

AGRICULTURAL
IMPACT
STATEMENT



**Badger-Coulee 345 kV Transmission
Line Project: Holmen to Middleton**

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Trade and Consumer Protection
DATCP #3829**



Agricultural Impact Statement

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AGRICULTURAL IMPACT STATEMENT

EXECUTIVE SUMMARY

Badger-Coulee 345 kV Transmission Line

PSCW Docket 5-CE-142

American Transmission Company and Northern States Power (Applicants) are proposing to construct a 345 kV transmission line known as the Badger-Coulee Project. This Agricultural Impact Statement (AIS), developed by staff at the Wisconsin Department of Agriculture, Trade, and Consumer Protection (DATCP) is an informational and advisory document that describes and analyzes the potential effects of the proposed project on farm operations and agricultural resources. The AIS provides information that will help affected landowners understand the potential effects of the project on their land and their rights in the review and construction processes; aid the Public Service Commission (PSC) in making decisions regarding project approval and route alternatives; offer the project Applicants practices and techniques to avoid or mitigate damages to farmland and farm operations; and give the general public a better understanding of the impacts the proposed project could have on agriculture.

The DATCP is not involved in determining whether or not eminent domain powers will be used or the amount of compensation to be paid for the acquisition of any property, nor can the information in the AIS stop a project. The AIS reflects the general objectives of the DATCP in its recognition of the importance of conserving important agricultural resources and maintaining a healthy rural economy.

This proposed line would run from Holmen in La Crosse County to Middleton in Dane County. Nine counties in southwestern Wisconsin could be directly affected by construction of this line. In general terms, the new 345 kV transmission line will follow the centerline of a 120-foot wide right-of-way (ROW). The Applicants have proposed routes for the line and those routes have been divided into Segments for ease of comparison. The AIS attempts to describe impacts associated with each segment alternative in a comparison format so readers are aware of the agricultural impacts associated with choosing one route segment over another.

Agriculture is extremely important for the economy of Wisconsin and for each of the potentially affected counties this project would cross. Should the PSC determine that this project is needed; significant consideration should be given to choosing routes that impact agricultural operations and agricultural landowners to the smallest extent possible. Specific considerations to assess route segment decisions and the degree of impacts to agriculture include:

- Total agricultural land along the segment corridor
- New versus existing right-of-way on agricultural land
- Right-of-way extent on prime and other highly productive farmland classes
- Number and type of agricultural operations impacted (dairy, organic, specialty, row crop, etc.)

The Applicants and the affected landowners should be aware of and prepared to mitigate the major potential impacts to agriculture, including:

- Impacts on crop production
- Topsoil and subsoil mixing
- Soil compaction
- Erosion control during construction and restoration
- Impacts on drainage and irrigation systems
- Impact on residences
- Effects on property values
- Impacts on farm viability and future farm expansions.

DATCP CONCLUSIONS AND RECOMMENDATIONS

The proposed Badger Coulee Transmission Line Project would have considerable effects on farmland owners and agricultural resources. Many of these potential effects could be mitigated through certain actions taken by the Applicants, including hiring one or more experienced, independent agricultural monitors. Other potential impacts are more difficult to define with certainty and, consequently, more difficult to mitigate. If the project is approved, DATCP recommends the Commission include in its order the requirement that the Applicants work with DATCP to hire one or more qualified, independent Agricultural Monitors to train construction crews on proper procedures when working on agricultural land, to observe construction and restoration work on agricultural land, to identify damaging construction practices that must be stopped or corrected, and to report regularly to DATCP.

Farmland owners should become familiar with *Wisconsin Statute* §182.017 also known as the “Landowners’ Bill of Rights” included in Appendix III. This statute describes the obligations and responsibilities of utilities when constructing and maintaining transmission lines on easements. Landowners may agree to waive some or all of their rights identified in this statute, but they are not required to waive any of these rights. DATCP recommends that farmland owners carefully consider the protections provided in these documents before negotiating conditions in their easement that would offer less protection.

Farms in the path of the proposed project range from small life style farms and organic producers to large cash-crop and dairy operations. If the project is approved by the PSC, the project would have both temporary and permanent impacts on the farms that it crosses. This AIS describes the potential impacts that could be caused by the proposed project. Temporary impacts could include the disruption of farm work during construction and soil compaction along the right-of-way. Permanent impacts could include the loss of cropland that becomes inaccessible to farm equipment due to the placement of poles in fields. In order to gain an understanding of the concerns that farmers and farmland owners have about the project, DATCP surveyed the farmland owners with 4 or more acres of their land crossed by the project right-of-way. In all, 130 surveys were sent and 70 were returned for a response rate of 53.8 percent.

*Executive Summary – Agricultural Impact Statement
Badger-Coulee 345 kV Transmission Line*

To inform the PSC, agricultural landowners, and other interested parties about the potential extent of agricultural impacts along each route alternative, each set of alternative routes are summarized below. Cells are shaded in each table to highlight significant differences in the extent of agricultural impacts between contrasting route segments.

From the Briggs Road Substation near Holmen to Lyndon Station, the project would follow one of three potential routes. The following table summarizes some of the agricultural impacts of these routes.

Segment Alternatives	N + P	N + P-East	O
Segment Length (miles)	112.7	112.0	85.4
Total ROW Area (acres)	1,601.5	1,587.2	1,354.1
ROW in Agriculture (acres)	364.2 22.8% of Segment ROW	339.1 21.4% of Segment ROW	503.8 37.2% of Segment ROW
Existing ROW in Agriculture (acres)	212.0	200.8	66.0
New ROW in Agriculture (acres)	152.5	138.3	437.8
Poles in Agricultural Land	218	203	267
Poles in Agricultural Land and New ROW	55	46	212
Prime Farmland in ROW (acres)	135.2	126.4	119.9
Prime Farmland when Drained in ROW (acres)	41.7	41.7	114.2
Dairy Operations within 300 ft of ROW	1	1	7
Farms responding to DATCP's survey and indicating concerns:			
Aerial Application ^a	3 farms	3 farms	4 farms
Irrigation ^a	0 farms	0 farms	1 farm
Organic Farm* ^a	1 farm	1 farm	9 farms
Contour Strips ^a	4 farms	4 farms	8 farms
Drainage Tiling and/or Grassed Waterways ^a	6 farms	6 farms	10 farms

^a Data are from responses to survey and comments by farmland owners and are NOT totals, but do provide an indication of the degree of impact.

*Certified organic or in the process of becoming certified.

From Koval Road to Wisconsin Dells, the project would follow either Segments K or Segment L. Neither of these segments affects agricultural land. Segment K is 4.2 miles long and covers

*Executive Summary – Agricultural Impact Statement
Badger-Coulee 345 kV Transmission Line*

61.1 acres of right-of-way and Segment L is 4.3 miles long and covers 63.3 acres of right-of-way.

From Wisconsin Dells to the town of Caledonia, the project would follow one of two potential routes. The following table summarizes some of the agricultural impacts of these routes.

Segment Alternatives	I	H
Segment Length (miles)	21.9	22.0
Total ROW Area (acres)	319.0	317.0
ROW in Agriculture (acres)	30.0 9.4% of Segment ROW	65.3 20.6% of Segment ROW
Existing ROW in Agriculture (acres)	8.0	1.2
New ROW in Agriculture (acres)	22.0	64.1
Poles in Agricultural land	16	31
Poles in Agricultural Land and New ROW	10	30
Prime Farmland in ROW (acres)	7.5	43.8
Prime Farmland when Drained in ROW (acres)	5.2	1.4
Dairy Operations within 300 ft of ROW	0	0
Farms responding to DATCP's survey and indicating concerns:		
Aerial Application ^a	0 farms	1 farm
Irrigation ^a	0 farms	2 farms
Organic Farm* ^a	0 farms	0 farms
Contour Strips ^a	0 farms	0 farms
Drainage Tiling and Grassed Waterways ^a	0 farms	2 farms

^a Data are from responses to survey and comments by farmland owners and are NOT totals, but do provide an indication of the degree of impact.

*Certified organic or in the process of becoming certified.

From the town of Dekorra to the North Madison Substation, the project would follow one of two potential routes. The following table summarizes some of the agricultural impacts of these routes.

Segment Alternatives	F	E
Segment Length (miles)	15.0	13.1
Total ROW Area (acres)	217.9	190.3
ROW in Agriculture (acres)	125.9	73.0

*Executive Summary – Agricultural Impact Statement
Badger-Coulee 345 kV Transmission Line*

Segment Alternatives	F	E
	57.8% of Segment ROW	38.4% of Segment ROW
Existing ROW in Agriculture (acres)	1.0	1.0
New ROW in Agriculture (acres)	124.9	72.0
Poles in Agricultural Land	56	38
Poles in Agricultural Land and New ROW	56	37
Prime Farmland in ROW (acres)	79.5	53.0
Prime Farmland when Drained in ROW (acres)	8.5	2.3
Dairy Operations within 300 ft of ROW	0	0
Farms responding to DATCP’s survey and indicating concerns:		
Aerial Application ^a	3 farms	1 farm
Irrigation ^a	0 farms	1 farm
Organic Farm* ^a	0 farms	1 farm
Contour Strips ^a	0 farms	1 farm
Drainage Tiling and Grassed Waterways ^a	3 farms	2 farms

^a Data are from responses to survey and comments by farmland owners and are NOT totals, but they provide an indication of the degree of impact.

*Certified organic or in the process of becoming certified.

From the North Madison Substation to the town of Springfield, the project would follow one of two potential routes. The following table summarizes some of the agricultural impacts of these routes.

Segment Alternatives	D	C
Segment Length (miles)	15.3	15.6
Total ROW Area (acres)	222.7	227.6
ROW in Agriculture (acres)	176.0 79.0% of Segment ROW	167.8 73.7% of Segment ROW
Existing ROW in Agriculture (acres)	120.9	30.8
New ROW in Agriculture (acres)	55.1	137.0
Poles in Agricultural Land	73	83
Poles in Agricultural Land and New ROW	10	64
Prime Farmland in ROW (acres)	109.3	106.2

*Executive Summary – Agricultural Impact Statement
Badger-Coulee 345 kV Transmission Line*

Segment Alternatives	D	C
Prime Farmland when Drained in ROW (acres)	0.5	6.6
Dairy Operations within 300 ft of ROW	1	0
Farms responding to DATCP’s survey and indicating concerns:		
Aerial Application ^a	1 farm	4 farms
Irrigation ^a	0 farms	0 farms
Organic Farm* ^a	0 farms	0 farms
Contour Strips ^a	0 farms	0 farms
Drainage Tiling and Grassed Waterways ^a	1 farm	4 farms

^a Data are from responses to survey and comments by farmland owners and are NOT totals, but they provide an indication of the degree of impact.

*Certified organic or in the process of becoming certified.

From the town of Springfield to the Cardinal Substation in Middleton, the project would follow one of three potential routes. The following table summarizes some of the agricultural impacts of these routes.

Segment Alternatives	B	B-North	A
Segment Length (miles)	7.4	7.3	4.6
Total ROW Area (acres)	107.9	105.7	67.0
ROW in Agriculture (acres)	41.6 38.6% of Segment ROW	37.5 35.5% of Segment ROW	41.6 61.9% of Segment ROW
Existing ROW in Agriculture (acres)	5.3	3.1	11.9
New ROW in Agriculture (acres)	36.3	34.4	29.7
Poles in Agricultural Land	16	16	19
Poles in Agricultural Land and New ROW	12	14	10
Prime Farmland in ROW (acres)	21.3	13.2	22.0
Prime Farmland when Drained in ROW (acres)	4.7	3.4	0.0
Dairy Operations within 300 ft of ROW	1	0	0
Farms responding to DATCP’s survey and indicating concerns:			
Aerial Application ^a	2 farms	2 farms	0 farms

*Executive Summary – Agricultural Impact Statement
Badger-Coulee 345 kV Transmission Line*

Segment Alternatives	B	B-North	A
Irrigation ^a	0 farms	0 farms	0 farms
Organic Farm ^{*a}	0 farms	0 farms	0 farms
Contour Strips ^a	1 farm	1 farm	1 farm
Drainage Tiling and Grassed Waterways ^a	2 farms	2 farms	1 farm

^a Data are from responses to survey and comments by farmland owners and are NOT totals, but do provide an indication of the degree of impact.

*Certified organic or in the process of becoming certified.

Three route segments (M, J and G) are common to all potential routes. The potential impacts associated with these three segments are further described below.

From Lyndon Station to Koval Road, the project would follow Segment M, which is common to all of the potential routes that could be chosen for the proposed project. This segment is 3.3 miles long and its right-of-way covers 47.5 acres. Of the right-of-way 1.4 acres are farmland consisting of 0.9 of an acre of existing right-of-way and 0.5 of an acre of new right-of-way. None of the poles for this segment would be placed in agricultural land. The 1.4 acres of farmland can also be described as including 0.3 of an acre of prime farmland. There are no acres of prime farmland where drained on this segment. One farm surveyed by DATCP indicated concerns about the impacts on drainage.

Segment J is the Wisconsin River crossing at Wisconsin Dells and it is common to all of the potential routes that could be chosen for the project. It is 2.3 miles long and covers 33.2 acres of right-of-way. Farmland accounts for 3.7 acres of the total right-of-way, which will cross all new right-of-way. This segment’s agricultural land will have 5 poles. The farmland that is crossed by this segment includes 2.9 acres prime farmland and 0 acres of prime farmland where drained.

Segment G from the town of Caledonia to the town of Dekorra is common to all routes. Segment G is 4.2 miles long and covers 75.0 acres of land. Of the total right-of-way for this segment, 14.4 acres would cover agricultural land, which would all be on new right-of-way. Nine transmission line poles would be located on agricultural land in this segment. The agricultural land in this segment includes 8.8 acres of prime farmland and 1.9 acres of prime farmland where drained.

The DATCP recommends the following as ways to mitigate the potential adverse impacts associated with the proposed project if it is approved by the PSCW:

1. The Applicants should hire agricultural monitors, who are approved by DATCP, to oversee compliance with the portions of the PSC’s order for the project dealing with agricultural issues; and to observe and document project construction and construction-related work on agricultural property. These monitors must be adequately trained, experienced and knowledgeable in agricultural issues and practices, and in measures to prevent and mitigate damage to agricultural land caused by transmission line projects.

2. The Applicants should hire an agricultural specialist to conduct pre-construction interviews with farmers and farmland owners who will be directly affected by the acquisition of easements for this project. At a minimum, the interview should determine whether the affected farm operation has a biosecurity plan, the types of crops grown and livestock raised, and the location of any existing or planned drainage systems or other agricultural infrastructure.
3. Information from the pre-construction farm interviews should be incorporated into the bid packages and line lists used by the contractors, inspectors, and monitors.
4. The Applicants should consult with affected farmland owners to determine the least damaging locations for transmission support structures.
5. If the project is approved and Segment D is part of the approved route, the transmission line should follow the fence lines and avoid farm operation buildings in agricultural areas in order to minimize the impact on farming in accordance with Dane County Land and Water staff recommendations.
6. Landowners who will have easements acquired for the proposed project should be familiar with the “Landowners’ Bill of Rights” which is found in Wis. Stat. §182.017 (7). The Applicants may ask landowners to waive some or all of the rights listed in this statute, but the landowners are not required to waive any of these rights. Refer to the Appendix for the text of the “Landowners’ Bill of Rights.”
7. The county conservationists in the counties affected by the proposed project should be consulted to ensure that construction proceeds in a manner that minimizes drainage problems, crop damage, soil compaction, and soil erosion.
8. If an approved route passes through a drainage district, the Applicants should consult with the relevant Drainage Board(s) to ensure that construction will not permanently disrupt the operation of the district(s).
9. All farmland owners and operators should be given advance notice of acquisition and construction schedules so that farm activities can be adjusted accordingly. To the extent feasible, the timing of ROW acquisitions and construction by the Applicants and their contractors should be coordinated with farmers to minimize crop damage and disruption of farm operations.
10. The Applicants should implement training for all construction supervisors, inspectors and crews to ensure that they understand the steps needed to protect the integrity of agricultural lands during project construction and restoration.
11. The Applicants should ensure that their contractors and subcontractors incorporate all necessary site-specific easement conditions to protect agricultural resources, as well as all

statutory requirements and PSC permit conditions regarding agricultural land protection into their construction line list, and into any bid documents for the project.

12. Construction on agricultural land should occur as much as possible when the ground is frozen. This will minimize soil compaction and reduce the risk of spreading diseases and pests between farms.
13. If ruts are created in the portion of the ROW that crosses farmland, the Applicants should make reasonable attempts to restore the affected soils as quickly as possible.
14. The Applicants should strip and segregate the topsoil over and around all excavation sites on the project to ensure that the uniquely valuable topsoil is not mixed with lower quality subsoil and underlying parent material.
15. The Applicants should make sure that all excavated soil below the topsoil layer displaced by the pole and foundation, and other spoil material, are removed from the site and not deposited on or mixed with any cropland.
16. If the Applicants remove any existing power line support structures within or immediately adjacent to cropland, they should remove all of the support structure and replace it with clean fill to the level in the adjacent soil where the topsoil begins. Imported topsoil of similar quality to the adjacent topsoils should then be placed over the remainder of the hole. If a support structure cannot be completely removed from cropland, as much of the structure as possible should be removed and the site flagged so the farmer can avoid collisions between his/her equipment and the remainder of the buried structure.
17. After construction of the line is complete, the Applicants should test the soil profile to determine whether the soils in the ROW have been compacted by construction or other equipment. This is commonly done by comparing the compaction levels of soils on the portion of the ROW that carried the traffic to comparable soils off the right-of-way. If soils are compacted, steps should be taken to correct this problem.
18. The Applicants should undertake post-construction monitoring to ensure that no damage to agricultural fields along the project route has occurred.

Table of Contents

LIST OF TABLES	2
LIST OF FIGURES	2
AGRICULTURAL IMPACT STATEMENT	3
I. INTRODUCTION	3
II. DESCRIPTION OF THE PROJECT.....	5
Existing Facilities	6
Project Need	6
Alternatives	6
Use of Existing Corridors	7
Choosing between Segment Alternatives	8
III. AGRICULTURAL SETTING.....	9
Agricultural Productivity	9
Land in Farms	10
Number of Farms	12
Size of Farms	12
Agriculture and the Economy.....	14
Property Values and Taxes.....	16
Farm Programs.....	17
Soils	21
IV. CONSTRUCTION PROCESS	25
Typical Construction Activities	25
V. SEGMENT DESCRIPTIONS AND LANDOWNER COMMENTS	30
Segment P – Briggs Road Substation to Town of Gale.....	30
Segment N – Town of Gale to Lyndon Station	32
Segment O – Briggs Road Substation to Lyndon Station.....	36
Segment M – Lyndon Station to Koval Road.....	43
Segment L – Koval Road to Wisconsin Dells.....	44
Segment K – Koval Road to Wisconsin Dells	44
Segment J – Wisconsin Dells (Wisconsin River Crossing)	44
Segment I – Wisconsin Dells to Town of Caledonia	45
Segment H – Wisconsin Dells to Town of Caledonia.....	46
Segment G – Town of Caledonia to Town of Dekorra.....	48
Segment E – Town of Dekorra to the North Madison Substation.....	50
Segment D – North Madison Substation to Town of Springfield	52
Segment C – North Madison Substation to Town of Springfield	53
Segment B – Town of Springfield to the Cardinal Substation	56
Segment B-North – Town of Springfield to the Cardinal Substation.....	57
Segment A – Town of Springfield to the Cardinal Substation	58
VI. AGRICULTURAL IMPACTS.....	60
Permanent Impacts.....	60
Temporary Construction Impacts	83
Right-of-Way Easements.....	92
VII. RECOMMENDATIONS	98
List of References.....	101

APPENDICES 104

LIST OF TABLES

Table 1. Acres of Selected Crops Grown in 1996 and 2013.....	10
Table 2. Change in the Acres of Farmland, 2012 to 2007.....	11
Table 3. Change in the Numbers of Farmland, 2012 to 2007.....	12
Table 4. Change in Average Size of Farms.....	13
Table 5. Number of Farms per Size Category.....	13
Table 6. Workers in the Agriculture Sector.....	14
Table 7. Agricultural Business Sales.....	15
Table 8. Income and Taxes Generated by the Agriculture Sector.....	16
Table 9. Farmland Taxes and Values.....	17
Table 10. Acres of Impacted Farmland by Soil Class.....	23
Table 11. Number of Poles (preliminary locations) in each Class of Agricultural Land.....	64
Table 12. Number of Poles (preliminary locations) in New/Existing ROW.....	66
Table 13. Number of Farm Buildings and Dairy Operations within 300 ft of the ROW.....	73
Table 14. Acres of ROW on Farmland.....	95

LIST OF FIGURES

Figure 1. Map of Proposed Routes with Segments.....	4
Figure 2. New vs. Existing Right-of-Way on Agricultural Land.....	7
Figure 3. Percentage of Land in Farms by County.....	11
Figure 4. Location of AEAs and Drainage Districts along the Proposed Routs.....	18
Figure 5. Farmland Class on Agricultural Land within all Proposed ROWs.....	24
Figure 6. Farmland Class of Agricultural Land Only within the <u>New</u> ROWs.....	24
Figure 7. In-Field Effects of Pole Location.....	62
Figure 8. Field Edge Effects of Pole Location.....	62
Figure 9. Poles (preliminary locations) per Classification of Agricultural Land.....	65
Figure 10. Poles (preliminary locations) in New and Existing ROW.....	65
Figure 11. Minimum Distances between Grain Bins and Transmission Lines.....	76
Figure 12. New/Existing Right-of-Way on Farmland.....	95

AGRICULTURAL IMPACT STATEMENT

**Badger-Coulee 345 kV Transmission Line
American Transmission Company and Northern States Power Company
La Crosse, Trempealeau, Vernon, Jackson, Monroe,
Juneau, Sauk, Columbia, and Dane Counties
Docket #: 5-CE-142**

I. INTRODUCTION

The Wisconsin Department of Agriculture, Trade and Consumer Protection (DATCP) has prepared this agricultural impact statement (AIS) in accordance with §32.035, *Wisconsin Statutes*. The AIS is an informational and advisory document that describes and analyzes the potential effects of the proposed project on farm operations and agricultural resources, but cannot stop a project. This document provides information that will help affected landowners understand the potential effects of the project on their land and their rights in the review and construction processes; aid the Commissioners in making their decisions; offer the project Applicants practices and techniques to avoid or mitigate damages to farmland and farm operations; and give the general public a better understanding of the impacts the proposed project could have on agriculture. The potential impacts on agriculture discussed in this AIS are described based on segment(s) they could occur in, the impact on existing land use, property values, aesthetic values, drainage, soil erosion, and soil compaction.

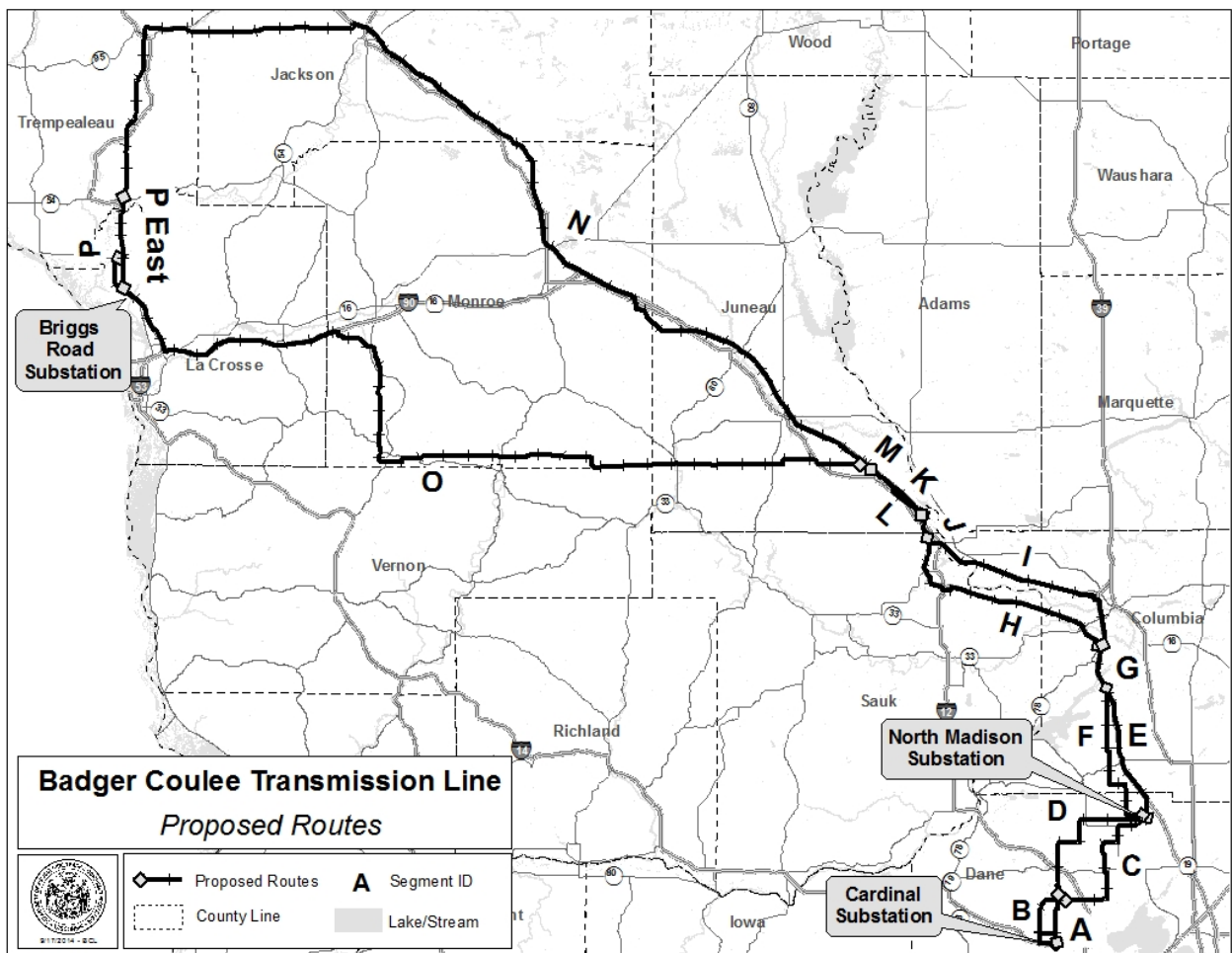
The DATCP is required to prepare an AIS when the actual or potential exercise of eminent domain powers involves an acquisition of interest in more than 5 acres of land from any farm operation.¹ The DATCP may choose to prepare an AIS if an acquisition of 5 or fewer acres will have a significant impact on a farm operation. Significant impacts could include the acquisition of buildings, the acquisition of land used to grow high-value crops, or the severance of land. The DATCP should be notified of such projects regardless of whether the proposing agency intends to use its condemnation authority in the acquisition of project lands. The proposing agency may not negotiate with or make a jurisdictional offer to a landowner until 30 days after the AIS is published.

¹The term *farm operation* includes all owned and rented parcels of land, buildings, equipment, livestock, and personnel used by an individual, partnership, or corporation under single management to produce agricultural commodities.

The DATCP is not involved in determining whether or not eminent domain powers will be used or the amount of compensation to be paid for the acquisition of any property. The AIS reflects the general objectives of the DATCP in its recognition of the importance of conserving important agricultural resources and maintaining a healthy rural economy.

Sources of information used to prepare this statement include the Joint Application for PSCW Certificate of Public Convenience and Necessity and WDNR Utility Permit, Badger Coulee 345 kV Transmission Line Project; the *Wisconsin 2013 Agricultural Statistics* and other yearly issues; the *2012 Census of Agriculture*; the Wisconsin Soil Survey; various University of Wisconsin Extension publications; the Wisconsin Department of Revenue; and input from the owners and operators of the affected farmland.

Figure 1. Map of Proposed Routes with Segments



II. DESCRIPTION OF THE PROJECT

American Transmission Company LLC and Northern States Power (together “The Applicants”) are proposing to construct a 345 kilovolt (kV) electric transmission line from the Briggs Road Substation near Holmen to the North Madison Substation in Madison and the Cardinal Substation in Middleton.² The Applicants submitted an application for a Certificate of Public Convenience and Necessity (CPCN) to the Public Service Commission of Wisconsin (PSCW) for approval to construct the project, which includes two potential routes (a Northern Route and a Southern Route) that affect nine counties: La Crosse, Trempealeau, Vernon, Jackson, Monroe, Juneau, Sauk, Columbia, and Dane County. The routes have been divided into segments for ease of comparison. The two proposed routes cross in several locations and include three segments that are common to both routes. Therefore, the PSCW and the DATCP are reviewing the route options geographically and comparing segments that could be substituted for each other rather than looking at the Northern Route versus the Southern Route as a whole. Refer to Figure 1: Map of Proposed Routes with Segment Names on page 2. If approved, construction of the transmission line could start in 2016.

The project will include the following:

- A new 345 kV terminal within the existing Briggs Road Substation in Onalaska, Wisconsin;
- A new 136 to 162 mile (depending on the final route) 345 kV transmission line between the existing Briggs Road Substation and the existing North Madison Substation;
- Two new 345 kV terminals within the existing North Madison Substation;
- A new 20 to 23 mile (depending on the final route) 345 kV transmission line between the existing North Madison Substation and the existing Cardinal Substation in Middleton, Wisconsin; and
- A new 345 kV terminal within the existing Cardinal Substation.

The majority of the transmission line poles will be self-supporting, steel, single-pole structures. The height of the structures will typically range from 80 to 180 feet with the spans between the structures being approximately 500 to 2,300 feet depending on the specific location. The typical right-of-way (ROW) will be 120-feet wide, but the width will depend on the specific location.

² Joint Application for PSCW Certificate of Public Convenience and Necessity and WDNR Utility Permit, Badger Coulee 345 kV Transmission Line Project, PSCW Docket No. 05-CE-142, March 31, 2014.

Existing Facilities

In the area that would be affected by the Badger-Coulee project there are several existing transmission lines which provide power to existing communities in the state. The La Crosse and western Wisconsin areas are currently served by a network of 161 kV and 69 kV transmission lines. After the Alma to Briggs Road Substation portion of the CapX 2020 project is complete, a 345 kV line will be added to the network.

The Madison and Middleton areas are served by two 345 kV transmission lines. One runs from the Columbia Generating Station to the North Madison Substation and the other runs from the Rockdale Substation to the Cardinal Substation. The area is also served by a network of 138 kV and 69 kV transmission lines including a 138 kV line from the North Madison Substation to the Cardinal Substation.

Project Need

The Applicants have indicated that this project will:

- Lower energy costs for end-users
- Reduce losses on the transmission system creating a more efficient transmission system and reduce the need for new generation resources
- Avoid the need for and cost of reliability projects that would otherwise have to be built in Wisconsin
- Facilitate the transfer of additional, lower-cost wind energy into Wisconsin
- Support the reliability of the transmission system by increasing transfer capability between Minnesota and Wisconsin
- Enhance reliability and load serving support in western Wisconsin by interconnecting an additional 345 kV source into the La Crosse area

Alternatives

The Applicants have identified a “Northern” and a “Southern” route as the two potential paths that could be taken by the power line if it is approved. However, because these routes cross each other, the PSC is describing the potential project route in terms of the segments that could be chosen. The Commissioners will consider whether or not the project is needed and if it is feasible. If it is needed and feasible, the Commissioners will consider the social, economic, and environmental impacts when choosing a route. From Holmen to Middleton, these choices are from west to east along the proposed routes:

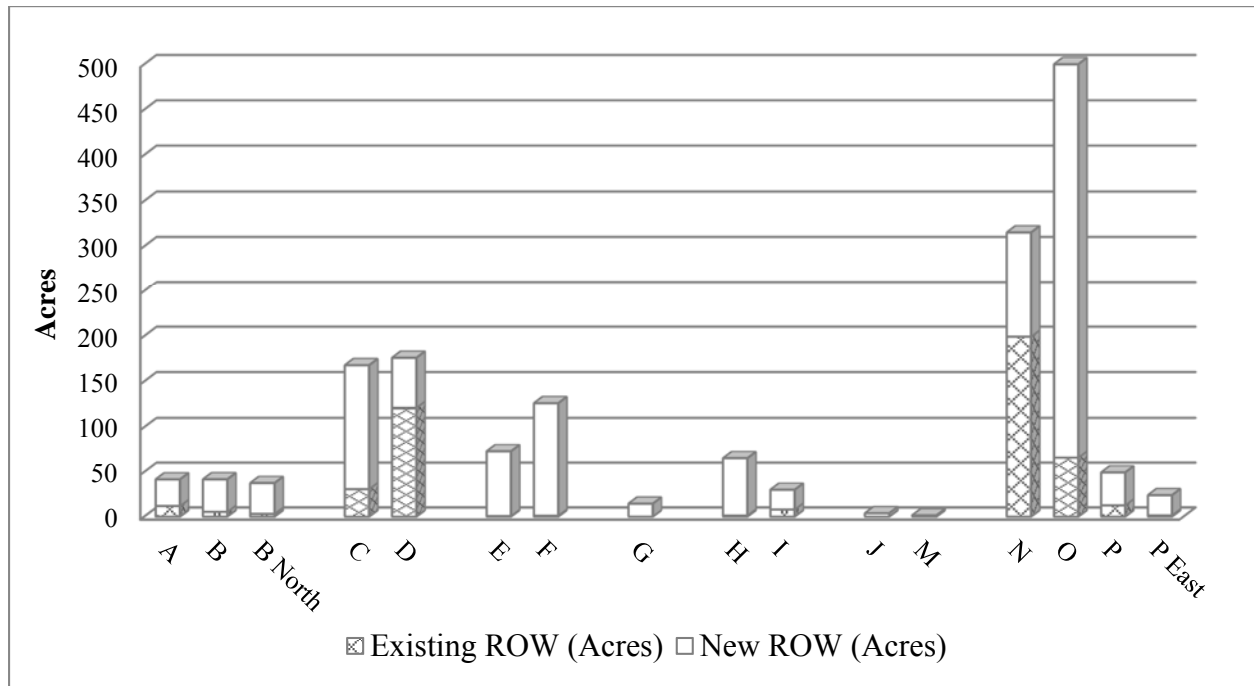
Segments N+P vs. Segments N+P-East vs. Segment O (Briggs Road Substation to Lyndon Station)
 Segment L vs. Segment K (Lyndon Station to Wisconsin Dells)
 Segment H vs. Segment I (Wisconsin Dells to Town of Caledonia)
 Segment F vs. Segment E (Town of Caledonia to N Madison Substation)
 Segment C vs. Segment D (N Madison Substation to Town of Springfield)
 Segment A vs. Segment B vs. Segment B-North (Town of Springfield to Cardinal Substation)

Segments G, J and M are common to any route that could be selected.

Use of Existing Corridors

The path that linear infrastructure, such as a power line, pipeline, or road, follows is often referred to as a corridor. Right-of-way refers to the geographical boundaries of a corridor. *Wisconsin Statute 1.12 (6)* “Siting of electric transmission facilities” identifies the priority in which various corridors should be considered when utilities develop potential routes for projects. This encourages corridor sharing where portions of the ROW for the new project will overlap existing right-of-way.

Figure 2. New vs. Existing Right-of-Way on Agricultural Land



On the east end of the project, between the Cardinal Substation and the North Madison Substation, Segments A and D use existing infrastructure corridors to a much greater extent than Segments B and C.

Between the North Madison Substation and the northwest end of Segment M (the point near Lyndon Station where Segment N continues north and Segment O heads west), Segment F is almost entirely new right-of-way. The Applicants have also indicated that Segment I requires less new ROW than Segment H, but Segment I crosses the Wisconsin River twice (in addition to the Wisconsin River crossing on Segment G, which is common to any route option).

Choosing between Segment Alternatives

Should the Public Service Commission (PSC) determine that this project is needed and approved, DATCP expects the PSC to utilize the information contained in this AIS to make decisions between route segment alternatives and the degree of impacts each option will have on the agricultural landscape and economy. Choices between route segments requires striking a balance between impacts to all land types, uses and populations, not just agricultural land impacts.

However, when choosing between alternatives, DATCP suggests that the Commission give significant consideration to:

- Total agricultural land impacted along the segment corridor
- Extent of new versus existing right-of-way on agricultural land
- Extent of right-of-way on prime and other high productivity farmland classes
- Degree of impacts to specialty cropland, organic operations, and unique agricultural types
- Degree of impacts to dairy operations, livestock, and farm buildings

Importantly, the Applicants have already considered to some extent the potential impacts of each route option included in their application as well as several other alternatives that were assessed prior to identifying these routes as their best options. More detailed information about the tow route options discussed in the AIS, as well as, other alternatives considered by the Applicants, refer to the application submitted to the PSC which is available at:

http://psc.wi.gov/apps35/ERF_search/

Utility/Docket: 5-CE-142

Document Type: Application

III. AGRICULTURAL SETTING

The information provided in the Agricultural Setting section is intended to describe the existing agricultural sector of the project area in general terms. Data will be presented for each of the potentially affected counties and for the state as a whole. Later in this report, individual farm operations will be described. Data in the Agricultural Setting section can be used to compare those individual operations with the larger agricultural economy and with average farms in the region. This section includes descriptions of the agricultural sector's contribution to the overall economy, the change in the amounts of commodity crops grown, and the overall amount of farmland and the average size of farms. Recent data on the sale of and taxes on farmland may provide landowners with a comparison to use when evaluating compensation offers. Descriptions of some of the most popular government programs will provide details about their function and the importance they have to the bottom line of many farm operations.

Agricultural Productivity

Crops and livestock are the primary sources of income for most farms. The crops that are grown may be sent directly to market or used on the farm for livestock feed. Therefore, the amount of crops grown can offer clues to the importance of farming in a region's economy. In addition, the changes in the amount of particular crops grown can show changes in the types of farms that are prevalent in a region's agriculture. For example, a shift away from growing alfalfa and corn for silage to corn for grain and soybeans suggests a reduction in dairying and a shift toward cash crop farming.

The types of farms observed in the project area also suggest the types of broad concerns farmers will have about a transmission line project. While any farmer who grows crops whether for livestock feed or for the market will be concerned about issues like soil compaction caused by transmission line construction, livestock farmers will also be concerned about the proper grounding of barns and sheds near the new line or the potential disruption of grazing during construction. Cash crop farmers are likely to be concerned about the disruption of aerial spraying or irrigation that could be caused by a transmission line.

The counties affected by the project all have vibrant agricultural sectors. In 2013, Dane County ranked third out of Wisconsin's 72 counties in the production of milk, second in corn for grain, and fifth in alfalfa hay.³ Dane County is the largest generator of agricultural sales in the state.

³Wisconsin Agricultural Statistics Service, U.S. Department of Agriculture, County Estimates available on line at: http://www.nass.usda.gov/Statistics_by_State/Wisconsin/Publications/County_Estimates/index.asp , accessed September, 2014

Jackson County is the state’s largest producer of Christmas trees. Monroe and Juneau counties are leading producers of fruits and vegetables. Sauk and Columbia Counties have significant production of grains and Vernon County is a leading producer of forage crops. La Crosse and Trempealeau Counties are major producers of poultry products.

Agricultural land uses have shifted over time in many of the counties due to a reduction in the number of dairy farms and an increase in prices for corn and soybeans. This has resulted in acreage increases for corn and soybeans in many areas that were formally used to grow alfalfa hay.

Table 1. Acres of Selected Crops Grown in 1996 and 2013

County	Acres Planted					
	All Corn		Alfalfa Hay		Soybeans	
	2013	1996	2013	1996	2013	1996
Columbia	128,000	125,600	17,900	32,500	40,800	30,100
Dane	196,000	211,000	34,600	56,800	75,400	46,400
Jackson	50,800	44,500	16,100	37,000	20,500	10,600
Juneau	39,500	44,600	10,200	19,600	18,200	15,200
La Crosse	34,200	37,000	11,900	30,000	12,600	6,300
Monroe	59,200	61,200	23,800	73,000	17,100	6,300
Sauk	88,000	85,600	27,000	52,800	29,800	16,400
Trempealeau	86,600	88,200	24,700	74,000	29,700	19,500
Vernon	65,100	62,600	39,800	101,000	26,600	3,300

Land in Farms

The amount of farmland in a region is a strong indicator of the importance of agriculture to that region, the larger the proportion of farmland compared to other uses, the greater the value that agriculture is likely to have on the economy of that region. The majority of the counties in the project area have more than 50 percent of their land area classified as farmland with the exception of Juneau and Jackson counties, which have extensive forested acreage. Figure 3 compares the percentage of land in farms in each of the counties in the project area and in Wisconsin as a whole.

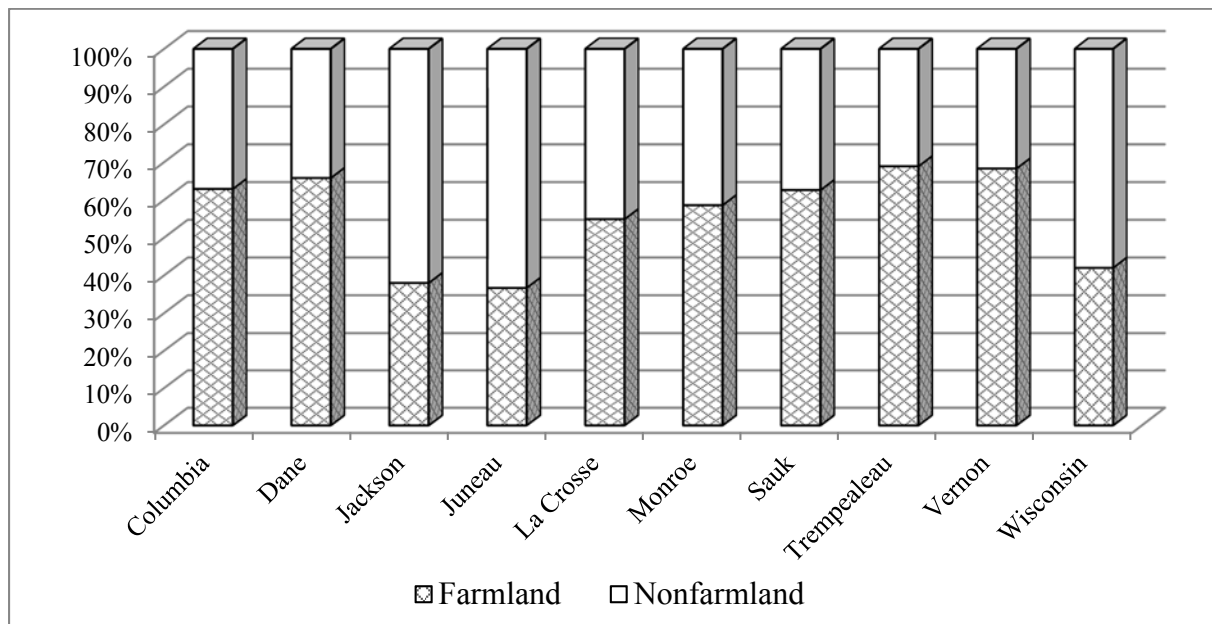
Comparisons of 2007 and 2012 Census of Agriculture data show that the amount of land in farms decreased in all counties except for Jackson County which showed a very slight increase. In Wisconsin as a whole, the amount of land in farms declined from 15.2 to 14.6 million acres (a 4

percent loss) during this five year period. Table 2 lists each county's farmland acreage changes and Wisconsin's as a whole.

Table 2. Change in the Acres of Farmland, 2012 to 2007

County	2012 Farmland (acres)	2007 Farmland (acres)	Change in Acres	Change in Percent
Columbia	307,973	316,193	-8,220	-3
Dane	504,420	535,756	-31,336	-6
Jackson	239,936	238,978	+958	+0.4
Juneau	180,039	181,046	-1,007	-1
La Crosse	158,718	165,368	-6,650	-4
Monroe	337,895	351,306	-13,411	-4
Sauk	332,649	358,919	-26,270	-7
Trempealeau	323,157	341,370	-18,213	-5
Vernon	345,892	357,090	-11,198	-3

Figure 3. Percentage of Land in Farms by County



Number of Farms

Currently, statewide trends show a decrease in the total number of farms statewide and in most counties. If the Badger-Coulee project is approved, the impacts on farms affected by the project ROW could add to stresses already felt by farm operations with existing economic concerns. According to the *Census of Agriculture 2012*, Juneau County was the only county in the project area to show an increase in the number of farms between 2007 and 2012 (see Table 3).

Table 3. Change in the Number of Farms, 2012 to 2007

County	Number of Farms (2012)	Number of Farms (2007)	Change in the Number of Farms	Percent Change
Dane	2,479	3,331	-852	-26
Columbia	1,564	1,585	-21	-1
Sauk	1,665	1,923	-258	-13
Juneau	827	797	+30	+4
Monroe	1,926	2,115	-189	-9
Jackson	894	945	-51	-5
Vernon	2,228	2,492	-264	-11
La Crosse	748	845	-97	-11
Trempealeau	1,436	1,721	-285	-17
Wisconsin	69,754	78,463	-8,709	-11

Size of Farms

The average size of farms increased in seven of the nine affected counties as well as in the state of Wisconsin as a whole. This is a general trend across the country. Increases in the average size of farms indicates that it is more likely that an individual farmer’s cropland could be impacted at multiple locations along a given route segment. The Applicants should be diligent in identifying and understanding the extent of potential agricultural impacts to each affected parcel.

Table 4. Change in Average Size of Farms

County	Average Farm Size in 2012 (acres)	Average Farm Size in 2007 (acres)
Columbia	198	199
Dane	183	161
Jackson	278	253
Juneau	218	227
La Crosse	212	196
Monroe	175	166
Sauk	200	187
Trempealeau	225	198
Vernon	155	143

Table 5 shows the number of farms in each size category for the nine affected counties.⁴ Proportionately, Jackson County has more farms that are greater than 500 acres in size due to the large number of cranberry operations located there. Dane County has the largest number of small farms.

Table 5. Number of Farms per Size Category

County	0 to 49 Acres	50 to 179 Acres	180 to 500 Acres	> 500 Acres
Columbia	617	537	260	150
Dane	1,181	667	479	214
Jackson	199	344	222	99
Juneau	246	355	159	67
La Crosse	177	300	196	75
Monroe	495	886	428	117
Sauk	484	634	410	137
Trempealeau	381	549	369	137
Vernon	707	976	452	93

⁴2012 *Census of Agriculture*, U.S. Department of Agriculture, Wisconsin Agricultural Statistics, 2009.

Agriculture and the Economy

Agriculture is a significant contributor to Wisconsin's economy. The importance of agriculture as an economic driver is often greater in less urbanized counties. In a 2011 report, University of Wisconsin-Extension researchers describe agriculture's economic contribution to Wisconsin as a whole and to the economies of individual counties.⁵ The following paragraphs describe some of the impacts of the agriculture sector's economic contribution to each of the affected county's economies.

Dane County has the largest workforce of the counties affected by this transmission line project at over 381,000 workers, but only 4% of those are employed in the agricultural sector. In contrast, nearly forty percent of Vernon County's workforce is part of the agriculture sector. In addition to farmers and farm laborers, agriculture provides employment for veterinarians; crop and livestock consultants; feed, seed, fuel, and other input suppliers; farm machinery dealers; barn builders; agricultural lenders and other professionals, as well as employees in food processing and other value-added industries. Table 6 lists the number and percentage of agricultural sector workers in each county of the project area.

Table 6. Workers in the Agriculture Sector

County	Workers in Agriculture	Workforce in Agriculture (%)
Columbia	4,527	16
Dane	16,766	4
Jackson	2,543	22
Juneau	1,577	14
La Crosse	4,062	5
Monroe	4,281	17
Sauk	4,731	10
Trempealeau	4,778	28
Vernon	5,371	37

Comparing the nine counties in the project area, agriculture accounts for the largest percentage of business sales in Vernon County at thirty nine percent. Agricultural business sales also represent a significant percentage of overall county business sales in Trempealeau, Monroe,

⁵The Economic Impacts of Agriculture in Wisconsin Counties, University of Wisconsin-Extension, Cooperative Extension, 2011, <http://www.uwex.edu/ces/ag/wisag/>

Jackson, and Columbia counties. The following table lists the amount of agricultural business sales and their percentage of the total.

Table 7. Agricultural Business Sales

County	Agricultural Business Sales (in millions)	Agriculture as a Percentage of the County's Total Business Sales (%)
Columbia	\$1,004	25
Dane	\$3,451	7
Jackson	\$ 321	25
Juneau	\$ 246	18
La Crosse	\$1,366	14
Monroe	\$ 858	26
Sauk	\$ 676	11
Trempealeau	\$ 786	33
Vernon	\$ 576	39

Agricultural income and the amount of taxes paid by the agriculture sector are indications of the importance of agriculture in a county's economy. Agricultural income includes wages, salaries, benefits, and profits of farmers and workers in agriculture-related businesses. Agriculture's contribution to overall county income is largest in Vernon County at twenty six percent followed by Trempealeau County at twenty one percent. Dane County has the largest agricultural income and taxes paid by agriculture-related businesses. The values listed in Table 8 include local and state taxes from the economic activity generated by farms and agriculture-related businesses. Taxes paid figures reported here do not include all property taxes paid to support local schools. If they did, the tax base provided by agricultural sector would be much higher. Of the nine counties in the project area, taxes paid by the agriculture sector were largest in Dane County and smallest in Jackson County.

Table 8. Income and Taxes Generated by the Agriculture Sector

County	Agricultural Income (\$ million)	Agricultural Income as a Percentage of Total Income (%)	Taxes Paid by Agriculture* (\$ million)
Columbia	\$261	15	\$24
Dane	\$1,206	4	\$117
Jackson	\$105	17	\$9
Juneau	\$70	12	\$6
La Crosse	\$257	5	\$47
Monroe	\$205	15	\$17
Sauk	\$219	8	\$20
Trempealeau	\$207	21	\$17
Vernon	\$186	26	\$19

* Does not include property taxes for local school districts

Property Values and Taxes

The sale price of comparable property will be considered when negotiating the amount of compensation paid to a landowner for any easement that might be acquired on farmland. The taxes paid and the assessed value of land may also be useful in determining the value of easements acquired. Table 9 lists the average property tax and assessed value, which was provided by the Wisconsin Department of Revenue⁶ and sale price, which is published by USDA’s Wisconsin Agricultural Statistics Service.⁷ They are listed on a per acre basis for agricultural land in each of the nine counties affected by the project and Wisconsin as a whole. The assessed values and property taxes are based on the “use value” of agricultural land. Wisconsin Statutes define agricultural land as “land, exclusive of buildings and improvements that is devoted primarily to agricultural use.” Agricultural Land Sales data is for land continuing in agricultural use. Columbia County has the highest average tax per acre on farmland, and Columbia and Dane Counties share the highest assessed value per acre of farmland among all of the nine counties affected by the proposed project. Dane County agricultural land carries the highest average sale price per acre of any of the counties affected by the proposed project.

⁶Wisconsin Department of Revenue, Division of Research and Policy, Sales and Property Tax Policy Team.

⁷ Wisconsin Agricultural Statistics Service, U.S. Department of Agriculture, County Estimates available on line at: http://www.nass.usda.gov/Statistics_by_State/Wisconsin/Publications/County_Estimates/index.asp , 9/14.

Table 9. Farmland Taxes and Values

County	2013 Dollar Values for Farmland (per acre)		
	Average Tax	Assessed Value	Sale Value
Columbia	\$4.38	\$239	\$7,423
Dane	\$4.32	\$239	\$8,489
Jackson	\$2.96	\$138	\$3,483
Juneau	\$3.01	\$132	\$2,962
La Crosse	\$2.56	\$135	\$6,368
Monroe	\$2.59	\$118	\$3,897
Sauk	\$3.88	\$199	\$4,123
Trempealeau	\$2.83	\$125	\$4,258
Vernon	\$3.44	\$158	\$4,329
Wisconsin	\$3.32	\$171	\$4,791

Farm Programs

Farmland Preservation Program (FPP)

The Farmland Preservation Program provides counties, towns and landowners with tools to aid in protecting agricultural land for continued agricultural use and to promote activities that support the larger agricultural economy. Through this program, counties adopt state-certified farmland preservation plans which map areas identified as important for farmland preservation and agricultural development based upon reasonable criteria. Within these farmland preservation areas, local governments and owners of farmland can petition for designation by the state as an Agricultural Enterprise Area. This designation highlights the importance of the area for agriculture and further supports local farmland preservation and agricultural development goals. Designation as an AEA also enables eligible landowners to enter into farmland preservation agreements. Through an agreement, a landowner agrees to voluntarily restrict the use of their land for agriculture for fifteen years. The Applicants have identified parcels with Farmland Preservation Agreements that could be crossed by the project. They are listed in Section 6.1.3 on pages 86 and 87 of the application.

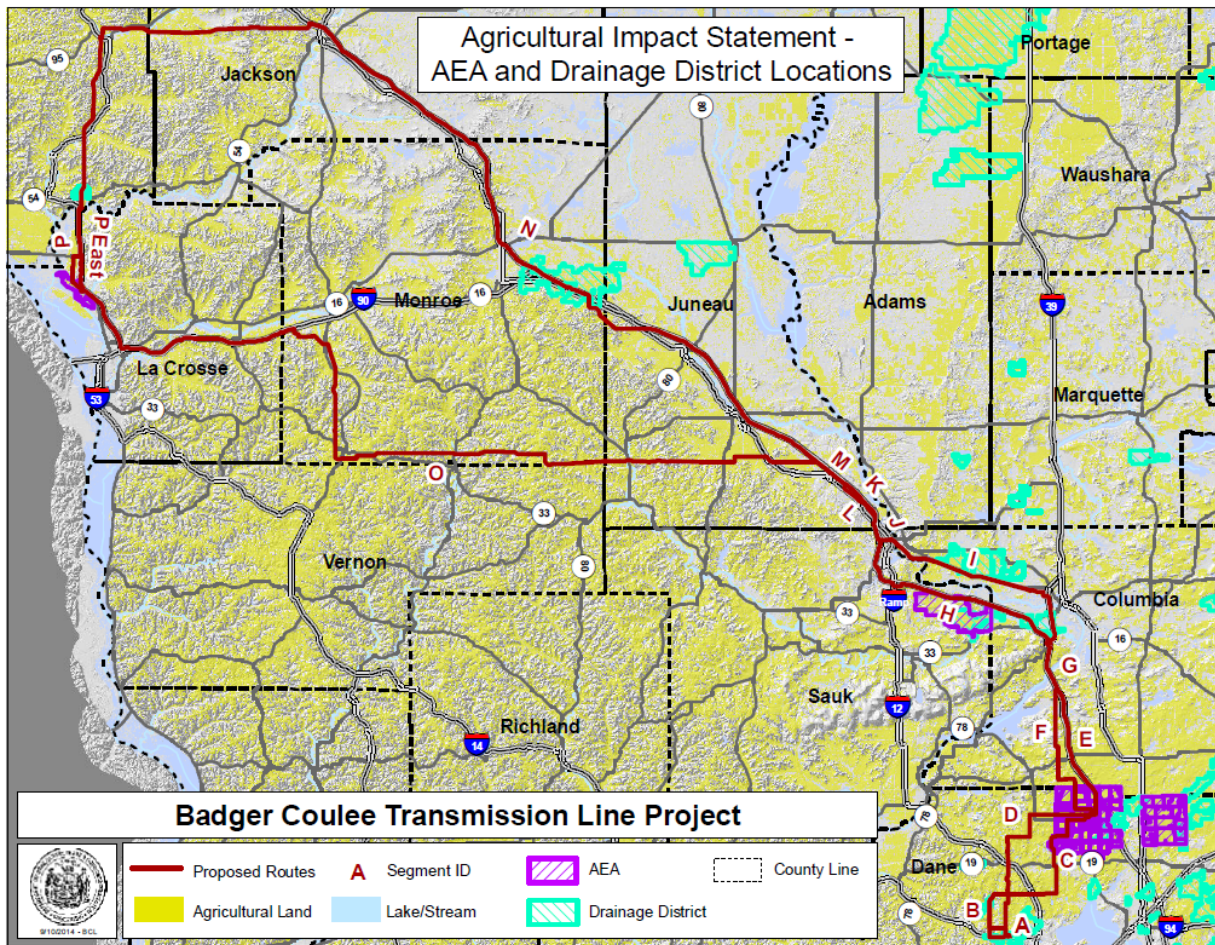
Depending on the route segments ultimately chosen, the project could pass through the AEAs depicted in Figure 4 and listed below:

Dane County: Vienna-Dane-Westport AEA (Segments C, D, E, and F)

Sauk County: Fairfield AEA (Segment H)

La Crosse County: Halfway Creek Prairie AEA (Segment P)

Figure 4. Locations of AEAs and Drainage Districts along the Proposed Routes



Drainage Districts

Drainage Districts are organized under Chapter 88 of the Wisconsin Statutes. They allow landowners to join together to establish and maintain drainage ditches to remove excess water from their property, typically so that it can be farmed. Drainage Districts are overseen by County Drainage Boards. Since it is possible that this project could affect the topography and

hydrology in the construction areas, it is suggested that the Applicants consult with the Drainage Boards for the affected districts. Segments of the proposed project passing through drainage districts include:

Segment A

- The Middleton Drainage District

Segment B

- The Middleton Drainage District
- Drainage District #7 ()

Segment H

- Lower Baraboo Drainage District

Segment I

- Lower Baraboo Drainage District
- Lewiston Drainage District
- Newport-Lewiston Drainage District

Segment N

- Lemonweir Drainage District
- Decora Prairie Drainage District

Commodity Programs

The loss of any farmland enrolled in the federal government's various commodity programs could affect a farmer's base acreage, resulting in lower revenue from these programs. Since farming will still be permitted under the transmission line, permanent cropland loss, such as the land occupied by the transmission line support structure and the land immediately adjacent to it, will typically be small, which should result in little impact to overall commodity program payments made to a given farmer.

Conservation Reserve Program

The Conservation Reserve Program (CRP) is a cost-share and rental payment program under the United States Department of Agriculture (USDA) that encourages farmers to convert highly erodible cropland or other environmentally sensitive acreage to perennial vegetative cover. This program helps reduce soil erosion, enhance water supplies with groundwater recharge, improve water quality, increase wildlife habitat, and reduce damages caused by floods and other natural disasters. Between 2007 and 2013, on average the counties along the proposed routes lost approximately 8,000 acres of CRP per county. Land taken out of CRP is often transitioned into row crop production, causing the potential for increased soil erosion

which could result in increased chances for soil erosion concerns along the proposed routes.

Conservation Reserve Enhancement Program

The Conservation Reserve Enhancement Program (CREP) is a joint effort between the Federal, State and County governments that pays landowners who currently till or graze land along a stream, lake or wetland to set aside small strips of land for soil conservation and water quality protection practices while leaving the remainder of the adjacent land in agricultural production. Land eligible for CREP is located in one of 50 designated CREP counties, has a history of crop or pasture, and is within 150 feet of a stream, lake, or wetland. The typical CREP site consists of buffers ranging from 30 to 150 feet wide along a stream and covers an area of about 10 acres or a small wetland less than 40 acres. Conservation practice options in CREP include Filter Strips, Riparian Buffers, Grassed Waterways, Wetland Restorations, Marginal Pastureland Habitat Buffers, Permanent Introduced Grasses, Permanent Native Grasses, Grass Prairie Ecosystem Restorations, and Established Legumes and Grasses.

Thousands of Wisconsin landowners have enrolled land in either a CREP 15 Year Agreement or Perpetual Easement. Currently, there are about 400 Easements and 3500 Agreements enrolling 40,000+ acres into CREP. The CREP agreement and perpetual easement contracts are tied to the land. Landowners with land enrolled in CREP agree to install and maintain the conservation practice for duration of the CREP contract. The building of structures within the CREP area is limited, including utility poles and substations, but does allow overhead utility lines to cross over CREP enrolled land. CREP conservation practices requiring trees are a conflicting practice that is not permitted under utility lines and require landowners a change to a non-conflicting conservation practice on the CREP contract. Below ground local distribution utilities are permitted within CREP areas, however, when construction or maintenance of below ground utilities occurs the landowner is responsible for reestablishing the conservation practice where it is disturbed. Major oil and gas pipelines are limited within CREP enrolled land, do not allow a conservation practice with trees, and may require the landowner to remove the pipeline area from the CREP enrolled area with payback if the potential for disruption outweighs the conservation benefits. Permanent utility access routes are not permitted within CREP areas. Temporary access routes are allowed in CREP areas during maintenance or construction of utilities with the landowner responsible for reestablishing the conservation practice where it is disturbed when the utility work is completed.

The Badger Coulee Transmission Line project ROW crosses and could potentially disrupt several existing CREP enrolled sites. These sites are primarily in Monroe County along project segment "O" and are described as follow:

- CREP #654 - 15 year agreement, expires in 2017, project crosses 0.15 acres along the east side of CREP area.
- CREP #1247- 15 year agreement, expires in 2017, project crosses 0.96 acres along the south side of CREP area.

- CREP#3067 – Perpetual easement, project crosses 0.47 acres along the south end of CREP area.
- CREP #2541 - 15yr, expires in 2020, project crosses 2.0 acres along the north side of CREP area.

Managed Forest Law

Many of the state's farmers also own forested land adjacent to their farmland that may be enrolled in the Wisconsin Department of Natural Resource's Managed Forest Law (MFL). Farm income may be affected if land enrolled in the MFL program is acquired for utility ROW purposes. Landowners with forested acreage along the proposed route should consult the information about this program which is available in section 4.5.18.6 of the Environmental Impact Statement for the Badger-Coulee project to better understand the impacts of the project on their MFL lands.

Soils

Soil is the foundation of agricultural production. It produces the crops and pasture that in turn give us human food and livestock feed. Soils not only provide the physical medium for growing plants, they also supply the nutrients and moisture required for healthy plant growth. Characteristics of the most productive soils include optimum tilth, fertility, and drainage.

Except for the south-eastern portion of the proposed project in Columbia and Dane counties, the proposed project is located in the non-glaciated area of Wisconsin, otherwise known as the Driftless Area. The slopes and soils tend to have greater variability in this area than in the state's glaciated areas. The variability in slopes and soil types along the potential routes result in a variety of crops grown and livestock raised as well as the size of farms that exist in this region. Refer to Appendix II for a listing of the soils that exist along the proposed project routes.

Farmland Classification

Farmland is classified based on its ability to produce crops. If the project is approved, DATCP would recommend that when routes are selected consideration is given to the extent of farmland impacted along each route option, and emphasis be placed on choosing routes that reduce that impact to the extent possible. Further, DATCP would recommend considering routes that contain the least amount of new ROW on the farmland types of highest productivity: Prime Farmland, Prime Farmland if drained, Farmland of Statewide Importance, and Unique Farmland. The following describes the USDA Natural Resources Conservation Service's written criteria for classifying farmland.

Prime Farmland: Prime farmland is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops, and is also

available for these uses (the land could be cropland, pastureland, rangeland, forest land, or other land, but not urban built-up land or water). It has the soil quality, growing season, and moisture supply needed to economically produce sustained high yields of crops when treated and managed, including water management, according to acceptable farming methods. In general, prime farmland has an adequate and dependable water supply from precipitation or irrigation, a favorable temperature and growing season, acceptable acidity or alkalinity, acceptable salt and sodium content, and few or no rocks. It is permeable to water and air. Prime farmland is not excessively erodible or saturated with water for a long period of time, and it either does not flood frequently or is protected from flooding.

Unique Farmland: Unique farmland is land other than prime farmland that is used for the production of specific high value food and fiber crops. It has the special combination of soil quality, location, growing season, and moisture supply needed to economically produce sustained high quality and/or high yields of a specific crop when treated and managed according to acceptable farming methods. Examples of such crops are citrus, tree nuts, olives, cranberries, fruit, and vegetables.

Farmland of Statewide Importance: This is land, in addition to prime and unique farmland, that is of statewide importance for the production of food, feed, fiber, forage, and oilseed crops. Criteria for defining and delineating this land are determined by the appropriate state agency or agencies. Generally, farmland of statewide importance includes land that is nearly prime farmland and that economically produces high yields of crops when treated and managed according to acceptable farming methods. Some areas may produce as high a yield as prime farmlands if conditions are favorable.

Farmland of Local Importance: In some local areas there is concern for certain additional farmland for the production of food, feed, fiber, forage, and oilseed crops, even though these lands are not identified as having national or statewide importance. Where appropriate, these lands are identified by the local agency or agencies concerned, but are not described in this AIS.

Table 10 and Figure 5 identify the amount of potentially impacted agricultural land in each soil classification for the proposed route segments, and are broken up by route segments that are alternatives of one another. In contrast, Figure 6 looks only at the **new ROWs proposed** and the amount of each soil class contained in those new proposed ROWs.

Table 10. Acres of Impacted Farmland by Soil Class

Segment	Prime Farmland	Farmland of Statewide Importance	Prime Farmland if Drained	Not Prime Farmland	Total
P-East	5.2	0.5	0.0	18.1	23.8
P	14.0	0.0	0.0	35.3	49.3
O	119.9	121.3	114.2	148.4	503.8
N	121.2	37.7	41.7	114.5	315.1
M	0.3	0.1	0.0	1.0	1.4
J	2.9	0.3	0.0	0.5	3.7
I	7.5	2.0	5.2	15.3	30.0
H	43.8	11.1	1.4	8.8	65.1
G	8.8	1.6	1.9	2.1	14.4
F	79.5	29.2	8.5	8.7	125.9
E	53.0	14.5	2.3	3.2	73.0
D	109.3	50.9	0.5	15.3	176.0
C	106.2	44.1	6.6	10.9	167.8
B-North	13.2	13.2	3.4	7.7	37.5
B	21.3	11.3	4.7	4.3	41.6
A	22.0	14.9	0.0	4.6	41.5

*Includes both new and existing right-of-way acreage

Figure 5. Farmland Class on Agricultural Land within All Proposed ROWs

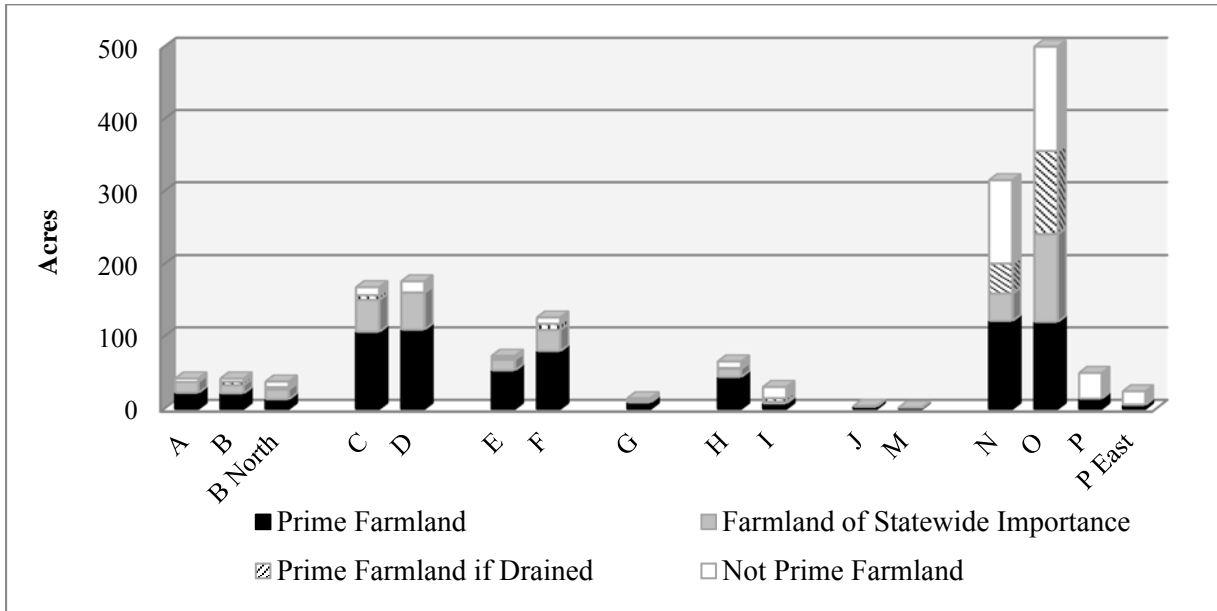
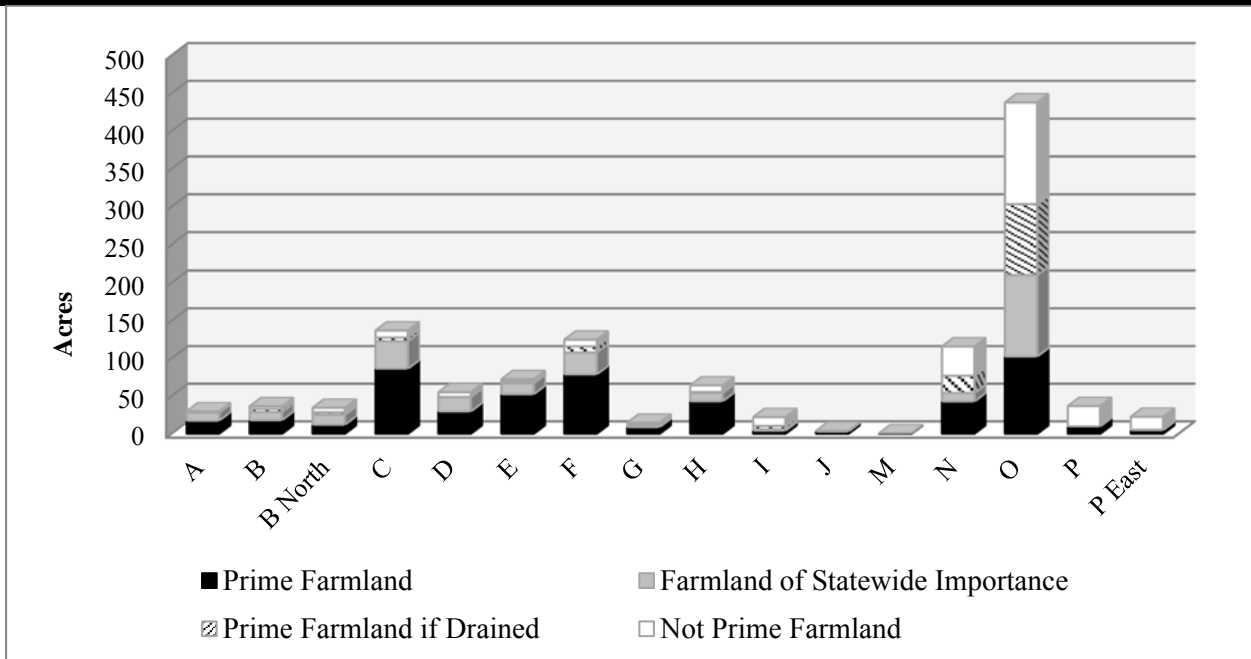


Figure 6. Farmland Class on Agricultural Land Only within the Proposed New ROWs



IV. CONSTRUCTION PROCESS

Transmission line construction will be confined to the right-of-way (ROW), identified access routes, and the laydown and staging areas. Most disturbances will occur in the area immediately surrounding transmission line structures. In areas where access cannot be gained from existing roads, disturbance from vehicular traffic will also occur on the ROW or established access routes. Disturbance at these areas may include clearing of vegetative cover, soil compaction, vehicular tracking, and some topsoil disturbance. The following information generally describes the major construction activities, their approximate sequence, and the anticipated impacts associated with each activity. This information can help landowners understand what project activities may occur on their properties.

Typical Construction Activities

Soil borings

Identifying soil characteristics will be necessary for final design of the transmission line. Soil borings are typically completed using rubber tired or tracked drill rigs, depending on site and access conditions. A pick-up truck or ATV is also typically used to transport the crew and drilling supplies to the work area.

Surveying and staking of the right-of-way

These activities are typically completed by a two-person crew travelling by foot, ATV or pick-up truck.

Clearing of the right-of-way

To facilitate construction equipment access and ensure safe clearances between vegetation and the transmission line, all vegetation will be cleared on the full width of the ROW. Vegetation will be cut at or slightly above the ground surface using mechanized mowers, harvesters or by hand. Root stocks will generally be left in place, except in areas where stump removal is necessary to facilitate the movement of construction vehicles, or required by the landowner. Where permission of the landowner has been obtained, stumps of tall-growing species will be treated with an herbicide to discourage re-growth.

Road building

In areas of steep topography, access roads and work platforms will need to be constructed prior to construction access. This work is typically completed using equipment such as a bulldozer, track-hoe, skid-loader and dump trucks. The travel surface of the access road is typically 14 to 20 feet wide and work platforms are typically 30 feet by 30 feet. Following construction, the access roads will be left in place or returned to prior conditions, depending on landowner preference.

Construction matting

Matting will be installed to provide access through wetlands or other unstable soil areas prior to construction access. Construction matting may consist of timber, composite or hybrid timber mats and will be installed with rubber tired mat trucks, forwarders, forklifts or skid loaders. Mat access roads will generally be 16 to 20 feet wide and mat work platforms may be as large as 100 feet by 100 feet, depending on the type of structure. Matting will be removed using similar equipment as for installation as each section is completed.

Temporary staging areas

Trucks, loaders and cranes will be used to unload poles and other materials near each work location.

Installation of erosion control Best Management Practices (BMPs)

BMPs will be location specific and installed prior to all anticipated ground disturbance. Where unexpected ground disturbance occurs, BMPs will be installed immediately after the disturbance occurs. Typical erosion control equipment includes ATVs and or trucks for crew transportation, skid loaders, tractors, backhoes, hydro-seeders and other light duty equipment.

Foundation installation and/or excavation for direct embedded structures

There are two predominant foundation types that are anticipated: (1) direct embedded; and (2) reinforced concrete caissons. The single-circuit single-shaft tangent structures, single-circuit H-frame tangent structures, and double-circuit tangent structures where the lower voltage circuit is in the underbuilt position are anticipated to be supported by direct embedded foundations. The single-circuit angle, strain and dead-end structures, as well as the double-circuit tangent, angle, strain and dead-end structures are anticipated to be supported by reinforced concrete caissons. In general, the excavated holes for each type of foundation will range from 3 to 12 feet in diameter and 20 to 60 feet in depth, or greater, depending on soil conditions and support structure size. Excavation is required for all structures whether they are direct-embedded or use reinforced concrete foundations. The volume of the holes is anticipated to range from 20 cubic yards to in excess of 150 cubic yards on several of the largest foundations. Most holes will be in the range of 30 to 60 cubic yards.

To mitigate impacts from foundation construction, DATCP recommends that the topsoil removed at support structure locations be segregated and stockpiled separately from the underlying spoil material. As part of the restoration of the ROW, the topsoil can be replaced around the support structures. Excavated spoil may be spread thinly on surrounding upland areas and stabilized depending on site conditions, landowner preferences, and environmental requirements. Spoil may also be hauled to an approved disposal site. Because of the lack of organic material and the high probability of the presence of rocks and gravel, spoil material should never be spread on cropland or pasture. Temporary stockpiles of excavated spoil and woody debris resulting from ROW clearing and construction will be required throughout the

course of construction. While specific locations have not been determined, it is anticipated that minor soil piles may be required adjacent to excavations for the new transmission line structures and within the laydown yards. Stockpiles will be placed in upland locations. If contaminated materials are encountered during the construction, spoils will be isolated and steps will be taken to determine disposal requirements in accordance with applicable regulations. In areas where groundwater seeps into the excavation, or where water is needed to hold the hole during drilling, it may be necessary to dewater the excavation. Depending on site conditions, the water may be de-silted and discharged to an upland area where it is allowed to re-infiltrate, or it may be removed from the site via a tank truck. Dewatering will proceed in accordance with applicable regulations and permit requirements.

Structure setting

After the direct embed base is set or the caisson is cured, the remainder of the steel pole structure (or sections) is mounted to the base. Typical equipment for this phase of construction are cranes and bucket trucks. A majority of the structures will be self-supporting tubular steel monopoles, whether they are single-circuit or double-circuit structures, and will have either a weathering steel finish or galvanized coating. Drawings of typical transmission line support structures can be found in Appendix C of the Application, figures 10 through 37.

Wire stringing and clipping

Once all of the structures within a wire pull segment are set, the wires are pulled and clipped into place. This requires access to each structure with either a bucket truck or helicopter. Wire set up areas containing reel trailers, wire pullers, and related equipment are located at each end of the wire pull.

Cleanup and restoration of the ROW

Upon completion of construction, cleanup and site restoration occurs. This includes removing construction mats, temporary clear span bridges (TCSBs), and other material or debris from the ROW, as well as conducting any necessary seedbed preparation and seeding. Typical equipment for these activities includes mat trucks, bobcats, pickup trucks and other light duty vehicles.

Unique Construction Methods

Unique construction methods that may be employed include light helicopter usage, heavy helicopter usage, micro-piles, helical piers, vibratory or hammer driven piles, and vibratory cans.

Light helicopters

Light helicopters may be used along the entire length of the project. The primary usage for light duty helicopters is to assist in stringing operations and the installation of conductor and shield wire accessories. Light duty helicopters are beneficial because they decreases the total

project construction time, allow work in remote or inaccessible locations, reduce environmental impacts, minimize ROW intrusion, and minimize matting in sensitive areas.

Heavy helicopters

Applications for heavy helicopter usage are more limited than light helicopters. The best application for heavy helicopters is the transport of equipment and material to remote locations, for example in the Coulee Region of Wisconsin. It is anticipated that line construction in many locations may be from ridge top to ridge top, with the conductor spanning the valley below. As an alternative to traditional drilled pier foundations, other foundation types may be used. In support of those alternative foundations, heavy-lift helicopters may be employed to carry material (e.g. poles, hardware, and grout) or equipment (compact drill rigs) to the ridge tops.

Micro-piles

Micro-piles are deep foundation elements constructed using high-strength, small-diameter steel casing and/or threaded bar. As an alternative to traditional drilled pier foundations, micro-piles may be used in remote and rocky locations. Areas that would lend themselves to the use of heavy helicopters would also be a likely location for the installation of micro-piles. This would include the Coulee Region and the hilly areas west of Black River Falls. Since all material and equipment needed for installation can be flown to the structure location, there is no need for extensive road building to provide access. Access to the structure location is still necessary on the ROW, but the construction vehicles are limited to small excavators and pick-up trucks as opposed to cranes and concrete trucks used in traditional foundations.

Accordingly, the lighter foot print significantly reduces environmental impacts to the access route.

Helical piers

A helical pier is a pre-manufactured steel deep foundation element consisting of a central steel shaft (usually square), and one or more helical shaped bearing plates (helices). The element is similar to a large screw. The most likely application for helical piers is soil strata indicating expansive soils, a high water table, fill, or other unstable conditions in locations requiring a deep foundation. It is anticipated that helical piers will be used in the area of the Lemonweir River (Segment N, sub-segment N2) due to possible access difficulties and the general wet and marshy ground conditions that exist.

Vibratory or hammer driven piles

A helical pier is a pre-manufactured steel deep foundation element consisting of a central steel shaft (usually square), and one or more helical shaped bearing plates (helices). The element is similar to a large screw. This type of foundation is often used where poor soil conditions would result in excessively large drilled pier foundations. Construction traffic for vibratory or hammer driven piles is considerably heavier than that used for micro-piles, as a large track

mounted crane would be needed to install the piles. The benefit of using vibratory or hammer driven piles is the avoidance of matting a large percentage of the access route to make way for concrete truck traffic. Low ground pressure track equipment significantly reduces environmental damage to the access route.

Vibratory cans

For lightly loaded structures (tangents) in sandy soil, vibratory cans may be employed as an alternative to vibratory or hammer driven piles. The benefits of this type of installation are the same as those for vibratory or hammer driven piles.

V. SEGMENT DESCRIPTIONS AND LANDOWNER COMMENTS

Rather than discussing the project in terms of what the Applicants have described as the Northern Route and Southern Route, DATCP will follow the PSCW's format and discuss the project in terms of the segments that could be used. If the project is approved, the final route would follow one of the options in each of the following six regional segment pairs or groupings.

Segments N+P	vs.	Segments N+P-East	vs.	Segment O
Segment L	vs.	Segment K		
Segment H	vs.	Segment I		
Segment F	vs.	Segment E		
Segment C	vs.	Segment D		
Segment A	vs.	Segment B	vs.	Segment B-North

Segments G, J, and M are common to all route alternatives.

In order to better identify the potential impacts that the proposed project could have on farmland and farm operations, DATCP surveyed agricultural landowners in the project area by mail. DATCP identified 576 landowners with agricultural land in the potential ROW of the project. Agricultural land includes cropland, pasture, land used to grow specialty crops, and old field, which is land that appears to have been recently farmed. Woodland, wetland, and developed land were not included in the calculations for the potentially affected agricultural land. DATCP sent questionnaires to landowners who could have 4 or more acres of agricultural land covered by the project right-of-way. Of the 130 questionnaires mailed out, 68 were returned for a response rate of 52.3 percent. Through the questionnaire DATCP gathered general information about the farms (size, crops grown, livestock raised) and specific information about the impacts the project could have on their farm operation and cropland such as the disruption of irrigation equipment, fencing, drainage tiling, or erosion control practices.

The following text describes each segment and includes summarized comments from all of the surveyed agricultural landowners who returned their questionnaires to DATCP. Unless otherwise stated, the ROW will be 120 feet wide, which may overlap existing infrastructure right-of-way. Landowners who responded are included in all of the segments that could affect their farmland.

Segment P – Briggs Road Substation to Town of Gale

Segment P is 9.6 miles long and its ROW covers 139.1 acres of land. The amount of this ROW on agricultural land is 49.3 acres or 35.4 percent of the right-of-way for this segment. Agricultural land includes cropland, pasture, land for specialty crops, and old field or fallow land. It does not include woodland or land with buildings. Of the ROW covering agricultural

land, 36.7 acres will be on new easements and 12.6 acres will overlap existing easements for infrastructure such as roads, pipelines, and existing power lines. Preliminary pole data suggests that 27 poles could be constructed in agricultural land, including 19 on new ROW. These numbers could still change. Another factor to consider is that 14.0 acres of the agricultural land affected by this segment is classified as prime farmland and 0 acres is classified as prime farmland where drained.

Segment P will use single-circuit and double-circuit structures. The typical height above ground will range from 100 to 150 feet and the span lengths will range from 750 to 1,250 feet.

After exiting the Briggs Road Substation, the new 345 kV line will head northwest, double-circuited with the existing Dairyland Power Coop (DPC) 161 kV Line Q-1 for 0.8 of a mile. The new line will depart the line Q-1 corridor and travel north cross country and along local roads as a single-circuit for 1.6 miles. Between Old Highway “NA” and State Highway 35, the new line will continue north, double-circuited with existing DPC 69 kV Line N-226 and follow the existing transmission line corridor for 1 mile. It will depart the line N-226 corridor and head east as a single-circuit adjacent to the north side of Highway 35 for 0.7 of a mile until it intersects US Highway 53. Then it heads north adjacent to Highway 53 until it crosses the Black River. North of the Black River, the new line will turn east and travel cross country for a short distance and then turn north and travel cross country for 0.8 of a mile to the beginning of Segment N.

For Segment P, 4 questionnaires were sent and 1 farmland owner responded.

Segment P Landowner Comments

- The Shirley Dummer property would be affected by Segments P, P-East, and O. This farm includes 280 acres of cropland that is rented to Dummer Family Ent. The project would likely affect fencing on this property.

Segment P-East – Briggs Road Substation to Town of Gale

Segment P-East is 8.9 miles long and its ROW covers 124.8 acres of land. The amount of this ROW on agricultural land is 23.8 acres or 19.1 percent of the ROW for this segment. Agricultural land includes cropland, pasture, land for specialty crops, and old field or fallow land. It does not include woodland or land with buildings. Of the ROW covering agricultural land, 22.4 acres will be on new easements and 1.4 acres will overlap existing easements for infrastructure such as roads, pipelines, and existing power lines. Preliminary pole data suggests that 4 poles could be constructed in agricultural land, all of which would be on new right-of-way. These numbers could still change. Another factor to consider is that 5.2 acres of

the agricultural land affected by this segment is classified as prime farmland and 0 acres is classified as prime farmland where drained.

Segment P-East will use single-circuit structures. The typical height above ground will range from 100 to 175 feet and the span lengths will range from 500 to 1,250 feet.

After the new 345 kV line exits the Briggs Road Substation and heads north, the single-circuit structures will be located adjacent to US Highway 53 until the line crosses the Black River. For sub-segments P12 and P13, the ROW will narrow to 100 feet wide. North of the Black River, the line will turn east and travel cross country for a short distance and then turn north and travel cross country for 0.8 of a mile to the beginning of Segment N.

For Segment P-East, 3 questionnaires were sent and 1 farmland owner responded.

Segment P-East Landowner Comments

- The Shirley Dummer property would be affected by Segments P, P-East, and O. This farm includes 280 acres of cropland that is rented to Dummer Family Ent. The project would likely affect fencing on this property.

Segment N – Town of Gale to Lyndon Station

Segment N is 103.1 miles long and its ROW covers 1,462.4 acres of land. The amount of this ROW on agricultural land is 315.2 acres or 21.6 percent of the ROW for this segment. Agricultural land includes cropland, pasture, land for specialty crops, and old field or fallow land. It does not include woodland or land with buildings. Of the ROW covering agricultural land, 115.9 acres will be on new easements and 199.3 acres will overlap existing easements for infrastructure such as roads, pipelines, and existing power lines. Preliminary pole data suggests that 131 poles could be constructed in agricultural land, including 36 on new ROW. These numbers could still change. Another factor to consider is that 121.2 acres of the agricultural land affected by this segment is classified as prime farmland and another 41.7 acres is classified as prime farmland where drained.

Segment N will use single-circuit, double-circuit and H-frame structures. The typical height above ground for the single-circuit structures will range from 100 to 155 feet and the span lengths will range from 500 to 1,350 feet. The typical height above ground for the double-circuit structures will range from 120 to 155 feet and the span lengths will range from 600 to 2,200 feet. There will also be a section of Segment N that will use single-circuit H-frame structures to cross the Lemonweir River. The typical height above ground for the H-frame structures will range from 90 to 105 feet and the span lengths will range from 850 to 1,200 feet.

From the end of Segment P or P-East, the new 345 kV line will head north, double-circuited with the existing NSPW 161 kV Line W3203. It will follow the existing transmission line corridor for 15.9 miles until reaching NSPW's Tremval Substation. The ROW for sub-segment N2 will be 189 feet wide due to longer spans needed to cross steep terrain. The new line will bypass the Tremval Substation and then head east, double-circuited with NSPW 161 kV Line W3204. It will follow the existing transmission line corridor for 20.4 miles until intersecting with I-94 in Black River Falls. In this section, the new line will parallel a natural gas pipeline for 0.7 of a mile (sub-segment N4). After intersecting I-94, the new line will head southeast as a single-circuit adjacent to the interstate (I-94 and I-90/I-94) for 38.6 miles. For sub-segments N6 and N8, the ROW will narrow to 100 feet wide. Northwest of the village of Camp Douglas, the new line will depart the interstate corridor to avoid airspace restrictions associated with the Volk Field Air National Guard Base and also to avoid Mill Bluff State Park and Mill Bluff State Natural Area. The line will travel south and east cross country and along local roads as a single circuit for 7.7 miles until it again intersects the interstate corridor southeast of Camp Douglas. For sub-segment N10, the ROW will narrow to 100 feet wide. For sub-segment N13, the ROW will widen to 150 feet. After intersecting I-90/I-94, the new line will head southeast as a single circuit adjacent to the interstate for 3 miles until reaching the Lemonweir River crossing area. For the Lemonweir River crossing, 1.2 miles of single-circuit H-frame structures will be located adjacent to the interstate. This sub-segment will have a 150-foot wide right-of-way. Southeast of the Lemonweir River crossing, the new line will continue southeast as a single-circuit adjacent to the interstate for 13.5 miles. There is a 0.2 mile section near Mauston where there will be one span (two structures) that has existing ATC 69 kV Line Y-74 underbuilt on the 345 kV structures (sub-segment N20). For sub-segment N18, the ROW will narrow to 100 feet wide. At this point (County Highway N and I-90/I-94), the new line will be a double-circuit with existing ATC 69 kV line Y-101 underbuilt on the 345 kV structures. The new line will continue southeast adjacent to the interstate for 0.7 of a mile. Just south of the WisDOT rest area in the town of Lemonweir, the new line will continue southeast, double-circuited with the existing line Y-101 (underbuilt). It will follow the existing transmission line corridor for 2.8 miles to the beginning of Segment M.

For Segment N 27 questionnaires were sent and 12 farmland owners responded.

Segment N Landowner Comments

- Taylor Real Estate Investments LLC owns 60 acres of cropland that is rented to Behala Boe. This property also includes 20 acres of rail yard. It is possible that the project could affect a ditch along the railroad on this property. The owner's main concern about the proposed project is that adequate clearances are maintained between the new transmission line and railroad and farming equipment used on this property.
- Ken and Debra Congdon -Scotch Prairie Farm Inc. They grow corn and soybeans on their 800+ acres of cropland. This property also includes woodland, land for the

buildings, and land enrolled in the Conservation Reserve Program. There are fourteen 4-inch tile lines that cross the ROW and are perpendicular to it. The owners indicated that the existing field roads are not capable of handling heavy construction equipment especially during wet weather conditions. The owners receive a premium from Syngenta Seed Company for the use of one of two fields used in rotation for corn research and alternates annually between the two locations. Segment N passes through the middle of both of these fields. If the line is constructed along Segment N, the owners indicated that the fields would no longer be uniform enough for research purposes nor would they be large enough to avoid using the ROW. None of the other fields on the farm are uniform enough or large enough to replace either of the existing research fields for this purpose. The owners also use aerial application of chemicals on all of their fields in a pattern that is perpendicular to the ROW. The owners have used the practice of no-till on their cropland since 1990 to minimize soil erosion. Because no-till cropland is not plowed, disked, or otherwise tilled, avoiding compaction on this cropland is important for maintaining soil productivity and crop yields. Heavy construction equipment can compact soil. Compaction can be reduced by tilling the soil, but is not an option for this farm.

- Michael Strohmeyer owns 100 acres of cropland that he uses to grow corn and soybeans. The proposed project could affect a waterway on this property. Mr. Strohmeyer indicated that the ROW would be about 20 feet away from his machine shed and storage trailers. The line would also cross this farm diagonally. Mr. Strohmeyer is very concerned about the closeness of the line to his buildings and the difficulty of farming around support structures in fields.
- Dennis and Mary McNulty rent 60 acres of cropland to Gary Shankey. Mr. Shankey grows corn, wheat, and hay on this land. The owners indicated that the project could affect grassland used for drainage and erosion control. It could also affect fencing on this property. During construction access could be affected to their woodland where they cut firewood and oak timber. The owners are also concerned about potential induced currents from the transmission line, the effects on property values, as well as the aesthetic values of the land. They would prefer to see the power companies rent the needed land rather than acquire an easement.
- Jerome and Cynthia Hanson grow corn, soybeans, wheat, and hay on their cropland. They are concerned that the project will affect tiling on their property. They indicated that the project could also affect contour strips and fencing. The Hansons use aerial application of chemicals on their cropland. Woodland on this property would also be affected by the project. The owners are concerned about the loss of farmland, crop damage, changes in access to their property, and the impact on the aesthetic value of their property.

- Agricultural land on the John and Rhonda McGowan property would be affected by either Segment N (1.2 acres) or Segment O (5.8 acres), as well as by Segment M (1 acre). This property includes 120 acres of cropland that is rented to James McGowan to grow corn, soybeans, hay, and oats in rotation. This property also includes woodland, wetland, and land for the buildings. The project could affect drainage tiling and a creek on the property. The owners indicated that the project would cross fencelines and other grassy areas that help to control erosion. The owners are concerned that access to half of the farm could be affected during construction if the ROW along Segment O, which follows the boundary between towns T14N and T14N cannot be crossed. For Segment N, the owners are concerned that the project would interfere with access to the property east of the line during construction and potential impacts to their woodland, which provides timber income, wildlife habitat, and a place for them to gather wild edible fruit.
- Ardell Jacobson owns 76 acres of cropland that is used to grow hay, corn, and soybeans. This farm also includes a 30-cow dairy operation. The owner indicated that the project could affect a grassed waterway, contour strips, and fencing. The project will affect woodland on this farm. The owner is concerned that access to some of the property could be hindered during construction. The owner is also concerned about the potential loss of property value, stray voltage, and problems association with farming around transmission line support structures.
- David and Katherine Quarne grow corn, hay, and soybeans on 1,140 acres of cropland and run a 250-cow dairy operation. The proposed project would affect fencing and woodlands, and could affect access to portions of the farm during construction. The owners indicated that there is a rail yard being constructed on this property and part of that yard would be under the proposed line. Keith and Paul Nestingen own 970 acres of land including cropland, pasture, woodland, land in CRP, and land for their buildings. They grow corn, hay, and oats and run a 250-cow dairy operation. The owners indicated that the project might affect fencing and it might affect access to portions of their property during construction. They indicated that they occasionally use aerial spraying on their cropland. The project will affect some of their woodland. The owners rent land that is certified for organic production, but they did not indicate if the ROW for the project would affect that property. The Nestingens are concerned that the transmission line might affect the electronics on their tractors and farm equipment, including GIS positioning.
- Dale and Yvonne Peterson own 300+ acres of cropland, pasture, woodland, and land for the buildings. The Petersons grow corn, hay, and oats and they raise 50 head of beef cattle. The proposed project would cross contour strips on this property and it affect line fencing and woodlands on their property.

- Emanuel and Soloma Shetler own 178 acres of land including cropland, pasture, woodland, and land for the buildings. They grow corn, hay, oats, wheat, and sorghum, run a 20-cow dairy operation, and raise additional livestock. The project would affect fencing and possibly access to portions of the farm during construction. The Shetlers do not have electric service on their property. They are concerned about the potential health effects from the line on people and animals.
- Paul Pederson owns 265 acres of land consisting of cropland, pasture, woodland, and land for the buildings. He grows corn, hay, and oats and raises 36 head of cattle. The project could affect contour strips and fencing on this property, and may also affect the woodland.
- Chester and Kathleen Chaffee rent 36 acres of cropland to Art Bradley. They also own woodland and land for their buildings. Mr. Bradley grows corn, hay, and soybeans. There is an access road on the Chaffees' property between fields and east of Highway H. The Chaffees have a neighbor who has the legal right to use this access road. The owners are concerned that this road might be affected during construction. The Chaffees are concerned that the maps they have seen of the proposed project show the line going over a neighbor's house. They are concerned that such a situation would not be allowed and the line would have to be moved into the middle of one of the Chaffees' fields.

Segment O – Briggs Road Substation to Lyndon Station

Segment O is 85.4 miles long and its ROW covers 1,354.1 acres of land. The amount of this ROW on agricultural land is 503.8 acres or 37.2 percent of the ROW for this segment. Agricultural land includes cropland, pasture, land for specialty crops, and old field or fallow land. It does not include woodland or land with buildings. Of the ROW covering agricultural land, 437.8 acres will be on new easements and 66.0 acres will overlap existing easements for infrastructure such as roads, pipelines, and existing power lines. Preliminary pole data suggests that 267 poles could be constructed in agricultural land, including 212 on new ROW. These numbers could still change. Another factor to consider is that 119.9 acres of the agricultural land affected by this segment is classified as prime farmland and another 114.2 acres is classified as prime farmland where drained.

Segment O will use single-circuit, double-circuit and H-frame structures. The typical height above ground for the single- and double-circuit structures will range from 100 to 160 feet and the span lengths between structures will range from 500 to 1,750 feet. There will also be sections of Segment O that will use single-circuit H-frame structures where terrain is difficult and longer spans with shorter structure heights are desirable. The typical height above ground for the H-frame structures will range from 80 to 120 feet and the span lengths will range from 550 to 2,250 feet. Due to the congested nature of the area between the Briggs Road Substation and the intersection of US Highway 53 and I-90, and the design and location of existing

electric transmission lines in the area, the single-circuit portions of the proposed transmission line will be designed so the line could be expanded to a double-circuit in the future.

After a short distance on the Briggs Road Substation property, the new 345 kV line will travel east, cross country as a single-circuit for 0.3 of a mile until intersecting US Highway 53 where it will turn south as a single-circuit for 0.4 of a mile until intersecting line W3203. The new line will then continue south, double-circuited with existing NSPW 161 kV line W3203 and follow the existing transmission line corridor adjacent to Highway 53 for 1 mile. It will continue southeast as a single-circuit adjacent to Highway 53 for 4.4 miles until intersecting I-90. The structures in this section will be designed to be double-circuit capable to allow for the anticipated co-location of Line W3203 in the future. After intersecting I-90, the new line will head east as a single-circuit adjacent to the interstate for 17.6 miles. At this point, it will depart the interstate corridor and travel cross country south and east as a single circuit for 0.5 of a mile until intersecting line W3411 where it will be double-circuited with the existing NSPW 69 kV line W3411 and head east along the existing transmission line corridor adjacent to Jackpot Avenue for 0.4 of a mile. After departing the line W3411 corridor, the new 345kV line will head south as a single-circuit adjacent to Jackson Road for 0.3 of a mile and then travel cross country south and east as a single-circuit for 3.9 miles until intersecting line W3414. It will then be double-circuited with the existing NSPW 69 kV line W3414 and head south along the existing transmission line corridor for 9.8 miles. After departing the line W3414 corridor, the new line will travel cross country south and east as a single-circuit for 0.6 of a mile until intersecting line N-93. It will then be double-circuited with the existing DPC 69 kV line N-93, heading east and following the existing transmission line corridor for 1.6 miles. After departing the line N-93 corridor, the new line will continue east as a single-circuit on H-frame structures travelling cross country for 17.1 miles until intersecting line N-322. It will then be double circuited with the existing DPC 69 kV line N-322 and head east along the existing transmission line corridor for 0.5 of a mile. After departing the line N-322 corridor, the new line will continue east as a single circuit travelling cross country for 11.7 miles until intersecting line N-101. In this section, the new line will parallel a natural gas pipeline for 0.8 of a mile. The new line will then be double-circuited with the existing DPC 69 kV line N-101 and head east along the existing transmission line corridor for 8.6 miles. After departing the line N-101 corridor, the new line will continue east as a single-circuit adjacent to County Highway O and then southeast as a single-circuit adjacent to US Highway 12 for 2.3 miles. At this point, the new line will travel cross country east as a single-circuit for 4.2 miles until intersecting existing ATC 69 kV line Y-101 at the beginning of Segment M.

For Segment O, 42 questionnaires were sent and 25 farmland owners responded.

Segment O Landowner Comments

- The Shirley Dummer property would be affected by Segments P, P-East, and O. This farm includes 280 acres of cropland that is rented to Dummer Family Ent. The project would likely affect fencing on this property.
- Segment O would affect cropland on the Daniel and Diana Giese property. Their land includes 100 acres of hay that is used for their beef cattle. The owners indicated that they are in favor of the line and would prefer it over the construction of wind turbines throughout the countryside.
- Robert and Jane Lombardo own cropland that is rented to Daniel Gorn. The project would affect cropland and woodland on this property. The owners indicated that construction could interfere with access to the cropland during haying, planting, and harvesting. The Lompardos cut firewood and do not have electric utility service on this property.
- Gail Rollins owns farmland that is rented to either Ronald Rollins or Tad Kopenhafer. Ms. Rollins indicated that the ROW would cross cropland and pasture. The renters are concerned that access to the cropland could be hindered during construction. Ms. Rollins indicated that if the line is constructed on her property, she would prefer to have it done when the ground is frozen. She stated that the land that would be affected is soft lowland.
- James and Janine Hartman own 100 acres of agricultural land. They are restoring the health and fertility of the soils on this land so that it can be used for permanent pasture and hay fields. They plan to raise grass-fed, organic livestock and they expect to have their certification later this year (2014). As part of their organic certification, they are required to have buffers between pastures and cropland as well as between their land and any potential source of contamination. Construction of a transmission line the potential use of pesticides in the ROW by the Applicants could interfere with these buffers and jeopardize the organic certification on portions of their property. The owners are very concerned that construction of a transmission line on their property could lead to soil erosion and hinder their work to protect the soil. They are establishing a grassed waterway that could be affected by the project. Part of Segment O goes through the middle of one of their parcels, so access to some of their land could be affected during construction. The project would also affect line fencing on this property. The owners indicated that there is a sinkhole measuring 40 by 50 feet with an unknown depth in section 29 of the town of Wellington, Monroe County that is just 400 feet from Segment O. A smaller sinkhole (6 by 8 feet and 8 feet deep) formed in 2013. The owners indicated that the unstable nature of some of this land could make it unsuitable for

transmission line construction. They are also concerned about the potential effects of EMF on livestock. They are concerned that the project will damage the scenic beauty of the area, which is a draw for tourists who bring significant amounts of revenue to the area.

- Jan Corbett owns 78 acres of certified organic cropland that is rented to David Thomas and used to grow corn, hay, and oats. On Ms. Corbett's woodland, she is concerned that the loss of any trees growing on steep slopes or damage to existing grassed waterways and contour strips could lead to soil erosion issues on that land. If access to the ROW on the Corbett property is from her driveway, there is a greater chance that the contour strips would be affected than if access is gained via an existing field road. Ms. Corbett is very concerned about the loss of property and aesthetic values of her land and the surrounding countryside. From her house she will see the cables and the tops of the poles as the line passes through the area.
- Mlsna East Town Dairy owns land that could be affected if Segment O is chosen and they rent land from Jeff Mlsna that could also be affected by Segment O. The owner of Mlsna East Town Dairy is currently building a robotic milking parlor and is very concerned that the line could create problems such as the build-up of static charges on this system because it will be located in a steel structure. The project could also affect fencing on this farm and the owner also indicated that aerial spraying is used in the area.
- Melvin and Naomi Miller grow corn, hay, and oats on their farm. They also run a 15-cow dairy operation and they raise horses and sheep. They have contour strips and a grassed waterway at the east end of those strips that could be affected by construction of the project. Fencing on this farm could also be affected. The Millers are also concerned that access to pasture could be affected during construction of the project. Forty acres of the Millers' farm are certified for organic production. The Millers are concerned about the difficulty of managing weeds adjacent to power line support structures in areas where they can't use herbicides because of organic certification restrictions. They are also concerned that the line might cause stray voltage that would affect their dairy cattle and affect the health of people living and working near the line. This farm does not currently have electric utility service.
- Edward and Kathryn Marx farm most of their 178 acres themselves and they rent 40 acres to Douglas Frederick. The Marxs grow hay and raise beef cattle. The line would affect pasture fencing and cross pasture and woodland. The owners are also concerned that during construction, the project may affect access to some of the hay land and interfere with the pasturing of their cattle. The owners are also concerned about the health effects on humans and cattle from EMF.

- Robert Rothering indicated that the project would affect cropland and woodland on his property. There is also a grassed waterway along the potential right-of-way. He is concerned that if he cannot use his field lane during construction, he would have to create another route, which would damage more land. All of this farm will be certified for organic production in the spring of 2015. Mr. Rothering is very concerned that the loss of any of his cropland will force him to sell livestock because he cannot afford to buy replacement farmland or purchase organic feed to replace what he would no longer be able to grow.
- Allan and Heather Vlasak own 360 acres of land consisting mostly of cropland and pasture. They rent additional farmland from Ron Winchell and Lynnette Vlasak. Both of the rented parcels would also be affected by the proposed project. Allan and Heather Vlasak grow corn, soybeans, hay, oats, and peas, and they raise beef cattle. They indicated that construction of the project could affect how their existing contour strips are used. The proposed ROW would travel along their existing pasture fencing and diagonally through part of their rented cropland. It would also affect woodland. The owners are very concerned about the potential loss of market value of their property because this property represents most of their life's savings.
- Daniel and Janice Weber rent 150 acres of cropland to Phil Mlsna. Segment O would pass through the middle of their cropland. They also cut firewood on their woodland. The owners are concerned that construction of the line could affect their access off of the property during an emergency. They are also concerned about the potential loss of income from their cropland, the loss of property values, the negative impacts on the aesthetics of their property, noise from the line, and potential negative impacts on wildlife in the area.
- The Irene Rosenow property has a tile line and three grassed waterways that could be affected by construction of the project. There is also a portion of a contour strip that could be made unusable by construction of the project. Ms. Rosenow indicated that the ROW would be 50 feet from her barn, 40 feet from her silo, and 200 feet from her machine shed. She indicated that the barn does not currently house livestock, but it is in almost new condition. There is a barbed-wire fence within the proposed right-of-way. She is also concerned about the safety of people who would have to live and work around the transmission line.
- James and Sharon Weiker indicated that the ROW would cross two grassed waterways and three contour strips on their property. They milk 140 cows and they are concerned

that the line would be too close to their milking barn and free-stall shed, and cause problems with their livestock.

- The owners of the Malzacher Irrevocable Trust property indicated that the project would affect pasture fencing, a grassed waterway in the pasture, cropland, and woodland. They are concerned that the project could cause soil erosion, reduce property values, affect human health, and lower the aesthetic values of the area. This farm is certified for organic production.
- Denny Van Steele and Marcia Steele indicated that the project could affect contour strips and fencing on their property, and during construction, it could affect access to some of their property. They also said that a sand mining company has expressed interest in their property if the power line does not go through the Steele parcel.
- William and Linda Leverenz grow corn, hay, and oats on their 80 acres of cropland. They also have 40-cow dairy operation with 110 acres of pasture. At this time, the owners are not sure how the proposed project would affect their farm operation.
- Ole and Janice Knutson rent their land to Al Wells. The owners are concerned that that the project could affect their income because it would pass through their cropland making it less desirable to rent and the line would pass close to their bed and breakfast cabins, which would make them less marketable to guests. They indicated that the project would also cross their woodland.
- The Howard and Mary Slayton Family Trust rents farmland to Mike Linnehan. The owners did not identify any concerns they may have about the proposed project.
- John Walsh of Walsh Farms LLC grows corn and soybeans on 4,200 acres of cropland. There is tiling and contour strips on this land that could be affected by construction of the proposed transmission line. Mr. Walsh indicated that Segment O passes directly over the top of his buildings. He is concerned that the project will interfere with the operation of his irrigation equipment and the use of aerial spraying on his cropland.
- Bradley and Lisa Barnes grow corn, hay, and oats, and they milk 72 dairy cows. All of their fields that would be crossed by the proposed ROW have drainage tiling. Mr. and Mrs. Barnes are concerned that construction of the proposed line will increase runoff and soil erosion on their property and damage tiles and field drainage. They are also concerned that the proximity of the proposed transmission line to the existing distribution line will cause problems for cattle that are pastured near both lines. They indicated that the proposed ROW would be 147 feet from their house and 116 feet from a mobile home

on their property. The owners also indicated that they would prefer to see more local solar and wind production rather than a transmission line that won't benefit them.

- Stephen and Mary Jane Powers grow corn, soybeans, hay, oats, and wheat, and they also milk 32 dairy cows. In addition to the 400+ acres of cropland that they own, Mr. and Mrs. Powers rent cropland from Mary Jean Cauley, whose land will also be affected by Segment O. The Powers indicated that there is tiling on the cropland and they are concerned that construction of the project would increase runoff and erosion. The project will also cross pasture, pasture fencing, and woodland. The ROW would be 200 feet from the owners' house and 300 feet from their barn. They are also concerned that the proximity of the new transmission line to the existing distribution line will create stray voltage problems on the farm. Currently, the Powers use aerial spraying on their cropland and a portion of the ROW bisects one field and passes along the edge of another. The Powers are concerned that aerial spraying will no longer be available to them on these fields. They indicated that they would support the project if they thought it was for the common good. However, they believe the project will only benefit the Applicants. The owners are also concerned about the impacts on the aesthetic value of their farm and the surrounding countryside. They indicated that Pollard Rock is located on their property. They said that this rock formation has historic significance because it was used by Chief Blackhawk as a lookout and it is part of the scenery that draws bicyclists and other tourists to the area.
- Judy Tuttle-Biermeier owns cropland, pasture, woodland, wetland, and land for her buildings. She also has 6.5 acres enrolled in the Conservation Reserve Program and 2.8 acres of Conservation Reserve Enhancement program easement. She farms some of her land herself and rents 16 acres to Brian Friske. A tributary of the Baraboo River is located in the pasture. There are contour strips and fencing on this property that might be affected by the project. Ms. Tuttle-Biermeier indicated that the proposed ROW would be 30 yards from her barn and 80 yards from the house. The barn does not currently house livestock. Most of the woodland on this farm is enrolled in the Managed Forest Law program, which requires periodic timber cutting. There has also been recent planting of black walnut trees. Ms. Tuttle-Biermeier is concerned about the negative impacts from the power line on the aesthetics of her farm and the surrounding area.
- The Anna and James McGowan Irrevocable Trust property consists of cropland, pasture, woodland, wetland, and land for the buildings, and it includes an 85-cow dairy operation. The owners rent additional land from John McGowan, which would be affected by the project along Segments M, N, and O. The owners have indicated that the project could affect tiling on their land in sections 4, 5, and 6 of the town of Kildare in Juneau County. They anticipate that the project would affect fencing as well as some of their woodland,

but they are not sure of all of the project's potential impacts on their farm. Currently, they use aerial spraying as part of their operation. The owners would prefer that the project not be constructed. Don Slama of Slama Farms LLC indicated that he would like to see the line follow the interstate from Madison to La Crosse to avoid crossing private land.

- John and Rhonda McGowan's agricultural property would be affected by either Segment N (1.2 acres) or Segment O (5.8 acres), as well as by Segment M (1 acre). This property includes 120 acres of cropland that is rented to James McGowan. Corn, soybeans, hay, and oats are grown in rotation. This property also includes woodland, wetland, and land for the buildings. The project could affect drainage tiling and a creek on this property. The owners indicated that the project would cross fence lines and other grassy areas that help to control erosion. The owners are concerned that access to half of the farm could be affected during construction if the ROW along the boundary between towns T14N and T14N, which follows Segment O cannot be crossed. For Segment N, the owners are concerned that the project would interfere with access to the property east of the line during construction. The owners are also concerned about the project's potential impacts on their woodland, which provides timber income, wildlife habitat, and a place for them to gather wild edible fruit.

Segment M – Lyndon Station to Koval Road

Segment M is common to all routes. It is 3.3 miles long and its ROW covers 47.5 acres. Of the ROW 1.4 acres are farmland consisting of 0.9 of an acre of existing ROW and 0.5 of an acre of new ROW. None of the poles for this segment would be placed in agricultural land. The 1.4 acres of farmland can also be described as including 0.3 of an acre of prime farmland. There are no acres of prime farmland where drained on this segment.

Segment M will use double-circuit underbuild configured structures. The lower voltage circuit (existing ATC 69 kV line Y-101) will be attached as underbuild on the structures, with the 345 kV circuit above. The typical height above ground will range from 125 to 150 feet and the span lengths will range from 700 to 1,000 feet. The structures will be located in the existing line Y-101 corridor for 3.3 miles.

For Segment M, 1 questionnaire was sent and 1 farmland owner responded.

Segment M Landowner Comments

- John and Rhonda McGowan's agricultural property would be affected by either Segment N (1.2 acres) or Segment O (5.8 acres), as well as by Segment M (1 acre). This property includes 120 acres of cropland that is rented to James McGowan. Corn, soybeans, hay, and oats are grown in rotation. This property also includes woodland, wetland, and land

for the buildings. The project could affect drainage tiling and a creek on this property. The owners indicated that the project would cross fence lines and other grassy areas that help to control erosion. The owners are concerned that access to half of the farm could be affected during construction if the ROW along the boundary between towns T14N and T14N, which follows Segment O cannot be crossed. For Segment N, the owners are concerned that the project would interfere with access to the property east of the line during construction. The owners are also concerned about the project's potential impacts on their woodland, which provides timber income, wildlife habitat, and a place for them to gather wild edible fruit.

Segment L – Koval Road to Wisconsin Dells

Segment L is 4.3 miles long and covers 63.3 acres of ROW. This segment does not cross any agricultural land.

Segment L will use single-circuit structures and double-circuit underbuild configured structures. The typical height above ground will range from 105 to 155 feet and the span lengths will range from 800 to 1,100 feet.

From the end of Segment M, the new 345 kV line will continue as a double-circuit with the existing ATC 69 kV line Y-101 underbuilt on the 345 kV structures. The new line will follow the existing transmission line corridor adjacent to Koval Road for 0.5 of a mile. It will then head southeast as a single circuit adjacent to the railroad for 3.8 miles to the beginning of Segment J.

Segment K – Koval Road to Wisconsin Dells

Segment K is 4.2 miles long and covers 61.1 acres of ROW. This segment does not cross any agricultural land.

Segment K will use single-circuit structures. The typical height above ground will range from 105 to 125 feet and the span lengths will range from 850 to 1,000 feet. The new line will be located adjacent to I-90/94 for 4.2 miles.

Segment J – Wisconsin Dells (Wisconsin River Crossing)

Segment J is common to all routes. It is 2.3 miles long and covers 33.2 acres of ROW. Farmland accounts for 3.7 acres of the total ROW, which will cross all new ROW. This segment's agricultural land will have 5 poles. The farmland that is crossed by this segment includes 2.9 acres prime farmland and 0 acres of prime farmland where drained.

Segment J will use single-circuit structures. The typical height above ground will range from 100 to 135 feet and the span lengths will range from 600 to 1,600 feet. The new line will be located adjacent to I-90/94 for 2.3 miles.

None of the farmland owners affected by Segment J would have 4 or more acres affected by the project, so no questionnaires were sent for this segment.

Segment I – Wisconsin Dells to Town of Caledonia

Segment I is 21.9 miles long and its ROW covers 319.0 acres of land. The amount of this ROW on agricultural land is 30.0 acres or 9.4 percent of the ROW for this segment. Agricultural land includes cropland, pasture, land for specialty crops, and old field or fallow land. It does not include woodland or land with buildings. Of the ROW covering agricultural land, 22.0 acres will be on new easements and 8.0 acres will overlap existing easements for infrastructure such as roads, pipelines, and existing power lines. Preliminary pole data suggests that 16 poles could be constructed in agricultural land, including 10 on new ROW. These numbers could still change. Another factor to consider is that 7.5 acres of the agricultural land affected by this segment is classified as prime farmland and another 5.2 acres is classified as prime farmland where drained.

Segment I will use single-circuit and double-circuit structures. The typical height above ground will range from 105 to 150 feet and the span lengths will range from 600 to 1,600 feet.

At the end of Segment J, the new 345 kV line will leave the interstate corridor and head east as a single-circuit adjacent to County Highway H for 0.4 of a mile. At this point, the new line will have the existing ATC 69 kV line Y-101 underbuilt on the 345 kV structures and continue east along the existing transmission line corridor for 0.2 of a mile. It will then continue travelling east cross country as a single-circuit for 0.8 of a mile and cross the Wisconsin River just south of the dam in downtown Wisconsin Dells. After crossing the Wisconsin River, the new line will head southeast double-circuited with the existing ATC 138 kV line X-68 along the existing transmission line corridor and the railroad for 7.6 miles. At this point, the new line will depart the line X-68 corridor and continue southeast as a single-circuit adjacent to County Highway O for 1.1 miles and then head cross country for 0.3 of a mile before intersecting line X-68 again. It will then continue southeast double-circuited with the existing ATC 138 kV line X-68 following the existing transmission line corridor adjacent to the railroad for 4.4 miles. Line X-68 will terminate at ATC's Trienda Substation. The new 345 kV line will bypass the Trienda Substation to the south on single-circuit structures for 0.5 of a mile and then continue southeast double-circuited with the existing ATC 138 kV line X-19 along the existing transmission line corridor adjacent to the railroad for 0.3 of a mile. The new line will cross to the other side of the railroad tracks, bringing line X-19 with it, and then head southeast double-circuited with X-19 adjacent to the railroad for 0.7 of a mile. It will then travel cross country

south and east as a single-circuit for 0.8 of a mile until intersecting I-39 west of Portage. The new line will then head south as a single-circuit adjacent to the interstate for 4.8 miles to the beginning of Segment G.

For Segment I, 2 questionnaires were sent and 2 farmland owners responded.

Segment I Landowner Comments

- Riverside Farms owns 2,405 acres of land including 585 acres of cropland that is rented to Grant Guildner. Mr. Guildner grows hay, soybeans, and corn. This property also includes 700 acres of grassland, and 900 acres of woodland. The owner is very concerned about the project's potential effects on wildlife and would prefer to see it follow the Interstate highway.
- Schoessow and Sons own 95 acres of land including 58 acres of cropland that is rented to Justin Frosch. This property would be affected by Segments G, H, and I. The owners are concerned that, during construction, access to portions of the property might be impaired.

Segment H – Wisconsin Dells to Town of Caledonia

Segment H is 22.0 miles long and its ROW covers 317.0 acres of land. The amount of this ROW on agricultural land is 65.3 acres or 20.6 percent of the ROW for this segment. Agricultural land includes cropland, pasture, land for specialty crops, and old field or fallow land. It does not include woodland or land with buildings. Of the ROW covering agricultural land, 64.1 acres will be on new easements and 1.2 acres will overlap existing easements for infrastructure such as roads, pipelines, and existing power lines. Preliminary pole data suggests that 31 poles could be constructed in agricultural land, including 30 on new ROW. These numbers could still change. Another factor to consider is that 43.8 acres of the agricultural land affected by this segment is classified as prime farmland and another 1.4 acres is classified as prime farmland where drained.

Segment H will use single-circuit structures and double-circuit underbuild configured structures. The typical height above ground will range from 105 to 160 feet and the span lengths will range from 750 to 1,000 feet.

From the end of Segment J, the new 345 kV line will continue southeast as a single-circuit adjacent to the interstate (I-90/I-94) for 5.3 miles until just west of the southern I-90/I-94 & US Highway 12 interchange at Wisconsin Dells. At this point, the new line will depart the interstate corridor, avoiding the I-90/I-94 & Highway 12 interchange, and travel south and east, cross country, as a single-circuit for 1 mile until it again intersects the interstate. After intersecting I-90/I-94, the new line will continue southeast as a single circuit adjacent to the interstate for 14.8 miles until reaching the I-39/I-90/I-94 interchange. Here it will be routed

around the west side of the interchange in the existing ATC 69 kV Line Y-16 corridor for 0.5 of a mile. The lower voltage 69 kV circuit will be attached as an underbuild on the 345 kV structures. The last 0.3 of a mile of Segment H will route the new line around the south side of the I-39/90/94 interchange to the beginning of Segment G.

For Segment H, 7 questionnaires were sent and 5 farmland owners responded.

Segment H Landowner Comments

- Schoessow and Sons own 95 acres of land including 58 acres of cropland that is rented to Justin Frosch. This property would be affected by Segments G, H, and I. The owners are concerned that, during construction, access to portions of the property might be impaired. The Eugene and Mona Larsen Joint Revocable Trust owns 149 acres of land.
- Eugene and Mona Larsen grow approximately 110 acres of corn and 30 acres of soybeans on the cropland. The Larsens indicated that Segment H would affect a drainage ditch that drains a large portion of their farm. There is also drainage tiling on a portion of this property. A center-pivot irrigation system on this property might also be affected by the project. The owners also use aerial spraying on their cropland. They are very concerned about the impact on efficiency this project would have on their crop production because of the need to work around the support structures in the middle of their fields. Since they would not be able to move their equipment in a straight line, some areas of their fields would be overlapped during field operations.
- Richard and Geraldine Schoenoff own about 50 acres of cropland and 30 acres of woodland. They share the crops that are grown, typically corn, with their grandson Mitch Schoenoff. The Schoenoffs also raise 800 pigs. The owners indicated that the project would affect fences on their property. They also indicated that portions of their property are very steep and the Applicants would have to use their driveway to access the right-of-way. This could interfere with the Schoenoffs' access to their property during construction. The project would affect woodland on this property and the owners harvest maple syrup, wood, and firewood.
- Thomas and Gail Webb of Webb Farms LLC grow corn, hay, wheat, and soybeans on their 171 acres of cropland. They also raise 120 head of beef cattle. There are several grassed waterways throughout the cropland that could be disrupted by construction of the project. This farm has a new irrigation system that would be affected by the project. The owners are concerned that access to some of their property could be affected during construction of the project. The project would also affect woodland on this property. William R. and Charlene M. Turner, Jr. own their property in a revocable trust. They rent additional land including 40 acres from Clyde Moon, which would also be affected by Segment H. The Turners' property includes 220 acres of cropland that is used to grow hay, corn, and oats. They also run an 80-cow dairy operation with 90 head of other

cattle. The Turners indicated that the ROW would be 95 feet from their dairy barn and they are concerned that the project could cause stray voltage. The project could also affect cattle fencing. They cut firewood from their property.

- Russell and Jeannette Smith owners of S B Feedlots, Inc. own 350 acres of cropland that is used to grow corn, soybeans, and hay. They did not identify any concerns that they have about the proposed project.

Segment G – Town of Caledonia to Town of Dekorra

Segment G is common to all routes. It is 4.2 miles long and covers 75.0 acres of land. Of the total ROW for this segment, 14.4 acres would cover agricultural land, which would all be on new ROW. Nine transmission line poles would be located on agricultural land in this segment. The agricultural land in this segment includes 8.8 acres of prime farmland and 1.9 acres of prime farmland where drained.

Segment G will use single-circuit structures and single-circuit H-frame structures. The typical height above ground will range from 100 to 180 feet and the span lengths will range from 750 to 2,300 feet.

From the end of Segment H or Segment I at the southeast corner of the I-39/90/94 interchange, the new 345 kV line will head southeast as a single-circuit adjacent to the interstate for 2.4 miles until reaching the Wisconsin River crossing. For the Wisconsin River crossing, single circuit H-frame structures will be located adjacent to the interstate (0.4 of a mile) and the ROW width will be 193 feet wide. Continuing south, the new line will be a single-circuit adjacent to the interstate for 1.4 miles to the beginning of Segment E or Segment F.

For Segment G, 3 questionnaires were sent and 1 farmland owner responded.

Segment G Landowner Comments

- Schoessow and Sons own 95 acres of land including 58 acres of cropland that is rented to Justin Frosch. This property would be affected by Segments G, H, and I. The owners are concerned that, during construction, access to portions of their property might be impaired.

Segment F – Town of Dekorra to the North Madison Substation

Segment F is 15.0 miles long and its ROW covers 217.9 acres of land. The amount of this ROW on agricultural land is 125.9 acres or 57.8 percent of the ROW for this segment. Agricultural land includes cropland, pasture, land for specialty crops, and old field or fallow land. It does not include woodland or land with buildings. Of the ROW covering agricultural land, 124.9 acres will be on new easements and 1.0 acre will overlap existing easements for

infrastructure such as roads, pipelines, and existing power lines. Preliminary pole data suggests that 56 poles could be constructed in agricultural land, which would all be on new ROW. These numbers could still change. Another factor to consider is that 79.5 acres of the agricultural land affected by this segment is classified as prime farmland and another 8.5 acres is classified as prime farmland where drained.

Segment F will use single-circuit structures. The typical height above ground will range from 105 feet to 140 feet and the span lengths will range from 650 to 1,600 feet.

At the end of Segment G, the new 345 kV line will leave the interstate corridor and travel south, cross country, intermittently along local roads, as a single circuit for 13 miles. At this point, the new line will turn east adjacent to Hahn Road for 1.5 miles. It will then turn south, cross country, for 0.5 of a mile and enter the North Madison Substation.

For Segment F, 13 questionnaires were sent and 4 farmland owners responded.

Segment F Landowner Comments

- Jerry and Joseph Ripp own 150 acres of land that is almost all cropland. They grow corn and hay. They have a home on this property and they are concerned that the line would come within 500 feet of it. They also indicated that there is a grassed waterway on this land and they use other erosion control practices on the land that could be affected by the project. The owners use aerial spraying on all of their cropland. They would prefer to see the line follow roadways and existing corridors rather than cross through the middle of agricultural fields. They are concerned about the added difficulty of maneuvering equipment around the poles if they are placed in the middle of fields. They indicated that Segment F would pass through the middle of two of their most productive fields. The Rippes also indicated that the Applicants would have easier access to the line and it would therefore be easier to maintain if it follows roadways.
- Duane and Judith Richards own Richards Livestock, Inc. They rent 72 acres of cropland to Tom Klahn and 130 acres of cropland to Blue Star Dairy. The cropland is used to grow corn, hay, soybeans, and wheat. The Richards also raise 40 head of sheep. They indicated that there are two grassed waterways on this property that could be affected by the proposed project. There is also line fencing and field roads on this land that could be affected. Aerial spraying has been used on all of the cropland, but not every year. It depends on the crops grown and the severity of any pest problems. The owners are concerned about the potential loss of property value that this project could cause. They depend on the income from this land for their retirement.
- The Gilles Trust property consists of 145.6 acres of cropland, 37 acres of woodland, and 12.8 acres of land enrolled in the Conservation Reserve Program. Most of the cropland is

rented by Gary Bakke. The owners are concerned that the project could affect drainage on this property. They are also concerned about the loss of property values, the difficulty of farming around support structures, and the loss of crop production.

- The H. Steffenhagen Partnership owns 600+ acres of land that is mostly rented to Gary Bakke. The 290 acres of cropland is used to grow corn, soybeans, and wheat. The proposed project would affect grassed waterways on this property. In addition, the renter uses aerial spraying on most of this land. There are trees on this property that could be affected by the project. They are not grown for timber or firewood, but they do have value and the owners want to keep them if they must be cut down. The owners are concerned about the potential loss of rental income and the negative impacts the project would have on the aesthetic qualities of the property.

Segment E – Town of Dekorra to the North Madison Substation

Segment E is 13.1 miles long and its ROW covers 190.3 acres of land. The amount of this ROW on agricultural land is 73.0 acres or 38.4 percent of the ROW for this segment. Agricultural land includes cropland, pasture, land for specialty crops, and old field or fallow land. It does not include woodland or land with buildings. Of the ROW covering agricultural land, 72.0 acres will be on new easements and 1.0 acre will overlap existing easements for infrastructure such as roads, pipelines, and existing power lines. Preliminary pole data suggests that 38 poles could be constructed in agricultural land, including 37 on new ROW. These numbers could still change. Another factor to consider is that 53.0 acres of the agricultural land affected by this segment is classified as prime farmland and another 2.3 acres is classified as prime farmland where drained.

Segment E will use single-circuit structures. The typical height above ground will range from 105 to 125 feet and the span lengths will range from 550 to 1,100 feet.

From the end of Segment G, the new line will continue south as a single-circuit adjacent to the interstate (I-39/I-90/I-94) for 10.7 miles until just north of where the existing ATC double-circuit 345 kV lines W7 and L-COL 21 cross the interstate. At this point, the new line will leave the interstate corridor and head south parallel to but not co-located with the ATC double-circuit 345 kV Lines W7 and L-COL 21 for 2.4 miles and then enter the North Madison Substation.

For Segment E, 7 questionnaires were sent and 6 farmland owners responded.

Segment E Landowner Comments

- The Theodore and Mary Snyder property is rented to Blue Star Dairy. The owners did not identify any concerns they have about the project.

- Paul Helt of Helt Farms, Inc. grows corn, soybeans, wheat, and hay. He also raises beef cattle. He indicated that all of the project ROW on his property would affect cropland and that access to some of his property might be affected during construction of the project.
- The Helen H. Henry Revocable Trust owns 420 acres of land and rents 410 acres to Henry Farms LLC. The cropland is used to grow corn and soybeans. There is a grassed waterway in the southeast corner of the property that could be affected by the project. There are also filter strips on this property that could be damaged by construction, which could lead to erosion. The owner indicated that access to the potential ROW is not easily reached from roads. So, the Applicants would likely need to cross part of this property to reach the right-of-way. This would likely be over highly erodible land and it would also affect fencing. Aerial spraying is used on the cropland that would be affected by the project. The owner indicated that the proposed transmission line would be the second transmission line to cut through this farm. In addition, the Interstate Highway also cuts through this farm. If Segment E is followed, the new poles will be additional obstacles that will have to be worked around. The owner is very concerned that this will further diminish the overall value of this farm.
- Duane and David Grinde and the Lorraine Grinde Life Estate grow corn, hay, and wheat on the 148 acres of cropland. They also run a 40-cow dairy operation. The owners are concerned that the proposed ROW will be very close to Duane Grinde's house. The project would also affect fencing. The owners are also concerned about the impacts on crops during construction of the project. They are concerned that the project would cause stray voltage on their dairy farm and have significant negative impacts on their cattle.
- Scott and Kimberly Van Etten own 171 acres of farmland that would be affected by Segment E. They rent additional land from Paul and Vivian Black that would be affected by either Segment E or Segment F, and from William and Laurel Ingraham that would be affected by Segment G. Mr. and Mrs. Van Etten grown corn and raise hogs, sometimes as many as 2,000 head. They are concerned that the new line might only be 60 feet from their confined hog facilities. They indicated that the line would cut through the path of their center-pivot irrigation system. Having irrigation on their cropland increases its productive capacity, which makes this land more valuable. There is one very steep slope on this farm that might be affected by the project. The Van Ettens are also concerned that construction of the line could interfere with access to a cell tower for maintenance that is located on their property. They would prefer to see the poles placed in the highway right-of-way.
- The Henry R. Nelson Residury Trust rents 262 acres of cropland to Mulcahy Farms LLC. This land is used to grow corn, hay, soybeans, and wheat in rotation. The owners are concerned that the project will affect grassed waterways and fencing on this property.

They also indicated that they are working to convert some of the land to organic production. The owners indicated that the cropland is part of the Arlington Prairie and is some of the most productive cropland in the area. They would prefer to see the project follow an existing utility corridor.

Segment D – North Madison Substation to Town of Springfield

Segment D is 15.3 miles long and its ROW covers 222.7 acres of land. The amount of this ROW on agricultural land is 176.0 acres or 79.0 percent of the ROW for this segment. Agricultural land includes cropland, pasture, land for specialty crops, and old field or fallow land. It does not include woodland or land with buildings. Of the ROW covering agricultural land, 55.1 acres will be on new easements and 120.9 acres will overlap existing easements for infrastructure such as roads, pipelines, and existing power lines. Preliminary pole data suggests that 73 poles could be constructed in agricultural land, including 10 on new ROW. These numbers could still change. Another factor to consider is that 109.3 acres of the agricultural land affected by this segment is classified as prime farmland and another 0.5 of an acre is classified as prime farmland where drained.

Segment D will use double-circuit structures. The typical height above ground will range from 110 to 150 feet and the span lengths will range from 650 to 1,200 feet.

After a short distance on the North Madison Substation property, the new 345 kV line will be double-circuited with the existing ATC 138 kV line 13875 along the existing transmission line corridor for 13.1 miles. It will then leave the line 13875 corridor and continue south, cross country, still double-circuited with the existing ATC 138 kV line 13875 for 1.9 miles to the beginning of Segment A.

For Segment D, 18 questionnaires were sent and 7 farmland owners responded.

Segment D Landowner Comments

- The Dane County Land and Water Resources staff has indicated that Segment D immediately south of the intersection with Highway 12 bisects a farmland preservation easement that was acquired through the federal farm and ranchland protection program and the state funded Highway 12 farmland mitigation program. Agricultural producers have requested, and Dane County recommends that the transmission line follow the fence lines and avoid farm operation buildings in agricultural areas in order to minimize the impact on farming.
- The Kay A. Kalscheur Living Trust rents 220 acres of land to Joe Ripp. The owner did not identify any concerns about the proposed project.

- Thomas and Elizabeth Kay Meier grow corn and hay on their 135 acres of cropland. They also run a 170-cow dairy operation. The owners indicated that there is drainage tiling and grassed waterways on this property that could be affected by the project. They are also concerned that the line might be close to their dairy facilities. Segment D passes through the middle of this farm, which would create obstacles for the owners to farm around. Wayne and Patricia Wolf rent 109 acres of cropland to Steven Schmitt of Sweetwater Farm. The owners are not sure about the impacts of the project on their property.
- Allan and Vicki Ballweg own 315 acres of cropland that is used to grow corn, hay, and wheat. They also run a 180-cow dairy operation. They did not identify any concerns they have about the proposed project.
- Ziegler Dairy Farms, Inc. grows corn, soybeans, hay, and wheat on 2,500 acres of cropland. They also milk 1,200 cows. The owners are very concerned that construction of the project will cause a significant amount of erosion on this land. They indicated that they use aerial spraying on this land.
- The Thomas Hellenbrand property would be affected by Segment C or D and by Segments A, B, or B-North. Mr. Hellenbrand rents 117 acres to Blue Star Dairy. He is very concerned about the aesthetic impacts of the power line on the landscape and the views.
- The property owned by Roman, James, and Kenneth Meier is 360 acres large and is mostly cropland. It would be affected by Segment C or D. Joe Ripp of Ripp Blue Ribbon Dairy rents 240 acres and Linus Maier of Maier Farm LLC rents 120 acres. The property owners indicated that if the line followed Segment D, it would be further away from the house and buildings than if it followed Segment C.

Segment C – North Madison Substation to Town of Springfield

Segment C is 15.6 miles long and its ROW covers 227.6 acres of land. The amount of this ROW on agricultural land is 167.8 acres or 73.7 percent of the ROW for this segment. Agricultural land includes cropland, pasture, land for specialty crops, and old field or fallow land. It does not include woodland or land with buildings. Of the ROW covering agricultural land, 137.0 acres will be on new easements and 30.8 acres will overlap existing easements for infrastructure such as roads, pipelines, and existing power lines. Preliminary pole data suggests that 83 poles could be constructed in agricultural land, including 64 on new ROW. These numbers could still change. Another factor to consider is that 106.2 acres of the agricultural land affected by this segment is classified as prime farmland and another 6.6 acres is classified as prime farmland where drained.

Segment C will use single-circuit and double-circuit structures. The typical height above ground for the structures will range from 100 to 150 feet and the span lengths will range from 550 to 1,200 feet.

After a short distance on the North Madison Substation property, the new 345 kV line will head south as a single-circuit adjacent to Patton Road for 0.3 of a mile. At this point, the new line will travel cross country south and east as a single-circuit for 0.8 of a mile until intersecting line Y-85. The new line will then head west as a double-circuit with existing ATC 69 kV line Y-85 underbuilt on the 345 kV structures. It will follow the existing transmission line corridor adjacent to County Highway V for 1.3 miles. From there it will turn south as a single-circuit adjacent to State Highway 113 for 1.5 miles. It will then travel cross country west and south as a single-circuit for 4.7 miles until intersecting line Y-131. At this point, it will be double-circuited with the existing ATC 69 kV line Y-131 and follow the existing transmission line corridor for 2.3 miles. The new line will then turn west and travel cross country as a single-circuit for 0.5 of a mile, follow Fisher Road for 1.7 miles, and then travel cross country for 2.3 miles to the beginning of Segment B.

For Segment C, 13 questionnaires were sent and 9 farmland owners responded.

Segment C Landowner Comments

- Laufenberg Brothers LLC owns 555 acres of land that is almost all cropland and is used to grow corn and hay. They run a 300-cow dairy operation with 250 replacement dairy cattle and they raise 2,000 pigs as well as other livestock. There are grassed waterways on this property between Highway 12 and North Church Road that could be affected by the proposed project. The proposed transmission line would come within 1,000 feet of the milking facility and the owners are very concerned that the line would interfere with their cow monitoring system that uses radio waves to communicate between the monitors worn by each cow and the central computer that collects and stores the data from the monitors. The owners also use aerial spraying on their cropland. Since the line would go through the middle of their fields between Highway 12 and North Church Road, this practice would be hindered in that area. Farm machinery would need to be maneuvered around the support structures that would be placed in those fields.
- Wauna-Dairy LLC owns 507 acres of land that is almost all cropland. The owners grow corn and hay, and run a 200-cow dairy operation with 100 replacement dairy cattle and 100 beef cattle. The project could affect grassed waterways and other erosion control practices on this farm. The owners indicated that the ROW for the project would be with 20 feet of at least one of their buildings. The owners use aerial spraying on their cropland, which could be affected by the project. They are also concerned about the safety of farming under a transmission line and the possible health effects of the line.

- The Acker Living Trust owns 156 acres of land that is mostly cropland. Roger Acker grows corn, hay, and oats and does not raise any livestock. He did not identify any concerns about the proposed project.
- The Kars Revocable Trust property includes 228 acres of cropland that is used to grow corn, soybeans, hay, and wheat. Edmund Karls indicated that the project would affect fencing on this property. The project could interfere with the aerial application of pesticides on this farm. The owner is also concerned about the loss of income from this property.
- The Norman and Lorraine Maly, Jr. Revocable Trust owns 231 acres of land. Norman and Lorraine Maly grow corn, soybeans, wheat, and hay on the 210 acres of cropland. They are very concerned about having to work around the poles that would be placed in the middle of their fields.
- The Marilyn Karls Real Estate LTD property includes 295 acres of cropland that is rented to Dan and Tim Karls. They grow corn, hay, and soybeans and they run a 40-cow dairy operation with 30 replacement dairy cattle. They also raise beef cattle and pigs. The owner indicated that the project may affect a grassed waterway and other erosion control practices on this farm. The project might also affect fencing on this farm. Ms. Karls is concerned that field entrances could be impaired during construction of the line. She is also concerned about the potential for stray voltage and negative impacts on human health.
- The Steven and Doris Kalscheur Revocable Trust property includes 308 acres of cropland that is used to grow corn and hay. The Kalscheurs also run a 275-cow dairy operation with 200 replacement dairy cattle and 150 to 200 beef cattle. The Kalscheurs are very concerned about the line passing through the middle of their fields. It would affect drainage tiling and hinder aerial spraying. Having poles in the middle of their fields will make field operations very difficult. If the line must be built, they would prefer to see it follow fence lines.
- The property owned by Roman, James, and Kenneth Meier is 360 acres large and is mostly cropland. It would be affected by Segment C or D. Joe Ripp of Ripp Blue Ribbon Dairy rents 240 acres and Linus Maier of Maier Farm LLC rents 120 acres. The property owners indicated that if the line followed Segment D, it would be further away from the house and buildings than if it followed Segment C.
- The Thomas Hellenbrand property would be affected by Segment C or D and by Segment A, B, or B-North. Mr. Hellenbrand rents 117 acres to Blue Star Dairy. He is very concerned about the aesthetic impacts of the power line on the landscape and the views.

Segment B – Town of Springfield to the Cardinal Substation

Segment B is 7.4 miles long and its ROW covers 107.9 acres of land. The amount of this ROW on agricultural land is 41.6 acres or 38.6 percent of the ROW for this segment. Agricultural land includes cropland, pasture, land for specialty crops, and old field or fallow land. It does not include woodland or land with buildings. Of the ROW covering agricultural land, 36.3 acres will be on new easements and 5.3 acres will overlap existing easements for infrastructure such as roads, pipelines, and existing power lines. Preliminary pole data suggests that 16 poles could be constructed in agricultural land, including 12 on new ROW. These numbers could still change. Another factor to consider is that 21.3 acres of the agricultural land affected by this segment is classified as prime farmland and another 4.7 acres is classified as prime farmland where drained.

Segment B will use single-circuit and double-circuit structures. The typical height above ground will range from 100 to 150 feet and the span lengths will range from 550 to 1,650 feet.

From the end of Segment C or D, the new 345 kV line will continue to travel west, cross country as a single-circuit for 1.3 miles until intersecting County Highway P. The new line will then head southwest as a single-circuit adjacent to Highway P for 0.8 of a mile. At this point, it will turn south and travel cross country as a single-circuit for 3.3 miles until intersecting line 6927. It will then head east as a double-circuit with the existing ATC 69 kV line 6927 following the existing transmission line corridor for 1.4 miles. At this point, the new line will continue east as a single-circuit adjacent to US Highway 14 for 0.5 of a mile before turning south, crossing Highway 14, and entering the Cardinal Substation (0.2 of a mile).

For Segment B, 4 questionnaires were sent and 3 farmland owners responded.

Segment B Landowner Comments

- The Thomas Hellenbrand property would be affected by Segment C or D and by Segment A, B, or B-North. Mr. Hellenbrand rents 117 acres to Blue Star Dairy. He is very concerned about the aesthetic impacts of the power line on the landscape and the views.
- The Gary and Shirley Ripp property will be affected in the same way by either Segment B or Segment B-North. This property includes 115 acres of cropland that they use to grow corn, hay, and wheat. They also run a 60-cow dairy operation with replacement dairy cattle and beef cattle. The owners indicated that the project will affect grassed waterways and woodland. They also indicated that the ROW will be 50 feet from their house and farm buildings. The project will impede the use of aerial spraying. The Rippes are very concerned about the project potential impacts on their farm including stray voltage and the loss of cropland.
- Robert and Jodi Nonn grow corn, hay, soybeans, oats, and wheat on their 180 acres of

cropland. They also run a 50-cow dairy operation with an additional 105 head of cattle. The Nonns are concerned that drainage on their farm could be affected depending on the location of the poles for the line. They cropland is no-till and they have contour strips because of the highly erodible nature of their soils. Aerial spraying is also used on this cropland. They indicated that the line would be within 100 feet of at least one of their farm buildings and it could affect fencing on their farm. The project would also affect woods on the Nonn property and the owners are very concerned that the line will cut through the middle of their woods.

Segment B-North – Town of Springfield to the Cardinal Substation

Segment B-North is 7.3 miles long and its ROW covers 105.7 acres of land. The amount of this ROW on agricultural land is 37.5 acres or 35.5 percent of the ROW for this segment. Agricultural land includes cropland, pasture, land for specialty crops, and old field or fallow land. It does not include woodland or land with buildings. Of the ROW covering agricultural land, 34.4 acres will be on new easements and 3.1 acres will overlap existing easements for infrastructure such as roads, pipelines, and existing power lines. Preliminary pole data suggests that 16 poles could be constructed in agricultural land, including 14 on new right-of-way. These numbers could still change. Another factor to consider is that 13.2 acres of the agricultural land affected by this segment is classified as prime farmland and another 3.4 acres is classified as prime farmland where drained.

Segment B-North will use single-circuit and double-circuit structures. The typical height above ground will range from 100 to 150 feet and the span lengths will range from 550 to 1,650 feet.

From the end of Segment C or D, the new 345 kV line will continue west traveling cross country as a single-circuit for 1.3 miles until intersecting County Highway P. It will then head southwest as a single-circuit adjacent to Highway P for 0.8 of a mile. At this point, it will turn south and travel cross country as a single-circuit for 2.5 miles and then turn east and travel cross country as a single-circuit for 1.5 miles until intersecting line 13875. The new line will then head south as a double-circuit with the existing ATC 138 kV line 13875 and follow the existing transmission line corridor for 0.7 of a mile. About 0.6 of a mile from the Cardinal Substation, the new will leave the existing transmission line corridor and head east as a single-circuit parallel to an existing MGE distribution line for 0.3 of a mile. The new line will then turn south, cross US Highway 14, and enter the Cardinal Substation (0.3 of a mile).

For Segment B-North, 3 questionnaires were sent and 3 farmland owners responded.

Segment B-North Landowner Comments

- The Thomas Hellenbrand property would be affected by Segment C or D and by Segment

A, B, or B-North. Mr. Hellenbrand rents 117 acres to Blue Star Dairy. He is very concerned about the aesthetic impacts of the power line on the landscape and the views.

- The Gary and Shirley Ripp property will be affected in the same way by either Segment B or Segment B-North. This property includes 115 acres of cropland that they use to grow corn, hay, and wheat. They also run a 60-cow dairy operation with replacement dairy cattle and beef cattle. The owners indicated that the project will affect grassed waterways and woodland. They also indicated that the ROW will be 50 feet from their house and farm buildings. The project will impede the use of aerial spraying. The Rippes are very concerned about the project potential impacts on their farm including stray voltage and the loss of cropland.
- Robert and Jodi Nonn grow corn, hay, soybeans, oats, and wheat on their 180 acres of cropland. They also run a 50-cow dairy operation with an additional 105 head of cattle. The Nonns are concerned that drainage on their farm could be affected depending on the location of the poles for the line. They cropland is no-till and they have contour strips because of the highly erodible nature of their soils. Aerial spraying is also used on this cropland. They indicated that the line would be within 100 feet of at least one of their farm buildings and it could affect fencing on their farm. The project would also affect woods on the Nonn property and the owners are very concerned that the line will cut through the middle of their woods.

Segment A – Town of Springfield to the Cardinal Substation

Segment A is 4.6 miles long and its ROW covers 67.0 acres of land. The amount of this ROW on agricultural land is 41.6 acres or 61.9 percent of the ROW for this segment. Agricultural land includes cropland, pasture, land for specialty crops, and old field or fallow land. It does not include woodland or land with buildings. Of the ROW covering agricultural land, 29.7 acres will be on new easements and 11.9 acres will overlap existing easements for infrastructure such as roads, pipelines, and existing power lines. Preliminary pole data suggests that 19 poles could be constructed in agricultural land, including 10 on new ROW. These numbers could still change. Another factor to consider is that 22.0 acres of the agricultural land affected by this segment is classified as prime farmland and 0 acres is classified as prime farmland where drained.

Segment A will use single-circuit structures and double-circuit structures. The typical height above ground will range from 100 to 150 feet and the span lengths will range from 550 to 1,200 feet.

From the end of Segment C or D, the new 345 kV line will continue south, double-circuited with the existing ATC 138 kV line 13874 for 4 miles. About 0.6 of a mile from the Cardinal Substation, the new line will leave the existing transmission line corridor and head east as a

single-circuit, parallel to an existing MGE distribution line for 0.3 of a mile. The new line will then turn south, cross US Highway 14, and enter the Cardinal Substation (0.3 of a mile).

For Segment A, 3 questionnaires were sent and 2 farmland owners responded.

Segment A Landowner Comments

- The Thomas Hellenbrand property would be affected by Segment C or D and by Segment A, B, or B-North. Mr. Hellenbrand rents 117 acres to Blue Star Dairy. He is very concerned about the aesthetic impacts of the power line on the landscape and the views.
- The Esser Family Farm property includes 185 acres of cropland that is used to grow corn, hay, oats, and wheat. The owners are concerned that the project may affect grassed waterways and contour strips on their land. They indicated that the ROW would be very close to the house and the farm buildings used for machinery storage. The owners also indicated that all of their land is needed to produce feed for their livestock. Segment A would pass through the middle of the fields on this farm and make field work much more difficult. The woodland where they cut firewood to heat the house would also be affected.

VI. AGRICULTURAL IMPACTS

Transmission line impacts to farmland can be categorized as temporary or permanent. These include restrictions on the use of the land, reductions in the area that can be farmed and potential reductions in the productivity of the affected farmland. Reductions in the loss of productivity due to soil mixing, soil erosion, or soil compaction during construction could be permanent if mitigating construction practices are not followed.

Within fields, the area adjacent to the support structures that is not accessible to farm equipment can become a haven for weeds and other pests. These weeds and pests can spread to adjacent crops and potentially reduce yields and/or necessitate the application of additional pesticides.

The Applicants have indicated that upon receipt of the Commission's Order, the Applicants will coordinate with each agricultural landowner to obtain detailed information about each agricultural operation including the use of irrigation systems or drainage tiles, locations of farm animals and crops, current farm biological security practices, landowner concerns, and use of access routes. Potential impacts to each farm property along the ordered route will be identified and where practicable, construction impact minimization measures may be implemented. Site-specific practices would vary according to the activities of the landowner/farm operator, the type of agricultural operation, the susceptibility of site-specific soils to compaction, the degree of construction occurring on the parcel, and the ability to avoid areas of potential concern.

Some landowners have expressed concerns about the manner in which the Applicants and their contractors have done preliminary surveying work, indicating that surveying work was done on their property without their permission. It is important for the Applicants and their contractors to maintain respectful and cooperative working relationships with property owners and renters. Good communications, knowing the limits of the ROW easements, and removing construction debris are a few actions that will be useful in avoiding problems and misunderstandings.

Permanent Impacts

Loss of Farmland and Impacts Caused by the Location of Transmission Line Structures

The area occupied by the transmission line support structure and foundation would be removed from farming. In addition, the immediate area around the structures cannot be cropped because of the difficulty of maneuvering large farm implements around these structures. Maneuvering around these structures also increases the risk of collision between farm equipment and the power line poles leading to damaged equipment and/or poles. This could require expensive repairs and slowed field operations during hectic planting and harvesting times.

In general, the excavated holes for each type of foundation will range from 3 to 12 feet in diameter and 20 to 60 feet deep, or more, depending on soil conditions and support structure size. Therefore, the loss of farmland for each support structure ranges from 7 to 452 sq ft.

Where support structures are located in cropland, the owner will also lose land adjacent to the pole that becomes inaccessible to farm equipment. The actual amount of farmland lost due to inaccessibility will vary depending on the type of farmland affected by the project, the location of the support structure, the size and maneuverability of the equipment the farmer operates, and the distance the farmer is willing to leave between farm equipment and support structures when farming around them. Impacts from support structures in headlands will also vary depending on their relationship to the existing cropping pattern and the adjustments needed to work around them. Importantly, the single pole structure that will be used for this project provides much less loss of farmable area than would an H-Frame or a structure with guy wires.

For example, a pole in the middle of a field is likely to affect more cropland than one placed at the edge of the field (see calculation examples below). While the path taken to avoid a support structure is unique for individual circumstances, for purposes of this analysis, we can assume the travel path of the machine is parabolic.

To calculate the area of farmland that becomes inaccessible in order to avoid the support structure, use the equation:

$$A = (\frac{2}{3} * H * D) * 2$$

Where:

A = inaccessible area in square feet on one side of the structure

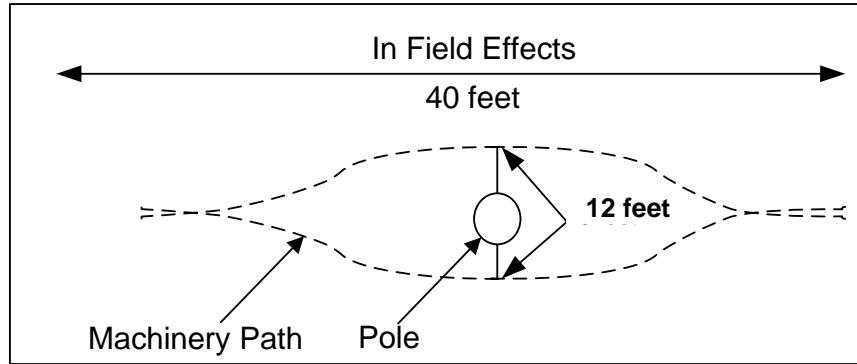
H = horizontal distance (feet) from the point where the machine begins to turn out around the pole to the point where the machine is back on its regular path of travel

D = the distance from the center-line of the pole, or the edge of the field to the point where the end of the machine passes by the pole. D is perpendicular to H

As an example, if the caisson supporting the pole is 6-feet in diameter, Figure 7 shows the machinery path that the farmer takes to avoid the pole. The farmer begins to turn out 17-feet in front of the pole to avoid it and travels 17-feet beyond the pole before coming back to a straight line of travel. Assume the farmer is operating a 12-row corn planter that is 30 feet wide and that he leaves 3 feet between the end of the corn planter and the pole on each side as he passes by to ensure that he does not hit it.

In this in-field pole location example, approximately 320 square feet of cropland is no longer accessible and can be considered cropland lost when negotiating easement payment amounts.

Figure 7. In-Field Effect of Pole Location



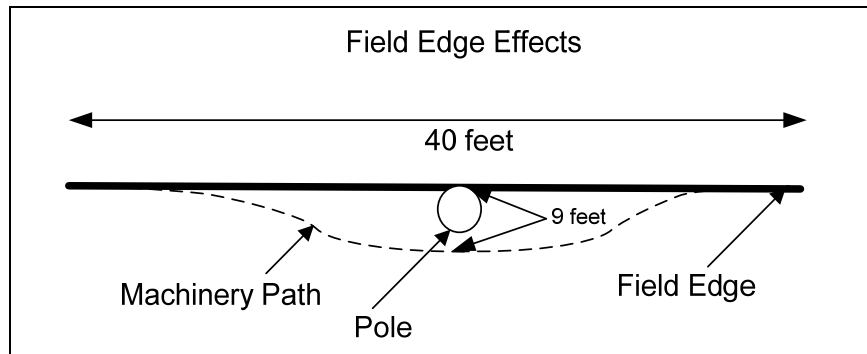
Therefore: $H = 17 \text{ ft} + 3 \text{ ft}$ (which is $\frac{1}{2}$ the diameter of the pole)*2 = 40 feet
 $D = 6 \text{ ft}$ (3 ft to avoid the pole + 3 feet, which is $\frac{1}{2}$ the diameter of the pole)

The total area inaccessible for production to avoid the pole is:

$$A = (\frac{2}{3} * 40 * 6) * 2 = 320 \text{ square feet}$$

In contrast, if the outside edge of the 6-foot diameter caisson supporting the pole is on the edge of the field, however, the Figure 8 shows the machinery path that the farmer takes to avoid pole.

Figure 8. Field-Edge Effects of Pole Location



Therefore: $H = 17 \text{ ft} + 3 \text{ ft}$ (which is $\frac{1}{2}$ the diameter of the pole)*2 = 40 feet
 $D = 9 \text{ ft}$ (3 ft to avoid the pole + 6-foot diameter of the pole)

The total area inaccessible for production to avoid an edge of field pole is:

$$A = \frac{2}{3} * 40 * 9 = 240 \text{ square feet}$$

The following table identify the number of poles in agricultural land. They are listed for new and existing right-of-way.

Calculating the Cost of Inaccessible Land

Few studies have been conducted to determine the cost of transmission tower construction to the farmer's whose land is impacted, however studies by Gustafson, et al. (1979) and Scott (1981) found that approximately 70 percent of the costs of towers to farmers resulted from the nonproductive area created by the presence of the tower. Those studies also estimated that the remaining 30 percent of costs to farmers resulted from the time lost in working around towers, crop damage, and potentially material waste through double coverage. Comprehensive studies of the estimated costs from farming around transmission structures based on Wisconsin-specific farm operations are not available.

However, a number of such estimates have been made based on a model for typical Montana farming operations as part of an environmental impact assessment conducted for a transmission project there. Although this model was based on different crops from those in Wisconsin, the basic sequence of farm operations involved is similar to that found here and included: pesticide use, fertilizer application, planting, in-crop spraying, harvesting, and post-harvest harrowing. The model also included an estimate for labor time and equipment. It adjusted for the presence of the structure in the field causing "overlap areas" where equipment passes through more than once. Based on 2007 prices, it estimated the annual cost of farming around a regular span mono-pole at the field edge in the range of \$13 to \$16 dollars per structure; a similar amount for H-frames parallel to the field edge; \$40 for H-frames perpendicular to the field edge; \$177 for H-frames in the field interior; and \$150 for mono-poles in the field interior. (HydroSolutions Inc. and Fehringer Agricultural Consulting Inc., 2007) Elsewhere, somewhat different figures were reported for the same project simulations:

The full report states that the 2007 annual costs to farm around a small monopole, a large monopole and an H-pole in the middle of a field planted with spring wheat are \$105.09, \$107.98 and \$120.57, respectively. The costs to farm at the edge of a field for the three structures, with the H-pole built parallel to the edge, would be \$13.81, \$15.06 and \$14.99, respectively. (Thornton, 2007).

Wisconsin Statutes, Chapter 187.017 (b) states: "In determining just compensation for the interest under s.32.09, damages shall include losses caused by placement of the line and associated facilities near fences or natural barriers such that lands not taken are rendered less readily accessible to vehicles, agricultural implements and aircraft used in crop work ... "

Farming around transmission line poles can be difficult, particularly when larger farm equipment is used. Farmers may attempt to reduce the area that cannot be cropped around the

pole by planting as close as possible to the transmission line structure. This increases the likelihood of hitting the pole with farm implements. It is unlikely that the transmission line structures proposed for this project would be damaged. However, the farm implements may be damaged significantly. This impact would be especially troublesome if it occurred during planting or harvesting when time is especially crucial.

The following table identifies the number of poles for each segment that could be placed in agricultural land. This information is based on preliminary pole locations provided by the Applicants. The final design of the transmission line will not be completed until after the project is approved and a route selected. The final data may differ from the currently available preliminary data.

Table 11. Number of Poles (preliminary locations) in each Class of Agricultural Land

Segment	Prime Farmland	Prime Farmland where Drained	Farmland of Statewide Importance	Farmland that is Not Prime	Total Poles
P-East	3	0	0	9	12
P	7	0	0	20	27
O	63	60	76	68	267
N	55	19	16	41	131
J	3	0	0	2	5
I	4	2	1	9	16
H	23	2	3	3	31
G	4	2	2	1	9
F	34	4	13	5	56
E	28	1	6	3	38
D	50	0	16	7	73
C	56	1	17	9	83
B-North	8	2	3	3	16
B	9	2	2	3	16
A	13	0	5	1	19

Figure 9. Poles (preliminary locations) per Classification of Agricultural Land

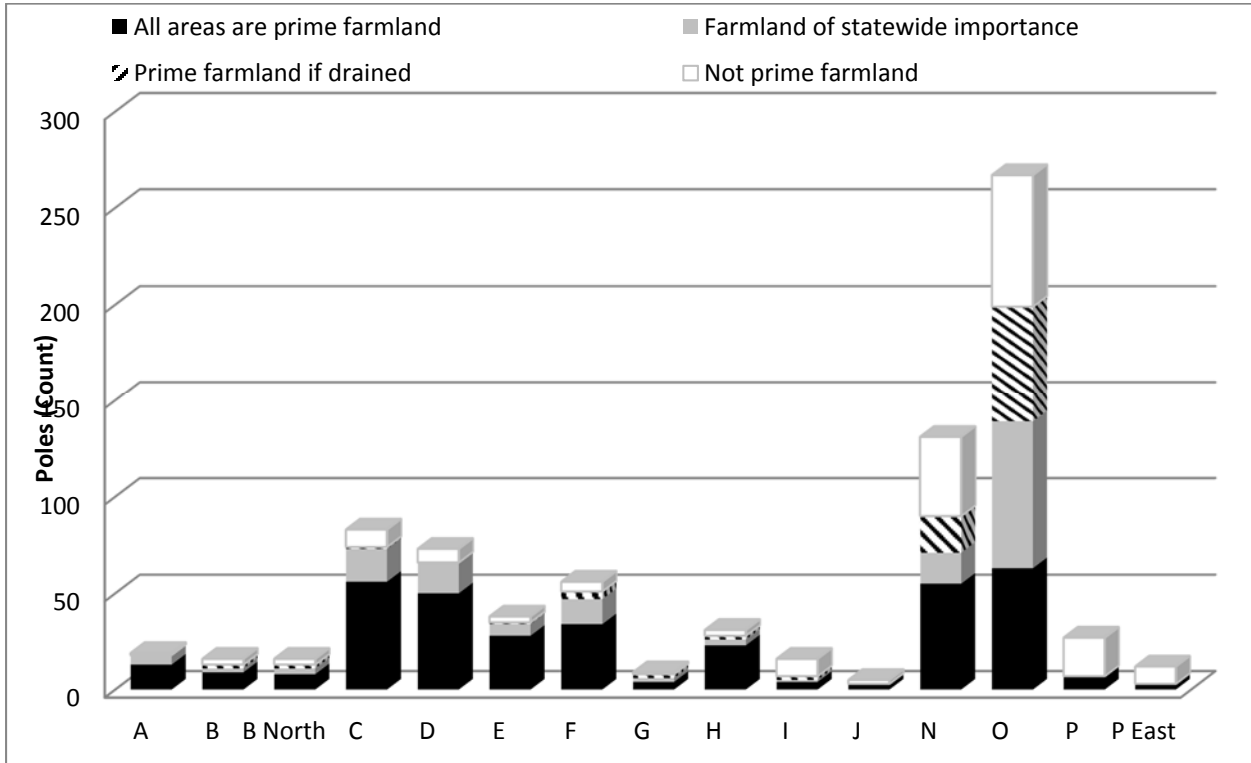


Figure 10. Poles (preliminary locations) in New and Existing ROW

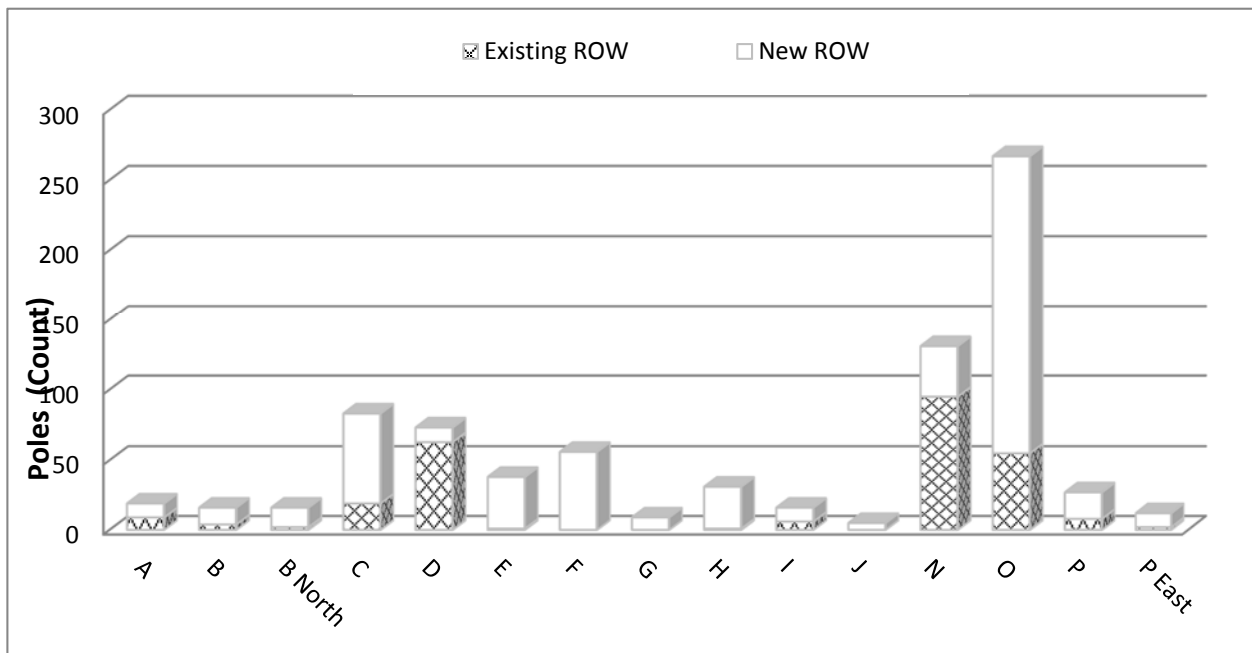


Table 12. Number of Poles (preliminary locations) in New/Existing ROW

Segment	Poles in Agricultural Land Covered by New Right-of-Way	Poles in Agricultural Land Covered by Existing Right-of-Way	Total Poles in Agricultural Land
P-East	10	2	12
P	19	8	27
O	212	55	267
N	36	95	191
J	5	0	5
I	10	6	16
H	30	1	31
G	9	0	9
F	56	0	56
E	37	1	38
D	10	63	73
C	64	19	83
B-North	14	2	16
B	12	4	16
A	10	9	19

Interference with Precision Farming and other Technologies

Some concerns have been expressed about proposed transmission lines interfering with the precision technology that is currently used or could be used in the future by farmers. Precision agriculture requires consistent contact with satellites in order to determine field location.

Without precision farming technology, farmers generally apply inputs, such as fertilizer, seed, and pesticides, uniformly based on the average needs of a field. However, the presence of significant variation in soil characteristics of a field means that the most economical application of inputs to such a field would need to be precisely calibrated to such variation. In some cases, the yield variation can be up to 100 percent within a field. Precision farming addresses the spatial and temporal variability in growth limiting factors. It manages fields by adopting a variable rate application of fertilizers, herbicides and pesticides in place of a uniform application across the whole field.

Such variable-rate application technology consists of three steps: collecting data through yield monitoring, grid soil sampling, or remote sensing; analyzing the data, and generating maps that reflect the variability within a field; and field use of GIS/GPS map-based systems to identify problems in a field. Two spatial requirements are necessary for the variable-rate application of inputs. One requirement is the knowledge of where the farm equipment is as it moves across a field. The other is information on selected variables important to the farmer as a function of location within the field. These two factors are often referred to as the “where” and “what” components.

Global Positioning Systems (GPS) are used to determine the “where” component within a field. The “what” factor involves the application of remote sensing or collecting information on a site-specific basis through grid-sampling. Precision-agriculture applications have been relatively limited till now because of the complexity and expense involved in such applications.

Currently, the most common application of precision farming is as a monitor to measure yield data during harvesting. Yield monitors allow farmers to measure crop yield, grain weight and harvested area. Some applications export this information to a personal computer for further analysis. The intended outcome is to enable farmers to compensate for natural and manmade types of variability that affect crop growth.

The question of whether transmission lines may have an effect on increasingly sophisticated agriculture equipment, including the GPS component of precision agriculture systems, has come up frequently in recent years. Some experts in the field have indicated that they believe that there were no effects of transmission lines on GPS, but that the issue deserves further investigation.

Xcel Energy reported that its survey crews use GPS units. The crews routinely work along and under high voltage transmission lines, including 345 kV lines, and have not encountered interference.” (State of Minnesota, 2005)

Expert testimony by J. Michael Silva for Montana Alberta Tie Ltd. strongly supports the view that a proposed 345 kV transmission line will have no effect on Global Positioning System (GPS) electronic devices associated with precision agriculture applications. There has been a concern that close proximity to power lines may interfere with farm equipment’s ability to accurately receive the satellite signals needed to guide the field position of variable-application farm equipment.

A minimum signal-to-noise ratio must be present for the GPS to operate, and “the noise must be in the same frequency band as the GPS receiver to cause interference. As a practical matter,

power lines produce little to no noise in these microwave bands.” (Silva, 2007) (Note: The microwave frequency of GPS satellite signals is about 1,227 – 1575 MHz.) For the same reason, differential correction signals determined from ground-reference stations are also unlikely to be affected by transmission lines. (Silva, 2007)

One other possible mode of transmission line interference considered by Silva is whether the overhead wires, or conductors of the line, could partially block satellite signals through scattering. According to Silva, “Theoretical analysis showed that this was not possible due to the small “electrical size” of power line conductors relative to a GPS signal wavelength and the large height ground of the electric wires.”(Silva, 2007) Silva performed multiple experiments under varied weather conditions to document the effect on GPS signal strength while driving under several large high voltage transmission lines without finding any effect. Silva also points out that cellular phones are spectrum microwave devices similar to GPS, yet “transmission towers are commonly used for cell phone base stations.” In fact, he notes:

On Segment C, the line would come within 1,000 feet of the Laufenberg Brothers LLC milking parlor. The owners are concerned it would interfere with their cow monitoring system that uses radio waves to communicate between the monitors worn by each cow and the central computer that collects and stores the data from the monitors.

Another farmer is concerned that the magnetic sensor on a chopper would be tripped when passing under or near the transmission line.

Any damages resulting from transmission line interference with GPS-based or other farm equipment is compensable under Wis. Stats., s. 182.017 (7) (b).

Aerial Spraying

The location of transmission line poles in cropland can restrict aerial application of pesticides and increase the danger of making applications. In determining just compensation for an interest under Wis. Stats. § 32.09, damages shall include losses associated with inability to adequately aerial seed or spray. When agricultural pilots have to maneuver to avoid transmission lines, uneven or imprecise aerial spraying may result in: 1) cropped areas being missed resulting in weed growth and or pest infestations that reduce yields; 2) increased cost from hand application of pesticides in “missed areas”; 3) increased risk of liability from pesticide drift on neighboring properties.

According to responses provided through the farmer survey DATCP conducted, the following farmland owners, listed by segment, indicated that they use aerial seeding and/or application of chemicals on their farm operation.

Segment N

Ken and Debra Congdon of Scotch Prairie Farm, Inc.
Jerome and Cynthia Hanson
Keith and Paul Nestingen

Segment O

Mlsna East Town Dairy and Jeff Mlsna
Walsh Farms LLC and John Walsh
Stephen and Mary Jane Powers
Anna and James McGowan Irrevocable Trust

Segment H

Eugene and Mona Larsen Joint Revocable Trust

Segment F

Jerry and Joseph Ripp
Duane and Judith Richards own Richards Livestock, Inc.
H. Steffenhagen Partnership

Segment E

Helen H. Henry Revocable Trust

Segment D

Ziegler Dairy Farms, Inc.

Segment C

Laufenberg Brothers LLC
Wauna-Dairy LLC
Kars Revocable Trust
Steven and Doris Kalscheur Revocable Trust

Segment B or B-North

Gary and Shirley Ripp
Robert and Jodi Nonn

Potential Reduction in Property Values

Numerous studies have shown there is often a small, but real, discount in residential property values due to the presence of transmission lines on a property. This discount appears in many peer reviewed studies comparing the market value of similar properties with and without transmission lines crossing them. There are also a number of peer reviewed studies that show no significant difference in sale price between properties with and without transmission poles on them. A review summarized by the PSCW found that the presence of a power line can reduce home values up to 14 percent, but that effects tend to decrease over time (PSC, 2000,

214-215). Similar findings were seen in the Mountain States Transmission Initiative Review Project (MSTI, 2012, 12-13). Negative proximity effects on residential properties are not limited to properties actually crossed by a line (Colwell, 1990, 127).

Studies have attempted to link electromagnetic radiation to health risks. Data from these studies have produced differing levels of evidence supporting or failing to support the validity of this linkage. The possibility of a connection between electromagnetic fields and health risks could affect the real estate market, irrespective of whether this connection is scientifically established. Since it is nearly impossible to prove a negative - for example that something does not cause cancer - it is likely that the EMF controversy will not soon be resolved.

A transmission line may also create a negative visual impact. This depends on the landowner's perception of the pole placement across their property, which would include each individual landowner's perception of what is visually acceptable or unacceptable.

One area of concern with transmission line projects has been the way that the market value of the property for resale could be affected, involving the right of the landowner to dispose of the property. Damages related to increased risk of economic loss associated with impairments to a property that exist or may occur are sometimes known as "stigma" damages. (Mitchell, 2000, 162-163) In many cases, landowners have sought to demonstrate that the fear of adverse health effects from exposure to transmission line electromagnetic fields (EMF) on their land contributes to reduced re-sale value for their parcel.

Electromagnetic Fields

Electric and magnetic fields (EMFs) are produced by everything that carries or is operated by electricity. EMFs exist in the air around all electrical equipment and devices from toasters to power lines. An electric field is produced by voltage, the electrical force that causes current to flow in a conductor. Electric fields are reduced in strength (shielded) by trees and buildings. These fields are measured in units of kilovolts per meter (kV/m) or volts per meter (V/m) for weaker fields. Current, the movement of electric charge in the conductor, produces a magnetic field. Magnetic fields pass through most objects, including buildings. They are usually measured in units of milligauss (mG). Alternating electric fields and magnetic fields both cause induced currents. Additional information about EMFs and their potential impacts on humans can be found in the PSCW's Draft and Final Environmental Impact Statement for this project.

The current consensus from most studies conducted to assess transmission line effects in farm situations is that the EMFs generated by the transmission lines running through farms have no significant effects on crops (Osborn, et al., 1982; Roy and King, 1983) or on livestock:

(Algers and Hennichs, 1985; Algers and Hultgren, 1987; Amstutz and Miller, 1980; Angell, et al., 1990; Ganskopp, et al., 1989; Mercer, 1985; Ontario Hyrdo, 1980;).

Stray Voltage

Stray voltage is defined by the PSCW as a natural phenomenon that can be found at low levels between two contact points in an animal confinement area where electricity is used. Electrical systems, including farm wiring systems and utility distribution systems, must be grounded to the earth according to the electrical safety code to ensure continuous safety and reliability.

Stray voltage often goes unnoticed by humans, but can affect cows on dairy farms. Small stray voltage shocks are created when a cow makes contact between an energized point, such as a feeder, and the earth or concrete floor at a different voltage. Dairy cows can show changes in behavior or milk production if a level of stray voltage above a few volts is present, but these behavioral changes alone are not good indicators of the electrical situation. DATCP and the PSCW Rural Electrical Power Service (REPS) program suggest that all farms routinely (every year or two) have their electrical systems tested for stray voltage and other electrical safety concerns. Refer to the REPS website at

http://datcp.wi.gov/Farms/Wisconsin_Farm_Center/Farm_Rewiring/Stray_Voltage/index.aspx for additional information about stray voltage and on-farm testing for stray voltage.

According to the PSCW docket 05-EI-106, the case that defines stray voltage, the response level for stray voltage is 1.0 volt at cow contact from all sources. This level of stray voltage is considered to be below the level at which most cows would react. If an investigation determines that the utility is contributing 0.5 volts or more to the cow contact voltage, the utility will take immediate action to lower its contribution. Free investigative services are available to landowners who have livestock containment facilities through their electric service provider. Farmers with confined livestock facilities in the vicinity of the proposed power line can request their electricity provider to test for stray voltage before the project is constructed and then repeat the test after construction is completed. This will create the documentation to begin to address any problems that may exist or have been created by the project. Additional information is available at the PSCW's Stray Voltage website at <http://psc.wi.gov/utilityInfo/electric/strayVoltage.htm>. DATCP's Farm Rewiring website http://datcp.wi.gov/Farms/Wisconsin_Farm_Center/Farm_Rewiring/index.aspx also provides useful information.

Distribution lines carry lower voltages (12.5 kV or less) than transmission lines and they distribute power to neighborhoods and individual homes and businesses. Although it is not common, there is a possibility that a transmission line paralleling a distribution line may induce a measurable steady voltage or neutral to earth voltage (NEV) on the distribution neutral.

Induction and its potential impacts can be mitigated through implementation of appropriate design measures and techniques, such as:

- Cancellation – The arrangement of transmission line conductors and shield wires to lower electric and magnetic field levels;
- Separation – Increasing the distance between the transmission line and other conductors or conductive objects. Electric and magnetic field levels decrease rapidly with distance; and,
- Grounding of non-energized conductors or conductive objects.

The Applicants will design and construct the proposed facilities to minimize the potential for induction issues. See Section 5.3 of the Joint Application for locations where electric distribution lines will be relocated to eliminate physical conflicts with the proposed project or to increase separation with the proposed transmission line. The Applicants will also work with the owners of the potentially impacted facilities to address their concerns. This includes coordinating with the local distribution companies to perform pre and post-construction testing of potentially impacted facilities if necessary to ensure that no adverse impacts result.

The Applicants have indicated that they do not underbuild distribution lines on 345 kV transmission line structures. They do use underbuilds in some instances for lower voltage transmission lines. Some existing distribution lines will be buried in order to minimize interference between the proposed transmission line and those distribution lines. Tables 5.3.5-1 and 5.3.5-2 on pages 46 and 47 of the application list the locations of these burials.

Table 13 lists the number of agricultural buildings and dairy operations located within 300 ft of the ROW for each route segment.

Table 13. Number of Farm Buildings and Dairy Operations within 300 ft of the ROW

Segment	Agricultural Buildings	Dairy Operations
P	18	0
P-East	3	0
N	66	1
O	91	7
M (common to all routes)	1	0
L	0	0
K	0	0
J (common to all routes)	0	0
I	0	0
H	4	0
G (common to all routes)	3	0
F	0	0
E	11	0
D	6	1
C	12	0
B	10	1
B-North	0	0
A	10	0

The Applicants have not identified any farm buildings that will need to be removed or relocated because of the proposed project.

From the DATCP survey of farmland owners with the largest potential ROW acquisitions, the following landowners listed concerns about the project's proximity to some or all of their buildings.

Segment N

Michael Strohmeyer

Segment O

Irene Rosenow
Walsh Farms LLC and John Walsh
Bradley and Lisa Barnes
Stephen and Mary Jane Powers
Judy Tuttle-Biermeier

Segment H

William R. and Charlene M. Turner, Jr.

Segment E

Scott and Kimberly Van Etten

Segment C

Wauna-Dairy LLC

Segment B or B-North

Gary and Shirley Ripp

Robert and Jodi Nonn

Stray Voltage and Dairy Farms

Once a route is chosen and before construction begins, Neutral-to-Earth-Voltage (NEV) testing is offered to all identified dairy farms that are within ½ mile and fed from collocated distribution. Collocated distribution is defined as distribution that is less than 150' from the proposed transmission line and parallel for more than 1,000 feet. This testing will measure the amount of cow contact voltage that exists on the farm before construction of the transmission line. Once the project is constructed, the NEV testing will be performed again to verify that any NEV levels present on the farm are still below allowable limits set by the PSCW. Farms with confined animals in the project area that were not initially identified or that were not offered testing can request that their facilities be tested.

Safety Issues when Farming Near Transmission Lines

Many safety issues exist related to the location of farm fields, buildings and the use of farm equipment near and under power lines. Safety concerns that landowners should be particularly aware of are described in detail below.

Direct Contact and Arcing: The most significant risk of injury from a transmission line is the danger of electrical contact. Unlike the wiring in a home, the conductors of overhead transmission lines are not enclosed by an insulating material. Electrical contact between an object on the ground and an energized conductor can occur even if the two do not actually touch. In the case of high voltage lines, electricity will arc across an air gap if the object on the ground comes close enough to a conductor. The distance between an object and a transmission line needed for arcing varies with the voltage at which the line is operated. In general, the arcing distance for a 345 kV line is two to three feet and for a 115 kV line it is one to one and one half feet. However, it is recommended that objects on the ground not be raised more than 14 feet above the ground in the vicinity of any power line. In some instances, it can be exceeded without any problems. **Farmers should contact the Applicants if they need to deviate from this recommendation to be sure that their situation is safe for anticipated farming activities.**

Farmers must be careful where transmission lines sag due to high air temperatures. In areas where the soil shifts significantly with wind, the resulting dunes can elevate the earth under a line. **If the safety limit needs to be exceeded or equipment close to the height limit is routinely used under a line, - such as bale wagons, bale elevators, grain augers, cranes, large combines, or antennas on equipment- farmers should check with the Applicants to confirm the necessary clearance requirements.** This may include confirming that the earth-to-line distances have not changed since the line was constructed.

Injuries are more likely to occur with lower voltage power lines (12.5 kV to 115 kV) than with higher voltage lines because contact with the lower voltage lines is more likely. The electrical conductors for lower voltage lines are closer to the ground, smaller, and less noticeable. An injury from contact with a 12.5 kV line can be just as serious as that from a 500 kV line. Some general safety tips for farmers working near any power line include the following⁸.

- Always lower portable augers or elevators to their lowest possible level (under 14 feet) before moving or transporting and be aware of your surroundings when raising them.
- When moving large equipment or high loads near a power line, always use a spotter, someone to help make certain that contact is not made with a power line.
- Be aware of increased height when loading and transporting larger modern tractors with higher antennas.
- Never attempt to raise or move a power line to help clear a path.
- Never raise ladders, poles, pipes, or rods near power lines. Remember that nonmetallic material such as lumber, tree limbs, and hay can conduct electricity depending on moisture and dirt contamination.

Transmission circuits are built to automatically de-energize upon contact with the ground or if phase conductors are severed. Therefore, the danger of electric shock from a downed transmission line is minimal.

Farm Electrical Safety Resources

The following websites provide additional information about electrical safety on farms.

- Wisconsin Public Service Corporation's Brochures and Fact Sheets webpage http://www.wisconsinpublicservice.com/business/farm_brochures.aspx
- Safe Electricity, an Illinois project <http://www.safeelectricity.org/>
- Living and Working Safely around High-Voltage Power Lines, a publication of Bonneville Power Administration

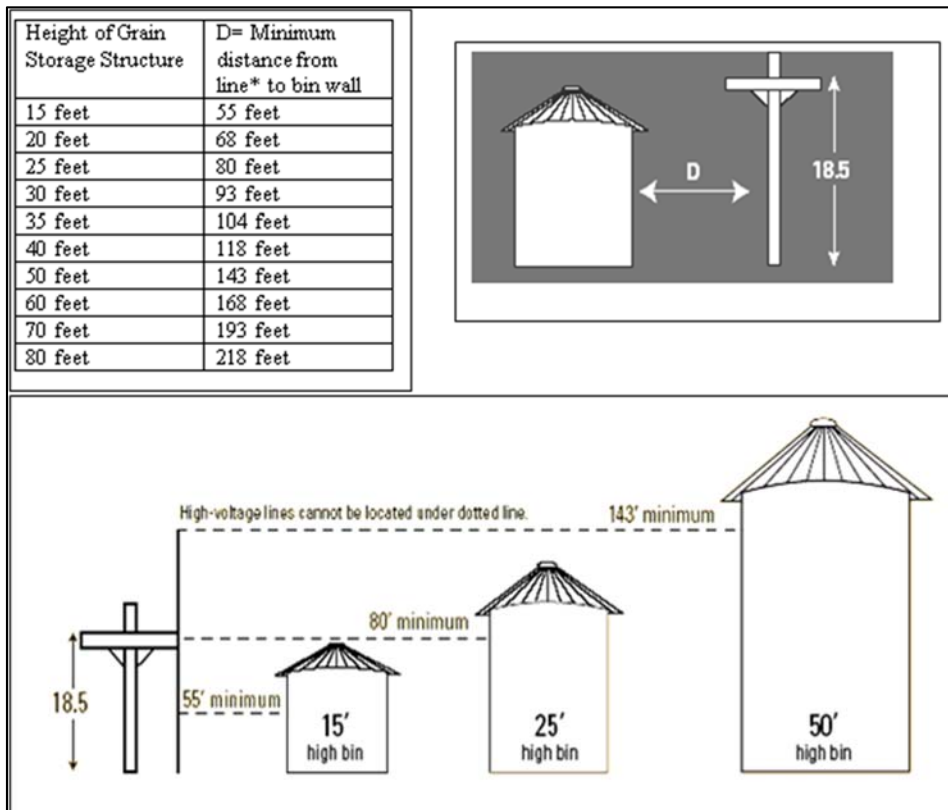
⁸ Preparation and Awareness Keys to a Safe Harvest; www.safeelectricity.org.

<http://www.bpa.gov/news/pubs/GeneralPublications/lusi-Living-and-working-safely-around-high-voltage-power-lines.pdf>

Power Line Proximity to Grain Bins

The National Electric Safety Code requires power lines be at least 18 ft above the highest point on any grain bin with portable augers and other portable filling equipment. Figure 11 illustrates the recommended distances that grain bins should be from transmission lines⁹. An 18 ft clearance should be maintained from the grain bin’s highest fill port and the transmission line.

Figure 11. Minimum Distances between Grain Bins and Transmission Lines



⁹ Alliant Energy’s Safety Notice: Grain Bin Clearance Regulations from its Overhead Power Lines
<http://www.alliantenergy.com/SafetyAndReliability/ElectricSafety/Farm/029931>

Irrigation Systems Proximity to Power Lines

According to the Bonneville Power Administration (BPA) located in the northwestern United States, irrigation systems can be operated safely on a power line right-of-way. However, irrigators should avoid spraying a solid stream of water on a conductor. Caution should also be used in storing and handling irrigation piping. It should be moved in a horizontal position relative to the ground when passing under or near all power lines to keep it away from conductors overhead. BPA also says that center-pivot systems near transmission lines can develop hazardous shock potentials during operation and maintenance. Farmers should ground the pivot point to avoid these hazards. Also, they should not touch the sprinkler pipe or its supporting structures when the system is operating near a transmission line and should only repair the system when the sprinkler pipe is perpendicular to the transmission line.

Refueling Near Power Lines

Although there has been no report of the accidental ignition of fuel caused by spark discharges induced from transmission line fields, it is recommended that vehicles be refueled at least fifty feet from the centerline of a transmission line corridor that is 345 kV or greater.

Static Discharge

Under certain conditions, a perceptible electrostatic voltage can be induced on such objects as large vehicles, permanent and temporary fences, metal buildings, shade cloth support structures used in ginseng gardens, or irrigation systems. This can happen when the object is near a high-voltage transmission line and is insulated from the ground. When a person or animal touches the object, a shock will be felt similar to what you may receive when you cross a carpet and then touch a doorknob. The static discharge is momentary, but can be painful. The magnitude of the static discharge depends on the voltage of the transmission line, distance from the conductors, size or length of the object, its orientation to the line, and the extent of grounding of the object to the earth.

The owners of Mlsna East Town Dairy, which would be affected by Segment O, are constructing a robotic milking parlor. They are concerned that the proposed transmission line could cause a build-up of static charges on this system because it will be housed in a steel building.

This condition can be corrected by effectively grounding the object to the earth. Sometimes this is simply done by dragging a chain behind a tractor. Irrigation systems, metal buildings, and long wire fences may require additional assistance from the Applicant to remove the nuisance static discharges if they are close to the right-of-way.

Induced Internal Currents

An internal electric voltage and current are induced in any conducting object such as a plant or an animal that is in an AC electric or magnetic field. These fields are also referred to as electromagnetic fields (EMF). Induced internal current is one of the primary mechanisms by which EMF from power lines is thought to cause a biological response. Unlike a static discharge or stray voltage, the level of the induced internal current density does not usually reach a sufficient level to cause a perceivable shock.

Some of the many factors that influence the induced current densities are the strength of the electric field, the shape of the body in the field, the cross-sectional areas at any point between the line and the earth, the extent of grounding of the object to earth, and the nature of the internal structures of the object.

Corrosion on buried pipelines running parallel to a transmission line can occur if those pipelines are not properly grounded. This occurs where pipelines and transmission lines share a portion of their rights-of-way. Transmission lines can induce voltages on a nearby pipeline, which could lead to corrosion of the pipeline. This problem has been made worse by improvements in coatings that reduce the number of imperfections on the surface of a pipeline, which reduces the number of grounding opportunities. The problems of induced voltages and pipeline corrosion can be reduced by properly grounding the pipeline and providing adequate distance between the power line conductors and the pipeline.

Biosecurity

The Applicants will actively work toward avoiding contact with livestock and manure during the construction process to reduce the risk of biosecurity issues occurring. If avoidance is not possible, the Applicants will work with the farmers to develop protocols specific to a landowner's farm operation. These protocols could include cleaning the equipment between parcels.

If the PSCW approves the project, the Applicants have indicated that they will work with the agricultural producers along the approved route to follow any farm biosecurity plans currently in place on the affected farms. The Applicants will work to ensure that currently utilized farm disease mitigation standards will be adhered to during construction of the project. If an agricultural landowner has no biosecurity plan in place, the Applicants will work with that landowner, at the landowner's request, to develop farm disease mitigation practices relevant to his/her agricultural operation.

Impacts on Woodlands and Windbreaks

Affected forest landowners will maintain ownership of any trees that need to be cut as a result of the proposed project. The manner in which these trees are handled should be negotiated between the Applicants and the affected landowner before construction begins. Typically, any timber or saw logs are stacked on the edge of the ROW in upland locations for the landowner's disposition. Smaller diameter trees and limbs, often referred to as slash, are usually chipped and disposed of according to the landowner's wishes: spread on the right-of-way, piled on the edge of the ROW for the landowner's use, or disposed of according to other agreed-upon arrangements. Slash may also be disposed of by burning, but local permits may be required for this.

All of the proposed segments, with the exception of K and L, have windbreaks that could be affected by the proposed project. Windbreaks are linear plantations of trees that help to maintain soil quality by providing a barrier on the windward side of a field which reduces erosion from the wind. If trees that are part of a windbreak are removed as a result of the proposed project, the adjacent soils could be more susceptible to erosion. Depending on soil conditions and supporting practices, a single row of trees protects for a distance downwind of approximately 10 to 12 times the height of the windbreak. Therefore, taller trees in a windbreak will protect a larger area of cropland than shorter trees. If a tree line separates an organic farm parcel from a farm operation not under organic management, removing the tree line may increase the possibility of herbicide drift.

Trees that provide shade in pastures can be a valuable asset to livestock farmers. Livestock can begin to benefit from shade when the temperature rises above 75 degrees Fahrenheit. The negative effects of heat on livestock such as lower feed intake can be reduced where they have access to shade. Lower feed intake can lead to lower milk production in dairy animals and lower weight gain in meat animals, which would lead to lower revenue for the farmer. It could take many years for newly planted trees to grow large enough to replace mature trees that are lost as a result of transmission line construction.

Trees also add to the aesthetic value of property, which can increase the overall market value of the property. When compensating landowners for any trees removed as a result of the proposed project, an appraiser who has experience and expertise in valuing trees should be consulted to ensure that landowners receive fair compensation that includes all of the value those trees provide for the owner.

A hazard to livestock that can occur during ROW clearing or maintenance is the disturbance of black walnut trees. The roots of these trees produce a toxin known as juglone that causes an allergic reaction in horses and may also affect other livestock. Care should be taken when clearing any black walnut trees to make sure that all roots, wood, bark, leaves, hulls, and sawdust are removed from any area to which livestock may have access. Even the ash from trees that have been burned may still contain the toxin. Relatively small amounts of juglone

are also found in Persian (English or Carpathian) walnut trees as well as butternut, pecan, and hickory trees.

Irrigation

Center pivot irrigation systems exist in several locations along the potential routes for the Badger-Coulee project. For center pivot systems located along portions of the routes that are shared ROW (e.g., along roads, transmission lines, and railroads), interference with the irrigation system could be minimal if the new transmission line does not place support structures in the path of the irrigation equipment. Center pivot systems could be significantly affected by placement of the proposed transmission line structures if the new line bisects the field rather than following a field edge.

DATCP GIS analysis of aerial photography identified existing center pivot systems in the areas where Segments O, P, and P-East meet and along the very western portion of Segment P. The following segments could also potentially affect irrigation systems identified by landowners:

Segment O: Walsh Farms LLC and John Walsh

Segment H: Eugene and Mona Larsen Joint Revocable Trust
Thomas and Gail Webb of Webb Farms LLC

Segment E: Scott Van Etten

Organic Farms

Organic certification allows farmers to receive a premium for their products in the marketplace. There are a number of organizations that farmers can work with to obtain certification. Specific parcels can be certified after three years of following the practices that have been established by the farmer's certifier. Construction of a transmission line can jeopardize this certification if prohibited chemicals are used on or drift onto certified land. For example, the use of a prohibited herbicide to clear ROW that crosses an organic field could remove all or part of that field from certification, but also leaking hydraulic fluid from construction equipment that crosses a certified organic field could endanger certification for that land. Care must be taken by the Applicants and their contractors where construction crosses certified organic farmland. The Applicants will need to identify and work with individual organic producers and their certifiers to establish procedures that will not impair organic certification.

The survey of farmland owner affected by the project identified of the following operations that have, or are in the process of, obtaining organic certification.

Segment O

- James and Janine Hartman are in the process of having their grass-fed beef operation certified for organic production. They expect to be certified by the end of 2014.
- Jan Corbett owns 78 acres of cropland certified for organic production that is rented to David Thomas and used to grow corn, hay, and oats. is
- Melvin and Naomi Miller have 40 acres of cropland that is certified for organic production.
- The Robert Rothering property will be certified for organic production in the spring of 2015.
- The owners of the Malzacher Irrevocable Trust property indicated that this property is certified for organic production.

Segment E

- The Henry R. Nelson Residuary Trust rents 262 acres of cropland to Mulcahy Farms LLC, which is working to convert some of this land to organic production.

A review of available GIS data also suggests that the following landowners may have certified organic land that could be affected by the project.

Segment N

- Arden Hardie

Segment O

- Edwin and Nancy Knoll
- Peter and Dora Peterson
- Jeff Mlsna
- Ricky Von Ruden

Because the above is not a complete list, the Applicants should determine which property owners have certified organic land that could be affected by the project by contacting all of the affected farmland owners after a route is selected.

Specialty Crop Production

Ken and Debra Congdon of Scotch Prairie Farm, Inc. receive a premium from Syngenta Seed Company for the use of two fields used in rotation. Annually, one field is used for corn research. The location used alternates annually between the two fields. Segment N passes through the middle of both of these fields. If the line is constructed along Segment N, the owners indicated that the fields would no longer be uniform enough for research purposes nor would they be large enough without the area covered by the right-of-way. None of the other fields on their farm are uniform enough or large enough to replace either of the existing research fields for this purpose.

Aesthetics

Aesthetics are often assumed to be a factor in reducing the value of properties encumbered by a transmission line right-of-way. Case law has upheld in many cases the admissibility of potential negative aesthetic effects of transmission lines on the value of farm property, but only where the line is actually located on the property in question. (For examples, see 97 American Law Reporter 3d, “Unsightliness of Powerline or Other Wire, Or Related Structure, As Element of Damages in Easement Condemnation Proceeding”) In other cases, courts have held that “unsightliness” was inadmissible without a showing of direct physical disturbance to the subject property resulting in damage “in excess of that sustained by the general public.” (Ibid, p.594)

In general, courts require that to be compensable, damages suffered by a subject property must be different in kind, not merely in degree, from those suffered by the general public or other properties in the neighborhood of the line. This distinction is commonly known and referred to as that between “special” and “general” damages.

The issue of how and the extent to which subjective aesthetic concerns may affect the value of property, including farmland, may vary greatly from case to case. However, in general, there has been an evolution toward increasing public concern or opposition to transmission lines related to their appearance. This concern is often focused on lines that go through wealthy or high-amenity urban parks or rural landscapes. It is considerably less common to see it applied to the flat, generic farmland typical in some parts of the country. However, in other parts of the country, like New England or certain parts of Wisconsin, farmland itself has significant scenic power and contributes to agricultural tourism and tourism generally. The variation in attractiveness of viewsheds along a linear corridor can be mapped, and such techniques have been increasingly accepted in court decisions on appraised value of wilderness or rural properties. (Devitt, 1988; Chenoweth, 1991)

Despite utility concerns with the aesthetic impact of power lines and structures for the last 40 years, one industry survey concluded that there has been little reliable research on the subject. A 1990 report found that “the paucity and inconclusiveness of the research can be interpreted as an indication that transmission line aesthetic evaluation is an area of professional practice that is in too early a stage of development to have generated either pressures for validation or a framework for evaluation.” (Priestley and Evans, 1990 cited in Tikalsky and Willyard, 2007,31)

“The effect of aesthetic design on public perception of electrical transmission structures remains an elusive topic. ...Despite more than 40 years of research, findings relating these two subjects are far from being established as definitive.” (Tikalsky and Willyard, 2007, 31)

Time Loss during Negotiations

It is important that the farm owner understands how his/her farmland may be impacted both during and after construction. In some cases, farmland owners choose to consult with an attorney prior to signing an easement. The time spent negotiating easements can be time-consuming and represents a cost to the farmland owner; it is time that cannot be spent on managing the farm operation. This is particularly significant if these negotiations occur during planting or harvesting times.

Temporary Construction Impacts

Some impacts to agriculture can be “temporary” if effective construction protocols are implemented when constructing through farmland. The construction and maintenance of high-voltage transmission lines across or adjacent to cropland and pastures can affect the farming practices and operations in several ways.

Farmers have invested in their cropland to improve or maintain yields. Some of the invested costs are an annual expense, such as fertilizer and lime. Others involve a long-term investment in agricultural drainage systems, erosion control, and irrigation. An assessment of the possible impacts and damages to cropland begins with knowledge of the soil and its characteristics.

Soil Compaction

Equipment used to construct transmission lines has the potential to compact soil and thereby reduce soil productivity on the farmland traversed during construction. Soil compaction reduces pore space between soil particles, restricting the movement of water and gases through the soil. This can affect the rooting depth of crops and the uptake of soil nutrients and water. In addition, soil compaction can decrease soil temperature, decomposition of organic matter, and a plant’s ability to access required nutrients found lower in the rooting zone. It can also increase the likelihood of water erosion on farm fields.

Studies by several universities have shown that yield reduction due to compaction can range from 10 to 40 percent. Compaction is most evident when the crop is under additional stress. For example, this could include drought conditions or excessively wet conditions.

Several factors influence whether a soil becomes compacted. An important influence is soil moisture: the wetter the soil the more likely it is to be compacted from traffic. The potential for compaction also depends on the soil texture. Coarser textured soils, like sand or sandy loam, are less likely to become compacted than are clay or silty clay loams. Finally, the axle weight of the construction equipment affects compaction. The expected compaction depth increases as the axle load increases and as soil moisture content increases.

Compaction of the soil in the root zone of agricultural crops results in reduced yields. The depth at which the compaction occurs is very important. The combination of soil structure and the soil's internal drainage are major factors in determining whether compaction will occur and at what depth. The soil structure most resistant to compaction is granular or single grained. Subangular blocky structure resists compaction forces reasonably well at a soil moisture content of roughly 50 percent field moisture capacity. (Field moisture capacity is defined as the water content of soil after the excess water has drained away. It is the maximum amount of water stored in the soil for crop production.) The soil structure least able to resist compaction forces is platy structure. A platy structure has the soil particles arranged around a plane, generally horizontal. Platy structure appears laminated.

Topsoil compaction and subsoil compaction can be viewed separately. When traffic loads are relatively lightweight, less than 10 tons per axle, the soil generally will not be compacted below the 8-10 inch range - the depth at which the topsoil layer is commonly found. Compaction at this depth normally can be decompact with typical farm tillage equipment.

Some of the heavier construction equipment that will likely be used on the project can compact soil to depths of 20 inches or more, resulting in subsoil compaction that is very difficult to alleviate, especially with regular tillage equipment.

Subsoil compaction is related to weight-per-axle. Total axle load affects the depth of compaction, generally the subsoil layer, while contact pressure (psi) more commonly affects the topsoil layer. Subsoil compaction affects nutrient uptake, available water capacity, and can delay spring planting under wet conditions, consequently reducing crop yield. Indicators of soil compaction include abnormal root growth, excessive erosion, soil crusting, standing water, and uneven emergence of crops.

Soil Drainage and Texture Definitions

The soil drainage classes used in the description of the soils reflect the combined effects of surface runoff, soil permeability, and internal soil drainage. The classes are:

- Excessively well drained – Water is removed from the soil very rapidly.
- Well drained – Water removed readily, but not rapidly.
- Moderately well drained – Water removed from the soil somewhat slowly so that the profile is wet for a small, but significant part of the time.
- Somewhat poorly drained – Water is removed from the soil slowly enough to keep it wet for significant periods. The soil has a slowly permeable layer in the profile, a high water table, seepage from up-hill, or a combination of the above.
- Poorly drained – Water is removed so slowly that the soil remains wet for a large part of the time. The water table is commonly at or near the surface during a large part of the

year. The soil has a high water table, slowly permeable layers within the profile, up-hill seepage, or a combination of the above.

- Very poorly drained – Water is removed from the soil so slowly that the water table remains at or near the surface the greater part of the time. Soils of this drainage class usually occupy level or depressed sites, and are frequently ponded.

The water table is the upper limit of the waterlogged soil. Growing plants will remove soil water by transpiration; during the growing season this will lower the water table and reduce downhill seepage.

An apparent water table results from an impermeable or essentially impermeable layer, below the soil profile. A perched water table occurs because a slowly permeable soil layer within the soil profile causes part of the profile to be waterlogged.

The field description of soil structure established by the soil mapper/classifier provides (1) the grade (distinctness) of structure, which is the degree of aggregation, (2) the class or size of the aggregate or ped, and (3) the type of structure.

The grade or distinctness of the structure is expressed as (1) weak being equal to poorly formed or indistinct peds (aggregates), (2) moderate being equal to well-formed or distinct peds, and (3) strong equaling durable peds.

The class or size of aggregate or ped is expressed as (1) very fine or very thin, (2) fine or thin, (3) medium, (4) coarse or thick, and (5) very coarse or very thick. The reference to thin applies to platy or laminated structural shape.

The types of soil structure shape are (1) platy (laminated) where the soil particles are arranged around a plane, generally horizontal, (2) prism like (prismatic or columnar) where the soil particles are arranged around a vertical axis, (3) block like or polyhedral (angular or subangular) where the soil particles are arranged around a point and bounded by flat or rounded surfaces, and (4) spheroidal or polyhedral represented by granular or crumb. Structure-less soils are either “single grain” or massive. A massive structure is a condition where the soil particles adhere without any regular cleavage, as in a hardpan.

“Soil consistence when moist” is the consistence when the soil moisture is midway between air dry and field moisture capacity. “Friable” describes a condition where the soil material crushes easily under gentle to moderate pressure between the thumb and fore-finger. “Firm” represents the condition when the soil material crushes under moderate pressure between the thumb and fore-finger, but resistance is distinctly noticeable. Color is the easiest condition to observe. The color of the soil material is provided to help us recognize when the surface layer becomes the subsoil, and subsoil becomes substratum.

Soil Erosion

Many of the soils in the project area are subject to wind and water erosion due to their steep slopes and texture. Steeper slopes and longer slope length are subject to greater soil loss from erosion by water. Soil erosion by water also increases as the slope length increases due to the greater accumulation of runoff. Soils with higher levels of organic matter and improved soil structure have a greater resistance to erosion. Sand, sandy loam, and loam textured soils tend to be less erodible than silt, very fine sand, and certain clay textured soils. Refer to the Appendix for soils by county that could be affected by the project. The slopes of the soils are included in the table.

Soil erosion can affect crop yield through the loss of natural nutrients and applied fertilizers. Seeds and plants can be disturbed or completely removed from the eroded site. Organic matter, manure, and crop residue can be transported off the field through erosion. Pesticides can also be carried off the site with the eroded soil.

Erosion control practices must be carefully followed to minimize construction-related erosion impacts. If the project is approved, an Erosion Control Plan will be developed to meet the requirements outlined in NR 216 and NR 151. The plan will provide guidance on revegetation and site stabilization. Disturbed areas will be monitored weekly and after rain events as required by NR216.

An erosion problem occurs if ruts or wheel tracks run up or down the slopes. This is why farmers are careful not to leave a dead-furrow (a furrow that remains open in the center of a field) when moldboard plowing in the fall. The spring snowmelt will erode the soil severely with channelized flow if a dead-furrow is present.

Rutting in the soil from construction equipment in the transmission corridor will create a similar erosion problem. Silty soils in the project area are very susceptible to flowing water when rutted. Rutting also mixes topsoil with the subsoil. The amount of damage to soils from rutting depends on the depth of the ruts. To reduce the likeliness of rutting, the Applicants should stay off the soil when it is wet, stop construction activities on farmland when rutting is greater than 6 inches deep, or use some form of matting to prevent rutting by the equipment.

Wind erosion can also be a concern in some areas of the proposed project, especially where windbreaks must be removed from the ROW. Factors that affect wind erosion include degree of ped formation, surface roughness, wind speed, soil moisture, and vegetative cover. According to the Indiana Soils Evaluation and Conservation Online Manual¹⁰, soil clods prevent wind erosion because they are large enough to resist the forces of the wind and because they shelter other erodible materials. Their firmness and stability vary with soil type and depend on other factors such as moisture, compaction, organic matter, and clay content. Sandy loams, loamy sands, and sands are most susceptible to wind erosion. Loams, silt loams, clay

¹⁰ http://www.agry.purdue.edu/soils_judging/new_manual/ch3-potentials.html#sub2

loams, and silty clay loams are the least susceptible to wind erosion. Ridges and depressions formed by tillage alter wind speed by absorbing and deflecting part of the wind energy. Such ridges are most effective in reducing soil erosion when they are perpendicular to the wind direction. Rough surfaces also trap moving particles. Higher wind speeds also increase erosion. Erosion decreases as soil moisture increases. Field size affects the distance wind blows without encountering a barrier. The rate of soil loss increases rapidly with distance downwind from the point in the field where the wind erosion process begins. Vegetative cover is the best way to control wind erosion.

The following is a list of the segments where farmland owners indicated that they have contour strips that could be damaged by construction of the project.

Segment N

- Jerome and Cynthia Hanson
- Ardell Jacobson
- Dale and Yvonne Peterson
- Paul Pederson

Segment O

- Jan Corbett: She is also concerned that the removal of trees on the steeper slopes on her property could lead to severe erosion.
- Melvin and Naomi Miller
- Allan and Heather Vlasak
- Irene Rosenow
- James and Sharon Weiker
- Denny Van Steele and Marcia Steele
- Judy Tuttle-Biermeier
- Walsh Farms LLC and John Walsh

Segment E

- Helen H. Henry Revocable Trust has filter strips

Segments B and B-North

- Robert and Jodi Nonn

Segment A

- Esser Family Farm

Drainage

Proper field drainage is vital to a successful farm operation. Construction of a transmission

line can disrupt improvements such as drainage tiles, grassed waterways, and drainage ditches, which regulate the drainage of farm fields. If drainage is impaired, water can settle in fields and cause substantial damage, such as harming or killing crops and other vegetation, concentrating mineral salts, flooding farm buildings, or causing hoof rot and other diseases that affect livestock.

During pre-construction planning, the Applicants' staff should ask landowners about the extent of their existing and/or planned drainage tiles and systems and document existing drainage problems that could affect the construction easement area. During construction, matting may be used to more evenly distribute the weight of heavy equipment and/or use low ground impact construction equipment. Post-construction, the Applicants will work with the landowners to repair any damaged drain tiles to pre-construction conditions.

Farms where possible impacts on drainage were identified in the survey include:

Segment N

- Taylor Real Estate Investments LLC (drainage ditch)
- Scotch Prairie Farm, Inc. owned by Ken and Debra Congdon (14 four-inch tile lines)
- Michael Strohmeyer (grassed waterway)
- Jerome and Cynthia Hanson (tiling)
- John and Rhonda McGowan (tiling)
- Ardell Jacobson (grassed waterway)

Segment O

- John and Rhonda McGowan (tiling)
- Jan Corbet (grassed waterway)
- Melvin and Naomi Miller (grassed waterway)
- Robert Rothering (grassed waterway)
- Irene Rosenow (tiling and grassed waterways)
- James and Sharon Weiker (grassed waterways)
- Malzacher Irrevocable Trust property (grassed waterway)
- Bradley and Lisa Barnes (drainage tiling)
- Stephen and Mary Jane Powers (tiling)
- Anna and James McGowan Irrevocable Trust (drainage tiling in Sections 4, 5, and 6 of the town of Kildare in Juneau County)

Segment M

- John and Rhonda McGowan (tiling)

Segment H

- Eugene and Mona Larsen Joint Revocable Trust (drainage ditch and drainage tiling)

- Thomas and Gail Webb of Webb Farms LLC (grassed waterways)

Segment F

- Jerry and Joseph Ripp (grassed waterways)
- Duane and Judith Richards own Richards Livestock, Inc. (grassed waterways)
- H. Steffenhagen Partnership (grassed waterways)

Segment E

- Helen H. Henry Revocable Trust (grassed waterways)
- The Henry R. Nelson Residuary Trust (grassed waterways)

Segment D

- Thomas and Elizabeth Kay Meier (grassed waterways and drainage tiling)

Segment C

- Laufenberg Brothers LLC (grassed waterways)
- Wauna-Dairy LLC (grassed waterways)
- Marilyn Karls Real Estate LTD (grassed waterway)
- Steven and Doris Kalscheur Revocable Trust (drainage tiling)

Segment A

- Esser Family Farm (grassed waterways)

Segments B or B-North

- Gary and Shirley Ripp (grassed waterways)
- Robert and Jodi Nonn

Fencing

The Applicants should fence off the construction area to prevent livestock from wandering onto the right-of-way. If transmission line construction divides a pasture, access between the divided parcels could be restricted. The Applicants will need to work with the farmer to develop an access plan for the livestock or else compensate the farmer for the cost related to restrictions on grazing. If the Applicants need to cut any fences during construction, the Applicants will see that a temporary gate is installed. (Wis. Stats. §182.017 (7)(c)5.) Such gates may be left in place at the request of the landowner.

Before construction begins, one of the issues that the Applicants should ask landowners about is whether there are animals on their farm operations, and the type of operation, i.e. feedlot, managed grazing, etc. Farm operator schedules for manure application and storage in proximity to the ROW should be ascertained.

Crop Rotations

A common dairy rotation may include 2-3 years of field corn, followed by soybeans, and then 3 years of alfalfa. Construction activities across fields may cause farmers to alter their crop rotations. Farmers can make adjustments in their crop rotation, if they know the construction schedule on their land in advance. They may wish to plant a row crop during the year of construction and the year following construction to have an additional opportunity for tillage to remove any residual effects of compaction caused by construction equipment.

Given the high cost of seeding alfalfa, a farmer may plant an extra year of row crop and delay planting the field to alfalfa if construction will occur in the seeding year. Delaying alfalfa seeding may cause dairy operations a shortage of alfalfa forage, which results in: 1) a need to buy haylage or hay or; 2) a need for more corn silage; and 3) an adjustment in the programmed diet for the herd. There may be increased feed costs for buying forage or protein supplements, such as soybean oil meal.

The farmer choosing to keep a field in alfalfa, rather than move to the first year of field corn, may result in decreased alfalfa plant density in the field and/or an increase in the percentage of grass. Without advanced knowledge of the construction schedule, the farmer may not fertilize (top-dress) the forage with potassium (K₂O) in the fall. The result is lower yield and poorer quality forage (alfalfa) than the previous year.

Farm Roads Needed to Access the Construction Corridor

The Applicants are proposing to directly access the ROW from public roads, utility ROW, and private roads and field roads (where access is granted). The Applicants have developed a preliminary access plan identifying access for each of the proposed routes. They have indicated that upon approval of a route, the preliminary access plan may be amended based on field review of the routes, negotiations with local landowners and/or contractor requirements.

The access plan identifies where the ROW will be accessed by the contractor. However, the contractor may choose to ignore this plan and find alternate access if it is less damaging to the environment or less costly and the affected landowner agrees. The contractor reports to the Applicants where a deviation from the Applicants' access plan was made. The Applicants are responsible to the affected landowner for damage done outside of the access plan.

Access roads should be designed to allow proper drainage and minimize soil erosion. If desired by the landowner, temporary roads will be left in place after construction is completed. If access roads are removed, soil restoration practices should be applied to the road to mitigate compaction. Access roads are subject to the same impacts that can occur on the rest of the project right-of-way. These include soil compaction, soil mixing, the potential spread of unwanted plants and diseases, erosion, and the temporary loss of crops and other vegetation.

Impacts Associated with Surveying and Staking the Right-of-Way

If surveying or construction crews leave wire surveying flags, equipment, or other debris behind after their work is completed, these items can pose a hazard to livestock. When livestock ingest such material, they can develop what is known as "hardware disease". Ingested wires or other objects can damage the animal's viscera and may lead to death.

Noise and Dust during Construction

Dust and noise due to transmission line construction can affect landowners and farm animals. If blasting is necessary to place the poles, the noise may cause dairy and beef cattle to stampede, breaking down fences and escaping the farm property. Fur animals and poultry are particularly sensitive to noise.

Dewatering of the Caisson Hole

The caisson hole will fill with water when the hole is augured in somewhat poorly to poorly drained soils with either a perched or apparent water table. A 6-foot diameter hole, 10 feet deep will contain 283 cubic feet or 2,117 gallons of water. A 30-foot deep hole will contain 848 cubic feet or 6,342 gallons of water.

The usual procedure is to pump the water from the hole to a safe disposal area or to a tank truck for removal. The Applicants have indicated that dewatering will be done in accordance with applicable regulations and permits.

Proper dewatering of the caisson hole requires pre-construction identification by the Applicants' contractors of low areas and hydric soils that are likely to collect water during construction, as well as suitable areas for the discharge of water accumulated within the caisson hole or other excavated areas. The Applicants' contractors should structure work to minimize accumulation of water within the excavated area and get the landowner's approval for all discharge locations and techniques used. Discharge locations must be well-vegetated areas that prevent the water from returning to the right-of-way, be as far from backfilling activities as possible, and avoid deposition of gravel or sediment onto fields, pastures, or watercourses.

If delivery of water onto cropland is unavoidable, crops inundated for more than 24 hours will cause severe damage to the crop. Discharge of water from non-organic farms is not allowed if that runoff would flow onto adjacent organic farm operations.

Silt or sediment extraction from the excavation site is minimized by preventing the intake from touching the bottom or sides of the hole. Erosion control measures must be used to divert the flow of pumped water and prevent erosion. Dewatering should be monitored and stopped whenever necessary. When construction in hydric soils and dewatering activities cause

damage that cannot be avoided, the Applicants should reasonably compensate the landowner for such damages and restore the land and crops to pre-construction conditions.

Delayed Compensation and Cash Flow Impact

If negotiations are prolonged and a settlement is not forthcoming, the farmer may not receive timely compensation for crops that are not planted or harvested due to construction activities through his/her farmland. In some cases, this could result in cash flow problems to the farm operation.

Manure and Nutrient Management

Permanent or temporary loss of farmland can cause impacts to a farmer's ability to effectively, efficiently and economically utilize the manure nutrients generated on a livestock farm. Loss of farmland may result in a reduction in the acres available to spread the farm's manure. Landowners should recognize this potential impact and include this effect when negotiating easement contracts.

Right-of-Way Easements

If approved, the proposed transmission line will require new easement purchases by the Applicant. The easement is a contract between the Applicants and the individual landowner. The contract specifies restrictions on both the utilities' and the landowner's use of the land and specifies the rights of the utilities. The contract is binding upon the utilities, the landowner, and any future owners of the land until the contract is dissolved. It will identify the specific kinds of structures that will be placed on a given landowner's property, and the number and location of each of them. In general, buildings and large trees cannot be located on an easement. Permanent easements restrict certain activities on the corridor or ROW and allow the utilities access for construction and maintenance of the line. Maintenance will include clearing vegetation, typically trees that could interfere with the operation of the line. An example of the Applicant's easement is included in Appendix IV.

The Applicants will acquire new easements for the entire ROW including locations where the project ROW overlaps existing transmission line ROW easements. In addition, the Applicants are evaluating whether to retain or release any existing transmission line easements that overlap the project ROW and are owned by one of the Applicants depending on the language in the easement. If any existing easements are retained, they will not be modified. An existing easement could follow a road, railroad, pipeline, existing transmission line, or other existing corridor. Following existing infrastructure would allow the Applicants to incorporate portions of existing ROW into the proposed ROW for the new transmission line, which would minimize

the amount of new easement acreage that would need to be acquired for the project.

Both the landowner and the easement owner (Applicants) have property rights in the ROW. These rights should be clarified in the easement contract. Importantly, an easement acquired for transmission line ROW does not allow public use of the right-of-way.

Wisconsin Statutes §182.017, also referred to as the “Landowners’ Bill of Rights” (see Appendix X), describes the rights landowners have and requirements the Applicants must adhere to when a transmission line will be constructed on their property. These rights and requirements include actions such as ensuring the topsoil is stripped, piled and replaced upon completion of the project, and payment for any crop damage caused.

The Applicants may request a landowner to waive some of their rights during the negotiation process. Two of the rights the Applicants may ask landowners to waive are (7)(d) and (7)(h). They ask landowners to waive (7)(d) so the utilities will have more flexibility in weed control. The Applicants may ask landowners to waive (7)(h) because access on farm lanes or other private roads may be less damaging than using the ROW for access. Landowners are not required to waive these, or any of their statutory rights. Appendix III includes the complete text of the “Landowners’ Bill of Rights.”

Easement Initiation

If the Applicants receive approval for the project, the PSC will issue the order that will identify the selected route and authorize construction of the project. The Applicants would then begin contacting landowners to inform them of the PSC order and to request surveying permission. The Applicants will try to work with landowners to address their concerns. However, if landowners don’t respond to the Applicants’ contact attempts, the Applicants will not know what concerns landowners might have. Landowners should expect the Applicants to offer compensation based on the fair market value of the easement to be acquired and any damages to the remaining parcel.

If a landowner is unwilling to engage in the easement negotiation, or other impediments make easement negotiation not possible, the Applicants may seek condemnation of the needed easements. If an easement is acquired through condemnation, the court assigns the legal obligations of the Applicants. Under a court-ordered condemnation settlement, the Applicants may not be as capable of flexibly when addressing individual landowner concerns, however they may still be willing to work with the landowners in such cases. The “Landowners’ Bill of Rights” Wis. Stat. §182.017 (7) still applies on condemned land, but if condemnation is used, it doesn’t result in an easement contract between the utilities and the landowner. It results in a court decision.

Under all circumstances, landowners should review their easement contracts carefully and consult an attorney if they are unsure about what they are signing.

Estimating Easement Impacts and Just Compensation

Although most crops can be grown under transmission lines, other land uses and activities may be restricted such as constructing buildings or growing trees on the ROW. Part of the compensation provided by the Applicants is intended to compensate the landowner for the lost opportunities associated with these restrictions. In the “Landowners’ Bill of Rights”, part (b) describes the damages accounted for in determining “just compensation” for the easement. The determination of just compensation includes evaluation of both the permanent and temporary impacts that will occur from both existing and new easements. Easements can be viewed as lost opportunities to the farmland owners. These lost opportunities could include restrictions on building construction, expansion or modification of irrigation systems, and planting of certain types of trees or other vegetation that mature to heights above those compatible with maintaining the transmission line. Compensation for easements should take this into consideration.

Items such as crop yield records and photographs taken prior to project initiation can all help a landowner when identifying if and when damages occur.

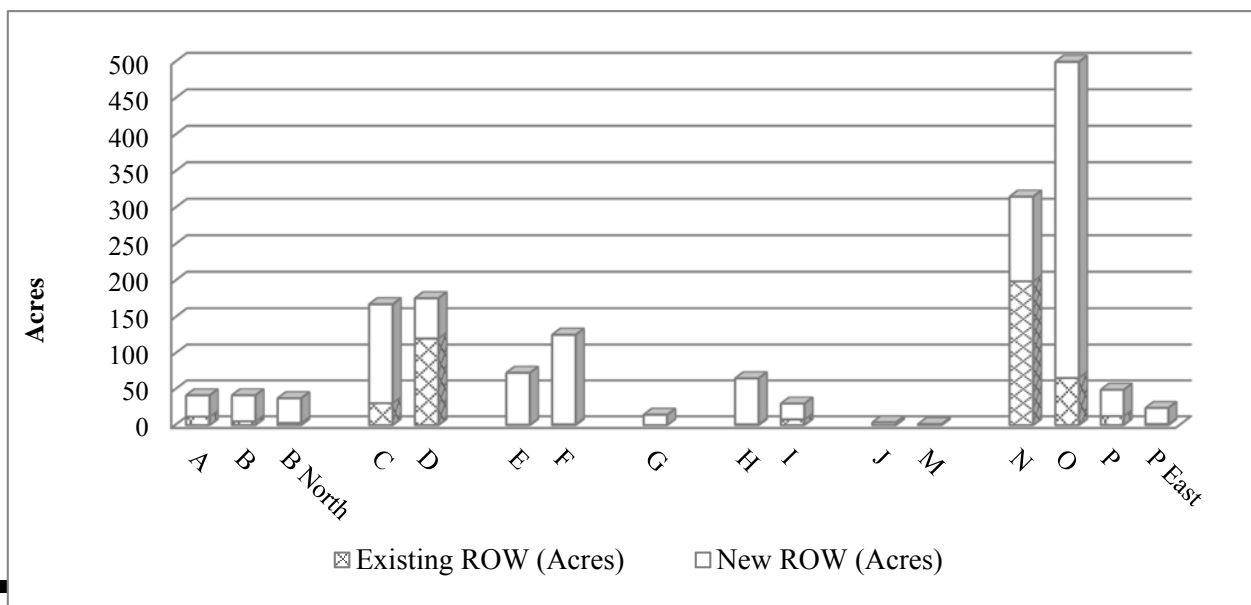
Expected Easement Extent

Table 14 summarizes the number of acres of farmland affected by easements on each route segment. It has six groupings of segments. In order to complete a route, at least one segment must be chosen from each group. Existing ROW refers to the portion of the corridor that would be shared with existing infrastructure right-of-way. Figure 12 provides a graphic representation of the new and existing ROW that would be used for each segment.

Table 14. Acres of ROW on Farmland

Segment	Existing ROW (Acres)	New ROW (Acres)	Total (Acres)
O	65.94	437.76	503.70
N and P	211.95	152.54	364.53
N and P East	200.77	138.34	339.12
M	0.94	0.50	1.44
H and J	1.20	67.78	68.98
I and J	7.96	25.73	33.69
E and G	0.61	86.78	87.39
F and G	1.05	139.29	140.34
C	30.75	137.01	167.77
D	120.90	55.07	175.97
A	11.87	29.72	41.58
B	5.34	36.34	41.67
B North	3.13	34.37	37.49

Figure 12: New/Existing Right-of-way on Farmland



The potential impacts on farmland range from 667 total acres of easement on farmland for Route P-Est, N, M, J, I, G, E, C, and B-North to 932 total acres of easement on farmland for Route O, M, J, H, G, F, D, and B. If we only look at new easement on farmland, the potential impacts range from 336 acres of new ROW for Route P-East, N, M, J, I, G, E, D, and A to 819 acres of new ROW for Route O, M, J, H, G, F, C, and B.

The easement is a contract between the Applicants and the individual landowner. The contract specifies restrictions on both the utilities' and the landowner's use of the land and specifies the rights of the utilities. It is binding upon the utilities, the landowner, and any future owners of the land until the contract is dissolved. It will identify the specific kinds of structures that will be placed on a given landowner's property, and the number and location of each on them. In general, buildings and large trees cannot be located on an easement. *An example of the applicant's easement is included in the Appendix.

An easement acquired for transmission line ROW does not allow public use of the right-of-way.

Both the landowner and the easement owner have property rights in the right-of-way. These rights should be clarified in the easement contract. Landowners should review their easement contracts carefully and should consult an attorney if they are unsure about what they are signing.

Wisconsin Statutes §182.017 also referred to as the "Landowners' Bill of Rights" describes the rights landowners have when a transmission line will be constructed on their property. In the "Landowners Bill of Rights," two of the rights that the Applicants might ask landowners to waive are #2 and #6. They ask landowners to waive #2 so the utilities will have more flexibility in weed control. The Applicants may ask landowners to waive #6 because access on farm lanes or other private roads may be less damaging than using the ROW for access. Landowners are not required to waive these rights. Refer to the Appendix for the complete text of the "Landowners' Bill of Rights."

The Applicants will acquire new easements for the entire ROW including locations where the project ROW overlaps existing transmission line ROW easements. In addition, the Applicants are evaluating whether to retain or release any existing transmission line easements that overlap the project ROW and are owned by one of the Applicants depending on the language in the easement. If any existing easements are retained, they will not be modified.

If the Applicants receive approval for the project, the PSC will issue the order that will identify the selected route and authorize construction of the project. The Applicants would then begin contacting landowners to inform them of the PSC order and to request surveying permission.

The Applicants will try to work with landowners to address their concerns. However, if landowners don't respond to the Applicants' contact attempts, the Applicants will not know what concerns landowners might have. The Applicants' offer of compensation should be based on the fair market value of the easement to be acquired and any damages to the remaining parcel. If easement negotiation is not possible, the Applicants may seek condemnation of the needed easements.

If an easement is acquired through condemnation, the court assigns the legal obligations. Under a court-ordered settlement, the Applicants may not be as capable of flexibly when addressing individual landowner concerns. They may still be willing to work with the landowners in such cases. The "Landowners' Bill of Rights" Wis. Stat. §182.017 (7) still applies on condemned land. But if condemnation is used, it doesn't result in an easement contract between the utilities and the landowner. It results in a court decision.

VII. RECOMMENDATIONS

The DATCP recommends the following actions and mitigation practices to avoid the potential adverse impacts associated with the proposed project if it is approved by the PSCW:

1. The Applicants should hire agricultural monitors, who are approved by DATCP, to oversee compliance with the portions of the PSC's order for the project dealing with agricultural issues; and to observe and document project construction and construction-related work on agricultural property. These monitors must be adequately trained, experienced and knowledgeable in agricultural issues and practices, and in measures to prevent and mitigate damage to agricultural land caused by transmission line projects.
2. The Applicants should hire an agricultural specialist to conduct pre-construction interviews with farmers and farmland owners who will be directly affected by the acquisition of easements for this project. At a minimum, the interview should determine whether the affected farm operation has a biosecurity plan, the types of crops grown and livestock raised, and the location of any existing or planned drainage systems or other agricultural infrastructure.
3. Information from the pre-construction farm interviews should be incorporated into the bid packages and line lists used by the contractors, inspectors, and monitors.
4. The Applicants should consult with affected farmland owners to determine the least damaging locations for transmission support structures.
5. If the project is approved and Segment D is part of the approved route, the transmission line should follow the fence lines and avoid farm operation buildings in agricultural areas in order to minimize the impact on farming in accordance with Dane County Land and Water staff recommendations.
6. Landowners who will have easements acquired for the proposed project should be familiar with the "Landowners' Bill of Rights" which is found in Wis. Stat. §182.017 (7). The Applicants may ask landowners to waive some or all of the rights listed in this statute, but the landowners are not required to waive any of these rights. Refer to the Appendix for the text of the "Landowners' Bill of Rights."
7. The county conservationists in the counties affected by the proposed project should be consulted to ensure that construction proceeds in a manner that minimizes drainage problems, crop damage, soil compaction, and soil erosion.

8. If an approved route passes through a drainage district, the Applicants should consult with the relevant Drainage Board(s) to ensure that construction will not permanently disrupt the operation of the district(s).
9. All farmland owners and operators should be given advance notice of acquisition and construction schedules so that farm activities can be adjusted accordingly. To the extent feasible, the timing of the ROW acquisitions and construction by the Applicants and their contractors should be coordinated with farmers to minimize crop damage and disruption of farm operations.
10. The Applicants should implement training for all construction supervisors, inspectors and crews to ensure that they understand the steps needed to protect the integrity of agricultural lands during project construction and restoration.
11. The Applicants should ensure that their contractors and subcontractors incorporate all necessary site-specific easement conditions to protect agricultural resources, as well as all statutory requirements and PSCW permit conditions regarding agricultural land protection into their construction line list, and into any bid documents for the project.
12. Construction on agricultural land should occur as much as possible when the ground is frozen. This will minimize soil compaction and reduce the risk of spreading diseases and pests between farms.
13. If ruts are created in the portion of the ROW that crosses farmland, the Applicants should make reasonable attempts to restore the affected soils as quickly as possible.
14. The Applicants should strip and segregate the topsoil over and around all excavation sites on the project to ensure that the uniquely valuable topsoil is not mixed with lower quality subsoil and underlying parent material.
15. The Applicants should make sure that all excavated soil below the topsoil layer displaced by the pole and foundation, and other spoil material, are removed from the site and not deposited on or mixed with any cropland.
16. If the Applicants remove any existing power line support structures within or immediately adjacent to cropland, they should remove all of the support structure and replace it with clean fill to the level in the adjacent soil where the topsoil begins. Imported topsoil of similar quality to the adjacent topsoils should then be placed over the remainder of the hole. If a support structure cannot be completely removed from cropland, as much of the structure

as possible should be removed and the site flagged so the farmer can avoid collisions between his/her equipment and the remainder of the buried structure.

17. After construction of the line is complete, the Applicants should test the soil profile to determine whether the soils in the ROW have been compacted by construction or other equipment. This is commonly done by comparing the compaction levels of soils on the portion of the ROW that carried the traffic to comparable soils off the right-of-way. If soils are compacted, steps should be taken to correct this problem.
18. The Applicants should undertake post-construction monitoring to ensure that no damage to agricultural fields along the project route has occurred.

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APPENDICES

Appendix I: Agricultural Impact Statements

The Wisconsin Department of Agriculture, Trade and Consumer Protection (DATCP) is required to prepare an Agricultural Impact Statement (AIS) whenever more than five acres of land from at least one farm operation will be acquired for a public project if the agency acquiring the land has the authority to use eminent domain for the acquisition(s). The DATCP has the option to prepare an AIS for projects affecting five or fewer acres from each farm. An AIS would be prepared in such a case if the proposed project would have significant effects on a farm operation. The agency proposing the acquisition(s) is required to provide the DATCP with the details of the project and acquisition(s). After receiving the needed information, DATCP has 60 days to analyze the project's effects on farm operations, make recommendations about it and publish the AIS. DATCP will provide copies of the AIS to affected farmland owners, various state and local officials, local media and libraries, and any other individual or group who requests a copy. Thirty days after the date of publication, the proposing agency may begin negotiating with the landowner(s) for the property.

Section 32.035 of the Wisconsin Statutes: Agricultural impact statement.

(1) Definitions. In this section:

(a) "Department" means department of agriculture, trade and consumer protection.

(b) "Farm operation" means any activity conducted solely or primarily for the production of one or more agricultural commodities resulting from an agricultural use, as defined in s. 91.01 (1), for sale and home use, and customarily producing the commodities in sufficient quantity to be capable of contributing materially to the operator's support.

(2) EXCEPTION. This section shall not apply if an environmental impact statement under s. 1.11 is prepared for the proposed project and if the department submits the information required under this section as part of such statement or if the condemnation is for an easement for the purpose of constructing or operating an electric transmission line, except a high voltage transmission line as defined in s. 196.491(1)(f).

(3) PROCEDURE. The condemnor shall notify the department of any project involving the actual or potential exercise of the powers of eminent domain affecting a farm operation. If the condemnor is the department of natural resources, the notice required by this subsection shall be given at the time that permission of the senate and assembly committees on natural resources is sought under s. 23.09(2)(d) or 27.01(2)(a). To prepare an agricultural impact statement under this section, the department may require the condemnor to compile and submit information about an affected farm operation. The department shall charge the condemnor a fee approximating the actual costs of preparing the statement. The department may not publish the statement if the fee is not paid.

(4) IMPACT STATEMENT. (a) When an impact statement is required; permitted. The department shall prepare an agricultural impact statement for each project, except a project under ch. 81 or a project located entirely within the boundaries of a city or village, if the project involves the actual or potential exercise of the powers of eminent domain and if any interest in more than 5 acres from any farm operation may be taken. The department may prepare an agricultural impact statement on a project located entirely within the boundaries of a city or village or involving any interest in 5 or fewer acres of any farm operation if the condemnation would have a significant effect on any farm operation as a whole.

(b) Contents. The agricultural impact statement shall include:

1. A list of the acreage and description of all land lost to agricultural production and all other land with reduced productive capacity, whether or not the land is taken.

2. The department's analyses, conclusions and recommendations concerning the agricultural impact of the project.

(c) *Preparation time; publication.* The department shall prepare the impact statement within 60 days of receiving the information requested from the condemnor under sub. (3). The department shall publish the statement upon receipt of the fee required under sub. (3).

(d) *Waiting period.* The condemnor may not negotiate with an owner or make a jurisdictional offer under this subchapter until 30 days after the impact statement is published.

(5) PUBLICATION. Upon completing the impact statement, the department shall distribute the impact statement to the following:

(a) The governor's office.

(b) The senate and assembly committees on agriculture and transportation.

(c) All local and regional units of government which have jurisdiction over the area affected by the project. The department shall request that each unit post the statement at the place normally used for public notice.

(d) Local and regional news media in the area affected.

(e) Public libraries in the area affected.

(f) Any individual, group, club or committee which has demonstrated an interest and has requested receipt of such information.

(g) The condemnor.

Appendix II: List of Potentially Affected Soils

The following table lists the soils by county that could be affected by the proposed project. This list was compiled using the GIS data layer for soils in the portion of the potential Badger-Coulee right-of-way that has been identified as agricultural land. Agricultural land for this project includes cropland, pasture, cropland for specialty crops, and old fields (fallow farmland). It does not include land with buildings (developed land), woodland, or wetland. The table includes each soil's name with slope and its map unit abbreviation. The table also includes the hydrologic soil group, the farmland class, the drainage class, and the acreage amount that could be affected by the project.

List of Potentially Affected Soils by County

Map Unit	Soil Name	Hydrologic Soil Group	Farmland Class	Drainage Class	Acres
COLUMBIA COUNTY					
Ad	Adrian muck	A/D	Not prime farmland	Very poorly drained	1.89
Ag	Alluvial land, loamy	B	Prime farmland if drained	Somewhat poorly drained	2.24
Ah	Alluvial land, loamy, wet	B/D	Not prime farmland	Poorly drained	3.72
AtA	Atterberry silt loam, 0 to 2 percent slopes	B	Prime farmland if drained	Somewhat poorly drained	1.18
BpB	Boyer loamy sand, 2 to 6 percent slopes	B	Farmland of statewide importance	Well drained	4.40
BpC2	Boyer loamy sand, 6 to 12 percent slopes, eroded	B	Farmland of statewide importance	Well drained	0.37
BrB	Boyer fine sandy loam, 2 to 6 percent slopes	B	All areas are prime farmland	Well drained	0.02
BsB	Briggsville loam, 2 to 8 percent slopes	C	All areas are prime farmland	Well drained	0.06
BtB2	Briggsville silt loam, silty subsoil variant, 1 to 6 percent slopes, eroded	B	All areas are prime farmland	Well drained	3.68
DrB	Dresden loam, 1 to 6 percent slopes	B	All areas are prime farmland	Well drained	4.35
GeB	Grellton fine sandy loam, 1 to 6 percent slopes	B	All areas are prime farmland	Well drained	1.51
GeC2	Grellton fine sandy loam, 6 to 12 percent slopes, eroded	B	Farmland of statewide importance	Well drained	0.32
GrB2	Griswold silt loam, 2 to 6 percent slopes, eroded	B	All areas are prime farmland	Well drained	0.18
GrC2	Griswold silt loam, 6 to 12 percent slopes, eroded	B	Farmland of statewide importance	Well drained	3.95
GrD2	Griswold silt loam, 12 to 20 percent slopes, eroded	B	Not prime farmland	Well drained	0.88
JoA	Joy silt loam, 0 to 4 percent slopes	B	All areas are prime farmland	Somewhat poorly drained	1.41
LaB	Lapeer fine sandy loam, 2 to 6 percent slopes	B	All areas are prime farmland	Well drained	5.87
LaC2	Lapeer fine sandy loam, 6 to 12 percent slopes, eroded	B	Farmland of statewide importance	Well drained	4.95
LaD2	Lapeer fine sandy loam, 12 to 20 percent slopes, eroded	B	Not prime farmland	Well drained	1.88
LaE2	Lapeer fine sandy loam, 20 to 30 percent slopes, eroded	B	Not prime farmland	Well drained	0.36
LoB	Lorenzo loam, 2 to 6 percent slopes	B	Farmland of statewide importance	Well drained	1.86
Mc	Marshan loam	B/D	Prime farmland if drained	Very poorly drained	3.63
MeB2	McHenry silt loam, 2 to 6 percent slopes, eroded	B	All areas are prime farmland	Well drained	0.95
MeC2	McHenry silt loam, 6 to 12 percent slopes, eroded	B	Farmland of statewide importance	Well drained	0.31
MeD2	McHenry silt loam, 12 to 20 percent slopes, eroded	B	Not prime farmland	Well drained	0.93
MoA	Morocco loamy sand, 0 to 3 percent slopes	B	Not prime farmland	Somewhat poorly drained	6.77
OkB	Okee loamy fine sand, 2 to 6 percent slopes	B	All areas are prime farmland	Somewhat excessively drained	0.90
OkC	Okee loamy fine sand, 6 to 12 percent slopes	B	Farmland of statewide importance	Somewhat excessively drained	0.91
OsA	Ossian silt loam, 0 to 3 percent slopes	B/D	Prime farmland if drained	Poorly drained	2.48

Map Unit	Soil Name	Hydrologic Soil Group	Farmland Class	Drainage Class	Acres
PfA	Plainfield loamy fine sand, 0 to 2 percent slopes	A	Not prime farmland	Excessively drained	3.33
PfB	Plainfield loamy fine sand, 2 to 6 percent slopes	A	Not prime farmland	Excessively drained	3.75
PfC	Plainfield loamy fine sand, 6 to 12 percent slopes	A	Not prime farmland	Excessively drained	0.15
PfD	Plainfield loamy fine sand, 12 to 25 percent slopes	A	Not prime farmland	Excessively drained	0.12
PkB	Plainfield loamy fine sand, loamy substratum, 2 to 6 percent slopes	A	Not prime farmland	Excessively drained	2.35
PkC	Plainfield loamy fine sand, loamy substratum, 6 to 12 percent slopes	A	Not prime farmland	Excessively drained	1.11
PkD	Plainfield loamy fine sand, loamy substratum, 12 to 25 percent slopes	A	Not prime farmland	Excessively drained	0.14
PnA	Plano silt loam, 0 to 2 percent slopes	B	All areas are prime farmland	Well drained	3.71
PnB	Plano silt loam, 2 to 6 percent slopes	B	All areas are prime farmland	Well drained	34.35
PnC2	Plano silt loam, 6 to 12 percent slopes, eroded	B	Farmland of statewide importance	Well drained	4.99
RdB2	Ringwood silt loam, 1 to 6 percent slopes, eroded	B	All areas are prime farmland	Well drained	7.42
RdC2	Ringwood silt loam, 6 to 12 percent slopes, eroded	B	Farmland of statewide importance	Well drained	6.85
SaB2	St. Charles silt loam, 2 to 6 percent slopes, eroded	B	All areas are prime farmland	Moderately well drained	3.14
SaC2	St. Charles silt loam, 6 to 12 percent slopes, eroded	B	Farmland of statewide importance	Well drained	1.98
SaD2	St. Charles silt loam, 12 to 20 percent slopes, eroded	B	Not prime farmland	Well drained	0.15
SaE	St. Charles silt loam, 20 to 30 percent slopes	B	Not prime farmland	Well drained	0.07
SfA	Seaton silt loam, 0 to 2 percent slopes	B	All areas are prime farmland	Well drained	0.53
SfB2	Seaton silt loam, 2 to 6 percent slopes, eroded	B	All areas are prime farmland	Well drained	9.37
SfC2	Seaton silt loam, 6 to 12 percent slopes, eroded	B	Farmland of statewide importance	Well drained	4.22
SfD2	Seaton silt loam, 12 to 20 percent slopes, eroded	B	Not prime farmland	Well drained	0.58
SnB	Sisson fine sandy loam, 2 to 6 percent slopes	B	All areas are prime farmland	Well drained	1.52
SnC2	Sisson fine sandy loam, 6 to 12 percent slopes, eroded	B	Farmland of statewide importance	Well drained	0.14
TsA	Troxel silt loam, 0 to 3 percent slopes	B	Prime farmland if drained	Moderately well drained	4.59
WoC2	Wyocena loamy sand, 6 to 12 percent slopes, eroded	B	Farmland of statewide importance	Well drained	0.07
WoE	Wyocena loamy sand, 20 to 45 percent slopes	B	Not prime farmland	Well drained	0.02
WxB	Wyocena sandy loam, 2 to 6 percent slopes	B	All areas are prime farmland	Well drained	6.80
WxC2	Wyocena sandy loam, 6 to 12 percent slopes, eroded	B	Farmland of statewide importance	Well drained	0.16
WxD2	Wyocena sandy loam, 12 to 20 percent slopes, eroded	B	Not prime farmland	Well drained	0.98
DANE COUNTY					
Af	Alluvial land, wet	B/D	Not prime farmland	Poorly drained	1.06
BbA	Batavia silt loam, gravelly substratum, 0 to 2 percent slopes	B	All areas are prime farmland	Well drained	3.84
BbB	Batavia silt loam, gravelly substratum, 2 to 6 percent slopes	B	All areas are prime farmland	Well drained	21.00
BbC2	Batavia silt loam, gravelly substratum, 6 to 12 percent slopes, eroded	B	Farmland of statewide importance	Well drained	0.25

Map Unit	Soil Name	Hydrologic Soil Group	Farmland Class	Drainage Class	Acres
BoB	Boyer sandy loam, 2 to 6 percent slopes	B	All areas are prime farmland	Well drained	0.03
BoC2	Boyer sandy loam, 6 to 12 percent slopes, eroded	B	Farmland of statewide importance	Well drained	1.61
DnB	Dodge silt loam, 2 to 6 percent slopes	B	All areas are prime farmland	Well drained	18.14
DnC2	Dodge silt loam, 6 to 12 percent slopes, eroded	B	Farmland of statewide importance	Well drained	15.66
DrD2	Dresden loam, 12 to 20 percent slopes, eroded	B	Not prime farmland	Well drained	2.03
DsB	Dresden silt loam, 2 to 6 percent slopes	B	All areas are prime farmland	Well drained	1.10
DsC2	Dresden silt loam, 6 to 12 percent slopes, eroded	B	Farmland of statewide importance	Well drained	6.23
DuC2	Dunbarton silt loam, 6 to 12 percent slopes, eroded	D	Not prime farmland	Well drained	0.03
DuD2	Dunbarton silt loam, 12 to 20 percent slopes, eroded	D	Not prime farmland	Well drained	3.47
EfB	Elburn silt loam, 1 to 4 percent slopes	B	All areas are prime farmland	Somewhat poorly drained	3.68
EgA	Elburn silt loam, gravelly substratum, 0 to 3 percent slopes	B	All areas are prime farmland	Somewhat poorly drained	17.58
GsC2	Grays silt loam, 6 to 12 percent slopes, eroded	B	Farmland of statewide importance	Well drained	1.31
GwB	Griswold loam, 2 to 6 percent slopes	B	All areas are prime farmland	Well drained	4.00
GwC	Griswold loam, 6 to 12 percent slopes	B	Farmland of statewide importance	Well drained	32.15
GwD2	Griswold loam, 12 to 20 percent slopes, eroded	B	Not prime farmland	Well drained	5.52
KdC2	Kidder loam, 6 to 12 percent slopes, eroded	B	Farmland of statewide importance	Well drained	8.74
KdD2	Kidder loam, 12 to 20 percent slopes, eroded	B	Not prime farmland	Well drained	5.02
KeB	Kegonsa silt loam, 2 to 6 percent slopes	B	All areas are prime farmland	Well drained	6.26
KrD2	Kidder soils, 10 to 20 percent slopes, eroded	B	Not prime farmland	Well drained	8.46
KrE2	Kidder soils, 20 to 35 percent slopes, eroded	B	Not prime farmland	Well drained	5.61
MdB	McHenry silt loam, 2 to 6 percent slopes	B	All areas are prime farmland	Well drained	0.16
MdC2	McHenry silt loam, 6 to 12 percent slopes, eroded	B	Farmland of statewide importance	Well drained	32.26
MdD2	McHenry silt loam, 12 to 20 percent slopes, eroded	B	Not prime farmland	Well drained	11.01
Os	Orion silt loam, wet	B/D	Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season	Poorly drained	1.01
PnA	Plano silt loam, 0 to 2 percent slopes	B	All areas are prime farmland	Well drained	20.49
PnB	Plano silt loam, 2 to 6 percent slopes	B	All areas are prime farmland	Well drained	93.90
PnC2	Plano silt loam, 6 to 12 percent slopes, eroded	B	Farmland of statewide importance	Well drained	12.71
PoA	Plano silt loam, gravelly substratum, 0 to 2 percent slopes	B	All areas are prime farmland	Well drained	11.12
PoB	Plano silt loam, gravelly substratum, 2 to 6 percent slopes	B	All areas are prime farmland	Well drained	22.04
PoC2	Plano silt loam, gravelly substratum, 6 to 12 percent slopes, eroded	B	Farmland of statewide importance	Well drained	0.69
RaA	Radford silt loam, 0 to 3 percent slopes	B	Prime farmland if drained and either	Somewhat poorly drained	10.31

Map Unit	Soil Name	Hydrologic Soil Group	Farmland Class	Drainage Class	Acres
			protected from flooding or not frequently flooded during the growing season		
RnB	Ringwood silt loam, 2 to 6 percent slopes	B	All areas are prime farmland	Well drained	51.67
RnC2	Ringwood silt loam, 6 to 12 percent slopes, eroded	B	Farmland of statewide importance	Well drained	27.25
RoC2	Rockton silt loam, 6 to 12 percent slopes, eroded	B	Farmland of statewide importance	Well drained	0.84
RoD2	Rockton silt loam, 12 to 30 percent slopes, eroded	B	Not prime farmland	Well drained	0.23
SaA	Sable silty clay loam, 0 to 3 percent slopes	B/D	Prime farmland if drained	Poorly drained	6.68
ScA	St. Charles silt loam, 0 to 2 percent slopes	B	All areas are prime farmland	Well drained	1.07
ScB	St. Charles silt loam, 2 to 6 percent slopes	B	All areas are prime farmland	Well drained	32.13
ScC2	St. Charles silt loam, 6 to 12 percent slopes, eroded	B	Farmland of statewide importance	Well drained	4.29
ScD2	St. Charles silt loam, 12 to 20 percent slopes, eroded	B	Not prime farmland	Well drained	0.21
TrB	Troxel silt loam, 1 to 3 percent slopes	B	All areas are prime farmland	Moderately well drained	20.81
VrB	Virgil silt loam, 1 to 4 percent slopes	B	All areas are prime farmland	Somewhat poorly drained	1.36
VwA	Virgil silt loam, gravelly substratum, 0 to 3 percent slopes	B	All areas are prime farmland	Somewhat poorly drained	2.87
WrB	Warsaw silt loam, 2 to 6 percent slopes	B	All areas are prime farmland	Well drained	0.90
WrC2	Warsaw silt loam, 6 to 12 percent slopes, eroded	B	Farmland of statewide importance	Well drained	1.57
WxB	Whalan silt loam, 2 to 6 percent slopes	B	All areas are prime farmland	Well drained	1.21
WxC2	Whalan silt loam, 6 to 12 percent slopes, eroded	B	Farmland of statewide importance	Well drained	1.85
WxD2	Whalan silt loam, 12 to 20 percent slopes, eroded	B	Not prime farmland	Well drained	0.74
JACKSON COUNTY					
115C2	Seaton silt loam, 6 to 12 percent slopes, moderately eroded	B	Farmland of statewide importance	Well drained	1.50
1234B	Bilson-Silverhill sandy loams, 1 to 6 percent slopes	B	All areas are prime farmland	Well drained	5.35
1234C2	Bilson-Elevasil sandy loams, 6 to 12 percent slopes, eroded	B	Farmland of statewide importance	Well drained	3.10
1266B	Hiles-Kert silt loams, 0 to 6 percent slopes	B	Prime farmland if drained	Moderately well drained	1.98
1715D2	Council and Seaton soils, 12 to 20 percent slopes, moderately eroded	B	Not prime farmland	Well drained	8.77
1743F	Council-Elevasil-Norden complex, 30 to 60 percent slopes	B	Not prime farmland	Well drained	2.31
213C2	Hixton silt loam, 6 to 12 percent slopes, moderately eroded	B	Farmland of statewide importance	Well drained	7.09
224B	Elevasil sandy loam, 2 to 6 percent slopes	B	All areas are prime farmland	Well drained	3.15
224C2	Elevasil sandy loam, 6 to 12 percent slopes, moderately eroded	B	Farmland of statewide importance	Well drained	1.11
224D2	Elevasil sandy loam, 12 to 20 percent slopes, moderately eroded	B	Not prime farmland	Well drained	1.65
296B	Ludington sand, 1 to 6 percent slopes	C	Not prime farmland	Moderately well drained	2.41
424B	Merit silt loam, 1 to 6 percent slopes	B	All areas are prime farmland	Well drained	1.56
434B	Bilson sandy loam, 1 to 6 percent slopes	B	All areas are prime farmland	Well drained	8.95

Map Unit	Soil Name	Hydrologic Soil Group	Farmland Class	Drainage Class	Acres
446A	Merimod silt loam, 0 to 3 percent slopes	B	All areas are prime farmland	Moderately well drained	2.40
458A	Hoop sandy loam, 0 to 3 percent slopes	C	Prime farmland if drained	Somewhat poorly drained	2.11
561B	Tarr sand, 1 to 6 percent slopes	A	Not prime farmland	Excessively drained	0.34
561C	Tarr sand, 6 to 15 percent slopes	A	Not prime farmland	Excessively drained	1.54
562B	Gosil loamy sand, 1 to 6 percent slopes	A	Not prime farmland	Somewhat excessively drained	3.19
562C	Gosil loamy sand, 6 to 12 percent slopes	A	Not prime farmland	Somewhat excessively drained	0.42
566A	Tint sand, 0 to 3 percent slopes	A	Not prime farmland	Moderately well drained	6.37
576B	Tintson sand, 1 to 6 percent slopes	B	Not prime farmland	Moderately well drained	3.96
688A	Sechler loam, 0 to 3 percent slopes, occasionally flooded	B	Prime farmland if drained	Somewhat poorly drained	1.52
741B	Sebbo loam, 1 to 6 percent slopes	B	All areas are prime farmland	Moderately well drained	3.09
JUNEAU COUNTY					
255E2	Urne fine sandy loam, 20 to 30 percent slopes, moderately eroded	B	Not prime farmland	Well drained	2.13
103B2	Wildale cherty silt loam, 2 to 6 percent slopes, moderately eroded	C	All areas are prime farmland	Well drained	0.65
103C2	Wildale cherty silt loam, 6 to 12 percent slopes, moderately eroded	C	Farmland of statewide importance	Well drained	1.53
1599A	Ponycreek-Dawsil complex, lake terrace, 0 to 2 percent slopes	A/D	Not prime farmland	Poorly drained	2.06
202C2	Lambeau silt loam, 6 to 12 percent slopes, moderately eroded	B	Farmland of statewide importance	Well drained	0.97
202D2	Lambeau silt loam, 12 to 20 percent slopes, moderately eroded	B	Not prime farmland	Well drained	0.24
224B	Elevasil sandy loam, 2 to 6 percent slopes	B	All areas are prime farmland	Well drained	4.63
224D2	Elevasil sandy loam, 12 to 20 percent slopes, moderately eroded	B	Not prime farmland	Well drained	1.06
228A	Partridge loam, 0 to 3 percent slopes	B	Farmland of statewide importance	Somewhat poorly drained	3.32
233B	Boone sand, 1 to 6 percent slopes	A	Not prime farmland	Excessively drained	14.85
233C	Boone sand, 6 to 15 percent slopes	A	Not prime farmland	Excessively drained	0.03
244B	Elkmound loam, 1 to 6 percent slopes	C	Farmland of statewide importance	Well drained	2.99
253B2	Greenridge silt loam, 1 to 4 percent slopes, moderately eroded	B	All areas are prime farmland	Well drained	1.42
253C2	Greenridge silt loam, 4 to 12 percent slopes, moderately eroded	B	Farmland of statewide importance	Well drained	0.84
253D2	Greenridge silt loam, 12 to 20 percent slopes, moderately eroded	B	Not prime farmland	Well drained	0.84
254B2	Norden silt loam, 2 to 6 percent slopes, moderately eroded	B	All areas are prime farmland	Well drained	4.67
254C2	Norden silt loam, 6 to 12 percent slopes, moderately eroded	B	Farmland of statewide importance	Well drained	5.72
254D2	Norden silt loam, 12 to 20 percent slopes, moderately eroded	B	Not prime farmland	Well drained	4.98
255C2	Urne fine sandy loam, 6 to 12 percent slopes, moderately eroded	B	Farmland of statewide importance	Well drained	0.24
255D2	Urne fine sandy loam, 12 to 20 percent slopes, moderately eroded	B	Not prime farmland	Well drained	6.46
359A	Menasha silty clay loam, 0 to 2 percent slopes	D	Not prime farmland	Poorly drained	2.33

Map Unit	Soil Name	Hydrologic Soil Group	Farmland Class	Drainage Class	Acres
377A	Curran silt loam, lake terrace, 0 to 3 percent slopes, rarely flooded	C	Prime farmland if drained	Somewhat poorly drained	32.12
386B	Jackson silt loam, 2 to 6 percent slopes	B	All areas are prime farmland	Moderately well drained	23.04
398A	Neenah silt loam, 0 to 3 percent slopes	C	Prime farmland if drained	Somewhat poorly drained	1.48
424B	Merit silt loam, 1 to 6 percent slopes	B	All areas are prime farmland	Well drained	2.45
466A	Bilmod sandy loam, lake terrace, 0 to 3 percent slopes	B	All areas are prime farmland	Moderately well drained	3.69
498A	Hoop sandy loam, loamy substratum, 0 to 3 percent slopes	C	Prime farmland if drained	Somewhat poorly drained	4.23
499A	Lows loam, lake terrace, 0 to 2 percent slopes, rarely flooded	B/D	Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season	Poorly drained	3.40
528A	Majik loamy sand, lake terrace, 0 to 3 percent slopes	C	Not prime farmland	Somewhat poorly drained	1.79
558A	Wyeville loamy sand, 0 to 3 percent slopes	C	Farmland of statewide importance	Somewhat poorly drained	1.46
559A	Wautoma loamy sand	B/D	Prime farmland if drained	Poorly drained	6.45
561B	Tarr sand, 1 to 6 percent slopes	A	Not prime farmland	Excessively drained	1.16
587B	Tintson sand, lake terrace, 1 to 6 percent slopes	B	Not prime farmland	Moderately well drained	6.38
596A	Tint sand, lake terrace, 0 to 3 percent slopes	A	Not prime farmland	Moderately well drained	1.65
628A	Orion silt loam, 0 to 3 percent slopes, occasionally flooded	C	Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season	Somewhat poorly drained	1.21
699A	Etrick silt loam, lake terrace, 0 to 2 percent slopes, rarely flooded	B/D	Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season	Poorly drained	22.15
LA CROSSE COUNTY					
115C2	Seaton silt loam, 6 to 12 percent slopes, moderately eroded	B	Farmland of statewide importance	Well drained	1.79
126B	Barremills silt loam, 1 to 6 percent slopes	B	All areas are prime farmland	Moderately well drained	3.03
312B2	Festina silt loam, 2 to 6 percent slopes, moderately eroded	B	All areas are prime farmland	Well drained	1.79
336A	Toddville silt loam, 0 to 3 percent slopes	B	All areas are prime farmland	Moderately well drained	4.49
413A	Rasset sandy loam, 0 to 3 percent slopes	B	All areas are prime farmland	Well drained	10.30
433B	Forkhorn sandy loam, 2 to 6 percent slopes	B	All areas are prime farmland	Well drained	1.24
434B	Bilson sandy loam, 1 to 6 percent slopes	B	All areas are prime farmland	Well drained	3.43
434C2	Bilson sandy loam, 6 to 12 percent slopes, moderately eroded	B	Farmland of statewide importance	Well drained	0.21
446A	Merimod silt loam, 0 to 3 percent slopes	B	All areas are prime farmland	Moderately well drained	1.69
458A	Hoop sandy loam, 0 to 3 percent slopes	C	Prime farmland if drained	Somewhat poorly drained	1.19
501A	Finchford loamy sand, 0 to 3 percent slopes	A	Not prime farmland	Excessively drained	20.48

Map Unit	Soil Name	Hydrologic Soil Group	Farmland Class	Drainage Class	Acres
502B2	Chelsea fine sand, 2 to 6 percent slopes, moderately eroded	A	Not prime farmland	Excessively drained	18.03
502C2	Chelsea fine sand, 6 to 15 percent slopes, moderately eroded	A	Not prime farmland	Excessively drained	7.57
511B	Plainfield sand, 2 to 6 percent slopes	A	Not prime farmland	Excessively drained	1.89
511C	Plainfield sand, 6 to 15 percent slopes	A	Not prime farmland	Excessively drained	5.25
562B	Gosil loamy sand, 1 to 6 percent slopes	A	Not prime farmland	Somewhat excessively drained	4.15
562C	Gosil loamy sand, 6 to 12 percent slopes	A	Not prime farmland	Somewhat excessively drained	1.02
116E2	Churchtown silt loam, 20 to 30 percent slopes, moderately eroded	B	Not prime farmland	Well drained	2.38
134E2	Lamoille silt loam, 20 to 30 percent slopes, moderately eroded	C	Not prime farmland	Well drained	1.56
163E2	Elbaville silt loam, 20 to 30 percent slopes, moderately eroded	B	Not prime farmland	Well drained	6.28
224E2	Elevasil sandy loam, 20 to 30 percent slopes, moderately eroded	B	Not prime farmland	Well drained	1.45
254E2	Norden silt loam, 20 to 30 percent slopes, moderately eroded	B	Not prime farmland	Well drained	8.63
743E2	Council fine sandy loam, 20 to 30 percent slopes, moderately eroded	B	Not prime farmland	Well drained	1.54
MONROE COUNTY					
103C2	Wildale cherty silt loam, 6 to 12 percent slopes, moderately eroded	C	Farmland of statewide importance	Well drained	6.23
105B2	Wildale silt loam, 2 to 6 percent slopes, moderately eroded	C	All areas are prime farmland	Well drained	7.55
1125F	Dorerton, very stony-Elbaville complex, 30 to 60 percent slopes	B	Not prime farmland	Well drained	1.10
114B2	Mt. Carroll silt loam, 2 to 6 percent slopes, moderately eroded	B	All areas are prime farmland	Well drained	16.22
114C2	Mt. Carroll silt loam, 6 to 12 percent slopes, moderately eroded	B	Farmland of statewide importance	Well drained	3.24
116C2	Churchtown silt loam, 6 to 12 percent slopes, moderately eroded	B	Farmland of statewide importance	Well drained	1.55
116D2	Churchtown silt loam, 12 to 20 percent slopes, moderately eroded	B	Not prime farmland	Well drained	5.21
126B	Barremills silt loam, 1 to 6 percent slopes	B	All areas are prime farmland	Moderately well drained	1.98
132B2	Brinkman silt loam, 2 to 6 percent slopes, moderately eroded	B	All areas are prime farmland	Moderately well drained	8.44
132C2	Brinkman silt loam, 6 to 12 percent slopes, moderately eroded	B	Farmland of statewide importance	Moderately well drained	13.65
133B2	Valton silt loam, 2 to 6 percent slopes, moderately eroded	B	All areas are prime farmland	Well drained	26.87
133C2	Valton silt loam, 6 to 12 percent slopes, moderately eroded	B	Farmland of statewide importance	Well drained	49.48
133D2	Valton silt loam, 12 to 20 percent slopes, moderately eroded	B	Not prime farmland	Well drained	32.22
134D2	Lamoille silt loam, 12 to 20 percent slopes, moderately eroded	C	Not prime farmland	Well drained	4.31
137B	Mickle silt loam, 2 to 6 percent slopes	B	All areas are prime farmland	Moderately well drained	1.65
137C	Mickle silt loam, 6 to 12 percent slopes	B	Farmland of statewide importance	Moderately well drained	5.70
1548A	Majik-Ponycreek complex, lake terrace, 0 to 3 percent slopes	C	Not prime farmland	Somewhat poorly drained	2.04
1599A	Ponycreek-Dawsil complex, lake terrace, 0 to 2 percent slopes	A/D	Not prime farmland	Poorly drained	3.10
202B2	Lambeau silt loam, 2 to 6 percent slopes, moderately eroded	B	All areas are prime farmland	Well drained	0.51

Map Unit	Soil Name	Hydrologic Soil Group	Farmland Class	Drainage Class	Acres
202C2	Lambeau silt loam, 6 to 12 percent slopes, moderately eroded	B	Farmland of statewide importance	Well drained	3.61
202D2	Lambeau silt loam, 12 to 20 percent slopes, moderately eroded	B	Not prime farmland	Well drained	3.99
214C2	Gale silt loam, 6 to 12 percent slopes, moderately eroded	B	Farmland of statewide importance	Well drained	0.86
214D2	Gale silt loam, 12 to 20 percent slopes, moderately eroded	B	Not prime farmland	Well drained	0.55
253C2	Greenridge silt loam, 4 to 12 percent slopes, moderately eroded	B	Farmland of statewide importance	Well drained	6.83
253D2	Greenridge silt loam, 12 to 20 percent slopes, moderately eroded	B	Not prime farmland	Well drained	3.02
254C2	Norden silt loam, 6 to 12 percent slopes, moderately eroded	B	Farmland of statewide importance	Well drained	4.57
254D2	Norden silt loam, 12 to 20 percent slopes, moderately eroded	B	Not prime farmland	Well drained	9.83
318A	Bearpen silt loam, 0 to 3 percent slopes, rarely flooded	C	Prime farmland if drained	Somewhat poorly drained	10.42
359A	Menasha silty clay loam, 0 to 2 percent slopes	D	Not prime farmland	Poorly drained	1.08
377A	Curran silt loam, lake terrace, 0 to 3 percent slopes, rarely flooded	C	Prime farmland if drained	Somewhat poorly drained	1.58
386A	Jackson silt loam, 0 to 2 percent slopes	B	All areas are prime farmland	Moderately well drained	0.65
386B	Jackson silt loam, 2 to 6 percent slopes	B	All areas are prime farmland	Moderately well drained	8.07
387A	Curran silt loam, 0 to 3 percent slopes, rarely flooded	C	Prime farmland if drained	Somewhat poorly drained	3.49
434B	Bilson sandy loam, 1 to 6 percent slopes	B	All areas are prime farmland	Well drained	8.91
434C2	Bilson sandy loam, 6 to 12 percent slopes, moderately eroded	B	Farmland of statewide importance	Well drained	2.16
448A	Sooner silt loam, 0 to 3 percent slopes	C	Prime farmland if drained	Somewhat poorly drained	10.62
456A	Bilmod sandy loam, 0 to 3 percent slopes	B	All areas are prime farmland	Moderately well drained	0.04
466A	Bilmod sandy loam, lake terrace, 0 to 3 percent slopes	B	All areas are prime farmland	Moderately well drained	1.77
551A	Impact sand, 0 to 3 percent slopes	A	Not prime farmland	Excessively drained	2.29
551B	Impact sand, 2 to 6 percent slopes	A	Not prime farmland	Excessively drained	4.15
556A	Mindoro sand, 0 to 3 percent slopes	B	Not prime farmland	Moderately well drained	1.82
561B	Tarr sand, 1 to 6 percent slopes	A	Not prime farmland	Excessively drained	5.21
561C	Tarr sand, 6 to 15 percent slopes	A	Not prime farmland	Excessively drained	5.50
562C	Gosil loamy sand, 6 to 12 percent slopes	A	Not prime farmland	Somewhat excessively drained	0.01
566A	Tint sand, 0 to 3 percent slopes	A	Not prime farmland	Moderately well drained	0.92
568A	Majik loamy fine sand, 0 to 3 percent slopes	C	Not prime farmland	Somewhat poorly drained	0.65
569A	Newlang muck, 0 to 2 percent slopes, occasionally flooded	A/D	Not prime farmland	Poorly drained	0.85
596A	Tint sand, lake terrace, 0 to 3 percent slopes	A	Not prime farmland	Moderately well drained	0.08
616B	Chaseburg silt loam, 1 to 4 percent slopes, occasionally flooded	B	All areas are prime farmland	Well drained	2.09
626A	Arenzville silt loam, 0 to 3 percent slopes, occasionally flooded	B	All areas are prime farmland	Moderately well drained	4.25
628A	Orion silt loam, 0 to 3 percent slopes, occasionally flooded	C	Prime farmland if drained and either protected from flooding or not	Somewhat poorly drained	28.51

Map Unit	Soil Name	Hydrologic Soil Group	Farmland Class	Drainage Class	Acres
			frequently flooded during the growing season		
629A	Ettrick silt loam, 0 to 2 percent slopes, frequently flooded	B/D	Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season	Poorly drained	2.84
676A	Kickapoo fine sandy loam, 0 to 3 percent slopes, occasionally flooded	B	All areas are prime farmland	Moderately well drained	4.71
679A	Ettrick silt loam, 0 to 2 percent slopes, shallow, frequently flooded	B/D	Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season	Poorly drained	0.54
699A	Ettrick silt loam, lake terrace, 0 to 2 percent slopes, rarely flooded	B/D	Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season	Poorly drained	1.18
743B2	Council fine sandy loam, 2 to 6 percent slopes, moderately eroded	B	All areas are prime farmland	Well drained	0.32
743C2	Council fine sandy loam, 6 to 12 percent slopes, moderately eroded	B	Farmland of statewide importance	Well drained	2.76
743D2	Council fine sandy loam, 12 to 20 percent slopes, moderately eroded	B	Not prime farmland	Well drained	4.15
SAUK COUNTY					
BIB	Billett sandy loam, 1 to 6 percent slopes	B	All areas are prime farmland	Well drained	2.60
BIC2	Billett sandy loam, 6 to 12 percent slopes, eroded	B	Farmland of statewide importance	Well drained	1.48
BID2	Billett sandy loam, 12 to 20 percent slopes, eroded	B	Not prime farmland	Well drained	0.09
BtB	Briggsville silt loam, 2 to 6 percent slopes	C	All areas are prime farmland	Well drained	7.61
EiB	Eleva sandy loam, 2 to 6 percent slopes	B	All areas are prime farmland	Well drained	0.72
EiE	Eleva sandy loam, 20 to 30 percent slopes	B	Not prime farmland	Well drained	0.14
EmA	Eleva variant sandy loam, 0 to 3 percent slopes	C	Farmland of statewide importance	Somewhat poorly drained	0.21
FaB	Fayette silt loam, 2 to 6 percent slopes	B	All areas are prime farmland	Well drained	1.42
FxB	Fox loam, 2 to 6 percent slopes	B	All areas are prime farmland	Well drained	8.77
GoB	Gotham loamy sand, 1 to 6 percent slopes	A	Not prime farmland	Well drained	2.36
GoC	Gotham loamy sand, 6 to 12 percent slopes	A	Not prime farmland	Well drained	0.22
RhB	Richwood silt loam, 2 to 6 percent slopes	B	All areas are prime farmland	Well drained	1.95
RnB	Ringwood silt loam, 2 to 6 percent slopes	B	All areas are prime farmland	Well drained	3.22
TwB	Tustin loamy sand, 1 to 6 percent slopes	B	All areas are prime farmland	Well drained	1.26
WxB	Wyocena sandy loam, 2 to 6 percent slopes	B	All areas are prime farmland	Well drained	15.47
WxC2	Wyocena sandy loam, 6 to 12 percent slopes, eroded	B	Farmland of statewide importance	Well drained	6.02
WxD2	Wyocena sandy loam, 12 to 20 percent slopes, eroded	B	Not prime farmland	Well drained	1.26

Map Unit	Soil Name	Hydrologic Soil Group	Farmland Class	Drainage Class	Acres
TREMPEALEAU COUNTY					
115E2	Seaton silt loam, 20 to 30 percent slopes, moderately eroded	B	Not prime farmland	Well drained	4.50
213E2	Hixton silt loam, 20 to 30 percent slopes, moderately eroded	B	Not prime farmland	Well drained	1.12
254E2	Norden silt loam, 20 to 30 percent slopes, moderately eroded	B	Not prime farmland	Well drained	6.45
255E2	Urne fine sandy loam, 20 to 30 percent slopes, moderately eroded	B	Not prime farmland	Well drained	2.46
115B2	Seaton silt loam, 2 to 6 percent slopes, moderately eroded	B	All areas are prime farmland	Well drained	4.29
115C2	Seaton silt loam, 6 to 12 percent slopes, moderately eroded	B	Farmland of statewide importance	Well drained	13.26
115D2	Seaton silt loam, 12 to 20 percent slopes, moderately eroded	B	Not prime farmland	Well drained	5.03
1224F	Boone-Elevasil complex, 15 to 50 percent slopes	A	Not prime farmland	Excessively drained	7.78
207A	Hoop loam, reddish subsoil, 0 to 3 percent slopes	B	All areas are prime farmland	Somewhat poorly drained	20.80
20A	Palms and Houghton mucks, 0 to 1 percent slopes	A/D	Not prime farmland	Very poorly drained	1.88
213B2	Hixton silt loam, 2 to 6 percent slopes, moderately eroded	B	All areas are prime farmland	Well drained	0.22
213C2	Hixton silt loam, 6 to 12 percent slopes, moderately eroded	B	Farmland of statewide importance	Well drained	0.32
213D2	Hixton silt loam, 12 to 20 percent slopes, moderately eroded	B	Not prime farmland	Well drained	2.97
224C2	Elevasil sandy loam, 6 to 12 percent slopes, moderately eroded	B	Farmland of statewide importance	Well drained	0.41
224D2	Elevasil sandy loam, 12 to 20 percent slopes, moderately eroded	B	Not prime farmland	Well drained	0.60
254C2	Norden silt loam, 6 to 12 percent slopes, moderately eroded	B	Farmland of statewide importance	Well drained	2.04
254D2	Norden silt loam, 12 to 20 percent slopes, moderately eroded	B	Not prime farmland	Well drained	8.31
255F	Urne fine sandy loam, 30 to 45 percent slopes	B	Not prime farmland	Well drained	1.05
301B	Pillot silt loam, 2 to 6 percent slopes	B	All areas are prime farmland	Well drained	2.28
306A	Whitehall silt loam, 0 to 3 percent slopes, occasionally flooded	B	All areas are prime farmland	Moderately well drained	8.84
312A	Festina silt loam, 0 to 3 percent slopes	B	All areas are prime farmland	Well drained	11.97
312B2	Festina silt loam, 2 to 6 percent slopes, moderately eroded	B	All areas are prime farmland	Well drained	6.79
312C2	Festina silt loam, 6 to 12 percent slopes, moderately eroded	B	Farmland of statewide importance	Well drained	1.06
313D2	Plumcreek silt loam, 12 to 20 percent slopes, moderately eroded	B	Not prime farmland	Well drained	1.95
318A	Bearpen silt loam, 0 to 3 percent slopes, rarely flooded	C	Prime farmland if drained	Somewhat poorly drained	4.99
424B	Merit silt loam, 1 to 6 percent slopes	B	All areas are prime farmland	Well drained	11.86
434B	Bilson sandy loam, 1 to 6 percent slopes	B	All areas are prime farmland	Well drained	2.18
434D2	Bilson sandy loam, 12 to 20 percent slopes, moderately eroded	B	Not prime farmland	Well drained	0.12
561C	Tarr sand, 6 to 15 percent slopes	A	Not prime farmland	Excessively drained	2.01
562B	Gosil loamy sand, 1 to 6 percent slopes	A	Not prime farmland	Somewhat excessively drained	1.87
606A	Huntsville silt loam, 0 to 3 percent slopes, occasionally flooded	B	All areas are prime farmland	Moderately well drained	1.71

Map Unit	Soil Name	Hydrologic Soil Group	Farmland Class	Drainage Class	Acres
628A	Orion silt loam, 0 to 3 percent slopes, occasionally flooded	C	Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season	Somewhat poorly drained	1.81
629A	Ettrick silt loam, 0 to 2 percent slopes, frequently flooded	B/D	Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season	Poorly drained	4.93
679A	Ettrick silt loam, 0 to 2 percent slopes, shallow, frequently flooded	B/D	Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season	Poorly drained	1.60
VERNON COUNTY					
254E2	Norden silt loam, 20 to 30 percent slopes, moderately eroded	B	Not prime farmland	Well drained	2.53
133B2	Valton silt loam, 2 to 6 percent slopes, moderately eroded	B	All areas are prime farmland	Well drained	1.14
133C2	Valton silt loam, 6 to 12 percent slopes, moderately eroded	B	Farmland of statewide importance	Well drained	2.72
133D2	Valton silt loam, 12 to 20 percent slopes, moderately eroded	B	Not prime farmland	Well drained	2.59
253C2	Greenridge silt loam, 4 to 12 percent slopes, moderately eroded	B	Farmland of statewide importance	Well drained	2.20
254C2	Norden silt loam, 6 to 12 percent slopes, moderately eroded	B	Farmland of statewide importance	Well drained	1.40
254D2	Norden silt loam, 12 to 20 percent slopes, moderately eroded	B	Not prime farmland	Well drained	1.71
318A	Bearpen silt loam, 0 to 3 percent slopes, rarely flooded	C	Prime farmland if drained	Somewhat poorly drained	2.07

Appendix III: Wisconsin Statute §182.017

This statute is sometimes referred to as the “Landowners’ Bill of Rights.” It describes a utility’s responsibilities and obligations as well as a landowner’s rights when a transmission line is constructed on that landowner’s property.

182.017 Transmission lines; privileges; damages.

(1g) DEFINITIONS. In this section:

(a) "Commission" means the public service commission.

(b) "Company" means any of the following:

1. A corporation, limited liability company, partnership, or other business entity organized to furnish telegraph or telecommunications service or transmit heat, power, or electric current to the public or for public purposes.

2. An independent system operator, as defined in s. [196.485 \(1\) \(d\)](#).

3. An independent transmission owner, as defined in s. [196.485 \(1\) \(dm\)](#).

4. A cooperative association organized under ch. [185](#) or [193](#) to furnish telegraph or telecommunications service.

5. A cooperative association organized under ch. [185](#) to transmit heat, power, or electric current to its members.

6. An interim cable operator, as defined in s. [66.0420 \(2\) \(n\)](#).

7. A video service provider, as defined in s. [66.0420 \(2\) \(zg\)](#).

(bm) "Municipal regulation" means any contract, ordinance, resolution, order, or other regulation entered into, enacted, or issued by a municipality before, on, or after July 2, 2013.

(c) "Municipality" means a city, village, or town.

(cq) "Telecommunications service" means the offering for sale of the conveyance of voice, data, or other information, including the sale of service for collection, storage, forwarding, switching, and delivery incidental to such communication regardless of the technology or mode used to make such offering.

(ct) "Urban rail transit system" means a system, either publicly or privately owned, which provides transportation by rail in a municipality to the public on a regular and continuing basis and which begins service on or after July 2, 2013.

(d) "Video service network" has the meaning given in s. [66.0420 \(2\) \(zb\)](#).

(1r) RIGHT-OF-WAY FOR. Any company may, subject to ss. [30.44 \(3m\)](#), [30.45](#), [86.16](#), and [196.491 \(3\) \(d\) 3m](#), and to reasonable regulations made by any municipality through which its transmission lines or systems may pass, construct and maintain such lines or systems with all necessary appurtenances in, across or beneath any public highway or bridge or any stream or body of water, or upon any lands of any owner consenting thereto, and for such purpose may acquire lands or the necessary easements; and may connect and operate its lines or system with other lines or systems devoted to like business, within or without this state, and charge reasonable rates for the transmission and delivery of messages or the furnishing of heat, power, or electric light.

(2) NOT TO OBSTRUCT PUBLIC USE. But no such line or system or any appurtenance thereto shall at any time obstruct or incommode the public use of any highway, bridge, stream or body of water.

(3) ABANDONED LINES REMOVED. The commission after a public hearing as provided in s. [196.26](#), and subject to the right of review as provided in ch. [227](#), may declare any line to have been abandoned or discontinued, if the facts warrant such finding. Whenever such a finding shall have been made the company shall remove such line, and on failure for 3 months after such finding of abandonment or discontinuance, any person owning land over, through or upon which such line shall pass, may remove the same, or the supervisors of any town within which said lines may be situated, may remove the said lines from the limits of its highways, and such person or supervisors shall be entitled to recover from the company owning the lines the expense for labor involved in removing the property.

(4) LOCATION OF POLES. In case of dispute as to the location of poles, pipes or conduits, the commissioners appointed in condemnation proceedings under ch. [32](#) may determine the location. In no case, except where the owner consents, shall poles be set in front of or upon any residence property, or in front of a building occupied for business purposes, unless the commissioners find that the same is necessary and the court may review the finding.

(5) TREE TRIMMING. Any company which shall in any manner destroy, trim or injure any shade or ornamental trees along any such lines or systems, or, in the course of tree trimming or removal, cause any damage to buildings, fences, crops, livestock or other property, except by the consent of the owner, or after the right so to do has been acquired, shall be liable to the person aggrieved in 3 times the actual damage sustained, besides costs.

(6) MUNICIPAL FRANCHISE REQUIRED. No lighting or heating corporation or lighting or heating cooperative association shall have any right hereunder in any municipality until it has obtained a franchise or written consent for the erection or installation of its lines from such municipality.

(7) HIGH-VOLTAGE TRANSMISSION LINES. Any easement for rights-of-way for high-voltage transmission lines as defined under s. [196.491 \(1\) \(f\)](#) shall be subject to the conditions and limitations specified in this subsection.

(a) The conveyance under ch. [706](#) and, if applicable, the petition under s. [32.06 \(7\)](#), shall describe the interest transferred by specifying, in addition to the length and width of the right-of-way, the number, type and maximum height of all structures to be erected thereon, the minimum height of the transmission lines above the landscape, and the number and maximum voltage of the lines to be constructed and operated thereon.

(b) In determining just compensation for the interest under s. [32.09](#), damages shall include losses caused by placement of the line and associated facilities near fences or natural barriers such that lands not taken are rendered less readily accessible to vehicles, agricultural implements and aircraft used in crop work, as well as damages resulting from ozone effects and other physical phenomena associated with such lines, including but not limited to interference with telephone, television and radio communication.

(c) In constructing and maintaining high-voltage transmission lines on the property covered by the easement the utility shall:

1. If excavation is necessary, ensure that the top soil is stripped, piled and replaced upon completion of the operation.

2. Restore to its original condition any slope, terrace, or waterway which is disturbed by the construction or maintenance.

3. Insofar as is practicable and when the landowner requests, schedule any construction work in an area used for agricultural production at times when the ground is frozen in order to prevent or reduce soil compaction.

4. Clear all debris and remove all stones and rocks resulting from construction activity upon completion of construction.

5. Satisfactorily repair to its original condition any fence damaged as a result of construction or maintenance operations. If cutting a fence is necessary, a temporary gate shall be installed. Any such gate shall be left in place at the landowner's request.

6. Repair any drainage tile line within the easement damaged by such construction or maintenance.

7. Pay for any crop damage caused by such construction or maintenance.

8. Supply and install any necessary grounding of a landowner's fences, machinery or buildings.

(d) The utility shall control weeds and brush around the transmission line facilities. No herbicidal chemicals may be used for weed and brush control without the express written consent of the landowner. If weed and brush control is undertaken by the landowner under an agreement with the utility, the landowner shall receive from the utility a reasonable amount for such services.

(e) The landowner shall be afforded a reasonable time prior to commencement of construction to harvest any trees located within the easement boundaries, and if the landowner fails to do so, the landowner shall nevertheless retain title to all trees cut by the utility.

(f) The landowner shall not be responsible for any injury to persons or property caused by the design, construction or upkeep of the high-voltage transmission lines or towers.

(g) The utility shall employ all reasonable measures to ensure that the landowner's television and radio reception is not adversely affected by the high-voltage transmission lines.

(h) The utility may not use any lands beyond the boundaries of the easement for any purpose, including ingress to and egress from the right-of-way, without the written consent of the landowner.

(i) The rights conferred under pars. (c) to (h) may be specifically waived by the landowner in an easement conveyance which contains such paragraphs verbatim.

(8) COMMISSION REVIEW.

(a) Upon complaint by a company that a regulation by a municipality under sub. (1r) is unreasonable, the commission shall set a hearing and, if the commission finds that the regulation is unreasonable, the regulation shall be void. Subject to pars. (am) to (c), if the commission determines that a municipal regulation that was in effect on January 1, 2007, and immediately prior to January 9, 2008, or that a community standard, as demonstrated through consistent practice and custom in the municipality, that was in effect on January 1, 2007, and immediately prior to January 9, 2008, is substantially the same as the municipal regulation complained of, there is a rebuttable presumption that the latter regulation is reasonable.

(am) A municipal regulation is unreasonable if it has the effect of creating a moratorium on the placement of company lines or systems under sub. (1r) or on the entrance into the municipality of a video service provider, as defined in s. 66.0420 (2) (zg), or is inconsistent with the purposes of s. 66.0420.

(as) Notwithstanding sub. (2), a municipal regulation is unreasonable if it requires a company to pay any part of the cost to modify or relocate the company's facilities to accommodate an urban rail transit system.

(b) A municipal regulation is unreasonable if it requires a company to pay more than the actual cost of functions undertaken by the municipality to manage company access to and use of municipal rights-of-way. These management functions include all of the following:

1. Registering companies, including the gathering and recording of information necessary to conduct business with a company.

2. Except as provided in provided in par. (c), issuing, processing, and verifying excavation or other company permit applications, including supplemental applications.

3. Inspecting company job sites and restoration projects.

4. Maintaining, supporting, protecting, or moving company equipment during work in municipal rights-of-way.

5. Undertaking restoration work inadequately performed by a company after providing notice and the opportunity to correct the work.

6. Revoking company permits.

7. Maintenance of databases.

8. Scheduling and coordinating highway, street, and right-of-way work relevant to a company permit.

(c) A municipal regulation is unreasonable if it requires a company to be responsible for fees under s. 182.0175 (1m) (bm) that may be assessed to a municipality as a member of the one-call system under s. 182.0175.

(d) It is reasonable for a municipal regulation to provide for the recovery of costs incurred under par. (b) 1., 2., 3., and 7. through a preexcavation permit fee.

(e) It is reasonable for a municipal regulation to provide for the recovery of costs incurred under par. (b) 4., 5., and 6. only from the company that is responsible for causing the municipality to incur the costs.

(9) TIME LIMIT FOR PERMITS. If a municipality establishes a permit process under sub. (1r), the municipality shall approve or deny a permit application no later than 60 days after receipt of the application, and, if the municipality fails to do so, the municipality shall be considered to have approved the application and granted the permit. If a municipality denies a permit application, the municipality

shall provide the applicant a written explanation of the reasons for the denial at the time that the municipality denies the application.

History: [1971 c. 40](#); [1975 c. 68](#), [199](#); [1979 c. 34](#), [323](#); [1985 a. 297 s. 76](#); [1989 a. 31](#); [1993 a. 213](#), [246](#), [371](#); [1997 a. 204](#); [2005 a. 441](#); [2007 a. 42](#); [2011 a. 22](#); [2013 a. 20 s. 1564m](#), [1978d](#) to [1978t](#).

Sub. (2) is a safety statute, the violation of which constitutes negligence per se. An allegation that a power pole located within 4 feet of the traveled portion of a roadway violated this provision stated a cause of action. *Weiss v. Holman*, [58 Wis. 2d 608](#), [207 N.W.2d 660](#) (1973).

Sub. (5) is limited to damages arising from the construction, maintenance, or abandonment of facilities within a right-of-way. *Vogel v. Grant-Lafayette Electric Cooperative*, [195 Wis. 2d 198](#), [536 N.W.2d 140](#) (Ct. App. 1995), [94-0822](#).

Sub. (7) (a) governs what must be specified in a conveyance of an easement. Because the easements here were conveyed prior to the enactment of the statute, the conveyances were not subject to the statute's requirements. The circuit court's conclusion that the utility was required to obtain new easements complying with sub. (7) (a) was premised on its erroneous conclusion that the utility's easement rights were limited by the easements' current use. *Wisconsin Public Service Corporation v. Andrews*, [2009 WI App 30](#), [316 Wis. 2d 734](#), [766 N](#)

Appendix IV: Sample Easement

The following is a sample easement provided by American Transmission Company. This provides the general language that would be included in most easements for the Badger-Coulee project. It is possible there would be small tweaks to this language, but they are unlikely to be significant changes. The document references Exhibit B – that would be the easement exhibit that is specific to each parcel and illustrates the easement area.

Document Number

ELECTRIC TRANSMISSION LINE EASEMENT
CERTIFICATE OF COMPENSATION
NOTICE OF RIGHT OF APPEAL
Wis. Stat. Sec. 182.017(7)

The undersigned grantor(s), _____ for themselves and their respective heirs, successors and assigns (**hereinafter cumulatively referred to as "Landowner"**), in consideration of the sum of one dollar (\$1.00) and other good and valuable consideration, receipt of which is hereby acknowledged, does hereby grant, convey and warrant unto **American Transmission Company LLC, a Wisconsin limited liability company, and its manager ATC Management Inc., a Wisconsin Corporation and Northern States Power Company, a Wisconsin corporation, d/b/a Xcel Energy (hereinafter cumulatively referred to as "Grantee")**, its successors, assigns, licensees and manager, the perpetual right and easement to construct, install, operate, maintain, repair, replace, rebuild, remove, relocate, inspect and patrol a line of structures, comprised of wood, concrete, steel or of such material as Grantee may select, and wires, including associated appurtenances for the transmission of electric current, communication facilities and signals appurtenant thereto (hereinafter referred to as the Electric Transmission Facilities), upon, in, over and across property owned by the Landowner in the _____ of _____, **County of _____, State of Wisconsin, described as follows:**

A parcel of land being part of 1/4 section town range or lot/block etc.

The legal description and location of the Perpetual Easement Strip is as shown on the Exhibit B, attached hereto and incorporated by reference in this easement document.

The perpetual easement has the following specifications:

PERPETUAL EASEMENT STRIP:

Length: Approximately _____ feet

Width: Approximately _____ feet

TRANSMISSION STRUCTURES:

Type: _____

Number: ____

Maximum height above existing ground level: _____ feet

TRANSMISSION LINES:

Maximum nominal voltage: _____ volts

Number of circuits: ____

Number of conductors: ____

Number of static wires: ____

Minimum height above existing landscape (ground level): _____ feet

Record this document with the Register of Deeds

Name and Return Address:

Attn: Real Estate Department

Parcel Identification Number(s)

The Grantee is also granted the associated perpetual and necessary rights to:

- 1) Enter upon the Perpetual Easement Strip for the purposes of fully exercising and enjoying the rights conferred by this perpetual easement; and
- 2) Trim, cut down and remove any or all brush, trees and overhanging branches now or hereafter existing in, on and over the Perpetual Easement Strip; and
- 3) Cut down and remove such dead, dying, diseased, decayed, leaning trees or tree parts now or hereafter existing on the property of the Landowner located outside of said Perpetual Easement Strip that in Grantee's judgment, may interfere with Grantee's full use of the Perpetual Easement Strip for the purposes stated herein or that pose a threat to the safe and reliable operation of the Electric Transmission Facilities; together with the right, permission and authority to enter in a reasonable manner upon the property of the Landowner adjacent to said Perpetual Easement Strip for such purpose.

The Grantee shall pay a reasonable sum for all damages to property, crops, fences, livestock, lawns, roads, fields and field tile (other than brush, trees and overhanging branches trimmed or cut down and removed from the Perpetual Easement Strip), caused by the construction, installation, operation, maintenance, repair, replacement rebuilding, relocation, inspection, patrol or removal of said Electric Transmission Facilities.

Within the Perpetual Easement Strip, and without first securing the prior written consent of the Grantee, **Landowner** agrees that they will not:

- 1) Locate any dwelling or mobile home intended for residential occupancy; or
- 2) Construct, install or erect any structures or fixtures, including but not limited to swimming pools; or
- 3) Construct any non-residential type building; or
- 4) Store flammable goods or products; or
- 5) Plant trees or shrubs; or
- 6) Place water, sewer or drainage facilities; or
- 7) Change the grade more than one (1) foot.

The parties hereto do hereby agree to the terms and conditions set forth in Exhibit "A", "B" and "C", attached hereto and incorporated by reference herein. The term "utility" in Exhibit "A" shall mean Grantee.

This perpetual easement agreement is binding, in its entirety, upon the heirs, successors and assigns of the parties hereto, and shall run with the lands described herein.

As provided by PSC 113, the Landowner shall have a minimum period of five days to examine materials approved or provided by the Public Service Commission of Wisconsin describing the Landowner's rights and options in the easement negotiating process. The Landowner hereby voluntarily waives the five-day review period, or acknowledges that they have had at least five (5) days to review such materials.

Landowner warrants and represents that Landowner has good title to the property described herein, free and clear from all liens and encumbrances, except: _____

The Landowner hereby accepts a lump sum payment in consideration of the grant of this perpetual easement.

WITNESS the signature(s) of the Landowner this _____ day of _____, 20____.

Signature (SEAL)

Signature (SEAL)

Printed Name

Printed Name

Signature (SEAL)

Signature (SEAL)

Printed Name

Printed Name

Landowner

ACKNOWLEDGEMENT

STATE OF WISCONSIN)
) ss
COUNTY OF)

Personally came before me this _____ day of _____, 20____, the above named _____ to me known to be the person(s) who executed the foregoing instrument and acknowledged the same.

Signature of Notary

Printed Name of Notary

Notary Public, State of Wisconsin

My Commission expires (is) _____

This instrument drafted by _____ and checked by _____ on behalf of American Transmission Company, PO Box 47, Waukesha, Wisconsin 53187-0047.

EXHIBIT "A"
[WI Sta. 182.017(7)]

1. In constructing and maintaining high-voltage transmission lines on the property covered by the easement, the utility shall:
 - a) If excavation is necessary, ensure that the topsoil is stripped, piled and replaced upon completion of the operation.
 - b) Restore to its original condition any slope, terrace, or waterway, which is disturbed by the construction or maintenance.
 - c) Insofar as is practicable and when the landowner requests, schedule any construction work in an area used for agricultural production at times when the ground is frozen in order to prevent or reduce soil compaction.
 - d) Clear all debris and remove all stones and rocks resulting from construction activity upon completion of construction.
 - e) Satisfactorily repair to its original condition any fence damaged as a result of construction or maintenance operations. If cutting a fence is necessary, a temporary gate shall be installed. Any such gate shall be left in place at the landowner's request.
 - f) Repair any drainage tile line within the easement damaged by such construction or maintenance.
 - g) Pay for any crop damage caused by such construction or maintenance.
 - h) Supply and install any necessary grounding of a landowner's fences, machinery or buildings.
2. The utility shall control weeds and brush around the transmission line facilities. No herbicidal chemicals may be used for weed and brush control without the express written consent of the landowner. If weed and brush control is undertaken by the landowner under an agreement with the utility, the landowner shall receive from the utility a reasonable amount for such services.
3. The Landowner shall be afforded a reasonable time prior to commencement of construction to harvest any trees located within the easement boundaries, and if the Landowner fails to do so, the Landowner shall nevertheless retain title to all trees cut by the utility.
4. The Landowner shall not be responsible for any injury to persons or property caused by the design, construction or upkeep of the high-voltage transmission lines or towers.
5. The utility shall employ all reasonable measures to ensure that the landowner's television and radio reception is not adversely affected by the high-voltage transmission lines.
6. The utility may not use any lands beyond the boundaries of the easement for any purpose, including ingress to and egress from the right-of-way, without the written consent of the landowner.

EXHIBIT "C"

CERTIFICATE OF COMPENSATION

SECTION 32.06 (2a) WISCONSIN STATS.

DATED THIS _____ DAY OF _____, 20____.

Pursuant to Section 32.06(2a) notice is hereby given of the acquisition of a certain Perpetual Easement attached hereto and made a part hereof by this reference. The names of all persons or parties having an interest of record in the property affected by such Perpetual Easement immediately prior to the acquisition of the Perpetual Easement are the following:

Landowner: _____

Mortgagee(s): _____

Land Contract Vendor(s): _____

Others: _____

Such Perpetual Easement grants unto Grantee, its successors and assigns, licensees and manager the right, permission and authority to construct, install, operate, maintain, repair, replace, rebuild, remove, relocate, inspect and patrol (an) electric transmission line(s) for the purpose of transmitting electric energy, communications and signals upon, in, over and across the Perpetual Easement Strip as described on the instrument to which this exhibit is attached.

The total consideration paid for such Perpetual Easement was \$ _____.

NOTICE OF RIGHT OF APPEAL

In accordance with Section 32.06(2a) Wisconsin Stats., any of the above named persons or parties shall have six (6) months from the date of the recording of this certificate to appeal the amount of compensation herein stated by filing a petition with the Judge of the Circuit Court of _____ County, Wisconsin, who shall assign the matter to the Chairperson of the County Condemnation Commissioners for hearing under Sec. 32.06(8). Notification of such petition shall be made to all persons or parties having an interest of record in the above property, and the procedures prescribed under Secs. 32.06(9)(a) and (b), 32.06(10), 32.06(12); and Chs. 808 and 809 shall govern such appeals.

MAILING LIST

*GOVERNOR SCOTT
WALKER
115 E CAPITOL

*SEN TERRY MOULTON
AGRICULTURE COMMITTEE
306 S CAPITOL

*REP LEE NERISON
AGRICULTURE COMMITTEE
310 N CAPITOL

*RESOURCES FOR
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10 FIRST ST S E
WASHINGTON DC 20540-0001

LRC DOCUMENTS DEPT
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900 RESERVE ST
STEVENS POINT WI 54481

SARAH JUSTUS (3)
ATC
5303 FEN OAK DR
MADISON WI 53718-8810

MARILYN WEISS (3)
PSC WISCONSIN
610 N WHITNEY WAY
MADISON WI 53705

DALE ANN BOHAC
ADAMS TOWN CLERK
W11353 SPAULDING RD
BLACK RIV FALLS WI 54615

TRACY HOESCHELE
ALBION TOWN CLERK
N5724 TROLLHAGEN RD
BLACK RIV FALLS WI 54615

PEGGY BENSON
ARLINGTON TOWN CLERK
200 COMMERCIAL ST
ARLINGTON WI 53911

PEG CULPITT
BANGOR TOWN CLERK
W2439 DAVIS RD
WEST SALEM WI 54669

BRENDA KAHL
BERRY TOWN CLERK
9046 STATE ROAD 19
MAZOMANIE WI 53560

JANN DAHL
BROCKWAY TOWN CLERK
PO BOX 484
BLACK RIV FALLS WI 54615

JANE ESSER
BURNS TOWN CLERK
N7267 CHRISTOPHERSON
COULEE RD
BANGOR WI 54614

ANGELINE EDGAR
CALEDONIA TOWN CLERK
N5479 BEICH RD
PORTAGE WI 53901

KATHLEEN DAVIS
CLEARFIELD TOWN CLERK
W8365 COUNTY ROAD C
NEW LISBON WI 53950

SUE MOLL
COLUMBIA COUNTY CLERK
400 DE WITT ST
PORTAGE WI 5390

NANCY MEINHOLZ
CROSS PLAINS TOWN CLERK
8697 W MINERAL POINT RD
CROSS PLAINS WI 53528

SCOTT MCDONELL
DANE COUNTY CLERK
210 MLK JR BLVD RM 106A
MADISON WI 53703

KATHLEEN MARTIN
DANE TOWN CLERK
7456 LEE RD
LODI WI 53555

VICKI AUCK
DEKORRA TOWN CLERK
W8460 BILKIE RD
POYNETTE WI 53955

CAROL WORMET
DELTON TOWN CLERK
30 WISC DELLS PKWY S
LAKE DELTON WI 53940

SCOTT JUSZCZAK
ETTRICK TOWN CLERK
N25322 WASHINGTON
COULEE RD
ETTRICK WI 54627

DONNA BAILEY
FAIRFIELD TOWN CLERK
E13594 FAIRFIELD RD
BARABOO WI 53913

SUE HENDERSON
GALE TOWN CLERK
N18700 TRIM RD
GALESVILLE WI 54630

CHERYL SCHEETER
GLENDALE TOWN CLERK
PO BOX 204
KENDALL WI 54638

SANDY LEA WOOD
GRANT TOWN CLERK
3768 BLUEBERRY RD
WARRENS WI 54666

SARA SCHULTZ
HAMILTON TOWN CLERK
W3501 PLEASANT VALLEY RD
WEST SALEM WI 54669

JENNIFER BURCHELL
HILLSBORO TOWN CLERK
E17081 HIGHWAY 82
HILLSBORO WI 54634

MARILYN PEDRETTI
HOLLAND TOWN CLERK
N7097 COUNTY ROAD XX
HOLMEN WI 54636

KYLE DENO
JACKSON COUNTY CLERK
307 MAIN ST
BLACK RIV FALLS WI 54615

DEB MASHAK-HUNDT
JEFFERSON TOWN CLERK
29251 OKLEE RD
CASHTON WI 54619

KATHLEEN KOBYLSKI
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220 E STATE ST
MAUSTON WI 53948

BETH ONOFRIO
KILDARE TOWN CLERK
N2592 26TH AVE
LYNDON STATION WI 53944

GINNY DANKMEYER
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400 4TH ST N
LA CROSSE WI 54601

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N3935 19TH AVE
MAUSTON WI 53948

CHRISTOPHER NEUMAN
LEON TOWN CLERK
19487 JACOB RD
SPARTA WI 54656

THOMAS KLAPPSTEIN
LEWISTON TOWN CLERK
W11195 HIGHWAY 127
PORTAGE WI 53901

LYNDA KROG
LINCOLN TOWN CLERK
24248 ATLAS AVE
WARRENS WI 54666

SHARIE MILES
LINDINA TOWN CLERK
N3485 COUNTY ROAD G
MAUSTON WI 53948

ANDREA HAWKINS
LISBON TOWN CLERK
N5807 HIGHWAY 12 & 16
NEW LISBON WI 53950

APRIL GOESKE
LODI TOWN CLERK
PO BOX 310
LODI WI 53555

DENISE GIEBEL
LYNDON TOWN CLERK
W1797 COUNTY ROAD J
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SALLY MALECKI
MANCHESTER TOWN CLERK
W8967 OAK RIDGE RD
BLACK RIV FALLS WI 54615

TERRY HOULIHAN
MEDARY TOWN CLERK
N3393 SMITH VALLEY RD
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DAVID SHAW
MIDDLETON TOWN CLERK
7555 W OLD SAUK RD
VERONA WI 53593

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MILLSTON TOWN CLERK
W6530 WOODLAND RD
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SHELLEY BOHL
MONROE COUNTY CLERK
PO BOX 195
SPARTA WI 54656

CECIL PITTACK
NEWPORT TOWN CLERK
N9236 TOWN HALL RD
WISCONSIN DELLS WI 53965

MARIAN BELCHER
OAKDALE TOWN CLERK
228 BALLPARK DR
TOMAH WI 54660

MELISSA ERDMAN
ONALASKA TOWN CLERK
W7052 2ND ST
ONALASKA WI 54650

LANA WAGENSON
ORANGE TOWN CLERK
N8242 6TH AVE
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BETTY MANSON
PLYMOUTH TOWN CLERK
W9902 STATE ROAD 82
ELROY WI 53929

DAVID MILNE
PORTLAND TOWN CLERK
30794 HIGHWAY 27
CASHTON WI 54619

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PRESTON TOWN CLERK
N33202 COUNTY RD S
BLAIR WI 54616

REBECCA DEMARS
SAUK COUNTY CLERK
505 BROADWAY ST RM 144
BARABOO WI 53913

JOHN HOLZMAN - CLERK
TOWN OF SEVEN MILE CREEK
E5275 GESSER RD
MAUSTON WI 53948

DEBORAH FERRIES
SHELDON TOWN CLERK
17718 MERCURY AVE
NORWALK WI 54648

SUE ELLEN JUSTIN
SPARTA TOWN CLERK
5724 HAMLET AVE
SPARTA WI 54656

SUSAN WALDERA
SPRINGFIELD TOWN CLERK
N6062 N SKUTLEY RD
TAYLOR WI 54659

CAROLYN HACKER
SPRINGFIELD TOWN CLERK
6157 COUNTY ROAD P
DANE WI 53529

TAMMY MILLER
SUMMIT TOWN CLERK
N1498 FOX RD
WONEWOC WI 53968

BREANNE ZAREMBA
TOMAH TOWN CLERK
24381 HERITAGE AVE
TOMAH WI 54660

PAUL SYVERSON
TREMPEALEAU CO CLERK
PO BOX 67
WHITEHALL WI 54773

RON HOFF
VERNON COUNTY CLERK
PO BOX 46
VIROQUA WI 54665

SHAWN HANEY
VIENNA TOWN CLERK
7161 COUNTY ROAD I
DE FOREST WI 53532

LARRY ARNDT
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27190 HIGHWAY 131
ONTARIO WI 54651

THOMAS WILSON
WESTPORT TOWN CLERK
5844 WOODLAND DR
WAUNAKEE WI 53597

KATHY RETZLAFF
WONEWOC TOWN CLERK
762 BRIDGE ST HWY 33
UNION CENTER WI 53962

ART TRALMER
LA GRANGE TOWN CLERK
22038 COUNTY HIGHWAY ET
TOMAH WI 54660

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230 4TH AVE
BARABOO WI 53913

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222 FILLMORE ST
BLACK RIV FALLS WI 54615

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BLAIR WI 54616

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CASHTON WI 54619

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DE FOREST WI 53532

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GALESVILLE WI 54630

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HILLSBORO WI 54634

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HOLMEN WI 54636

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BANGOR WI 54614

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LODI WI 53555

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MADISON WI 53703

MIDDLETON PUBLIC LIBRARY
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MIDDLETON WI 53562

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LIBRARY
115 W PARK ST
NEW LISBON WI 53950

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NORWALK WI 54648

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PO BOX 69
ONTARIO WI 54651

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PORTAGE WI 53901

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POYNETTE WI 53955

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SPARTA WI 54656

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