

City of Bay Village, Ohio
Planning, Zoning, Public Buildings & Grounds Committee
Held February 27, 2012
3:00 p.m.

Present: Councilman Clete Miller, Chair
Councilman Scott Pohlkamp

Excused: Councilman Mike Young

Also Present: Christopher Alvarado, Associate Senior Planner, Cuyahoga County Planning Commission

From the University of Baldwin Wallace the following senior sustainability majors:

Alex Jeffers
Madeline Ashwill
Keith Schindler
Andy Ventura
Eric Morris

Audience: Denny and Tara Wendell from the *Bay Village/Westlake Observer*

Chairman Miller called the meeting to order at 3:00 p.m. The purpose of the meeting this date is a Roundtable discussion with the Baldwin Wallace Sustainability Capstone Class regarding sustainable energy ordinances.

Student Alex Jeffers distributed the following agenda for today's meeting:

1. Overview of project
 - Bay Village's experience with renewable energy
 - Capstone group's ideas for the project
 - Bay Village's ideas for the project
2. Review existing ordinances
 - Model Ordinance
 - Eastlake
3. Questions and Concerns
4. Next Step

Alex Jeffers explained that sustainability major is an interdisciplinary major and is set up so that the core requirements for the class are taken which include natural sciences, social sciences, economics, political science, and business. Specialization goes along individual tracks, e.g., business track, natural sciences track, social sciences track, or quantitative analyzation.

Christopher Alvarado of the Cuyahoga County Planning Commission explained that they have been assisting Mayor Sutherland and the Bay Village Green Team on putting together a foundation for a potential update of the city's master plan with the intent that there would be a strong sustainability undercurrent in the master plan and being able to identify how citizen groups would be able to work with the city to improve the city. They also provide guidance to Baldwin Wallace's sustainability program, and are working with the Capstone class specifically to work with the city on identifying pilot projects that Bay would be able to enact.

Mr. Pohlkamp noted that there is more interaction on the county level between the county and the individual cities. Council looked at wind turbines a few years ago and many communities will write their own ordinances for wind energy when it would make more sense to have an ordinance written for all the communities.

Mr. Miller acknowledged receipt from Tory McMillan, instructor of the class, an outline of the goals of the sustainability class and the relationship with the County Planning Commission defined. The intent is to engage the Green Team and the City of Bay Village on how to structure an ordinance that would reflect the class's interest and the city's interest for sustainability.

Mr. Miller noted that it will be a challenge to embrace this project in a semester; however, the efforts of the class will not be forgotten. The city will continue in the process and Mr. Miller will shepherd it along during his two years as Chairman of the Planning and Zoning Committee. He noted that he believes in it and thinks it is a good thing. The class may have to look back a year from now to see what has been accomplished.

An ordinance adopted by the City of Eastlake was distributed for review. Mr. Miller noted that the committee can look at what Eastlake has done and if it is acceptable to Council, the process is complete. Small wind energy and solar energy systems are already in the Eastlake Chapters 1371 and 1373.

Mr. Pohlkamp stated that he observed that the City of North Ridgeville lights their municipal parking light with individual solar panels. The lights at the tennis courts on Dover Center Road are in need of replacement and this may be an opportunity for the City of Bay Village to look into solar for the first time. Mr. Miller noted that he has seen flashing road lights in rural areas that are powered by solar panels.

Alex Jeffers defined the goals of the class to set up a foundation that the city can work on and providing information through research.

Bay Village's Experience with Renewable Energy

Mr. Miller stated that to his knowledge that there is no experience, whether it is a city structure or a general public structure. There are no renewable energy sources, whether it is lights or emergency back-up lighting that might commonly use the battery charge. There is not a single wind generation tower within the city.

Mr. Pohlkamp stated that through previous discussions with the committee on wind power, it was learned that the best wind is about 60 feet above the canopy of trees. The most suited lots for capturing wind are along the lake. Many of the lots on Lake Road are more vertical than horizontal. All of the ordinances for wind turbines that Mr. Pohlkamp has seen require that the fall zone is within the property. Bay Village is unique in that it has the coastal area of Lake Erie, five tributary creeks that need to be protected, and the enormous canopy of old trees.

Mr. Pohlkamp explained that many of the lakefront properties have acquired submerged land leases. Mr. Jeffers suggested that the class could provide information as to whether these particular properties could put residential wind turbines out into the water if they chose to do so. Mr. Pohlkamp expressed interest in learning if other municipalities are passing ordinances in which you are allowed to erect wind turbine poles that can extend beyond the fall zone of the property.

Mr. Miller related that a majority of the wireless towers in the city are installed at the Bay High School. The monopoles replaced the light poles for the football field. There was extensive discussion about the fall zone for those installations. An application for a second pole is in abeyance.

Mr. Pohlkamp explained that the schools were approached about erecting cellular towers in exchange for dollars going toward the school system. Rather than erect stand-alone cell towers they took down a light post at the stadium and replaced it with a light post and cell phone tower. All of the equipment for the cell phone towers is stored under the bleachers of the stadium. Aesthetically, it is a much more pleasing situation. This might possibly be a situation for a pilot wind turbine project.

Madeline Ashwill asked how a height exception would be granted for a wind turbine to the 35 feet height restriction within the city. Mr. Pohlkamp advised that the Board of Zoning Appeals is the authority for variances, or Council would have to write new legislation.

Mr. Jeffers explained that most of the towers are now collapsible towers and asked if the committee would be willing to review legislation with a fall zone designed for the collapsible towers. Mr. Pohlkamp stated that the committee would be willing to review this, noting that the chances of a tower falling are not nearly as great as a tree falling which occurs often in Bay Village.

Expectations of the Capstone Class

Mr. Miller stated that the city would be welcoming of an ordinance that would protect the nature of the city. The ideas of solar and products that integrate solar energy into residences and commercial establishments are quite impressive. Solar is a good place for the committee to get some momentum. Designing a solar system with the tree coverage in the city is a challenge to get the return on investment. The placement of solar panels on roofs of older dwellings that may require a certain angle for efficiency may not be completely desirable.

Research for wind power and the design of towers for residential areas would be beneficial to the committee. He noted that heights can vary for picking up wind power, according to the efficiency desired. Research showing the effective heights, and applications in highly dense residential cities would be appreciated. Mr. Pohlkamp added that information for both the residential and municipal markets would be interesting as well. Mr. Miller noted that municipalities often take the leading step by putting into action a facility such as power for the lighting of the tennis courts as was discussed earlier. It would be helpful to find information as to how municipalities were able to demonstrate how they have engaged solar or wind power. Mr. Pohlkamp noted that the City of Bay Village spends \$300,000 per year to light the city streets and parking lots.

Christopher Alvarado stated that he hopes to see delivered to the city a manual for how it is that the city would be able to get the ordinance established including enforcement and implementation, identifying all the issues to be addressed.

There is interest at the county level for wind and solar power in the county. While a charge from the County Executive has not been seen as yet, it is within the realm of the services of the Cuyahoga County Planning Commission to municipalities.

Mr. Alvarado stated that he will identify with the students the various and different issues with neighbors, e.g., safety and sound. Depending on the size of the blades the noise may be more than neighbors are accustomed to. A reasonable set of standards that would limit the amount of nuisance that these structures would provide will be identified. Mr. Miller suggested the inclusion of decibel levels in those standards. He also noted that if there is a large enough array of a solar panel, reflectivity off of the panel would also be something to be considered as permissible.

Bay Village's Ideas for the Project

Mr. Miller stated that the simplest idea is to attain applicable ordinances. The two examples from Eastlake – wind and solar – are there other ordinances that are affected by these two? Should we be planning to address other ordinances? If the class can identify those things, e.g., setbacks, that would be something the city in which the city would have interest.

Mr. Wendell noted the creeks near residential properties in Bay Village and the fast moving water that occurs in the creeks after rainfall. Mr. Wendell asked if hydropower in a small creek is effective in any way. Mr. Miller noted that a facet of preventing that would be riparian rights.

If a private property owner decided to put up some kind of water build to generate some kind of power it would not be permitted. If the municipality attempted to do something like that, it may be possible.

Mr. Miller commented on geo-thermal heat recovery systems. Geo-thermal systems are becoming more practical for residents. Rather than having horizontal trenching and having long areas of heat recovery or heat disposition, you can go vertically into the ground. Mr. Pohlkamp noted the existence of geo-thermal heating in the middle school and police station. Mr. Miller noted that there may be a restriction on wells in residential applications. Geo-thermal wells might be something to tag along with this review because as people look into additional power for their homes they may want to go into a geo-thermal well that is outlined for them. He noted that ground energy is a good thing and will be there for a long time.

Review existing ordinance

Mr. Jeffers distributed a draft ordinance from the Chagrin River Watershed Partners (Exhibit A attached). Mr. Alvarado stated that this document is the basis for the City of Eastlake ordinance that was adopted. He will provide to the committee which municipalities have adopted these model ordinances with or without modifications.

Mr. Pohlkamp asked if any of the residents have applied for alternative energy sources in the City of Eastlake in accordance with their ordinances adopted 18 months ago. Mr. Jeffers stated that they will find out from Eastlake what their experience has been in this regard as well as any complications that may have occurred, or advice they would have moving forward.

Mr. Pohlkamp asked about the off-shore wind turbine farm that the City of Cleveland had discussed. Mr. Alvarado stated that it has been placed on hold given the difficulty in raising grant funds. The difficulties of constructing on the lake due to ice flows were noted. Denmark, Germany and the Netherlands are cold countries with off-shore wind turbines but they deal with a salt water ocean environment that does not have the complication of freezing. In addition to that, Lake Erie is our drinking water and any kind of construction would need to meet much more strict guidelines.

Mr. Miller asked if there are any best practices that municipalities have engaged in where they get rid of high energy lighting sources and retrofit those with LED's. Cleveland State University has redone their campus almost entirely with LED. He asked if there are benefits that municipalities might have for conserving energy. Mr. Jeffers stated that this is a good idea to pursue but might not be in the realm of the scope of their project. The LED's could reduce the \$300,000 budget that the city is expending on their lighting system. Mr. Alvarado stated that this is something that the County Planning Commission is exploring. LED technology now is still fairly immature and they haven't seen cities using that technology in street lamps. They do audit cities at night to see if there are too many lights or more lights needed for safety. They also do daytime surveys of street lights to see if there are any that are staying lighted.

Mr. Alvarado noted the benefits of the tree canopy in Bay Village to moderate climate throughout the year and any type of programs that encourage the planting of trees to shade the

impervious surface of the streets helps with continuing the character of the community and from an energy perspective.

Mr. Miller asked what is occurring with the Green Team. Mr. Alvarado stated that the Green Team has a set of projects that they have assigned to different members of the Green Team to follow through on ranging from energy, water quality, and pedestrian bicycling and transit access in the community. They are now identifying the best way they can be involved with the work that the Baldwin Wallace students are doing.

Ms. Ashwill stated that on this project wherever the Capstone Class leaves off a member of the Green Team will take over. A specific Green Team member will be assigned to that purpose.

Eastlake Ordinance

Section 1371 – Wind

Ms. Ashwill noted that the City of Lakewood's ordinance is more restrictive, possibly because Lakewood has more issues with the lake. The City of Lakewood put their ordinance together independently. Mr. Alvarado stated that it makes it more difficult for citizens to be able to construct solar, much less wind generation facilities. He felt it to be too restrictive for what would generally be recommended. The City of Eastlake falls more into the recommended model.

Ms. Ashwill has copies of ordinances from the cities of Beachwood, Independence, Newton Falls, Massillon, Bedford, Eastlake, and Lakewood. The most comprehensive are Bedford, Eastlake and Lakewood. The class will contact other communities to determine the number of applications for permits for alternative energy sources that have been processed in these communities. Mr. Pohlkamp asked if there is information from some of the progressive states such as Arizona and California that may have a good number of turbines installed in residential settings. Mr. Pohlkamp noted that he likes to look at the best practices of other cities and learn from their successes or failures.

Mr. Pohlkamp noted that an additional challenge in Bay Village is that there is only a portion of the city that has underground utilities. The remainder of the city is above ground and language would have to be incorporated in the ordinance relating to utility lines. Ms. Ashwill noted that all of the ordinances they have reviewed require compliance with the Ohio Building Code, FAA, and the National Electrical Code.

The City of Eastlake ordinance addresses all of the aesthetic issues and noise. Wind turbines are generally restricted to 60 decibels. Smaller residential wind turbines are typically at 50 to 55 decibels. Mr. Pohlkamp noted the innovative technologies now that make these more appealing in residential settings.

Mr. Miller noted the wind drum that Cleveland State University has developed that they will institute on their engineering building retrofitting redesign. Mr. Alvarado noted that the same

type will be constructed at Progressive Field. A fair amount of open space is needed around the drum.

Mr. Pohlkamp noted that an interesting place for a project would be at the Bay Boat Club. He described the environment at the base of the creek on Lake Erie. A small wind turbine could be constructed there without affecting the surroundings from an aesthetic standpoint.

Mr. Pohlkamp commented that Bay Village is a progressive community with many people interested in alternative energy sources but at the same time they are very sensitive about their view of the lake. He noted that there was an opportunity for tree planting on the lake at no charge to the city which was not taken advantage of for that reason. He suggested taking this factor into consideration when doing the review.

Mr. Alvarado suggested taking into consideration how these ordinances would be applied in Bay Village on the east end of the city where the lot sizes are smaller than the larger lot sizes on the west end. Mr. Pohlkamp noted the diversity of the community in lot sizes and cost of homes. There are homes ranging from \$75,000 to \$10 million plus in the community. It is difficult to write a planning or zoning ordinance that works for everyone.

Mr. Pohlkamp stated that it is important to fully know the opportunities in Bay Village when drafting an ordinance, e.g., how high a typical resident would have to go, and how would the fall zone be addressed in legislation.

Mr. Miller stated that the application of solar on homes is probably more of a unique, conditional construction and might be more difficult to identify the model of a solar package for a typical home to offset energy usage from a public utility. Mr. Alvarado stated that it may be more useful to have three or four different models that are representative of everything from the larger homes to the cottage size homes.

Mr. Miller suggested that the ordinance include effective height constraints that can mostly be applied everywhere. When a non-conforming condition needs approval it would be passed along to the Board of Zoning Appeals. Constraints that are best practices or recent applications in other cities would help with the understanding of what people are buying and what the industry is providing that's affordable for whatever measure of power they want to capture from wind energy. What is a common package from solar energy and what are people trying to accomplish by doing these things? Mr. Alvarado agreed that putting together a model ordinance that would fit the application of a typical home owner who wants to offset their energy usage would be more reasonable than an extreme example of someone who would want to additionally put more energy back into the grid.

Mr. Pohlkamp stated that he would be interested to learn if communities require an intent to build sign or other public notice for residents wishing to install a wind turbine.

Mr. Pohlkamp noted that at the present time in Bay Village those wishing to install a backup power generator must seek permission from the Board of Zoning Appeals. Mr. Miller stated that this is due to the fact that there is no existing ordinance for generators and the Board of Zoning

Appeals, in their consideration of a special permit for that use, address the buffering needs of the unit.

Mr. Miller will find out if there are any residential geo-thermal installations in the city, and noted that if this is something that is to be considered it can either be partitioned into an existing ordinance or be a stand-alone ordinance for itself.

Mr. Miller stated that when he reads the title of Chapter 1371 from Eastlake it says “Small wind energy systems. He asked what constitutes a small wind energy system.

Mr. Jeffers stated that the small wind energy systems are usually around 30 to 40 feet in height. The power is below 40 kilowatts. The ordinance addresses, in the definitions section, what they define as a small system. In Eastlake the small system has a capacity of 100 kilowatts or less. The Lakewood ordinance states that a small system has a capacity of 30 kilowatts or less and a total height of 100 feet or less. The class would like to work out the consideration of a small wind turbine in the ordinance for Bay Village.

Mr. Pohlkamp expressed interest in learning how cities determine the maximum height of a tower, and whether it would be based on aesthetics or practicality with the wind that is available.

Mr. Alvarado stated that they have actually mapped the wind availability in Cuyahoga County in conjunction with the City of Cleveland off-shore wind farm project. The areas next to the lake have the highest potential for regeneration and it levels off as you get further away from the lake. Mr. Alvarado will share the maps with the committee. The maps are generalized and very much depend on the amount of tree cover that is around a particular parcel. Cities don’t tend to look at that as a condition as to whether a resident can construct a wind turbine.

Mr. Pohlkamp noted that the intent is to give the public the most accurate information possible. If a turbine should be at least 80 feet, for example, in Bay Village, to capture anything worth talking about in terms of sustainability and yet our ordinance is 70 feet, it would be a waste of time. Mr. Alvarado stated that they can look at the height needed based on the generalized wind maps that they have already.

Solar Energy – Chapter 1373 of the City of Eastlake

The class feels that everything falls into the guidelines that they would expect in the Eastlake ordinance.

Mr. Miller asked if the county recommended this ordinance to the City of Eastlake as an applicable ordinance, and if other cities are adopting the same ordinance or adopting variances to the languages dependent upon location.

Mr. Alvarado stated that other cities have followed very closely to the Eastlake ordinance. The class will come back to the committee with information as to any diversions from the model.

Mr. Miller asked if it is common for municipalities to adopt both solar and wind energy ordinances simultaneously the way the City of Eastlake adopted both on the same day. Mr. Alvarado stated that the city of Eastlake did that because they had the model ordinances from the Chagrin River Watershed Partners, Inc. and decided to go forward with both. He will find out why they did not adopt a geo-thermal ordinance. The Chagrin River Watershed Partners, Inc. draft ordinance talks about all three alternative sources of energy. From there, the city of Eastlake pulled out separate ordinances for solar energy and wind energy.

The Chagrin River Watershed Partners draft was based on national models but were the first in northeast Ohio to put forth a model ordinance for their member communities to adopt. They added this to their main venue of services in the area of storm water management because this is something their member communities were seeking, specifically Eastlake, Chardon, and Munson Township.

Mr. Pohlkamp stated that outside of the municipal buildings and the school buildings in the city of Bay Village, Heinen's Grocery Store has a very large roof and it would be interesting to know if there are private/public partnership situations like sharing a solar array with Heinen's on their roof. Mr. Alvarado stated that typically what he sees is that businesses with large roof tops are often approached by private businesses, solar energy firms, that will enter into a contract to provide energy to the business at a discounted rate from what they would purchase from First Energy. In turn they would be able to generate more energy on the roof top than the business would need and they would be able to sell the excess energy back to the utility, or recoup the capital cost of putting up the solar array in exchange for a twenty or thirty year contract to provide the power. This is seen more in the City of Toledo given that they have a lot of concentration of solar energy enterprises.

Mr. Pohlkamp noted that the Eastlake ordinance spells out the maximum height off the ground of an array as twelve feet, buffering six feet and a roof top installation projecting no more than five feet. This is typically an aesthetic and safety issue. The five feet extension cannot be seen from the road. It is rare to have a ground based array system, other than farm based.

Mr. Miller stated that the different type of solar systems talk about water heating for use in buildings, water heating for space heating and solar pool heating. He noted that in Bay Village there is an ordinance prohibiting above ground pools. He asked if there is ever discussion about how the components for those systems are housed so that other pieces are not added to the property. Mr. Alvarado stated that those systems would fit under existing regulations governing outdoor tool sheds. The tanks tend to replace the existing water tanks and fit within the home.

Mr. Pohlkamp noted that the solar ordinance will be much easier for the city to pass. He suggested prioritizing the solar energy and putting that through in the next couple of months before addressing the wind energy ordinance. The project for this class is through at the end of April. The instructor does not expect a full set of ordinances passed when the project is finished, but to put together a playbook that the city would be able to follow to move toward passage of the ordinance and implementation of the programs.

Mr. Pohlkamp suggested that being able to submit proposed drafts to the Law Department would be a reasonable objective. Mr. Alvarado stated that being able to glean information from the Law Department of the City of Eastlake as to any issues they may have identified during their review would also be helpful.

Next Steps and Concluding Remarks

Mr. Jeffers stated that the next steps include:

- Prioritizing solar energy
- Reviewing geo-thermal energy to determine if it is being addressed now
- Contacting Eastlake specifically and other cities that have these ordinances to see what complications, if any, they have encountered and what advice they would have
- Contacting municipalities that have successfully implemented solar energy with evidence that this is something that Bay Village should move toward having in place
- Best Practices comparison with a lakefront community with similar residential densities

Meeting adjourned at 4:55 p.m. The next meeting will be held within the next two to four weeks.

Clete Miller, Chairman

Joan Kemper, Secretary