

**PLANNING COMMISSION REPORT**  
**Regular Agenda – Public Hearing Item**

PC Staff Report  
4/21/2014

**ITEM NO. 3:      CONDITIONAL USE PERMIT; METEOROLOGICAL TOWER; N 400 ROAD  
AND E 1000 ROAD (SLD)**

**CUP-13-00480:** Consider a Conditional Use Permit for a 60 meter (196') meteorological tower to monitor and collect wind data located east of the corner of N 400 Rd & E 1000 Rd and on the south side of N 400 Rd. Submitted by Tower Associates, for Donald & Jane Schwartz, property owners of record.

**STAFF RECOMMENDATION:** Staff recommends approval of the Conditional Use Permit for the meteorological tower and forwarding it to the County Commission subject to the following conditions:

- 1) Approval of the Conditional Use Permit shall be limited to 6 years from the date of the County Commission approval. Any extension of the time limit shall be allowed only per written request from the applicant and approval for extension by the County Commission following public notice.
- 2) The provision of a revised site plan that adds the following notes to the face of the drawing:
  - a) *"A sign shall be posted on the tower or the exterior fence around the base of the tower with the name and telephone number of the tower owner/operator."*
  - b) *"Use of this tower shall be limited to meteorological equipment only and will not be allowed for use by telecommunication providers."*
  - c) *"This tower will be removed at the end of the Conditional Use Permit approval period."*
  - d) *"A change of ownership of the tower shall require a new Conditional Use Permit and public hearing at the Planning Commission."* This will allow review of the intended use of the tower and public notice of the proposed change.

**Reason for Request:**      *"Tower Associates would like to install a meteorological tower to monitor and collect wind data over a period of time."*

**ATTACHMENTS**

1. Site plan
2. Project description – application supplement
3. Resolution 13-12-5
4. Location of Met tower applications
5. Proposed regulatory guidelines presented to the Board of County Commissioners February 2014.
6. County Map showing tower and airport locations

**KEY POINTS**

- This application is not an application for a "Wind Farm." The purpose of the application is to collect wind data over a period of several years.
- Per Section 12-319-4.31 of the Zoning Regulations for the Unincorporated Territory of Douglas County, *radio, television, telecommunication and microwave towers* are uses which may be approved as a Conditional Use.
- This use – meteorological tower - is not specifically listed in the Zoning Regulations but is considered by staff to be a similar use.
- This structure is temporary and does not include a fixed foundation and permanent land alterations.

- Douglas County Board of County Commissioners approved a resolution on 12/11/2013 to establish a moratorium on wind farms but amended their interpretation to allow the applications for data collection to proceed.

### DESCRIPTION OF USE

Request is for the installation of a 196 foot structure (metrologic tower) to monitor and collect wind data over a period of 5–6 years. Collected data will be used by the applicant in the *"determination of this areas' possession of sufficient wind resources to support development of a wind energy center, sometimes referred to as a wind farm."*

This application is not for the development of a wind energy center (wind farm) or the placement of wind turbines. Such application will require a separate Conditional Use Permit with appropriate documentation and public notice. Also, this application is not intended for communication or cellular equipment. There is no expectation that communication equipment would be co-located on this structure in the future.

The structure is a monopole held in place by guy wires anchored at various distances from the structure for support. Data collection equipment (anemometer) is attached to the tower at intervals. Staff requested additional information about the equipment. The applicant's response was: "There are three pairs of anemometers placed at 30, 50, and 60 meters. The anemometers consist of three "cups" that rotate depending on wind speed and are approximately six inches across. Although the anemometers rotate, the rotation is contained within the approximately 6 inch diameter."



Closeup view of an anemometer

### **ASSOCIATED CASES/OTHER ACTION REQUIRED**

- Board of County Commissioners' approval of the Conditional Use.
- Zoning and Codes Office issuance of a Conditional Use Permit when plans have been released to the Zoning and Codes Office and conditions of approval have been met.

### **PUBLIC COMMENT**

- Area property owners called asking for more detail regarding the location, use and intent of the proposed tower.

<b>Site Summary:</b> Subject Property: Proposed Buildings:	West 80 acres of a 307 acre parcel. None
<b>GENERAL INFORMATION</b>	
Current Zoning and Land Use:	A (County-Agricultural) District; 307-acre agricultural field with a rural residence along E 1100 Road.
Surrounding Zoning and Land Use:	A (County-Agricultural) District in all directions. Agricultural uses and rural residential homes.

### **I. ZONING AND USES OF PROPERTY NEARBY**

This property is located in the southwest portion of Douglas County approximately two miles west of Highway 59 and one mile north of Highway 56. This property and the surrounding area is zoned A (Agricultural). This area is rural in nature and includes numerous residential homes located along the surrounding County roads.

Section 12-319-4.31(d)(5) recommends that towers be located in commercial, industrial or agricultural zoning districts. The subject property is zoned Agricultural.

**Staff Finding** – Nearby properties are zoned A (Agricultural) and contain a mix of rural residential and agricultural land uses. The proposed tower would be located in a recommended district.

### **II. CHARACTER OF THE AREA**

This portion of southwest Douglas County is rural in nature. There are no urban growth boundaries that extend to this portion of Douglas County. The area includes large parcels of land used for agricultural purposes with numerous rural residential homes located along County roads.

**Staff Finding** – This area is rural in nature, with agricultural lands, and residential homes along County roads.

### **III. SUITABILITY OF SUBJECT PROPERTY FOR THE USES TO WHICH IT HAS BEEN RESTRICTED**

Applicant's response: *"The subject property is clear of physical obstructions that would interfere with access to wind resource and it possesses representative characteristics of the overall area."*

The current zoning designation for the property is A (Agricultural) District. A variety of agriculture-related uses are allowed in this district. The proposed request will not alter the underlying zoning district. Towers are allowed in the A (Agricultural) District with approval of a Conditional Use Permit. The A (Agricultural) District is a recommended base district for towers. This structure is temporary in nature and will be removed at the end of the study period.

**Staff Finding** – The property is suitable for agricultural uses. A Conditional Use Permit (CUP) does not change the underlying zoning; therefore, the suitability of the property for agricultural uses will not be altered.

#### **IV. LENGTH OF TIME SUBJECT PROPERTY HAS REMAINED VACANT AS ZONED**

This A (Agricultural) District zoning has been in place since 1966. The proposed tower will be located on a leased area in the west portion of the 307-acre site.

**Staff Finding** – The property has been zoned A (Agricultural) since the adoption of the zoning in 1966.

#### **V. EXTENT TO WHICH REMOVAL OF RESTRICTIONS WILL DETRIMENTALLY AFFECT NEARBY PROPERTY**

Applicant's Response: *"The tower is approximately 196' in height therefore will be visible from nearby properties from areas not obstructed by trees, buildings or other structures."*

Section 12-319-1.01 of the County Zoning Regulations recognize that *"....certain uses may be desirable when located in the community, but that these uses may be incompatible with other uses permitted in a district...when found to be in the interest of the public health, safety, morals and general welfare of the community may be permitted, except as otherwise specified in any district from which they are prohibited."*

This request is for a 196' guy-wired tower that will support meteorological data collecting equipment. Access to the site shall be limited to regular service and maintenance of the tower and associated equipment. This structure is temporary and does not include a foundation or other permanent changes. The structure will be visible across the property for land owners with an unobstructed view within this area. No detrimental effects are anticipated from the approval of This Conditional Use Permit for this structure for the purpose of data collection.

**Staff Finding** – Given the non-permanent nature of the structure there should be no detrimental effect on surrounding property.

#### **VI. RELATIVE GAIN TO THE PUBLIC HEALTH, SAFETY AND WELFARE BY THE DESTRUCTION OF THE VALUE OF THE PETITIONER'S PROPERTY AS COMPARED TO THE HARDSHIP IMPOSED UPON THE INDIVIDUAL LANDOWNERS**

Applicant's Response: *"This metrological tower will monitor and collect wind data (speed and direction) over a period of time which will help determine area feasibility for future wind development which would create jobs and economic development for the overall area."*

The purpose of this criterion is to compare the effect of denial of the request on the public health, safety and welfare to the effect on the individual landowner.

The purpose of this request is to collect additional information to determine feasibility of wind development as an accessible resource. Approval of this request does not convey any approval for a specific development of a wind energy facility. Information collected by the applicant will be for the applicant's benefit in the final determination of a future request.

The proposed structure is temporary in nature and should not impose a hardship on individual landowners. There is no office or manned facility associated with the structure.

**Staff Finding** – Approval of the request will facilitate the applicant’s assessment of wind energy as a developable resource in Douglas County. The structure is non-permanent and does not guarantee the approval of a future application for a “wind farm.” There is no substantial gain or loss to the public that result from the approval of this request.

## **VII. CONFORMANCE WITH THE COMPREHENSIVE PLAN**

Applicant’s Response: *"This request is an initial step in considering future wind development in the area which would conform with the overall planning goals of economic diversity, compatibility and sustainability."*

The subject property is not located within an identified Urban Growth Area for any of the incorporated cities in Douglas County. There are several unincorporated communities and land divisions forming informal subdivisions in the surrounding area.

Chapter 16 of *Horizon 2020* addresses environmental policies applicable to Lawrence and Douglas County. The plan states that the recommendations are “intended to foster a healthy environment that contributes to a growing economy and a livable community.” The overall policy applicable to this development project states:

*"We will strive to ensure the sustainability of our physical environment, both natural and built, the health of our economy and the efficient and effective functioning of our community"*(Chapter 1, *Horizon 2020*).

Chapter 16 of *Horizon 2020* identifies the following resources and provides applicable policies:

<b>Water Resources:</b>	<i>Water shed protection, public water supply reservoirs, water quality, floodplain management and aquatic habitats.</i>
<b>Land Resources:</b>	<i>Rural woodlands, urban forests, native prairies, agricultural soils, slopes, and open spaces.</i>
<b>Air Resources:</b>	<i>Excess greenhouse gases, air quality, and indoor pollution.</i>
<b>Resource Management:</b>	<i>low cost raw materials, such as sand gravel, timber oil, gas, and stone</i>
<b>Waste Management:</b>	<i>Solid waste and hazardous waste to reduce, reuse and recycle materials produced in Douglas County.</i>

The Comprehensive Plan does not explicitly address wind energy resources. In practice wind energy is recognized by many as a “clean” or “green” energy resource. The County does not currently have any policies regarding this specific land use.

It should be clear that this application is for a Conditional Use Permit for the construction of a tower (structure) to support equipment for the purpose of data collection only. Any application for equipment related to a wind farm that is part of the energy collection facility would require a separate application. The tower structure has been evaluated by staff with respect to its land use impact similar to a communication tower. Communication towers are generally incorporated in Chapter 10 Communities Facilities of *Horizon 2020*.

**Staff Finding** – The comprehensive plan does not provide any specific land use recommendations regarding wind energy. A Conditional Use Permit can be used to allow specific non-residential uses subject to approval of a site plan. This tool allows proportional development in harmony with the surrounding area. The proposed request is consistent with the Comprehensive Plan.

## **STAFF REVIEW**

Section 12-319-4.31 allows radio, television, telecommunication, and microwave towers in Douglas County subject to approval of a Conditional Use Permit when the structures are more than 100' tall. This section also provides guidelines and standards intended to be used during the review of towers related to communication equipment. This request is for a tower that will support specific data collection equipment and not cellular or radio communication equipment. Some provisions of the Code address co-location requirements which are not applicable to this request and would not be expected to be added to the structure if approved.

This tower structure has a comparable height to communication towers. It is a mono pole construction with guy wires to anchor the structure. A permanent foundation is not proposed with this application since the structure is temporary and will be removed at the conclusion of the data collection period. Land use concerns include adequate setback and proximity to other land uses.

## **Tower Removal**

Communication towers require that if the equipment is removed and the tower is vacant for 3 years then the tower owner would be required to remove the structure. All towers are required to provide a sign on the structure or fence around the base of the tower identifying the tower owner/operator with a name and phone number. This application is requested for the purpose of data collection. Documents from the applicant indicate that the maximum time limit for use of the structure would be 6 years. A condition, if approved, setting a specific a time limit will ensure the removal of the structure. At a minimum, a sign should be added to the tower site providing contact information as required for similar structures towers.

## **Setback**

The County Zoning Regulations require the tower to be setback a distance equal to the height of the tower from any property line except that the setback may be reduced if documentation from a registered engineer is submitted certifying the fall zone of the tower in event of a failure or collapse. The proposed structure complies with the setback requirements and is more than 200' from the nearest property line. The structure is designed to be tipped down for maintenance as needed.

## **Lighting**

No lighting per FAA is required for this structure.

## **Airstrips**

As a courtesy, staff has provided notice to owners of private airstrips in the vicinity. A map showing permitted airfields in the county is attached.

## **County Zoning Regulations – Wind Farms**

County staff is currently preparing draft regulatory language to be considered as a set of general guidelines a future text amendment to specifically address "Wind Farms".

## **Conclusion**

This request is for the construction of a tower for the exclusive use of data collection. Additional site plan notes are recommended to clarify the use and intent of this tower. Staff recommends approval of the Conditional Use Permit subject to conditions related to signage and a time limit for the use.

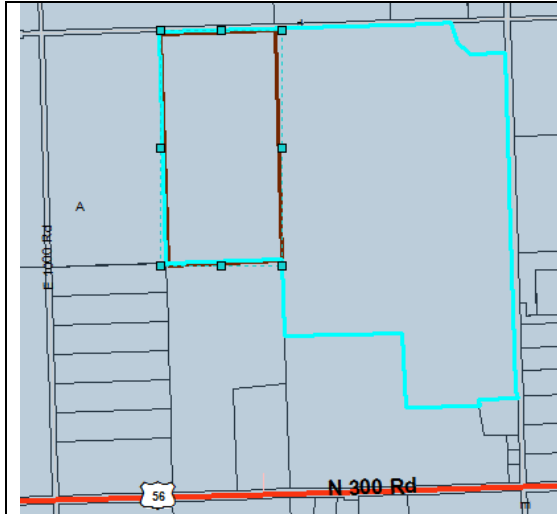


Figure 1. Zoning of Area

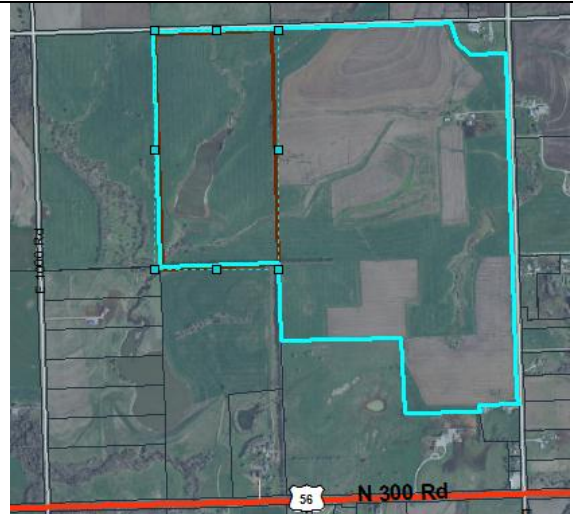


Figure 2. Land Use of Area







**1. Please provide narrative regarding the purpose of the request. In this narrative please state that communication equipment is not proposed or allowed. This will help to clarify the use.**

The purpose of the request is to install a meteorological tower which will monitor and collect wind data (speed, direction, etc.) over a period of time up to a maximum of 5 ½ years (according to the terms of the agreement). This data will be used to validate the applicant's previous desk top analysis of available wind data in order to determine if this area possesses a wind resource that will support development of a wind energy center.

The proposed tower is an NRG 60 meter XHD Tall-tower that is approximately 196 feet in height and has a tubular structure. The tower sits on a baseplate and therefore requires no foundation or outside utilities. Four sets of guy wire anchors are placed at **40m (131')**, **45m (147')**, and the outermost guy anchor at **50m (164')**. The tower is constructed on the ground and is tilted into its final position with a temporarily anchored winch.

The tower will be striped orange and white and will have orange marker balls placed on the guy wires to increase visibility, per FAA recommendations, however FAA approval is not required because the tower stands below the 200' threshold.

**2. Please clarify the time line. Is this CUP requested for 5 years or 6 to accommodate the removal of the equipment per the lease.**

The normal operating timeline for meteorological towers are approximately 2 years. However, based on the terms and conditions of the property owner's agreement, the maximum time the applicant is allowed to have the met tower in place is 5 ½ years (5 year term with up to 6 months to remove the tower).

**3. Please clarify the location of equipment in relationship to the property line. Two graphics in your attachments suggest it may or may not be over a property line.**

The met tower is located in the northwest corner of the parcel. Below is a list of distanced to the property line in each direction, starting with the closest proximity:

- Western property line: 205 feet
- Northern property line: 490 feet
- Southern property line: 2,160 feet
- Eastern property line: 3,765 feet

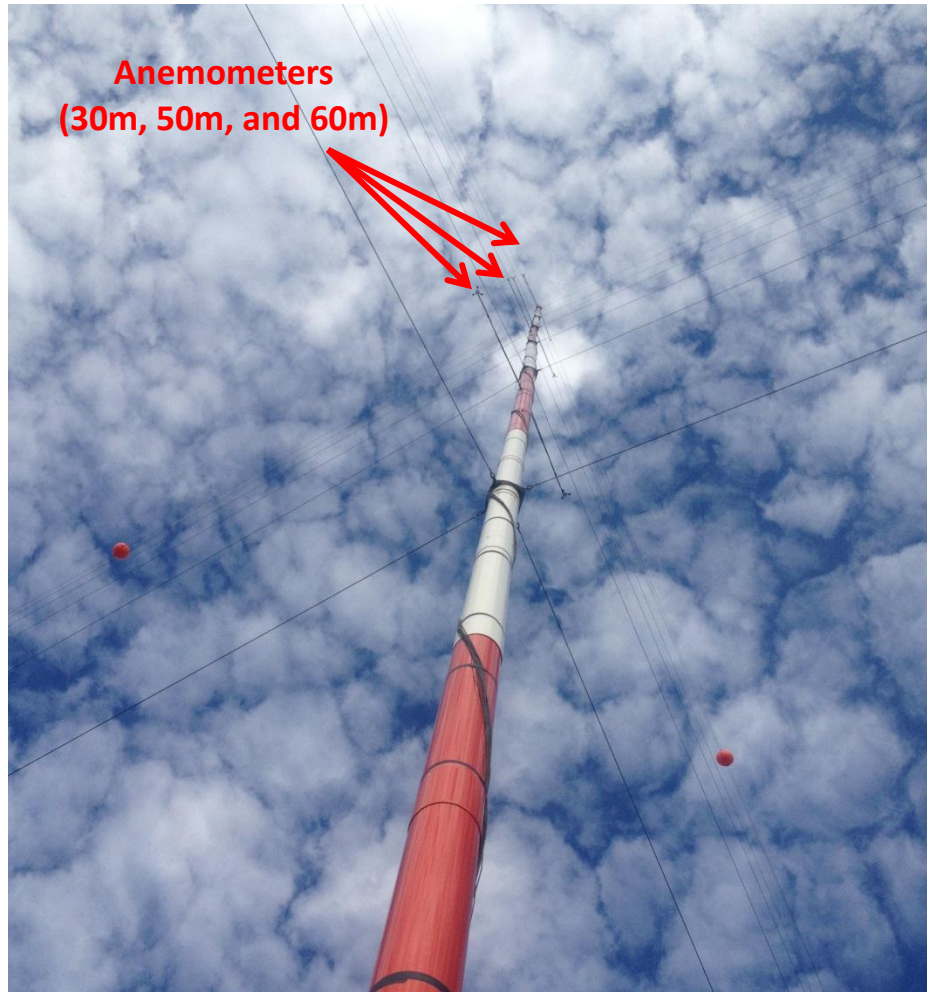
The met tower has no foundation, therefore requires four sets of anchored guy wires to support the structure, with the farthest guy wire anchor placed approximately 164 feet from the base of the tower, therefore the entire structure and associated support structures will be installed away from the property line and roads.

**4. How often is the tower accessed for maintenance?**

Normal maintenance is conducted once a year unless there is extraordinary reason to visit the site. Extraordinary reasons could include damage from extreme wind, lightning strike, or if the data uplink is interrupted over a period of time.

##### 5. Do the attachments move or rotate?

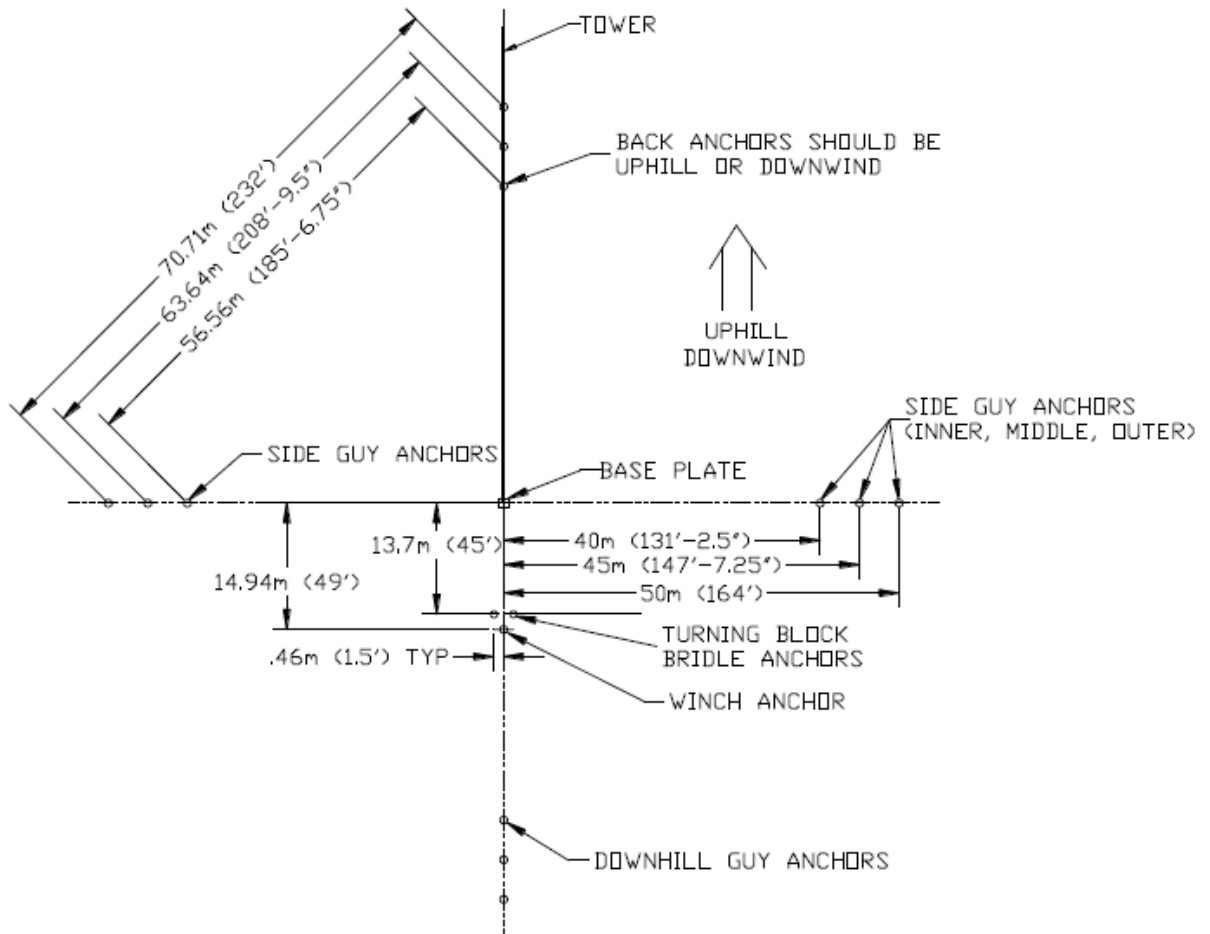
Below is a photo looking up at an installed meteorological tower. There are three pairs of anemometers placed at 30, 50, and 60 meters. The anemometers consist of three “cups” that rotate depending on wind speed and are approximately six inches across. Although the anemometers rotate, the rotation is contained within the approximately 6 inch diameter.



Closeup view of an anamometer

6. Please provide an elevation of the tower showing dimensions, height of equipment attached, any GPS units (that extend height), etc.

In addition to the first photo used to address the previous question, below is a cross section showing placement of guy wires and anchors. Neither the tower, nor any associated equipment will exceed the maximum height of 60m (approximately 196 feet).



We will prepare the landowner list and have it ready for submittal with the application Monday.

## **Temporary Meteorological Towers - 60 meter (196 ft) Tilt-Tube**





# Temporary Meteorological Towers

## 60 meter (196 ft) Tilt-Tube Met Tower

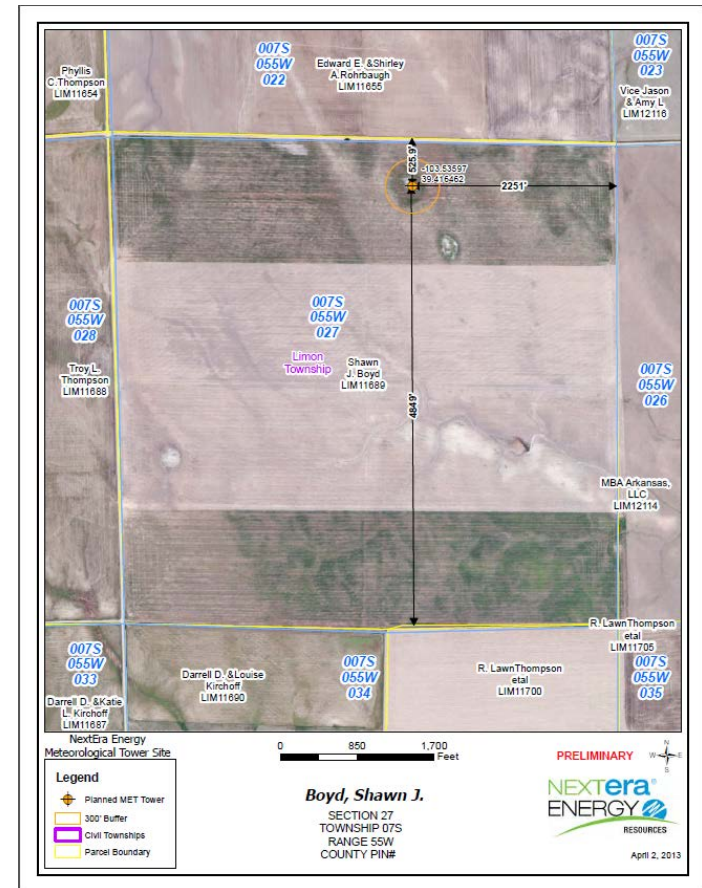
- Four (4) guy wires, oriented N-S-E-W
- Outermost guy anchor 164 feet from mast center
- Baseplate requires no foundation
- Tower tilt-down in direction away from logger (north)
- 196 feet impact zone when tower tilted down for maintenance.
- Accessible by truck with flatbed trailer (crop impact)

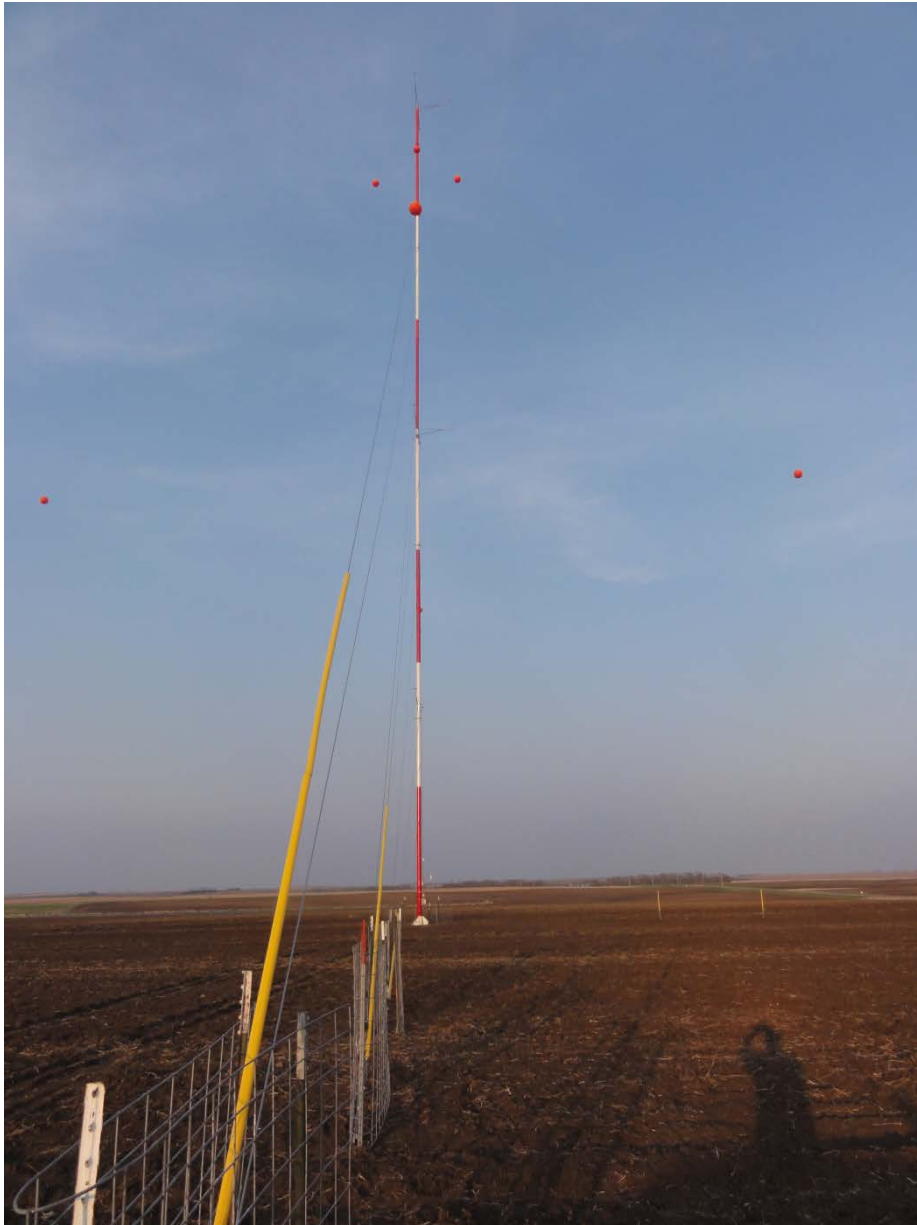


# Temporary Meteorological Towers

## 60 meter (196 ft) Tilt-Tube Met Tower

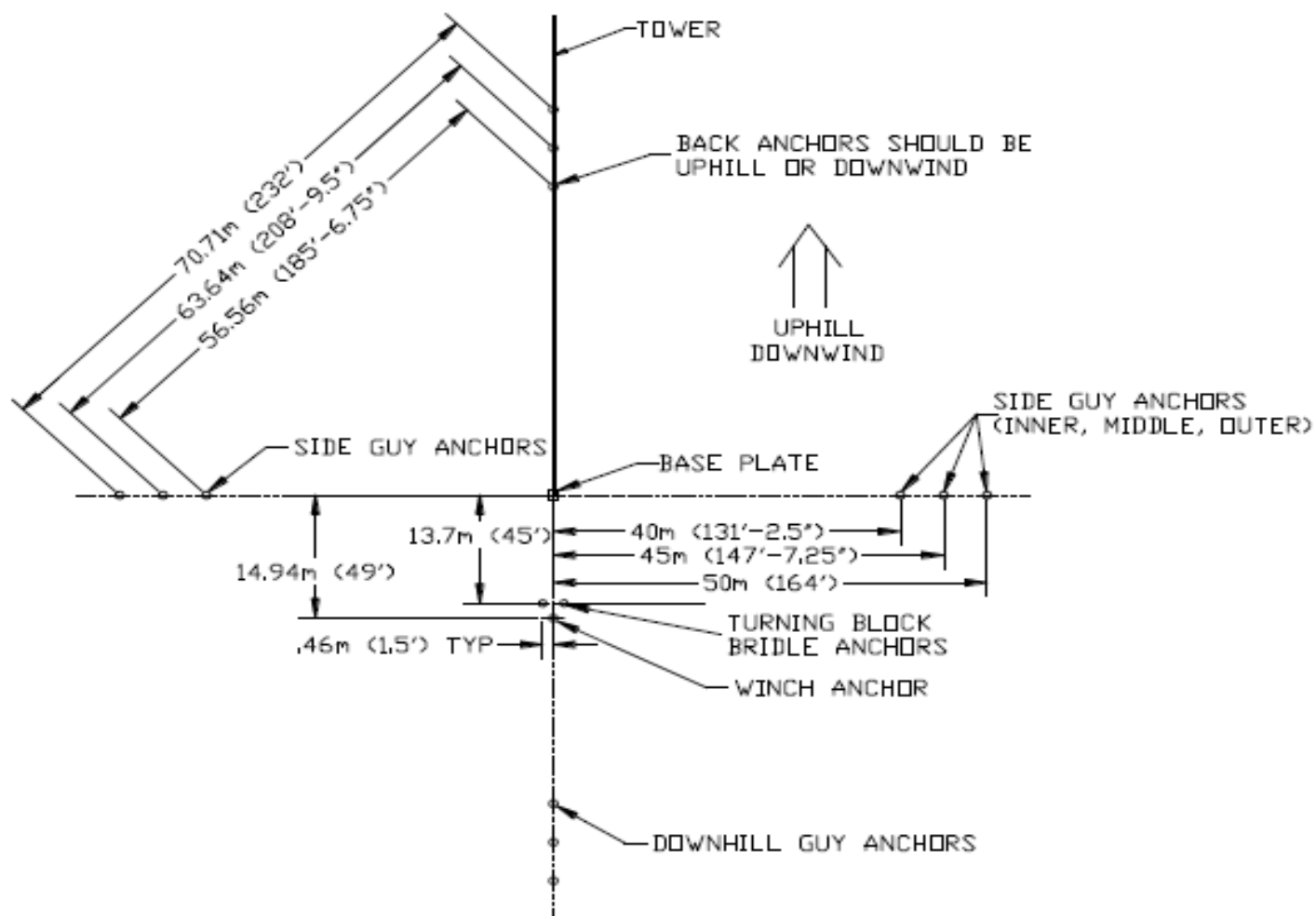
- Landowner signature required on Met Exhibit B
- Understand crop impacts from install and on-going maintenance requiring tilt-down of the met tower
- Cannot guarantee regular weed control – more cost-effective to compensate landowner.
- Orange radius ring shows manufacturer recommended 300 foot setback





Winch/bridle anchors can be seen in photo (above left) – 45 feet from mast center, no guy wires, marked with t-posts and hi-visibility guy sleeves. Outermost-anchor – 164 feet from mast.

## Site Layout





HOME RULE RESOLUTION NO. 13-12-5

A HOME RULE RESOLUTION OF THE BOARD OF COUNTY COMMISSIONERS OF DOUGLAS COUNTY, KANSAS PLACING A TEMPORARY MORATORIUM ON LARGE WIND ENERGY CONVERSION SYSTEMS

WHEREAS, K.S.A. 19-101, *et seq.* provides the county commissions in the state of Kansas with home rule authority to transact all county business and perform all powers of local legislation and administration it deems appropriate.

WHEREAS, the Board of County Commissioners of Douglas County, Kansas (the "Board") has previously adopted and amended *Zoning Regulations for the Unincorporated Territory of Douglas County, Kansas*, as codified in Chapter 11, Article 3 of the Douglas County Code and as amended (the "Zoning Regulations").

WHEREAS, the Board is concerned that the Zoning Regulations, as currently written, may not adequately address adverse effects that wind farms located in the unincorporated areas of Douglas County may create.

WHEREAS, the Board adopts this Resolution and the moratorium set forth herein to provide time for the Board and applicable Douglas County officials, agencies, departments, boards, and commissions to review the Zoning Regulations, receive public input, hold public hearings, and make recommendations for amendments to the Zoning Regulations to address adverse effects that wind farms may create.

NOW, THEREFORE, THE BOARD OF COUNTY COMMISSIONERS OF DOUGLAS COUNTY, KANSAS, SITTING IN REGULAR SESSION, DOES HEREBY RESOLVE AS FOLLOWS:

**SECTION 1. Definition.** For purposes of this Resolution, the following phrases have the following definitions:

"Wind Energy Conversion System." The combination of mechanical and structural elements used to produce electricity by converting the kinetic energy of wind to electrical energy. Wind Energy Conversion systems consist of the tower, turbine apparatus and any buildings, roads, interconnect facilities, measurement devices, support structures and other related improvements necessary for the generation of electric power from wind.

"Large Wind Energy Conversion System." A Wind Energy Conversion System that has (i) any part of the tower or turbine apparatus exceeding 100 feet in height above ground level, or (ii) more than one tower or turbine apparatus of any size proposed and/or constructed by the same person or group of persons on the same or adjoining parcels or as a unified or single generating system.

**SECTION 2. Temporary Moratorium.** Commencing on the date of this Resolution and continuing through **April 30, 2014**, the repeal of this Resolution if earlier, or such later date to which the Board may subsequently extend this Resolution, the Board imposes a temporary moratorium on the planning, establishment, construction, application for or permitting of any Large Wind Energy Conversion System in the unincorporated areas of Douglas County. During the term of this moratorium, all Douglas County officials, agencies, departments and/or boards charged with the responsibility for receiving, reviewing, processing, and approving permits, site plans, applications and other requests relating to zoning, land use, and construction of a Large Wind Energy Conversion System are prohibited from doing so.

**SECTION 3. Amendments to Zoning Regulations.** During the term of this moratorium, the Douglas County Zoning & Codes Office, the Lawrence Douglas County Planning Office, and the Lawrence Douglas County Planning Commission are requested to undertake a review of the Zoning Regulations, receive public input, hold public hearings, and make recommendations to the Board for permanent changes to the Zoning Regulations that address adverse effects that wind farms may create in Douglas County.

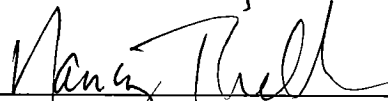
**SECTION 4. Effective Date.** This Resolution is effective from and after its adoption and publication one time in the official County newspaper.

ADOPTED December 11, 2013.

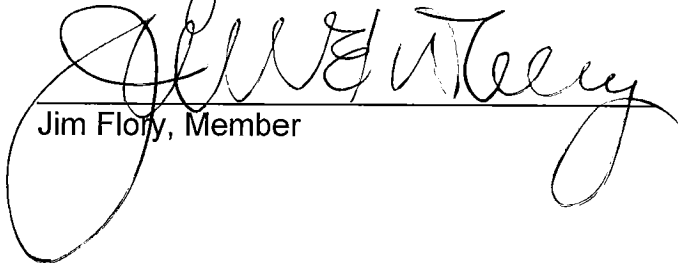
BOARD OF COUNTY COMMISSIONERS  
OF DOUGLAS COUNTY, KANSAS



Mike Gaughan, Chairman

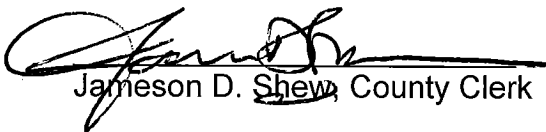


Nancy Thellman, Member



Jim Flory, Member

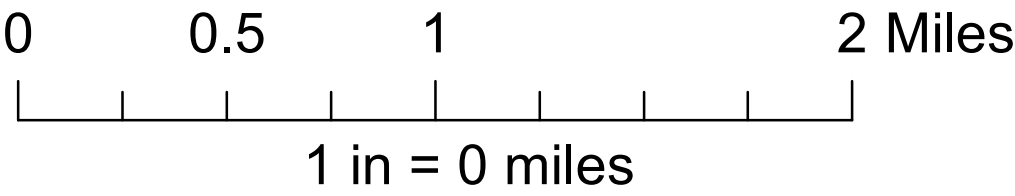
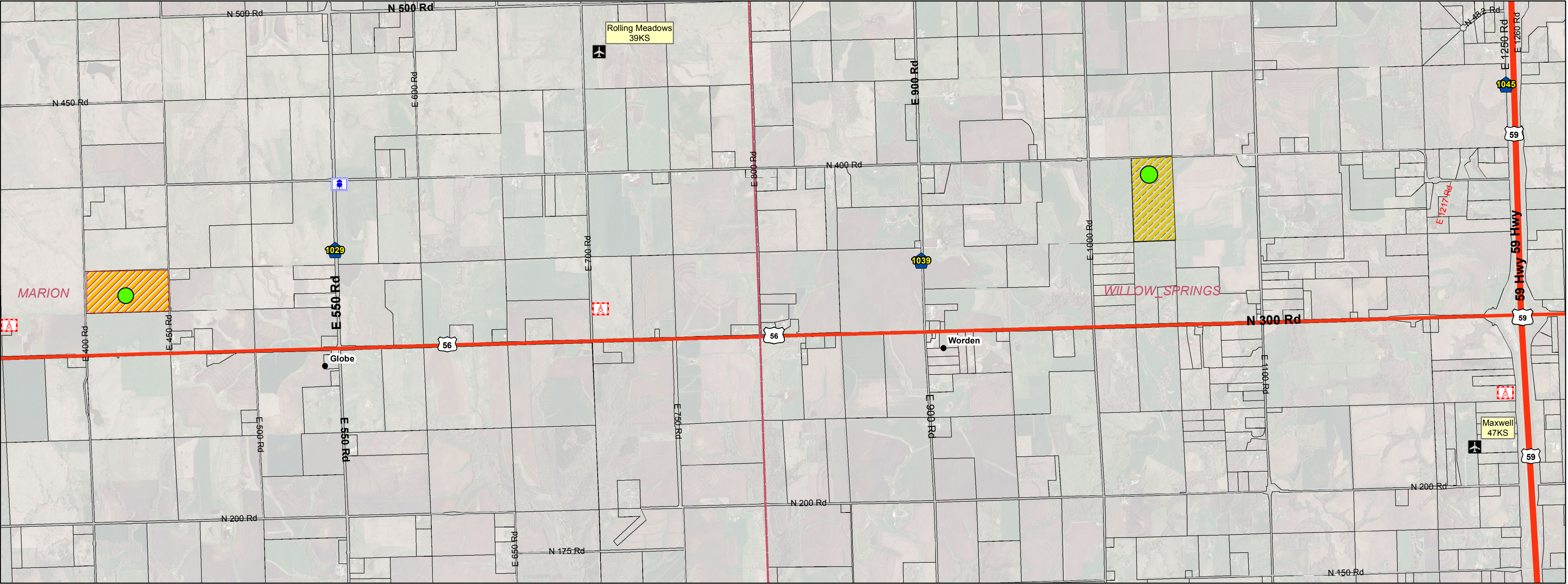
ATTEST:



Jameson D. Shew, County Clerk






# Met Tower Applications



## Legend






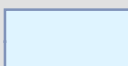

### Towers

#### TYPE

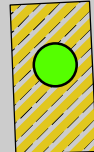
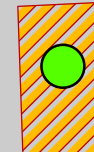
-  COMMUNICATION
-  TV
-  WATER

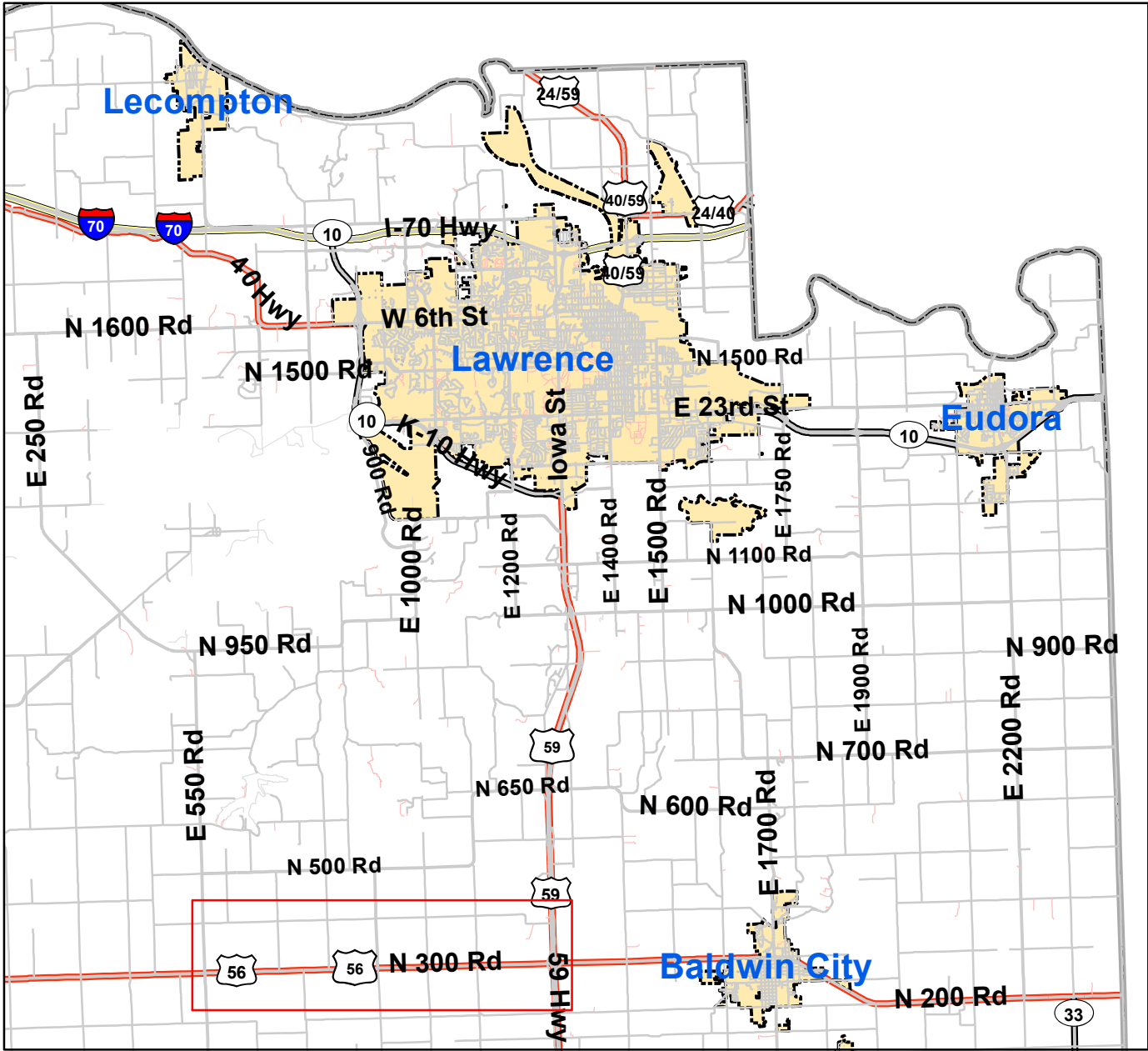
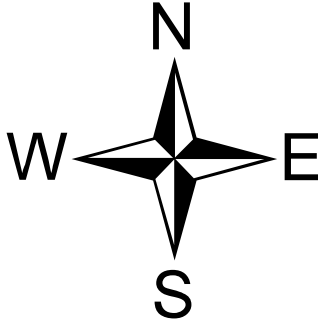
### County Airports / Helipads

#### Entity

-  Private
-  Public
-  City Limits - Douglas County
-  township
-  County Limits
-  Water Bodies
-  Townsites

### APPLICATIONS

-  CUP- 13-00480; N 400 RD & E 1000 RD
-  CUP- 14-00002; E 400 RD & N 300 RD





## POTENTIAL GUIDELINES FOR DEVELOPMENT OF WIND ENERGY PROJECT REGULATIONS

### *LIST OF POSSIBLE “KEY ISSUES” RELATED TO DEVELOPMENT OF COMMERCIAL WIND ENERGY CONSERVATION SYSTEMS*

- *Land Use*
- *Visual Impact*
- *Noise*
- *Bird migration/strikes*
- *Endangered Species*
- *Wildlife Habitat/Fauna*
- *Soil Erosion*
- *Water Quality*
- *Public Health and Safety*
- *Infrastructure*
- *Aviation/FAA*
- *Reception Interference*
- *Cultural Heritage*
- *Native Vegetation/Flora*
- *Cumulative Impact*
- *Company experience, reputation, and financial ability*
- *Removal (Decommission)/Reclamation Plans*
- *Bond agreement*



## POTENTIAL GUIDELINES FOR DEVELOPMENT OF WIND ENERGY PROJECT REGULATIONS

### ***SAFETY AND SETBACKS***

*Typical regulations include:*

- *Setbacks from public rights-of-way*
- *Setbacks from residential structures (on adjacent properties)*
- *Setbacks from other structures*
- *Burial of power lines*
- *Regulation of potential life safety and property hazards*

### **EXAMPLES OF REGULATORY STANDARDS:**

- *Distance from public road: 500 feet or height of turbine plus 50 feet, whichever is greater*
- *Distance from property line of any property not included in CUP: 500 feet or height of turbine plus 50 feet, whichever is greater*
- *Distance from residential structure: 1000 feet*
- *Distance from common agricultural accessory structure: height of turbine plus 50 feet*
- *Alternative setback system: multiply setback number by wind turbine height to the property line, public road, or nearest point on the foundation of an occupied building. Setback numbers ranging from 1.1 to 2.5, depending on size of turbine, size of system, and type of adjoining feature*
- *Reserve authority to impose additional or differing set back requirements on a case-by-case basis*
- *Will regulations allow adjoining owner to waive setback requirements? Will setback requirements be waived for adjacent properties that have turbines or are part of the project?*
- *Special setbacks for schools, hospitals*
- *Lowest point of rotor blades at least 100 feet above ground level at base of tower*
- *Maximum height restrictions (e.g., 355 feet)*
- *Structural engineer: inspection of foundation, structural assembly, mechanical and electrical systems*
- *Fire safety issues: risks associated with prescribed and non-prescribed (natural or accidental) burning*
- *Extraordinary events: Turbine failure; thrown/broken blade or hub; collector/feeder line failure; injured worker or citizen; kills of threatened or endangered species; discovery of an unexpectedly large number of dead birds of any variety on site; ice throw*
- *If lubricants or hazardous materials are used on or transported to site, said materials shall be kept and transported in accordance with state and federal regulations*
- *Manufacturers' Materials Safety Data Sheets must be provided for all materials used*
- *Automatic braking, governing or feathering system to prevent uncontrolled rotation or overspeeding*
- *Lightning protection*
- *Site security, prevention of unauthorized access, warning signs, fencing*
- *Require design in accordance with "proven good engineering practices" including: at least 3 blades; upwind rotor; no furling; tapered and twisted blades; and a well-designed braking system*

## POTENTIAL GUIDELINES FOR DEVELOPMENT OF WIND ENERGY PROJECT REGULATIONS

### ***USE COMPATIBILITY***

*Typical regulations include:*

- *Site specific minimum requirements (see Safety & Setbacks)*
- *Evaluation of individual compatibility issues*
- *Permitted by-right in any district (individual use based on max. height & standards)*
- *Conditional Use Permit (commercial wind energy project)*

### **EXAMPLES OF REGULATORY STANDARDS:**

- *Commercial wind system not allowed in specified districts or areas (e.g., floodplain, wetlands, residential, industrial)*
- *Different rules and regulations for small, home wind energy conversion systems (e.g., by-right regulations for 1-2 small turbine(s) for generation of power to be used on site and not distributed to grid); subject to established design and construction standards [no conditional use permit required]*
- *Examination of site and feasible alternative locations and reason for selected location*
- *Limits or constraints on current or future development as a result of siting the turbines and overall project*
- *Evaluate and mitigate impacts on agricultural, residential, industrial, tourism, recreational and commercial activities*
- *Evaluate and mitigate electromagnetic interference*
- *Must operate in conformance with FCC regulations*
- *Identify any public health and safety risks and how to eliminate or mitigate them*
- *Documentation/agreements between participating landowners and applicant*
- *Wind Energy Overlay Zone*
- *Possible exemption from regulation for small-scale, residential or agricultural use projects with generating capacity under 25 or 50 kilowatts*
- *Consideration and mitigation of impacts on state or federal resource lands or other protected areas on or near the proposed site*
- *Proximity to public or private airports or airstrips*
- *Consideration of Comprehensive Plan*

## POTENTIAL GUIDELINES FOR DEVELOPMENT OF WIND ENERGY PROJECT REGULATIONS

### ***SOUND AND LIGHT MANAGEMENT***

*Typical regulations include:*

- *Minimum separation from nearby residential or public structures (i.e. churches or public assembly areas)*
- *Minimum/Maximum thresholds for acoustic levels*
- *Mitigation through sound reduction technology*

#### **EXAMPLES OF REGULATORY STANDARDS:**

- *No artificial lighting of equipment or project site, except as required by FAA*
- *No lights on towers other than those required by the FAA (but not applicable to infrared heating devices used to protect wind monitoring equipment)*
- *All lighting must be shielded to reduce glare and visibility from the ground*
- *Specific decibel levels ("A" or "C" weighted); pure tone noise considered; regulation of sound pressure levels (dbB); cannot exceed established levels more than 3 minutes in any hour of any day*
- *Shadow flicker at occupied building on adjacent property is prohibited entirely or limited to 30 hours per year*
- *Ability for adjacent owners to waive shadow flicker and noise mitigation requirements.*

## POTENTIAL GUIDELINES FOR DEVELOPMENT OF WIND ENERGY PROJECT REGULATIONS

### ***NATURAL, HISTORICAL AND BIOLOGICAL RESOURCES***

*Typical regulations include:*

- *Study of biological and environmental impacts*
- *Study of key wildlife habits: migration corridors, breeding & brooding areas, perching habits*
- *Evaluation of natural vegetation*
- *Cumulative impacts of siting on wildlife, cultural and other historically significant features*

### **EXAMPLES OF REGULATORY STANDARDS:**

- *Evaluate and mitigate impacts on rare and disappearing ecosystems such as intact tallgrass, shortgrass or mixed grass prairies*
- *Evaluate and mitigate impacts on historical structures, landmarks, trails (such as California, Oregon, or Santa Fe Trails), and old town sites (Hesper, Palmyra, Prairie City, etc)*
- *Evaluate and mitigate impacts on livestock movement*
- *Evaluate and mitigate impacts on migratory bird patterns*
- *Locate development on already altered landscapes, such as extensively cultivated land and/or areas already disturbed*
- *Buffer zone of undeveloped land adjacent to intact landscapes*
- *Inventory of existing wildlife, endangered species, wetlands and other biologically sensitive areas within the site; flora, fauna and geoconservation; architectural reconnaissance survey; preservation of historic and cultural resources; site preparation; removal of vegetation, restoration of site following construction*
- *Selecting turbine locations to reduce likelihood of significant adverse impacts on wildlife*
- *Designing turbine towers to reduce horizontal surfaces for perching*
- *Designing turbine towers and pad-mounted transformers to avoid creation of artificial habitat or shelter for raptor prey; using gravel to prevent weeds for habitat for raptor prey*
- *Established standards for restoration of site following decommissioning of site*
- *Voluntary compliance with long-term habitat management agreements or conservation easements*

## POTENTIAL GUIDELINES FOR DEVELOPMENT OF WIND ENERGY PROJECT REGULATIONS

### ***AESTHETICS AND VISUAL IMPACTS***

*Typical regulations include:*

- *Impacts on quality of landscape and viewsheds (for adjacent owners and/or of county significance)*
- *Limitations on internal road systems and grading (cut & fill work) needed to prepare wind farm site*
- *Limitations on size of internal conveyance systems for operation and maintenance to minimize long-term impacts on agricultural properties*
- *Use of natural vegetation for re-seeding disturbed areas*

### **EXAMPLES OF REGULATORY STANDARDS:**

- *Structures must be self-supporting tubular towers painted a neutral color such as white or pale gray. No lattice structures allowed. No logos or advertisements. No company insignia, advertising or graphics on any part of the tower, hub or blades*
- *Owner or applicant shall take acceptable measures (such as planting trees, installing awnings, etc.) to mitigate adverse visual impacts such as reflections, shadow flicker, and blade glint.*
- *Project construction shall use wind energy systems of similar design, size, operation, and appearance throughout*
- *Project shall:*
  - *avoid state or federal scenic areas and significant visual resources*
  - *include in submittals: maps, models, photos and renderings showing the visual impact of the project from other locations; accurate visual representation of the project, including visual simulations and viewsheds analyses*
  - *provide consideration of impact on scenic byways and popular vistas, if any*
  - *minimize visual effect of ancillary structures, road, and fences to avoid visual clutter*
  - *Maintain visual unity among clusters of turbines*
  - *Maintain adequate spacing between turbines to avoid objectionable density*
- *Transformers and other electronic equipment should be hidden from view or otherwise constructed in harmony with surrounding landscape*
- *All turbines should have the same number of rotor blades and all blades should spin in the same direction*
- *No more than 12 machines per cluster (a "cluster" is a grouping of machines greater than 0.25 mile from another grouping)*



## POTENTIAL GUIDELINES FOR DEVELOPMENT OF WIND ENERGY PROJECT REGULATIONS

### ***ENVIRONMENTAL (SOIL EROSION, WATER QUALITY AND AIR QUALITY)***

*Typical regulations include:*

- *Avoidance of sites with steep slopes*
- *Filing of SWEPP plans with state for soil erosion*
- *Limiting site construction to periods of dry soil conditions, frozen soil, or when native vegetation is dormant*
- *Limiting construction to areas outside regulatory floodplain and wetlands*

### **EXAMPLES OF REGULATORY STANDARDS:**

- *Development of soil erosion, sediment control and storm runoff plan*
- *Erosion control measures for grading, construction and drainage of access roads and turbine pads, soil quality, downstream water quality, revegetation for slope stability, site restoration*
- *Removal and proper disposal of extracted materials*
- *Erosion protection of exposed soil*
- *Removal of stabilizing features (e.g., silt fences) when area is stabilized*
- *Maintenance of erosion control throughout life of project*
- *Removal of waste and scrap and proper disposal of it*
- *Mitigation of adverse impacts on surface and ground water*
- *Mitigation of dust*
- *Specific requirements for site clearance, soil compaction, protecting topsoil, tree removal, removal of hedgerows (shelter belts), silt fences and erosion controls*

## POTENTIAL GUIDELINES FOR DEVELOPMENT OF WIND ENERGY PROJECT REGULATIONS

### ***INFRASTRUCTURE – ROAD MAINTENANCE***

*Typical regulations include:*

- *Evaluation and mitigation of impacts to roads, bridges and traffic due to construction and maintenance activities*

#### **EXAMPLES OF REGULATORY STANDARDS:**

- *Use of existing roads, wherever possible*
- *Execution of road agreement with Public Works for construction and maintenance activities, including damage to roads and bridges*
- *Submittal of a Traffic Impact Study (TIS) to evaluate and mitigate impacts on transportation routes that are coordinated with Public Works*
- *Applicant liable for damage to county/township roads or right of ways*
- *Applicant shall construct the smallest number of turbine access roads possible; access roads shall be low profile so farming equipment can cross them*
- *Measures taken to control dust on-site and off-site on transportation routes*

## POTENTIAL GUIDELINES FOR DEVELOPMENT OF WIND ENERGY PROJECT REGULATIONS

### ***PROJECT END PLANNING – DECOMMISSION AND RESTORATION PLANS***

*Typical regulations include:*

- *Upon abandonment or end of project's useful life, applicant is responsible for decommissioning& removal of towers/other improvements and restoration of project site*

#### **EXAMPLES OF REGULATORY STANDARDS:**

- *Submittal of a decommissioning plan and approval by BOCC*
- *At the end of the project's useful life or upon abandonment, equipment shall be removed and foundations removed to depth of four (4) feet below ground surface. Access roads removed (except pre-project existing access roads). Property Owner may choose to have access roads left intact for internal circulation*
- *Restoration of soil, topography*
- *Applicant must demonstrate financial capability to carry out decommissioning and restoration requirements through:*
  - *Establishment of escrow account/surety bond/insurance policy/letter of credit for decommissioning and restoration plans*
  - *Standards for finding of abandonment and forced decommissioning*

## POTENTIAL GUIDELINES FOR DEVELOPMENT OF WIND ENERGY PROJECT REGULATIONS

### ***SOCIO-ECONOMIC AND LOCAL GOVERNMENT***

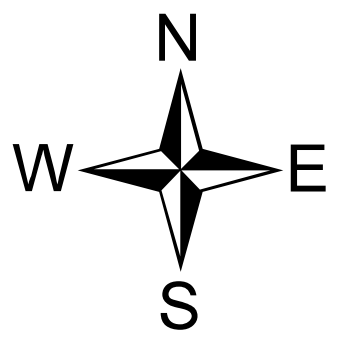
*Typical regulations include:*

- *Project shall be consistent with the public health, safety and welfare and not require expenditure of public funds*

#### **EXAMPLES OF REGULATORY STANDARDS:**

- *Conduction of wind site assessment prior to application*
- *Proposed total rated capacity*
- *Power Purchase Agreement in place prior to issuance of building permits and any on-site grading or construction*
- *If Power Purchase Agreement not obtained within 12-18 months of issuance of CUP, CUP is null and void*
- *Must conform to building code, pay required fees, submit to reasonable inspections*
- *Application requirements must be met, including: information about the applicant, including applicant's experience and financial ability to undertake and maintain operation of the project; insurance coverage; construction and phasing; site plans, including topography, streets and houses; schematic location of turbines and other equipment; identification of flood ways; construction documents; construction schedule; project life; on and off-site construction staging; traffic impact plans/studies; operation and maintenance requirements; and evaluation/discussion of all actual and potential harmful impacts of the project and elimination or mitigation of those impacts.*
- *County held harmless from any claims, costs, liabilities, damages or expenses on account of any damages claimed by any third party.*
- *Any transfer of ownership must be approved by County in advance, and transferee must meet requirements applicable to previously approved applicant/owner of CUP.*
- *Notification requirements and procedures for extraordinary events and hazards*
- *Submittal with application a complaint resolution process and approval of this process as part of CUP approval*
- *Combine transmission lines and points of connection to local distribution lines*
- *Connect the facility to existing substations or, if new substations are needed, minimize the number of new substations*
- *Submittal of Assessment of if/ how a project will affect community services, costs and infrastructure*
- *Submittal of future possible project expansions as part of initial CUP application*
- *Provision of a public interaction process for sharing of information and two-way communication*
- *Submittal of Assessment of tax revenues and infrastructure enhancements required*
- *Submittal of Assessment of business and job generation, economic benefits/burdens of project*

# Douglas County Air Uses



## Legend

### Towers

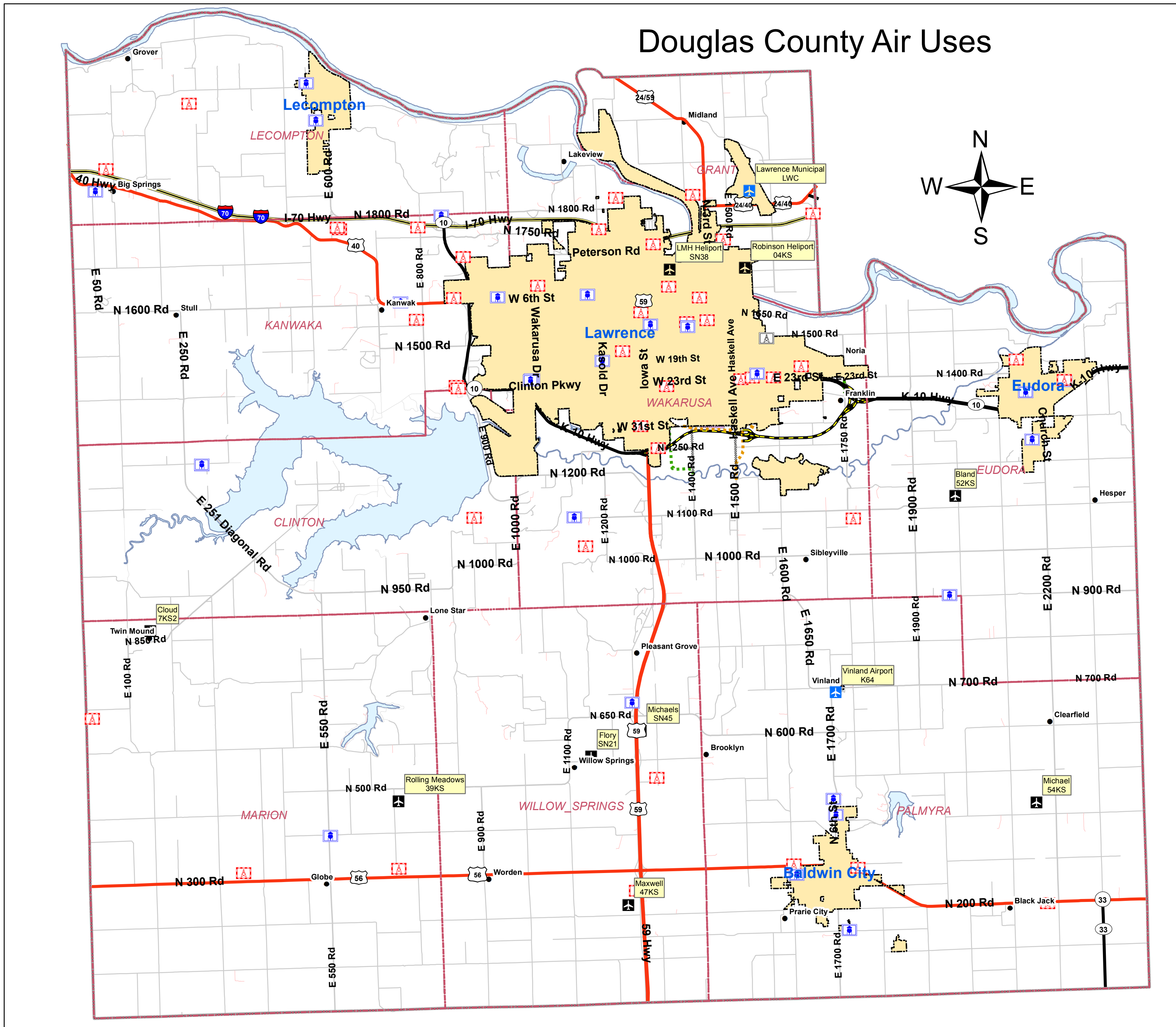
#### TYPE

- COMMUNICATION
- TV
- WATER

### County Airports / Helipads

#### Entity

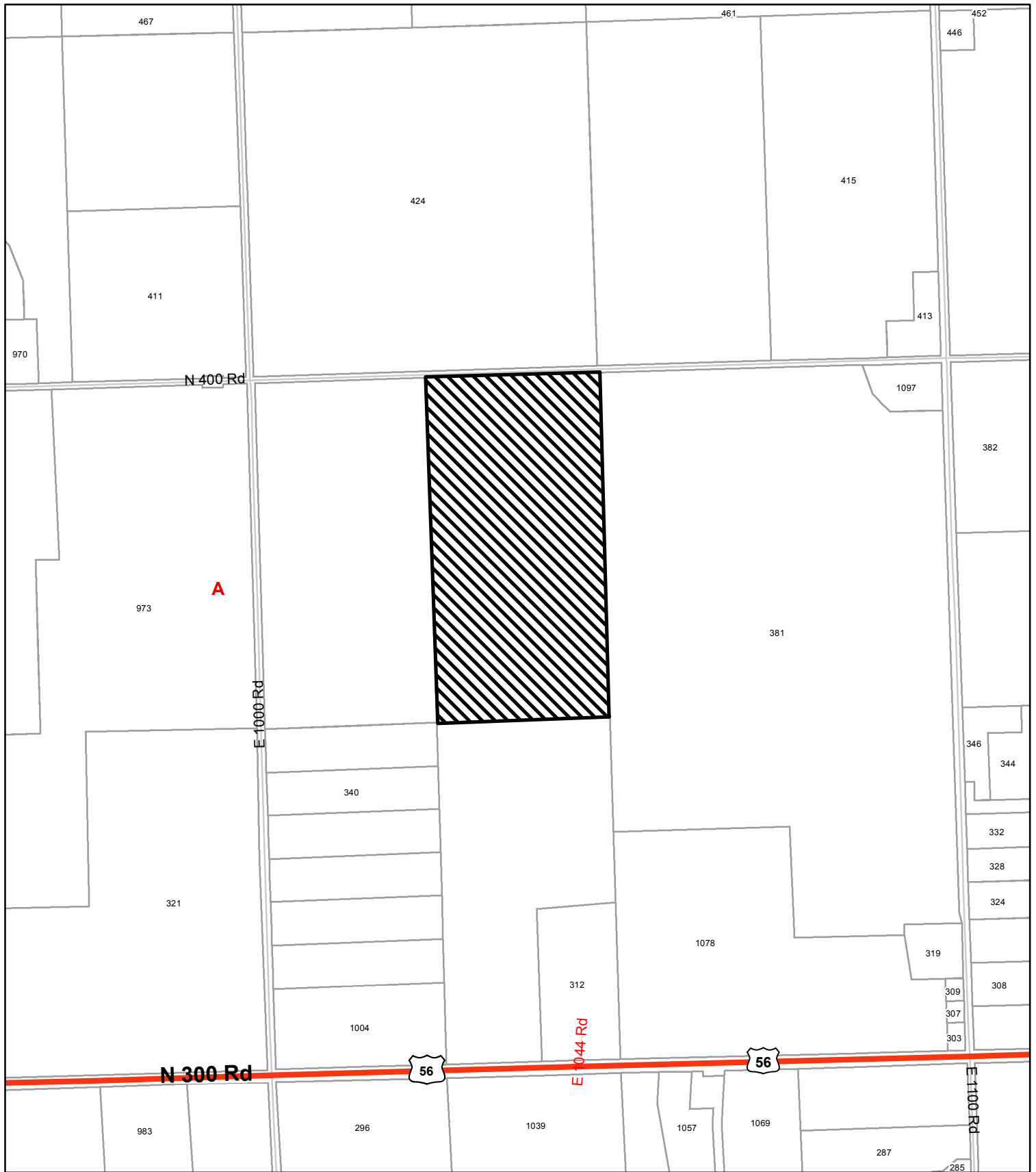
- Private
- Public
- City Limits - Douglas County
- township
- County Limits
- Water Bodies
- Townsites



0 2 4 8 Miles

1 in = 2 miles





**CUP-13-00480: Conditional Use Permit for a Meteorological  
Tower to Monitor Wind Speed & Direction  
Located Approx. 1/4 Mile East of Southeast Corner N 400 Rd & E 1000 Rd**

Lawrence-Douglas County Planning Office  
April 2014



Subject Property

