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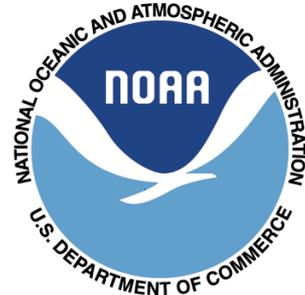
The statements, findings, conclusions, and recommendations in this report are those of the Great Lakes Renewable Energy Association (GLREA) and do not necessarily reflect the views of the MDEQ and the NOAA.

GLREA would like to thank the MDEQ and Manistee County once again for their help with this project. Additionally, specific thanks goes to the Michigan State University Land Policy Institute, the Michigan State University extension, the Northwest Michigan Council of Governments (NMCOG), the State of Michigan Energy Office, the Manistee County Planning Commission, Susan Wagner and Allan O'Shea.

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## **GREAT LAKES RENEWABLE ENERGY ASSOCIATION**

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***Since 1991, The Mission of GLREA is to increase the mainstream use of renewable energy technologies and sustainable energy practices.***

# ***Manistee County Wind Energy Plan***

## **Part 1: Background and Methods**

### **Purpose**

It is the purpose of the following document to address the growing interest in wind energy conversion devices (WECs) as a means to produce electric power for the residents, businesses and citizens of Manistee County. This plan will demystify wind energy technology and address areas of local concern. In the end, this plan will thoughtfully balance the need to protect public health, safety and welfare with the opportunity for economic growth from the development of wind energy facilities and industry.

It is widely known that traditional forms of electric production (i.e. coal, oil, natural gas) greatly contribute to particulate and toxic pollution, including mercury. Traditional forms of electric production significantly contribute to global climate change through the release of carbon dioxide and methane. Furthermore, traditional forms of electric production have seen tremendous fluctuations in price, while trending upwards.

The County of Manistee is seeking to balance the local need for a stable source of electricity production with environmental and cost concerns. Additionally, the County of Manistee is interested in providing an enabling atmosphere for the development of large-scale wind projects, while respecting the health, safety and welfare of all residents, businesses and citizens who live, work or play in this region.

### **Project Overview**

The Great Lakes Renewable Energy Association (GLREA) received funding assistance from the Michigan Department of Environmental Quality to develop a plan for the responsible development of wind energy potential in Manistee County.

GLREA sought the input of Manistee County and Township officials and other stakeholders from the local area. GLREA also reached out to various statewide

stakeholders. The project addressed the lack of zoning language in many townships within Manistee County and identified geographic and local barriers to the development of wind energy systems.

GLREA aimed to develop consensus for reasonable standards for wind energy development in Manistee County. The project also worked to address barriers to wind energy development in the region and incorporate local concerns into this plan. This report is tailored to the communities in Manistee County and will help guide the development of plans to accommodate wind energy development.

This project specifically dealt with the question of planning for wind energy facility development. During the planning process, there was discussion about small-scale wind installations. The interest in small-scale (residential) wind development highlights the need for a planning process specifically dealing with small-scale installations.

### **Planning Process**

The Manistee County Wind Energy Planning Project was an outstanding opportunity for multi-jurisdictional collaboration. Open communication among the Manistee County Planning Commission, the Manistee County Commission, local supervisors, local zoning and planning officials and stakeholders was essential in the development of this plan. This project expanded upon the conversations about wind energy planning, and further developed the level of knowledge of all parties in the process.

GLREA gathered master plans and model language from counties across the country and the world to provide the basis for discussion. GLREA worked with Manistee County, the Northwest Michigan Council of Governments (NMCOG), the Michigan State University Land Policy Institute (LPI) and other partners to gather current and projected land use maps for Manistee County. Additionally, GLREA established a database of siting issues that other counties and local jurisdictions were addressing.

GLREA also gathered information about economic impacts to the local economy, environmental impacts, and property value impacts to assist in the planning process. GLREA referenced the Michigan Siting Guidelines for Wind Turbines, developed under the leadership of John Sarver and the State of Michigan Energy Office, during the process.

The planning committee learned from the successes and failures of other counties who proceeded down the road of countywide planning. Additionally, by gathering such a vast reservoir of data, the planning committee was able to better understand the issues that it faced.

## **Stakeholder Meetings**

Throughout the plan development process, GLREA held meetings with a formal stakeholder group consisting of representatives from local communities, other County departments and other including:

- Michigan State University Extension
- Michigan Nature Conservancy
- Michigan State University Land Policy Institute
- Michigan Department of Transportation
- Michigan Department of Labor and Economic Growth
- A representative from Senator Carl Levin's office
- A representative from Senator Debbie Stabenow's office
- Northwest Michigan Council of Governments
- Manistee Economic Council and Chamber Alliance
- The Little River Band of Ottawa Indians
- The Michigan Department of Natural Resources
- The Michigan Economic Development Corporation
- The Michigan Public Service Commission
- The United State Fish and Wildlife Service
- Representative from Michigan utilities
- Representatives from private wind developers

These meetings provided a vision for a countywide plan for wind energy development. The stakeholder meetings and discussions were used to establish a goal statement and guiding principles for the project, to communicate planning, discuss barriers for construction of wind machines, confirm and/or correct the County geographic information systems (GIS) data and review draft versions of the plan.

## **Plan Development**

Using existing GIS data and maps gathered during the preparation phase, GLREA worked with the Michigan State University Land Policy Institute to develop maps that excluded certain areas from development, due to wetlands, steep slopes, areas of bio-uniqueness, aviation concerns, wind resource, forested land and property ownership.

GLREA held meetings with stakeholder groups in Manistee County to verify data that was collected and receive input as to the direction of the plan. During this verification process, stakeholders expressed that wind energy development should be used as a method to preserve open space and agricultural land, protect the natural environment, reduce greenhouse gas emissions and stimulate the local economy and tax base.

While there was consensus that wind energy could help preserve and protect open space, stakeholders expressed concerns about wind energy development in urban areas. Additionally, stakeholders wanted to address the impact of wind turbines on avian

populations, impact of wind turbine construction on road quality, the issue of shadow flicker, noise impacts and siting issues.

While urban placement was not entirely ruled out by stakeholders, the impetus of developing a wind energy industry should be focused on developing the wind resource in agricultural and open space areas. Additionally, stakeholders indicated that zoning language needed to be developed to address the above stated siting concerns.

In an effort to gain further insight and provide further education, GLREA presented at the following events:

- Manistee Countywide Summit
  - 80% of the Townships were represented at the County Summit as part of a re-visioning process for the entire county.
  - GLREA educated the local decision makers about wind energy. Half of the presentation was about wind turbine production and the construction process. The other half of the presentation was about wind turbine siting guidelines. This was an excellent opportunity to educate local townships about turbine siting and answer questions.
- Lansing stakeholder meeting
  - Used to gain the input of state officials, wind developers and utilities during the process.
  - Indicated the difficulty in obtaining transmission line data and location.
  - Provided insight and contacts the help obtain migratory bird path data and how to mitigate bird deaths due to wind machine erection.
- MSU Wind Symposium
  - Indicated the need to obtain data on critical sand dune areas, that are on file with the Michigan Department of Environmental Quality.
  - Illustrated the need for a wind plan that addresses small wind machines.
- Manistee County Planning Commission.
  - Members of the Manistee County Planning Commission provided useful feedback on the concerns of road construction issues during construction, limits to tower height, limiting the times that construction can be allowed, the need for noise impact studies.

Beyond the formal presentations, GLREA met informally with the MSU Land Policy Institute, at NMCOG wind siting events and consulted with state agencies, wind developers and attorneys.

GLREA also sought input on draft model zoning language from groups including, but not limited to, the Michigan Township Association (MTA), the Michigan Association of Planning, DLEG, wind developers, utilities, local officials, attorneys and local non-profit organizations.

### **Public Forum and Comment**

GLREA plans to host one public forum and allow for comment on Thursday, December 13 before the regular meeting of the Manistee County Planning Commission. Promotion of this event occurred through county channels. Planning and Zoning officials from all the townships within Manistee County and neighboring counties have been invited to the event. Additionally, GLREA has publicized the event through various list serves, GLREA contact lists and press releases to the local newspapers and media outlets.

We expect a turnout of over 100 individuals and will incorporate feedback into this plan and the model zoning language.

### **Benefits of Wind Energy**

The development of wind energy can provide immense benefits to local communities. Wind energy is an inexhaustible source of electricity that is both cost effective and environmentally friendly. In an era of ever-increasing costs of fuel and electricity, wind energy has the potential to reinvigorate local economies, preserve and protect open land/farmland, decrease out-of-state energy imports and improve the environment.

Each utility scale wind machine contributes, on average, \$15,000-\$20,000<sup>1,2</sup> each year to the local tax base. Additionally, royalty payments to land owners range from \$4000-\$6000 per turbine<sup>3</sup>, per year. In certain projects, payments have exceeded \$15,000 per turbine per year<sup>4</sup>.

Most wind farms are constructed in rural areas. The rural areas in Manistee County are witnessing a decline in populations and a decline in job opportunities. This infusion of capital, the need for skilled workers to erect wind machines and the increased tax base can have a substantial positive impact on local economies.

Furthermore, Manistee County is witnessing the development of open space at an alarming rate<sup>5</sup>. Many landowners are finding that it is difficult to maintain property either as agricultural land or as woodlands. The siting of wind machines on these parcels

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<sup>1</sup> United States. Dept. of Energy. Energy Efficiency and Renewable Energy. Aug. 2004. July 2007. <<http://www.nrel.gov/docs/fy04osti/33590.pdf>>

<sup>2</sup> Ouderkirk, Brad & Pedden, Meghan, "Windfall from the Windfarm". Renewable Project Northwest. December 2004. July 2007. <[http://www.rnp.org/Resources/Klondike\\_1\\_pager.pdf](http://www.rnp.org/Resources/Klondike_1_pager.pdf)>

<sup>3</sup> AWEA. July 2007. <<http://www.awea.org/pubs/factsheets/WindyLandownersFS.pdf>>

<sup>4</sup> MacCormack, Zeke. "Scenic Township Weighs Pros and Cons of Windfarms ." Express News. 21 Jun. 2007. Aug. 2007

<[http://www.mysanantonio.com/news/environment/stories/MYSA062207.01B.wind\\_farm.33e74cd.html](http://www.mysanantonio.com/news/environment/stories/MYSA062207.01B.wind_farm.33e74cd.html)>

<sup>5</sup> See Figure 5.

of land can provide additional income to landowners and allow for the preservation of open space. While development in wooded areas proves difficult with today's technology, advances in turbine height may make these areas more economically feasible.

Currently, the State of Michigan imports 100% percent of its coal, 96% of its natural gas and 100% of its uranium that is used for electricity production. These imports cost the State of Michigan \$3 billion annually. Michigan ranks 14<sup>th</sup> in wind resource potential as verified by the National Renewable Energy Laboratory (NREL) and ranks 4<sup>th</sup> in the nation for manufacturing capabilities as determined by the Renewable Energy Policy Project (REPP)<sup>6</sup>. Therefore, wind energy has the potential to not only decrease imports for energy, but to reinvigorate the manufacturing base within Michigan. With a declining manufacturing base in Manistee County, a rising wind energy industry can replace those jobs lost in the manufacturing sector and has the ability to create long-term maintenance jobs, as well as jobs during the construction phase of the project.

Traditional forms of electricity production have a substantial negative impact on the natural environment. Coal fired power plants release mercury that pollutes the rivers and lakes of this great state. Coal fired power plants also contribute to global climate change through the emission of carbon dioxide and other greenhouse gases into the atmosphere. Natural gas operations, while releasing lower amounts of particulate matter than coal plants, also substantially contribute to carbon emissions, which have been linked to global climate change. Finally, nuclear energy has the problem of storage of waste materials for centuries to come.

Wind energy carries none of these environmental costs, offsets carbon and maintains local energy production. In a world that is becoming increasingly aware of the impacts of fossil fuel burning on the natural environment, it is extremely prudent and wise to explore alternative forms of electricity generation.

### **Barriers to Wind Energy Development in Manistee County**

The primary barrier to the development of wind energy facilities in Manistee County is the lack of zoning language addressing wind energy. Of the 20 municipalities that comprise Manistee County, only three have language that specifically handles the issue of wind development. Due to the complexity and uncertainty of the special use permitting process without a reference to wind or obtaining variances from zoning restrictions, many individuals, community groups and wind developers find it extremely difficult to obtain the necessary permits and the public support needed for the construction of wind energy facilities.

Another barrier to the development of wind energy facilities is the general lack of education concerning wind turbines. Many misconceptions persist concerning wind turbines. Some of these misconceptions include: levels of sound created by wind

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<sup>6</sup> Sterzinger & Svrcek., "Wind Turbine Development: Location of Manufacturing Activity". *REPP*. September 2004. March 2007. < <http://www.repp.org/articles/static/1/binaries/WindLocator.pdf>>

machines, the persistence of a phenomenon called shadow flicker, the size of the machines, the impacts to birds, safety of wind machines and power output of the machines.

Irrespective of these, the wind energy industry is suffering in Manistee County from the lack of companies within the area and within Michigan that produce parts for utility scale wind turbines. A shortage of parts and materials, with a delay of up to three years in most cases, limits the ability to erect wind energy facilities in the near term.

As for mapping, there was a lack of information and consolidated maps that would assist individuals, community groups or wind developers in prospecting for sound areas to develop wind energy. While GLREA, in cooperation with LPI, worked to address this issue, the absence of data about wind resource at a level higher than 50 meters limits the accuracy of this map. This limitation magnified the importance of zoning language that not only allows for wind turbine erection, but also for easy erection of anemometer towers to measure wind speeds at higher elevations.

### **Methods for Identifying Barriers**

In an effort to identify local barriers to wind energy industry development and to educate public officials and citizens, GLREA participated in various public events during the project.

As mentioned previously, GLREA held a handful of stakeholder meetings, which included elected and appointed officials from townships within Manistee County. GLREA also participated in the Manistee Countywide Summit in April of 2007. Attendees at this summit included planning and zoning officials from the local townships, township supervisors and members of the public.

GLREA held a Wind Township Meeting during the 2007 Michigan Energy Fair. Attendees included local residents, planning, and zoning officials. Furthermore, GLREA participated in Wind Siting Workshops coordinated by the Northwest Michigan Council of Governments. These workshops, held in Traverse City, MI and Boyne City, MI were attended by Manistee County planning and zoning officials, as well as local planners and zoning officials from across the Northwest Michigan region.

GLREA also worked with various stakeholders, Manistee County officials and the Manistee County Planning Commission to address local concerns related to wind turbine siting and development. The input provided from these varied groups and the public are manifested in a model zoning language for Manistee County and within this very plan.

## **Part 2: Recommendations**

### **Purpose:**

In an effort to facilitate and foster a growing wind energy industry in Manistee County, this plan seeks to address the following barriers:

- Lack of public education and awareness concerning wind energy conversion devices
- Lack of zoning language and master plan language in Manistee County municipalities
- Lack of clear county stance or direction concerning wind energy development
- Lack of appropriate maps for planning purposes

### **Potential Benefits**

- Conserve open space and agricultural land
- Redevelop brown fields
- Provide tax revenue to local municipalities and royalty payments to local landowners
- Reduce greenhouse gas emissions
- Develop secure, local source of energy
- Stimulate local manufacturing industry

### **Proposed Actions**

- Permit wind energy facility development as a special use in agricultural zones and other rural areas/zones
- Permit wind energy facility development in wind overlay zones that cover specific industrial and commercial zones, including those with brown fields.
- Produce detailed, municipal level, wind overlay maps highlighting areas where wind development is permitted as a special use
- Permit small wind development<sup>7</sup> in all zoning areas as a accessory use
- Hold public meetings, summits, etc., concerning wind energy development
- Adopt wind energy facility zoning ordinance (See appendix)
- Establish clear and transparent requirements for permitting process
- Adopt specific wind planning language in county and municipal master plans
- Resolution by Manistee County Board in support of wind energy, accompanying wind plan and wind zoning language
- Provide avenues and arenas for public comment about any proposed wind development
- Explore the use of countywide economic incentives for wind related manufacturing and development

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<sup>7</sup> Small wind development are turbines rated 100 kilowatts or below.

Please refer to the attached document concerning zoning language for proposed wind energy facilities. This ordinance has been reviewed and vetted by the stakeholder group. This zoning language and the wind plan are the recommendations of the process.

Additionally, please refer to the attached maps as a guide to those areas that have been determined to be the most suitable for wind energy development in the county of Manistee.

## **Items Considered**

### **Zones and Areas for Wind Development**

During stakeholder conversations about overall districts or regions for wind turbine siting and development, the follow issues were sited:

- Sensitivity of shoreline development
- Sensitivity to urban construction
- Opportunities to redevelop brown fields
- Opportunities to develop on commercial and industrial sites
- Opportunities for agricultural and open space preservation

While many ideal sites for wind development exist along the shoreline and near the coast, stakeholders highlighted the potential resistance from local landowners if these areas were to be developed due to aesthetic concerns. Additionally, stakeholders illustrated the potential resistance to wind development in urban areas due to safety and logistical concerns.

Therefore, it is recommended that development be permitted as a special use in all agricultural zones and rural areas/zones. Wind development should also be permitted as a special use in commercial or industrial zones that are located in largely rural areas or are large in parcel size. These areas should include brown fields.

Construction on the shoreline raises potential public relations issues and resistance, and substantially increases the likelihood of additional regulatory requirements: however, development in these areas should be directed toward existing brown fields as a method for redevelopment.

### **Permitting Issues:**

Stakeholder conversations addressing the lack of zoning language identified the following issues:

- Shadow Flicker<sup>8</sup>

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<sup>8</sup> A repeating cycle of changing light intensity when shadows caused by rotating blades of a wind turbine pass over an object or across a window.

- Sound Impact
- Visual Appearance
- Potential impact on water quality during construction
- Times of Construction

These barriers and concerns were addressed in the following manner:

- Requiring testing and analysis for shadow flicker on public right-of-ways and nearby inhabited structures
- Requiring testing and analysis for sound levels at nearest property line and not to exceed 55 db(A)
- Requiring the wind machines be painted white or off white and using existing foliage and natural landscape to mitigate impact
- Requiring groundwater impact analysis prior to commencement of construction
- Allowing construction only during the times of 7am-7pm, Monday through Friday

Certain stakeholders expressed a concern that limiting the tower height would be detrimental to the economics of wind facility construction. After discussing this in stakeholder meetings, the consensus was to place no limitation on the tower height. Rather, in order to protect public safety, health and welfare tower heights should be tied to setbacks from inhabited structures and private and public property lines.

Stakeholders also pointed to another limitation of the zoning language, the lack of flexibility. It was advised that developers or community groups have the option and ability to obtain easements from neighboring property owners to comply with noise, shadow flicker and setback requirements. Insertion of this language maintains the legitimacy of the plan and the zoning language, while allowing flexibility on a case-by-case basis.

## **Implementation**

GLREA recommends that the Manistee County Planning Commission, once all public feedback has been incorporated into this plan, formally adopt language recognizing the intent of this plan into its overall Master Plan.

Manistee County may want to consider language such as this:

*“Manistee County formally recognizes the potential economic, social and environmental benefits of developing a wind energy industry within our borders. While unchecked development can be burdensome to all our citizens, regulated and smart development of wind energy projects can infuse capital and revenue into our local economies, develop a source of reliable and clean energy for our citizens and their children and reduce the environmental impact and footprint of our actions.*”

*It is the intent of Manistee County to accept and encourage wind energy development in agricultural/rural areas, blighted industrial zones and specific commercial districts. Local municipalities ought to recognize this intent and work to construct municipal plans and zoning language that accommodate this modern fact of life.”*

The Planning Commission or another body or member of the public should distribute this plan to all the member townships of Manistee County for review and comment. The Planning Commission should recommend the townships adopt such language and incorporate into each respective township’s master plan.

The County of Manistee should work with its diverse townships to raise the level of awareness about the possibilities for wind energy and the growth potential in the industry. Mention should also be made as to the positive impact that wind energy can make on the land and natural environment. This step can be accomplished by working with the local district of the Michigan Township Association, the Michigan Association of Planning or another appropriate group.

While one public meeting and comment period was scheduled for the development of this plan, the County of Manistee should work to disseminate this plan in additional public fora. One form of outreach and education would be the hosting of Wind Township Meeting, which gathers local planners, zoning officials and members of the public.

Each township should consider and adopt the zoning language that is attached to this plan. While consideration ought to be made for the local character and goals of each township, the fundamental purpose of the zoning language needs to be maintained to foster a regional openness to wind energy development. Local zoning officials should work the recommended zoning language into existing zoning law as is appropriate.

Each municipality and county should permit small wind installations as an accessory use in all zoning districts, and recognize this in their master plans and craft zoning language to permit this.

The county should explore the possibility of offering incentives to manufacturing companies who produce components for wind turbines within the county.

### **Implementation Relating to Wind Maps**

Great care was taken to identify exclusionary areas<sup>9</sup>. The Land Policy Institute at Michigan State University worked to gather an immense amount of data. Data included wetland areas, areas of bio-unique or other critical habitat, steep slopes, contiguous land ownership, wind resource, current property values, airport data and townships with zoning language in place dealing specifically tailored for wind energy facilities.

The Land Policy Institute developed econometric models that considered the above factors and determined a suitability score for wind development (Figures 3&4). This

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<sup>9</sup> Specific geographic areas that are not prime areas to development wind energy.

report can be accessed online and LPI was gracious enough to allow publication of the Manistee County portion of these maps in this publication. It should be understood that the suitability scores identify those contiguous land areas that were deemed the easiest to develop. It does not exclude the opportunity to develop other areas within the county.

The attached maps (Figure 1&2) highlight those areas that have been “excluded” from wind development. While these areas are not prime development targets, based on available data, such areas should not be excluded on a micro-siting basis. However, there is an increased likelihood that development in these areas may be subject to additional federal, state, and local laws addressing wetlands, threatened and endangered species, and other protected resources. Wind developers contemplating a project in an exclusionary area should consider consulting with appropriate authorities in the site selection stage. It is the recommendation of this plan to focus development on agricultural and open space areas.

Additionally, it should be noted that federal and state owned lands are not categorically excluded from wind development. However, most of these areas are forested in nature, and therefore not prime for development. Furthermore, development on state and federal lands may pose additional hurdles and challenges for wind development. The barriers and hurdles to developing on state or federal land were outside the scope of this planning project.

Beyond the federal and state lands, we would like to note that the attached maps of exclusionary areas do not incorporate data on High Risk Erosion Areas designated under Part 323, Shorelands Protection and Management, and Critical Dune Areas designated under Part 353, Sand Dune Protection and Management, of the Natural Resources and Environmental Protection Act, Public Act 451 of 1994.

GLREA advised that all coastal townships in Manistee County contain either High Risk Erosion Areas, Critical Dune Areas, or both (Note: Designated HREAs in Manistee County are directly on the coast, while CDAs are near the coast or farther inland.” Wind facility construction in HRE and CDAs would be problematic from a practical standpoint and would certainly be highly contentious, at the least, from a public relations standpoint.

The GIS data for the HRE and CDAs may be available for public and/or review by requesting it from the Michigan DEQ Land and Water Management Division.

As the attached maps as a model and base for further map development, it is recommended that Manistee County and its individual municipalities use these maps and data as a resource to create wind overlay zones. This information should be merged with zoning maps illustrating where wind development is permitted as a special use and published in the municipality’s master plan.

## **Conclusion**

The development of a wind energy industry can benefit Manistee County in many ways. More importantly, wind energy development is a phenomenon that is sweeping across this county and will soon sweep into this state. Manistee County and the townships that comprise it must be prepared for the growth in this industry.

This plan attempts to address the varied concerns associated with wind energy development. It also seeks to utilize the growth of this industry to protect open space and reinvigorate local economies.

While unchecked development in any industry can prove burdensome to a local community, adequate planning and reasonable restrictions to protect public health, safety and welfare can enable to citizens to benefit from this emerging industry.

# Appendix

Figure 1: Exclusionary Areas

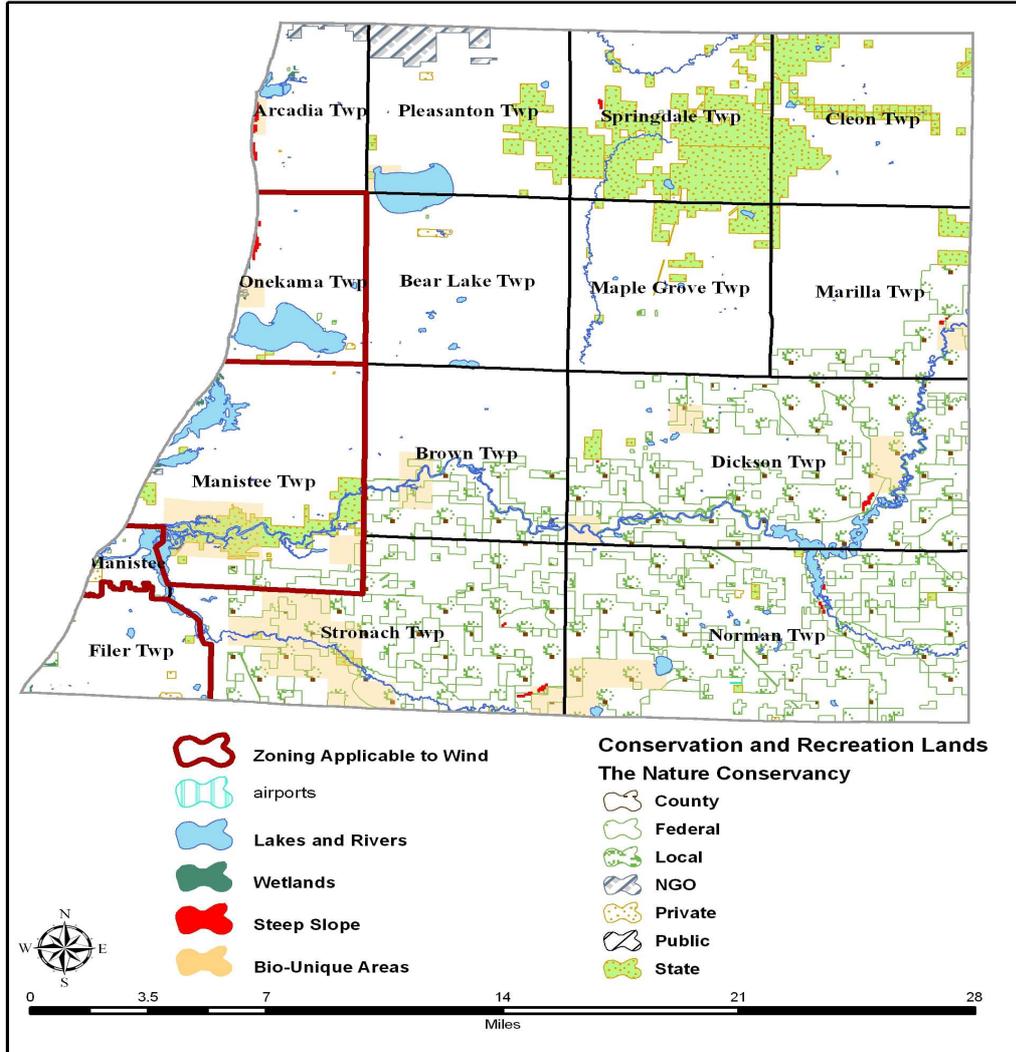
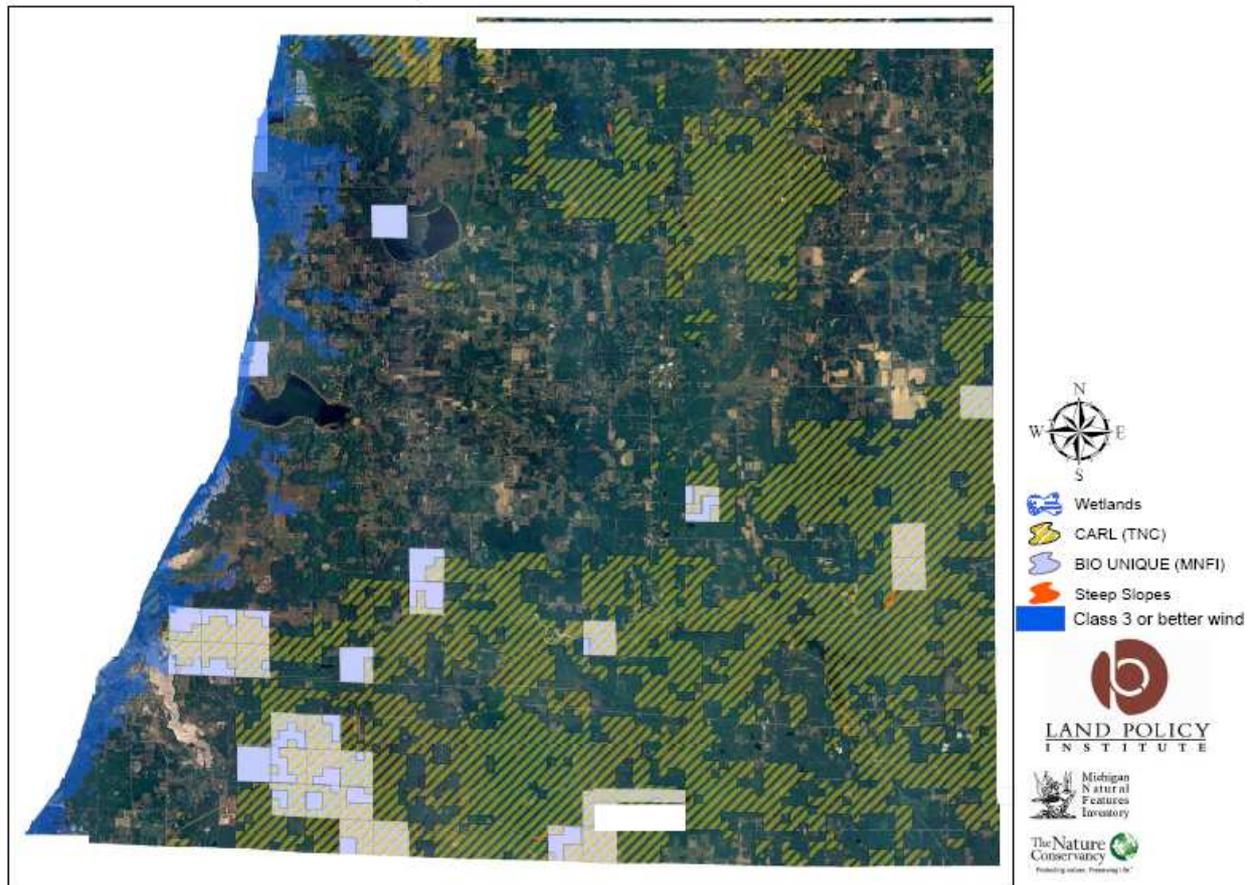
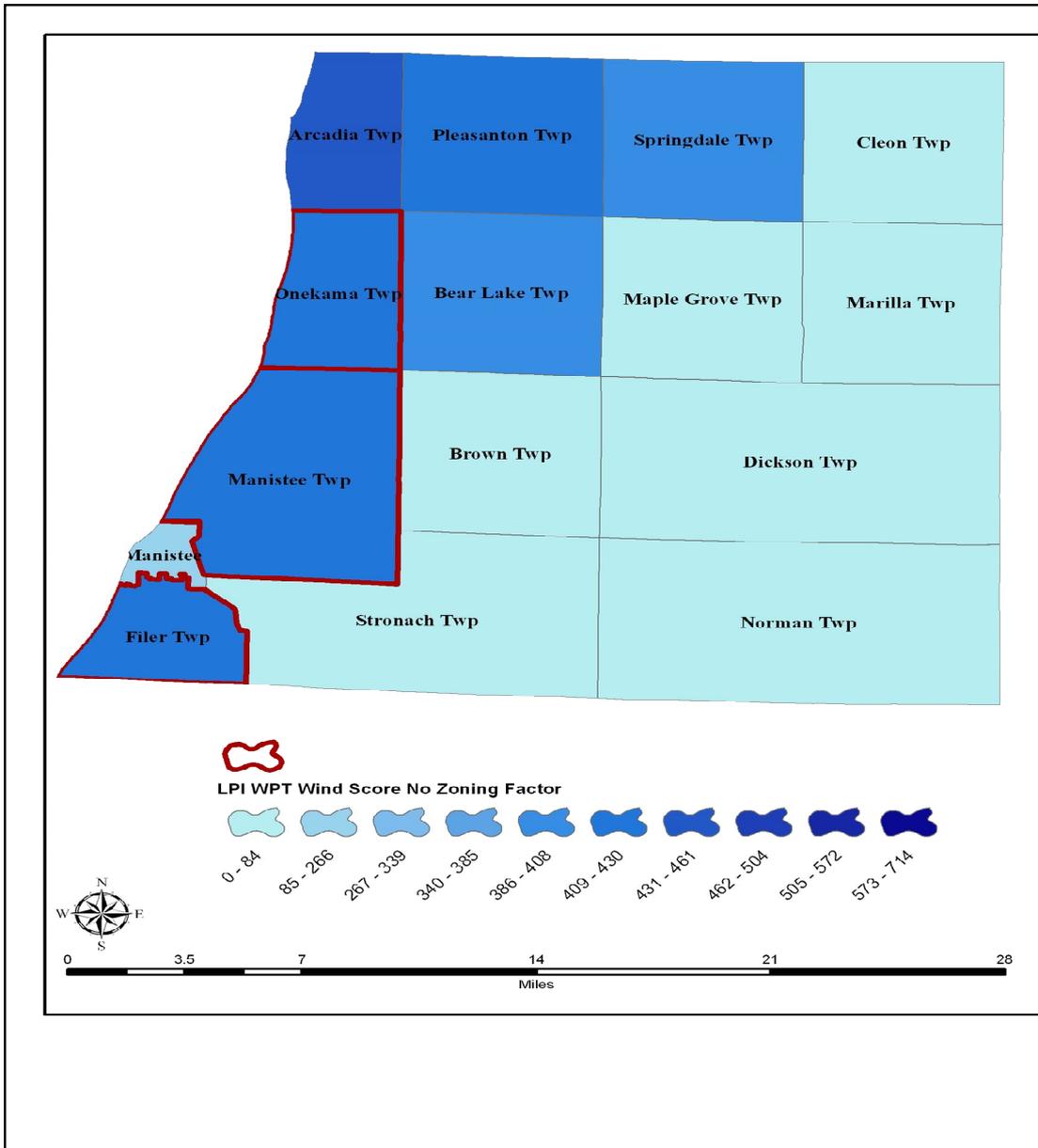


Figure 2: Exclusionary Areas

Manistee County Land and Environmental Consideration Areas

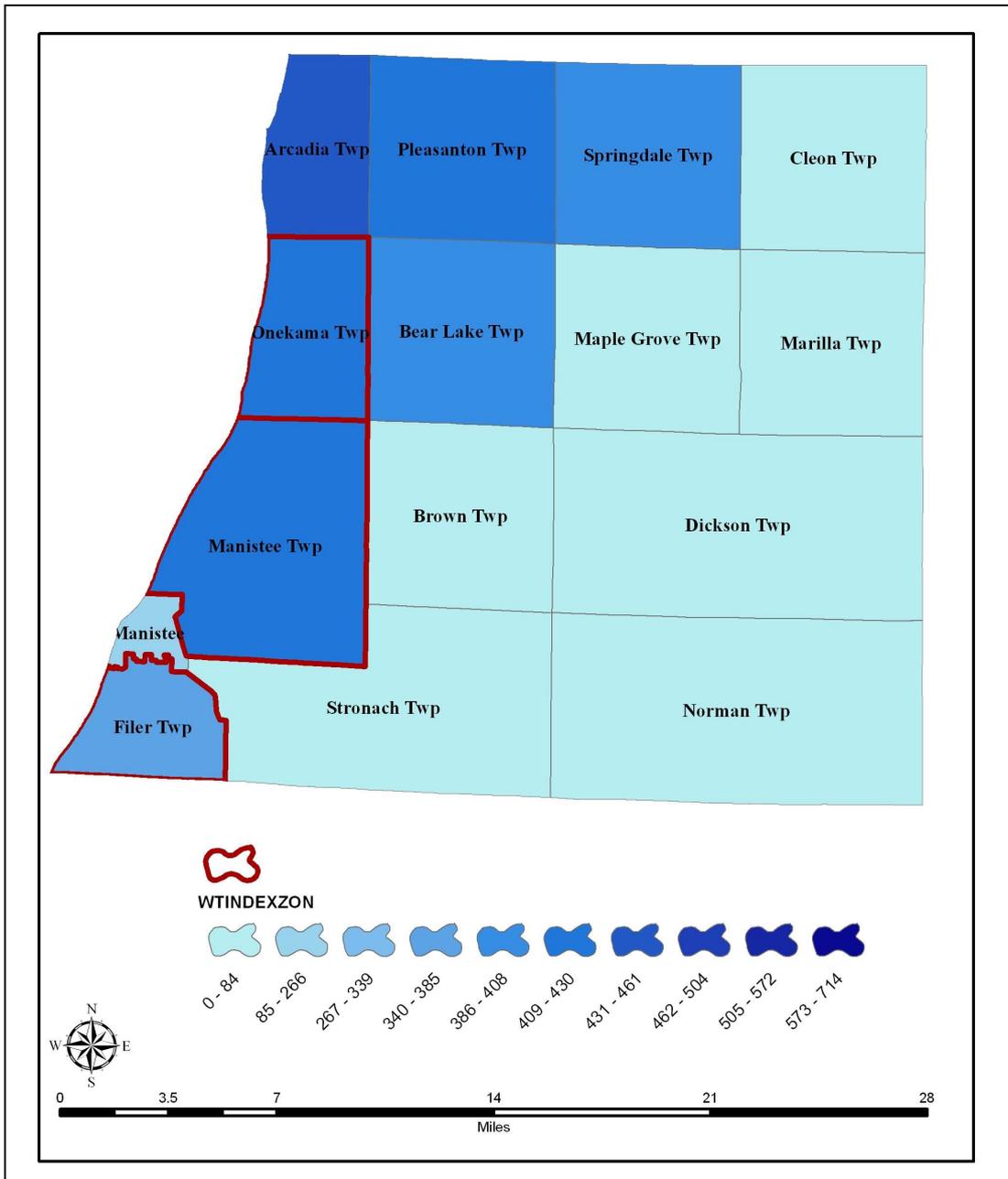


**Figure 3: LPI Wind Scoring Index without Zoning Factor<sup>10</sup>**



<sup>10</sup> Higher scores indicate more appropriate and suitable areas for wind turbine development. For an in depth explanation, please see “The Land Policy Institute Wind Prospecting Tool”. Land Policy Institute. <[www.landpolicy.msu.edu/WPT](http://www.landpolicy.msu.edu/WPT)>

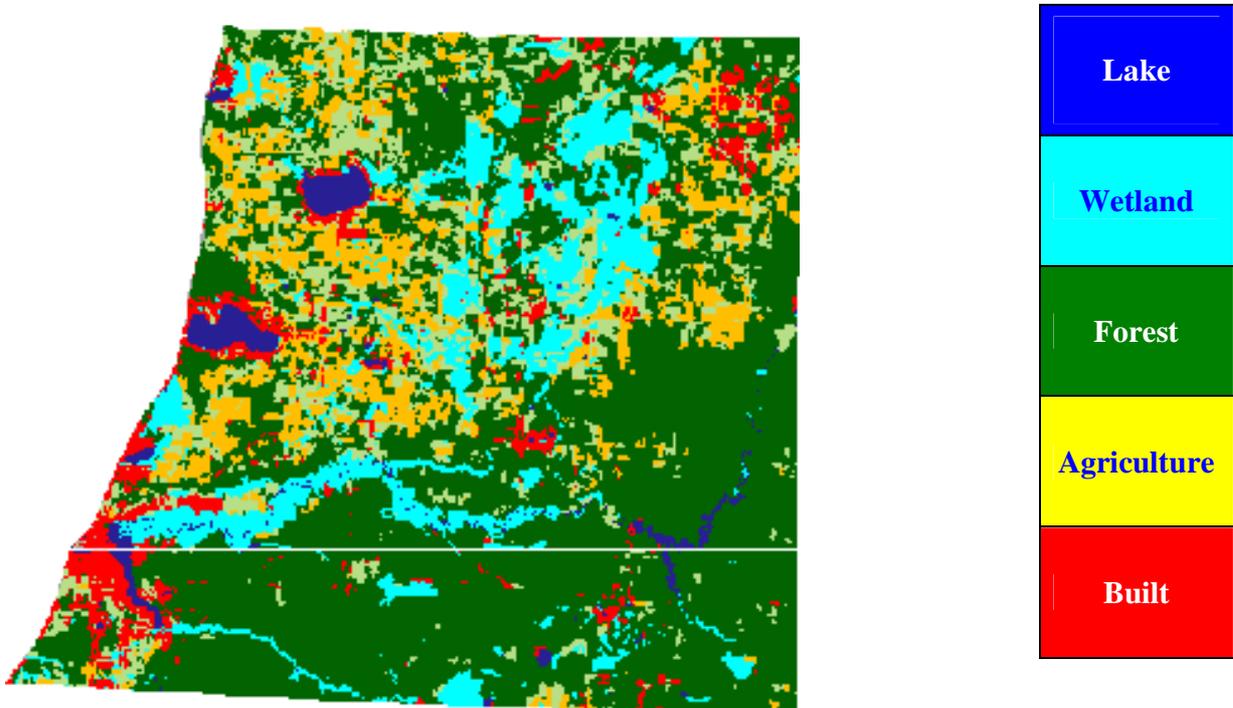
**Figure 4: LPI Wind Scoring Index with Zoning Factor<sup>11</sup>**



<sup>11</sup> Higher scores indicate more appropriate and suitable areas for wind turbine development. For an in depth explanation, please see “The Land Policy Institute Wind Prospecting Tool”. Land Policy Institute. <[www.landpolicy.msu.edu/WPT](http://www.landpolicy.msu.edu/WPT)>

Figure 5: Projected Land Use for Manistee County<sup>12</sup>

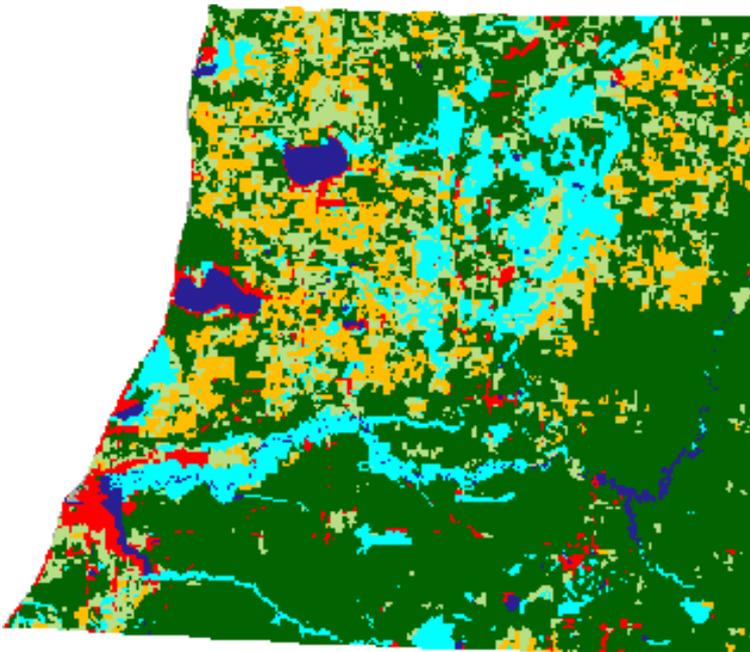
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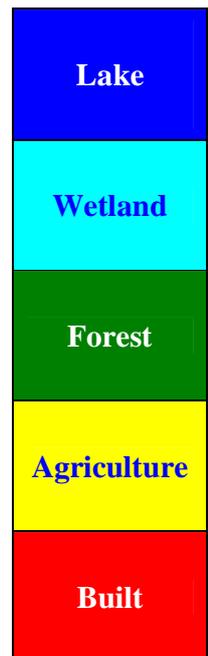
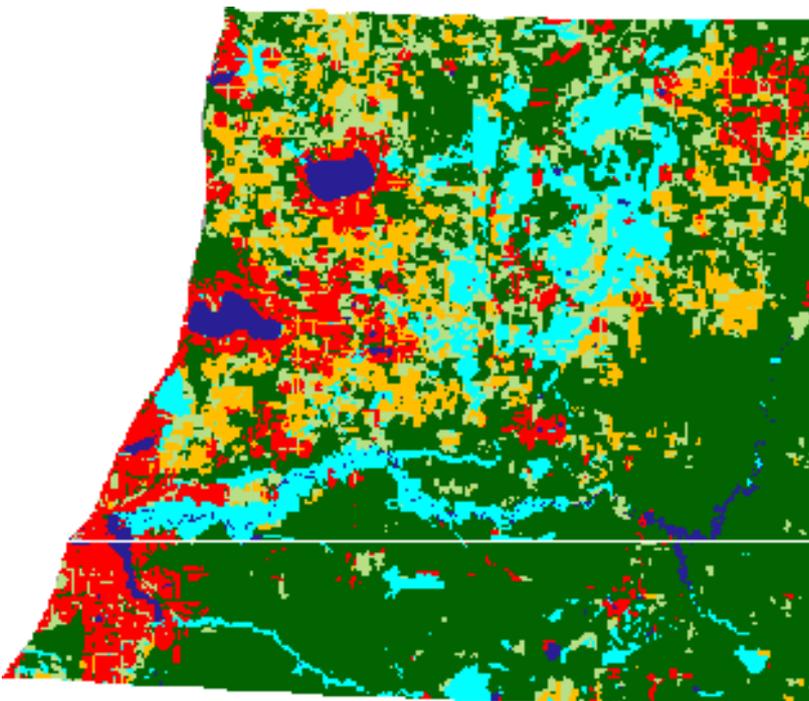
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<sup>12</sup> Information provided by the Michigan Tipping Point Application. *Computational Ecology and Visualization Laboratory, Michigan State University.* < <http://www.cevl.msu.edu/tipping/>>

**2020**



**2040**



Great Lakes Renewable Energy Association (GLREA)  
County Wind Energy Planning Project in Cooperation with Manistee County

## Wind Energy Facility Ordinance Model Ordinance

### A. Large Wind Energy Facilities

The following regulations shall apply to all large wind energy facilities and accessories as defined in Section C of this ordinance hereinafter constructed or developed within *[Municipality]*.

### B. Purpose

The purpose of the Wind Energy Facility Ordinance is to enable construction and operation of wind energy systems in *[Municipality]* while providing a regulatory scheme and reasonable restrictions, which will preserve public health, safety and welfare. Authority for this ordinance granted under the Michigan Zoning Enabling Act, Act 110 of 2006.

### C. Definitions

- a. Commission: The *[Municipality]* Zoning & Planning Commission.
- b. Decommissioning: The process of use termination and removal of all or part of a large wind energy facility by the owner or assigns of the large wind energy facility.
- c. Inhabited Structures: A permanent building existing prior to the use application used for human or animal habitation.
- d. Landowner: The person who owns the property on which a wind energy system is located.
- e. MET (Anemometer) Tower: A meteorological tower used for the measurement of wind speed.
- f. Total Height: When referring to a wind turbine, the distance measured from ground level to the blade extended at its highest point.
- g. Non-Participating Property: Real property that has no wind energy system.
- h. Owner: The person/entity who owns a wind system.
- i. Shadow Flicker: Moving shadows caused by the rotation of the turbine blades passing in front of the sun.
- j. Township: Township of *[Municipality]*, Manistee County, Michigan.
- k. Use Termination: The point in time at which a large wind energy facility owner provides notice to the Township of *[Municipality]* that the large wind energy facility or individual wind turbines are no longer used to produce electricity unless due to repairs. Such notice of use termination shall occur no less than 30 days prior to actual use termination.

- l. Waiver Agreement: A signed statement between owner and Non Participating Property Owner releasing rights of this ordinance relating to, but not limited to, Noise Restrictions, Setbacks and Shadow Flicker restrictions.
- m. Wind Energy Facility, Large: An electricity generating facility consisting of one or more wind turbines under common ownership or operating control, and includes substations, cables/wires and other buildings accessory to such facility, whose main purpose is to supply electricity to off-site customers.
- n. Wind Energy System, Large: A wind energy system of one (1) wind tower and turbine that has a nameplate capacity of more than one hundred (100) kilowatts and a total height of more than one hundred seventy (170) feet and is used to generate energy for commercial sale.
- o. Wind Turbine: A wind energy conversion system, which converts wind energy into electricity through the use of a wind turbine generator, and includes the turbine, blade, tower, base and pad transformer.

## D. Regulatory Framework

### 1. Zoning

- a. Large wind energy facilities shall be considered a permitted use in the following zoned areas: \_\_\_\_\_, with an approved use permit from *[Municipality]*.
- b. MET Towers shall be considered a permitted use in the following zoned areas: \_\_\_\_\_, with an approved use permit from *[Municipality]*.

### 2. Application for a permit for a large wind energy facility shall be submitted to the Zoning Administrator with the following information:

- a. The name, address, legal corporate status and telephone number of the applicant responsible for the accuracy of the application and site plan.
- b. The name, address, legal corporate status and telephone number of the owner of the proposed large wind energy facility.
- c. A signed statement indicating that the applicant has legal authority to construct, operate, and develop the wind energy system(s) under state, federal and local laws and regulations, including Federal Aviation Administration (FAA), the Michigan Tall Structures Act (Act 259 of 1959), the Airport Zoning Act (Act 23 of 1950), and state and local building codes. The FAA will issue a signed statement when the precise location has been determined. Building permits will not be issued prior to receiving all signed statements, but a use permit may be granted.
- d. A description of the number and kind of wind energy system(s) to be installed.
- e. A description of the large wind energy system(s)' height and design, including a cross section, elevation, and diagram of how the wind energy system will be anchored to the ground.
- f. A site plan, drawn to a scale of not less than 1 inch to 100 feet, showing the parcel boundaries and a legal description, 2 foot contours for the subject site and 100 feet beyond the subject site, support facilities, access, proposed landscaping or fencing.
- g. Photo exhibits visualizing the proposed wind energy system.

- h. A statement from the applicant that all wind energy system(s) will be installed in compliance with manufacturer's specifications, and a copy of those manufacturer's specifications.
- i. A copy of the lease, or recorded document, with the landowner if the applicant does not own the land for the proposed large wind energy facility(s). A statement from the landowner of the leased site that he/she will abide by all applicable terms and conditions of the use permit, if approved.
- j. A copy of any applicable Waiver Agreements.
- k. A copy of Shadow Flicker Analysis.
- l. A copy of avian impact, if requested by Township.
- m. A copy of Noise study, if requested by Township.
- n. A groundwater impact study relating to excavation and/or blasting during construction phase, if requested by Township.
- o. A statement indicating what hazardous materials will be used and stored on the site, and how those materials will be stored.
- p. A statement indicating how the large wind energy facility will be lit, if applicable. Lighting as required by the FAA and as required by the Michigan Tall Structures Act.

3. Application for a permit for a MET tower(s) shall be submitted to the Zoning Administrator with the following information:

- a. The name, address, legal corporate status and telephone number of the applicant responsible for the accuracy of the application and site plan.
- b. The name, address, legal corporate status and telephone number of the owner of the proposed MET tower(s).
- c. A signed statement indicating that the applicant has legal authority to construct and operate a MET tower(s) under state, federal and local laws and regulations, including Federal Aviation Administration (FAA), the Michigan Tall Structures Act (Act 259 of 1959), the Airport Zoning Act (Act 23 of 1950), and state and local building codes. The FAA will issue a signed statement when the precise location has been determined.
- d. A description of the number and kind of MET towers(s) to be installed.
- e. A description of the MET tower's height and design, including a cross section, elevation, and diagram of how the MET tower(s) will be anchored to the ground.
- f. A site plan, drawn to a scale of not less than 1 inch to 100 feet, showing the parcel boundaries and a legal description, 2 foot contours for the subject site and 100 feet beyond the subject site, support facilities, and access.
- g. A statement from the applicant that all MET tower(s) will be installed in compliance with manufacturer's specifications, and a copy of those manufacturer's specifications.

- h. A copy of the lease, or recorded document, with the landowner if the applicant does not own the land for the MET tower(s). A statement from the landowner of the leased site that he/she will abide by all applicable terms and conditions of the use permit, if approved.
  - i. A copy of any applicable Waiver Agreements.
  - j. A statement indicating how MET tower(s) will be lit, if applicable. Lighting as required by the FAA and as required by the Michigan Tall Structures Act.
4. A site grading, erosion control and storm water drainage plan will be submitted to the Zoning Administrator prior to issuing a land use permit for a Wind Energy Facility. At the Township's discretion, these plans may be reviewed by the Township's engineering firm. The cost of this review will be the responsibility of the Owner of the large wind energy facility.
  5. The applicant shall acquire all other permits, including permits for work done in right-of-ways prior to construction.
  6. Wind energy systems and/or MET tower(s) may not include offices, vehicle storage, or other outdoor storage. One accessory storage building may be permitted per wind turbine. The size and location of any proposed accessory building shall be shown on the site plan. No other structure or building is permitted unless used for the express purpose of the generation of electricity.
  7. An applicant may submit one use permit application for an entire large wind energy facility project located in the *[Municipality]*, provided that a detailed map identifying parcel locations for all proposed large wind turbines is provided to the *[Municipality]* at the time a use application is submitted.
  8. A certificate of insurance with a minimum of \$1,000,000 liability coverage per incidence, per occurrence shall be required. Each renewal period will require a copy of certificate of insurance be provided to the *[Municipality]*. An expired insurance certificate or an unacceptable liability coverage amount is grounds for revocation of the use permit.
  9. Within (30) days after receipt of a permit application, the *[Municipality]* will determine whether the application is complete and advise the applicant accordingly.
  10. Within sixty (60) days of a completeness determination, the *[Municipality]* will schedule a public hearing. The applicant shall participate in the hearing and be afforded an opportunity to present the project to the public and municipal officials, and answer questions about the project. The public shall be afforded an opportunity to ask questions and provide comment on the proposed project.
  11. Within one hundred and twenty (120) days of a completeness determination, or within forty-five (45) days after the close of any hearing, whichever is later, the *[Municipality]* will make a decision whether to issue or deny the permit application.
  12. Throughout the permit process, the Applicant shall promptly notify *[Municipality]* of any changes to the information contained in the permit application.
  13. Changes to the pending application that do not materially alter the initial site plan may be adopted without renewed public hearing.
  14. A large wind energy facility authorized by use permit shall be started within twenty-four (24) months of use permit issuance and completed within thirty six (36) months of use permit issuance, or

in accordance with a timeline approved by the Township Board. Upon request of an applicant, and for good cause, the Township Board may grant an extension of time.

15. The applicant shall submit a copy of all “as built plans” including structural engineering and electrical plans for all towers following construction to the Township to use for removal of large wind energy facility, if large wind energy facility owner or its assigns fail to meet the requirements of this Ordinance.

16. The *[Municipality]* reserves the right to review any use permits granted under this ordinance every five years to ensure that all conditions of the permit are being followed.

17. If a large wind energy facilities ownership changes, the new owner/operator must meet with the Township Board to review the conditions of the current use permit.

## E. Applicability

1. The requirements of this Ordinance shall apply to all large wind energy facilities proposed after the effective date of this Ordinance. Wind energy facilities for which a required permit has been properly issued prior to the effective date of this Ordinance shall not be required to meet the requirements of this Ordinance; provided, however, that any such pre-existing wind energy facility which does not provide energy for a continuous period of twelve (12) months shall meet the requirements of this Ordinance prior to recommencing production of energy. However, no modification or alteration to an existing wind energy facility shall be allowed without full compliance with this Ordinance.

## F. General Requirements for Wind Energy Facilities

### 1. Principal or Accessory Use

- a. Wind energy systems may be considered either principal or accessory uses. A different existing use or an existing structure on the same lot shall not preclude the installation of a large wind energy facility or a part of such facility on such lot. Large wind energy facilities constructed and installed in accordance with the provisions of this ordinance shall not be deemed to constitute the expansion of a nonconforming use or structure.
- b. A building permit, issued by the *[Municipality]* Zoning Administrator shall be required for each individual wind turbine prior to construction of said wind turbine.

### 2. Design and Installation

- a. Wind turbines shall be painted a non-reflective, non-obtrusive color, such as grey, white, or off-white.
- b. To the extent possible applicants should use measures to reduce the visual impact of the wind energy facility (wind turbines with similar appearance; reasonable uniformity in overall size, geometry and rotational speeds).
- c. At large wind energy facility sites, the design of the building and related structures shall, to the extent possible, use materials, colors, textures, screening, and landscaping that will blend the large wind energy facility to the natural setting and existing environment.
- d. Wind energy facilities shall not be artificially lighted, except to the extent required by the FAA. Lighting as required by the FAA and as required by the Michigan Tall Structures Act.

e. No form of advertising shall be allowed on the pole, turbine, blades, or other buildings or facilities associated with the use, except for reasonable identification of the manufacturer or operator of the large wind energy facility.

f. All wind energy facilities shall be equipped with a redundant braking system. This includes both aerodynamic overspeed controls (including variable pitch, tip, and other similar systems) and mechanical brakes. Mechanical brakes shall be operated in a failsafe mode. Stall regulation shall not be considered a sufficient braking system for overspeed protection.

g. To the extent applicable, the large wind energy facility shall comply with all applicable building codes and standards.

h. Electrical controls, control wiring, and power lines shall be wireless or to the maximum extent practicable, be placed underground.

i. All electrical components of the large wind energy facility shall conform to relevant and applicable local, state, and national codes, and relevant and applicable international standards.

j. The owner of a large wind energy facility shall defend, indemnify, and hold harmless the *[Municipality]* and their officials from and against any and all claims, demands, losses, suits, causes of action, damages, injuries, costs, expenses, and liabilities whatsoever including attorney fees arising out of the acts or omissions of the operator concerning the operation of the large wind energy facility without limitation, whether said liability is premised on contract or tort.

k. The owner of the large wind energy facility (applicant) shall reimburse the Township and/or County for any and all repairs and reconstruction to the public roads, culverts, and natural drainage ways resulting directly from the construction of the large wind energy facility. A qualified independent third party, agreed to by the Township and/or County and applicant, and paid for by the applicant, shall be hired to inspect the roadways to be used during construction. This third party shall be hired to evaluate, document, videotape, and rate road conditions prior to the construction of the large wind energy facility and again upon notification of completion of the large wind energy facility project. Any road damage done by the applicant or subcontractors shall be repaired or reconstructed at the applicant's expense. The *[Municipality]* may require a bond or cash escrow, held in trust in favor of the *[Municipality]* to recover the costs associated with the repair of roadways damaged by the construction of any turbines.

l. Where large wind energy facility construction cuts through a private or public drain tile field, the drain tile must be repaired and reconnected to properly drain the site to the satisfaction of the landowner.

m. Any recorded access easement across private lands to a large wind energy facility shall in addition to naming the large wind energy facility owner as having access to the easement also name the *[Municipality]* as having access to the easement for purposes of inspection or decommission with 24 hour advance notice to the property owners and large wind energy facility owner.

n. Any wind energy turbine or facility that does not produce energy for a continuous period of twelve (12) months, excluding time spent on repairs or improvements, shall be considered abandoned and shall be removed in accord with the removal provisions of this ordinance.

- o. The large wind energy facility owner and operator shall maintain a phone number and identify a responsible person for the public to contact with inquiries and complaints throughout the life of the project. This information will be supplied to the Township Clerk.

## G. Setbacks

### 1. The following regulations shall apply to both wind energy facilities and MET tower(s).

#### a. Inhabited Structures

- i. Each large wind turbine and/or MET tower shall be set back from the nearest inhabited structure a distance of no less than 1.25 times its total height.<sup>13</sup>
  - 1. The **[Municipality]** Township Board may grant a waiver to this requirement for a participating and/or non-participating landowner to decrease the setback, provided the follow provisions have been accomplished.
    - a. Non-Participating Property Owner signs a Waiver agreement setting forth the applicable setback provisions and the proposed changes.
    - b. The Waiver Agreement shall notify the Non-Participating Property Owner of the setback required by this Ordinance, describe how the proposed Wind Energy Facility and/or MET tower(s) are not in compliance, and state that consent is granted for the Wind Energy Facility and/or MET Tower(s) to not be setback as required by this Ordinance.
    - c. If the applicant wishes the waiver to apply to succeeding owners of the property, a permanent setback easement must be recorded with the Manistee County Register of Deeds, which describes the benefited and burdened properties and which advises all subsequent owners of the burdened property that the waiver of setback shall run with the land and may forever burden the subject property.

#### b. Property Lines

- i. Each wind turbine and/or MET tower(s) shall be set back from the nearest property line a distance no less than 1.1 times its total height.

- 1. The **[Municipality]** Township Board may grant a waiver to this requirement for a participating and/or non-participating landowner to decrease the setback, provided the follow provisions have been accomplished.
  - a. Non-Participating Property Owner signs a Waiver agreement setting forth the applicable setback provisions and the proposed changes.
  - b. The Waiver Agreement shall notify the Non-Participating Property Owner of the setback required by this Ordinance, describe how the proposed Wind Energy Facility and/or MET tower(s) are not in compliance, and state that consent is granted

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<sup>13</sup> Current technology delivers a tower height of 60-80 meters (197-262 feet). Technological advances over the next few years will bring tower heights to 120-160 meters (395-525 feet). The sentiment of the stakeholders in this process was to let technology and economics determine tower height, rather than setting an arbitrary barrier.

for the Wind Energy Facility to not be setback as required by this Ordinance.

c. If the applicant wishes the waiver to apply to succeeding owners of the property, a permanent setback easement must be recorded with the Manistee County Register of Deeds, which describes the benefited and burdened properties and which advises all subsequent owners of the burdened property that the waiver of setback shall run with the land and may forever burden the subject property.

c. Public Roads

i. Each wind turbine and/or MET tower(s) shall be set back from the nearest public road right-of-way a distance no less than 1.1 times its total height.

1. The *[Municipality]* Township Board may grant a waiver to this provision where strict enforcement would not serve the public interest.

## H. Noise and Vibration

a. Audible noise due to large wind energy facility operations shall not exceed 55 dBA for ten percent of the time over a continuous 24 hour period, when measured at any inhabited structure existing on the date of approval of a large wind energy facility building permit.

i. If audible noise exceeds 55 dBA for ten percent of the time over a continuous 24-hour period, the offending wind turbine must be inoperable until repairs are completed, or a waiver agreement is obtained from affected property owners.

ii. The *[Municipality]* reserves the right to review the repair plan and evaluate its effectiveness.

b. In the event the ambient noise level (exclusive of the development in question) exceeds the applicable standard given above, the applicable standard shall be adjusted so as to equal the ambient noise level. The ambient noise level shall be expressed in terms of the highest whole number sound pressure level in dBA, which is succeeded for more than five (5) minutes per hour. Ambient noise levels shall be measured at the exterior or potentially affected inhabited structures. Ambient noise level measurement techniques shall employ all practical means of reducing the affect of wind-generated noise at the microphone. Ambient noise level measurements may be performed when wind velocities at the proposed project site are sufficient to allow Wind Turbine operation, provided that the wind velocity does not exceed thirty (30) mph at the ambient noise level measurement location.

c. Any noise level emanating from a wind energy facility falling between two whole decibels shall be the lower of the two.

d. The applicant or wind turbine facility owner shall pay for any noise monitoring or measurements, when reasonable need is determined by the *[Municipality]* Township Board.

e. In the event the noise levels resulting from the Wind Energy Facility exceed the criteria listed above, a waiver to said levels may be granted by the Township provided the following has been accomplished.

i. Written consent from the affected property owners has been obtained stating that they are aware of the large wind energy facility and noise limitations

imposed by this Ordinance, and that consent is granted to allow noise levels to exceed the maximum limits otherwise allowed; and,

- ii. If the applicant wishes the waiver to apply to succeeding owners of the property, a permanent noise impact easement has been recorded in the Register of Deeds Office for the [County], which describes the benefited and burdened properties and which advises all subsequent owners of the burdened property that noise levels in excess of those permitted by this Ordinance may exist on or at the burdened property.

## I. Minimum Ground Clearance

1. The blade tip of any large wind turbine shall, at its lowest point, have ground clearance of no less than fifty (50) feet.

## Signal Interference

1. The applicant shall mitigate any interference with electromagnetic communications, such as, but not limited to, radio, telephone, or television signals, including any public agency radio systems, caused by any large wind energy facility and/or MET tower(s).

## Shadow Flicker

1. The applicant shall conduct an analysis on potential shadow flicker at occupied structures.
  - i. The analysis shall identify the locations of shadow flicker that may be caused by the project and the expected durations of the flicker at these locations from sunrise to sun-set over the course of a year.
  - ii. The analysis shall identify problem areas where shadow flicker may affect the occupants of the structures and describe measures that shall be taken to eliminate or mitigate the problems.
2. The applicant shall conduct an analysis on potential shadow flicker at public rights of way.
  - i. The analysis shall identify the locations of shadow flicker that may be caused by the project and the expected durations of the flicker at these locations from sunrise to sun-set over the course of a year.
  - ii. The analysis shall identify problem areas where shadow flicker may affect the roads and other public rights-of way and describe measures that shall be taken to eliminate or mitigate the problems.
3. The large wind energy facility owner/operator shall make reasonable efforts to minimize or mitigate shadow flicker to any inhabited structure on non-participating landowner's property.

## Avian and Wildlife Risk (to include bats and rare animal species mentioned in subsection 3)

1. The large wind energy facility owner/operator shall make reasonable efforts to minimize avian mortality from the operation of a large wind energy facility.

2. The *[Municipality]* may require an avian risk study, within 90 days of receipt of application, prior to issuance of a use permit for a large wind energy facility. The owner/operator of the large wind energy facility may submit an Avian Risk study from another community in the state as long as the avian populations are similar and the study was not completed more than five (5) years prior to the use permit request.

3. Wind energy facilities should be located in a manner that minimized significant negative impacts on rare animal species in the vicinity, particularly bird and bat species.

## **Groundwater and Environmental Impact**

1. The large wind energy facility owner/operator shall make reasonable efforts to minimize adverse impacts on water quality and soil erosion during construction phase of the wind energy facility.

2. The *[Municipality]* may require a groundwater impact study relating to excavation and/or blasting during the construction phase.

i. Groundwater impact study will be paid at the owner/operator's expense.

3. If deemed necessary by groundwater impact study, reasonable measures must be taken to mitigate or limit construction effects on groundwater.

## **N. Waste Management**

1. All solid waste, whether generated from supplies, equipment, parts, packaging, or operating or maintenance of the facility, including old parts and equipment, shall be removed from the site in a timely manner consistent with industry standards.

2. All hazardous waste generated by the operation and maintenance of the facility, including, but not limited to lubricating materials, shall be handled in a manner consistent with all local, state, and federal rules and regulations.

## **O. Safety**

1. All electrical wires and lines connecting each turbine to the next turbine shall be installed underground, to the maximum extent practicable. The wires and lines running from the last turbine in a string to any substation connecting to the electric utility shall also be run underground, unless the Township determines that overhead lines would best serve the intent of the Ordinance.

2. Wind turbine towers shall not be climbable up to fifteen (15) feet above ground level.

3. All access doors to wind turbine towers and electrical equipment shall be locked when unattended.

4. Appropriate warning signage shall be placed on wind turbine towers, electrical equipment, and large wind energy facility entrances.

5. The large wind energy facility site and all structures shall have, at minimum, a bi-annual inspection report of structural stability, at the cost of the large wind energy facility owner/operator, with a report filed with the *[Municipality]* Township Clerk.

- i. Inspection shall be conducted by Manistee County Building Inspector or other qualified professional
6. All Substations shall be fenced to prevent public access. Chain link fencing shall include vinyl or aluminum slats or other landscaping to create an opaque visual barrier.
  7. The owner/operator of the large wind energy facility shall post and maintain at each facility a 24 hour a day manned telephone number in case of an emergency.
  8. The owner/operator of the large wind energy facility shall provide qualified personnel to conduct training sessions to emergency responders whenever requested by the Township Board.
  9. The owner/operator of the large wind energy facility shall provide a company representative to accompany the local Fire Department Inspector during site visits. The owner/operator of the large wind energy facility shall comply with all applicable laws regarding those inspections.
  10. The owner/operator of the large wind energy facility shall be responsible for the total cost of any incident(s) that occur on or at their facilities and/or properties.

## **P. Decommissioning**

1. All Wind generators and appurtenances shall be removed from the site within twelve (12) months or 365 days of use termination notice to the Township Board of *[Municipality]* by the owner of the facility or its assigns.

Upon request of the owner or assigns of the large wind energy facility, and for good cause, the *[Municipality]* Township Board may grant a reasonable extension of time.

2. The site shall be stabilized, graded, and cleared of any debris by the owner of the facility or its assigns. If site is not to be used for agricultural practices following removal, site shall be seeded to prevent soil erosion, unless the property owner requests in writing that the land surface areas not be restored.
  - a. Contact soil erosion enforcement officer for recommendations.

3. Any foundation shall be removed to a minimum depth of three (3) feet below grade, or to the level of the bedrock if less than three (3) feet below grade, by the owner of the facility or its assigns.

Following removal, the location of any remaining wind turbine foundation shall be identified on a map as such and recorded with the deed to the property with the Manistee County Register of Deeds.

4. Any access roads shall be removed, cleared, and graded by the owner of the large wind energy facility or its assigns, unless the property owner requests in writing a desire to maintain the access road. The *[Municipality]* will not be assumed to take ownership of any access road unless through official action of the Township Board.
5. Removal shall conform to the contract between property owner and the owner/operator of the large wind energy facility, in addition to the requirements set forth in this ordinance.
6. The Owner shall post and maintain decommissioning funds in an amount equal to Net Decommissioning Costs; Provided, that at no point shall Decommissioning Funds be less than twenty-five percent (25%) of Decommissioning Costs. The Decommissioning Funds shall be

posted and maintained with a bonding company or Federal or State chartered lending institution chosen by the Owner and participating landowner posting the financial security, provided that the bonding company or lending institution is authorized to conduct business within the State and is approved by the *[Municipality]*.

7. Decommissioning Funds may be in the form of a performance bond, surety bond, letter of credit, corporate guarantee or other form of financial assurance as may be acceptable to the *[Municipality]*.
8. The escrow agent shall release the Decommissioning Funds when the Facility Owner has demonstrated and the *[Municipality]* concurs that decommissioning has been satisfactorily completed, or upon written approval of the *[Municipality]* in order to implement the decommissioning plan.

## **Q. Penalties**

a. Any wind generation facility, turbine or appurtenant facility hereinafter significantly erected, moved or structurally altered in violation of the provisions of this Ordinance by any person, firm, association, corporation (including building contractors) or his or their agent shall be deemed an unlawful structure.

Any wind generation facility that does not meet the requirements of this Ordinance, including, but not limited to those dealing with noise or visual appearance, or does not meet the conditions attached to an approved use permit shall provide grounds for revocation of the use permit, thereby deeming the facility an unlawful structure.

The Zoning Administrator shall report all such violations to the Township Board who may then refer the matter to the Township attorney to bring action to enjoin the erection, moving or structural alteration of such facility or to cause such facility to be vacated or removed.

Any person, firm, corporation, agent, employee, or contractor of such, who violates, destroys, omits, neglects, or refuses to comply with, or who resists enforcement of any provision of this ordinance; shall, upon conviction thereof, forfeit no less than \$10,000 per offense together with the costs of prosecution, and in default of payment of such forfeiture and cost shall be imprisoned in the county jail until payment of said forfeiture and costs of prosecution are made. Confinement to the county jail shall not exceed 30 days for each offense. Each violation and each day of violation shall constitute a separate offense.

This section shall not preclude the *[Municipality]* from maintaining any appropriate action to prevent or remove a violation of this section.

## **R. Review**

a. Nothing in the Ordinance shall be construed as limiting an aggrieved person's right to a Certiorari Review in Circuit Court as permitted by Michigan Law.

## **S. Severability**

a. The sections, paragraphs, sentences, clauses, articles and phrases of this Ordinance are severable; if any provision is found to be unconstitutional, invalid or unenforceable, such find shall not affect the remaining portions of this ordinance.