

MARKET IMPACT ANALYSIS
KOSHKONONG SOLAR ENERGY CENTER
DANE COUNTY, WISCONSIN

April 13, 2021

Koshkonong Solar Energy Center LLC
c/o Invenergy LLC
One South Wacker Drive – Suite 1800
Chicago, Illinois 60606

Attention: Aidan O’Connor, Associate - Renewable Development

Subject: Market Impact Analysis
Koshkonong Solar Energy Center
Dane County, Wisconsin

Dear Mr. O’Connor,

In accordance with your request, the proposed development of the Koshkonong Solar Energy Center in Dane County, Wisconsin, has been analyzed and this market impact analysis has been prepared.

MaRous & Company has conducted similar market impact studies for a variety of clients and for a number of different proposed developments over the last 39 years. Clients have ranged from municipalities, counties, and school districts, to corporations, developers, and citizen’s groups. The types of proposals analyzed include commercial developments such as shopping centers and big-box retail facilities; religious facilities such as mosques and mega-churches; residential developments such as high-density multifamily and congregate-care buildings and large single-family subdivisions; recreational uses such as skate parks and lighted high school athletic fields; and industrial uses such as waste transfer stations, landfills, and quarries. We also have analyzed the impact of transmission lines on adjacent residential uses and a number of proposed natural gas-fired electric plants in various locations.

MaRous & Company has conducted numerous market studies of energy-related projects. The solar-related projects include the following by state:

- ∴ **Wisconsin** - Badger Hollow Solar Farm in Iowa County, Paris Solar Energy Center in Kenosha County, Darien Solar Energy Center in Rock County and Walworth County, and Grant County Solar in Grant County.
- ∴ **Illinois** - Hickory Point Solar Energy Center in Christian County, Mulligan Solar Farm in Logan County, Black Diamond Solar in Christian County, South Dixon Solar in Lee County, and Pleasant Grove Solar in McHenry County and Boone County.
- ∴ **Indiana** - Lone Oak Solar Farm in Madison County, Hardy Hills Solar in Clinton County, and Mammoth Solar in Pulaski and Starke County.
- ∴ **Maryland** - Dorchester County Solar Farms in Dorchester County.
- ∴ **Solar Projects of the Western Regions of the United States of America** - Arizona, Colorado, Nevada, New Mexico, and Utah in the Southwest Region; Idaho and Oregon in the Northwest Region; Texas in the Southern Great Plains Region; General Research in the Northern Great Plains Region.

The wind-related projects include the following by state:

- ∴ **Illinois** - Grand Ridge V and Otter Creek wind farms in LaSalle County, Pleasant Ridge Wind Farm in Livingston County, Walnut Ridge Wind Farm in Bureau County, McLean County Wind Farm in McLean County, Radford's Run Wind Farm in Macon County, Midland Wind Project in Henry County, Harvest Ridge Wind Project in Douglas County, Lincoln Land Wind in Morgan County, Bennington Wind Project in Marshall County, Goose Creek Wind in Piatt County, and Shady Oaks II in Lee County.
- ∴ **Indiana** - Tippecanoe County Wind Farm in Tippecanoe County and Roaming Bison Wind Farm in Montgomery County.
- ∴ **Iowa** - Ida County Wind Farm in Ida County, Palo Alto County Wind Farm in Palo Alto County, and Great Pathfinder Wind in Boone County and Hamilton County.
- ∴ **Minnesota** - Freeborn County Wind Farm in Freeborn County.
- ∴ **South Dakota** - Dakota Range Wind Project I, II, & III, in Codington County, Grant County, and Roberts County, Deuel Harvest Wind Farm in Deuel County, Crocker Wind Farm in Clark County, Prevailing Wind Park in Charles Mix County, Bon Homme County, and Hutchinson County, Triple-H Wind Project in Hyde County, Crowned Ridge Wind II in Deuel County; Tatanka Ridge Wind Farm in Deuel County, and Sweetland Wind Farm in Hand County.
- ∴ **Kansas** - Neosho Ridge Wind Farm in Neosho County and Jayhawk Wind in Bourbon County and Crawford County.
- ∴ **New York** - Orangeville Wind Farm in Wyoming County and Alle-Catt Wind Farm in Allegany County, Cattaraugus County, and Wyoming County.
- ∴ **Ohio** - Seneca Wind in Seneca County, Republic Wind in Seneca County and Sandusky County, and Emerson Creek Wind Project in Erie County, Huron County, and Seneca County.

Findings of Fact Considered

The finding of fact provided by the Public Service Commission of Wisconsin for the application for a Certificate of Public Convenience and Necessity of Badger Hollow Solar Farm LLC in Iowa County, Wisconsin on property value impacts expressed that negative impact concerns cannot be substantiated. “Non-participating landowners voiced concerns regarding the potential impacts of the facility being constructed in their area. The potential for changes in property values, increased noise, glare from the panels, and the change of land use from a rural farmed landscape to many acres of panels and fencing were discussed in comments provided by landowners. One landowner requested that his property be bought by the developer to avoid these impacts. For the reasons previously discussed, the Commission finds that such concerns are not substantiated by the record and, to the extent there are impacts can be mitigated through the conditions imposed by this Final Decision.” (Docket 9697-CE-100, page 30)

The finding of fact provided by the Public Service Commission of Wisconsin for Two Creeks Solar LLC in Manitowoc County, Wisconsin on property value impacts expressed that there are no negative impacts anticipated. “While some landowners expressed concerns that construction of the proposed project would reduce their property values, these concerns were not substantiated with credible evidence. As discussed in the [environmental assessment], noise and visual impacts could negatively impact property value. However, unlike fossil-fueled electric generation facilities, the proposed facilities would have no emissions and minimal anticipated noise impacts to adjacent land uses during operations. The proposed facilities would also likely have minimal visual impact given the limited height of the solar panels. The [environmental assessment] also indicated that a review of the literature found no research specifically aimed at quantifying impacts to property values based solely on the proximity to utility-scale solar facilities. For these reasons, the [environmental assessment] concluded that ‘widespread negative impacts to property values are not anticipated.’ (PSC REF#: 357516 at 50.)” (Docket 9696-CE-100, page 24)

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Project Summary

Project Information	
Property Name	Koshkonong Solar Energy Center
Location	Dane County, Wisconsin
<i>Townships</i>	Christiana & Deerfield
Property Type	Solar Farm
Project Developer	Koshkonong Solar Energy Center LLC, a subsidiary of Invenergy LLC
Solar Farm Description	
Project Area Land Acreage	≈ 6,384 Acres
<i>Actual Acreage used by Panels</i>	≈ 2,349 Acres
Panel Height (Min/Max)	Max: ≈ 15 Feet Min: ≈ 18 Inches
Total Capacity	≈ 300 Megawatts
Setbacks	Solar modules will be a minimum of 50ft from non-participating property lines, 100ft from any non-participating landowner dwelling unit, 50ft from wetlands less than 2 acres in size as practicable, 75ft from wetlands greater than 2 acres in size, 75ft from shoreland, 42ft from State or Federal Highway ROW, 42ft from County Highway ROW, 30ft from Town Road ROW, and all other streets 30 ft from ROW.
Number of Participants	≈ 30 Landowners
Participant Acreage	≈ 4,600 Acres
Project Area Population Density	≈ 25 Persons Per Square Mile
Ancillary Construction	
Project Substation	Gravel access roads
Overhead collection lines	Battery energy storage system
Security fencing	Single-axis horizontal tracker mounting system
Operations and maintenance building	Native prairie vegetation

Purpose and Intended Use of the Study

The purpose of this appraisal assignment is to analyze the potential impact, if any, on the value of the surrounding residential properties of the development of the proposed Koshkonong Solar Energy Center. The report is intended specifically for the use of the client for the proposed Koshkonong Solar Energy Center. Any other use or user of this report is considered to be unintended.

Executive Summary

As a result of the market impact analysis undertaken, the conclusion made is that there is no market data indicating the project will have a negative impact on either rural residential or agricultural property values in the surrounding area. Further, market data from Wisconsin, specifically, supports the conclusion that the project will not have a negative impact on rural residential or agricultural property values in the surrounding area. For agricultural properties that host photovoltaic panels, the additional income from the solar lease may increase the value and marketability of those properties. These conclusions are based on the following:

- ∴ The use will meet or exceed all the required development and operating standards.
- ∴ Controls are in place to ensure on-going compliance.
- ∴ There are significant financial benefits to the local economy and to the local taxing bodies from the development of the solar farm.
- ∴ The solar farm will create well-paid jobs in the area which will benefit overall market demand.
- ∴ The finding of fact provided by the Public Service Commission of Wisconsin for the application for a Certificate of Public Convenience and Necessity of Badger Hollow Solar Farm LLC in Iowa County, Wisconsin on property value impacts expressed that negative impact concerns cannot be substantiated.
- ∴ The finding of fact provided by the Public Service Commission of Wisconsin for the application for a Certificate of Public Convenience and Necessity of Two Creeks Solar LLC in Manitowoc County, Wisconsin on property value impacts expressed that there are no negative impacts anticipated.
- ∴ An analysis of recent residential sales proximate to existing solar farms in Wisconsin and other states, which includes residential sales as close as 370 feet to photovoltaic panels, did not support any finding that proximity to a photovoltaic panel had any impact on property values.
- ∴ An in-depth analysis of recent residential sales proximate to the existing solar farms in North Branch, Minnesota; in Elizabeth City, North Carolina; and in Goldsboro, North Carolina; which includes residential sales within approximately 5,500 feet, and as close as 165 feet to photovoltaic panels, did not support any finding that proximity to a photovoltaic panel had any impact on property values.

- ∴ An analysis of agricultural land values in the area and in other areas of Wisconsin with solar farms did not support any finding that the agricultural land values are negatively impacted by the proximity to photovoltaic panels.
- ∴ Studies indicate that solar farm leases add value to agricultural land.
- ∴ A survey of County Assessors in 11 counties within Wisconsin in which solar farms are located determined that there was no market evidence to support a negative impact upon residential property values as a result of the development of and the proximity to a solar farm, and that there were no reductions in assessed valuations.
- ∴ A survey of County Assessors in 6 counties within Illinois in which solar farms are located determined that there was no market evidence to support a negative impact upon residential property values as a result of the development of and the proximity to a solar farm, and that there were no reductions in assessed valuations.
- ∴ A survey of County Assessors in 9 counties within Indiana in which solar farms are located determined that there was no market evidence to support a negative impact upon residential property values as a result of the development of and the proximity to a solar farm, and that there were no reductions in assessed valuations.
- ∴ A survey of County Assessors in 5 counties within North Carolina in which solar farms are located determined that there was no market evidence to support a negative impact upon residential property values as a result of the development of and the proximity to a solar farm, and that there were no reductions in assessed valuations.
- ∴ A survey of County Assessors in 13 counties within Maryland in which solar farms are located determined that there was no market evidence to support a negative impact upon residential property values as a result of the development of and the proximity to a solar farm, and that there were no reductions in assessed valuations.
- ∴ An analysis and comparison of solar energy production facilities to wind energy production facilities describing the similarities in economic benefits and similarities in lack of any support for finding that residential or agricultural land values are negatively impacted by the proximity to photovoltaic panels and wind turbines.

Definition of Market Value

When discussing market value, the following definition is used:

The most probable price a property should bring in a competitive and open market under all conditions requisite to a fair sale, the buyer and seller each acting prudently and knowledgeably, and assuming the price is not affected by undue stimulus. Implicit in this definition is the consummation of a sale as of a specified date and the passing of title from seller to buyer under conditions whereby:

- ❖ Buyer and seller are typically motivated.
- ❖ Both parties are well informed or well advised and acting in what they consider their own best interests.
- ❖ A reasonable time is allowed for exposure in the open market.
- ❖ Payment is made in terms of cash in U.S. dollars or in terms of financial arrangements comparable thereto.
- ❖ The price represents the normal consideration for the property sold unaffected by special or creative financing or sales concessions granted by anyone associated with the sale.¹

Scope of Work and Reporting Process

Information was gathered concerning the real estate market generally and the market of the area surrounding the project specifically. The uses in the surrounding area were considered. The following summarizes the actions taken:

- ❖ Review of the Dane County Public Documents and map.
- ❖ Review of the project's supporting documents provided by Koshkonong Solar Energy Center LLC.
- ❖ Review of the demographics in the area of the proposed solar farm.
- ❖ Data on the general market area of the solar farm, and on the other areas in Wisconsin and/or Dane County in which existing solar farms are located.
- ❖ Data on the market for single-family houses in the immediate area of the proposed solar farm and from other areas in the county from private sources, public sources, and sources from the Dane County and/or Wisconsin public records.
- ❖ Wisconsin and other Midwestern real estate professionals were interviewed concerning recent sales in their area, local market conditions, and the impact of solar farms on property values in the area.
- ❖ Properties used for development of the matched pairs were physically inspected by MaRous & Company on the exterior, and photographs of the interiors were reviewed where available.

¹ (12 C.F.R. Part 34.42(g); 55 Federal Register 34696, August 24, 1990, as amended at 57 Federal Register 12202, April 9, 1992; 59 Federal Register 29499, June 7, 1994)

- ∴ Inspections were performed of the subject area and the areas in nearby counties with existing solar farms by Michael S. MaRous and by Joseph M. MaRous on February 2, 2021.

This document is considered to conform to the requirements of the *Uniform Standards of Professional Appraisal Practice and Advisory Opinions* (USPAP). This letter is a brief recapitulation of the appraisal data, analyses, and conclusions; additional supporting documentation is retained in the MaRous & Company office file. There are no extraordinary assumptions or hypothetical conditions included in the market study.

In order to form a judgment concerning the potential impact, if any, on the value of the surrounding residential properties of the approval of the conditional use for the solar farm, the following have been considered:

- ∴ The character and the value of the residential and agricultural properties in the general area of the proposed solar farm.
- ∴ Agricultural land values in Dane County, and in other Wisconsin counties in which solar farms are located.
- ∴ Market trends for both residential and agricultural land within the market area up to the past 5 years.
- ∴ The economic impact on the larger community by the proposed solar farm.
- ∴ The impact on the value of the surrounding residential and agricultural properties by the proposed solar farm.

Description of Area Demographics and Development Area Analysis

Koshkonong Solar Energy Center Location	
Deerfield, Wisconsin	
2010 Population	2,333 Persons
2020 Population	2,621 Persons
Median Household Income in 2020	\$85,535
Number of Households in 2020	1,013
Number of Housing Units in 2020	1,024
Number of Vacant Housing Units in 2020	11
Unemployment Rate	10.5%
Cambridge, Wisconsin	
2010 Population	1,457 Persons
2020 Population	1,521 Persons
Median Household Income in 2020	\$78,062
Number of Households in 2020	653
Number of Housing Units in 2020	681
Number of Vacant Housing Units in 2020	28
Unemployment Rate	10.5%
Rockdale, Wisconsin	
2010 Population	214 Persons
2020 Population	223 Persons
Median Household Income in 2020	\$77,501
Number of Households in 2020	94
Number of Housing Units in 2020	97
Number of Vacant Housing Units in 2020	3
Unemployment Rate	10.2%
Designated Market Area - Madison, Wisconsin	
2010 Population	955,875 Persons
2020 Population	1,036,758 Persons
Dane County	
2010 Population	488,073 Persons
2020 Population	557,909 Persons
Median Household Income in 2020	\$72,327
Number of Households in 2020	235,692
Number of Housing Units in 2020	246,004
Number of Vacant Housing Units in 2020	10,312
Unemployment Rate	10.9%
Main Roadway Arterials	
North/South	Interstate 90 extends along the eastern portion of the footprint
East/West	Route 18 extends through the northern portion of the footprint

Nearest Cities within the Market Area of Koshkonong Solar Energy Center

Stoughton, Wisconsin ≈ 6 Miles Southwest of Project Footprint

2010 Population	12,593 Persons
2020 Population	13,537 Persons

Cottage Grove, Wisconsin ≈ 6 Miles Northwest of Project Footprint

2010 Population	6,344 Persons
2020 Population	7,269 Persons

Lake Mills, Wisconsin ≈ 6 Miles Northeast of Project Footprint

2010 Population	5,726 Persons
2020 Population	6,152 Persons

Edgerton, Wisconsin ≈ 6 Miles South of Project Footprint

2010 Population	5,468 Persons
2020 Population	5,785 Persons

Fort Atkinson, Wisconsin ≈ 10 Miles Southeast of Project Footprint

2010 Population	12,373 Persons
2020 Population	12,475 Persons

Jefferson, Wisconsin ≈ 10 Miles East of Project Footprint

2010 Population	7,973 Persons
2020 Population	8,104 Persons

Madison, Wisconsin ≈ 13 Miles Northwest of Project Footprint

2010 Population	232,773 Persons
2020 Population	264,742 Persons

Site to do Business - <https://www.stdb.com/>

Top Employers in Dane County, Wisconsin

Business Name

Business Type

University of Wisconsin-Madison	Education
Epic Systems Corp	Health Care
American Family Insurance	Insurance
Sub-Zero	Retail/Manufacturing
WPS Health Insurance	Insurance

TOP EMPLOYERS - <http://madisonregion.org/about-the-region/major-companies/top-employers/>

Solar Farms in Proximity to Dane County

The closest operating solar farm to the proposed project is located at the Dane County Regional Airport. The solar farm has a total capacity of approximately 9 megawatts and came online in 2020. The Liberty Pole DPC Solar project is located in Vernon County. The solar farm has a total capacity of approximately 1.1 megawatts and came online in 2017. Sauk DPC Solar is located in Vernon County. The solar farm has a total capacity of approximately 1.0 megawatt and came online in 2017. The HQC Rock River Solar Power Gen Station is located in Rock County. The solar farm has a total capacity of approximately 2.1 megawatts and came online in 2016. The Jefferson Solar Park is located in Jefferson County. The solar farm has a total capacity of approximately 1 megawatt and came online in 2013. The Two Creeks Solar Farm has a total capacity of approximately 150 megawatts and came online in 2020.

The Badger Hollow Solar Farm is proposed to have a total capacity of approximately 300 megawatts and phase one is planned to be completed in 2021, and phase two is proposed to begin construction in 2021, expected to be complete in 2022.

Residential Sales Nearest to the Project Area

Like many areas of Wisconsin, this area is primarily rural in nature. In addition to farms, there are single-family houses situated on either smaller lots or larger farmsteads. The following table summarizes a sample of recent sales of these types of residences in the general area of the proposed Koshkonong Solar Energy Center which consisted of sales that had consistent data across private and public sources. A map illustrating the location of each of these sales is included in the addenda to this market impact study.

MOST RECENT SINGLE-FAMILY RESIDENTIAL SALES SUMMARY IN THE AREA NEAREST TO THE PROPOSED KOSHKONONG SOLAR ENERGY CENTER							
No.	Location	Sale Price	Sale Date	Site Size (Acres)	Year Built	Building Size (Sq. Ft.)	Sale Price Per Sq. Ft. of Bldg. Area Incl. Land
1	1017 Prairie Queen Road Cambridge, Wisconsin 53523	\$242,500	4/28/20	1.09	N/A	1,645	\$147.42
2	529-531 State Farm Road #1 Deerfield, Wisconsin 53531	\$250,000	8/31/18	1.88	1997	2,500	\$100.00
3	326 Old Lund Road Cambridge, Wisconsin 53523	\$275,000	3/1/20	2.43	1960	1,700	\$161.76
4	1273 East Church Road Cambridge, Wisconsin 53523	\$350,000	4/3/19	28.91	1930	2,300	\$152.17
5	2315 Berge Hinny Road Cambridge, Wisconsin 53523	\$470,000	8/27/19	7.14	1886	2,950	\$109.27

The above table outlines the recent single-family residential sales in and around the project area that were performed under the definition of market value. Some of the remaining single-family residential sales discovered in the project area were bought and sold between related parties and cannot be considered to be sold at arm's length; and therefore, do not conform to the definition of market value.

Project Description

The project currently proposes to generate approximately 300 megawatts within a total land acreage of approximately 2,349 acres from 18 inch to 15-foot-tall photovoltaic panels. The proposed project will consist of one irregular-shaped site within the Town of Christiana, Dane County and the Town of Deerfield, Dane County, Wisconsin, north and east of Interstate 90 and intersected by Highway 12/18 and west of the Dane County & Jefferson County line. The proposed project area is described in a map in the addenda to this market study.

Ancillary construction includes gravel-covered access roads, solar electrical collection systems, single-axis tracker solar panel tracker mounting systems, a Project Substation, above ground transmission lines, inverters with 34.5kV transformers, an Operations and Maintenance building, temporary construction workspace and staging areas, site security and approximately 8-foot-tall fencing, the planting of native prairie grasses, and storm water drainage and erosion control. Agreements with Dane County and with townships impacted will identify roads to be used, and to repair any damage caused by the project. All standard Dane County building setback requirements will be met.

Project Benefits

Taxes	
County	\$700,000 per year
Townships	\$500,000 per year
Beneficiaries	\$2,333.33 per megawatt per year to Dane County; \$1,666.66 per megawatt per year to the townships
Land Agreements	
Participating Landowner Lease Payments	Lease payments will be made to participating landowners
Good Neighbor Agreements	Good neighbor agreement payments will be made to participating neighboring landowners
Job Creation	
Temporary/Construction	600 Construction Jobs
Permanent	Up to 5 Permanent Jobs
Induced Impacts due to Construction	
Indirect Impacts	Permit payments to the county and anticipated increase in household spending to local businesses, as well as spending from the construction workers who will require services and supplies

Factors that Affect Property Values Considered

- ∴ Appearance
 - Utility-grade solar farms have a passive use of the land they occupy and are compatible with rural or agricultural uses in their immediate area. Solar panels, typically, have a low-profile with a height of up to 15 feet causing the visual impact from street level to be minimal. Fencing is commonly utilized around a solar facility. Below you will see photographs of other common agricultural structures, such as ethanol plants, grain storage facilities, commercial greenhouses, hog farms, dairy farms, poultry farms, wind farms, and solar farms.



Ethanol Plant



Grain Storage Facility



Commercial Greenhouse



Hog Farm



Dairy Farm



Poultry Farm



Quarry



Wind Farm



Solar Farm

- ∴ Environment & Sustainability²
 - “Solar technologies offer a number of environmental benefits, including the reduction of greenhouse gas emissions and waste in comparison to fuel-based energy sources. [Environmental conditions], sustainability, and recycling are all concerns of the solar industry, which is taking steps to address environmental issues through the lifecycle of solar products.”

² Environment & Sustainability. <https://www.seia.org/initiative-topics/environment>

- “Solar energy plays an important role in transitioning the U.S. to a low-carbon, sustainable future. Solar energy technologies can provide innovative, cost-effective solutions to reduce emissions in a number of sectors of the economy.”
- ∴ Noise and Odor
 - Photovoltaic panels do not emit sound. However, the Power Conversion Stations, tracking system motors, and main transformer are audible, yet produce a very low sound output. Solar farms do not produce any odor.
 - A separate noise analysis will be conducted, and all anticipated noise levels from the project operation will fall well within the acceptable noise threshold.
- ∴ Traffic
 - Due to the low maintenance requirements of solar farms, there is an insignificant amount of traffic that is associated with operational solar farms.
- ∴ Hazardous Materials
 - Solar farms are reported to not produce any hazardous materials, toxins, or associated odors.
- ∴ Public Services
 - Infrastructure Benefits
 - Development of solar farms positively impacts the resiliency of the power grid. Further, building utility scale solar farms increases the need for local construction workers. Solar farms also pay significant taxes that go to the surrounding community to improve existing infrastructure.
 - Schools
 - Taxes paid by solar farms can benefit schools with greater funding. As well as funding, they do not add extra students to the classrooms causing overcrowding, such as a residential development that would add new families and students.
 - Public Safety
 - The taxes paid by solar farms can also benefit public safety concerns by adding funding to first responder departments. This funding could add benefit by giving more opportunities for training, allow for better equipment, upgrade existing departments, and create higher salaries.

Market Impact Analysis

A market impact analysis is undertaken to develop an opinion as to whether the existing solar farm will have an effect on the value of residential uses and/or agricultural land in proximity to the solar panels.

This analysis includes:

- ❖ A matched pair analyzing the impact on value of residential properties proximate to solar farms in Wisconsin, as well as matched pairs developed in counties with similar demographics, land use, and economic characteristics of other states with a presence of solar energy, specifically, Illinois, Indiana, Minnesota, North Carolina, and Arizona.
- ❖ The value of agricultural land near the project area in Dane County.
- ❖ The results of a survey of assessors in Wisconsin, Illinois, Indiana, North Carolina, and Maryland with existing solar farms with a capacity over 1 megawatt in their respective jurisdictions.
- ❖ Interviews of local real estate professionals concerning solar farms.
- ❖ The results of a survey of assessors in Indiana, Illinois, South Dakota, Minnesota, and Iowa with existing wind farms with over 25 turbines in their respective jurisdictions.
- ❖ Interviews of local real estate professionals concerning solar farms.
- ❖ The results of several academic and peer-reviewed studies of the impact of solar panels and wind turbines on residential property values.

Matched Pair Analysis

A matched pair analysis is a methodology which analyzes the importance of a selected characteristic, in this instance proximity to a photovoltaic panel, to the value of a property.³ This technique compares the sale of a property in proximity to the selected characteristic to the sale of a similar property in the same market area and under similar market conditions but without the proximity to the selected characteristic.

It is difficult to find properties that are identical except for proximity to a photovoltaic panel, and which sales also occurred under substantially similar market conditions, especially in rural areas. However, there were properties located in proximity to the Jefferson Solar Park in Jefferson County, the Liberty Pole DPC Solar Farm in Vernon County, and the Lafayette DPC Solar Farm in Chippewa County, that provided a basis for a matched pair analysis in the state of Wisconsin.⁴ The residences included in this study were discovered in private sources, including but not limited to Zillow.com and Realtor.com, then confirmed by the corresponding municipality/county public records.

Adjustment grids are included with each matched pair analysis to compare each variable of sale. The adjustment comparisons in the following analyses are qualitative. A qualitative analysis involves using quality ratings based on how the non-proximate sales compare to the proximate sales and does not require using dollar adjustments.⁵ The non-proximate sales are adjusted with the notations of superior (-), similar (o), and inferior (+). The superior variables are given downward adjustments to meet the related variables of the proximate residences. The similar variables do not require adjustments. The inferior variables are given upward adjustments in order to meet the related variables of the proximate residences.

Due to the lack of larger solar farms in Wisconsin, a sales analysis of properties proximate to established solar farms in other states, specifically Indiana, Illinois, Minnesota, and North Carolina, was conducted to further analyze any potential impact on value to residential properties proximate to solar farms. The additional analysis of Minnesota and North Carolina solar farms is in the section following the matched pair analysis.

³ See the discussion "Paired Sales Analysis" and "Sale/Resale Analysis" in Bell, Randall, MAI, *Real Estate Damages, Applied Economics and Detrimental Conditions, Second Edition*, Appraisal Institute, 2008, pages 25-27. The ideal is to review a sale and resale of a property in proximity to a selected characteristic, to compare it to a sale and resale of a similar property without such proximity, and to then analyze whether the proximity to the selected characteristic influenced the change in value. However, in rural areas it usually is not possible to find data for this type of "pure pair" analysis.

⁴ Details of the sales included in this analysis are retained in my office files; maps in the addenda to this report illustrate the location of the properties. Unless otherwise indicated, none of the purchasers in these transactions appear to own any other property in proximity, and none of the transactions appear to have a photovoltaic panel lease associated with the property.

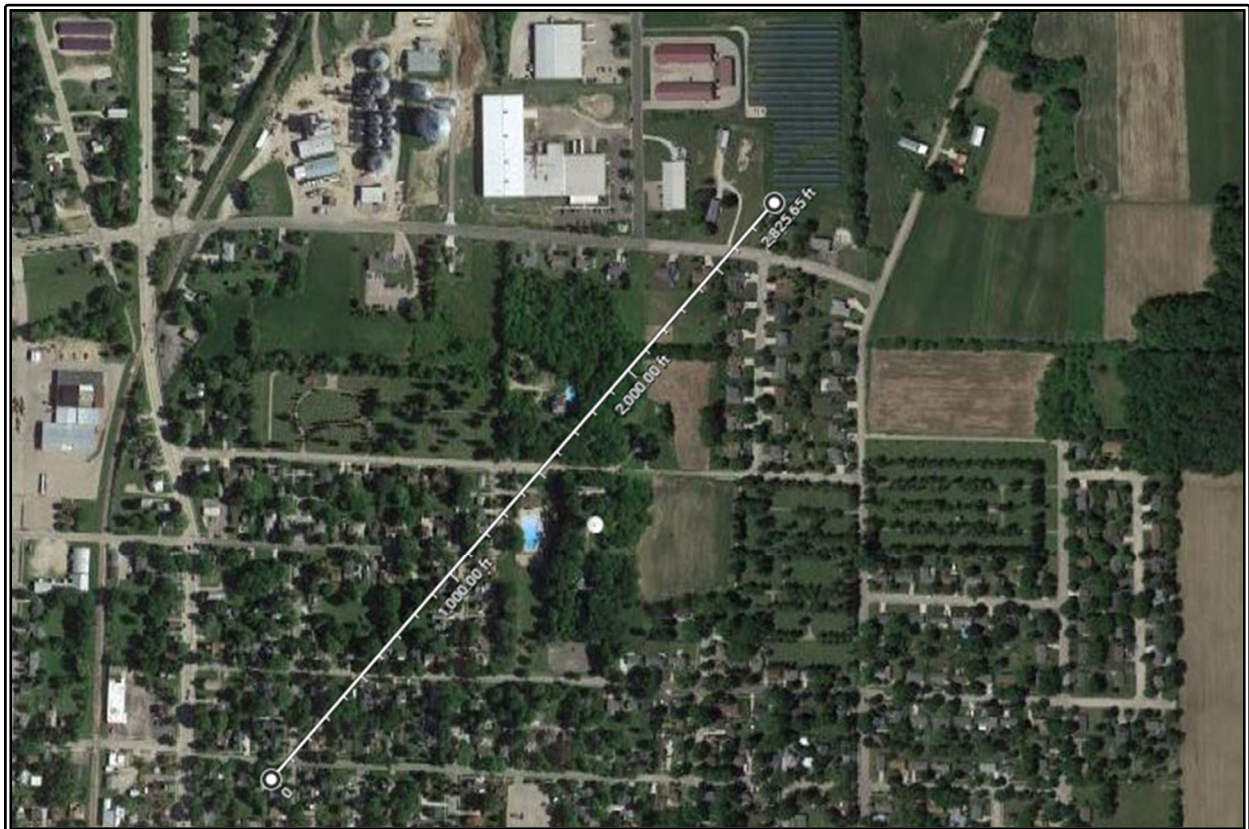
⁵ Horn, T. (2015, September 3). What qualitative analysis is and how agents can use it to price their listings • Birmingham Appraisal Blog. Retrieved from <https://birminghamappraisalblog.com/appraisal/what-qualitative-analysis-is-and-how-agents-can-use-it-to-price-their-listings/>

Wisconsin Analysis - Jefferson County Matched Pair No. 1

Jefferson Solar Park is located in Jefferson County in the south-central region of Wisconsin. The solar farm was installed in 2013 and generates approximately 1 megawatt of power. A property located at 237 North Center Avenue, Jefferson, Wisconsin, sold in February 2015, for \$160,000. The nearest photovoltaic panel is approximately 2,825 feet to the northeast of this property.

This property is compared with a similar property located at 810 Whitewater Avenue, Fort Atkinson, Wisconsin, that sold in August 2016, which is not located proximate to any photovoltaic panels. The salient details of these two properties are summarized in the following table.

The following aerial map illustrates the relationship of the 237 North Center Avenue property to the closest photovoltaic panels.



JEFFERSON COUNTY MATCHED PAIR NO. 1

	1A - Proximate to a Photovoltaic Panel	1B - Not Proximate to a Photovoltaic Panel
Address	237 N. Center Ave. Jefferson, WI 53549	810 Whitewater Ave. Fort Atkinson, WI 53538
Distance from P.V. Panel (Ft.)	2,825	N/A
Sale Date	February 12, 2015	August 26, 2016
Sale Price	\$160,000	\$164,000
Sale Price/Sq. Ft. (A.G.)	\$65.36	\$74.55
Year Built	1901	1920
Building Size (Sq. Ft.)	2,448	2,200
Lot Size (Acres)	0.16	0.45
Style	Two-story; frame (brick) 3 bedrooms, 2 bath	Two-story; frame (brick) 3 bedrooms, 1.1 bath
Basement	Full	Partial, Finished
Utilities	Central air forced-air heat electric heat	Central air forced-air heat baseboard heat
Other	2-car attached garage porch, deck, and corner lot recently renovated	2-car detached garage porch, deck, and patio



237 North Center Avenue



810 Whitewater Avenue

Both properties are older, farm-house style and of frame construction with brick. They are somewhat similar in size, similar in lot size, similar in access to utilities, and similar in exterior features. The 810 Whitewater Avenue property is superior to the 237 North Center Avenue property in vintage, lot size, and market conditions, yet the 237 North Center Avenue property has a full basement making it superior to the 810 Whitewater Avenue property. However, both houses have been recently renovated and both are in similar condition.

ADJUSTMENT GRID MATCHED PAIR NO. 1

Sale No.	Address	Sale Date	Year Built	Building Size	Lot Size	Location	Style	Basement	Utilities	Out-Buildings
1B	810 Whitewater Avenue Fort Atkinson, WI 53538	-	-	o	-	o	o	+	o	o
+	Positive adjustment based on comparable being inferior in comparison to property #1A									
-	Negative adjustment based on comparable being superior in comparison to property #1A									
o	No adjustment necessary									

Upward adjustments are made to the 810 Whitewater Avenue property for the superior basement of the 237 North Center Avenue property. Downward adjustments are made for the superior market conditions, vintage, and lot size of the 237 North Center Avenue property compared to those features of the 810 Whitewater Avenue property. The two properties have essentially the same building size, location, building style, utilities, and similar outbuildings. Therefore, although the 810 Whitewater Avenue property gives the impression of being superior in many categories, the per square foot sale price for the 810 Whitewater Avenue property appears to only be slightly higher than the per square foot sale of the 237 North Center Avenue property, therefore does not support a finding that there is a negative impact on value resulting from the proximity of the 237 North Center Avenue property to a photovoltaic panel.

Wisconsin Analysis - Vernon County Matched Pair No. 1

Liberty Pole DPC Solar Farm is located in Vernon County in the southwest region of Wisconsin, a location similar to the subject. The solar farm was installed in 2017 and generates approximately 1.1 megawatts of power. A property located at E7155 Traastad Road, Viroqua, Wisconsin, sold in May 2017 for \$160,000. The nearest photovoltaic panel is approximately 2,931 feet to the west of this property.

This property is compared with a similar property located at S4425 Engh Lane, Viroqua, Wisconsin, that sold in July 2015, which is not located proximate to any photovoltaic panels. The salient details of these two properties are summarized in the following table.

The following aerial map illustrates the relationship of the E7155 Traastad Road property to the site of the Liberty Pole DPC Solar Farm.



VERNON COUNTY MATCHED PAIR NO. 1

	1A - Proximate to a Photovoltaic Panel	1B - Not Proximate to a Photovoltaic Panel
Address	E7155 Traastad Rd. Viroqua, WI 54665	S4425 Engh Ln. Viroqua, WI 54665
Distance from P.V. Panel (Ft.)	2,931	N/A
Sale Date	May 24, 2017	July 30, 2015
Sale Price	\$160,000	\$152,000
Sale Price/Sq. Ft. (A.G.)	\$74.63	\$75.06
Year Built	N/A	1998
Building Size (Sq. Ft.)	2,144	2,025
Lot Size (Acres)	4.00	2.00
Style	Two-story; frame (brick) 5 bedrooms, 1 bath	One-story; frame (vinyl) 3 bedrooms, 2.1 bath
Basement	N/A	Full, partially finished
Utilities	forced-air heat	Central air forced-air heat
Other	Storage Shed and barn patio updated utilities	2-car detached garage 1.5-car detached garage patio

Wisconsin Analysis - Chippewa County Matched Pair No. 1

Lafayette DPC Solar Farm is located in Chippewa County in the northwest region of Wisconsin. The solar farm was installed in 2017 and generates approximately 1 megawatt of power. A property located at 3041 County Highway P, Chippewa Falls, Wisconsin, sold in April 2016, for \$166,200. The nearest photovoltaic panel is approximately 7,710 feet to the east of this property.

This property is compared with a similar property located at 13077 40th Avenue, Chippewa Falls, Wisconsin, that sold in April 2015, which is not located proximate to any photovoltaic panels. The salient details of these two properties are summarized in the table below.

The following aerial map illustrates the relationship of the 3041 County Highway P property to the closest photovoltaic panels.

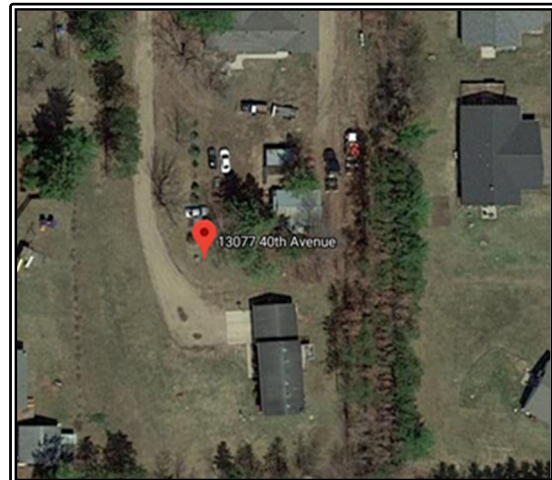


CHIPPEWA COUNTY MATCHED PAIR NO. 1

	1A - Proximate to a Photovoltaic Panel	1B - Not Proximate to a Photovoltaic Panel
Address	3041 County Highway P Chippewa Falls, WI 54729	13077 40 th Ave. Chippewa Falls, WI 54729
Distance from P.V. Panel (Ft.)	7,710	N/A
Sale Date	April 20, 2016	April 2, 2015
Sale Price	\$166,200	\$155,000
Sale Price/Sq. Ft. (A.G.)	\$75.55	\$63.01
Year Built	1964	1995
Building Size (Sq. Ft.)	2,200	2,460
Lot Size (Acres)	2.37	1.50
Style	One-story; frame (brick) 3 bedrooms, 3 bath	Two-story; frame (vinyl) 4 bedrooms, 2 bath
Basement	Full, partially finished	Full, finished
Utilities	Central air forced-air heat 2-car attached garage	Central air forced-air heat 2-car attached garage
Other	deck and patio storage shed	deck and basketball court fenced-in dog kennel



3041 County Highway P



13077 40th Avenue

Both properties are somewhat similar in size, have similar access to utilities, and have similar exterior features. The 1307 40th Avenue property is superior to the 3041 County Highway P property in vintage, number of bedrooms, and a fully finished basement; however, the 3041 County Highway P property sits on a slightly larger lot and was sold during better market conditions.

ADJUSTMENT GRID MATCHED PAIR NO. 1

Sale No.	Address	Sale Date	Year Built	Building Size	Lot Size	Location	Style	Basement	Utilities	Out-Buildings
1B	1307 40th Avenue Chippewa Falls, WI 54729	+	-	o	+	o	-	-	o	o
+	Positive adjustment based on comparable being inferior in comparison to property #1A									
-	Negative adjustment based on comparable being superior in comparison to property #1A									
o	No adjustment necessary									

Upward adjustments are made to the 1307 40th Avenue property for the superior market conditions and larger lot size of the 3041 County Highway P property. Downward adjustments are made for the superior vintage, building style, and basement, of the 1307 40th Avenue property compared to those features of the 3041 County Highway P property. The two properties have essentially the same building size, location, utilities, and outbuildings. Therefore, although the 1307 40th Avenue property gives the impression of being superior in multiple categories, the higher per square foot sale price for the 3041 County Highway P property appears to not support a finding that there is a negative impact on value resulting from the proximity of the 3041 County Highway P property to a photovoltaic panel.

Matched Pair Analysis - Illinois, Indiana, Minnesota, and Arizona

In addition to analyzing sales in the subject project area, we have researched sales in proximity to several existing solar farms in rural areas of Illinois, Indiana, Minnesota, and Arizona in order to discover whether residential property values in these areas were impacted by their locations. The following are the results of the most recent of these studies.

As with the research from Wisconsin, details of these sales are retained in our office files; maps in the addenda to this report illustrate the location of these matched pairs. Unless otherwise indicated, none of the purchasers in these transactions appear to own any other property in proximity, and none of the transactions appear to have a solar panel lease associated with the property.

Illinois Analysis - LaSalle County Matched Pair No. 1

LaSalle County, Illinois, is located in the northeast region of Illinois. Matched Pair #1 considers the sale of a property in the footprint of the Grand Ridge Solar Farm in LaSalle County, which has been operational since 2012 and generates approximately 20 megawatts of power. A house located at 2098 North 15th Road, Streator, Illinois, sold in October 2016. This house is approximately 485 feet from the nearest photovoltaic panel.

This sale is compared with a similar property located at 1794 East 1391st Road, Streator, Illinois, that sold in October 2010. It is not located near photovoltaic panels. The salient details of these two properties are summarized in the table below.

The following aerial map illustrates the relationship of the 2098 North 15th Road property to the closest photovoltaic panels.



LaSALLE COUNTY MATCHED PAIR NO. 1

	1A - Proximate to a Photovoltaic Panel	1B - Not Proximate to a Photovoltaic Panel
Address	2098 N. 15 th Rd. Streator, IL 61364	1794 E. 1391 st Rd. Streator, IL 61365
Distance from P.V. Panel (Ft.)	485	N/A
Sale Date	October 31, 2016	October 21, 2010
Sale Price	\$186,000	\$151,000
Sale Price/Sq. Ft. (A.G.)	\$79.90	\$85.31
Year Built	1997	1994
Building Size (Sq. Ft.)	2,328	1,770
Lot Size (Acres)	2.00	0.76
Style	One-story; frame (vinyl) 3 bedrooms, 4 bath	One-story; frame (vinyl/metal/brick) 3 bedrooms, 2.5 bath
Basement	Full, unfinished, walkout	Crawlspace
Utilities	Central air forced-air heat well & septic	Central air propane, forced-air heat well & septic
Other	3-car attached garage three-season room corner lot	2-car attached garage above-ground pool deck



2098 North 15th Road



1794 East 1391st Road

Both the 15th Road property and the 1391st Road property are a one-story ranch style house, however, the 15th Road property is superior to the 1391st Road property because it has a full, walkout basement. In the case of the outbuildings, the 15th Road property is superior with a three-car attached garage and a three-season room compared to the 1391st Road property with a two-car attached garage and an above-ground pool. The superiority of the 15th Road outbuildings requires an upward adjustment to the 1391st Road property. Both properties are considered to be of similar vintage, and both are considered to be in normal condition by the LaSalle County Assessor. An upward adjustment of 1391st Road is required for the superior market conditions of the 15th Road property. The 15th Road property is situated on a larger lot than that of the 1391st Road property requiring an upward adjustment; however, both lots are surrounded by agricultural and pastureland, which mitigates the size differential to some degree.

ADJUSTMENT GRID MATCHED PAIR NO. 1

Sale No.	Address	Sale Date	Year Built	Building Size	Lot Size	Location	Style	Basement	Utilities	Out-Buildings
1B	1794 E. 1391 st Road Streator, IL 61364	+	o	o	+	o	o	+	o	+
+	Positive adjustment based on comparable being inferior in comparison to property #1A									
-	Negative adjustment based on comparable being superior in comparison to property #1A									
o	No adjustment necessary									

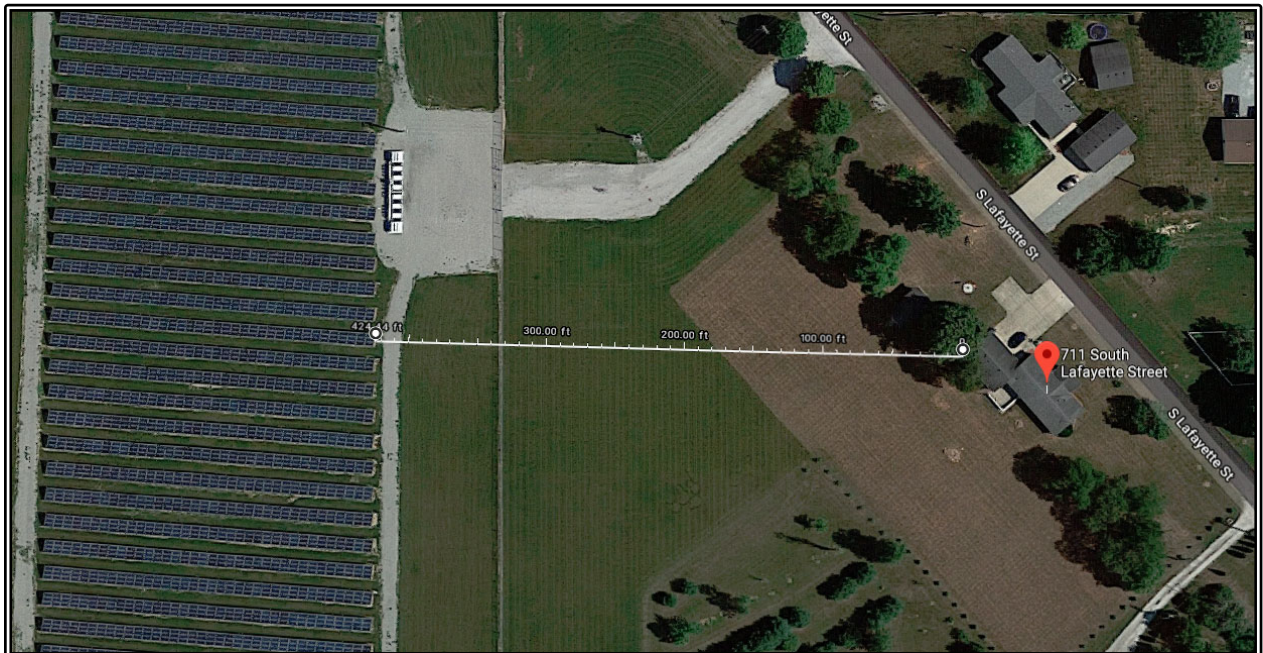
Considering the adjustments noted in the above table for the inferior market conditions and outbuildings of the 1391st Road property, the difference in the sale price does not support the conclusion that proximity to the photovoltaic panels had a negative impact on the value of the 15th Road property.

Indiana Analysis - Madison County Matched Pair No. 1

IMPA Frankton Solar Park is located in Madison County in Frankton, Indiana. The solar farm was installed in 2014 and generates approximately 1 megawatt of power. A property located at 711 South Lafayette Street, Frankton, Indiana, sold in June 2018, for \$112,725. The nearest photovoltaic panel is approximately 425 feet to the west of this property.

This property is compared with a similar property located at 1006 Madison Street, Frankton, Indiana, that sold in November 2016, which is not located proximate to any photovoltaic panels. The salient details of these two properties are summarized in the following table.

The following aerial map illustrates the relationship of the 711 South Lafayette Street property to the closest photovoltaic panels.



MADISON COUNTY MATCHED PAIR NO. 1

	1A - Proximate to a Photovoltaic Panel	1B - Not Proximate to a Photovoltaic Panel
Address	711 S. Lafayette St. Frankton, IN 46044	1006 Madison St. Frankton, IN 46044
Distance from P.V. Panel (Ft.)	425	N/A
Sale Date	June 1, 2018	November 15, 2016
Sale Price	\$112,725	\$74,900
Sale Price/Sq. Ft. (A.G.)	\$77.42	\$53.12
Year Built	1992	1960
Building Size (Sq. Ft.)	1,456	1,410
Lot Size (Acres)	1.30	0.15
Style	One-story; manufactured (vinyl) 3 bedrooms, 2.1 bath	One-story; frame (vinyl) 3 bedrooms, 1.1 bath
Basement	Crawlspace	Crawlspace
Utilities	Central electric air electric forced-air heat public sewer & water connections	Central air other heat well & septic
Other	2-car attached garage porch and patio	1-car attached garage porch



711 South Lafayette Street



1006 Madison Street

Both properties are similar in building size, outbuildings, and both have crawlspace style basements. The 711 South Lafayette Street property is superior to the 1006 Madison Street property in vintage, lot size, utilities, and market conditions. The 1006 Madison Street property has a substantially superior building style to the 711 South Lafayette Street property, which is a manufactured residence.

ADJUSTMENT GRID MATCHED PAIR NO. 1

Sale No.	Address	Sale Date	Year Built	Building Size	Lot Size	Location	Style	Basement	Utilities	Out-Buildings
1B	1006 Madison St. Frankton, IN 46044	+	+	o	+	o	-	o	+	o
+	Positive adjustment based on comparable being inferior in comparison to property #1A									
-	Negative adjustment based on comparable being superior in comparison to property #1A									
o	No adjustment necessary									

Upward adjustments are made to the 1006 Madison Street property for the superior sale date, vintage, lot size, and utilities of the 711 South Lafayette Street property. Downward adjustments are made for the superior building style of the 1006 Madison Street property compared to those features of the 711 South Lafayette Street property. The two properties have essentially the same building size, location, and similar basements. The 711 South Lafayette Street property gives the impression of being only slightly superior to the 1006 Madison Street property, however, the per square foot sale price for the 711 South Lafayette Street property appears to be significantly higher than the per square foot sale of the 1006 Madison Street property, therefore does not support a finding that there is a negative impact on value resulting from the proximity of the 711 South Lafayette Street property to a photovoltaic panel.

Indiana Analysis - Madison County Matched Pair No. 2

IMPA Frankton Solar Park is located in Madison County in Frankton, Indiana. The solar farm was installed in 2014 and generates approximately 1 megawatt of power. A property located at 713 South Lafayette Street, Frankton, Indiana, sold in October 2016, for \$131,000. The nearest photovoltaic panel is approximately 415 feet to the west of this property.

This property is compared with a similar property located at 201 North Park Street, Frankton, Indiana, that sold in February 2018, which is not located proximate to any photovoltaic panels. The salient details of these two properties are summarized in the following table.

The following aerial map illustrates the relationship of the 713 South Lafayette Street property to the closest photovoltaic panels.



MADISON COUNTY MATCHED PAIR NO. 2

	2A - Proximate to a Photovoltaic Panel	2B - Not Proximate to a Photovoltaic Panel	2B - Prior Sale
Address	713 S. Lafayette St. Frankton, IN 46044	201 N. Park St. Frankton, IN 46044	201 N. Park St. Frankton, IN 46044
Distance from P.V. Panel (Ft.)	415	N/A	N/A
Sale Date	October 27, 2016	February 27, 2018	September 22, 2017
Sale Price	\$131,000	\$85,000	\$80,500
Sale Price/Sq. Ft. (A.G.)	\$52.51	\$40.48	\$38.33
Year Built	2003	1960	1960
Building Size (Sq. Ft.)	2,495	2,100	2,100
Lot Size (Acres)	3.03	0.15	0.15
Style	One-story; manufactured (vinyl) 4 bedrooms, 2 bath	One-story; frame (vinyl) 4 bedrooms, 2 bath	One-story; frame (vinyl) 4 bedrooms, 2 bath
Basement	Crawlspace	Crawlspace	Crawlspace
Utilities	Central air forced-air heat public sewer & water connections	Central air other heat well & septic	Central air other heat well & septic
Other	Pole Barn	N/A	Foreclosure sale



713 South Lafayette Street



201 North Park Street

Both properties are similar in building size, location, utilities, and both have raised foundation crawlspace style basements. The 713 South Lafayette Street property is superior to the 201 North Park Street property in vintage, lot size, and outbuildings. The 201 North Park Street property is superior in market conditions and has a substantially superior building style to the 713 South Lafayette Street property, which is a manufactured residence.

ADJUSTMENT GRID MATCHED PAIR NO. 2

Sale No.	Address	Sale Date	Year Built	Building Size	Lot Size	Location	Style	Basement	Utilities	Out-Buildings	
2B	201 N. Park St. Frankton, IN 46044	-	+	o	+	o	-	o	o	+	
	+	Positive adjustment based on comparable being inferior in comparison to property #2A									
	-	Negative adjustment based on comparable being superior in comparison to property #2A									
	o	No adjustment necessary									

Upward adjustments are made to the 201 North Park Street property for the superior vintage, lot size, and outbuildings of the 713 South Lafayette Street property. Downward adjustments are made for the superior market conditions and building style of the 201 North Park Street property compared to those features of the 713 South Lafayette Street property. The two properties have essentially the same building size, location, utilities, and basements. The 713 South Lafayette Street property gives the impression of being only slightly superior to the 201 North Park Street property, however, the per square foot sale price for the 713 South Lafayette Street property appears to be significantly higher than the per square foot sale of the 201 North Park Street property, therefore does not support a finding that there is a negative impact on value resulting from the proximity of the 713 South Lafayette Street property to a photovoltaic panel.

Indiana Analysis - Grant County Matched Pair No. 1

Deer Creek P.V. is located in Grant County in Marion, Indiana. The solar farm was installed in 2016 and generates approximately 2.5 megawatts of power. A property located at 1211 East 49th Street, Marion, Indiana, sold in March 2017, for \$77,000. The nearest photovoltaic panel is approximately 415 feet to the west of this property.

This property is compared with a similar property located at 5510 South Lincoln Boulevard, Marion, Indiana, that sold in May 2017, which is not located proximate to any photovoltaic panels. The salient details of these two properties are summarized in the following table.

The following aerial map illustrates the relationship of the 1211 East 49th Street property to the closest photovoltaic panels.



GRANT COUNTY MATCHED PAIR NO. 1

	1A - Proximate to a Photovoltaic Panel	1B - Not Proximate to a Photovoltaic Panel
Address	1211 E. 49 th St. Marion, IN 46953	5510 S. Lincoln Blvd. Marion, IN 46953
Distance from P.V. Panel (Ft.)	915	N/A
Sale Date	March 24, 2017	May 31, 2017
Sale Price	\$77,000	\$70,000
Sale Price/Sq. Ft. (A.G.)	\$52.88	\$52.63
Year Built	1973	1931
Building Size (Sq. Ft.)	1,456	1,330
Lot Size (Acres)	0.47	4.79
Style	One-story; frame (brick) 3 bedrooms, 2 bath	Two-story; frame (wood) 3 bedrooms, 2 bath
Basement	Full, unfinished	Full, unfinished
Utilities	Central air heat pump well & septic	Central air forced-air heat well & septic
Other	2-car attached garage	3-car detached garage wrap around porch



1211 East 49th Street

5510 South Lincoln Boulevard



Both properties are similar in market conditions, building size, location, utilities, and basements. The 1211 East 49th Street property is superior to the 5510 South Lincoln Boulevard property in vintage, lot size, and outbuildings. The 5510 South Lincoln Boulevard property is superior in market conditions, building style, lot size, and outbuildings to the 1211 East 49th Street property.

ADJUSTMENT GRID MATCHED PAIR NO. 1

Sale No.	Address	Sale Date	Year Built	Building Size	Lot Size	Location	Style	Basement	Utilities	Out-Buildings
2B	5510 S. Lincoln Blvd. Marion, IN 46953	o	+	o	-	o	-	o	o	-
+	Positive adjustment based on comparable being inferior in comparison to property #1A									
-	Negative adjustment based on comparable being superior in comparison to property #1A									
o	No adjustment necessary									

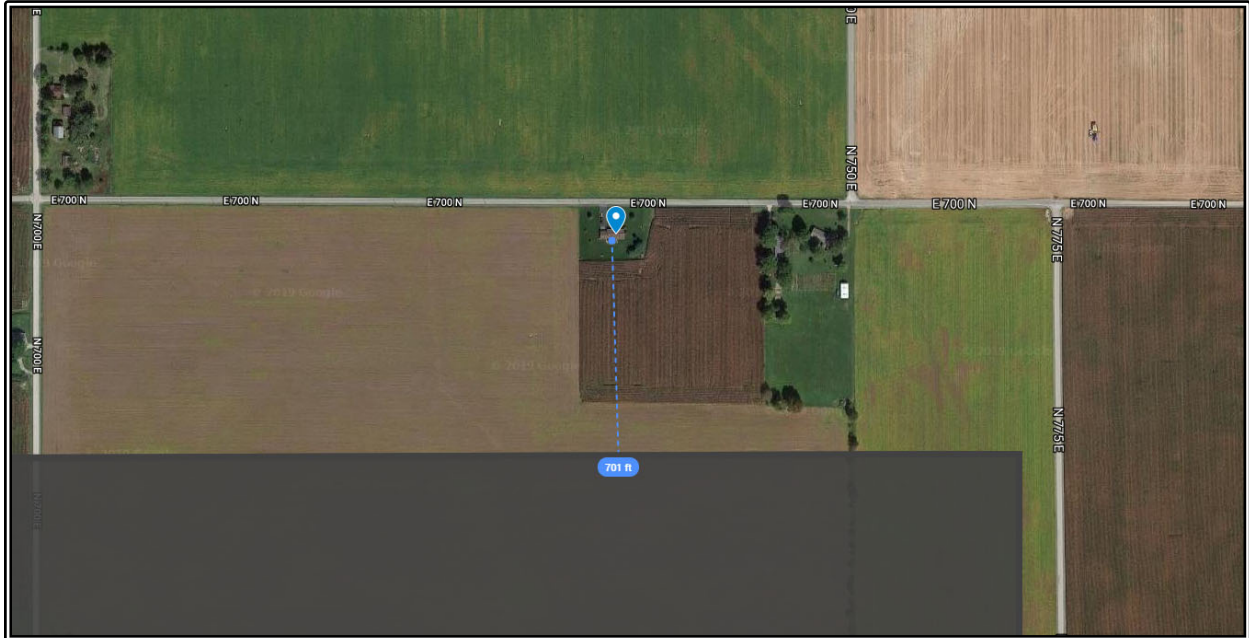
Upward adjustments are made to the 5510 South Lincoln Boulevard property for the superior vintage of the 1211 East 49th Street property. Downward adjustments are made for the superior lot size, building style, and outbuildings of the 5510 South Lincoln Boulevard property compared to those features of the 1211 East 49th Street property. The two properties have essentially the same market conditions, building size, location, utilities, and basements. Although the 5510 South Lincoln Boulevard property gives the impression of being superior, the per square foot sale price for the two properties appears to be similar, therefore does not support a finding that there is a negative impact on value resulting from the proximity of the 1211 East 49th Street property to a photovoltaic panel.

Indiana Analysis - Shelby County Matched Pair No. 1

As of the date of this report, Shelby County is the future location of Speedway Solar. The solar farm has been approved and has been known to the public to be in development stages since the later portion of 2018. The project is proposed to generate approximately 199.0 megawatts of power. A property located at 7351 East 700 North, Morristown, Indiana, sold in February 2019, for \$246,000. The nearest proposed photovoltaic panel will be approximately 700 feet to the south of this property.

This property is compared with a similar property located at 7179 East 550 South, Morristown, Indiana, that sold in May 2017, which is not located proximate to any photovoltaic panels. The salient details of these two properties are summarized in the following table.

The following aerial map illustrates the potential relationship of the 7351 East 700 North property to the closest photovoltaic panels.



SHELBY COUNTY MATCHED PAIR NO. 1

	1A - Proximate to a Photovoltaic Panel	1B - Not Proximate to a Photovoltaic Panel
Address	7351 E. 700 N. Morristown, IN 46161	7179 E. 550 S. Morristown, IN 46161
Distance from P.V. Panel (Ft.)	700	N/A
Sale Date	February 2, 2019	May 16, 2017
Sale Price	\$246,000	\$265,000
Sale Price/Sq. Ft. (A.G.)	\$131.48	\$120.24
Year Built	1992	2005
Building Size (Sq. Ft.)	1,871	2,204
Lot Size (Acres)	9.25	4.87
Style	One-story; frame (vinyl) 3 bedrooms, 2 bath	One-story; frame (brick) 3 bedrooms, 2 bath
Basement	Crawlspace	Crawlspace
Utilities	Central air forced air heat well & septic	Central air forced-air heat well & septic
Other	1-car attached garage	1-car attached garage deck and porch

Minnesota Analysis - Wabasha County Matched Pair No. 1

Wabasha County is located in the southeast region of Minnesota. The county has one solar farm, the Wabasha Holdco Solar Farm.

Matched Pair No.1 considers the sale of a property in the footprint of the Wabasha Holdco Solar Farm in Wabasha County, which has been operational since 2017 and generates approximately 3 megawatts of power. A house located at 943 Freedom Avenue, Wabasha, Minnesota, sold in August 2017. This house is approximately 634 feet from the nearest photovoltaic panel.

This property is compared with a similar property located at 108 Skyline Drive, Wabasha, Minnesota, that sold in June 2015, which is not located proximate to any photovoltaic panels. The salient details of these two properties are summarized in the table below.

The following aerial map illustrates the relationship of the 943 Freedom Avenue property to the closest photovoltaic panels.



WABASHA COUNTY MATCHED PAIR NO. 1

	1A - Proximate to a Photovoltaic Panel	1B - Not Proximate to a Photovoltaic Panel
Address	943 Freedom Ave. Wabasha, MN 55981	108 Skyline Dr. Wabasha, MN 55981
Distance from P.V. Panel (Ft.)	634	N/A
Sale Date	August 28, 2017	June 8, 2015
Sale Price	\$193,000	\$185,000
Sale Price/Sq. Ft. (A.G.)	\$71.48	\$80.43
Year Built	2008	1992
Building Size (Sq. Ft.)	2,700	2,300
Lot Size (Acres)	0.16	0.78
Style	One-story; frame (vinyl) 4 bedrooms, 3 bath	Two-story; frame (metal) 3 bedrooms, 3 bath
Basement	Full, finished	Full, finished
Utilities	Central air/fresh-air exchange forced-air heat public water & sewer	Central air forced-air heat public water & sewer
Other	2-car attached garage porch	2-car attached garage deck and patio



943 Freedom Avenue



108 Skyline Drive

Both properties have similar basements and have similar amenities. The 943 Freedom Avenue property is superior to the 108 Skyline Drive property in vintage, building size, utilities, and was sold during a superior market condition. The Skyline house offsets this by having a superior building style and a larger lot.

ADJUSTMENT GRID MATCHED PAIR NO. 1

Sale No.	Address	Sale Date	Year Built	Building Size	Lot Size	Location	Style	Basement	Utilities	Out-Buildings
1B	108 Skyline Drive Wabasha, Minnesota	+	+	+	-	o	-	o	+	o
	+	Positive adjustment based on comparable being inferior in comparison to property #1A								
	-	Negative adjustment based on comparable being superior in comparison to property #1A								
	o	No adjustment necessary								

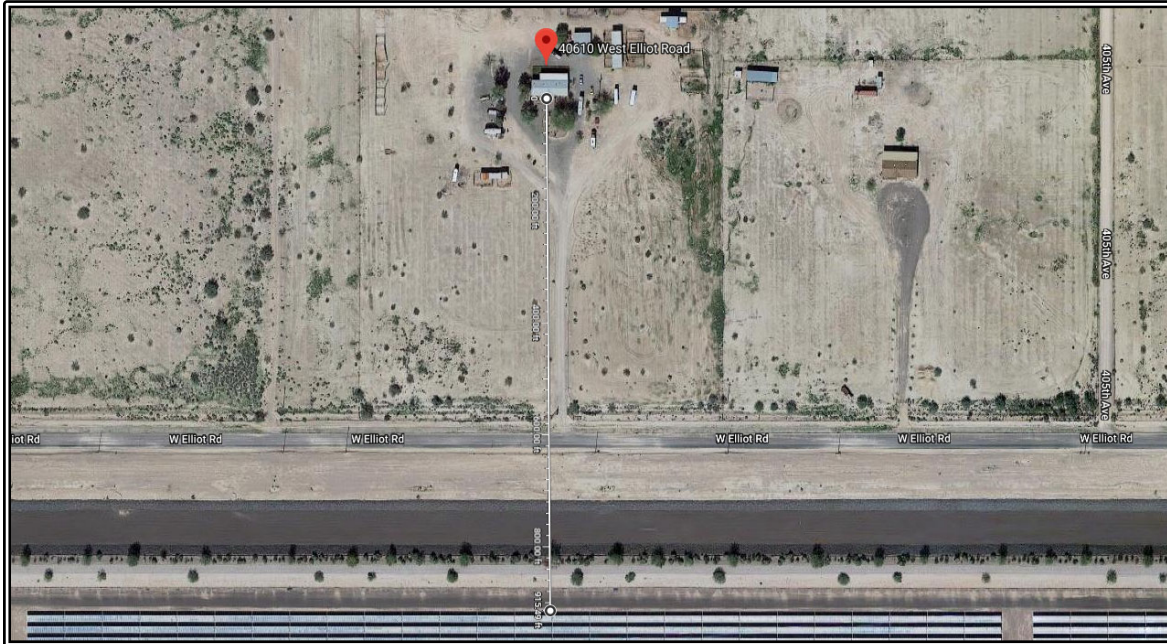
Upward adjustments are made to the 108 Skyline Drive property for the superior market conditions, vintage, building, and utilities of the 943 Freedom Avenue property. Downward adjustments were made for the superior lot size and building style of the 108 Skyline Drive property compared to the 943 Freedom Avenue property. The two properties have essentially the same location, basement, and outbuildings. Therefore, the comparison of the two properties appears to support the conclusion that there is not any viable impact in value resulting from the proximity of the 943 Freedom Avenue property to a photovoltaic panel.

Arizona Analysis - Matched Pair No. 1

Mesquite Solar 3, LLC, a subset of the overall Mesquite Solar Project, is located in Arlington, Arizona. The solar farm was installed in December 2016 and generates approximately 154 megawatts of power. A property located at 40610 West Elliot Road, Tonopah, Arizona, sold in October 2018 for \$300,000. The nearest solar panel is approximately 915 feet to the south of this property. The residence appears to have a direct view of the solar panels at the time of the sale without any obstruction from buildings, landscape, or natural screening.

This property is compared with a similar property located at 4621 South 357th Avenue, Tonopah, Arizona, that sold in March 2019 for \$278,000, and is not located proximate to any solar panels. The salient details of these two properties are summarized in the following table.

The following aerial map illustrates the relationship of the 40610 West Elliot Road property to the closest solar panels.



ARIZONA MATCHED PAIR NO. 1

	1A - Proximate to a Solar Panel	1B - Not Proximate to a Solar Panel
Address	40610 W. Elliot Rd. Tonopah, AZ 85354	4621 S. 357 th Ave. Tonopah, AZ 85354
Distance from P.V. Panel (Ft.)	915	N/A
Sale Date	October 30, 2018	March 15, 2019
Sale Price	\$300,000	\$278,000
Sale Price/Sq. Ft. (A.G.)	\$151.21	\$148.82
Year Built	1996	2007
Building Size (Sq. Ft.)	1,984	1,868
Lot Size (Acres)	19.95	5.27
Style	One-story; manufactured (steel) 3 bedrooms, 2 bath	One-story; frame (stucco) 4 bedrooms, 2 bath
Basement	N/A	N/A
Utilities	Refrigeration cooling Electric heat Well & septic	Refrigeration cooling Electric heat Well & septic
Other	Patio Porch	2-car attached garage Patio



40610 West Elliot Road

4621 South 357th Avenue



The house at 40610 West Elliot Road, is located approximately 915 feet away from the nearest solar panel, in a rural area. Both houses are of similar building size, are located in a similar rural location with paved roads, have similar basements, and have similar utilities. The 40610 West Elliot Road property has a superior lot size. The 4621 South 357th Avenue property was sold in superior market conditions, is of a superior vintage, is superior in building style, and has superior outbuildings.

ADJUSTMENT GRID - ARIZONA MATCHED PAIR NO. 1

Sale No.	Address	Sale Date	Year Built	Building Size	Lot Size	Location	Style	Basement	Utilities	Out-Buildings
1B	4621 S. 357th Ave. Tonopah, AZ 85354	-	-	o	+	o	-	o	o	-
+	Positive adjustment based on comparable being inferior in comparison to property #1A									
-	Negative adjustment based on comparable being superior in comparison to property #1A									
o	No adjustment necessary									

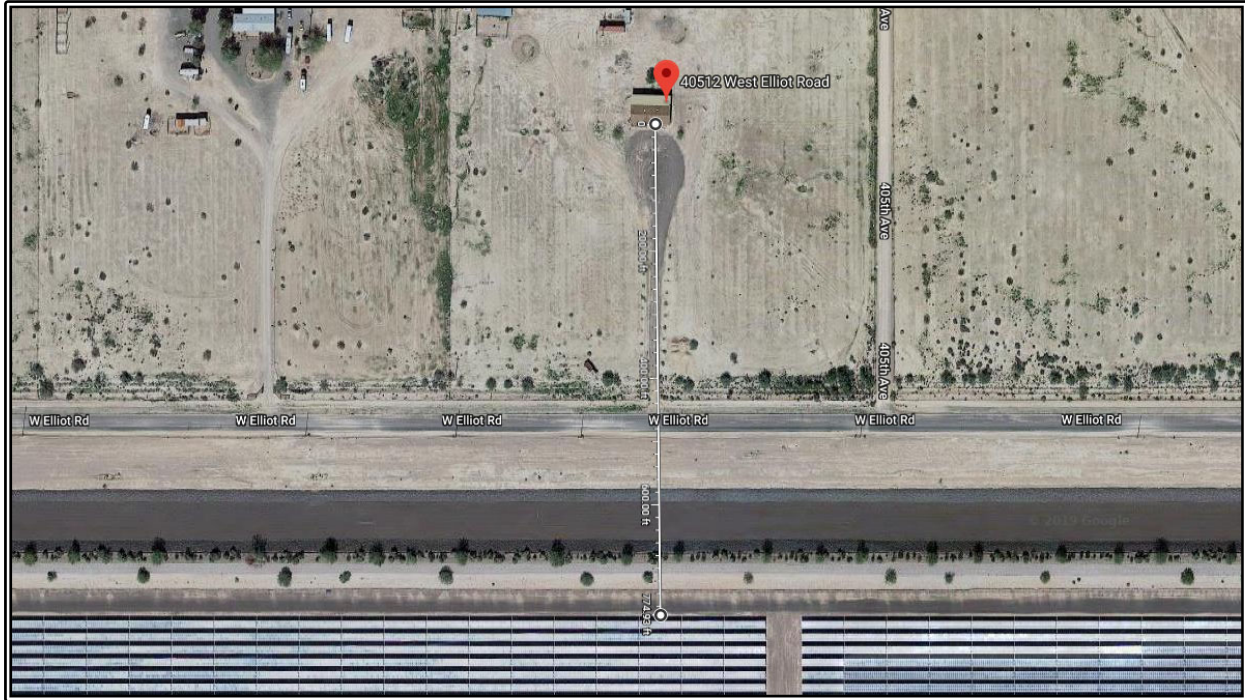
Upward adjustments are made to the 4621 South 357th Avenue property for the superior lot size of the 40610 West Elliot Road property. Downward adjustments are made for the superior market conditions, vintage, style, and outbuildings of the 4621 South 357th Avenue property compared to those features of the 40610 West Elliot Road property. The two properties have essentially the same building size, location, basement, and utilities. Therefore, although the 4621 South 357th Avenue property gives the impression of being superior in many categories, the per square foot sale price for the 40610 West Elliot Road property appears to be higher than the per square foot sale price of the 4621 South 357th Avenue property, thus does not support a finding that there is a negative impact on value resulting from the proximity of the 40610 West Elliot Road property to a solar panel.

Arizona Analysis - Matched Pair No. 2

Mesquite Solar 3, LLC, a subset of the overall Mesquite Solar Project, is located in Arlington, Arizona. The solar farm was installed in December 2016 and generates approximately 154 megawatts of power. A property located at 40512 West Elliot Road, Tonopah, Arizona, sold in March 2019 for \$192,000. The property was previously sold in January 2012 for \$198,000. The nearest solar panel is approximately 775 feet to the south of this property. The residence appears to have a direct view of the solar panels at the time of the sale without any obstruction from buildings, landscape, or natural screening.

This property is compared with a similar property located at 1309 South 393rd Avenue, Tonopah, Arizona, that sold in April 2019 for \$215,000, and is not located proximate to any solar panels. The salient details of these two properties are summarized in the following table.

The following aerial map illustrates the relationship of the 40512 West Elliot Road property to the closest solar panels.



ARIZONA MATCHED PAIR NO. 2

	2A - Proximate to a Solar Panel	2A - Prior Sale	2B - Not Proximate to a Solar Panel
Address	40512 W. Elliot Rd. Tonopah, AZ 85354	40512 W. Elliot Rd. Tonopah, AZ 85354	1309 S. 393 rd Ave. Tonopah, AZ 85354
Distance from P.V. Panel (Ft.)	775	N/A	N/A
Sale Date	March 8, 2019	January 31, 2012	April 23, 2019
Sale Price	\$192,000	198,000	\$215,000
Sale Price/Sq. Ft. (A.G.)	\$122.45	\$126.28	\$126.47
Year Built	1999	1999	2001
Building Size (Sq. Ft.)	1,568	1,568	1,700
Lot Size (Acres)	5.00	5.00	4.00
Style	One-story; manufactured (steel) 3 bedrooms, 2 bath	One-story; manufactured (steel) 3 bedrooms, 2 bath	One-story; manufactured (steel) 4 bedrooms, 2 bath
Basement	N/A	N/A	N/A
Utilities	Refrigeration cooling Electric heat Well & septic	Refrigeration cooling Electric heat Well & septic	Refrigeration cooling Electric heat Well & septic
Other	Porch	Porch	Corral Tack room, barn, and stall Horse arena



40512 West Elliot Road

1309 South 393rd Avenue



The comparison is performed between the 2019 sale of the 40512 West Elliot Road and the 1309 South 393rd Avenue property. The house at 40512 West Elliot Road, is located approximately 775 feet away from the nearest solar panel, in a rural area. Both houses sold during similar market conditions, are of similar vintage, have a similar lot size, are located in a similar rural location, have similar basements, and have similar utilities. The 1309 South 393rd Avenue property is of superior building size, has superior style, and has superior outbuildings.

ADJUSTMENT GRID - ARIZONA MATCHED PAIR NO. 2

Sale No.	Address	Sale Date	Year Built	Building Size	Lot Size	Location	Style	Basement	Utilities	Out-Buildings
2B	1309 S. 393rd Ave. Tonopah, AZ 85354	o	o	-	o	o	-	o	o	-
+	Positive adjustment based on comparable being inferior in comparison to property #2A									
-	Negative adjustment based on comparable being superior in comparison to property #2A									
o	No adjustment necessary									

Downward adjustments are made for the superior building size, style, and outbuildings of the 1309 South 393rd Avenue property compared to those features of the 40512 West Elliot Road property. The two properties sold during essentially the same market conditions, and have similar vintage, lot size, location, basement, and utilities. Therefore, although the 1309 South 393rd Avenue property gives the impression of being superior in many categories, the per square foot sale price for the 40512 West Elliot Road property appears to have sold slightly lower than the per square foot sale price of the 1309 South 393rd Avenue property, thus does not support a finding that there is a negative impact on value resulting from the proximity of the 40512 West Elliot Road property to a solar panel.

Matched Pair Analysis Conclusions

Studies in Wisconsin counties, as well as studies in similar market areas of other states, comparing the sale of properties proximate to photovoltaic panels to similar properties selling under similar market conditions without proximity to photovoltaic panels have not discovered any sales in which proximity to photovoltaic panels appears to have had a negative impact on property values. Therefore, the conclusion is that there does not appear to have been any measurable negative impact on surrounding residential property values due to the proximity of a solar farm.

Property Value Analysis Near Proposed Solar Energy in Wisconsin

In addition to analyzing recent single-family residential sales in the area of active solar farms in Wisconsin, Illinois, Indiana, and Minnesota, research has been conducted on improved residential property sales in proximity to two separate proposed solar projects in order to discover whether residential property values in these areas will be impacted by the inclusion of a solar project.

The first of the two solar projects being discussed is the Badger Hollow Solar Farm in Iowa County, Wisconsin, which is proposed to have a total capacity of approximately 300 megawatts and was made known to the public in 2018. Phase one is planned to be completed and come online in 2021.

**RECENT SINGLE-FAMILY RESIDENTIAL SALES SUMMARY
 IN THE AREA NEAREST TO THE PROPOSED BADGER HOLLOW SOLAR FARM
 IN IOWA COUNTY, WISCONSIN
 PHASE I PLANNED TO BE ONLINE IN FALL 2020**

No.	Location	Sale Price	Sale Date	Proposed Distance from Solar Farm (Ft.)	Site Size (Acres)	Year Built	Building Size (Sq. Ft.)	Sale Price Per Sq. Ft. of Bldg. Area Incl. Land
1	2450 County Road G Montfort, Wisconsin	\$400,000	6/5/18	544	53.60	2015	2,000	\$200.00
2	514 Marilyn Drive Cobb, Wisconsin	\$267,500	12/30/18	2,000	0.60	2015	2,258	\$118.47
3	12227 Laplatte Road Montfort, Wisconsin	\$260,000	10/1/19	10,000	2.00	2000	2,434	\$106.82
4	11117 Hickory Grove Road Livingston, Wisconsin	\$220,000	10/9/19	20,031	5.76	N/A	2,334	\$94.26

The table above illustrates the relationship between proximity to a solar panel and the sale price per square foot of building area including land for the properties nearest to the proposed Badger Hollow Solar Farm. The price per square foot appears to become larger as the properties grow closer to the project border, although, accounting for an adjustment made for the lot size, outbuildings, and other property factors the 2450 County Road G property possesses, the price per square foot can be assumed to be only slightly lower than the price per square foot of the 514 Marilyn Drive property. Therefore, the properties nearest to the proposed Badger Hollow Solar Farm provide evidence of no negative impact.

The second of the solar projects being discussed is Two Creeks Solar in Manitowoc County, Wisconsin which is proposed to have a total capacity of approximately 150 megawatts and came online in 2020.

**RECENT SINGLE-FAMILY RESIDENTIAL SALES SUMMARY
 IN THE AREA NEAREST TO THE PROPOSED TWO CREEKS SOLAR
 IN MANITOWOC COUNTY, WISCONSIN
 PLANNED TO BE ONLINE IN FALL 2020**

No.	Location	Sale Price	Sale Date	Proposed Distance from Solar Farm (Ft.)	Site Size (Acres)	Year Built	Building Size (Sq. Ft.)	Sale Price Per Sq. Ft. of Bldg. Area Incl. Land
1A*	6506 County Road V Two Rivers, Wisconsin	\$145,000	4/30/19	370	5.00	2009	1,280	\$113.28
1B*	6506 County Road V Two Rivers, Wisconsin	\$33,000	6/9/17	Prior to Project Announcement	5.00	2009	1,280	\$25.78
2	13504 Lakeshore Road Two Rivers, Wisconsin	\$102,500	7/15/18	1,230	1.70	2007	1,821	\$56.29
3	12395 Sandy Bay Road Two Rivers, Wisconsin	\$179,900	7/22/19	2,090	2.75	1967	1,352	\$133.06
4	5701 Two Creeks Road Two Rivers, Wisconsin	\$99,400	9/10/17	12,000	1.21	N/A	1,440	\$69.03

*Manufactured Home

The table above illustrates the relationship between proximity to a solar panel and the sale price per square foot of building area including land for the properties nearest to the proposed Two Creeks Solar. The prices per square foot appear to have no pattern in relation to their proximation to the project border. However, when comparing the most recent sale and the prior sale of the 6506 County Road V property, it appears that the only differing factor upon the sale was the announcement of the Two Creeks Solar project and the sale price of the property substantially grew in value. Therefore, the properties nearest to the proposed Two Creeks Solar provide evidence of no negative impact.

Property Value Analysis Near Solar Energy in other States

In addition to analyzing recent single-family residential sales in Wisconsin, Illinois, Indiana, and Minnesota, research has been conducted on improved residential sales in proximity to three other separate solar projects in order to discover whether residential property values in these areas were impacted by their location.

The first of the solar projects being discussed is the North Star Solar Project in North Branch, Minnesota, which went online in 2017 with a capacity of 100 megawatts. The second of the solar projects being discussed is the Morgan's Corner Solar Farm in Elizabeth City, North Carolina, which went online in 2015 with a capacity of 20 megawatts. The third solar project being discussed is the AM Best Solar Farm in Goldsboro, North Carolina, which went online in 2013 with a capacity of 6.7 megawatts. The research performed around Goldsboro, North Carolina was based on the *Edgecombe Solar Impact Study* conducted by Richard C. Kirkland, Jr., MAI of Kirkland Appraisal, LLC. The recent single-family residential sales and the matched pairs that follow are recreations of Kirkland Appraisal, LLC's Matched Pair #1 with updated information provided by MaRous & Company. The following are the results of this research.⁶

⁶ As with the Illinois research, details of these sales are retained in my office files; maps in the addenda to this report illustrate the location of these matched pairs. Unless otherwise indicated, none of the purchasers in these transactions appear to own any other property in proximity, and none of the transactions appear to have a photovoltaic panel lease associated with the property.

**RECENT SINGLE-FAMILY RESIDENTIAL SALES SUMMARY
 IN THE AREA NEAREST TO THE NORTH STAR SOLAR FARM
 IN NORTH BRANCH, MINNESOTA
 ONLINE IN 2017**

No.	Location	Sale Price	Sale Date	Distance from Solar Farm (Ft.)	Site Size (Acres)	Year Built	Building Size (Sq. Ft.)	Sale Price Per Sq. Ft. of Bldg. Area Incl. Land
1	37096 Little Oak Ln. North Branch, Minnesota	\$289,000	4/17/17	230	2.07	2001	2,684	\$107.68
2	37056 Little Oak Ln. North Branch, Minnesota	\$208,000	7/8/13	280	2.40	2001	2,196	\$94.72
3	10505 367 th St. North Branch, Minnesota	\$260,500	9/8/16	360	5.00	1999	1,930	\$134.97
4	37081 Little Oak Ln. North Branch, Minnesota	\$310,000	5/24/17	540	2.71	2003	2,790	\$111.11
5	36438 July Ave. North Branch, Minnesota	\$225,000	10/1/15	910	10.00	1985	2,130	\$105.63
6	37101 Kost Trl. North Branch, Minnesota	\$154,900	11/23/16	2,350	8.95	1970	1,044	\$148.37
7	10000 Saint Croix Trl. North Branch, Minnesota	\$210,000	7/28/17	4,675	9.91	1988	1,272	\$165.09
8	10467 Saint Croix Trl. North Branch, Minnesota	\$250,000	1/2/18	5,544	5.55	1980	2,132	\$117.26

Based on the data shown in the above improved sales table, and the location to photovoltaic panels at 230 feet to 5,544 feet, there does not appear to have been any measurable negative impact on surrounding property values due to the proximity of a solar farm. The sales furthest from the photovoltaic panels do show a higher price per square foot, however, these superior prices can be attributed significantly to the larger land sizes of the properties.

Before and After Sales Comparison Analysis – North Branch, Minnesota

Along with research of sales near the footprint, a study was performed on some homes that were purchased within the footprint during the development of the North Star project. These sales were not purchased at arm’s length, or in a way that the buyers and sellers act independently and do not have any relationship or influence with each other, but then were subsequently sold at market value. What follows is an analysis of those second sales. The sales information for the non-arm’s length transactions is maintained in our files.

NORTH STAR SOLAR FARM SALE COMPARISON NO. 1		
	Proximate to a Photovoltaic Panel	Prior Sale
Address	10090 367 th St. North Branch, MN 55056	10090 367 th St. North Branch, MN 55056
Distance from P.V. Panel (Ft.)	165	N/A
Sale Date	March 22, 2018	May 14, 2010
Sale Price	\$302,500	\$219,900
Sale Price/Sq. Ft. (A.G.)	\$108.42	\$78.82
Year Built	2000	2000
Building Size (Sq. Ft.)	2,790	2,790
Lot Size (Acres)	10.00	10.00
Style	Two-story; frame (vinyl) 4 bedrooms, 3 bath	Two-story; frame (vinyl) 4 bedrooms, 3 bath
Basement	Full, finished	Full, finished
Utilities	Central air other heat well & septic	Central air other heat well & septic
Other	2.5-car attached garage patio renovated in 2008	2.5-car attached garage patio renovated in 2008

Based on the data shown in the above comparison sales table, and the location to photovoltaic panels at 165 feet to the proximate property, there does not appear to have been any measurable negative impact on property values due to the proximity of a solar farm.

NORTH STAR SOLAR FARM SALE COMPARISON NO. 2

	Proximate to a Photovoltaic Panel	Prior Sale
Address	10095 367 th St. North Branch, MN 55056	10095 367 th St. North Branch, MN 55056
Distance from P.V. Panel (Ft.)	175	N/A
Sale Date	June 16, 2017	July 9, 2010
Sale Price	\$336,667	\$299,000
Sale Price/Sq. Ft. (A.G.)	\$125.76	\$111.69
Year Built	2002	2002
Building Size (Sq. Ft.)	2,677	2,677
Lot Size (Acres)	10.00	10.00
Style	Two-story; frame (vinyl) 4 bedrooms, 2.1 bath	Two-story; frame (vinyl) 4 bedrooms, 2.1 bath
Basement	Full, finished Central air	Full, finished Central air
Utilities	other heat well & septic	other heat well & septic
Other	2-car attached & 2-car detached garage deck, patio renovated in 2010	2-car attached & 2-car detached garage deck, patio renovated in 2010

Based on the data shown in the above comparison sales table, and the location to photovoltaic panels at 175 feet to the proximate property, there does not appear to have been any measurable negative impact on property values due to the proximity of a solar farm.

NORTH STAR SOLAR FARM SALE COMPARISON NO. 3

	Proximate to a Photovoltaic Panel	Prior Sale
Address	37083 Keystone Ave. North Branch, MN 55056	37083 Keystone Ave. North Branch, MN 55056
Distance from P.V. Panel (Ft.)	300	N/A
Sale Date	August 28, 2017	August 8, 2000
Sale Price	\$252,290	\$100,000
Sale Price/Sq. Ft. (A.G.)	\$151.07	\$59.88
Year Built	1964	1964
Building Size (Sq. Ft.)	1,670	1,670
Lot Size (Acres)	6.00	6.00
Style	One-story; frame (wood) 3 bedrooms, 2.0 bath	One-story; frame (wood) 3 bedrooms, 2.0 bath
Basement	N/A Central air	N/A Central air
Utilities	forced-air heat well & septic	forced-air heat well & septic
Other	2 pole barns, shed, and lean-to covered patio renovated in 1984	2 pole barns, shed, and lean-to covered patio renovated in 1984

Based on the data shown in the above comparison sales table, and the location to photovoltaic panels at 300 feet to the proximate property, there does not appear to have been any measurable negative impact on property values due to the proximity of a solar farm.

NORTH STAR SOLAR FARM SALE COMPARISON NO. 4		
	Proximate to a Photovoltaic Panel	Prior Sale
Address	10254 367 th St. North Branch, MN 55056	10254 367 th St. North Branch, MN 55056
Distance from P.V. Panel (Ft.)	330	N/A
Sale Date	October 27, 2017	December 16, 2005
Sale Price	\$335,000	\$373,000
Sale Price/Sq. Ft. (A.G.)	\$144.02	\$160.36
Year Built	2005	2005
Building Size (Sq. Ft.)	2,326	2,326
Lot Size (Acres)	9.28	9.28
Style	Two-story; frame (vinyl) 3 bedrooms, 3.0 bath	Two-story; frame (vinyl) 3 bedrooms, 3.0 bath
Basement	N/A	N/A
Utilities	Central air forced-air heat well & septic	Central air forced-air heat well & septic
Other	3-car attached garage 48x72 aluminum workshop renovated in 2009	3-car attached garage 48x72 aluminum workshop

Based on the data shown in the above comparison sales table, and the location to photovoltaic panels at 330 feet to the proximate property, there does not appear to have been any measurable negative impact on surrounding property values due to the proximity of a solar farm. The prior sale does show a higher price per square foot; however, these superior prices can be significantly attributed to the superior market conditions in which the year 2005 reflected prices at the top of the residential market. A downward market condition adjustment is necessary for the December 16, 2005 sale.

NORTH STAR SOLAR FARM SALE COMPARISON NO. 5

	Proximate to a Photovoltaic Panel	Prior Sale
Address	10132 367 th St. North Branch, MN 55056	10132 367 th St. North Branch, MN 55056
Distance from P.V. Panel (Ft.)	340	N/A
Sale Date	October 20, 2017	July 3, 2001
Sale Price	\$333,000	\$226,800
Sale Price/Sq. Ft. (A.G.)	\$154.88	\$105.49
Year Built	2001	2001
Building Size (Sq. Ft.)	2,150	2,150
Lot Size (Acres)	10.00	10.00
Style	Two-story; frame (vinyl) 4 bedrooms, 2.5 bath	Two-story; frame (vinyl) 4 bedrooms, 2.5 bath
Basement	Full, finished, walkout	Full, finished, walkout
Utilities	Central air forced-air heat well & septic	Central air forced-air heat well & septic
Other	3-car attached garage 48x28 pole barn renovated in 2008	3-car attached garage 48x28 pole barn

Based on the data shown in the above comparison sales table, and the location to photovoltaic panels at 340 feet to the proximate property, there does not appear to have been any measurable negative impact on property values due to the proximity of a solar farm.

NORTH STAR SOLAR FARM SALE COMPARISON NO. 6

	Proximate to a Photovoltaic Panel	Prior Sale
Address	10200 367 th St. North Branch, MN 55056	10200 367 th St. North Branch, MN 55056
Distance from P.V. Panel (Ft.)	400	N/A
Sale Date	November 28, 2017	November 8, 2004
Sale Price	\$322,938	\$309,900
Sale Price/Sq. Ft. (A.G.)	\$137.42	\$131.87
Year Built	2003	2003
Building Size (Sq. Ft.)	2,350	2,350
Lot Size (Acres)	9.30	9.30
Style	Two-story; frame (vinyl) 4 bedrooms, 2.5 bath	Two-story; frame (vinyl) 4 bedrooms, 2.5 bath
Basement	Full, finished, walkout	Full, finished, walkout
Utilities	Central air forced-air heat well & septic	Central air forced-air heat well & septic
Other	2.5-car attached garage 42x60 pole barn, porch, deck renovated in 2009	2.5-car attached garage porch, deck 42x60 pole barn

Based on the data shown in the above comparison sales table, and the location to photovoltaic panels at 400 feet to the proximate property, there does not appear to have been any measurable negative impact on property values due to the proximity of a solar farm.

**RECENT SINGLE-FAMILY RESIDENTIAL SALES SUMMARY
 IN THE AREA NEAREST TO THE MORGAN'S CORNER SOLAR FARM
 IN ELIZABETH CITY, NORTH CAROLINA
 ONLINE IN 2015**

No.	Location	Sale Price	Sale Date	Distance from Solar Farm (Ft.)	Site Size (Acres)	Year Built	Building Size (Sq. Ft.)	Sale Price Per Sq. Ft. of Bldg. Area Incl. Land
1	1364 Blindman Rd. Elizabeth City, North Carolina	\$175,000	2/28/17	640	1.00	2013	1,762	\$99.32
2	1363 Blindman Rd. Elizabeth City, North Carolina	\$160,900	5/4/18	830	10.01	2004	1,820	\$88.41
3	1461 Millpond Rd. Elizabeth City, North Carolina	\$180,000	6/25/15	1,893	0.99	1994	2,517	\$71.51
4	974 U.S Hwy. 158 Elizabeth City, North Carolina	\$162,000	9/28/16	1,955	0.96	2001	1,848	\$87.66
5	740 Firetower Rd. Elizabeth City, North Carolina	\$144,000	6/26/15	3,770	0.89	1976	1,701	\$84.66
6	214 Linwood Dr. Elizabeth City, North Carolina	\$197,250	4/9/18	4,400	0.69	2006	2,100	\$93.93
7	773 U.S Hwy. 158 Elizabeth City, North Carolina	\$290,000	2/26/16	4,645	4.41	2008	2,460	\$117.89
8	1401 Brothers Ln. Elizabeth City, North Carolina	\$100,000	12/4/15	5,597	0.30	2012	1,344	\$74.40

Based on the data shown in the above improved sales table, and the location to photovoltaic panels at 640 feet to 5,597 feet, there does not appear to have been any measurable negative impact on surrounding property values due to the proximity of a solar farm. The sale of the 773 U.S. Highway 158 property does show a higher price per square foot; however, these superior prices can be significantly attributed to the larger land size of the property. Also, in comparison, the 1401 Brothers Lane sale is furthest from the solar farm and sold at the second lowest price per square foot.

**RECENT SINGLE-FAMILY RESIDENTIAL SALES SUMMARY
 IN THE AREA NEAREST TO THE AM BEST SOLAR FARM
 IN GOLDSBORO, NORTH CAROLINA**

ONLINE IN 2013

(BASED ON MATCHED PAIR #1 FROM KIRKLAND APPRAISAL, LLC)

No.	Location	Sale Price	Sale Date	Distance from Solar Farm (Ft.)	Site Size (Acres)	Year Built	Building Size (Sq. Ft.)	Sale Price Per Sq. Ft. of Bldg. Area Incl. Land
1	103 Erin Pl. Goldsboro, North Carolina	\$250,000	3/31/14	450	0.93	2014	3,492	\$71.59
2	2400 Granville Dr. Goldsboro, North Carolina	\$224,000	6/19/14	560	0.81	2014	2,464	\$90.91
3	2311 Granville Dr. Goldsboro, North Carolina	\$248,000	10/22/13	630	1.12	2013	3,400	\$72.94
4	2309 Granville Dr.* Goldsboro, North Carolina	\$258,000	6/8/17	635	1.12	2013	3,194	\$80.78
5	2401 Granville Dr. Goldsboro, North Carolina	\$258,000	4/7/14	650	0.91	2013	3,511	\$73.48
6	2402 Granville Dr. Goldsboro, North Carolina	\$253,000	12/3/13	715	0.95	2013	3,400	\$74.41
7	2403 Granville Dr. Goldsboro, North Carolina	\$242,000	6/3/14	845	0.67	2014	2,388	\$101.34
8	2404 Granville Dr. Goldsboro, North Carolina	\$255,000	4/17/14	875	0.73	2014	3,643	\$70.00

* - Updated resale of the property found in Kirkland Appraisals, LLC's Matched Pair #1

The data used is based on the Matched Pair #1 from the report *Edgecombe Solar Impact Study* performed by Richard C. Kirkland, Jr., MAI of Kirkland Appraisals, LLC. The data in the above improved sales table, and the location to photovoltaic panels at 450 feet to 875 feet, shows there does not appear to have been any measurable negative impact on surrounding property values due to the proximity of a solar farm. The table shows that the 2404 Granville Drive sale is furthest from the solar farm and sold at the lowest price per square foot.

Before and After Sales Comparison Analysis – Goldsboro, North Carolina

Along with research of sales near the footprint a before and after sales comparison analysis was performed on the homes that were most proximate and were originally analyzed by Richard C. Kirkland, Jr., MAI of Kirkland Appraisals, LLC. These sales comparisons include the sales research performed by Kirkland Appraisals, LLC, and the updated sales information of their research.

AM BEST SOLAR FARM SALE COMPARISON NO. 1		
	Proximate to a Photovoltaic Panel	Prior Sale (Kirkland Appraisals, LLC)
Address	102 Erin Pl. Goldsboro, NC 27530	102 Erin Pl. Goldsboro, NC 27530
Distance from P.V. Panel (Ft.)	300	300
Sale Date	November 28, 2016	August 12, 2014
Sale Price	\$270,000	\$253,000
Sale Price/Sq. Ft. (A.G.)	\$79.41	\$74.41
Year Built	2014	2014
Building Size (Sq. Ft.)	3,400	3,400
Lot Size (Acres)	1.13	1.13
Style	Two-story; frame (vinyl) 4 bedrooms, 3 bath	Two-story; frame (vinyl) 4 bedrooms, 3 bath
Basement	N/A	N/A
Utilities	Central air electric/forced-air heat well & septic	Central air electric/forced-air heat well & septic
Other	2-car attached garage shed pool	2-car attached garage shed pool

The more current sale reflects a superior price per square foot than the previous sale. Based on the data shown in the above comparison sales table, and the location to photovoltaic panels at 300 feet to the proximate property, there does not appear to have been any measurable negative impact on property values due to the proximity of a solar farm.

AM BEST SOLAR FARM SALE COMPARISON NO. 2

	Proximate to a Photovoltaic Panel	Prior Sale (Kirkland Appraisals, LLC)
Address	104 Erin Pl. Goldsboro, NC 27530	104 Erin Pl. Goldsboro, NC 27530
Distance from P.V. Panel (Ft.)	300	300
Sale Date	June 19, 2017	July 30, 2014
Sale Price	\$280,000	\$250,000
Sale Price/Sq. Ft. (A.G.)	\$82.35	\$73.53
Year Built	2014	2014
Building Size (Sq. Ft.)	3,400	3,400
Lot Size (Acres)	2.24	2.24
Style	Two-story; frame (vinyl) 5 bedrooms, 3.5 bath	Two-story; frame (vinyl) 5 bedrooms, 3.5 bath
Basement	N/A	N/A
Utilities	Central air heat pump well & septic	Central air heat pump well & septic
Other	2-car attached garage	2-car attached garage

The more current sale reflects a superior price per square foot than the previous sale. Based on the data shown in the above comparison sales table, and the location to photovoltaic panels at 300 feet to the proximate property, there does not appear to have been any measurable negative impact on property values due to the proximity of a solar farm.

AM BEST SOLAR FARM SALE COMPARISON NO. 3

	Proximate to a Photovoltaic Panel	Prior Sale (Kirkland Appraisals, LLC)
Address	2312 Granville Dr. Goldsboro, NC 27530	2312 Granville Dr. Goldsboro, NC 27530
Distance from P.V. Panel (Ft.)	400	400
Sale Date	May 1, 2018	December 16, 2013
Sale Price	\$285,000	\$255,000
Sale Price/Sq. Ft. (A.G.)	\$82.54	\$73.85
Year Built	2013	2013
Building Size (Sq. Ft.)	3,453	3,453
Lot Size (Acres)	0.75	0.75
Style	Two-story; frame (vinyl) 5 bedrooms, 4 bath	Two-story; frame (vinyl) 5 bedrooms, 4 bath
Basement	N/A	N/A
Utilities	Central air heat pump well & septic	Central air heat pump well & septic
Other	2-car attached garage above-ground pool	2-car attached garage

The more current sale reflects a superior price per square foot than the previous sale. Based on the data shown in the above before and after sales table, and the location to photovoltaic panels at 400 feet to the proximate property, there does not appear to have been any measurable negative impact on property values due to the proximity of a solar farm.

AM BEST SOLAR FARM SALE COMPARISON NO. 4

	Proximate to a Photovoltaic Panel	Prior Sale (Kirkland Appraisals, LLC)
Address	2308 Granville Dr. Goldsboro, NC 27530	2308 Granville Dr. Goldsboro, NC 27530
Distance from P.V. Panel (Ft.)	415	415
Sale Date	November 15, 2015	September 15, 2013
Sale Price	\$267,500	\$260,000
Sale Price/Sq. Ft. (A.G.)	\$74.39	\$72.30
Year Built	2013	2013
Building Size (Sq. Ft.)	3,596	3,596
Lot Size (Acres)	1.49	1.49
Style	Two-story; frame (vinyl) 6 bedrooms, 4 bath	Two-story; frame (vinyl) 6 bedrooms, 4 bath
Basement	N/A	N/A
Utilities	Central air heat pump well & septic	Central air heat pump well & septic
Other	2-car attached garage covered patio	2-car attached garage covered patio

The more current sale reflects a superior price per square foot than the previous sale. Based on the data shown in the above before and after sales table, and the location to photovoltaic panels at 415 feet to the proximate property, there does not appear to have been any measurable negative impact on property values due to the proximity of a solar farm.

Overall, the improved sales of properties, the before and after sales comparisons, and the proximation to photovoltaic panels at 165 feet to 5,597 feet from each property, shows that there does not appear to have been any measurable negative impact on surrounding property values due to the proximity of a solar farm. This conclusion is based on proximity to the photovoltaic panels, price per square foot, condition based on year built, and if the property was sold before or after the construction of the solar farm.

Solar Farm Assessor Surveys

Surveys and interviews were conducted with supervisors of assessments or staff members of counties that host solar farms that include a total capacity of 5 megawatts or more. The surveys and interviews were intended to allow the assessment officials to share their experience regarding the solar farm(s) impact upon the market values and/or assessed values of surrounding properties. The surveys and interviews were intended to be conversational, however they thoroughly discussed residential and agricultural values and impacts. The following sections summarize each of the surveys and interviews performed.

Wisconsin Assessors Solar Farm Survey - April 2018

In April 2018, my office conducted a survey of the supervisor of assessments or a staff member in 11 counties in Wisconsin in which solar farms with more than 0.9 megawatt of capacity are currently in operation. As of the date of this report, there are more than 13 solar farms with a total capacity of greater than 18 megawatts within these counties, with additional farms being added each year. An updated study performed by the Solar Energy Industries Association (SEIA) in March 2021 states that, in total, Wisconsin has 442.03 megawatts of solar energy installed. The total capacity reported in the study includes utility, residential, and nonresidential scale solar farms. The interviews were intended to allow the assessment officials to share their experience regarding the solar farm(s) impact upon the market values and/or assessed values of surrounding properties. The following is a summary of the results of that survey:

- ∴ Without exception, the interviewees reported that there was no market evidence to support a negative impact upon residential property values as a result of the development of, and the proximity to, a solar farm facility. In some counties, this results from the very rural nature of the area in which the projects are located.
- ∴ There have been no tax appeals in any county based upon solar farm-related concerns.
- ∴ In the past 18 months, the assessor's offices have not experienced a real estate tax appeal based upon solar farm-related concerns. There have been no reductions in assessed valuations related to solar panels.
- ∴ Residential assessed values have fluctuated consistently countywide as influenced by market conditions, with no regard for proximity to a solar farm.
- ∴ Agricultural property assessed values have fluctuated consistently countywide as influenced by market conditions, with no regard for proximity to a solar farm.

Illinois Assessors Survey – July 2019

In July 2019, my office conducted a survey of the supervisor of assessments or a staff member in 6 counties in Illinois in which solar farms with more than 1.0 megawatts of capacity are currently in operation. As of the date of this report, there are more than 10 utility-scale solar farms with a total capacity of greater than 50.7 megawatts within these counties, with additional farms being added each year. An updated study performed by the Solar Energy Industries Association (SEIA) in Q1 of 2019 states that, in total, Illinois has 119.7 megawatts of solar energy installed. The total capacity reported in the study includes utility, residential, and nonresidential scale solar farms. The interviews were intended to allow the assessment officials to share their experience regarding the solar farm(s) impact upon the market values and/or assessed values of surrounding properties. The following is a summary of the results of that survey:

- ∴ Without exception, the interviewees reported that there was no market evidence to support a negative impact upon residential property values as a result of the development of and the proximity to a solar farm facility. In some counties, this results from the very rural nature of the area in which the projects are located.
- ∴ In the past 18 months, the assessor's offices have not experienced a real estate tax appeal based upon solar farm-related concerns. There have been no reductions in assessed valuations related to photovoltaic panels.
- ∴ As the available market data does not support the claim of a negative impact upon residential values, residential assessed values have fluctuated consistently within counties as influenced by market conditions, with no regard for proximity to a solar farm.
- ∴ Agricultural properties are taxed based upon a productivity formula that is not impacted by market data and external influences.

Indiana Assessors Survey – February & March 2019

In February & March 2019, my office conducted a survey of the supervisor of assessments or a staff member in 9 counties in Indiana in which solar farms with more than 3 megawatts of capacity are currently in operation. As of the date of this report, there are more than 16 solar farms with a total capacity of greater than 111 megawatts within these counties, with additional farms being added each year. An updated study performed by the Solar Energy Industries Association (SEIA) in Q4 of 2018 states that, in total, Indiana has 331.19 megawatts of solar energy installed. The total capacity reported in the study includes utility, residential, and nonresidential scale solar farms. The interviews were intended to allow the assessment officials to share their experience regarding the solar farm(s) impact upon the market values and/or assessed values of surrounding properties. The following is a summary of the results of that survey:

- ∴ Without exception, the interviewees reported that there was no market evidence to support a negative impact upon residential property values as a result of the development of and the proximity to a solar farm facility. In some counties, this results from the very rural nature of the area in which the projects are located.
- ∴ In the past 18 months, the assessor's offices have not experienced a real estate tax appeal based upon solar farm-related concerns. There have been no reductions in assessed valuations related to photovoltaic panels.
- ∴ As the available market data does not support the claim of a negative impact upon residential values, residential assessed values have fluctuated consistently within counties as influenced by market conditions, with no regard for proximity to a solar farm.
- ∴ Agricultural properties are taxed based upon a productivity formula that is not impacted by market data and external influences.

North Carolina Assessors Solar Farm Survey (Partial) - July 2018

In July 2018, my office conducted a partial survey of the supervisor of assessments or a staff member in 5 counties in North Carolina that, as of the date of this report, have more than 44 solar farms with a total capacity of over 645 megawatts within those solar farms. A study performed by the Solar Energy Industries Association (SEIA) in June 2018 states that, in total, North Carolina has 4,411.65 megawatts of solar energy installed within 7,527 installations and is ranked second in the country for solar generation. The total capacity reported in the study includes utility, residential, and nonresidential scale solar farms. The interviews were intended to allow the assessment officials to share their experience regarding the solar farm(s) impact upon the market values and/or assessed values of surrounding properties. The following is a summary of the results of that survey:

- ∴ Without exception, the interviewees reported that there was no market evidence to support a negative impact upon residential property values as a result of the development of, and the proximity to, a solar farm facility. In some counties, this results from the very rural nature of the area in which the projects are located.
- ∴ There have been no tax appeals in any county based upon solar farm-related concerns.
- ∴ In the past 18 months, the assessor's offices have not experienced a real estate tax appeal based upon solar farm-related concerns. There have been no reductions in assessed valuations related to solar panels.
- ∴ Residential assessed values have fluctuated consistently countywide as influenced by market conditions, with no regard for proximity to a solar farm.
- ∴ Agricultural property assessed values have fluctuated consistently countywide as influenced by market conditions, with no regard for proximity to a solar farm.

Maryland Assessors Solar Farm Survey - October 2017

In October 2017, my office conducted a survey of the supervisor of assessments or a staff member in 13 counties in Maryland in which solar farms with more than 0.9 megawatts currently in operation. As of the date of this report, there are more than 25 solar farms with a total capacity of greater than 60 megawatts within these counties, with additional farms being added each year. An updated study performed by the Solar Energy Industries Association (SEIA) in June 2018 states that, in total, Maryland has 932.7 megawatts of solar energy installed. The total capacity reported in the study includes utility, residential, and nonresidential scale solar farms. The interviews were intended to allow the assessment officials to share their experience regarding the solar farm(s) impact upon the market values and/or assessed values of surrounding properties. The following is a summary of the results of that survey:

- ∴ Without exception, the interviewees reported that there was no market evidence to support a negative impact upon residential property values as a result of the development of, and the proximity to, a solar farm facility. In some counties, this results from the very rural nature of the area in which the projects are located.
- ∴ There have been no tax appeals in any county based upon solar farm-related concerns.
- ∴ In the past 18 months, the assessor's offices have not experienced a real estate tax appeal based upon solar farm-related concerns. There have been no reductions in assessed valuations related to solar panels.
- ∴ Residential assessed values have fluctuated consistently countywide as influenced by market conditions, with no regard for proximity to a solar farm.
- ∴ Agricultural property assessed values have fluctuated consistently countywide as influenced by market conditions, with no regard for proximity to a solar farm.

Real Estate Professionals

Midwestern real estate professionals were contacted to discuss market conditions, specific market transactions, and to investigate whether they had experience with, or knowledge of any impact of solar farms on residential property values.

Some interviews have been conducted with market participants, real estate brokers, and real estate professionals in Wisconsin and Indiana that have had experience with residential properties proximate to solar farms, however, they wish to remain anonymous. The interviewees indicated that there have not been any negative impacts to residential property values due to the proximity to solar farms.

Dustin Dolezalek of Scott Appraisal in Madison, Wisconsin, has observed positive feedback from residents proximate to other solar farms throughout southern Wisconsin. He also notes that the solar farms he has witnessed have a somewhat rolling topography in which the land acts as a natural view shield to any major road.

Jeff Thomas of Mineral Point Real Estate, the highest selling broker in Iowa County, Wisconsin, states that he is very cognizant of all of the activity in the Iowa County market. He is aware that the Montfort housing market is stable, however, it is not in strong demand because the purchasing trend is typically between family members and parties looking to get housing from \$100,000 up to \$200,000. Mr. Thomas has observed patterns of no impact or no negative impact from alternative energy in the area, however, there is a concern about the nearby power lines developed by American Transmission Company.

Anne Larson of True-Blue Real Estate located near Barneveld, Wisconsin, states that in her opinion, minimal transactional activity is happening in or around Montfort, Wisconsin. Typical buyers are interested in properties that have values under \$200,000. Basically, purchasing demand for the area is only driven by affordability. In her opinion, there is no negative impact based on the proposed solar farm.

Prior to the approval of the Badger Hollow Solar Farm in Iowa County, Wisconsin, interveners, Brenda and Casey Kite, requested appraisal services for their property at 2680 County Road G #80, from Kurt Kielisch of Forensic Appraisal Group. The residence is a 1,987-square-foot farmhouse with a 5,040-square-foot pole barn and grain bin that sits on 3.73 acres of land. The Kite property is located in an area that is surrounded by tall crops, such as corn, and Badger Hollow Solar Farm agreed to an appropriate 500-foot setback from the residence. Within the immediate view of the property is a small wind farm, the Montfort Wind that came online in 2001, which the Kites were aware of at the time that they purchased the property in 2005.

The Kites purchased the property December 5, 2005 for \$179,999, which is understood to be near the top of the local residential real estate market up to the year 2015. There is limited information that indicates that significant improvements were made between 2005 and the eventual 2019 sale.

The Kites listed the property as “For Sale by Owner”, which implies that the sale was substantially under exposed to the market. Due to the Kites not using a broker for the listing, the sale price did not factor in the market broker commission. Also, throughout the marketing period the Kites had a large anti-solar sign posted on the front of their property which used tactical scare verbiage in an attempt to persuade their neighbors, however, the sign acted as a disservice to them by deterring potential buyers from their property. The property sold on August 1, 2019 for \$253,700. Therefore, by adding a market commission of 5.5%, the sale price of the property is adjusted to \$267,600. Another adjustment of 5% should be added to the property’s selling price for the lack of market exposure and the anti-solar sign, to create a final adjusted sale price of \$281,000.

Kurt Kielisch appraised the property with an effective date of November 14, 2019, with a before solar development value of \$298,500 and an after solar development value of \$179,000. The adjusted August 1, 2019 sale price of \$281,000, which occurred with the knowledge of the solar development, reflects a difference of \$102,000 or a 57% increase compared to Kielisch's after solar development value estimate of \$179,000. Utilizing the unadjusted Kite sale price of \$253,700 with the Kielisch after solar value of \$179,000, reflects an overall price increase of \$74,700 or 41.7% price increase. Complete details of this appraisal can be found on page XXIV in the addenda of this report.

Joy Boyd, a local Illinois licensed broker in Christian County, Illinois has observed rural residential property values near existing energy facilities, such as wind farms, have not been negatively impacted due to the proximity to a wind turbine. Ms. Boyd also states that during peak farming season, systems such as solar panels essentially disappear behind the crops on the land. Ms. Boyd also reported that rural residential properties in the general area are overall accepting of alternative uses for the land due to the proximity of existing intense agricultural uses, agricultural and industrial type buildings, gravel roads, and other intrusive uses of the land. It has been observed that the residents within Christian County and the general project area have consistently agree that the only negative land use possibly impacting property values and buyers' decisions are the existing hog containment facilities within the county.

Agricultural Land Values

“Agricultural land values are typically tied to the productivity of the land and to the commodity prices of crops like corn and soybeans. Other factors include favorable interest rates, and the supply of land compared to the number of buyers. The weighted average price of agricultural land sold in Wisconsin in 2017 was \$4,025 per acre. This is a 3.5% increase from 2015 and nearly identical to the average from 2016. There were 11% more acres sold in 2017 and 13% more reported transactions. Declining farm incomes helped to dampen demand. With low commodity prices expected and increased borrowing costs again in 2018, producer competition for land will likely soften again.”⁷

The Wisconsin Agricultural Land Sales Summary produced by United States Department of Agriculture⁸ reported agricultural land values in Dane County averaged \$11,144 per acre in 2018 among 39 transactions. The state of Wisconsin’s agricultural land values averaged \$6,182 per acre in 2018 among 1,663 transactions. The following charts illustrate land values as of 2018 of the Dane County and the state of Wisconsin.

AGRICULTURAL LAND SALES: WISCONSIN, 2014-2018									
Year	Agricultural land continuing in agricultural use			Agricultural land being diverted to other uses			Total of all agricultural land		
	Number of transactions	Acres sold	Dollars per acre	Number of transactions	Acres sold	Dollars per acre	Number of transactions	Acres sold	Dollars per acre
Land without buildings and improvements									
2014	872	48,550	5,037	72	3,238	5,880	944	51,788	5,090
2015	854	49,760	5,131	58	2,266	6,057	912	52,026	5,171
2016	817	45,413	5,221	61	1,720	7,558	878	47,133	5,306
2017	807	42,621	4,960	94	4,222	10,794	901	46,843	5,485
2018	964	51,421	5,587	106	3,252	13,280	1,070	54,673	6,045
Land with buildings and improvements									
2014	639	48,869	5,775	45	1,479	5,771	684	50,348	5,775
2015	603	43,851	5,669	57	2,068	8,138	660	45,919	5,780
2016	646	52,604	5,708	37	1,507	6,544	683	54,111	5,732
2017	571	41,997	5,937	55	2,032	8,373	626	44,029	6,050
2018	540	38,161	6,128	53	2,217	10,491	593	40,378	6,368
Total									
2014	1,511	97,419	5,407	117	4,717	5,846	1,628	102,136	5,428
2015	1,457	93,611	5,383	115	4,334	7,050	1,572	97,945	5,457
2016	1,463	98,017	5,483	98	3,227	7,085	1,561	101,244	5,534
2017	1,378	84,618	5,445	149	6,254	10,007	1,527	90,872	5,759
2018	1,504	89,582	5,818	159	5,469	12,150	1,663	95,051	6,182

⁷ Brannstrom, A.J. (2018, February). University of Wisconsin Center for Dairy Profitability, Wisconsin Agricultural Land Prices 2012-2017 <https://fyi.uwex.edu/farmteam/files/2018/04/Wisconsin-Ag-Land-Prices-2012-2017-final.pdf>

⁸ United States Department of Agriculture. (2019). Retrieved from https://www.nass.usda.gov/Statistics_by_State/Wisconsin/Publications/Land_Sales/index.php.

AGRICULTURAL LAND SALES: LAND *WITHOUT* BUILDINGS AND OTHER IMPROVEMENTS, WISCONSIN, 2018

County	Agricultural land continuing In agricultural use			Agricultural land being diverted to other uses			Total of all agricultural land			Range for land continuing in ag use	
	Number of transactions	Acres sold	Dollars per acre	Number of transactions	Acres sold	Dollars per acre	Number of transactions	Acres sold	Dollars per acre	Lowest Price	Highest Price
Dane	29	1,873	8,912	10	424	21,004	39	2,297	11,144	4,000	20,000
Wisconsin	964	51,421	5,587	106	3,252	13,280	1,070	54,673	6,045	726	27,000

AGRICULTURAL LAND SALES: LAND *WITH* BUILDINGS AND OTHER IMPROVEMENTS, WISCONSIN, 2018

County	Agricultural land continuing In agricultural use			Agricultural land being diverted to other uses			Total of all agricultural land		
	Number of transactions	Acres sold	Dollars per acre	Number of transactions	Acres sold	Dollars per acre	Number of transactions	Acres sold	Dollars per acre
Dane	17	996	11,639	3	98	71,024	20	1,094	16,959
Wisconsin	540	38,161	6,128	53	2,217	10,491	593	40,378	6,368

AGRICULTURAL LAND SALES: TOTAL AGRICULTURAL LAND¹, WISCONSIN, 2018

County	Agricultural land continuing In agricultural use			Agricultural land being diverted to other uses			Total of all agricultural land		
	Number of transactions	Acres sold	Dollars per acre	Number of transactions	Acres sold	Dollars per acre	Number of transactions	Acres sold	Dollars per acre
Dane	46	2,869	9,859	13	522	30,395	59	3,391	13,020
Wisconsin	1,504	89,582	5,818	159	5,469	12,150	1,663	95,051	6,182

¹Includes both land with and without buildings and other improvements.

The following table summarizes a sample of recent agricultural land sales nearest to the footprint of the proposed Koshkonong Solar Energy Center in Dane County.

SUMMARY OF RECENT LAND SALES NEAREST TO THE KOSHKONONG SOLAR ENERGY CENTER						
No.	Owner Mailing Address & Parcel Identification	Sale Price	Sale Date	Land Area (Acres)	NCCPI	Sale Price Per Acre
1	1422 Kaase Road Stoughton, Wisconsin 53589 Dane County, WI 5N, 6N 12E – 32, 5 APN: 0512-052-8100-6, -323-9000-5, -9550-0, -9690-1					
	Land Sale #1 – 4 Fields	\$316,751	4/30/18	55.42	34.0	\$5,715.46
2	1273 East Church Road Cambridge, Wisconsin 53523 Dane County, WI 6N 12E – 29, 30 APN: 0612-293-9040-0, -9550-0					
	Land Sale #2 – 2 Fields	\$350,000	3/8/19	35.61	N/A	\$9,828.70
3	1155 East Church Road Cambridge, Wisconsin 53523 Dane County, WI 6N 12E – 29, 32 APN: 0612-294-9005-0, -321-8580-0					
	Land Sale #3 – 1 Field	\$450,000	10/26/18	53.88	65.8	\$8,351.89
4	1397 Ramsey Road Stoughton, Wisconsin 53589 Dane County, WI 5N 12E – 6 APN: 0512-063-8030-8					
	Land Sale #4 – 1 Field	\$563,000	12/15/17	35.44	45.7	\$15,886.00
5	1765 Orlin Circle Stoughton, Wisconsin 53589 Dane County, WI 6N 11E – 36 APN: 0611-361-8690-9, -362-9505-0					
	Land Sale #5 – 2 Fields	\$637,500	6/26/20	21.99	67.7	\$28,990.45
6	1144 County Highway B Cambridge, Wisconsin 53523 Dane County, WI 6N 12E – 19 APN: 0612-191-8180-0, -9000-5, -9600-9, -193-8020-1, -194-8100-3, -8500-9, -9041-3					
	Land Sale #6 – 7 Fields	\$1,316,400	10/23/17	120.91	82.7	\$10,887.44
Summary of Recent Land Sales Averages:					59.2	\$13,276.66
Dane County Averages:					82.7	\$9,201.00

The above sample of agricultural land sales reveal that the productivity of the majority of agricultural land nearest to the area of the proposed project footprint in Dane County appears to be below average for the county with a National Commodity Crop Productivity Index of 59.2, the average National Commodity Crop Productivity Index for Dane County is 82.7. However, the area appears to have higher than average land prices per acre of \$13,276.66. While the productivity potential in the area is below-average, the plots of land with lower crop productivity nearest to the proposed solar farm should only benefit from the potential to counter-balance farm revenue lost from the lower crop productivity of the land by adding photovoltaic panels and land leases to the lower-quality agricultural land.

Agricultural Land Sales: Solar Farms and Wind Farms

Over the past 10-20 years, wind energy has grown rapidly across the Midwest in agricultural communities similar to Christian County. Solar energy is increasingly being installed in this region as well. This is driven by several factors, including steep cost declines primarily from decreases in inverter and module prices, and utility and other customers' interest in affordable, low-carbon energy. Although wind and solar energy projects have varying reasons for being placed in the Midwest and other similar locations, their sites have notable attributes in common, including access to an available energy resource, access to the electrical grid, and predominantly agricultural economies in which solar or wind can be located along with other productive uses of the land.

MaRous and Company has extensively researched the question of property value impacts by wind farms and our findings show that responsibly sited wind farms do not have any negative impacts on neighboring property values. Solar farms are significantly lower profile, thus have reduced if not eliminated, visual concerns with negligible, if any, sound emissions. Therefore, it is our observation that if wind farms do not negatively impact property values, solar farms will not either. This is confirmed by the market research presented earlier in this report. The following is a brief summary of a portion of our research into wind farm property values, along with the summaries of the county assessors' surveys conducted in 60 counties within the states of Indiana, South Dakota, Iowa, Minnesota, Kansas, and Illinois in which wind farms are located.

We have compiled research for wind farms and have summarized our findings. The research was not exhaustive, however, in Illinois there was one reported sale of agricultural land close to wind turbines located in McLean County, Illinois, in March 2013. The farm, comprised of two tracts, was considered "highly desirable" with a productivity rating of 135 and 132 respectively (the low end of the excellent range.) The report commented, "...the wind turbine lanes were not a nuisance as they ran the same direction as the farm is planted (north-south.)" In 2014, there were three sales of farms with wind turbines in Region 4, which includes the counties of Marshall, Woodford, Mason, Putnam, Livingston, McLean, and Tazewell. The report stated, "In general, investors may have paid a premium for the wind turbine. High quality farmland with wind turbines is stable."

Another reported sale in November 2017 was to be associated with wind turbines within Jerauld County, South Dakota, which is home to the Wessington Springs Wind Farm and has similar demographics as the project area. The property is situated on pastureland of poor quality with significant topography issues, which would reflect a lower price per acre than the region's average price of \$2,011 per acre. However, the sale included multiple wind turbine leases, and sold with an above average price per acre of \$2,800, which signifies a direct correlation to the benefit associated with the turbines on the land.

Overall, it appears that there is little or no relationship between agricultural land values and the location of wind farms, with productivity being the driving force behind land values. However, wind farm lease revenue appears to add to the marketability and value.

An article titled *Solar and Wind Contracts Add to Land Value: Illinois Survey*⁹, published in the *Illinois Farmer Today*, describes the benefits wind turbines had given to land prices in the area of two land sales in Macon County, Illinois with and without turbines on the land. The article used a report published in the *2019 Illinois Land Values and Lease Trends*¹⁰; the report stated “Both tracts brought a premium to farms in the market without wind towers. The estimated increase was roughly \$750 per acre for each tract when factoring out all the other variables. Both properties were on highly productive Macon County land. The larger tract, with 97.6 percent tillable acres, sold for \$11,000 per acre. The 114-acre tract, with 87.1 percent tillable acres and some CRP land, sold for \$10,721”

Wind turbines typically are considered to be of significant benefit to farmers; Iowa farmers interviewed by the *Omaha World Herald*, were positive about the stable income as opposed to the vicissitudes of commodity prices.¹¹ Franklin County, Iowa, reported lowering real estate taxes for the county as a whole because of the taxes generated by the wind turbines in that county. Support for good prices comes from the lack of land for sale, stable commodity prices, and low interest rates. Marginal land in areas where wind turbines are located or proposed is popular with investors.¹²

A report in the *2016 Illinois Land Values and Lease Trends*, indicated that the impact of wind turbine leases is being felt in McLean, Livingston, and Woodford counties, where turbine leases have provided “income diversification, beyond agriculture, which makes these tracts more attractive to an outside investor.”¹³ Further, they noted that “investors are still paying a little more of a premium for the wind turbines just as they had in the past few years.”¹⁴ The report notes that the premium is related directly to the number of years left on the lease.

Overall, it appears that there is little or no relationship between agricultural land values and the location of wind farms, with productivity being the driving force behind land values. Wind farm lease revenue, however, does appear to add to the marketability and value.

⁹ *Solar and Wind Contracts Add to Land Value: Illinois Survey*. https://www.agupdate.com/illinoisfarmertoday/news/state-and-regional/solar-and-wind-contracts-add-to-land-value-illinois-survey/article_61f2d45c-5643-11e9-a283-c78a49e3fa2e.html

¹⁰ Klein, David E., 2019 *Illinois Land Values and Lease Trends*, Illinois Society of Professional Farm Managers and Rural Appraisers
¹¹ http://www.omaha.com/money/turning-to-turbines-as-commodity-prices-remain-low-wind-energy/article_2814e2cf-83a3-547d-a09e-f039e935f399.html Accessed September 18, 2107.

¹² <http://www.agriculture.com/farm-management/farm-land/farmland-sales-hard-to-find-as-growers-hold-tight-keeping-land-value> Accessed September 18, 2017.

¹³ Klein, David E., and Schnitkey, Gary, 2016 *Illinois Land Values and Lease Trends*, Illinois Society of Professional Farm Managers and Rural Appraisers

¹⁴ *Ibid.*

Wind Farm - Real Estate Professionals & Assessor Surveys 2016-2019

Real estate professionals from the surrounding market areas and in the Midwest were contacted to discuss market conditions, specific market transactions, and to investigate whether they had experience with or knowledge of any impact of wind farms on residential property values.

Joy Boyd, a local Illinois licensed real estate broker active in Christian and Macon Counties and the surrounding area, has observed rural residential property values near the existing wind farm, Radford's Run, have not been negatively impacted due to the proximity to a wind turbine. Ms. Boyd also reported that rural residential properties in the general area overall are accepting of alternative uses for the land due to the proximity of existing intense agricultural uses: agricultural and industrial type buildings, gravel roads, and other intrusive uses of the land. It has been observed that the residents within Christian County and the surrounding counties have consistently agree that the only negative land use possibly impacting property values and buyers' decisions are the existing hog containment facilities within the county.

Real estate professional, Joseph M. Webster, MAI, of Webster & Associates, Inc., Decatur, Illinois, was previously consulted within 2016 and 2017 for his extensive experience with agricultural, commercial, and residential values in the Decatur, and Macon County area, as well as the broader market area. Mr. Webster provided background information on the economic conditions as well as information on agricultural and residential values of the central Illinois area.

Michael Crowley, Sr., SRA of Real Estate Consultants, Ltd., Spring Valley, Illinois was consulted. Mr. Crowley has had extensive experience with wind farm development in Central Illinois, including projects in counties with similar demographics and character, such as Bureau, Whiteside, and Lee counties. Mr. Crowley has been unable to document any loss in property values attributable to the proximity of wind turbines.

Kansas broker, Mandy Collum of United Country Real Estate Professionals, states that the Neosho County residential market is very stable and has been stable over the past couple years. She also states that the county is very rural; therefore, residential sales are limited. Her view on the market indicates that the highest end for the residential market values range is typically \$250,000 and the highest end for the agricultural land values is typically \$3,300 per acre. Ms. Collum also pointed out that the market is demanding residential properties that are modern (which include modern energy sources, such as wind), well maintained, and show well to potential buyers. Properties with these features can be typically valued greater than \$100,000.

Kansas broker Stephanie Tuggle of Keller Williams Realty Select, states that Neosho County's residential market was affected heavily by the housing crisis that began in 2008 and continued through 2012; however, since 2012 the Neosho market has been slowly recovering and appears to be stable and at the peak of its market potential due to the discovery of some declining values throughout the county and due to values in the state trending downwards. Ms. Tuggle did not comment on her opinion of the range of values for residential properties; however, her opinion of the highest end for the agricultural land values is typically \$3,000 per acre.

David Engelman, Kansas General Certified Appraiser, Wilson County, Kansas, was consulted. Mr. Engelman has had extensive experience with agricultural, commercial, and residential values in the Neosho County area, as well as the broader southeast Kansas market area.

Jim Aesoph of Aesoph Real Estate, Inc. is a broker with 27 years of experience in northeast South Dakota. MaRous and Company contacted Mr. Aesoph due to his highly regarded reputation in the region. He stated that he contacted the assessors of the adjacent Codington, Grant, and Roberts counties to discuss land prices in each respective county, and each of them informed Mr. Aesoph that they are not aware of any effect on land prices due to new wind projects in the area. He also stated that 5 years ago land prices were roughly \$6,000 per acre, and now the average acre price is approximately \$4,000. The reduction in land prices, he mentioned, is not due to the wind project, but due to the production of corn on the land.

Interviews were conducted with six auctioneers throughout South Dakota. Marshall Hansen of Bob Hansen Auction stated that while turbines closer to home could possibly keep a buyer away, in areas of low population the development of turbines has a positive effect on the area. Mr. Hansen also stated that chemicals, such as insecticides, pose a larger impact on wildlife and game birds than turbines. Lenny Burlage of Burlage-Peterson Auctions stated that turbines do not negatively affect residential values but can affect each individual person differently. Jackson Hagerfeld of Advantage Land Company stated that he does see any impact on land from wind turbines, and the recent land sale prices are driven up by the limited number of properties on the market. Jim Thorpe of Thorpe Realty & Auction stated that turbine leases have positively impacted landowners with turbines on their land. Mr. Thorpe also stated that he had noticed a movement of buyers from larger cities buying properties that are being sold off by the aging population that is moving out of the area. Jeff Juffer of Juffer Incorporated stated that from the existing turbines within the Beethoven Wind Farm footprint have not had any effect, positive or negative, on the local market. Mr. Juffer also states that Avon and the immediate surrounding area is lacking in industry and would benefit from an outside influence to attract businesses to the area. Lastly, Glen Peterson of Peterson Auctioneers states that in the past two years there has been a demand for land that is not dependent on if a turbine is on the land or not, which can be assumed that turbines do not affect land sales in any way, positively or negatively.

Rick Mummert of Ron Holton Real Estate reported that residential conditions in both Freeborn and Mower counties in Minnesota had been stable through the last 3 years, primarily due to the very rural nature of the area; however, the area is benefitting from the low-interest rates. He reported that the Highway 14 corridor had experienced increases in residential values; in his opinion, the difference was due to the more developed nature of the area and the availability of jobs.

Interviews with brokers proximate to wind farms in Illinois yielded similar results. Although a number of them wished to remain anonymous, they stated that they did not believe that the proximity to wind turbines had any bearing on the sale prices of residential properties in the area.

Illinois Assessors Survey - Updated October 2016

In March 2015, and updated in October 2016, my office conducted a survey of the supervisor of assessments or a staff member in 18 counties in Illinois in which wind farms currently are operational. As of the third quarter of 2018, the AWEA reported there were 49 wind projects online with 2,632 wind turbines in the state with additional farms being added each year. The interviews were intended to allow the assessment officials to share their experience regarding the wind farm(s) impact upon the market values and/or assessed values of surrounding properties. The following is a summary of the results of that survey:

- ∴ Without exception, the interviewees reported that there was no market evidence to support a negative impact upon residential property values as a result of the development of and the proximity to a wind farm facility. In some counties, this results from the very rural nature of the area in which the projects are located.
- ∴ In the past 18 months, the assessor's offices have not experienced a real estate tax appeal based on wind farm-related concerns. There have been no reductions in assessed valuations related to wind turbines.¹⁵
- ∴ As the available market data do not support the claim of a negative impact upon residential values, residential assessed values have fluctuated consistently within counties as influenced by market conditions, with no regard for proximity to a wind farm.
- ∴ Agricultural properties are taxed based upon a productivity formula that is not impacted by market data and external influences.

¹⁵ A lawsuit was apparently filed in 2013 against the Supervisor of Assessments in Vermilion County by a homeowner proximate to wind turbines; however, there has been no further action on the matter.

Minnesota Assessors Survey - January 2017

In late January 2017, my office conducted a survey of the supervisor of assessments or a deputy supervisor in eight Minnesota counties where large numbers of wind turbines currently are operational. There are several counties with small numbers of wind turbines that were not included in the survey. As of the third quarter of 2018, the AWEA reported there were 98 wind projects online with 2,428 wind turbines in the state with additional farms being added each year. The interviews were intended to allow the assessment officials to share their experience regarding the wind farm(s) impact upon the market values and/or assessed values of surrounding properties. The following is a summary of the results of that survey:

- ∴ With one exception, the interviewees reported that there was no market evidence to support a finding that there has been a negative impact upon residential property values as a result of the development of and the proximity to a wind farm facility. In some counties, the assessors believed this to be the result of the very rural nature of the area in which the projects are located.
- ∴ The exception, the Dodge County Assessor, reported receiving two complaints from residential property owners regarding the value impact of proximity to wind turbines; however, the Assessor was unable to find data to support the contentions.
- ∴ Without exception, where there was sufficient data to analyze, the County Assessors reported that both residential and agricultural assessed property values within the wind farm footprints had fluctuated consistently within counties as influenced by market conditions, with no regard for proximity to a wind farm.

Bruce Nielson, Lincoln County Assessor, reported a recent residential transaction in a township in which wind turbines are located that sold \$70,000 higher than the assessor's opinion of market value.

Iowa Assessors Survey - August/September 2017

In August and September 2017 my office conducted a survey of the supervisor of assessments or a staff member in 26 counties in Iowa in which wind farms with more than 25 turbines currently are operational. As of the third quarter of 2018, the AWEA reported there were 107 wind projects online with 4,145 wind turbines in the state with additional farms being added each year. The interviews were intended to allow the assessment officials to share their experience regarding the wind farm(s) impact upon the market values and/or assessed values of surrounding properties. The following is a summary of the results of that survey:

- ∴ Without exception, the interviewees reported that there was no market evidence to support a negative impact upon residential property values as a result of the development of and the proximity to a wind farm facility. In some counties, this results from the very rural nature of the area in which the projects are located.

- ∴ In the past 18 months, the assessor's offices have not experienced a real estate tax appeal based on wind farm-related concerns. There have been no reductions in assessed valuations related to wind turbines.
- ∴ As the available market data do not support the claim of a negative impact upon residential values, residential assessed values have fluctuated consistently within counties as influenced by market conditions, with no regard for proximity to a wind farm.
- ∴ Virtually all assessors volunteered that the wind farms provided positive economic benefits to their counties and, in fact, had a positive impact on real estate values.
- ∴ Agricultural properties are taxed based upon a productivity formula that is not impacted by market data and external influences.

Indiana Assessors Survey – January 2019

In January 2019, MaRous & Company conducted a survey of the supervisor of assessments or a staff member in 5 counties in Indiana in which wind farms with more than 25 turbines currently are operational. Of the wind farms with more than 25 turbines, Indiana contains more than 14 wind farms with more than 1,190 wind turbines. As of 2018, the AWEA reported there were approximately 16 wind projects with approximately 1,203 wind turbines in the state with additional farms being added each year. The interviews were intended to allow the assessment officials to share their experience regarding the wind farm(s) impact upon the market values and/or assessed values of surrounding properties. The following is a summary of the results of that survey:

- ∴ Without exception, the interviewees reported that there was no market evidence to support a negative impact upon residential property values as a result of the development of and the proximity to a wind farm facility. In some counties, this results from the very rural nature of the area in which the projects are located.
- ∴ In the past 18 months, the assessor's offices have not experienced a real estate tax appeal based upon wind farm-related concerns. There have been no reductions in assessed valuations related to wind turbines.
- ∴ As the available market data does not support the claim of a negative impact upon residential values, residential assessed values have fluctuated consistently within counties as influenced by market conditions, with no regard for proximity to a wind farm.
- ∴ Agricultural properties are taxed based upon a productivity formula that is not impacted by market data and external influences.

Kansas Appraiser Survey – January 2019

In January 2019, MaRous & Company conducted a survey of the county appraiser or a staff member in 21 counties in Kansas in which wind farms with more than 25 turbines currently are operational. Of the wind farms with more than 25 turbines, Kansas contains more than 29 wind farms with more than 2,856 wind turbines. As of 2018, the AWEA reported there were approximately 37 wind projects with approximately 2,996 wind turbines in the state with additional farms being added each year. The interviews were intended to allow the assessment officials to share their experience regarding the wind farm(s) impact upon the market values and/or assessed values of surrounding properties. The following is a summary of the results of that survey:

- ∴ Without exception, the interviewees reported that there was no market evidence to support a negative impact upon residential property values as a result of the development of and the proximity to a wind farm facility. In some counties, this results from the very rural nature of the area in which the projects are located.
- ∴ In the past 18 months, the assessor's offices have not experienced a real estate tax appeal based upon wind farm-related concerns. There have been no reductions in assessed valuations related to wind turbines.
- ∴ As the available market data does not support the claim of a negative impact upon residential values, residential assessed values have fluctuated consistently within counties as influenced by market conditions, with no regard for proximity to a wind farm.
- ∴ Agricultural properties are taxed based upon a productivity formula that is not impacted by market data and external influences.

South Dakota Assessors Survey - November 2017, Updated April 2018

In November 2017 my office conducted a survey of the supervisor of assessments or a deputy supervisor in eight counties in South Dakota, then two additional counties in April 2018, in which wind farms with more than 25 turbines currently are operational, and South Dakota has more than nine wind farms with more than 510 wind turbines. As of the third quarter of 2018, the AWEA reported there were 14 wind projects online with 583 wind turbines in the state with additional farms being added each year. The interviews were intended to allow the assessment officials to share their experience regarding the wind farm(s) impact upon the market values and/or assessed values of surrounding properties. The detailed analysis is attached in the addenda at the end of this report. The following is a summary of the results of that survey:

- ∴ Without exception, the interviewees reported that there was no market evidence to support a negative impact upon residential property values as a result of the development of and the proximity to a wind farm facility. In some counties, this results from the very rural nature of the area in which the projects are located.

- ∴ In the past 5 years, the only assessor's office to have experienced a real estate tax appeal based upon wind farm-related concerns was Aurora County, but the appeal was denied by the county. There have been no reductions in assessed valuations related to wind turbines.
- ∴ As the available market data does not support the claim of a negative impact upon residential or agricultural values, residential and agricultural assessed values have fluctuated consistently within counties as influenced by market conditions, with no regard for proximity to a wind farm.
- ∴ Virtually all assessors volunteered that the wind farms provided positive economic benefits to their counties and, in fact, had a positive impact on real estate values.

Ohio Auditors Survey – July 2019

In July 2019, MaRous & Company conducted a survey of the County Auditors or a deputy auditor in 3 counties in which wind farms with more than 25 turbines currently are operational. Of the wind farms with more than 25 turbines, Ohio has more than 5 wind farms with more than 327 wind turbines. As of April 2019, the AWEA reported there were approximately 38 wind projects with approximately 382 wind turbines in the state with additional farms being added each year. The interviews were intended to allow the assessment officials to share their experience regarding the wind farm(s) impact upon the market values and/or assessed values of surrounding properties. The detailed analysis is attached in the addenda at the end of this report. The following is a summary of the results of that survey:

- ∴ Without exception, the interviewees reported that there was no market evidence to support a negative impact upon residential property values as a result of the development of and the proximity to a wind farm facility. In some counties, this results from the very rural nature of the area in which the projects are located.
- ∴ In the past 18 months, the assessor's offices have not experienced a real estate tax appeal based on wind farm-related concerns. There have been no reductions in assessed valuations related to wind turbines.
- ∴ As the available market data do not support the claim of a negative impact upon residential values, residential assessed values have fluctuated consistently within counties as influenced by market conditions, with no regard for proximity to a wind farm.
- ∴ Agricultural properties are taxed based upon a productivity formula that is not impacted by market data and external influences.

Solar Energy Peer-Reviewed Literature Review

MaRous & Company is familiar with one academic and peer-reviewed study on the impact of solar energy facilities on residential property values. There are no peer-reviewed studies specific to the state of Wisconsin. However, the following study is consistent with our findings in Wisconsin. This study is summarized below:

The University of Texas at Austin, 2018

Nationwide

This study's purpose was to investigate any possible amenities, disadvantages, or potential impact a residential property may acquire from the presence of a proximate utility-scale solar facility. To analyze these factors, the study anticipated to determine the scope in which residential properties could potentially be impacted, the scale of the potential impact, and if the value of the potential impact were to be positive or negative by analyzing 956 unique solar sites completed in 2016 or prior across the United States. The conclusions of the study are based on surveys of residential home assessors and in-depth regression analysis. "Results from [the] survey of residential home assessors show that the majority of respondents believe that proximity to a solar installation has either no impact or a positive impact on home values." (Conclusion, Page 23). However, some of these results varied due to some assessors' previous experience with solar installations, the size of the solar facilities, and distances from residences. "Regression analyses suggest that closer proximity to an installation is associated with more negative estimates of property value impacts, as is larger installation size. Prior experience assessing near a solar installation, by contrast, was associated with more conservative estimates of impact. Meanwhile, the median and mode of all estimates of impact was zero, suggesting negative estimates from a few respondents were pulling down the [average]." (Conclusion, Page 23). The study goes on to suggest that in some markets solar developers could possibly benefit from incorporating ancillary items such as vegetation as a view shield, keeping panels lower to the ground, and, in limited cases, siting the facility on land with a use that was previously unappealing.

Wind Energy Peer-Reviewed Literature Review

Due to the lack of peer-reviewed literature regarding solar farms, MaRous & Company is familiar with several academic and peer-reviewed studies on the impact of wind turbines on residential property values. There are no peer-reviewed studies specific to the state of Wisconsin. However, the following studies are consistent with our findings in Wisconsin. These are summarized below:

Municipal Property Assessment Corporation (MPAC) Study, 2008, 2012, and 2016

Ontario, Canada

This study originally was conducted in 2008 and was updated in 2012 and 2016. The conclusions in all three studies are similar: “there is *no statistically significant impact on sale prices* of residential properties in these market areas resulting from proximity to an IWT [Industrial Wind Turbine] when analyzing sale prices.” (2012 Study, Page 5; emphasis in original) Using 2,051 properties and generally accepted time adjustment techniques, MPAC “cannot conclude any loss in price due to the proximity of an IWT.” (2012 Study, Page 29) Further, Appendix G of the 2012 MPAC report “Re-sale Analysis” states in the “Summary of Findings” “MPAC’s own re-sale analysis using a generally accepted methodology for time adjustment factors indicates no loss in price based on proximity to the nearest IWT[Industrial Wind Turbine].”

Lawrence Berkeley National Laboratory (LBNL) Studies, 2009, 2010, 2013, and 2014

Nationwide

The 2009 LBNL study included analysis of 7,489 sales within 10 miles of 11 wind farms and 125 post-construction sales within 1 mile of a wind turbine. The study used rural settings and wind farms of more than 50 turbines, and considered area stigma, scenic vista stigma, and nuisance stigma in varying distances from a wind turbine. The 2010 LBNL study included 7,500 single-family residential sales located in nine states and proximate to 24 wind farms, and 4,937 post-construction sales within 10 miles of a wind turbine. The 2013 LBNL study included 51,276 sales located in nine states and proximate to 67 wind farms, and 376 post-construction sales within 1 mile of a wind turbine. The 2014 LBNL study included over 50,000 sales located in nine states and proximate to 67 wind farms, and 1,198 post-construction sales within 1 mile of a wind turbine. All were located in rural settings and near wind farms of more than 0.5 megawatts. These studies concentrated on nuisance stigma in varying distances from a wind turbine. The study found no statistically significant evidence that turbines affect sale prices. Neither study found statistical evidence that home values near turbines were affected.

University of Rhode Island, 2013

Rhode Island

Structured similarly to the LBNL studies, this study included 48,554 total sales proximate to 10 wind farms, and 412 post-construction sales within 1 mile of a turbine. These wind farms were mostly small facilities in urban settings. The study included nuisance and scenic vista stigmas. Page 421 of the report stated, “Both the whole sample analysis and the repeat sales analysis indicate that houses within a half mile had essentially no price change ...” after the turbines were erected.

The University of Guelph, Melancthon Township, 2013

Ontario, Canada

This study analyzed two wind farms in the township, using 5,414 total sales and 18 post-construction sales within 1 kilometer of a wind turbine. The study included nuisance and scenic vista stigmas. Page 365 of the study stated that “These results do not corroborate the concerns regarding potential negative impacts of turbines on property values.”

University of Connecticut/LBNL, 2014

Massachusetts

This study included 312,677 total sales proximate to 26 wind farms, and 1,503 post-construction sales within 1 mile of a wind turbine. These wind farms were located in urban settings and primarily were proximate to small wind farms. The study included wind turbines and other environmental amenities/disamenities (including beaches and open spaces/landfills, prisons, highways, major road, and transmission lines) together, for nuisance stigma. “Although the study found the effects from a variety of negative features ... and positive features ... the study found no net effects due to the arrival of turbines.”

Wichita State University, 2019

Kansas

This study strived to decipher and develop a better understanding of wind projects and their effect on rural properties in Kansas. The study’s data is based on 23 operational wind projects in Kansas which came online between 2005 to 2015. The properties and their values, which were appraised at the county level, have sale dates ranging from 2002 to 2018. The study and its results suggest that property values do not spike once the project is completed. Rather, it was noted that they have a more “modest” growth, and that the three-year average for property value growth was 0.3 % after a project had been completed and operational.

These studies had a combined number of over 3,700 transactions within 1 mile of operating turbines and found no evidence of value impact.¹⁶

¹⁶ *Although I have read these studies, the substance of these summaries was taken from a seminar conducted by the Appraisal Institute on March 5, 2015.*

Potential Impact to the Village of Cambridge Considered

The Village of Cambridge has a population of 1,460 people and is located east of the solar project.

The population history, household income, average resident age, trend of the downtown development, trend of new commercial development, trend of residential development, and available vacant land for future development has been reviewed.

The Cambridge area is a physically attractive area and is known for the 422-acre Cam Rock Park and the 420-acre Lake Ripley.

Average Cambridge housing values in 2020 were approximately \$240,000, with several new homes constructed and available north of the town on Kenseth Way. There are a significant number of vacant lots available in that subdivision.

Several of the more recent commercial developments include a brewery and a winery northwest of the downtown. However, one of the most impactful businesses on the northwest border of Cambridge is a junkyard auto salvage business, Cindy's Classic Auto Parts, with a new similar operation attempting approval and development in the same area as the auto salvage yard.

The Cambridge economic development plan of 2011 has also been reviewed. The positive aspects of the community were well presented.

However, the similar concerns stated in the Cambridge economic development plan of 2011 are prevalent in 2021. Many of the 24 recommendations for 4-6 years in the future, on page 37-41 of the economic report, still exist today. These items to improve the local economy include: an increase of local job opportunity, lower vacancies in the downtown real estate market, new sales tax business, reduction in the average age within the population, and the competition with nearby communities. Similar economic issues still exist in 2021.

After reviewing the information provided in the Cambridge economic development plan of 2011, review of the subject footprint, consideration of the positive economic benefits of the proposed project, the proposed Koshkonong Solar Energy Center will not have a negative impact on the growth of the Village of Cambridge.

Conclusions

As a result of the market impact analysis undertaken, MaRous & Company concluded that there is no market data indicating the project will have a negative impact on either rural residential or agricultural property values in the surrounding area. Further, market data from Wisconsin, as well as from other states, supports the conclusion that the project will not have a negative impact on rural residential or agricultural property values in the surrounding area. Finally, for agricultural properties that host photovoltaic panels, the additional income from the solar lease may increase the value and marketability of those properties. These conclusions are based on the following:

- ∴ There are significant financial benefits to the local economy and to the local taxing bodies from the development of the solar farm.
- ∴ The solar farm will create well-paid jobs in the area which will benefit overall market demand.
- ∴ An analysis of recent residential sales proximate to existing solar farms did not support any finding that proximity to a photovoltaic panel had a negative impact on property values.
- ∴ An analysis of agricultural land values in Wisconsin did not support any finding that agricultural land values are negatively impacted by the proximity to photovoltaic panels.
- ∴ Reports from Wisconsin, Illinois, Indiana, Minnesota, North Carolina, and Iowa indicate that photovoltaic panels leases add value to agricultural land.
- ∴ A survey of County Assessors in 11 Wisconsin counties, 6 Illinois counties, 9 Indiana counties, 5 North Carolina counties, and 13 Maryland counties in which solar farms with more than 1.0 megawatt of nameplate capacity are located determined that there was no market evidence to support a negative impact upon residential property values as a result of the development of and the proximity to a solar farm, and that there were no reductions in assessed valuation.

This report is based on market conditions existing as of February 2, 2021. This market impact study has been prepared specifically for the use of the client to gain information in relation to the development of the proposed Koshkonong Solar Energy Center, in Dane County, Wisconsin. Any other use or user of this report is considered to be unintended.

Respectfully submitted,

MaRous & Company



Michael S. MaRous, MAI, CRE
Wisconsin Certified General - #1874-10 (12/21 expiration)
Illinois Certified General - #553.000141 (9/21 expiration)

CERTIFICATE OF REPORT

I do hereby certify that:

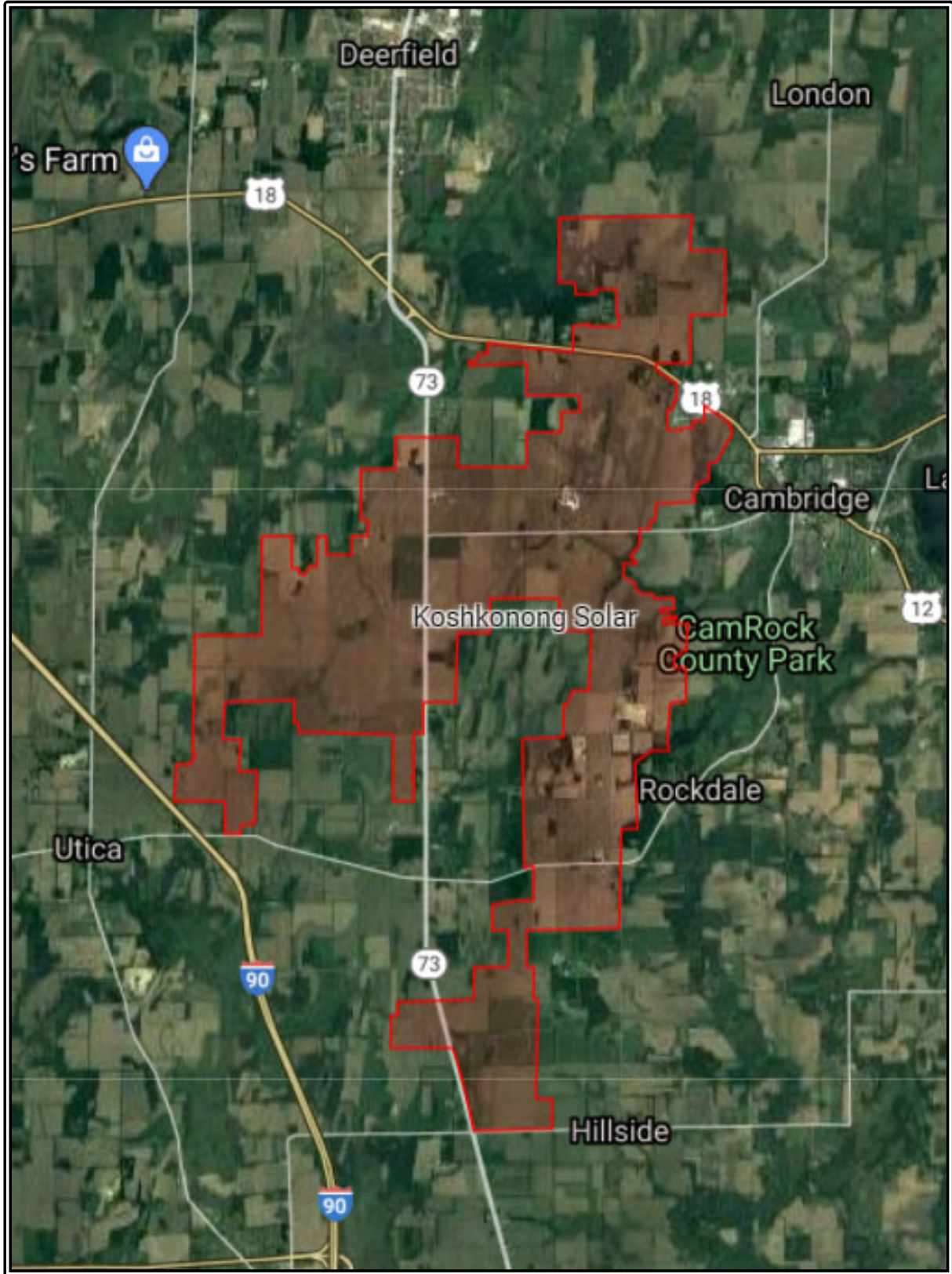
1. The statements of fact contained in this report are true and correct.
2. The reported analyses, opinions, and conclusions are limited only by the reported assumptions and limiting conditions, and are my personal, impartial, and unbiased professional analyses, opinions, conclusions, and recommendations:
3. I have no present or prospective personal interest in the property that is the subject of this report and no personal interest with respect to the parties involved.
4. I have performed no services, as an appraiser or in any other capacity, regarding the property that is the subject of this report within the three-year period immediately preceding acceptance of this assignment.
5. I have no bias with respect to the property that is the subject of the work under review or to the parties involved with this assignment.
6. My engagement in this assignment was not contingent upon developing or reporting predetermined results.
7. My compensation for completing this assignment is not contingent upon the development or reporting of predetermined value or direction in value that favors the cause of the client, the amount of the value opinion, the attainment of a stipulated result, or the occurrence of a subsequent event directly related to the intended use of this appraisal consulting assignment.
9. My analyses, opinions, and conclusions were developed, and this report has been prepared in conformity with the *Uniform Standards of Professional Appraisal Practice*.
10. I have made a personal inspection of the subject of the work under review.
11. Joseph M. MaRous provided significant appraisal review assistance to the person signing this certification.
12. The reported analysis, opinions, and conclusions were developed, and this report has been prepared, in conformity with the Code of Professional Ethics and Standards of Professional Appraisal Practice of the Appraisal Foundation.
12. The use of the report is subject to the requirements of the Appraisal Institute relating to review by its duly authorized representatives.
13. As of the date of this report, Michael S. MaRous, MAI, CRE, has completed the continuing education requirements for Designated Members of the Appraisal Institute.

Respectfully submitted,
MaRous & Company

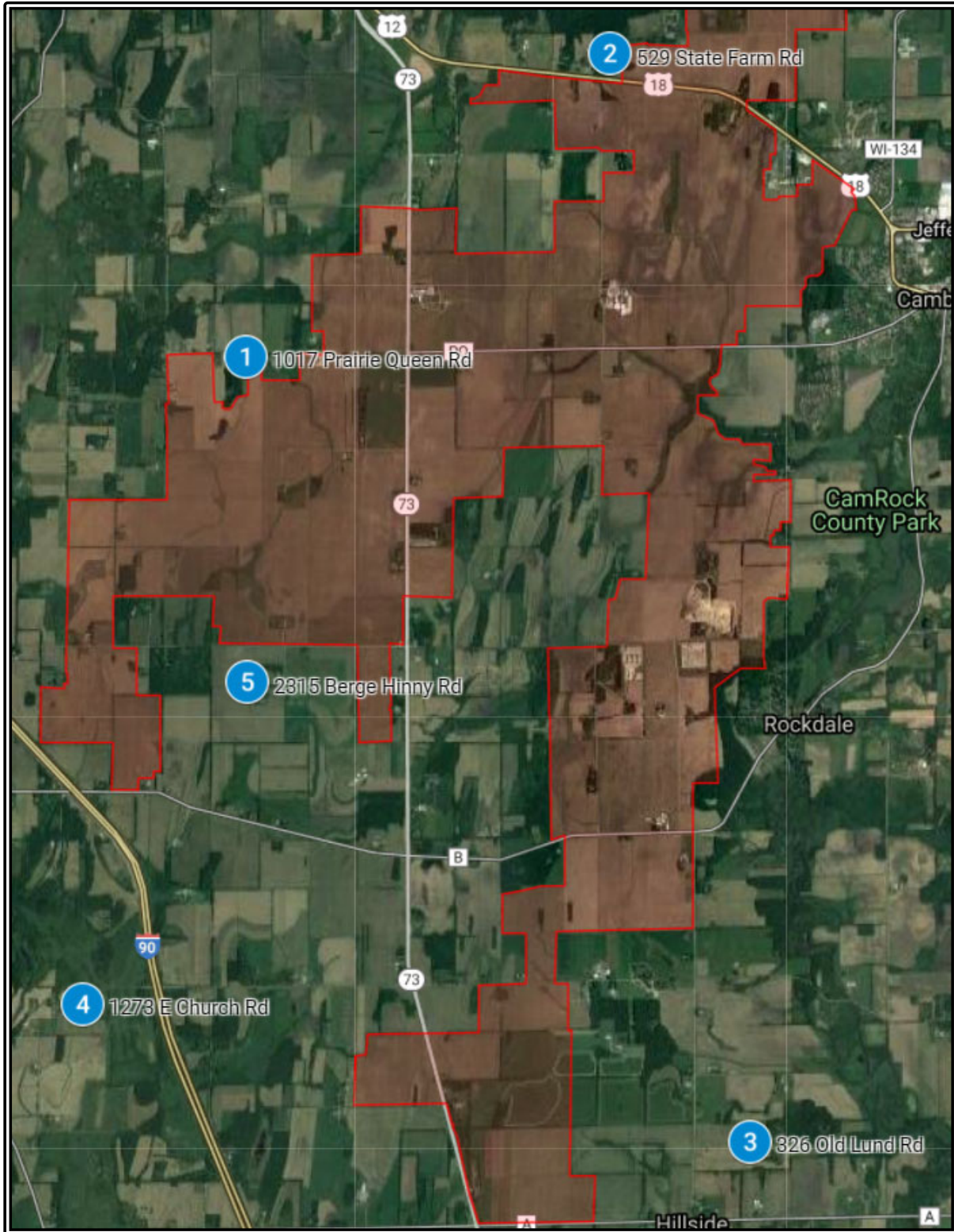


Michael S. MaRous, MAI, CRE
Wisconsin Certified General - #1874-10 (12/21 expiration)
Illinois Certified General - #553.000141 (9/21 expiration)

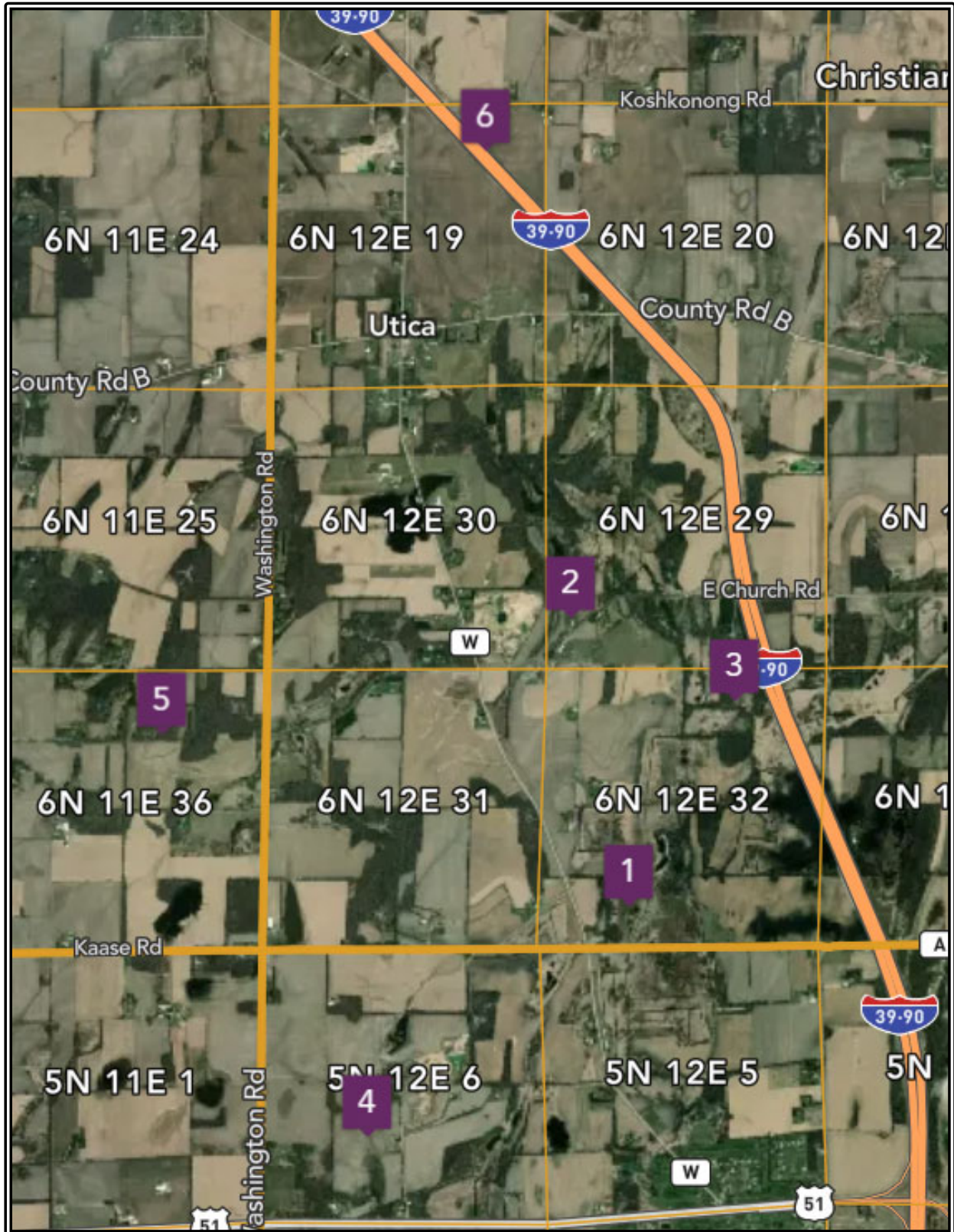
ADDENDA



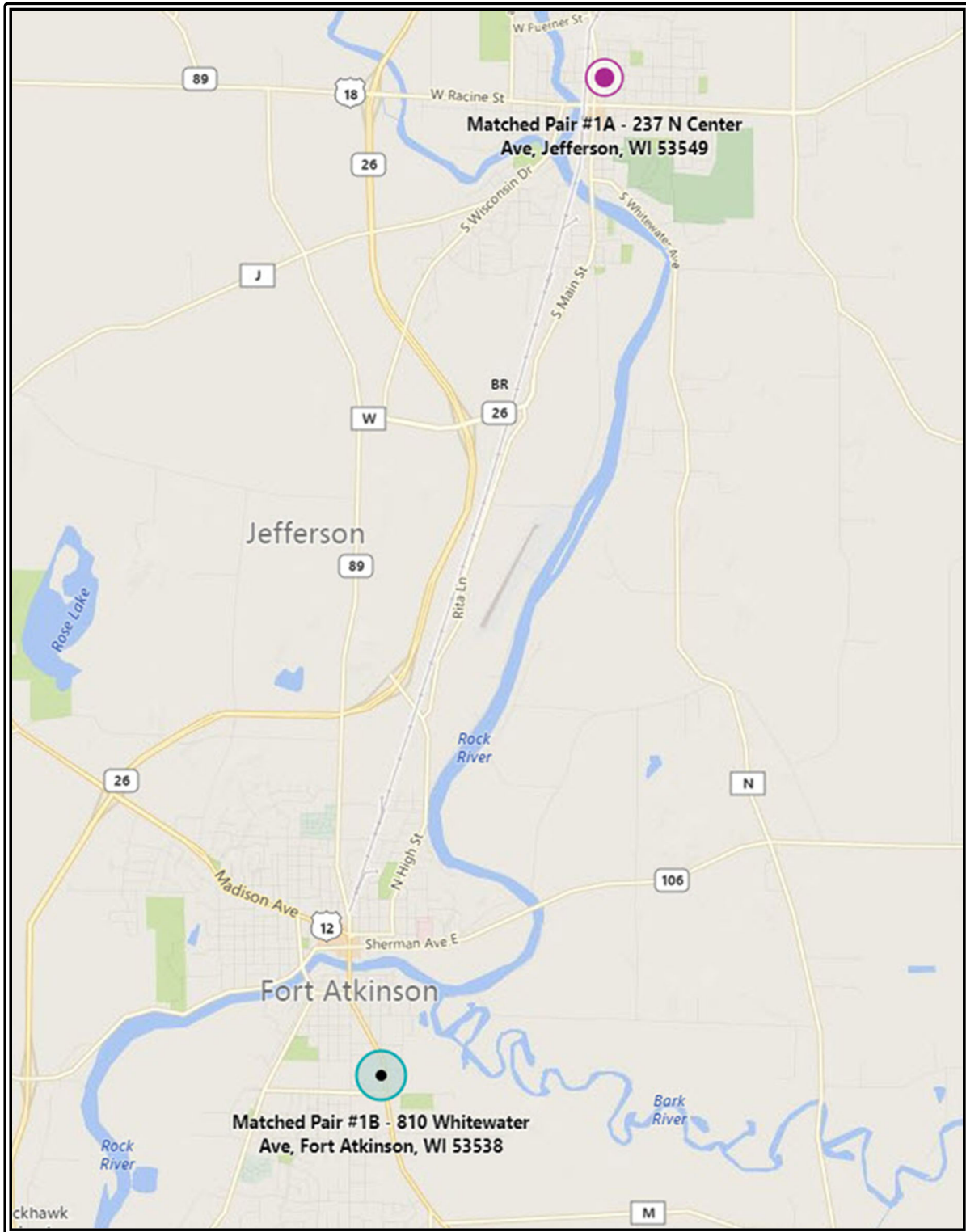
KOSHKONONG SOLAR ENERGY CENTER FOOTPRINT



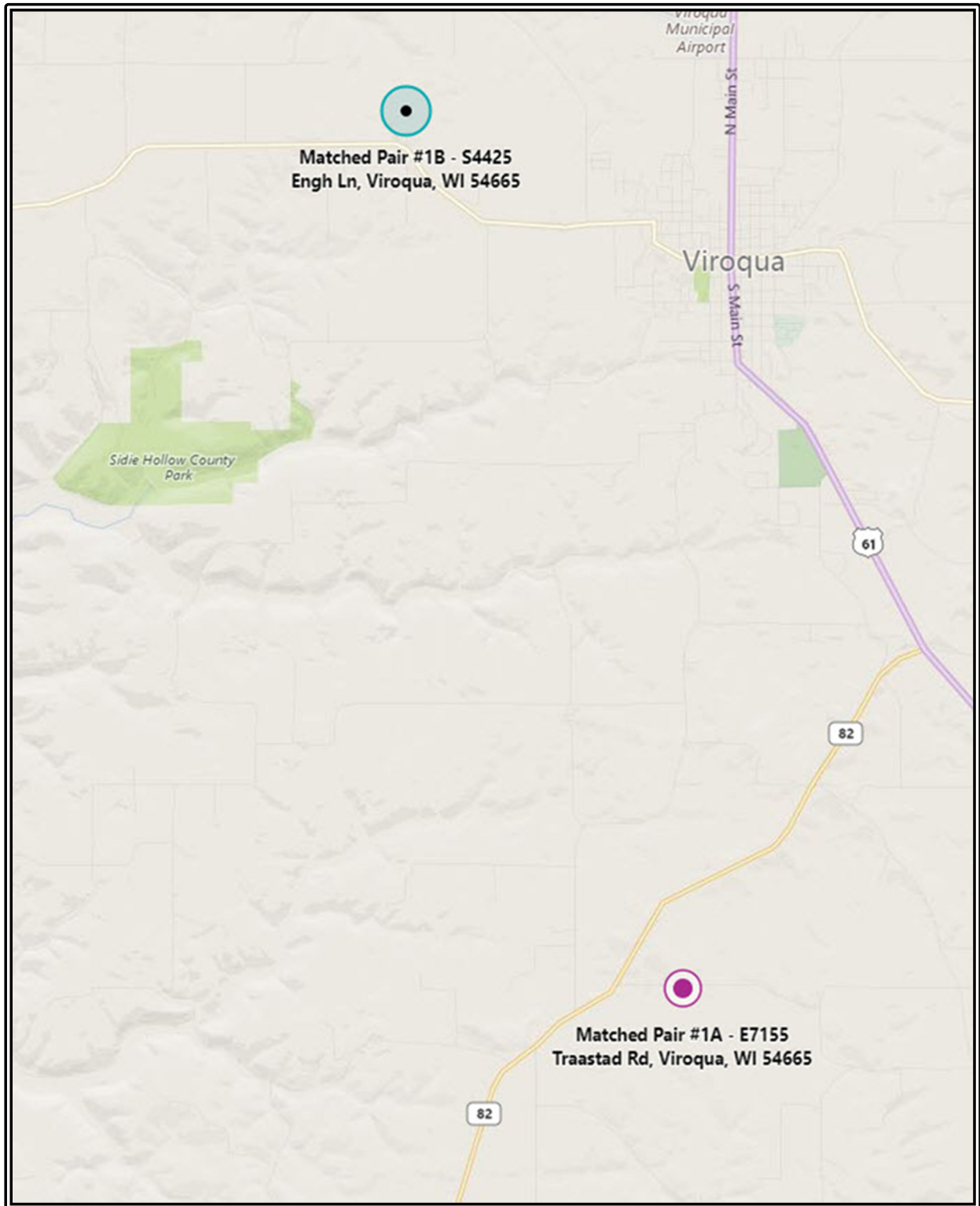
RECENT SINGLE-FAMILY HOUSE SALES LOCATION MAP



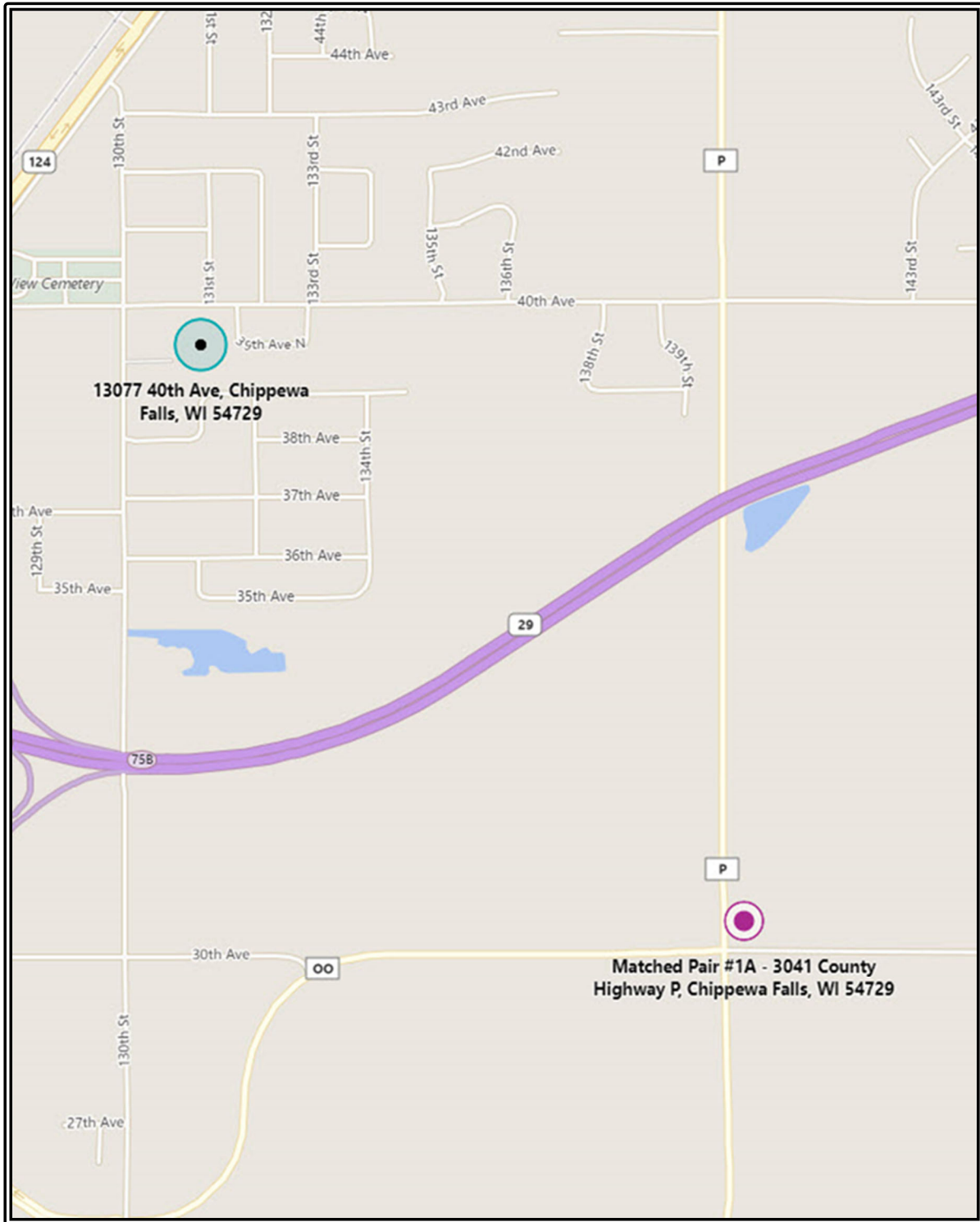
LAND SALES LOCATION MAP



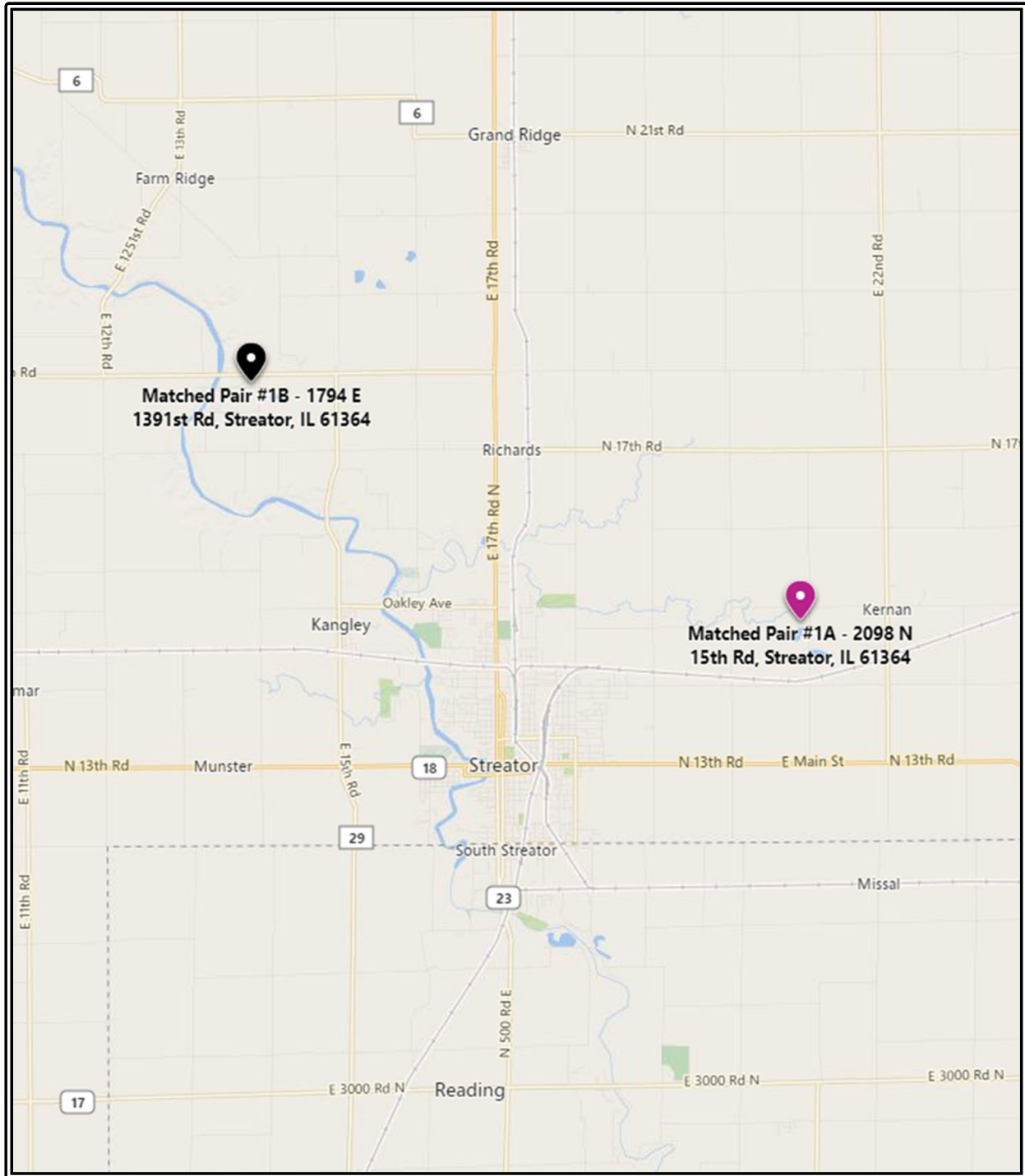
JEFFERSON COUNTY, WISCONSIN MATCHED PAIR LOCATION MAP



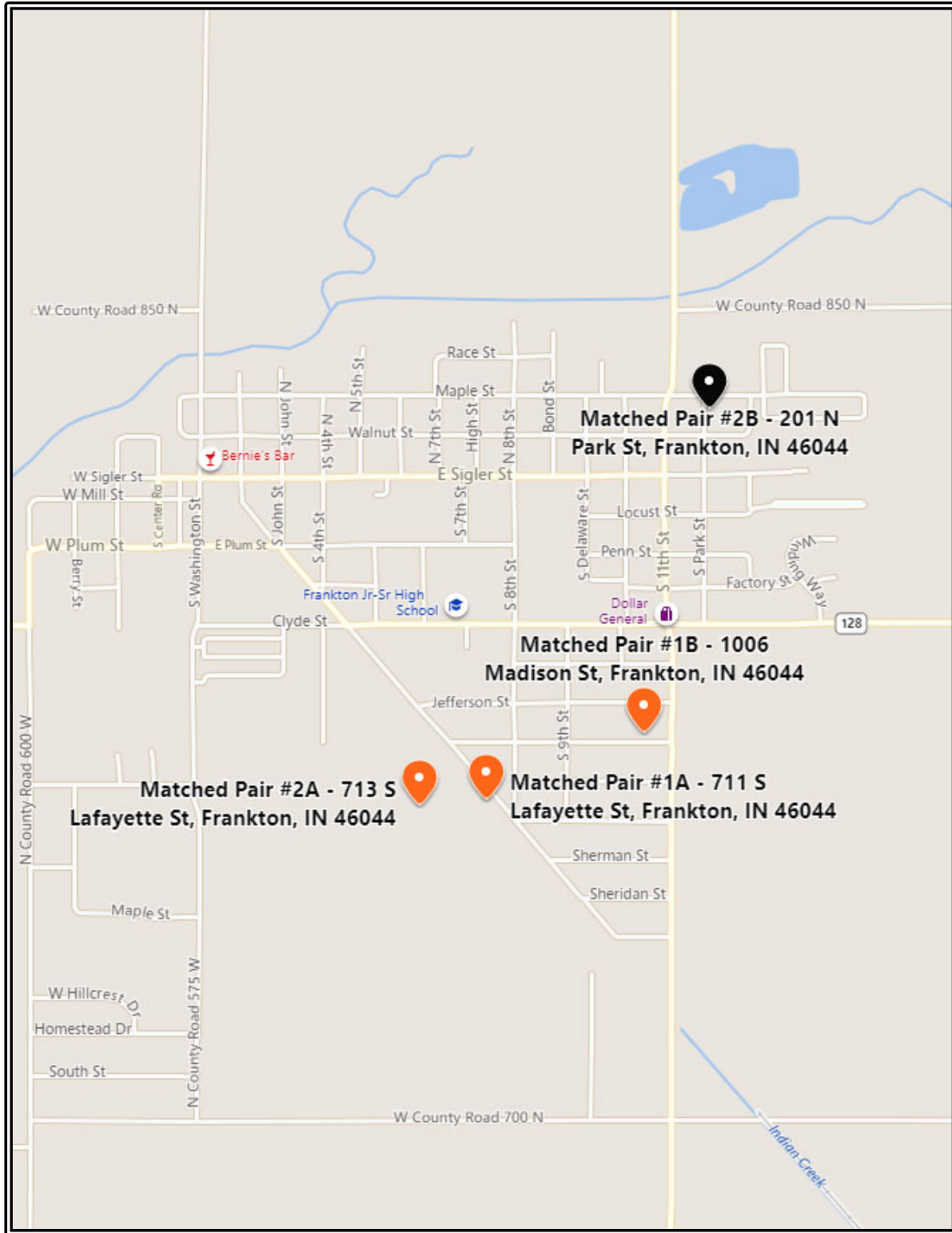
VERNON COUNTY, WISCONSIN MATCHED PAIR LOCATION MAP



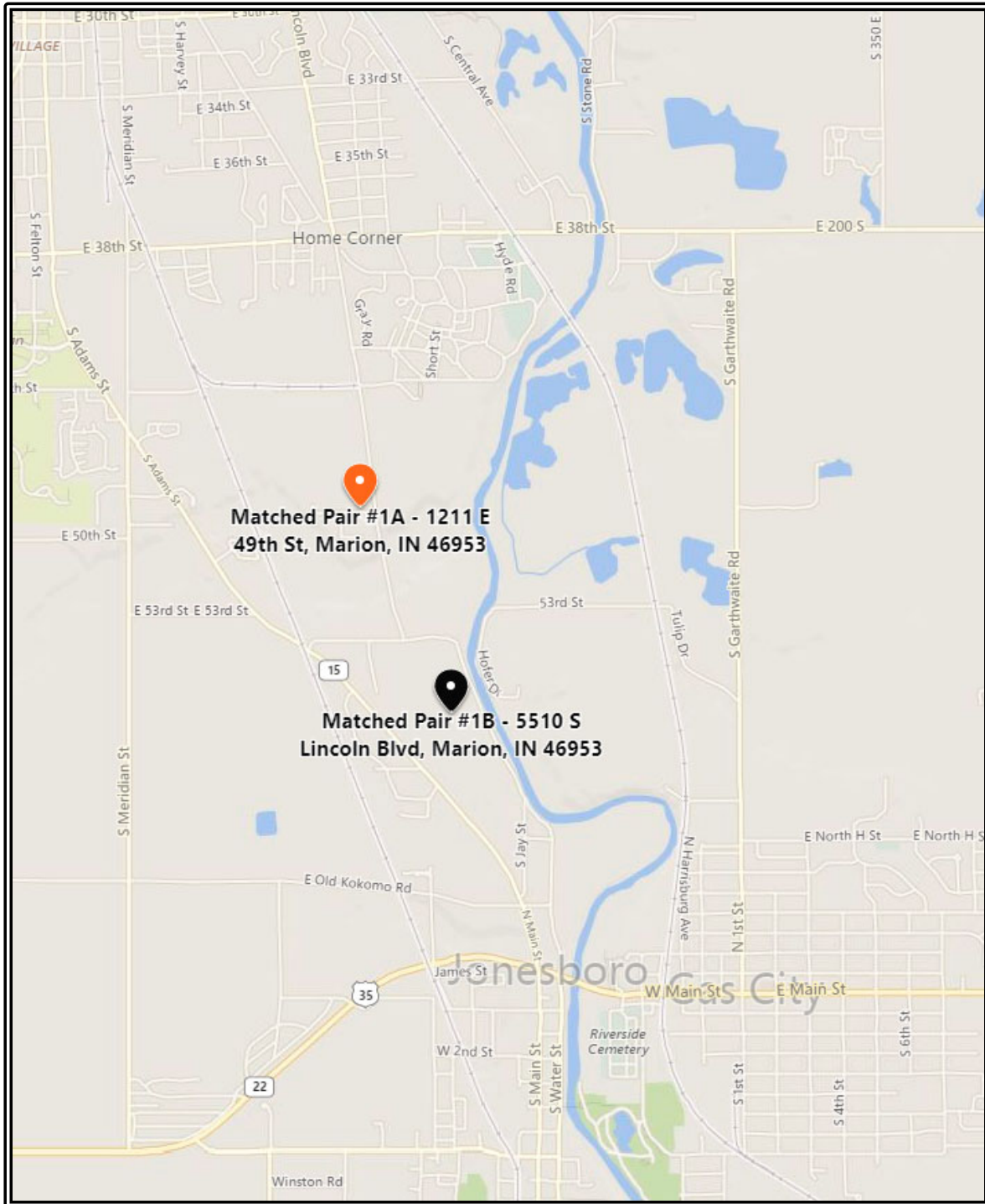
CHIPPEWA COUNTY, WISCONSIN MATCHED PAIR LOCATION MAP



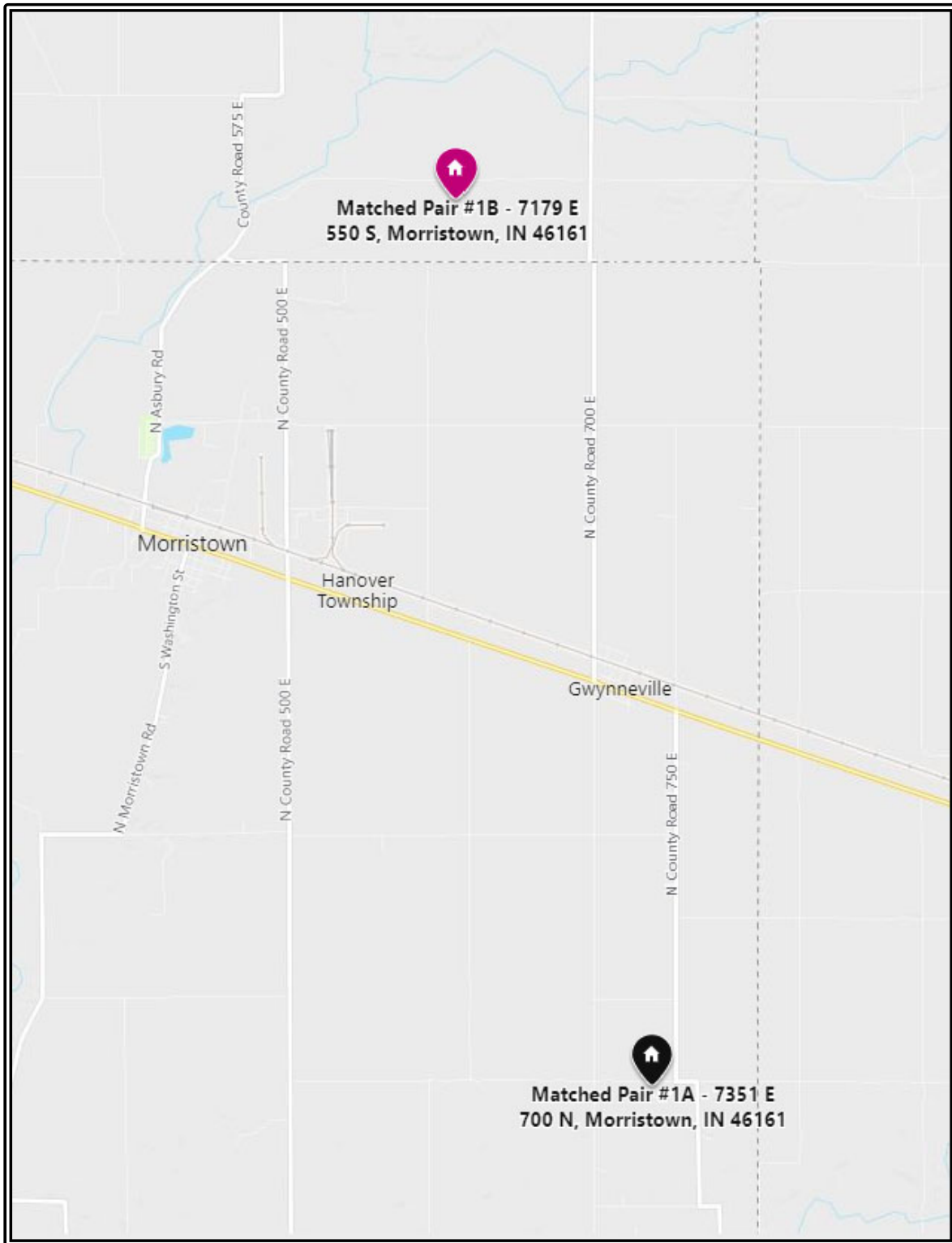
LASALLE COUNTY, ILLINOIS MATCHED PAIR LOCATION MAP



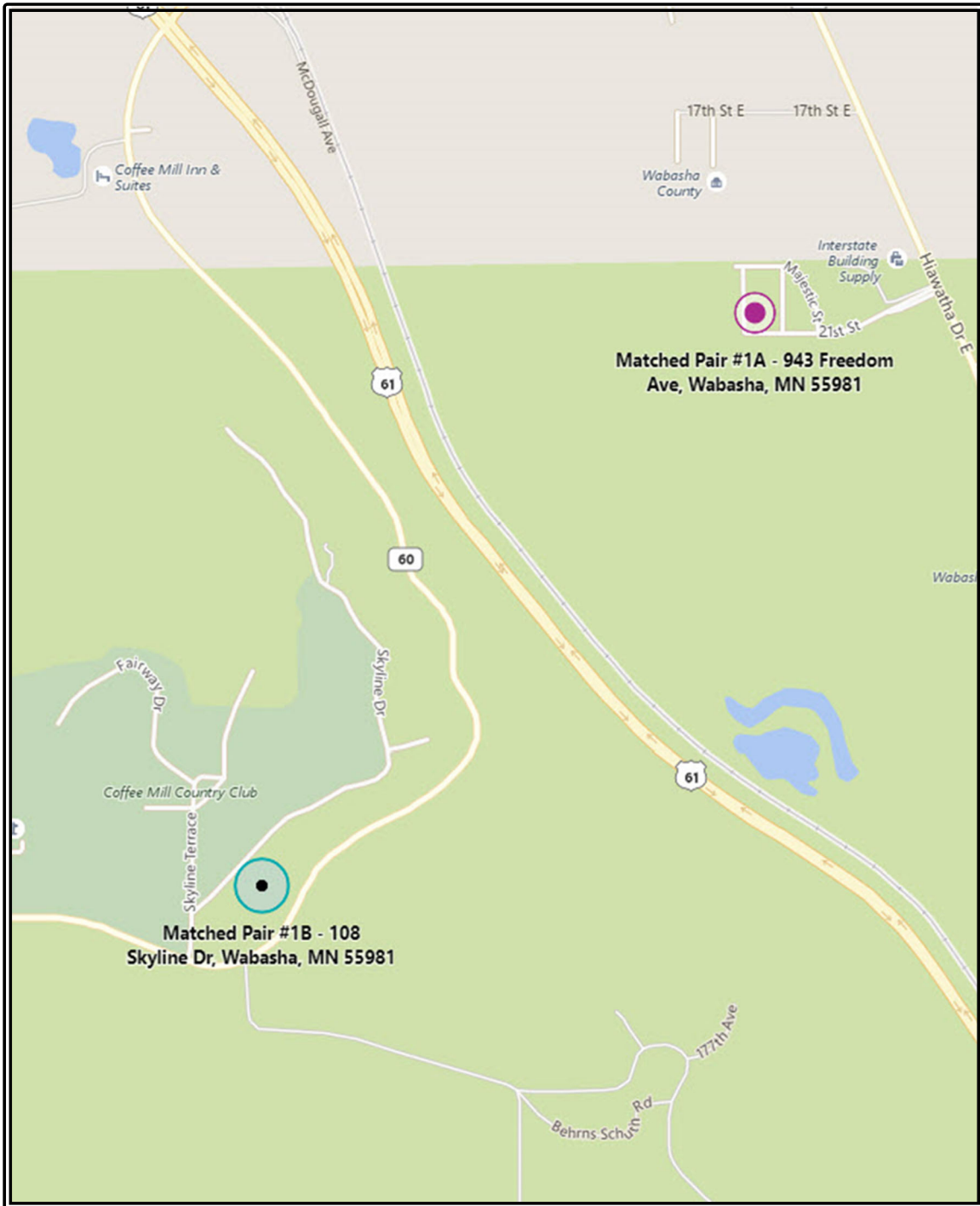
MADISON COUNTY, INDIANA MATCHED PAIR LOCATION MAP



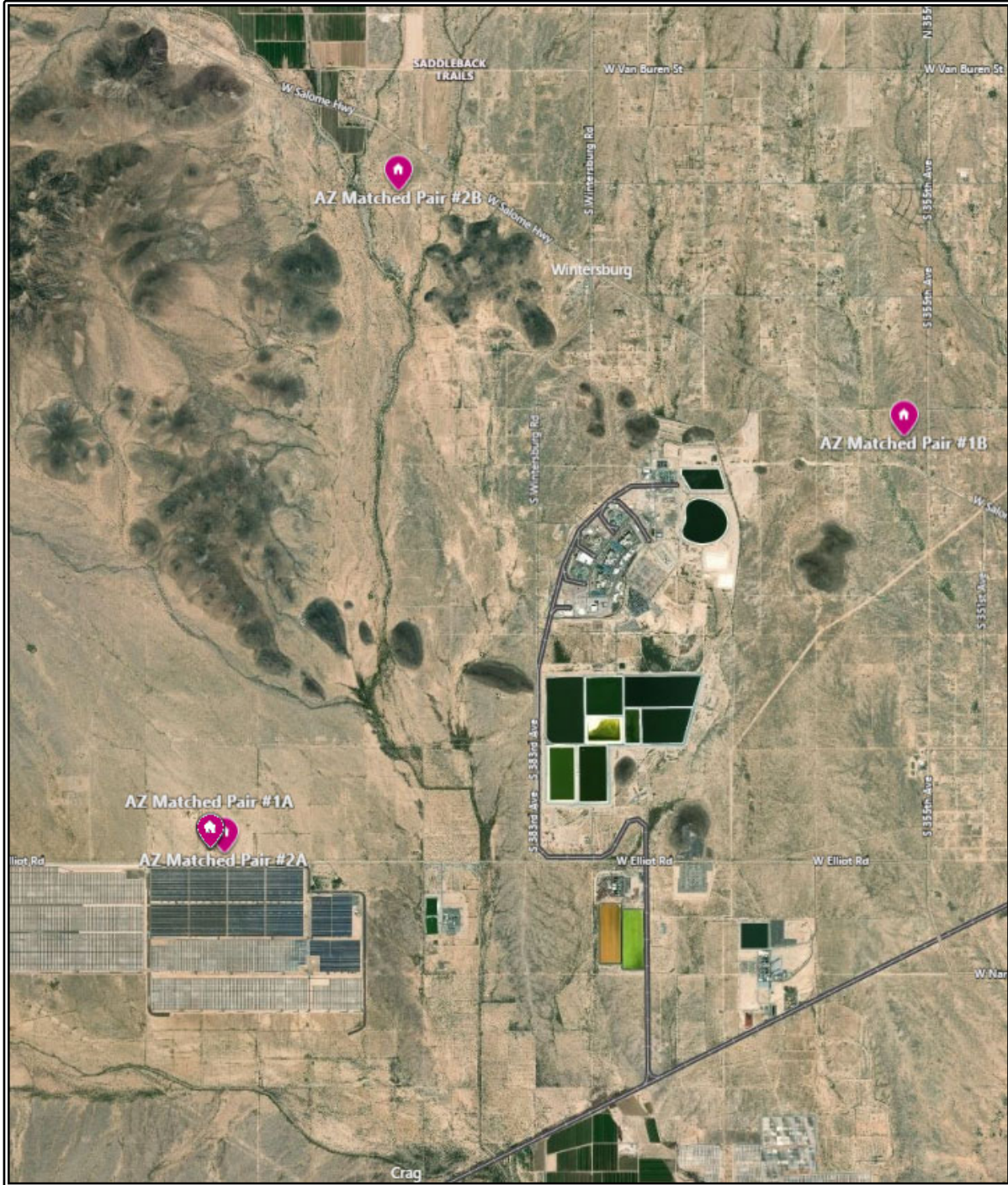
GRANT COUNTY, INDIANA MATCHED PAIR LOCATION MAP



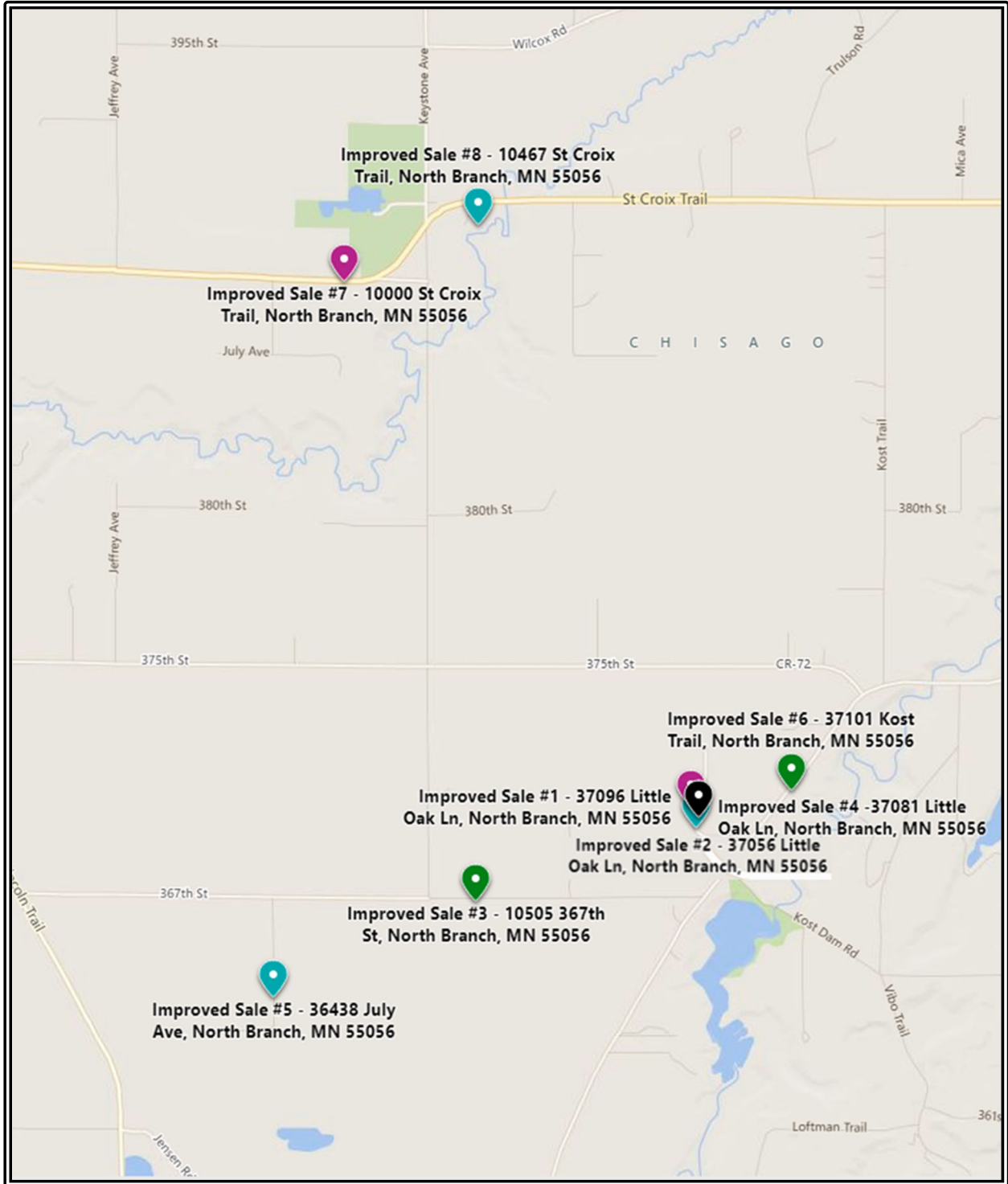
SHELBY COUNTY, INDIANA MATCHED PAIR LOCATION MAP



WABASHA COUNTY, MINNESOTA MATCHED PAIR LOCATION MAP



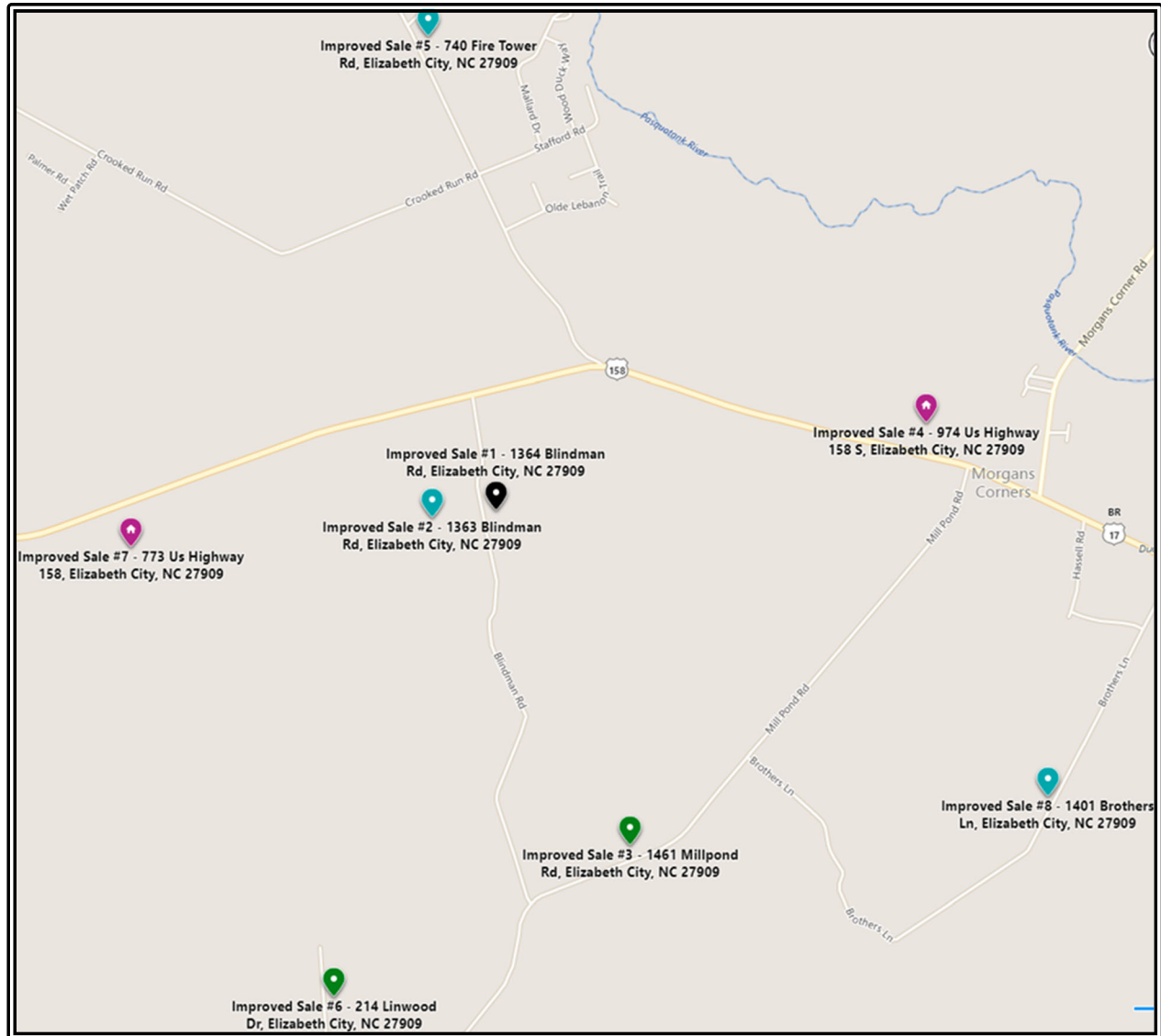
ARIZONA MATCHED PAIR LOCATION MAP



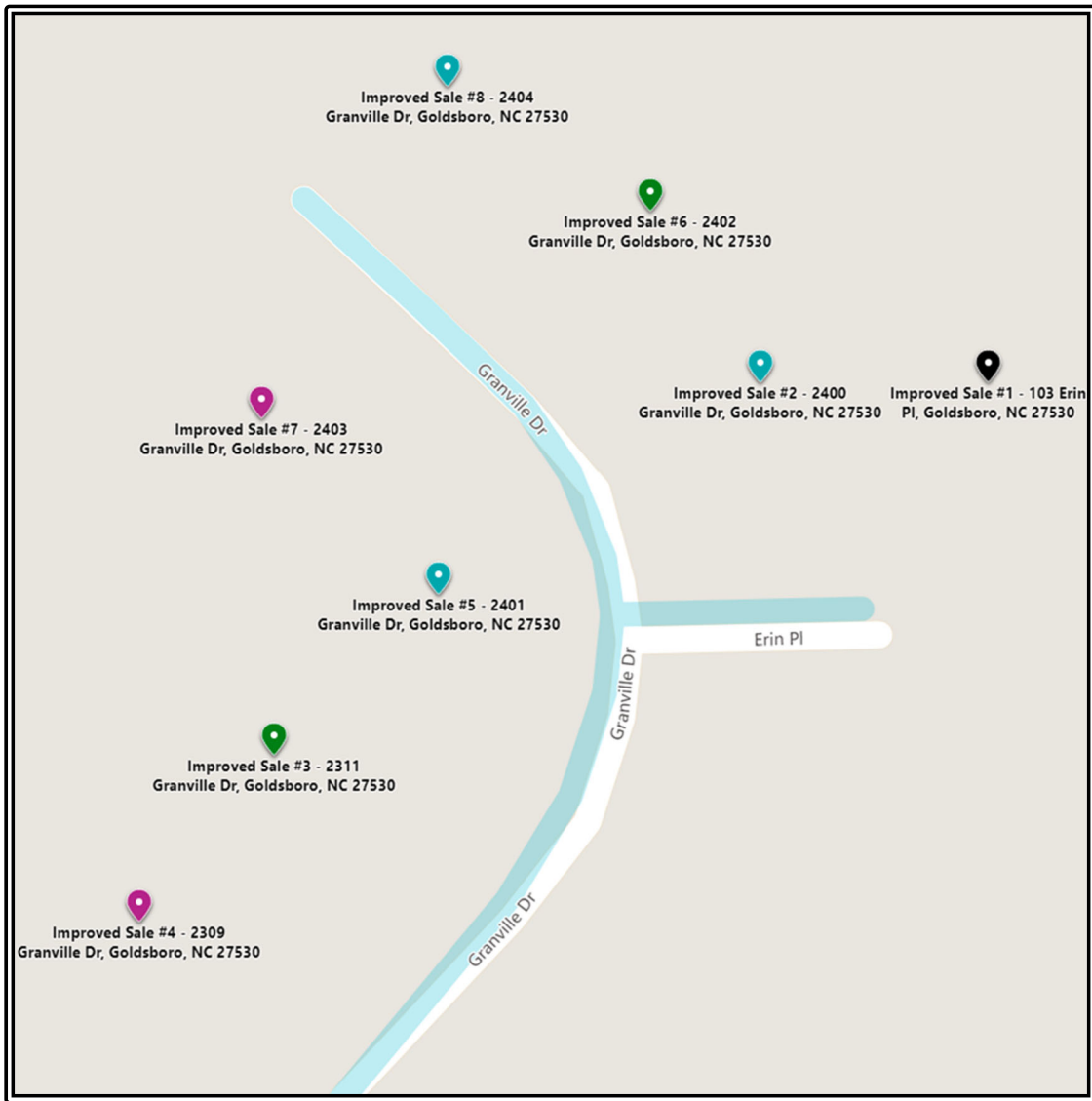
NORTH BRANCH, MINNESOTA RECENT RESIDENTIAL SALES LOCATION MAP



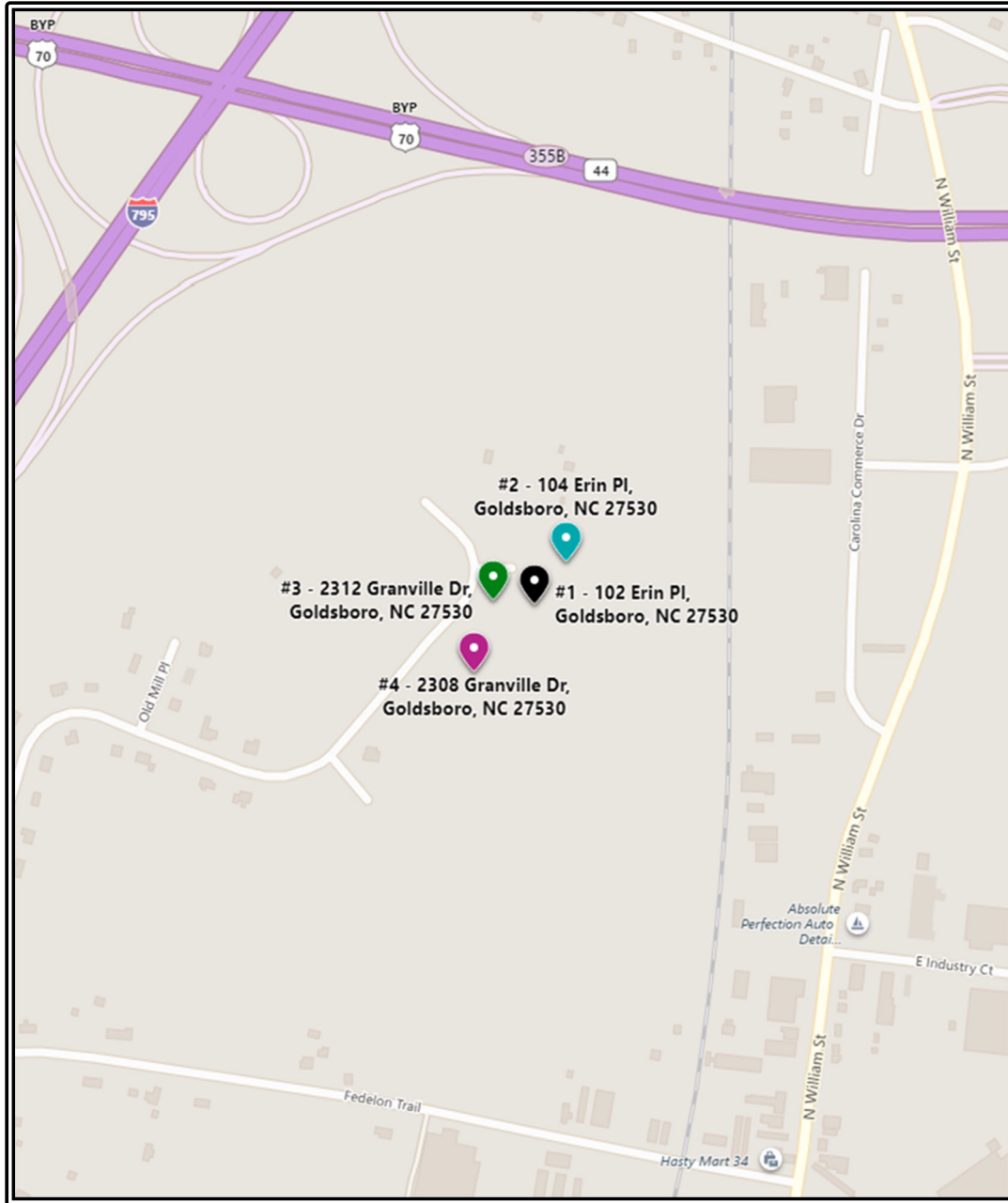
NORTH BRANCH, MINNESOTA BEFORE AND AFTER SALES LOCATION MAP



ELIZABETH CITY, NORTH CAROLINA RECENT RESIDENTIAL SALES LOCATION MAP



GOLDSBORO, NORTH CAROLINA RECENT RESIDENTIAL SALES LOCATION MAP



GOLDSBORO, NORTH CAROLINA BEFORE AND AFTER SALES LOCATION MAP

IMPROVED SALE PHOTOGRAPHS



1017 Prairie Queen Road



529-531 State Farm Road #1



326 Old Lund Road



1273 East Church Road



2315 Berge Hinny Road



WISCONSIN COUNTY ASSESSOR SURVEY ANALYSIS

A survey of assessment professionals in their designated jurisdictions of the 11 counties in Wisconsin which solar farms currently are operational has been undertaken. The supervisors of assessments or a qualified staff member were interviewed. The interviews were intended to allow the assessment officials to share their experiences regarding the impact of the solar farm(s) upon the market values and/or the assessed values of surrounding properties. The interviews were conversational, but thoroughly discussed residential and agricultural values and impacts. The interviews were conducted in April 2018.

Conclusions of the Study

Based on these interviews:

- ∴ Without exception, the interviewees reported that there was no market evidence to support a negative impact upon residential property values as a result of the development of, and the proximity to, a solar farm facility. In some counties, this results from the very rural nature of the area in which the projects are located.
- ∴ There have been no tax appeals in any county based upon solar farm-related concerns.
- ∴ In the past 18 months, the assessor's offices have not experienced a real estate tax appeal based upon solar farm-related concerns. As of the date of this report, there are more than 13 solar farms with more than 18 megawatts within these counties. There have been no reductions in assessed valuations related to photovoltaic panels.
- ∴ Residential assessed values have fluctuated consistently countywide as influenced by market conditions, with no regard for proximity to a solar farm.
- ∴ Agricultural properties are taxed based upon a productivity formula that is not impacted by market data and by external influences.

Scope of Project

The supervisors of assessments or a qualified staff member were interviewed. Each of the interviewees was familiar with the solar farm(s) located within each respective county. A map indicating the number of solar farms in each of these counties is included in this memorandum. A second map illustrates the number of the solar farms located in each of these counties. The following is the list of County Supervisors of Assessments contacted:

County	Population	Assessor/Assessment Firm	CA Phone #	Solar Farm Project Name	Capacity (MW)	Year Installed
Chippewa	63,531	Bowmar Appraisal, Inc (Lafayette, WI)	(715) 835-1141	Lafayette DPC Solar	1.00	2017
		Associate Appraisal Consultants, Inc (New Auburn, WI)	(888) 457-4720	New Auburn DPC Solar	2.50	2017
Dunn	44,497	Mr. Ronald A. Meyer (Dunn, WI)	(715) 232-9068	Downsville DPC Solar	1.00	2017
Grant	52,250	Gardiner Appraisal Services (Mt. Hope, WI)	(888) 756-9726	Mt. Hope DPC Solar	1.00	2017
Jefferson	84,559	J&D Pounder, Inc (Jefferson, WI)	(262) 728-2256	Jefferson Solar Park	1.00	2013
Juneau	26,224	Riglemon Appraisal Service (Germantown, WI)	(608) 278-3003	Whistling Winds DPC Solar	1.00	2017
Polk	43,441	Lisa L. Meyer (Centuria, WI)	(715) 235-1338	Sand Lake DPC Solar	1.00	2017
Rock	161,448	Tyler Technologies, Inc (Beloit, WI)	(800) 959-6876	Riverside Energy Center	2.00	2019
Rusk	14,124	Bowmar Appraisal, Inc (Conrath, WI)	(715) 835-1141	Conrath DPC Solar	1.00	2017
St. Croix	87,513	Jerry Kins (Warren, WI)	(715) 210-5350	Warren DPC Solar	2.22	2017
Taylor	20,445	Elk River Appraisals (Medford, WI)	(715) 820-0541	Medford DPC Solar	2.00	2017
Vernon	30,506	Chimney Rock Appraisal (Franklin, WI)	(715) 895-8441	Liberty Pole DPC Solar	1.10	2017
		Hart Appraisals (Greenwood, WI)	(608) 372-2964	Sauk DPC Solar	1.00	2017

Residential Market Values

Without exception, the interviewees reported that there was no market evidence to support a negative impact upon residential property values as a result of the development of, and the proximity to, a solar farm facility. Either as a request by a county board, in an attempt to appropriately assess newly constructed residences, or to support current assessed values, the supervisors of assessments have been particularly attentive to market activity in the area of the solar farms.

Residential Assessed Values, Complaints/Tax Appeal Filings

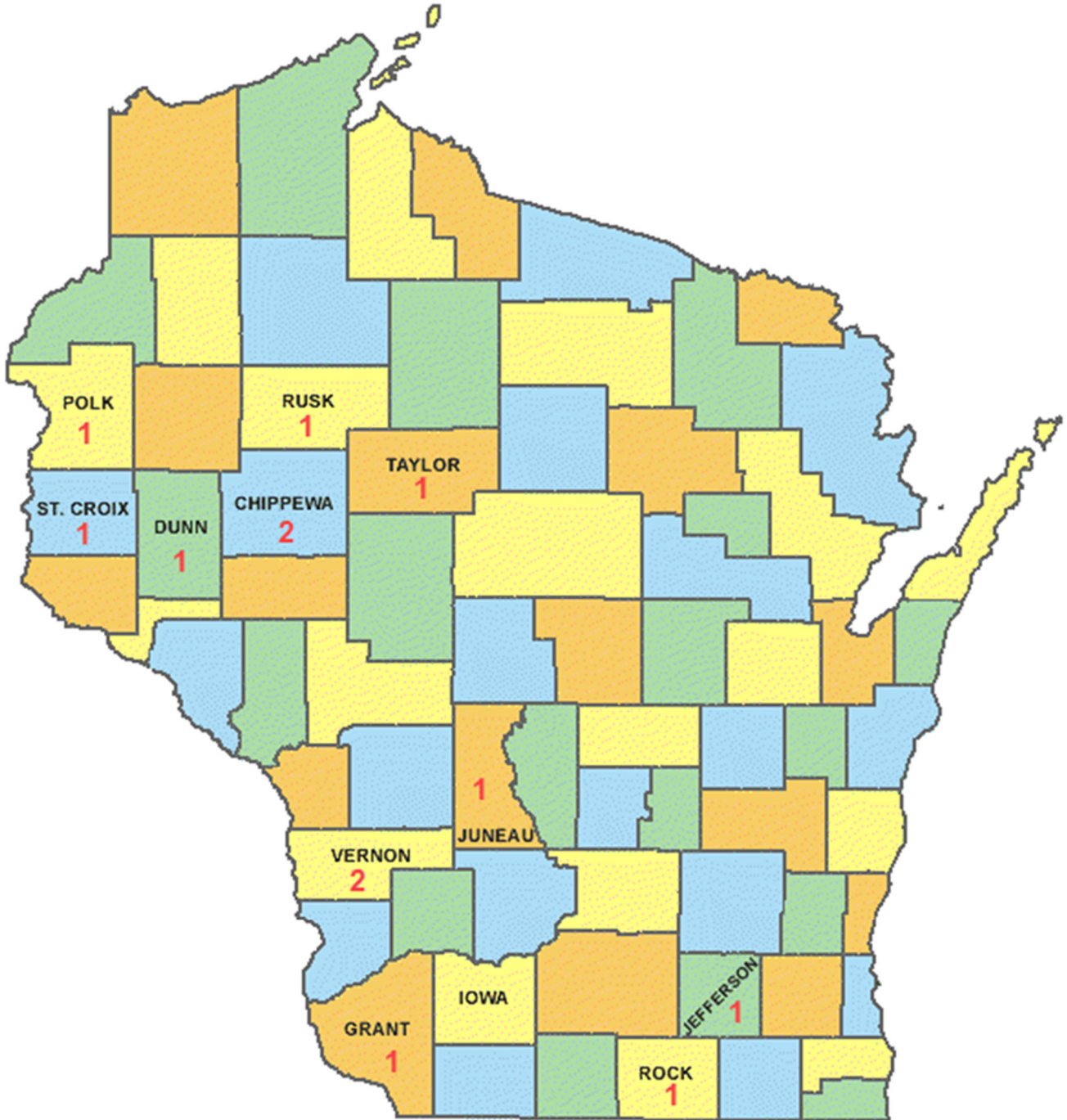
The assessors reported that there have been no tax appeal filings based upon solar farm issues. The assessor of Centuria, Wisconsin in Polk County, Lisa Meyer, stated that, due to the considerably recent age of the Sand Lake Solar Farm, the appeals deadline has not yet had time to occur and that could be the reason she has not been confronted with any appeals.

Consistently, the assessors reported that whatever initial concern there may have been regarding property values during the planning and approval stages of the various solar farms had dissipated once the solar farm was constructed. Repeatedly, the assessors would state that the revenue that would come into the county and to each individual farmer would outweigh any initial concern that the residents would have about the solar farms joining their communities.

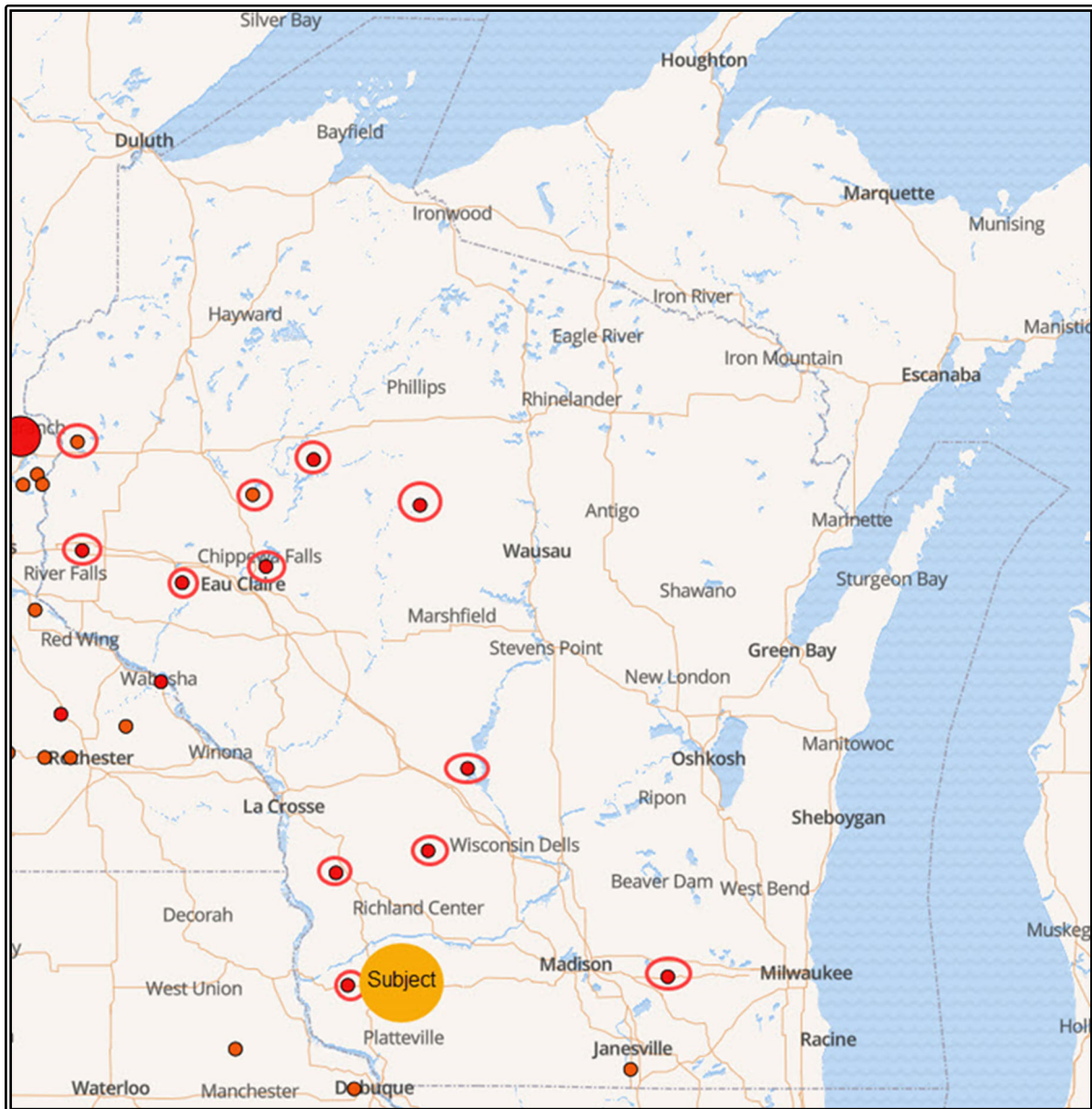
Agricultural Values/Assessed Values

The assessed values of agricultural properties are established based upon a productivity formula and are not driven by market data. Reportedly, assessed values of agricultural properties have been steady or increasing in recent years and are projected to continue increasing for the near future. The assessors reported that no major complaints have been received and/or no tax appeal filings have been filed for agricultural properties within a solar farm footprint.

Based on this survey, it does not appear that the Supervisors of Assessments in the surveyed counties in Wisconsin have reason to believe that the location of photovoltaic panels in their county has had a negative impact on property values.



**MAP OF WISCONSIN COUNTIES SURVEYED
SOLAR FARM COUNT BY COUNTY
*SOLAR FARMS WITH 1.00-MEGAWATT CAPACITY OR HIGHER***



Note: As depicted on this map, the locations of certain solar farms are approximations. In some instances, the solar farms are incorrectly shown to be located in adjacent counties. This map, as of the date of this survey, also shows the locations of smaller solar farms, but for the accuracy of this study we have only focused on the farms with a capacity of 1.00 megawatt or higher.

**CASEY & BRENDA KITE PROPERTY APPRAISAL
2680 COUNTY ROAD G #80
COBB, WISCONSIN 53526**

Kurt Kielisch Data

Land Description	
<i>PIN</i>	016-0001.01
<i>Size in Net Acres</i>	3.73
<i>Topography Detail</i>	Level
<i>Terrain Composition</i>	98% Open, 2% Wooded
<i>Zoning</i>	AR-1, Agricultural Residential District (Animals Allowed by Conditional Permit)
<i>Land Use</i>	Rural Residential and Small Agricultural
<i>Neighborhood Location</i>	Rural, Fronts CTH G (County Road G #80)
<i>Water Feature</i>	None
<i>Miscellaneous</i>	Surrounded by Agricultural Land Use, 1.7 Miles to Cobb, 12 Miles to Mineral Point, Smaller Wind Turbines 2,600 Feet to the West and in View

Year of Assessment - 2018				
PIN	Acres	Land	Improvements	Total
016-0001.01	3.73	\$12,900	\$78,100	\$91,000
Totals	44.4	\$19,700	\$78,100	\$97,800
Assessment Ratio:				0.9263
Total Assessed Value:				\$105,577

Conclusion of Value	
<i>Before Taking Value</i>	\$298,500
<i>After Taking Value</i>	\$179,000
<i>Total Loss & Damage (Per Kielisch Appraisal)</i>	\$119,500

Public Data

Sale History of Subject Property					
Document #	Grantor	Grantee	Sale Date	Sale Price	Instrument
288208	Robert C. Kramer & Ruth Kramer, h/w	Casey Kite & Brenda Kite, h/w	12/29/2005	\$179,999	Warranty Deed
N/A	Casey Kite & Brenda Kite, h/w	N/A	8/1/2019	\$253,700	Warranty Deed
				<i>Estimated Real Estate Commission (5.5%):</i>	<i>+\$13,954</i>
				Adjusted 8/1/2018 Sales Price:	\$267,654

MICHAEL S. MAROUS STATEMENT OF QUALIFICATIONS

Michael S. MaRous, MAI, CRE, is president and owner of MaRous and Company. He has appraised more than \$15 billion worth of primarily investment-grade real estate in more than 25 states. In addition to providing documented appraisals, he has served as an expert witness in litigation proceedings for many law firms; financial institutions; corporations; builders and developers; architects; local, state, county, and federal governments and agencies; and school districts in the Chicago metropolitan area. His experience in partial interest, condemnation, damage impact, easement (including aerial and subsurface), marital dissolutions, bankruptcy proceedings, and other valuation issues is extensive. He has provided highest and best use, marketability, and feasibility studies for a variety of properties. Many of the largest redevelopment areas and public projects, including Interstate 355, the Chicago O'Hare International Airport expansion, the Chicago Midway International Airport expansion, and the McCormick Place expansion, are part of Mr. MaRous' experience. Mr. MaRous also has experience in regard to mediation and arbitration proceedings. Also, he has purchased and developed real estate for his own account.

APPRAISAL AND CONSULTATION EXPERIENCE

Business Parks Distribution Centers	Industrial Properties Manufacturing Facilities Research Facilities	Self-storage Facilities Warehouses
Auto Sales/Service Facilities Banquet Halls Big Box Stores	Commercial Properties Gasoline Stations Hotels and Motels Office Buildings	Restaurants Shopping Centers Theaters
Bowling Alleys Cemeteries Farms Golf Courses Lumber Yards	Special-Purpose Properties Nurseries Riverboat Gambling Facilities Schools Stadium Expansion Issues Solar Farms	Tank Farms Underground Gas Aquifers Utility Corridors Waste Transfer Facilities Wind Farms
Apartment Complexes Condominium Conversions	Residential Properties Condominium Developments Single-family Residences	Subdivision Developments Townhouse Developments
Agricultural Alleys Commercial	Vacant Land Easements Industrial Residential	Rights of Way Streets Vacations
Corporations Financial Institutions	Clients Law Firms Not-for-profit Associations	Private Parties Public Entities

EDUCATION

B.S., Urban Land Economics, University of Illinois, Urbana-Champaign
Continuing education seminars and programs through the Appraisal Institute
and the American Society of Real Estate Counselors, and real estate brokerage classes

PUBLIC SERVICE

Mayor, City of Park Ridge, Illinois (2003-2005)
Alderman, City of Park Ridge, including Liaison to the Zoning Board of Appeals and Planning and Zoning and
Chairman of the Finance and Public Safety Committees (1997-2005)

PROFESSIONAL AFFILIATIONS AND LICENSES

Appraisal Institute, MAI designation, Number 6159
Counselors of Real Estate, CRE designation
Illinois Certified General Real Estate Appraiser, License Number 553.000141 (9/21)
Indiana Certified General Real Estate Appraiser, License Number CG41600008 (6/22)
Wisconsin Certified General Real Estate Appraiser, License Number 1874-10 (12/21)
Minnesota Certified General Real Estate Appraiser, License Number 40330656 (8/22)
Pennsylvania Certified General Real Estate Appraiser, License Number GA004181 (6/21)
Iowa Certified General Real Estate Appraiser, License Number CG03468 (6/21)
South Dakota Certified General Real Estate Appraiser, License Number 1467CG (9/21)
Licensed Real Estate Broker (Illinois)

PROFESSIONAL ACTIVITIES

Mr. MaRous is past president of the Chicago Chapter of the Appraisal Institute. He is former chair and vice chair of the National Publications Committee and has sat on the board of The Appraisal Journal. In addition, he has served on and/or chaired more than 15 other committees of the Appraisal Institute, the Society of Real Estate Appraisers, and the American Institute of Real Estate Appraisers.

Mr. MaRous served as chair of the Midwest Chapter of the Counselors of Real Estate in 2006 and 2007 and has served on the National CRE Board since 2011. He sat on the Midwest Chapter Board of Directors, the Editorial Board of Real Estate Issues, and on various other committees.

Mr. MaRous also is past president of the Illinois Coalition of Appraisal Professionals. He also has been involved with many other professional associations, including the Real Estate Counseling Group of America, the Northwest Suburban Real Estate Board, the National Association of Real Estate Boards, and the Northern Illinois Commercial Association of Realtors.

PUBLICATIONS AND PROFESSIONAL RECOGNITION

Mr. MaRous has spoken at more than 20 programs and seminars related to real estate appraisal and valuation.

Author

"Low-income Housing in Our Backyards," *The Appraisal Journal*, January 1996
"The Appraisal Institute Moves Forward," *Illinois Real Estate Magazine*, December 1993
"Chicago Chapter, Appraisal Institute," *Northern Illinois Real Estate Magazine*, February 1993
"Independent Appraisals Can Help Protect Your Financial Base," *Illinois School Board Journal*, November-December 1990
"What Real Estate Appraisals Can Do for School Districts," *School Business Affairs*, October 1990

Awards

Appraisal Institute - George L. Schmutz Memorial Award, 2001
Chicago Chapter of the Appraisal Institute – Heritage Award, 2000
Chicago Chapter of the Appraisal Institute - Herman O. Walther, 1987 (Distinguished Chapter Member)

Reviewer or Citation in the Following Books

Rural Property Valuation, 2017
Real Estate Damages, 1999, 2008, and 2016
Golf Property Analysis and Valuation, 2016
Dictionary of Real Estate Appraisal, Fourth Edition, 2002 and Sixth Edition, 2015
Market Analysis for Real Estate, 2005 and 2014
Appraisal of Real Estate, Twelfth Edition, 2001, Thirteenth Edition, 2008, Fourteenth Edition, 2013
Shopping Center Appraisal and Analysis, 2009
Subdivision Valuation, 2008
Valuation of Apartment Properties, 2007
Valuation of Billboards, 2006
Appraising Industrial Properties, 2005
Valuation of Market Studies for Affordable Housing, 2005
Valuing Undivided Interest in Real Property: Partnerships and Cotenancies, 2004
Analysis and Valuation of Golf Courses and Country Clubs, 2003
Valuing Contaminated Properties: An Appraisal Institute Anthology, 2002
Hotels and Motels: Valuation and Market Studies, 2001
Land Valuation: Adjustment Procedures and Assignments, 2001
Appraisal of Rural Property, Second Edition, 2000
Capitalization Theory and Techniques, Study Guide, Second Edition, 2000
Guide to Appraisal Valuation Modeling Land, 2000
Appraising Residential Properties, Third Edition, 1999
Business of Show Business: The Valuation of Movie Theaters, 1999
GIS in Real Estate: Integrating, Analyzing and Presenting Locational Information, 1998
Market Analysis for Valuation Appraisals, 1995

REPRESENTATIVE WORK OF MICHAEL S. MAROUS

Headquarters/Corporate Office Facilities in Illinois

Fortune 500 corporation facility, 200,000 sq. ft., Libertyville
Corporate headquarters, 300,000 sq. ft. and 500,000 sq. ft., Chicago
Fortune 500 corporation facility, 450,000 sq. ft., Northfield
Major airline headquarters, 1,100,000 million sq. ft. on 47 acres, Elk Grove Village
Former communications facility, 1,400,000 million sq. ft. on 62 acres, Skokie and Niles
Corporate Headquarters, 1,500,000+ sq. ft., Lake County
Former Sears Headquarters Redevelopment Project, Chicago

Office Buildings in Chicago

401 South LaSalle Street, 140,000 sq. ft.
134 North LaSalle Street, 260,000 sq. ft.
333 North Michigan Avenue, 260,000 sq. ft.
171 West Randolph Street, 360,000 sq. ft.
20 West Kinzie Street, 405,000 sq. ft.
55 East Washington Street, 500,000 sq. ft.
10 South LaSalle Street, 870,000 sq. ft.
222 West Adams Street, 1,000,000 sq. ft.
141 West Jackson Boulevard, 1,065,000 sq. ft.
333 South Wabash Avenue, 1,125,000 sq. ft.
155 North Wacker Drive, 1,406,000 sq. ft.
70 West Madison Street, 1,430,000 sq. ft.
111 South Wacker Drive, 1,454,000 sq. ft.
175 West Jackson Boulevard, 1,450,000 sq. ft.
227 West Monroe Street, 1,800,000 sq. ft.
10 South Dearborn Street, 1,900,000 sq. ft.

Hotels in Chicago

One West Wacker Drive (Renaissance Chicago Hotel)
10 East Grand Avenue (Hilton Garden Inn)
106 East Superior Street (Peninsula Hotel)
120 East Delaware Place (Four Seasons)
140 East Walton Place (The Drake Hotel)
160 East Pearson Street (Ritz Carlton)
301 East North Water Street (Sheraton Hotel)
320 North Dearborn Street (Westin Chicago River North)
401 North Wabash Avenue (Trump Tower)
505 North Michigan Avenue (Hotel InterContinental)
676 North Michigan Avenue (Omni Chicago Hotel)
800 North Michigan Avenue (The Park Hyatt)

Large Industrial Properties in Illinois

Large industrial complexes, 400,000 sq. ft., 87th Street and Greenwood Avenue, Chicago
Distribution warehouse, 580,000 sq. ft. on 62 acres, Champaign
Publishing house, 700,000 sq. ft. on 195 acres, U.S. Route 45, Mattoon
AM Chicago International, 700,000± sq. ft. on 41 acres, 1800 West Central Road, Mount Prospect
Nestlé distribution center, 860,000 sq. ft. on 153 acres, DeKalb
U.S. Government Services Administration distribution facility, 860,000 sq. ft., 76th Street and Kostner Avenue,
Chicago Fortune 500 company distribution center, 1,000,000 sq. ft., Elk Grove Village
Caterpillar Distribution Facility, 2,231,000 sq. ft., Morton
Self-storage facilities, various Chicago metropolitan locations

Airport Related Properties

Mr. MaRous has performed valuations on more than 100 parcels in and around Chicago O'Hare International Airport, Chicago Midway International Airport, Palwaukee Municipal Airport, Chicago Aurora Airport, DuPage Airport, and Lambert-St. Louis International Airport

Vacant Land in Illinois

15 acres, office, Northbrook

250 acres, Island Lake

20 acres, residential, Glenview
25 acres, Hinsdale
55 acres, mixed-use, Darien
68 acres, Roosevelt Road and the Chicago River
75 acres, I-88 at I-355, Downers Grove
100± acres, various uses, Lake County
100 acres, Western Springs
140 acres, Flossmoor
142 acres, residential, Lake County
160 acres, residential, Cary
200 acres, mixed-use, Bartlett

450 acres, residential, Wauconda
475± acres, various uses, Lake County
650 acres, Hawthorne Woods
650 acres, Waukegan/Libertyville
800 acres, Woodridge
900 acres, Matteson
1,000± acres, Batavia area
2,000± acres, Northern Lake County
5,000 acres, southwest suburban Chicago area
Landfill expansion, Lake County

Retail Facilities

20 Community shopping centers, various Chicago metropolitan locations
Big box uses, various Chicago metropolitan locations and the Midwest
Gasoline Stations, various Chicago metropolitan locations
More than 50 single-tenant retail facilities larger than 80,000 sq. ft., various Midwest metropolitan locations

Residential Projects

Federal Square townhouse development project, 118 units, \$15,000,000+ sq. ft. project, Dearborn Place, Chicago
Marketability and feasibility study, 219 East Lake Shore Drive, Chicago
Riverview II, Chicago; Old Town East and West, Chicago; Museum Park Lofts II, Museum Park Tower 4, University Commons, Two River Place, River Place on the Park, Chicago;
Timber Trails, Western Springs, Illinois

Market Impact Studies

Land-fill projects in various locations
Quarry expansions in Boone and Kendall counties
Commercial development and/or parking lots in various communities
Zoning changes in various communities
Waste transfer stations in various communities

Business and Industrial Parks

Chevy Chase Business Park, 30 acres, Buffalo Grove
Carol Point Business Center, 300-acre industrial park, Carol Stream, \$125,000,000+ project
Internationale Centre, approximately 1,000 acre-multiuse business park, Woodridge

Properties in Other States

330,000 sq. ft., Newport Beach, California
Former government depot/warehouse and distribution center, 2,500,000 sq. ft. on 100+ acres, Ohio
Shopping Center, St. Louis, Missouri, Office Building, Clayton, Missouri
Condominium Development, South Dakota, South Dakota
Hormel Foods, various Midwest locations
Wisconsin Properties including Lowes, Menards, Milwaukee Zoo, CVS Pharmacy's in Milwaukee, Dairyland Racetrack, Major Industrial Property in Manawa, Class A Office Buildings and Vacant Land

Energy Related Projects

Oakwood Hills Energy Center, McHenry County, Illinois
Lackawanna Power Plant, Lackawanna County, Pennsylvania
Commonwealth Edison, high tension lines

Wind Projects

Illinois

Alta Farms Wind Project II, Dewitt County
Bennington Wind Project, Marshall County
Goose Creek Wind, Piatt County
Harvest Ridge Wind Farm, Douglas County
Lincoln Land Wind Farm, Morgan County
Midland Wind Farm, Henry County
McLean County Wind Farm, McLean County
Otter Creek Wind Farm, LaSalle County
Pleasant Ridge Wind Farm, Livingston County
Radford's Run Wind Farm, Macon County
Twin Groves Wind Farm, McLean County
Walnut Ridge Wind Farm, Bureau County

Indiana

Tippecanoe County Wind Farm, Tippecanoe County
Roaming Bison Wind Farm, Montgomery County

Iowa

Ida Grove II Wind Farm, Ida County

Kansas

Neosho Ridge Wind Farm, Neosho County
Jayhawk Wind, Bourbon County & Crawford County

New York

Orangeville Wind Farm, Wyoming County
Alle-Catt Wind, Allegany County, Cattaraugus County, & Wyoming County

Ohio

Seneca Wind, Seneca County
Republic Wind, Seneca County & Sandusky County

South Dakota

Deuel Harvest Wind Farm, Deuel County
Dakota Range Wind Project I-III, Codington County, Grant County, & Roberts County
Crocker Wind Farm, Clark County
Crowned Ridge Wind II, Deuel County
Prevailing Wind Park, Bon Homme County, Charles Mix County, & Hutchinson County
Sweet Land Wind Farm, Hand County
Triple H Wind Farm, Hyde County
Tatanka Wind Project, Deuel County

Solar Projects

Illinois

Hickory Point Solar Energy Center, Christian County

Indiana

Lone Oak Solar Farm, Madison County

Maryland

Dorchester County Solar Farm, Dorchester County

Wisconsin

Badger Hollow Solar Farm, Iowa County
Paris Solar Energy Center, Kenosha County
Darien Solar Energy Center, Rock County & Walworth County

South Dakota

Brookhaven Solar Energy Production Facility, Brookings County
Western Regions of the United States of America
Southwest Region – Arizona, Colorado, Nevada, New Mexico, and Utah

Northwest Region – Idaho and Oregon
Southern Great Plains Region – Texas
Northern Great Plains Region – General Research

REPRESENTATIVE CLIENT LISTING OF MICHAEL S. MAROUS

Law Firms

Alschuler, Simantz & Hem LLC Ancel,
Glink, Diamond, Bush,
DiClanni & Krafthefer
Arnstein & Lehr LLP
Berger, Newmark & Fenchel P.C.
Berger Schatz
Botti Law Firm, P.C.
Carmody MacDonald P.C.
Carr Law Firm
Crane, Heyman, Simon, Welch & Clar
Daley & Georges, Ltd.
Day, Robert & Morrison, P.C. Dentons
US LLP
DiMonte & Lizak LLC
DLA Piper
Dreyer, Foote, Streit, Furgason &
Slocum, P.A.
Drinker, Biddle & Reath LLP Figliulo &
Silverman, P.C.
Foran, O'Toole & Burke LLC Franczek
Radelet P.C.
Fredrikson & Byron, P.A.
Freeborn & Peters LLP

Gould & Ratner LLP
Greenberg Traurig LLP
Helm & Wagner
Robert Hill Law, Ltd.
Hinshaw & Culbertson LLP
Holland & Knight LLP
Ice Miller LLP
Jenner & Block
Katz & Stefani, LLC
Kinnally, Flaherty, Krentz, Loran,
Hodge & Mazur PC
Kirkland & Ellis LLP
Klein, Thorpe & Jenkins, Ltd.
McDermott, Will & Emery
Mayer Brown
Michael Best & Friedrich LLP
Morrison & Morrison, Ltd.
Bryan E. Mraz & Associates
Neal, Gerber & Eisenberg, LLP
Neal & Leroy LLC
O'Donnell Haddad LLC
Prendergast & DelPrincipe
Rathje & Woodward, LLC

Righeimer, Martin & Cinquino, P.C.
Robbins, Salomon & Patt, Ltd.
Rosenfeld Hafron Shapiro & Farmer
Rosenthal, Murphey, Coblentz &
Donahue Rubin & Associates, P.C.
Ryan and Ryan, P.C.
Reed Smith LLP
Sarnoff & Baccash
Scariano, Himes & Petrarca, Chtd.
Schiff Hardin LLP
Schiller, DuCanto & Fleck LLP
Schirott, Luetkehans & Garner, LLC
Schuyler, Roche & Crisham, P.C.
Sidley Austin LLP
Storino, Ramello & Durkin
Thomas M. Tully & Associates
Thompson Coburn, LLP
Tuttle, Vedral & Collins, P.C.
Vedder Price
von Briesen & Roper, SC
Winston & Strawn LLP
Worsek & Vihon LLP

AmericaUnited Bank Trust
BMO Harris Bank
Charter One
Citibank
Cole Taylor Bank
First Bank of Highland Park
First Financial Northwest Bank

Financial Institutions
First Midwest Bank
First State Financial
Glenview State Bank
Itasca Bank & Trust Co.
Lake Forest Bank & Trust Co.
MB Financial Bank

Midwest Bank
Northern Trust
Northview Bank & Trust
The Private Bank
Wintrust

Advocate Health Care System
Alliance Property Consultants
American Stores Company
Archdiocese of Chicago
Arthur J. Rogers and Company
Avangrid Renewables, LLC
BHE Renewables
BP Amoco Oil Company
Christopher B. Burke Engineering,
Ltd. Cambridge Homes
Canadian National Railroad
Capital Realty Services, Inc.
Chicago Cubs
Children's Memorial Hospital
Chrysler Realty Corporation

Corporations
Citgo Petroleum Corporation
CorLands
CVS
Edward R. James Partners, LLC
Enterprise Development Corporation
Enterprise Leasing Company
Exxon Mobil Corporation
Hamilton Partners
Hollister Corporation
Imperial Realty Company
Invenergy LLC
Kimco Realty Corporation
Kinder Morgan, Inc.
Lakewood Homes

Lowe's Companies, Inc.
Loyola University Health System
Marathon Oil Corporation
Meijer, Inc.
Menards
Mesirow Stein Real Estate, Inc.
Paradigm Tax Group
Prime Group Realty Trust
Public Storage Corporation
RREEF Corporation
Shell Oil Company
Union Pacific Railroad Company
United Airlines, Inc.

Public Entities

Illinois Local Governments and Agencies

Village of Arlington Heights
Village of Barrington
Village of Bartlett
Village of Bellwood
Village of Brookfield
Village of Burr Ridge
City of Canton
Village of Cary
City of Chicago
Village of Deer Park
City of Des Plaines
Des Plaines Park District
Downers Grove Park District
City of Elgin
Elk Grove Village
City of Elmhurst
Village of Elmwood Park
City of Evanston
Village of Forest Park
Village of Franklin Park

Village of Glenview
Glenview Park District
Village of Harwood Heights
City of Highland Park
Village of Hinsdale
Village of Inverness
Village of Kenilworth
Village of Kildeer
Village of Lake Zurich
Leyden Township
Village of Lincolnshire
Village of Lincolnwood
Village of Morton Grove
Village of Mount Prospect
Village of North Aurora
Village of Northbrook
City of North Chicago
Village of Northfield
Northfield Township
Village of Oak Brook

Village of Orland Park
City of Palos Hills
City of Peoria
City of Prospect Heights
City of Rolling Meadows
Village of Rosemont
City of St. Charles
Village of Schaumburg
Village of Schiller Park
Village of Skokie
Village of South Barrington
Village of Streamwood
Metropolitan Water Reclamation
District of Greater Chicago
City of Waukegan
Village of Wheeling
Village of Wilmette
Village of Willowbrook
Village of Winnetka
Village of Woodridge

County Governments and Agencies

Boone County State's Attorney's Office
Forest Preserve of Cook County
Cook County State's Attorney's Office
DuPage County Board of Review

Forest Preserve District of DuPage
County Kane County
Kendall County Board of Review
Lake County

Lake County Forest Preserve District
Lake County State's Attorney's Office
Morton Township
Peoria County

State and Federal Government Agencies

Federal Deposit Insurance Corporation
U.S. General Services Administration

Illinois Housing Development Authority
Illinois State Toll Highway Authority

Internal Revenue Service
The U.S. Postal Service

Schools

Argo Community High School
District No. 217
Arlington Heights District No. 25
Township High School District No. 214,
Arlington Heights
Barrington Community Unit District
No. 220
Chicago Board of Education
Chicago Ridge District No. 127½
College of Lake County
Community Consolidated School
District No. 15
Community Consolidated School
District No. 146
Community School District No. 200
Consolidated High School
District No. 230
Darien District No. 61
DePaul University

Elk Grove Community Consolidated
District No. 59
Elmhurst Community Unit School
District No. 205
Glen Ellyn School District No. 41
Glenbard High School District No. 87
Indian Springs School District No. 109
LaGrange School District No. 105
Lake Forest Academy
Leyden Community High School
District No. 212
Loyola University
Lyons Township High School District
No. 204
Maine Township High School District
No. 207
Niles Elementary District No. 71
North Shore District No. 112, Highland
Park

Northwestern University
Orland Park School District No. 135
Palatine High School District #211
Rhodes School District No. 84-1/2
Riverside-Brookfield High School
District No. 208
Rosalind Franklin University
Roselle School District No. 12
Schaumburg Community Consolidated
District No. 54
Sunset Ridge School District No. 29
Township High School District No. 211
Township High School District No. 214
Triton College
University of Illinois
Wheeling Community Consolidated
District No. 21
Wilmette District No. 39

JOSEPH M. MaROUS STATEMENT OF QUALIFICATIONS

Joseph M. MaRous is an Energy Consultant with MaRous and Company, with a focus on the renewable and alternative energy industry.

For more details visit: [linkedin.com/in/joemarous](https://www.linkedin.com/in/joemarous)

EDUCATION

Purdue University - West Lafayette, Indiana
Bachelor of Science – Building Construction Management
Focus in residential and green build construction

CERTIFICATIONS

OSHA Safety Certified
Certified Green Build Professional
USPAP Qualified

CONSTRUCTION

Professional in the construction industry for 10 years

- Residential
- Commercial
- Industrial
- Municipal
- Tenant Improvement
- Schools
- Media Studios
- Automobile Dealerships

MaROUS & COMPANY

Wind Projects

- Illinois
 - Alta Farms Wind Project II, *Dewitt County*
 - Bennington Wind Project, *Marshall County*
 - Goose Creek Wind, *Piatt County*
 - Harvest Ridge Wind Farm, *Douglas County*
 - Lincoln Land Wind Farm, *Morgan County*
 - Midland Wind Farm, *Henry County*
 - McLean County Wind Farm, *McLean County*
 - Radford's Run Wind Farm, *Macon County*
- Indiana
 - Roaming Bison Wind Farm, *Montgomery County*
 - Tippecanoe County Wind Farm, *Tippecanoe County*
- Iowa
 - Ida Grove II Wind Farm, *Ida County*
- Kansas
 - Jayhawk Wind, *Bourbon County & Crawford County*
 - Neosho Ridge Wind Farm, *Neosho County*
- New York
 - Alle-Catt Wind, *Allegany County, Cattaraugus County, & Wyoming County*
 - Orangeville Wind Farm, *Wyoming County*
- Ohio
 - Seneca Wind, *Seneca County*
 - Republic Wind, *Seneca County & Sandusky County*
- South Dakota
 - Crocker Wind Farm, *Clark County*
 - Crowned Ridge Wind II, *Deuel County*
 - Deuel Harvest Wind Farm, *Deuel County*
 - Dakota Range Wind Project I-III, *Codington County, Grant County, & Roberts County*
 - Prevailing Wind Park, *Bon Homme County, Charles Mix County, & Hutchinson County*
 - Sweet Land Wind Farm, *Hand County*
 - Triple H Wind Farm, *Hyde County*
 - Tatanka Wind Project, *Deuel County*

Solar Projects

- Illinois
 - Hickory Point Solar Energy Center, *Christian County*
- Maryland
 - Dorchester County Solar Farm, *Dorchester County*
- Wisconsin
 - Badger Hollow Solar Farm, *Iowa County*
 - Darien Solar Energy Center, *Rock County & Walworth County*
 - Paris Solar Energy Center, *Kenosha*
- Indiana
 - Lone Oak Solar Farm, *Madison County*
- Western Regions of the United States of America
 - Southwest Region – *Arizona, Colorado, Nevada, New Mexico, and Utah*
 - Northwest Region – *Idaho and Oregon*
 - Southern Great Plains Region – *Texas*
 - Northern Great Plains Region – *General Research*

Appraisal Assistance

- Vacant Land
- Industrial
- Commercial
- Offices
- Retail
- Residential
- Auto Dealerships
- Religious Facilities
- Hotel/Motel