

VIII. Utilities and Community Facilities

Per Wisconsin Statutes 66.1001(2)(d), the utilities and community facilities element of a comprehensive plan is “a compilation of objectives, policies, goals, maps and programs to guide the future development of utilities and community facilities in the local governmental unit such as sanitary sewer service, storm water management, water supply, solid waste disposal, on-site wastewater treatment technologies, recycling facilities, parks, telecommunications facilities, power-generating plants and transmission lines, cemeteries, health care facilities, child care facilities and other public facilities, such as police, fire, and rescue facilities, libraries, schools and other governmental facilities. The element shall describe the location, use and capacity of existing public utilities and community facilities that serve the local governmental unit, shall include an approximate timetable that forecasts the need in the local governmental unit to expand or rehabilitate existing utilities and facilities or to create new utilities and facilities and shall assess future needs for government services in the local governmental unit that are related to such utilities and facilities.”

Utilities and Community Facilities: Summary of Existing Conditions

Please see Appendix 8 for resources regarding the utilities and community facilities element of the plan.

The Town of Baileys Harbor has primarily invested in community facilities specifically relating to governmental functions, community safety (fire and police protection), and the purchase of community recreation areas and parks. Other facilities such as medical care, childcare, and schools, which typically serve multiple communities, are available in neighboring municipalities.

Utilities, except for sewer service, are provided by outside companies. Given current population levels, most companies have been reticent to invest in technological upgrades to existing systems.

Note: The 2005 Land Use Inventory and Resources map found following Chapter X depicts the town hall/library/office building, the fire station, town and county parks, the town marina, public off-street parking areas, cemeteries, the sewer plant, and the Verizon telephone company switching station.

Sewer and Water

With approximately seven miles of pipe in service, the Baileys Harbor Sewer System serves the downtown area, Ridges Road, and south of downtown along the lakeshore. There are seven lift stations: one on Chapel Lane, one on Frogtown Road, one on State Highway 57, and four along Ridges Road. The overall capacity of the treatment plant, located on Summit Road, is 212,000 gallons per day (gpd). Presently, it is operating at approximately 100,000 gpd in the summer months and averaging about 40,000 gpd in the winter months.

When the sewer system was installed, plans were made for future expansions. These include expansion and installation of sewer along County Road F, Bluff Road, Summit Road, County Road E, north on State Highway 57 to County Q, and Sun Plaza. These proposed expansions are considered to be more than adequate to accommodate growth over the 20-year planning period. The Baileys Harbor Sewer Commission and the Town

of Baileys Harbor are responsible for oversight and expansion of the sewer system within WisDNR guidelines.

A map of the existing sewer lines and proposed expansion areas may be found following Chapter X.

There is no municipal water supply. All residents and businesses rely on private wells.

Private On-Site Wastewater Treatment Systems (POWTS)

Individuals and businesses in the Town of Baileys Harbor not served by the sewer system use private on-site wastewater treatment systems. These systems include a combination of holding tanks, conventional septic systems, mound systems, in-ground pressure systems, at-grade systems, or sand filter systems.

Soil and bedrock conditions on a property determine which type of system is suitable. The Door County Sanitarian Department verifies private soil tests, issues sanitary system installation permits, verifies evaluations of existing private sanitary systems, and enforces orders concerning system upgrade or replacement.

Storm Water Management

The Town of Baileys Harbor allows storm water to drain through a series of ditches and culverts along the majority of town roads and county highways. The downtown area is served by a series of storm water drains, most of which flow into Lake Michigan.

Solid Waste and Recycling Facilities

Residential and commercial refuse pick-up and disposal are provided only by private contractors; residents and business owners must contract on an individual basis for these services. The town itself has a contract with an independent contractor for recycling services; free recycling drop-off is therefore available to residents on the second and fourth Saturdays of the month from 10 a.m. to 1 p.m. at Recreation Park.

Telecommunications

Residential and commercial telephone service is provided by Verizon Communications via a GTD5 electronic digital switch. The sole switching station serving the town is located near the Town Hall. At this time, there are no redundancy capabilities in land-based phone service. Local (Sister Bay-based) employees are available for service installation and maintenance.

Cellular phone service is available to residents through Cellcom, US Cellular, and other national service providers.

Internet access is available to residents through independent service providers. Only dial-up and satellite Internet connections are available. None of Baileys Harbor has access to cable service at this time.

Electrical Services

The American Transmission Company is responsible for the maintenance of the main and only transmission line from Green Bay to Sturgeon Bay. Electrical service to Baileys Harbor, which is dependent on this line as well as on the only line from Sturgeon Bay north, is provided by a substation on County E. Currently there are no redundancy

capabilities (i.e. secondary or back-up line) on the major transmission line from Green Bay to Sturgeon Bay or from Sturgeon Bay north.

Wisconsin Public Service (WPS) provides electrical service to residential and commercial clients in the Town of Baileys Harbor and is responsible for maintaining power lines in the town. Most of the Baileys Harbor area has been upgraded to a higher-capacity 24.9 kilovolt (KV) system, although there are still some areas of the town operating at 12KV.

Cemeteries

There two cemeteries in the Town of Baileys Harbor; they are immediately adjacent and are located on County Road EE. The cemeteries are owned by the town and St. Mary's of the Lake Catholic Church in Baileys Harbor. Recently, the town purchased an adjacent strip of land to accommodate future expansion.

Police

Police protection is provided by the Door County Sheriff's Department, with assistance from two Town Constables who are elected by town voters and paid by the Town of Baileys Harbor.

Fire Protection

The town is protected by a 26-member "paid by call" volunteer fire department. Members all carry a pager unit capable of receiving calls from the 911 dispatch center at the Door County Communications Center. All members of the fire department receive regular training, either in-house or through Northeast Wisconsin Technical College. The Baileys Harbor Fire Department is a signor to the Mid-Door Enhanced Fire Response Agreement, allowing Baileys Harbor, Ephraim, Liberty Grove, Gibraltar, Egg Harbor, and Jacksonport to provide additional water and manpower to one another when necessary.

The fire department is housed in a facility located across from the Town Hall, on Park Street. The fire department owns the following equipment:

- 2000 Freightliner Tanker, 3100 gallon tank
- 1996 Freightliner Tanker, 2100 gallon tank
- 1993 Seagrave Pumper, 750 gallon tank, 1250 gallons/minute
- 1980 Ford Pumper, 500 gallon tank, 750 gallons/minute
- 1978 Ford Brush Truck, 250 gallon tank

Fire department adequacy is evaluated by the Insurance Service Office (ISO) through the use of the Grading Schedule for Municipal Fire Protection. This schedule provides criteria to be used by insurance grading engineers in classifying the fire defenses and physical conditions of municipalities. These gradings are in turn used throughout the U.S. in establishing base rates for fire insurance. Although these gradings do not directly dictate what, if any, improvements or changes should be made, they are generally accepted as an effective planning tool for municipalities. The grading is obtained by ISO based upon their analysis of several components of fire protection, including:

- Fire department equipment
- Alarm systems
- Water supply system
- Fire prevention programs

- Building construction
- Distance of potential hazard areas from a fire station

In rating a community, total deficiency points in the areas of evaluation are used to assign a numerical rating of one to ten, with one representing the best protection and ten representing an unprotected community. In 2001, Baileys Harbor received a rating of 8-9.

Emergency/Rescue Services

In northern Door, ambulance and emergency medical service are provided by a Door County Emergency Services rescue squad headquartered at the Sister Bay fire station on Mill Road. The squad consists of two ambulances, seven paramedics, and three volunteer EMTs serving Sister Bay, Liberty Grove, Gibraltar, Baileys Harbor, and portions of Jacksonport and Egg Harbor. The rescue squad responds to approximately 600 calls per year. The Northern Door First Responders, a twenty-four member volunteer group equipped with defibrillators, oxygen, and first-aid supplies, supports and assists county emergency personnel. They respond to between 120 and 200 calls per year.

Libraries

The McArdle Library, located in an addition to the Baileys Harbor Town Hall, is one of seven branches of the Door County Public Library System and a member of the Nicolet Federated Library System. The town is responsible for maintenance of the building. The building addition housing the library was completed in 1997 and provides space for the library and one meeting room.

Government Buildings

Baileys Harbor Town Hall

The Town Hall is an 8,500 square-foot structure located at the north end of the downtown area on State Highway 57 at the intersection of County Road F. The building was built in 1937 and remodeled in 1997. All of Baileys Harbor's administrative facilities are housed in the Town Hall. The facility provides meeting rooms; an auditorium; office space for the Town Clerk, Town Treasurer and Town Building Inspector; records storage; and the McArdle Library.

Fire Station and Town Maintenance Shop

The Baileys Harbor Fire Station and Town Maintenance Shop building is a 4,270 square-foot single level structure located approximately 300 feet northwest of the Town Hall on Park Street. The Fire Station site includes parking for approximately 14 vehicles. A second parking lot immediately to the west of the building provides event overflow and boat trailer parking, accommodating 50 single vehicles.

Baileys Harbor Town Marina

The Baileys Harbor Town Marina was built in 2000 and provides seasonal boat docking, transient docking, boat launching facilities, gas, and pump-out services. The marina is protected by a 450-foot break wall and provides five feet of draft throughout the marina harbor. There are 25-foot, 32-foot, 36-foot, and 40-foot slips. Of the 45 boat slips, 32 are seasonal, 8 are reservation transient, and 5 are open on a first-come first-served basis.

Utilities and Community Facilities Issues

A number of issues related to utilities and community facilities arose during the public participation activities of the 2010 Plan Amendment process, including:

- Lack of adequate cellular coverage, cable television, and high-speed internet/broadband access
- Expansion of the library
- Additional needs related to senior services
- Utilize alternative wastewater treatment (for new development) to protect and preserve ground and surface waters

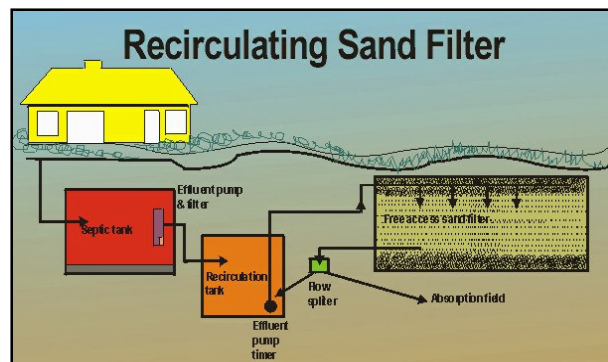
Wastewater Treatment

Wastewater treatment in areas outside the Baileys Harbor Sewer System is accommodated with private on-site wastewater treatment systems (POWTS). These systems must comply with the state plumbing code (COMM 83), to ensure that they do not threaten groundwater resources and to keep each permitted system functioning properly over the course of its lifetime. However, studies have indicated that even properly-designed and maintained conventional on-site systems pose a threat to ground water, particularly when located in areas dominated by Karst geology.

The cost of expanding the current sewer system to accommodate the entire Town is not practical given the scattered development located within Baileys Harbor. However, clustered, alternative sanitary facilities can provide an environmentally friendly wastewater treatment system at a fraction of the cost of on-site systems. Options for clustered sanitary systems for future development include recirculating sand filters, constructed wetlands and The Living Machine System, among others. A brief description of these systems is provided below.

Re-circulating Sand/Gravel Filters

Re-circulating sand/gravel filters (RS/GF) offer an economically viable, more environmentally benign alternative to conventional drain field-based treatment systems. The basic components of a RS/GF system include a septic tank, recirculation tank, and sand or gravel filter. Water discharged from the system far exceeds the quality of a conventional system, and at a fraction of the price. RS/GFs have been in use for more than a century and are a permitted alternative to septic tanks and mound systems.



Source: ToolBase Services, 2005.

Constructed Wetlands

Constructed wetlands have been used as effective wastewater treatment systems for more than 30 years. They have become the dominant treatment system for communities

in the Minneapolis, Minn., metropolitan region not served by municipal wastewater treatment. Although there are a variety of wetland-based systems used to treat effluent, the most common is a subsurface flow wetland. Subsurface flow wetlands utilize an anaerobic reactor (septic tank) for pretreatment followed by a forced-bed aeration system and wetland treatment cells. Constructed wetlands are designed to achieve tertiary treatment at a fraction of the cost of a municipal system. They become cost effective at the small scale when treating effluent from eight or more homes.



Source: North American Wetlands Engineering, 2004.

Living Machines®

Living Machines are a patented wastewater treatment system that is growing in popularity around the world. They entail a linked system of tanks teeming with live plants, trees, grasses, algae, fish, shrimp, snails and a diversity of microorganisms and bacteria. Each tank is a mini-ecosystem designed to eat or break down waste. The process takes about four days to turn wastewater crystal clear. It is chemical-free, odor-free and, compared to conventional wastewater treatment, costs less financially and ecologically¹. Living Machines are permitted systems in Wisconsin and are currently in use at the Conserve School in Land O' Lakes, at Cedar Grove Cheese Factory in Cedar Grove and at Edgewood College in Madison.



Source: Living Machines, Inc., 2001.

When new residential and commercial development is proposed for outside of the current sewer service boundary, the Town will encourage the use of alternative wastewater treatment systems to improve and enhance water quality in the community.

Alternative Energy Systems

Large-scale Wind Energy

With the rising cost of energy in the United States, capturing the wind has grown in prevalence as a source of alternative, renewable energy. Although it is a very cost-

¹ SOURCE: *The Living Machine*, Jeff Wolovitz, Penn State Department of Research and Policy, 2000.

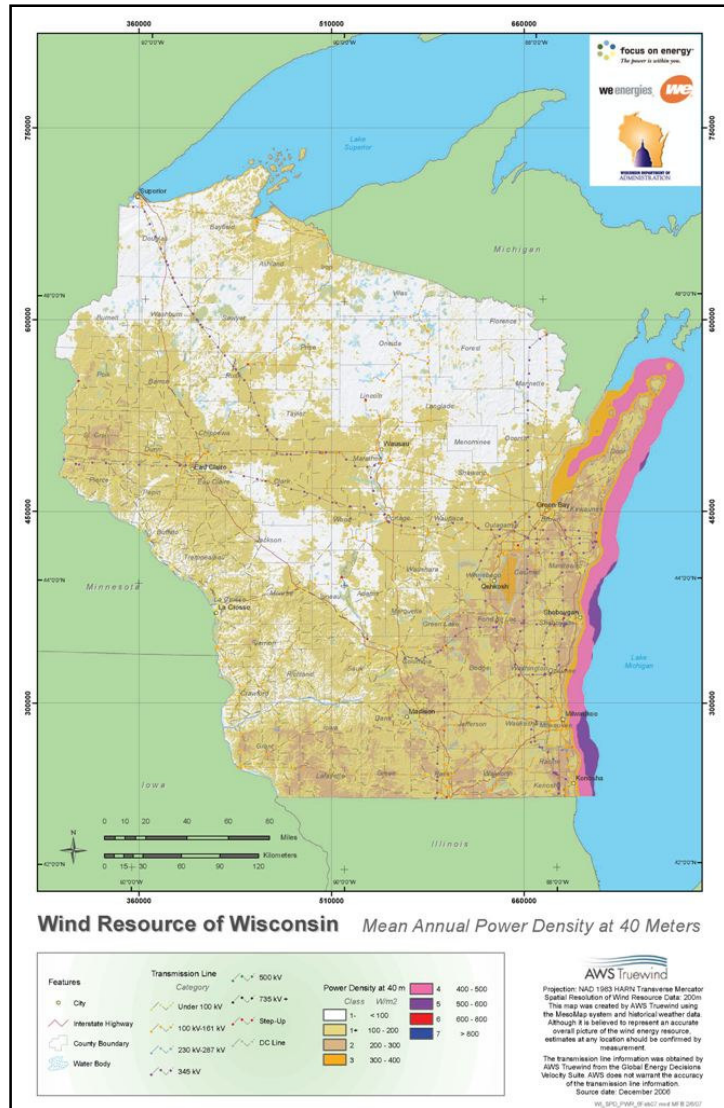
effective source of electricity, it has raised other concerns, particularly with respect to wildlife. Opponents of wind farms have argued that the rotating blades can disrupt, and even kill, certain bird and bat species. Studies conducted on the effect of wind turbines on bird and bat mortality have thus far shown minimal impacts. However, proponents believe that the greater benefit provided by this renewable energy source, given increased awareness of global climate issues, more than justifies its recent and future growth.

In 2007, Focus on Energy partnered with AWS Truewind to produce maps showing predicted long-term mean annual wind speed at 30, 40, 60, 70, and 100 meters above ground at a 200 meter resolution (see map on following page). Additionally, AWS Truewind produced an annual power map at 40 meters above ground with a 200 meter resolution.

These maps were produced by incorporating meteorological, topographic, and land cover data into a powerful computer simulation tool.² As the map below shows, Door County is located an area very conducive to wind energy. As such, it is reasonable to expect increasing, market-based demand for wind generated power facilities located within the County.

The installation of wind turbines in larger scale wind farm, should they be constructed, will result in benefits and challenges in Baileys Harbor. Challenges are largely focused on three aspects: visibility, noise and wildlife impacts.

1. Wind towers are highly visible. Modern wind turbines producing power on the megawatt scale typically stand 212-plus feet, with blade rotors of about 230-plus feet in diameter (up to 393 feet tall and 341 foot rotor diameters for the 3.6 MW



Source: *Wisconsin Wind Maps*, Focus on Energy, 2010.

² Excerpted from *Wisconsin Wind Maps*, <http://www.focusonenergy.com/information-center/renewables/wind-maps-data/>, 2010.

- turbine)³. Wind power plants consist of clusters or lines of turbines spread across hilltops, ridgelines or open stretches of water. Turbine view sheds, or distances within which the turbines can be readily seen, can reach five miles. A formal study conducted by the Renewable Energy Policy Project indicated that the wind turbines in Kewaunee County had no negative effect on the property values in the view shed, described as the 5-mile radius around the wind turbines⁴.
2. Wind power plants produce steady, low-volume noise caused by wind trailing off rotor blades and by the machinery driven by the turbines. The wind itself may mask any such noise produced by the turbine.
 3. Compared with other energy sources, wind has a modest impact on wildlife. It does not require the mining or transportation of fuel, nor does it produce air pollution or contribute to global warming. Wind installations do consume small amounts of land for each turbine footing and may alter wildlife behavior in the surrounding areas. Some species change their feeding, breeding and nesting habits within the immediate area of wind towers. In areas where the land is already used for intensive agriculture (i.e., row crops), the wildlife impact and habitat loss is minor. In more remote areas, the disruption from a wind farm will be more significant, if only from a visual perspective. Overall, wind power projects are responsible for one or two of every 10,000 bird collision-deaths in the country annually. Housecats, office buildings and patio doors each kill far more birds than wind turbines⁵.

The Governor's Task Force on Climate Change has undertaken research regarding the merits of locating wind farms off shore on Lake Michigan. The Radial Wind Farm, a facility to be located in the Mid Lake Plateau region of Lake Michigan is in the planning stages. If constructed, it will be the world's largest wind energy producers. Similar such facilities are currently under review on the Chesapeake Bay and already under construction off Cape Cod in Massachusetts. Whether opposed to or in general support of large wind farms, the community must prepare for a growing demand by energy companies for increased electrical capacity, particularly wind power.

Personal Energy Systems

As energy costs have risen during the past decade, more Americans are utilizing personal energy systems to reduce costs associated with electricity, heating, and cooling. In addition, state and federal tax incentives have reduced the total costs of these systems making them available to a greater percentage of users. Personal energy systems include photo-voltaic solar, solar thermal, small wind, geothermal, and wood-fired boilers, among others.

The Wisconsin Solar and Wind Access Law (66.0401, State Stats.), defines how local governments are permitted to regulate solar and wind energy systems. These laws cover zoning restrictions by local governments, private land use restrictions, and system owner rights to unobstructed access to resources. The state's original laws, enacted in

³ Source: General Electric

⁴ Source: Renewable Energy Policy Project, *The Effect of Wind Development on Local Property Values*, 2003.

⁵ Source: Wallace Erickson, et. al., *Avian Collisions with Wind Turbines: A Summary of Existing Studies and Comparison to Other Sources of Avian Collision Mortality in the United States*, National Wind Coordinating Committee, August 2001.

1982, have subsequently been amended and expanded numerous times. Under the law, counties, towns, villages, and cities may not place any restriction on the installation or use of solar or wind energy systems unless the restriction:

- Serves to preserve or protect public health or safety
- Does not significantly increase the cost of the system or decrease its efficiency
- Allows for an alternative system of comparable cost and efficiency

The law effectively prohibits unreasonable public land use controls covering solar and wind energy systems by defining a fairly narrow set of "reasonable" conditions. The law subsequently allows for a local permitting procedure for guaranteeing unobstructed access to wind or solar resources. A permit will not be granted if obstruction already exists or if the construction of such an obstruction is already well into the planning stages.⁶

The Door County Zoning Ordinance does not currently regulate personal energy systems.

Climate Action Planning

Wisconsin Initiative on Climate Change

The Wisconsin Initiative on Climate Change Impacts (WICCI) is a statewide collaboration that brings scientists and stakeholders together to find adaptation strategies to the potential impacts of climate change in our state. Adaptation will be the key to reducing the negative impacts of climate change and capitalizing on opportunities that develop. And adaptation will be critical in coming years. Even as we work to reduce emissions of greenhouse gases that are driving climate change, momentum already in the climate system guarantees that we will see significant warming, changes in precipitation patterns and snow cover, and increases in the frequency and intensity of extreme weather events. Many changes are already being observed.

WICCI is designed to investigate potential climate change impacts on specific natural resources, ecosystems, economic activities, and regions. It will evaluate risks and vulnerabilities in each of these areas and develop strategies for adaptation that can be used in natural resource management, municipal decision making, economic development, public health, and other critical components of Wisconsin's quality of life.

Local Climate Action Plan⁷

Programs and policies to mitigate climate change and advance clean energy—energy efficiency, renewable energy, and combined heat and power—can provide multiple benefits to state and local governments and their constituents. In addition to reducing greenhouse gas emissions, these policies can:

- Increase energy security and reliability

⁶ Excerpted from *DSIRE: Database of State Incentives for Renewables and Efficiency*, www.dsireusa.org, 2010.

⁷ Excerpted from *State and Local Climate and Energy Program*, United States Environmental Protection Agency, <http://www.epa.gov/statelocalclimate/basic-info/index.html>, 2010.

- Reduce air pollution
- Promote economic development
- Improve public health and quality of life

Local governments have an important role to play in advancing clean energy and reducing greenhouse gas emissions that contribute to climate change. Governments can lead by example by implementing programs within their own buildings and operations that reduce greenhouse gas emissions and save energy and money. They can also implement policies to increase clean energy and reduce greenhouse gases across numerous areas, such as:

- Energy efficiency
- Heat islands
- Land use
- Renewable energy
- Transportation
- Waste management
- Water and wastewater treatment

Local governments also possess the regulatory authority necessary for mitigating greenhouse gases that cause climate change through policies and ordinances regulating:

- Land use (zoning and land division)
- Building codes
- Transportation policy
- Open space and agricultural preservation

Sustainable Development and Green Building Design

Another way for communities to increase efficiency and differentiating themselves from surrounding communities is to work to implement sustainable development practices and green building design. There are several avenues available to local government to increase sustainability, maintain services, and grown with minimal impact upon the environment. These avenues can take place on an individual or community level and include:

- Construction. Using renewable building materials as much as possible (including lumber certified by the Forest Stewardship Council), diverting construction waste from landfills for recycling and/or reuse, recycling furniture and appliances, buying locally manufactured products, controlling construction site runoff, and maintaining healthy air quality during construction.
- Energy. Purchase renewable energy from utilities such as through the Nature Wise Program with Wisconsin Public Service Corporation, install fluorescent fixtures and light sensitive switches, purchase Energy Star products, insulate buildings properly, maintain a slightly warmer temperature in the summer and slightly cooler temperature in the winter.

- Transportation. Car pool, utilize public and alternative transit when possible, consolidate trips, drive a fuel-efficient vehicle, have tires properly inflated and vehicles properly maintained.
- Stormwater / water quality. Preserve wetlands, do not build in the floodplain, preserve drainage swales and low-lying areas as well as aquifer recharge zones, minimize application of chemicals to lawns and crops, minimize impervious surface area and runoff (possibly install pervious pavements), install biofiltration buffer strips in large parking lots, and include rain gardens as a requirement for all new development.
- Parks and natural areas. Preserve open space and natural areas.
- Purchasing. Buy environmentally friendly products. These include cleaners, paints, furniture, carpeting etc. that have been certified by organizations such as Green Seal, Green Guard Environmental Institute etc. or received the Energy Star rating.
- Implementation. Research opportunities for the community and municipal government to implement sustainable initiatives.

During construction and renovation projects, architects and builders have an opportunity to increase the efficiency of the building and minimize the impact on the environment. In the U.S., buildings account for roughly 33% of total energy usage, about 66% of our electricity, and over 12% of water consumption, not to mention the fact that they transform the land from open and natural area to impervious surface.

Leadership in Energy and Environmental Design (LEED)

Leadership in Energy and Environmental Design, or LEED, is a mechanism for the evaluation and certification of buildings that strive to maximize the efficiency of the building while minimizing its impact on the environment. These designs also work to make the building healthier for its inhabitants than regular standards call for. The LEED “green building” rating system allots points for achieving goals as set out by LEED. The program is voluntary, market-driven, and based on accepted energy and environmental principles that strike a balance between established practices and emerging concepts. Buildings become certified once they earn 21 points but earn higher ratings as they increase their total.

By undertaking sustainability initiatives and instituting green building design when possible, Baileys Harbor may lessen its impact on the environment and become a more energy efficient community. The Town would be recognized for a commitment to environmental issues, receive positive publicity, and potentially qualify for a growing array of state and local government funding and program initiatives.

Utilities and Community Facilities: Vision Statement

Baileys Harbor desires to continue as a healthy, progressive, and caring town that celebrates the past and has adequate facilities and services to support well-planned growth, while maintaining rural and small-town life quality. Community services and facilities shall maintain their functionality, address the needs of the town’s diversified population, and adapt and change in anticipation of community growth. Services include

programs that promote a neighborly atmosphere, the town as a safe place to live, and reflect the concerns of individuals and families in the community as well as visitors to the area.

Utilities and Community Facilities: Goals, Objectives, and Policies

The goals, objectives, and policies related to Utilities & Community Facilities in the Town of Baileys Harbor can be found in *Chapter X: Implementation*.