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PUBLIC SERVICE
COMMISSION

July 1, 2005

Ms. Elizabeth O'Donnell
Executive Director
Commonwealth of Kentucky
Public Service Commission
211 Sower Boulevard
PO Box 615
Frankfort, KY 40602-0615

RE: The Application of East Kentucky Power Cooperative, Inc. for a
Certificate of Public Convenience and Necessity for the construction
Of a 161 kV Electric Transmission Project in Barren, Warren, Butler
And Ohio Counties, Kentucky. PSC Case No. 2005-00207

Dear Ms. O'Donnell:

Enclosed please find an original and one (1) complete paper copy (which was agreed upon at the Informal Conference dated May 27, 2005) of EKPC's Application for Certificate of Public Convenience and Necessity for the Construction of 161 kV Electric Transmission Project in Barren, Warren, Butler and Ohio Counties, Kentucky. Also enclosed are five (5) additional copies that contain an Exhibit Index, a paper copy of the Application and a Master CD/Rom, which includes each Exhibit to the Application. Please follow the enclosed directions of the Master CD/Rom to open the file named Index.pdf and proceed by clicking on the icon you wish to view. There are two extra CD/Rom's labeled "Warner Exhibit 1" and "Shafer Exhibits 1 and 2". The information contained on these CD's is also included on the Master CD/Rom. These are extra copies for your use.

I trust this satisfies the filing requirements of the Commission for this Project. However, should you have any questions or should you request the hard copies of the corresponding information on the CD's, please advise and we will be more than happy to provide that information. Thank you for your assistance.

Very truly yours,

A handwritten signature in black ink, appearing to read 'Roger R. Cowden', is written over the typed name.

Roger R. Cowden
Senior Corporate Counsel

RC/ti

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PUBLIC SERVICE
COMMISSION

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

FILED

JUL 1 2005

**PUBLIC SERVICE
COMMISSION**

In the Matter of:

THE APPLICATION OF EAST KENTUCKY)
POWER COOPERATIVE, INC. FOR A CERTIFICATE)
OF PUBLIC CONVENIENCE AND NECESSITY FOR) **CASE NO**
FOR THE CONSTRUCTION OF A 161 kV ELECTRIC) **2005-00207**
TRANSMISSION PROJECT IN BARREN, WARREN,)
BUTLER, AND OHIO COUNTIES, KENTUCKY)

**APPLICATION OF EAST KENTUCKY POWER
COOPERATIVE, INC.
TO COMMISSION STAFF DATED JULY 1, 2005**

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

RECEIVED

JUN 01 2005

In the Matter of:

PUBLIC SERVICE
COMMISSION

THE APPLICATION OF EAST KENTUCKY
POWER COOPERATIVE, INC. FOR A CERTIFICATE
OF PUBLIC CONVENIENCE AND NECESSITY
FOR THE CONSTRUCTION OF A 161 kV ELECTRIC
TRANSMISSION PROJECT IN BARREN, WARREN,
BUTLER, AND OHIO COUNTIES, KENTUCKY

)
)
) **CASE NO**
) **2005-00207**
)
)

APPLICATION

1. East Kentucky Power Cooperative, Inc., hereinafter referred to as the “Applicant”, Post Office Box 707, 4775 Lexington Road, Winchester, Kentucky 40392-0707, hereby files this Application for a Certificate of Public Convenience and Necessity for the construction of 4 major segments of 161 kV Electric Transmission Line in Barren, Warren, Butler, and Ohio Counties, Kentucky hereinafter referred to as “the Project”.

2. This Application is made pursuant to KRS §§278.020, 278.040 and related statutes, 807 KAR 5:120 and 807 KAR 5:001 Sections 8, 9 and related sections.

3. A copy of Applicant’s restated Articles of Incorporation and all amendments thereto were filed with the Public Service Commission (the “Commission”) in PSC Case No. 90-197, the Application of East Kentucky Power Cooperative, Inc. for a Certificate of Public Convenience and Necessity to Construct Certain Steam Service Facilities in Mason County, Kentucky.

4. A copy of the EKPC Board Resolution approving the Project is attached hereto as Applicant’s **Exhibit 1(a)**.

5. The Project consists of new 161kV transmission line to be constructed as follows:

SEGMENT 1

Barren County – Oakland – Magna 28.29 miles (11.67 mi. new right of way, 1.48 mi. parallel to an existing line, 15.14 mi. rebuild of an existing line)

SEGMENT 2

GM – Memphis Jct. 14.96 miles (3.93 mi. new right of way, 2.22 mi. parallel to an existing line, 8.81 mi. rebuild of an existing line)

SEGMENT 3

Memphis Jct. – Aberdeen 23.48 miles (9.36 mi. new right of way, 0 mi. parallel to an existing line, 14.12 mi. rebuild of an existing line)

Note: This path includes 3.93 miles of pole line construction on a shared right of way with a double circuit line from Memphis Jct. – West Bowling Green Jct.

SEGMENT 4

Aberdeen – Wilson 26.79 miles (22.66 mi. new right of way, 4.13 mi. parallel to an existing line, 0 mi. rebuild of an existing line).

A physical schematic indicating the scope and location of the major segments of the Project is attached hereto as Applicant's **Exhibit 2**, and depicting the Project construction on new right of way - 47.62 miles, construction parallel to existing line - 7.83 miles, and rebuild of existing lines - 38.07 miles. The total transmission line construction for the Project is 97.55 miles, which includes the 3.93 miles of construction on shared right of way, and 0.10 miles of 161kV transmission line construction for a connection to an existing line at Salmons that is entirely contained on property owned in fee by Warren RECC.

The Project scope has evolved from the original project descriptions proposed in the planning study and reflected in the EKPC Board Approval (**Exhibit 1(a)**), to the

Project as proposed above. One step of refinement is outlined in an Addendum to the planning study. The other modifications to the project scope resulted from adjustments made for physical considerations as part of the routing process and opportunities to rebuild existing lines or co-locate with existing facilities. These modifications and refinements do not affect the justification of need for the Project, or the alternative selected.

6. Warren Rural Electric Cooperative Corporation (“Warren RECC”) will cease to be a Tennessee Valley Authority (“TVA”) distributor and will become a member of the Applicant on April 1, 2008. As such, Warren RECC will come under the jurisdiction of the Commission as a Retail Electric Supplier, and the Applicant will have the obligation to provide electric power and energy as well as transmission service to Warren RECC. (See Resolution of the Applicant’s Board of Directors attached hereto as Applicant’s **Exhibit 1(b)** and Resolution of the Warren RECC Board of Directors attached as Applicant’s **Exhibit 3**.) Warren RECC, as a TVA distributor, is currently being provided transmission service by TVA, and the Applicant has requested that TVA provide transmission service to the Applicant over TVA’s existing transmission system so that the Applicant can provide power and energy to Warren RECC. TVA has refused to provide this transmission service to the Applicant (see the Prepared Testimony of Paul Atchison attached as Applicant’s **Exhibit 4**), and the Federal Energy Regulatory Commission does not have the authority under the Federal Power Act to order TVA to provide such transmission service. As a result, the Applicant is required to build this project in order to fulfill its obligation to transmit power and energy to Warren RECC.

7. Attached as Applicant's **Exhibits 5 and 6** are the Prepared Testimony of Mary Jane Warner and David Shafer, respectively, dealing with the need justification for the Project.

8. Attached as Applicant's **Exhibit 7** is the Affidavit of David G. Eames, which contains an explanation of the Applicant's plans for financing the proposed Project and a statement that the Project will not involve sufficient capital outlays to materially affect the financial condition of the Applicant.

9. There will be no franchises required from any public authority for the construction of the proposed Project.

10. Routine permits and permit revisions for features such as highway, railroad, and river crossings will be obtained when final design is complete. An easement through the Peabody Wildlife Management Area in Butler County, owned and managed by the Kentucky Department of Fish and Wildlife Resources will be secured according to their guidelines. The majority of this construction will be weathered steel single pole structures with one or two circuits supported by galvanized steel upswept arms. In locations where the lines change direction or terminate, two or three pole structures and guys will be necessary. Typical drawings of the types of structures to be constructed as part of the Project are attached as Applicant's **Exhibit 8** (for single circuit lines) and **Exhibit 9** (for double circuit lines).

11. The proposed facilities will not compete with any public utilities, corporations or persons.

12. Attached as Applicant's **Exhibit 10 thru Exhibit 13** are maps of a scale of one inch equals four hundred feet, or one inch equals five hundred feet (as indicated on

the title block of each map) showing the location of the proposed centerlines, the Right of Way Boundaries, and the boundaries of all properties crossed by said Right of Way as shown on the PVA maps of the applicable counties. Attached as **Exhibit 14** is a table identifying by number the owner of each property shown on **Exhibit 10 thru Exhibit 13**.

13. The precise location of the centerline may change with respect to the property lines depicted on said Exhibits. These changes, if the same do in fact occur, will be the result either of accommodations required to cross the facilities of other utilities or potential errors in the property lines obtained from applicable PVA offices. Any such changes could result in specific properties shown not to be crossed by the proposed right of way on **Exhibit 10 thru Exhibit 13** actually being crossed by the proposed right of way. Conversely, properties shown to be crossed may ultimately not be crossed as a result of any such changes. As a result, any properties shown within these areas previously identified could ultimately be crossed, and all owners of these properties have been sent notification letters as set forth in paragraph 16 of this Application, and as indicated in a table attached hereto as Applicant's **Exhibit 14** by a label "Y" in the column entitled "Affected by Project?". All owners of record listed in Exhibit 14 were invited to EKPC sponsored Open House meetings in the area. Owners of parcels labeled "N" in the same column are not affected by the proposed centerlines, and received letters of notice from EKPC accordingly.

14. Attached as **Exhibit 15** are maps showing the proposed centerlines and any alternative centerline locations considered by the Applicant. The alternative centerline locations are shown in broken red lines while the proposed centerlines are shown in solid red. Due to the large geographic area involved in the consideration of

alternatives, a reduced scale was used so the alternative paths could be shown on the same map as the proposed centerlines.

15. The first year annual cost of operation of the proposed Project after completion is \$3,053,812.00, based on 2004 dollars.

16. Attached as Applicant's **Exhibit 16** is an Affidavit of H.K. Cunningham certifying that each property owner identified by the Barren, Warren, Butler, and Ohio County PVA's as owning property to be crossed by the proposed right of way has been:

- a) Mailed notice of the proposed construction by First Class mail at such owner's address as listed in the applicable county PVA's records;
- b) Given the Commission docket number of this proceeding and a map showing the proposed route of the Project;
- c) Given the address and telephone number of the Commission's Executive Director, Elizabeth O'Donnell;
- d) Informed of their right to request a local public hearing and request to intervene; and
- e) Given a description of the proposed Project.

17. Attached as Applicant's **Exhibit 17** are sample copies of notices provided to property owners pursuant to 807 KAR 5:120, Section 2(3) and referenced in Paragraph numbered 14 above. Three letters are included. One that applies to properties affected by new right of way, one that notifies property owners of a scope change from co-location to rebuild in their area, and a sample copy of the notice provided to property owners with unaffected parcels per the discussion in paragraph 13.

18. Applicant's **Exhibit 16**, Affidavit of H.K. Cunningham, also contains a verified statement that a notice of intent to construct the Project has appeared in the Glasgow Daily Times, the Bowling Green Daily News, the Butler County Banner, and the Ohio County Times News, newspapers of general circulation in Barren, Warren, Butler, and Ohio Counties, Kentucky respectively, which included:

- a) A map of the proposed Project; and
- b) A statement of the right to request a local public hearing;
- c) A statement of the right to request to intervene.

19. Attached as Applicant's **Exhibit 18** is a copy of page 5A of the Thursday, June 23, 2005 edition of the Bowling Green Daily News containing the Notice required by 807 KAR 5:120 Section 2(5) and referenced in Paragraph numbered 16 above, as well as a copy of page 3A of the Monday, June 27, 2005 edition of the same publication containing a notice of correction needed due to an error in the Kentucky Public Service Commission telephone number previously published.

20. Attached as Applicant's **Exhibit 19** is a copy of page 22 of the Thursday, June 23, 2005, edition of the Glasgow Daily Times containing the Notice required by 807 KAR 5:120 Section 2(5) and referenced in Paragraph numbered 16 above, as well as a copy of page 10 of the Monday, June 27, 2005, edition of the same publication containing a notice of correction needed due to an error in the Kentucky Public Service Commission telephone number previously published.

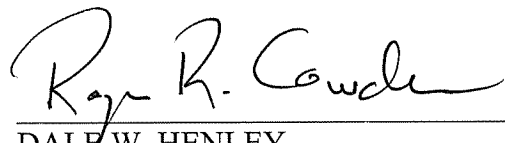
21. Attached as Applicant's **Exhibit 20** is a copy of page A3 of the Wednesday, June 22, 2005, edition of the Butler County Banner containing the Notice required by 807 KAR 5:120 Section 2(5) and referenced in Paragraph numbered 16

above, as well as a copy of page A3 of the Wednesday, June 29, 2005 edition of the same publication containing a notice of correction needed due to an error in the Kentucky Public Service Commission telephone number previously published.

22. Attached as Applicant's **Exhibit 21** is a copy of page 10-B of the Thursday, June 23, 2005, edition of the Ohio County Times-News containing the Notice required by 807 KAR 5:120 Section 2(5) and referenced in Paragraph numbered 16 above, as well as a copy of page 13-B of the Thursday, June 30, 2005, edition of the same publication containing a notice of correction needed due to an error in the Kentucky Public Service Commission telephone number previously published.

WHEREFORE, Applicant respectfully requests the Commission to grant a Certificate of Public Convenience and Necessity for the EKPC Project to be constructed in Barren, Warren, Butler, and Ohio Counties, Kentucky.

Respectfully submitted,

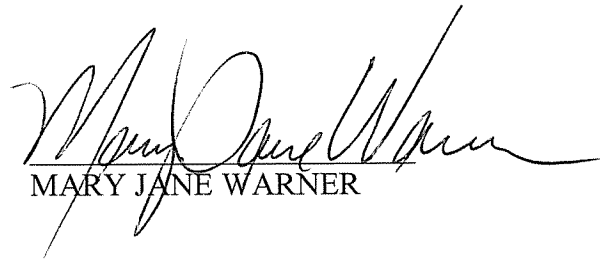


DALE W. HENLEY
SHERMAN GOODPASTER III
ROGER R. COWDEN
ATTORNEYS FOR EAST KENTUCKY
POWER COOPERATIVE, INC.
PO BOX 707
WINCHESTER, KY 40392-0707
859-744-4812

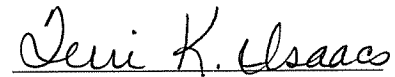
VERIFICATION

STATE OF KENTUCKY)
) SCT.
COUNTY OF CLARK)

The affiant, Mary Jane Warner, states that she is the Manager of Power Delivery Expansion for the Plaintiff, East Kentucky Power Cooperative, Inc., and that this affiant has read the foregoing Application and that the statements contained therein are true to the best of her knowledge and belief.



MARY JANE WARNER

Subscribed and sworn to before me in the aforesaid state and county by
Mary Jane Warner this the 1st day of July, 2005.
My notarial commission expires: 12/20/05


NOTARY PUBLIC, KY
STATE-AT-LARGE.



EAST KENTUCKY POWER COOPERATIVE

A Touchstone Energy Cooperative 

Case No. 2005-00207 Index

Application

Exhibit 1(a) & 1(b)	<i>EKPC Board Resolution</i> 1(a) Project Approval 1(b) Membership Approval
Exhibit 2	Physical Schematic
Exhibit 3	Warren RECC Board Resolution
Exhibit 4	Paul Atchison Testimony
Exhibit 5	<i>Mary Jane Warner Testimony</i> Exhibit 1
Exhibit 6	<i>David Shafer Testimony</i> Exhibit I Exhibit II
Exhibit 7	David Eames Affidavit
Exhibit 8	Typical Structure Drawings (Single Circuit Lines)
Exhibit 9	Typical Structure Drawings (Double Circuit Lines)
Exhibit 10	<i>Barren County – Oakland – Magna Maps</i> Map 1, Map 2, Map 3, Map 4, Map 5, Map 6, Map 7, Map 8, Map 9
Exhibit 11	<i>GM – Steamplant – WBG Junction Maps</i> Map 1, Map 2, Map 3, Map 4
Exhibit 12	<i>Morgantown – Aberdeen Maps</i> Map 1, Map 2, Map 3, Map 4, Map 5, Map 6, Map 7, Map 8, Map 9, Map 10
Exhibit 13	<i>Aberdeen – Wilson Maps</i> Map 1, Map 2, Map 3, Map 4, Map 5, Map 6, Map 7, Map 8, Map 9, Map 10
Exhibit 14	Property Owners
Exhibit 15	<i>Alternative Routes</i> Map 1, Map 2, Map 3
Exhibit 16	H.K. Cunningham Affidavit
Exhibit 17	Sample Property Owner Notice
Exhibit 18	Bowling Green Daily News Notice
Exhibit 19	Glasgow Daily News Notice
Exhibit 20	Butler County Banner News Notice
Exhibit 21	Ohio County Times News Notice

**FROM THE MINUTE BOOK OF PROCEEDINGS
OF THE BOARD OF DIRECTORS OF
EAST KENTUCKY POWER COOPERATIVE, INC.**

At a regular meeting of the Board of Directors of East Kentucky Power Cooperative, Inc. held at the Headquarters Building, 4775 Lexington Road, located in Winchester, Kentucky, on Tuesday, October 5, 2004, at 10:00 a. m., EDT, the following business was transacted:

Transmission Plan for Facilities to Provide Service to Warren RECC

After review of the applicable information, a motion was made by Donnie Crum, seconded by P. D. Depp, and, there being no further discussion, passed to approve the following:

Whereas, East Kentucky Power Cooperative, Inc. ("EKPC") engineering studies have confirmed the necessity and advisability of constructing the proposed transmission facilities necessary for service to Warren Rural Electric Cooperative Corporation ("Warren RECC") as follows:

Transmission Stations

Aberdeen 161 kV Trans. Sub (2 Brkrs)	\$ 618,000.00
EKPC Barren County 161 kV Tran. Sub (2 Brkrs)	\$ 572,000.00
East Bowling Green 161 kV Trans. Sub (1 Brkr)	\$ 313,000.00
GM 161 kV Transmission Sub (3 Brkrs)	\$ 869,000.00
K30 Jct. with City of Franklin 69 kV (3) Brkr Sta.	\$ 612,000.00
L28 69kV Three Breaker Station	\$ 612,000.00
Magna 161 kV Transmission Sub (Purchase 2 Brkrs) – constructed prior to 2008 by WRECC	\$ 618,000.00
Memphis Junction Transmission Sub (4 Brkrs)	\$ 1,112,000.00
Plano - Greenwood - Weyerhauser 69 kV (3) Brkr Station	\$ 612,000.00
Wilson Terminal Facilities	\$ 251,000.00
Franklin 161 kV Transformer Replacement	\$ 727,000.00

Transmission Lines

Aberdeen -BGMU Ut. D. C. 161/69 kV 5 mi.	\$ 2,125,000.00
Aberdeen - BGMU Rebuild 161/69 22 mi.	\$ 7,150,000.00
Barren County - Magna 161 kV 24 Miles	\$ 7,800,000.00
General Motors –BGMU Tap 161 kV 5 mi.	\$ 1,625,000.00
Purchase of Magna - Bristow 161 kV 1 mile – constructed prior to 2008 by WRECC	\$ 325,000.00
Purchase of Magna - General Motors 161 kV 2.5 miles – constructed prior to 2008 by WRECC	\$ 875,000.00
Memphis Jct. - BGMU Tap 161 kV 8.40 mi.	\$ 3,570,000.00
Wilson - Aberdeen 161 kV Tap 25 miles	\$ 8,125,000.00

Other Facilities

East Bowling Green - GM Recond. .15 Miles	\$ 12,000.00
K30-Salmons 69 kV Line Upg. 3.9 miles	\$ 11,700.00
K30-L30 69kV Line Upg. 1.13 miles	\$ 3,400.00
Total	\$ 38,538,100.00

Whereas, Review by the Power Delivery ("PD") Committee and approval of the EKPC Board of Directors ("Board") is required for the construction and financing of these projects pursuant to Board Policies No. 103 and 106;

Whereas, EKPC management and the PD Committee recommend that the Board accept the proposed Transmission Plan required for service to Warren RECC by approving construction of these projects, the acquisition of all real property and easement rights, by condemnation if necessary, and the obtaining of permits and approvals necessary and desirable for these projects and include the financing of these projects with general funds, subject to reimbursement from construction loan funds should they become available and the Board will act upon said recommendation this date; and


Whereas, This recommendation supports the delivery of needed facilities at a competitive cost, on time, and of good quality; now, therefore, be it

Resolved, That approval is hereby given for construction of said projects included in this plan at an estimated cost of \$38,538,100 and for the acquisition of all real property and easement rights, by condemnation if necessary, as well as all necessary permits and approvals for these projects; and

Resolved, That approval is hereby given to amend the EKPC Annual Budget and Work Plan to include the projects and to finance them with general funds, subject to reimbursement from construction loan funds should they become available.

The foregoing is a true and exact copy of a resolution passed at a meeting called pursuant to proper notice at which a quorum was present and which now appears in the Minute Book of Proceedings of the Board of Directors of the Cooperative, and said resolution has not been rescinded or modified.

Witness my hand and seal this 5th day of October 2004.


Sam Penn, Secretary

**FROM THE MINUTE BOOK OF PROCEEDINGS
OF THE BOARD OF DIRECTORS OF
EAST KENTUCKY POWER COOPERATIVE, INC.**

At a regular meeting of the Board of Directors of East Kentucky Power Cooperative, Inc. held at the Headquarters Building, 4775 Lexington Road, located in Winchester, Kentucky, on Tuesday, May 11, 2004, at 11:10 a. m., EDT, the following business was transacted:

Warren RECC Membership Documents

After review of the applicable information, a motion was made by Fred Brown, seconded by E. A. Gilbert, and, there being no further discussion, passed to approve the following.

Whereas, The East Kentucky Power Cooperative, Inc. ("EKPC") Board of Directors ("Board") approved a resolution at its March 9, 2004 meeting authorizing EKPC management to enter into negotiations with Warren Rural Electric Cooperative Corporation ("Warren RECC") for the development of agreements for power supply and membership in EKPC;

Whereas, EKPC management and Warren RECC management have discussed the power supply arrangements informally with the staff of the Kentucky Public Service Commission ("PSC") and the PSC staff did not offer any objections to the plans, but did insist that the amount of additional compensation to be paid by Warren RECC would need to be determined based on actual costs of the power supply arrangements and Warren RECC's actual load in 2008;

Whereas, EKPC management and Warren RECC management have developed a Special Membership Agreement ("Agreement"), which has been provided to the Board for review, incorporating arrangements for power supply and membership in EKPC beginning April 1, 2008; which should be consistent with the recommendations of the PSC staff;

Whereas, Warren RECC has submitted a properly executed application for membership in EKPC;

Whereas, Warren RECC membership in EKPC will also require the execution of a Wholesale Power Contract and Amendments, and Supplemental Agreements and Memorandum of Agreement between EKPC, Warren RECC and Rural Utilities Service ("RUS"); and

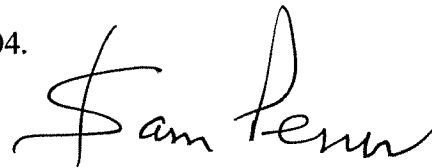
Whereas, The Operations, Services & Support Committee recommends that the Board accept the application for membership in EKPC from Warren RECC, approve the Special Membership Agreement, and other related agreements, and authorizes the President and Chief Executive Officer (“ President and CEO”) and Board Officers be authorized to execute the required documents and to seek lender and regulatory approval as required; now, therefore, be it

Resolved, That the EKPC Board hereby accepts the application from Warren RECC for membership in EKPC and approves the Special Membership Agreement with Warren RECC, and other related agreements referenced herein below, subject to any minor changes that may be required before final execution; and

Resolved, That the President and CEO and the EKPC Board Officers be authorized to approve any minor changes, and to execute the Special Membership Agreement, the Wholesale Power Contract and Amendments, and the Supplemental Agreements and Memorandum of understanding; and to submit these documents to the RUS, the National Rural Utilities Cooperative Finance Corporation, and any other regulatory authority or lenders as may be required for their approvals.

The foregoing is a true and exact copy of a resolution passed at a meeting called pursuant to proper notice at which a quorum was present and which now appears in the Minute Book of Proceedings of the Board of Directors of the Cooperative, and said resolution has not been rescinded or modified.

Witness my hand and seal this 11th day of May, 2004.

A handwritten signature in cursive script that reads "Sam Penn". The signature is written in black ink and is positioned above the printed name of the signatory.

Sam Penn, Secretary

Corporate Seal

**FROM THE MINUTE BOOK OF PROCEEDINGS
OF THE BOARD OF DIRECTORS OF
WARREN RURAL ELECTRIC COOPERATIVE CORPORATION**

The following is a copy of a proceeding transacted at a regular meeting of the Board of Directors of Warren Rural Electric Cooperative Corporation held at the Floyd H. Ellis Office Complex, 951 Fairview Avenue, Bowling Green, Kentucky, on Tuesday, May 25, 2004, at 4 p.m., CST:

Wholesale Power Contract With East Kentucky Power Cooperative, Inc. After discussion and explanation by Warren President Gerald Hayes and East Kentucky Power President Roy Palk and on recommendation of the Warren RECC Wholesale Power Task Force, **on motion of White and second by Robbins, the Board voted unanimously with a roll call vote to become an all-requirements member of East Kentucky Power on April 1, 2008, and to authorize Chairman Garmon and Secretary Robbins authority to execute the following documents with East Kentucky Power Cooperative:**

Roll Call Vote

Dotson	Yes
McGuirk	Yes
Goad	Yes
Neely	Yes
Ingram	Yes
White	Yes
Lyons	Yes
Robbins	Yes

The records should also reflect Chairman Garmon's vote - Yes.

Documents to be Executed:

**Wholesale Power Contract
Amendment No. 1
Supplemental Agreement (1)
Supplemental Agreement (2)
Memorandum of Agreement
Special Membership Agreement**

The foregoing is a true and exact copy of a proceeding passed at a meeting called pursuant to proper notice at which a quorum was present and which now appears in the Minute Book of Proceedings of the Board of Directors of the Cooperative, and said proceeding has not been rescinded or modified.

Witness my hand and seal this 23rd day of November, 2004.



Rebecca L. Goad, Secretary

(CORPORATE SEAL)

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

THE APPLICATION OF EAST KENTUCKY)
POWER COOPERATIVE, INC. FOR A CERTIFICATE)
OF PUBLIC CONVENIENCE AND NECESSITY FOR) **CASE NO**
FOR THE CONSTRUCTION OF A 161 kV ELECTRIC) **2005-00207**
TRANSMISSION PROJECT IN BARREN, WARREN,)
BUTLER, AND OHIO COUNTIES, KENTUCKY)

**PREPARED TESTIMONY OF PAUL C. ATCHISON
ON BEHALF OF
EAST KENTUCKY POWER COOPERATIVE, INC.**

1. Please state your name and address.
 - A. My name is Paul C. Atchison and my business address is P.O. Box 707,
Winchester, Kentucky 40392
2. By whom are you employed and in what position?
 - A. I am employed by East Kentucky Power as the Vice President of Power Delivery.
3. As background for your testimony, please briefly describe your educational background and work experience?
 - A. I graduated in 1966 with a Bachelor of Science Degree in Electrical Engineering from the Tennessee Technological University. I am a Licensed Professional Engineer in the Commonwealth of Kentucky. My work experience has included 15 years as Planning Engineer for Warren Rural Electric Cooperative Corporation. I have been with East Kentucky Power Cooperative since February, 1981. After coming to work at East Kentucky, I was Manager of the System Planning Department for 10 years and

responsible for transmission planning and power supply planning, and have been in my current position since 1991.

4. What are your duties and responsibilities as EKPC's Vice President of Power Delivery?
 - A. I am responsible for the transmission system from the generating plant substation through the distribution substation. This includes transmission planning, dispatch, engineering, construction, operations and maintenance.
5. Did you personally participate in the discussions with Warren RECC concerning Warren RECC becoming a member of EKPC?
 - A. Yes, I did.
6. Did you personally participate in the discussions with TVA concerning TVA providing transmission service across its existing transmission facilities to EKPC so that EKPC could provide electric power and energy to Warren RECC?
 - A. Yes, I did.
7. Does TVA have transmission facilities in place that could be utilized to provide transmission service to EKPC for purposes of service to Warren RECC?
 - A. Yes.
8. Has EKPC requested that TVA provide transmission service to allow EKPC to serve Warren RECC?
 - A. Yes.
9. Has TVA refused EKPC's request?
 - A. Yes.
10. Has TVA put its refusal to provide the Applicant such transmission service in writing?

- A. Yes. In the Response of TVA to Application of EKPC for an Order Requiring Interconnections to FERC dated November 1, 2004, TVA stated on Page 4 that it had denied transmission service to EKPC on two occasions. Once during a contact to set up the March 4, 2004 meeting to discuss transmission service to serve Warren and then again during the March 4th meeting. An excerpt from the TVA response follows:

“In early February 2004, almost a year after Warren had given notice, EKPC contacted TVA to set up a meeting to discuss transmission issues associated with EKPC serving Warren. At that time, TVA informed EKPC that it would not wheel power to a TVA distributor if that power would be consumed within the TVA service area, consistent with the congressional policy set out in the Anti-Cherry-picking Amendment (Section 212(j) of the FPA). On February 19, 2004, EKPC sent a letter to TVA, confirming a meeting for March 4, 2004, and including an agenda for that meeting. Among other things, the agenda listed “TVA Position on Wheeling to Distributor” and “EKPC/Warren Transmission Construction Plan” as discussion items.

On March 4, 2004, EKPC, Warren and TVA met to discuss EKPC’s transmission plan to serve Warren. TVA again explained that based on the Anti-Cherry-picking Amendment, TVA would not agree to wheel EKPC power to Warren.”

Therefore, EKPC has developed a transmission plan which ties the Warren load to the EKPC system, effects a direct tie with Big Rivers and utilizes the existing TVA transmission system for only reliability and voltage support.

11. Has TVA agreed to interconnect with EKPC at the East Bowling Green, Memphis Junction, and Salmons Substations?
- A. No, TVA has rejected our proposed interconnections.
12. What is the status of the request for interconnections?
- A. After TVA refused our interconnection request, EKPC filed an application with FERC in November 2004 to order TVA to interconnect with EKPC. In April 2005, FERC issued a proposed order supporting EKPC’s application completely and ordering TVA to interconnect with EKPC at the three requested interconnection points. The proposed

order required EKPC and TVA to enter into settlement discussions to develop an interconnection agreement, and to brief FERC on remaining issues, which FERC would need to resolve. Since TVA continued to deny the interconnections during the settlement discussions, essentially all issues of the interconnection agreement are to be resolved by FERC and briefs have been filed to that effect. We are now awaiting a final order from FERC, which we expect will be identical to the proposed order.

13. If TVA is successful in denying the requested interconnections, will the lines in this case still be required?

A. Yes. EKPC studies indicated that, without the TVA interconnections, all lines in this application are still required. Additionally, EKPC will need to construct two other lines. One is a 161 kV line from Warren RECC's existing Memphis Junction Substation to the proposed Warren RECC Salmons Substation, approximately 12 miles. Also, a strong transmission injection at the existing Warren RECC General Motors Substation will be required for reliability and voltage support. Several potential alternatives have been reviewed, but a final recommendation has not been made at this time.

13. Does this conclude your testimony?

A. Yes, it does.

EXHIBIT 5

**COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION**

In the Matter of:

THE APPLICATION OF EAST KENTUCKY)
POWER COOPERATIVE, INC. FOR A CERTIFICATE)
OF PUBLIC CONVENIENCE AND NECESSITY FOR) **CASE NO**
FOR THE CONSTRUCTION OF A 161 kV ELECTRIC) **2005-00207**
TRANSMISSION PROJECT IN BARREN, WARREN,)
BUTLER, AND OHIO COUNTIES, KENTUCKY)

**PREPARED TESTIMONY OF MARY JANE WARNER
ON BEHALF OF
EAST KENTUCKY POWER COOPERATIVE, INC.**

1. Please state your name and address.
 - A. Mary Jane Warner, 27 Lynnway Drive, Winchester, KY 40391.
2. By whom are you employed and in what position?
 - A. I am employed by East Kentucky Power as Manager of Power Delivery Expansion.
3. As background for your testimony, please briefly describe your educational background and work experience?
 - A. I am a graduate of the University of Kentucky with a Bachelor's of Science in Civil Engineering and I am a Licensed Professional Engineer in the Commonwealth of Kentucky. I have 25 years of experience in Power Delivery related to the planning, design and construction of transmission lines and electrical substations.
4. What are your duties and responsibilities as manager of EKPC's Power Delivery Expansion Department?

A. I supervise and am responsible for all planning, routing, design and construction of transmission additions to the EKPC system.

5. Was the planning, routing and design activity for the Barren, Warren, Butler and Ohio Counties, Kentucky 161kV Transmission Project that is the subject of this Case No. 2005-00207 performed under your direction and supervision?

A. Yes

6. What is the purpose of your testimony?

A. The purpose of my testimony is to provide information related to the need and alternatives considered for facilities EKPC has proposed for construction in Barren, Warren, Butler and Ohio Counties that is the subject of this case.

7. What is your understanding as to Warren RECC becoming a member of the Applicant?

A. TVA offered its distributors a contract whereby with notice, they could leave TVA and obtain power supply elsewhere. After a solicitation and evaluation of proposals for long term power supply, Warren RECC elected to become a member of EKPC.

8. Are you familiar with the Prepared Testimony of Paul Atchison filed with this Application as Exhibit 4?

A. Yes.

9. Did you personally participate in discussion and negotiation regarding the Applicant's request to TVA for transmission service in order to provide electric power and energy to Warren RECC?

A. Yes.

10. Do you concur with Mr. Atchison's testimony regarding TVA's refusal to provide such transmission service over TVA's transmission facilities?
- A. Yes. TVA has made it very clear that they will not provide transmission service to EKPC to allow it to provide power supply to Warren RECC.
11. In that context, why is EKPC proposing to build their project?
- A. It is my understanding that under the Federal Power Act the Federal Energy Regulatory Commission cannot order TVA to provide transmission service to EKPC to serve Warren RECC. In light of that, EKPC has to find another transmission path to provide power supply to Warren RECC.
12. When does that transmission path have to be in place?
- A. April 1, 2008
13. Has a System Impact Study been performed by David A. Shafer of Commonwealth Associates, Inc. ("CAI") for the proposed project?
- A. Yes
14. Was this study, prepared by Mr. Shafer, under your direction and supervision?
- A. Yes
15. What were the conclusions of CAI's study?
- A. CAI concluded that approximately 93 miles of new 161 kV transmission line and a number of modifications to existing facilities will be needed for EKPC to serve the WRECC load.
16. Has Mr. Shafer prepared a final written report on the Justification of the Project?
- A. Yes.

17. Realizing that Mr. Shafer has submitted prepared testimony as part of this application which describes in detail the justification for this project and the electrical alternatives considered, please give the Commission a general overview of the alternatives and why this project was selected to provide service to Warren RECC?

A. Electrical alternatives were developed to extend the EKPC transmission system into the Warren RECC area. The two alternatives studied were 1) extension of the EKPC transmission system to the major delivery points in the Warren RECC system with interconnections to TVA, and 2) extension of the EKPC transmission system to the major delivery points in the Warren RECC system with TVA interconnections and with a tie on the western edge of their system to the Big Rivers Electric Corporation Wilson Generation Station. Those alternatives were then tested against an array of scenarios and criteria to determine their viability and comparative effectiveness. The proposed project was selected because it meets service and reliability criteria, while resulting in the fewest miles of new transmission line to be constructed.

18. Do you have an opinion as to whether the selected project is the best alternative to provide the transmission service necessary to serve Warren RECC?

A Yes

19. What is that opinion?

A. It is my opinion that the proposed project is the best alternative for EKPC to provide service to Warren RECC.

20. With respect to the routing and design of this type project, explain the process EKPC undertakes before determining a final route and design.
- A. For line segments of this magnitude, EKPC employs an outside firm to collect data and make a comparative assessment of route possibilities for the project. This process entails the collection of data through aerial survey, available photography and geographical databases along with ground reconnaissance for land use and feature confirmation. This information is compiled and a statistical model is used to identify Macro Corridors based on land use information. These Macro Corridors are then compared based on the Built Environment (man-made features and structures), Natural Environment, and Engineering Concerns. Viable route alternatives are developed, then scored, compared, and a “short list” is developed for the alternatives that best balance the impacts to cost, effectiveness, local communities and the environment, as represented in the three scoring categories listed above. The best alternatives are then screened using an approach called “Expert Judgment” that allows a more refined examination of the similarities and differences between the alternatives. The alternative with the best score after this step is used by EKPC to establish one-half mile wide study corridors which are presented at Open House meetings to gather local property owner input for further refinement of the route.
21. How did EKPC follow this process specifically regarding the Project?
- A. EKPC employed Photo Science Geospatial Solutions (Photo Science) of Lexington, Kentucky to perform the aerial data collection, field reconnaissance and modeling for comparison of alternatives in three major areas of the Project, Barren – Oakland

– Magna, Memphis Jct. – Natcher Parkway Jct., and Wilson – Aberdeen - Morgantown. (New route development was not needed from Magna – Memphis Junction and from the Natcher Parkway Junction – Morgantown because transmission lines are to be built in replacement of existing lines on existing rights of way, were to follow alongside existing lines.) Selection of the proposed centerlines for study corridors was the result of modeling by Photo Science and collaboration between EKPC designers and Photo Science experts. A report outlining the specific steps taken and modeling results for the previously identified parts of the Project was produced by Photo Science, and is attached as **Warner Exhibit 1**. EKPC conducted seven open houses scattered throughout the affected communities. Property owners and other attendees were encouraged to provide input about the refinement of the route within study corridors established as described above. Information about the project was sent via U.S. Mail to property owners of record within the study corridor, published in the local newspapers, and distributed at the open houses. EKPC designers then aggregated the open house input and modified the proposed route accordingly.

22. Is the location and routing of the Project, in your opinion, the best balance of cost, effectiveness, and environmental impact while minimizing the impact to the local community as a whole?
 - A. Yes, it is.
23. Does this conclude your testimony?
 - A. Yes, it does.

**COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION**

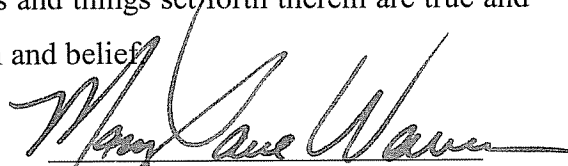
In the Matter of:

THE APPLICATION OF EAST KENTUCKY)
POWER COOPERATIVE, INC. FOR A CERTIFICATE)
OF PUBLIC CONVENIENCE AND NECESSITY FOR) **CASE NO**
FOR THE CONSTRUCTION OF A 161 kV ELECTRIC) **2005-00207**
TRANSMISSION PROJECT IN BARREN, WARREN,)
BUTLER, AND OHIO COUNTIES, KENTUCKY)

AFFIDAVIT


STATE OF KENTUCKY)
)
COUNTY OF CLARK)

Mary Jane Warner, being duly sworn, states that she has read the foregoing prepared testimony and that she would respond in the same manner to the questions if so asked upon taking the stand, and that the matters and things set forth therein are true and correct to the best of her knowledge, information and belief.



Mary Jane Warner

Subscribed and sworn before me on this 1st day of July 2005.



Notary Public
My Commission expires: 12/20/08

The EPRI Overhead Electric Transmission Line Siting Methodology Results

For

East Kentucky Power Corporation's

Memphis Junction – Natcher Parkway Junction
161 kV Transmission Line

Barren - Oakland – Magna
161 kV Transmission Line

and

Wilson – Aberdeen - Morgantown
161 kV Transmission Line

Projects

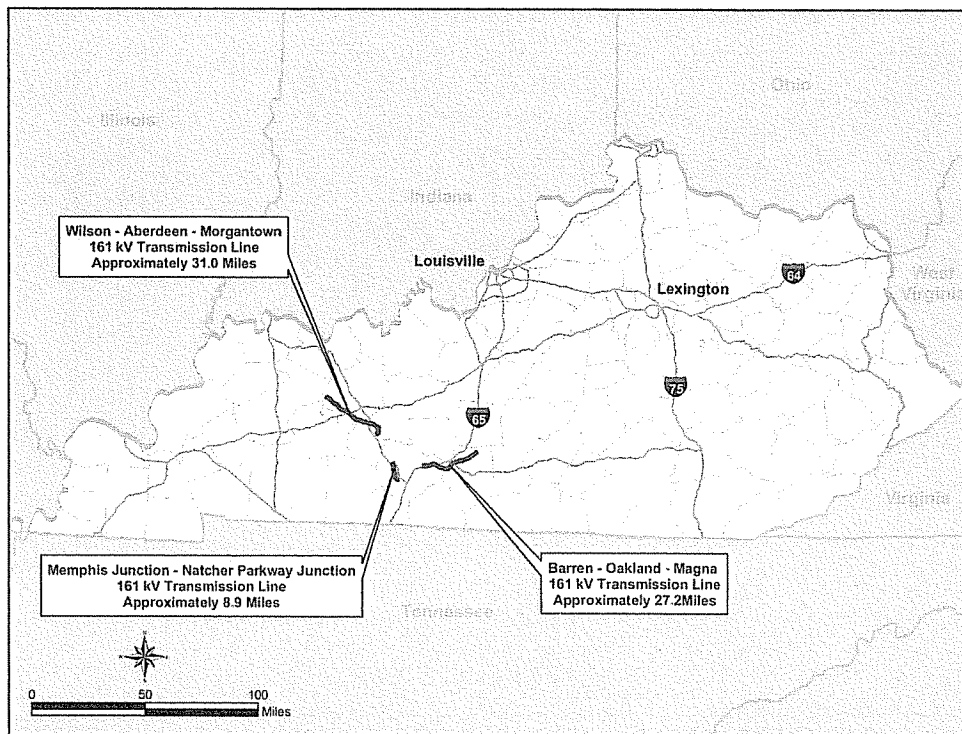


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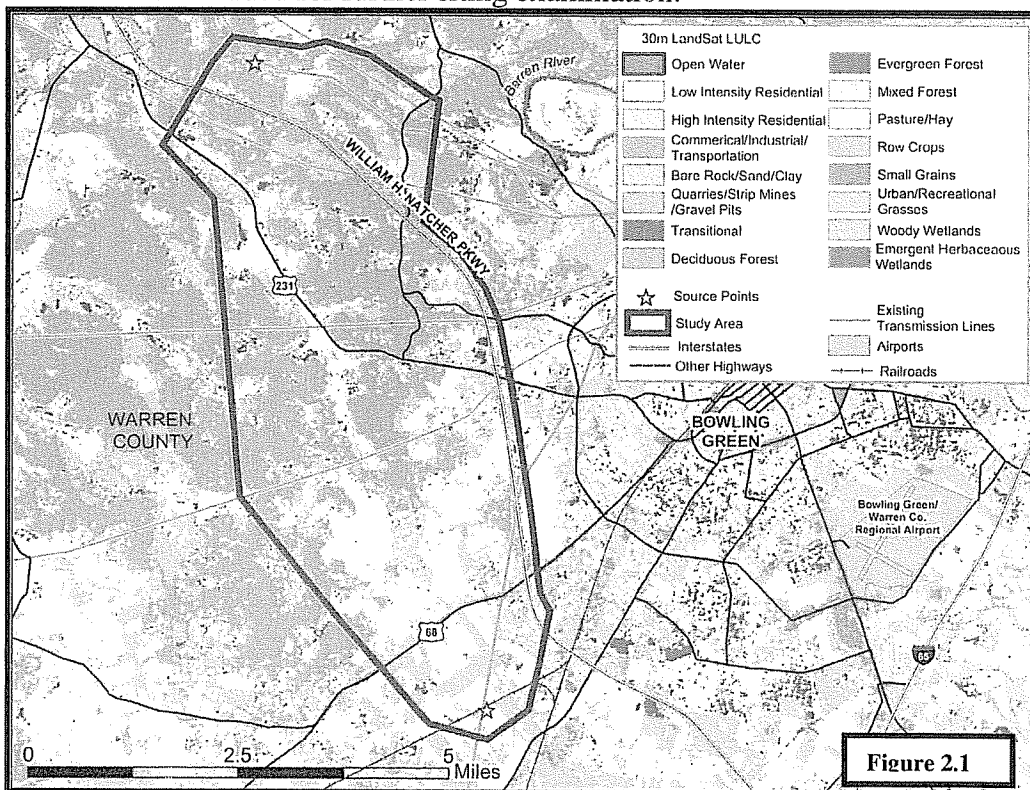
1. Introduction:

The EPRI Overhead Electric Transmission Line Siting Methodology was used for these projects using the calibrated weights and values determined by external stakeholders (including government agencies, NGO's, community groups, other utilities, etc...) and Georgia Transmission Corporation. This document reports the results of this process. Any departure from the methodology or weights and values is documented, and the reason for deviation is explained in this report. Details concerning the siting methodology can be found in the document entitled "EPRI – GTC Project Report: Standardized Methodology for Siting Overhead Electric Transmission Lines".

2. Memphis Junction – Natcher Parkway Junction

2.1. Macro Corridors:

The first step in this methodology is Macro Corridor creation, which defines an area for more detailed study. Typically for this stage, the best available land cover dataset based on 30m LandSat imagery is used. In the case of this area, the best available is from 1992. After evaluating the Macro Corridor results, it was determined that areas east of the William H. Natcher Parkway were too congested in relation to the remainder of the macro corridor area as a result of field analysis by the routing team. The 1992 land cover didn't reflect the recent urbanization of this area. Therefore this area was excluded for further siting examination.



The resulting area is approx. 23 sq miles to the west of Bowling Green. The land use is a mix of suburban residential, rural residential, agriculture, and forests with some commercial and industrial. The urbanized areas exist primarily on the east side near the parkway with the west side being more rural.

2.2. Alternative Corridors:

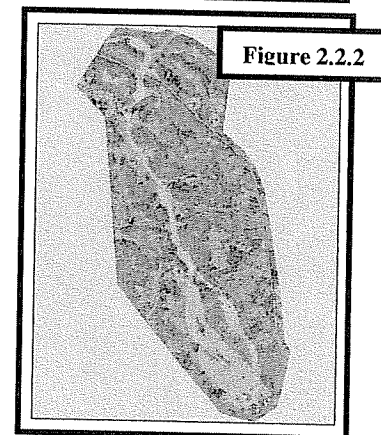
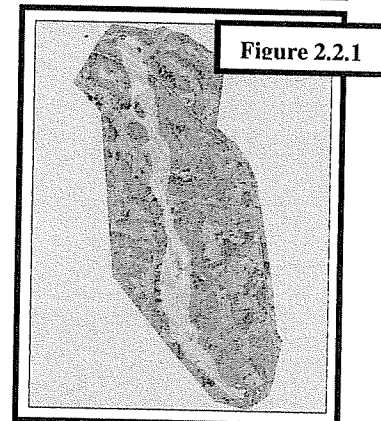
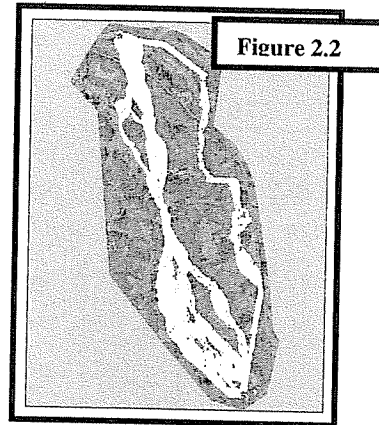
Once the Macro Corridors are identified, detailed datasets are developed for siting purposes. Weight and values are assigned to the datasets and alternative corridors are generated. In the Alternative Corridor phase, there were no deviations from the EPRI methodology or changes to the standardized weights and values.

2.2.1. Built Environment Corridor:

The Built Environment Corridor leaves the southern substation in a northwestern direction, avoiding proposed and existing developments. After approx. 2 miles, the corridor heads in a more northerly direction, crossing primarily agricultural and forested land use with some rural residential areas.

2.2.2. Natural Environment Corridor:

The Natural Environment Corridor also leaves the southern substation in a northwestern direction in several paths. However, this corridor is a greater impact to proposed and exiting developments in the area. It targets an agricultural area (avoiding forested areas on either side) until co-locating with US Highway 231. The corridor leaves US Highway 231 after approx. 2.0 miles at Price Chapel Road, follows Price Chapel Road for approx. 0.5 miles, and heads cross country in a northern direction for approx. 1.2 miles. Approx. 0.4 miles from the destination, the corridor co-locates with an existing transmission line to the end.



2.2.3. Engineering Concerns Corridor:

The Engineering Corridor heads out of the southern substation in a north northeast direction, co-locating with an existing transmission line. The existing transmission line crosses through residential neighborhoods in this area. After 2.4 miles, it leaves the existing transmission line, heads cross country for approx. 0.7 miles, and co-locates with an existing gas pipeline. The corridor leaves the gas pipeline after 1.75 miles and co-locates with another existing transmission line for approx. 0.5 miles. At this point, it co-locates with Glen Lily Road for approx. 2.4 miles. The last 2 miles of the corridor are co-located with another transmission line to the destination point. The land use of most of this route is urban, becoming densely residential in some points with the exception of the last two miles, which mainly is forested and agricultural.

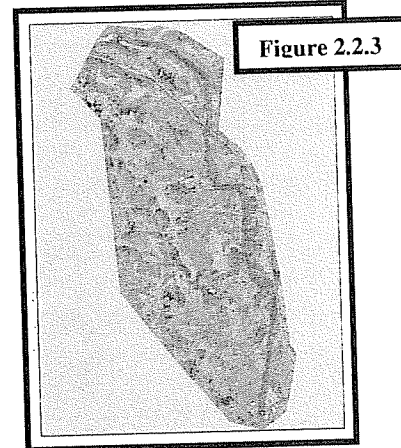


Figure 2.2.3

2.2.4. Averaged Corridor:

The Average Corridor mostly mimics the Natural Environment Corridor, with fewer paths from the southern substation.

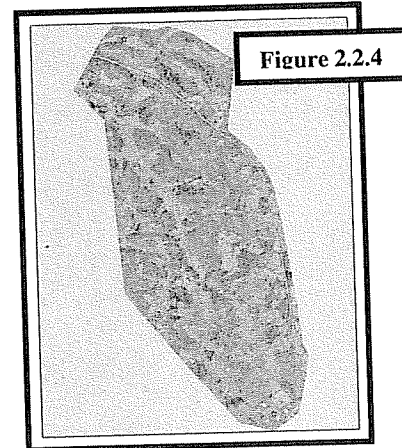


Figure 2.2.4

2.3. Alternate Routes:

The siting team analyzed the alternate corridors and identified alternate routes within the alternate corridors. These alternate routes were compared using the route selection matrix documented in the siting methodology.

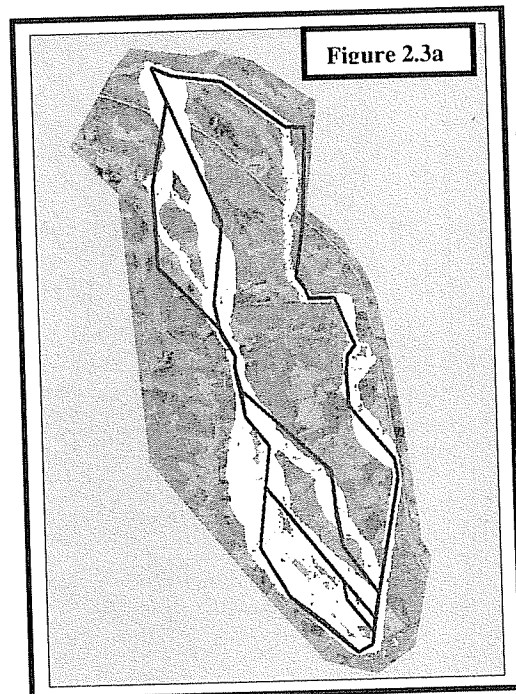
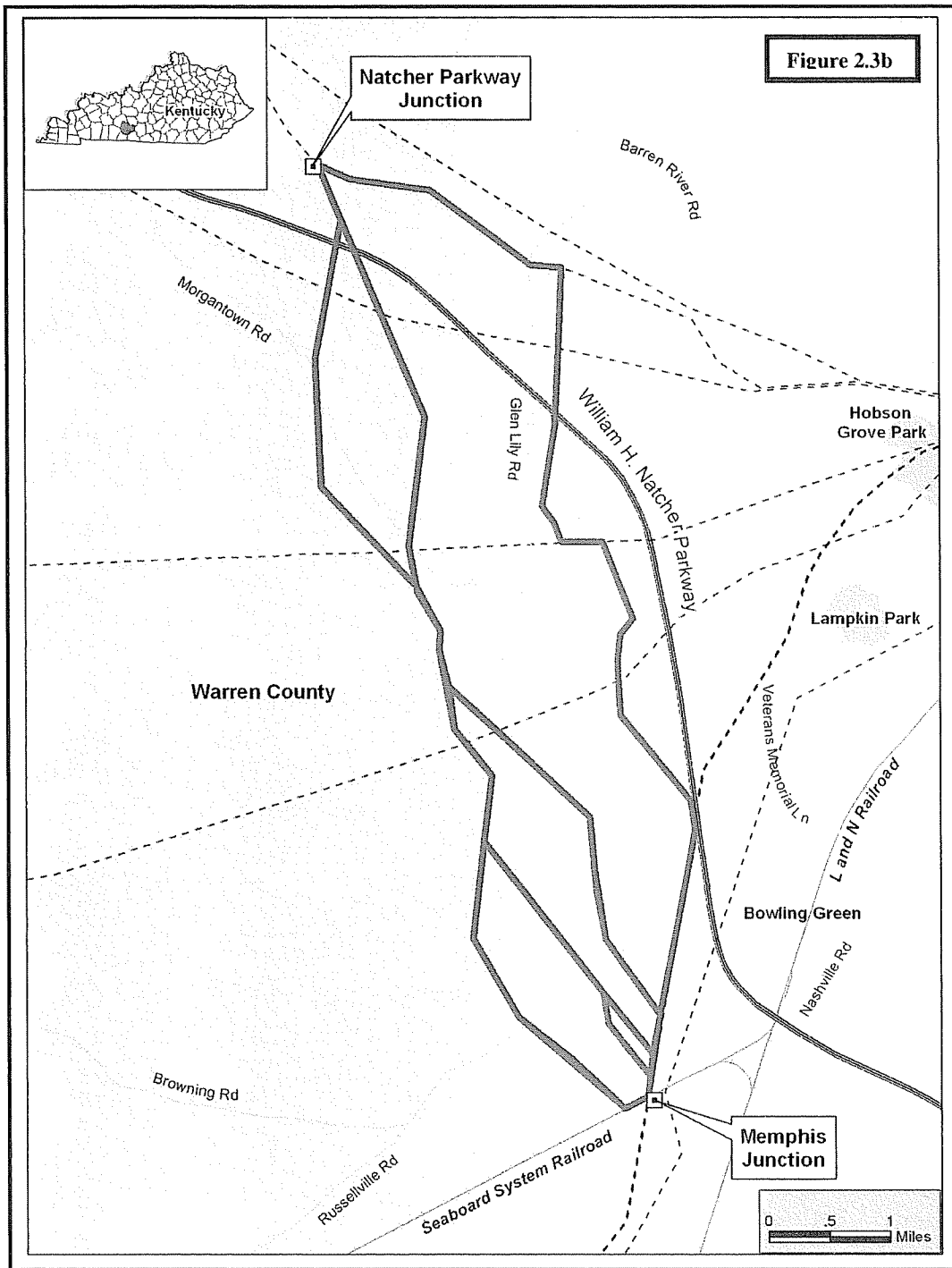


Figure 2.3a



2.4. Alternative Route Evaluation

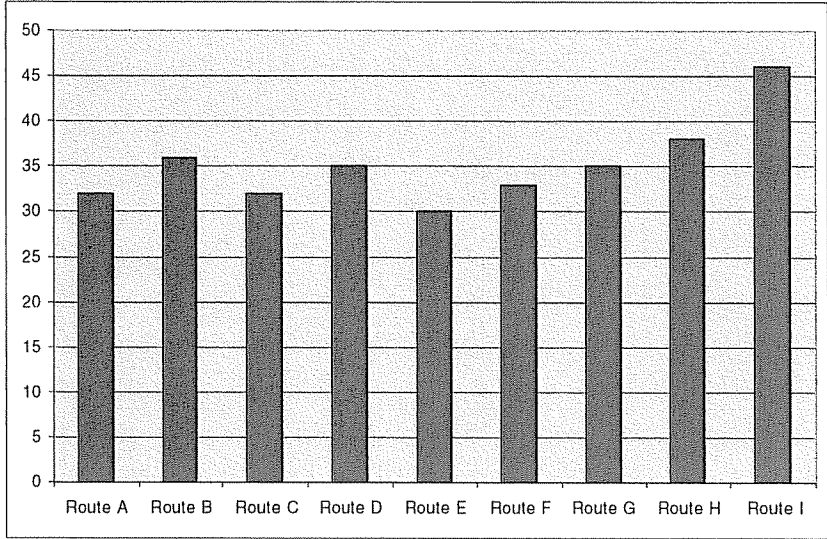
Raw Statistics and Normalized Statistics

Figure 2.4a

Built	Route A	Route B	Route C	Route D	Route E	Route F	Route G	Route H	Route I
Feature	Unit	Unit	Unit	Unit	Unit	Unit	Unit	Unit	Unit
Relocated Residences (within 100' Corridor)	0	0	0	0	0	0	0	0	0
<i>Normalized</i>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Proximity to Residences (300')	9	4	13	8	13	8	11	6	36
<i>Normalized</i>	0.2	0.0	0.3	0.1	0.3	0.1	0.2	0.1	1.0
Proposed Developments	0	0	0	0	0	0	0	0	0
<i>Normalized</i>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Proximity to Commercial Buildings (300')	0	0	0	0	0	0	1	1	0
<i>Normalized</i>	0.0	0.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0
Proximity to Industrial Buildings (300')	2	2	1	1	1	1	1	1	6
<i>Normalized</i>	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	1.0
School, DayCare, Church, Cemetery, Park	0	0	0	0	0	0	0	0	3
<i>Normalized</i>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0
NRHP Listed/Eligible Strucs /Districts (1500' from edge of R/W)	0	0	0	0	0	0	0	0	0
<i>Normalized</i>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Natural									
Natural Forests (Acres)	21.9	34.4	23.1	35.4	23.1	35.6	31.8	44.1	17.1
<i>Normalized</i>	0.2	0.6	0.2	0.7	0.2	0.7	0.5	1.0	0.0
Stream/River Crossings	7	7	7	7	7	7	8	8	4
<i>Normalized</i>	0.8	0.8	0.8	0.8	0.8	0.8	1.0	1.0	0.0
Wetland Areas (Acres)	0.3	0.3	0.2	0.2	0.2	0.2	0.4	0.3	0.5
<i>Normalized</i>	0.2	0.3	0.0	0.0	0.0	0.0	0.6	0.3	1.0
Floodplain Areas (Acres)	7.2	0.6	7.2	0.6	7.2	0.6	7.2	0.6	0.0
<i>Normalized</i>	1.0	0.1	1.0	0.1	1.0	0.1	1.0	0.1	0.0
Engineering									
Length (Miles)	9.1	8.9	8.7	8.5	8.7	8.5	8.8	8.6	9.8
<i>Normalized</i>	0.4	0.3	0.1	0.0	0.2	0.0	0.2	0.1	1.0
Miles of Rebuild with Existing T/L*	0.2	0.2	0.2	0.2	0.4	0.4	0.7	0.7	4.8
<i>Normalized</i>	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	1.0
<i>Inverted</i>	1.0	1.0	1.0	1.0	1.0	1.0	0.9	0.9	0.0
Miles of Co-location with Existing Utility*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1
<i>Normalized</i>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0
<i>Inverted</i>	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.0
Miles of Co-location with Roads*	0.0	0.0	0.5	0.5	0.0	0.0	0.1	0.1	0.0
<i>Normalized</i>	0.0	0.0	1.0	1.0	0.0	0.0	0.2	0.2	0.0
<i>Inverted</i>	1.0	1.0	0.0	0.0	1.0	1.0	0.8	0.8	1.0
Number of Parcels	32	36	32	35	30	33	35	38	46
<i>Normalized</i>	0.1	0.4	0.1	0.3	0.0	0.2	0.3	0.5	1.0
Total Project Costs	\$2,883,321	\$2,613,320	\$2,320,009	\$2,248,083	\$2,369,703	\$2,337,277	\$3,347,566	\$3,324,679	\$3,479,628
<i>Normalized</i>	0.5	0.3	0.1	0.0	0.1	0.1	0.9	0.9	1.0

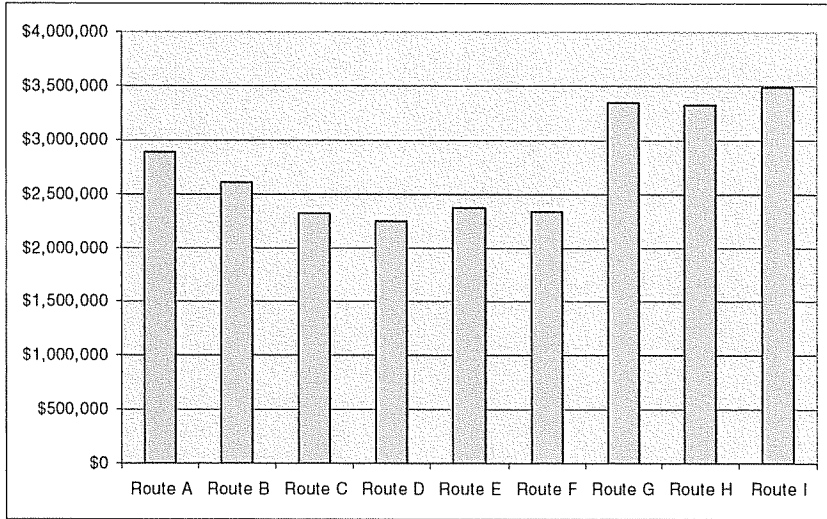
**Number of
Parcels
Crossed**

Figure 2.4b



**Comparative
Costs**

Figure 2.4c



Alternative Route Selection Matrix Emphasis on Built Environment

Figure 2.4d

Built	72%	Route A	Route B	Route C	Route D	Route E	Route F	Route G	Route H	Route I
Feature		Unit	Unit	Unit	Unit	Unit	Unit	Unit	Unit	Unit
Relocated Residences (within 75' Corridor)	0.0%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<i>Weighted</i>		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proximity to Residences (300')	32.6%	0.16	0.00	0.28	0.13	0.28	0.13	0.22	0.06	1.00
<i>Weighted</i>		0.05	0.00	0.09	0.04	0.09	0.04	0.07	0.02	0.33
Proposed Residential Developments	13.4%	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
<i>Weighted</i>		0.00	0.00	0.13	0.13	0.13	0.13	0.13	0.13	0.00
Proximity to Commercial Buildings (300')	9.0%	0.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00	0.00
<i>Weighted</i>		0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.09	0.00
Proximity to Industrial Buildings (300')	4.5%	0.20	0.20	0.00	0.00	0.00	0.00	0.00	0.00	1.00
<i>Weighted</i>		0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.05
School, DayCare, Church, Cemetery, Park	40.5%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00
<i>Weighted</i>		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.41
NRHP Listed/Eligible Strucs /Districts (1500' from edge of R/W)	0.0%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<i>Weighted</i>		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	100.0%	0.06	0.01	0.23	0.17	0.23	0.17	0.30	0.24	0.78
WEIGHTED TOTAL		0.04	0.01	0.16	0.13	0.16	0.13	0.21	0.18	0.56
Natural	14%									
Natural Forests (Acres)	9.3%	0.18	0.64	0.22	0.68	0.22	0.68	0.54	1.00	0.00
<i>Weighted</i>		0.02	0.06	0.02	0.06	0.02	0.06	0.05	0.09	0.00
Stream/River Crossings	38.0%	0.75	0.75	0.75	0.75	0.75	0.75	1.00	1.00	0.00
<i>Weighted</i>		0.29	0.29	0.29	0.29	0.29	0.29	0.38	0.38	0.00
Wetland Areas (Acres)	40.3%	0.23	0.26	0.00	0.04	0.02	0.00	0.62	0.31	1.00
<i>Weighted</i>		0.09	0.11	0.00	0.02	0.01	0.00	0.25	0.12	0.40
Floodplain Areas (Acres)	12.4%	1.00	0.09	1.00	0.09	1.00	0.09	1.00	0.09	0.00
<i>Weighted</i>		0.12	0.01	0.12	0.01	0.12	0.01	0.12	0.01	0.00
TOTAL	100.0%	0.52	0.46	0.43	0.37	0.44	0.36	0.80	0.61	0.40
WEIGHTED TOTAL		0.07	0.06	0.06	0.05	0.06	0.05	0.11	0.09	0.06
Engineering	14%									
Miles of Rebuild with Existing T/L*	65.6%	1.00	1.00	1.00	1.00	0.96	0.96	0.89	0.89	0.00
<i>Weighted</i>		0.66	0.66	0.66	0.66	0.63	0.63	0.58	0.58	0.00
Miles of Co-location with Existing T/L*	19.2%	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
<i>Weighted</i>		0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.00
Miles of Co-location with Roads*	7.8%	1.00	1.00	0.00	0.00	1.00	1.00	0.80	0.80	1.00
<i>Weighted</i>		0.08	0.08	0.00	0.00	0.08	0.08	0.06	0.06	0.08
Total Project Costs	7.4%	0.52	0.30	0.06	0.00	0.10	0.07	0.89	0.87	1.00
<i>Weighted</i>		0.04	0.02	0.00	0.00	0.01	0.01	0.07	0.06	0.07
TOTAL	100.0%	0.96	0.95	0.85	0.85	0.90	0.90	0.91	0.90	0.15
WEIGHTED TOTAL		0.13	0.13	0.12	0.12	0.13	0.13	0.13	0.13	0.02
SUM OF WEIGHTED TOTALS		0.25	0.20	0.34	0.30	0.35	0.30	0.45	0.39	0.64
RANK		2	1	5	3	6	4	8	7	9

Alternative Route Selection Matrix Emphasis on Engineering Concerns

Figure 2.4e

Built	11%	Route A	Route B	Route C	Route D	Route E	Route F	Route G	Route H	Route I
Feature		Unit	Unit	Unit	Unit	Unit	Unit	Unit	Unit	Unit
Relocated Residences (within 75' Corridor)	0.0%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<i>Weighted</i>		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proximity to Residences (300')	32.6%	0.16	0.00	0.28	0.13	0.28	0.13	0.22	0.06	1.00
<i>Weighted</i>		0.05	0.00	0.09	0.04	0.09	0.04	0.07	0.02	0.33
Proposed Residential Developments	13.4%	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
<i>Weighted</i>		0.00	0.00	0.13	0.13	0.13	0.13	0.13	0.13	0.00
Proximity to Commercial Buildings (300')	9.0%	0.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00	0.00
<i>Weighted</i>		0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.09	0.00
Proximity to Industrial Buildings (300')	4.5%	0.20	0.20	0.00	0.00	0.00	0.00	0.00	0.00	1.00
<i>Weighted</i>		0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.05
School, DayCare, Church, Cemetery, Park	40.5%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00
<i>Weighted</i>		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.41
NRHP Listed/Eligible Strucs /Districts (1500' from edge of R/W)	0.0%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	100.0%	0.06	0.01	0.23	0.17	0.23	0.17	0.30	0.24	0.78
WEIGHTED TOTAL		0.01	0.00	0.03	0.02	0.03	0.02	0.04	0.03	0.11
Natural	14%									
Natural Forests (Acres)	9.3%	0.18	0.64	0.22	0.68	0.22	0.68	0.54	1.00	0.00
<i>Weighted</i>		0.02	0.06	0.02	0.06	0.02	0.06	0.05	0.09	0.00
Stream/River Crossings	38.0%	0.75	0.75	0.75	0.75	0.75	0.75	1.00	1.00	0.00
<i>Weighted</i>		0.29	0.29	0.29	0.29	0.29	0.29	0.38	0.38	0.00
Wetland Areas (Acres)	40.3%	0.23	0.26	0.00	0.04	0.02	0.00	0.62	0.31	1.00
<i>Weighted</i>		0.09	0.11	0.00	0.02	0.01	0.00	0.25	0.12	0.40
Floodplain Areas (Acres)	12.4%	1.00	0.09	1.00	0.09	1.00	0.09	1.00	0.09	0.00
<i>Weighted</i>		0.12	0.01	0.12	0.01	0.12	0.01	0.12	0.01	0.00
TOTAL	100.0%	0.52	0.46	0.43	0.37	0.44	0.36	0.80	0.61	0.40
WEIGHTED TOTAL		0.07	0.06	0.06	0.05	0.06	0.05	0.11	0.09	0.06
Engineering	72%									
Miles of Rebuild with Existing T/L*	65.6%	1.00	1.00	1.00	1.00	0.96	0.96	0.89	0.89	0.00
<i>Weighted</i>		0.65	0.66	0.66	0.66	0.63	0.63	0.58	0.58	0.00
Miles of Co-location with Existing T/L*	19.2%	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
<i>Weighted</i>		0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.00
Miles of Co-location with Roads*	7.8%	1.00	1.00	0.00	0.00	1.00	1.00	0.80	0.80	1.00
<i>Weighted</i>		0.08	0.08	0.00	0.00	0.08	0.08	0.06	0.06	0.08
Total Project Costs	7.4%	0.52	0.30	0.06	0.00	0.10	0.07	0.89	0.87	1.00
<i>Weighted</i>		0.04	0.02	0.00	0.00	0.01	0.01	0.07	0.06	0.07
TOTAL	100.0%	0.96	0.95	0.85	0.85	0.90	0.90	0.91	0.90	0.15
WEIGHTED TOTAL		0.69	0.68	0.61	0.61	0.65	0.65	0.65	0.65	0.11
SUM OF WEIGHTED TOTALS		0.78	0.75	0.71	0.69	0.74	0.72	0.81	0.77	0.27
RANK		8	6	3	2	5	4	9	7	1

Alternative Route Selection Matrix Emphasis on Natural Environment

Figure 2.4f

Built	Feature	%	Route A	Route B	Route C	Route D	Route E	Route F	Route G	Route H	Route I
			Unit	Unit	Unit	Unit	Unit	Unit	Unit	Unit	Unit
	Relocated Residences (within 75' Corridor)	0.0%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	<i>Weighted</i>		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Proximity to Residences (300')	32.6%	0.16	0.00	0.28	0.13	0.28	0.13	0.22	0.06	1.00
	<i>Weighted</i>		0.05	0.00	0.09	0.04	0.09	0.04	0.07	0.02	0.33
	Proposed Residential Developments	13.4%	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
	<i>Weighted</i>		0.00	0.00	0.13	0.13	0.13	0.13	0.13	0.13	0.00
	Proximity to Commercial Buildings (300')	9.0%	0.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00	0.00
	<i>Weighted</i>		0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.09	0.00
	Proximity to Industrial Buildings (300')	4.5%	0.20	0.20	0.00	0.00	0.00	0.00	0.00	0.00	1.00
	<i>Weighted</i>		0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.05
	School, DayCare, Church, Cemetery, Park	40.5%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00
	<i>Weighted</i>		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.41
	NRHP Listed/Eligible Strucs /Districts (1500' from edge of R/W)	0.0%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	TOTAL	100.0%	0.06	0.01	0.23	0.17	0.23	0.17	0.30	0.24	0.78
	WEIGHTED TOTAL		0.01	0.00	0.03	0.02	0.03	0.02	0.04	0.03	0.11
	Natural	72%									
	Natural Forests (Acres)	9.3%	0.18	0.64	0.22	0.68	0.22	0.68	0.54	1.00	0.00
	<i>Weighted</i>		0.02	0.06	0.02	0.06	0.02	0.06	0.05	0.09	0.00
	Stream/River Crossings	38.0%	0.75	0.75	0.75	0.75	0.75	0.75	1.00	1.00	0.00
	<i>Weighted</i>		0.29	0.29	0.29	0.29	0.29	0.29	0.38	0.38	0.00
	Wetland Areas (Acres)	40.3%	0.23	0.26	0.00	0.04	0.02	0.00	0.62	0.31	1.00
	<i>Weighted</i>		0.09	0.11	0.00	0.02	0.01	0.00	0.25	0.12	0.40
	Floodplain Areas (Acres)	12.4%	1.00	0.09	1.00	0.09	1.00	0.09	1.00	0.09	0.00
	<i>Weighted</i>		0.12	0.01	0.12	0.01	0.12	0.01	0.12	0.01	0.00
	TOTAL	100.0%	0.52	0.46	0.43	0.37	0.44	0.36	0.80	0.61	0.40
	WEIGHTED TOTAL		0.37	0.33	0.31	0.27	0.31	0.26	0.58	0.44	0.29
	Engineering	14%									
	Miles of Rebuild with Existing T/L*	65.6%	1.00	1.00	1.00	1.00	0.96	0.96	0.89	0.89	0.00
	<i>Weighted</i>		0.66	0.66	0.66	0.66	0.63	0.63	0.58	0.58	0.00
	Miles of Co-location with Existing T/L*	19.2%	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
	<i>Weighted</i>		0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.00
	Miles of Co-location with Roads*	7.8%	1.00	1.00	0.00	0.00	1.00	1.00	0.80	0.80	1.00
	<i>Weighted</i>		0.08	0.08	0.00	0.00	0.08	0.08	0.06	0.06	0.08
	Total Project Costs	7.4%	0.52	0.30	0.06	0.00	0.10	0.07	0.89	0.87	1.00
	<i>Weighted</i>		0.04	0.02	0.00	0.00	0.01	0.01	0.07	0.06	0.07
	TOTAL	100.0%	0.96	0.95	0.85	0.85	0.90	0.90	0.91	0.90	0.15
	WEIGHTED TOTAL		0.13	0.13	0.12	0.12	0.13	0.13	0.13	0.13	0.02
	SUM OF WEIGHTED TOTALS		0.52	0.47	0.46	0.41	0.47	0.41	0.75	0.60	0.42
	RANK		7	5	4	2	6	1	9	8	3

Alternative Route Selection Matrix Equal Consideration of Categories

Figure 2.4g

Built	33%	Route A	Route B	Route C	Route D	Route E	Route F	Route G	Route H	Route I
		Unit	Unit	Unit	Unit	Unit	Unit	Unit	Unit	Unit
Relocated Residences (within 75' Corridor)	0.0%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<i>Weighted</i>		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proximity to Residences (300')	32.6%	0.16	0.00	0.28	0.13	0.28	0.13	0.22	0.06	1.00
<i>Weighted</i>		0.05	0.00	0.09	0.04	0.09	0.04	0.07	0.02	0.33
Proposed Residential Developments	13.4%	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
<i>Weighted</i>		0.00	0.00	0.13	0.13	0.13	0.13	0.13	0.13	0.00
Proximity to Commercial Buildings (300')	9.0%	0.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00	0.00
<i>Weighted</i>		0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.09	0.00
Proximity to Industrial Buildings (300')	4.5%	0.20	0.20	0.00	0.00	0.00	0.00	0.00	0.00	1.00
<i>Weighted</i>		0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.05
School, DayCare, Church, Cemetery, Park	40.5%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00
<i>Weighted</i>		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.41
NRHP Listed/Eligible Strucs /Districts (1500' from edge of R/W)	0.0%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	100.0%	0.06	0.01	0.23	0.17	0.23	0.17	0.30	0.24	0.78
WEIGHTED TOTAL		0.02	0.00	0.07	0.06	0.07	0.06	0.10	0.08	0.26
Natural	33%									
Natural Forests (Acres)	9.3%	0.18	0.64	0.22	0.68	0.22	0.68	0.54	1.00	0.00
<i>Weighted</i>		0.02	0.06	0.02	0.06	0.02	0.06	0.05	0.09	0.00
Stream/River Crossings	38.0%	0.75	0.75	0.75	0.75	0.75	0.75	1.00	1.00	0.00
<i>Weighted</i>		0.29	0.29	0.29	0.29	0.29	0.29	0.38	0.38	0.00
Wetland Areas (Acres)	40.3%	0.23	0.26	0.00	0.04	0.02	0.00	0.62	0.31	1.00
<i>Weighted</i>		0.09	0.11	0.00	0.02	0.01	0.00	0.25	0.12	0.40
Floodplain Areas (Acres)	12.4%	1.00	0.09	1.00	0.09	1.00	0.09	1.00	0.09	0.00
<i>Weighted</i>		0.12	0.01	0.12	0.01	0.12	0.01	0.12	0.01	0.00
TOTAL	100.0%	0.52	0.46	0.43	0.37	0.44	0.36	0.80	0.61	0.40
WEIGHTED TOTAL		0.17	0.15	0.14	0.12	0.14	0.12	0.27	0.20	0.13
Engineering	33%									
Miles of Rebuild with Existing T/L*	65.6%	1.00	1.00	1.00	1.00	0.96	0.96	0.89	0.89	0.00
<i>Weighted</i>		0.66	0.66	0.66	0.66	0.63	0.63	0.58	0.58	0.00
Miles of Co-location with Existing T/L*	19.2%	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
<i>Weighted</i>		0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.00
Miles of Co-location with Roads*	7.8%	1.00	1.00	0.00	0.00	1.00	1.00	0.80	0.80	1.00
<i>Weighted</i>		0.08	0.08	0.00	0.00	0.08	0.08	0.06	0.06	0.08
Total Project Costs	7.4%	0.52	0.30	0.06	0.00	0.10	0.07	0.89	0.87	1.00
<i>Weighted</i>		0.04	0.02	0.00	0.00	0.01	0.01	0.07	0.06	0.07
TOTAL	100.0%	0.96	0.95	0.85	0.85	0.90	0.90	0.91	0.90	0.15
WEIGHTED TOTAL		0.32	0.31	0.28	0.28	0.30	0.30	0.30	0.30	0.05
SUM OF WEIGHTED TOTALS		0.51	0.47	0.50	0.46	0.52	0.47	0.66	0.58	0.44
RANK		6	3	5	2	7	4	9	8	1

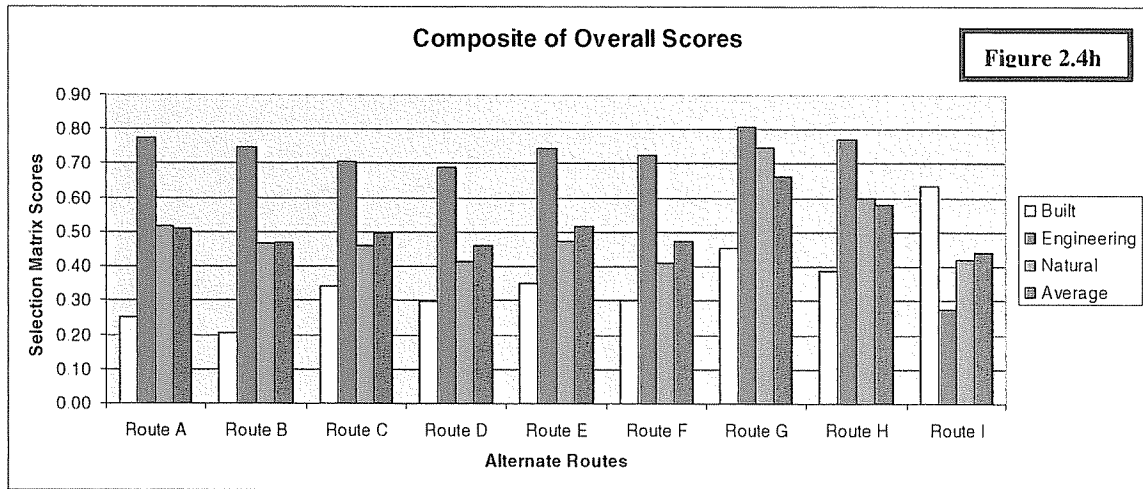


Figure 2.4h

2.5. Top Routes:

After evaluating all possible routes within the network of alternatives, the following routes surfaced to be the most suitable.

2.5.1. Route B:

Route B scores best when emphasis is placed on items in the Built Environment. It has the lowest number of residences within close proximity.

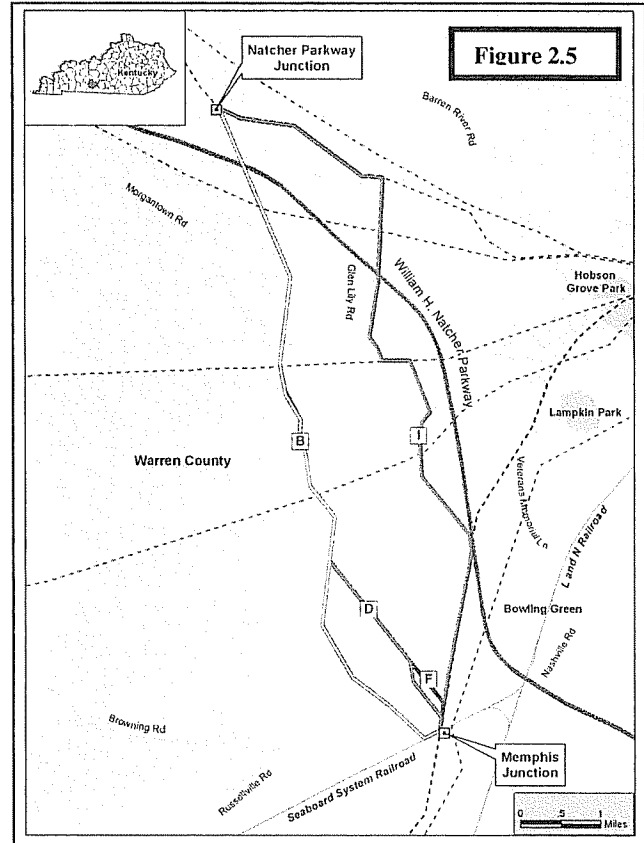
Route B begins by heading in a southwestern direction for a short distance along an existing transmission line from the southern substation then turning northwest to avoid proposed and existing developments. And begins to head in a more northerly direction, primarily impacting agricultural fields and some forested areas. It crosses Highway 231 approx. 1.7 miles south of the intersection with Price Chapel Road and proceeds in a northerly direction through a mainly forested area with some agriculture.

2.5.2. Route D:

Route D scores best when all categories are consider equal in the route selection matrix. Route D has moderate scores for most items. However, it is the least costly route. This is primarily due to low property cost, low forested acres to clear, and no double circuit sections.

Route D follows a similar path as Route B with the exception of the first 2.5 miles on the southern end of the project. This route co-locates with an existing transmission line for a short distance, and then turns northwest crossing areas of proposed developments and areas currently developing before joining the same path as Route B.

2.5.3. Route F:



Route F scores best when emphasis is placed on Natural Environment items. Route F impacts the lowest amount of wetlands and impacts a low amount of floodplain acreage. It also scores fairly well in the Built Environment due to a low number of homes in close proximity.

Route F is virtually the same as Route D with a small deviation on the southern end, crossing the same properties.

2.5.4. Route I:

Route I scores best when emphasis is placed on Engineering Concerns. However, Route I is the most costly route of all the corridors, due to double circuiting costs. It scores the best because of the amount of co-location. This includes 4.8 miles with existing transmission lines.

Route I follows the engineering corridor, co-locating with existing transmission lines where possible on the eastern side of the study area. However, this path leads Route I through the most urbanized sections of the study area.

2.6. Expert Judgment:

In the Expert Judgment Matrix, the top routes from the Route Selection Matrix are examined by the routing team. For this project the team determined that Community Issues and Schedule Delay Risks were the greatest concern followed by Construction and Maintenance Accessibility Issues and Visual Issues.

Route B was given a low impact score for all categories, with the exception of a moderate impact score for construction and maintenance accessibility. It received low impact scores in Community Issues, Visual Issues, Schedule Delay risk due to the rural nature of this route, low number of homes in close proximity, and a fairly low amount of parcels impacted. It received a moderate impact score in Construction and Maintenance Accessibility Issues due to the new cross country corridor.

Route D and Route F received moderate impact scores in all categories. This is due to the impact to areas of proposed developments and currently developing areas. It received a moderate impact score in Construction and Maintenance Accessibility Issues due to the new cross country corridor, as with Route B.

Route I received a low impact score for Construction and Maintenance Accessibility Issues due to the amount of co-location with existing transmission lines. It received moderate impact scores for Visual Issues and Schedule Delay Risks due to the dense urban areas along this route. Although this route primarily co-locates, it will also require approx. 5 miles of new corridor in urbanized areas. It also received a high

impact score for Community Issues also due to the dense urban areas and close proximity to the most homes of all the corridors.

Figure 2.6a

EXPERT JUDGEMENT		1 = Low Impact 2 = Medium Impact 3 = High Impact			
	Per Project	Route B	Route D	Route F	Route I
Visual Issues	10%	1	2	2	2
<i>Weighted</i>		0.1	0.2	0.2	0.2
Community Issues	40%	1	2	2	3
<i>Weighted</i>		0.4	0.8	0.8	1.2
Schedule Delay Risk (Parcels)	40%	1	2	2	2
<i>Weighted</i>		0.4	0.8	0.8	0.8
Construction/ Maintenance Accessibility	10%	2	2	2	1
<i>Weighted</i>		0.2	0.2	0.2	0.1
TOTAL					
	100%	1.1	2	2	2.3

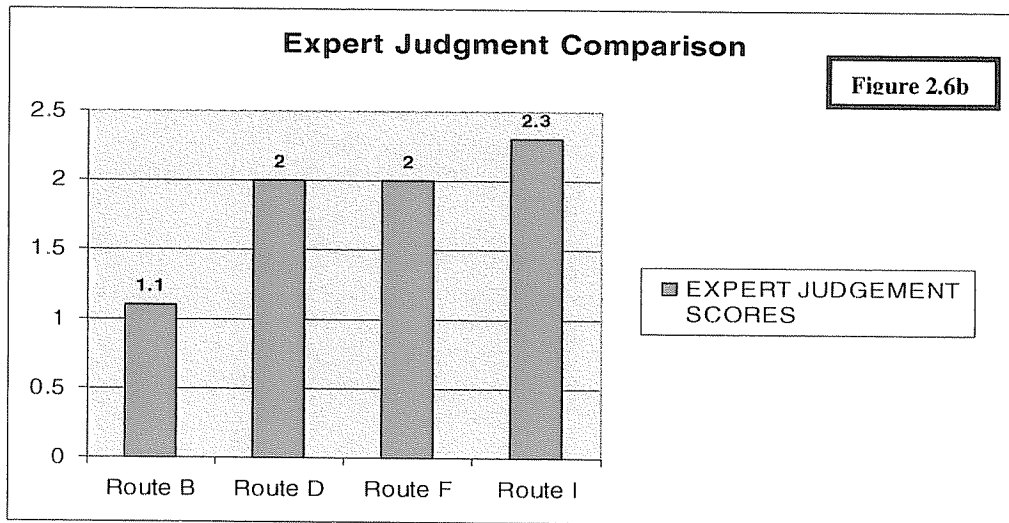
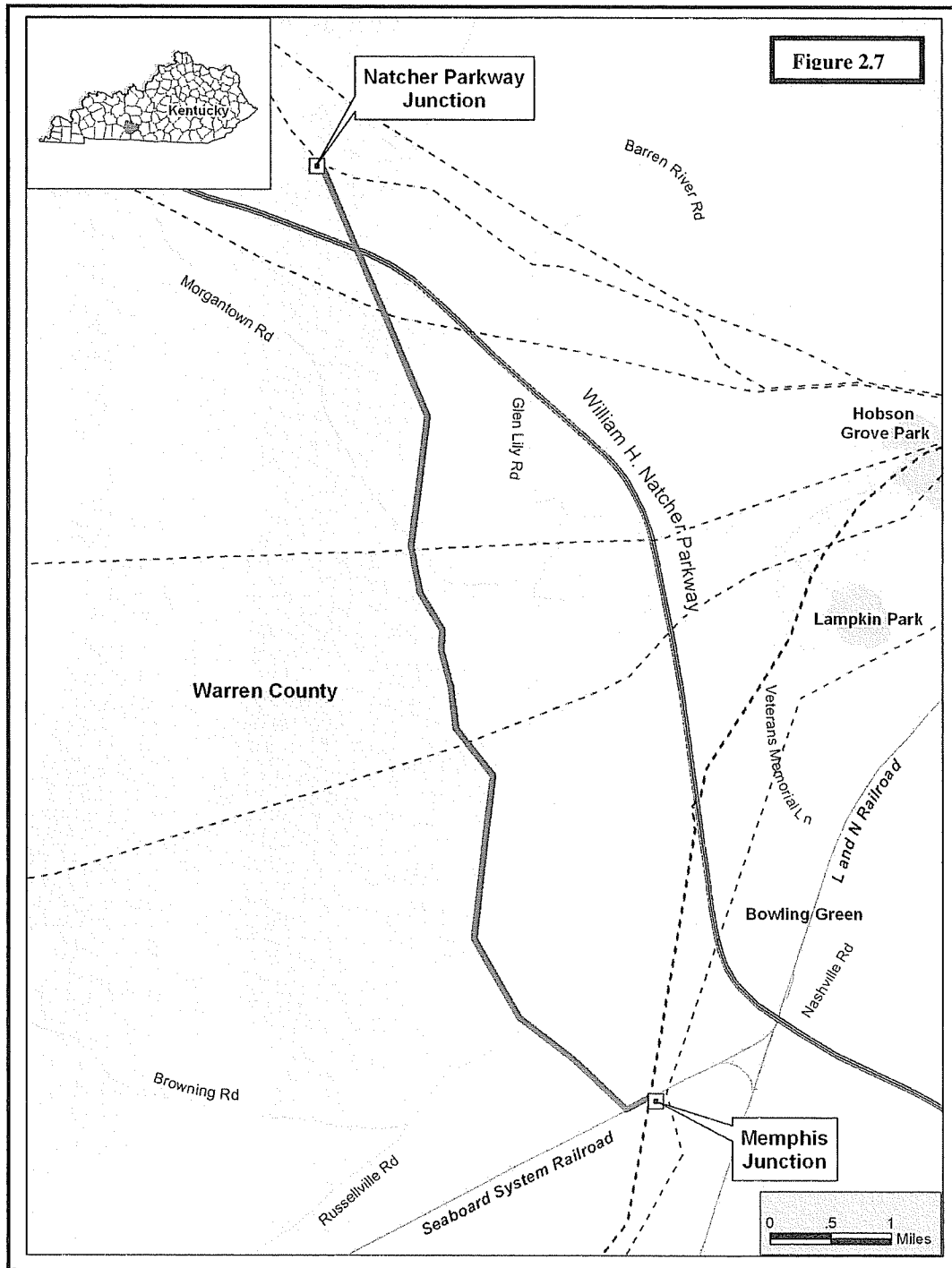


Figure 2.6b

2.7. Conclusion:

Overall, Route B scores the best in the Expert Judgment Matrix and is therefore the preferred corridor. According to EKPC's internal process, this corridor is subject to refinement based on local input and more detailed data.

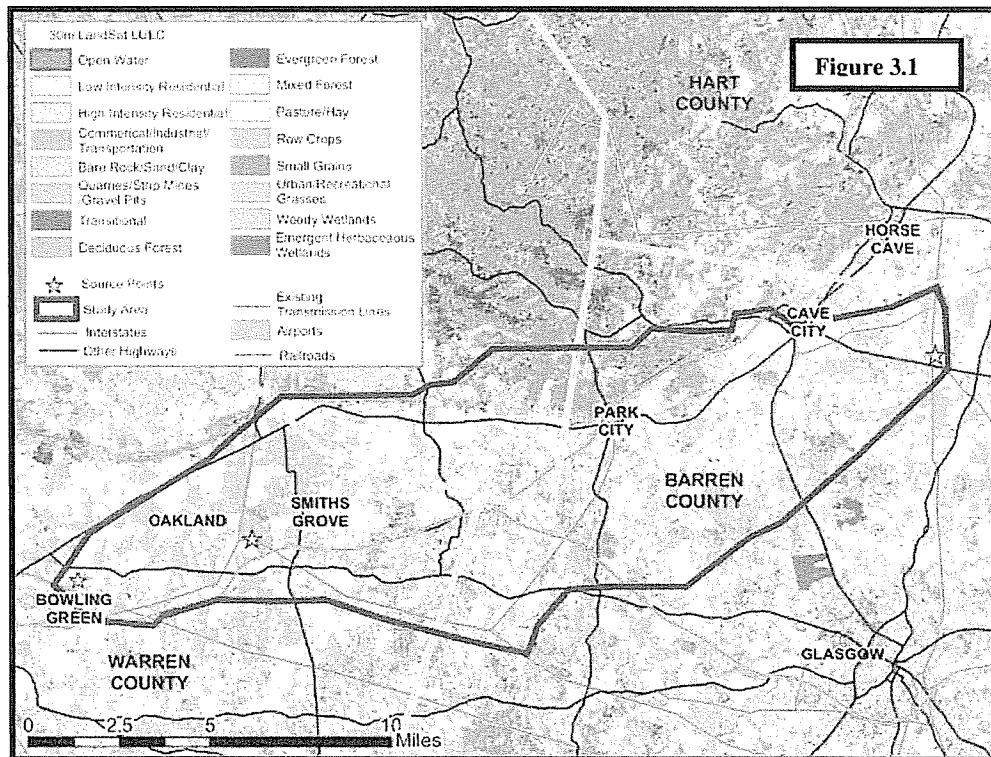


3. Barren – Oakland – Magna

3.1. Macro Corridors:

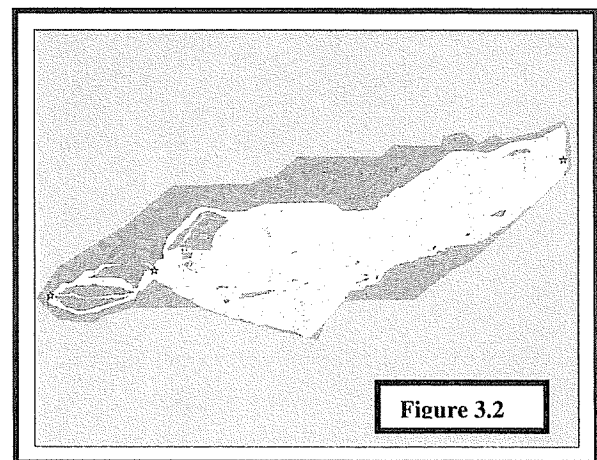
The first step in this methodology is Macro Corridor creation, which defines an area for more detailed study. Typically for this stage, the best available land cover dataset based on 30m LandSat imagery is used. In the case of this area, the best available is from 1992.

The macro corridors identified an area approx. 132 sq miles east of Bowling Green and South of Mammoth Cave. The study area is predominately agricultural with pockets of urbanized land use and forests.



3.2. Alternative Corridors:

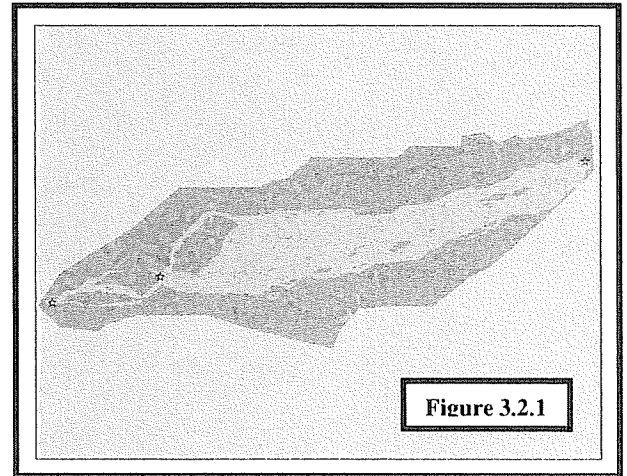
Once the Macro Corridors are identified, detailed datasets are developed for siting purposes. Weight and values are assigned to the datasets and alternative corridors are generated. In the Alternative Corridor phase, there were no deviations from the EPRI methodology or changes to the standardized weights and values.



3.2.1. Built Environment Corridor:

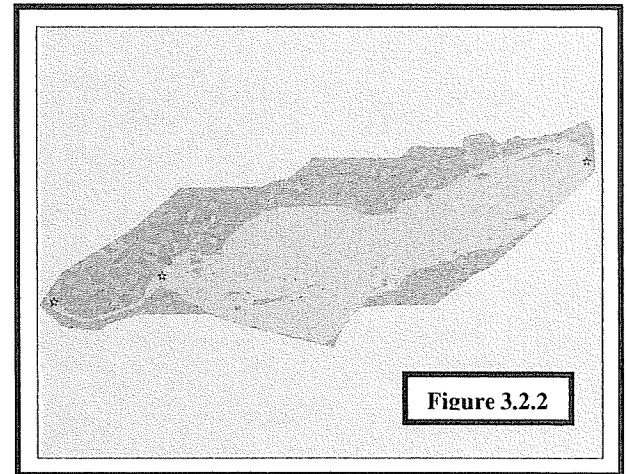
The Built Environment Corridor from Barren to Oakland encompassed a wide swath through the middle of the study area, providing many routing options. This was due to the rural nature of this section of the study area.

The Built Environment Corridor from Oakland to Magna is more defined and generated three distinct corridors, one to the north of the town of Oakland, and two to the south. All three are cross country corridors.



3.2.2. Natural Environment Corridor:

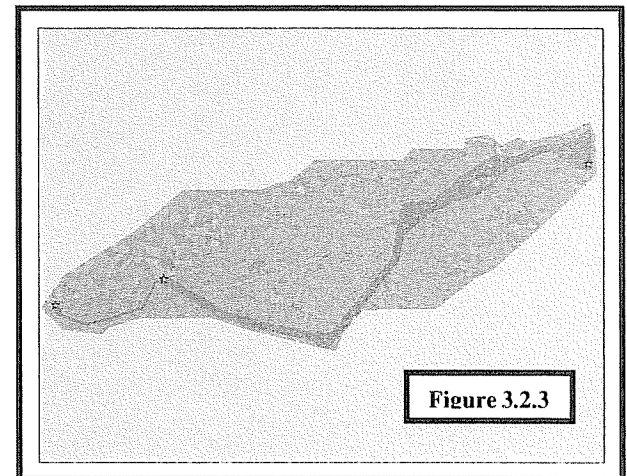
The Natural Environment Corridor from Barren to Oakland encompassed an even larger corridor than the Built Environment Corridor. This corridor covers the same area as the built corridor, but adding additional areas in the southern portion of the study area. This large area was generated primarily due to the lack of natural features in the study area. The corridor avoided the northern section of the study area primarily due to bat habitat.



The Natural Environment Corridor from Oakland to Magna followed the existing transmission line between the two points.

3.2.3. Engineering Concerns Corridor:

The Engineering Corridor was much more defined than the previous two, utilizing existing corridors. It begins by roughly paralleling an existing transmission line past Cave City. Next, it roughly parallels a road from the south side of Cave City to close proximity to Park City. Finally it parallels with another existing transmission line all the way to Oakland.



The Engineering Corridor from Oakland to Magna follows the same transmission line as the Natural Corridor, paralleling an existing transmission line to the south of the town of Oakland.

3.2.4. Averaged Corridor:

The Averaged Corridor from Barren to Oakland begins with a wide track similar to the Built and Natural Corridor, until reaching the existing transmission line west and south of Park City, at which point the corridor becomes more defined and mimics the Engineering Corridor.

The Averaged Corridor from Oakland to Magna follows the same existing transmission line corridor as the Natural Environment and Engineering Concerns Corridor.

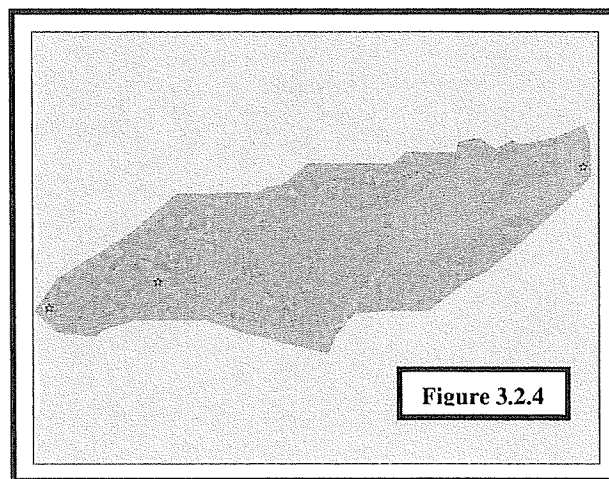


Figure 3.2.4

3.3. Alternate Routes:

The siting team analyzed the alternate corridors and identified alternate routes within the alternative corridors. These alternate routes were compared using the route selection matrix documented in the siting methodology.

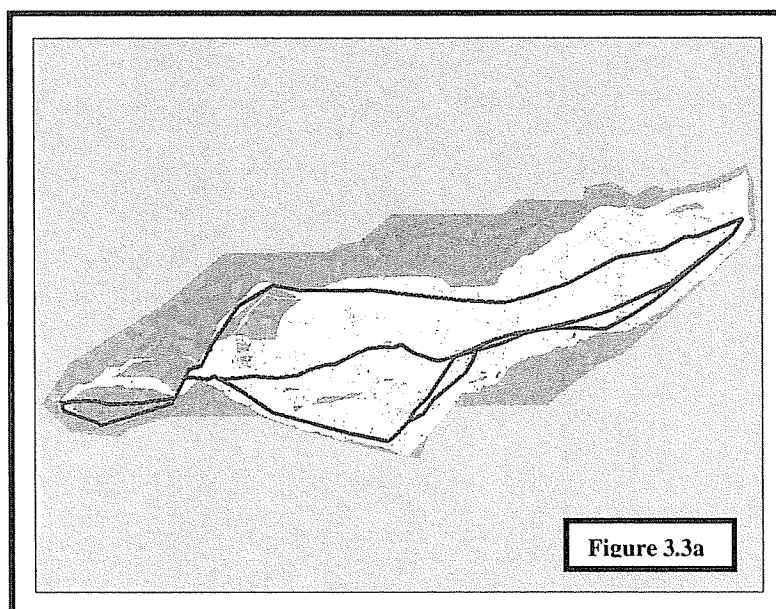
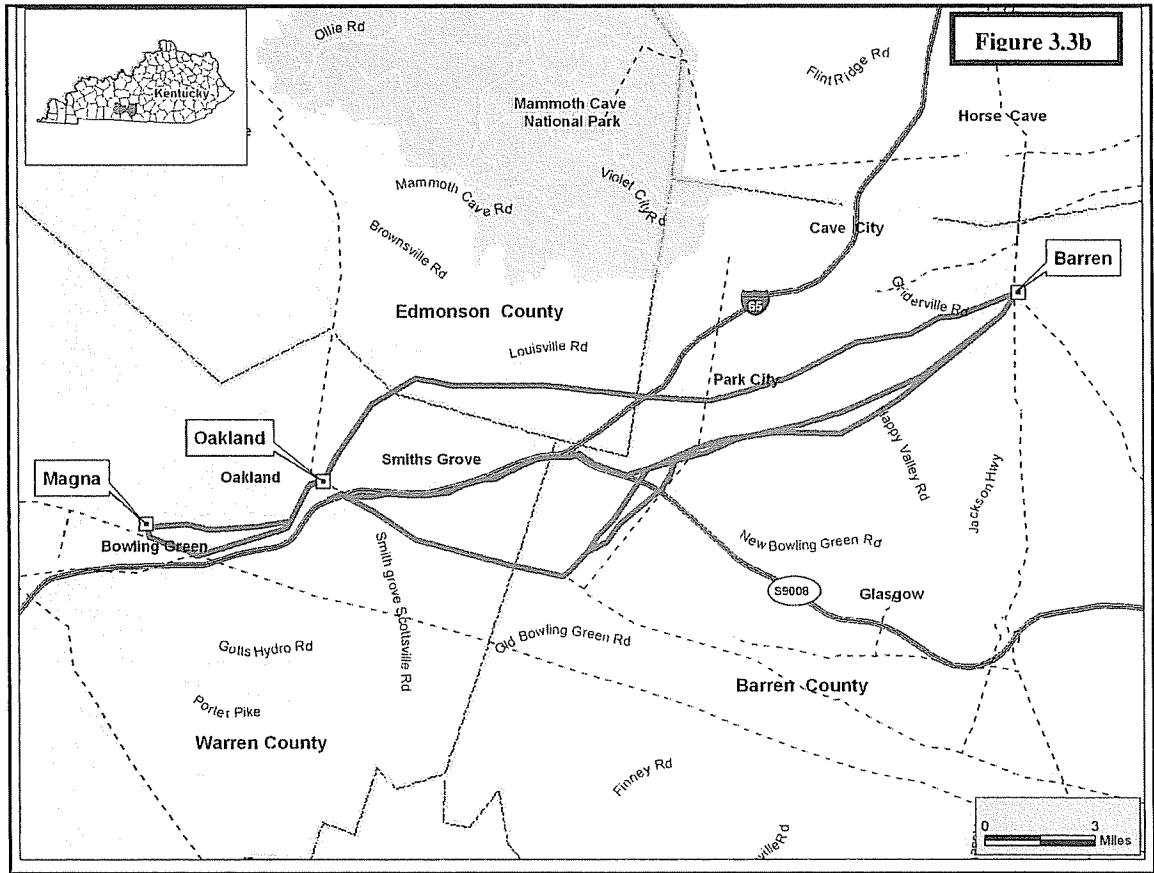


Figure 3.3a



3.4. Alternate Route Evaluation:

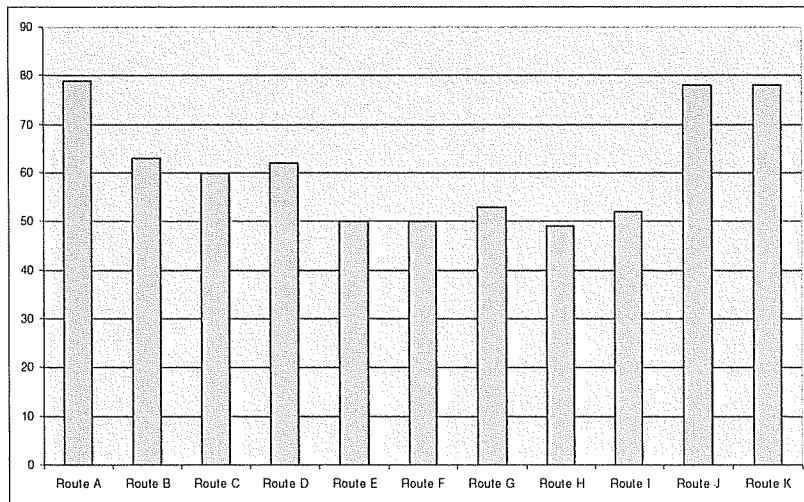
Figure 3.4a

Raw Statistics and Normalized Statistics

FOR ALL ROUTES											
Built	Route A	Route B	Route C	Route D	Route E	Route F	Route G	Route H	Route I	Route J	Route K
Features											
Relocated Residences (within 100' Corridor)	0	0	0	0	0	0	0	0	0	0	0
<i>Normalized</i>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Proximity to Residences (300')	14	11	13	11	13	9	11	9	11	14	16
<i>Normalized</i>	0.7	0.3	0.6	0.3	0.6	0.0	0.3	0.0	0.3	0.7	1.0
Proposed Developments	0	2	1	2	1	2	1	2	1	2	1
<i>Normalized</i>	0.0	1.0	0.5	1.0	0.5	1.0	0.5	1.0	0.5	1.0	0.5
Proximity to Commercial Buildings (300')	0	0	0	0	0	0	0	0	0	0	0
<i>Normalized</i>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Proximity to Industrial Buildings (300')	1	0	0	0	0	0	0	0	0	2	2
<i>Normalized</i>	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	1.0
School, DayCare, Church, Cemetery, Park Parcels (#)	0	0	0	0	0	0	0	0	0	0	0
<i>Normalized</i>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NRHP Listed/Eligible Strucs /Districts (1500' from edge of R/W)	1	0	0	0	0	0	0	0	0	0	0
<i>Normalized</i>	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Natural											
Natural Forests (Acres)	16.0	19.9	23.4	21.4	24.8	14.0	17.4	15.4	18.8	30.0	33.4
<i>Normalized</i>	0.1	0.3	0.5	0.4	0.6	0.0	0.2	0.1	0.2	0.8	1.0
Stream/River Crossings	0	8	9	8	9	5	6	5	6	7	7
<i>Normalized</i>	0.0	0.9	1.0	0.9	1.0	0.6	0.7	0.6	0.7	0.8	0.8
Wetland Areas (Acres)	2.9	4.1	2.0	4.2	2.2	4.0	1.9	4.1	2.1	5.2	3.2
<i>Normalized</i>	0.3	0.7	0.0	0.7	0.1	0.6	0.0	0.7	0.0	1.0	0.4
Floodplain Areas (Acres)	0.0	2.2	2.2	2.2	2.2	0.0	0.0	0.0	0.0	4.2	4.2
<i>Normalized</i>	0.0	0.5	0.5	0.5	0.5	0.0	0.0	0.0	0.0	1.0	1.0
Engineering											
Length (Miles)	20.8	22.2	22.2	22.5	22.2	22.4	22.1	22.5	22.2	20.6	20.4
<i>Normalized</i>	0.2	0.9	0.9	1.0	0.9	1.0	0.8	1.0	0.9	0.1	0.0
Miles of Rebuild with Existing T/L*	0.0	8.0	8.0	8.0	8.0	10.9	10.9	10.9	10.9	0.0	0.0
<i>Normalized</i>	0.0	0.7	0.7	0.7	0.7	1.0	1.0	1.0	1.0	0.0	0.0
<i>Inverted</i>	1.0	0.3	0.3	0.3	0.3	0.0	0.0	0.0	0.0	1.0	1.0
Miles of Co-location with Existing T/L*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<i>Normalized</i>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<i>Inverted</i>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Miles of Co-location with Roads*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.1	7.1
<i>Normalized</i>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	1.0
<i>Inverted</i>	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.0	0.0
Number of Parcels	79	63	60	62	50	50	53	49	52	78	78
<i>Normalized</i>	1.0	0.5	0.4	0.4	0.0	0.0	0.1	0.0	0.1	1.0	1.0
Total Project Costs	\$6,927,912	\$8,180,225	\$8,119,230	\$8,269,516	\$8,120,288	\$8,505,205	\$8,351,971	\$8,534,192	\$8,398,052	\$6,914,212	\$6,800,813
<i>Normalized</i>	0.1	0.8	0.8	0.8	0.8	1.0	0.9	1.0	0.9	0.1	0.0

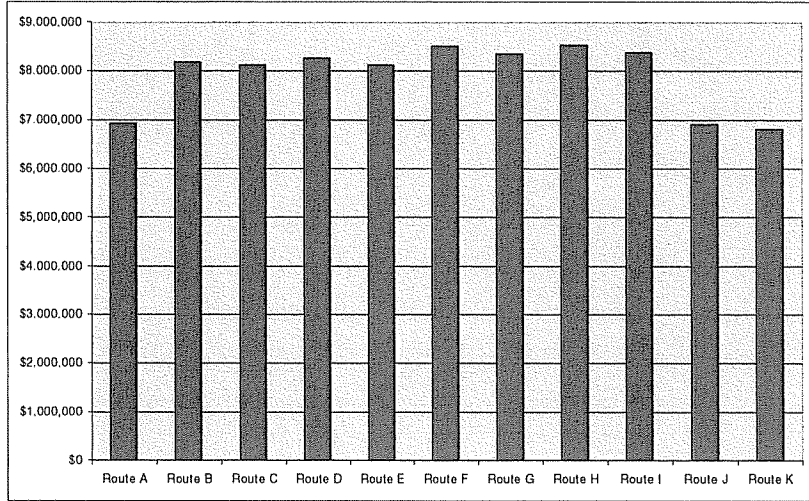
Number of
Parcels
Crossed

Figure 3.4b



Comparative Costs

Figure 3.4c



**Alternative Route Selection Matrix
Emphasis on Built Environment**

Figure 3.4d

Built	72%	Route A	Route B	Route C	Route D	Route E	Route F	Route G	Route H	Route I	Route J	Route K
Feature		Unit	Unit	Unit	Unit	Unit	Unit	Unit	Unit	Unit	Unit	Unit
Relocated Residences (within 75' Corridor)	0.0%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Weighted		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proximity to Residences (300')	36.4%	0.71	0.29	0.57	0.29	0.57	0.00	0.29	0.00	0.29	0.71	1.00
Weighted		0.26	0.10	0.21	0.10	0.21	0.00	0.10	0.00	0.10	0.26	0.36
Proposed Residential Developments	15.3%	0.00	1.00	0.50	1.00	0.50	1.00	0.50	1.00	0.50	1.00	0.50
Weighted		0.00	0.15	0.08	0.15	0.08	0.15	0.08	0.15	0.08	0.15	0.08
Proximity to Commercial Buildings (300')	0.0%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Weighted		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proximity to Industrial Buildings (300')	5.1%	0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00
Weighted		0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.05
School, DayCare, Church, Cemetery, Park	0.0%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Weighted		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NRHP Listed/Eligible Strucs./Districts (1500' from edge of RAW)	43.2%	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Weighted		0.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	100.0%	0.72	0.26	0.28	0.26	0.28	0.15	0.18	0.15	0.18	0.46	0.49
WEIGHTED TOTAL		0.52	0.19	0.20	0.19	0.20	0.11	0.13	0.11	0.13	0.33	0.35
Natural	14%											
Natural Forests (Acres)	9.3%	0.10	0.30	0.48	0.38	0.56	0.00	0.18	0.07	0.25	0.82	1.00
Weighted		0.01	0.03	0.05	0.04	0.05	0.00	0.02	0.01	0.02	0.08	0.09
Stream/River Crossings	38.0%	0.00	0.89	1.00	0.89	1.00	0.56	0.67	0.56	0.67	0.78	0.78
Weighted		0.00	0.34	0.38	0.34	0.38	0.21	0.25	0.21	0.25	0.30	0.30
Wetland Areas (Acres)	40.3%	0.32	0.65	0.03	0.70	0.08	0.62	0.00	0.67	0.05	1.00	0.38
Weighted		0.13	0.26	0.01	0.28	0.03	0.25	0.00	0.27	0.02	0.40	0.15
Floodplain Areas (Acres)	12.4%	0.00	0.52	0.52	0.52	0.52	0.00	0.00	0.00	0.00	1.00	1.00
Weighted		0.00	0.06	0.06	0.06	0.06	0.00	0.00	0.00	0.00	0.12	0.12
TOTAL	100.0%	0.14	0.69	0.50	0.72	0.53	0.46	0.27	0.49	0.30	0.90	0.67
WEIGHTED TOTAL		0.02	0.10	0.07	0.10	0.07	0.06	0.04	0.07	0.04	0.13	0.09
Engineering	14%											
Miles of Rebuild with Existing T/L*	81.2%	1.00	0.27	0.27	0.27	0.27	0.00	0.00	0.00	0.00	1.00	1.00
Weighted		0.81	0.22	0.22	0.22	0.22	0.00	0.00	0.00	0.00	0.81	0.81
Miles of Co-location with Existing T/L*	0.0%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Weighted		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Miles of Co-location with Roads*	9.7%	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00
Weighted		0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.00	0.00
Total Project Costs	9.1%	0.07	0.80	0.76	0.85	0.76	0.98	0.89	1.00	0.92	0.07	0.00
Weighted		0.01	0.07	0.07	0.08	0.07	0.09	0.08	0.09	0.08	0.01	0.00
TOTAL	100.0%	0.92	0.39	0.38	0.39	0.38	0.19	0.18	0.19	0.18	0.82	0.81
WEIGHTED TOTAL		0.13	0.05	0.05	0.05	0.05	0.03	0.02	0.03	0.03	0.11	0.11
SUM OF WEIGHTED TOTALS		0.66	0.34	0.33	0.34	0.33	0.20	0.19	0.20	0.20	0.57	0.56
RANK		11	7	5	8	6	3	1	4	2	10	9

Alternative Route Selection Matrix Emphasis on Engineering Concerns

Figure 3.4e

Built	14%	Route A	Route B	Route C	Route D	Route E	Route F	Route G	Route H	Route I	Route J	Route K
Feature	Unit	Unit	Unit	Unit	Unit	Unit	Unit	Unit	Unit	Unit	Unit	Unit
Relocated Residences (within 75' Corridor)	0.0%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<i>Weighted</i>		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proximity to Residences (300')	36.4%	0.71	0.29	0.57	0.29	0.57	0.00	0.29	0.00	0.29	0.71	1.00
<i>Weighted</i>		0.26	0.10	0.21	0.10	0.21	0.00	0.10	0.00	0.10	0.26	0.36
Proposed Residential Developments	15.3%	0.00	1.00	0.50	1.00	0.50	1.00	0.50	1.00	0.50	1.00	0.50
<i>Weighted</i>		0.00	0.15	0.08	0.15	0.08	0.15	0.08	0.15	0.08	0.15	0.08
Proximity to Commercial Buildings (300')	0.0%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<i>Weighted</i>		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proximity to Industrial Buildings (300')	5.1%	0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00
<i>Weighted</i>		0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.05
School, DayCare, Church, Cemetery, Park	0.0%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<i>Weighted</i>		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NRHP Listed/Eligible Strucs /Districts (1500' from edge of R/W)	43.2%	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<i>Weighted</i>		0.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	100.0%	0.72	0.26	0.28	0.26	0.28	0.15	0.18	0.15	0.18	0.46	0.49
WEIGHTED TOTAL		0.10	0.04	0.04	0.04	0.04	0.02	0.03	0.02	0.03	0.06	0.07
Natural	14%											
Natural Forests (Acres)	9.3%	0.10	0.30	0.48	0.38	0.56	0.00	0.18	0.07	0.25	0.82	1.00
<i>Weighted</i>		0.01	0.03	0.05	0.04	0.05	0.00	0.02	0.01	0.02	0.08	0.09
Stream/River Crossings	38.0%	0.00	0.89	1.00	0.89	1.00	0.56	0.67	0.56	0.67	0.78	0.78
<i>Weighted</i>		0.00	0.34	0.38	0.34	0.38	0.21	0.25	0.21	0.25	0.30	0.30
Wetland Areas (Acres)	40.3%	0.32	0.65	0.03	0.70	0.08	0.62	0.00	0.67	0.05	1.00	0.38
<i>Weighted</i>		0.13	0.26	0.01	0.28	0.03	0.25	0.00	0.27	0.02	0.40	0.15
Floodplain Areas (Acres)	12.4%	0.00	0.52	0.52	0.52	0.52	0.00	0.00	0.00	0.00	1.00	1.00
<i>Weighted</i>		0.00	0.06	0.06	0.06	0.06	0.00	0.00	0.00	0.00	0.12	0.12
TOTAL	100.0%	0.14	0.69	0.50	0.72	0.53	0.46	0.27	0.49	0.30	0.90	0.67
WEIGHTED TOTAL		0.02	0.10	0.07	0.10	0.07	0.06	0.04	0.07	0.04	0.13	0.09
Engineering	72%											
Miles of Rebuild with Existing T/L*	81.2%	1.00	0.27	0.27	0.27	0.27	0.00	0.00	0.00	0.00	1.00	1.00
<i>Weighted</i>		0.81	0.22	0.22	0.22	0.22	0.00	0.00	0.00	0.00	0.81	0.81
Miles of Co-location with Existing T/L*	0.0%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<i>Weighted</i>		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Miles of Co-location with Roads*	9.7%	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00
<i>Weighted</i>		0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.00	0.00
Total Project Costs	9.1%	0.07	0.80	0.76	0.85	0.76	0.98	0.89	1.00	0.92	0.07	0.00
<i>Weighted</i>		0.01	0.07	0.07	0.08	0.07	0.09	0.08	0.09	0.08	0.01	0.00
TOTAL	100.0%	0.92	0.39	0.38	0.39	0.38	0.19	0.18	0.19	0.18	0.82	0.81
WEIGHTED TOTAL		0.66	0.28	0.28	0.28	0.28	0.13	0.13	0.14	0.13	0.59	0.58
SUM OF WEIGHTED TOTALS		0.78	0.41	0.39	0.42	0.39	0.22	0.19	0.22	0.20	0.78	0.75
RANK		10	7	5	8	6	3	1	4	2	11	9

Alternative Route Selection Matrix Emphasis on Natural Environment

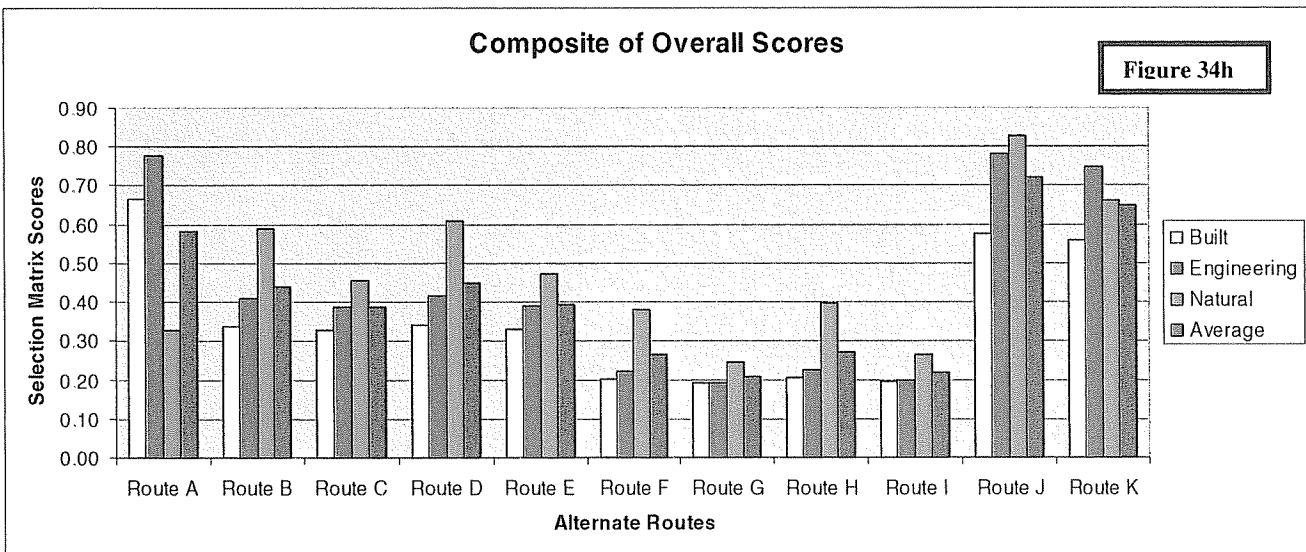
Figure 3.4f

Built	14%	Route A	Route B	Route C	Route D	Route E	Route F	Route G	Route H	Route I	Route J	Route K
Feature		Unit	Unit	Unit	Unit	Unit	Unit	Unit	Unit	Unit	Unit	Unit
Relocated Residences (within 75' Corridor)	0.0%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Weighted		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proximity to Residences (300')	36.4%	0.71	0.29	0.57	0.29	0.57	0.00	0.29	0.00	0.29	0.71	1.00
Weighted		0.26	0.10	0.21	0.10	0.21	0.00	0.10	0.00	0.10	0.26	0.36
Proposed Residential Developments	15.3%	0.00	1.00	0.50	1.00	0.50	1.00	0.50	1.00	0.50	1.00	0.50
Weighted		0.00	0.15	0.08	0.15	0.08	0.15	0.08	0.15	0.08	0.15	0.08
Proximity to Commercial Buildings (300')	0.0%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Weighted		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proximity to Industrial Buildings (300')	5.1%	0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00
Weighted		0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.05
School, DayCare, Church, Cemetery, Park	0.0%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Weighted		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NRHP Listed/Eligible Strucs /Districts (1500' from edge of R/W)	43.2%	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Weighted		0.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	100.0%	0.72	0.26	0.28	0.26	0.28	0.15	0.18	0.15	0.18	0.46	0.49
WEIGHTED TOTAL		0.10	0.04	0.04	0.04	0.04	0.02	0.03	0.02	0.03	0.06	0.07
Natural	72%											
Natural Forests (Acres)	9.3%	0.10	0.30	0.48	0.38	0.56	0.00	0.18	0.07	0.25	0.82	1.00
Weighted		0.01	0.03	0.05	0.04	0.05	0.00	0.02	0.01	0.02	0.08	0.09
Stream/River Crossings	38.0%	0.00	0.89	1.00	0.89	1.00	0.56	0.67	0.56	0.67	0.78	0.78
Weighted		0.00	0.34	0.38	0.34	0.38	0.21	0.25	0.21	0.25	0.30	0.30
Wetland Areas (Acres)	40.3%	0.32	0.65	0.03	0.70	0.08	0.62	0.00	0.67	0.05	1.00	0.38
Weighted		0.13	0.26	0.01	0.28	0.03	0.25	0.00	0.27	0.02	0.40	0.15
Floodplain Areas (Acres)	12.4%	0.00	0.52	0.52	0.52	0.52	0.00	0.00	0.00	0.00	1.00	1.00
Weighted		0.00	0.06	0.06	0.06	0.06	0.00	0.00	0.00	0.00	0.12	0.12
TOTAL	100.0%	0.14	0.69	0.50	0.72	0.53	0.46	0.27	0.49	0.30	0.90	0.67
WEIGHTED TOTAL		0.10	0.50	0.36	0.52	0.38	0.33	0.19	0.35	0.21	0.65	0.48
Engineering	14%											
Miles of Rebuild with Existing T/L*	81.2%	1.00	0.27	0.27	0.27	0.27	0.00	0.00	0.00	0.00	1.00	1.00
Weighted		0.81	0.22	0.22	0.22	0.22	0.00	0.00	0.00	0.00	0.81	0.81
Miles of Co-location with Existing T/L*	0.0%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Weighted		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Miles of Co-location with Roads*	9.7%	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00
Weighted		0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.00	0.00
Total Project Costs	9.1%	0.07	0.80	0.76	0.85	0.76	0.98	0.89	1.00	0.92	0.07	0.00
Weighted		0.01	0.07	0.07	0.08	0.07	0.09	0.08	0.09	0.08	0.01	0.00
TOTAL	100.0%	0.92	0.39	0.38	0.39	0.38	0.19	0.18	0.19	0.18	0.82	0.81
WEIGHTED TOTAL		0.13	0.05	0.05	0.05	0.05	0.03	0.02	0.03	0.03	0.11	0.11
SUM OF WEIGHTED TOTALS		0.33	0.59	0.46	0.61	0.47	0.38	0.24	0.40	0.26	0.83	0.66
RANK		3	8	6	9	7	4	1	5	2	11	10

Alternative Route Selection Matrix Equal Consideration of Categories

Figure 3.4g

Built	33%	Route A	Route B	Route C	Route D	Route E	Route F	Route G	Route H	Route I	Route J	Route K
Feature		Unit	Unit	Unit	Unit	Unit	Unit	Unit	Unit	Unit	Unit	Unit
Relocated Residences (within 75' Corridor)	0.0%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<i>Weighted</i>		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proximity to Residences (300')	36.4%	0.71	0.29	0.57	0.29	0.57	0.00	0.29	0.00	0.29	0.71	1.00
<i>Weighted</i>		0.26	0.10	0.21	0.10	0.21	0.00	0.10	0.00	0.10	0.26	0.36
Proposed Residential Developments	15.3%	0.00	1.00	0.50	1.00	0.50	1.00	0.50	1.00	0.50	1.00	0.50
<i>Weighted</i>		0.00	0.15	0.08	0.15	0.08	0.15	0.08	0.15	0.08	0.15	0.08
Proximity to Commercial Buildings (300')	0.0%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<i>Weighted</i>		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proximity to Industrial Buildings (300')	5.1%	0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00
<i>Weighted</i>		0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.05
School, DayCare, Church, Cemetery, Park	0.0%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<i>Weighted</i>		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NRHP Listed/Eligible Strucs /Districts (1500' from edge of RAW)	43.2%	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		0.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	100.0%	0.72	0.26	0.28	0.26	0.28	0.15	0.18	0.15	0.18	0.46	0.49
WEIGHTED TOTAL		0.24	0.08	0.09	0.08	0.09	0.05	0.06	0.05	0.06	0.15	0.16
Natural	33%											
Natural Forests (Acres)	9.3%	0.10	0.30	0.48	0.38	0.56	0.00	0.18	0.07	0.25	0.82	1.00
<i>Weighted</i>		0.01	0.03	0.05	0.04	0.05	0.00	0.02	0.01	0.02	0.08	0.09
Stream/River Crossings	38.0%	0.00	0.89	1.00	0.89	1.00	0.56	0.67	0.56	0.67	0.78	0.78
<i>Weighted</i>		0.00	0.34	0.39	0.34	0.39	0.21	0.25	0.21	0.25	0.30	0.30
Wetland Areas (Acres)	40.3%	0.32	0.65	0.03	0.70	0.08	0.62	0.00	0.67	0.05	1.00	0.38
<i>Weighted</i>		0.13	0.26	0.01	0.28	0.03	0.25	0.00	0.27	0.02	0.40	0.15
Floodplain Areas (Acres)	12.4%	0.00	0.52	0.52	0.52	0.52	0.00	0.00	0.00	0.00	1.00	1.00
<i>Weighted</i>		0.00	0.06	0.06	0.06	0.06	0.00	0.00	0.00	0.00	0.12	0.12
TOTAL	100.0%	0.14	0.69	0.50	0.72	0.53	0.46	0.27	0.49	0.30	0.90	0.67
WEIGHTED TOTAL		0.05	0.23	0.17	0.24	0.17	0.15	0.09	0.16	0.10	0.30	0.22
Engineering	33%											
Miles of Rebuild with Existing T/L*	81.2%	1.00	0.27	0.27	0.27	0.27	0.00	0.00	0.00	0.00	1.00	1.00
<i>Weighted</i>		0.81	0.22	0.22	0.22	0.22	0.00	0.00	0.00	0.00	0.81	0.81
Miles of Co-location with Existing T/L*	0.0%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<i>Weighted</i>		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Miles of Co-location with Roads*	9.7%	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00
<i>Weighted</i>		0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.00	0.00
Total Project Costs	9.1%	0.07	0.80	0.76	0.85	0.76	0.98	0.89	1.00	0.92	0.07	0.00
<i>Weighted</i>		0.01	0.07	0.07	0.08	0.07	0.09	0.08	0.09	0.08	0.01	0.00
TOTAL	100.0%	0.92	0.39	0.38	0.39	0.38	0.19	0.18	0.19	0.18	0.82	0.81
WEIGHTED TOTAL		0.30	0.13	0.13	0.13	0.13	0.06	0.06	0.06	0.06	0.27	0.27
SUM OF WEIGHTED TOTALS		0.58	0.44	0.39	0.45	0.39	0.26	0.21	0.27	0.22	0.72	0.65
RANK												
		9	7	5	8	6	3	1	4	2	11	10

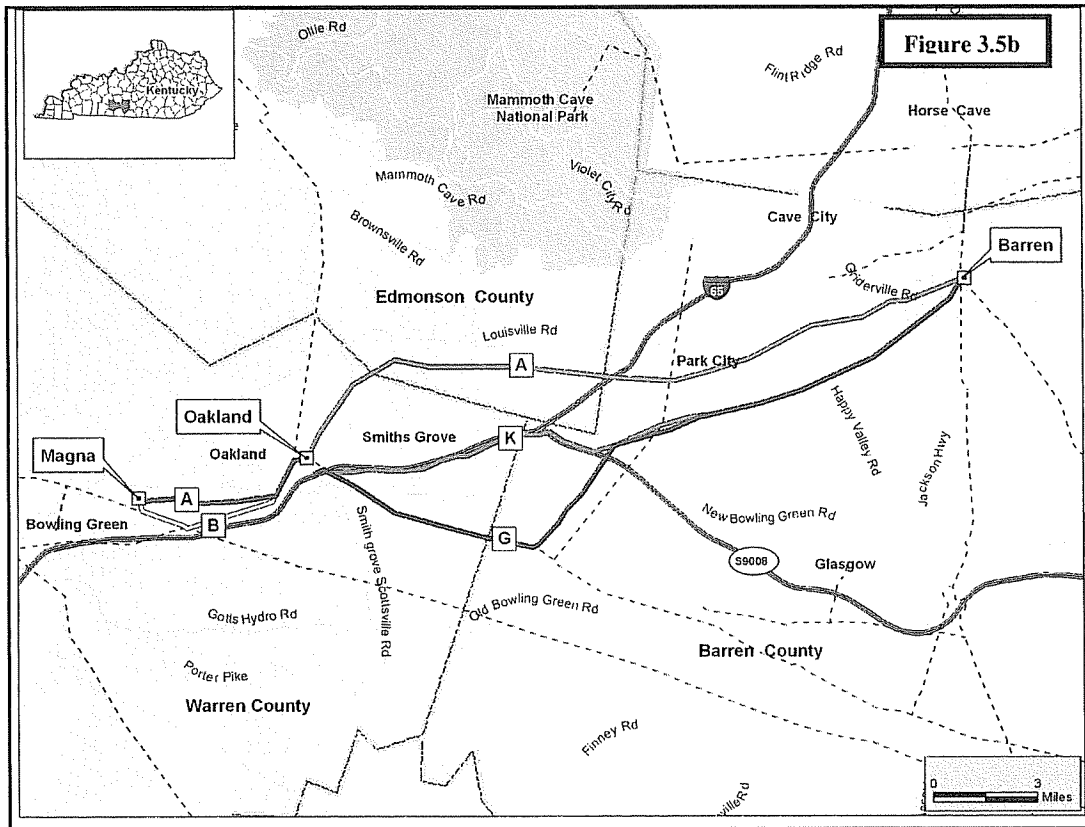


3.5. Top Routes from Barren to Oakland:

Three distinct corridors of routes developed during the Alternative Corridor phase from Barren to Oakland: a cross country corridor to the north, a corridor that parallels the freeway, and a corridor that utilizes existing transmission line corridors. The most suitable routes from each were further analyzed by the routing team

Figure 3.5a

Built	33%	Route A	Route B	Route C	Route D	Route E	Route F	Route G	Route H	Route I	Route J	Route K
Feature	Unit	Unit	Unit	Unit	Unit	Unit	Unit	Unit	Unit	Unit	Unit	Unit
Relocated Residences (within 75' Corridor)	0.0%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<i>Weighted</i>		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proximity to Residences (300')	36.4%	0.71	0.29	0.57	0.29	0.57	0.00	0.29	0.00	0.29	0.71	1.00
<i>Weighted</i>		0.26	0.10	0.21	0.10	0.21	0.00	0.10	0.00	0.10	0.26	0.36
Proposed Residential Developments	15.3%	0.00	1.00	0.50	1.00	0.50	1.00	0.50	1.00	0.50	1.00	0.50
<i>Weighted</i>		0.00	0.15	0.08	0.15	0.08	0.15	0.08	0.15	0.08	0.15	0.08
Proximity to Commercial Buildings (300')	0.0%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<i>Weighted</i>		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proximity to Industrial Buildings (300')	5.1%	0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00
<i>Weighted</i>		0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.05
School, DayCare, Church, Cemetery, Park	0.0%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<i>Weighted</i>		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NRHP Listed/Eligible Strucs /Districts (1500' from edge of R/W)	43.2%	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<i>Weighted</i>		0.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	100.0%	0.72	0.26	0.28	0.26	0.28	0.15	0.18	0.15	0.18	0.46	0.49
WEIGHTED TOTAL		0.24	0.08	0.09	0.08	0.09	0.05	0.06	0.05	0.06	0.15	0.16
Natural	33%											
Natural Forests (Acres)	9.3%	0.10	0.30	0.48	0.38	0.56	0.00	0.18	0.07	0.25	0.82	1.00
<i>Weighted</i>		0.01	0.03	0.05	0.04	0.05	0.00	0.02	0.01	0.02	0.08	0.09
Stream/River Crossings	38.0%	0.00	0.89	1.00	0.89	1.00	0.56	0.67	0.56	0.67	0.78	0.78
<i>Weighted</i>		0.00	0.34	0.38	0.34	0.38	0.21	0.25	0.21	0.25	0.30	0.30
Wetland Areas (Acres)	40.3%	0.32	0.65	0.03	0.70	0.08	0.62	0.00	0.67	0.05	1.00	0.38
<i>Weighted</i>		0.13	0.26	0.01	0.28	0.03	0.25	0.00	0.27	0.02	0.40	0.15
Floodplain Areas (Acres)	12.4%	0.00	0.52	0.52	0.52	0.52	0.00	0.00	0.00	0.00	1.00	1.00
<i>Weighted</i>		0.00	0.06	0.06	0.06	0.06	0.00	0.00	0.00	0.00	0.12	0.12
TOTAL	100.0%	0.14	0.69	0.50	0.72	0.53	0.46	0.27	0.49	0.30	0.90	0.67
WEIGHTED TOTAL		0.05	0.23	0.17	0.24	0.17	0.15	0.09	0.16	0.10	0.30	0.22
Engineering	33%											
Miles of Rebuild with Existing T/L*	81.2%	1.00	0.27	0.27	0.27	0.27	0.00	0.00	0.00	0.00	1.00	1.00
<i>Weighted</i>		0.81	0.22	0.22	0.22	0.22	0.00	0.00	0.00	0.00	0.81	0.81
Miles of Co-location with Existing T/L*	0.0%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<i>Weighted</i>		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Miles of Co-location with Roads*	9.7%	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00
<i>Weighted</i>		0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.00	0.00
Total Project Costs	9.1%	0.07	0.60	0.76	0.85	0.76	0.98	0.89	1.00	0.92	0.07	0.00
<i>Weighted</i>		0.01	0.07	0.07	0.08	0.07	0.09	0.08	0.09	0.08	0.01	0.00
TOTAL	100.0%	0.92	0.39	0.38	0.39	0.38	0.19	0.18	0.19	0.18	0.82	0.81
WEIGHTED TOTAL		0.30	0.13	0.13	0.13	0.13	0.06	0.06	0.06	0.06	0.27	0.27
SUM OF WEIGHTED TOTALS		0.58	0.44	0.39	0.45	0.39	0.26	0.21	0.27	0.22	0.72	0.65
RANK		9	7	5	8	6	3	1	4	2	11	10



3.5.1. Route A:

Route A takes a more northern route, heading north out of Oakland, then turning more east towards Barren. This route is cross country for the entire distance and passes just south of Park City. The land use is predominately agriculture.

3.5.2. Route G:

Route G heads south and then immediately west out of Oakland, rebuilding an existing transmission line until reaching the Louie B. Nunn Parkway. Then it takes a cross country path towards Barren, crossing agricultural areas and some forest.

3.5.3. Route K:

Route K leaves Oakland along Interstate 65 until reaching the same basic path as Route G after 7 miles.

3.6 Expert Judgment:

In the Expert Judgment section the routing team gave the most weight to Community Issues and Schedule Delay Risk followed by Visual Issues and Construction and Maintenance Accessibility.

All routes received low impact scores in each category with the exception of Route A and Route K; which received moderate impact scores in two categories. Route A received a moderate impact score in Construction and Maintenance Accessibility due to the amount of new cross country segments and a moderate impact score in Schedule Delay Risk due to a larger amount of properties crossed with new easement. Route K received moderate scores in Visual Issues due to the segment along the Interstate, which would make this route visible to more people and a moderate impact score in Schedule Delay Risk due to a larger amount of properties crossed with new easement. Route G received low impact scores in all categories, primarily due to the utilization of existing transmission lines for approx. 50% of its length.

Figure 3.6a

EXPERT JUDGEMENT = Low Impact 2 = Medium Impact 3 = High Impa				
	Per Project	Route A	Route G	Route K
Visual Issues	10%	1	1	2
<i>Weighted</i>		0.1	0.1	0.2
Community Issues	40%	1	1	1
<i>Weighted</i>		0.4	0.4	0.4
Schedule Delay Risk (Parcels)	40%	2	1	2
<i>Weighted</i>		0.8	0.4	0.8
Construction/ Maintenance Accessibility	10%	2	1	1
<i>Weighted</i>		0.2	0.1	0.1
TOTAL				
	100%	1.5	1	1.5

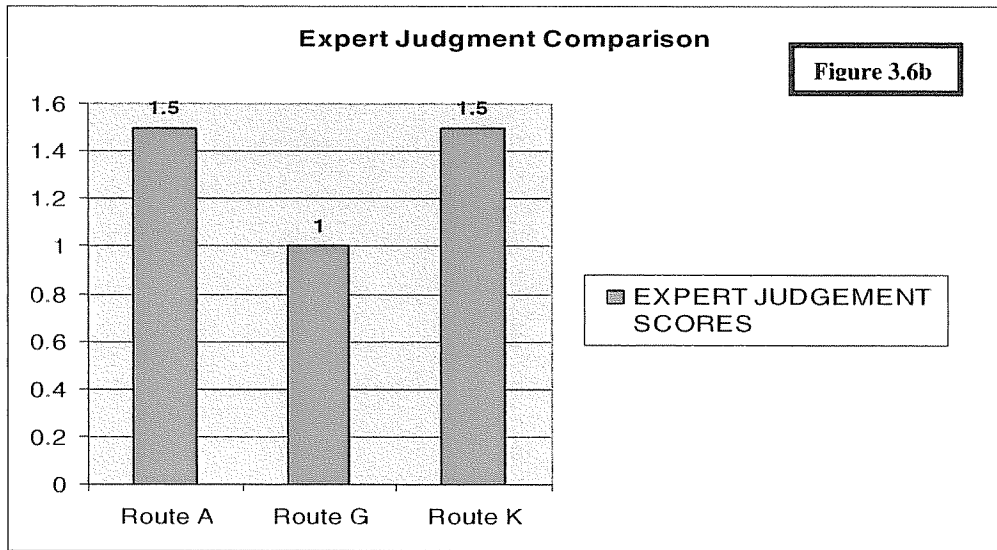
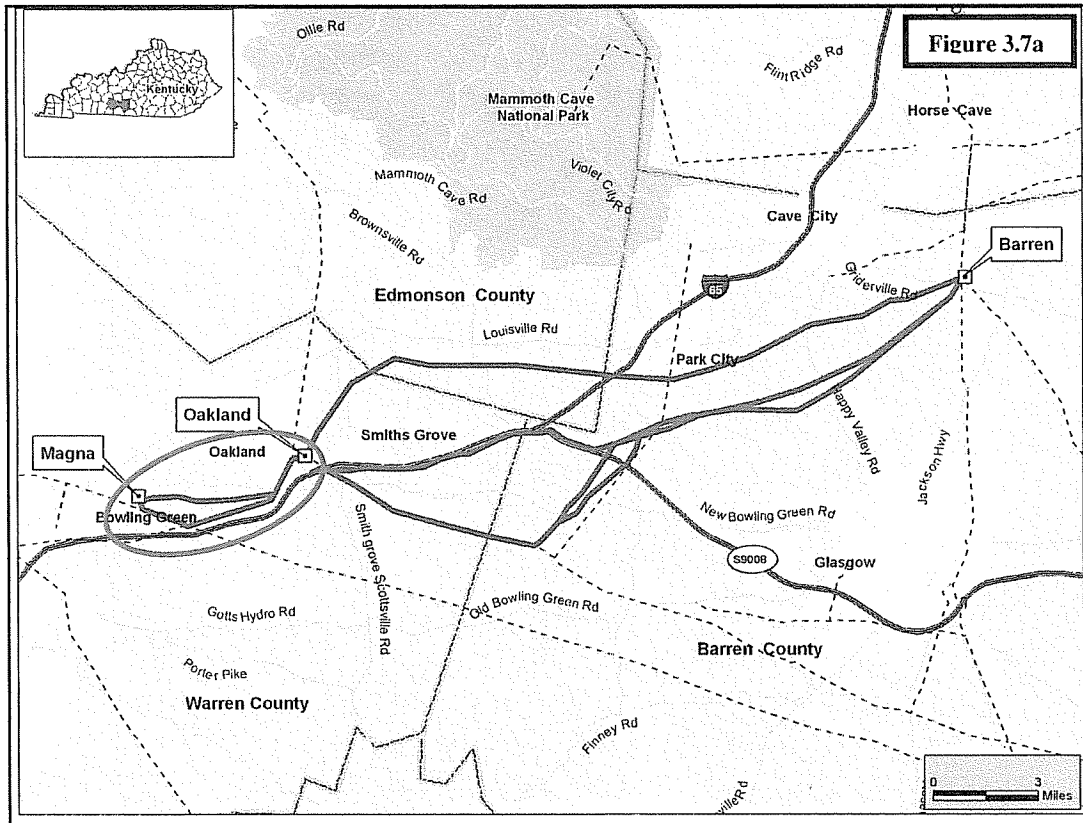


Figure 3.6b

3.7 Alternative Routes from Oakland to Magna:



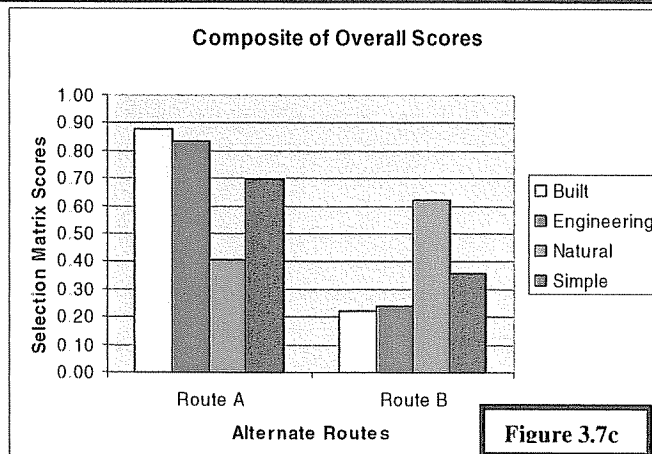
Two routes were studied from Oakland to Magna. Route A was predominately a cross country route and Route B utilized an existing transmission line. Both routes reach Oakland substation by passing south of the town of Oakland.

In three of the four categories, Route B scores better than Route A in the Route Selection Matrices. Only when the Natural Environment items are emphasized does Route A score more preferably.

Raw Statistics and Normalized Statistics

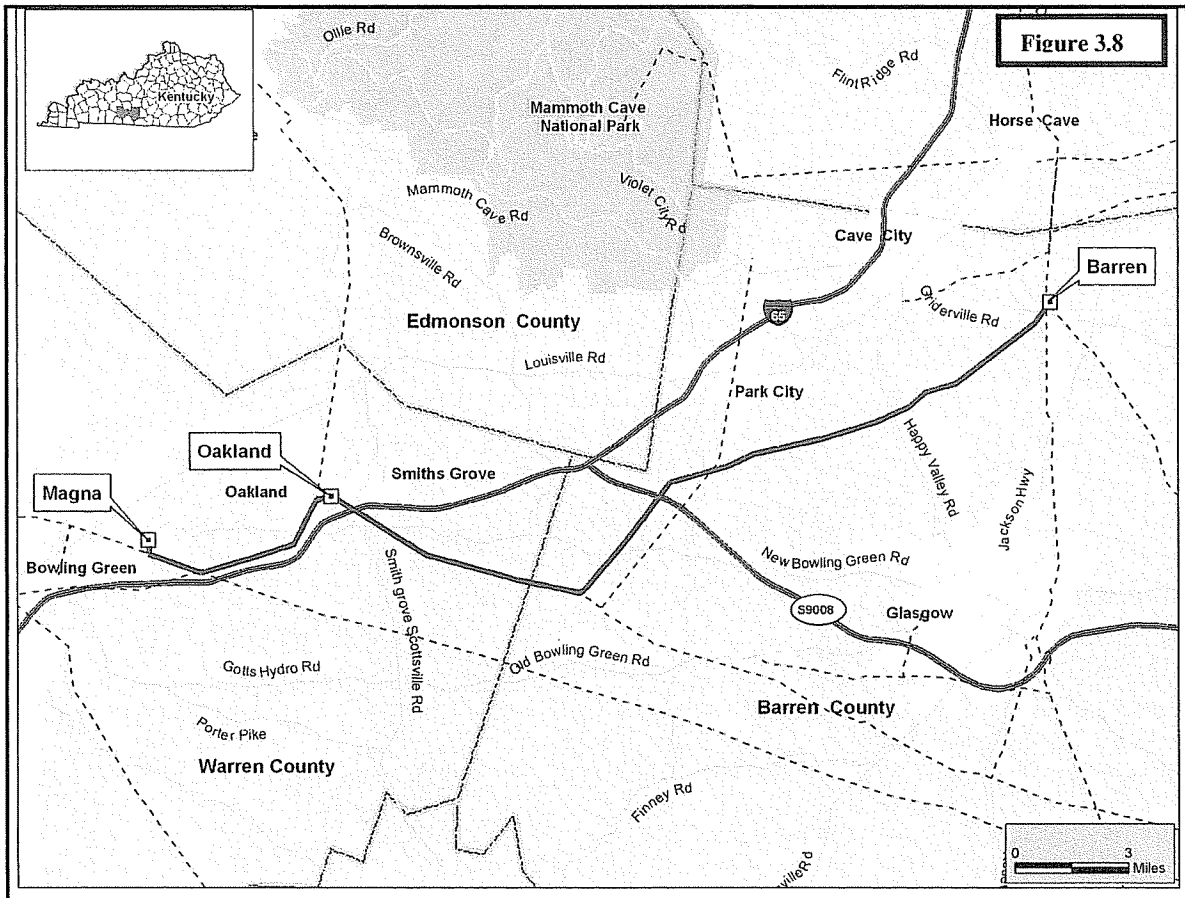
Figure 3.7b

FOR ALL ROUTES		
Built	Route A	Route B
Feature	Unit	Unit
Relocated Residences (within 100' Corridor)	0	0
<i>Normalized</i>	0.0	0.0
Proximity to Residences (300')	9	2
<i>Normalized</i>	1.0	0.0
Proposed Developments	0	0
<i>Normalized</i>	0.0	0.0
Proximity to Commercial Buildings (300')	0	0
<i>Normalized</i>	0.0	0.0
Proximity to Industrial Buildings (300')	1	1
<i>Normalized</i>	1.0	1.0
School, DayCare, Church, Cemetery, Park Parcels (#)	0	0
<i>Normalized</i>	0.0	0.0
NRHP Listed/Eligible Strucs /Districts (1500' from edge of R/W)	0	0
<i>Normalized</i>	0.0	0.0
Natural		
Natural Forests (Acres)	0.6	0.0
<i>Normalized</i>	1.0	0.0
Stream/River Crossings	0.0	0.0
<i>Normalized</i>	0.0	0.0
Wetland Areas (Acres)	0.0	0.3
<i>Normalized</i>	0.0	1.0
Floodplain Areas (Acres)	0.0	0.0
<i>Normalized</i>	0.0	0.0
Engineering		
Length (Miles)	5.5	6.1
<i>Normalized</i>	0.0	1.0
Miles of Rebuild with Existing T/L*	1.5	4.3
<i>Normalized</i>	0.0	1.0
<i>Inverted</i>	1.0	0.0
Miles of Co-location with Existing T/L*	0	1.47
<i>Normalized</i>	0.0	1.0
<i>Inverted</i>	1.0	0.0
Miles of Co-location with Roads*	0.3	0.3
<i>Normalized</i>	1.0	1.0
<i>Inverted</i>	1.0	1.0
Number of Parcels	26	9
<i>Normalized</i>	1.0	0.0
Total Project Costs	\$2,117,808	\$2,460,562
<i>Normalized</i>	0.0	1.0



3.8 Conclusion:

The combination of Route G from Barren to Oakland and Route B from Oakland to Magna is the preferred corridor. According to EKPC's internal process, this corridor is subject to refinement based on local input and more detailed data.

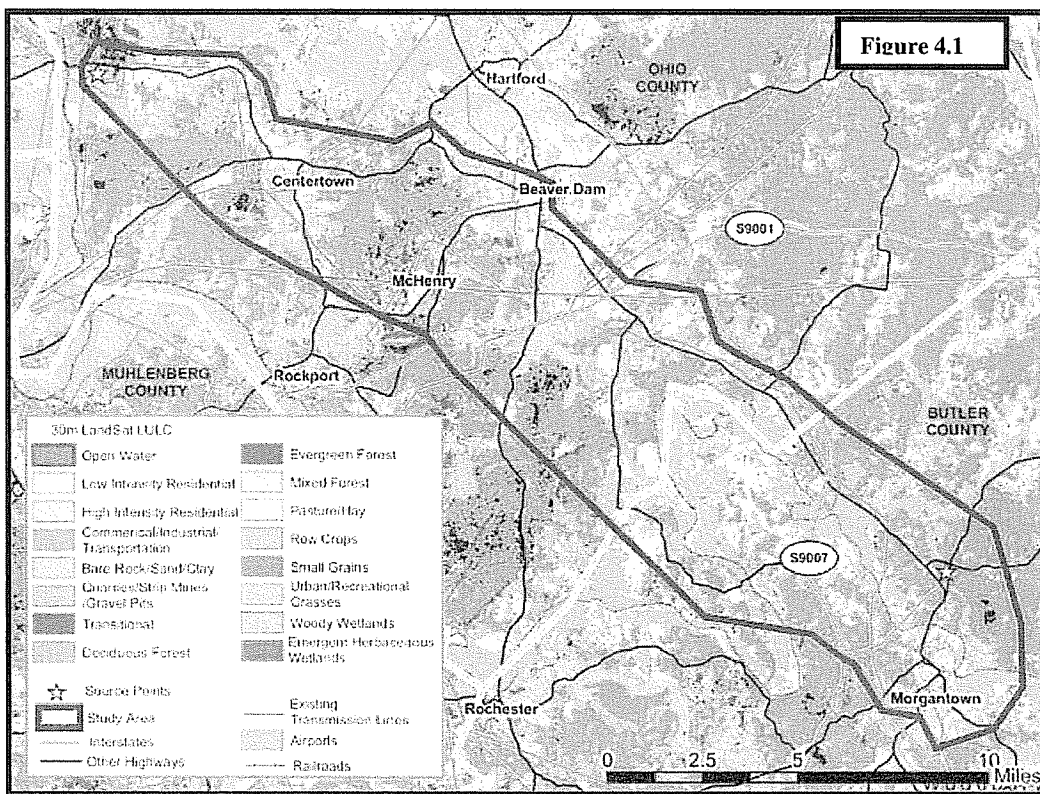


4 Wilson – Aberdeen – Morgantown

4.1 Macro Corridors:

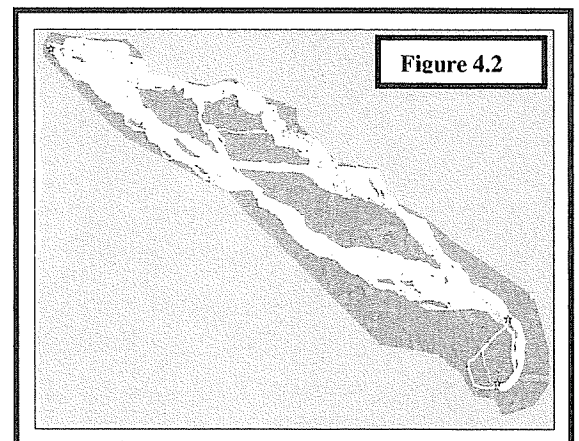
The first step in this methodology is Macro Corridor creation, which defines an area for more detailed study. Typically for this stage, the best available land cover dataset based on 30m LandSat imagery is used. In the case of this area, the best available is from 1992.

The macro corridors identified an area approx. 136 sq miles including and northwest of Morgantown. The area is predominately rural with pockets of urbanized areas. Large areas of the study area are forested and abandoned strip mines. Agricultural areas are predominate along the Green River in the southern portion of the study area.



4.2 Alternative Corridors

Once the Macro Corridors are identified, detailed datasets are developed for siting purposes. Weight and values are assigned to the datasets and alternative corridors are generated. In the Alternative Corridor phase, Wildlife Management Areas are typically considered a constraint due to their value as habitat and green space in the Natural Model. However, for this project the Wildlife Management Areas that

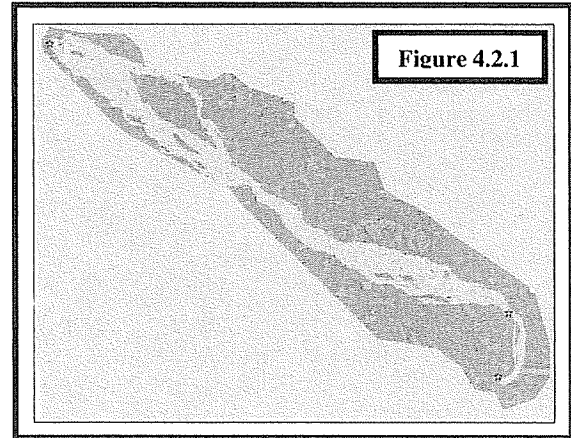


exists are previously strip mine areas that no longer retain their natural qualities. It was determined by the routing team that these areas should not be considered as a constraint or an opportunity. Therefore, these areas were not represented in the Public Lands layer in the routing models.

4.2.1 Built Environment Corridor:

The Built Environment Corridor from Wilson to Aberdeen veers to the southwest side of the study area utilizing large areas of the rural sections of the study area. It takes advantage of the open agricultural areas along the Green River. However, it must cross the river twice.

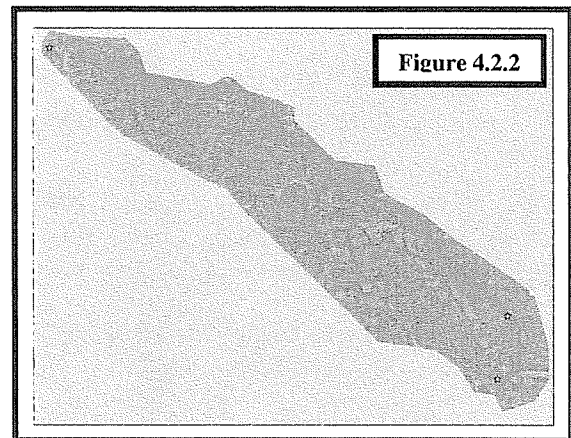
The Built Environment Corridor from Aberdeen to Morgantown utilizes forested and agricultural areas to the east of the town of Morgantown. It crosses the Green River at the bend on the southeast side of town.



4.2.2 Natural Environment Corridor:

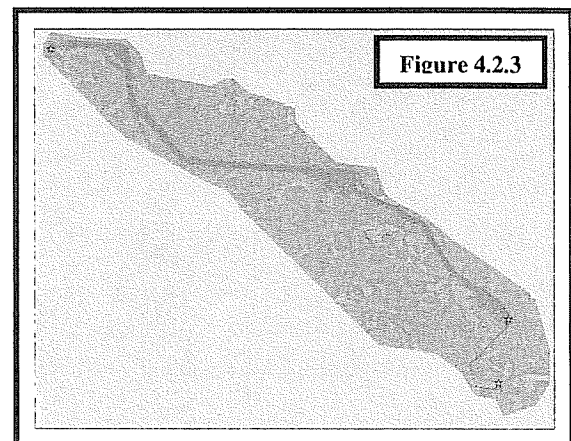
The Natural Corridor from Wilson to Aberdeen veers to the east side of the study area, locating in the more urbanized areas. It roughly parallels US Highway 231, passing Beaver Dam to the south, and roughly parallels several secondary highways to Wilson.

The Natural Corridor from Aberdeen to Morgantown follows a similar path as the built corridor; but is more limited to agricultural fields, creating a more defined corridor.



4.2.3 Engineering Concerns Corridor:

The Engineering Corridor from Wilson to Aberdeen utilizes existing transmission lines in the study area. It begins in the southeast section of the study area heading northwest. After approximately 12 miles, it turns almost due west for approx. 6 miles continuing to parallel



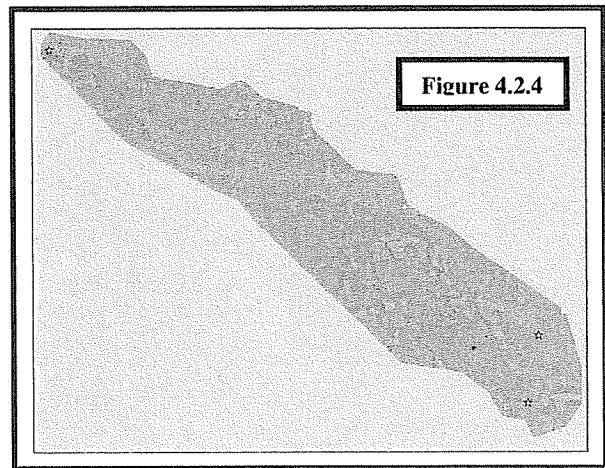
existing transmission lines. Then the route heads towards Wilson in a northwest direction.

The Engineering Corridor from Aberdeen to Morgantown utilizes an existing transmission line corridor to the west of the town of Morgantown. The corridor passes through some urbanized areas.

4.2.4 Averaged Corridor:

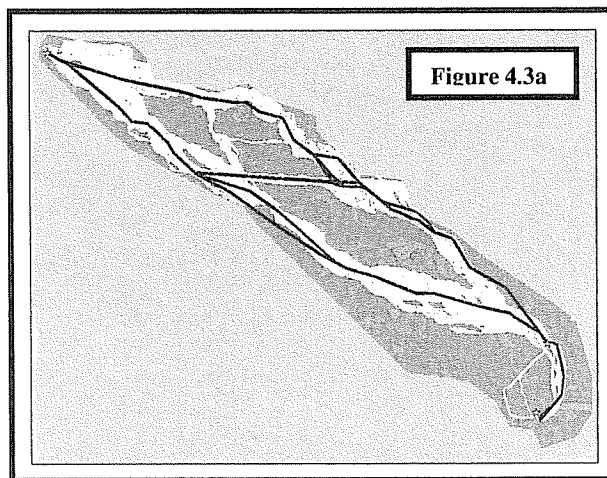
The Averaged Corridor from Wilson to Aberdeen mimics the Engineering Concerns Corridor.

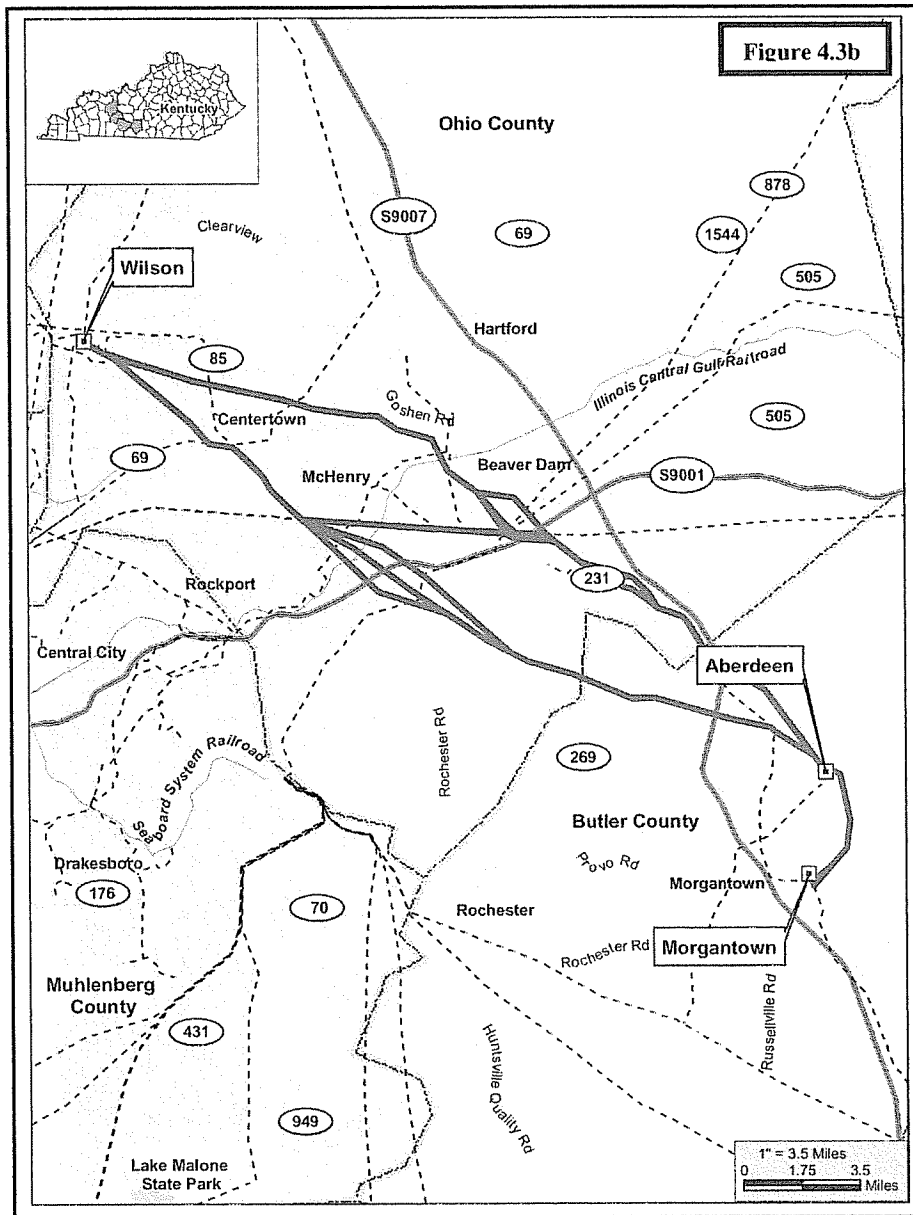
The Averaged Corridor from Aberdeen to Morgantown takes a path similar to the Built and Natural Corridors. A minor path also developed to the west of Morgantown, passing through several urbanized areas.



4.3 Alternate Routes:

The siting team analyzed the alternate corridors and identified alternate routes within the alternate corridors. These alternate routes were compared using the route selection matrix documented in the siting methodology.





4.4 Alternate Route Statistics

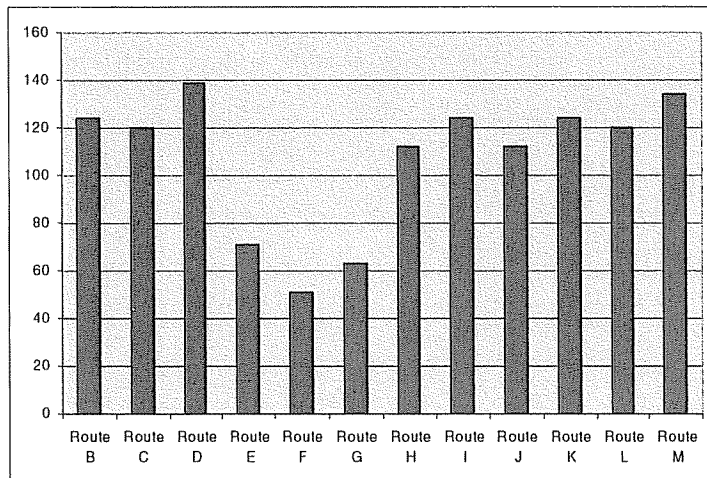
Raw Statistics and Normalized Statistics

Figure 4.4a

Build	Route B	Route C	Route D	Route E	Route F	Route G	Route H	Route I	Route J	Route K	Route L	Route M
Feature	Unit	Unit	Unit	Unit	Unit	Unit	Unit	Unit	Unit	Unit	Unit	Unit
Relocated Residences (within 100' Corridor)	0	0	0	0	0	0	0	0	0	0	0	0
<i>Normalized</i>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Proximity to Residences (300')	11	10	13	6	1	2	18	18	22	22	18	18
<i>Normalized</i>	0.5	0.4	0.6	0.2	0.0	0.0	0.8	0.8	1.0	1.0	0.8	0.8
Proposed Developments	0	0	0	0	0	0	0	0	0	0	0	0
<i>Normalized</i>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Proximity to Commercial Buildings (300')	0	0	0	0	0	0	0	0	0	0	0	0
<i>Normalized</i>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Proximity to Industrial Buildings (300')	1	1	1	1	1	1	1	1	1	1	1	1
<i>Normalized</i>	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
School, DayCare, Church, Cemetery, Park Parcels (#)	0	0	0	0	0	0	0	0	0	0	0	0
<i>Normalized</i>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NRHP Listed/Eligible Strucs /Districts (1500' from edge of RAW)	0	0	0	0	0	0	0	0	0	0	0	0
<i>Normalized</i>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Natural												
Natural Forests (Acres)	119.9	114.5	156.5	90.8	75.8	87.2	132.5	144.1	132.3	143.3	126.7	135.4
<i>Normalized</i>	0.5	0.5	1.0	0.2	0.0	0.1	0.7	0.8	0.7	0.8	0.6	0.7
Stream/River Crossings	39	38	38	40	42	41	33	33	31	32	35	36
<i>Normalized</i>	0.7	0.6	0.6	0.8	1.0	0.9	0.2	0.2	0.0	0.1	0.4	0.5
Wetland Areas (Acres)	13.6	14.0	8.2	4.5	4.4	4.7	6.9	7.1	6.9	7.4	7.5	7.5
<i>Normalized</i>	1.0	1.0	0.4	0.0	0.0	0.0	0.3	0.3	0.3	0.3	0.3	0.3
Floodplain Areas (Acres)	103.0	106.1	53.7	37.8	37.0	37.6	39.6	40.3	39.0	40.1	39.5	40.7
<i>Normalized</i>	1.0	1.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Engineering												
Length (Miles)	26.4	26.5	27.2	27.3	27.3	27.4	27.1	27.2	27.0	27.1	27.0	27.1
<i>Normalized</i>	0.0	0.1	0.6	0.9	0.9	1.0	0.7	0.8	0.6	0.7	0.6	0.7
Miles of Rebuild with Existing T/L*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<i>Normalized</i>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<i>Inverted</i>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Miles of Co-location with Existing T/L*	3.9	3.9	14.1	12.2	15.4	13.5	4.2	2.3	4.2	2.3	4.2	2.3
<i>Normalized</i>	0.1	0.1	0.9	0.6	1.0	0.8	0.1	0.0	0.1	0.0	0.1	0.0
<i>Inverted</i>	0.9	0.9	0.1	0.2	0.0	0.2	0.9	1.0	0.9	1.0	0.9	1.0
Miles of Co-location with Roads*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<i>Normalized</i>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<i>Inverted</i>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Number of Parcels	124	120	139	71	51	63	112	124	112	124	120	134
<i>Normalized</i>	0.8	0.8	1.0	0.2	0.0	0.1	0.7	0.8	0.7	0.8	0.8	0.9
Total Project Costs	\$7,250,122	\$7,265,660	\$7,602,358	\$7,567,275	\$7,608,074	\$7,565,439	\$7,827,980	\$7,785,323	\$7,805,117	\$7,761,710	\$7,848,610	\$7,812,160
<i>Normalized</i>	0.0	0.0	0.6	0.5	0.6	0.5	1.0	0.9	0.9	0.9	1.0	0.9

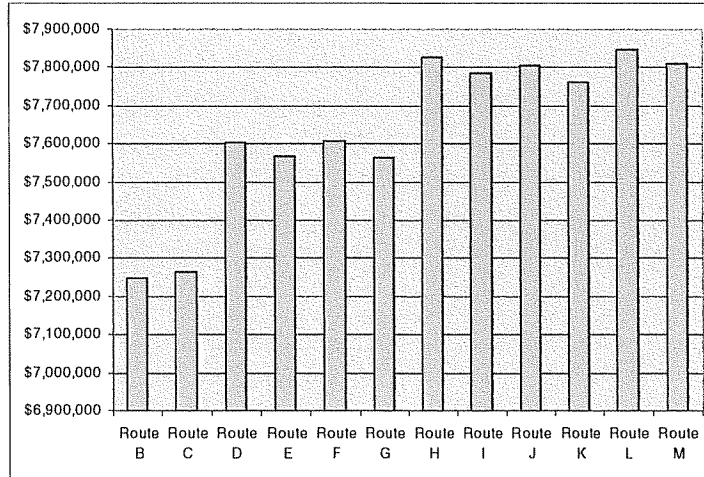
Number of
Parcels
Crossed

Figure 4.4b



Comparative Cost

Figure 4.4c



**Alternative Route Selection Matrix
Emphasis on Built Environment**

Figure 4.4d

Built	72%	Route B	Route C	Route D	Route E	Route F	Route G	Route H	Route I	Route J	Route K	Route L	Route M
Feature		Unit	Unit	Unit	Unit	Unit	Unit	Unit	Unit	Unit	Unit	Unit	Unit
Relocated Residences (within 100' Corridor)	0.0%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Weighted		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proximity to Residences (300')	87.9%	0.48	0.43	0.57	0.24	0.00	0.05	0.81	0.81	1.00	1.00	0.81	0.81
Weighted		0.42	0.38	0.50	0.21	0.00	0.04	0.71	0.71	0.88	0.88	0.71	0.71
Proposed Residential Developments	0.0%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Weighted		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proximity to Commercial Buildings (300')	0.0%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Weighted		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proximity to Industrial Buildings (300')	12.1%	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Weighted		0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12
School, DayCare, Church, Cemetery, Park	0.0%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Weighted		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NRHP Listed/Eligible Strucs /Districts (1500' from edge of R/W)	0.0%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Weighted		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	100.0%	0.54	0.50	0.62	0.33	0.12	0.16	0.83	0.83	1.00	1.00	0.83	0.83
WEIGHTED TOTAL		0.39	0.36	0.45	0.24	0.09	0.12	0.60	0.60	0.72	0.72	0.60	0.60
Natural	14%												
Natural Forests (Acres)	9.3%	0.55	0.48	1.00	0.19	0.00	0.14	0.70	0.85	0.70	0.84	0.63	0.74
Weighted		0.05	0.04	0.09	0.02	0.00	0.01	0.07	0.08	0.07	0.08	0.06	0.07
Stream/River Crossings	38.0%	0.73	0.64	0.64	0.82	1.00	0.91	0.18	0.18	0.00	0.09	0.36	0.45
Weighted		0.28	0.24	0.24	0.31	0.38	0.35	0.07	0.07	0.00	0.03	0.14	0.17
Wetland Areas (Acres)	40.3%	0.98	1.00	0.39	0.01	0.00	0.04	0.26	0.28	0.26	0.31	0.32	0.32
Weighted		0.39	0.40	0.16	0.00	0.00	0.01	0.11	0.11	0.11	0.13	0.13	0.13
Floodplain Areas (Acres)	12.4%	0.96	1.00	0.24	0.01	0.00	0.01	0.04	0.05	0.03	0.05	0.04	0.05
Weighted		0.12	0.12	0.03	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.01
TOTAL	100.0%	0.84	0.81	0.52	0.33	0.38	0.37	0.24	0.26	0.17	0.24	0.33	0.36
WEIGHTED TOTAL		0.12	0.11	0.07	0.05	0.05	0.05	0.03	0.04	0.02	0.03	0.05	0.05
Engineering	14%												
Miles of Rebuild with Existing T/L*	0.0%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Weighted		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Miles of Co-location with Existing T/L*	72.2%	0.88	0.88	0.10	0.25	0.00	0.15	0.85	1.00	0.85	1.00	0.85	1.00
Weighted		0.64	0.64	0.07	0.18	0.00	0.11	0.62	0.72	0.62	0.72	0.62	0.72
Miles of Co-location with Roads*	0.0%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Weighted		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Project Costs	27.8%	0.00	0.03	0.59	0.53	0.60	0.53	0.97	0.89	0.93	0.85	1.00	0.94
Weighted		0.00	0.01	0.16	0.15	0.17	0.15	0.27	0.25	0.26	0.24	0.28	0.26
TOTAL	100.0%	0.54	0.64	0.24	0.33	0.17	0.26	0.88	0.97	0.87	0.96	0.89	0.98
WEIGHTED TOTAL		0.09	0.09	0.03	0.05	0.02	0.04	0.12	0.14	0.12	0.13	0.13	0.14
SUM OF WEIGHTED TOTALS		0.60	0.56	0.56	0.33	0.16	0.21	0.76	0.77	0.87	0.89	0.77	0.79
RANK		6	5	4	3	1	2	7	9	11	12	8	10

Alternative Route Selection Matrix Emphasis on Engineering Concerns

Figure 4.4e

Built	14%	Route B	Route C	Route D	Route E	Route F	Route G	Route H	Route I	Route J	Route K	Route L	Route M
Feature		Unit	Unit	Unit	Unit	Unit	Unit	Unit	Unit	Unit	Unit	Unit	Unit
Relocated Residences (within 100' Corridor)	0.0%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<i>Weighted</i>		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proximity to Residences (300')	87.9%	0.48	0.43	0.57	0.24	0.00	0.05	0.81	0.81	1.00	1.00	0.81	0.81
<i>Weighted</i>		0.42	0.38	0.50	0.21	0.00	0.04	0.71	0.71	0.88	0.88	0.71	0.71
Proposed Residential Developments	0.0%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<i>Weighted</i>		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proximity to Commercial Buildings (300')	0.0%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<i>Weighted</i>		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proximity to Industrial Buildings (300')	12.1%	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
<i>Weighted</i>		0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12
School, DayCare, Church, Cemetery, Park	0.0%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<i>Weighted</i>		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NRHP Listed/Eligible Strucs /Districts (1500' from edge of R/W)	0.0%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	100.0%	0.54	0.50	0.62	0.33	0.12	0.16	0.83	0.83	1.00	1.00	0.83	0.83
WEIGHTED TOTAL		0.08	0.07	0.09	0.05	0.02	0.02	0.12	0.12	0.14	0.14	0.12	0.12
Natural	14%												
Natural Forests (Acres)	9.3%	0.55	0.48	1.00	0.19	0.00	0.14	0.70	0.85	0.70	0.84	0.63	0.74
<i>Weighted</i>		0.05	0.04	0.09	0.02	0.00	0.01	0.07	0.08	0.07	0.08	0.06	0.07
Stream/River Crossings	38.0%	0.73	0.64	0.64	0.62	1.00	0.91	0.18	0.18	0.00	0.09	0.36	0.45
<i>Weighted</i>		0.28	0.24	0.24	0.31	0.38	0.35	0.07	0.07	0.00	0.03	0.14	0.17
Wetland Areas (Acres)	40.3%	0.98	1.00	0.39	0.01	0.00	0.04	0.26	0.28	0.26	0.31	0.32	0.32
<i>Weighted</i>		0.39	0.40	0.16	0.00	0.00	0.01	0.11	0.11	0.11	0.13	0.13	0.13
Floodplain Areas (Acres)	12.4%	0.96	1.00	0.24	0.01	0.00	0.01	0.04	0.05	0.03	0.05	0.04	0.05
<i>Weighted</i>		0.12	0.12	0.03	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.00	0.01
TOTAL	100.0%	0.84	0.81	0.52	0.33	0.38	0.37	0.24	0.26	0.17	0.24	0.33	0.38
WEIGHTED TOTAL		0.12	0.11	0.07	0.05	0.05	0.05	0.03	0.04	0.02	0.03	0.05	0.05
Engineering	72%												
Miles of Rebuild with Existing T/L*	0.0%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<i>Weighted</i>		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Miles of Co-location with Existing T/L*	72.2%	0.88	0.88	0.10	0.25	0.00	0.15	0.85	1.00	0.85	1.00	0.85	1.00
<i>Weighted</i>		0.64	0.64	0.07	0.18	0.00	0.11	0.62	0.72	0.62	0.72	0.62	0.72
Miles of Co-location with Roads*	0.0%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<i>Weighted</i>		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Project Costs	27.8%	0.00	0.03	0.59	0.53	0.60	0.53	0.97	0.89	0.93	0.85	1.00	0.94
<i>Weighted</i>		0.00	0.01	0.16	0.15	0.17	0.15	0.27	0.25	0.26	0.24	0.28	0.26
TOTAL	100.0%	0.64	0.64	0.24	0.33	0.17	0.26	0.88	0.97	0.87	0.96	0.89	0.98
WEIGHTED TOTAL		0.46	0.46	0.17	0.23	0.12	0.18	0.64	0.70	0.63	0.69	0.64	0.71
SUM OF WEIGHTED TOTALS		0.65	0.65	0.33	0.33	0.19	0.26	0.79	0.85	0.79	0.86	0.81	0.88
RANK		6	5	4	3	1	2	7	10	8	11	9	12

Alternative Route Selection Matrix Emphasis on Natural Environment

Figure 4.4f

Built	14%	Route B	Route C	Route D	Route E	Route F	Route G	Route H	Route I	Route J	Route K	Route L	Route M
Feature		Unit	Unit	Unit	Unit	Unit	Unit	Unit	Unit	Unit	Unit	Unit	Unit
Relocated Residences (within 100' Corridor)	0.0%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<i>Weighted</i>		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proximity to Residences (300')	67.9%	0.48	0.43	0.57	0.24	0.00	0.05	0.81	0.81	1.00	1.00	0.81	0.81
<i>Weighted</i>		0.42	0.38	0.50	0.21	0.00	0.04	0.71	0.71	0.88	0.88	0.71	0.71
Proposed Residential Developments	0.0%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<i>Weighted</i>		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proximity to Commercial Buildings (300')	0.0%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<i>Weighted</i>		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proximity to Industrial Buildings (300')	12.1%	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
<i>Weighted</i>		0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12
School, DayCare, Church, Cemetery, Park	0.0%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<i>Weighted</i>		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NRHP Listed/Eligible Strucs /Districts (1500' from edge of R/W)	0.0%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	100.0%	0.54	0.50	0.62	0.33	0.12	0.16	0.83	0.83	1.00	1.00	0.83	0.83
WEIGHTED TOTAL		0.08	0.07	0.09	0.05	0.02	0.02	0.12	0.12	0.14	0.14	0.12	0.12
Natural	72%												
Natural Forests (Acres)	9.3%	0.55	0.48	1.00	0.19	0.00	0.14	0.70	0.85	0.70	0.84	0.63	0.74
<i>Weighted</i>		0.05	0.04	0.09	0.02	0.00	0.01	0.07	0.08	0.07	0.08	0.06	0.07
Stream/River Crossings	38.0%	0.73	0.64	0.64	0.82	1.00	0.91	0.18	0.18	0.00	0.09	0.36	0.45
<i>Weighted</i>		0.28	0.24	0.24	0.31	0.38	0.35	0.07	0.07	0.00	0.03	0.14	0.17
Wetland Areas (Acres)	40.3%	0.98	1.00	0.39	0.01	0.00	0.04	0.26	0.28	0.26	0.31	0.32	0.32
<i>Weighted</i>		0.39	0.40	0.16	0.00	0.00	0.01	0.11	0.11	0.11	0.13	0.13	0.13
Floodplain Areas (Acres)	12.4%	0.96	1.00	0.24	0.01	0.00	0.01	0.04	0.05	0.03	0.05	0.04	0.05
<i>Weighted</i>		0.12	0.12	0.03	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.01
TOTAL	100.0%	0.84	0.81	0.52	0.33	0.38	0.37	0.24	0.26	0.17	0.24	0.33	0.38
WEIGHTED TOTAL		0.60	0.59	0.38	0.24	0.27	0.27	0.18	0.19	0.13	0.18	0.24	0.27
Engineering	14%												
Miles of Rebuild with Existing T/L*	0.0%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<i>Weighted</i>		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Miles of Co-location with Existing T/L*	72.2%	0.88	0.88	0.10	0.25	0.00	0.15	0.85	1.00	0.85	1.00	0.85	1.00
<i>Weighted</i>		0.64	0.64	0.07	0.18	0.00	0.11	0.62	0.72	0.62	0.72	0.62	0.72
Miles of Co-location with Roads*	0.0%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<i>Weighted</i>		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Project Costs	27.8%	0.00	0.03	0.59	0.53	0.60	0.53	0.97	0.89	0.93	0.85	1.00	0.94
<i>Weighted</i>		0.00	0.01	0.16	0.15	0.17	0.15	0.27	0.25	0.26	0.24	0.28	0.26
TOTAL	100.0%	0.64	0.64	0.24	0.33	0.17	0.26	0.88	0.97	0.87	0.96	0.89	0.98
WEIGHTED TOTAL		0.09	0.09	0.03	0.05	0.02	0.04	0.12	0.14	0.12	0.13	0.13	0.14
SUM OF WEIGHTED TOTALS		0.77	0.75	0.50	0.33	0.31	0.33	0.42	0.44	0.39	0.45	0.48	0.53
RANK		12	11	9	3	1	2	5	6	4	7	8	10

Alternative Route Selection Matrix Equal Consideration of Categories

Figure 4.4g

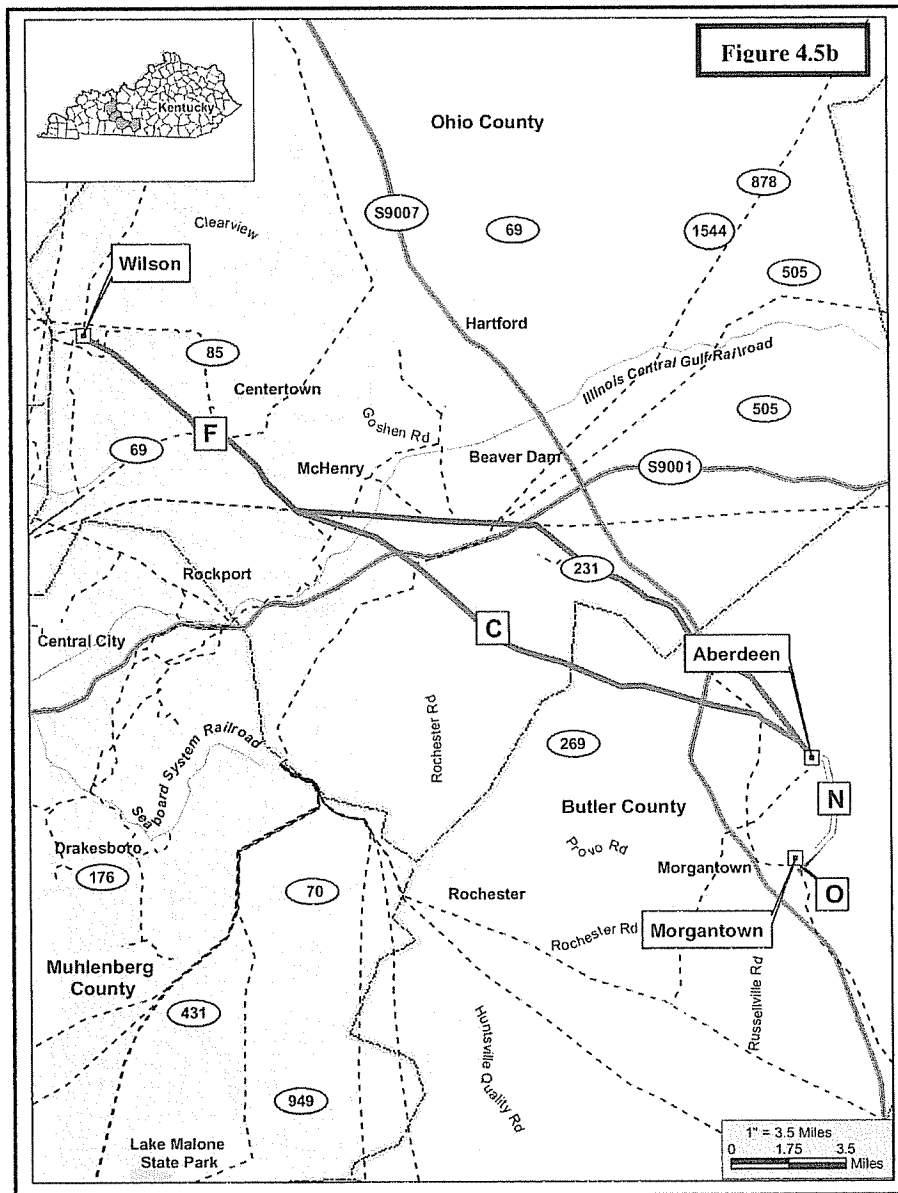
Built	33%	Route B	Route C	Route D	Route E	Route F	Route G	Route H	Route I	Route J	Route K	Route L	Route M
Feature		Unit	Unit	Unit	Unit	Unit	Unit	Unit	Unit	Unit	Unit	Unit	Unit
Relocated Residences (within 75' Corridor)	0.0%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<i>Weighted</i>		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proximity to Residences (300')	87.9%	0.48	0.43	0.57	0.24	0.00	0.05	0.81	0.81	1.00	1.00	0.81	0.81
<i>Weighted</i>		0.42	0.38	0.50	0.21	0.00	0.04	0.71	0.71	0.88	0.88	0.71	0.71
Proposed Residential Developments	0.0%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<i>Weighted</i>		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proximity to Commercial Buildings (300')	0.0%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<i>Weighted</i>		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proximity to Industrial Buildings (300')	12.1%	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
<i>Weighted</i>		0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12
School, DayCare, Church, Cemetery, Park	0.0%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<i>Weighted</i>		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NRHP Listed/Eligible Strucs /Districts (1500' from edge of R/W)	0.0%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	100.0%	0.54	0.50	0.62	0.33	0.12	0.16	0.83	0.83	1.00	1.00	0.83	0.83
WEIGHTED TOTAL		0.18	0.16	0.21	0.11	0.04	0.05	0.27	0.27	0.33	0.33	0.27	0.27
Natural	33%												
Natural Forests (Acres)	9.3%	0.55	0.48	1.00	0.19	0.00	0.14	0.70	0.85	0.70	0.84	0.63	0.74
<i>Weighted</i>		0.05	0.04	0.09	0.02	0.00	0.01	0.07	0.08	0.07	0.08	0.06	0.07
Stream/River Crossings	38.0%	0.73	0.64	0.64	0.82	1.00	0.91	0.18	0.18	0.00	0.09	0.36	0.45
<i>Weighted</i>		0.28	0.24	0.24	0.31	0.38	0.35	0.07	0.07	0.00	0.03	0.14	0.17
Wetland Areas (Acres)	40.3%	0.98	1.00	0.39	0.01	0.00	0.04	0.26	0.28	0.26	0.31	0.32	0.32
<i>Weighted</i>		0.39	0.40	0.16	0.00	0.00	0.01	0.11	0.11	0.11	0.13	0.13	0.13
Floodplain Areas (Acres)	12.4%	0.96	1.00	0.24	0.01	0.00	0.01	0.04	0.05	0.03	0.05	0.04	0.05
<i>Weighted</i>		0.12	0.12	0.03	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.01	0.01
TOTAL	100.0%	0.84	0.81	0.52	0.33	0.38	0.37	0.24	0.26	0.17	0.24	0.33	0.38
WEIGHTED TOTAL		0.28	0.27	0.17	0.11	0.13	0.12	0.08	0.09	0.06	0.08	0.11	0.12
Engineering	33%												
Miles of Rebuild with Existing T/L*	0.0%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<i>Weighted</i>		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Miles of Co-location with Existing T/L*	72.2%	0.88	0.88	0.10	0.25	0.00	0.15	0.85	1.00	0.85	1.00	0.85	1.00
<i>Weighted</i>		0.64	0.64	0.07	0.18	0.00	0.11	0.62	0.72	0.62	0.72	0.62	0.72
Miles of Co-location with Roads*	0.0%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<i>Weighted</i>		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Project Costs	27.8%	0.00	0.03	0.59	0.53	0.60	0.53	0.97	0.89	0.93	0.85	1.00	0.94
<i>Weighted</i>		0.00	0.01	0.16	0.15	0.17	0.15	0.27	0.25	0.26	0.24	0.28	0.26
TOTAL	100.0%	0.64	0.64	0.24	0.33	0.17	0.26	0.88	0.97	0.87	0.96	0.89	0.98
WEIGHTED TOTAL		0.21	0.21	0.08	0.11	0.05	0.08	0.29	0.32	0.29	0.32	0.30	0.32
SUM OF WEIGHTED TOTALS		0.67	0.65	0.46	0.33	0.22	0.26	0.65	0.68	0.68	0.73	0.68	0.72
RANK		7	5	4	3	1	2	6	10	8	12	9	11

4.5 Top Routes from Wilson - Aberdeen:

Three distinct corridors of routes developed during the Alternative Corridor phase from Wilson to Aberdeen. The most suitable routes were further analyzed by the routing team.

Figure 4.5a

Built	33%	Route B		Route C		Route D		Route E		Route F		Route G		Route H		Route I		Route J		Route K		Route L		Route M	
		Unit	Unit	Unit	Unit	Unit	Unit	Unit	Unit	Unit	Unit	Unit	Unit	Unit	Unit	Unit	Unit	Unit	Unit	Unit	Unit	Unit	Unit	Unit	Unit
Relocated Residences (within 75' Corridor)	0.0%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Weighted		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proximity to Residences (300')	87.9%	0.48	0.43	0.57	0.24	0.00	0.05	0.81	0.81	1.00	1.00	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Weighted		0.42	0.38	0.50	0.21	0.00	0.04	0.71	0.71	0.88	0.88	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71
Proposed Residential Developments	0.0%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Weighted		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proximity to Commercial Buildings (300')	0.0%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Weighted		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proximity to Industrial Buildings (300')	12.1%	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Weighted		0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12
School, DayCare, Church, Cemetery, Park	0.0%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Weighted		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NRHP Listed/Eligible Strucs /Districts (1500' from edge of R/W)	0.0%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Weighted		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	100.0%	0.54	0.50	0.62	0.33	0.12	0.16	0.83	0.83	1.00	1.00	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
WEIGHTED TOTAL		0.18	0.16	0.21	0.11	0.04	0.05	0.27	0.27	0.33	0.33	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27
Natural	33%																								
Natural Forests (Acres)	9.3%	0.55	0.48	1.00	0.19	0.00	0.14	0.70	0.85	0.70	0.84	0.63	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74
Weighted		0.05	0.04	0.09	0.02	0.00	0.01	0.07	0.08	0.07	0.08	0.06	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Stream/River Crossings	38.0%	0.73	0.64	0.64	0.82	1.00	0.91	0.18	0.18	0.00	0.09	0.36	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45
Weighted		0.28	0.24	0.24	0.31	0.38	0.35	0.07	0.07	0.00	0.03	0.14	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17
Wetland Areas (Acres)	40.3%	0.98	1.00	0.39	0.01	0.00	0.04	0.26	0.28	0.26	0.31	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32
Weighted		0.39	0.40	0.16	0.00	0.00	0.01	0.11	0.11	0.11	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
Floodplain Areas (Acres)	12.4%	0.96	1.00	0.24	0.01	0.00	0.01	0.04	0.05	0.03	0.05	0.04	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Weighted		0.12	0.12	0.03	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
TOTAL	100.0%	0.84	0.81	0.52	0.33	0.38	0.37	0.24	0.26	0.17	0.24	0.33	0.38	0.38	0.24	0.26	0.17	0.24	0.33	0.33	0.33	0.33	0.33	0.33	0.33
WEIGHTED TOTAL		0.28	0.27	0.17	0.11	0.13	0.12	0.08	0.09	0.06	0.08	0.11	0.12	0.12	0.08	0.09	0.06	0.08	0.11	0.11	0.11	0.11	0.11	0.11	0.11
Engineering	33%																								
Miles of Rebuild with Existing T/L*	0.0%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Weighted		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Miles of Co-location with Existing T/L*	72.2%	0.88	0.88	0.10	0.25	0.00	0.15	0.85	1.00	0.85	1.00	0.85	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Weighted		0.64	0.64	0.07	0.18	0.00	0.11	0.62	0.72	0.62	0.72	0.62	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72
Miles of Co-location with Roads*	0.0%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Weighted		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Project Costs	27.8%	0.00	0.03	0.59	0.53	0.60	0.53	0.97	0.89	0.93	0.85	1.00	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Weighted		0.00	0.01	0.16	0.15	0.17	0.15	0.27	0.25	0.26	0.24	0.28	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26
TOTAL	100.0%	0.64	0.64	0.24	0.33	0.17	0.26	0.88	0.97	0.87	0.96	0.89	0.98	0.98	0.88	0.97	0.87	0.96	0.89	0.89	0.89	0.89	0.89	0.89	0.89
WEIGHTED TOTAL		0.21	0.21	0.08	0.11	0.05	0.08	0.29	0.32	0.29	0.32	0.30	0.32	0.32	0.29	0.32	0.29	0.32	0.30	0.30	0.30	0.30	0.30	0.30	0.30
SUM OF WEIGHTED TOTALS		0.67	0.65	0.46	0.33	0.22	0.26	0.65	0.68	0.68	0.73	0.68	0.72	0.72	0.65	0.68	0.68	0.73	0.68	0.68	0.68	0.68	0.68	0.68	0.68
RANK		7	5	4	3	1	2	6	10	8	12	9	11	6	10	8	12	9	11	6	10	8	12	9	11



4.5.1 Route C:

Route C mimics the Built Corridor. It begins cross country heading in a west northwest direction, crossing agricultural areas. After crossing the Green River twice, the land cover turns more to forest. After 18 miles of heading cross country; Route C parallels an existing transmission line for 3 miles. At which point, the route is again a cross country corridor until reaching the Wilson area.

4.5.2 Route F:

Route F mimics the Engineering Corridor. It parallels existing transmission lines almost the entire path to Wilson. It meets Route C where Route C begins to co-locate with an existing line and shares the same path until reaching Wilson.

4.6 Expert Judgment:

In the Expert Judgment section the routing team gave the most weight to Community Issues and Schedule Delay Risks. They gave a lower weight to Visual Issues, Special Permit Issues, and Construction and Maintenance Accessibility.

Route C was given low impact scores to Visual Issues, Community Issues, and Schedule Delay Risk. The primary reason for the low impact score in these categories is the rural nature of this route. Additional statistics were created showing that less buildings were within 1000' proximity than the other routes.

This route received medium impact scores in Special Permits issues and Construction and Maintenance Accessibility. The medium score for Special Permit Issues was given due to the crossing of the Green River twice and crossing previously strip mined areas. It was given a medium impact score in Construction and Maintenance Accessibility due to the amount of new cross country segments.

Route F was given low impact scores for Visual Issues, Special Permits, and Construction and Maintenance Accessibility. It received low impact scores in these areas due to the co-location with existing transmission lines and low impact to the natural environment. It received a medium impact score to Schedule Delay Risk and a high impact score in Community Issues, primarily due to crossing through the most urbanized areas of the study area.

Figure 4.6

EXPERT JUDGEMENT		1 = Low Impact 2 = Medium Impact 3 = High Impact	
	Per Project	Route C	Route F
Visual Issues	10%	1	1
Weighted		0.1	0.1
Community Issues	35%	1	3
Weighted		0.35	1.05
Schedule Delay Risk	35%	1	2
Weighted		0.35	0.7
Special Permit Issues	10%	2	1
Weighted		0.2	0.1
Construction/ Maintenance Accessibility	10%	2	1
Weighted		0.2	0.1
TOTAL			
	100%	1.2	2.05

4.7 Alternative Routes from Aberdeen to Morgantown:

Two similar routes were studied from Aberdeen to Morgantown. These routes fell into the corridors produced by three of the four models: Built Environment, Natural Environment, and Averaged Model. Route N scored better than Route O in all categories. However, statistically the difference between the two was very minor. The deciding factor was a greater amount of forested wetlands at the tap area of Route O.

Figure 4.7a

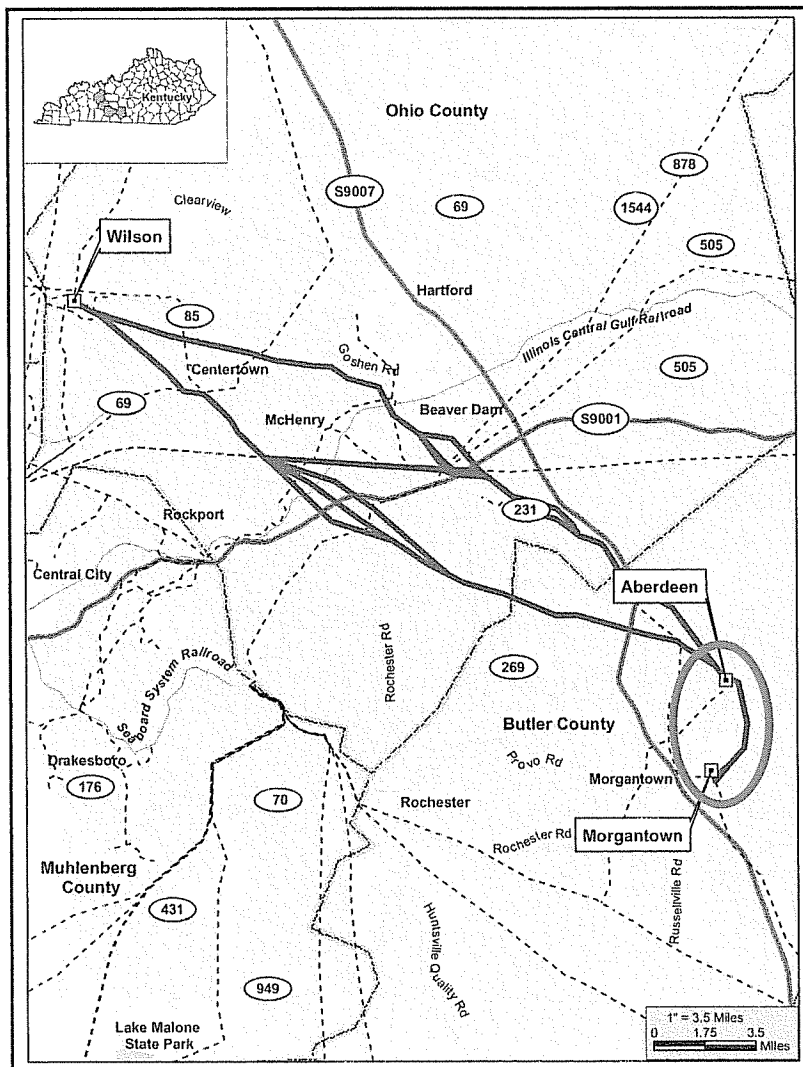
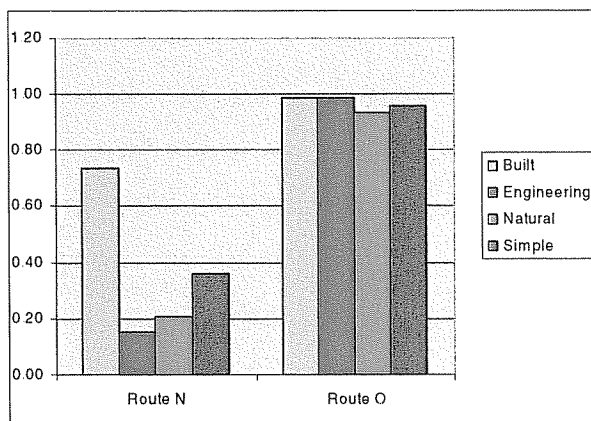


Figure 4.7b

Raw Statistics and Normalized Statistics

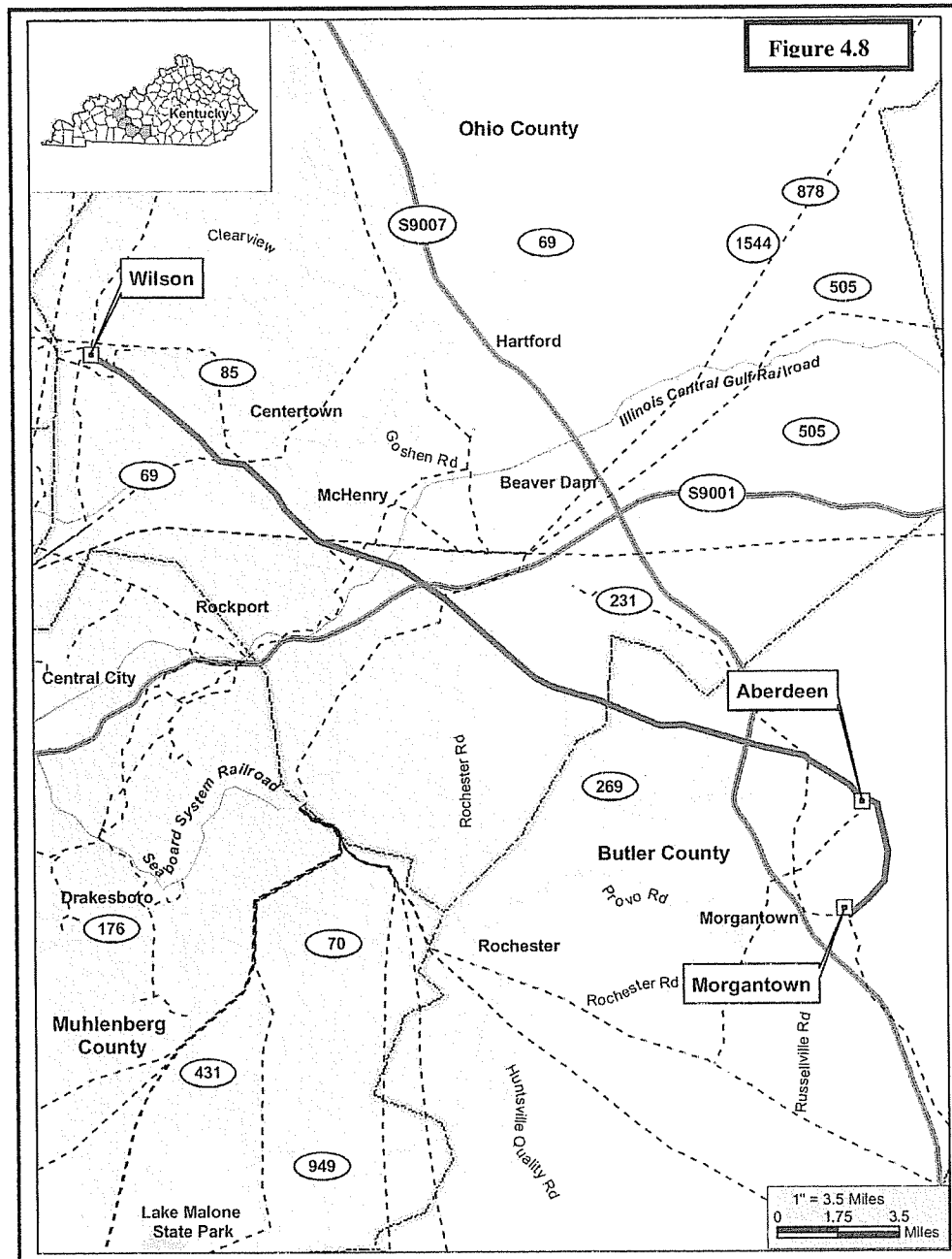
Built	Route N	Route O
Feature	Unit	Unit
Relocated Residences (within 100' Corridor)	0	0
<i>Normalized</i>	0.0	0.0
Proximity to Residences (300')	5	5
<i>Normalized</i>	1.0	1.0
Proposed Developments	0	0
<i>Normalized</i>	0.0	0.0
Proximity to Commercial Buildings (300')	0	0
<i>Normalized</i>	0.0	0.0
Proximity to Industrial Buildings (300')	0	0
<i>Normalized</i>	0.0	0.0
School, DayCare, Church, Cemetery, Park Parcels (#)	1	1
<i>Normalized</i>	1.0	1.0
NRHP Listed/Eligible Strucs /Districts (1500' from edge of R/W)	0	0
<i>Normalized</i>	0.0	0.0
Natural		
Natural Forests (Acres)	25.7	23.4
<i>Normalized</i>	1.0	0.0
Stream/River Crossings	4	6
<i>Normalized</i>	0.0	1.0
Wetland Areas (Acres)	0.6	0.7
<i>Normalized</i>	0.0	1.0
Floodplain Areas (Acres)	19.6	23.6
<i>Normalized</i>	0.0	1.0
Engineering		
Length (Miles)	4.16	4.22
<i>Normalized</i>	0.0	1.0
Miles of Rebuild with Existing T/L*	0.0	0.0
<i>Normalized</i>	0.0	0.0
<i>Inverted</i>	0.0	0.0
Miles of Co-location with Existing T/L*	0.0	0.0
<i>Normalized</i>	0.0	0.0
<i>Inverted</i>	0.0	0.0
Miles of Co-location with Roads*	0.0	0.0
<i>Normalized</i>	0.0	0.0
<i>Inverted</i>	0.0	0.0
Number of Parcels	17	15
<i>Normalized</i>	1.0	0.0
Total Project Costs	\$1,195,037	\$1,201,098
<i>Normalized</i>	0.0	1.0

Figure 4.7c



4.8 Conclusion:

The combination of Route C and Route N is the preferred corridor. According to EKPC's internal process, this corridor is subject to refinement based on local input and more detailed data.



COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

THE APPLICATION OF EAST KENTUCKY)
POWER COOPERATIVE, INC. FOR A CERTIFICATE)
OF PUBLIC CONVENIENCE AND NECESSITY FOR) **CASE NO**
THE CONSTRUCTION OF A 161 kV ELECTRIC) **2005-00207**
TRANSMISSION PROJECT IN BARREN, WARREN,)
BUTLER, AND OHIO COUNTIES, KENTUCKY)

**PREPARED TESTIMONY OF DAVID A. SHAFER, P.E.
ON BEHALF OF
EAST KENTUCKY POWER COOPERATIVE, INC.**

1. Please state your name and address.
 - A. David A. Shafer

177 Cottage Dr.

Horton, MI 49246
2. By whom are you employed and in what position?
 - A. Commonwealth Associates, Inc.

Manager, Electrical Systems
3. As background for your testimony, please briefly describe your educational background and work experience?
 - A. Educational Background
 - Bachelor of Electrical Engineering and Master of Science of Electrical Engineering from The Ohio State University both in August, 1973

- Master of Business Administration from Eastern Michigan University, in December, 1985

Work Experience

- 1973 – 1978 Toledo Edison Company, Toledo, Ohio, Electrical Engineer in the System Planning Department
- 1978 – 1988 Gilbert/Commonwealth, Jackson, Michigan, Electrical Engineer in the Electrical Systems Department
- 1988 – Present Commonwealth Associates, Inc., Jackson, Michigan, Electrical Engineer and Manager of Electrical Systems in the Electrical Systems Department

Professional Registration

- Professional Engineer Registrations: Ohio 1977, Michigan 1988, North Carolina 1998, West Virginia 1998, Kentucky 2002, and Tennessee 2002.

4. What are your duties and responsibilities as Manager, Electrical Systems at CAI?
- A. As Manager of the Electrical Systems Department I am responsible for a group of eight electrical engineers, engineering specialists and computer programmers. The Electrical Systems Department provides consulting engineering services to the electric utility industry, specializing in studies of high voltage transmission systems and development of computer software for analysis of high voltage transmission systems. The studies include system planning studies, protective relay coordination studies, economic studies, transmission interconnection studies for new power plants, reliability studies, and special studies for transmission service to large load customers. The computer software is a commercially available product sold under the trade name TRANSMISSION 2000. Software modules include Power Flow, Short Circuit and Transient Stability. These are the primary tools used in transmission system planning

and analysis. In addition to planning studies, my department is also responsible for electrical effects analysis of high voltage transmission lines. Electrical effects include electric and magnetic fields, transmission line audible noise, and radio and TV interference; and induced voltages and currents from transmission lines onto fences, pipelines, and railroads. Special studies are performed to evaluate transmission line electrical effects and to ensure that the high voltage power lines comply with local, state and national regulations and that there are no adverse impacts of power lines on parallel pipelines, railroads, or communication facilities.

5. Did you conduct, direct and supervise a system impact study to develop and analyze the alternatives that exist to provide transmission service to Warren RECC?
 - A. Yes, I prepared a study to evaluate the transmission requirements for East Kentucky Power to service the Warren RECC load. The purpose of the study was to provide independent analysis of the transmission facilities needed to serve the Warren RECC load, demonstrate the adequacy of the plan with power flow analysis, provide conceptual level cost estimates for the proposed/recommended facilities, and provide short circuit and transient stability analysis. A Final Report was issued on January 27, 2005.
6. What is the purpose of your testimony?
 - A. The purpose of my testimony is to provide information related to the alternatives considered to provide transmission service to Warren RECC and the selection of the proposed Project as the best alternative to provide such service.

7. What alternatives were considered to provide transmission service to Warren RECC?
- A. All studies were based on a modified power flow model that was released by East Central Area Reliability Council (ECAR) that modeled the electrical system as projected to 2010 Summer conditions. Case A was the ECAR 2010 Summer Model with the Warren RECC load serviced via TVA. This established the base case reference conditions. From this case, two alternatives were developed. Case B was based on Warren RECC service from EKPC and included new 161 kV transmission lines from EKPC's Barren County Substation to the Warren RECC load centers at Magna, Bristow, GM, East Bowling Green, Memphis Junction, and Aberdeen. The plan also included closing the Warren RECC 69 kV network between Bowling Green, Memphis Junction, and the City of Franklin's Substation. New 161 circuit breakers were added at Magna, GM, Memphis Junction, and Aberdeen. New 69 kV breaker stations were established at Salmons and Plano. Case C was the same as Case B, except that a new 161 kV interconnection was established between Big Rivers Electric Corporation's Wilson Substation and Warren RECC's existing Aberdeen Substation. During the course of the study, several variations and refinements were made to these plans to include:
- Eliminating a three-terminal arrangement at Memphis Junction
 - Adding an additional circuit breaker at East Bowling Green
 - Adding a new 161/69 kV transformer station near the City of Franklin's Substation
8. Why was the proposed Project chosen instead of the other alternatives?

- A. Case B was eliminated because it did not provide sufficient transmission to reliably serve the Warren RECC load. In my opinion, Case C, as presently configured, is the minimum-cost transmission plan and requires the least amount of new transmission system development that meets the planning and reliability criteria.
9. Have you prepared a final written System Impact Study detailing the various alternatives and the selection of the proposed Project as the best alternative?
- A. Yes
10. Have you made this a part of this prepared testimony and attached it hereto as Shafer **Exhibit I**?
- A. Yes
11. Did you direct, supervise and/or perform any subsequent studies in the development and selection of the proposed Project to serve Warren RECC?
- A. Yes, an Addendum report was prepared May 26, 2005, that evaluated several changes to the proposed system. Most of the changes were minor, such as changes to the wire sizes, line lengths, or locations of switching stations. The most significant change was the addition of a new 161-69 kV, 100 MVA transformer connected onto the Memphis Junction – Franklin 161 kV transmission line. This new substation eliminated an overload on the existing City of Franklin Substation 50 MVA, 161 kV transformer. Two other noteworthy changes were: 1) elimination of the East Bowling Green – West Bowling Green 69 kV line, replacing it with a 69 kV line from Memphis Junction to West Bowling Green, and 2) the addition of a new 69 kV line from Aberdeen to Morgantown. These two 69 kV changes were made to improve the reliability of the 69 kV transmission network.


12. Have you made this a part of this prepared testimony and attached it hereto as Shafer **Exhibit II**?
- A. Yes.
13. Have you had supporting study documentation reduced to electronic files, and have you had these files copied to a CD-Rom?
- A. Yes. Electronic copies of the Final report and the Addendum report and the Supporting documentation provided in electronic files and provided on a CD include: 1) The Final Report detailing the study results, dated January 27, 2005 2) the Tables and Exhibits associated with the Final Report 3) the Addendum Report, dated May 25, 2005 4) text files listing the contingencies used to study the system, 5) computer results files from the TRANSMISSION 2000[®] Contingency Processor provided in pdf format, and 6) power flow base case models provided in text files in PTI PSSE format.
14. Will you make these files a part of your testimony and identify them as **Shafer Exhibit III** on the CD-Rom attached to your testimony?
- A. Yes
15. Do you have an opinion as to whether the proposed Project is the best alternative to provide transmission service to Warren RECC?
- A. Yes
16. What is that opinion?
- A. It is my opinion that the proposed Project is the best alternative to provide this service.
17. Does this conclude your testimony?
- A. Yes

**STUDY TO PROVIDE
TRANSMISSION SERVICE TO
WARREN RURAL ELECTRIC COOPERATIVE**

Prepared for



EAST KENTUCKY POWER COOPERATIVE

A Touchstone Energy Cooperative 

Prepared by:



Commonwealth Associates, Inc.

engineers • consultants • construction managers



January 27, 2005

Ms. Mary Jane Warner
Manager, Transmission
East Kentucky Power Cooperative, Inc.
P.O. Box 707
Winchester, KY 40392-0707

SUBJECT: TRANSMISSION SERVICE TO WRECC STUDY

Dear Mary Jane:

The attached report provides results of the Commonwealth Associates, Inc. (CAI) study for East Kentucky Power Cooperative (EKPC) transmission service to the Warren Rural Electric Cooperative (WRECC).

Based on our study results we conclude that approximately 93 pole miles of new 161 kV transmission and 15 new 161 kV circuit breaker additions in seven existing substations will be needed to service this load. The new transmission should be constructed from EKPC Barren County Substation to connect to existing WRECC load substations. Included in the 93 miles is a new 25 mile interconnection between EKPC and Big Rivers Electric Corporation. In addition to the new lines, two existing lines will need to be upgraded for higher capacity: 0.15 mile East Bowling Green – GM 161 kV and 20 mile Summershade – Barren County 161 kV. The existing 69 kV WRECC network between Memphis Junction, East Bowling Green, and Franklin will need to be operated closed. This requires three new 69 kV switching stations. CAI's estimated construction costs for the required facilities in 2008 dollars is \$47 million.

In addition to the new facilities, our study is based on the following assumptions:

- a. TVA interconnections will remain at Memphis Junction and East Bowling Green. The connections at East Bowling Green are modified as discussed in the report.
- b. An interconnection will remain with the City of Franklin. We understand that EKPC is discussing with the City replacing the transformer at Franklin with a larger unit.
- c. WRECC loads presently served off the LG&E Energy/Kentucky Utilities system (LGEE) will remain connected to LGEE. We understand that a new contract would be required between EKPC and LGEE for this service.

The attached report provides additional study results, discussions, maps, and one-line diagrams. Results of the computer simulations are provided as separate appendices.

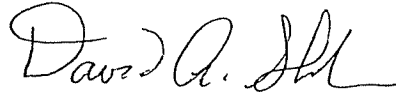
Ms. Mary Jane Warner

January 27, 2005

Page 2 of 2

This report completes our work on this project. It has been a pleasure working with you and we look forward to future projects with EKPC.

Yours very truly,

A handwritten signature in black ink, appearing to read "David A. Shafer". The signature is fluid and cursive, with the first name "David" being the most prominent.

David A. Shafer, P.E.

Manager, Electrical Systems

DAS/dw

Attachment


Cc: Darrin Adams
Mike Spurlock

STUDY TO PROVIDE
TRANSMISSION SERVICE TO
WARREN RURAL ELECTRIC COOPERATIVE

Prepared for



EAST KENTUCKY POWER COOPERATIVE

A Touchstone Energy Cooperative 

Prepared by:

D.A. Shafer, P.E.
R.D. Cook, P.E.
R.S. Smith

At the offices of
Commonwealth Associates, Inc.
P.O. Box 1124
Jackson, Michigan 49204
January 27, 2005
324001/402

Approved for submittal:

David A. Shafer, P.E.
Manager, Electrical Systems

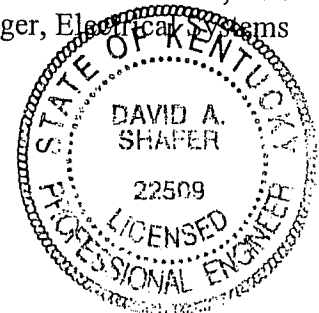


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Table 10	Short Circuit Percent Change From Case A

EXHIBITS

Exhibit 1	Proposed EKPC/Warren Transmission Additions Dwg Tol04, Rev. 4
Exhibit 2	Transmission Map
Exhibit 2a	Insert A – Bowling Green
Exhibit 3	Case A One-Line Diagram
Exhibit 4	Case B One-Line Diagram
Exhibit 5	Case C One-Line Diagram
Exhibit 6	Transient Stability 6-1 Case A2, 12 cycle – stable 6-2 Case A2, 13 cycle – unstable 6-3 Case C2, 12 cycle – stable 6-4 Case C2, 13 cycle – unstable

APPENDICES – VOLUME 1

Appendix A	Case A Reports, Phase 1
Appendix B	Case B Reports, Phase 1
Appendix C	Case C Reports, Phase 1
Appendix D	Case C1 and C2 Reports, Phase 1
Appendix E	Case CT Reports, Phase 1
Appendix F	Case D Reports, Phase 1
Appendix G	Case A Reports, Phase 2
Appendix H	Case AS1 Reports, Phase 2
Appendix I	Case AS2 Reports, Phase 2
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Appendix L	Case C Reports, Phase 2
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APPENDICES – VOLUME 2

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Appendix R	Case DS1 Reports, Phase 2
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Appendix U	Case DS4 Reports, Phase 2
Appendix V	Case CS5 Reports, Phase 2
Appendix W	Case DS5 Reports, Phase 2
Appendix X	Case CTS1 Reports, Phase 2
Appendix Y	Case CTS2 Reports, Phase 2
Appendix Z	Case CTS3 Reports, Phase 2