

Appendices

Appendix A

Public Participation

Sustainability Survey

In total, the Village of Elm Grove Sustainability Interest Survey received 368 responses

Nearly all who participated in the survey were residents of Elm Grove, with 95.7% responding that they resided in the Village. Nearly half of this resident group said they had lived in the village for 20 years or longer. Those taking the survey tended to be between the ages of 40 and 79, which reflects a high concentration of individuals between these ages being present in the village (3,039 per ACS 2023). Homeowners represented an even larger portion of survey respondents than are present in the village. About 88% of Elm Grove residents are homeowners while 93% of survey respondents reside in houses.

In the responses to the survey, sentiments on sustainability and Village initiatives can be analyzed to facilitate best management strategies that align with resident's values. Almost 60% of the respondents strongly agree that sustainability is important to them and identified priorities for the Village to pursue over the next 5 years. Strategies that participants tended to prefer included: adding bicycle and pedestrian infrastructure to the Village roadways (58%), promoting programs that increase energy efficiency and reduce energy costs (51%), and improving Village energy resilience during extreme weather (44%).

When asked if they had heard of ongoing initiatives in the Village, survey takers were most familiar with the village's designation as a Bird City (84% saying they had heard of it), No Mow May (81%), and Annual Recycling Day (76.1%). The Winter Lecture Series was known by only 34% of respondents. The trash audit and plastic bag reduction showed similarly low exposure. Important marketing strategies can be taken from this data to promote initiatives that residents generally are not aware of. Efforts to promote Bird City and other well-known initiatives are shown to be sufficient. Additionally, residents frequently ranked fiscally responsible municipal operations as an aspect of sustainability with high importance to them.

When asked to describe their willingness to contribute to sustainability through multiple choice options, participants were less strongly in support of monetary related support. Making donations and allocating village tax revenue was

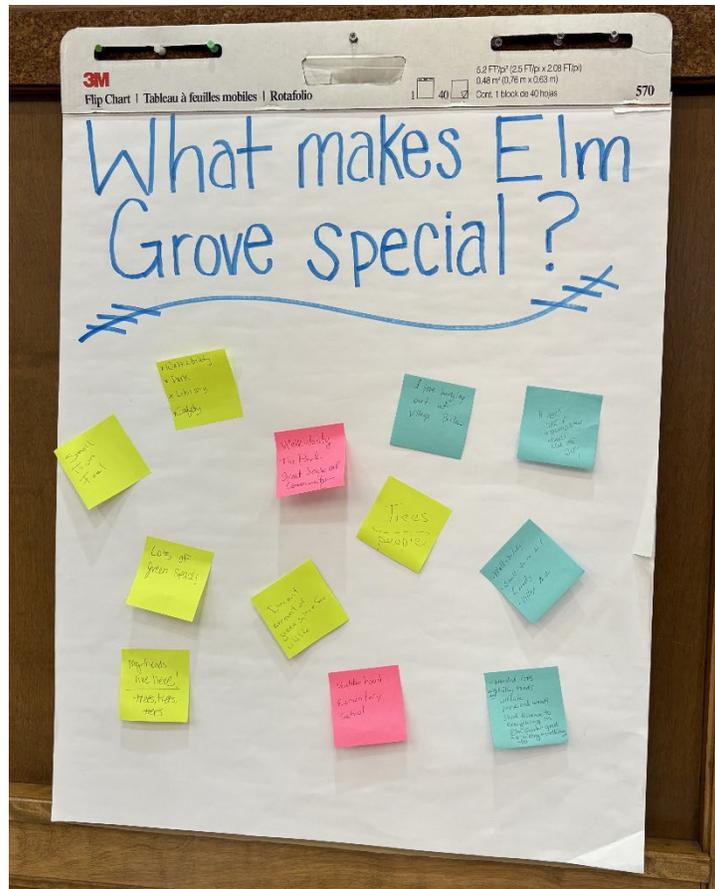
selected by less than half of the survey takers. Changing personal habits was the most common response, with nearly 80% of respondents choosing this. Along with this, sharing information was a contribution that over half of respondents said they were willing to offer. Generally, those who took the survey felt some level of willingness to participate, with about 93% selecting at least one option.

When asked about what sustainability means too them, residents heavily favored recycling and waste reduction (142 response), improving air and water quality (80 responses) and native plants and green infrastructure (80 responses). These define the survey takers' initial understanding of sustainability.

For write-in response opportunities, a number of common themes emerged across participants. These responses can be categorized into themes supporting topics like garbage and litter, EV charging, building efficiency, changing lawn care and pesticide practices, dark sky initiatives, as well as other topics.

Village of Elm Grove Sustainability Focus Group

The Elm Grove Sustainability Team hosted a focus group event at Village Hall on April 9th, from 6:00 PM - 7:30 PM. There were a total of 14 attendees present along with the UWM team leading the event. Participants gathered from both the community advocates and municipal representatives. As an ice breaker for the people attending the focus group, they were asked "What makes Elm Grove special?" Answers were written on sticky notes, the theme of most responses related to parks, trees, wildlife, and walkability.



The UWM team started with a 20-minute-long presentation that previewed initial research completed on case studies, preliminary results of the community survey, which received over 360 responses, and provided an overview of the alternatives that will be discussed in the breakout sessions.

There were two breakout groups as part of the focus group. The first group consisted of community advocates and the second group included municipal staff, elected officials, and Sustainability Committee members. Following the breakout groups, one attendee from each group provided a summary of key talking points and takeaways for a larger group discussion. The UWM team closed out the focus group with final remarks, next steps, and appreciation for the attendees taking time out of their busy days to discuss sustainability in Elm Grove.



Municipal Actions

Overview:

The Municipal Actions Focus Group discussed the following topic areas:

1. Evaluating the effectiveness of implementing ordinances that require or regulate sustainable practices, versus relying on educational efforts that encourage voluntary adoption by residents.
2. Cost efficiency and upgrades through municipal lighting.
3. Water quality issues with Underwood Creek and the hydrologically connected stormwater pond and fertilizer use.

Within these three topics, several themes emerged:

- There was a strong emphasis on the Village leading by example while providing educational resources to encourage residents to engage in sustainable practices.
- Identify low hanging fruit and easy wins for the village to achieve in the sustainability plan.
- The Village has begun efforts to replace lighting with energy efficient LEDs within municipal buildings and could expand on this effort easily.
- Outdoor lighting upgrades would require a larger investment.

- The Village of Elm Grove strives to become a pioneer community for sustainability.

Alternative Feedback:

For the alternatives discussed, Village planning efforts should consider the following points.

Draft and pass ordinances that contribute to Village sustainability and clarify what is permitted

The main questions asked here were:

- What comes first, ordinance changes or educational materials for residents?
- Do we require items by ordinance, or should we just be providing suggestions and preferences to residents? The Village could implement sustainable initiatives as a requirement on village facilities and lead by example to show residents what they could do on their own property.

Takeaways:

1. Village staff were reluctant to adopt regulatory ordinances for village residents.
2. Village staff did not feel it necessary to explicitly state permissible actions, such as the installation of solar arrays.
3. Village staff were enthusiastic about having educational materials or guides available for residents, the building board, and contractors to encourage adopting sustainable practices on private property.
4. Village staff were receptive to holding municipal operations to a higher standard and leading by example.

Update Village facilities to increase energy efficiency

The village completed an energy audit in 2019 and replaced the lights at Village Hall with LEDs. Upgrading the exterior lighting at Village Hall would pose some challenges but also is feasible. There was also discussion about the tennis court lighting which would be expensive to replace.

- Current lighting is outdated, and some do not work on the property. This is an opportunity.

- By updating this – it will show residents that this is a priority for the village. It may help other residents follow with updates.
- Cudahy put one solar light at their city hall as a test – it was about \$5,000 per pole with the fixture.

Takeaways:

1. Expanding indoor lighting upgrades to other municipal buildings would be fairly easy. It was acknowledged that the cost savings for the upgraded LED lighting was minimal.
2. The light fixtures in the parking lots around the village hall are out of date. New conduits would need to be run to upgrade them to LED, which would be costly.
3. Alternatively, the village expressed interest in solar powered poles, minimizing the need for new conduit.

Sustainable Downtown Development:

1. Village staff expressed interest in incentivizing sustainable development without implementing restrictive requirements.
2. Consider constructing redevelopment to the standards of sustainable certifications like LEED.
3. The Comprehensive Outdoor Recreation Plan includes wayfinding as a recommendation for passive education opportunities.

Incorporate green infrastructure to manage stormwater

There is currently a rain garden in the Village as well as a retention pond at Veterans Park.

1. Strategic implementation of green infrastructure to mitigate runoff into Underwood Creek and the stormwater pond.
2. Concern over maintenance and potential aesthetic issues if garbage collects in bioswales.
3. There was interest, however it seems the village is unclear how green infrastructure could best be implemented.
4. The infrastructure is outdated in comparison to modern standards. The study was completed 25 years ago, with the document identifying that it should be updated every ten years.

The focus group expressed high concern for the water quality in the Village and surrounding area. There needs to be more education for residents on reducing

the amount of fertilizer used. The group agreed that they should look and evaluate pesticide and fertilizer use for the Village.

- This is a high priority for residents in the village according to Tom Castile.
- The biggest concern last year from residents was the algae bloom in the Village Park.
- The Village is potentially going to work with the UWM School of Freshwater Science to get some testing done on the water. They are going to look at the dissolved oxygen levels in the water as well as the phosphorus levels.
- Underwood Creek got an "F" grading from the Riverkeeper.
- There are two times a year when there are high levels of phosphorus in the water – June and March.

Composting as a cost efficiency

The Village pays by the tonnage for trash removal. The trash audit that was completed shows just how much food waste there is and the cost inefficiency. The Village also pays for grass clippings and leaves to get taken away, there is a larger opportunity here to reduce cost for the Village and reduce the amount of waste going to the landfill. There needs to be a lot of education around this and expansion of the program to reduce the amount the Village spends on trash.

Community Advocates

Overview:

The Community Advocates Focus Group discussed the following three topic areas:

1. Adding sustainability requirements for Downtown Redevelopment and Downtown Master Planning strategies
2. Improving outdoor classrooms at local schools to increase environmental awareness and education
3. Increasing energy resilience during extreme weather events

Within these three topics, several themes emerged:

- Intergenerational engagement. Specifically, adding ways for kids to be involved in sustainability programming to increase participation by young parents in the Village (age 30 to 40)

- Increasing sustainability education for residents through repeated exposure and engagement within the Village
- Balancing personal property rights with clear regulatory expectations for residents, property owners, and businesses
- Increasing philanthropic dollars invested into the Village of Elm Grove for specific sustainability initiatives, rather than increasing taxes or subsidizing the Village's budget
- The religious community in the Village of Elm Grove may be a potential partner for increasing education, participation, and demonstrating sustainable features

Alternative Feedback:

For the alternatives discussed, Village planning efforts should consider the following points.

Sustainable Downtown Development:

1. Downtown redevelopment has been a priority in Village planning efforts since 2000, and increased development is likely to accompany the Caroline Heights housing development.
2. Residents are more likely to support downtown redevelopment if they know what is expected of developers and those expectations align with residents' values
3. Reinvestment and redevelopment downtown is more likely if developers are provided clear regulations and understand what is expected of them, and these regulations are applied consistently.

Use example of Caroline Heights:

What sustainability measures is this development required to use?

Residents are concerned about stormwater management, outdoor lighting quality and bird safety, and energy use.

Additional considerations:

The group was undecided about whether sustainability practices should be required or incentivized/encouraged. One way to balance this uncertainty would be to require some sustainable features from developers and property owners, and to encourage practices from business owners/operators.

Outdoor Classrooms and Natural Learning Environments

1. Natural learning spaces can be a huge asset for students and teachers, but it is important to allow for flexible, creative use rather than creating curriculum requirements.

2. Current landscaping requirements by the Elmbrook School District do not currently seem to prohibit increasing natural and sustainable features (bioswales, prairie, rain gardens, wooded areas, pollinator gardens, etc.) on school property (*according to initial research following the focus group*). However, school district funding and priorities may not be compatible with these initiatives

3. Increasing kid's education related to sustainability and the natural environment may help increase families' involvement in sustainable practices within the Village.

4. The Tonawanda PTA, or partners at local religious schools, may be critical for supporting outdoor classroom and natural learning initiatives.

Additional considerations:

Tonawanda has a large property and classrooms with doors to the outside. The focus group identified Tonawanda principal as a potential partner in increasing natural learning opportunities. Additionally, the school already participates in a composting program, offers a Nature Club, and maintains "sustainability" as a key school priority. Opposition to increasing natural spaces on school grounds may come from parents/community members concerned about allergen or pest exposure. These projects will also increase the cost and labor of school yard maintenance, at least during initial development.

Energy resilience during extreme weather

1. Residents in the Village of Elm Grove are concerned about the impacts of severe weather
2. Impacts of concern include general power outage, with specific concerns about tree damage or downed trees and sump pump not operating
3. The current permitting process for home energy resilience features (solar panels, whole home generators) may create barriers for residents
4. Burying power lines from the pole to people's home may reduce risk of outage, but is expensive and is not currently required

Additional Considerations:

Some public improvements on private property are put in and assessed to residents' property taxes (ex: sidewalks). The Village could require line burial to reduce tree damage and maintenance costs, or to reduce emergency risk associated with down powerlines (electrified lines across public right of way, house fires, etc.) Tree preservation and maintenance may be a key argument for burying residential power lines, since trees are a key asset and priority of the community. It also costs the Village or property owner money to have trees trimmed or removed. Whole home generators cost thousands of dollars but so does burying power lines.

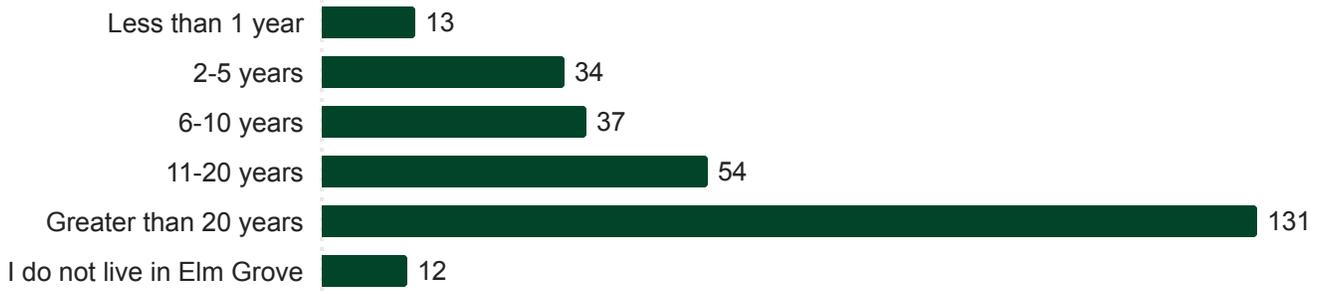
Providing clear and consistent policy around home energy facilities, including solar panels, generators, and battery storage, can allow the Village appropriate levels of regulation.

Additional alternatives can include advertising home energy products available through Focus on Energy, WE Energies, etc.

Feedback to incorporate into other alternatives:

- Residents are concerned about risks associated with home composting (ex: animals and odors), which indicates an opportunity for additional policy and education around composting OR providing alternatives, such as curbside pick-up or expanding the school composting program
- Sustainability events could utilize the Village's beer garden. Options include having a sustainability movie night there or having a sustainability person have regular "office hours" throughout the summer. An alternative location for sustainability programming could be the local playground.
- There is an opportunity to leverage student projects and initiatives in the Village, especially through the grade schools
- Consider creating a foundation or non-profit for philanthropic donations (people don't want to donate to the Village)
- A sustainability fellowship/internship position could be funded through philanthropy, if a local resident or family wanted to use this to benefit young professionals and leave their legacy
- Sustainability education, including Village marketing, may be key to increasing philanthropic support

Q1 - How long have you lived in Elm Grove?



■ Choice Count

Q3 - What is your age?



■ Choice Count

Q4 - Do you live in an apartment or house?



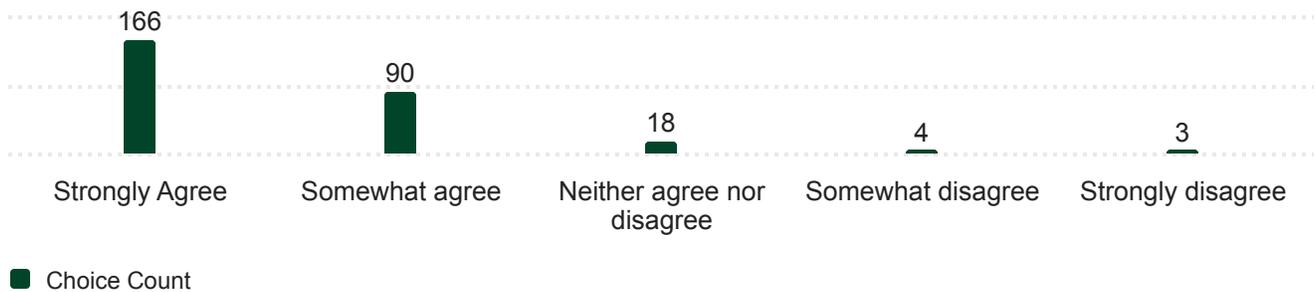
■ Choice Count

Sustainability Survey Results

Q5 - What does sustainability mean to you? (Select only top 3) - Selected Choice

Field	Choice Count
Other	17
Green economy	18
Outdoor recreation areas	28
Local and sustainable businesses	33
Reducing pesticide use	42
Clean energy	46
Walkability and transit	56
Energy efficiency	58
Stormwater management	65
Resource conservation	68
Natural resources and biodiversity	75
Improving air and water quality	80
Native plants and green infrastructure	80
Recycling and waste reduction	142

Q6 - Sustainability is important to me



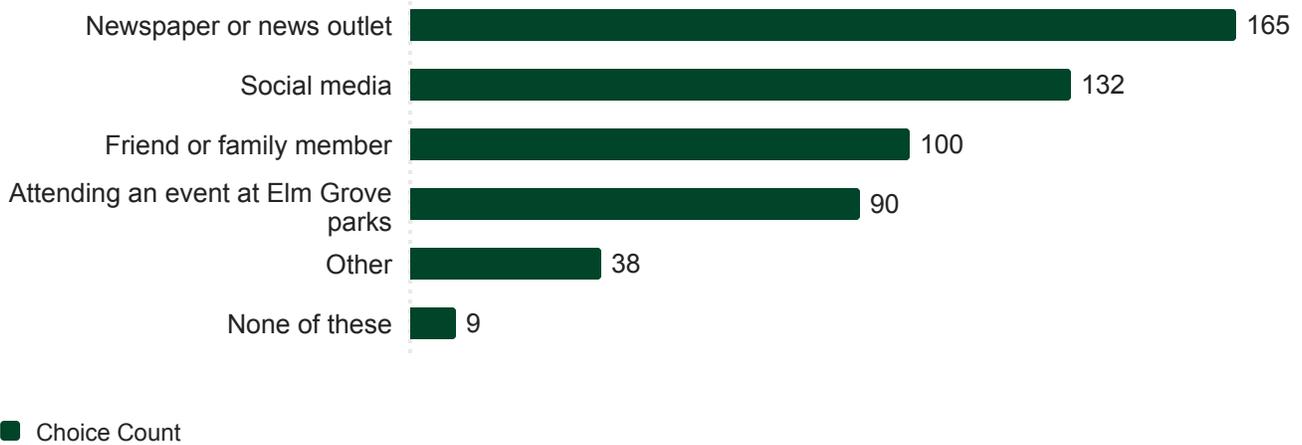
Sustainability Survey Results

Q7 - Check the Village of Elm Grove sustainability efforts you are aware of (Check all that apply) - Selected Choice

Field	Choice Count
None of these	5
Other	11
Trash audit	95
Winter lecture series	95
Plastic bag reduction	99
Lights Out Elm Grove	108
Pollinator Protection Program	115
Composting	140
Earth Day & Arbor Day Festival	150
Clothing and textile recycling	153
Bee City	161
Invasive Species Task Force	183
Native tree, plant, and shrub sale	211
Annual Recycling Day	213
No Mow May	228
Bird City	234

Sustainability Survey Results

Q11 - How did you learn of these sustainability efforts? (Select all that apply) - Selected Choice

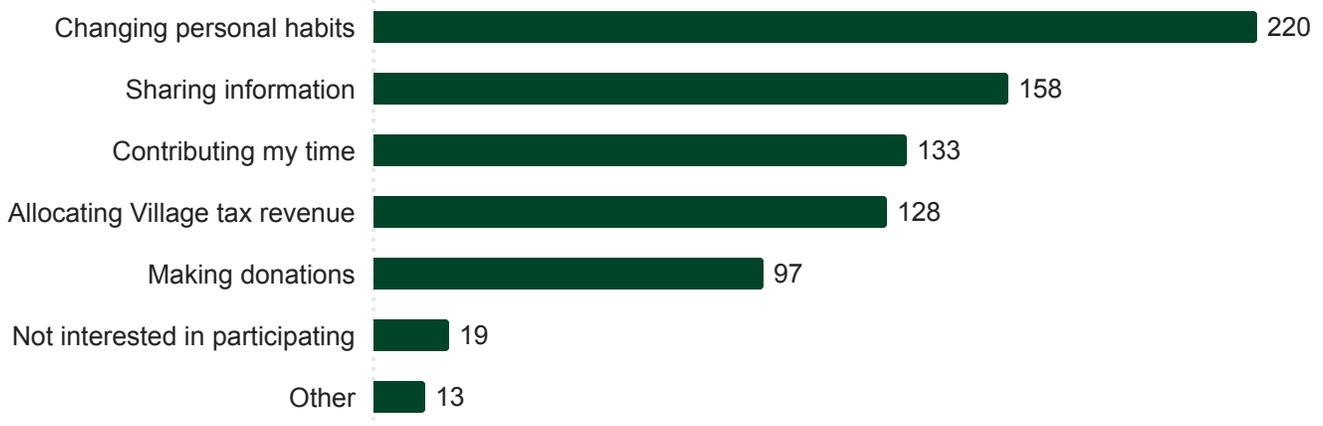


Q19 - Check the Village of Elm Grove sustainability efforts have you participated in? (Check all that apply) - Selected Choice

Field	Choice Count
Other	10
None of these	37
Winter lecture series	44
Invasive Species Task Force	49
Lights Out Elm Grove	61
Pollinator Protection Program	69
Earth Day & Arbor Day Festival	89
Plastic bag reduction	104
Composting	111
No Mow May	115
Native tree, plant, and shrub sale	118
Clothing and textile recycling	126
Annual Recycling Day	140

Sustainability Survey Results

Q12 - How would you describe your willingness to contribute to sustainability in the Village (Check all that apply) - Selected Choice



■ Choice Count

Q13_0_GROUP - Most important

Field	Choice Count
Opportunities for community engagement	3
Other	3
Beautification through art, placemaking, and planting	5
Future sustainable development	14
Active recreation opportunities	15
Reduced resource consumption	29
Reduced home energy cost	37
Fiscally efficient municipal operations	44
Preserved habitat and wildlife prosperity	64
Well-managed stormwater runoff and high quality surface water	65

Sustainability Survey Results

Q13_1_GROUP - Second most important

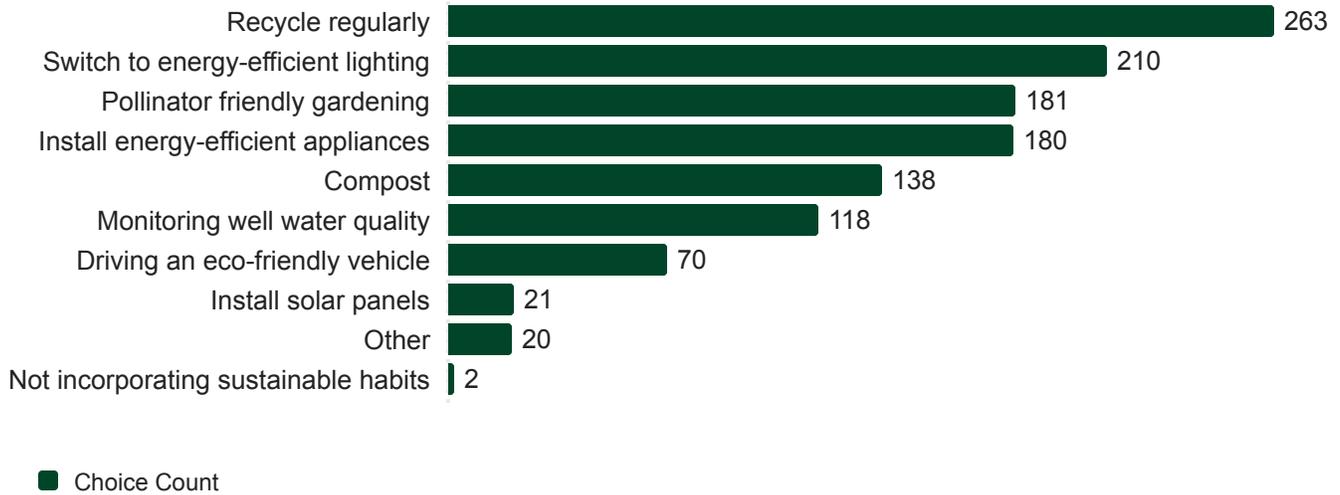
Field	Choice Count
Other	1
Active recreation opportunities	15
Opportunities for community engagement	18
Beautification through art, placemaking, and planting	25
Future sustainable development	27
Reduced resource consumption	28
Reduced home energy cost	29
Fiscally efficient municipal operations	31
Preserved habitat and wildlife prosperity	49
Well-managed stormwater runoff and high quality surface water	57

Q13_2_GROUP - Third most important

Field	Choice Count
Other	3
Active recreation opportunities	12
Opportunities for community engagement	12
Reduced home energy cost	15
Beautification through art, placemaking, and planting	22
Fiscally efficient municipal operations	35
Future sustainable development	37
Well-managed stormwater runoff and high quality surface water	43
Preserved habitat and wildlife prosperity	45
Reduced resource consumption	55

Sustainability Survey Results

Q14 - What sustainable habits have you incorporated into your lifestyle?
(Check all that apply) - Selected Choice



Q15 - What should Elm Grove's sustainability priorities be over the next five years? - Selected Choice

Field	Choice Count
Nothing, what they are doing now is sufficient.	15
Other	19
Achieve more sustainability recognition through Bird City, Bee City, and other community initiatives	39
Host more educational and engagement sustainability events in the Village.	77
Create more programs/resources for the monarch yards initiative, bee city, bird city, and other community initiatives/	83
Update ordinances to include sustainable practices.	95
Expand composting opportunities in Elm Grove	114
Add renewable energy infrastructure to municipal buildings and/or land.	117
Improve Village energy resilience during extreme weather.	122
Promote programs that increase energy efficiency and reduce energy costs.	143
Add bicycle and pedestrian infrastructure to the Village roadways/pathways.	162

Appendix B

Shorewood Case Study

Village of Shorewood Case Study Appendix

Background:

Population majority white and have a median age of 36.7 years old.

The median household income in the Village totals \$108,159 in a year.

Local residential land use consists of 48.9% low density residential, 4.1% medium density residential, and 0.9% high density residential.

Public Transit: Utilizes the Milwaukee County Transit System (MCTS) that includes 370 clean diesel buses. Specifically, the Green Line, Red Line, and the 14, as well as the Gold Line and the 30.

Bicycle Infrastructure: maintained its Silver status as a Bicycle Friendly Community in 2019.

Reference of Code:

Applicable to native vegetation use for landscaping.

§220-3: Landscaping, plantings and other decorative surface treatments, including common species of grass, shall be installed, if necessary, and maintained to present an attractive appearance on every lot, place or parcel of land in the Village and in accordance with the provisions of §220-1.

Applicable to stormwater management at construction sites.

§250-3: It is the purpose of this chapter to maintain safe and healthful conditions; prevent and control water pollution; prevent and control soil erosion and sediment discharge; protect spawning grounds, fish, and aquatic life; control building sites, placement of structures, and land uses; preserve ground cover and scenic beauty; and promote sound economic growth by minimizing the amount of sediment and other pollutants carried by runoff or discharged from land disturbing construction activity to waters of the state in the Village of Shorewood.

Applicable to green infrastructure utilization in site-specific plans

§250-12.1: The stormwater management plan should consider an analysis of at least two green infrastructure BMPs appropriate for the site as compared to the use of traditional BMPs only. If green infrastructure BMPs are not proposed, the analysis should include a Wisconsin professional engineer's statement as to why green infrastructure BMPs are not suitable or recommended for the stormwater management plan.

Applicable to managing stormwater runoff in a way that avoids nuisance or environmental harm, i.e. rain barrels.

Ordinance No. 1952: Section 415-18(E) of Sump Pumps Rain or Surface Water Drainage: Where a storm sewer lateral in a one- and two-family dwelling has been shown to be wholly nonfunctional for structural reasons not associated with regular cleaning, these sump pumps may be discharged a minimum of two feet from the building onto flat areas of the dwelling owner's lawn so long as the water flows away from buildings; does not discharge onto driveways, streets, walks, public ways or neighboring property; and does not create a nuisance.

Applicable to compost "owners", i.e. individuals composting.

§455-5: Purpose and intent. The purpose of this section is to promote the recycling of grass clippings and yard waste through composting and to establish minimum standards for proper compost maintenance and operation.

"Composting" shall mean a controlled biological reduction of organic wastes to humus. "Yard waste" shall be defined as in § 455-1. All compost piles shall be maintained using approved composting procedures to comply with the following requirements:

1. All compost piles shall be enclosed in a freestanding compost bin. Each compost bin shall be no larger in volume than 125 cubic feet and shall be no taller than five feet.
2. All compost piles and bins shall be so maintained as to prevent the attraction or harborage of rodents, other animal pests or insects. The presence of rodents in or near a compost pile or bin shall be cause for proceeding by the Village Health Department.
3. All compost piles and bins shall be so maintained as to prevent odors which will annoy and disturb persons of normal olfactory sensitivity.

4. All compost piles or bins shall be located not less than three feet from a property line or dwelling.
5. No compost pile or bin shall be located in any yard except a rear yard. On a corner lot, no compost pile or bin shall be located less than 10 feet from the property line adjacent to a street.

Current Green Infrastructure Initiatives

The Village of Shorewood worked closely with UW-Milwaukee to install green infrastructure after years of basement backups during heavy rain. The university campus sits at a higher elevation, and green infrastructure keeps stormwater from flowing quickly downhill. Since learning of the importance of ecosystem services, Shorewood has since passed a resolution calling for the protection of Downer Woods because of the stormwater storage it provides.

Supporting the Continued Protection of Downer Woods. Village of Shorewood. (April 6, 2015).

<https://www.villageofshorewood.org/DocumentCenter/View/2666/Res-2015-04-Supporting-Continued-Protection-of-Downer-Woods-PDF>

The Village of Shorewood implements green infrastructure techniques by constructing high density parking structures that use solar power design, encouraging the use of rain barrels, bioswales, and rain gardens (Comprehensive Plan 2018, pg. 95). The Village's 2022 Water Walk brochure highlights current infrastructure like permeable pavers rainwater collection tanks, and biofiltration structures ([SWPWaterTour 2022](#)).

Shorewood Water Walk and Map. Village of Shorewood. (June 16, 2022).

<https://www.villageofshorewood.org/DocumentCenter/View/10025/SWPWaterTour6-16-22>

Wilson Drive Corridor Reconstruction Bioswales



Construction Update 21: Wilson Drive Corridor Reconstruction, excavation and construction of bioswales.



Completed bioswale in residential area.

Improving Water Efficiency: Residential Bioswales and Bioretention Ponds.
American Society of Landscape Architects. (2025).

<https://www.asla.org/bioswales.aspx>

Appendix C

Oconomowoc Case Study

City of Oconomowoc Case Study Appendix

Economic Characteristics:

Median household income: \$105,833

Median home value: \$367,700

Median rent: \$1,235

U.S. Census Bureau (2020-2024). QuickFacts: Oconomowoc city, Wisconsin. [U.S. Census Bureau QuickFacts: Oconomowoc city, Wisconsin.](#)

Reported Sustainability Projects/Actions (2):

Fleet Vehicles

- Data collection used to be in each department, but is now handled by a merged system between the City and the Utility
- Received a \$2000 grant to offset the purchase of a Utilities Neighborhood Electric vehicle (small)
 - What do they use it for?
 - Watering flowers and transporting items between the parks
 - Transport staff between utilities building/city hall and to building inspections and pump stations
- Oconomowoc Utilities Hybrid Line Truck - \$47,997 grant from Wisconsin Clean Transportation Program
 - This truck equipment can operate without the vehicle being on, which reduces idling emissions
- Wisconsin Smart Vehicle Fleet Program
 - Funded by DOE grant, Forwarding Wisconsin's Fuel Choice, results in analysis results to inform future fleet vehicle purchases
- Updating Vehicle software for an Automated Fuel Management System

Certifications and Awards

- Certifications (Bird City, Bee City, Tree City)
- They got an Energy Independent Community Grant (2009)
- Oconomowoc Utilities recognized as one of the Green 15 Award (Lake County, 2009)

- Oconomowoc Utilities recognized as Government Agency of the Year (Waukesha County, 2009)
- Oconomowoc Utilities recognized as Green Action Program of the Year (Milwaukee Business Journal, 2009)
- Green Masters Program
 - Oconomowoc Utilities participated in pilot for Wisconsin Sustainable Business Council Green Masters Program
 - Green Professional recognition
- Water Star Wisconsin Award in 2012

Community Partnerships

- Chamber of Commerce breakfast about "Green Power"
- Holiday light exchange – old for new string lights
- Open Houses at new facilities
- Energy/Earth Day resource fairs
- Vehicle Fleet display at "Harvest Fest Expo"
- Rain barrel sale
- Bike Summit
- Community Garden
 - 10x10 ft plots for \$25 each – they have a waiting list (2012)

Oconomowoc Watershed Protection Program

- <http://oconomowocwatershed.com/>
- Partners: Lake Organizations, Municipal Separate Storm Sewer Systems, Government Bodies, Private Landowners, Land Conservation Districts, Environmental Groups, Universities, and Consultants (there are a lot of partners, could be a good place to look for Elm Grove too)
- Projects: stormwater projects, agriculture projects, crop cover installation, WWTP phosphorus reduction
- (Elm Grove is outside the Oconomowoc River Watershed)
- Urban Strategies:
 - Increase street sweeping activities
 - New stormwater ponds
 - Permeable pavement
 - Reduce road width
 - Routine maintenance for stormwater management
 - Reduce hazardous materials (fertilizers, pet waste, rain barrels, composting)

- Oconomowoc Mud Chasers
 - Volunteers sample watershed during/after rain events to monitor sediment levels
 - <https://www.oconomowoc-wi.gov/DocumentCenter/View/7574/Mud-Chaser-Team-Overview-and-Instructions-2021?bidId=>
- Adaptive management program to improve water quality, help to reach compliance with DNR wastewater and stormwater permits
 - Regional partnership potential
 - <https://www.oconomowoc-wi.gov/DocumentCenter/View/7578/OWPP-Current-Flyer?bidId=>

Utility Incentive Programs

- EV charger rebate application
 - Oconomowoc Utility, WPPI Energy
 - \$250 rebate residential charger (Level 2)
 - \$1000 rebate for commercial charger (Level 2 or 3)
 - \$1500 rebate for commercial charger (Level 2 or 3 dual head charger)
 - <https://www.oconomowoc-wi.gov/DocumentCenter/View/9602/Electric-Vehicle-Charger-Rebate-Application>
- Focus on Energy residential programs
 - Promoting statewide residential programs on the website
 - <https://focusonenergy.com/residential>
- Wisconsin home energy assistance
 - Promoting statewide programs through the Division of Energy, Housing, and Community Resources
 - <https://energyandhousing.wi.gov/Pages/Home.aspx>
- Home energy suite
 - Programming through WPPI, which is a member owned, not for profit joint action agency that serves utilities (advocacy, member utility support)
 - Located in Sun Prairie
 - Services:
 - Advanced Metering
 - Distributed Energy Resources and Support

- Financial Modeling and Accounting
 - Joint purchasing
 - Incentives & loans
 - <https://wppienergy.org/services/>
- AC Tuneup
 - \$25 billing credit available for homeowners and businesses for professional service inspection and tune-up
 - Need a valid Oconomowoc Utilities electric account
 - Funded by the Public Benefits Charge – this is a line item on the utility bills
 - <https://www.oconomowoc-wi.gov/DocumentCenter/View/10437/2025-OCO-CAC-Tune-Up-Incentive-Application>
- Tree Power
 - Tree planting incentive for shade trees to conserve energy
 - \$50 billing credit per qualifying tree
 - Needs a valid Oconomowoc Utilities electric account
 - Funded in part by Public Benefits Charge
 - <https://www.oconomowoc-wi.gov/DocumentCenter/View/10438/2025-OCO-Tree-Power-Incentive-Application>

General Code Strategies from 25x25 plan (2):

Increased building heights (downtown) from 50' to 70'

Reduced building pad setbacks

Eliminated minimum dwelling unit size requirement (improves energy efficiency)

Eliminated minimum residential lot size while maintaining setbacks and minimum lot widths

Streamlined processes for sign and other changes to requiring administrative approval and removed the requirement that certain approvals must submit copies for staff meetings (reduces paper required for development applications)

Added specific regulations for community gardens, rain gardens, solar panels, and charging stations that were not previously included

Sustainable Oconomowoc Code Text Examples within 25x25 plan (updated before 2012):

Topic or Code:	Language:
Solar Equipment	Solar equipment may be located within required front, side, and rear setbacks, and shall not be located closer than five (5) feet to any property line.
Charging Stations:	Electric vehicle charging stations may be located within required front or side setbacks, and shall not be located closer than five (5) feet to any property line
Height Exceptions for Appurtenances:	The height limitations contained in this Zoning Code do not apply to cupolas, flagpoles, spires, church belfries, chimneys, solar energy equipment, antennas, heating and ventilation equipment, stairwell towers or similar appurtenances, provided, however, the following
Mechanical Equipment:	All rooftop and ground level mechanical equipment, with the exception of solar equipment, shall be fully screened from view from any street or residential district as viewed from six (6) feet above ground level
Open Space	Each development shall include a minimum of 10% of public or private open space on the property. Open space can include public and private courtyards, plazas, patios, terraces, alleys, community gardens, rain gardens, green roofs and bio-swales.
Additional Provisions. This planned development overlay district is subject to	Developer will recommend the use, where practicable, of "green"/"sustainability," energy efficiency and water conservation to the design, construction and operation of buildings and site including, but not limited to such

these additional terms and conditions: <i>Sustainable Design.</i>	methods and technology involving building materials, stormwater management, landscaping and building design
Provision related to a school building redevelopment, General Development Plan (School converted to Loft) Apartments	The GDP proposes sustainable and green features to be included in the renovation/conversion of the former school building and in the landscaping of the site, Energy Star appliances are to be installed in all apartment units and are to include high-efficient gas furnaces, air conditioning units, and sealed combustion hot water heaters. Energy consumption reduction is to be accomplished by installation of low energy consumption light fixture packages utilizing compact fluorescent lighting or dedicated fluorescent lamp fixtures together with low-flow shower heads and low-flow faucet aerators, together with potential sustainable and green features of low-emitting adhesives, paints, and carpeting. The developer shall utilize all of the suggested sustainable and green features that are proposed
Planned Development for The Preserve at Prairie Creek	(Requirement for accordance with Green Built Home Program)
Lot Coverage:	Any portion of a lot which, when viewed from above, is covered by impervious surface, including wet stormwater ponds, but not including green roofs and vegetated stormwater facilities.
Requirement for GDP approval process is	("Green field" planned developments (as opposed to redevelopment sites) shall show significantly greater public benefits)
Define Community Garden as a type of Park & Open Space	A public facility for cultivation of fruits, flowers, vegetables, or ornamental plants by more than one person or family. These are permitted in all zones.
General Building Design Standards:	Sustainability – Design should encourage use of energy saving materials and

	<p>construction practices, provide for sustainability when selecting structural and façade materials and designing functional building elements and incorporate building elements that allow for natural environmental control such as, operable windows for natural ventilation, wind locks at high volume entries, rain gardens, roof top gardens, sun shading and interior solar screens above south facing windows. Developers are also encouraged to utilize high efficiency lighting, appliances, and fixtures as well as selecting low-emitting materials</p>
<p>Adjustments to Required Parking</p>	<p>The purpose of this section is to allow adjustments to the minimum number of parking spaces required to avoid constructing unneeded and excessive off-street parking facilities. Reducing the amount of excess off-street parking facilities is intended to provide for more cost-efficient site development, to eliminate constructing more impervious surface than necessary, to minimize stormwater runoff, to avoid construction of unnecessarily large stormwater management facilities, and to provide more landscape areas and open space on sites. The total requirement for off-street parking may be reduced as part of the development approval by the Plan Commission as outlined below:</p> <ul style="list-style-type: none"> (a) All uses are eligible for a 20 percent parking reduction if the applicant can prove the reduced parking will not negatively impact the health, safety and welfare of persons utilizing the development and the surrounding neighborhood (b) The applicant shall submit a study providing an accurate reflection of parking demand for the development. Included in this study shall be alternatives including shared parking, bicycle parking, and pedestrian connections to the development.

<p>Section 17.509 Protection of Existing Vegetation</p>	<p>The appeal and character of the site shall be preserved and enhanced by retaining and protecting existing vegetation and trees whenever possible.</p> <p>Designation, Protection, and Replacement: The site plan must indicate trees intended to be preserved with a special symbol and the preserved trees must be protected during construction through the use of a fence around the drip line. If any preserved trees are lost to damage or disease within three (3) years after plan approval, the owner must replace said trees with the number of trees that would otherwise have been required</p> <p>Preservation of Existing Vegetation: Every attempt shall be made by the developer/applicant to preserve existing significant trees. When it is necessary to remove significant trees, the developer shall replace 12" caliper or larger deciduous trees with four (4) 3" caliper deciduous trees. Conifers 10' or taller shall be replaced with three (3) 6'-8' coniferous trees</p>
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Additional Zoning Considerations:

- Duplexes are permitted uses in Multi-Unit High Residential and Multi-Unit Low Residential districts
- Community living (up to 8 residents) is permitted in all residential districts
- Assisted living is permitted in Multi-Unit Low and High Residential and in Isthmus Residential Multi districts
- Nursing homes and hospice are permitted in Multi-Unit Low and High Residential
- Duplexes are conditional uses in rural residential, suburban residential, traditional residential, isthmus residential multi and isthmus residential single districts
- Community living (9 or more residents) is a conditional use in all but the isthmus residential districts
- Keeping of hens are an accessory use for rural, suburban, and traditional residential districts

- Oconomowoc sets a maximum density per acre and lot width instead of minimum lot size
 - o Rural residential is 1 dwelling unit per acre, suburban residential is 3 dwelling units per acre, and so on. The highest density is Multi-Unit (High) Residential at 12 dwelling units per acre
- Institutional and public districts allow the following uses:
 - o duplex (conditional), community living <8 (permitted), community living 9+ (permitted), nursing home/hospice (permitted), keeping of hens (4 max)
- General and mixed-use commercial permit community living (up to 8 residents) as a conditional use
- Mixed use commercial districts permit the following uses:
 - o duplex (conditional), live/work (permitted), multifamily (permitted), community living up to 8 residents (conditional)

Appendix D

Eau Claire Case Study

City of Eau Claire Case Study Appendix

1. Introduction

- The 2020 Census reported a population of 69,421 residents.
- The city covers approximately 34 square miles.
- It is part of the Chippewa Valley region, within the Eau Claire–Chippewa Falls Metropolitan Area.
- Located about 90 miles east of Minneapolis, in west-central Wisconsin.

2. Sustainability Organizations

Sustainability Advisory Committee (Established 2014)

- Composed of 10 appointed citizen members and 1 city council representative.
 - Members serve staggered 3-year terms.
 - Appointees are selected based on demonstrated interest or expertise in sustainable practices.
- The committee's role is to advise the city council and assist with implementing sustainability goals outlined in the city's Strategic Plan and Comprehensive Plan.
- Meetings are held monthly and are open to the public, encouraging community engagement.

City Green Team (Established 2008)

- An internal municipal working group focused on increasing sustainability within city operations.
- Emphasis is placed on improving energy efficiency through upgrades to lighting, HVAC systems, and other building infrastructure.

3. Municipal Sustainability

Dedicated Staff

- The city employs a full-time Recycling and Sustainability Coordinator, demonstrating commitment to environmental initiatives.

Municipal Code

- Sustainability is embedded in development regulations.

- Site Design Requirements: New developments must accommodate pedestrian and bicycle access, and incorporate existing topographic and landscape features into site planning.
- Wind Energy: Residential, commercial, and industrial districts may install wind energy systems via a conditional use permit.
- Accessory Dwelling Units (ADUs): Permitted as a conditional use, supporting infill development and housing flexibility.
- Off-Street Parking: Non-residential developments are not allowed to exceed required parking minimums by more than 25%, effectively setting a parking cap.
- Parking Reductions: Mixed-use developments can qualify for reduced parking requirements if they meet specific criteria, such as:
 - Providing bicycle parking
 - Being within 500 feet of a transit (bus) route
 - Being located in the downtown district
 - Submitting a formal parking study to justify the reduction

4. Programs and Initiatives

- The city maintains a robust set of online resources and guides for residents and businesses covering topics such as:
 - Clean and efficient energy use
 - Recycling and waste reduction
 - Green building practices
 - Promotion of local food systems
 - Water quality protection

Electric Vehicle (EV) Goals

- The city aims for 10% of registered vehicles (roughly 8,000 vehicles) to be electric.
- Plans include the installation of 160 public-use EV charging stations—one for every 50 EVs projected.

Climate Action

- Goal: Achieve carbon neutrality by 2050.
- Key efforts include:

- Implementation of a Renewable Energy Action Plan
- Strong collaboration with the local utility provider to align on clean energy goals
- Adoption of “Solar Ready” guidelines to simplify solar panel installation
- Designated as a SolSmart Gold Community, recognizing leadership in solar accessibility
- Development of a Net Zero Energy Building Guide to support energy-efficient construction and retrofits

Appendix E

Sun Prairie Case Study

City of Sun Prairie Case Study Appendix

City of Sun Prairie WI At a Glance:

Population	Size	Education levels	Sustainability Governance
37,890 residents	12.93 mi ²	Median Household Income: \$90,521	Sun Prairie Comprehensive Plan 2019-2039

United States Census Bureau American Community Survey 5-year estimates (2019-2023).

Solar Initiatives

Roof and ground-mounted solar arrays have been at the forefront of recent building revamp projects. The Wastewater Treatment plant has a large ground-mounted solar array atop previously unused green space. A rooftop solar array powers the West Side Community Services building, where the city provides public events and rented gathering space. Through these arrays, along with a renewables purchase certification program 100% of the city's energy comes from renewable sources. These efforts have propelled Sun Prairie to become only the second LEED Platinum certified municipality in the United States.

City Hall



Westside Community Services



Wastewater Treatment Plant



Via: cityofsunprairie.com/1786/Municipal-Solar-PV

Programming

Sun Prairie provides a variety of sustainability programming focused on connecting residents to resources and providing education. During Earth Month (April), the city hosts a three-part lecture series focused on energy.

Industry experts teach lectures on the following topics:

- o Part 1: Home energy efficiency made simple
- o Part 2: Solar for everyone: a guide to rooftop solar
- o Part 3: The future is electric, everything you need to know about EVs

Another popular event is a recurring Earth Month environmental film series. Movie screening is followed by discussion led by professors from UW-Madison. This fall, Sun Prairie will hold its first “Sustainability Fair” which is set to include an EV showcase, a community mural, and a variety of vendors and exhibitors.

Sidewalks

To provide a better-connected network for active transportation, Sun Prairie introduced an updated [sidewalk and multi-use path policy](#). Sidewalks are now required on all new and reconstructed public streets. Even for private streets, the city can require adding sidewalks if the city engineer deems it beneficial to the public interest.

Notable Sustainable Code

Topic or Code:	Language:
Natural Line Permits	Property owners interested in applying for permission to establish a natural lawn shall obtain and complete an application form available from the city. The completed application shall include a natural lawn management plan.
Main Street live-work overlay (LWO) district	The primary intended uses within the LWO include the continued occupancy of existing single-family residences or small multifamily buildings, and the reuse or partial reuse of existing residential properties for small office or small retail or professional service uses.

Appendix F

Ashland Case Study

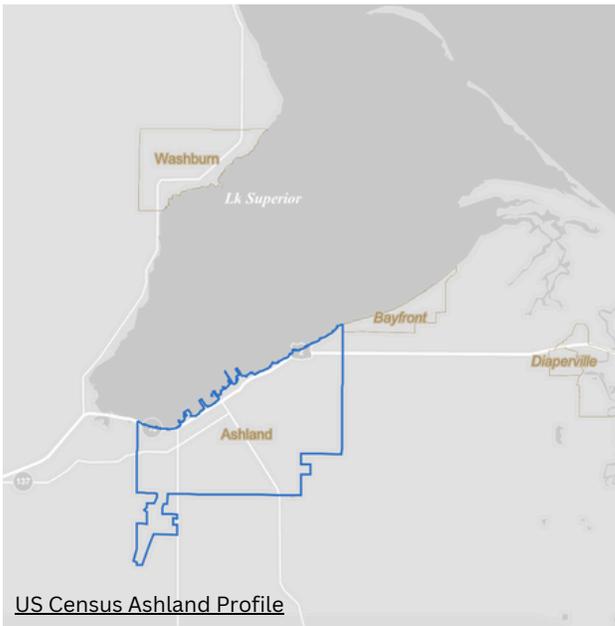


Economic Profile for the

<https://www.coawi.org/>

CITY OF ASHLAND, WI

Located in northern Wisconsin, the City of Ashland sits on Lake Superior, near the head of the Chequamegon Bay. With a slogan of, “Find yourself next to the water,” The City of Ashland provides numerous outdoor recreation opportunities for residents and visitors. Incorporated in 1887, the City of Ashland offers the historic charm of a small town.



US Census Ashland Profile



Land Area

13.4 sq mi



Total Population

7,908



Median Household Income

\$49,258



<https://recollectionwisconsin.org/travel-back-in-time/ashland>

Ashland Population Demographics

City of Ashland

Year	Population
2010	8,283
2011	8,255
2012	8,213
2013	8,189
2014	8,167
2015	8,116
2016	8,083
2017	7,997
2018	7,963
2019	7,892
2020	7,841
2021	7,890
2022	7,903
2023	7,884

Population in City the
of Ashland, Wisconsin
2020

7,908



Population of Ashland
County 2020

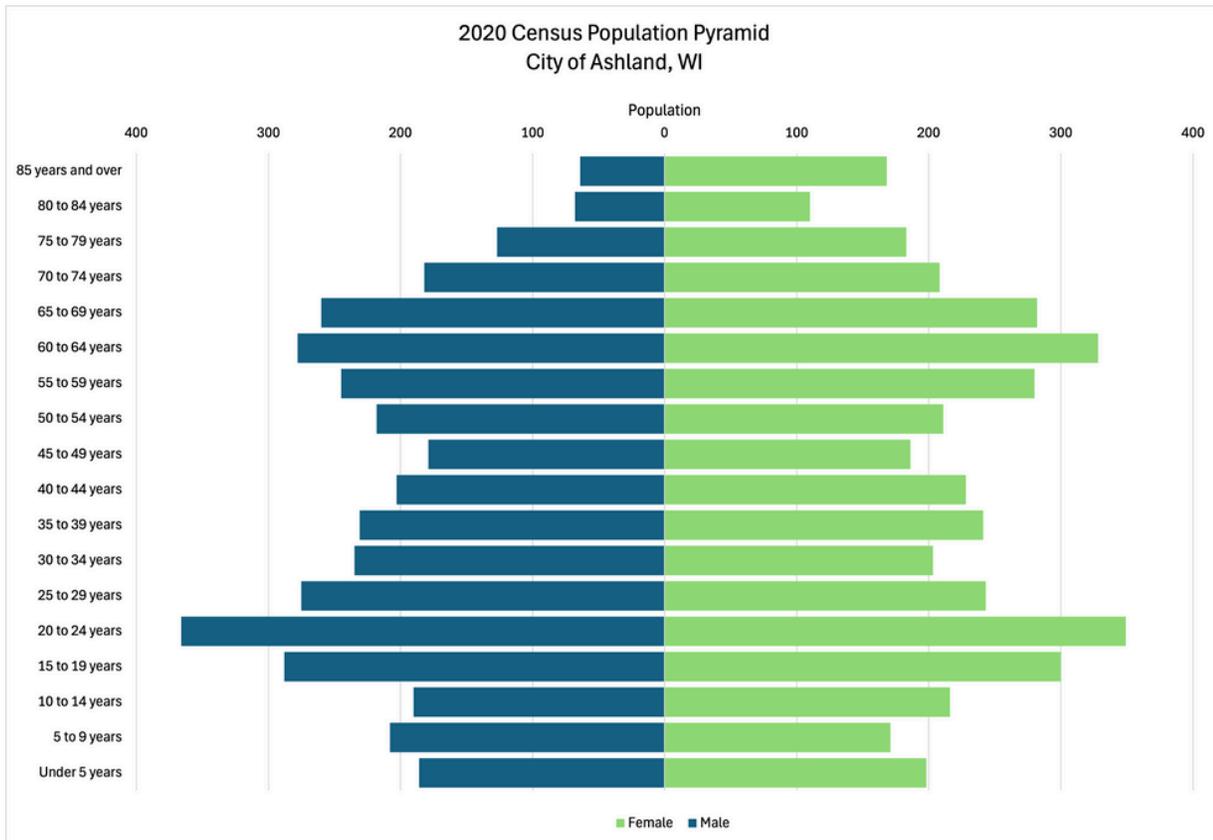
16,027

Average Age in Ashland,
Wisconsin

40.2

Average Age in the State
of Wisconsin

40.5



Ashland Population Demographics



White alone.....	86.2%
Black alone.....	0.9%
American Indian and Alaska Native alone.....	5.8%
Asian alone.....	1.0%
Native Hawaiian and Other Pacific Islander alone.....	0.0%
Two or More Races.....	5.9%
Hispanic or Latino.....	3.2%



Poverty Rate
24.1%

65 years or Older
in Ashland, WI
20.5%

Veterans in Ashland, WI
8.7%

The City of Ashland is a destination during all four seasons in Northern Wisconsin! The city offers a wide range of activities from kayaking on Lake Superior, hiking through the forests, bike tours, snowmobile trails, the Chequamegon Bay Birding & Nature Festival, or enjoying the historic downtown. Being known as “Lake Superior’s Home Town,” Ashland offers something for everyone!



Total Housing Units
3,860

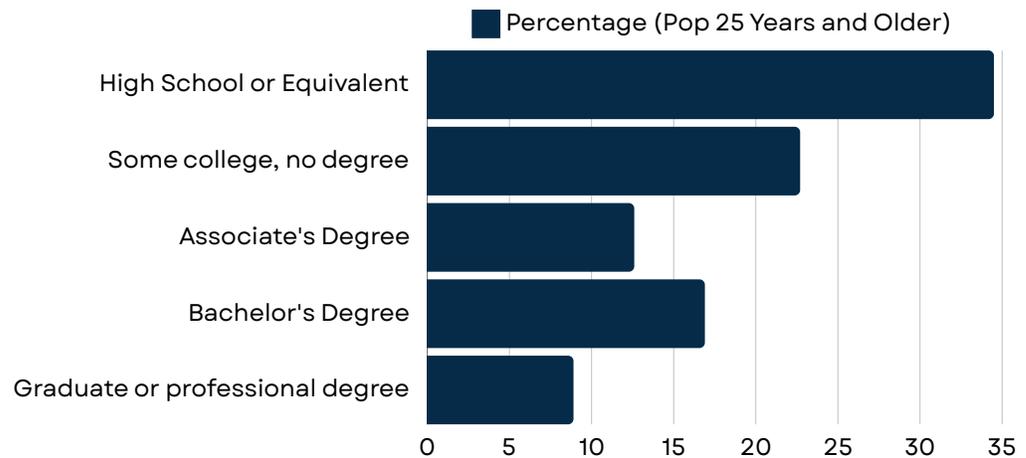
Total Households in
Ashland, Wisconsin
3,411

Educational Attainment ¹³¹



Bachelor's Degree or Higher

25.9%



School District of Ashland

ASHLAND



Oredockers



1,855



Students enrolled in the School District of Ashland during the 2023 School Year.

Ashland High School
Ashland Middle School
Lake Superior Elementary School
Marengo Valley Elementary School

Northland College

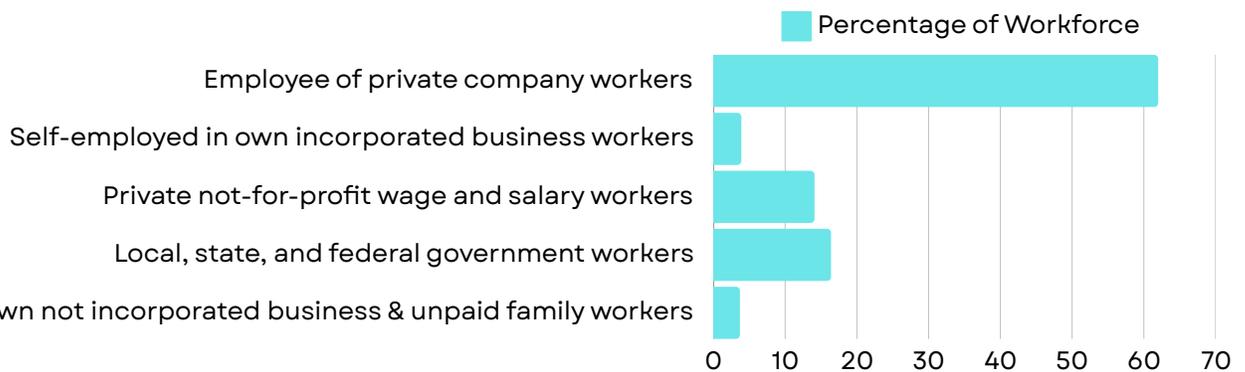


520

Undergraduate students enrolled in the 2022-2023 school year.

Northland College is a private, liberal arts college with a progressive focus on the environment and sustainability founded in 1892. Adjacent to the Apostle Islands and over a million acres of national forest, Northland has an unparalleled living laboratory and natural playground just beyond our doors. Unfortunately, Northland College will be closing at the end of the 2024-2025 academic year.

Workforce and Major Employers 132



Average travel time to work

12.7 minutes



Employment Rate

59.5%

Commute: Drive alone	72.6%
Commute: Carpool	6.9%
Commute: Public Transportation	1.3%
Commute: Walked	8.5%
Commute: Bicycle	1.5%
Commute: Taxicab, motorcycle, or other	1.1%
Commute: Worked from home	8.1%

Women owned
Businesses

15



Minority owned
Businesses

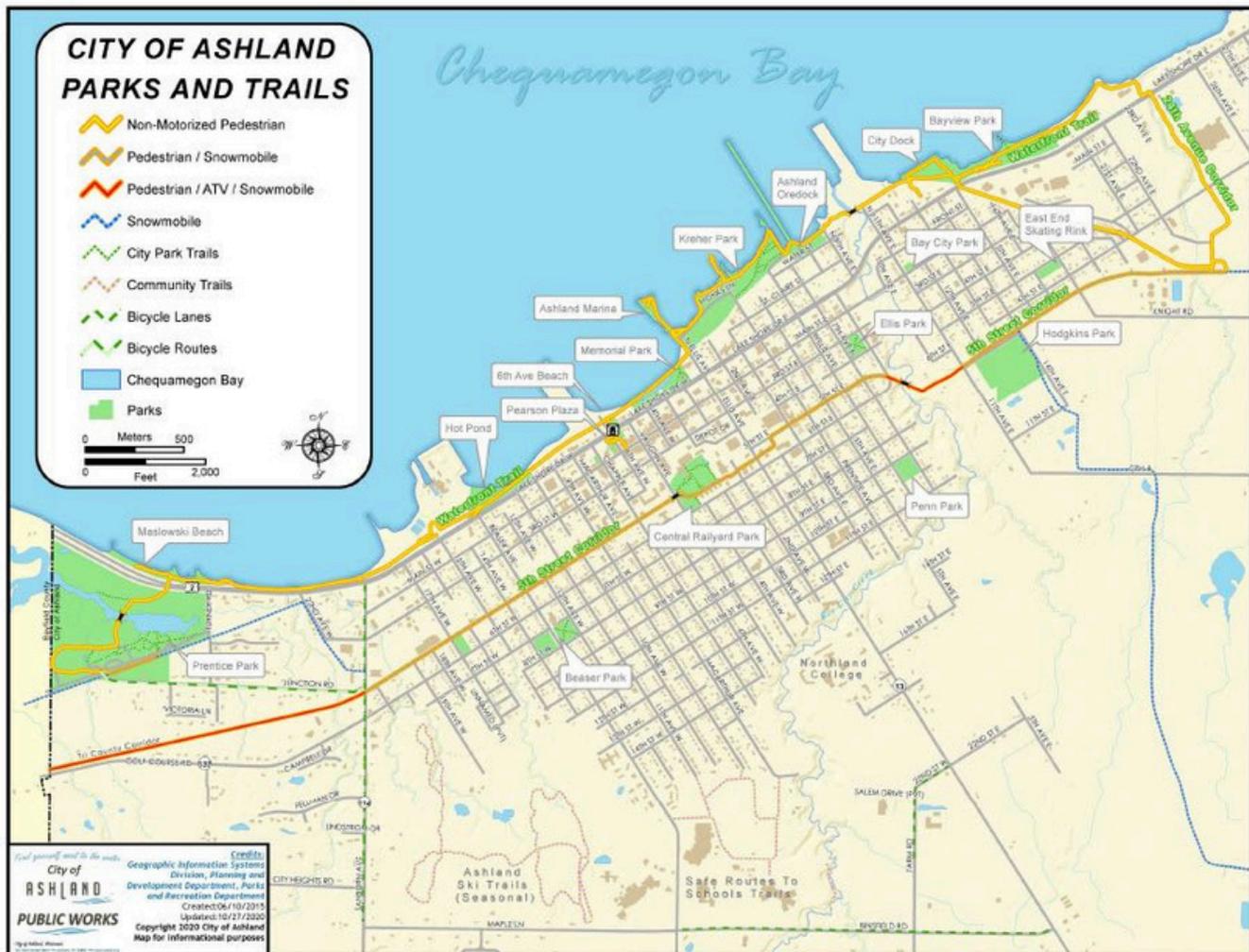
17

The largest employers in the City of Ashland are listed below.

- Larson-Juhl
- Essentia Health
- Northland College
- Bretting Manufacturing
- Tamarack Health Ashland Medical Center
- Wisconsin Indianhead Technical College



The mission of Ashland Parks and Recreation is to enhance the quality of life for residents of the community, through a variety of special events, athletic and social programs. By providing a variety of activities, we hope to encourage lifelong learning, fitness, and fun.



<https://coawi.org/493/City-Parks-Pavilions-and-Trails>



<https://lakesuperiorcircuitour.info/location/ashland/>

Sources

US Census Bureau Quick Facts

<https://www.census.gov/quickfacts/fact/table/ashlandcitywisconsin/PST045223>

US Census Bureau City of Ashland Profile

https://data.census.gov/profile/Ashland_city,_Wisconsin?g=160XX00US5503225

Northland College

<https://www.northland.edu/>

School District of Ashland

<https://www.ashland.k12.wi.us/>

City of Ashland

<https://www.coawi.org>

City of Visit Ashland

<https://www.visitashland.com/>

City of Ashland Case Study Appendix

The City of Ashland has incorporated sustainability and environmental protection into its core values, mission, and vision. This has created the opportunity to take large strides towards a more sustainable Ashland.

Ashland's Mission: To always promote the betterment of Ashland.

Ashland's Vision: A thriving community that values its environment.

Values:

- **Natural Environment**

We appreciate the natural environment as a cornerstone of our community, now and for future generations. Consideration of land, air, and water quality will affect our decisions.

- **Rich History**

We promote and preserve our history. Knowledge of the past, our historical architecture, and distinctive neighborhoods instill community pride.

- **Unique and Diverse Cultures**

We embrace diversity and respect a variety of perspectives, opinions, traditions, experiences, cultures, and identities. We create, promote and support a welcoming and inclusive environment.

- **Way of Life**

We foster a way of life that promotes a sense of well-being and fulfillment. We support excellent municipal services in a thriving economy and vibrant community.

- **Stewardship**

We will build a stronger and more resilient Ashland for today and future generations. By embracing stewardship, we sustainably manage our human, natural, financial, and material resources.

25x25 Plan Strategies

The City of Ashland's 25x25 Plan for Energy Independence was adopted in October 2018. The plan outlines recommendations for achieving 25% of the City's total energy usage through renewable sources by the year 2025. To achieve this goal, the City would need to install renewable sources or purchase subscriptions to 1,140 kilowatts of solar modules.

<https://www.coawi.org/179/Sustainability>

City of Ashland Strategic Plan

The City of Ashland has outlined strategic priorities as part of the City's Strategic Plan. It outlines categorized priorities through economic growth, transportation, housing, good governance, and the environment. The environmental strategic priorities include:

- Beginning in 2026, City of Ashland residents and visitors will experience a cleaner Lake Superior as evidenced by the elimination of wastewater overflow spills.
- By 2026, Ashland public beaches will be open 75% of the time during the swimming season, providing greater access to our residents and visitors.
- By 2025, through the adoption of a Climate Change Resiliency and Adaptation Plan, the City of Ashland will have the ability to anticipate, prepare for, and respond to hazardous events, trends, or disturbances related to climate change.
- By 2024, the City of Ashland will develop and implement a Plan for the sustainable management of City green spaces, furthering its commitment to the protection of our natural resources.
- By 2025, the City of Ashland will achieve 25% percent of the City's total energy usage through renewable sources, resulting in reduced carbon emissions and kilowatt hours (kWh).

<https://www.coawi.org/187/City-Strategic-Goals>

Other Funding Mechanisms with Ashland

The City of Ashland has utilized Tax Increment Financing to foster the reuse and redevelopment of infill or former brownfield sites. The Comprehensive Plan as well as the Strategic Plan have goals related to infill development. There are several sites that have utilities adjacent and ready for redevelopment! This is often a more sustainable practice rather than consuming Greenfields for development projects. Currently, there is a multi-family housing development that is proposed on a vacant site and if that is completed, will provide more than 150 housing units for the City of Ashland. This site is within a plan for a Tax Increment District that includes a number of other sustainable projects and efforts.

Timeless Timber site: <https://www.coawi.org/DocumentCenter/View/1351/FINAL-2020-Timeless-Timber-Site-Commercial-Redevelopment-September-15-2020?bidId=>

Eco-Municipality Designation

At the March 2025 and the April 2025, the Sustainability Committee reviewed a Resolution to Adopt Eco-Municipality Designation for the City of Ashland. This Resolution outlines the city's willingness to become more sustainable through economic development and best practices. Included in this document is a pledge of support from The National Association of Swedish Eco-Municipalities. The Resolution outlined the adoption of a sustainable community development policy, including four key guidelines developed by the American Planning Association:

1. Reduce dependence upon fossil fuels and extracted underground metals and minerals.
2. Reduce dependence on chemicals and other manufactured substances that can accumulate in Nature.
3. Reduce dependence on activities that harm life-sustaining ecosystems.
4. Meet the hierarchy of present and future human needs fairly and efficiently.

The Resolution shows that the City of Ashland endorses the principles of sustainable community development and agrees to apply these principles whenever possible in its planning, policy making, and municipal practices.

<https://ashlandwi.portal.civicclerk.com/event/1007/files/attachment/7434>

Sustainability Survey

Respondents also prioritized reducing water usage by offering rebates for low-flow shower heads, toilets, and faucets. Additional resident priorities include reducing homes' stormwater runoff, adding more bike paths and bike lanes, and reviewing zoning codes to identify impediments to green and sustainable building practices.

Uniform Dwelling Code Sustainable Aspects for the City of Ashland

Section 8.1 General Protection of Natural Features (p 373)

- General Provisions: all develops shall, to the maximum extent practical, be located so as to preserve the natural features of a site, to avoid areas of environmental sensitivity, to minimize the creation of impervious surface area, and to minimize negative impacts on the alteration of the natural environment.

Composting Ordinance 750, Section 750.B.7.

- The City of Ashland has composting tied in their property maintenance ordinance.
- Composting. Composting shall be allowed in all zoning districts subject to the following conditions. Future Development zoned parcels with an area of at least five (5) acres shall be exempt from the following conditions:
 - Composting shall be conducted within an enclosed container (or containers) not to exceed a sum total of one hundred fifty (150) cubic feet per parcel. A compost container shall be of durable material such as wood, block, plastic, or sturdy metal fencing and shall have been constructed exclusively for composting.
 - Compost containers shall not present an aesthetic, health, or odoriferous nuisance to neighboring properties.
 - Compost containers are prohibited in any front yard. Compost containers shall not be located in any drainage swale.
 - Only kitchen wastes that break down in compost containers and yard waste (free of logs, large branches, and diseased plants) may be placed in compost containers.
 - Meat, bones, fat, oil, dairy products and other kitchen wastes that do not break down in compost containers, as well as plastic synthetic fibers, and human or pet waste shall not be placed in compost containers.
 - Compost shall be maintained within the container to keep the material aerated, minimize odor, reduce potential rodent harborage, and promote effective decomposition of the material.

Solar equipment Ordinance (6-10)

- Solar equipment shall be consistent with the setback and height requirements of the principal or accessory building, whichever is

applicable. Solar equipment that is not consistent with the setback and height requirements may be considered pursuant to conditional use procedures

- No person in control of property shall allow a tree or shrub to be placed or grow as to cast a shadow between the hours of 9:00 AM and 3:00 PM upon a solar collector energy system capable of generating more than one million (1,000,000) British thermal units (BTUs) per year, and that supplies a part of the energy requirements for improvements on the property where the solar energy system is permanently located.

The Ordinance also has Sustainability Tip Callout Boxes that identify a variety of ways to incorporate sustainability into development. Key sustainable features outlined in the residential zoning districts are described below.

District Name	R-E	Residential Estate District
Permitted Uses	Single-family detached dwellings, community living arrangements (less than 4), parks, essential services, open spaces.	
Conditional Uses	Accessory dwelling unit, duplex unit, wind energy facility, agriculture.	
Accessory Uses	Accessory buildings, domestic animals, horse animals, composting, greenhouse, landscaping, solar equipment.	
District Name	R-1	Single-Family Residential District
Permitted Uses	Single-family detached dwellings, community living arrangements (less than 4), parks, essential services, open spaces.	
Conditional Uses	Accessory dwelling unit, duplex unit, wind energy facility.	
Accessory Uses	Accessory buildings, domestic animals, landscaping, composting, solar equipment.	
District Name	R-2	Single and Two-Family Residential District

Permitted Uses	Single-family attached, not to exceed 2 dwellings, single-family detached, two-family or duplex. Community living arrangements (less than 4), essential services, open spaces.	
Conditional Uses	Accessory dwelling unit, wind energy facility.	
Accessory Uses	Accessory buildings, domestic animals, composting, landscaping, solar equipment.	
District Name	R-3	Medium Density Residential District
Permitted Uses	Two-family or duplex, multi-family (3 or 4) units per building, single family attached not to exceed 6 dwelling units per building, community living arrangements (less than 4)	
Conditional Uses	Single-family detached, wind energy facility.	
Accessory Uses	Accessory buildings, domestic animals, composting, landscaping, solar equipment.	
District Name	R-4	High Density Residential District
Permitted Uses	Single-family attached 3-6 units per building, multi-family 3-8 units per building, open spaces, essential services, community living arrangements (less than 4)	
Conditional Uses	Adult family home, bed and breakfast, community living arrangements 5-15, convent, accessory dwellings, multi-family more than 8, emergency residential facilities, rehab center, tourist home, wind energy facility. Other uses not listed here	
Accessory Uses	Accessory buildings, domestic animals, composting, solar equipment, day care.	

<https://www.coawi.org/181/Zoning-Development>

Appendix G

Shorewood Hills Dark Sky Ordinance

Chapter 22

DARK SKY (REGULATE ILLUMINATION)



- 22.01 Purpose
- 22.02 Definitions
- 22.03 Conformance with Applicable Codes
- 22.04 Applicability
- 22.05 Lighting Zones
- 22.06 Exempt Lighting
- 22.07 Prohibited Lighting
- 22.08 Luminaire Lamp Wattage, Shielding, and Installation Requirements
- 22.09 Height Limits
- 22.10 Total Site Power Limits
- 22.11 Lighting for Externally Illuminated Signs
- 22.12 Lighting Controls
- 22.13 Special Permits
- 22.14 Applications for a Variance
- 22.15 Enforcement

22.01 Purpose. The Village defines excessive, stray or wasted light from outdoor lights to be a public nuisance based on Wis. Stats. 66.1337 (7). In order to protect the health, safety, welfare, and convenience of the public, it is the policy of the Village to regulate outdoor lighting that will:

- (1) Permit reasonable uses of outdoor lighting for nighttime safety, utility, security, productivity, enjoyment and commerce.
- (2) Minimize light trespass, glare, obtrusive light, and artificial sky glow caused by misdirected, excessive, or unnecessary outdoor lighting.
- (3) Conserve energy and resources to the greatest extent possible.
- (4) Curtail and reverse the degradation of the nighttime visual environment and the night sky.
- (5) Help protect the natural environment from the damaging effects of night lighting from man-made sources.

22.02 Definitions. The following words, phrases and terms as used in this chapter shall have the following meaning:

- (1) Artificial Sky Glow means the brightening of the night sky attributable to man made sources of light.

- (2) Candela means the unit of luminous intensity of a lighting source emitted in a given direction.
- (3) Canopy means a roof-like covering over an area, in or under which a lighting fixture is mounted.
- (4) Curfew means a time each night after which certain electric illumination must be turned off or reduced in intensity.
- (5) Drip Line Area means the area on the ground enclosed by vertical planes extending downward from the outer solid edge of a canopy.
- (6) Facade means the exterior wall of a building.
- (7) Glare means light that causes visual discomfort, annoyance or disability, or a loss of visual performance.
- (8) Hardscape Lighting means lighting associated with architectural features, such as fountains, sculptures, and the like.
- (9) Landscape Lighting means luminaires mounted in or at grade (not to exceed 3 feet above grade) and used solely for landscape rather than area lighting, or fully shielded luminaires mounted in trees and used solely for landscape or Facade lighting.
- (10) Lighting Zone means a type of area defined on the basis of ambient lighting levels, population density, and/or other community considerations. A description of these five lighting zones is given in Table 1 of this ordinance.
- (11) Light Trespass means light flowing across the property boundary.
- (12) Lumen means the unit of luminous flux: a measure of the amount of light emitted by a lamp.
- (13) Luminaire (light fixture) means a complete lighting unit consisting of one or more electric lamps, the lamp holder or holders, reflector, lens, diffuser, ballast, and/or other components and accessories.
- (14) Luminance means the amount of light emitted in a given direction from a surface by the light source or by reflection from a surface. The unit is candela per square meter.
- (15) Luminous Flux means a measure of the total light output from a source, the unit being the lumen.
- (16) Mounting Height means the vertical distance between the lowest part of the luminaire and the ground surface directly below the luminaire.
- (17) Nadir means the downward direction; exactly vertical, directly below a luminaire.
- (18) Obtrusive Light means glare and light trespass.
- (19) Ornamental Lighting means outdoor lighting that is installed mainly or entirely

for its decorative effect or to accent an object or a feature, rather than for illumination.

- (20) Photometric Test Report means a report by an independent testing laboratory or one certified by the National Institute of Standards and Technology (NIST) describing the candela distribution, shielding type, luminance, and other optical characteristics of a specific luminaire.
- (21) External Point of Service means an outdoor service which a business provides some service to a customer, such as drive up food service, a bank transaction, or the like.
- (22) Property Line means the boundary line of a property and the vertical plane above the property line.
- (23) Shielding means a device or technique for controlling the distribution of light. Four levels of shielding are defined as follows:
 - (a) Fully Shielded – A luminaire emitting no luminous flux above the horizontal plane.
 - (b) Shielded – A luminaire emitting less than 2.0 percent of its luminous flux above the horizontal plane.
 - (c) Partly Shielded – A luminaire emitting less than 10 percent of its luminous flux above the horizontal plane.
 - (d) Unshielded – A luminaire that may emit its flux in any direction.
- (24) Spill Light means lighting from a lighting installation that falls outside of the boundaries of the property on which the installation is sited.
- (25) Temporary Lighting means lighting installed with temporary wiring and operated for less than 60 days in any calendar year.
- (26) Zoning Administrator means the administrator as designated in Chapter 10 of this code.

22.03 Conformance with Applicable Codes.

All outdoor lighting fixtures (luminaires) shall be installed in conformance with the provisions of this Ordinance, the Building Code, the Electrical Code, and the Sign Code of the Village as applicable and under appropriate permit and inspection.

22.04 Applicability.

- (1) **New uses, buildings and major additions or modifications.** For all proposed new land uses, developments, buildings, and structures that require a permit, all outdoor lighting fixtures shall meet the requirements of this Code. All building additions or modifications of twenty-five (25) percent or more in terms of additional dwelling units, gross floor area, or parking spaces, either with a single addition or with cumulative additions subsequent to the effective date of this

provision, shall invoke the requirements of this Code for the entire property, including previously installed and any new outdoor lighting. Cumulative modification or replacement of outdoor lighting constituting twenty-five (25) percent or more of the permitted lumens for the parcel shall also constitute a major addition for purposes of this section.

- (2) **Minor additions.** Additions or modifications of less than twenty-five (25) percent to existing uses, as defined in Section (a) above, and that require a permit, shall require the submission of a complete inventory and site plan detailing all existing and any proposed new outdoor lighting. Any new lighting on the site shall meet the requirements of this Code with regard to shielding and lamp type. The total outdoor light output after the modifications are complete shall not exceed that on the site before the modification, or that permitted by this Code, whichever is larger.
- (3) **Resumption of use after abandonment.** If a property or use with non-conforming lighting is abandoned as defined below, then all outdoor lighting shall be reviewed and brought into compliance with this Code before the use is resumed.
- (4) **Existing uses and buildings.** All luminaires installed after the date of the enactment shall come under the provisions of this code. After a period of three (3) years from the date of enactment of this Code, any lighting in place prior to the enactment date shall come under the provisions of the Code.
- (5) **Change of ownership.** If a property changes ownership, then all outdoor lighting shall be brought into compliance with this Code.

22.05 Lighting Zones.

- (1) **Zoning districts.** Zoning districts designated residential (R1, R2, R3, and R4) are designated lighting zone two (LZ 2). All other zoning districts (C1, C2, C3, CF, and P) are designated lighting zone three (LZ 3). All Village street lighting are designated as zone two (LZ 2).
- (2) **Lighting zone.** The Lighting Zone of a parcel or project shall determine the limitations for lighting as specified in this ordinance.

Table 1 – Lighting Zone Descriptions

Zone	Ambient Illumination	Representative Locations
LZ 0*	Very Dark	Critical dark environments, such as especially sensitive wildlife preserves, parks, and major astronomical observatories
LZ 1*	Dark	Developed areas in state and national parks, recreation areas, wetlands and wildlife preserves; developed areas in natural settings; areas near astronomical observatories; sensitive night environments; zoos; areas where residents have expressed the desire to conserve natural illumination levels.
LZ 2	Low	Rural areas, low-density urban neighborhoods and districts, residential historic districts. This zone is intended to be the default for residential areas.
LZ 3	Medium	High-density urban neighborhoods, shopping and commercial districts, industrial parks and districts. This zone is intended to be the default condition for commercial and industrial districts in urban areas.
LZ 4*	High	Major city centers, urban districts with especially high security requirements, thematic attractions and entertainment districts, and major auto sales districts.

* For reference only

22.06 Exempt Lighting. The following luminaires and lighting systems are exempt from the requirements of this Chapter.

- (1) Externally illuminated signs lit from above by fully shielded fixtures.
- (2) Temporary lighting for theatrical, television, and performance areas.
- (3) Lighting in swimming pools and other water features governed by Article 680 of the National Electrical Code.
- (4) Code required exit signs.
- (5) Code required lighting for stairs and ramps.
- (6) Lighting required and regulated by the Federal Aviation Administration, U.S. Coast Guard, or other federal, state, or county agency.
- (7) Interior lighting.
- (8) Holiday lights on the University Avenue side of the commercial district.
- (9) Temporary lights for emergency for public or private utility maintenance or

public safety.

- (10) Lighting fixtures existing prior to this ordinance not exceeding 30 watts (525 lumens).

22.07 Prohibited Light and Lighting.

- (1) All outdoor light sources, except street lights, shall be shielded or installed so that there is no direct line of sight between the light source or its reflection at a point 3' or higher above the ground at the property line of the source. Light that does not meet this requirement constitutes light trespass. Streetlights shall be fully shielded.
- (2) The following lighting systems are prohibited from being installed or used except by special use permit, which shall not be granted for any use in LZ 2.
 - (a) Aerial Lasers.
 - (b) “Searchlight” style lights.
 - (c) Other very intense lighting, defined as having a light source exceeding 200,000 lumens or intensity in any direction of 2,000,000 candelas or more.

22.08 Luminaire Lamp Wattage, Shielding, and Installation Requirements.

- (1) **Lamp limits.** All outdoor lighting shall comply with the limits to lamp wattage and the shielding requirements in Table 2. These limits are the upper limits. Good lighting design will usually result in lower limits.
- (2) **Flexible mounting systems.** Only luminaires that are allowed to be unshielded in Table 2 may employ flexible mounting systems. All other luminaires shall be permanently installed so as to maintain the shielding requirements of Table 2.
- (3) **Evidence of compliance.** The Zoning Administrator may accept a photometric test report, demonstration or sample, or other satisfactory confirmation that the luminaire meets the requirements of the shielding classification.
- (4) **Shielded fixture construction.** Such shielded fixtures must be constructed and installed in such a manner that all light emitted by the fixture complies with the specification given. This includes all the light emitted by the fixture, either directly from the lamp or by a diffusing element, or indirectly by reflection or refraction from any part of the fixture. Any structural part of the fixture providing this shielding must be permanently affixed.
- (5) **Canopy lighting.** All canopy lighting must be fully shielded. However, indirect up light is permitted under an opaque canopy provided that no lamp or vertical element of a lens or diffuser is visible from beyond the canopy and such that no direct up light is emitted beyond the opaque canopy. Landscape features shall be used to block vehicle headlight trespass while vehicles are at an external point of service.

- (6) **Facade lighting.** All facade lighting must be restricted to the facade surface. The margins of the Facade shall not be illuminated. Light trespass is prohibited. The sides of commercial buildings without a customer entrance shall not be lit.

Table 2 – Luminaire Maximum Wattage and the Required Shielding (incandescent equivalent, 1500 lumens/100 watts)

Lighting Zone	Fully Shielded	Shielded	Partly Shielded	Unshielded (Shielding is highly encouraged – Light trespass is prohibited)
LZ 0*	55	None permitted	None permitted	None permitted
LZ 1*	70	30	None permitted	None permitted
LZ 2	150	60	None permitted	Low voltage landscape lighting and temporary holiday lighting
LZ 3	450	100	60	Landscape and façade lighting 100 watts or less; ornamental lights of 60 watts and less
LZ 4*	1000	150	90	Landscape and façade lighting 250 watts or less; ornamental lights 70 watts or less; marquee lighting not employing medium based lamps

* For reference only

22.09 Height Limits. Pole and surface-mounted luminaires under this section must conform with section 22.08.

- (1) **Pole mounted lighting.** Lighting mounted onto poles or any structures intended primarily for mounting of lighting shall not exceed a mounting height of 40% of the horizontal distance of the light pole from the property line, nor a maximum height according to Table 3, whichever is lower. Exceptions:
 - (a) Lighting for residential sports courts and pools shall not exceed 15 feet above court or pool deck surface.
 - (b) Lights specifically for driveways, and then only at the intersection of the road providing access to the site, may be mounted at any distance relative to the property line, but may not exceed the mounting height listed in Table 3.
 - (c) Mounting heights greater than 40% of the horizontal distance to the property line but no greater than permitted by Table 3 may be used

provided that the luminaire is side shielded toward the property line.

- (d) Landscape lighting installed in a tree. See the Definitions section.
 - (e) Street and bicycle path lights.
- (2) **Lights mounted to buildings or structures.** Lighting mounted onto buildings or other structures shall not exceed a mounting height greater than 4 feet higher than the tallest part of the building or structure at the place where the lighting is installed, nor higher than 40% of the horizontal distance of the light from the property line, whichever is less. Exceptions:
- (a) Lighting attached to single family residences shall not exceed the height of the eave. Lighting for driveways shall conform to Table 3.
 - (b) Lighting for facades may be mounted at any height equal to or less than the total height of the structure being illuminated regardless of horizontal distance to property line.(c)For buildings less than 40 feet to the property line, including canopies or overhangs onto the sidewalk or public right of way, luminaires may be mounted to the vertical Facade or the underside of canopies at 16 feet or less.
 - (c) The top exterior deck of parking garages should be treated as normal pole mounted lighting rather than as Lights Mounted to Buildings. The lights on the outside edges of such a deck must be side shielded to the property line.

Table 3 – Maximum Lighting Mounting Height in Feet

Lighting Zone	Lighting for Driveways, Parking and Transit	Lighting for Walkways, Plazas and other Pedestrian Areas	All Other Lighting
LZ 0*	20.0	8.0	4.5
LZ 1*	25.0	12	4.5
LZ 2	35.0	18	8
LZ 3	37.5	18	15
LZ 4*	Height limit to be determined by Zoning Administrator		

* For reference only

22.10 Total Site Power Limits

- (1) **Outdoor lighting.** This section applies to all outdoor lighting, whether attached to building, poles, structure, or self supporting, including but not limited to hardscape areas (which include parking lots, lighting for building entrances, sales and non-sales canopies), lighting for all outdoor sales areas, and lighting for building facades.
- (2) **Energy code.** If there is an energy code in place, then the more restrictive of this

ordinance and that energy code shall apply.

- (3) **Maximum allowed lighting limit.** The Maximum Allowed Lighting Limit shall be the lesser of 6000 lumens or 400 watts (incandescent equivalent, 1500 lumens/100 watts) for residential properties and 70,000 lumens/acre for commercial properties.

22.11 Lighting for Externally Illuminated Signs.

Externally lit signs shall be lit from the top of the sign downward with fully shielded fixtures.

Exception: signs not taller than 10 feet above grade may be illuminated by landscape lighting complying with Table 2.

22.12 Lighting Controls.

- (1) **Commercial lighting controls.** Lighting systems for commercial properties shall be turned off or reduced in lighting by at least 50% beginning at the lighting curfew defined below, and continuing until dawn or start of business, whichever is sooner. The reduction shall be determined as an overall average for the site. When possible, the lighting system should be turned off rather than be reduced in lighting level.
- (2) **Residential lighting limits.** Holiday, ornamental, and decorative lighting for residential properties in LZ 2 shall be turned off at the lighting curfew defined below.

The lighting curfew shall be as follows:

- (a) LZ 2, 11:00 p.m.
- (b) LZ 3, the earlier of 11:00 p.m. or one-half hour after the close of business.
- (c) Exceptions:
 - (1) There is only one (conforming) luminaire for the site.
 - (2) When in the opinion of the Zoning Administrator, reduced lighting levels at a given location will cause unacceptable increased risk and design levels must be maintained.

NOTES: The Village strongly recommends the use of timers and/or motion detectors on outdoor lighting, and that motion detectors be set to minimize unnecessary activation, i.e., to the extent practical, entryway or driveway lights should not activate for pedestrians or cars off the property containing the motion detectors.

22.13 Special Permits.

- (1) **Special permits.** Upon special permit issued by the Zoning Administrator, lighting systems not complying with the technical requirements of this ordinance but consistent with the intent of the ordinance may be installed for the following applications:

- (a) Sport fields.
 - (b) Construction lighting.
 - (c) Industrial lighting for hazardous areas where the heat of the lighting fixture may cause a dangerous situation.
 - (d) National and State Flag lighting with spotlights greater than 40 watts.
- (2) **Obtain a permit.** To obtain such a permit, applicants shall demonstrate that the proposed lighting installation:
- (a) For applications a and b above, utilizes fully shielded luminaires and, if required, side shielded and internally shielded luminaires that are installed in a fashion that maintains the shielding characteristics unless certified in writing by a registered engineer or by a lighting certified professional that such shielding is impractical. Where fully shielded fixtures can not be utilized, acceptable luminaires shall include only those which are installed with minimum aiming angles of 25 degrees downward from the horizontal. Said aiming angle shall be measured from the axis of the luminaire's maximum beam candlepower as certified by independent testing agency.
 - (b) Has received every reasonable effort to mitigate obtrusive light and artificial sky glow, supported by a signed statement from a registered engineer or by a lighting certified professional describing the mitigation measures.
 - (c) Comply with all technical requirements of this section after curfew.
 - (d) The Zoning Administrator shall review each such application. A permit may be granted if, upon review, the Zoning Administrator believes that the proposed lighting will not create unwarranted glare, sky glow, or light trespass.

22.14 Applications for a Variance.

A person may apply to the Village Administrator for a variance from sections 33.04, 22.07, 22.08, 22.09, 22.10, 22.11, or 22.12 of this Chapter in order to accommodate special circumstances of limited duration or to alleviate an undue hardship on the part of the applicant or the community. In deciding to grant or deny a variance, the Village Administrator shall balance the purposes and standards of this Chapter against any special circumstance or undue hardship that may be cited by the applicant. For applications to accommodate special circumstances of limited duration, the Village Administrator may grant or deny the application; grant the application with reasonable conditions to minimize the impact of anticipated light levels; or refer the application to the Board of Trustees. Applications to alleviate undue hardship will be considered by the Board of Trustees, which may grant or deny the application, or grant the application with reasonable conditions to minimize the impact of anticipated lighting circumstances.

22.15 Enforcement.

This Chapter will be enforced in accordance with Chapter 31 of this Code.

Appendix H Alternatives

Alternatives Appendix

MUNICIPAL ACTIONS

CODES AND ORDINANCES

Recommendations will align with emerging best practices and local examples for incorporating sustainability into codes and ordinances.

Recommendations will provide clear pathways for implementation and adherence within the existing regulatory framework.

Recommendations must have evidence of political support by aligning with existing policy priorities or public participation input.

Green Infrastructure in New Developments

The Village zoning code should require developers to incorporate green infrastructure as part of the site's stormwater management. Infrastructure examples include bioswales, bioretention ponds, and green roofs.

Evaluation

Best Practices	pass	A variety of model municipalities exist with green infrastructure initiatives, codes, and regulations
Implementation	fail	Minimal existing implementation examples exist.
Political Support	fail	The requirement of green infrastructure will cause friction with developers and has the potential to conflict with local property owners and/or residents.

Research and Additional Resources

The Village of Shorewood has incorporated multiple sustainable infrastructure strategies to minimize the volume of pollutants entering the stormwater system. This includes porous pavements, bioretention ponds, and underground storage facilities as stated in the Village Stormwater Management Plan of 2020. ([Clark Dietz, Inc.](#), 2020, pg. 17)

- Example Code 250-13.A.2: The stormwater management plan should consider an analysis of at least two green infrastructure BMPs appropriate

for the site as compared to the use of traditional BMPs only. If green infrastructure BMPs are not proposed, the analysis should include a Wisconsin professional engineer's statement as to why green infrastructure BMPs are not suitable or recommended for the stormwater management plan.

- Example Code 535-22.1.5C: Green roofs. Green, or vegetated, roofs count towards the site coverage, calculated at 75% of the area of the green roof.
- Ordinance for Sun Prairie incorporate city engineer to review plan

Village of Shorewood Stormwater Management Plan. Clark Dietz, Inc. (December 2020).

<https://www.villageofshorewood.org/DocumentCenter/View/8677/Final-Shorewood-SWM-Report-123?bidId=>.

Accessory Dwelling Units

When the municipality updates their zoning codes, they should consider adding accessory dwelling units (ADUs) to their code as a conditional use. Accessory dwelling units offer housing flexibility and are often suggested to enable aging in place or support residents with disabilities.

Evaluation

Best Practices	pass	Communities in Wisconsin allow ADUs with varying levels of restriction to offer housing choices and aging in place opportunities.
Implementation	pass	Village zoning code would incorporate permissions for ADUs and could modify existing language regarding “servants’ quarters” to suit modern purposes.
Political Support	fail	Current Village plans state an intention to not increase residential unit density. There is limited support for changing the character of the Village.

Research and Additional Resources

The Village of Elm Grove offers language referring to servants’ quarters in their zoning code, however it does not mention accessory dwelling units. Accessory dwelling units can provide economic and social benefits for the residents of the

principal dwelling and the residents of the accessory dwelling. The City of Ashland permits accessory dwelling units as a conditional use in most residential zones. Their zoning code offers specific size requirements and floor area maximums to regulate. Accessory dwellings can provide economic and social benefits for the residents of the principal swelling and the residents of the accessory dwelling.

Accessory dwelling units (ADUs) can counteract suburban sprawl, allowing for a more efficient use of land. Allowing village residents to construct an ADU opens the opportunity for an elderly parent, an adult child, or another renter to live on a previously single-family property. ADUs increase density without significantly changing the character of a neighborhood. Setting requirements limiting size and maximum number of occupants would allow the village to preserve single-family neighborhood character while increasing flexibility and land rights for homeowners who choose to build an ADU. The US Environmental Protection Agency recommends higher-density development for protecting water resources.

Protecting Water Resources with Higher-Density Development. Richards, Lynn (2006). https://www.epa.gov/sites/default/files/2014-03/documents/protect_water_higher_density1.pdf

Electric Vehicle Charging Code

Village code should offer a definition of electric vehicle charging infrastructure (EV chargers) and clarify where this equipment is a permitted and/or conditional use.

Evaluation

Best Practices	pass	Some Wisconsin communities already clarify that EV chargers are a permitted use in specific zones (ex: Oconomowoc).
Implementation	pass	This update would integrate into the existing Village code.
Political Support	fail	EV chargers did not come up as a significant priority in the Sustainability Survey or focus group.

Research and Additional Resources

Sample language from Oconomowoc ordinances:

“Electric vehicle charging stations may be located within required front or side setbacks, and shall not be located closer than five (5) feet to any property line.”

OPERATIONS

Recommendations will demonstrate cost-effectiveness through case studies, financial projections, or past successful implementations.

Proposed changes will reduce environmental impact while maintaining or improving service efficiency.

Proposed changes will be feasible given current municipal staffing, expertise, and resources.

Village Hall Energy Efficiency

The Village should identify, pursue, and complete energy efficiency upgrades for all Village facilities. Example updates may include windows, lighting, insulation, HVAC systems, and boilers.

Evaluation

Cost-effectiveness	maybe	Energy efficiency updates will result in reduced Village energy bills, but the upfront investment in these efforts may require grant funding.
Service quality	pass	Measures will conserve electricity and natural gas without compromising service levels or quality.
Feasibility	fail	Identifying high priority projects and potential savings will require additional expertise, fund seeking, and project completion will likely require significant staff time (additional staff capacity required).

Research and Additional Resources

Building energy efficiency improvements will reduce electricity and other utility costs for Village Hall, Fire Department, and Library. This property creates opportunities to implement some residential scale improvements to showcase these for village residents, which helps residents see themselves implementing the changes. The Village can provide tours of the efficiency and conservation features as part of education and outreach programming. The updated Fire

Station shared between Oconomowoc and the Village of Summit acts as a case example. LED light replacement has already begun in Village Hall, and the Village is currently working on a grant to do energy baselining with Wisconsin Local Government Climate Coalition.

Funding options:

- There are few residents in the Village who would outright donate to Village sustainability efforts, and some are willing to contribute tax revenue
- The Village should apply for and use grants to accomplish this goal, so the Village likely needs staff to take on this challenge, partnering with Parks & DPW

Village Hall Microgrid System

The Village should incorporate renewable energy and a battery storage system at Village Hall to create a microgrid. This system will make Village Hall resilient to outages caused by extreme weather.

Evaluation

Cost-effectiveness	fail	Few communities in Wisconsin have implemented a microgrid at municipal facilities, and those that exist required significant upfront investment.
Service quality	pass	Using locally generated power would reduce environmental impact without reducing service quality
Feasibility	fail	The fund seeking and implementation process for installing a microgrid would require additional staff time.

Research and Additional Resources

Creating a microgrid at Village Hall allows for the building to become a refuge during power outages caused by extreme weather. The City of Sun Prairie, along with several other Wisconsin communities, have installed microgrids on public facilities in recent years. These systems combine renewable power generation with battery storage to provide a continuous supply of electricity. The Energy Innovation Grant Program may be a source of grant funding for a future Village Hall microgrid.

Road Salt Reduction

The Village should implement policies and strategies that reduce salt application during winter ice/snow removal. Reducing salt usage will improve prevent salination or the gradual increase of salt content in freshwater resources. It also provides for better plant health following winter if less salt remains on the ground running off the road and into soils. Applying a pre-treatment brine mixture, beet juice, and cheese have been effective in reducing heavy reliance on salt. DPW crews could also monitor ice levels and lower usage on roadways that typically have less ice and concentrate higher amounts on trouble locations.

Evaluation

Cost-effectiveness	fail	The Village's salt contract requires the purchase of a minimum 500 lbs of salt, so modifying this practice would not save the Village significant resources.
Service quality	pass	Evidence in other communities suggests that safe road conditions are maintained with low-salt techniques.
Feasibility	pass	Reducing salt volume should also reduce staff time spent on salt application. Any time saved can go toward extra monitoring of the ice at various levels of salt application

Research and Additional Resources

PLANS

Recommendations will modernize Village plans and enable implementation of current sustainability best management practices.

Recommended updates will integrate sustainability in existing Village plan development, resulting in cohesive priorities across future planning documents.

(All plan alternatives passed the criteria and are recommendations)

COMMUNITY PROGRAMS

PLACEMAKING

Recommendations will help the Village of Elm Grove achieve local and state recognition for sustainable initiatives through awards and certifications.

Initiatives will leverage features that residents already value in the Village, including the Underwood Creek, Village Park, trees, walkability, and open space.

Public spaces will be designed and activated in a way that is more sustainable, welcoming, and valued by the community.

(All placemaking alternatives passed the criteria and are recommendations)

CREATE AND STRENGTHEN PARTNERSHIPS

Recommendations will identify (local and regional) partners and stakeholders that can carry out programs and initiatives successfully.

Identified leaders will actively engage residents across age groups and support opportunities for collaboration through inclusive programs, events, or initiatives.

Recommendations will integrate Elm Grove programs with other regional and local sustainability organization goals.

Proposed activities will establish relationships between residents of surrounding communities and Elm Grove residents.

Green Business Association

The Village should implement policies and strategies that reduce salt application during winter ice/snow removal. Reducing salt usage will improve water quality and protect fragile habitat in the Village and surrounding watershed.

Evaluation

Clear partners	pass	There is an existing local business association that could participate in sustainability planning.
Inclusion	fail	Business owners and a business association would not reach a wide age range of participants.
Goals	pass	The Wisconsin Sustainable Business Council and Green Masters program has many participating businesses in communities neighboring the Village.
Regional Relationships	fail	While businesses in Elm Grove may serve residents from outside the Village, a local business association would primarily benefit the businesses themselves rather than their customers or the wider community.

Research and Additional Resources

The existing downtown master plan indicates a need for more involvement for a business association. Oconomowoc Chamber of Commerce used to host educational breakfasts on sustainability topics, such as Green Power. This partnership could make a mechanism for business recognition for sustainable practices (ex: Elm Grove Green Business of the Year).

Leverage relationships with religious groups

The Village should leverage relationships with local religious groups, including church schools, to increase sustainability education and example infrastructure.

Evaluation

Clear partners	pass	There are a number of religious communities in the Village, including local religious schools.
Inclusion	pass	Religious institutions, especially those with schools, often result in multigenerational communities.
Goals	fail	Increasing these relationships does not lead to other organization participation or regional alignment in goals.
Regional Relationships	pass	Creating partners and social networks increases opportunities for neighboring community relationships

Research and Additional Resources

The Community Advocates Focus Group brought up the potential to leverage large religious communities in the Village as partners for future programming and education.

EDUCATION & INITIATIVES

Educational efforts will generate consensus in the community for future policy and code changes that increase sustainability in the Village.

Recommended initiatives will reflect local priorities and existing community strengths by centering public input.

Recommendations will lead to increased sustainable behavior, local engagement, and habit changes in Elm Grove.

Sustainability Movie Night

The Village should add a sustainability movie night series that includes children-friendly and young-adult oriented films.

Evaluation

Policy consensus	fail	Movie night will increase engagement but may not relate back to local policy issues.
Public Input	pass	Movie nights will engage people of all ages and encourage those interested in sustainability to attend events.
Behavior change	maybe	Increased engagement may lead to habit changes for sustainable practices discussed in the movies.

Research and Additional Resources

Outdoor classroom

The Village should make improvements to outdoor classrooms at Tonawanda Elementary and Pilgrim Park Middle School. These enhancements could include natural habitat examples and seating areas.

Evaluation

Policy consensus	fail	Outdoor classrooms could get kids excited for increased natural habitat in the Village but does not build community-wide consensus for policy changes.
Public Input	pass	The focus group was excited about having outdoor learning spaces to get more kids and families involved in sustainability initiatives.
Behavior change	maybe	Increased interaction with natural spaces may lead to increased sustainable habits including invasive species removal or native planting.

Research and Additional Resources

Develop a small meadow for outdoor education using a piece of the green space at Tonawanda Elementary School and Pilgrim Park Middle School. To fund this, the village will pursue grant funding from the Go Outside Fund, WDNR, and others in the Environmental in Wisconsin database to build. Additionally,

Brookfield School District can partner with MMSD to include rain storage facilities as part of its green infrastructure developments. To build this, the village can utilize the design expertise of local organizations like Reflo that specialize in green playgrounds. Throughout the process, students, teachers, parents, and grounds keepers can be engaged to shape the space based on their ideas. This would give stakeholders their choice of recycled plastic or reclaimed wood furniture, decorative pavers, and the type of native plants to include.

Who: Elm Brook School District

Case Study: [Sun Prairie East](#)

Sun Prairie School District (SPSD) is capitalizing on a project by Sun Prairie Utilities (SPU) to install a new city well. As part of the project, SPU will contribute to the construction of a pavilion and outdoor classroom space.

Go Outside Fund. National Resources of Wisconsin.
<https://www.wisconservation.org/grants/go-outside-fund/>.

Department of Grant Programs. Wisconsin Department of Natural Resources.
<https://dnr.wisconsin.gov/aid/Grants.html>.

Grants. Environmental Education in Wisconsin.
<https://eeinwisconsin.org/core/item/topic.aspx?s=0.0.16.2209&tid=85010>.

Sun Prairie Utilities partners with school district for new well and outdoor classroom. Madison Reporter. (February 19 2025).
<https://madisonreporter.com/stories/669913965-sun-prairie-utilities-partners-with-school-district-for-new-well-and-outdoor-classroom>.

Logo Design Competition

The Village should host a Sustainability Design competition within the local elementary schools to generate a sustainability logo for the community.

Evaluation

Policy consensus	fail	Rallying the community around a sustainability logo will not connect directly to any policy issues.
Public Input	pass	The community advocates focus group emphasized the need to involve local kids (and their parents by extension) in sustainability programming.
Behavior change	maybe	A design competition will result in local engagement with sustainability issues and local ownership of what the logo stands for.

Research and Additional Resources

The Village would partner with local teachers and the PTA to host a student logo design competition for Elm Grove sustainability efforts. Students would submit their designs to the Committee, and there would be some type of public voting on the designs. Voting could be bracket-style, taking place during Marsh Madness (a marsh-bird themed spring event). The most popular logo would be refined by a graphic designer to represent the Village's Sustainability Committee.

FUNDING OPTIONS

Funding sources will align with current and/or future initiatives that the community desires.

Funding sources will be renewable and able to sustain a program beyond creation.

The process of applying for and administering funding will be manageable for Village staff.

Underwood Creek Endowment

The Village should fundraise or seek philanthropy to create an endowment for the new Village Park at Underwood Creek that will support the installation and maintenance of sustainability features.

Evaluation

Alignment	pass	The Village prioritizes green space and can utilize the Underwood Creek project as a catalyst for change.
Renewable	pass	An endowment could be managed in a way to provide continuous funding for the project.
Village capacity	fail	Management of the endowment would require significant coordination with Village staff, likely with a separate foundation or nonprofit.

Research and Additional Resources

The Village should develop a list of potential donors to have on hand for grant matching efforts. The park would create opportunities for donor recognition in the Village, such as through plaques, benches, and pavers. Some sustainability features, such as permeable pavement, require different maintenance schedules than traditional materials. The endowment could go toward regular vacuuming of permeable pavement, for example. Potential partners include the Elm Grove Foundation and Village Parks Department.

Wisconsin Local Government Climate Coalition

The Village should join the Wisconsin Local Government Climate Coalition (WLGCC) to access their help with grant applications and funding resources. This partnership may also help the Village access information and expertise from other members.

Evaluation

Alignment	pass	The Village is currently pursuing help with building energy efficiency through a WLGCC grant.
Renewable	fail	Participation in WLGCC by itself doesn't guarantee getting any funding, let alone repeated grants.
Village capacity	pass	The WLGCC will provide support for grant applications and only ask that member representatives participate in work groups (minimal time contribution per month).

Research and Additional Resources

Joining WLGCC would provide Elm Grove with access to grants, technical assistance, and policy support to implement energy efficiency projects. The coalition helps communities offset upfront costs through funding opportunities, making improvements like LED lighting and building upgrades more affordable. Long-term savings on municipal energy expenses would reduce budget strain while supporting sustainability goals. Additionally, WLGCC's advocacy ensures local governments have a voice in state and regulatory decisions impacting energy policy.

Wisconsin Local Government Climate Coalition. <https://wlgcc.org>.

Appendix I Recommendation Details

Plan language	Location	Document
<p>Promote and encourage best practice standards of energy efficiency and eco-friendly construction techniques</p>	<p>Barron County</p>	<p>Comprehensive Plan 2010</p>
<p>Promote strong "green building" and sustainability standards to encourage developers to implement the most recent innovations in building design, renewable energy, stormwater management, and landscaping to protect the environment</p>	<p>City of Middleton</p>	<p>Comprehensive Plan 2021, 2022</p>
<p>Develop programs and incentives that decrease consumption of new land and new materials and reutilizes existing buildings to the extent practicable"</p>	<p>City of Oskosh</p>	<p>Comprehensive Plan Update (2040)</p>
<p>Track and maintain carbon-free electricity status in all County-owned facilities even as electric usage may increase due to the electrification of transportation and building systems.</p>	<p>Bayfield County</p>	<p>Comprehensive Plan 2023-2043</p>
<p>Implement 50% of the energy conservation measures identified in the energy audits by 2022.</p> <p>Materials focused on energy efficiency in the home, renewable energy use, efficient transportation, etc. will be disseminated in multiple ways including tax bills and City newsletter.</p>	<p>Forest Potawatomi Community</p> <p>City of Stevens Point</p>	<p>Comprehensive Plan 2023-2043</p> <p>A Path to A Sustainable Stevens Point 2008</p>

<p>Making weatherization and renewable energy retrofits more affordable as part of holistic housing improvements that also address lead-based paint and other health hazards.</p>	<p>City of Milwaukee</p>	<p>Milwaukee Climate and Equity Plan 2023</p>
<p>Provide incentives for developers and contractors to build solar-ready and EV-ready for 5-10 years, as appropriate; after which, these programs are phased into mandates for residential and commercial new construction and major retrofit projects, incorporating solar-ready and EV-ready attributes into all projects</p> <p>Encourage green initiatives for residential units that promote the use of renewable energy and energy efficiencies/conservation.</p>	<p>City of Madison Red Cliff Band of Lake Superior Chippewa</p>	<p>100% Renewable Madison 2018</p>
<p>Place a value on Middleton's urban tree canopy using carbon valuation on the market that corresponds to their carbon sequestration potential</p>	<p>City of Middleton</p>	<p>Comprehensive Plan 2021, 2022</p>
<p>Identify and fund a diversity of tree species in the urban tree canopy that consider climate mitigation, carbon sequestration, and resiliency in both urban forestry, and to mitigate existing rural afforestation.</p>	<p>Village of Egg Harbor City of Middleton</p>	<p>2021 Green Tier Legacy Communities Annual Report Comprehensive Plan 2021, 2022</p>

<p>importance of waste reduction to help mitigate greenhouse gasses produced by landfills and waste transport, and encourages tree planting and urban forest cover to help remove carbon dioxide, the dominant greenhouse gas produced by humans</p>	<p>City of Milwaukee</p>	<p>Milwaukee Climate and Equity Plan 2023</p>
<p>Partnering with utilities and solar developers to support and reward solar project landowner participants in instances where participation results in water quality, farmland preservation, ecosystem, and carbon sequestration benefits</p>	<p>Town of Adams</p>	<p>Comprehensive Plan 2018</p>
<p>Incorporate nature into the design of the public right-of-way by including trees, planting beds, and green infrastructure in streetscapes</p>		<p>2045 Comprehensive Plan</p>
<p>Secure funding streams to maintain recycling efforts and proper disposal of solid wastes. Research the possibilities of sold waste consumption to produce energy. Continue public education efforts to solidify public support for recycling efforts</p>	<p>Sokaogon Chippewa Community</p>	<p>Comprehensive Plan 2011</p>

Require retailers and restaurants to donate, reduce, reuse, or compost their unsold food. Policies may include the creation of "zero-waste sections" where products are sold close to their expiration dates, designation of "zero-waste managers" to educate staff and help manage products reaching the end of their marketable life, donation of edible unsold products, and collection of organic waste for composting.	City of La Crosse	Climate Action Plan
Conduct an energy assessment for municipal water and wastewater facilities and develop a plan to increase energy efficiency	City of Janesville	2021 Green Tier Legacy Communities Annual Report
Promote the use of water saving technology by City residents, such as rain barrels, rain gardens, and low-flow appliances and fixtures.	City of Delavan	Comprehensive Plan 2020
Increase water conservation and identify ways to reuse clean wastewater for watering lawns, city parks, and plants	City of Sun Prairie	A Vision for a Sustainable Sun Prairie
Promote increased water conservation and wastewater generation City-Wide with a reduction of 6% by 2030	City of Fitchburg	Sustainability Baseline and Strategic Goals 2023
Construction/deconstruction waste recycling ordinance	City of Janesville	2021 Green Tier Legacy Communities Annual Report
Develop a city-wide collection program that encourages the diversion of food scraps, yard materials and other organics from landfills to composting or anaerobic digestion	City of Janesville	2021 Green Tier Legacy Communities Annual Report

<p>Create a municipal purchasing policy that requires consideration be given to whether a product is made from renewable and/or recycled materials</p>	<p>Village of McFarland</p>	<p>Sustainability Plan 2021</p>
<p>In addition to alternative energy choices, encourage "green" housing with the use of renewable construction materials, as well as those that do not have a negative impact on our natural resources</p>	<p>Wood County</p>	<p>Comprehensive Plan 2009-2029</p>
<p>Take advantage of Focus on Energy's grants and incentives to fund renewable energy projects on public buildings.</p>	<p>City of Stevens Point</p>	<p>A Path to A Sustainable Stevens Point 2008</p>
<p>Provide financial incentives with City permits encouraging solar ready roofs, electric vehicle charging infrastructure, and permeable pavement</p>	<p>City of Sun Prairie</p>	<p>A Vision for a Sustainable Sun Prairie</p>
<p>Pursue SolSmart designation to reduce barriers to on-site solar installation</p>	<p>City of Menomonee</p>	<p>An Energy Action Plan for Menomonee</p>
<p>Utilize Property Assessed Clean Energy (PACE) financing</p>	<p>city of Monona</p>	<p>Sustainable City Plan 2022</p>
<p>Educate contractors, installers, and homeowners about benefits of electrification and other on-site fossil fuel combustion reduction strategies, currently available technology such as heat pumps, and manufacturer resources for installation training and support. Collaborate with Focus on Energy to establish electrification resources website and workshops.</p>	<p>City of La Crosse</p>	<p>Climate Action Plan</p>

<p>Promote green power purchase options such as those provided by Xcel Energy's "Renewable Connect". Collaborate on promotion and education of available options.</p>	<p>City of La Crosse</p>	<p>Climate Action Plan</p>
<p>Map critical community infrastructure and operations and identify opportunities to upgrade energy systems that would enable these sites to sustain operations during periods of power grid disruption, prioritizing solar systems.</p>	<p>City of La Crosse</p>	<p>Climate Action Plan</p>
<p>Require all new private construction or major renovation projects over 30,000 square feet to use the City's Net Zero Energy Building Guide and Checklist to explore opportunities to advance towards Net Zero Energy as a part of the City's building permitting process (note, requirement is to use the guide and checklist illustrating evaluation of options, implementation of specific options to be voluntary). Invite County, School District, and other public agencies located within the City to participate in City's energy efficiency policy effort.</p>	<p>City of La Crosse</p>	<p>Climate Action Plan</p>

<p>Require all new private construction or major renovation projects over 30,000 square feet to use the City's Net Zero Energy Building Guide and Checklist to explore opportunities to advance to- wards Net Zero Energy as a part of the City's building permitting process (note, requirement is to use the guide and checklist illustrating evaluation of options, implementation of specific options to be voluntary). Invite County, School District, and other public agencies located within the City to participate in City's energy efficiency policy effort.</p>	<p>City of Appleton</p>	<p>Climate Action Plan Proposal</p>
<p>Publish technical information guide; identify potential funding for renewable heat and feasibility study; develop new homeowner packet</p>	<p>City of Eau Claire</p>	<p>Eau Claire Renewable Energy Action Plan</p>
<p>Utilize the Outdoor Newsletter, or other form of print and social media, to annually distribute information on rebates and tax incentives for renewable energy and energy efficiency</p>	<p>Village of McFarland</p>	<p>Sustainability Plan 2021</p>
<p>Incorporate low-level solar lighting in parks where appropriate</p>	<p>Village of Egg Harbor</p>	<p>2021 Green Tier Legacy Communities Annual Report</p>
<p>Adopt and implement a "Complete Streets" policy so that design and operations of the entire right-of-way balance the safety and convenience of all road users regardless of age, ability, or mode of transportation</p>	<p>City of Middleton</p>	<p>Comprehensive Plan</p>

<p>Develop and implement programs that encourage walking and bicycling and educate the public about the many benefits of walking and bicycling, including health, financial and environmental benefit</p>	<p>City of Fitchburg</p>	<p>Growing Fitchburg 2030</p>
<p>Establish an EV Ready Ordinance requiring new developments to have wiring capacity to charge electric vehicles and reserve a percentage of new parking spots for exclusive EV use</p>	<p>City of La Crosse</p>	<p>Climate Action Plan</p>
<p>As municipal vehicles need replacement, evaluate the purchase of hybrid, electric or alternative fuel vehicles</p>	<p>Village of McFarland</p>	<p>Sustainability Plan 2021</p>
<p>Establish a Green Revolving Fund to maintain investments in clean energy. Green Revolving Funds and other financing tools, such as energy performance contracting, can offer city officials alternatives to implementing energy efficiency and renewable energy projects while minimizing capital expenditures</p>	<p>City of Madison</p>	
<p>Develop a Carbon Impact Fee that would generate funds to be used for climate mitigation and adaptation implementation</p>	<p>City of La Crosse</p>	
<p>Develop county employees and board member training on County sustainability goals and initiatives</p>	<p>Eau Claire County</p>	
<p>Appoint or hire a sustainability coordinator; a part or fulltime employee to plan/manage/implement sustainability initiatives</p>	<p>City of Monona</p>	

Form a green team of representatives from each department under direction of the Sustainability Coordinator to evaluate and implement internal sustainable actions.

City of Oshkosh

Encourage compact and well-planned urban development areas so that community facilities and services (e.g., school bus routes, snow removal, police patrol) can be provided in a cost-effective, energy efficient manner.

City of Wisconsin Rapids

Preserve and enhance the historic character of the downtown and older Village neighborhoods, while encouraging compatible infill, redevelopment, and rehabilitation of buildings and sites according to guidelines in this Chapter

Village of McFarland

Example Solar System Capacity and Cost – Village Recreation

The Village budgeted \$11,000 for electricity costs for Recreation in 2024, which represents a 10% increase from 2023 (1). In December 2024, the national average cost of electricity per kilowatt hour was 17.6 cents (2). To estimate the number of kilowatt hours needed, the team divided \$10,000 by the average cost per kilowatt hour. This calculation totaled around 62,500 kWh for 2024 Recreation needs.

Solar experts estimate an annual rate of solar production of around 1.3 kilowatt hours per kilowatt of panel capacity (3). The production rate depends on panel location and weather conditions but acts as a reasonable estimate. To generate all 62,500 kWh of electricity, a system of around 48 kW capacity would be needed. This system would require only a portion of existing Village facilities' roof, which could generate between 59,759 to 66,320 kWh annually (4).

Rooftop Size Estimator ✕

Click the map below to draw the area to be occupied by the array. The size estimate is based on the area of a horizontal polygon. It does not account for roof tilt and azimuth, or shading.

System Capacity: 48.0 kWdc (320 m2)

Map Satellite

Google

Keyboard shortcuts | Imagery ©2025 Airbus, Maxar Technologies | Terms | Report a map error

RESET CANCEL SAVE

Village of Elm Grove Facilities Roof. Source: PVWatts Rooftop Size Estimator.

In the U.S., the average cost per watt of panels is \$2.56 (or \$2,560 per kW), excluding any incentives (5). A system capable of generating the amount of electricity for current estimated Recreation needs would cost \$122,880 before

incentives. This upfront investment represents 11.17 years of \$11,000 in electricity purchases. Panels often have a 25 to 30-year life span, representing ongoing value potential of solar panels.

(1) 2024 Operating and Capital Budgets including 2023 Tax Levy and 2024 User Fees. (November 28, 2023).

<https://elmgroveti.org/DocumentCenter/View/5098/2024-approved--budget?bidId=>

(2) Bureau of Labor Statistics. Average Energy Prices, Los Angeles-Long Beach-Anaheim. (December 2024).

<https://elmgroveti.org/DocumentCenter/View/5098/2024-approved--budget?bidId=>

(3) EnergySage. How much solar power can my roof generate? (November 15, 2024). <https://www.energysage.com/solar/how-much-solar-power-can-my-roof-generate/>

(4) PVWatts Calculator. <https://pvwatts.nrel.gov/pvwatts.php>

(5) EnergySage. Solar panel cost in 2025: It may be lower than you think. <https://www.energysage.com/local-data/solar-panel-cost/>

Image Source: PVWatts Calculator. <https://pvwatts.nrel.gov/pvwatts.php>

Village of Elm Grove Sustainability Plan