000 volts). The transmission line would be constructed with 477 aluminum conductor steel supported (ACSS). The line would use three single conductors and one shield wire (not bundled).

Typical structure types to be used for this project are shown in Figure A-2.

Figure A-2 Schematic Diagrams of Typical Great River Energy Structures



Single pole wood structures with horizontal post insulators would be the primary structure used for the project. Horizontal post insulators would be used unless design requires longer spans beyond the capability of the insulators, in which case a braced post design will be utilized to accommodate the increased loadings. Angles in the line will require guying (the use of anchors and support cables) or specialty structures. Where guying is not practicable, direct embedded laminated wood poles or steel poles on drilled pier concrete foundations would be utilized.

Structures, pole heights and spans would vary depending upon topography and environmental constraints (such as highway crossings, stream crossings, and required angle structures).

Single pole with underbuild design would be used in areas where the new transmission line will overtake Connexus distribution lines along CSAH 26.

H-Frame design structures may be used in areas with rugged topography and where longer spans are required to avoid or minimize impacts to wetlands or waterways.

Construction Considerations

The transmission line would be designed to meet the NESC and the Institute of Electrical and Electronics Engineers standards. The NESC recommends minimum safety standards for clearances over roadways, buildings, signs, light standards, and other facilities.

Great River Energy has company standards that meet or exceed the NESC requirements. Clearances over highways and roadways will exceed the 24.1 feet recommended by the NESC and may be limited by the Minnesota Department of Transportation (MnDOT) or local county highway permitting. Although the existing standards give recommended clearances over buildings, Great River Energy generally does not locate transmission lines directly over a building unless it cannot be avoided. Horizontal clearances to buildings, signs, light standards, and other installations will be determined by calculating the blowout of the wire, structure deflection, and safe electrical clearance from the line.

Material Requirements

The construction of the transmission line will require the use of renewable, recycled and non-renewable resources. The renewable resources consist of the wooden poles, the recycled resources consist of conductors and shield wires, and the non-renewable resources consist of insulators, and related hardware.

Electric and Magnetic Fields

Electric and Magnet Fields (EMF) exists wherever electricity is produced or used. EMF surrounds any electrical appliance or wire that is conducting electricity. Everyone is exposed to these fields. You are exposed at home when you turn on a lamp, e-mail a friend, or use an electric oven or microwave to cook your dinner. In all likelihood, you're surrounded by EMF from electrical equipment in your workplace, too.

The term "EMF" refers to electric and magnetic fields that are coupled together such as in high frequency radiating fields. For lower frequencies such as for power lines, EMF should be separated into electric fields and magnetic fields. Transmission lines operate at a frequency of 60 hertz (Hz) (cycles per second), which is in the non-ionizing portion of the electromagnetic frequency spectrum. Fields are considered ionizing when they

cause electrons to eject from their orbits around a normal atom, which typically occurs in frequency ranges of 10^{16} to 10^{22} Hz.

Electric Fields

The transmission line voltage generates an electric field, but the magnitude of the electric field rapidly decreases with distance from the conductor. The electric field is expressed in a unit of volts per meter. Although there is no state or federal standard for transmission line electric field exposures, the Minnesota Environmental Quality Board (EQB) developed a standard of a maximum electric field limit of 8 kV/m at one meter above ground. That standard, which has been used by the Public Utilities Commission in routing assessments, was implemented to mitigate serious hazard from shocks when touching large objects parked under transmission lines with voltage of 500 kV or greater.

Table A-4 summarizes the electric fields calculated for a 69 kV line.

Magnetic Fields

Magnetic fields result from the flow of electricity (current) in the transmission line. The intensity of the magnetic field is related to the current flow through the conductors. The magnetic field associated with the transmission line surrounds the conductor and rapidly decreases with the distance from the conductor. The value of the magnetic field density is expressed in the unit of gauss (G) or milligauss (mG).

Table A-5 summarizes the magnetic fields calculated for a 69 kV line.

Health Effects

The issue of potential health effects from EMF exposure has been studied for more than 30 years by government and scientific institutions all over the world. On balance, scientific evidence does not indicate that exposure to EMF causes adverse health outcomes. The 2002 Minnesota Department of Health White Paper on Electric and Magnetic Field Policy and Mitigation Options states (page 36): "The Minnesota Department of Health concludes that the current body of evidence is insufficient to establish a cause and effect relationship between EMF and adverse health effects. However, as with many other environmental health issues, the possibility of a health risk from EMF cannot be dismissed." ¹⁷

Great River Energy designs its lines in such a way that reduces the fields inherent to transmission lines whenever possible. This would be done by:

- Using the Modified Delta Configuration shown in Figure A-2. This proposed configuration will use the neighboring conductors to cancel out EMF.
- Maximize the distance of the conductors from the ground.
- Use a grounding wire that reduces the EMF and provide lightning protection.

¹⁷ Minnesota Department of Health. *EMF White Paper on Electric and Magnetic Field (EMF) Policy and Mitigation Options*. 2002; National Research Council. *Possible Health Effects of Exposure to Residential Electric and Magnetic Fields*. 1997; www.niehs.nih.gov/health/topics/agents/emf/.
<http://www.greatriverenergy.com/deliveringelectricity/faqs/mndohwhitepaperemf.pdf>

Great River Energy supports the continued research of EMF and potential health effects. Great River Energy provides financial contributions, primarily through membership in the Electric Power Research Institute (EPRI), for multiple programs that build on the previous studies and produce peer reviewed findings. Peer reviewed studies are the foundation for producing credible and valid results. It is a quality-control system that subjects all scientific discoveries, ideas and implications to scrutiny and critique by expert scientists who were not involved in the studies, before they become widely accepted. The Minnesota Department of Health's EMF white paper was based on peer reviewed research findings. Other peer reviewed findings are available from the following:

Sources:

- Minnesota Department of Health – Minnesota Interagency Working Group on EMF Issues: A White Paper on Electric and Magnetic Field Policy and Mitigation options. Find it at <http://www.greatriverenergy.com/deliveringelectricity/faqs/mndohwhitepaperemf.pdf>
- Wisconsin Public Service Commission white paper on EMF: www.psc.wi.gov/thelibrary/publications/electric/electric12.pdf
- National Institute of Environmental Health Sciences (NIEHS) booklet, EMF: Electric and Magnetic Fields Associated with the Use of Electric Power. Find it and other links at www.niehs.nih.gov/health/topics/agents/emf/
- Western Area Power Administration: Electric and Magnetic Fields: Facts. Find it at www.wapa.gov/newsroom/pdf/emfbook.pdf
- World Health Organization Fact Sheet Electro-magnetic fields and public health. Find it at www.who.int/mediacentre/factsheets/fs322/en/index.html. Find other general information on EMF at www.who.int/peh-emf/en/
- American Cancer Society: Information about unproven risks – non-ionizing radiation. Find it at <http://www.cancer.org/Cancer/CancerCauses/OtherCarcinogens/MedicalTreatments/radiation-exposure-and-cancer>

General Informational Websites

- | | |
|--|---|
| Electric Power Research Institute | http://emf.epri.com |
| National Cancer Institute (U.S.) | http://www.cancer.gov/cancertopics/factsheet/Risk/magnetic-fields |
| National Institute of Environmental Health Sciences (U.S.) | http://niehs.nih.gov/health/topics/agents/emf/ |
| World Health Organization | http://www.who.int/peh-emf/en/ |
| Wisconsin Public Service Commission EMF Publication | http://psc.wi.gov/thelibrary/publications/electric/electric12.pdf |

Summary

The proposed 69 kV line will have a maximum electric field density of approximately 0.211 kV/m at 15 feet offset of the centerline of the conductors, one meter above grade. This is well below the EQB guideline limit of 8 kV/m that has been imposed in other transmission line routing proceedings. Research on the biological effects from electric fields on animals and humans has shown no significant association with disease in humans.

The maximum magnetic field for the project is 16.65 mG at 5 feet offset of the centerline of the conductors with distribution underbuild in a maximum loading scenario. The scientific consensus is that studies have not shown a link between EMF and health effects.

**Table A-4 Calculated Electric Fields (kV/m) for Proposed 69 kV Transmission Line Designs
(3.28 feet above ground)**

| Scenario | Maximum Operating Voltage (kV) | Distance to Proposed Centerline | | | | | | | | | | |
|---|--------------------------------|---------------------------------|-------|-------|------|------|------|------|------|------|------|------|
| | | -300' | -200' | -100' | -50' | -25' | 0' | 25' | 50' | 100' | 200' | 300' |
| Final Operation No Distribution Underbuild Average Load | 72 | 0.00 | 0.01 | 0.03 | 0.09 | 0.13 | 0.10 | 0.17 | 0.08 | 0.03 | 0.01 | 0.00 |
| Final Operation No Distribution Underbuild Emergency Load | 72 | 0.00 | 0.01 | 0.03 | 0.09 | 0.13 | 0.10 | 0.17 | 0.08 | 0.03 | 0.01 | 0.00 |
| Final Operation with Distribution Underbuild Average Load | 72 | 0.01 | 0.01 | 0.03 | 0.09 | 0.13 | 0.10 | 0.20 | 0.08 | 0.03 | 0.01 | 0.00 |
| Final Operation with Distribution Underbuild Emergency Load | 72 | 0.01 | 0.01 | 0.03 | 0.09 | 0.13 | 0.10 | 0.20 | 0.08 | 0.03 | 0.01 | 0.00 |

Note: The maximum electric field for the proposed project is 0.211 kV/m, fifteen feet offset of centerline. This is well under the maximum limit of 8 kV/m that has been a permit condition imposed by EQB in other transmission line routing proceedings.

**Table A-5 Calculated Magnetic Fields (mG) for Proposed 69 kV Transmission Line Designs
(3.28 feet above ground)**

| Scenario | Maximum Operating Voltage (kV) | Distance to Proposed Centerline | | | | | | | | | | |
|---|--------------------------------|---------------------------------|-------|-------|------|-------|-------|------|------|------|------|------|
| | | -300' | -200' | -100' | -50' | -25' | 0' | 25' | 50' | 100' | 200' | 300' |
| Final Operation No Distribution Underbuild Average Load | 72 | 0.00 | 0.08 | 0.31 | 1.09 | 2.96 | 6.68 | 3.04 | 1.11 | 0.31 | 0.08 | 0.00 |
| Final Operation No Distribution Underbuild Emergency Load | 72 | 0.09 | 0.27 | 0.97 | 2.85 | 5.66 | 8.79 | 6.10 | 3.07 | 1.02 | 0.28 | 0.08 |
| Final Operation with Distribution Underbuild Average Load | 72 | 0.06 | 0.28 | 1.03 | 3.21 | 6.83 | 9.40 | 4.87 | 2.65 | 0.93 | 0.27 | 0.07 |
| Final Operation with Distribution Underbuild Emergency Load | 72 | 0.17 | 0.42 | 1.60 | 5.07 | 11.12 | 15.80 | 7.21 | 3.88 | 1.40 | 0.40 | 0.18 |

Note: The maximum magnetic field for the Project is 16.65 mG, five feet offset of the centerline.

Ozone and Nitrogen Oxide Emissions

Corona, which may produce ozone and oxides of nitrogen, consists of an ionic or electrical discharge from the surface of a transmission line conductor. It occurs when the electric field intensity or surface gradient on the conductor exceeds the breakdown strength of air. For a 69 kV transmission line, the conductor surface gradient is usually below the air breakdown level.

Some imperfection, such as loose conductor support hardware or water droplets, is necessary to cause corona. When corona occurs, it will be within a few centimeters or less immediately surrounding a conductor. Ozone also forms naturally in the lower atmosphere from lightning discharges and from reactions between solar ultraviolet radiation and air pollutants such as hydrocarbons from auto emissions.

The natural production rate of ozone is directly proportional to temperature and sunlight and inversely proportional to humidity. Therefore, humidity (or moisture), the same factor that increases corona discharges from transmission lines, inhibits the production of ozone. Ozone is a very reactive form of oxygen and combines readily with other elements and compounds in the atmosphere. Because of its reactivity, ozone is relatively short-lived.

On July 18, 1997 the Environmental Protection Agency (EPA) promulgated a regulation (62 Federal Register 38856) replacing the 1-hour ozone 0.12 parts per million (ppm) standard with an 8-hour standard of 0.08 ppm. The form of the 8-hour standard is based on the 3-year average of the annual fourth-highest daily maximum 8-hour average ozone concentrations measured at each monitor within an area. Calculations using the *BPA Corona and Field Effects Program Ver. 3¹⁸* for a standard single circuit 115 kV project, which would be greater than a 69 kV single circuit, predicted a maximum concentration of 0.006 ppm near the conductor and 0.002 ppm at one meter above ground during foul weather or worst case conditions with rain at one inch per hour. During a mist (rain at 0.01 inch per hour) the maximum concentrations decreased to 0.0002 ppm near the conductor and 0.0001 ppm at one meter above ground level. For both cases, the ozone levels are below EPA standards.

Most calculations for the production and concentration of ozone assume high humidity or rain with no reduction in the amount of ozone due to oxidation or air movement. These calculations would therefore overestimate the amount of ozone that is produced and concentrated at ground level. Studies designed to monitor the production of ozone under transmission lines have generally been unable to detect any increase due to the transmission line facility.

Radio/TV Interference

Corona discharges from the conductors of a transmission line can occur when the voltage gradient in the vicinity of the conductors exceeds the breakdown strength of air and can result in audible noise. In addition, the discharges can also result in radio

¹⁸ United States Department of Energy, Bonneville Power Administration. Corona and Field Effects Program Version 3.0 Computer Program. Vancouver, WA.

frequency (RF) noise. Corona becomes more of an issue as the line operating voltage increases; the most significant factor with respect to radio and television interference is not the magnitude of the transmission line –induced RF noise, but how the transmission line-induced RF noise compares with the strength of the broadcast signal. Very few radio noise problems have resulted from existing 69 kV transmission lines, because broadcast signal strength within a radio station's primary coverage area is great enough that adequate signal to noise ratios are maintained.

If radio interference from transmission line corona does occur with AM radio stations presently providing good reception, satisfactory reception can be obtained by appropriate modification of (or addition to) the receiving antenna system.

Interference with FM broadcast station reception is generally not a problem because:

- Corona-generated RF noise currents decrease in magnitude with increasing frequency and are quite small in the FM broadcast band (88-108 megahertz), and
- Excellent interference rejection properties inherent in FM radio systems make them virtually immune to amplitude type disturbances.

A two-way mobile radio located immediately adjacent to and behind a large metallic structure (such as a steel tower) may experience interference because of signal blocking effects. Movement of either mobile unit so that the metallic structure is not immediately between the two units should restore communications. This would generally require a movement of less than 50 feet by the mobile unit adjacent to a metallic tower. Noise in the frequency range of cellular type phones is almost nonexistent and the technology used by these devices is superior to that used in two-way mobile radio.

As in the case with AM radio interference, corona-generated noise could cause interference with TV picture reception because the picture is broadcast as an AM signal. The level of interference depends on the TV signal strength for a particular channel (TV audio is an FM signal typically not impacted by transmission line RF noise).

Due to the higher frequencies of the TV broadcast signal (54 MHz and above), 69 kV transmission lines seldom result in reception problems within a station's primary coverage area. In the rare situation that the proposed transmission line would cause TV interference within a broadcast station's coverage area where good reception is presently obtained, Great River Energy will work with the affected party to correct the problem. Usually any reception problem can be corrected with the addition of an outside antenna.

TV picture reception interference can also be the result of a transmission structure blocking the signal to homes in close proximity to a structure. Because the structures proposed for this project will primarily be wood, this is unlikely to occur. However measurements can be made to verify whether a structure is the cause of reception problems. Reception problems can usually be corrected with the addition of an outside antenna, an amplifier, or both.

Loose and/or damaged hardware may also cause television interference. If television or radio interference is caused by or from the operation of the proposed 69 kV line within a broadcast station's primary coverage area where good reception is presently obtained, Great River Energy will inspect and repair any loose or damaged hardware in the transmission line, or take other necessary action to restore reception to the present level.

Because the conversion to digital television is very recent, no data are available at this time to assess the effects of transmission lines on digital service.

CONSTRUCTION PRACTICES AND OPERATION AND MAINTENANCE OF THE TRANSMISSION LINE

Construction Practices

The proposed 69 kV transmission line would be constructed at existing grade elevations. Therefore, no pole locations would require grading, unless it is necessary to provide a level area for construction access and activities.

Great River Energy designs and constructs transmission lines using the most cost-effective methods based on past experiences and practices and in compliance with the latest industry standards, as well as environmental and other permit conditions. Great River Energy adheres to NESC standards regarding clearances to ground, clearance to crossing utilities, clearance to buildings, right of way widths, erecting power poles, and stringing of transmission line conductors.

Great River Energy typically utilizes outside contractors for construction activities on large transmission line projects. The specifications used are developed by Great River Energy's Engineering and Project Management department. A copy of Great River Energy's easement restriction list, environmental restriction lists, and any required local permits are given to the awarded contractor prior to construction.

Typical angle structures will be wood, laminated wood, or steel direct-embedded poles. The structures will require a hole be dug 10 to 15 feet deep with 3 to 4 feet diameter for each pole. Any excess soil will be thin spread or removed from the site as required. The poles may be backfilled with native soils, crushed rock or concrete depending on design conditions. In lowland areas, a galvanized steel culvert may be also inserted for pole stability due to poor soil capacity.

Angle structures will typically be guyed. In some instances, an angle structure may consist of a self-supporting steel pole that will require a drilled pier concrete foundation. The pier will typically have a diameter of 4 to 8 feet. The hole may require a typical depth of 15 to 30 feet deep depending on design requirements. The pier will be filled with concrete delivered to the site via concrete trucks from a local batch plant.

Poles may be delivered to the staked location or to a designated marshalling yard depending on delivery and contractor availability. If the poles are delivered to a staked

site, they are placed on the right of way out of the clear zone of any adjacent highways or designed pathways. The poles are typically framed with insulators and hardware on the ground and then lifted and placed in the hole via a bucket truck or a crane, depending on the weight of the structure.

Once the structures have been erected, conductors are installed by establishing stringing setup areas within the right of way. These stringing setup areas are typically located every two miles along the project route. The conductors are pulled with a rope lead that connects to every structure through a dolly attached at the insulator location. Temporary guard or clearance poles are installed at crossings to provide adequate clearance over other utilities, streets, roads, highways, railroads, or other obstructions after any necessary notifications are made or permit requirements met to mitigate any concerns with traffic flow or operations of other utilities.

In lowland areas, construction activities may occur during the winter season to mitigate any damage to wetland areas or other sensitive areas, or to comply with required crossing permits. A pre-construction conference will outline any special requirements for the contractor prior to the start of any construction activities.

During construction, when temporary removal or relocation of fences may occur, installation of temporary or permanent gates may be required. Great River Energy right of way agents will coordinate with the landowners on replacement of fences and gates. As part of easement restriction lists, the contractor will work around cultivated areas until harvest has occurred.

Operation and Maintenance

Great River Energy will periodically use its transmission line right of way to perform inspections, maintain equipment, and repair damage. Regular maintenance and inspections will be performed over the life of the facility to ensure a reliable system. Annual inspections will be done by foot, snowmobile, All-Terrain Vehicles, pickup truck, or by aerial means. These inspections will be limited to the acquired right of way and areas where obstructions or terrain require access off the easement. An aerial inspection of each transmission line is conducted six times a year and once a year by ground to ensure reliable operation.

Great River Energy's Transmission Construction & Maintenance department will conduct vegetation surveys and remove undesired vegetation that will interfere with the operation of the transmission line. Frequency of vegetation maintenance is on a three to seven year cycle. Right of way clearing practices include a combination of mechanical and hand clearing. Where conditions permit and with the property owner's permission, Great River Energy also uses herbicides as an effective and economical method of controlling tree and brush growth. Great River Energy's herbicide application methods follow U.S. Environmental Protection Agency and state agency regulations. Herbicides are applied by licensed applicators.



East Bethel Fire Department

2241 221st Avenue NE
East Bethel, Minnesota 55011



Fire Chief Mark DuCharme
763-367-7886
mark.ducharme@ci.east-bethel.mn.us

Date: March 18, 2011
To: Stephanie Hanson, City Planner
From: Fire Chief Mark DuCharme
RE: Great River Energy (GRE) Transmission Line

Ms. Hanson;

Great River Energy (GRE) will need to provide certain information to be included in the City of East Bethel's Emergency Operation Plan.

This information includes:

- Type of hazards from the transmission line
- Emergency 24 hour 7 day a week contact telephone numbers
- Any area of evacuation in case of emergencies (down lines)
- GRE's Emergency Response Plan and estimated time to be on scene
- A map showing the route of the transmission line through the City of East Bethel
- In case of wildland fires, amount of heat and or flame exposure to line and towers that is acceptable.

This information would be incorporated into the City of East Bethel Emergency Operation Plan as a separate Annex.

Thank You

EAST BETHEL PLANNING COMMISSION MEETING

February 22, 2011

The East Bethel Planning Commission met on February 22, 2011 at 7:00 P.M for their regular meeting at City Hall.

MEMBERS PRESENT: Eldon Holmes Lorraine Bonin Glenn Terry
Tim Landborg Dale Voltin Brian Mundle, Jr.

MEMBERS ABSENT: Julie Moline

ALSO PRESENT: Stephanie Hanson, City Planner
Steve Voss, City Council Member

Adopt Agenda

Chairperson Terry called the February 22, 2011 meeting to order at 7:02 P.M.

Terry motioned to adopt the February 22, 2011 agenda. Landborg seconded; all in favor, motion carries.

Public Hearing:

Interim Use Permit.

A request by owner/applicant, Stephen L. Van Krevelen, to obtain an Interim Use Permit for a Home Occupation, that being a computer repair and IT support business. The location being 18333 Yancy St. NE, East Bethel, MN 55011, PIN 34 33 23 32 0015. The Zoning Classification Single Family Residential (R-1) District.

Property Owner/Applicant

Stephen Van Krevelen
18333 Yancy Street NE
East Bethel, MN 55092
Deer Path Farms, Lot 5, Block 4
PIN 34-33-23-32-0015

Hanson stated Mr. Van Krevelen is requesting an IUP for a home occupation to allow a home-based computer repair and IT support business known as Anoka Computer Center, LLC. The purpose of the business is to provide affordable personal computer repair, IT, and maintenance services to private parties and small businesses in the area. Mr. Van Krevelen has stated that the majority of the work will be completed off-site; however, some clients may visit the site.

Computer equipment and e-waste recycling will not be an offered service. The small amount of waste generated by hardware replacement parts will be recycled by Asset Recovery Corporation in St. Paul. According to Anoka County Environmental Services, a hazardous waste license is not required for this type of business.

Home occupations are a permitted use in the R1- Single Family Residential District as long as Mr. Van Krevelen can meet the requirements of the City Code and complies with the conditions of the IUP. The proposed home occupation will meet requirements of the ordinance so long as the IUP conditions are met. In the event the conditions are not being met, the IUP would be revoked.

Fiscal Impact:

Not Applicable

Recommendations:

Staff requests Planning Commission recommend approval to City Council for an IUP for a home occupation known as Anoka Computer Center, LLC, located at 18333 Yancy Street NE, Deer Path Farm, Lot 5, Block 4, PIN 34-33-23-32-0015, with the following conditions:

1. Home Occupation shall meet the specific home occupation standards set forth in the City Code Appendix A Section 10-18:
 - a. No more than three (3) persons, at least one (1) of whom shall reside within the principal dwelling, shall be employed by the Home Occupation.
 - b. No traffic shall be generated by any home occupation in a significantly greater volume than would normally be expected from a single-family residence.
 - c. Any sign associated with the home occupation shall be in compliance with the East Bethel City Code, Chapter 54. Signs. Home occupation signage must be no larger than two (2) square feet (City Code Chapter 54-4.3).
 - d. The home occupation shall not generate hazardous waste unless a plan for off-site disposal of the waste is approved.
 - e. A home occupation at a dwelling with an on-site sewage treatment system shall only generate normal domestic household waste unless a plan for off-site disposal of the waste is approved.
 - f. The home occupation shall not constitute, create, or increase a nuisance to the criteria and standards established in this ordinance.
 - g. There shall be no outdoor display or storage of goods, equipment, or materials for the home occupation.
 - h. Parking needs generated by the home occupation shall be provided on-site.
 - i. The area set aside for the home occupation in the principal structure shall not exceed 50 percent of the gross living area of the principal structure and the area set aside for the home occupation in the attached or detached accessory structures or garages shall not exceed total accessory structure space.
 - j. No structural alterations or enlargements shall be made for the sole purpose of conducting the home occupation.
 - k. There shall be no detriments to the residential character of the neighborhood due to the emission of noise, odor, smoke, dust, gas, heat, glare, vibration, electrical interference, traffic congestion, or any other nuisance resulting from the home occupation.
2. Violation of conditions and City Codes shall result in the revocation of the IUP.
3. All conditions must be met no later than April 16, 2011. An IUP Agreement shall be signed and executed no later than April 16, 2011. Failure to execute the IUP Agreement will result in the null and void of the IUP.

Public hearing opened at 7:10 p.m.

Question was asked as to how many cars would be visiting the location. Applicant stated about one or two. A second question was asked if the applicant owned a home business before, he said no, not on his own. Third question was if the services would be conducted in the house or in the garage? The applicant said they would be done in the house, but the majority of the work would be done at the customer's site.

Public hearing closed at 7:15 p.m.

Holmes motioned to recommend approval to City Council for an IUP for a home occupation known as Anoka Computer Center, LLC, located at 18333 Yancy Street NE, Deer Path Farm, Lot 5, Block 4, PIN 34-33-23-32-0015, with the following conditions:

- 1. Home Occupation shall meet the specific home occupation standards set forth in the City Code Appendix A Section 10-18:**
 - a. No more than three (3) persons, at least one (1) of whom shall reside within the principal dwelling, shall be employed by the Home Occupation.**
 - b. No traffic shall be generated by any home occupation in a significantly greater volume than would normally be expected from a single-family residence.**
 - c. Any sign associated with the home occupation shall be in compliance with the East Bethel City Code, Chapter 54. Signs. Home occupation signage must be no larger than two (2) square feet (City Code Chapter 54-4.3).**
 - d. The home occupation shall not generate hazardous waste unless a plan for off-site disposal of the waste is approved.**
 - e. A home occupation at a dwelling with an on-site sewage treatment system shall only generate normal domestic household waste unless a plan for off-site disposal of the waste is approved.**
 - f. The home occupation shall not constitute, create, or increase a nuisance to the criteria and standards established in this ordinance.**
 - g. There shall be no outdoor display or storage of goods, equipment, or materials for the home occupation.**
 - h. Parking needs generated by the home occupation shall be provided on-site.**
 - i. The area set aside for the home occupation in the principal structure shall not exceed 50 percent of the gross living area of the principal structure and the area set aside for the home occupation in the attached or detached accessory structures or garages shall not exceed total accessory structure space.**
 - j. No structural alterations or enlargements shall be made for the sole purpose of conducting the home occupation.**
 - k. There shall be no detriments to the residential character of the neighborhood due to the emission of noise, odor, smoke, dust, gas, heat, glare, vibration, electrical interference, traffic congestion, or any other nuisance resulting from the home occupation.**
- 2. Violation of conditions and City Codes shall result in the revocation of the IUP.**
- 3. All conditions must be met no later than April 16, 2011. An IUP Agreement shall be signed and executed no later than April 16, 2011. Failure to execute the IUP Agreement will result in the null and void of the IUP.**

Terry seconded; motion carries unanimously.

This will be heard at the 3/16/2011 City Council meeting.

**Great River Energy
Proposed 69kV
Transmission Line
Project, GRE
Presentation.**

Discussion of work group's recommendation of transmission line location. Make recommendation to Great River Energy of line location.

There were technical difficulties so GRE was not able to show their presentation on PowerPoint, but each Commission member does have the presentation book.

Hanson stated according to Great River Energy, the purpose of the project is to ensure the electric system meets the needs of growing areas including East Bethel, Linwood Township, Athens Township, Cambridge, Stanford Township, St. Francis and others, while also balancing the need to be fiscally responsible. Due to growth in East Bethel and surrounding areas, the region is at risk for interruption of electrical service; therefore, GRE proposes to construct a transmission line to address system deficiencies and proactively ensure the homes and businesses in these communities continue to receive reliable, quality electric service.

Ordinance 15, Second Series (adopted by City Council on January 6, 2010), establishes the requirements and criteria for conditional use permits for transmission lines in the City of East Bethel. The ordinance is attached for your review.

According to the ordinance, Phase 1 includes a work group process in which the work group will conduct an analysis of the proposed routes and present its report to the city's Planning Commission. The work group was established by City Council in September 2010 and has been holding work group meetings with GRE representatives since then.

According to the code, the *“work group will conduct an analysis of the alternatives and present its report to the city's Planning Commission. The city's Planning Commission, based on the work groups' submittals and applicant presentation, will narrow the alternatives for the siting of the transmission line or facility. Following the Phase 1 process, the applicant may submit an application for a conditional use permit.”* On Monday, February 7, 2011, the work group made a recommendation to the Planning Commission for a transmission line location. GRE will be submitting a land use request for a CUP, as required by Ordinance 15, Second Series. The public hearing is tentatively scheduled for the March 22, 2011 Planning Commission meeting and will be considered by City Council on April 6, 2011.

After much discussion, the work group made a suggestion of a route that was not originally presented. It is recommending the location for the transmission line known as Route I (attachment 2). The work group made this recommendation by taking into consideration the minimal impacts to existing ecological areas, including Cedar Creek Natural History Area and the fewer turns and angles of the other routes. The majority of the line would be in Athens Township and Linwood Township, with a small portion affecting the area on the northeast side of Fish Lake/Cedar Creek Natural History Area. This information was conveyed to GRE; they conducted an analysis of this proposed route which is part of Attachment 1.

GRE has a preference for Route A in which the analysis is part of Attachment 1. GRE prefers Route A because it is the shortest viable route, shortest length of new transmission lines to build, fewer easements to obtain, lowest construction costs, etc. GRE staff will discuss the route during the presentation.

On February 16, 2011, GRE presented the proposed project to the City Council. Planning Commission members were invited to attend the presentation. The purpose of the presentation was to educate council and commission members on the project to ensure this particular project continues to move forward in an efficient manner. The presentation included, but was not limited to, a brief overview of the project, site location analysis, and a feasibility analysis.

GRE will give a brief overview of the project at the Planning Commission meeting on February 22, 2011 for the members that were unable to attend the City Council presentation, and also to summarize route features and limitations for recommended Route I and GRE's preferred Route A.

Fiscal Impact:

None at this time

Recommendation:

Staff requests Planning Commission to make a recommendation of a route to Great River Energy of the siting of the 69kV Transmission Line.

GRE staff provided an overview of the project and instructed the Commission if they had questions to ask them as they come up.

Bonin asked what would he be presenting. GRE staff stated they would be presenting information on Route A and Route I. Route A is the preferred route for GRE.

Terry asked why Route I was recommended by the work group, but they do not know what the group's process was to derive at Route I. GRE said if they pursued Route I, they would have to go back to Athens to work that route out. The GRE staff stated members of the work group would be better to state why they wanted Route I. A question was asked as to why the work group recommended Route I. Holmes was on the work group, and he said that basically the U of M personnel said they would not want Route A because of the destruction of the U of M land, there are a lot of issues to resolve and this wasn't an easy decision to reach. Holmes stated Route I affects the least amount of people.

GRE said the University of Minnesota didn't say they didn't want the route there and he doesn't want to put words in their mouth, but like any property owner they don't want it on their land. They are the biggest landowners, they operate something that is pretty unique, and it is for scientific research purposes. GRE has always had the understanding, if they could get a Conditional User Permit from the City, that the U of M would work with them. They were okay with Route A, but the U of M did say if Route B was selected, they would fight them tooth and nail. So just to be clear, Route A is not off the list because the U of M said no to that route.

A question was asked if Route A is a route where there are currently running lines. GRE staff said yes, it is where a route currently is running distribution lines, but these would be transmission lines. Do you need more easement to do

these transmission lines? Yes, they do take a little more easements.

The University of Minnesota thinks they can work with GRE, per the GRE staff. GRE has a forester on staff. The U of M position is like anyone else, if it can be on anyone else's property, put it there. Hanson said that all along the U of M stated GRE needs to work with the City first and then the U of M will back it up.

Bonin asked if the trees would be removed. GRE stated there possibly could be clear cutting, but that is the forester's call. The forester would work very closely with the property owners.

GRE staff stated as soon as they found out the work group recommended Route I, he called and talked to the property owner, the University of Minnesota. As Hanson said, the U of M told him that they want GRE to work with the City, and work something out. He understands that nobody wants this on their property and wishes it could go somewhere else. He stated that they have constituents too; so he has to work with them, explain to them why they will be building something that will cost two million dollars more. That is why they are pursuing the best route and most cost effective route.

Terry asked if there were any other reasons why it shouldn't be Route A, other than environmental. GRE staff stated that the environmental impact was greatly considered. When they look at environmental, Route I would be good from an environmental standpoint, but to single out Route I and say it has less environmental impact may be incorrect. The reason a lot of environmental impacts were listed for Cedar Creek is because researchers are continually studying it so there is much more information on that area environmentally.

GRE staff said if the City would give a CUP to GRE for Route A, the U of M would work with GRE. He has asked the work group to clarify the position. Bonin said aside from the fact that it is a shorter route, she suspects that Route I goes through a great deal of rural area. GRE staff said you are correct it does. Isanti County Road 9 will be doubled in size in the next few years, so that puts GRE in a difficult position for this project. The easements would have to go close to the houses on each side.

Holmes asked what are the future plans? GRE staff said they won't need to do anything more along that route for 20 to 30 years. If they can't put this route in, or it becomes too difficult to put it in, they will have to look at the entire region to figure out what they can do. They may look at higher voltage lines at that point. Holmes said with the higher voltage you won't have to go to the cities. GRE staff said that was correct, they would go to the State and the State would notify the residents and the City. If GRE could have declared this a 115 route, they probably would have done it. It would be much easier for GRE to do that. We have all along maintained this is a 69K project, being that it is a best use of resources. Bonin asked what areas it would serve. The actual area this will benefit will go from Cambridge to Elk River to East Bethel. What it has to do with is accomplishing the goals of hooking up Athens substation and Martin substation. They are trying to minimize the amount of line they have to build and maintain. Holmes said this is actually a back-up route, correct? GRE said the power to the area right now; this is bringing things up to a level that would be

satisfactory. Back in 2007 we came to a point where if we had issues, there could be rolling blackouts. This is not an emergency, but it is bringing things up to speed. Holmes said this is a loop system. GRE said yes, that is correct.

Holmes said the other two members of the Committee should come up and talk about why they suggested Route I. Terry said if the other members have something to state, please come up and address the group.

Lou Cornicelli – He helped write the ordinance and was also on the work group. They put a lot of time into researching this. The U of M helped develop Route I. The group looked at the 14 alternatives that GRE proposed and they took that to heart. The group looked at the environmental impacts, the impacts on property owners, the effect of what the City was getting from this project and they dismissed Route A very quickly. It affected Cedar Creek and also the houses along that route were very close. Route I is all parts of the other routes combined. The group didn't capriciously or arbitrarily come up with Route I. Route I was voted unanimously by the group. Route A comes with the most cost to the residents and the U of M. Route I is the least cost/impact to the residents of the City.

Bonin asked why Route I has to jog south and then west. He stated that there is a wildlife management area and they preferred to miss that.

A commissioner commented, the City has been talking about putting a trail along that whole property, as far as we know, there have been verbal agreements to put the trail in. It would be a 12-15 foot trail along Cedar Creek. It would be about 4 miles of people's direct housing. But on that route you only have one landowner to deal with. We could recommend Route I, but that may not go through any easier.

GRE representative commented that the one issue they have is to try to avoid historical issues. Coming down Typo Creek, just north of there, there are historical and architectural issues that have been raised.

Terry said he utilizes all the places referenced in Route A. He thinks it makes the most sense to go with Route A.

Terry made a motion to recommend to City Council to use Route A for the siting of the 69kV Transmission Line. Voltin seconded; all in favor, motion carries 4-1, Holmes opposed.

A question was asked on what the savings would be on Route A? 1.5 to 2 million. GRE representative said they don't have design done yet, but this is a best estimate compared with other projects of similar scope. There should be a matrix that states the costs for each project.

This will come to Planning Commission March 22 for a Conditional Use Permit.

Approve January 25,
2011 Planning
Commission Meeting
Minutes

Holmes motioned to approve the January 25, 2011 Planning Commission minutes as presented with above change. Voltin seconded; all in favor, motion carries.

Adjourn

Holmes made a motion to adjourn the meeting at 8:15 PM. Voltin seconded; all in favor, motion carries.

Submitted by:

Jill Teetzel
Recording Secretary

DRAFT