

Tuesday, June 2, 2020

Ad-Hoc Committee

6:00 PM

McFarland Municipal Center
Community Room

AGENDA

You are invited to this meeting through a Zoom webinar. The Public is strongly encouraged to watch and participate in these meetings remotely through either the webinar or telephone options listed below.

PLEASE CLICK THE LINK BELOW TO JOIN THE ZOOM WEBINAR:

<https://us02web.zoom.us/j/89089504443>

Or by Telephone:

Dial US: +1 (312) 626-6799

Webinar ID: 890 8950 4443

1. CALL TO ORDER.
2. PUBLIC APPEARANCES.
3. COMMITTEE INTRODUCTIONS
4. BUSINESS.
 - a. Discussion of the Rules and Responsibilities of the Committee
 - b. Update on McFarland Public Works Solar Power Installation Project
 - c. Discussion regarding creating a Sustainability Plan for McFarland.
5. SCHEDULE NEXT MEETING DATE
 - a. Tuesday July 7th, 6pm
6. ADJOURNMENT.

This meeting notice constitutes an official meeting of the above referenced group and was posted in accordance with all applicable laws related to Open Meetings Law. It is possible that members of and possibly a quorum of members of other governmental bodies of the municipality may be in attendance at the above stated meeting to gather information. No action will be taken by any

governmental body at the above stated meeting other than the governmental body specifically referred to above in this notice. Upon reasonable notice, efforts will be made to accommodate the needs of disabled individuals. For additional information or to request this service, contact the McFarland Municipal Center at (608) 838-3153 or cassandra.suettinger@mcfarland.wi.us



VILLAGE BOARD SUMMARY SHEET

MEETING DATE: Tuesday, June 2, 2020

SECTION: Business

DEPARTMENT: Community Development

CONTACT: Andrew Bremer, Comm & Eco Dev Director

AGENDA ITEM: Discussion of the Rules and Responsibilities of the Committee

PREVIOUS ACTION:

ISSUE SUMMARY:

Resolution #2020-04 was approved on January 13, 2020 creating the Sustainable McFarland Ad-Hoc Committee. After completion of an advertising period calling for volunteers to join the committee, on March 23rd the Village Board appointed Angela Freedman, Michael Tiboris, Amber Meyer Smith, Bruce Fischer, Judy Taber and Mary Robb to the committee. Freedman was appointed as Chair, and Tiboris as Vice Chair. Each committee member is encouraged to review the materials on the Village's [Committee Orientation](#) webpage.

Section 3a of Resolution 2020-04 describes the three primary items the Village Board tasked the Sustainability Committee to complete by May 1, 2021, including:

1. Work with the Public, Village Staff, Consultants, and others to draft and develop a Sustainability Plan for implementation in McFarland. This plan will address sustainability in order to incorporate elements of the natural environment, local economic vitality, and a healthy Community.
2. Evaluate and make recommendations on the Village joining the Wisconsin Department of Natural Resources Green Tier Program.
3. At the conclusion of all work, make a recommendation to the Village Board regarding Sustainable McFarland Ad-Hoc Committee being established with the McFarland Village Code of Ordinances as a Standing Committee.

FINANCIAL/BUDGET IMPACT:

VILLAGE PLAN REFERENCE:



ORDINANCE REFERENCE:

Resolution 2020-04

BOARD, COMMISSION OR COMMITTEE RECOMMENDATION:

This agenda item is for discussion only to reaffirm the roles and responsibilities of the committee.

ATTACHMENTS:

1. 2020-04 To Create an Ad-Hoc Committee to Create a Plan for and Study of Sustainability within the Village of McFarland

RESOLUTION #2020-04

A RESOLUTION TO CREATE AN AD-HOC COMMITTEE TO CREATE A PLAN FOR AND STUDY OF SUSTAINABILITY WITHIN THE VILLAGE OF MCFARLAND

WHEREAS, the Village of McFarland is committed to creating a vibrant future for our Community by taking responsible and effective action to be a positive influence on our environment;

WHEREAS, it is becoming increasingly clear that sustainable challenges will define this century and future generations as it impacts all aspects of our everyday lives;

WHEREAS, the Village Board for the Village of McFarland feels it has the responsibility to develop appropriate plans to help guide these sustainable courses of action within the Community; and

WHEREAS, it is desired to create an Ad-Hoc Committee of residents of this Village to study sustainability within McFarland and make recommendations to the Village Board to help guide in the decision making process.

NOW, THEREFORE BE IT RESOLVED, that the Village Board of the Village of McFarland, Dane County, Wisconsin, does hereby create the Sustainable McFarland Ad-Hoc Committee and establishes the following conditions regarding its implementation:

1. The Sustainable McFarland Ad-Hoc Committee be formed in accordance with definition and requirements outlined in Section 2-481(a) of the McFarland Municipal Code.
2. Membership of the Sustainable McFarland Ad-Hoc Committee be made up entirely of Residents of the Village of McFarland to be appointed by the Village President subject to confirmation by the Village Board. Additionally, the Village President shall appoint the Chairperson of the Ad-Hoc Committee subject to confirmation by the Village Board. A minimum of 5 Residents and a maximum of 9 Residents will compose the membership of the Committee.
3. Sustainable McFarland Ad-Hoc Committee shall be tasked with the following:
 - a. Work with the Public, Village Staff, Consultants, and others to draft and develop a Sustainability Plan for implementation in McFarland. This plan will address sustainability in order to incorporate elements of the natural environment, local economic vitality, and a healthy Community.
 - b. Evaluate and make recommendations on the Village joining the Wisconsin Department of Natural Resources Green Tier Program.

c. At the conclusion of all work, make a recommendation to the Village Board regarding Sustainable McFarland Ad-Hoc Committee being established with the McFarland Village Code of Ordinances as a Standing Committee.

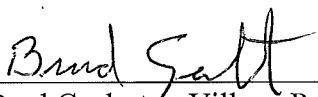
4. Sustainable McFarland Ad-Hoc Committee will be advisory in nature and serve under the direction supervision and discretion of the Village Board.

5. Sustainable McFarland Ad-Hoc Committee will make its recommendation by May 1, 2021 unless otherwise extended by the Village Board. Further, the Committee will make progress reports at least every 3 months following the scheduling of their first meeting.

6. Sustainable McFarland Ad-Hoc Committee will be supported by the Community and Economic Development Director as well as other support as needed from the Village Administrator, Department Heads, and Village Staff.

The above and foregoing Resolution was duly adopted at a regular meeting of the McFarland Village Board on January 13, 2020.

APPROVED:


Brad Czebotar, Village President

ATTEST:


Cassandra Suettinger, Village Clerk-Treasurer

RESOLUTION # 2020-02	
MOTION	SECOND
Czebotar	Brassington
ACTION	DATE
Adopted	01/13/2020
Referred	
Tabled	
Withdrawn	
Defeated	
Published	
INDIVIDUAL VOTING RECORD	
Adrian – Aye	Kryzenske – Aye
Brassington – Aye	Lytle – Aye
Czebotar – Aye	Utter – Aye
Kolk – Aye	
VOTING RESULTS	
Motion Carried	7 – 0 – 0 P
Motion Defeated:	



VILLAGE BOARD SUMMARY SHEET

MEETING DATE: Tuesday, June 2, 2020

SECTION: Business

DEPARTMENT: Community Development

CONTACT: Andrew Bremer, Comm & Eco Dev Director

AGENDA ITEM: Update on McFarland Public Works Solar Power Installation Project

PREVIOUS ACTION:

ISSUE SUMMARY:

The Village Public Works facility will be undergoing several renovations this year. As part of this project, the Village issued an RFP to solicit bids for the installation of solar panels to the roof of the building. At its May 26, 2020 meeting, the Village Board accepted a bid from Eagle Point Solar for this project. Eagle Point will also be assisting the Village with completion of a Focus on Energy 2020 Renewable Solar Electric (PV) Incentive Application.

FINANCIAL/BUDGET IMPACT:

VILLAGE PLAN REFERENCE:

ORDINANCE REFERENCE:

BOARD, COMMISSION OR COMMITTEE RECOMMENDATION:

This agenda item is for discussion only to update the Committee on this recent sustainability project.

ATTACHMENTS:

1. Pages from 05.26.20 VB Meeting
2. 2020_Solar_Application



VILLAGE BOARD SUMMARY SHEET

MEETING DATE: Tuesday, May 26, 2020

SECTION: Business

DEPARTMENT: Administration

CONTACT: Matt Schuenke, Village Administrator, Jim Hessling, Public Works Director

AGENDA ITEM: Discussion and action regarding the award of a proposal for the addition of solar panels to the Public Works Center.

PREVIOUS ACTION:

The Public Works Committee reviewed these proposals at their meeting on May 12, 2020 and recommended their approval.

ISSUE SUMMARY:

Included within your packet are two proposals to add solar infrastructure to the Public Works Center after the roof has been replaced. This will replace the dated system that is currently in place and provide for a majority of the electricity needs of the facility. The Committee desired to conduct this process as an RFP similar to how we might purchase a vehicle or service. Only two responses were received after we tried to solicit a third applicant. Both are from reputable and experienced companies planning to install essentially the same product. The proposal from Eagle Point Solar is recommended and they have done similar work for public entities in Wisconsin.

FINANCIAL/BUDGET IMPACT:

The total budget for facility improvements to the Public Works Center in 2020 is \$1,000,000. The proposal from Eagle Point is \$69,498 compared to the proposal from Full Spectrum at \$83,802. As mentioned in the previous agenda item, funds remain available for the project as the base bid for construction was well under anticipated amounts.

VILLAGE PLAN REFERENCE:

The Strategic Plan was adopted by the Village Board in 2020. Within it, the plan established Goal B stating that the Village would "Plan for and align physical facilities and open space to support future service delivery, quality of life, and infrastructure needs." A strategy to accomplish this is identified within this goal to "improve current Village facilities, including maintenance enhancements, and identify new systems to promote sustainability". The project as proposed and presented for award adds a sustainable element to the project that helps to provide the facility's electric through the solar panels instead of its reliance on the utility.

ORDINANCE REFERENCE:



None.

BOARD, COMMISSION OR COMMITTEE RECOMMENDATION:

Recommended for approval to award the contract to Eagle Point Solar in an amount of \$69,498.

ATTACHMENTS:

1. Solar Bid Summary Letter 050820
2. McFarland Solar RFP and Attachments
3. McFarland Solar Proposal - Eagle Point Solar 05062020



Strand Associates, Inc.®
910 West Wingra Drive
Madison, WI 53715
(P) 608.251.4843

May 8, 2020

Mr. Matt Schuenke, Village Administrator
Village of McFarland
5915 Milwaukee Street
McFarland, WI 53558

Re: Public Works Facility
Solar PV Array Bids
Village of McFarland, Wisconsin

Dear Matt,

Bids for the above-referenced project were opened on May 6, 2020. Two bids were received and the third firm that was provided a proposal did not submit a bid. The low bid of \$69,498.00 was less than ENGINEER's opinion of probable construction cost.

Full Spectrum Solar's bid was \$83,802.00. Eagle Point Solar, LLC of Dubuque, Iowa, was the apparent low bidder at \$69,498.00. The bid is deemed to be responsive. The materials and installation information supplied meets the requirements of the request for proposal and appears to provide a fully operational solar PV array at the facility. Eagle Point Solar, LLC has included a signed copy of the Indemnification Clause included in the RFP whereas the other bidder has not.

Strand Associates, Inc.® has previously worked with Eagle Point Solar, LLC on projects for Darlington School District, Wisconsin; Emmi-Roth, Platteville, Wisconsin; and Johnson County EMS, Iowa City, Iowa. For those projects, the OWNER(s) determined Eagle Point Solar, LLC to be responsible.

If you determine that Eagle Point Solar, LLC is a responsible bidder after your evaluation of their qualifications, we recommend proceeding with award of the Contract.

Sincerely,

STRAND ASSOCIATES, INC.®

Scott G. Herkert, P.E.
Senior Associate

REQUEST FOR PROPOSAL TO INSTALL
A SOLAR PHOTOVOLTAIC ARRAY AT
THE MCFARLAND PUBLIC WORKS FACILITY

INTRODUCTION AND GENERAL INFORMATION

The Village of McFarland is requesting bids to design, provide, and install a 31.5 kW DC roof mounted solar photovoltaic array at the Public Works Facility, 5115 Terminal Drive, McFarland, WI.

SCOPE OF PROJECT

The Village of McFarland is requesting bids to design, provide, and install a 31.45 kW DC roof mounted solar photovoltaic system at the Public Works Facility. Depending on the final cost per watt, the system may be reduced.

Contractor is to provide bid and additional information for the proposed work addressed to Village of McFarland, 5115 Terminal Drive, McFarland, WI 53558 .

SPECIFICATION

Project site is located at the Public Works Facility, 5115 Terminal Drive, McFarland, WI.

Project is detailed as follows:

1. Bid cost will include all design, specifications, material, labor, and equipment to install a turn-key grid-tied 31.45 kW solar photovoltaic system (DC STC conditions), including connection/integration with Public Works Facility power system. The system shall be sized to deliver a minimum of 23kW AC with a minimum specific yield of 1290 kWh/kWp.
2. The system components and installation shall meet the requirements of the 2017 National Electrical Code (NFPA 70).
3. PV arrays to be mounted to roof of the Public Works Facility (see Attachments No. 1 and No. 2). Include all racking, support mountings, and installation on a standing seam metal roof. Approximate available area 2,000 square feet. Provide ample working space around skylights and events. Coordinate roof layout with Owner.
4. Inverters shall have a CEC weighted efficiency of no less than 97.5%. Inverters shall be UL 1741 listed and IEEE 1547 compliant and shall have a minimum 20 year warranty.
5. Inverters are to be a minimum of two (one~9kW and one~14.4kW) SolarEdge or equal units utilized in conjunction with DC power optimizers at each PV module. Mount inverters indoors. Space is available for wall mounted units in the vehicle storage in the Public Works Facility (see Attachments No. 3 and No. 4). The master inverter shall be equipped with input terminals to accept a dry contact signal from the facility's automatic transfer switch to disable the inverters when the transfer switch is not in the normal (utility) position.
6. Racking to be attached to standing seam roof without penetrating the roof.
7. PV panel shall be mounted at the same pitch as the roof. PV arrays to be fixed rack system. Provide PV panel mounting clips to attach to the standing seam room as manufactured by S-5!, model S-5-U.
8. Provide manufacturer standard Web based monitoring system to include monitoring screen (minimum size 20 inch) in utility room or area indicated by OWNER. The monitoring system shall be connected to the existing IT rack within the utility room. Coordinate work with McFarland IT department. All configuration, training, and installation shall be included within the Bid.
9. PV modules shall have a minimum rating of 370 watts and be UL 1703 listed. Preference will be given to PV modules with a PTC (PV USA Test Conditions) watts per square foot of 19 or greater.

Panels shall have a 25-year linear performance guarantee and minimum 10 year warranty and be as manufactured by Heliene, 72M, or equal.

10. Indoor AC wiring shall be type THHN and outdoor AC wiring shall be type XHHW. Indoor and outdoor above-grade DC wiring shall be type PV and underground DC wiring, if used, shall be type USE-2 or type PV as appropriate. Outdoor wiring shall be secured to the solar panel supports in a manner that minimizes exposure of the wiring to the elements and to general system maintenance activities such as weed control, snow removal, etc. Where wiring must be extended across 12-inch or larger gaps between the solar panels or other system components, wiring shall be placed in aluminum conduit. Underground conduits, if needed, within 6 feet of a building shall be PVC-coated RGS conduit or shall within a minimum 12-inch by 12-inch reinforced concrete duct. Provide heavy-duty non-metallic or aluminum cast junction boxes at wiring transitions from above-ground free air wiring to underground wiring in conduit. All AC wiring shall be installed in conduit.
11. Wiring from solar panel arrays to inverters shall be sized for a maximum 1% voltage drop of nominal panel voltage output from the furthest solar panel array. Wiring from inverters to the utility interconnection point shall be sized for a maximum 1% voltage drop of nominal inverter voltage output from the furthest inverter. Provide power consolidation panels with circuit protection via molded case circuit breakers as necessary such that there will be one point of connection between the photovoltaic system and the facility electrical distribution system.
12. Connection to the utility interconnection point shall be via the existing facility electrical distribution system in the utility room of the Public Works Facility (see Attachments No. 3 and No. 4).
13. There is an existing 30kW generator (exterior of the building, see Attachment No. 3) and automatic transfer switch (see Attachment No. 3). Contractor shall provide 2~#12 in 3/4-inch conduit between the automatic transfer switch and the master inverter to in order for the inverter to know that the facility power is on generator power. Provide additional dry contacts on existing automatic transfer switch as required to communicate this signal.
14. Provide all necessary equipment and appurtenances to meet the requirements of NEC Article 690.12-Rapid Shutdown of PV Systems on Buildings.
15. In the connection from the PV system to the existing facility distribution system, include a pad-lockable disconnect switch on the customer side of the utility metering cabinet. The equipment shall meet the requirements of the Alliant Energy. The equipment shall be near the existing utility service and shall be labeled per utility company requirements (see Attachment No. 3).
16. The contractor shall coordinate all necessary permits, agreements and coordination with Alliant Energy company.
17. The contractor is expected to consult the latest version of the International Building Code for regional snow load and wind category for this location. As guidance, we expect snow load of 30 psf and wind risk category of 90 mph, class C.
18. Provide projected annual output in kWh with calculation for the proposed PV array at metering connection based on PVSyst or similar software. This calculation must be as accurate as possible to indicate all losses through the balance of system components. A report indicating all modules, inverters, and losses used in the calculation shall be included with the bid. Losses included in the calculation shall be specific to the location and installation or the array.
19. Provide all grants (e.g. Focus On Energy) available to Owner during bidding review.
20. Bidder must provide details and contact references of at least two similar projects to demonstrate the capabilities of the firm to effectively complete the work.
21. Bidder must provide work schedule to indicate the project can be substantially complete by November 30, 2020.

TIMELINE

The Village Board is expected to award contract to selected contractor on May 15, 2020. Selected contractor will then provide detailed design plans, specifications (including electrical layout plans), and performance guarantee for approval by Village before finalization of contract agreement and commencement of construction in July 2020. This will also include a calculation of the expected power production over the first ten year period. Project completion is scheduled for not later than December 31, 2020.

QUALITY ASSURANCE

1. System Suppliers: Firms regularly engaged in the design and manufacture of photovoltaic systems equipment whose equipment has been in satisfactory use in similar service for not less than 10 years.
2. Installer: A firm with at least 10 years of successful installation experience on projects with photovoltaic system design and installation work similar to that required for the project.

EVALUATION FACTORS

In evaluating the bids, the Village will consider, in addition to the price quoted in the Bid, the following:

1. Compliance with the Scope of work and bid documents.
2. Clarity, pricing structure, and commercial terms and conditions.
3. Execution plan, project team, and ability to meet schedule. Provide relevant resources.
4. Contractor's experience with systems of similar size and scope. Provide a minimum of three examples and references of existing systems installed by contractor.
5. Equipment maintenance and reliability history.
6. Length and coverage of equipment warranties and performance guarantees.
7. Life cycle costs, including but not limited to, maintenance requirements.

SUBMITTALS

Contractor shall submit shop drawings and product data for review and approval by the Village. Included in submittals shall be a one-line diagram that shows all connections of photovoltaic equipment and monitoring as well as connection of the photovoltaic system to the existing electrical distribution system.

CONDITIONS

All work performed under this contract shall be subject to compliance with the Wisconsin Prevailing Wage Act, including latest revisions. Contractors are required to submit certified copies of their payroll each billing cycle. The Village of McFarland shall be exempt from any liability for costs incurred by unsuccessful bidders in preparation of this proposal. The Village of McFarland reserves the right to reject any or all bids.

ADDITIONAL INSURED ENDORSEMENTS

1. Contractor shall purchase and maintain liability insurance, as described above, specifically naming as additional insureds the Village of McFarland, Alliant Energy, and Strand Associates, Inc.®, using either insurance endorsement form CG 20 26 07 04, CG 20 10 07 04, or equivalent form. General liability policies shall also be endorsed with Form CG 20 37 07 04 to include the "products-completed operations hazard." Endorsements or General Liability policy shall not exclude supervisory or inspection services. Contractor shall also provide an Additional Insured Endorsement for the automobile policy, Form CA 20 48, or equivalent form.

2. That failure of Contractor to comply with the above requirements with respect to Additional Insured Endorsement and/or Certificate of Insurance shall not be construed as waiver of those provisions by any of the additional insureds so identified above.

INDEMNIFICATION

To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless the Village of McFarland, Alliant Energy, and Strand Associates, Inc.®, and against all claims, costs, losses, and damages arising out of or relating to the performance of the Work, provided that any such claim, cost, loss, or damage is attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property, including the loss of use resulting therefrom but only to the extent caused by any negligent act or omission of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work or anyone for whose acts any of them may be liable.

The Village of McFarland will receive sealed bids to complete the proposed work until 12:00 PM, May 6, 2020.

Questions concerning the project or arranging a site visit with Village staff should be directed to: Village Administrator Matt Schuenke at 608-838-3153- or email: matt.schuenke@mcfarland.wi.us

Responses to all inquiries about the project or bid requirements will be distributed to all companies by email based upon the email address supplied to the Village of McFarland by the prospective bidders.

Company name

Address

.....

Contact Name

Phone #

Email

.....
Signature

.....
Name

.....
Date



GENERAL NOTES:

1. VERIFY REQUIRED OPENINGS IN NEW ROOF SYSTEM FOR SKYLIGHTS, ROOF EQUIPMENT, AND HVAC OPENINGS.
2. FLASH ALL PENETRATIONS PER ROOFING MANUFACTURER REQUIREMENTS.
3. SEE DRAWING A5.2 FOR TYPICAL DETAILS.
4. REVISE AND PROVIDE FLASHING AROUND ALL EXISTING VENT AND EXHAUST PIPES NOT SHOWN PER MANUFACTURER'S RECOMMENDATIONS.

KEY NOTES:

- ① METAL-OVER-METAL RE-ROOF SYSTEM. FASTEN TO EXISTING DECK PER MANUFACTURER REQUIREMENTS AND PROVIDE 4" BATT INSULATION BETWEEN NEW AND EXISTING ROOF PANELS. SEE DRAWING A5.2 FOR TYPICAL SYSTEM DETAILS.
- ② PROVIDE EAVE/FASCIA CLOSURE PER MANUFACTURER'S DETAILS.
- ③ REPLACE STANDING SEAM ROOF PANELS TO MATCH EXISTING, SEE SPECIFICATIONS.
- ④ MODIFY FLASHING AT SKYLIGHTS FOR NEW ROOF SYSTEM AS REQUIRED.
- ⑤ MODIFY GUTTER AS REQUIRED FOR NEW ROOF SYSTEM.
- ⑥ FLASH INTO WALL PANELS TO MATCH EXISTING CONSTRUCTION.
- ⑦ PROVIDE STANDING SEAM ROOF PANELS TO MATCH OFFICE AREA ROOF PANELS. PLACE PANELS FLUSH AGAINST EXISTING BUILDING SOFFIT.
- ⑧ REMOVE EXISTING SOLAR PANELS AND TURN OVER TO OWNER.

DATE:	4/8/20								
REVISIONS									
NO.	1								
ISSUED FOR BID									

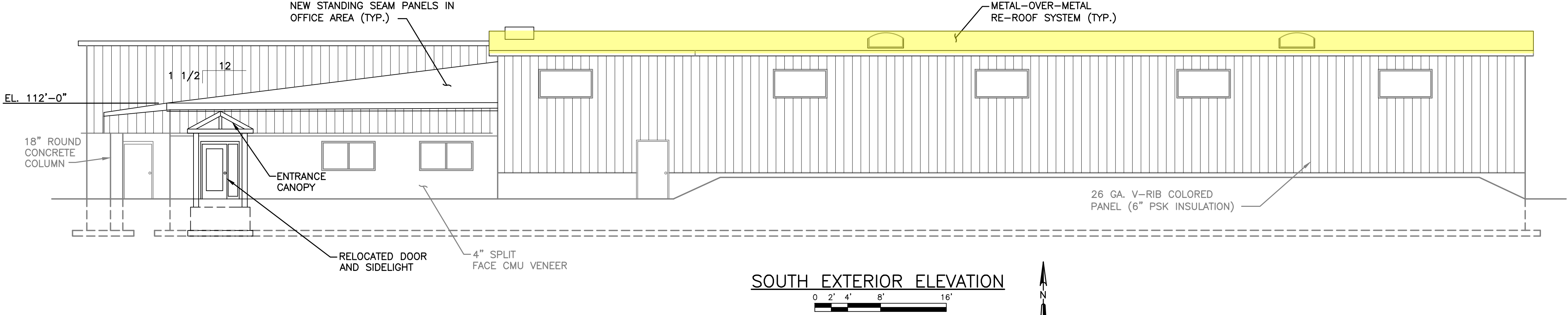
ROOF PLAN
PUBLIC WORKS FACILITY RENOVATION
VILLAGE OF MCFARLAND
MCFARLAND, WISCONSIN

JOB NO.
1426.004

PROJECT MGR.
SCOTT HERKERT

STRAND
ASSOCIATES®

SHEET
8
A1.3



SOUTH EXTERIOR ELEVATION



KEY PLAN
NO SCALE

NO.	REVISIONS	DATE
1	ISSUED FOR BID	4/8/20

SOUTH EXTERIOR ELEVATION
PUBLIC WORKS FACILITY RENOVATION
VILLAGE OF MCFARLAND
MCFARLAND, WISCONSIN

JOB NO.
1426.004

PROJECT MGR.
SCOTT HERKERT



SHEET
9
A2.1

GENERAL NOTES:

1. ALL 120/208V EQUIPMENT/LIGHTING SHALL BE POWERED FROM PANEL B UNLESS NOTED OTHERWISE. PANEL B IS IN THE UTILITY ROOM AS SHOWN ON SHEET E4.1.
2. ALL FIRE ALARMS DEVICES TO BE WIRED TO FACP/NAC IN UTILITY ROOM.

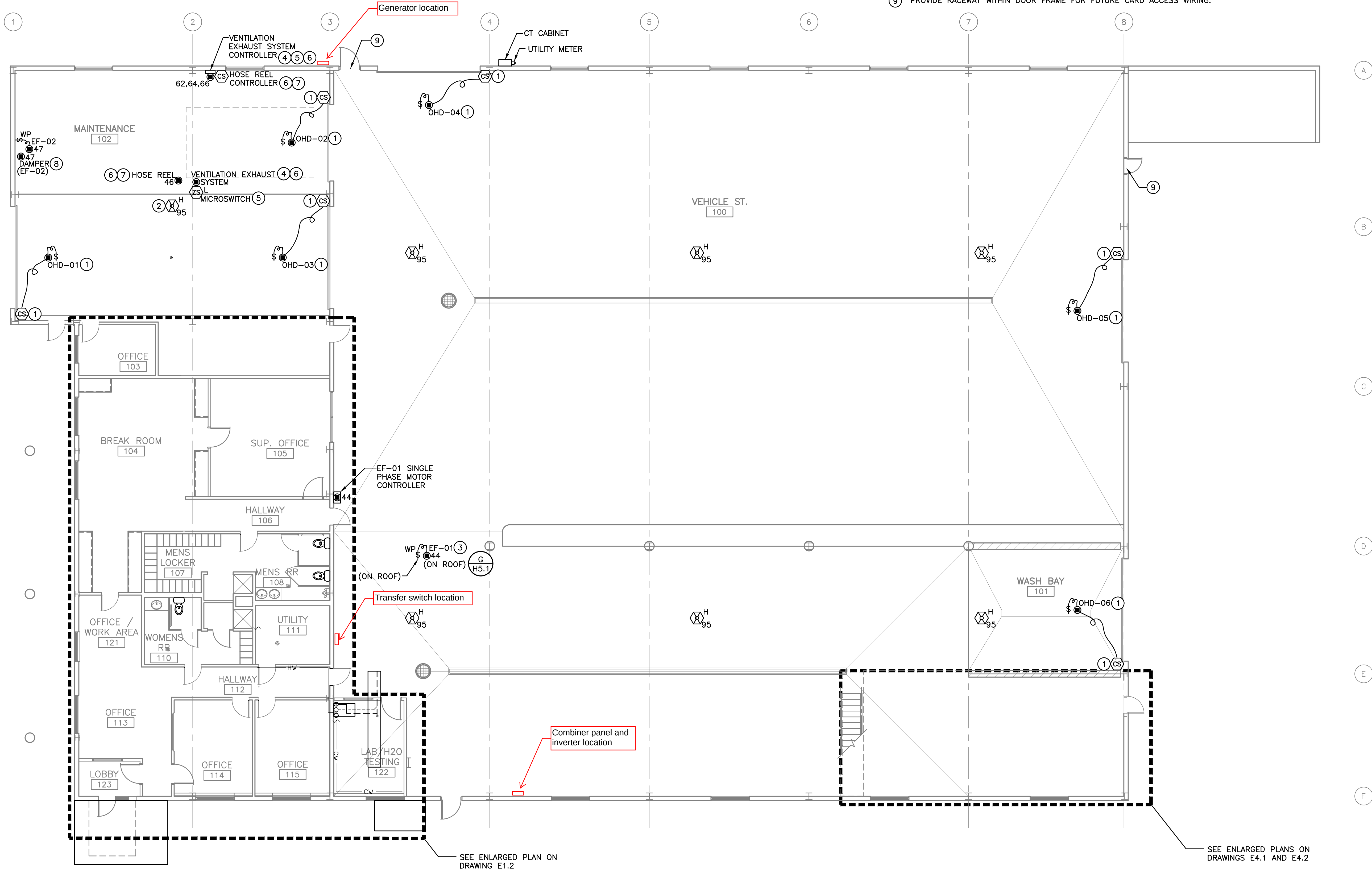
KEY NOTES:

- ① OVERHEAD GARAGE DOOR CONTROLS FURNISHED AS SPECIFIED IN DIVISION 8 AND INSTALLED BY DIVISION 26. REFER TO DIVISION 8 OF SPECIFICATIONS FOR OPERATING DESCRIPTION AND ADDITIONAL CONTROLS TO BE WIRED BY DIVISION 26. MOTOR DISCONNECT SHALL BE MOUNTED ON CEILING ADJACENT TO MOTOR. ALL WORK ASSOCIATED WITH OVERHEAD DOORS SHALL BE PART OF BID ALTERNATIVE NO. 2. COORDINATE EXACT LOCATION OF CONTROLS WITH OWNER. MOTORS SHALL BE POWERED FROM EXISTING CIRCUIT USED FOR REMOVED MOTOR. EXTEND CONDUIT AND WIRING FROM REMOVED MOTOR AND CONTROLS TO NEW MOTOR AND CONTROLS.
- ② DEVICE SHALL BE RATED 96dB.
- ③ EXHAUST FAN SHALL BE POWERED FROM CIRCUIT USED FOR REMOVED FAN. EXTEND CONDUIT AND WIRING FROM REMOVED MOTOR TO NEW MOTOR.

KEY NOTES:

- ④ PROVIDE 3~#12 AND #12 GROUND IN 3/4" CONDUIT FROM EXHAUST CONTROLLER TO VEHICLE EXHAUST CONTROL SYSTEM.
- ⑤ LIMIT SWITCH PROVIDED BY DIVISION 23 AND WIRED BY DIVISION 26. PROVIDE 2~#14 IN 3/4" CONDUIT FROM LIMIT SWITCH TO VEHICLE EXHAUST CONTROLLER.
- ⑥ EQUIPMENT PROVIDED BY DIVISION 23 AND WIRED BY DIVISION 26.
- ⑦ PROVIDE 2~#14 IN 3/4" CONDUIT FROM HOSE REEL CONTROLLER TO JUNCTION BOX ON HOSE REEL.
- ⑧ DAMPER SHALL BE WIRED TO OPEN WHEN EXHAUST FAN EF-02 IS RUNNING.
- ⑨ PROVIDE RACEWAY WITHIN DOOR FRAME FOR FUTURE CARD ACCESS WIRING.

Attachment No. 3



OVERALL ELECTRICAL FLOOR PLAN

0 2' 4' 8' 16'

NO.	REVISIONS	DATE
1	ISSUED FOR BID	4/8/20

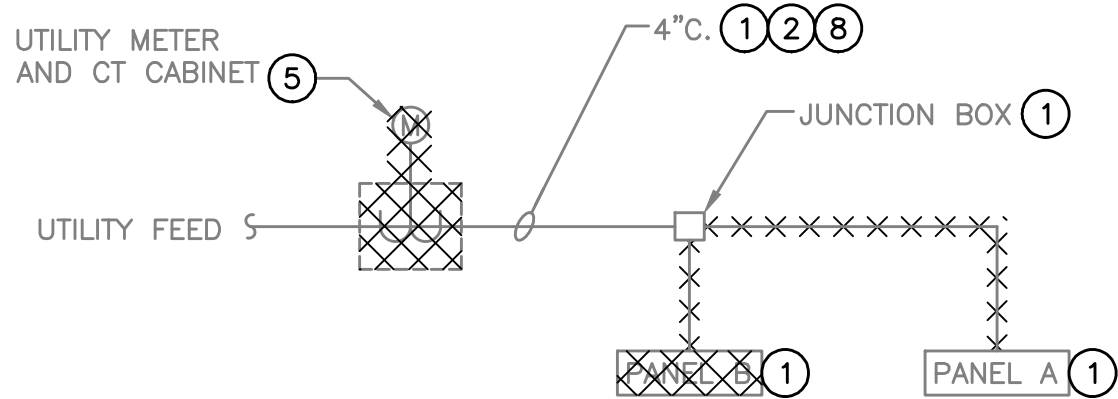
OVERALL ELECTRICAL FLOOR PLAN
PUBLIC WORKS FACILITY RENOVATION
VILLAGE OF MCFARLAND
MCFARLAND, WISCONSIN

JOB NO.
1426.004

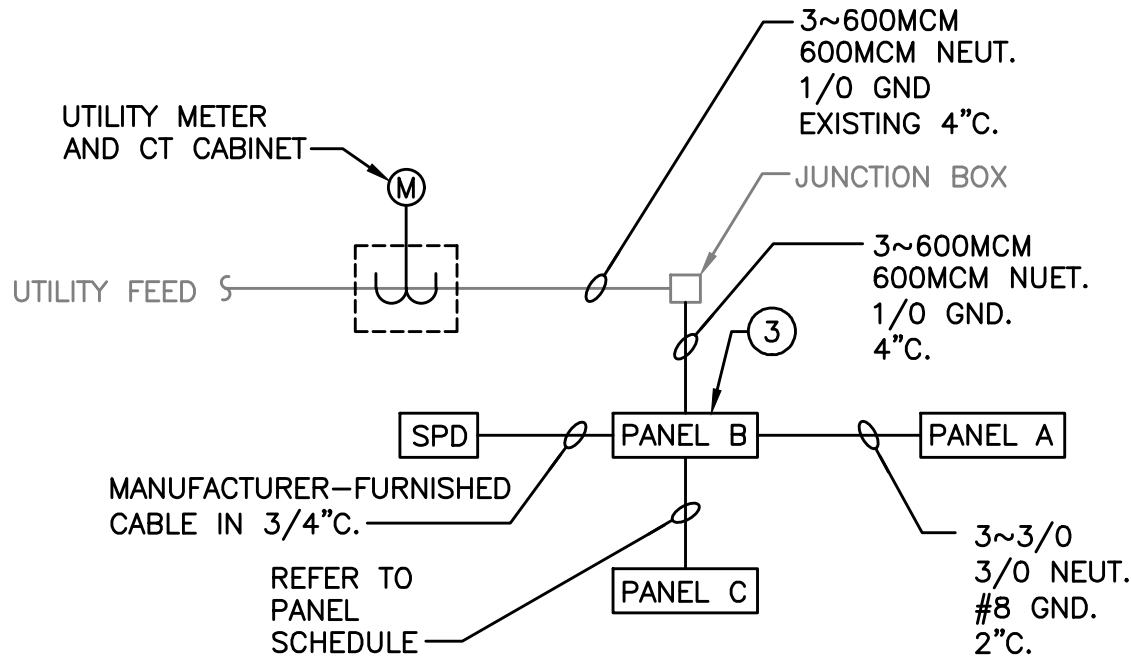
PROJECT MGR.
SCOTT HERKERT



SHEET
30
E1.1

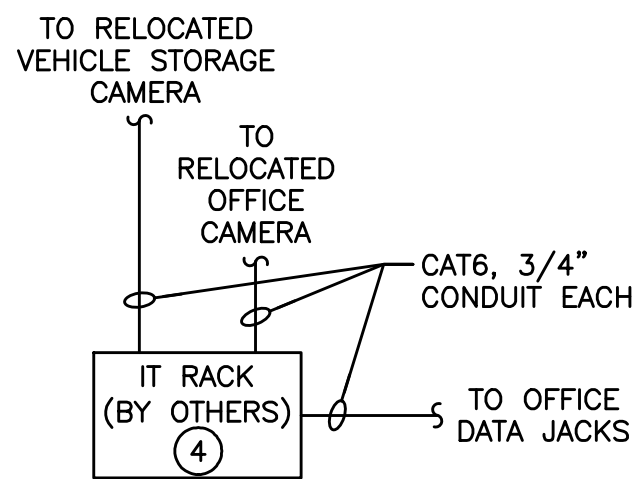


EXISTING ONE-LINE DIAGRAM
NO SCALE



ONE-LINE DIAGRAM
NO SCALE

Existing distribution system

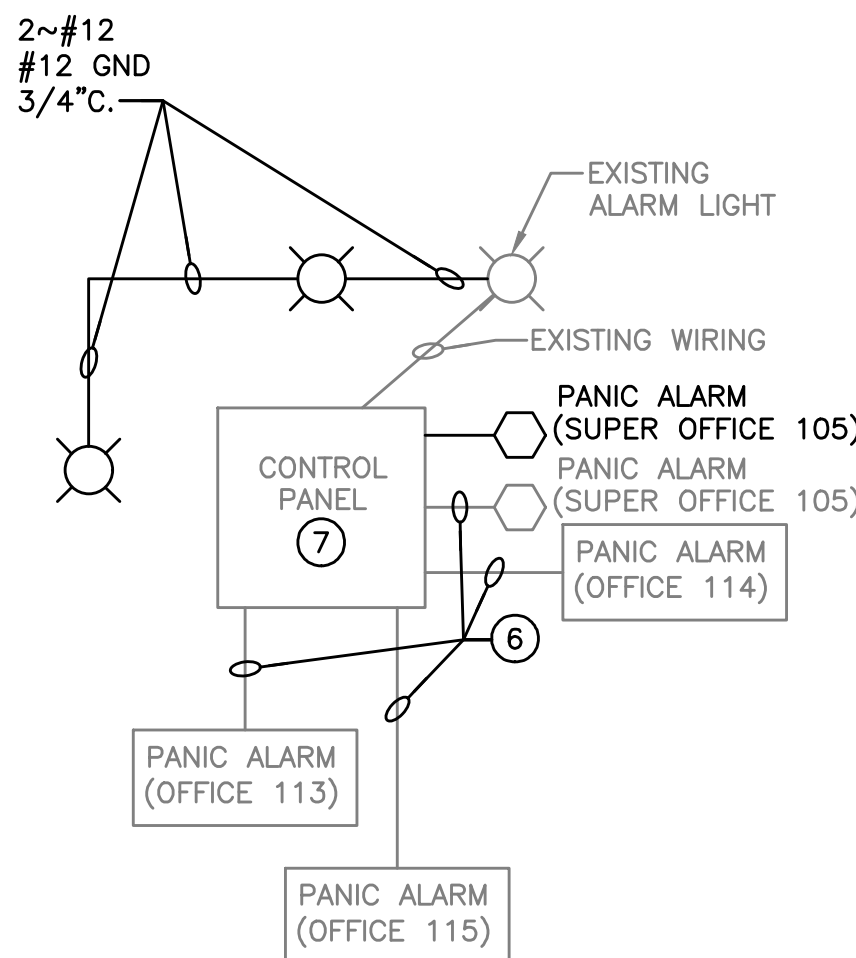


NETWORK RISER DIAGRAM
NO SCALE

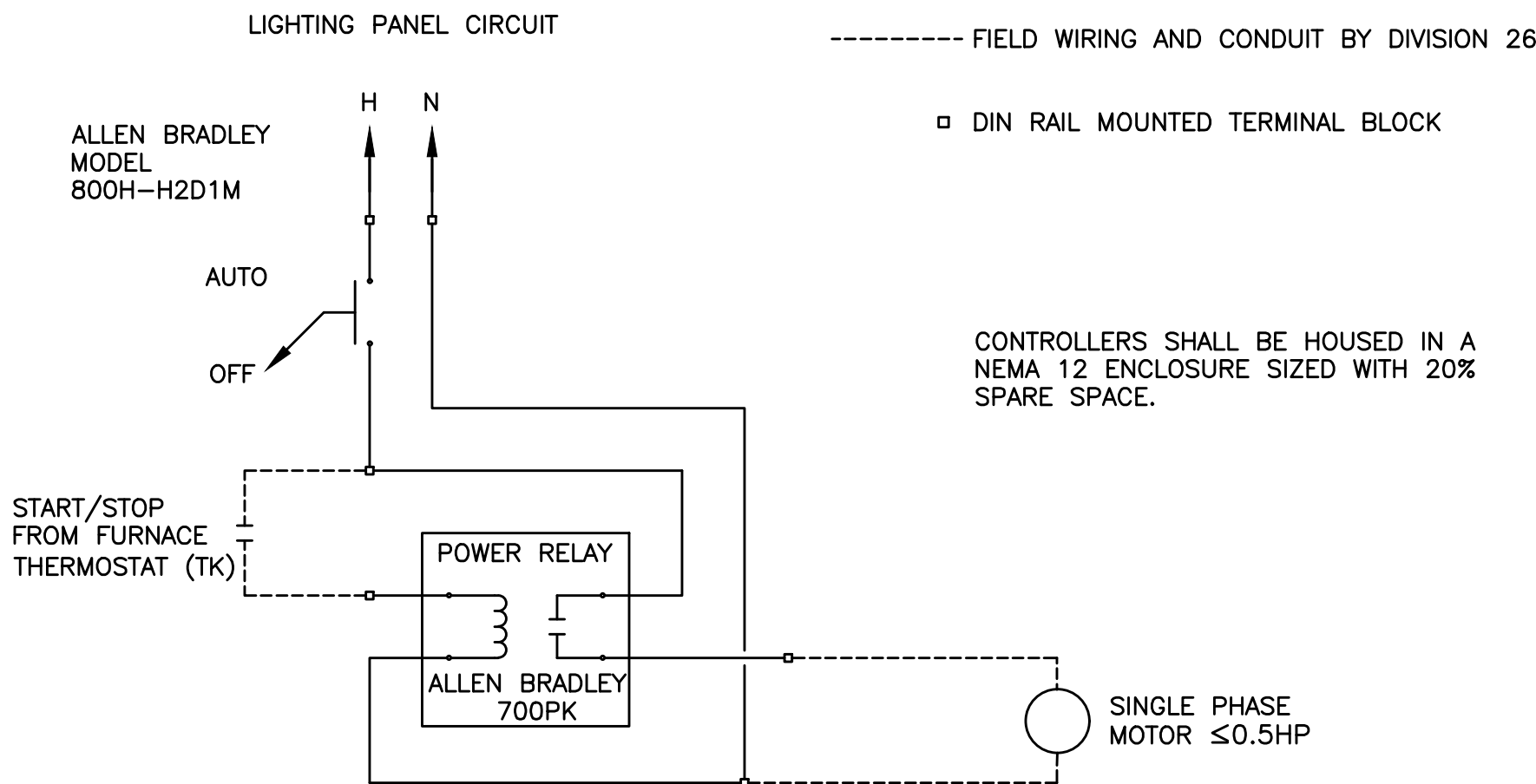
KEY NOTES:

- 1 REMOVE WIRING BETWEEN PANEL A, PANEL B, AND UTILITY SERVICE. GROUND CONDUCTOR SHALL REMAIN.
- 2 REMOVE EXISTING WIRING. CONDUIT SHALL REMAIN.
- 3 EXISTING GROUND CONDUCTOR SHALL BE CONNECTED TO NEW PANEL B.
- 4 COORDINATE TERMINATIONS WITH McFARLAND IT DEPARTMENT.
- 5 COORDINATE ALL WORK ASSOCIATED WITH CHANGES TO THE SERVICE WITH UTILITY COMPANY. ALL COSTS ASSOCIATED WITH THIS WORK SHALL BE INCLUDED IN THE BID.
- 6 EXTEND CONDUIT AND WIRING AS REQUIRED.
- 7 COORDINATE ALL WORK WITH BOLDTRONICS - BURT BOLDEBUCK (608) 271-8979.
- 8 TWO EXISTING 200-AMP FEED.CO.
- 9 PROVIDE NEW CT CABINET PER UTILITY REQUIREMENTS.

Attachment No. 4



PANIC ALARM SYSTEM DIAGRAM
NO SCALE



SINGLE PHASE MOTOR CONTROL
NO SCALE

FURNACE CONDUIT AND WIRING SCHEDULE				
CONDUIT* DESIGNATION	ORIGIN	TERMINATION	CONDUIT SIZE	CONDUCTORS*
OUTDOOR AIR TEMP. SENSOR	TK-01	TE-03	3/4"	SH. PR.
RETURN/OUTSIDE AIR DAMPER (MODULATING)	TK-01	BAROMETRIC RELIEF DAMPER	3/4"	SH. PR.
FAN (START/STOP)	TK-01	F-01	3/4"	2-#14
HEATING (START/STOP)	TK-01	F-01	3/4"	2-#14
SUPPLY AIR TEMP.	TK-01	TE-01	3/4"	SH. PR.
EXHAUST FAN (START/STOP)	TK-01	EF-01	3/4"	2-#14
COOLING (START/STOP)	TK-01	ACCU-01	3/4"	2-#14
OUTDOOR AIR TEMP. SENSOR	TK-02	TE-04	3/4"	SH. PR.
RETURN/OUTSIDE AIR DAMPER (MODULATING)	TK-02	BAROMETRIC RELIEF DAMPER	3/4"	SH. PR.
FAN (START/STOP)	TK-02	F-02	3/4"	2-#14
HEATING (START/STOP)	TK-02	F-02	3/4"	2-#14
SUPPLY AIR TEMP.	TK-02	TE-02	3/4"	2-#14
COOLING (START/STOP)	TK-02	ACCU-02	3/4"	2-#14

*Provide ground conductor per NEC.
*Refer to Plans For Surface Raceway

FIXTURE SCHEDULE					
Fixture Type	Manufacturer(s)	Model Number	Lamp Type	Mounting	Remarks
A	LITHONIA	2BLT4-40L-ADP-SLD-LP840	31W LED	RECESSED	
AX	LITHONIA	2BLT4-40L-ADP-SLD-LP840-EL7L	31W LED	RECESSED	
B	LITHONIA	BLWP4 60L ADP SLD LP840	49W LED	SURFACE/PENDANT	
C	LITHONIA	BLWP4 30L ADP SLD LP840	25W LED	SURFACE/PENDANT	
D	RP LIGHTING	8763-4K	10W LED	RECESSED	
X1	SURE-LITES	SLX-7-SD-R	1W LED	WALL/PENDANT	PROVIDE MOUNTING HARDWARE, CHEVRONS AND FACES AND REQUIRED.

PANEL C													
Service: 120/208V, 3ø, 4W				Enclosure: NEMA 1				Mounting: Surface				Main Bus: Copper	
Main Breaker: 100A				Location: UTILITY ROOM 111				Main Bus: 10 kAIC				SCIC:	
Room Number/Description	Amps	Poles	Cct. #	Phase A	Phase B	Phase C	Phase A	Phase B	Phase C	Cct. #	Poles	Amps	Room Number/Description
RECEPTACLES - MEZZANINE	20	1	1	500			720			2	1	20	RECEPTACLES - SUP. OFFICE 105
SPARE	20	1	3					360		4	1	20	RECEPTACLES - OFFICE 113, LOBBY
RECEPTACLES - MEZZANINE	20	1	5			500			360	6	1	20	RECEPTACLES - BREAKROOM 104
RECEPTACLE - H2O TESTING LAB	20	1	7	1000			360			8	1	20	RECEPTACLES - BREAKROOM 104
RECEPTACLE - H2O TESTING LAB	20	1	9		1000			360		10	1	20	RECEPTACLES - BREAKROOM 104
RECEPTACLES - EXTERIOR	20	1	11			180			360	12	1	20	RECEPTACLES - BREAKROOM 104
RECEPTACLES - BREAKROOM	20	1	13	720						14	1	20	SPARE
RECEPTACLES - BREAKROOM	20	1	15		720			720		16	1	20	RECEPTACLES - SUP. OFFICE 105
RECEPTACLES - BREAKROOM	20	1	17			720			360	18	1	20	RECEPTACLES - SUP. OFFICE 105
RECEPTACLES - BREAKROOM	20	1	19	720			900			20	1	20	RECEPTACLES - SURFACE RACEWAY
SPARE	20	1	21					900		22	1	20	RECEPTACLES - SURFACE RACEWAY
SPARE	20	1	23							24	1	20	SPARE
SPARE	20	1	25							26	1	20	SPARE
SPARE	20	1	27							28	1	20	SPARE
SPARE	20	1	29							30	1	20	SPARE
Total Load per Phase per Side (VA)				2940	1720	1400	1980	2340	1080				
Total Load Phase A (VA)				4920	VA					Total Connected Load (A)			
Total Load Phase B (VA)				4060	VA					Total Connected Load + 25%			
Total Load Phase C (VA)				2480	VA					Spare 25%			
Total Connected Load (VA)				11460	VA					Feeder Load			

PANEL B													
Service: 120/208V, 3ø, 4W				Enclosure: NEMA 1				Mounting: Surface				Main Bus: Copper	
Main Breaker: 400A (SE RATED)				Location: UTILITY ROOM 111				Main Bus: 42 kAIC				SCIC:	
Room Number/Description	Amps	Poles	Cct. #	Phase A	Phase B	Phase C	Phase A	Phase B	Phase C	Cct. #	Poles	Amps	Room Number/Description
EXISTING LOAD	20	1	1							2	1	20	PANEL GFI OUTLET
EXISTING LOAD	20	2	3							4	1	20	EXISTING LOAD
EXISTING LOAD	20	1	5							6	1	20	SMALL OFFICE
ENTRY DOOR OPENER	20	1	7							8	1	20	BASEBOARD HEAT - SPARE
FIRE ALARM PANEL	20	1	9							10	1	15	CONTROL PANEL
MECHANIC'S ROOM LIGHTS	20	1	11							12	1	20	BATHROOM GFI OUTLET
MECHANIC'S RM GFI OUTLETS	20	1	13							14	1	20	KITCHEN GFI OUTLET - SPARE
MECHANIC'S RM GFI OUTLETS	20	1	15							16	1	20	LUNCHROOM OUTLET - SPARE
MECHANIC'S RM GFI OUTLETS	20	1	17							18	1	20	OUTLETS-PARTS STORAGE & SMALL OFFICE
MECHANIC'S RM GFI OUTLETS	20	1	19							20	2	40	RANGE
WATER HEATER	30	2	21							22	1	20	FAX
WASH BAY OUTLETS & LIGHTS	20	1	25							26	1	20	COPIER
WASH BAY HEAT & GARAGE DR	20	1	27							28	1	20	SOFTENER
PRESSURE WASHER WASH BAY	30	3	31							32	3	100	EXISTING LOAD
EXISTING LOAD	20	3	37							38	1	20	PHONE BOARD
EXISTING LOAD	20	1	41							42	1	15	EXISTING LOAD
F-01	20	1	43	1236			264			44	1	20	EF-01 & DAMPER
F-02	20	1	45		1663			1000		46	1	20	HOSE REEL
EF-02 & DAMPER	30	1	47			1656			200	48	1	20	FURNACE DAMPERS
ACCU-01	20	3	49	1686			2160			50			
EBB-01	20	1	55		750					56	1	20	EBB-05
EBB-02	20	1	57			1500		1250		58	1	20	EBB-06
EBB-03	20	1	59				1500		1250	60	1	20	EBB-07
EBB-04	20	1	61	1000				500		62			
EBB-08	20	1	63		1080				500	64	3	15	VEHICLE EXHAUST SYSTEM
SPARE	20	1	65							66			
SPD	30	3	67							68	1	20	SPARE
SS-01	20	2	73	800			4920		700	72	1	20	LIGHTING - MEZZANINE
EW-H01	20	1	77		800			4060		74			
EW-H02	20	1	79	1008					2480	76	3	100	PANEL C
SPARE	20	1	81							78			
SPARE	20	1	83							80			
Total Load per Phase per Side (VA)				6480	6729	5850	9094	8970	7290				
Total Load Phase A (VA)				15574	VA					Total Connected Load (A)			
Total Load Phase B (VA)				15699	VA					Total Connected Load + 25%			
Total Load Phase C (VA)				13140	VA					Spare 25%			
Total Connected Load (VA)				44413	VA					Feeder Load			

PROVIDE THROUGH FEED LUGS FOR POWER TO PANEL A.
EXISTING CIRCUITS SHALL BE RECONNECTED TO PANEL B.

123 A
154 A
39 A
193 A

ELECTRICAL ONE-LINE DIAGRAM AND SCHEDULES

PUBLIC WORKS FACILITY RENOVATION
VILLAGE OF MCFARLAND
MCFARLAND, WISCONSIN

Breaker for PV array

JOB NO.
1426.004

PROJECT MGR.
SCOTT HERKERT

STRAND
ASSOCIATES®

SHEET
35
E5.1

Solar Proposal For:



Prepared By:



ARTICLE 1 – BID RECIPIENT -Transmittal Letter

May 5, 2020

Matt Schuenke
Village of McFarland
5115 Terminal Drive,
McFarland, WI 53558

Dear Matt,

Eagle Point Solar is pleased to provide a proposal to The Village of McFarland in response to your request for a proposal to design, build and maintain a solar array located at Village of McFarland, 5115 Terminal Drive, McFarland, WI 53558

We have read, understand and agree to the terms of your RFP.

Our proposal is organized into the following sections:

1. Transmittal Letter
2. Project and Technology Description
 - A. Project Schedule and Timing
3. Warranties
4. Company Qualifications/Lead Installer information
5. Minimizing Downtime
6. Inverter Warranty option
7. Pricing
8. Other Pricing Options
9. References
10. Exhibits
 - A – Eagle Point Solar 5-Year Workmanship Warranty
 - B - Standard Operations & Maintenance Agreement (O&M)
 - C – Insurance Documentation
 - D – SolarEdge Monitoring System

Our proposal is “turn-key” in nature, meaning Eagle Point Solar will handle all aspects of the project including, design, optimization, construction, permitting, interconnection preparation & submission, equipment procurement, inspections, commissioning and 5 Years of on-going operations and maintenance services.

Per your instructions we have used the designs provided in the proposal request as the basis for our bid. You will also notice we have taken the liberty of adding some additional comments to the technical description. Our comments are simply things we would like to discuss further should we be selected to be involved in these projects.

Our base bid includes training for select the Village of McFarland staff on the operation of the solar array. This training is designed to be a supplement to the services Eagle Point Solar provides under the (O&M) agreement, not a replacement of those services.

We are very interested in assisting the Village of McFarland in educating citizens on why this project is good for the community. Ribbon cuttings, educational sessions and potentially installing a TV monitor in a prominent location to display the system production and environmental benefits are just a few things we will do should we be selected.

The Village of McFarland will certainly have multiple vendors bid on your solar project but as you evaluate each response it will become clear Eagle Point Solar provides the highest value for your solar installation.


Sincerely,
Dave Pluym
Solar Energy Consultant


Eagle Point
SOLAR
Bringing you the SUN®

BIDDER'S ACKNOWLEDGEMENTS

Bidder accepts all of the terms and conditions of the Instructions to Bidders, including without limitation those dealing with the disposition of Bid security. This Bid will remain subject to acceptance for 60 days after the Bid opening, or for such longer period of time that

Bidder may agree to in writing upon request of Owner.:

The following is a description of the solar array including Google Earth image of the location with an overlay of the location of the modules, make, model & quantity of modules and make, model & quantity of inverters, first year kWh production estimate based on PV Watts, racking manufacturer and warranty information. Specification Sheets and warranty sheets are included in the "exhibit" section of this document.

Our design and equipment choices meet all of the requirements in the PR. Our philosophy is to continue to use only the highest quality components from established, stable, tier 1 manufacturers. An investment in a solar array is a long term investment and the ROI depends solely on the performance of the equipment so using only quality equipment is the correct choice.

BIDDER'S REPRESENTATIONS

Key Personnel:

Every project has corporate level management from Eagle Point Solar's headquarters in Dubuque, Iowa as well as local construction management at the site. Eagle Point Solar will oversee quality of service and product and is the prime contractor responsible for all of the project work. Our experienced construction management team has enabled us to attain a reputation as a consistent and efficient solar provider focused on customer satisfaction and quality workmanship.

Barry R. Shear CEO & President

Barry Shear is President and Owner of Eagle Point Solar. He has earned a wide reputation as a vigorous advocate for solar energy and climate change initiatives. Barry feels energy from renewable sources is the Industrial Revolution of the 21st century, and that jobs, economic growth, sustainability, and reducing greenhouse gas emissions can all be accomplished within a framework that works for the public and the utilities. Barry and Eagle Point Solar took the lead in the landmark Supreme Court case which now allows for third party power purchase agreements in Iowa. He is a founding Board member and Treasurer of ISETA (Iowa Solar Energy Trade Association) and is a frequent speaker and panelist on Solar Energy Policy.

Jim Pullen General Manager

Jim has over 25 years of Executive Sales and Operations Management experience. His focus is on process development and improvement, specifically with the sales and construction departments. Jim has also personally provided solar consultations to over 50 customers who have installed solar arrays. Prior to Eagle Point, Jim was a small business owner and the Vice President of Sales for an established technology firm.

Larry Steffen Vice President of Sales

Larry has over 38 years of Sales & Executive Sales Management experience. Leading the sales teams in his divisions as well as establishing and executing sales strategies is a major focus. Larry has also provided solar consultations to over 450 customers in the last 5 years. Prior to Eagle Point Solar, Larry was the Chief Operating Officer and co-owner of an agriculture fertilizer plant in Iowa. He holds 3 U.S. patents on agriculture and ornamental fertilizer formulations. Larry was also the Executive Director of Sales for an established software engineering consulting firm for 23 years.

Randy Ambrosy**Vice President of Operations**

Since 1991, Randy has served in a variety of Executive Management roles including Sales, Marketing, Product Development, International Business and Operations. Randy has lead acquisition and divestiture teams and has experience managing large projects. Randy brings Executive Leadership to the team, and oversees the construction phases of the business while focusing on process efficiency and improvement. Randy earned his Master's Degree in Business Analytics from Loras College in 2017.

*****Joseph Petsche – Lead Installer****Vice President of Construction/Project Manager**

Joe is a degreed engineer with an MBA from the University of Iowa. He has over 20 years of engineering and project management experience including previous positions with Kinder Morgan Energy Partners, British Petroleum and Amoco. He has managed dozens of energy related projects and is committed to precise planning, efficient execution, cost effective results and total customer satisfaction. Joe has also attended extensive solar training and is NABCEP certified.

Tod Hollenback**Vice President of Design and Procurement**

Tod has over 25 years of experience of design, sales, repair and procurement within the technology market. He is responsible for the design process which includes matching compatible equipment to the needs and goals of all client projects. Tod has attended various training sessions and is NABCEP certified. Prior to Eagle Point, Tod was a small business owner and previously worked for a technology company in various technical and sales roles.

Brian Gill**Master Electrician**

Brian has been in the electrical trade for nearly 25 years, the last 16 as a Master Electrician. Prior to Eagle Point Solar Brian worked as the Service & Project Manager for Hawkeye Electric in Dubuque. In addition to Brian's extensive electrical background, he has over 4 years of solar experience as a contractor working on projects for Eagle Point Solar. Brian will oversee all electrical functions corporately for Eagle Point Solar including design, engineering and construction. In addition to this, he will manage all electrical contractors and the in-house electrical staff.

Dave Pluym**Solar Energy Consultant**

Dave Pluym has over 4 years in the solar energy industry and brings a wide breadth and depth of technical sales experience to Eagle Point Solar as an addition to their solar sales team. Dave has over 35 years of sales and management expertise combined with design, repair and procurement within the technology market. His exemplary leadership and strong implementation strategies in technical and operational plans has a proven record in facilities management solutions for solar, IT, VFD drives, GPS/GIS consulting for land survey/design and machine guidance, along with M2M tracking and property and casualty insurance

Local Presence

Eagle Point Solar has developed a business model that includes offices and employees located in strategic geographies and partnerships with local solar experts in other areas. Our presence in the State of Wisconsin continues to grow with staff presently located in both the Osh Kosh and Milwaukee areas along with Kieler/Hazel Green. Our business plan calls for expansion into other markets in Wisconsin during 2020 -2021.

Company Qualifications/Lead Installer Information-Bidders Certification:

History:

Eagle Point Solar was founded in 2010 with an unwavering focus on quality, professionalism, and service. We have become one of the leading solar providers in the Midwest with over 750 completed systems in Iowa, Illinois, and Wisconsin with an aggregate size exceeding 19MW. We have provided solar solutions for a variety of customers and facilities including, utilities, schools, city & county governments, farms, non-profits, large and small businesses and homeowners.

We have worked with several public entities by installing solar arrays at multiple locations in Iowa, Illinois and Wisconsin including, the City of Asbury Iowa, the City of Galena, IL, Sauk County, WI, and the City of Milwaukee.

Qualifications:

Our commitment to the solar industry is evident as we are members of various trade organizations and a founding member of the Iowa Solar Energy Trade Association (ISETA) as well as current members of the Illinois Solar Trade Association (ISEA) and RENEW Wisconsin.

Here are a few things that make us uniquely qualified for the wastewater treatment plant project:

- 1) We are a professional solar installer/integrator that is 100% focused on the solar industry. For the last 10-years we have grown to a team of 78 employees with specific areas of expertise in our industry.
- 2) Full-time, on-staff installers. We do not sub-contract the installations of the solar array. We can leverage our knowledge from past projects and complete installations quickly, with consistent quality. Nearly every member of our crew will be from the local labour pool.
- 3) We have invested in education for our entire staff including the time, effort and financial commitment necessary to have multiple NABCEP certified individuals in our organization including:

Tod Hollenback - PV-041616-012867

*******Joseph Petsche - PV-042217-012772 – Lead Installer**

Matthew Pullen - PVA-020718-020696

Todd Lindquist - PV-090718-020118

Vivika Heller - PVA-110518-021693

Adam Jordan – PVA-091718-023370

Danny Leavenworth - PVA-021519-022497

- 4) Eagle Point Solar has invested in the equipment necessary to build ground arrays that are aesthetically pleasing and durable. The investment we made in our Vermeer PD-10 pile driving machine and our experience in operating it set our ground arrays apart from any other installer you will find in this area.
- 5) We have been named one of Solar Power World's Top 500 Solar Contractors in the U.S. for 3 years in a row.

Division of Professional Credential
Processing
4822 Madison Yards Way
Madison, WI 53705
Phone: (608) 266-2112
Fax: (608) 267-0592
Email: dpscredtrades@wi.gov
Website: www.dps.wi.gov

Certification, License, or Registration Card

Below you will find your certification, license or registration card. This card serves as an additional piece of documentation of licensure that may be carried on person. To view details about your credential or continuing education log into the eSLA portal where you can view your credential status or use the public lookup to verify the status of your CE.

Wisconsin Department of Safety and Professional Services	
EAGLE POINT SOLAR LLC	
Credential ID: DC-111500020	
Certification, License, or Registration Name	Expires:
Dwelling Contractor	2020-11-05
Signature:	

Please review the information on the card. If errors or discrepancies are found, you may contact the Department at 608-266-2112 or email DSPSCredTrades@wi.gov, and provide your ID number printed on the card. The Department should be notified of changes in addresses as they occur. Notification of address changes is the responsibility of the credential holder. A renewal notice will be emailed to the email address on file 30, 60, and 90 days before expiration. Before the expiration date of each credential indicated on the card. Renewals are contingent upon compliance with the requirements specified in Wisconsin Administrative Code SPS 305.

Village of McFarland – Roof Mounted



This proposal specifies a 31.59 kW DC roof mounted solar photovoltaic system at the Public Works Facility for the proposed work addressed to Village of McFarland, 5115 Terminal Drive, McFarland, WI 53558

Project Summary:

Solar array to be installed at the following location:
5115 Terminal Dr. McFarland, WI
31.59 kW DC Roof Mounted Array

Solar Modules will be mounted on a flush mount array racking system on the Southern roof face of building. Flush mount racking system consists of S5! Clamp attachments and IronRidge rails and hardware designed to the specifications of the approving AHJ.

DC wiring will be run underneath the modules and secured to the array racking via cable management clips and cable ties when necessary. DC wiring off the roof will be run to the interior via sealed roof penetration. DC wiring will be run in conduit through the interior to the location of the inverters and combiner panel. SolarEdge inverters and combiner to mounted on interior south wall as shown in the RFP Attachment No. 3.

AC conduit and wire out of the combiner panel will be run across the building to the exterior North wall to the Utility DG disconnect required by Alliant. The disconnect will be mounted within 10' and line of sight of the existing metering cabinet. AC conduit and wire out of the disconnect will re-enter the building and be routed to

"PANEL B" inside the building. The solar point-of-connection will be made by landing a breaker into "PANEL B" as spec'd in the RFP.

Communications will be transmitted from the SolarEdge inverters to the existing router inside of the building via CAT6 cable.

Major Components/Services/Equipment:

- Components
 - (81) – JA Solar 390-watt Modules
 - (81) – SolarEdge Optimizers, Model: P400
 - (1) – SolarEdge Inverter, Model: SE9K-US
 - (1) – SolarEdge Inverter, Model: SE14.4K-US
 - IronRidge XR 100 Racking
 - S5! U Attachment Clamps
 - (300') – CAT6 cable for communication
- Services
 - Complete and submit all necessary Alliant and AHJ documentation including:
 - Interconnection Agreement
 - 1-Line Electrical Drawing
 - Project lay out sketch
 - Certificate of Completion
 - All Interconnection Fees
 - All Permitting Fees
 - Final Inspection and Commissioning
 - All potential incentive paperwork

Inverter Warranty Option:

We believe the best option for these projects is to purchase the manufacturer's 20-year extended warranty. This reduces the Village's potential liability for most of the expected life of the system.

This cost is approximately \$500/inverter or a total of \$1,000. **(Included in bid price)**

BASIS OF BID:

Our pricing proposal is "turn-key", meaning it is all inclusive with no additional costs for the Village of McFarland. Although there is a substantial amount of volatility in the solar materials and equipment, we will honor our price until 07/30/2020. Below is the pricing matrix:

Photovoltaic Installation

\$69,498

TIME OF COMPLETION

Bidder agrees that the Work will be substantially complete and will be completed and ready for final payment in accordance with the General Conditions on or before the dates or within the number of calendar days indicated in the Agreement.

Project Schedule - McFarland Public Works Facility		
Activity	Date	
	Begins	Ends
Contract Award		May 15, 2020
Contract Negotiation and Approval	May 15, 2020	June 30, 2020
Final Design Completed & Submitted	May 15, 2020	June 30, 2020
Complete, Submit and Gain Approval of Utility Interconnections	May 15, 2020	June 30, 2020
Complete, Submit and Gain Approval of All Permits	May 15, 2020	June 30, 2020
Delivery of Equipment to Project Site	July 1, 2020	July 10, 2020
Construction	July 13, 2020	October 31, 2020
Final Inspections	November 30, 2020	November 30, 2020
Utility Inspections and Testing	November 30, 2020	November 30, 2020
System Commissioned		December 31, 2020

ATTACHMENTS TO THIS BID:

The following documents are submitted with and made a condition of this Bid:

- A. Our proposal includes our standard 5-year workmanship warranty which is described near the end of this document as Exhibit A.
- B. Eagle Point Solar offers a standard Operations & Maintenance agreement (O&M) which is described in Exhibit B at the end of this document.
- C. Insurance Certificate Exhibit C
- D. Monitoring and Specification sheets Exhibit D

RFP Design McFarland Public Works RFP, 5115 Terminal Dr. McFarland WI

Report

Project Name	McFarland Public Works RFP
Project Address	5115 Terminal Dr. McFarland WI
Prepared By	Nicole Tygart ntygart@eaglepointsolar.com

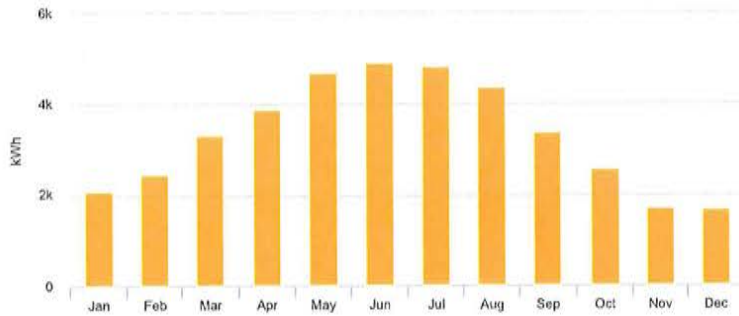
System Metrics

Design	RFP Design
Module DC Nameplate	31.6 kW
Inverter AC Nameplate	23.4 kW Load Ratio: 1.35
Annual Production	39.75 MWh
Performance Ratio	82.5%
kWh/kWp	1,258.2
Weather Dataset	TMY, MADISON DANE CO REGIONAL ARPT (ISIS), NSRDB (tmy3, I)
Simulator Version	70e353687f-301d24fdb-8f3cf974d4-5e9aee986c

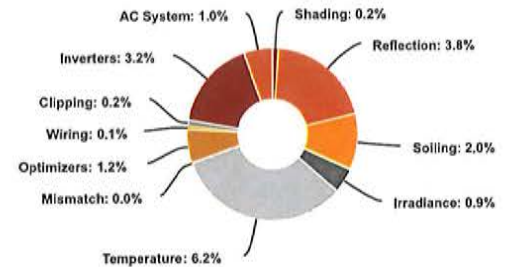
Project Location



Monthly Production



Sources of System Loss



Annual Production

	Description	Output	% Delta
Irradiance (kWh/m²)	Annual Global Horizontal Irradiance	1,427.4	
	POA Irradiance	1,525.5	6.9%
	Shaded Irradiance	1,522.0	-0.2%
	Irradiance after Reflection	1,464.3	-3.8%
	Irradiance after Soiling	1,435.0	-2.0%
	Total Collector Irradiance	1,435.0	0.0%
Energy (kWh)	Nameplate	45,337.8	
	Output at Irradiance Levels	44,936.2	-0.9%
	Output at Cell Temperature Derate	42,127.8	-6.2%
	Output After Mismatch	42,127.8	0.0%
	Optimizer Output	41,622.1	-1.2%
	Optimal DC Output	41,566.0	-0.1%
	Constrained DC Output	41,476.9	-0.2%
	Inverter Output	40,153.1	-3.2%
	Energy to Grid	39,747.9	-1.0%
Temperature Metrics			
	Avg. Operating Ambient Temp	11.4 °C	
	Avg. Operating Cell Temp	26.3 °C	
Simulation Metrics			
	Operating Hours	4607	
	Solved Hours	4607	

Condition Set

Description	Condition Set 2											
Weather Dataset	TMY, MADISON DANE CO REGIONAL ARPT [ISIS], NSRDB (tmy3, I)											
Solar Angle Location	Meteo Lat/Lng											
Transposition Model	Perez Model											
Temperature Model	Sandia Model											
Temperature Model Parameters	Rack Type	a		b		Temperature Delta						
	Fixed Tilt	-3.56		-0.075		3°C						
	Flush Mount	-2.81		-0.0455		0°C						
	East-West	-3.56		-0.075		3°C						
	Carport	-3.56		-0.075		3°C						
Soiling (%)	J	F	M	A	M	J	J	A	S	O	N	D
	2	2	2	2	2	2	2	2	2	2	2	2
Irradiation Variance	5%											
Cell Temperature Spread	4° C											
Module Binning Range	-2.5% to 2.5%											
AC System Derate	0.50%											
Module Characterizations	Module	Uploaded By		Characterization								
	JAM72S09 -390/PR (JA Solar)	Folsom Labs		Spec Sheet Characterization, PAN								
Component Characterizations	Device	Uploaded By		Characterization								
	SE14.4KUS (SolarEdge)	Folsom Labs		CEC								
	SE9KUS (SolarEdge)	Folsom Labs		Spec Sheet								
	P400 (SolarEdge)	Folsom Labs		Mfg Spec Sheet								

Components

Component	Name	Count
Inverters	SE14.4KUS (SolarEdge)	1 (14.4 kW)
Inverters	SE9KUS (SolarEdge)	1 (9.00 kW)
AC Panels	1 input AC Panel	2
AC Home Runs	4 AWG (Copper)	3 (840.9 ft)
AC Home Runs	2 AWG (Copper)	1 (326.8 ft)
Strings	10 AWG (Copper)	7 (1,111.5 ft)
Optimizers	P400 (SolarEdge)	81 (32.4 kW)
Module	JA Solar, JAM72S09 -390/PR (390W)	81 (31.6 kW)

Wiring Zones

Description	Combiner Poles	String Size	Stringing Strategy
Wiring Zone	12	9-15	Along Racking
Wiring Zone 2	12	9-14	Along Racking

Field Segments

Description	Racking	Orientation	Tilt	Azimuth	Intrarow Spacing	Frame Size	Frames	Modules	Power
Field Segment 1	Flush Mount	Portrait (Vertical)	9°	178.5°	0.0 ft	1x1	51	51	19.9 kW
Field Segment 2	Flush Mount	Portrait (Vertical)	9°	178.5°	0.0 ft	1x1	30	30	11.7 kW

📍 Detailed Layout





Project Details

Name	McFarland Public Works RFP	Date	05/05/2020
Location	5115 Terminal Drive, McFarland, WI, 53558	Total modules	81
Module	JA Solar : JAM72509 390/PR (40mm)	Total watts	31,590
Dimensions	78.27" x 39.57" x 1.57" (1988.0mm x 1005.0mm x 40.0mm)	Attachments	138
ASCE	7-10		

System Weight

Total system weight	4,534.5 lbs
Weight/attachment	32.9 lbs
Racking weight	498.3 lbs
Distributed weight	2.6 psf

Load Assumptions

Wind exposure	C
Wind speed	110 mph
Ground snow load	30 psf
Attachment spacing	4.0'

Roof Information

Roof material	Metal	Building height	20 ft
Roof attachment	L-Foot Only	Roof slope	9 °
Attachment hardware	Square	Risk category	II

Span Details XR100 - Portrait

Zone	Max span	Max cantilever
1	5' 5"	2' 2"
2	5' 5"	2' 2"
3	5' 4"	2' 2"

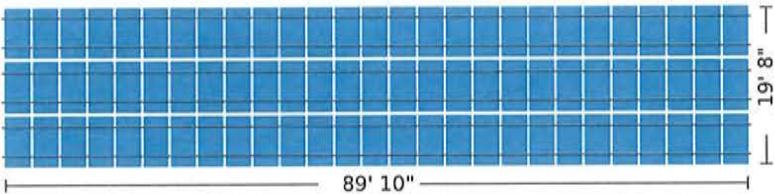
Reaction Forces XR100 - Portrait

Zone	Down (lbs)	Uplift (lbs)	Lateral (lbs)
1	369	158	62
2	369	319	62
3	370	501	63

Roof Section 1

Definition	Roof Section Weights	Roof Section (all segments)
81 modules	Total weight: 4,534.5 lbs	Provided rail: 558' [18 x 14', 18 x 17']
Portrait orientation	Weight/attachment: 32.9 lbs	Attachments: 138
Graphical entry	Total Area: 1,766.9 sq ft	Splices: 30
	Distributed weight: 2.6 psf	Clamps: 168

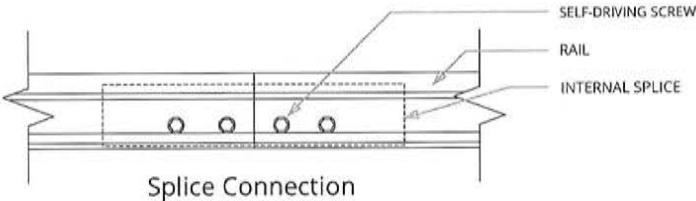
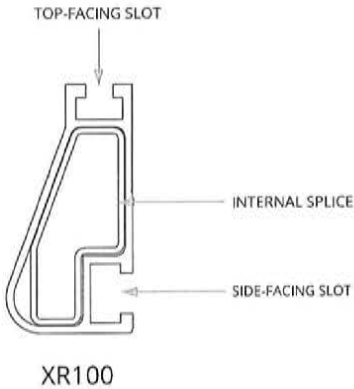
Diagram



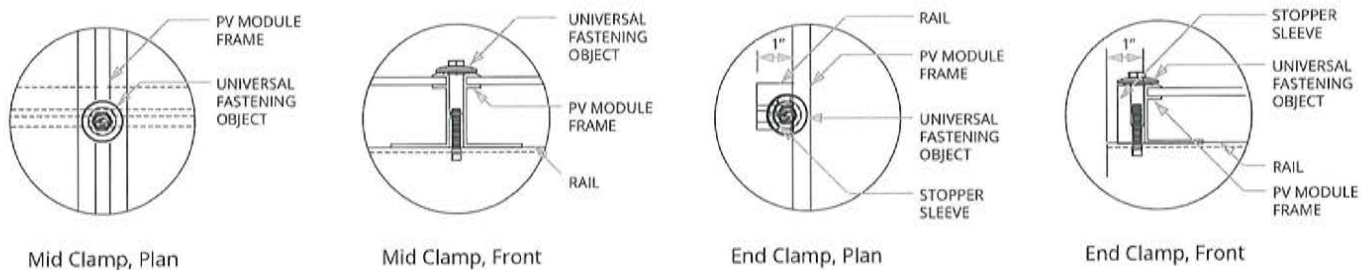
Segments

Columns	Length	Cantilever	Cantilever Violations	Rail	Attachments	Splices	Clamps
27	90'	1'	None	186' [6 x 14', 6 x 17']	46	10	56
Row segment totals (x 3) →				558' [18 x 14', 18 x 17']	138	30	168

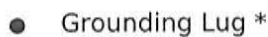
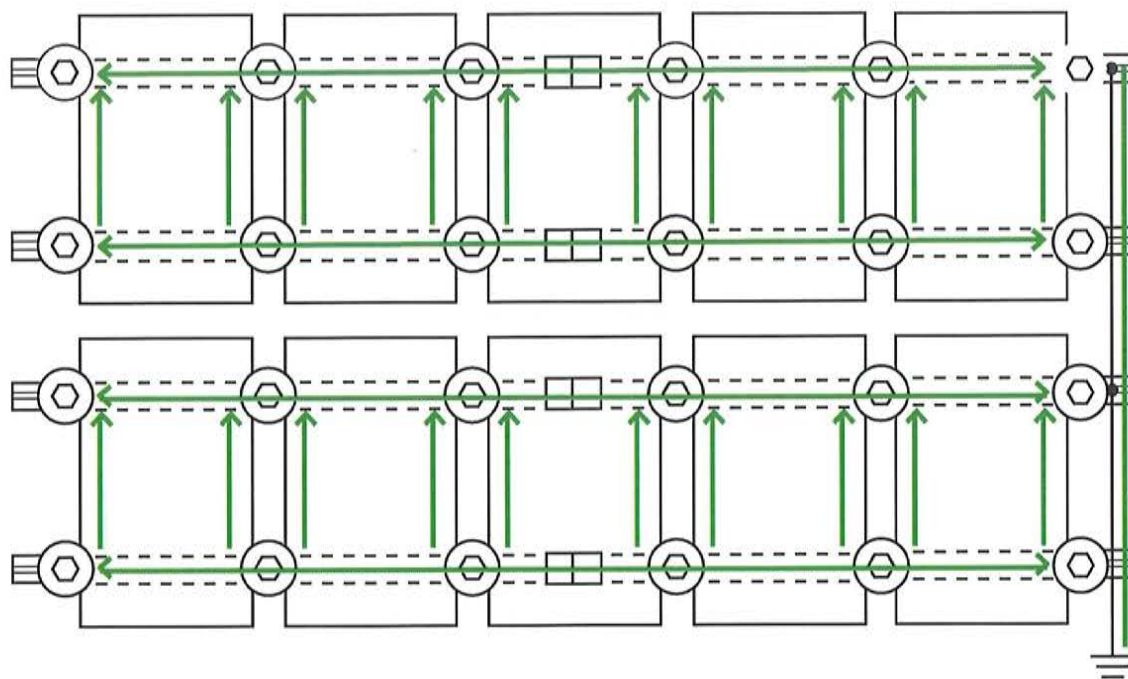
Splice Details



Clamp Detail



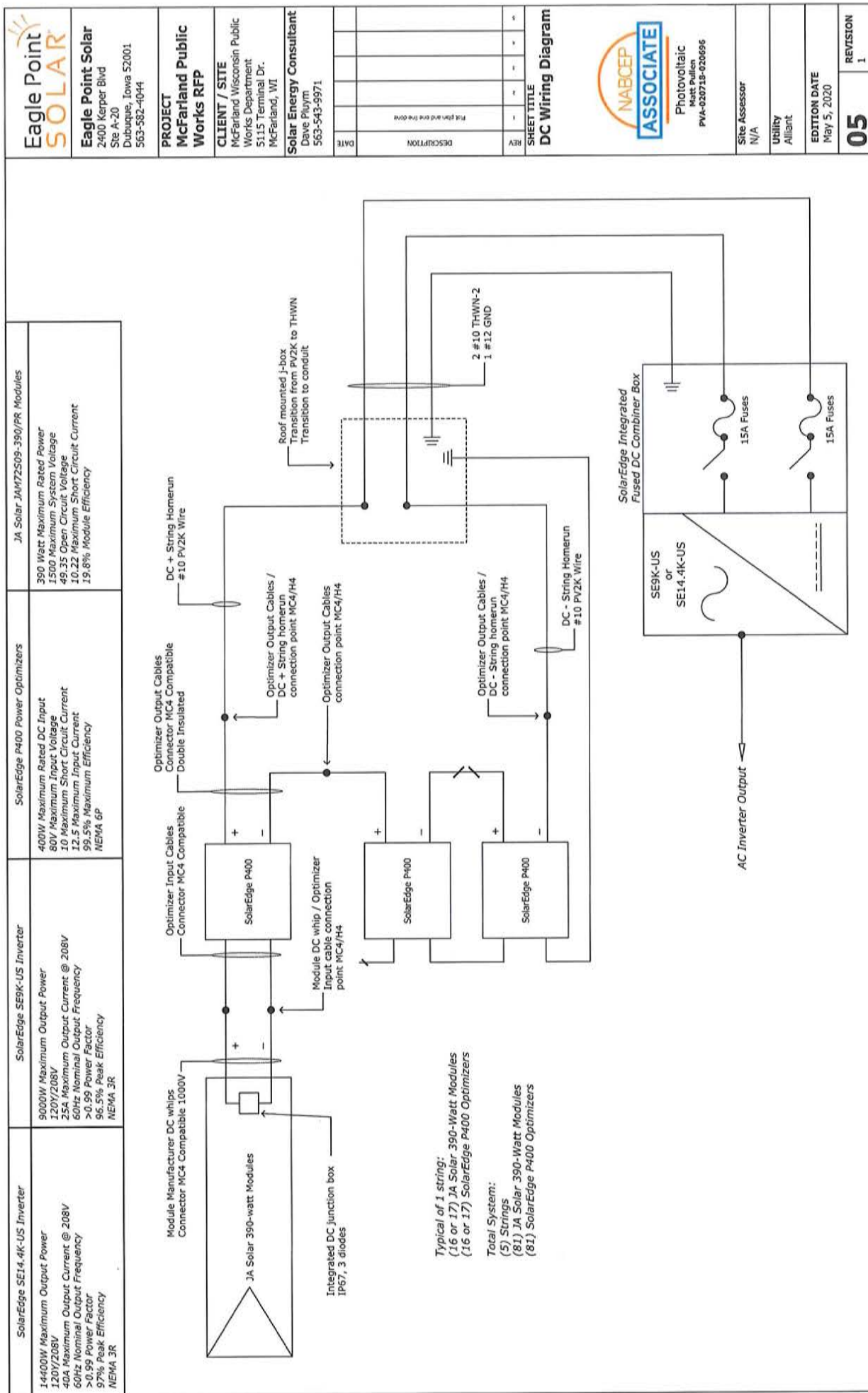
Grounding Diagram



* Grounding Lugs and Wire are not required in systems using Enphase microinverters.

Bill of Materials

Part	Spares	Total Qty
Rails & Splices		
XR-100-204A XR100, Rail 204" (17 Feet) Clear	0	18
XR-100-168A XR100, Rail 168" (14 Feet) Clear	0	18
XR-100-SPLC-M1 XR100 Bonded Splice (Incl. Self-tapping Screws)	0	30
Clamps & Grounding		
UFO-CL-01-A1 Universal Module Clamp, Clear	0	168
UFO-STP-40MM-M1 Stopper Sleeve, 40MM, Mill	0	12
XR-LUG-03-A1 Grounding Lug, Low Profile	0	3
Attachments		
LFT-03-M1 Slotted L-Foot, Mill	0	138
BHW-SQ-02-A1 Square-Bolt Bonding Hardware	0	138



Eagle Point Solar 2400 Kerper Blvd Ste A-20 Dubuque, Iowa 52001 563-582-4044	
PROJECT McFarland Public Works RFP	
CLIENT / SITE McFarland Wisconsin Public Works Department 5115 Terminal Dr. McFarland, WI	
Solar Energy Consultant Dave Pluym 563-543-9971	
DATE	
DESCRIPTION	Final plan and end line done
REV	- - - - -
SHEET TITLE DC Wiring Diagram	
 Photovoltaic Matt Pullen PVA-020718-020696	
Site Assessor	N/A
Utility	Alliant
EDITION DATE	May 5, 2020
05	REVISION 1

Division of Professional Credential
Processing
4822 Madison Yards Way
Madison, WI 53705
Phone: (608) 266-2112
Fax: (608) 267-0592
Email: dpscredtrades@wi.gov
Website: www.dsps.wi.gov

Certification, License, or Registration Card

Below you will find your certification, license or registration card. This card serves as an additional piece of documentation of licensure that may be carried on person. To view details about your credential or continuing education log into the eSLA portal where you can view your credential status or use the public lookup to verify the status of your CE.

Wisconsin Department of Safety and Professional Services	
EAGLE POINT SOLAR LLC	
Credential ID: DC-111500020	
Certification, License, or Registration Name	Expires:
Dwelling Contractor	2020-11-05
Signature:	

Please review the information on the card. If errors or discrepancies are found, you may contact the Department at 608-266-2112 or email DSPSCredTrades@wi.gov, and provide your ID number printed on the card. The Department should be notified of changes in addresses as they occur. Notification of address changes is the responsibility of the credential holder. A renewal notice will be emailed to the email address on file 30, 60, and 90 days before expiration. Before the expiration date of each credential indicated on the card. Renewals are contingent upon compliance with the requirements specified in Wisconsin Administrative Code SPS 305.

References:

Northland Pines School District, Eagle River, WI

4250kW

Contact: Dave Bohnen dbohnens.k12.wi.us

(715) 479-5031



Sauk County Law Enforcement Center, Baraboo, WI

459kW

Contact: Ian Crammond ian.crammond@saukcountywi.gov

(608) 355-3245



City of

Milwaukee - Libraries

Project size: 200kW

Contact: Elizabeth Hittman elizabeth.hittman@milwaukee.gov
(414) 286-5593



Johnson Co. Health & Human Services Building –Iowa City, Ia.

Project size: 159.6kW

Contact: Josh Busard jbusard@co.johnson.ia.us
(319) 356-6085



Partial Project Portfolio:

Municipalities, Counties, Schools & Utilities

Name:	Projects	Total Size	Third Party Finance
Farmers Electric CCOP, IA	1	800kW	Y
Northland Pines CSD, Wi	1	425kW	Y
City of Galena, IL	2	400kW	N
Rochelle Municipal Utility, IL	1	368kW	N
Jo Carroll Energy, IL	1	126kW	Y
Hamilton County, IA	1	118kW	Y
City of Cedar Rapids, IA	5	307kW	Y
Johnson County, IA	2	245kW	Y
City of Dyersville, IA	3	297kW	Y
City of Dubuque, IA	6	351kW	Y
N.I.C.C., IA	1	104kW	Y
City of Asbury, IA	4	230kW	Y
Cedar County, IA	1	213kW	Y
City of Rochelle, IL	1	324kW	N
Bennett CSD, IA	1	166kW	N
Olin CSD, IA	2	136kW	N
Howard Winneshiek CSD, IA	1	35kW	N
Sauk County, WI	2	465kW	Y
City of Olin, IA	5	87kW	Y
Spoon River Electric Coop, IL	1	70kW	N
VIT CSD, IL	3	520kW	Y
Spoon River Valley CSD, IL	1	449kW	Y
City of Peosta, IA	7	405kW	Y
City of Oelwein, IA	5	254kW	Y
City of Marquette, IA	1	36kW	N

Exhibits:

Exhibit A

5-Year Limited Workmanship Warranty

Definition:

Eagle Point Solar (EPS) provides a 5-year workmanship warranty for every customer for whom it installs a solar array. The 5-year period begins on the date of commissioning and is subject to the following terms:

This warranty covers the work related to the installation of a solar array and completed by EPS. No coverage is provided for any part of the project which is completed by any party other than EPS unless specifically approved by EPS.

Items Covered by the Warranty:

- 1) For all solar arrays:
 - a. Mounting hardware will be mounted securely to the mounting surface in accordance with all Federal, State and Local regulations.
 - b. Railing will be securely fastened to the mounting hardware per manufacturer's requirements.
 - c. Modules will be securely fastened to the racking hardware per manufacturer's requirements.
 - d. Electrical connections will be secure and operational.
 - e. Production monitoring system operation.
- 2) For a solar array mounted on the roof:
 - a. The mounting hardware will not damage or cause the roof to leak.
- 3) For a solar array mounted on the ground:
 - a. Piers or posts will remain securely in the original installation position.

Exclusions:

- 1) Internet Service
 - a. Any interruption of customer's internet service by their service provider causing the solar array or the production monitoring system to malfunction.
 - b. Internet hardware failure by any customer owned hardware related to their internet service.
- 2) Vegetation control
- 3) Acts of God
- 4) Array kWh production
- 5) Normal wear and tear to customer's property during installation
- 6) Equipment issues covered by a manufacturer's warranty
- 7) Pre-existing property damage

Warranty claims:

- 1) EPS customer shall promptly notify EPS directly should a potential warranty claim be identified. EPS will at its discretion determine if such claim is valid and also the recourse plan if action. The recourse plan of action will be designed to repair the identified warranted item to their state prior to the warranty claim and be completed in a reasonable time frame.

Initials: _____
Customer EPS Representative

Exhibit B

SAMPLE - Operations & Maintenance Agreement

This Operations & Maintenance Agreement ("Agreement") is made between [Eagle Point Solar, LLC] ("Operator") and [customer] ("Owner"), as of [EXECUTION DATE]. Operator and Owner hereby agree as follows:

1. **O&M SERVICES.** Subject to and in accordance with this Agreement, Operator shall provide the services set forth on Schedule A ("Agreement Services") for the system described in Construction Contract Appendix A ("System") during the Term. Operator shall inform Owner of any additional services required for the safe, reliable operation of the System and of conditions adversely affecting the performance of the System. Operator shall submit a written cost estimate covering such additional services necessary to correct the identified issues. Operator shall not perform any services other than the Planned Maintenance, and Owner shall not be required to pay Operator for any Additional Services performed without Owner's approval.

2. **PRICE AND PAYMENT.** Owner shall pay Operator an annual fixed fee of \$[0] with a [0%] annual escalator for the Planned Maintenance. On an annual basis, Operator shall submit an invoice to Owner documenting the cost associated with the agreement. Owner shall pay Operator, including any applicable taxes, within thirty (30) days after receipt of each invoice.

Operator's additional services fees for items not covered in the Agreement or for those Owners without an Agreement will be as follows:

- A) Owner shall pay Operator any cost of equipment and materials not covered by manufacturer's warranty.
- B) Owner shall pay Operator for all labor hours, including travel time, for the hours each Operator employee dedicates to the Owner's project. This hourly rate will be \$50/hour.
- C) Owner shall pay Operator for each mile logged by Operator's employees or contractors in the event Operator dispatches employees or contractors to the Owner's location. This mileage rate will be equal to the then current IRS mileage reimbursement rate.
- D) Owner shall pay Operator a flat fee trip charge of \$75 for each trip and each vehicle deployed to the Owner's site.

3. **TERM.** The term of this Agreement begins on the date of this Agreement and continues for a period of 1 year following the initiation date. The Agreement will automatically renew for subsequent periods of 1 year, unless a written notice of non-renewal is given by either Operator or Owner at least 60 days prior to the expiration of the Initial Term or then applicable Subsequent Term. No expiration of this Agreement shall release either party from any obligations (including payment obligations) arising under this Agreement prior to such expiration.

4. **ENTRY.** Except in the event of an emergency, Operator and any approved subcontractor shall notify Owner at least 48 hours prior to entry onto Owner's premises and may be required to provide such addition information regarding Operator's or subcontractor's personnel and reason for entry as may be reasonably required by Owner.

5. **SERVICE REPORTS.** Within 30 days following the performance of the Annual Planned Maintenance Schedule or Owner-approved Additional Services, Operator shall provide Owner with a written report summarizing all cleaning, inspections, tests, checks and other actions undertaken by Operator in sufficient detail for Owner to evaluate independently the condition of the System and any issues that may give rise to performance issues. Owner's payment obligations under are conditioned on Operator providing complete and accurate reports to Owner.

6. **STANDARD OF PERFORMANCE.** Operator shall perform the Services in accordance with all applicable laws, regulations, permits, licenses and industry standards and the requirements of any insurance policies maintained by Owner or Operator. The Services shall be performed in a good and workmanlike manner, free of any defect or deficiency

and shall otherwise be performed in accordance with the requirements set forth in this Agreement. If Owner determines in its reasonable discretion that the Services are unsatisfactory or performed in a manner not consistent with industry standards, Operator shall, at its own cost and expense, reperform the Services. Operator shall review all of the manufacturer's warranties for the panels, inverters, racking and combiner boxes ("Manufacturers' Warranties") and perform the Services in accordance with such Manufacturers' Warranties, including all requirements, conditions and stipulations therein. If included as part of Owner-approved Additional Services, Operator shall assist Owner with the prosecution of any claims arising under the Manufacturers' Warranties. Owner has made all Manufacturers' Warranties available to Operator, and Operator has had full opportunity to review, and may from time to time request copies of, the Manufacturers' Warranties.

7. DEFAULTS. It shall be an Operator event of default if Operator breaches a material obligation under this Agreement and fails to cure such breach within 30 days following notice from Owner. If such Operator event of default occurs, Owner shall have the right to terminate this Agreement and pursue any and all remedies it may have at law or in equity. It shall be an Owner event of default if Owner fails to make timely payment pursuant to Section 2 and Owner fails to cure such breach within 30 days following notice from Operator. If such an Owner event of default occurs, Operator's sole and exclusive remedy shall be to terminate this Agreement and bring suit to recover such unpaid amounts.

8. INDEMNITY. Operator shall indemnify and hold harmless Owner from and against any and all losses incurred by Owner to the extent arising from or out of any third-party claim for any injury to or death of any person or loss or damage to property of any person to the extent caused by any negligence willful, reckless or otherwise tortious act or omission (including strict liability) in connection with Operator's performance of the Services.

9. INSURANCE. Operator shall, at its own cost and expense obtain and maintain in full force and affect any insurance coverage in founded amounts consistent with prudent industry standards and shall provide original certificates of such insurance coverages to Owner upon request.

10. NOTICES. Any written notice, instruction, request or other communication under this Agreement, shall be deemed to have been duly given on the date of receipt and shall be delivered (a) personally to the party to whom notice is to be given, (b) by a recognized overnight receipted delivery service, to the party to whom notice is to be given or (c) to the party to whom notice is to be given, by first class registered or certified mail, return receipt requested, postage prepaid. All notices shall be addressed to recipient's address as listed below or at the most recent address specified by written notice given to the other party in the manner provided in this Section 10.

Operator:
Eagle Point Solar, LLC
Attn: Jim Pullen
Address: 900 Jackson St., Suite 108
Dubuque, IA 52001]

Owner:
(Customer)
Attn: _____
Title
Address:

11. CONFIDENTIALITY. Neither party, without the prior written consent of the other party, will disclose the contents of this Agreement or any other information related thereto to any third party except to its fiduciary representatives who agree to keep such information confidential or as required by applicable law.

12. INTEGRATION. With respect to matters involving operations and maintenance for the system, this Agreement, together with all schedules hereto, constitutes the entire agreement of the Parties with respect to its subject matter,

supersedes all prior written or oral agreements and any other correspondence between the parties or offers made by either party, if any, of the parties with respect to its subject matter.

13. GENERAL TERMS. If any term or provision of this Agreement is declared invalid or unenforceable by a court of competent jurisdiction, the remainder of this Agreement shall not be affected, and, if appropriate, such invalid or unenforceable provision shall be modified or replaced to give effect to the underlying intent of the parties. Neither party may assign this Agreement without the prior written consent of the other party. The failure of Operator or Owner to enforce any of the provisions of this Agreement, or the waiver thereof, shall not be construed as a general waiver or relinquishment on its part of any such provision, in any other instance or of any other provision in any instance. This Agreement will be deemed made in and governed by the laws of the state in which the System is located, without application of such state's principles regarding conflicts of law. This Agreement, together with all schedules hereto, constitutes the entire agreement of the parties with respect to its subject matter, supersedes all prior written or oral agreements and any other correspondence between the parties or offers made by either party, if any, of the parties with respect to its subject matter. This Agreement may only be amended in a writing signed by both parties. "Including" and any other words or phrases of inclusion shall not be construed as terms of limitation, so that references to "included" matters shall be regarded as non-exclusive, non-characterizing illustrations. The terms of Sections 6, 8, 11, and 12 shall survive the expiration or termination of this Agreement. This Agreement may be executed by original or facsimile signature in one or more counterparts, each of which will be deemed an original, but which collectively will constitute one and the same instrument.

By signing below, each party acknowledges that it has authority and hereby causes this Agreement to be executed in their respective names as of the date set forth below.

[Eagle Point Solar, LLC]

By: _____
Name: Jim Pullen
Title: General Manager
Date: _____

[Customer]

By: _____
Name: Washburn School District
Title: _____
Date: _____

Schedule "A"

On-Going Operation Support:

- Operator will provide all services necessary to uphold equipment manufacturer's warranties.

System Monitoring:

(If Owner qualifies to have an on-line portal set up for the system, the following services will be included. If it is determined the Owner does not qualify to have the on-line portal set up, these services are not included.)

- Proactively monitor solar array production and provide Customer with an emailed production report annually.
- Configure, monitor and react to performance alerts generated by the monitoring system.

Annual Planned Maintenance Schedule:

- Visually check all DC disconnects and combiners for blown fuses / corrosion / heat distortion / moisture entry / insect or rodent issues
- Verify module cleanliness (note if cleaning is required in follow up)
- Visually check array for broken, loose / missing modules, loose racking hardware, unsecured wiring or MC connectors, correct as is necessary
- Check for corrosion between copper wires and PV frames and galvanized steel racking structure
- Check condition of plastic wire ties and the insulation materials between wires and metal edges in the array; replace as necessary
- Inspect array for build-up of debris; clean as necessary
- Inspect wire runs / piping / conduits; make necessary corrections (sealant, secure elbows, etc.)
- Inspect Inverter for external damage
- Check all AC/DC connections to note possible hot spots and re-torque where necessary
- Shut down AC/DC breakers to Inverter, power down inverter
- Wait for Inverter to discharge
- Clean area around Inverter & verify base is sealed
- Clean / replace air filters and clean air returns
- Visually inspect for moisture intrusions-correct as needed
- Verify torque specifications for all connections
- Verify system is operational

Exclusions:

The following items and services are specifically excluded from the Agreement:

- Owner's internet service:
 - Any interruption of Owner's internet service by their internet provider causing the solar array or the production monitoring system to malfunction.
 - Internet hardware failure by any Owner owned hardware related to their internet service.
- Acts of God.
- Vegetation Control.
- Solar array kWh production.

Initials: _____
Customer

EPS Representative

Exhibit C

Insurance Documentation:



CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)
10/19/2018

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER
Kunkel & Associates, Inc.
401 Data Court
Dubuque IA 52003

CONTACT NAME: TJ Wagner
PHONE (No. Ext): 563-585-2310 FAX (No. Ext): 563-557-7316
E-MAIL: certs@kunkel-inc.com

INSURED
Eagle Point Solar LLC
900 Jackson St., Ste108
Dubuque IA 52001

EAGP012

INSURER(S) AFFORDING COVERAGE	NAIC #
INSURER A: West Bend Mutual	15350
INSURER B:	
INSURER C:	
INSURER D:	
INSURER E:	
INSURER F:	

COVERAGES

CERTIFICATE NUMBER: 457977036

REVISION NUMBER:

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSURER	TYPE OF INSURANCE	ADDL. SUBR. INSR. WORD	POLICY NUMBER	POLICY EFF. DATE (MM/DD/YYYY)	POLICY EXP. DATE (MM/DD/YYYY)	LIMITS
A	GENERAL LIABILITY ☒ COMMERCIAL GENERAL LIABILITY ☐ CLAIMS-MADE ☒ OCCUR		A053475	7/26/2018	7/26/2019	EACH OCCURRENCE \$1,000,000 DAMAGE TO RENTED PREMISES (EA OCCURRENCE) \$500,000 MED EXP (Any one person) \$10,000 PERSONAL & ADV INJURY \$1,000,000 GENERAL AGGREGATE \$2,000,000 PRODUCTS - COMP/OP AGG \$2,000,000 \$
	GEN'L AGGREGATE LIMIT APPLIES PER: ☐ POLICY ☒ PER. INCT ☒ LOC					
A	AUTOMOBILE LIABILITY ☒ ANY AUTO ☒ ALL OWNED AUTOS ☒ HIRED AUTOS ☒ SCHEDULED AUTOS ☒ NON-OWNED AUTOS		A053475	7/26/2018	7/26/2019	COMBINED SINGLE LIMIT (Per accident) \$1,000,000 BODILY INJURY (Per person) \$500,000 BODILY INJURY (Per accident) \$500,000 PROPERTY DAMAGE (Per accident) \$500,000 \$
A	☒ UMBRELLA LIAB ☒ EXCESS LIAB ☒ OCCUR CLAIMS-MADE DED ☒ RETENTION \$0		A053475	7/26/2018	7/26/2019	EACH OCCURRENCE \$5,000,000 AGGREGATE \$5,000,000 \$
A	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory In NH) If yes, describe under DESCRIPTION OF OPERATIONS below	Y/N ☐ N/A	A053505	7/26/2018	7/26/2019	☒ WC STATUS OTHER EL EACH ACCIDENT \$200,000 EL DISEASE - EA EMPLOYEE \$500,000 EL DISEASE - POLICY LIMIT \$500,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (Attach ACORD 101, Additional Remarks Schedule, if more space is required)

CERTIFICATE HOLDER

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

T.J. Wagner

ACORD 25 (2010/05)

The ACORD name and logo are registered marks of ACORD

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Exhibit D



CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)
5/5/2020

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER Kunkel & Associates, Inc. 401 Data Court Dubuque IA 52003	CONTACT NAME: TJ Wagner	
	PHONE (A/C, No, Ext): 563-585-2310	FAX (A/C, No): 563-557-7316
E-MAIL ADDRESS: certs@kunkel-inc.com		
INSURER(S) AFFORDING COVERAGE		NAIC #
INSURER A : Integrity Insurance Company		14303
INSURED Eagle Point Solar LLC 2400 Kerper Boulevard, Suite A20 Dubuque IA 52001	EAGPO12	INSURER B :
		INSURER C :
		INSURER D :
		INSURER E :
		INSURER F :

COVERAGES CERTIFICATE NUMBER: 2144315292 REVISION NUMBER:

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
A	☒ COMMERCIAL GENERAL LIABILITY ☐ CLAIMS-MADE ☒ OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: ☒ POLICY ☒ PRO-JECT ☒ LOC OTHER:			CPP2788864	7/26/2019	7/26/2020	EACH OCCURRENCE \$ 1,000,000 DAMAGE TO RENTED PREMISES (Ea occurrence) \$ 500,000 MED EXP (Any one person) \$ 10,000 PERSONAL & ADV INJURY \$ 1,000,000 GENERAL AGGREGATE \$ 2,000,000 PRODUCTS - COMP/OP AGG \$ 2,000,000 \$
A	☒ AUTOMOBILE LIABILITY ☒ ANY AUTO ☐ ALL OWNED AUTOS ☐ SCHEDULED AUTOS ☒ HIRED AUTOS ☒ NON-OWNED AUTOS			CA2788866	7/26/2019	7/26/2020	COMBINED SINGLE LIMIT (Ea accident) \$ 1,000,000 BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$ \$
A	☒ UMBRELLA LIAB ☒ OCCUR ☐ EXCESS LIAB ☐ CLAIMS-MADE ☐ DED ☒ RETENTION \$ 0			CUP2788868	7/26/2019	7/26/2020	EACH OCCURRENCE \$ 5,000,000 AGGREGATE \$ 5,000,000 \$
A	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below	Y/N ☐ N/A		WCP2788867	7/26/2019	7/26/2020	☒ PER STATUTE ☐ OTH-ER E.L. EACH ACCIDENT \$ 500,000 E.L. DISEASE - EA EMPLOYEE \$ 500,000 E.L. DISEASE - POLICY LIMIT \$ 500,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

Re: solar photovoltaic system at the Public Works Facility Village of McFarland, Alliant Energy, and Strand Associates, Inc., are additional insured on the General Liability policy with respect to the ongoing and completed operations performed by the named insured, and additional insured on the Auto Liability policy as per written contract.

CERTIFICATE HOLDER	CANCELLATION
Village of McFarland 5115 Terminal Drive McFarland WI 53558	SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS. AUTHORIZED REPRESENTATIVE <i>T.J. Wagner</i>

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2. That failure of Contractor to comply with the above requirements with respect to Additional Insured Endorsement and/or Certificate of Insurance shall not be construed as waiver of those provisions by any of the additional insureds so identified above.

INDEMNIFICATION

To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless the Village of McFarland, Alliant Energy, and Strand Associates, Inc.[®], and against all claims, costs, losses, and damages arising out of or relating to the performance of the Work, provided that any such claim, cost, loss, or damage is attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property, including the loss of use resulting therefrom but only to the extent caused by any negligent act or omission of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work or anyone for whose acts any of them may be liable.

The Village of McFarland will receive sealed bids to complete the proposed work until 12:00 PM, May 6, 2020.

Questions concerning the project or arranging a site visit with Village staff should be directed to: Village Administrator Matt Schuenke at 608-838-3153- or email: matt.schuenke@mcfarland.wi.us

Responses to all inquiries about the project or bid requirements will be distributed to all companies by email based upon the email address supplied to the Village of McFarland by the prospective bidders.

Company name	Eagle Point Solar LLC
Address	2400 Kerper Blvd Suite A-20 Dubuque, IA 52001
Contact Name	David Pluym
Phone #	563-582-4044
Email	dpluym@eaglepointsolar.com



Signature

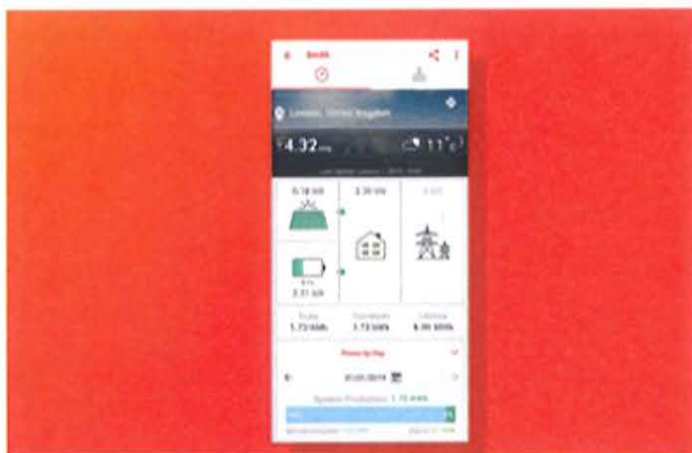
David J Pluym
Name

05/05/2020
Date

SolarEdge Monitoring System

Monitoring Platform

The **monitoring platform** provides enhanced PV performance monitoring and yield assurance through immediate fault detection and alerts at the module level, string level and system level. No hardware or wiring is required to transmit data from the power optimizers to the inverter: the monitoring sensors and transmitters are built into the SolarEdge power optimizer and **solar inverter**, and measurement data is transmitted over the regular power lines.



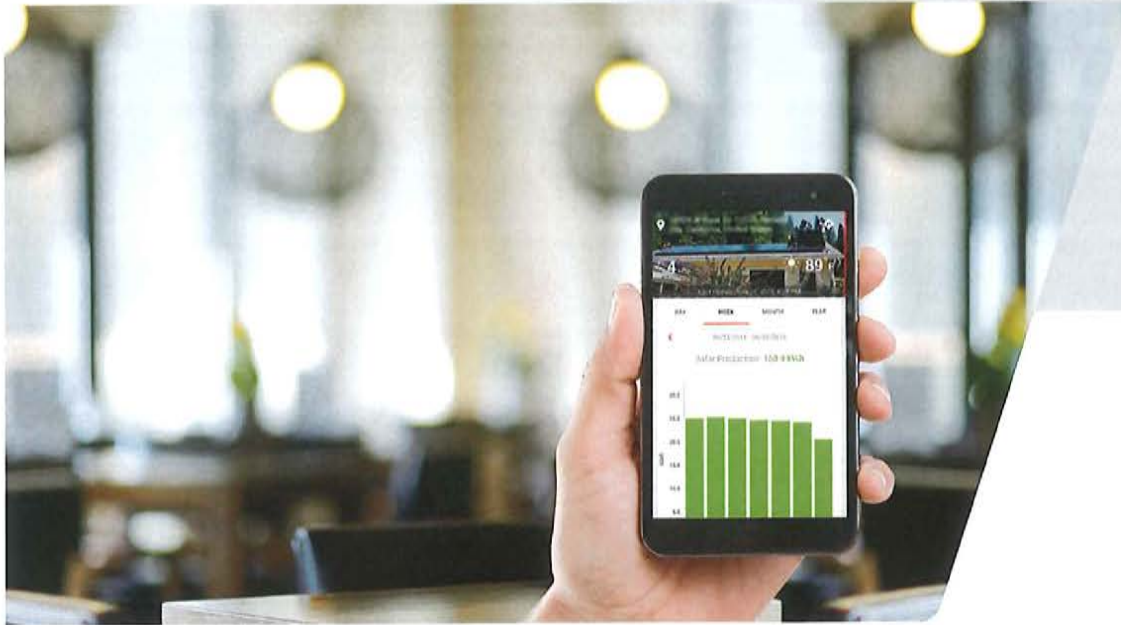
Key Benefits:

- Full visibility of your system's technical and financial performance, including interactive charts and site layout
- Visualization of PV production, building consumption, and self-consumption
- Data presentation at the module-level, string-level and system level
- Comprehensive site-level and fleet-level reporting and analysis tools with an option to schedule automatic reports and export reports
- Effective fleet management and improved O&M capabilities:
 - Automatic alerts on system issues
 - Remote troubleshooting and access to real-time system data and guided root-cause fault analysis
 - High resolution data, including historical and aggregated views with comparative analysis diagnostics
- Easy access from a computer, smartphone, or tablet
- Multiple options for social sharing and public display to drive referrals and generate leads
- Free for 25 years

All these features enable integrators, installers, maintenance staff, and system owners to improve the site performance, assure the yield of the system, maximize solar power harvesting and reduce maintenance costs by increasing system up-time and resolving faults more effectively.

The physical layout of the monitoring platform allows you to monitor systems at the module level, and pinpoint issues to the exact location of each module on a virtual site map.

To create and edit your site's physical layout quickly and easily, use the SolarEdge **Mapper** application or the web-based layout editor.



Know that your PV system is producing to its maximum potential.

View historic and real-time energy production of your SolarEdge optimized system on the go with your smart phone.



Easy to use charts show your PV performance.

Compare today's production to past measurements.



Want to know how your PV system stacks up against your friends?

You can share real-time system performance details with your friends across many social platforms: email, messaging apps, Facebook and on Twitter.



Real-time and forecasted weather data.

Evaluate your system's performance by understanding what environmental conditions affect energy production.

See and share your system's performance on the go: real-time insight to home energy production and usage.

Gain visibility into your system performance in real-time with this intuitive, user-friendly app. Share your system performance at the push of a button.

Don't have a solar system yet? You can explore and learn about features by using the demo account.

Download the app for free on iPhone or Android by visiting the AppStore or Google Play.



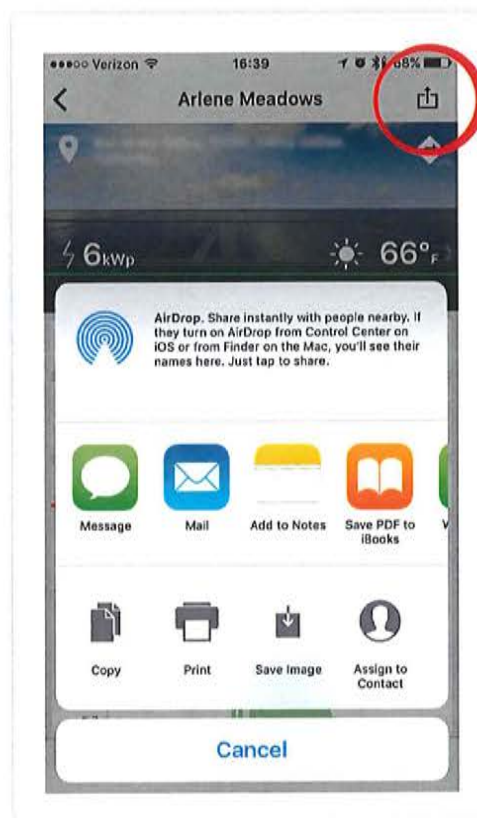
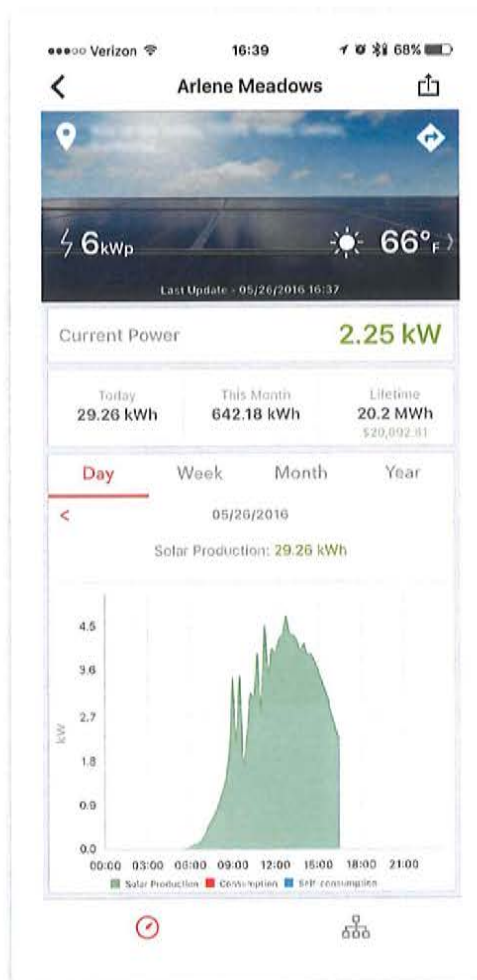
Getting Started with the SolarEdge Monitoring App

After your inverter connects to the internet, SolarEdge automatically begins tracking and reporting your site's performance. Your installer will need to create the physical layout in the SolarEdge portal for you to view. **Confirm with your installer regarding completion date of your homeowner account.**

* Before you can register you need to ensure that SolarEdge email isn't getting stuck in your SPAM folder. Add DoNotReply@solaredge.com to your contacts and watch for a registration email with the subject line: *Registration to SolarEdge Monitoring Portal.*

To begin using:

1. A link to register will be sent to you in email. *Note: if you click the link and nothing happens, simply copy and paste the same URL into your web browser address bar.
2. Register your site with SolarEdge:
 - You will need to enter your name, phone number, language, create a password and select units (*Imperial* for Fahrenheit and *Metric* for Celsius)
 - Check the box agreeing to SolarEdge's terms and conditions and select if you want news, updates or technical notifications from SolarEdge
 - Click Confirm, log-in and view your energy performance
3. To get updated information on your smart phone, download the free monitoring app:
 - Visit Google Play or the App Store to download the "SolarEdge Monitoring" app.
 - Login using the same email address and password that you created during registration. The app will remember your login information; allowing you to see your system's performance at any time.
4. You can begin sharing your system's performance on your favorite social network or by email or text.



Click on
the icon
to share

Three Phase Inverters

For the 208V Grid for North America

SE9KUS / SE14.4KUS



The best choice for SolarEdge enabled systems

- / Specifically designed to work with power optimizers
- / Integrated arc fault protection and rapid shutdown for NEC 2014 and 2017, per article 690.11 and 690.12
- / UL1741 SA certified, for CPUC Rule 21 grid compliance
- / Built-in module-level monitoring
- / Internet connection through Ethernet or Wireless
- / Small, lightweight, and easy to install outdoors or indoors on provided bracket
- / Fixed voltage inverter for longer strings
- / Integrated Safety Switch
- / Supplied with RS485 Surge Protection, to better withstand lightning events

/ Three Phase Inverters

For the 208V Grid for North America

SE9KUS / SE14.4KUS

SE9KUS		SE14.4KUS	
APPLICABLE TO INVERTERS WITH PART NUMBER	SEXK-XXXXNXXX		
OUTPUT			
Rated AC Power Output	9000	14400	VA
Maximum AC Power Output	9000	14400	VA
AC Output Line Connections	4-wire WYE (L1-L2-L3-N) plus PE or 3 wire Delta		
AC Output Voltage Minimum-Nominal-Maximum ⁽²⁾ (L-N)	105-120-132.5		Vac
AC Output Voltage Minimum-Nominal-Maximum ⁽²⁾ (L-L)	183-208-229		Vac
AC Frequency Min-Nom-Max ⁽²⁾	59.3 - 60 - 60.5		Hz
Max. Continuous Output Current (per Phase)	25	40	A
GFDI Threshold	1		A
Utility Monitoring, Islanding Protection, Country Configurable Set Points	Yes		
INPUT			
Maximum DC Power (Module STC)	12150	19400	W
Transformer-less, Ungrounded	Yes		
Maximum Input Voltage DC to Gnd	250	300	Vdc
Maximum Input Voltage DC+ to DC-	500	600	Vdc
Nominal Input Voltage DC to Gnd	200		Vdc
Nominal Input Voltage DC+ to DC-	400		Vdc
Maximum Input Current	26.5	38	Adc
Maximum Input Short Circuit Current	45		Adc
Reverse-Polarity Protection	Yes		
Ground-Fault Isolation Detection	1MΩ Sensitivity	350kΩ Sensitivity ⁽³⁾	
CEC Weighted Efficiency	96.5	97	%
Night-time Power Consumption	< 3	< 4	W
ADDITIONAL FEATURES			
Supported Communication Interfaces	RS485, Ethernet, ZigBee (optional)		
Rapid Shutdown – NEC 2014 and 2017 690.12	Automatic Rapid Shutdown upon AC Grid Disconnect		
RS485 Surge Protection	Supplied with the inverter		
STANDARD COMPLIANCE			
Safety	UL1741, UL1741 SA, UL1699B, CSA C22.2, Canadian AFCI according to T.I.L. M-07		
Grid Connection Standards	IEEE1547, Rule 21, Rule 14 (H-I)		
Emissions	FCC part15 class B		
INSTALLATION SPECIFICATIONS			
AC output conduit size / AWG range	3/4" minimum / 12-6 AWG	3/4" minimum / 8-4 AWG	
DC input conduit size / AWG range	3/4" minimum / 12-6 AWG		
Number of DC inputs	2 pairs	3 pairs ⁽⁴⁾	
Dimensions (H x W x D)	21 x 12.5 x 10.5 / 540 x 315 x 260		in / mm
Dimensions with Safety Switch (H x W x D)	30.5 x 12.5 x 10.5 / 775 x 315 x 260		in / mm
Weight	73.2 / 33.2	99.5 / 45	lb / kg
Weight with Safety Switch	79.7 / 36.2	106 / 48	lb / kg
Cooling	Fans (user replaceable)		
Noise	< 50	< 55	dBA
Operating Temperature Range	-40 to +140 / -40 to +60 ⁽⁵⁾		°F / °C
Protection Rating	NEMA 3R		

⁽¹⁾ For 277/480V inverters refer to: <https://www.solaredge.com/sites/default/files/se-three-phase-us-inverter-datasheet.pdf>

⁽²⁾ For other regional settings please contact SolarEdge support

⁽³⁾ Where permitted by local regulations

⁽⁴⁾ Field replacement kit for 1 pair of inputs P/N: DCD-3PH-1TBK; Field replacement kit for 3 pairs of fuses and holders P/N: DCD-3PH-6FHK-S1

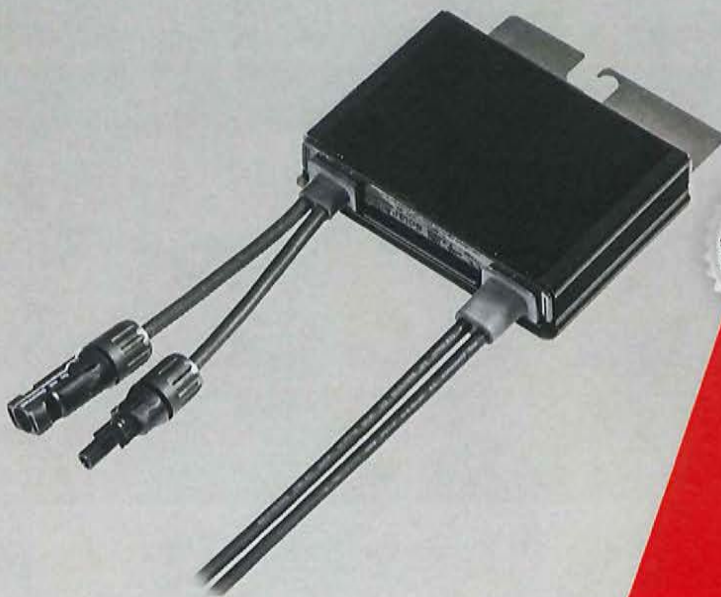
⁽⁵⁾ For power de-rating information refer to: <https://www.solaredge.com/sites/default/files/se-temperature-derating-note-na.pdf>



SolarEdge Power Optimizer

Module Add-On For North America

P300 / P320 / P400 / P405



POWER OPTIMIZER

PV power optimization at the module-level

- Up to 25% more energy
- Superior efficiency (99.5%)
- Mitigates all types of module mismatch losses, from manufacturing tolerance to partial shading
- Flexible system design for maximum space utilization
- Fast installation with a single bolt
- Next generation maintenance with module-level monitoring
- Module-level voltage shutdown for installer and firefighter safety



SolarEdge Power Optimizer

Module Add-On for North America

P300 / P320 / P400 / P405

	P300 (for 60-cell modules)	P320 (for high-power 60-cell modules)	P400 (for 72 & 96-cell modules)	P405 (for thin film modules)	
INPUT					
Rated Input DC Power ⁽¹⁾	300	320	400	405	W
Absolute Maximum Input Voltage (Voc at lowest temperature)	48		80	125	Vdc
MPPT Operating Range	8 - 48		8 - 80	12.5 - 105	Vdc
Maximum Short Circuit Current (Isc)	10	11	10		Adc
Maximum DC Input Current	12.5	13.75	12.5		Adc
Maximum Efficiency			99.5		%
Weighted Efficiency			98.8		%
Overvoltage Category			II		
OUTPUT DURING OPERATION (POWER OPTIMIZER CONNECTED TO OPERATING SOLAREEDGE INVERTER)					
Maximum Output Current		15			Adc
Maximum Output Voltage		60		85	Vdc
OUTPUT DURING STANDBY (POWER OPTIMIZER DISCONNECTED FROM SOLAREEDGE INVERTER OR SOLAREEDGE INVERTER OFF)					
Safety Output Voltage per Power Optimizer		1			Vdc
STANDARD COMPLIANCE					
EMC		FCC Part15 Class B, IEC61000-6-2, IEC61000-6-3			
Safety		IEC62109-1 (class II safety), UL1741			
RoHS		Yes			
INSTALLATION SPECIFICATIONS					
Maximum Allowed System Voltage		1000			Vdc
Compatible inverters		All SolarEdge Single Phase and Three Phase inverters			
Dimensions (W x L x H)	128 x 152 x 27.5 / 5 x 5.97 x 1.08		128 x 152 x 35 / 5 x 5.97 x 1.37	128 x 152 x 48 / 5 x 5.97 x 1.89	mm / in
Weight (including cables)	770 / 1.7		930 / 2.05	930 / 2.05	gr / lb
Input Connector		MC4 Compatible			
Output Wire Type / Connector		Double Insulated; MC4 Compatible			
Output Wire Length	0.95 / 3.0		1.2 / 3.9		m / ft
Operating Temperature Range		-40 - +85 / -40 - +185			°C / °F
Protection Rating		IP68 / NEMA6P			
Relative Humidity		0 - 100			%

⁽¹⁾ Rated STC power of the module. Module of up to +5% power tolerance allowed.

PV SYSTEM DESIGN USING A SOLAREEDGE INVERTER ⁽²⁾	SINGLE PHASE	THREE PHASE 208V	THREE PHASE 480V	
Minimum String Length (Power Optimizers)	8	10	18	
Maximum String Length (Power Optimizers)	25	25	50	
Maximum Power per String	5250	6000	12750	W
Parallel Strings of Different Lengths or Orientations		Yes		

⁽²⁾ It is not allowed to mix P405 with P300/P400/P600/P700 in one string.



LIMITED PRODUCT WARRANTY

This SolarEdge Technologies Ltd. Limited Warranty covers defects in workmanship and materials of the below-listed products for the applicable warranty period set out below:

- **Power optimizers:** 25 years commencing on the earlier of: (i) 4 months from the date the power optimizers are shipped from SolarEdge; and (ii) the installation of the power optimizers, *provided, however*, that for the module embedded power optimizers (CSI and OPJ models), the Warranty Period shall not exceed the maximum of (1) the module product warranty and (2) the module power warranty periods provided by the applicable module manufacturer.
- **Inverters, Safety & Monitoring Interface (SMI), Auto-transformer, GSM Cellular Modem:** 12* years commencing on the earlier of: (i) 4 months from the date the products are shipped from SolarEdge; and (ii) the installation of the products.
- **StorEdge Interface:** 10 years commencing on the earlier of: (i) 4 months from the date the Interfaces are shipped from SolarEdge; and (ii) the installation of the Interfaces.
- **Home Gateway, Control and Communication Gateway, Firefighter Gateway, Wireless Communication Products excluding GSM Cellular Modem, RS485 Expansion Kit, SolarEdge Meter, Smart Monitoring Combiner Box:** 5 years commencing on the earlier of: (i) 4 months from the date the product is shipped from SolarEdge; and (ii) the installation of the product. Warranty duration of wireless communication products is the same whether or not the product is pre-installed in the inverter.

* In some countries the inverter warranty is limited to 7 years. For a list of these countries please access http://www.solaredge.com/warranty_exceptions

The Limited Warranty does not apply to components which are separate from the Products, ancillary equipment and consumables, such as, for example, cables, fuses, wires and connectors, whether supplied by SolarEdge or others. Some components may carry their own manufacturer warranty. See product datasheet for more details. In addition, for all power optimizers with a part number ending in C, the SolarEdge warranty does not apply to the input connector.

The Limited Warranty only applies to the buyer who has purchased the Products from an authorized seller of SolarEdge for use in accordance with their intended purpose. The Limited Warranty may be transferred from buyer to any assignee, and will remain in effect for the time period remaining under the foregoing warranties, *provided* that the Products are not moved outside its original country of installation and any reinstallation is done in accordance with the installation directions and use guidelines accompany the Products (collectively the "Documentation").

If, during the applicable Warranty Period, buyer discovers any defect in workmanship and materials and seeks to activate the Limited Warranty, then buyer shall, promptly after such discovery, report the defect to SolarEdge by sending an email to support@solaredge.com with the following information: (i) a short description of the defect, (ii) the Product's serial number, and (iii) a scanned copy of the purchase receipt or warranty certificate of the applicable Product.

Upon buyer's notification, SolarEdge shall determine whether the reported defect is eligible for coverage under the Limited Warranty. The Product's serial number must be legible and properly attached to the Product in order to be eligible for Warranty coverage. If SolarEdge determines that the reported defect is not eligible for coverage under the Limited Warranty, SolarEdge will notify buyer accordingly and will explain the reason why such coverage is not available. If SolarEdge determines that the reported defect is eligible for coverage under the Limited Warranty, SolarEdge will notify buyer accordingly, and SolarEdge may, in its sole discretion, take any of the following actions:

- repair the Product at SolarEdge's facilities or on-site; or
- issue a credit note for the defective Product in an amount up to its actual value at the time buyer notifies SolarEdge of the defect, as determined by SolarEdge, for use toward the purchase of a new Product; or
- provide Buyer with replacement units for the Product.

SolarEdge will determine whether the Product should be returned to SolarEdge and, if SolarEdge so determined, the Return Merchandise Authorization ("RMA") Procedure (set out below) will be invoked. Where replacement Products are sent, SolarEdge generally sends such products within 48 hours. SolarEdge may use new, used or refurbished parts that are at least functionally equivalent to the original part when making warranty repairs. The repaired Product or replacement parts or Product, as applicable, shall continue to be covered under the Limited Warranty for the remainder of the then-current Warranty Period for the Product.

Where the RMA Procedure is invoked by SolarEdge, SolarEdge will instruct buyer how to package and ship the Product or part(s) to the designated location. SolarEdge will bear the cost of such shipment, upon receipt of the Product or part(s), SolarEdge will, at its expense and sole discretion, either repair or replace the Product or part(s).

SolarEdge will deliver the repaired or replaced Product or part(s) to buyer at buyer's designated location in countries where SolarEdge has an office and/or there is a significant PV market. For the specific list of countries to which such service is provided, please access http://www.solaredge.com/articles/shipping_cost_coverage_warranty. SolarEdge will bear the cost of such shipment, including shipping and customs (where applicable) and buyer shall bear any applicable value added tax. SolarEdge may elect to ship replacement Product and/or part(s) prior to receipt of the Product and/or part(s) to be returned to SolarEdge as per the above.

Where SolarEdge decides to repair the Product or part(s), warranty coverage includes labor and material costs necessarily incurred to correct the Product defect; and where SolarEdge decides to replace the Product or part(s) to which the Limited Warranty applies, warranty coverage includes the cost of the replacement of the Product or part(s). In addition, SolarEdge shall bear shipping costs in respect to the foregoing, as set out above. All other costs, including, without limitation, travel and boarding costs of SolarEdge service personnel that are incurred for repairs of Products on-site, as well as costs related to buyer's employees and contractors repair or replacement activities, are not covered by the Limited Warranty and, unless otherwise agreed in writing in advance by SolarEdge, shall be borne by the buyer.

Warranty Exclusions: This Limited Warranty will not apply if (a) buyer is in default under the General Terms and Conditions of other Agreement governing the purchase of the Product, or (b) the Product or any part thereof is:

- damaged as a result of misuse, abuse, accident, negligence or failure to maintain the Product;
- damaged as a result of modifications, alterations or attachments thereto which were not pre-authorized in writing by SolarEdge;
- damaged due to the failure to observe the applicable safety regulations governing the proper use of the Product;
- installed or operated not in strict conformance with the Documentation, including without limitation, not ensuring sufficient ventilation for the Product as described in SolarEdge installation guide;
- opened, modified or disassembled in any way without SolarEdge's prior written consent;
- used in combination with equipment, items or materials not permitted by the Documentation or in violation of local codes and standards;
- damaged or rendered non-functional as a result of power surges, lightning, fire, flood, pest damage, accident, action of third parties, or other events beyond SolarEdge's reasonable control or not arising from normal operating conditions; or
- damaged during or in connection with shipping or transport to or from buyer where buyer arranges such shipping or transport.

This Limited Warranty does not cover cosmetic or superficial defects, dents, marks or scratches, which do not influence the proper functioning of the Product.

THE LIMITED WARRANTIES SET OUT HEREIN ARE IN LIEU OF ANY OTHER WARRANTIES WITH RESPECT TO THE PRODUCTS PURCHASED BY BUYER FROM SOLAREGE, WHETHER EXPRESS OR IMPLIED, WRITTEN OR ORAL (INCLUDING ANY WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE), ALL OF WHICH ARE EXPRESSLY EXCLUDED TO THE FULLEST EXTENT PERMITTED BY APPLICABLE LAW.

Claims by buyer that go beyond the warranty terms set out herein, including claims for compensation or damages, are not covered by the Limited Warranty, insofar as SolarEdge is not subject to statutory liability. In such cases, please contact the company that sold you the Product. Eventual claims in accordance with the law on product liability remain unaffected.

Coverage under the Limited Warranty is subject to buyer complying with the foregoing notification requirements and cooperating with SolarEdge's directions. SolarEdge's sole obligation and buyer's exclusive remedy for any defect warranted hereunder is limited to those actions expressly stated above. Such actions are final and do not grant any further rights, in particular with respect to any claims for compensation.

Unless otherwise specified in an executed Agreement with SolarEdge, the Limited Warranty and related provisions set out herein are subject to SolarEdge's General Terms and Conditions, including, without limitation, the provisions thereof, which relate to disclaimer of warranties, limitation of liability and governing law and jurisdiction.

Revised: June 2016



395W PERC Module

JAM72S09 375-395/PR Series

Introduction

Powered by high-efficiency PERCIUM cells, this series of high-performance modules provides the most cost-effective solution for lowering the LCOE of any PV systems large or small.



5 busbar solar cell design



Higher output power



Excellent low-light performance

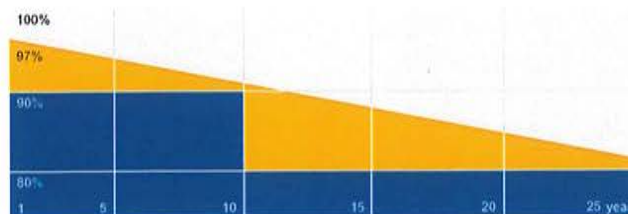


Lower temperature coefficient



Superior Warranty

- 12-year product warranty
- 25-year linear power output warranty



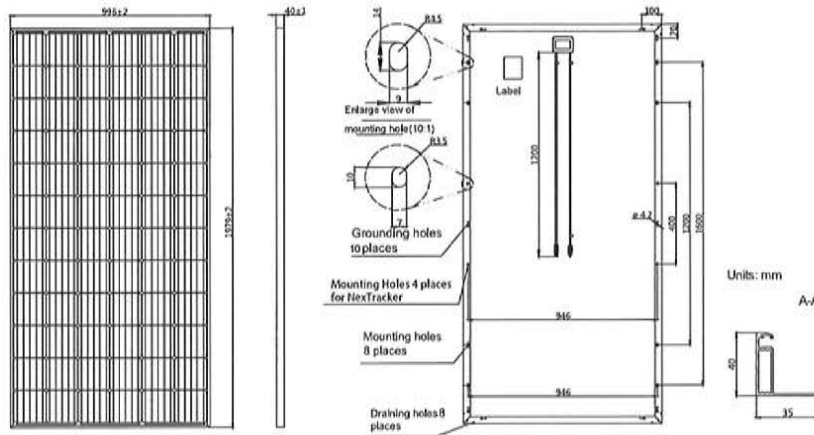
■ JA Linear Power Warranty ■ Industry Warranty

Comprehensive Certificates

- IEC 61215, IEC 61730
- ISO 9001: 2015 Quality management systems
- ISO 14001: 2015 Environmental management systems
- OHSAS 18001: 2007 Occupational health and safety management systems
- IEC TS 62941: 2016 Terrestrial photovoltaic (PV) modules – Guidelines for increased confidence in PV module design qualification and type approval



MECHANICAL DIAGRAMS



Remark: customized frame color and cable length available upon request

SPECIFICATIONS

Cell	Mono
Weight	22.3kg±3%
Dimensions	1979±2mm×996±2mm×40±1mm
Cable Cross Section Size	4mm ²
No. of cells	72(6x12)
Junction Box	IP67, 3 diodes
Connector	QC 4.10 (1000V) QC 4.10-35(1500V)
Packaging Configuration	27 Per Pallet

ELECTRICAL PARAMETERS AT STC

TYPE	JAM72S09 -375/PR	JAM72S09 -380/PR	JAM72S09 -385/PR	JAM72S09 -390/PR	JAM72S09 -395/PR
Rated Maximum Power(P _{max}) [W]	375	380	385	390	395
Open Circuit Voltage(V _{oc}) [V]	48.47	48.75	49.04	49.35	49.64
Maximum Power Voltage(V _{mp}) [V]	39.27	39.59	39.90	40.21	40.48
Short Circuit Current(I _{sc}) [A]	10.06	10.12	10.17	10.22	10.27
Maximum Power Current(I _{mp}) [A]	9.55	9.60	9.65	9.70	9.76
Module Efficiency [%]	19.0	19.3	19.5	19.8	20.0
Power Tolerance	0~+5W				
Temperature Coefficient of I _{sc} (α _{Isc})	+0.060%/°C				
Temperature Coefficient of V _{oc} (β _{Voc})	-0.300%/°C				
Temperature Coefficient of P _{max} (γ _{Pmp})	-0.370%/°C				

STC

Irradiance 1000W/m², cell temperature 25°C, AM1.5G

Remark: Electrical data in this catalog do not refer to a single module and they are not part of the offer. They only serve for comparison among different module types.
*For NexTracker installations static loading performance: front load measures 2400Pa, while back load measures 2400Pa.

ELECTRICAL PARAMETERS AT NOCT

TYPE	JAM72S09 -375/PR	JAM72S09 -380/PR	JAM72S09 -385/PR	JAM72S09 -390/PR	JAM72S09 -395/PR
Rated Max Power(P _{max}) [W]	278	281	285	289	292
Open Circuit Voltage(V _{oc}) [V]	45.86	46.15	46.47	46.78	47.09
Max Power Voltage(V _{mp}) [V]	37.05	37.34	37.64	37.92	38.21
Short Circuit Current(I _{sc}) [A]	7.95	7.99	8.03	8.07	8.11
Max Power Current(I _{mp}) [A]	7.49	7.53	7.57	7.61	7.65

NOCT

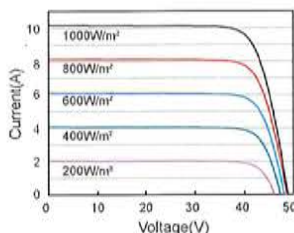
Irradiance 800W/m², ambient temperature 20°C,
wind speed 1m/s, AM1.5G

OPERATING CONDITIONS

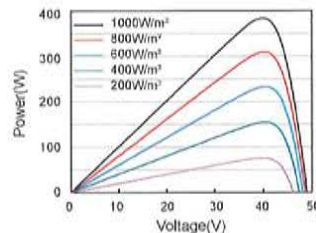
Maximum System Voltage	1000V/1500V DC(IEC)
Operating Temperature	-40°C~+85°C
Maximum Series Fuse	20A
Maximum Static Load,Front*	5400Pa
Maximum Static Load,Back*	2400Pa
NOCT	45±2°C
Application Class	Class A

CHARACTERISTICS

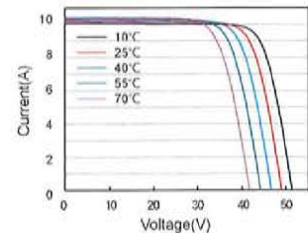
Current-Voltage Curve JAM72S09-385/PR



Power-Voltage Curve JAM72S09-385/PR



Current-Voltage Curve JAM72S09-385/PR



Limited Warranty

for PV Modules

JA SOLAR
www.jasolar.com

JA SOLAR HOLDINGS CO., LTD.
Add: No.35, Jiang Chang San Road, Zhabei, Shanghai 200435, China
Tel: +86-21-6095 5889/6095 6999
Email: service@jasolar.com
Website: www.jasolar.com

JA Solar © 2016

JA SOLAR

JA Solar Holdings Co., Ltd., and on behalf of ALL its DIRECTLY AND indirectly owned and controlled subsidiary, INCLUDING BUT NOT LIMITED TO Shanghai JA Solar Technology Co., Ltd./hereinafter jointly referred to as "JA Solar") warrants its Photovoltaic Solar modules (MODULES) performance starting from the date of sale to the first customer installing (for their own use) the modules ("Customer") or starting at the latest 6 months after modules dispatch from the JA Solar factory, whichever occurs earlier (the "Warranty Commencement Date").

1. Limited Product Warranty – Twelve Year Repair or Replacement

JA Solar warrants that the MODULES together with the factory-assembled DC connectors and cables are free from any defects in materials and workmanship under normal application, usage, installation and service conditions for a period of one hundred and forty-four (144) months from the Warranty Commencement Date. If MODULES become malfunctioning or non-operative due to defects in material or workmanship during the one hundred and forty-four (144)-month period from the Warranty Commencement Date, as verified by an independent testing agency that will be selected and confirmed mutually by JA Solar and Customer in advance, JA Solar will, at its sole option, either repair or replace the malfunctioning or inoperative MODULES, MODULES' repair or replacement remedy shall be the sole and exclusive remedy provided under the Limited Product Warranty and shall not extend beyond the period set forth herein. This Limited Product Warranty does not warranty a specific power output at or during any time frame, which shall be exclusively covered under Section 2 of this Warranty hereinafter

("Limited Peak Power Warranty")

2. Limited Peak Power Warranty– Limited Remedy

JA Solar warrants that for a period of twenty-five years starting from the Warranty Commencement Date, less of power output against the minimum "Peak Power at STC" as specified on the label of the modules (hereinafter "Nominal Power") when measured at Standard Test Conditions (STC) for the Products shall not exceed:

(1) For Mono Products: 3 % for the first year from the Warranty Commencement Date, and 0.65% per year thereafter from the 2nd to the 25th year of the warranty period; with a power output standing at 81.4% of the Nominal Power at the end of the 25-year warranty period;

(2) For Poly Products: 2.5 % for the first year from the Warranty Commencement Date, and 0.7% per year thereafter from the 2nd to the 25th year of the warranty period; with a power output standing at 80.7% of the Nominal Power at the end of the 25-year warranty period.

Within the period of twenty-five (25)-year warranty period from the Warranty Commencement Date, should any qualified Module sold by JA Solar exhibit a loss of power output exceed the aforementioned warranted values, provided that any such declared loss in power has been verified by JA Solar, at its sole discretion is due to MODULES' defects in materials or workmanship attributable to JA Solar's own causes and further confirmed by an independent testing agency (if so requested by a customer) (which is to be selected and confirmed mutually by JA Solar and Customer in advance), JA Solar will, at its sole option and discretion, either (1) make up such loss in power by providing to customers) additional MODULES; or (2) repair or replace the defective MODULES including free shipping to the location as set out in the original sales contract entered between JA Solar and the customer.

The remedies set forth herein are the sole and exclusive remedies JA Solar is bound to provide under the Limited Peak Power Warranty.

CAVEAT:

The shipping charges for any allegedly detected MODULES shall be borne by the customers making such claims in advance. Should the independent testing agency confirm that such filed detected are to be covered under this Warranty by JA Solar, the shipping charges advanced by the customers may be reimbursed by JA Solar against the original proof of expenditure.

3. Exclusions and Limitations

(a) Warranty claims from any customers, in any event, shall be filed in writing to JA Solar or its authorized distributors within the applicable warranty period and not beyond the last day of the applicable period of time as stated above.

(b) The Limited Product Warranty and Limited Peak Power Warranty shall not apply to MODULES which have been subject to:

- Misuse, abuse, neglect, vandalism or accident;
- Repair or modifications that do not strictly follow the manufacturer's instructions;
- Non-observance of JA Solar's maintenance instructions;
- Power failure, electrical spikes or surges, lightning, flood, fire, accidental breakage or other events outside JA Solar's control;
- Alteration, improper installation or application which is not compliant with JA Solar standard installation manual.

(c) The Limited Product Warranty and Limited Peak Power Warranty do not cover any costs associated with installation, removal or re-installation of the MODULES and (except as explicitly set forth in the last paragraph of the Section 5) customers clearance or any other costs for return of the MODULES.

(d) Warranty claims will not be honored if the type or serial number of JA Solar MODULES have been altered, removed or made illegible without written authorization from JA Solar.

4. Limitation of Warranty Scope

This Warranty as set forth herein is expressly in lieu of and excludes all other express or implied warranties, including but not limited to warranties of merchantability and of fitness for particular purpose, use, or application, and all other obligations or liabilities on the part of JA Solar, unless such other obligations or liabilities are expressly agreed to in writing signed and approved by JA Solar. JA Solar shall have no responsibility or liability whatsoever for damage or injury to persons or property, or for other loss or injury resulting from any cause whatsoever arising out of or related to the MODULES, including, without limitation, any defects in the MODULES or from use or installation.

Under no circumstances shall JA Solar be liable for incidental, consequential or special damages, however caused. Loss of use, loss of profits, loss of production, and loss of revenues. The aforementioned alleged losses by customers are specifically and without limitation excluded from responsibilities of JA Solar. JA Solar's aggregate liability, if any, in damages or otherwise, shall not exceed the invoice value as paid by the Customer, for the single unit of MODULES.

5. Obtaining Warranty Performance

If the Customer has a justified claim covered by this Warranty, an immediate written notification shall be directly made to JA Solar by means of registered letter to the address of JA Solar listed hereunder, or sending a notification via e-mail to the e-mail account of JA Solar listed hereunder. Together with the notification, the Customer should enclose the evidence of the claim with the corresponding serial number of the MODULES and the date on which the MODULES have been purchased. An invoice with clear indication of the purchase date, purchase price, module type, stamp or signature of JA Solar or its distributors should also be submitted as part of the preliminary evidence.

If the MODULES will be returned to JA Solar for inspection, repair or replacement by JA Solar, JA Solar shall provide the Customer with a Return Merchandise Authorization (RMA). However, JA Solar will not accept a return of any MODULES without such RMA. In connection with both the Limited Product Warranty and Limited Peak Power Warranty, JA Solar may reimburse customer for reasonable, customary and documented transportation charges by sea freight for both the return of the MODULES and reshipment of any repair or replacement MODULES, only if such cost reimbursement is authorized by JA Solar's Customer Service Department in advance.

6. Transferability

This warranty is extended to the original end-user purchaser, and is also transferable to any subsequent owner of the location or holder of the product when MODULES remain at their original installed location upon satisfactory proof of succession or assignment.

7. Severability

If a section, provision or clause of this Warranty, or the application thereof to any person or circumstance, is held invalid, void or unenforceable, such shall not affect and thus shall leave all other sections, provisions, clauses or applications under this Warranty severable, and therefore validly binding.

8. Dispute Resolution

In case of any dispute in terms of warranty-claims, a first-class international testing institute, such as PT Berlin, TÜV SUD or Intertek, U.L., shall be entrusted by both parties upon mutual consents in order to provide third party verification and comments. All fees and expenses shall be borne by the party that demanded such verification procedure, unless otherwise agreed.

Further dispute over the claim shall be submitted to dispute resolution as stipulated in the main sales contract to which this Warranty is a part of and subject to the applicable jurisdiction agreed by the parties in the sales contract.

9. Various

The repair or replacement of the MODULES or the supply of additional MODULES does not lead to a new commencement of warranty terms, nor shall the original terms of this Warranty be extended. Any replaced MODULES shall become the property of JA Solar.

JA Solar shall at its own options to deliver another type of MODULES (different in size, color, shape, or power), either a new brand or the original one, in case that JA Solar has discontinued producing the module in question at the time of the claim.

10. Force Majeure

JA Solar shall not be responsible or liable to the Customer whatsoever or any third-party arising out of any non-performance or delay in performance of any terms and conditions of the sales, including this Warranty, due to causes of natural disasters such as fire, flood, blizzard, hurricane, thunder, acts of God, changes of public policies, terrorism, war, riots, strikes, unavailability of suitable and sufficient labor or materials and other events which are out of control of JA Solar.

REMARK:

"Peak Power" is the power in watt/peak that MODULES generates in its maximum power point under STC condition. "STC" are as follows:

- (a) Light spectrum of AM 1.5
- (b) Irradiance at 1,000W/m²
- (c) Cell temperature of 25 degree Centigrade at right angle irradiation

The measurements are carried out in accordance with IEC61215 as tested at the junction box terminals per the calibration and testing standards of JA Solar valid at the date of manufacture of the MODULES. JA Solar's calibration standards shall be in compliance with the standards applied by international institutions accredited for this purpose.

The right way to attach almost anything to metal roofs!

S-5!®

The Right Way!

S-5-U Clamp

The S-5-U clamp is by far our most popular and most versatile clamp. It fits about 85% of the standing seam profiles manufactured in North America—including most structural and architectural profiles. It can be used on vertically oriented seams and, by rotating the clamp 90 degrees, it can also be used on most horizontal 2" seam profiles.

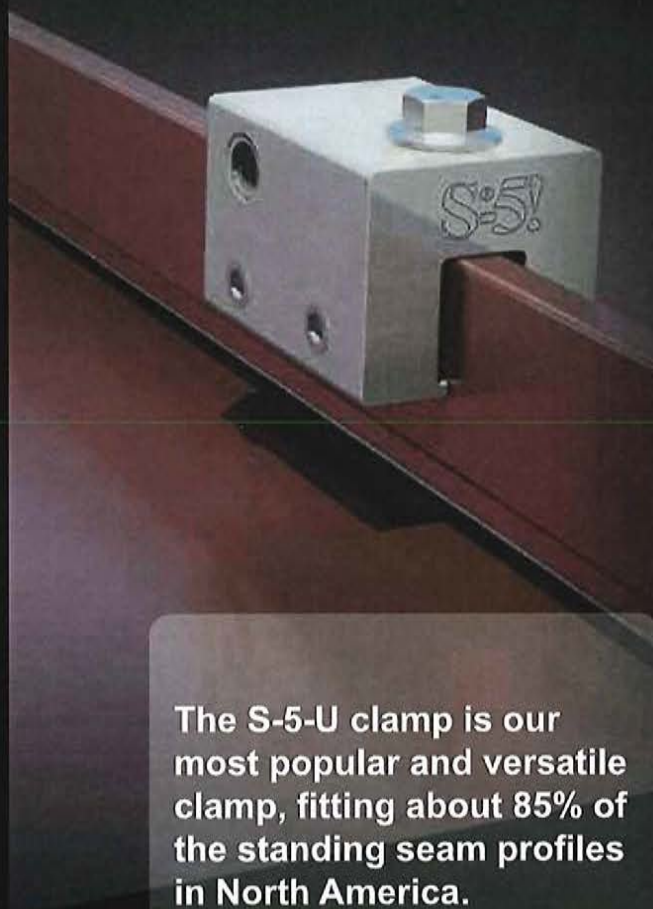
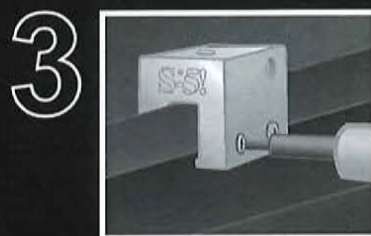
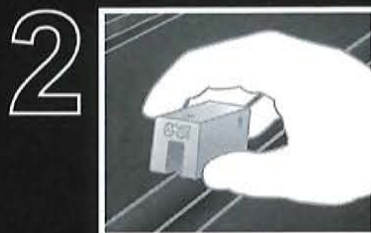
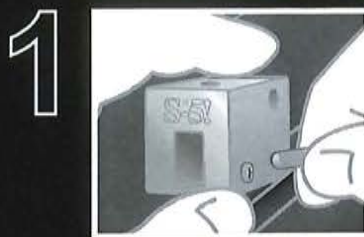
Its simple design, generous dimensioning, and multiple hole orientations are what make the S-5-U clamp so versatile for use with the S-5!® snow retention products, such as ColorGard®, as well as with other heavy-duty applications.

Installation is as simple as setting the specially patented round-point setscrews into the clamp, placing the clamp on the seam, and tightening them to the specified tension. Then, affix ancillary items using the bolt provided with the product. Go to www.S-5.com/tools for information and tools available for properly attaching and tensioning S-5! clamps.

S-5-U Mini Clamp

The S-5-U Mini is a bit shorter than the S-5-U and has one setscrew rather than two. The mini is the choice for attaching all kinds of rooftop accessories: signs, walkways, satellite dishes, antennas, rooftop lighting, lightning protection systems, solar arrays, exhaust stack bracing, conduit, condensate lines, mechanical equipment—just about anything!*

*S-5! mini clamps are not compatible with, and should not be used with S-5! SnoRail™/SnoFence™ or ColorGard® snow retention systems.



The S-5-U clamp is our most popular and versatile clamp, fitting about 85% of the standing seam profiles in North America.

S-5-U and S-5-U Mini



888-825-3432 | www.S-5.com |

METAL ROOF INNOVATIONS, LTD. (MRIL)
S-5!®
LIMITED WARRANTY

Metal Roof Innovations, Ltd (MRIL) warrants that all S-5!® products manufactured by it and bearing its name to be free from defects in material and workmanship on the date of sale by an authorized MRIL distributor to the original purchaser. As purchaser's sole remedy for breach of this warranty, MRIL will, for a period of twenty-five (25) years after the date of sale, repair or replace any part of the S-5! manufactured product which is defective. This warranty applies only when the S-5! product is properly installed, used and maintained.

This warranty does not cover, and MRIL shall not be liable for, any malfunction, damage or wear caused by faulty installation, misapplication, negligence, misuse, abuse, accident, tampering, substitution of non-S-5! component parts, or incompatibility with equipment, structures, accessories or materials not manufactured by MRIL. The purchaser acknowledges that MRIL expresses no opinions as to the suitability of S-5! products or components for any specific application or project condition.

This warranty is conditioned upon (a) the prepaid return of the products claimed to be defective to an authorized MRIL distributor for verification of the claimed defect; and (b) receipt by MRIL of claims for product repair or replacement within thirty (30) days after discovery of the defect or after the defect could have been reasonably discovered. If the claimed defect is verified, MRIL will repair or replace free of charge any defective products manufactured by MRIL. Replacement product will be returned with transportation prepaid.

Claims under this warranty must be in writing and sent to MRIL along with a copy of this limited warranty, the part or product model name or number, date and place purchased, date installed, operating conditions, and date the defect was discovered. MRIL shall have the right to examine the components, related parts, and product application, including adjacent work on the actual building site. Purchaser grants MRIL access to the site of the installation during normal business hours for this purpose.

Disclaimers and Limitations. The terms of this warranty constitute purchaser's sole and exclusive remedy and are in lieu of any other warranties (expressed or implied). MRIL MAKES NO OTHER WARRANTIES ABOUT THE PRODUCTS AND DISCLAIMS ANY IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE OR APPLICATION. PURCHASER ASSUMES ALL RISK OF USE OF ANY OF THE PRODUCTS IN COMBINATION WITH OR AS A COMPONENT PART OF ANY PRODUCT APPLICATION. NOTWITHSTANDING THE ABOVE AND REGARDLESS OF THE CIRCUMSTANCES, MRIL'S TOTAL LIABILITY TO PURCHASER IS LIMITED TO AND SHALL IN NO EVENT EXCEED THE PURCHASE PRICE OF THE DEFECTIVE PRODUCTS. PURCHASER WAIVES ANY AND ALL OTHER CLAIMS. IN NO EVENT SHALL MRIL BE LIABLE FOR, AND PURCHASER WAIVES ALL CLAIMS AGAINST MRIL RESPECT TO, SPECIAL, INCIDENTAL, CONSEQUENTIAL OR EXEMPLARY DAMAGES, OR FOR ANY LOST PROFITS. EVERY FORM OF LIABILITY FOR DIRECT, SPECIAL, OR CONSEQUENTIAL DAMAGES IS EXPRESSLY EXCLUDED. ANY CIVIL ACTION FOR BREACH OF WARRANTY MUST BE COMMENCED WITHIN TWENTY-FIVE (25) YEARS OF THE DATE OF SALE OR WITHIN ONE YEAR AFTER THE PURCHASER DISCOVERED OR SHOULD HAVE DISCOVERED THE DEFECTIVE PRODUCT

This warranty gives the purchaser specific legal rights. Purchaser may have other rights which vary from state to state.

Purchaser

Distributor

Project Name

Date of Sale

S-5!®

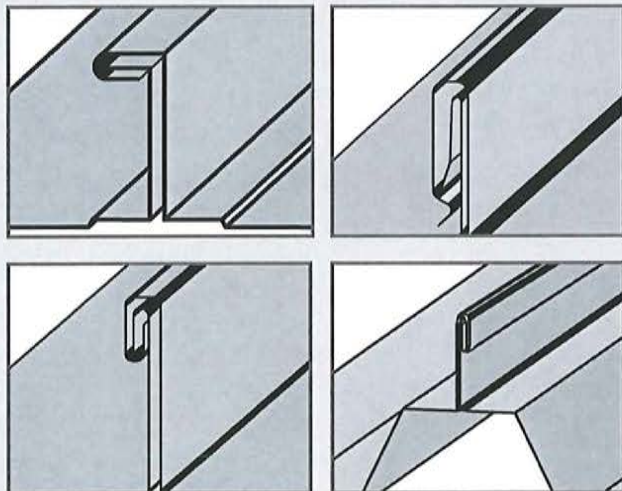
The Right Way!

The strength of the S-5-U clamp is in its simple design. The patented setscrews will slightly dimple the metal seam material but not pierce it—leaving the roof manufacturer's warranty intact.

The **S-5-U** and **S-5-U Mini** clamps are each furnished with the hardware shown to the right. Each box also includes a bit tip for tightening setscrews using an electric screw gun. A structural aluminum attachment clamp, the S-5-U is compatible with most common metal roofing materials excluding copper. All included hardware is stainless steel. Please visit www.S-5.com for more information including CAD details, metallurgical compatibilities and specifications.

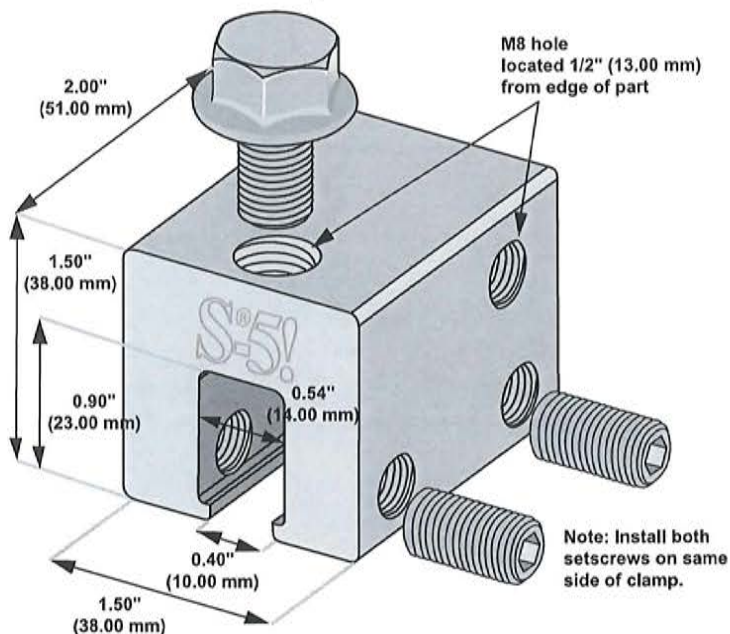
The S-5-U clamp has been tested for load-to-failure results on most major brands and profiles of standing seam roofing. The independent lab test data found at www.S-5.com can be used for load-critical designs and applications. S-5!® holding strength is unmatched in the industry.

Example Profiles

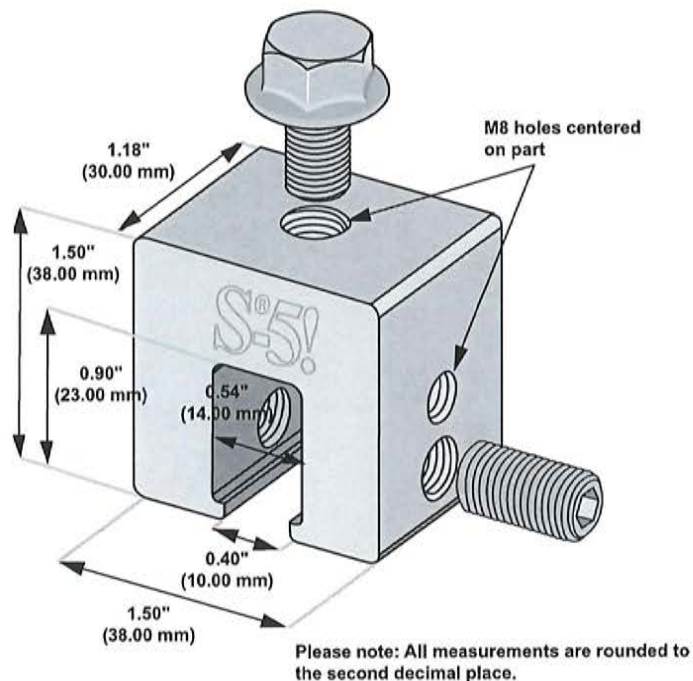


For horizontal seams under 0.65", do not use this clamp. Visit www.S-5.com for more detailed information and proper clamp usage.

S-5-U Clamp



S-5-U Mini Clamp



S-5!® Warning! Please use this product responsibly!

Products are protected by multiple U.S. and foreign patents. Visit the website at www.S-5.com for complete information on patents and trademarks. For maximum holding strength, setscrews should be tensioned and re-tensioned as the seam material compresses. Clamp setscrew tension should be verified using a calibrated torque wrench between 160 and 180 inch pounds when used on 22ga steel, and between 130 and 150 inch pounds for all other metals and thinner gauges of steel. Consult the S-5! website at www.S-5.com for published data regarding holding strength.

Copyright 2015, Metal Roof Innovations, Ltd. S-5! products are patent protected. S-5! aggressively protects its patents, trademarks, and copyrights. Version 052115.

Distributed by

IronRidge Limited Warranties

Effective for IronRidge, Inc. ("IronRidge") mounting structure components ("Products") manufactured after April 1st, 2012, IronRidge provides the following warranties, for Products installed properly and used for the purpose for which the Products are designed:

- finishes shall be free of visible defects, peeling, or cracking, under normal atmospheric conditions, for a period of three (3) years from the earlier of (i) the date of complete installation of the Product or (ii) thirty days after the original purchaser's date of purchase of the Product ("Finish Warranty");
- components shall be free of structurally-related defects in materials for a period of ten (10) years from the earlier of (i) the date of complete installation of the Product or (ii) thirty days after the original purchaser's date of purchase of the Product;
- components shall be free of functionally-related manufacturing defects for a period of twenty (20) years from date of manufacture.

The Finish Warranty does not apply to: (a) surface oxidation of the galvanized steel components or any foreign residue deposited on Product finish; and (b) Products installed in corrosive atmospheric conditions, as defined solely by IronRidge; corrosive atmospheric conditions include, but are not limited to, conditions where Product is exposed to corrosive chemicals, fumes, cement dust, salt water marine environments or to continual spraying of either salt or fresh water. The Finish Warranty is VOID if (c) the practices specified by AAMA 609 & 610-02 – "Cleaning and Maintenance for Architecturally Finished Aluminum" (www.aamanet.org) are not followed by Purchaser for IronRidge's aluminum based components; and (d) if the practices specified by ASTM A780 / A780M - 09 "Standard Practice for Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings" are not followed by Purchaser for IronRidge's galvanized steel-based components.

The warranties above do not cover any parts or materials not manufactured by IronRidge, and exclude non-functionally-related defects, as defined solely by IronRidge. The warranties do not cover any defect that has not been reported to IronRidge in writing within twenty (20) days after discovery of such defect.

In the event of breach of or non-compliance with the warranties set forth above, IronRidge's sole obligation and liability, and the sole and exclusive remedy for such breach or non-compliance, shall be correction of defects by repair, replacement, or credit, at IronRidge's sole discretion. Such repair, replacement or credit shall completely satisfy and discharge all of IronRidge's liability with respect to these warranties.

Refurbished Product may be used to repair or replace the defective components. Transportation, installation, labor, or any other costs associated with Product replacement are not covered by these warranties and are not reimbursable. These warranties additionally do not cover (a) normal wear, or damage resulting from misuse, overloading, abuse, improper installation (including failure to follow professional instruction and certification), negligence, or accident, or from force majeure acts including any natural disasters, war or criminal acts; and (b) Products that have been altered, modified or repaired without written authorization from IronRidge or its authorized representative; and (c) Products used in a manner or for a purpose other than that specified by IronRidge. A formal document proving the purchase and the purchase date of the Product is required with any warranty claim.

Except as set forth above, IronRidge sells the Products on an "AS IS" basis, which may not be free of errors or defects, and ALL EXPRESS OR IMPLIED REPRESENTATIONS AND WARRANTIES, INCLUDING ANY WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, QUALITY, WORKMANLIKE EFFORT, CORRESPONDENCE TO DESCRIPTION, DESIGN, TITLE OR NON-INFRINGEMENT, OR ARISING FROM COURSE OF DEALING, COURSE OF PERFORMANCE OR TRADE PRACTICE, ARE HEREBY DISCLAIMED.



Dear Solar PV installers and Trade Allies,

Participation in the residential Solar PV offerings at the end of 2019 and the start of 2020 has led to unprecedented incentive subscription. Because of this, it is necessary to re-evaluate the incentive structure in order to provide incentives through the end of the year. Some changes that are being put in place include:

- Focus on Energy has added additional dollars to the residential incentive fund. The additional incentive funding is reflected on the website. Further shifts in funding may take place later in the year, but is not guaranteed.
- Effective immediately:
 - Incentive levels for projects with existing reservations will remain the same.
 - For new reservations and for all projects without a reservation that complete on or after June 1, 2020:
 - The incentive for residential systems will be reduced from \$300 to \$200 per kW up to \$1,000.
 - The incentive for commercial systems will also be reduced. Please see the table below.

Commercial	\$ / kW (DC)	Max Incentive
0 to 5 kW	\$200	\$1,000
5 to 10 kW	\$150	\$1,750
10 to 100 kW	\$125	\$13,000
100 to 300 kW	\$100	\$33,000
300 to 500 kW	\$85	\$50,000
500+ kW	\$0	\$50,000

Residential	\$ / kW (DC)	Max Incentive
All	\$200	\$1,000

FAQs

Q) What if my project is delayed due to permit or inspection delays related to COVID-19? Will the Program offer extensions for deadlines on existing reservations?

A) Existing reservations may be extended at Focus on Energy's discretion. If you have a project that will miss the deadline, please contact Focus on Energy at 800.762.7077 prior to the expiration of the reservation. We will need to know project name, project start date, reason for delay and expected finish date.

Q) If I submit a [reservation form](#) tomorrow, but I completed prior to June 1, what incentive will I receive?

A) You will receive the higher incentive.

Q) Does this change affect the rural or agricultural producer bonus?

Q) How quickly do I need to submit an application after a project is completed?

A) For projects with a reservation, the application must be received by Focus on Energy prior to the expiration of the reservation. For projects without a reservation, you must submit the application within 60 days of completion of install interconnect. Applications received after the 60 days may be subject to reduced or denied incentives. We encourage you to use the [online application](#) to submit for faster tracking and processing of your incentive.

Q) I submitted an application prior to this announcement. Will I receive the higher incentive?

A) If you have a reservation on file with Focus on Energy, you will have until the expiration date to install and submit the incentive application. If you do not have a reservation, the system would need to be installed before June 1, 2020 in order to receive the higher incentive.

Q) I quoted a customer recently. Now, do I have to go back and change my quote because the incentive has changed?

A) Unfortunately, you will, unless the project will be completed prior to June 1, 2020. The alternative would be for Focus on Energy to end the incentive offering early at current rates, leaving less for your future customers.

Q) How long is the reservation good for?

A) The reservation is 90 days for residential systems and 180 days for commercial systems. You have that amount of time to install, interconnect and submit the incentive application. Even if the system was completed before the expiration date, the incentive application must also be received by Focus on Energy on or before the expiration date. We encourage you to use the [online application](#) to submit for faster processing of your incentive.

Q) How long will these incentive rates stay in effect?

A) Focus on Energy anticipates these incentive rates will stay in effect until the end of 2021, coinciding with the end of the Investment Tax Credit. We are, however, keeping an eye on the market and may adjust rates as necessary.

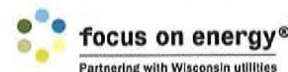
We understand that this is a difficult change for you and for many of your current customers, and this is not something that we take lightly. However, it is a necessary step to avoid shutting down the offering prematurely. Please reach out to us with further questions.

Stay safe and healthy,
Focus on Energy

REDUCING ENERGY WASTE ACROSS WISCONSIN

Wisconsin utilities' statewide program for energy efficiency and renewable energy helps eligible residents and businesses save energy and money while protecting the environment. Focus on Energy information, resources and financial incentives help to implement energy efficiency and renewable energy projects that otherwise would not be completed. ©2020 Wisconsin Focus on Energy

WISCONSIN

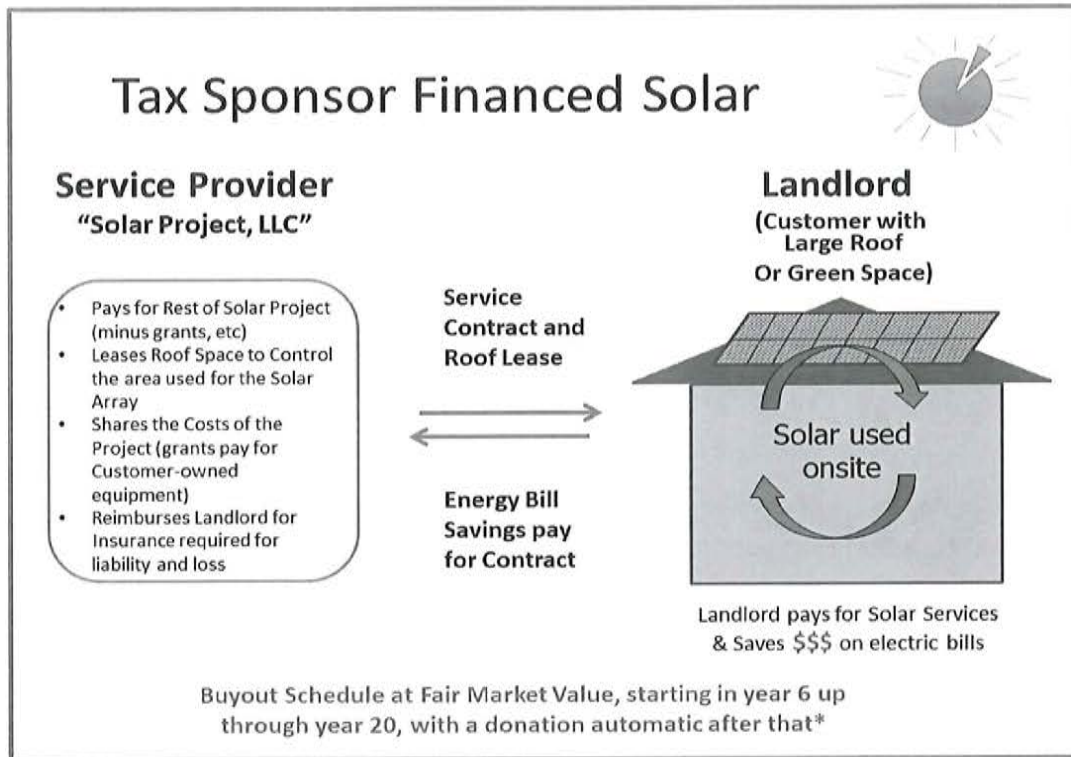


Focus on Energy
1 South Pinckney St., Suite 340, Madison, WI 53703

Click to [unsubscribe](#).

Legacy Solar Co-op

Introduction to Tax Financing for Solar Projects:



We have helped over 2 dozen Institutions in Wisconsin take advantage of this opportunity to reduce their up-front costs by 50% or more by having a **Tax Sponsor** own part of the solar array and reduce the cost of the solar energy equipment by virtue of the federal tax credit and 1st-year depreciation.

Like a lease, the Community Institution (Landlord) puts solar on their facility at a low cost, and pays for the service generated at a discount for at least the first 6 years, with the following options afterwards:

1. Buy out the rest of the solar project at **Fair Market Value**;
2. **Receive as a donation** the project to your Non-Profit; and/or
3. **A combination of both**, sometime within the first 12 years*.

These options allow the hosting Community Group to maximize their energy dollar and enjoy a legacy of clean energy electric bill savings over the next 30 to 40 years.

Let us know if your Community Institution has a good roof to lease out to a tax sponsor for this type of arrangement and we'd be happy to work with you to see if tax financing will be a good fit for your organization or municipality.

**Donation to non-profit depends on the Tax Sponsor's willingness and ability to either take a loss as early as year 6 or break-even by year 10, or earn a small profit by year 12. Each case is unique and requires a professional appraisal for Fair Market Value that the parties must agree upon. The donation option may be limited or unavailable in some cases.*

Contact us for more information:

608-957-6801 or Info@Legacysolarcoop.org Check out our track record: www.LegacySolarCoop.org



FINANCING CLEAN ENERGY

Communities are finding resources for financing clean energy from state and federal agencies. This section highlights programs and opportunities available to help a community identify funding for clean energy.

THE OFFICE OF ENERGY INNOVATION

The Wisconsin Office of Energy Innovation (OEI) is the state of Wisconsin's designated "Energy Office." Every state and territory has an energy office, funded by the US Department of Energy. Wisconsin's office seeks to promote innovative and effective energy policies and programs that benefit Wisconsin's citizens and businesses. OEI offers a number of programs and resources that can support local governments as they shift to renewable energy. The following programs may be especially useful for school districts, municipalities, and counties. OEI and UW Extension have compiled resources for local governments which can be found on the Energy On Wisconsin webpage.

ENERGY INDEPENDENT COMMUNITIES have either adopted a goal to source 25 percent of energy used from renewables by the year 2025 or have implemented another thoughtful plan towards achieving energy independence.

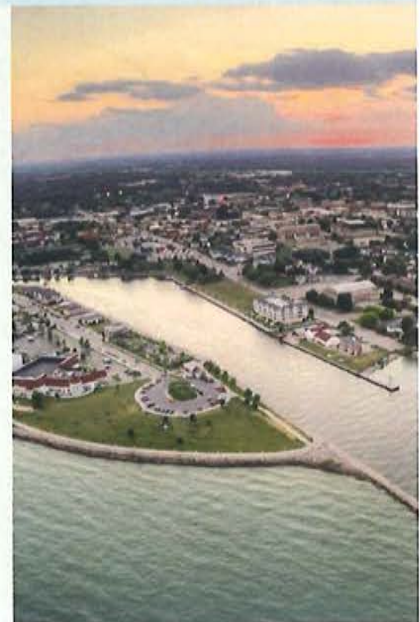
ENERGY INNOVATION GRANT PROGRAM offers competitive grant funding to support the reduction of energy consumption and its cost to businesses and taxpayers, increased use of renewable energy and transportation technologies, comprehensive energy planning, and bolstered preparedness and resiliency in energy systems.

FOCUS ON ENERGY is a ratepayer-funded energy efficiency and renewable energy program to help schools, government facilities, residences, and businesses reduce energy waste through partnerships with utilities across Wisconsin. Focus on Energy offers a number of financial incentives and technical resources to install renewable energy systems and energy efficient equipment and to reduce energy consumption. Learn more about Focus on Energy here: focusonenergy.com

MUNICIPAL ENERGY EFFICIENCY TECHNICAL ASSISTANCE PROGRAM (MEETAP) helps municipalities, cities, towns, counties, and K-12 School districts reach their energy efficiency goals. The program offers a number of services including a wastewater infrastructure accelerator, baseline analysis of building and vehicle usage to calculate energy expenditures, a plan to control energy costs, verification of energy savings, water utility benchmarking analysis, and more. MEETAP places a particular emphasis on helping municipalities, Tribal Nations, and schools execute successful Energy Saving Performance Contracts (ESPC). MEETAP has RFP, RFQ, and contract templates available, as well as advice for communities about measurement and verification of savings from energy projects. Local governments can request water utility benchmarking reports via email to oei@Wisconsin.gov or Megan.Levy@Wisconsin.gov.

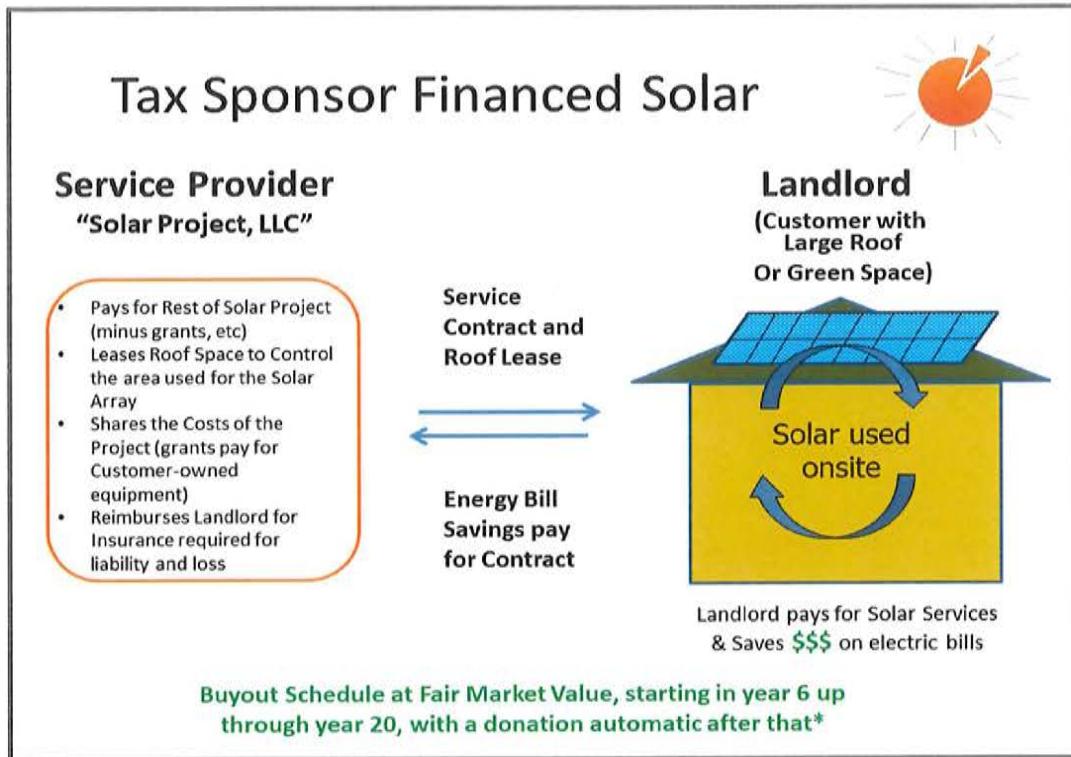
Sheboygan is probably similar to most cities. The city passed a voluntary resolution to meet the 25% clean energy goals by 2025 in 2008. They struggled for a couple of years without a political driver to move the goals forward into implementation. Committees would meet, but they didn't make much progress until Mayor Vandersteen was elected in 2012. It was a personal priority of his to have Sheboygan be more sustainable. There is limited bonding ability under the levy limits to invest in clean energy projects or technology. There are also limited overall funds to hire contractors to assist with developing plans. Convincing local leaders to spend more money upfront for cleaner, more sustainable projects is hard to do with overall limited funds.

Chad Pelishek
Director of Planning & Development: Sustainability Coordinator
for the City of Sheboygan



Legacy Solar Co-op

Introduction to Tax Financing for Solar Projects:



We have helped over 2 dozen Institutions in Wisconsin take advantage of this opportunity to reduce their up-front costs by 50% or more by having a **Tax Sponsor** own part of the solar array and reduce the cost of the solar energy equipment by virtue of the federal tax credit and 1st-year depreciation.

Like a lease, the Community Institution (Landlord) puts solar on their facility at a low cost, and pays for the service generated at a discount for at least the first 6 years, with the following options afterwards:

1. Buy out the rest of the solar project at **Fair Market Value**;
2. **Receive as a donation** the project to your Non-Profit; and/or
3. **A combination of both**, sometime within the first 12 years*.

These options allow the hosting Community Group to maximize their energy dollar and enjoy a legacy of clean energy electric bill savings over the next 30 to 40 years.

Let us know if your Community Institution has a good roof to lease out to a tax sponsor for this type of arrangement and we'd be happy to work with you to see if tax financing will be a good fit for your organization or municipality.

**Donation to non-profit depends on the Tax Sponsor's willingness and ability to either take a loss as early as year 6 or break-even by year 10, or earn a small profit by year 12. Each case is unique and requires a professional appraisal for Fair Market Value that the parties must agree upon. The donation option may be limited or unavailable in some cases.*

Contact us for more information:

608-957-6801 or Info@Legacysolarcoop.org Check out our track record: www.LegacySolarCoop.org

2020 RENEWABLE SOLAR ELECTRIC (PV) INCENTIVE APPLICATION

Complete this application for systems purchased and installed in 2020. Please return the signed, completed application and copy of sales invoice postmarked within 60 days of installation.

FOCUS ON ENERGY® incentives are limited and are subject to change without notice. Allow 8 - 10 weeks for processing. Visit focusonenergy.com/terms for terms and conditions.

Looking for the reservation form?
Go to focusonenergy.com/solar.

Step 1: Complete your installation

Work with your contractor to schedule and complete your solar electric (PV) installation.

Step 2: Complete your application

Please fill out all fields unless otherwise directed and make sure to sign your application. Incomplete or missing information will delay processing.

WHAT YOU'LL NEED:

- A copy of your invoice for installation of a solar electric (PV) system.
- Photos of:
 - The entire installed solar array (this may be multiple pictures, but must clearly demonstrate the number of modules installed. If necessary, a diagram of the system should also be included)
 - The front of building associated with address
 - The array with building in the background (if not possible, a diagram of system relative to the building)

Step 3: Submit paperwork

Submit your application within 60 days of the equipment installation, along with supporting documentation, to Focus on Energy at the address below. Please allow 8 - 10 weeks for processing and retain a copy for your records.

Focus on Energy – Renewable Incentives
3113 W. Beltline Highway, Suite 100
Madison, WI 53713

Email: renewables@focusonenergy.com

Fax: 888.627.0938

Questions? Call: **855.339.8866**

1 Customer contact information

Customer Name:

Email:

Phone Number:

2 Installation address information

Electric Utility Provider:

Electric Utility Account Number:

Installation Address:

City:

State:

ZIP:

This is a(n): ☐ Existing Home/Business ☐ New Construction

Site Type: ☐ Single Family (1 - 3 units) ☐ Multifamily (4+ units) ☐ Commercial
☐ Agricultural Producer ☐ School/Government ☐ Industrial

3 Payment information

MAKE CHECK PAYABLE TO: ☐ Customer Contact ☐ Company
☐ Trade Ally Contractor ☐ Business Owner's Legal Name (Sole Proprietors Only)

Mailing Address:

City:

State:

ZIP:

4 Customer legal information

(Non-Residential or Landlord Customers Only)

Company Legal Name:

Business Classification of Customer: (Required for all businesses.)

☐ LLC ☐ Corporation ☐ Partnership ☐ Sole Proprietorship/Individual ☐ Other

Tax ID Number:

5 Trade Ally contractor information

Company Business Name:

Phone Number:

Email:

City:

State:

ZIP:

6 Signature

I HAVE READ AND UNDERSTAND THE TERMS AND CONDITIONS AVAILABLE AT [FOCUSONENERGY.COM/TERMS](https://focusonenergy.com/terms). I CERTIFY THAT THE INFORMATION I HAVE PROVIDED IS TRUE AND CORRECT IN THIS APPLICATION AND THE PRODUCT(S) AND/OR EQUIPMENT FOR WHICH I AM REQUESTING AN INCENTIVE RESERVATION MEETS THE REQUIREMENTS IN THIS APPLICATION. I UNDERSTAND THAT FOCUS ON ENERGY DOES NOT WARRANTY OR GUARANTEE THE DELIVERY OF SERVICES OF MY CHOSEN TRADE ALLY.

Customer Signature:

Date:

How did you hear about this program?

☐ Community Association/Agency ☐ Contractor/Trade Ally ☐ Direct Mail
☐ Friend/Neighbor ☐ Internet ☐ Social Media ☐ Utility Company
☐ Other (please describe): _____

Solar electric (PV) system requirements

System-specific solar electric (PV) requirements

- Eligible models must be selected from the qualified product list found at gosolarcalifornia.org/equipment/pv_modules.php.
- Eligible inverters must be selected from the qualified product list found at gosolarcalifornia.org/equipment/inverters.php.
- System must be installed within 90 degrees of due south.
- System must be installed with a panel tilt between 10 - 50 degrees.
- System must be installed with 10% or less obstacle shading, per an industry accepted tool.
- System must have a minimum of a five-year warranty.
- Incentive cannot exceed cost to customer.
- Both modules (panels) and inverter must be installed to receive an incentive.
- In order to receive a commercial incentive, the system must be connected through a non-residential rate meter.
- System must be purchased new. Resale equipment, new parts installed in existing equipment, or equipment that is rebuilt, rented, received from insurance claims, received from a warranty, or won as a prize does not qualify.
- Focus on Energy will only pay one incentive for each technology per site per calendar year. Incentives paid on this application cannot be claimed on another Focus on Energy application. Similarly, incentives can only be paid to one person or entity.
- System must be installed by a qualified contractor.

System information

% Obstacle Shading:	Module Compass Direction (in degrees):	Module Tilt Angle (in degrees from horizontal):	
# of Modules:	Brand Name:	Model Number:	Watts per Module:
# of Inverters:	Brand Name:	Model Number:	kW per Inverter (continuous):
Axis Tracking Type: ☐ Fixed ☐ Single ☐ Dual	Total Installed Cost:	Placed in Operation Date:	
Meter Type: ☐ Residential ☐ Commercial	Expected Incentive Amount:		

Residential Customer Solar PV Incentives

Installation Type	Incentive	Max Incentive
Single Family Home	\$300 per kW (DC)	\$1,500

Business Customer Solar PV Incentives

System Size in kW (DC)	Incentive	Max Incentive
Up to 5 kW	\$300 per kW	\$1,500
5–10 kW	\$1,500 + \$200 per kW above 5 kW	\$2,500
10–100 kW	\$2,500 + \$150 per kW above 10 kW	\$16,000
100–300 kW	\$16,000 + \$120 per kW above 100 kW	\$40,000
300–500 kW*	\$40,000 + \$100 per kW above 300 kW	\$60,000

*Solar PV systems 500 kW and above will be capped at the maximum incentive of \$60,000.

Additional incentives are available for rural residential customers and agricultural producers.

- Rural residential customers will receive up to a **\$500 bonus** for installing a system. See eligible rural ZIP code list at focusonenergy.com/renewable to confirm eligibility. Bonus cannot be greater than prescriptive incentive. It will be equal to the incentive amount or \$500.
- Business customers classified as agricultural producers will qualify for an **incentive match up to \$10,000**. Agricultural producers are defined as “businesses engaged in the production of grain, livestock, milk, poultry, fruits, vegetables, bees and honey, fish, shellfish, or other common agricultural products including greenhouses.”



VILLAGE BOARD SUMMARY SHEET

MEETING DATE: Tuesday, June 2, 2020

SECTION: Business

DEPARTMENT: Community Development

CONTACT: Andrew Bremer, Comm & Eco Dev Director

AGENDA ITEM: Discussion regarding creating a Sustainability Plan for McFarland.

PREVIOUS ACTION:

ISSUE SUMMARY:

One of the three principal tasks of the Committee addressed in Resolution 2020-04 is to develop a Sustainability Plan for McFarland. The 2020 Budget includes funding to hire a consultant to assist the Committee and Village Staff with development of this plan. Prior to drafting an RFP, Village Staff would like to obtain initial input from the Committee regarding the framework of this future plan. Before embarking on the development of a new plan it is important to understand the work that has been done to date relevant to development of a Sustainability Plan. The packet includes a summary review of existing Village/Department plans to identify existing goals, objectives, policies, or implementation actions identified around the terms "climate change", "energy efficiency", "green", "greenhouse", "health(y)", "resilience(y)", and "sustainability". Copies of these existing plans can be found on the Community & Economic Development website: <https://www.mcfarland.wi.us/developmentplans>

The packet also includes copies of sustainability plans from the City of Middleton (2010), City of Monona (2015), City of Sheboygan (2015), and City of Appleton (2020). These are just a sample of some sustainability plans adopted by other communities in our region and around the state. They have been provided in the packet to aid the committee's discussion regarding the framework for McFarland's plan. In addition, Dane County recently adopted its Climate Action Plan which is available at: <https://daneclimateaction.org/climate-action-plan>

FINANCIAL/BUDGET IMPACT:

VILLAGE PLAN REFERENCE:

Strategic Plan, 2020 to 2030

Village Board Goals, 2019-2020

Comprehensive Land Use Plan, 2017

East Side Neighborhood Growth Area Plan, 2008



ORDINANCE REFERENCE:

BOARD, COMMISSION OR COMMITTEE RECOMMENDATION:

This agenda item is for discussion only to provide initial input to Village staff regarding the framework of the future Sustainability Plan for McFarland.

ATTACHMENTS:

1. Existing Plan Review - Sustainability Committee
2. CreatingASustainableCityofAppleton_2020
3. Monona Sustainability Plan_2015
4. Sheboygan Sustainability-Plan 2015
5. Middleton Sustain City Plan_2010

Village of McFarland, Existing Plan Review, “Sustainability”

The following is a summary of existing goals, objectives, policies, or implementation actions identified around the terms "climate change", "energy efficiency", "green", "greenhouse", "health(y)", "resilience" and "sustainability", within recently approved or accepted Village plans.

Strategic Plan 2020 to 2030, adopted 2020:

- Community Vision (page 6)
 - The vision of McFarland is to create an inviting, dynamic, diverse community that offers a high quality of life and a supportive environment in which all citizens may practice their individual value choices. The community actively seeks to preserve its proud heritage, protect its abundant natural resources, plan for responsible and balanced residential and commercial growth, promote a viable economic base, support educational excellence, provide diverse leisure options, and foster a healthy social fabric.
- Community Values (page 8)
 - To create and sustain a high level of confidence in Village government, we pledge to function with: environmental sustainability.
- Goal B: Plan for and align physical facilities and open space to support future service delivery, quality of life and infrastructure needs (page 10).
 - Strategy #2. Improve current Village facilities, including maintenance enhancements, and identify new systems to promote sustainability.
 - Implementation Steps (page 20)
 - Research building systems that promote longevity and sustainability.
- Goal D: Improve the safety and wellbeing of Village residents, businesses and visitors (page 12)
 - Strategy #4. Promote the concept of a healthy community in an integrated way, from policy to planning to development.
 - Implementation Steps (page 26)
 - Research best practices on how to integrate healthy living into policy, planning and development.
 - Draft healthy community policies for consideration by the Village Trustees
 - Train staff in the use of healthy living best practices and policies.

Village Board Goals 2019-2020, adopted 2019:

- Goal A. A safe, healthy, and secure community (page 2)
 - Objective 5. Develop measurable actions and standards for the advancement of sustainable initiatives within the Village.
 - Action Steps. Assess energy consumption through energy use audit. Develop program that promotes sustainability in Community. Build in sustainable features into facilities planning.
- Goal D. A healthy and growing, regionally and globally integrated economy that supports local initiatives (page 5).

Comprehensive Land Use Plan, adopted 2017:

- General Goals 1 & 3 (page 5 of Volume 2)
 - A healthy and growing, regionally and globally integrated economy that supports local initiatives.
 - A safe, healthy, and secure community.
- Initiatives for Natural and Agricultural Resources (page 11 and 19 of Volume 2)
 - Pursue Local Opportunities to Mitigate and Adapt to Climate Change. The Village will advance local practices to mitigate or reduce the release of greenhouse gasses, and work to increase the community's resilience to the impacts of climate change.
- Goals for Policies for Natural and Agricultural Resources (page 12 of Volume 2)
 - Support energy efficiency and environmental sustainability as criteria in the design of public facilities and infrastructure.
 - Emphasize use and enhancement of natural drainage systems wherever practical for greater sustainability and value.
- Initiatives for Housing and Neighborhoods (page 61 of Volume 2)
 - Encourage neighborhood development on the Village's East Side. Lands at and near the Village's eastern edge provide the greatest opportunity for significant new housing development. Such development will contribute to community health, provide recreational amenities for the entire community, and preserve topographic and natural areas through conservation neighborhood design.
- Policies for Utilities and Community Facilities (page 71 of Volume 2)
 - Plan for public facility and utility projects based on community- or basin-wide utility or stormwater analyses and sustainability, rather than looking at individual projects without careful reference to a larger context.
- Initiatives for Transportation (page 84 of Volume 2)
 - Expand McFarland's Bicycle and Pedestrian Network. The Village will advance improvements to sidewalks, trails, and on-street bike facilities to make McFarland an even more safe, healthy, and sustainable community.
- Initiatives for Intergovernmental and Stakeholder Cooperation (page 94 of Volume 2)
 - Serve the Greater McFarland Community in Collaboration with the School District. The health of the Village and School District are intertwined. The Village welcomes collaboration on matters such as school expansions, land acquisition and disposition, joint programming and facility use, cross-service on committees, community growth, traffic management, and safe routes to schools.

East Side Neighborhood Growth Plan, adopted 2008:

- Page 23. The plan embraces sustainable development practices including minimal site disturbance, preservation of existing natural features and habitat, restoration of native plant communities, and implementation of energy-efficient and low-impact development techniques for infrastructure design.
- Pages 63-65 include various sustainable development strategies around the themes of site design, transportation, environment, and community.

4. Pursue Local Opportunities to Mitigate and Adapt to Climate Change

With very limited state and federal leadership at time of writing, many municipalities are moving forward with local initiatives to combat climate change and adapt to its impacts (see sidebar to right). Impacts include extreme weather events at increasing frequency.

McFarland will engage in its own local activities to mitigate and adapt to climate change through local action. Many of these are documented elsewhere in this volume, including the promoting redevelopment and infill, expanding the bike and pedestrian system, creating safer routes to schools and maintaining crossing guards to minimize parent drop-offs, exploring bus transit service, engaging in energy-efficient municipal facility planning, and increasing sustainability in transportation and utility improvements.

Further, the Village intends to work to make its lands, residents, and businesses more resilient to the impacts of climate change. In McFarland, these impacts may most often take the form of flooding of greater severity and frequency, including rising waters in lake-based shoreland areas and flash-flooding. The Village will participate in County hazard mitigation planning and implementation, and consider other efforts like the stormwater projects identified in Figure 7-1 to increase the community's resilience to flooding.

Municipal Action on Climate Change

- **Renewable Energy and Conservation:** Solar arrays are being installed on municipal utility buildings across Wisconsin. Many communities are replacing street light fixtures with high-efficiency lights. In many cases, project incentives were provided by Wisconsin's Focus on Energy program and E3 Coalition. In response to a Focus on Energy audit, the Village of McFarland obtained a grant for light replacement.
- **Alternatives to Single Occupancy Vehicle Travel:** Many suburban communities in the Madison, Milwaukee, and other areas are pursuing transit service, bike paths, and more walkable community design. Bus service and even driverless vehicles—discussed in the Transportation chapter—may provide opportunities for McFarland.
- **Green Tier Legacy and Water Star Communities Efforts:** Thirteen Wisconsin cities and villages have adopted resolutions since 2010 to accomplish superior environmental performance, including Monona, Middleton and Fitchburg. McFarland could consider such programs, or launch its own initiative.



SUSTAINABILITY

The Village of McFarland sought to promote sustainable development in its planning for the East Side Neighborhood Growth Area. To that end, sustainable alternatives were explored through the planning process, and the final plan was evaluated based on criteria from a variety of sources, including the LEED Pilot Rating System for Neighborhood Development.

It is important to understand that sustainable development does not need to be synonymous with high-density development. Sustainability seeks to create a balance between competing environmental, community, and economic issues. Any of a number of alternative scenarios may therefore be equally sustainable. Significant measures incorporated into this plan are outlined below.

Sustainability may be achieved through means other than high density (which may NOT be sustainable in some instances), and this plan seeks to achieve it through a conservation development strategy

Site Design

The following considerations relate to area-wide design and land uses, and are meant to promote a sustainable neighborhood.

- **Location.** The East Side Neighborhood Growth Area is contiguous to developed parts of Madison and McFarland, and may be served by municipal water and sanitary sewer infrastructure. Development in this neighborhood will progress outward from existing areas in an orderly progression.
- **Access to Commercial Uses.** The plan has based the design of its commercial areas on an understanding of the market need. The two small centers included in the concept plan are sized and located to serve the neighborhood. A majority of neighborhood residents may walk to at least one of these centers.
- **Employment Center.** The office and light industrial area along Interstate 90 and Siggelkow Road is intended to be a sustainable business

Conservation development is sensitive to the natural features of a site and seeks to preserve or restore the natural systems (hydrology, plants, etc.) that are present on the site

environment in which green development techniques will be promoted. The employment center is located in close proximity to housing.

- **Mixed-Density Development.** The neighborhood plan seeks to provide a variety of housing types and styles in close proximity to each other. Traditional neighborhoods are mostly single-family homes, but should contain up to 30 percent attached housing. Larger multi-unit building sites are spread out through the neighborhood.
- **Large Lot and Cluster Residential.** The least intensive uses are located in areas where slope or soil conditions may not support higher densities, or where they provide a transition to agricultural lands. The plan encourages cluster development as a strategy to preserve open space.
- **Residential Density.** Traditional neighborhoods designated in the plan should achieve a minimum density of four units to the acre. Multi-unit residential areas should have a minimum of eight units per acre. This compares favorably with Dane County's target of three to 20 units per acre in traditional neighborhoods.
- **School Proximity.** The ability for children to walk to school is an often-cited measure of sustainability. The elementary school site in this plan is within a walking distance for many of the children who will live in the neighborhood. Path systems connect the school site to residential areas.
- **Open Space Access.** Residents and visitors will have access to open space nodes distributed throughout the neighborhood, and connected via a system of paths and greenways.

Transportation

Several measures were incorporated into the plan that help to develop a sustainable transportation system.

- **Narrow Streets.** Narrow streets serve the dual purposes of keeping traffic moving at a safe speed and reducing the amount of pervious surface area in the neighborhood. Recommended street widths in the neighborhood are based on Dane County standards for traditional neighborhood.
- **Connected Street Pattern.** The plan recommends a system of local and larger streets that is connected internally and is connected to the surrounding developed neighborhoods.
- **Alternative Transportation Modes.** Walking and bicycling are encouraged through neighborhood design, including the connected street pattern, required sidewalks, and path systems developed along greenways.
- **Future Transit.** Transit services are not currently provided in the planning area. The neighborhood design supports future transit by concentrating employment, and providing logical routes and stops in the neighborhood.

Environment

Environmental sustainability considerations include the following.

- **Conservation Development.** The neighborhood has been designed to preserve nearly a third of the land area as open space, allowing for the conservation of natural features and vegetation.

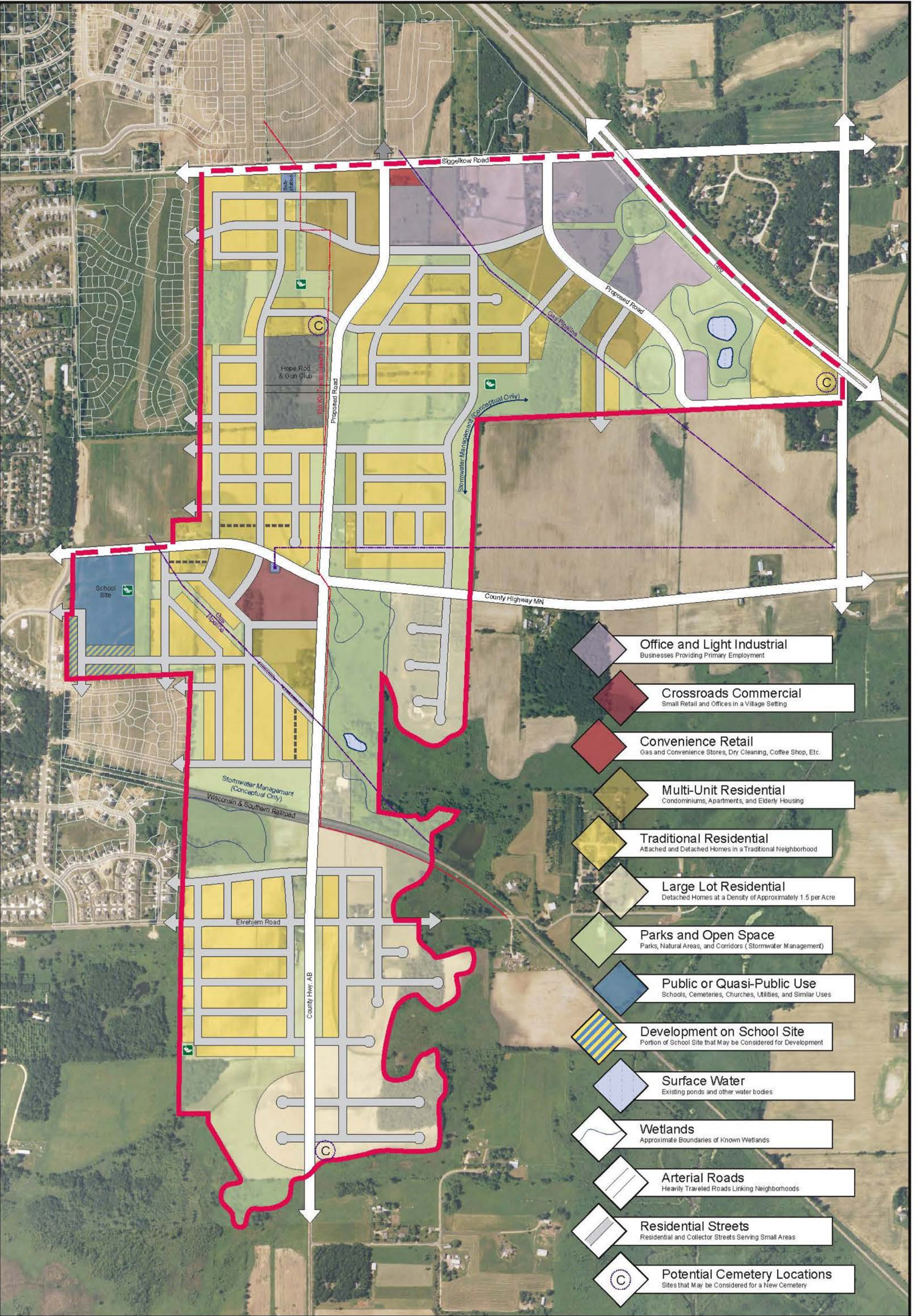
- **Habitat Management.** Significant woodlands and wetlands in the neighborhood are preserved and are connected through greenways. The plan recommends restoration of native habitats on open space areas.
- **Stormwater Management.** The plan advocates low-impact development techniques that encourage a reduction in impervious surfaces and replicate natural stormwater processes. These may be appropriate at both the site and regional level.
- **Solar Orientation.** The street pattern in the Concept Development Plan has arranged a majority of streets in an east-west orientation to maximize solar orientation for energy efficiency and daylighting.
- **Native Landscaping.** The plan recommends use of native landscaping in all public spaces (street terraces, parks, etc.) and on all non-residential development sites.
- **Lighting.** Energy efficient fixtures and low lighting levels are encouraged in the plan.

Community

Sustainable development seeks to involve people in decision-making and to create neighborhoods that promote social interaction. This plan recommends several measures that seek to accomplish these goals.

- **Community Character.** McFarland desires a neighborhood that has a unique character. This sense of place is created through the conservation development approach, the mix of uses that the neighborhood will contain, and the recommended design standards.
- **Scale.** A variety of design techniques can be used to create an urban environment that is comfortable for people to be in. This is often called "human-scaled" and includes factors such as building scale, pedestrian zones, and landscaping. These have all been addressed in the design standards for the neighborhood.
- **Gathering Places.** The neighborhood contains many places in which people may interact, including public spaces and gathering places on private development sites.
- **Housing Affordability.** The goal of providing affordable housing is addressed through inclusion of many different housing types and densities in the neighborhood.
- **Community Involvement.** Planning for the East Side Neighborhood Growth Area relied on extensive input from the public, beginning with workshops held in 2006, and including monthly meetings of the Ad Hoc Committee.

The East Side Neighborhood Growth Area is meant to be a unique place and not just "any place"



-  **Office and Light Industrial**
Businesses Providing Primary Employment
-  **Crossroads Commercial**
Small Retail and Offices in a Village Setting
-  **Convenience Retail**
Gas and Convenience Stores, Dry Cleaning, Coffee Shop, Etc.
-  **Multi-Unit Residential**
Condominiums, Apartments, and Elderly Housing
-  **Traditional Residential**
Attached and Detached Homes in a Traditional Neighborhood
-  **Large Lot Residential**
Detached Homes at a Density of Approximately 1.5 per Acre
-  **Parks and Open Space**
Parks, Natural Areas, and Corridors (Stormwater Management)
-  **Public or Quasi-Public Use**
Schools, Cemeteries, Churches, Utilities, and Similar Uses
-  **Development on School Site**
Portion of School Site that May be Considered for Development
-  **Surface Water**
Existing ponds and other water bodies
-  **Wetlands**
Approximate Boundaries of Known Wetlands
-  **Arterial Roads**
Heavily Traveled Roads Linking Neighborhoods
-  **Residential Streets**
Residential and Collector Streets Serving Small Areas
-  **Potential Cemetery Locations**
Sites that May be Considered for a New Cemetery

Village of McFarland - East Side Neighborhood Growth Area - Concept Development Plan



Creating A Sustainable City

A Master Plan to Move the City of Appleton Towards Sustainability

2/14/2020 Update

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SECTION 1:

Introduction — The Issue.

From concerns over climate change, to drought-related water shortages, to air quality, society faces serious environmental issues locally, regionally, nationally and globally. These issues will affect the quality of life today and for generations to come.

There is a growing body of evidence that a shift in human behavior is necessary to counter the tides of over-consumption and environmental degradation; and work for a better future for ourselves, our children and the numerous species that share our planet. Our existing economic systems, agricultural systems and automobile-oriented infrastructure are inherently unsustainable.

DEPENDENCE ON NON-RENEWABLE RESOURCES

Our economy and lifestyle are dependent on vast supplies of non-renewable resources, primarily derived from fossil fuels. As these resources are consumed, they will become increasingly scarce and more expensive, thus increasing operating budgets and affecting the quantity and quality of services provided. We must plan for this eventuality to prevent a crisis in supply vs. demand. In addition, reducing our dependence on non-renewable fossil fuels reduces greenhouse gases and gives us greater energy independence.

OVER & EXCESSIVE USE OF NATURAL RESOURCES

We are using some renewable resources faster than nature can replenish them. Examples of this are consumption of water, lumber, wood and paper products, over fishing and soil depletion. Over-consumption of some renewable resources potentially could cause damage and collapse of some ecosystems.

POLLUTION

Unintended by-products of manufacturing, consumption, and combustion of resources end up in our air, water, soil, and food. Many of these by-products are toxic. Material from consumption is left over as “waste” and buried in landfills. This leads to numerous negative impacts, including consumption of valuable land for landfills, pollution of that land and associated lands and waters with potentially toxic materials, and removal of resources (such as carbon and nitrogen) from natural cycles. Our existing economic systems, built environments and cultures are inherently unsustainable. Achieving sustainability in contemporary times will require a major paradigm shift, essentially reversing long-standing trends of consumption and traditional development, and changing our philosophies and behaviors.

SECTION 2:

What is Sustainability?

Sustainability is a broad term that generally means a community or society lives within the means of what the Earth can provide over a long term. When a process is sustainable, it can be carried out over and over without negative effects on the environment or without high costs. The definition of Sustainability for the purposes of this Master Plan is:

“Sustainability meets the needs of the present without compromising the ability of future generations to meet their own needs.”

— United Nations World Commission on Environment and Development.



A sustainable society does not rely extensively on non-renewable resources as a basis for its economy. A sustainable society reduces consumption of renewable resources to levels that can be replenished by nature.

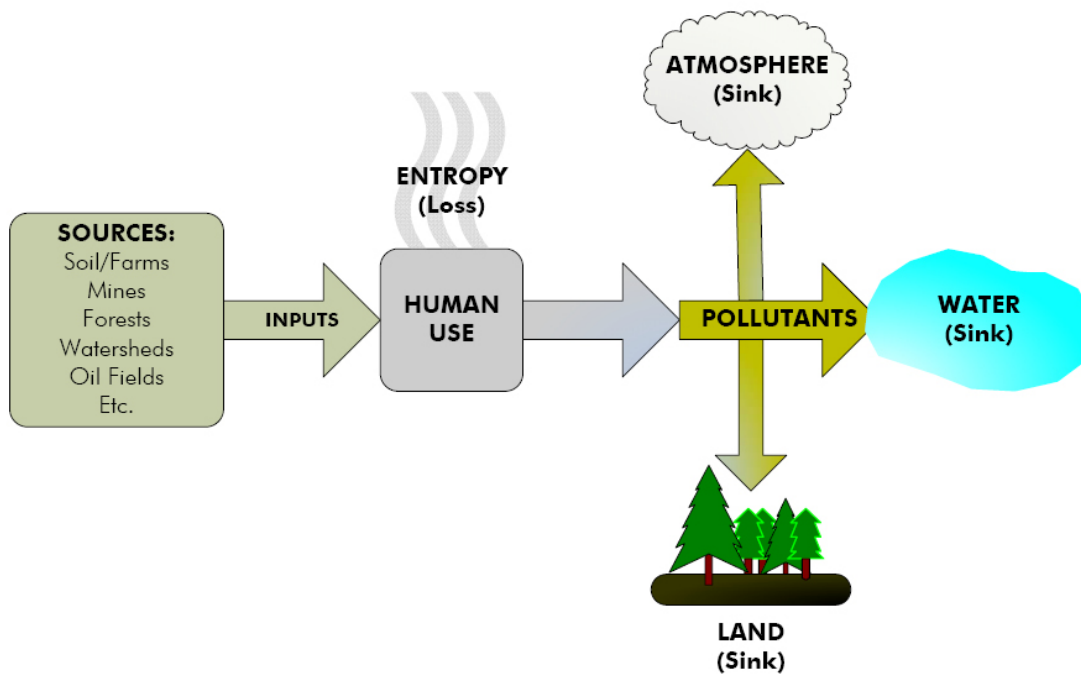
The “Triple Bottom Line” is a common theme for decision-making in a sustainable society. The Triple Bottom Line refers to the consideration of economic stability, environmental sustainability and social equity aspects of a particular decision.

A sustainable society uses non-toxic and/- or biodegradable materials and products and develops “cradle-to-cradle” processes to replace “cradle-to-grave” conventional processes of post-industrial society.

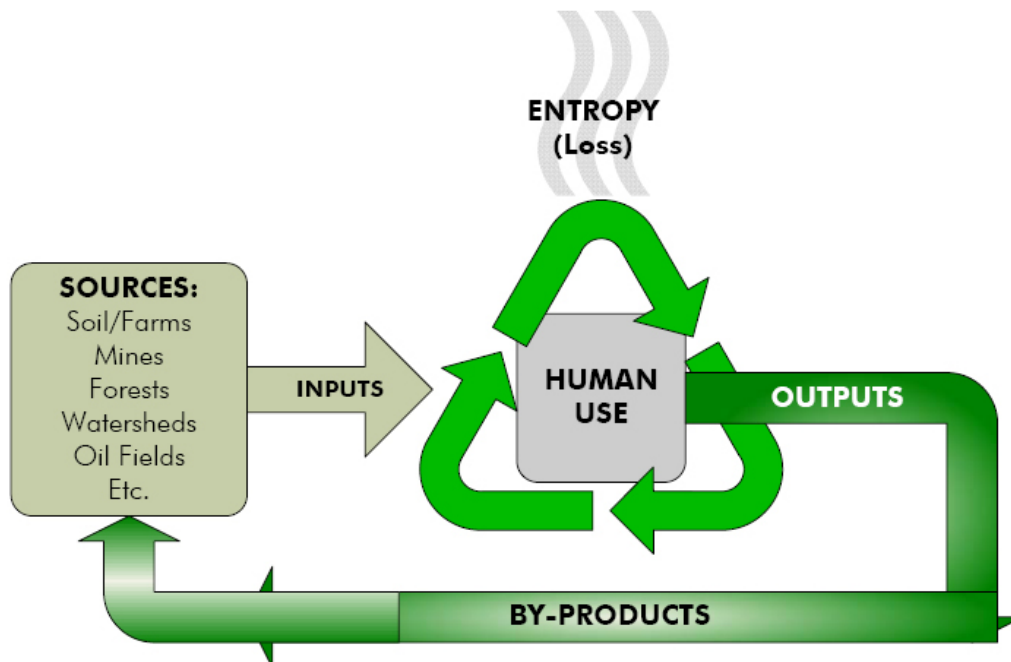
In a “cradle-to-grave” process, materials are moved in a linear fashion rather than through one of nature’s endless cycling and recycling processes. The linear process moves materials that support life from their sources through human consumption that ultimately pollute the sinks (atmosphere, rivers, lakes, ocean, and landscape). Eventually, this one-way process also depletes and destroys the natural landscape on which it depends.

A sustainable or “cradle-to-cradle” process is one that is continually self-renewing. Linear one-way processes must be replaced by cyclic flows, continually regenerating materials that support life. The two diagrams on the next page graphically represent the “cradle-to-grave” and the “cradle-to-cradle” concepts.

“CRADLE-TO-GRAVE”



CRADLE-TO-CRADLE”



SECTION 3:

Creating a Sustainable City

Why a Sustainability Master Plan?

As a major landowner, employer, building manager, fleet operator, utility owner and operator, consumer of goods and services, and service provider, the City of Appleton has both the opportunity and the capacity to bring about significant improvements in environmental quality in and around the region.

By integrating environmentally sustainable practices into City policies, procedures, operations, and fostering collaboration across City government, the City's Sustainability Master Plan- *Creating a Sustainable City*, will work to protect and enhance the quality of life for present and future generations in the City of Appleton. Leading by example, the Sustainability Master Plan promotes responsible management and effective stewardship of the City's built and natural environments; transforming the City of Appleton into a model government agency that is clean, healthy, resource-efficient, and environmentally conscientious.

What are some things the City can do?

- Practice "Conservation"
- Practice "Restorative Redevelopment"
- Increase the resource efficiency of City facilities.
- Reduce pollution from City vehicles.
- Build and Buy Green.
- Work towards reducing Greenhouse Gas Emissions.
- Reduce the City's use of pesticides.
- Protect and restore the City's Urban Waterways.
- Promote Environmental Stewardship.
- Encourage City employees to drive less.
- Improve and optimize Transportation/Multimodal Infrastructure.
- Improve and expand the City's Green Infrastructure.

Moving towards sustainability will require a new consciousness and commitment to do things differently. It will require the City to: (1) develop new programs and/or change existing programs, (2) establish new priorities, (3) commit resources to sustainable causes, and (4) collaborate with other jurisdictions within the region to achieve sustainability.

The strategy for moving the City of Appleton toward sustainability focuses first on changes the City has control over. The City has the most control over its internal operations. In addition, the City has jurisdiction over changes to the built environment (land use, infrastructure, and building materials and systems through permitting) within its boundaries.

The Sustainability Master Plan is intended to be a means for creating a sustainable community, not an end. The plan is a roadmap to guide future operational and policy decisions. To proceed in a sensible way to change long-standing environmental practices, it is necessary to develop focus areas, goals, and targets to be achieved.

This Master Plan (Plan) provides the policy framework for how the City will operate in a sustainable manner over the next generation. This Plan also has the potential to:

- Increase local and regional job production, thus keeping money in the Appleton regional economy;
- Reduce health care costs, and
- Create public/private partnerships.

The City's Goals and Targets are common to many municipalities within the State, thus having a clearly stated intent the City will be able to create these partnerships to implement this plan.

SECTION 4:

How to Read this Document.

The Sustainability Master Plan is meant to serve as a operating framework for the City of Appleton to ensure sustainability concerns are incorporated into the City's decision-making processes.

The Focus Areas, Goals, and Targets are based on the following Operating Principles:

1. The City will include fiscal responsibility and environmental sustainability in its decision-making processes.
2. The City of Appleton intends to conduct its business in a way that increases the sustainability of this and future generations.
3. The City will use its jurisdiction over the built environment (land use, infrastructure, and building permits) to improve the sustainability of the City.
4. The City will adopt a General Plan that contains key sustainability policies and practices, and recognizes direction provided by this Plan.
5. The City will be a leader and advocate for sustainability efforts at the regional, state, and federal level.

Sustainability for the City of Appleton has been separated into ten Focus Areas. This Plan are comprised of one-page summaries of each Focus Area. Each summary page includes:

Background: Why the City should be concerned about the Focus Category.

Goals: A concise description of the City's objectives that reflects the City's values regarding sustainability.

Targets: Measureable and achievable targets will ultimately be developed to correspond to each Goal. Progress by year is listed annually. When feasible, targets will indicate "the measure" of what improvements has occurred.

Note: This plan does not covert energy savings and/or improvements to CFC's. Though this can be a means of measuring reductions in carbon gas emissions, the conversion factors are arbitrary and estimated. For the purposes of this plan measurements utilized are those than can be accurately accounted such as therms, kWh's, miles, etc.

References:

This sustainability plan is not intended to duplicate the myriad of sustainable efforts City-Wide. Please reference these additional documents for additional resources outlining the comprehensive umbrella of the City's sustainable goals and achievements.

1. City of Appleton Comprehensive Plan
2. City of Appleton Trail Master Plan
3. Health in all Policies Ordinance
4. Parking Study
5. Complete Streets Policy
6. Methane Gas Utilization Plan
7. City of Appleton Strategic Plan
8. Departmental Strategic Plans

1. Energy Independence

Background: The United States is dependent on foreign oil; the country imports 60% of its supply and that percentage increases each year. World demand for oil continues to increase each year. Oil supplies are finite and at some point, will decline. These facts could eventually translate into a worldwide shortage of gasoline and diesel fuels, negatively affecting the federal trade deficit, harming local job creation, and increasing national security concerns. In addition, the use of carbon-based fossil fuels creates greenhouse gas emissions.

It is estimated that it will take many years to transition from a fossil fuel economy to a renewable fuel's economy. This time lag between the demands and supply of fuel technology and availability could create challenging market conditions. A gradual transition towards renewable energy is prudent, recognizing that technological advances in renewable energy sources are encouraging.

The City must continue to support more sustainable land use patterns such as transit-oriented development (TOD), green building design, energy efficiency, alternative transportation options and the use of renewable energy sources for both public and private developments and support local and regional job creation through development of renewable energy production facilities.

Goals:

1. Significantly reduce the use of fossil fuels.
2. Improve the availability of locally and regionally produced renewable energy.
3. Improve overall energy efficiency.
4. Reduce peak electrical demand.
5. Replace or renovate obsolete systems, structures, etc. that conflict with this sustainability plan (buildings, facilities, systems, vehicles fleets, etc.).
6. Encourage and recruit green technology companies to locate in the City.

Targets:

1. Reduce energy consumption (electricity, natural gas, motor fuels) of City facilities on a unit basis to a level lower than the year before.

Actions:

1. Remain and actively participate as a WI Green Tier Legacy Community.

Green Tier Legacy Communities demonstrate leadership in improving the economy, the environment and the quality of life in their communities. Moving forward, we will be continuously working to increase the number of municipalities participating in this innovative program.

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1000 Friends of Wisconsin announced the formation of the Charter in December 2010. It was signed by the DNR; 1000 Friends of Wisconsin; League of Wisconsin Municipalities; Municipal Environmental Group – Wastewater; Center on Wisconsin Strategy and Wisconsin Energy Conservation Corp. They aligned their efforts in support of Sustainable Community development.

Communities participating in the charter will have direct access to a Wisconsin DNR resource team that will provide technical assistance to communities and act as a single point of contact for all interactions between the community and the department. Other nongovernmental partners in the charter will also provide technical assistance to participating communities.

- 2010 - The City of Appleton became one of the first five Communities to become a Green Tier Legacy Community in Wisconsin.
- Annually – The City of Appleton attends or hosts meetings for Green Tier.
- Annually – The City of Appleton provides a report and report card to Green Tier.
- 2020 – Marks the 10-year Anniversary of Green Tier. 28 Communities are now Legacy Community members.

2. Adopt and begin to implement a City Wide on-street bike lane plan.

- 2010 - Common Council adopted Appleton's On-Street Bike Lane Plan (September, 2010). To date 7.83 centerline miles of bike lanes were implemented.
- 2012 – Installed bike lanes on Newberry Street.
- 2012 – Installed bike routes on Packard Street.
- 2012 – Installed bike routes on State Street.
- 2012 – Approved design to “Road Diet” Ballard Road from 4 lanes to 3 lanes and add bike lanes when road reconstructed in 2013. Also added 0.83 miles of side-paths on Ashbury Drive.
- 2014 – Added 1.0 mile of new bike lanes as part of City's On-Street Bike Lane Plan.
- 2014/2015 – 1.94 centerline miles of bike lanes installed. Also added 0.67 miles of side-paths on Apple Hill Boulevard.
- 2015 – Added 2.0+ miles of new bike lanes (Badger Avenue) as part of the City's On-Street Bike Lane Plan. Also added 0.37 miles of side-paths on Newberry/Riverheath Drive.
- 2016 – Added 1.25 miles of new bike lanes (John Street) as part of the City's On-Street Bike Lane Plan
- 2017 – Added 1.27 miles of new bike lanes (Eisenhower Drive, Lawrence Street and CTH JJ) and 1.77 miles of shared use lanes (Washington Street, Drew Street, Franklin Street and Water Street) as part of the City's On-Street Bike Lane Plan. Also added 1.09 miles of side-paths on CTH JJ and Eisenhower Drive.
- 2018 - Added 2.67 miles of new bike lanes (Oneida St, Olde Oneida St, Calumet St, Roeland Av, Valley Rd, Midway Rd, Lake Park Rd) as part of the City's On-Street Bike Lane Plan. Also added 0.79 miles of side-paths on Lake Park Rd and Oneida St.
- 2018 - S. Oneida Streets was converted into a complete street with bike lanes, bus route shelters and the Marigold Mile.
- 2018 - Implemented 1st year of new Crosswalk Marking/Enhancement Policy for Uncontrolled Intersection Crossings.
- 2019 – Implemented 2nd year of Crosswalk Enhancement Program upgrading 5 crossings.
- 2019 – Added 2.17 miles of new bike lanes on Appleton St, Evergreen Dr and Telulah Av.

3. Replace all city-owned streetlight with LED fixtures.
 - 2012 – Retrofitted 50 HPS streetlights to LED lights.
 - 2013 – Have 810 city-owned lights of which 280 are now LED.
 - 2017 – Have 1094 city-owned lights of which 680 are now LED.
 - 2017 – Worked with We Energies to convert 315 leased lights to LED.
 - 2018 - Continued streetlight LED conversion project. 1250 city-owned lights of which 706 are now LED.
 - 2019 – Continued streetlight LED Conversion Project. 1124 of the 1290 lights are now LED.
 - 2019 – Worked with We Energies to convert 313 leased lights to LED.
4. Install GPS units on 100 CEA vehicles.
 - 2012 – Purchased (10) additional GPS units to monitor vehicle idling and improve vehicle routing.
 - 2013 – Total of 27 CEA vehicles equipped with GPS to minimize travel times.
 - 2017 – Total of 108 CEA vehicles equipped with GPS units.
 - 2018 - Total of 146 CEA vehicles equipped with GPS units.
 - 2019 – Total of 151 CEA vehicles equipped with GPS units.
5. Utilize methane expelled from the Wastewater Treatment Plant process to heat the facilities.
 - 2011 Installed (2) methane boilers and a storage tank which utilized the expelled methane as fuel to heat facilities versus the purchase of natural gas from the utility.
 - 2017 Working with engineers to analyze and design a third methane boiler.
 - 2017 Engineering an additional high efficiency turbine that will ensure a reduction of 180 kW at the facility. This will be a second-high efficiency turbine installation.
 - 2018 - The City's wastewater plant is designing a third biogas boiler that uses methane gas production from the anaerobic digestion process.
 - 2018 - Wastewater Plant - Installing an additional high efficiency turbine that will ensure a reduction of 180 kW at the facility. This will be a second-high efficiency turbine installation.
6. Reduce electrical consumption in City facilities.
 - Annually – Manage peak demands at facilities. Facilities Management and Operations Staff have been trained.
 - Annually - Water Treatment Facility is projected to reduce electrical by 15% in 2017. The reduction is a result of the addition of the ultraviolet light process. This reduction equates to 970,000 kWh annually.
 - Annually - The water plant is now completed two full years of ultraviolet light disinfection. This process, in part, replaced the City ultrafiltration process. In doing so, the City has reduced chemicals, and energy costs by close to \$1M or a reduction of 970,000 kWh annually.
 - Annually – Since 2005 have reduced by 5.96 million kWh's (23.6%) annually totaling over 47.7 million kWh's.

7. Reduce natural gas consumption in City facilities.

- Annually - The water plant is expected to reduce gas usage by 27% in 2017. This equates to a reduction of 48,000 therms. This change in use is a result of the transition to the ultraviolet light process.
- Annually – Since 2005 have reduced by 265,332 therms (27.1%) annually totaling over 2.26 million therms saved.

8. Reduce motor fuel consumption in City facilities.

- 2015 – Purchased new style garbage truck chassis that is more fuel efficient.
- 2015 – Implemented an automatic idle reduction program for all heavy trucks (Class 7 & 8).
- 2018 - GIS worked with Transit to support a new bus route App.
- 2018 - Partnered with Outagamie and Calumet Counties on a signal optimization project for the Calumet Street corridor.
- 2018 - Replaced one City bus with a new clean diesel model expected to be 90% cleaner regarding emissions.

9. Analyze alternative fuel sources for CEA fleet.

- Various - New vehicles purchased are E85 compatible.
- Various - Met with propane supplier to analyze feasibility of using propane for refuse vehicles.
- Various - Met with Compressed Natural Gas supplier to analyze feasibility of using CNG for CEA fleet vehicles.

10. Evaluate opportunities for employees to work from home (Certain staff were approved to work from home).

- 2016 –Community & Economic Development
- 2017 – Department of Public Works
- 2018 – Work from Home Program expanded, and a Policy was Developed.
- 2019 – Implemented flexible work from home options for staff and have seen greater participation.

2. Climate Protection

Background: Human activities may be altering Earth's climate by emitting greenhouse gases such as carbon dioxide into the earth's atmosphere. Some believe that over the next century the earth's average temperature will increase between 2° F and 10° F. Predicted local impacts under this scenario include, but are not limited to the following:

- Heat waves will be more intense, will occur more frequently, and will be sustained for longer periods.
- Since more precipitation will fall as rain rather than snow, the risk of winter flooding may increase.

We are already committed to addressing climate change, however, the sooner we act, and the more we do, the better the outcome. The City has greatest control over its own operations, however, there is potential for the greatest emissions reductions through the City's jurisdiction over the built environment. Furthermore, by providing a positive example of what can be accomplished, the City may influence other jurisdictions to achieve their own climate protection goals. However, the second leg of the "Triple Bottom Line", economic stability must be considered when determining the voracity at which climate impacting decisions are made.

In 2019 the City of Appleton passed a resolution to create a Climate Change Task Force.

Goals:

1. Reduce Greenhouse Gas Emissions through Goals, Targets and Actions as outlined in the other (9) Focus Areas of this plan.

3. Air Quality

Background: Air quality is a major environmental health issue for Appleton, particularly in the summer when an inversion layer traps pollutants close to the ground. Vehicles and other mobile sources powered by combustion (such as lawnmowers) cause 70% of our air pollution. Although ozone in the upper atmosphere protects us from harmful ultraviolet rays, at the ground level it is an irritant that causes the eyes to burn, and it can damage lung tissue. Other problematic air pollutants include carbon monoxide, hydrocarbons, sulfur dioxide, and oxides of nitrogen (NO_x).

The air quality in the Appleton region has likely improved in the last decade due to cleaner cars, reformulated gasoline, vapor recovery systems on gasoline dispensers, and state and federal regulations for solvents in paints and other consumer products. However, in the future the combined impact of more people, more cars, and more hot days due to global warming will make meeting air quality standards a greater challenge.

It is expected that our community will continue to grow. If present trends continue, residents will drive many more miles annually and spend more time in their cars, which will have a negative effect on air quality. In addition, the increase in energy demand accompanying projected population increases will create the demand for additional power plants; this will further threaten our air quality.

Goals:

1. Encourage City Employees to drive Internal Combustion Engine (ICE) powered vehicles less and engage in clean air practices.
2. Utilize fuels that are friendly to the environment.

Targets:

1. Reduce sulfur levels in diesel and gasoline fuels, concurrent with using advanced emission controls on all buses and fleets to reduce particulate matter and smog-forming emissions from those fleets when economically feasible.
2. Reduce vehicle idle times and consider efficiencies in operation of equipment utilizing gasoline fuels.
 - Annual - Employees are trained on taking direct routes to work sites.
 - Annual - Mowing is limited to areas that are high in early and late season.
 - Annual - Workers and equipment have been stationed closer to work sites and work out of three different sites reducing fuel consumption and emissions.
 - 2015 – Implemented an automatic idle reduction program for all heavy trucks (Class 7&8).

Actions:

1. Increase the quantity of bike paths, bike storage, etc.
 - 2010 – Common Council adopted Appleton's On-Street Bike Lane Plan (September 2010).

To date 7.83 centerline miles of bike lanes were implemented.

- 2011 - Added fenced area for employees to park bikes within the Blue Ramp.
 - 2012 – Installed bike lanes on Newberry Street.
 - 2012 – Installed bike routes on Packard Street.
 - 2012 – Installed bike routes on State Street.
 - 2012 – Approved design to “Road Diet” Ballard Road from 4 lanes to 3 lanes and add bike lanes when road reconstructed in 2013.
 - 2013 - Added Apple Hill Trail (0.75 miles)
 - 2013 – Installed bike posts as part of the Houdini Park Project. Working with Lawrence University students to design and fabricate bike posts to be installed in Soldier Square and Library parking lot.
 - 2014 – Added 1.0 mile of new bike lanes as part of City’s On-Street Bike Lane Plan.
 - 2014/2015 – 1.94 centerline miles of bike lanes installed.
 - 2015 – Added 2.0+ miles of new bike lanes as part of the City’s On-Street Bike Lane Plan.
 - 2016 - Added Bike Fix-It Station at Library. Donated by ADI and Fox Cities Cycling Association.
 - 2016 – Added 1.25 miles of new bike lanes as part of the City’s On-Street Bike Lane Plan (John Street).
 - 2016 – Adopted a Complete Streets Policy in July 2016.
 - 2016 – Created the Fox Trot Trail connecting downtown to the riverfront.
 - 2017 - Acquired (3) Train Trestles to convert to trails. Two will be connecting trails.
 - 2018 - Added 2.67 miles of new bike lanes (Oneida St, Olde Oneida St, Calumet St, Roeland Av, Valley Rd, Midway Rd, Lake Park Rd) as part of the City’s On-Street Bike Lane Plan. Also added 0.79 miles of side-paths on Lake Park Rd and Oneida St.
 - 2019 – Added 2.17 miles of new bike lanes (Appleton St, Evergreen Dr and Telulah Av) as part of the City’s On-Street Bike Lane Plan. Also added 0.6 miles of side-paths on Evergreen Dr and Cedar St. Trail connects Alicia and Lutz parks.
 - 2019 – Completed design for Ellen Kort Park Trail.
 - 2019 - Completed trail at Vulcan Heritage Park to Water Street.
 - 2019 – Completed design for Appleton Memorial Park to McDonald Street trail connection.
2. Install additional sidewalk to provide alternative means of transportation resulting in less creation of carbon dioxide emissions.
- 2012 – Reconstructed/repared \$600,000 of sidewalk to maintain our walkable community.
 - 2012 - Total of 0.5 mile of new sidewalk added.
 - 2013 - Total of 1.0 mile of new sidewalk added.
 - 2014 – Total of 3.0 miles of sidewalks added along Apple Hill Boulevard, Meade Street, Plank Road and Richmond Street.
 - 2014 - Implemented City’s new Sidewalk Poetry Program
 - 2015 - Total of 1.0 mile of new sidewalk added along Glendale Avenue and other locations.
 - 2015 - Implemented second year of City’s new Sidewalk Poetry Program
 - 2016 - Implemented third year of City’s new Sidewalk Poetry Program
 - 2016 - Pedestrian improvements constructed along Midway Road.
 - 2016 - Constructed Jackman Street stairs connecting Prospect Avenue to Water Street.
 - 2016 - Completed Downtown Mobility Study approved by Council in August 2016.
 - 2016 - Total of 1.0 mile of sidewalk added along Lake Park Road, Plank Road and other locations.
 - 2017 - Implemented fourth year of City’s new Sidewalk Poetry Program
 - 2017 - Total of 1.0 mile of sidewalk was added along Edgewood Drive and various other locations, for a total of 444 miles of sidewalk.

- 2018 - Total of 1.0 mile of sidewalk was added along various locations, for a total of 451 miles of sidewalk.
- 2018 - Implemented fifth year of City's new Sidewalk Poetry Program.
- 2019 – Implemented sixth year of City's Sidewalk Poetry Program.
- 2019 – Total of 1.0 miles of sidewalk was added along various locations, including Evergreen Drive, for a total of 452 miles of sidewalk.
- 2019 – Completed design to convert abandoned trestle to trail with construction in 2020.
- 2019 – Implemented the second year of the Trail Master Plan.
- 2019 – Created an improved pedestrian connection between Rocky Bleier Run and Appleton Street (Riverfront and Downtown).

3. Install bike racks in downtown area.

- 2014 – Converted one parking stall for an on-street bike corral at 231 E. College Avenue during the non-winter months.
- 2015 - Added fenced area for employees to park bikes within the Blue Ramp.
- 2016 – Added bike posts on the State Street bump out south of College Avenue.
- 2016 – Placed bike rack on the bump out at the Johnston/Morrison intersection.
- 2017 – Collaboration with Lawrence University on their class “Environmental Studies 300: Bicycling & Sustainable Communities” Class project deliverables are (1) Count bike parking facilities in the downtown, (2) Map bike parking facilities, (3) Draft survey about bike parking for downtown business owners.
- 2019 – Created a secured bicycle & motorcycle parking area in the Green Ramp.
- 2019 – Added two bike fix-it stations along Apple Creek and Newberry trails.
- 2019 – Continued program to utilize bike racks on City busses to promote multi-modal transportation.

4. Obtain designation of being a Bicycle Friendly Community by the League of American Bicyclists.

- 2013 – Obtained designation of Bronze Level.
- 2017 – Obtained designation of Silver Level.
- 2018 – Maintained designation of Silver Level for Bicycle Friendly Community by the League of American Bicyclists.
- 2019 – Maintained designation of Silver Level for Bicycle Friendly Community by the League of American Bicyclists.

5. Analyze the potential for incentives provided to downtown parking for those driving hybrid or low emission vehicles.

6. Analyze the potential for the procurement of hybrid or low emission vehicles.

- 2012 – Purchased two hybrid Ford Fusions to replace traditional gas-powered staff vehicles.
- 2019 – Valley Transit utilizing two hybrid vehicles for staff transportation.
- 2019 – Purchased new Fire Truck with lower emissions discharge.
- 2019 – Replaced nine City busses with new clean diesel. Projected to be 90% cleaner regarding emissions over previous busses replaced.
- 2019 – GIS worked with Transit to create a new bus route app.
- 2019 – Installed new scheduling software to reduce greenhouse gas emissions.

7. Optimize traffic signals throughout the City.

- 2013 – Optimized signal phasing and timing at the Ballard/Capital/Glendale intersections.
- 2017/2018 - City partnered with Outagamie and Calumet Counties on a signal optimization project for the Calumet Street corridor.

8. Modify City Ordinance to eliminate minimum parking stall requirements.

- Annually – Development Projects located within the Central Business District Zoning are not required to install off-street parking spaces. Regulation 23-172 (d)(1) is enforced.

4. Material Resources

Background: Landfills have historically been the lowest cost alternative for eliminating waste, however many factors are causing this traditional method to become less attractive:

- Global warming: decomposing organic waste emits carbon dioxide and methane from landfills, both negatively affect global warming
- Diminishing resources; many useable, valuable resources are now buried in existing landfills
- Overuse of non-renewable resources: improved recycling can reduce stress on renewable resources and increase the life of existing landfills
- Land values: Landfills consume valuable land and diminish surrounding land values
- Transportation costs: Increased regulation and land values combine to cause many cities to ship their waste to landfills hundreds of miles away
- Energy production: The energy content from a typical residential waste stream could possibly provide 25 to 50% of a home's energy needs
- Water quality: Rain and landfills combine to create leachates, which can cause local groundwater contamination concerns

In addition, the use of toxic materials to meet the needs of citizens and businesses frequently causes unintended consequences; e.g. mercury in fish and DDT causing a decline in bird birth rates. Recycling and composting are more sustainable alternatives to landfills. Both reuse materials that would otherwise be wasted. Recycling is economical, saves energy, metals and forests.

Goals:

1. Reduce consumption.
2. Encourage the reuse and local recycling of materials.
3. Reduce the use of pesticides and other toxic materials.

Targets:

1. Implement an Environmentally Preferred Purchasing (EPP) policy which may include bid preferences to suppliers that meet minimum sustainability criteria as defined by the City of Appleton.
2. Reduce the use of pesticides in City parks and facilities relative to an established baseline year.
3. Work to reduce the use of disposable, toxic, or non-renewable product categories within the City limits.

Actions:

1. Increase fees for 35, 60- and 90-gallon residential refuse containers.
 - 2011 - Fees last increased.

- 2018 - Council approved fee increases to be implemented 1-1-2019 for refuse carts to help promote recycling and reduce waste to the landfill.
 - 2019 – Council approved fee increase for 30-gallon carts to be implemented 1-1-2020 to help promote recycling and reduce waste to the landfill.
2. Maximize landfill diversion given reasonable cost effectiveness of constraints.
- 2012 – Recycling containers placed in all City parks.
 - 2013 – Worked with stakeholders to maximize landfill diversion given reasonable cost effectiveness of constraints. City increased diversion rate from 18.8% to 21.7% with the implementation of new 96-gallon automated recycling cart program.
 - 2014 – Purchased and delivered smaller recycling cart option for interested residents.
 - 2014 – Purchased automated recycling carts for College Avenue in Downtown area.
 - 2015 – Purchased 10 additional automated recycling carts for College Avenue in Downtown area.
 - 2016 - Diversion rate increased to 23.7%
 - 2018 - All plastic bottles and containers are now accepted as part of the County's residential recycling program.
 - 2018 - Performed recycling in all City parks.
 - 2019 - Performed recycling in all City parks.
3. Develop a process to provide City's leaf mulch to organizations, groups, etc. that are gardening and potential for satellite locations in neighborhoods to have these materials available for better convenience and transport.
- Annually - DPW has provided wood chips and mulch for Rock the Block over the past several years.
 - 2018 - WDNR issued Appleton's wastewater plant a WPDES permit for biosolids composting. A good portion of the City's leaves, brush, and digested biosolids from the wastewater plant, are composted and then offered up to residents and projects.
4. Reuse City storm damaged and disease damaged trees as playground and landscape mulch.
- Annually – utilize mulch from damaged trees. Have used on playgrounds and various landscaping.
5. Utilize biosolids-compost to reduce the use of petroleum-based fertilizers.
- Annually – utilize biosolids compost produced by the Wastewater Plant process in applications to reduce fertilizer usage. Have utilized to top dress the City's athletic fields.
 - 2017 – WDNR recognizes City with a biosolids composting permit. This is the only facility in the state that operates a biosolids composting facility.
 - 2017 RFP development for preliminary study of a City owned biosolids compost facility.
 - 2018 - Recognized by WDNR with a biosolids composting permit at the Wastewater Plant. This is the only facility in the state that operates a biosolids composting facility.
 - 2018 - Developed RFP for preliminary study of a City owned biosolids compost facility.
 - 2019 - The City's wastewater treatment plant operates the only WPDES permitted biosolids composting operation in Wisconsin. Over 80,000 cubic yards of the City's leaves, brush, and

digested biosolids from the wastewater plant have been composted and then offered up to residents and projects.

6. Work with stakeholders to Investigate the potential to recycle other plastics not currently collected curbside (i.e. #5, most prevalent).
 - 2013 – Worked with Outagamie County and stakeholders towards a capital project to add new plastics and cartons to their recycling stream with a targeted implementation in 2014.
 - 2017- All plastic bottles and containers are now accepted as part of the County's residential recycling program.

7. Implement an Environmentally Preferred Purchasing (EPP) policy which may include bid preferences to suppliers that meet minimum sustainability criteria as defined by the City of Appleton.

2010 – Updated Procurement and Contract Management Policy to include Environmentally Preferable Procurement guidelines.

8. Reduce the use of pesticides and herbicides in City parks and facilities relative to an established baseline year.
 - 2008 – A Turf Management Policy was approved by Common Council to manage the use of chemicals to manage City turf. Several reductions have occurred since to minimize the use of pesticides and herbicides on parkland and at Reid Golf Course. There is no specific measurable for this at this time. Note that phosphorus is no longer being utilized.
 - 2018 - Incorporated horticultural vinegar for weed control in park playgrounds.
 - 2019 – A Turf Management Policy was updated and approved by Common Council.

5. Public Health and Nutrition

Background: The City currently has wellness programs, community gardens, trails and exercise facilities. By improving public health, health care costs can be reduced, thus assisting to improve overall City quality of life.

Recent research has connected public health and smart growth. A report for the US Green Building Council concludes that such smart development factors such as density, mix of uses, access to recreation facilities and even population and income diversity can be directly related to improved health and fitness of the population.

Goals:

1. Improve the health of residents through access to a diverse mix of wellness activities and locally produced food.
2. Promote “greening” and “gardening” within the City.
3. Create “Healthy Urban Environments” through Restorative Redevelopment.
4. Implement Health in All Policies

Targets:

1. Work to maximize the quantity of roads in the City that are “Complete Streets,” efficient and safe for all modes of travel.
 - 2015 – Badger Avenue complete street project completed in 2015.
 - 2016 – Adopted a Complete Streets Policy in July 2016.
 - 2016 – John Street complete street project completed in 2016.
 - 2017 – Lawrence Street complete street completed in 2017.
 - 2018 – S. Oneida Street complete street project will be constructed in 2018.
2. Redevelop or rehabilitate areas within the City or aged city facilities based on old, wasteful and/or dysfunctional designs to achieve better results for people and the environment.
 - Ongoing – continue to update Facilities Management Master Plan to address facility deficiencies.
 - Ongoing – continue to update work environments and workstations as budget allows for City employees.
 - Annually – ARA was established in 1972 to promote Urban Renewal & Eliminate Blight. Initiatives/projects include: RiverHeath, Foremost – Eagle Point, Eagle Flats, Eagle Plastics & Supply, Union Square Apartments and Woolen Mills.
 - 2018 - The Department of Community and Economic Development participates in the InDevelopment seminar each year to promote economic development and investment in our City. Appleton will be the host community for the 2019 InDevelopment seminar and will be

invited to showcase current development projects and future development opportunities as part of the formal presentation.

- 2018 - Updated the zoning code to allow residential uses on the first floor within CBD Central Business District zoning as long as the property is 120-feet off College Avenue.
 - 2018 - Staff analyzed and shorten the annexation process.
 - 2018 - New waterfront/riverfront development has included trails along to the river to provide access and recreational opportunities to the public. Recent projects that include river front trails are: Eagle Flats, Eagle Point, Riverheath and the anticipated Navigational Authority Visitors Center. The docks at Riverheath are also being utilized by a tour boat company to allow access to the river.
 - 2018 - Completed all improvements required for the Council approved R/R Quiet Zone Plan to be implemented in 2019.
 - 2019 - Downtown Appleton saw the announcement and commencement of several new residential and mixed use developments, furthering the City's goal of creating over 465 new residential units in the downtown per the City's Comprehensive Plan 2010-2030. These projects included the historic renovation and new construction at the site of several dilapidated buildings such as Gabriel Lofts (21 units), the former Northshore Bank Building (28 units), on Durkee Street of Avant Apartments (38 units), the Crescent Lofts (69 units), the Zuelke Building (10 units) and the 800 Block (20 units) .
 - 2019 - Utilization of the Central Business District (CBD) zoning in other areas of the City.
 - 2019 - Updated the Historic Preservation Ordinance in response to Wisconsin State Statue Amendments.
 - 2019 - Historic Preservation Commission recommended approval of the Appleton Post-Crescent Building to the National Register of Historic Places.
 - 2019 - Construction start on a new 28-unit memory care facility at Eagle Point.
 - 2019 - Completed the 2020-2025 Analysis of Impediments to Fair Housing report.
 - 2019 - Assessors now utilize the NE Wisconsin Multiple Listing service to validate property sales as arms-length transactions. This has reduced the number of trips to residences and reduced mailings.
 - 2019 - The Transit Development Plan finalized and recommended for approval by the TDP Steering Committee.
 - 2019 - Other infill / redevelopment projects that we worked on in 2019 include the former Kmart site, Evergreen Credit Union, and Aldi.
 - 2019 - Two building additions for industrial uses that went through site plan review – 1000 S. Perkins Street and 2400 N. Sandra Street.
 - 2019 - Improved service and efficiency from an energy use standpoint at the new We Energies substations (like the one at 139 N. State Street).
3. Work with community partners to ensure each neighborhood in the City has safe and efficient access to quality food sources and vendors.
- 2016 - Provided continued support to Riverview Gardens which includes 15 acres of certified organic farmland with 20 passive solar greenhouses providing locally grown, healthy produce through Community Supported Agriculture (CSA) shares, as well institutional and retail sales. The urban farm supports job training, youth programming and community volunteers.
 - Ongoing – Partnership with Appleton Downtown Incorporated for a successful farm market.
 - Annually – Economic Development Strategic Plan includes this initiative.

- 2019 - Police Department continued to implement Crime Prevention Through Environmental Design (CEPTED) and Active Threat Planning to make public spaces crime free.
 - 2019 - Police Department encouraged and/or partnered with others, such as the Chamber of Commerce to advance workplace wellness programs.
4. Work to maximize the number of amenities (e.g. Park, Restaurant, Grocery, Shops, and Theatre) that are located within ½ mile of all residents. Ultimately all Citizens should have walkable access to six or more amenities.
- 2010 - The Comprehensive Plan reviewed service area for parks identifying service area needs. Four areas were considered inadequate. In some cases areas may be served by schools. We continue to monitor opportunities for future opportunities.
 - 2010 – Purchased home in Arbutus Park and razed it adding to the parkland and access.
 - 2017 - Purchased two homes in Memorial Park per Parks Master Plan.
 - 2017 - Updated Comprehensive Plan and which covers ways to maximize amenities.
 - 2018 - Updated City Comprehensive Plan 2010 – 2030. Began implementation.
 - 2019 – Staff is developed a tool to track implementation and progress on accomplishing the goals and recommendations within the City's *Comprehensive Plan 2010-2030*.
 -
5. Promote and support community gardening. In addition, research and identify potential, feasible "Market" garden sites (2 acres max.)
- 2012 – Assisted COTS in security a significant grant for Riverview Gardens.
 - 2013 - Have provided support to Sustainable Fox Valley with their initiatives.
 - Annually – There is a Community Garden in the Southpoint Commerce Park.
 - 2018 - The Appleton Public Library provided the following educational opportunities:
Healthy Food Access
 - Seed Library (If they let us count it twice, it also fits here.)
 - Seed Packing Program
 - Film screening and discussion of seed saving documentary "Deeply Rooted"
 - Heirloom Tomato Tasting & Seed Saving Workshop
 - Edible Wild Plants Workshop
 - Fermentasting Workshop
 - Outagamie County Master Gardeners workshops on various gardening topics
 - 2019 - The Appleton Public Library provided the following educational opportunities:
Healthy Food Access
 - Seed Library (If they let us count it twice, it also fits here.)
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 - Heirloom Tomato Tasting & Seed Saving Workshop
 - Edible Wild Plants Workshop
 - Fermentasting Workshop
 - Outagamie County Master Gardeners workshops on various gardening topics
6. Cleanup, redevelop, and reuse areas that are brownfields.
- 2006 - Present – RiverHeath property redeveloped.
 - 2012 – Zoning ordinances developed that support community garden activities in PI, M-1, M-2 and Agricultural zoning districts.
 - 2015 - Present – Pierce Truck property redeveloped.
 - 2015 – Union Square

- 2017 – Woolen Mills
 - 2018 – Foremost (Eagle Point) property redeveloped.
7. Utilize alternative methods to reduce any potential for health concerns as a result of chemicals used for weed control on public property.
- 2016 – Incorporated horticultural vinegar for weed control in park playgrounds.
 - 2017 - Incorporated horticultural vinegar for weed control in park playgrounds.
 - 2018 - Incorporated horticultural vinegar for weed control in park playgrounds.
 - 2019 - Incorporated horticultural vinegar for weed control in park playgrounds.
8. Promote breast feeding friendly workplaces.
- 2016 – Dedicated a Mother’s Room at City Hall.
9. Promote community wide obesity prevention strategies.
- Annually - Weight of the Fox Valley exists to help residents in Calumet, Outagamie and Winnebago Counties achieve and maintain a healthy weight, a goal that takes on new significance when you look at the current facts. 75% of Adults in our tri-county region are clinically measured as being either overweight or obese. To achieve its vision, Weight of the Fox Valley has adopted an innovative approach to creating social change called collective impact. Collective impact works by creating a shared approach to solving a community problem. City of Appleton and other organizations from all sectors of the community participate to focus existing and new, collaborative efforts on achieving the vision. Participating organizations share a vision, activities, outcomes, data and more!
 - 2018 - The Appleton Public Library provided the following educational opportunities:
 - Physical Activity and Access
 - Yoga & Writing
 - Children’s programs that focus on movement, learning and literacy for different developmental stages
 - 2018 – Parks and Recreation continued to provide and expand opportunities that promote healthy living. In addition, trails and sidewalks continue to be added.
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10. Promote Health in all Policies
- 2019 – The City of Appleton is an active participant in the Legacy Community Alliance for Health.
11. Promote Racial Equity for All.
- 2018 – The City of Appleton joined the Government Alliance for Race Equity (GARE).
 - 2019 – The City of Appleton developed an internal GARE team to work on various initiatives.

6. Urban Design, Land Use, Green Building and Transportation

Background: In shaping the places in which we live, we shape the patterns of our own behavior. We have built sprawling cities that require long commutes, streets that discourage pedestrians and bicycles, and building methods that waste resources and contribute to pollution and climate change. From the human scale to the regional scale, we should take a different approach to designing the built environment.

The City can implement more sustainable development types mostly through jurisdiction over land use, issuance of building permits, and provision of transportation infrastructure.

Goals:

1. Establish and continuously improve “green” building standards for both residential and commercial development--new and remodeled.
2. Reduce dependence on the private automobile by working with community partners to provide efficient and accessible public transit and transit supportive land uses.
3. Reduce long commutes by providing a wide array of transportation and housing choices near jobs for a balanced, healthy City.

Targets:

1. Encourage buildings to be constructed using Energy and Environmental Design best practices.
2. Work with community partners to develop and implement a policy that expands affordable public transportation coverage to within one-quarter mile of all city residents.
3. Plan for the safe and efficient movement of vehicles on local and regional roads.

Actions:

1. Create ordinance requiring all businesses with 30 or more employees to provide bike accommodations.
 - 2011 - The City of Appleton developed an ordinance to provide bike accommodations for all new or expanded businesses.
2. Encourage “Green Alley” design and installation as alley’s come up for reconstruction.

- The City of Appleton has two pilot locations for the “green Alley” design. One location is in the Drew Street Fire Station Lot (2015) and the other location is a portion of the parking lane on Sandra Street (2016).
3. Construct City facilities with utilizing Energy and Environmental Design best practices.
 - 2014 – Constructed restroom pavilion in Appleton Memorial Park. Utilized natural materials, light tubes, LED lighting and other sustainable materials.
 - Annually – All City maintenance and facility upgrades take into consideration energy efficiency, pollution, material waste, health, etc.
 4. Adopt City Policies to encourage multi-modal transportation.
 - 2010 - Adopted Mid-block Crosswalk Policy in July 2010.
 - Adopted Crosswalk Marking/Enhancement Policy for Uncontrolled Intersection Crossings in February 2017.

7. Parks, Open Space and Habitat Conservation

Background: A City's quality of life is greatly enhanced by extensive parks and open space areas. From small urban parks, to regional parks, to trails and parkways, to agricultural and, to golf courses, the presence of Nature, open space and habitat areas are essential. The preservation of open space and our rivers and creeks is essential to the health of our community. These areas provide opportunities for recreation, provide habitat for wildlife, and support alternative modes of travel. Parks and natural areas directly mitigate climate change by moderating temperatures from the urban heat island effect.

The urban forest is a key contributor to sustainability in a place named the City of Trees. Trees provide environmental and ecological benefits through improved air quality by storing carbon dioxide that might otherwise contribute to global warming, improving water quality by naturally filtering overland runoff, reducing flood risk through bank stabilization and increased water storage, and providing bird nesting habitat. The urban forest contributes economic benefits by increasing property values and lowering building energy use by providing incidental shade. Trees improve public health and well-being by reducing UV radiation exposure and converting CO₂ to oxygen.

Goals:

1. Expand and/or preserve the number of City parks.
2. Improve public access to open space, particularly along the Fox River.
3. Maintain and expand the urban forest.
4. Preserve prime farmland and critical habitat resources.
5. Expand "green" park and golf course design and sustainable maintenance practices.

Actions:

1. Acquire land for additional public green space in underserved neighborhoods and infill development target areas.
 - 2013 – Renovated Houdini Plaza
 - 2013 – Acquired and razed building in what is known as Washington Square.
 - 2015 – Acquired land and constructed Pioneer Park (0.52 acres).
 - 2016 – Acquired land for future Ellen Kort Park (3.38 acres).
 - 2016 – Acquired additional land for future northside park near Fire Station #6 (1.59 acres).
 - 2017 – Acquired additional land adjacent to Memorial Park (1.1 acres).
 - 2017 - Creating a reforestation area as part of the Leona Pond Project scheduled for construction in 2019.
 - 2017 – RiverHeath Development constructed public trail with private funds in conjunction with their development efforts along the Fox River. This trail connects to Telulah Park.

- 2018 – Eagle Point Development constructed public trail with private funds in conjunction with their development efforts along the Fox River.
- 2019 - Renovated Jones Park in downtown Appleton. Total project cost of \$4.5 million.
- 2019 - Renovated the riverfront in Telulah Park. Improved the shoreline and installed a kayak launch and fishing pier. Required significant environmental clean-up. Total project cost of \$765,000.

2. Construct and maintain a trail system.

- 2013 - Added Apple Hill Trail (0.75 miles)
- 2017 - Acquired (3) Train Trestles to covert to trails. Two will be connecting trails.
- 2017 – Re-paved the North Island trail.
- 2017 – Repaved 0.5 miles of the CE trail.
- 2018 - Began implementation of the City of Appleton Trail Master Plan.
- 2018 - Installed a paved ADA trail through Alicia Park.
- 2018 - Installed a concrete ADA trail in Vulcan Heritage Park.
- 2018 - Installed a paved trail along Lutz Drive to connect to Lutz Park.
- 2018 - Installed the Lower Telulah Park Trail
- 2018 - Installed the Jones Park trail to connect the downtown to the riverfront.
- 2018 - Re-paved the North Island trail.
- 2018 - Repaved 0.5 miles of the CE trail.
- 2018 - Hired an engineering firm to perform design and permitting to convert newly acquired train trestles to trails.
- 2019 - Installed Cedar Street trail connecting Alicia Park to Lutz Park.
- 2019 - Completed design for Ellen Korte Park Trail.
- 2019 - Completed trail at Vulcan Heritage Park to Water Street.
- 2019 - Completed design for Appleton Memorial Park to McDonald Street trail connection.

3. Develop master plans for the City's parks and green spaces.

- 2015 – Master plan developed for Appleton Memorial Park.
- 2015 – Master plan developed for the Scheig Center.
- 2015 – Master plan developed for Erb Park.
- 2016 – Master plan developed for Ellen Kort Park.
- 2017 – Master plan developed for Jones Park.
- 2019 – Completed Comprehensive Outdoor Recreation Plan (CORP)

4. Work with community partners to achieve an urban tree canopy goal of 35%.

- 2012 – Received Tree City USA award for 22nd consecutive year.
- 2013 – Worked with community partners to achieve an urban tree canopy. Current canopy is 22%.
- 2013 – Received Tree City USA award for 23rd consecutive year.
- 2014 – Common Council approved a new Urban Tree Planting Infill Program with funding for 100 new trees.
- 2014 – Worked with the Timber Rattlers and Appleton Little League to plant trees as part of the "Broken Bats for Trees" program.
- 2014 – Completed new tree inventory program utilizing GIS.
- 2014 – Implemented first year of Urban In-fill Tree Planting Program.
- 2014 – Received Tree City USA award for 24th consecutive year.

- 2015 – Received Tree City USA award for 25th consecutive year.
 - 2015 – Implemented second year of Urban In-fill Tree Planting Program.
 - 2016 – Received Tree City USA award for 26th consecutive year.
 - 2016 – Implemented third year of Urban In-fill Tree Planting Program.
 - 2017 – Implemented 4th year of Urban In-fill Tree Planting Program.
 - 2018 - Received Tree City USA Award for 27th consecutive year.
 - 2018 - Implemented fifth year of our Urban In-fill Tree Planting Program.
 - 2019 – Received Tree City USA Award for 28th consecutive year.
 - 2019 – Implemented sixth year of our Urban In-fill Tree Planting Program.
5. Develop an implementation plan to incorporate sustainable principles and practices into golf course and park design and maintenance, including public education.
- 2014 – Utilized public golf course to address stormwater management requirements. Project was recognized for the utilization of public land to for stormwater retention.
 - Annually – All City mowers are equipped with mulching decks.
6. Engage community/neighborhood partners to donate their physical involvement such as applicable park maintenance items such as eradication of invasive species of vegetation and other small maintenance tasks.
- 2005 - 2017 – The City collaborates with numerous volunteers. The Master Gardener's and friends, local companies and residents donate hundreds of hours annually in our parks for this purpose. On average we received 200 – 300 hours annually.
 - Annually – Remediate a buckthorn on the hillsides at Tellulah Park, Pierce Park. Appleton Memorial Park and various trails. Ongoing effort.
 - 2017 - Work with the community to plant marigolds within terraces of S. Oneida Street, Prospect Avenue and Jackman Street.
 - 2018 - Remediated invasive plants at Pierce Park, Telulah Park and various trails (multi-year initiative).
 - 2019 – Remediated invasive species in various parks and trails. Both in-house and contracted staff were utilized.
7. Develop and implement a Trail Master Plan.
- 2016 – A Trail Master Plan was developed and approved by City Council.
 - 2018 – Began implementation of Trail Master Plan
 - 2019 – Continued implementation of the Trail Master Plan (Year 2)
8. Develop an ADA transition plan for public parks.
- 2015 – An ADA transition plan was developed and implemented.
 - Annually - \$50,000 of upgrades annually to public parks to improve accessibility.

8. Water Resources and Flood Protection

Background: Climate models indicate that some areas may experience an increased risk of water shortages in the future. On the other end of the spectrum, significant portions of the City are at risk from catastrophic flooding.

Goals:

1. Conserve the use and protect the sources of water.
2. Work to provide exceptional flood protection.

Targets:

1. Continuously protect the ecological integrity of the City's primary drinking water source.
2. Continue to reduce sanitary sewer overflows.

Actions:

1. Identify flood areas and develop plans to mitigate damage to property and/or life.
 - 2012 – Started construction of (2) new stormwater ponds.
 - 2013 – Completed Phase I of the Theodore Street Floor Control Project at Appleton East High School.
 - 2013 – Utilized public golf course to address stormwater management requirements. Project was recognized for the utilization of public land to for stormwater retention. Replaced the concrete lined channel with a naturalized stream.
 - 2014 – Council approved Phase I for the West Wisconsin Avenue Floor Control Project
 - 2017 – A stormwater retention pond was constructed in Erb Park to mitigate flooding in adjoining neighborhoods and within the park.
 - 2017 – City now has a total of 40 wet ponds and 8 dry ponds to provide water quality and quantity benefits to the community.
 - 2018 - Created a reforestation area as part of the Leona Pond Project scheduled for construction in 2019.
 - 2018 - Installed (3) new bio-filters in the Lutz Park Trail project in conjunction with the Appleton Yacht Club parking lot project.
 - 2018 - Constructed a stormwater retention pond north of Northland Avenue to mitigate flooding in adjoining neighborhoods. City now has a total of 42 wet ponds and 12 dry ponds to provide water quality and quantity benefits to the community.
 - 2019 - Constructed Leona Street Pond. City now has a total of 45 wet ponds and 12 dry ponds.
2. Develop a program for rainwater harvesting for residential properties.
 - 2016 - Implemented a Rain Barrel Program and associated Stormwater Credit Policy for residential properties.

3. Enforce phosphorous bans, grass clippings in streets and existing ordinances.
 - Annually – We only use fertilizers without phosphorous. Regulation NR151 is followed.
 - 2013 - Increase grass clipping bag fee from \$2 to \$4.
 - 2017 – All City mowers are now equipped with mulching decks. In addition, leaves are mulched in place on City properties.

4. Seek ways to reduce phosphorous entering the Fox River.
 - 2014 – Study conducted by utilities with the objective to reduce current phosphorus discharges by an order of magnitude.
 - 2016 - Phosphorus Reduction Project – Phosphorus is a nutrient that leads to algal blooms and reduced water quality. Appleton continues to optimize and remove phosphorus from the waste stream prior to discharge to the Fox River. The use of iron salts has proved successful. Utilizing this technology, 2016 saw a reduction of 350 lbs of phosphorus to the Fox River (i.e., 2016 vs 2015 phosphorus load).
 - 2016 - The plant staff continue to study “outside the plant” alternatives to further reduce phosphorus to the Fox River. Currently, staff are involved in the following programs and initiatives:
 - Lower Fox River Dischargers Association – service positions include president, treasurer and secretary
 - Fox Wolf Watershed Alliance – service position board of directors’ member
 - The Fox P Trade Initiative – participant in training exercises
 - Adaptive Management Assessments, w/Great Lakes Alliance – participant in training scenarios.
 - 2017 The Wastewater Plant is projected to reduce phosphorus discharges to the river by 4,290 pounds (i.e., 2017 vs 2016 discharge data).
 - 2018 - The Wastewater Plant reduced phosphorus discharges to the river by 165,775 pounds (i.e., 2018 discharge data).
 - 2019 – The Wastewater Plant removed approximately 160,000 pounds of phosphorus and reduced phosphorus discharges to the Fox River by nearly 50% from that in 2018.

5. Investigate ways to utilize biosolids from the Wastewater Plant.
 - 2012 – Conducting a research and development project to evaluate composting as an alternative treatment of biosolids to create a high quality “Class A” material that could be used as a soil conditioner, nutrient amendment, and/or erosion control product. Has the potential to greatly expand options for beneficial reuse beyond traditional land application to farm fields or landfilling while off-setting the need to expand on-site biosolids storage (180-day DNR requirement).
 - 2015 – Continued a composting demonstration project. Utilized 10,000 yards of yard waste (e.g., brush, leaves) from curbside collections. The compost was used by landscapers, the highway department, contractors and public giveaways.
 - 2016 – Appleton had a production of 6,750 cubic yards of compost. The mixture of yard waste and biosolids was placed into windrows and allowed to compost (and be biologically reduced). The material is turned and ultimately reaches temperatures in excess of 160 degrees F. The 6,750 cubic yards of finished compost was used by landscapers, contractors, and public giveaways.

- 2017 – WDNR issues Appleton a WPDES permit with biosolids composting. This elevates the biosolids composting initiative from a pilot to a permitted entity.

6. Maintain and upgrade City-wide water supply and lines.

- 2014 – Relayed 3 miles of old, leaking watermain.
- 2015 – Relayed 3 miles of old, leaking watermain.
- 2016 – Relayed 2.6 miles of old leaking watermain.
- 2015 – First full year of installing Advanced Metering Infrastructure for water meter reading and residential cross connection survey.
- 2016 – Replaced 32 lead services.
- 2014 – Appleton's first full year of installing advanced metering infrastructure system for water metering reading and residential cross connection survey.
- 2017 – Replaced 30 lead services
- 2017 – Relayed 2.9 miles of old leaking, undersized watermain.
- 2018 - Replaced 5 lead services.
- Relayed 3.3 miles of old leaking, undersized watermain.
- Implemented Aquahawk for customers to track their own water usage.
- 2019 – Relayed 4.3 miles of old leaking, undersized watermain.
- 2019 – Replaced 32 lead services.
- 2019 – Promoted Aquahawk Program for our customers to track their own water usage.
- 2019 – Completed pilot project on Carpenter Street replacing private sanitary laterals from sewer main to the home.

9. Public Involvement & Personal Responsibility

Background: Ultimately, sustainability affects every level and scale of organization, from the entire planet to local neighborhoods and individuals. In addressing the global and regional issues facing Appleton, public involvement and personal responsibility is vital to effectively planning actions and implementing solutions. A central goal of this focus area is to facilitate communication, public outreach and civic engagement on sustainability. Although the City has an important role in addressing climate change, residents and business must be inspired to take actions to reduce greenhouse gas emissions as well. The City should take the opportunity to work with citizens, businesses and community groups to implement personal and business-oriented sustainability initiatives.

Through a wide variety of programs and a broad-based network of partner organizations, — in schools, in parks, in community centers, and in neighborhoods — the City can promote an ethic of conservation and stewardship, and encourage and empower people to take actions that improve environmental quality and quality of life in and around their neighborhoods.

Goals:

1. Adopt an action plan to support a regional vision that fosters a collaboration of citizens, businesses and green-initiative groups to become engaged and contribute to a sustainable future.
2. Promote innovative programs to educate the public about climate change.
3. Commit to leading by example to foster behavioral change throughout the City.
4. Promote an ethic of conservation and stewardship.

Targets:

1. Develop and maintain a City sustainability website to provide as a resource to the community.
 1. 2014 – Staff from the Department of Public Works participated in Fox River Cleanup Day on April 26, 2014.
 2. 2015 – Staff from the Department of Public Works participated in Fox River Cleanup Day on April 25, 2015.
 3. 2016 – Staff from the Department of Public Works participated in Fox River Cleanup Day on April 23, 2016.
 4. 2017 – Staff from the Department of Public Works participated in Fox River Cleanup Day on April 22, 2017.
 5. 2018 – Will develop links to Sustainability Plan and Green Tier documents.
 6. 2018 - Staff from Community & Economic Development served on State Brownsfield Committee.
 7. 2019 – Staff from the Department of Public Works participated in the Fox River Clean Up Day on April 27, 2019.

2. Work with community partners to maximize the number of businesses within the City which incorporate sustainability into their daily operations.
 - 2016 – Worked with a company to exchange our wood chips for their labor and equipment to screen our pile of stump grinding material providing a nice topsoil type material for use on city projects.
 - 2016 – Developed Stormwater Supporter Pledge Form as part of the Residential Stormwater Credit Policy.
 - 2016 & 2017 – Partnered with Evergreen Credit Union on a Stormwater 101 Education Program.
3. Develop a network of green-initiative groups to share resources, foster partnerships and unify education and outreach efforts.
 - Continue to partner with Northeast Wisconsin Stormwater Consortium to share resources for joint public education efforts to meet our NR216 permit requirements.
4. Develop a Sustainability “report card” be published annually.
 - Annually – Provide report card titled Legacy Charter Appendix 3 to WI Green Tier as part of the annual reporting requirements.
5. Optimize opportunities to showcase Appleton’s environmental leadership through hosting conferences, workshops and events.
 - Annually – Host professional organizations and/or other municipalities to host meetings for organizations such as Green Tier, professional engineers or other governmental agencies.

10. Building Operation

Background: In shaping the places in which we live, we shape the patterns of our own behavior. We have built numerous facilities that waste resources and contribute to pollution and climate change. From the human scale to the regional scale, we need to take a different approach to protecting our work environments.

The City can implement sustainable practices through proactive maintenance; procurement of environment friendly products and by adopting the practice of ensuring new construction meets and or incorporates LEED (Leadership in Energy and Environmental Design) or equivalent standards.

Goals:

1. Establish and continuously improve “green” building standards in City- owned and operated buildings.
2. Provide a healthy environment by incorporating green cleaning standards.
3. Use products and materials that have a long-term benefit to our community when cost effective.
4. Focus actions and select products that reduce greenhouse gas-emissions, reduce water consumption, electrical consumption, natural gas consumption and manage solid waste.

Targets:

1. Annually adopt principles of LEED (Leadership in Energy and Environmental Design), Energy Star, Green Tier and/or equivalent for all new City-owned buildings.
2. Procure products that incorporate sustainability from cradle to grave.
3. Provide proactive maintenance, operations and upgrades of the facilities and equipment that will achieve the City’s goal to reduce natural gas and electric consumption by 10% by 2011.

Actions:

1. Perform lighting, HVAC, building shell or other upgrades that have positive impacts on the economics, environment and people in our community.
 - 2010 – Upgraded lighting at Peabody Park
 - 2012 – Updated numerous servers and redesigned servers with energy efficiency equipment. A new A/C unit was added to control run-time and reduce energy usage.
 - 2012 – Began process to improve water treatment processes using Ultraviolet light process for the removal of microbial contaminants.
 - 2013 – At Wastewater Treatment Plant constructed a new gas balancing process that will inject pressurized gas into the anaerobic digester tanks thus creating mix energy. (\$39,291 electrical savings annually).
 - 2014 – Upgraded boiler at Municipal Services Building (2,145 therms saved annually).

- 2014 – HVAC tune-up (2,403 therms saved annually)
- 2014 – Lighting upgrades in City facilities (56,100 kWh saved annually)
- 2014 - Replaced all light poles and fixtures with LED lighting at Arbutus Park. Total of eleven poles and fixtures.
- 2014 - Replaced all exterior wall pack lighting with LED lighting at the Water Plant.
- 2014 – Replaced alley lighting at City Hall drive-up windows with LED lighting.
- 2014 – Upgraded boilers at the Library. (4,553 therms saved annually).
- 2015 – Street lighting upgrades. (40,890 kWh saved annually).
- 2015 – Replaced fountain lighting in City Park to LED.
- 2015 – Replacing wall pack with LED fixtures at all 30 parks.
- 2015 – Installed LED lighting at skateboard park parking lot at Telulah Park.
- 2015 - Replaced all exterior wall pack and street pole lighting with LED lighting at the Wastewater Plant.
- 2015 – Completed a pilot project to retrofit existing high-pressure sodium light fixtures with energy efficient LED lights in a portion of the Green Ramp.
- 2016 – Project was completed to construct an alternate mode of mixing for the (2) 2.2 million gallon digesters resulting in sliding vane compressors with valve and gas metering upgrades (anticipated savings 1,300 kWh/day).
- 2016 – Completed Water Treatment Plant process to utilize UV that was initiated in 2012. The project resulted in decreased chemicals, labor and electrical costs totaling \$450,000 annually. (Anticipated savings of 21.2 kW in a peak water production scenario).
- 2016 – Upgraded various lighting in Telulah Park.
- 2016 – Installed new light poles and upgraded lighting to LED.
- 2016 – Relamped existing fluorescent fixtures with LED lamps throughout the entire vehicle garage at the Facilities & Grounds Operations Center.
- 2016 - Relamped existing fluorescent fixtures with LED lamps in various locations at Water Treatment Plant.
- 2016 - Installed (7) new LED light fixtures above softener tanks at the Water Treatment Plant.
- 2016 - Installed (4) new LED light fixtures above softener tanks at Reid Municipal Golf Course.
- 2016 - Completed second year of LED streetlight retrofit project. Installed new LED lighting throughout all of City Park
- 2016 – Replaced all exterior lighting with new LED lighting at the Water Treatment Plant. Also completed a “right lighting” survey at the Water Treatment Facility that indicated we could remove 18 exterior fixtures that were not needed and causing excess light pollution.
- 2016 – Replaced all exterior lights with new LED lighting at the Facilities & Grounds Operations Center.
- 2016 – Installed a new high efficiency HVAC system for the office area at the Municipal Services Building.
- 2016 – Installed new LED lighting in the office area at the Municipal Services Building.
- 2017 – Installed new high efficiency HVAC system in the office area at the Facilities & Grounds Operations Center.
- 2017 - Installed new LED lighting in the office at the Facilities & Grounds Operations Center.
- 2017 – Installed new LED lighting throughout all of Alicia Park.
- 2017 – Installed new LED exterior lighting at the Municipal Services Building.
- 2017 – Installed motion sensors in the garage area at the Municipal Services Building.
- 2017 – Installed new LED lighting at Wastewater Treatment Facility. This is the first phase of a multi-phase project.

- 2018 - The City's wastewater plant is installing a third biogas boiler that uses methane gas production from the anaerobic digestion process. The wastewater plant can produce in excess of 500,000 cubic feet per day of this gas.
 - 2018 - The water plant is now completed two full years of ultraviolet light disinfection. This process, in part, replaced the City ultrafiltration process. In doing so, the City has reduced chemicals, and energy costs by close to \$1M or a reduction of 970,000 kWh annually.
 - 2018 - Wastewater Plant - Installing an additional high efficiency turbine that will ensure a reduction of 180 kW at the facility. This will be a second-high efficiency turbine installation.
 - 2018 - Continued streetlight LED conversation project. 1250 city-owned lights of which 706 are now LED.
 - 2018 - Worked with WE Energies to convert 316 leased lights to LED.
 - 2018 - Installed new LED lighting in the Lutz Park parking lot.
 - 2018 - Replaced 465 LED lamps that were previously fluorescent lamps throughout City facilities.
 - 2018 - Installed LED lighting in the Red Parking Ramp.
 - 2018 - Performed boiler tune-ups resulting in rebates of \$1,562.35.
 - 2018 - Replaced six boiler circulation pumps, that operated at 100% during the heating season, with two variable speed high efficiency and maintenance free pumps.
 - 2019 – Installed LED lighting in the Yellow Ramp. Total of 539 fixtures.
 - 2019 - A third biogas boiler was installed at the Appleton Wastewater Treatment Plant which uses methane gas production from the anaerobic digestion process. The new boiler is a 5.5 million btu methane boiler which will eliminate the need for the Wastewater Plant to use utility gas for most of the time. Savings of are anticipated to reach \$400,000+ with the addition of the new boiler.
 - 2019 - The Appleton Wastewater Treatment Plant has now completed three full years of ultraviolet light disinfection. This process, in part, replaced the City ultrafiltration process. In doing so, the City has reduced chemicals, membrane associated materials or consumables, and 1,300,000 kWh of energy each year that in total equates to an annual savings of nearly \$1M.
 - 2019 - An ongoing construction improvements project at Appleton Wastewater Treatment Plant includes the installation of an additional high efficiency turbine that will ensure a reduction of 180 kW at the facility. Upon completion in 2020, this will be a second-high efficiency turbine installation.
 - 2019 - Installed 211 LED replacement fixtures at the Wastewater Plant.
 - 2019 - Installed all new LED exterior lighting fixtures at the Police Station (102 fixtures)
 - 2019 - Installed new LED high bay garage lights at MSB (154 fixtures)
 - 2019 - Installed new LED light fixtures for the entire Yellow Ramp (539 fixtures)
 - 2019 - Installed LED fixtures at Facilities & Grounds Operations Center vehicle garage.
 - 2019 - Jones Park Redevelopment includes LED facility and site lighting.
 - 2019 - Lower Telulah Park trail and parking lot construction features LED lighting.
 - 2019 - Performed a solar analysis for our Municipal Services Garage.
2. Maximize equipment efficiency to reduce electrical, natural gas and water usage. When feasible perform retro commissioning of facilities.
- 2012 – Performed retro commissioning at the Wastewater Plant.
 - Annually - Perform boiler tune-ups.
3. Use Eco-Friendly flooring and perform carpet reclamation of existing product.

- Ongoing – Carpeting used is eco-friendly and generally recognized for recycling efforts of its composition.
4. Clean the facilities using Green housekeeping practices and products meeting Green Seal Certification.
 - 2010 – Transitioned to utilizing Green Seal cleaning supplies to clean City facilities except for Fire Stations and Library.
 - 2012 – Expanded the use of Green Seal cleaning supplies to the Fire Stations and Library.
 5. Modify the City's procurement policy by the end of 2010 to allow purchases to be made not only based on low price, but also that are in alignment with the City's Sustainability Strategic Objective.
 - 2010 – Procurement and Contract Management Policy updated to include direction on Environmentally Preferable Procurement.
 6. Recycle the maximum amount of waste feasible during demolition, renovation and construction.
 - Annually – Donate usable construction items to organizations such as Restore.
 - 2017 – Donated material from demolition of bridge tender storage building to restore and bicycle to Riverview gardens.



CITY OF MONONA SUSTAINABILITY PLAN



Dear Monona Residents,

Whenever a community works to develop a plan that is intended to meet objectives a decade from now, collaboration is paramount if the plan is to have any chance for success. This City of Monona Sustainability Plan (MSP) has been created in the truest sense of collaboration. The MSP is based upon input from residents, city committees, city staff, nonprofit organizations and businesses; bringing together all aspects of city operations affecting everyone in the community. Several opportunities for community engagement brought forth countless sustainability strategies that are incorporated in this plan.

The input from all of these community stakeholders came together in an *idea-bank of strategies* supporting Monona's overall vision of sustainability: "...*practicing sustainability means working to meet the needs of today's residents and visitors without compromising the needs of future residents and visitors...*" Derived from the 1987 Report to the World Commission on Environmental Development, this vision is preceded in spirit centuries earlier by our original Monona residents, the peoples of the HoChunk Nation. The HoChunk concept of *Seven Generations* puts forth that actions we do today will impact our children and grandchildren tomorrow and into the future, through the seventh generation. Both of these principles are what will insure and protect our community's environmental welfare for years to come.

The MSP is the culmination of years of work and the implementation of many sustainability efforts brought forth by the city, including the formation of the Sustainability Committee; adoption of the original sustainability resolution in 2012, committing the city to reduce its energy dependence from traditional fossil fuels to renewable sources by 25% by the year 2025. The city went a long way in achieving that goal when in 2013 Monona installed the largest municipal solar array in the state of Wisconsin on the roof tops of several city buildings.

This MSP goes forward into the future with six major areas of focus. They are:

- General Sustainability
- Land Use
- Water
- Energy
- Transportation
- Solid Waste

Each focus area begins with a vision statement and a brief overview as to why this area is important. It is then followed by a list of specific measurable objectives that are divided into two groups. Municipality objectives relate primarily to the city's public lands, buildings and operations, while Community objectives more directly affect and involve private residents and businesses. Throughout you will see noticeable overlap in the city's and community's objectives.

The vision and objectives are followed by an implementation and evaluation section that covers each of the six focus areas. There, you will find projects already implemented and how they can be built upon in the future. An explanation as to how each project will be evaluated and how it helps to reach the community's 2025 goals are also provided.

Each year an annual implementation plan will be developed, detailing the actions that will be taken in the coming year. As a way to measure success, an annual progress report will also be completed at the end of each outlining where we are in the process.

Together, the principles and strategies outlined in this document will continue the values and aspirations of Monona and ensure the sustainability of our community not only in the short term but, for seven generations to come. I look forward to the challenge.

Bob Miller

Mayor

Executive Summary

The City of Monona's Sustainability Plan (MSP), was developed by the Monona Sustainability Committee in collaboration with other city committees, city employees and community residents and businesses. The MSP, adopted by the Monona City Council in July 2015, is a strategic document that establishes sustainability visions and objectives for the City of Monona. In addition, measurable targets have been set for 2025 and strategies have been proposed for meeting each objective.

Implementation

During the development of the MSP, several opportunities for community engagement were arranged. All ideas brought forward for strategies (actions) were noted and documented. This idea-bank of strategies will be continuously updated to bring in new ideas and to reflect current possibilities and challenges within the community. The final decisions regarding which strategies to implement will be considered within the city's regular decision-making processes. Each year an annual implementation plan will be developed, detailing the actions that will be taken in the coming year. To follow up on the work being done and review how the objectives are being met, an annual progress report will be presented after the completion of each year. Both formal and informal opportunities for further stakeholder input will be made available and encouraged.

Sustainability Principles and Guidelines

Monona's overall vision of sustainability is adapted from the sustainability principle identified in Brundtland's 1987 Report of the World Commission on Environmental Development. This general principle states:

"...practicing sustainability means working to meet the needs of today's residents and visitors without compromising the needs of future residents and visitors..."

Along with this sustainability principle, the following four sustainability guidelines provide the foundation for the sustainability targets established in the MSP:

- Reduce dependence on fossil fuels and extracted underground metals and minerals.
- Reduce dependence on chemicals and other manufactured substances that can accumulate in nature.
- Reduce dependence on activities that harm life-sustaining ecosystems.
- Reduce barriers to achieving present and future human needs fairly and efficiently.

Plan Overview

The MSP covers six focus areas:

- | | |
|--------------------------|------------------|
| • General Sustainability | • Energy |
| • Land Use | • Transportation |
| • Water | • Solid Waste |

Each of the six focus areas contains two types of sustainability objectives, municipality and community. Municipality objectives pertain primarily to the city's public lands, buildings, and operations, while community objectives more directly affect and involve private residents and businesses.

The MSP is also divided into two major sections. The first, **Vision and Objectives** briefly outlines sustainability goals for each focus area, and the second, **Implementation and Evaluation**, details how each objective will be carried out, baseline data and targets for each.

ACKNOWLEDGEMENTS

This plan was prepared by Madison Environmental Group, LLC, in conjunction with the Monona Sustainability Committee.

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Brian Holmquist, Co-Chair
Bill Bland, Member
Leslie Busse, Member
Janine Glaeser, Member
Pat Howell, Member
Brooke Logan, Member
Brandon Long, Member
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Thank you to the following groups and individuals for their support:

- The resident, businesses, and community organizations of Monona that have been committed to sustainability efforts and have already begun to implement many of the strategies mentioned in this plan
- Citizens that participated in the numerous public outreach and survey efforts
- Mari Westin and the Madison Environmental Group
- Heather Gates and the Natural Step Monona
- Madison Gas and Electric

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City Council

Mayor Bob Miller
Alderman Jim Busse
Alderman Mary O'Connor
Alderman Brian Holmquist
Alderman Chad Spaight
Alderman Kathy Thomas
Alderman Doug Wood

City of Monona Sustainability Plan 2015

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INTRODUCTION



MONONA'S COMMITMENT TO SUSTAINABILITY

The City of Monona is committed to being a resilient and sustainable community with a quality of life and strength of economy that meet the needs of all who live, work and play within its boundaries. As part of this commitment the city has undertaken numerous sustainability initiatives, including the formation of a sustainability committee and adoption of a Monona Sustainability Resolution.

With the adoption of the Sustainability Resolution in March 2012 sustainability principles were established as the norm for city planning, policies and procedures. The Monona Sustainability Plan (MSP) has been developed based on the principles in the resolution. The MSP contains guiding visions and measurable objectives with targets set for 2025. In addition, strategies for meeting the targets of these objectives have been identified.

“We do not inherit the
earth from our
ancestors; we borrow it
from our children.”
-Native American Proverb

The MSP is based on input from city committees, city staff, residents, nonprofit organizations and businesses. It encompasses all aspects of city operations and will involve and affect everyone in the community. Different strategies will be the responsibility of various stakeholders, or groups of stakeholders, with progress monitored by the sustainability committee.

The city's conception of sustainability embraces the needs, concerns, and well-being of all community members, and also relies on community members to share ownership and responsibility to work towards the same goals. Sustainability goals cannot be reached by the sustainability committee alone but will be embedded in the work of all committees and departments.

HISTORY OF SUSTAINABILITY IN MONONA

Sustainability work in Monona has significantly increased since the formation of the ad hoc sustainability committee in 2007. In addition to laying a foundation for the committee's own goals, role, organizational structure and procedures, the committee reached out to both city staff and the Monona community with various educational opportunities regarding sustainability. It arranged a one-day training for several city staff in The Natural Step, an internationally regarded, scientifically based and practical framework that enables organizations of any size to apply sustainable practices as well as measure the impact of their actions. It also began a tradition of public outreach and education at Monona's annual Memorial Day parade and organized three Green Monona Tours to showcase state-of-the-art sustainable practices being used by local residents and business owners.

In 2010, the ad hoc sustainability committee became a permanent standing committee. That same year, the City of Monona pledged to become one of the State of Wisconsin's Energy Independent Communities, which required the development of a 25x25 plan. The goal of the plan was to shift 25 percent of the electricity and 25 percent of the transportation fuels used in city operations to renewable resources by 2025. Block grant funding helped the city initiate many energy-saving

improvements to its buildings. Two electric vehicle charging stations were installed and two electric vehicles were added to the city's fleet. And in 2013, the largest municipal solar array in Wisconsin was installed on the roof tops of Monona's city buildings.

Community-targeted actions of the sustainability committee have included welcoming Focus on Energy's citywide offer to provide and install free energy and water saving devices in the homes of willing residents. The committee also authorized the design of a Green Monona Map to recognize individuals and businesses that are taking initiatives to become more sustainable.

Water became a strong focus in 2012 and the committee supported various nonprofit-initiated sustainability efforts. A yearlong Monona Water Conservation Challenge was organized to encourage households to voluntarily reduce water use. A Lake Monona Water Walk helped residents honor and learn more about Monona's waterways. And a Stormwater Paddle event promoted greater appreciation, understanding, and stewardship of Monona's most valued, yet fragile, resource.

In March 2012, the city council took a further step toward integrating sustainability into future actions by adopting the Monona Sustainability Resolution (Resolution 12-03-1843, see Appendix A). The resolution quickly attracted the attention of the Wisconsin Department of Natural Resources (DNR), which invited Monona to become one of ten Green Tier Legacy Communities. The Wisconsin DNR facilitates quarterly meetings which enable participating Green Tier municipalities to support each other's sustainability work, and it also provides access to DNR expertise and technical assistance.



DEVELOPMENT OF THE SUSTAINABILITY PLAN - PUBLIC PROCESS

In July 2013, the sustainability committee began work on the Monona Sustainability Plan (MSP), with the intent of both defining Monona's overall vision of sustainability, as well as outlining specific objectives and strategies to guide progress toward that vision over the next ten years. The city also hired the services of Madison Environmental Group, LLC whose consultants continue to work collaboratively with the city, community and other stakeholders to develop the MSP.

Community engagement in the creation of a sustainability plan helps make the process acceptable to all stakeholders and improves the quality of the outcome. Engagement has been encouraged in various ways. In September 2013 all representatives of city committees, boards and commissions were invited to attend a forum to discuss and prioritize the objectives and strategies set forth in the MSP. In October that same year, community members were invited to a public meeting to learn about the MSP and give their input. Community members were also invited to give their feedback to a draft of the first phase of the MSP in an online survey conducted prior to the plan's presentation to the city council. And in November 2014 a public meeting was arranged together with the City of Monona Plan Commission. At this meeting both the MSP and the City of Monona Comprehensive Plan were presented and there were opportunities for the public to speak with committee members and to give written input. As the MSP is implemented, further opportunities for stakeholder engagement are anticipated and feedback from the community will always be welcomed by the sustainability committee.



MONONA SUSTAINABILITY PLAN OVERVIEW AND FUTURE ANNUAL IMPLEMENTATION AND EVALUATION PROCESS

Plan Overview

The MSP contains six major focus areas. The first addresses general sustainability and is followed by five focus areas that correspond to those identified in the Green Tier Legacy Communities Charter. The six major focus areas are:

- **General Sustainability**
- **Land Use**
- **Water**
- **Energy**
- **Transportation**
- **Solid Waste**

In the first section, **Vision and Objectives**, each focus area is presented, beginning with a vision statement and a short rationale as to why this area is important, followed by a list of specific measurable objectives that have been divided into two groups. Municipality objectives pertain primarily to the city's public lands, buildings, and operations. Community objectives more directly affect and involve private residents and businesses. Both sets of objectives cover overlapping interests, however, and are best met through the thoughtful collaboration of all interested stakeholders.

The second section, **Implementation and Evaluation**, is divided into six sub-sections, each covering one of the six focus areas. Each sub-section begins with a list of projects that have already been implemented in Monona and upon which future work can be built. It continues to explain how each objective will be evaluated and presents baseline data for 2012 and targets to be met in 2025. For each objective a few potential strategies are given, to show examples of the types of actions that could be implemented to reach the target.

Annual Process

During the development of the MSP all ideas brought forward for strategies (actions) were noted and documented (see Appendix E). In the future, this list will be a separate document which will be continuously updated to bring in new ideas and to reflect current possibilities and challenges in the community. Each year an annual implementation plan will be developed, detailing the actions that will be taken in the coming year. (see Appendix F for an example) To follow up on the work being done and review how the objectives are being met, an annual progress report will be presented after the completion of each year. Both formal and informal opportunities for further stakeholder input will be made available and encouraged. For further details see section Implementation and Evaluation.



Example of the Annual Implementation and Evaluation Process for Year 2016

SUSTAINABILITY PRINCIPLES AND GUIDELINES

With the adoption of the Monona Sustainability Resolution (see Appendix C) by the City of Monona City Council in March 2012, the city embraced one commonly held general principle of sustainability identified in Brundtland's 1987 Report of the World Commission on Environmental Development: Our Common Future. This sustainability principle, adapted to fit Monona's municipal context, is also applicable to the MSP and states:

“...practicing sustainability means working to meet the needs of today’s residents and visitors without compromising the needs of future residents and visitors...”

The MSP recognizes that all municipal decisions are made within the context of the nesting of economic systems within social systems within the environmental system. Finding solutions that respect both current and future community members' needs and that are resilient to changing circumstances presents both challenges and opportunities. These can be best met when all systems involved are carefully considered, and when decision-making is informed, collaborative, flexible and creative.

To assist decisions, the following four sustainability guidelines are also being embraced in the MSP as the basis for the development and implementation of the city's plans, policies and procedures:

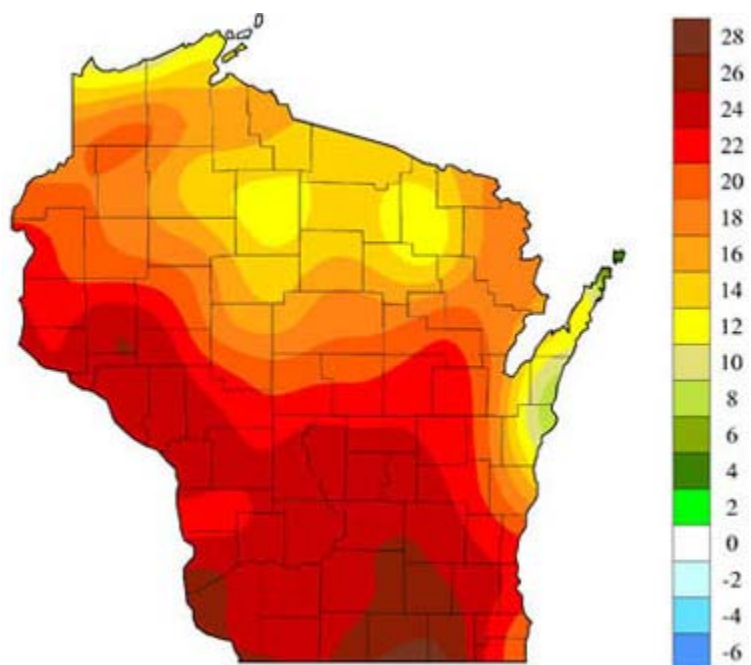
- Reduce dependence on fossil fuels and extracted underground metals and minerals.
- Reduce dependence on chemicals and other manufactured substances that can accumulate in nature.
- Reduce dependence on activities that harm life-sustaining ecosystems.
- Reduce barriers to achieving present and future human needs fairly and efficiently.

Together, the above principle and guidelines express the primary values that underpin the MSP.

CLIMATE CHANGE

To ensure a resilient and livable environment for future generations, Monona is committed to adhering to the four sustainability guidelines discussed above. The City of Monona Common Council has acknowledged that the climate crisis poses a serious threat to Monona residents, both current and future, and individuals around Wisconsin and the world. Further, the city council has acknowledged that climate change is real and caused mainly by human action, primarily through the burning of fossil fuels. (See Appendix D Fossil Fuels Resolution (14-7-1978))

Reducing the dependence on fossil fuels and reducing greenhouse gas



Wisconsin Initiative on Climate Change Impacts
**Projected Change in the Frequency of 90°F
Days per Year from 1980 to 2055**

emissions serves as a primary basis behind the creation of the Monona Sustainability Plan. Many impacts are associated with climate change, and the MSP serves as the first step in reducing Monona's contribution to a warming planet.

Climate change is harming the quality of life here in Wisconsin, primarily due to the impacts associated with more extreme weather, increased spring and fall precipitation, increased lake evaporation and higher humidity, and increases in the number of warmer days and warmer nights. The number of days and nights above 90°F has already proved to be harmful to plants and wildlife, as well as to human health, throughout the state. For instance, ticks and mosquitoes carrying diseases are on the rise, and due to warmer nights, there is less time for residents and livestock to recover from an extremely hot day.

Over 80% of Wisconsin's energy supply comes from fossil fuel sources, such as coal, and emissions from these types of fuels serve as the primary cause behind climate change. Thus, if Monona and the rest of Wisconsin are to mitigate the impacts of climate change, emissions associated with fossil fuel-driven activities need to decrease. However there are other sources of climate change besides the burning of fossil fuels and nearly all activities within the community have an effect, and consequently need to be addressed. By working towards the objectives outlined in each of the six focus areas in this MSP, businesses, institutions, and individuals will be able to collectively reduce their negative impact on climate change.



General Sustainability

By raising the sustainability awareness of Monona residents and businesses, individuals will be influenced to make more informed, conscious and strategic decisions leading to a more environmentally sustainable future. This will in turn lead to lowered negative impact on climate change in many, various ways.

Land Use

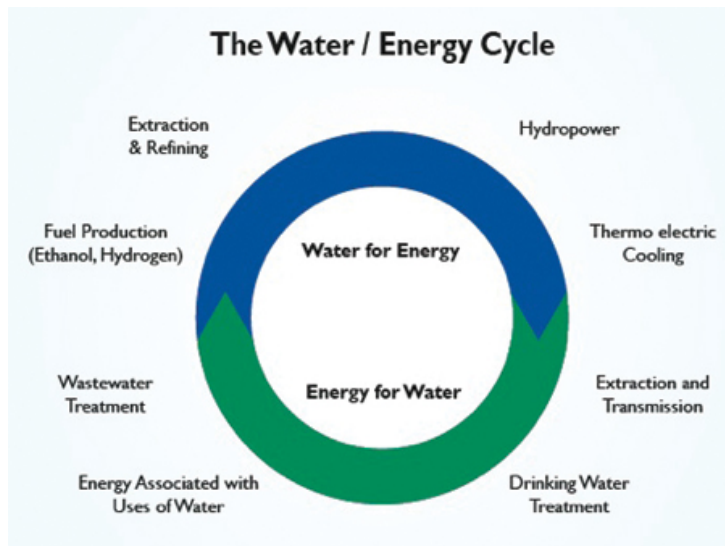
High density and mixed-use development will lead to reduced distances between housing, workplaces and retail businesses. This will offer Monona residents better opportunities for walking or biking to their desired destination, resulting in reductions in vehicular greenhouse gas emissions. Further, open green spaces have a positive impact on climate change.

Water

Climate change has drastic effects on rain and snowfall patterns. The increase in extreme rainfall events, alternating with drought, will result in catastrophic flooding followed by low water levels. It will be essential to decrease the quantity of stormwater runoff to protect our lake. Both the city and its citizens can help accomplish this by taking steps to conserve water on the land. Demand for water is expected to increase while climate change will likely decrease the supply. Therefore it will also be important to increase water efficiency and conservation by Monona residents and businesses. Finally, pumping and moving water to households and businesses consumes large amounts of energy, thus decreasing water use will also decrease our use of fossil fuels

Energy

Increasing energy efficiency and conservation by Monona residents, businesses and in the municipality's own operations will allow Monona to reduce its overall energy use and thus reduce emissions of greenhouse gases. The adoption of renewable energy sources for the city's own energy consumption will assist Monona in becoming more energy self-sufficient, reducing future demands for non-renewable, outside energy sources.



Transportation

Greenhouse gas emissions from the U.S. transportation sector make up 23% of total U.S. emissions, and thus have a large contribution to climate change. By increasing the number of Monona residents using alternative transportation, Monona will be able to reduce its overall carbon footprint and have less of an impact on the surrounding atmosphere.

Solid Waste

Energy consumption is associated with essentially all management of material resources as they flow through the economy, from the extraction or harvest of materials and food (e.g. mining, forestry, and agriculture), to the production and transport of goods, the use and reuse of materials, and their final disposal.

By reducing the amount of materials used, either by simply using less or by reusing a product instead of throwing it away, energy is saved by extracting, producing and transporting less. The same is true for recycling instead of using pristine raw materials. In addition, greenhouse gases are emitted directly from landfills as waste decomposes. By decreasing the total amount of solid waste generated and by increasing the total amount of materials being reused or recycled, Monona will reduce its emission of greenhouse gases.

VISION & OBJECTIVES



GENERAL SUSTAINABILITY

Vision

The community of Monona, including its government, residents, and businesses, strives to meet the needs of the present without compromising the resources available for future generations. Monona shares a culture that embraces, is vested in and uses best practices for sustainable living.

To support and sustain a community, the environment, society and economy must all be stable and healthy. The decisions made today in the City of Monona have far-reaching and long-lasting consequences and should be made with great consideration of their impacts on our natural systems, the economy, and the people living now and in generations to come. Adopting sustainability as a principle of decision-making for Monona will serve as both a framework for city decision-making and a model for the citizens of Monona. It will encourage a strong local economy while protecting the natural systems in which residents live, work and play. Moving toward a more sustainable future is also critical for attracting new residents and businesses.

Below is a summary of the objectives pertaining to general sustainability. A more detailed description with relevant evaluation methods, targets and baselines is included in the following Implementation and Evaluation section along with examples of potential strategies to achieve each objective.



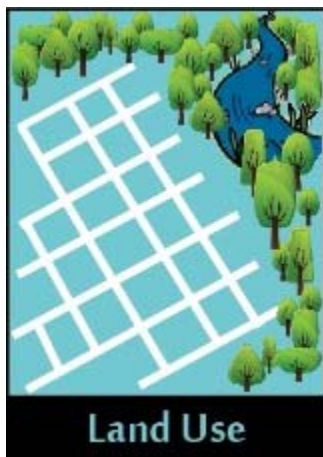
COMMUNITY OBJECTIVES

- Raise the sustainability awareness of Monona residents.
- Increase the percentage of residents who have implemented sustainable practices, such as those listed in other focus areas within this plan.
- Raise the sustainability awareness of Monona businesses.
- Increase the number of businesses that have implemented sustainable practices, such as those listed in other focus areas within this plan.



MUNICIPALITY OBJECTIVES

- Ensure sustainability is considered in decision-making processes, including the city budget process.
- Raise the sustainability awareness of citizen representatives to city committees.
- Raise the sustainability awareness of city employees.



Vision

The city encourages redevelopment and high-density development as a means to provide access to housing, economic development opportunities, recreation, social interaction and other basic needs while protecting the natural environment, health, safety and overall quality of life. The city is committed to keeping large areas of land open for conservation and recreational uses.

Monona is a land-locked community that has been extensively developed throughout the years, leading to a strong neighborhood fabric and few available greenfield sites. Land use in the City of Monona encompasses both developed and natural environments. How the land is used has a direct impact on residents' health, the water and other natural resources. For example, high density and mixed-use development leads to less transportation demand and thereby lowered consumption of fossil fuels and decreased air-pollution. Another example is the use of synthetic chemicals for landscaping, which has a negative impact on natural habitats, human health and the condition of our lakes.

Below is a summary of the objectives pertaining to land use. A more detailed description with relevant evaluation methods, targets and baselines is included in the following Implementation and Evaluation section, along with examples of potential strategies to achieve each objective.



COMMUNITY OBJECTIVES

- Integrate sustainability considerations in the evaluations and decisions made by the City of Monona Plan Commission.
- Integrate sustainability components in zoning code.
- Integrate sustainability components in the City of Monona Comprehensive Plan.
- Increase walkability to stores, restaurants and other amenities.
- Maintain percentage of land devoted to open space/parks/recreation.



MUNICIPALITY OBJECTIVES

- Maintain protection and restoration of natural habitats including wetlands.
- Integrate sustainability in landscape management.
- Improve stormwater reduction/management.



Vision

Monona citizens, employees and elected officials recognize that the abundant groundwater and important surface water resources of our area must be protected. Everyone in the community strives to use as little water as possible in their daily activities both indoors and out-of-doors. Clean rainwater and snowmelt is captured on the land and allowed to infiltrate. Water that does run off to storm sewers and then to the lake, or that flows directly to waterways is as clean as technology and management practices allow.

Clean water is an essential human need. Monona is fortunate to be surrounded by plentiful sources of surface water and groundwater. The state of our lakes and waterways is influenced by the runoff from our developed environment. Large quantities of chemicals are used to pre-treat the water to drinking quality. This process also consumes a high amount of energy. About 25% of the municipality's energy consumption goes to the city water utility, to bring clean water from the well to consumers.

Below is a summary of objectives pertaining to water usage. A more detailed description with relevant evaluation methods, targets and baselines is included in the following Implementation and Evaluation section, along with examples of potential strategies to achieve each objective.



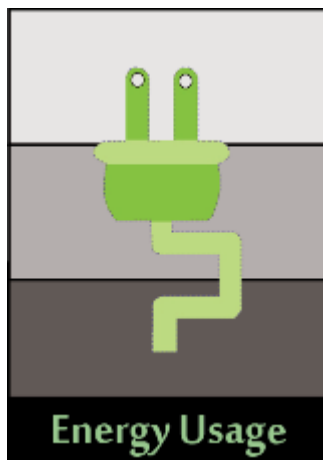
COMMUNITY OBJECTIVES

- Increase water efficiency and conservation by residents.
- Increase water efficiency and conservation by commercial and industrial properties.
- Decrease quantity of stormwater runoff to lakes.
- Decrease pollutants and debris in stormwater runoff.



MUNICIPALITY OBJECTIVES

- Decrease groundwater consumption.
- Maintain percentage of groundwater lost in distribution system.
- Decrease quantity of stormwater runoff to lakes.
- Decrease pollutants and debris in stormwater runoff.
- Continue participation in the Wisconsin Water Star Program and improve Monona's score and ranking.



Vision

The city encourages and assists public and private energy users to reduce overall energy use and bring Monona closer to producing all of its own energy. Monona is a pioneer in adopting renewable energy sources to power municipal buildings, which is meant to set an example for the community.

The impacts of our energy production and consumption have long been a major concern for environments worldwide. Unsustainable management of energy production results in climate change, air pollution and ecosystem destruction. Using less energy not only reduces the impact on the environment but also saves money.

Below is a summary of objectives pertaining to energy usage. A more detailed description with relevant evaluation methods, targets and baselines is included in the following Implementation and Evaluation section, along with examples of potential strategies to achieve each objective.



COMMUNITY OBJECTIVES

- Increase energy efficiency and conservation by residents.
 - Decrease residential electricity consumption.
 - Decrease residential natural gas consumption.
- Increase energy efficiency and conservation by commercial and industrial properties.
 - Decrease commercial electricity consumption.
 - Decrease commercial natural gas consumption.



MUNICIPALITY OBJECTIVES

- Increase energy efficiency and conservation of municipal facilities and services.
 - Decrease building electricity consumption.
 - Decrease building natural gas consumption.
 - Decrease street lighting electricity consumption.
 - Decrease water & other utility electricity consumption.
- Increase percentage of energy consumption from renewable sources.
- Decrease fuel consumption from work related (city business) transportation and motor driven equipment.



Vision

Monona provides and maintains a multi-modal transportation system for users of all ages, abilities, and income levels in addition to being connected to a regional transportation network. Community members make sustainable transportation choices to and from housing, employment, recreational, social and daily-necessity centers.

Greenhouse gas emissions from the transportation sector make up about 23% of total emissions in the United States. Choosing alternative and sustainable transportation options such as biking and taking public transportation reduces the individual carbon footprint. Moreover, a well-managed transportation system in a city can strengthen community bonds while improving air quality.

Below is a summary of objectives pertaining to transportation. A more detailed description with relevant evaluation methods, targets and baselines is included in the following Implementation and Evaluation section along with examples of potential strategies to achieve each objective.



COMMUNITY OBJECTIVES

- Increase percentage of residents using alternative transportation to destinations within Monona.
- Increase percentage of students (K-12) using alternative transportation.
- Increase percentage of residents using alternative transportation for commuting.



MUNICIPALITY OBJECTIVES

- Increase percentage of city employees using alternative transportation for commuting.
- Decrease greenhouse gas emissions from work related (city business) transportation.



Vision

Community members of Monona have access to infrastructure that allows effective and efficient reduction, reuse, composting and recycling of waste. The community is a leader in conserving resources and protecting the environment through using materials responsibly, recycling and properly managing waste.

With increasing economic development and consumption, the waste produced within cities has historically been increasing. Improper waste management can lead to the spread of diseases and other health problems from substances leaking into the environment. Unsustainable management of waste is a source of pollution in water, air and land. A local problem for Monona is that the Dane County Landfill is nearly full. Constructing an expansion to the existing landfill will be both difficult and costly.

Below is a summary of objectives pertaining to solid waste. A more detailed description with relevant evaluation methods, targets and baselines is included in the following Implementation and Evaluation section along with examples of potential strategies to achieve each objective.



COMMUNITY OBJECTIVES

- Decrease total solid waste collected.
- Increase percentage of solid waste being recycled or otherwise diverted from landfills.
- Increase percentage of materials from construction and deconstruction diverted from landfills.
- Increase safe disposal of waste products not included in curb pick-up, such as medical, hazardous and electrical waste.



MUNICIPALITY OBJECTIVES

- Decrease total solid waste collected.
- Increase percentage of solid waste being recycled or otherwise diverted from landfills.
- Increase percentage of materials from construction and deconstruction diverted from landfills.

IMPLEMENTATION & EVALUATION



SECTION OVERVIEW

In this section, a short introduction is given for each focus area, listing projects that have already been implemented in Monona, and upon which future work can be built. Following that, for each focus area all objectives are listed and divided into two categories, municipality and community. Municipality objectives pertain primarily to the city's public lands, buildings, and operations. Community objectives more directly affect and involve private residents and businesses. Both sets of objectives cover overlapping interests, however, and are best met through the thoughtful collaboration of all interested stakeholders.

For each objective a few potential strategies are given, to show the type of actions that could be implemented to reach the targets. (Note: strategies that will be implemented will be determined through the regular city decision process.) This is followed by a presentation of how each objective will be evaluated, as well as baseline data for 2012 and targets to be met in 2025. In cases where data for 2013 and/or 2014 was readily available, these have been included to provide further reference points. (Note, for some objectives a baseline year other than 2012 has been used due to availability of data. In those cases this has been pointed out.) For some objectives, it was not possible to establish baselines during the time that the plan was developed. Establishing these baselines and corresponding targets will be a priority during implementation of the plan.

The targets for each objective have been established based on baseline data, internal knowledge, and current research. Information has been collected from governmental entities such as the EPA and DNR, and organizations such as the U.S. Green Building Council. Other cities' sustainability plans have also been a source of information. For each objective, the Monona Sustainability Committee has discussed the evaluation method and target setting during at least two different meetings for each focus area prior to formalizing a final decision.

IMPLEMENTATION PROCESS

During the development of the MSP, all ideas that have been brought forward and strategies have been noted and categorized based on the objective they work towards (see Appendix E). Ideas for strategies come from many sources including but not limited to: residents, businesses, city employees, other cities' sustainability plans, the LEED (Leadership in Energy & Environmental Design) green building certification program, Green Tier Legacy Communities and Water Star Wisconsin. In the future, this part of the MSP will be a separate document, continuously updated to reflect new ideas, possibilities, and challenges in the community. As pointed out earlier, both formal and informal opportunities for further stakeholder input will be available and encouraged.

Each year an annual implementation plan will be developed in conjunction with the city budget process. This plan will contain the strategies suggested for implementation in the upcoming year. The sustainability committee will coordinate this work, but most of the strategies will be the responsibility of other city committees and city staff. Each year, an annual progress report will be compiled to follow up on the work done by various stakeholders. In addition, the report will present updated statuses for each objective, to track the progress made towards meeting the targets. An analysis of the progress report will be the basis for the development of the following

year's annual implementation plan. At this stage in the annual process, a targeted effort will be made to engage the public for input.

GENERAL SUSTAINABILITY

This section introduces the evaluation indicators and metrics for each objective under the general sustainability focus area. For this focus area the objectives will mainly be evaluated indirectly through the strategies that will be initiated. Therefore, at this time no baseline or targets have been identified, but will have to be developed later in conjunction with the implementation of strategies. In addition, part of the evaluation of this focus area will be qualitative rather than quantitative using, for example, storytelling. For each objective a list of some potential strategies that can be taken to help achieve the objective are listed. The strategies that will be implemented will be determined through the regular city decision-making processes. For a collection of all strategies that have been put forward to date, see Appendix E.

Below are examples of projects pertaining to general sustainability that have already been implemented, or that are currently being implemented, to make Monona a more sustainable city. These strategies are presented as a base upon which future work can be built.

- In 2010, the City of Monona Sustainability Committee was formed.
- The committee developed the Green Monona Map, which acknowledges businesses and residents in the community who are taking initiatives to become more sustainable.



Sustainability Section at the Monona Public Library

- The Monona Public Library has a sustainability section, where community members can find information about various sustainability topics.
- The Natural Step Monona organizes Green Tuesdays and Thursdays to educate residents about sustainability.
- Many members of the city staff have gone through sustainability training.
- The Monona Sustainability Committee is given an annual budget.
- The City of Monona Green Team is maintained with a clear vision and mission.



OBJECTIVE GC1: GENERAL SUSTAINABILITY, COMMUNITY RAISE THE SUSTAINABILITY AWARENESS OF MONONA RESIDENTS

Potential strategies to help achieve this objective:

1. Improve sustainability information on the city website – include links to organizations and other websites with information about all sustainability concepts, including water conservation and pollution, energy conservation, solid waste management, sustainable transportation efforts and sustainable land use opportunities.

2. Partner with organizations and programs that educate about and promote environmental issues and sustainability practices to raise awareness about sustainability and increase the percentage of residents that have implemented sustainable practices.
3. Make an education and marketing plan for how to spread information about general sustainability. The plan should include direction for spreading the word about all of the sustainability concepts, including water conservation and pollution, energy conservation awareness, solid waste reduction, land use impacts and sustainable transportation actions.
4. Inform the community about what the city is doing through media such as the bi-yearly newsletter, city website, signage in park shelters and articles in the local newspaper.

The evaluation of this objective will be based partly on evaluations of objectives for residents within the other five focus areas. To complement this, the outcome of each implemented strategy will be evaluated. For example, when the city's sustainability website is updated, the number of visitors will be tracked. Another evaluation example would be to follow residents' participation in sustainability programs and projects arranged by other organizations, such as Green Power Tomorrow. In addition, storytelling will be included as a qualitative evaluation in future reports.

Potential Evaluation Indicators and Metrics
1. Summary of evaluation of other objectives for residents within the other five focus areas
2. Number of visits to the city's sustainability website, Facebook, Twitter
3. Number of library check-outs from the sustainability section
4. Frequency of wattmeter checkouts from the library
5. Attendance at local sustainability workshops, seminars, etc.
6. Evaluations of other initiated strategies
7. Number of Green Power Tomorrow residential participants
8. Storytelling

Additional information and explanations:

Wattmeter: An instrument for measuring the electric supply (in watts) of any given circuit; can be used to cut energy costs and learn which electrical appliances are worth keeping plugged in.

Green Power Tomorrow: A program that allows Madison Gas and Electric customers to purchase renewable energy for their home or business.



OBJECTIVE GC2: GENERAL SUSTAINABILITY, COMMUNITY INCREASE PERCENTAGE OF RESIDENTS WHO HAVE IMPLEMENTED SUSTAINABLE PRACTICES, SUCH AS THOSE LISTED IN OTHER FOCUS AREAS WITHIN THIS PLAN

Potential strategies to help achieve this objective:

See objective GC1 above and strategies for objectives within the other five focus areas.

This objective has a strong correlation to objective GC1 and many strategies will lead to results for both of them. Similarly to objective GC1, the evaluation of this objective will partly be based on evaluations of objectives for residents within the other five focus areas. To complement this, evaluations will be done of the outcome of implemented strategies. For example, when the city works together with other organizations to help with outreach, the number of participants will be tracked. One such collaboration, which has already been implemented but could be repeated, is

energy audits through Focus on Energy. In addition, storytelling will be included as a qualitative evaluation in future reports.

Potential Evaluation Indicators and Metrics
1. Summary of evaluation of other objectives for residents within the other five focus areas
2. Number of home energy audits through Focus on Energy or MGE
3. Annual number of Focus on Energy financial incentives awarded to Monona residents*
4. Evaluations of initiated strategies.
5. Storytelling

Additional information and explanations:

*There were 294 Focus on Energy financial incentives awarded to Monona residents in 2013.
Focus on Energy: offers energy efficiency rebates and programs to assist homeowners in reducing their energy use and costs.
Home energy audit: allows individuals to assess their home's energy use and evaluate which measures to take in order to improve efficiency.



**OBJECTIVE GC3: GENERAL SUSTAINABILITY, COMMUNITY
RAISE THE SUSTAINABILITY AWARENESS OF MONONA BUSINESSES**

Potential strategies to help achieve this objective:

1. Partner with organizations and programs that educate about environmental issues and sustainability practices.
2. Initiate collaboration between the city and the local Chamber of Commerce on sustainability issues.

For this objective, similar to objective GC1 and GC2, the evaluation will partly be based on evaluations of objectives for businesses within the other five focus areas. Also for this objective, evaluations will be done of the outcomes of implemented strategies including collaborations with other organizations. In addition, storytelling will be included as a qualitative evaluation in future reports.

Potential Evaluation Indicators and Metrics
1. Summary of evaluation of other objectives for businesses within the other five focus areas
2. Number of Green Power Tomorrow commercial participants
3. Evaluations of initiated strategies.
4. Storytelling

Additional information and explanations:

Green Power Tomorrow: A program allowing Madison Gas and Electric customers to purchase renewable energy for their home or business.



OBJECTIVE GC4: GENERAL SUSTAINABILITY, COMMUNITY

INCREASE THE NUMBER OF BUSINESSES THAT HAVE IMPLEMENTED SUSTAINABLE PRACTICES, SUCH AS THOSE LISTED IN OTHER FOCUS AREAS IN THIS PLAN

Potential strategies to help achieve this objective:

See objective GC3 above and strategies for objectives within the other five focus areas.

This objective has a strong correlation to objective GC3 and many strategies will lead to results for both of them. Similarly to objective GC1, GC2 and GC3, the evaluation will partly be based on evaluations of objectives for businesses within the other five focus areas. Also for this objective, evaluations will be done of the outcome of implemented strategies including collaborations with other organizations. In addition, storytelling will be included as a qualitative evaluation in future reports.

Potential Evaluation Indicators and Metrics
1. Summary of evaluation of other objectives for residents within the other five focus areas
2. Number of businesses participating in Green Tier, Green Masters, MPower Champions, Travel Green Wisconsin, Main Street Green, Clean Clear Waters, Green Built Home, and other programs
3. Number of energy audits through Focus on Energy or MGE
4. Annual number of Focus on Energy financial incentives awarded to businesses (174 in 2013)
5. Evaluations of initiated strategies.
6. Story telling

Additional information and explanations:

*There were 174 Focus on Energy financial incentives awarded to Monona residents in 2013.

Green Tier: A sustainable development program developed by the Wisconsin DNR; main goal is to assess environmental impacts within businesses, communities, and individuals, and then to develop strategies to eliminate causes of negative impacts.

Green Masters: Coordinated by the Wisconsin Sustainable Business Council in conjunction with the University of Wisconsin-Madison; points-based recognition program that helps to recognize leading Wisconsin sustainable businesses and to encourage continuous improvement within these businesses.

MPower: Administered by Sustain Dane; provides participating businesses with tools to reduce their energy, transportation, waste, and water use in order to save money and become more sustainable.

Travel Green Wisconsin: Initiated by the Wisconsin Department of Tourism; certification program highlighting tourism businesses that promote environmentally friendly travel practices.

Main Street Green: Coordinated by the Wisconsin Environmental Initiative (WEI); certifies and supports local businesses implementing technologies and practices that help the surrounding community and environment.

Clean Clear Waters: Administered by the Madison Area Builders Association and the WEI; recognizes homes and businesses that have made efforts to reduce runoff and erosion around Wisconsin waterways.

Green Built Home: WEI initiative that reviews and certifies new homes that meet relevant sustainable building and energy standards.



OBJECTIVE GM1: GENERAL SUSTAINABILITY, MUNICIPALITY
ENSURE SUSTAINABILITY IS CONSIDERED IN DECISION-MAKING, INCLUDING THE CITY BUDGET PROCESS

Potential strategies to help achieve this objective:

1. Develop a process/system for how sustainability should be considered/accounted for in the decision-making processes (in committees, city council and by employees).
2. Develop a green purchasing policy.
3. Create a green cleaning policy.
4. Appoint or hire a sustainability coordinator; a part or full-time city employee to plan/manage/implement sustainability initiatives.

For this objective the evaluation will be based on evaluation of implemented strategies. The evaluation of this objective will primarily be decided upon after a process/system has been developed for how to get sustainability to be considered/accounted for in the decision-making processes of committees, city council and by employees. Some potential evaluation metrics could be the percentage of budget items for which a sustainable alternative was considered, or number of decisions in a committee in which sustainability was evaluated.

Potential Evaluation Indicators and Metrics
1. Survey responses from committee representatives
2. Evaluations of initiated strategies



OBJECTIVE GM2: GENERAL SUSTAINABILITY, MUNICIPALITY
RAISE THE SUSTAINABILITY AWARENESS OF CITIZEN REPRESENTATIVES TO CITY COMMITTEES

Potential strategies to help achieve this objective:

1. Give sustainability presentation to each city committee.
2. Regularly give sustainability presentations to new citizen representatives to city committees.
3. Offer "green education" programs to citizen representatives to city committees.

For this objective the evaluation will be based on survey responses from committee representatives. In addition evaluations of implemented strategies will be considered. Some potential evaluation metrics could be the number of participants in sustainability education programs, if such were to be developed.

Potential Evaluation Indicators and Metrics
1. Survey responses from committee representatives
2. Evaluations of initiated strategies



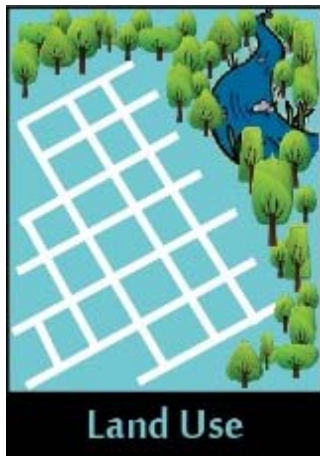
OBJECTIVE GM3: GENERAL SUSTAINABILITY, MUNICIPALITY RAISE THE SUSTAINABILITY AWARENESS OF CITY EMPLOYEES

Potential strategies to help achieve this objective:

1. Include sustainability in job descriptions.
2. Include sustainability in employee policy/handbook.
3. Include sustainability in performance reviews of city employees (especially supervisors) to assess progress towards sustainability goals.
4. Develop and require robust sustainability training for city employees.

For this objective the evaluation will be based on survey responses from city employees and on attendance at sustainability education programs. Some employees have already gone through a short training in The Natural Step framework; others have participated in programs through Sustain Dane. In addition to these metrics, evaluations of implemented strategies will be considered.

Potential Evaluation Indicators and Metrics
1. Survey responses from city employees
2. Attendance at sustainability education programs
3. Evaluations of initiated strategies



LAND USE

This section introduces the evaluation indicators and metrics for each objective under the land use focus area. The baseline data for 2012 and targets to be met in 2025 are presented. For each objective a list of potential strategies to help achieve the objective are listed. Strategies chosen for implementation will be determined through the regular city decision process. For a collection of all strategies that have been put forward to date, see Appendix E.

Below are examples of projects pertaining to land use that have already been implemented, or that are currently being implemented, to make Monona a more sustainable city. These strategies are presented as a base upon which future work can be built.

- Monona has been certified as a Tree City USA for 23 years.
- Arbor Day tree planting events have been arranged—coordinated volunteer planting of trees in local parks.
- Organic compost is being used in the parks as fertilizer.
- Government right-of-ways are mown or cleared only for safe sightlines or to remove invasive species.



- The MSP has been adopted as part of the City of Monona's Comprehensive Plan.
- The current comprehensive plan encourages the development and redevelopment of compact, highly planned mixed-use activity centers that include shopping, employment, housing, and recreation opportunities.
- Known contaminated properties have been inventoried for reuse planning.

- As part of the landscaping standards, the zoning code includes canopy tree requirements, set as a function of the amount of parking proposed for new development.
- A land bank has been created to acquire and assemble priority infill sites.
- Priority areas have been identified for infill development, including those eligible for brownfields funding.
- Wetlands are being inventoried to ensure no net annual loss, and environmental corridors linking natural areas to facilitate wildlife movement are currently being established.
- All paved sites are being inventoried (e.g. by GIS mapping).
- The Stormwater Management Plan is updated regularly.



OBJECTIVE LC1: LAND USE, COMMUNITY

INTEGRATE SUSTAINABILITY CONSIDERATIONS IN THE EVALUATIONS AND DECISIONS MADE BY PLAN COMMISSION

Potential strategies to help achieve this objective:

1. Develop strategies for bringing sustainability into consideration.
2. Review ordinances to find those that require practices contrary to sustainability (e.g., requiring mowing) - analyze if obstacles to sustainability can be removed.
3. Decrease exterior surface parking and other impervious surfaces.

Evaluation Indicators and Metrics	Baseline	2025 Target
Number of “Sustainable Community Development Principles” which was addressed in each community development project decision	n/a	Increase

Additional information and explanations:

In the annual summary of decisions made by the City of Monona Plan Commission, an analysis will be added to evaluate each decision from a sustainability point of view. The evaluation will be based on if the following sustainability principles from the Planning Advisory Service series (PAS 567 (2012)) has been addresses or not:

1. Livable Built Environment – ensure that all elements of the built environment, including land use, transportation, housing, energy and infrastructure, work together to provide sustainable, green places for living, working and recreation, with a high quality of life.
2. Harmony with Nature – ensure that the contributions of natural resources to human well-being are explicitly recognized and valued and that maintaining their health is a primary objective.
3. Resilient Economy – ensure that the community is prepared to deal with both positive and negative changes in its economic health and to initiate sustainable urban development and redevelopment strategies that foster green business growth and build reliance on local assets.
4. Interwoven Equity – ensure fairness and equity in providing for the housing, services, health, safety, and livelihood needs of all citizens and groups.
5. Healthy Community – ensure that public health needs are recognized and addressed through provisions for healthy foods, physical activity, access to recreation, health care, environmental justice, and safe neighborhoods.
6. Responsible Regionalism – ensure that all local proposals account for, connect with and support the plans of adjacent jurisdictions and the surrounding region.

For each of these six sustainability principles several practices are given, building part of a matrix for evaluation, see www.planning.org. Some examples of practices are:

1. Multi-modal transportation choices
2. Natural habitat protection
3. Economic growth capacity
4. Range of housing types
5. Toxin exposure reduction
6. Local land use plans coordinated with regional transportation



OBJECTIVE LC2: LAND USE, COMMUNITY

INTEGRATE SUSTAINABILITY COMPONENTS IN ZONING CODE

Potential strategies to help achieve this objective:

1. Review zoning code to find those that include practices contrary to sustainability, (e.g., requiring mowing) analyze if obstacles to sustainability can be removed (e.g., zoning regulations that prohibit or limit the installation of solar panels).
2. Review zoning code to encourage sustainability practices (e.g. reduction of impermeable surfaces).

Evaluation Indicators and Metrics	Baseline	2025 Target
1) Number of zoning code <i>reviewed</i> to include sustainability aspects	0	All
2) Number of zoning code <i>revised</i> to consider sustainability aspects	0	Increase

Additional information and explanations:

Reviewing the zoning code consists of looking again into the zoning code to determine whether or not sustainability aspects need to be included. If changes do need to be made, the zoning code can be revised to make such changes.



OBJECTIVE LC3: LAND USE, COMMUNITY

INTEGRATE SUSTAINABILITY COMPONENTS IN COMPREHENSIVE PLAN

Potential strategies to help achieve this objective:

1. Analyze all City of Monona Comprehensive Plan elements based on sustainability criteria.

Evaluation Indicators and Metrics	Baseline	2025 Target
1) Analysis of the increase in sustainability components from one Comprehensive Plan to the next	Existing plan from 2004	Increase

Additional information and explanations:

The existing comprehensive plan is from 2004, with a new one currently under development. It is expected that another update of the plan will be implemented before 2025. Each consecutive

plan will be evaluated and compared to the previous to find improvements based on the scoring matrix for sustainability principles listed under LC1.



OBJECTIVE LC4: LAND USE, COMMUNITY

INCREASE WALKABILITY TO STORES, RESTAURANTS AND OTHER AMENITIES

Potential strategies to help achieve this objective:

1. Track and improve Walk Score.
2. Encourage mixed-use buildings/development along business corridors.
3. Allow light commercialization in the area of community center/library/Winnequah Park.

Walkability is a concept that determines the extent to which a built environment is friendly to walking. Walkability is commonly defined by factors such as:

- Proximity: the distance to stores, restaurants, mass transit access points, parks and other community amenities.
- Connectivity: how efficient street and walk path patterns are for walking; distance between intersections and if walking routes are direct or cumbersome (e.g. large subdivisions with cul-de-sacs).
- Safety: room to walk, trip hazards, safe crossing of streets, behavior of motorists, well/dimly lit walk paths, occurrence of crime.
- Convenience and Pleasantness: quality of walk paths, waiting time to cross streets, obstructions, type of environment (e.g. by an interstate or a small local street, by a warehouse or a park), cleanliness, beauty of surroundings.

This objective will be evaluated through a combination of metrics for proximity and other aspects of walkability as listed above. Before deciding on the details of the measurements, different existing tools will be tested and evaluated for suitability for the City of Monona. One potential metric is Walk Score, a rating based on households' proximity to stores, restaurants, parks, schools and other amenities. Higher values indicate more walkable areas, whereas lower values indicate more car dependent areas. See walkscore.com. A walk audit is a tool for evaluating walkability aspects other than proximity. To perform a walk audit, first, several walks are done, preferable by two or more people, originating from households at a variety of points in the community and ending at community amenities. The walks are then evaluated using an index of walkability based on factors such as those listed above. See <http://www2.epa.gov/smart-growth/walkability-checklist>.

Potential Evaluation Indicators and Metrics	2012 Baseline	2025 Target
1) Walk Score rating for a number of households distributed over a grid of Monona	n/a	Increase
2) Percentage of households within 0.25mi and 0.5mi of mass transit access point, stores, restaurants, library, park and other community amenities	n/a	Increase
3) Walk audits for a number of households distributed over a grid of Monona	n/a	Improve

Additional information and explanations:

Walkability is partly covered by other objectives in the MSP both under the land use and transportation focus areas. However, walkability has been included in the MSP as a separate

objective due to its multi-faceted impact on the community. Listed below are some areas where positive impacts have been identified by research:

- Environment: Walking as an alternative to motorized transportation lowers the negative environmental impact both on a global scale (e.g. less greenhouse gas emissions) but also on a local scale with less air pollution.
- Health: walking, like other forms of physical activity, results in significant health benefits. It has been found that residents living in walkable neighborhoods are at less risk of being obese or overweight, and there are higher levels of physical activity in children. It has also been shown that walking contributes to a reduction of cancer.
- Community engagement: neighborhood walkability leads to enhanced levels of social and community engagement. People that live in walkable neighborhoods are more likely to know their neighbors, participate politically, trust others, have an increased sense of pride, show increased volunteerism and be socially engaged.
- Social justice: A highly walkable community ensures that people who cannot drive are not restricted and it makes it possible to avoid the expensive costs of private transportation.
- Safety: walkable neighborhoods have been linked with decreased crime rates.
- Economics: the presence of sidewalks and other walking facilities is shown to increase property value and promote tourism. A highly walkable community will also increase economic activity due to the higher probability of residents using local businesses.



OBJECTIVE LM1: LAND USE, MUNICIPALITY

MAINTAIN PROTECTION AND RESTORATION OF NATURAL HABITATS INCLUDING WETLANDS

Potential strategies to help achieve this objective:

1. Update the City of Monona Wetland Management Plan.
2. Inventory natural habitats.
3. Implement an invasive species management plan for public lands that includes controlling aquatic invasive species.

Evaluation Indicators and Metrics	2012 Baseline	2025 Target
1) Square miles of land reserved for natural habitat	260*	Increase by 8%
2) Square miles of land restored to natural habitat	0	20

* Aldo Leopold Nature Center (40 acres) and the Wetland Conservancy (220 acres)

Additional information and explanations:

Land reserved for natural habitat consists of space that is protected from development projects, human influence, etc. Land restored to natural habitat consists of space that has been reconstructed from a previous condition to support natural life. In addition to large parcels of land set aside, this could include having areas with natural/indigenous plants and trees in existing parks and open spaces in support of wildlife. Probable areas for this would be; Winnequah Park shoreline restoration, wetland restoration in Three Meadows Park and pockets in other parks switched to no-mow, native plantings.



OBJECTIVE LM2: LAND USE, MUNICIPALITY

INTEGRATE SUSTAINABILITY IN LANDSCAPE MANAGEMENT

Potential strategies to help achieve this objective:

1. Set a tree canopy goal and develop a management plan to achieve it.
2. Assess current landscape management practices.
3. Develop a sustainable landscape management plan.
4. Develop a pest management plan that limits the use of insecticides, fungicides, and rodenticides to applications needed to avoid significant ecological or public health damage and that prohibits use of pesticides for aesthetic purposes.

This objective would be evaluated by a combination of metrics, all of which need to be assessed before a target can be set.

Evaluation Indicators and Metrics	2012 Baseline	2025 Target
1) Acres of city land planted with native plant species	n/a	n/a
2) Pounds per year used on city land: • synthetic fertilizer, • pesticides • herbicides used on city land	n/a	n/a
3) Number of trees planted per year (new plantings and replacements) • in parks and open spaces • in terraces (right of way)	15 new and replacement	n/a
4) Irrigation with potable water (not including rainwater or lake water)	n/a	n/a
5) Fuel use (or emissions) by powered equipment	n/a	n/a



OBJECTIVE LM3: LAND USE, MUNICIPALITY

MAINTAIN PERCENTAGE OF LAND DEVOTED TO OPEN SPACE/PARKS/RECREATION

Potential strategies to help achieve this objective:

1. Inventory present land devoted to open space/parks/recreation.
2. Identify key green infrastructure areas during plan development and/or implement a plan to acquire and protect key green infrastructure areas.

Evaluation Indicators and Metrics	2010 Baseline*	2025 Target
1) Outdoor recreation area, developed (acres)	427.5	Keep at same or above
2) Woodlands (acres)	16.0**	Keep at same or above
3) Wetland (acres)	27.6***	Keep at same or above
4) Open space/park/recreation land per resident	0.07	Keep at same

(acres/resident)		or above
5) Open space/park/recreation land as percentage of total Monona land area	23%	Keep at or above 23%

Additional information and explanations:

*Evaluation of land use data for Monona was done in 2010 and therefore this year is used instead of 2012 as baseline for this Objective. The numbers in the table comes from Capital Area Regional Planning Commission (CARPC) **Aldo Leopold Nature Center (40 acres) is not included in this number. *** The Wetland Conservancy (220 acres) is not included in this number, but is included in the “Outdoor recreation area, developed (acres)” inventory.

The City is hoping to undertake a comprehensive inventory of the street trees and trees in its parks in an effort to verify the baseline of the tree canopy. Moving forward, this updated inventory will allow us to manage data about the tree canopy using the City’s online GIS program.



WATER

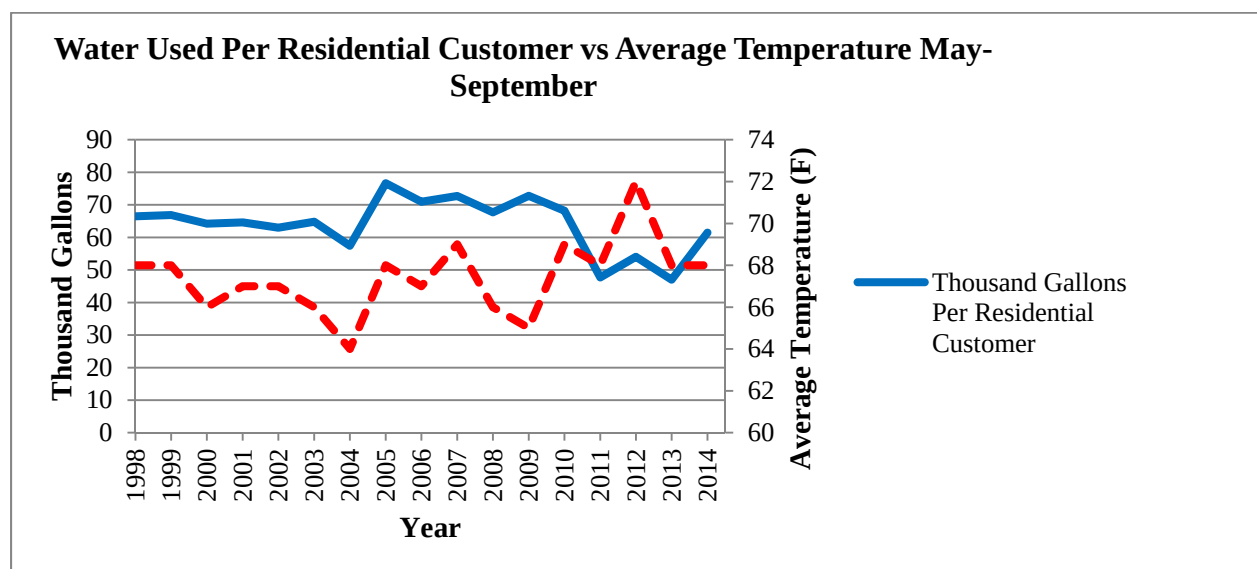
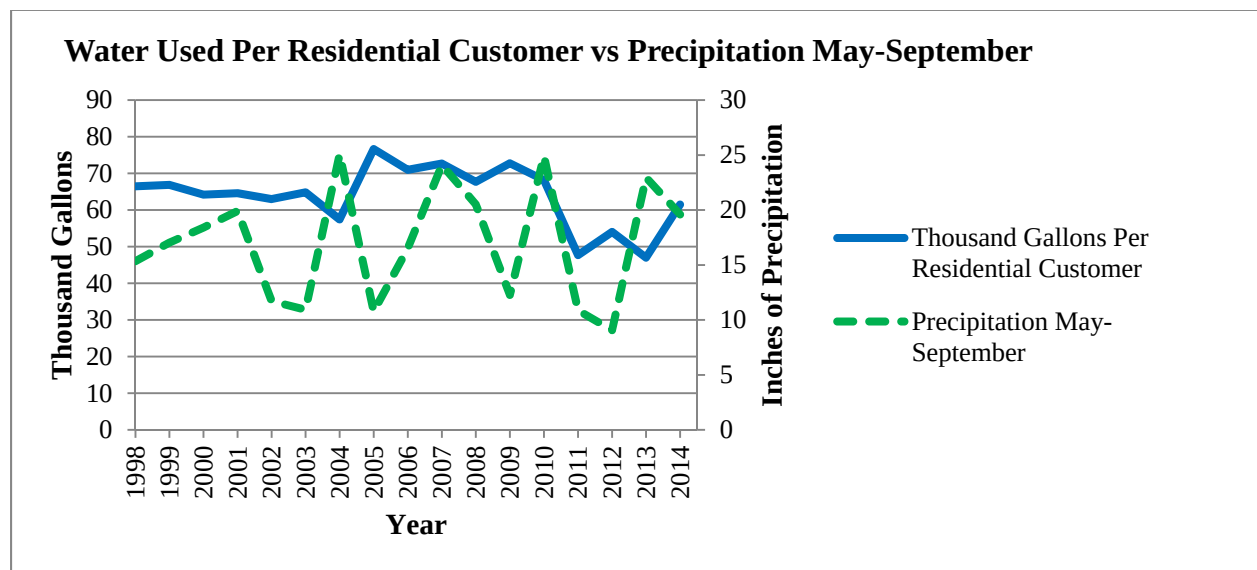
This section introduces the evaluation indicators and metrics for each objective under the water focus area. The baseline data for 2012 and targets to be met in 2025 are presented. For each objective, examples of some potential strategies to help achieve the objective are listed. Strategies chosen for implementation will be determined through the regular city decision-making processes. For a collection of all strategies that have been put forward to date, see Appendix E.

Below are examples of projects pertaining to water that have already been implemented, or that are currently being implemented, to make Monona a more sustainable city. These strategies are presented as a base upon which future work can be built.

- 2012 was proclaimed the Year of Water with several activities during the year including the Monona Water Walk.
- A water conservation challenge for residents was carried out during 2012, a collaboration between the non-profit organization The Natural Step Monona and the City of Monona.
- A stormwater study project has been launched, surveying existing stormwater outfalls and prioritizing a repair/replacement schedule.
- Monona has become a bronze level Wisconsin Water Star program participant.
- Monona has a Water Sense Partnership with the EPA.
- Monona is a member of the Groundwater Guardian Green Sites program.
- Rain barrels have been placed at the library and the community center.
- Businesses or industries are provided with incentives for implementing best management practices that exceed regulations in reducing impervious surfaces and increasing infiltration.
- Credits are offered for residents for best management practices such as rain barrels, rain gardens, and pervious paving through stormwater utility fees.
- A regular street sweeping program is in place to reduce total suspended solids.
- A leak detection program has been developed for local municipal businesses.



The consumption of water is somewhat correlated to outdoor temperature and precipitation, which should be taken into consideration when water use efficiency and conservation objectives are evaluated. It is important to understand trends in water consumption, taking into account extreme years occurring with unusually hot and dry, or wet and cold, summers. One way to understand the impacts of extreme weather is to look at both actual yearly values as well as averages over two or more years and to compare these with corresponding average temperature and precipitation values. Below are graphs showing residential water consumption as an example. (note, the graphs show only residential Monona Water Utility Customers) Two trends can be seen in the graphs with actual yearly values. The first trend is that historically the water consumption goes up if there is a combination of both a hot and a dry summer. The second trend is that with the water rate change in 2011 the consumption went down, even when the summer was hot and dry. A third trend can vaguely be seen in the graphs showing rolling 5-year averages, this trend corresponds to other data for Wisconsin. It appears that water consumption is going down.





OBJECTIVE WC1: WATER, COMMUNITY

INCREASE WATER EFFICIENCY AND CONSERVATION BY RESIDENTS

Potential strategies to help achieve this objective:

1. Arrange educational events.
2. Develop an incentive program for citizens to encourage conservation. E.g. incentives for low flow toilets, faucets, showerheads, and water softeners.
3. Develop a smart water metering system for assessment and consumer feedback.

Evaluation Indicators and Metrics	2012 Baseline	2013	2014	2025 Target
1) Absolute household residential water use (thousand gallons/year)	146,164	126,625	167,004	*
1a) Water use intensity (thousand gal/resident/year)	19	17	22	Reduce by 20%
1b) Water use intensity (thousand gal/household /year)	54	47	61.5	*

Data from the Public Service Commission of Wisconsin, WECS Annual Report.

*This metric has been included for background information, not for the purpose of target setting.

Additional information and explanations:

A portion of Monona residents are served by the Madison Water Utility. The water usage by these households has been estimated based on the water usage of those served by the Monona Water Utility.

Base year for target setting: Because water usage fluctuates with the average temperature and precipitation it is difficult to accurately choose a base year, compare water usage over several years and set a target for reduction. Using the actual data for the baseline and target years could produce skewed results if those years happen to be extreme weather years. Using five-year averages would make it difficult to see any results from implemented strategies to lower water consumption. A two-year average might be the best option, however we suggest making the decision on an annual basis about which years, or averages, to compare with which and to track actual yearly water usage for the duration of the MSP so that patterns and irregularities can be recognized.



OBJECTIVE WC2: WATER, COMMUNITY

INCREASE WATER EFFICIENCY AND CONSERVATION BY COMMERCIAL AND INDUSTRIAL PROPERTIES

Potential strategies to help achieve this objective:

1. Promote EPA's WaterSense Program for water utilities or the Groundwater Guardian Green Sites program to local business.
2. Educate hotels and other high-volume users.

Evaluation Indicators and Metrics	2012 Baseline	2013	2014	2025 Target
1) Absolute commercial/industrial water use (thousand gallons/year)*	122,512	124,551	153,799	***
2) Water use intensity (thousand gallons/customer)	378	383	479	Decrease by 10%
3) Water use intensity (thousand gallons/sq ft commercial building area)**	10.92	10.74	8.7	***

* Data from the Public Service Commission of Wisconsin, WEGS Annual Report. **This number has not been estimated for 2012 and 2013. *** This metric has been included for background information, not for the purpose of target setting.

Additional information and explanations:

For a discussion about how to choose base year and absolute or average values, see Objective WC1. Similar to residential customers there are some commercial customers in Monona served by Madison Water Utility, however they represent a negligible percentage of commercial water use.



OBJECTIVE WC3: WATER, COMMUNITY **DECREASE QUANTITY OF STORMWATER RUNOFF TO LAKES**

Potential strategies to help achieve this objective:

1. Create private-public partnerships for stormwater reduction initiatives.
2. Provide incentives to businesses and industries for implementing best management practices that exceed regulations in reducing impervious surfaces and increasing infiltration.
3. Offer stormwater utility fee credits to residents for best management practices such as rain barrels, rain gardens and pervious paving.

This objective will be evaluated in the same way, and has the same baseline and target as objective WM3: Decrease quantity of stormwater runoff to lakes, see below.



OBJECTIVE WC4: WATER, COMMUNITY **DECREASE POLLUTANTS AND DEBRIS IN STORMWATER RUNOFF**

Potential strategies to help achieve this objective:

1. Improve leaf containment and collection processes to reduce the amount of leaves entering lakes and streams.
2. Work with commercial or light industrial businesses to develop stormwater pollution plans.

This objective will be evaluated in the same way, and have the same baseline and target, as objective WM4: decrease pollutants and debris in stormwater runoff, see below.



OBJECTIVE WM1: WATER, MUNICIPALITY

INCREASE WATER EFFICIENCY, CONSERVATION BY MUNICIPALITY

Potential strategies to help achieve this objective:

1. Develop a water efficiency and conservation plan for municipal buildings.
2. Encourage the installation of low-flow faucets, urinals, sink aerators, and toilets in all public facilities.
3. Encourage outdoor watering by local government using rainwater.

Evaluation Indicators and Metrics	2012 Baseline	2013	2014	2025 Target
1. Absolute water use for municipality (thousand gallons/year)	3,454	3,034	4,601	20%

Data from the Public Service Commission of Wisconsin, WECS Annual Report.

Additional information and explanations:

Similar to energy use, it will be important to track water use per facility to see the impact of implemented strategies.



OBJECTIVE WM2: WATER, MUNICIPALITY

MAINTAIN PERCENTAGE OF WATER LOST IN DISTRIBUTION SYSTEM

Evaluation Indicators and Metrics	2012 Baseline	2013	2014	2025 Target
1. Percentage of water (drinking water) lost in distribution system	5%	5%	4%	Keep under 5%

Data from the Public Service Commission of Wisconsin, WECS Annual Report.



OBJECTIVE WM3: WATER, MUNICIPALITY

DECREASE QUANTITY OF STORMWATER RUNOFF TO LAKES

Potential strategies to help achieve this objective:

1. Increase landscaping on municipal land that uses plants which minimize need for irrigation (Xeriscaping).
2. Decrease impermeable surfaces, increase permeable. (E.g. decrease exterior surface parking, increase parking structure density).

Evaluation Indicators and Metrics	2013 Baseline	2025 Target
1. Volume (gal/year) of stormwater reductions	1,489,993,889	10% reduction

*Stormwater modeling was not done for 2012; 2013 is therefore used as the baseline year for this Objective. Data from the Public Service Commission of Wisconsin, WECS Annual Report.



OBJECTIVE WM4: WATER, MUNICIPALITY

DECREASE POLLUTANTS AND DEBRIS IN STORMWATER RUNOFF

Potential strategies to help achieve this objective:

1. Improve leaf containment and collection processes to reduce the amount of leaves entering lakes and streams.
2. Improve regular street sweeping programs to reduce total suspended solids.
3. Develop a plan for handling hazardous material on municipal properties including a map of hazmat storage and handling facilities and inspections for safety. Provide municipal staff, including office staff, with contact lists for emergency water contamination issues.

Evaluation Indicators and Metrics	2012 Baseline	2013	2025 Target
1) Pounds per year of phosphorus in effluent at stormwater outfalls	NA	479	Reduce by 40%
2)-Pounds of total suspended solids in effluent at stormwater outfalls	NA	114,746	Reduce by 50%

Data from the Public Service Commission of Wisconsin, WEGS Annual Report.

Additional information and explanations:

Effluent is liquid waste that is discharged into a waterway, and depending on the source can be treated or untreated. High phosphorus levels in waterways contribute to high algal growth and thus to lower water quality. Suspended solids are small particles that remain suspended in stormwater. Pollutants are often carried on the surface of these particles, and thus levels of suspended solids can also serve as an indicator of water quality.



OBJECTIVE WM5: WATER, MUNICIPALITY

CONTINUE PARTICIPATION IN THE WISCONSIN WATER STAR PROGRAM AND IMPROVE MONONA'S SCORE AND RANKING

Potential strategies to help achieve this objective:

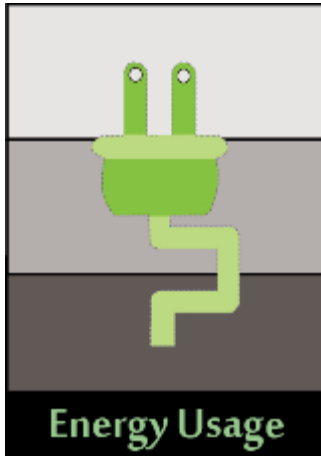
1. Analyze the current status of WI Water Star application annually, and plan for improvements.

Evaluation Indicators and Metrics	2012 Baseline	2013	2025 Target
1. City of Monona Water Star score and ranking	"Bronze" ranking	"Bronze" ranking	"Silver" ranking

Data from Water Star Wisconsin.

Additional information and explanations:

The Wisconsin Water Star Program guides, inspires, and recognizes communities taking exemplary actions to improve their local water supply. Depending on the actions taken, communities can be designated Bronze, Silver, or Gold Water Star Communities.



ENERGY

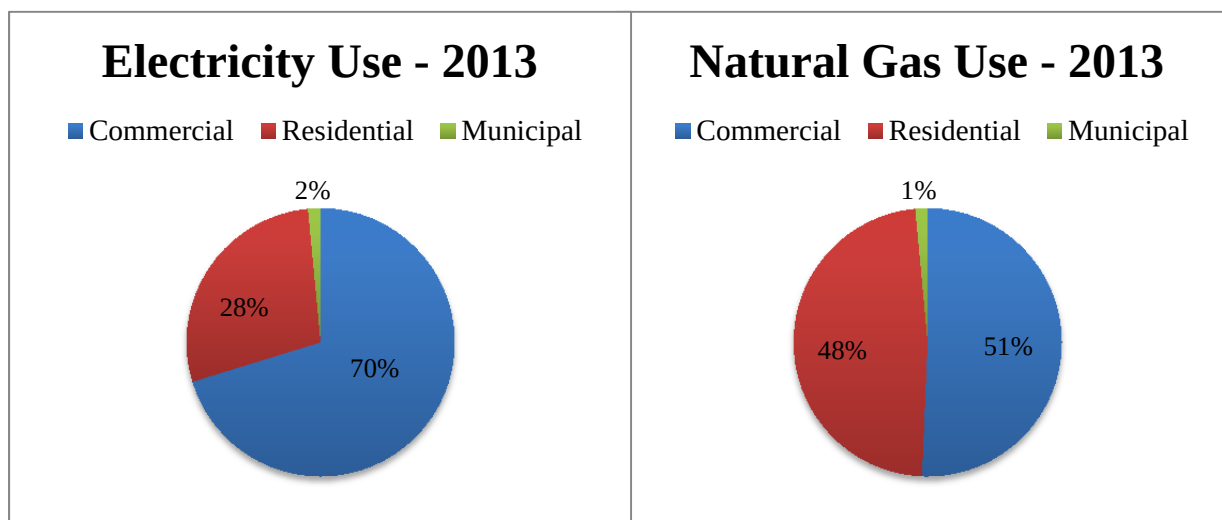
This section introduces the evaluation indicators and metrics for each objective under the energy focus area. The baseline data for 2012 and targets to be met in 2025 are presented. For each objective a list of some potential strategies to help achieve the objective are listed. Strategies chosen for implementation will be determined through the regular city decision process. For a collection of all strategies that have been put forward to date, see Appendix E.

Below are examples of projects pertaining to energy usage that have already been implemented, or that are currently being implemented, to make Monona a more sustainable city. These strategies are presented as a base upon which future work can be built.

- The city collaborated with Focus on Energy to offer the Express Energy Efficiency Program to residents.
- An LED exterior lighting retrofit project has been implemented, e.g. at Ahuska park parking lot, the skate board park and at the lagoon. Also for dusk/dawn lights at the pool and outside the community center.
- HVAC systems upgrades have been installed in city buildings.
- At the pool an efficient, variable frequency pump was installed.
- A 157 kW solar project involving the installation of solar arrays on four facility buildings has been completed. The solar arrays produce more than 210,000 kilowatt-hours of clean energy per year, equating to 30% of the buildings' combined electricity usage.
- Wattmeters are available to the general public through the public library.
- Monona is designated as a State of Wisconsin Energy Independent (EI) Community.



The two graphs below show a comparison of energy consumption for the residential, commercial and municipal sectors in Monona.



A large portion of the energy used for residential, commercial and municipal buildings goes to heating and cooling. As the energy usage of a heating or cooling system varies with the weather, it is important to take this into account when evaluating energy efficiency and conservation objectives. One common way to understand energy use data is to take into account heating and cooling degree days. Heating degree days are a measure of how much (in degrees), and for how long (in days), the outside air temperature was below a certain level, at which it is assumed that a building needs to be heated. Relating the natural gas consumption to the heating degree days of a month or a year will make it possible to see trends in energy efficiency irrelevant of the heating need. Cooling degree days works in a corresponding way for cooling needs and electricity consumption. Heating degree days and cooling degree days will be taken into consideration when this objective is evaluated.



OBJECTIVE EC1: ENERGY, COMMUNITY

INCREASE ENERGY EFFICIENCY AND CONSERVATION BY RESIDENTS

Potential strategies to help achieve this objective:

1. Encourage new homes to meet ENERGY STAR home standards.
2. Work with MG&E to develop smart electricity and gas metering for assessment and consumer feedback.
3. Continue collaborating with Focus on Energy to offer energy efficiency programs.
4. Utilize Property Assessed Clean Energy (PACE) financing.

Evaluation Indicators and Metrics	2012 Baseline	2013	2014	2025 Target
1) Total annual residential electricity use (kWh/year)*	27,565,470	26,782,039	26,378,171	**
1a) Electricity use intensity (kWh/resident/year)	3,660	3,560	3,502	**
1b) Electricity use intensity (kWh/household/year)	7,127	6,869	6,613	10% decrease
3) Total annual residential natural	1,782,869	2,337,857	2,550,697	**

gas use (therm/year)*				
3a) Nat. gas use intensity (therm/resident/year)	237	311	339	**
3b) Nat. gas use intensity (therm/household/year)	461	600	654	10% decrease

*Data from Madison Gas and Electric.

** This metric has been included for background information, not for the purpose of target setting.



OBJECTIVE EC2: ENERGY, COMMUNITY

INCREASE ENERGY EFFICIENCY AND CONSERVATION BY COMMERCIAL AND INDUSTRIAL PROPERTIES

Potential strategies to help achieve this objective:

1. Collaborate with the local Chamber of Commerce to increase energy efficiency and conservation, and encourage renewable energy.
2. Work with MG&E to develop smart electricity and/or gas metering.

Evaluation Indicators and Metrics	2012 Baseline	2013	2014	2025 Target
1) Total commercial electricity consumption (kWh/year)*	66,619,143	66,586,465	64,264,343	**
1a) Electricity use intensity (kWh/sq ft*year)	3.78	3.78	3.65	10% decrease
2) Total commercial natural gas consumption (therm/year)*	2,002,676	2,476,697	2,677,251	**
2a) Nat. gas use intensity (therm/sq ft*year)	1.49	1.85	1.99	10% decrease

*Data from Madison Gas and Electric.

** This metric has been included for background information, not for the purpose of target setting.



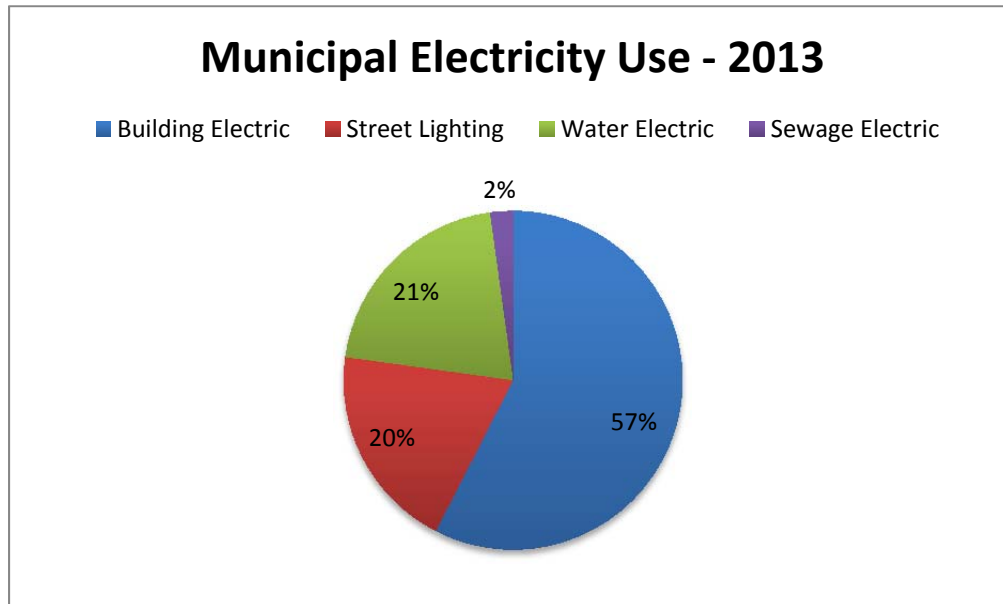
OBJECTIVE EM1: ENERGY, MUNICIPALITY

INCREASE ENERGY EFFICIENCY AND CONSERVATION OF MUNICIPAL FACILITIES AND SERVICES

Potential strategies to help achieve this objective:

1. Complete energy audits of all city facilities.
2. Complete EPA Energy Star Portfolio Manager spreadsheet for government energy use or score existing buildings with LEED green building certification.
3. Develop list of lighting, HVAC and shell improvements to increase Energy Star Portfolio Manager score or LEED green building certification credits.
4. Ensure streetlights are directed where light is needed, are full cut-off, operate at 75 lumens/Watt or higher and are LED or the functional equivalent.
5. Upgrade water utility equipment (e.g., variable frequency drive motors) to achieve energy efficiency.

The graph below shows energy consumption for different parts of the municipality.



Electricity

Evaluation Indicators and Metrics	2012 Baseline	2013	2025 Target
1) Grand total annual municipal electricity use (kWh/year)*	2,000,827	1,971,946	n/a
1a) Total annual city building electricity use (kWh/year)	1,455,232	1,436,234	20% decrease
1b) Annual street lighting electricity use (kWh/year)	545,595	535,712	50% decrease
1c) Annual utility electricity use (kWh/year)	Data missing	Data missing	?
2) Intensity of city building electricity use (kWh/sq ft*year)	14.6	14.4	20% decrease

Natural Gas

Evaluation Indicators and Metrics	2012 Baselines	2013	2025 Target
3) Total annual municipal nat. gas use (therm/year)*	57,802	72,847	20% decrease
4) Intensity of city building natural gas use (therm/sq ft*year)	0.6	0.7	20% decrease

*Data retrieved from Madison Gas and Electric.



OBJECTIVE EM2: ENERGY, MUNICIPALITY

INCREASE PERCENTAGE OF ENERGY CONSUMPTION FROM RENEWABLE SOURCES

Potential strategies to help achieve this objective:

1. Install more solar cells.

2. Install solar water heaters.
3. Consume less energy.

Evaluation Indicators and Metrics	2012 Baseline	2014	2025 Target
1) Energy generated from renewables (kWh/year)	0	163,030	*
1a) Renewable energy as percentage of total municipal electricity use (kWh from RE/total municipal kWh per year)	0 %	8 %	25 %
2) Installed renewable energy capacity (kW)	0	157	*

Data from the City of Monona's own renewable energy tracking system.

* This metric has been included for background information, not for the purpose of target setting.



OBJECTIVE EM3: ENERGY, MUNICIPALITY DECREASE FUEL CONSUMPTION FROM WORK RELATED (CITY BUSINESS) TRANSPORTATION AND MOTOR DRIVEN EQUIPMENT

Potential strategies to help achieve this objective:

1. Retrofit city fleet vehicles for CNG (compressed natural gas).
2. Train employees in eco-friendly driving techniques that conserve fuels, release fewer emissions, and prolong vehicle life.
3. Upgrade to more efficient motor driven equipment.

Evaluation Indicators and Metrics	2014 Baseline	2025 Target
1) Total fuel consumed per department (gal/year)	See table below	Decrease

2014 Fuel Consumption Divided by Department and Fuel Type:

Department	Number of Vehicles /Equipment	Number of Gasoline Vehicles/ Equipment	Gallons Gasoline	Diesel Vehicles/ Equipment	Gallons Diesel
Police	11	11	6,807	0	0
Fire	8	2	1,506	6	720
Public Works	29	17	8,687	12	6,020
Total	48	30	17,000	18	6,740

Additional information and explanations:

Targets will have to be set after further analysis.



TRANSPORTATION

This section introduces the evaluation indicators and metrics for each objective under the transportation focus area.

The baseline data for 2012 and targets to be met in 2025 are presented. For each objective a list of some potential strategies to help achieve the objective are listed. Strategies chosen for implementation will be determined through the regular city decision-making processes. For a collection of all strategies that have been put forward to date, see Appendix E.



Below are examples of projects pertaining to transportation that have already been implemented, or that are currently being implemented, to make Monona a more sustainable city. These strategies are presented as a base upon which future work can be built.

- The reconstruction of Monona Drive added bike lanes.
- Commuter bike routes have been identified and properly cleared.
- Standards for placement and number (as function of intensity of use) of bike parking spaces are set.
- The city has hosted a children's Bike Safety Day for several years.
- The Monona PTO, Winnequah School and the City of Monona each year arrange a Walk/Bike to School Day.
- Two electric vehicle charging stations are installed near the community center in collaboration with MG&E.
- The Monona Transit bus route has been extended.



- Monona transit service is scheduled at the basic level (hour peak service within half-mile of 50 percent of addresses).
- Neighborhood electric vehicles (NEVs) are allowed on appropriate roadways.
- City vehicles are kept well maintained to ensure efficient performance (tire pressure, regular tuning, etc.).
- A new mower bought for the city in 2015 is low-emission, Tier IV compliant.
- City vehicles have been retrofitted for compressed natural gas (CNG).



OBJECTIVE TC1: TRANSPORTATION, COMMUNITY

INCREASE PERCENTAGE OF RESIDENTS USING ALTERNATIVE TRANSPORTATION TO DESTINATIONS WITHIN MONONA (E.G. LIBRARY, POOL, CITY HALL, COMMUNITY CENTER, STORES, RESTAURANTS)

Potential strategies to help achieve this objective:

1. Prepare a plan that identifies disconnections in bike and pedestrian networks, prioritizes fixes, and identifies potential funding sources for the most important projects.
2. Provide bike racks at municipal buildings and other city operated destinations, e.g. parks.

Potential Evaluation Indicators and Metrics	2012 Baseline	2025 Target
1) On-site survey of visitors to community destinations (i.e. library area, stores)	n/a	n/a
2) Ratio of bikes to cars at community destinations-observation study (i.e. library area, stores)	n/a	n/a
3) Bus ridership (number rides/year) (Monona Lift)	6972	?

3. Measures of potential:

4) Bike Score

Additional information and explanations:

Monona Lift is a handicapped-accessible bus service that meets the needs of the elderly and disabled, as well as the general public. The bus has six scheduled daily loops: four through Monona and downtown Madison, and two within Monona. Bike Score is similar to the Walk Score in that it measures how feasible a given location is for biking. The score is based on a scale of 0-100, and is based on the presence of four components: bike lanes, hills, destinations and road connectivity, and bike commuting road share.



OBJECTIVE TC2: TRANSPORTATION, COMMUNITY

INCREASE PERCENTAGE OF STUDENTS (K-12) USING ALTERNATIVE TRANSPORTATION

Potential strategies to help achieve this objective:

1. Arrange biking education for children and parents.
2. Fund and operate a Safe-Routes-to-School (SRTS) program (or functional equivalent) covering at least 10 percent of students.
3. Initiate carpool programs at Monona schools.

For this objective, baselines and potential targets would have to be evaluated before strategies are implemented.

Potential Evaluation Indicators and Metrics
1. Survey of students reporting mode of transportation (walk/bike/bus/car)

Alternative – Observation Study

1a. School bus ridership/year
1b. Number of bicycles parked at schools (observation)
1c. Number of autos dropping off/picking up at schools (observation)
1d. Number of students walking (observation)



OBJECTIVE TC3: TRANSPORTATION, COMMUNITY **INCREASE PERCENTAGE OF RESIDENTS USING ALTERNATIVE TRANSPORTATION FOR COMMUTING**

Potential strategies to help achieve this objective:

1. Track bus stops/routes/times that are most crowded and increase trips or range to meet/grow demand.
2. Reroute some of the bus lines to make more parts of the city and surrounding areas more accessible via bus.
3. Establish additional stop locations to make more parts of the city and surrounding areas more accessible via bus.
4. Work with neighboring local governments to coordinate regional public transit opportunities including mass transit, shuttle buses, carpooling and vanpooling, bicycle and pedestrian infrastructure.

Evaluation Indicators and Metrics	2012 Baseline	2013	2025 Target
1) Percentage commuting by car, truck or van -- drove alone	85.0%	82.0%	75.0%
2) Percentage commuting by car, truck or van -- carpooled	5.4%	6.9%	*
3) Percentage commuting by public transportation (excluding taxicab)	3.8%	3.8%	*
4) Percentage commuting by walking	0.9%	1.8%	*
5) Percentage commuting by other means (assumed to mainly be bicycles, but this also includes motorcycles, taxi etc.)	2.4%	3.1%	*
6) Percentage who worked at home	2.6%	2.4%	*

Data is for workers over age 16, taken from the American Community Survey, executed by the same entity as the US Census.

* This metric has been included for background information, not for the purpose of target setting.



OBJECTIVE TM1: TRANSPORTATION, MUNICIPALITY **INCREASE PERCENTAGE OF CITY EMPLOYEES USING ALTERNATIVE TRANSPORTATION FOR COMMUTING**

Potential strategies to help achieve this objective:

1. Encourage participation in regional transit.
2. Encourage walking and biking for those living near place of employment.
3. Provide transit passes at 50 percent or more off the regular price.

Evaluation Indicators and Metrics
1) Vehicle miles traveled (VMT/per city employee*year) - intensity.
2) Percentage of city employees reporting alternative transport (bike, walk, carpool, bus)



OBJECTIVE TM2: TRANSPORTATION, MUNICIPALITY
DECREASE GREENHOUSE GAS EMISSIONS FROM WORK RELATED (CITY BUSINESS)
TRANSPORTATION

Potential strategies to help achieve this objective:

1. Ban idling (more than five minutes) with local government vehicles/city vehicles.
2. Make electric cars available to city employees for work transportation.
3. Create a bicycle fleet for employees to use for local work-related trips, improving employee health and air quality, and reducing fleet vehicle costs.

Evaluation Indicators and Metrics	2014 Baseline	2025 Target
1) Total GHG emissions for city fleet (CO₂e/year)	n/a	Decrease
1a) Total miles driven city fleet & per department (miles/year)	n/a	Decrease

Additional information and explanations:

Targets will have to be set when baseline data have been established (miles driven have not previously been tracked). Greenhouse gas emissions will be calculated based on miles driven for each separate vehicle.



SOLID WASTE

This section introduces the evaluation indicators and metrics for each objective under the solid waste focus area. The baseline data for 2012 and targets to be met in 2025 are presented. For each objective a list of some potential strategies to help achieve the objective are listed. Strategies chosen for implementation will be determined through the regular city decision-making processes. For a collection of all strategies that have to date been put forward, see Appendix E.

Below are examples of projects pertaining to solid waste that have already been implemented or that are currently being implemented to make Monona a more sustainable city. These strategies are presented as a base upon which future work can be built.



- There is mandatory residential curbside recycling pickup that covers paper, metal cans, glass and plastic bottles.
- A med-drop collection was arranged and the city helped promote a medication drop-off day at a local pharmacy.
- The city provided an eCycle event, an electronic waste drop-off day, in collaboration with Monona Grove High School.
- The Monona PTO has extended their collection of special items for recycling through TerraCycle, www.terracycle.com to the general public. Winnequah school families can continue to drop items at Winnequah School and a community drop-off site has been established at the Monona Public Library.
- Styrofoam is collected at the library for recycling at a local company that transforms the product into picture frames.
- Paper towels have been eliminated in the restrooms at the pool, and replaced with air-dryers.
- The Park and Recreation Department e-mail receipts for financial transactions.
- The city offers more public recycling receptacles in public places (i.e. parks, community center, and libraries) and at events.



OBJECTIVE SC1: SOLID WASTE, COMMUNITY DECREASE TOTAL SOLID WASTE COLLECTED

Potential strategies to help achieve this objective:

1. Use public education and outreach to promote product re-use and waste reduction.
2. Introduce pay-as-you-throw system.

Evaluation Indicators and Metrics	2012 Baseline	2013	2014	2025 Target
1) Absolute residential waste (pounds/year)	4,870,580	5,250,600	5,372,400	*
2a) Intensity (pounds of waste/household*year)	1260	1347	1378	*
2b) Intensity (pounds of waste/resident*year)*	647	698	713	Decrease by 10%

Data from the City of Monona, in conjunction with Advanced Disposal.

* This metric has been included for background information, not for the purpose of target setting.



OBJECTIVE SC2: SOLID WASTE, COMMUNITY INCREASE PERCENTAGE OF SOLID WASTE BEING RECYCLED (OR OTHERWISE DIVERTED)

Potential strategies to help achieve this objective:

1. Offer more public recycling receptacles in public places and at events (i.e. parks, community center, and libraries).
2. Increase the types of materials that can be recycled.
3. 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.
4. Use public education and outreach to promote recycling and backyard composting.

Evaluation Indicators and Metrics	2012 Baseline	2013	2014	2025 Target
1) Annual residential recycling rate (percent)	32%	32%	32%	45%

Eventual addition when infrastructure exists:

2) Annual compost/digester rate (percent)				
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Additional information and explanations:

Annual residential recycling rate per year currently calculated by pounds of residential recycling material at processing plant/pounds of residential waste

Annual compost/digester rate per year calculated by pounds/year of compost received at designated facilities / pounds residential waste



OBJECTIVE SC3: SOLID WASTE, COMMUNITY
INCREASE PERCENTAGE OF MATERIALS FROM CONSTRUCTION AND DECONSTRUCTION DIVERTED FROM LANDFILL

Potential strategies to help achieve this objective:

1. Create construction/deconstruction waste recycling outreach program.
2. Require construction/deconstruction waste management plans and calculate reuse and recycling.
3. Require construction/deconstruction reuse and recycling.

Evaluation Indicators and Metrics	2012 Baseline	2025 Target
1) Residential deconstruction/construction waste reuse and/or recycle rate (percent of pounds diverted/pounds total waste*year)	n/a	70%
2) Commercial deconstruction/construction waste reuse and/or recycle rate (percent of pounds diverted/pounds total waste*year)	n/a	75%

*Data is still being assessed.

Additional information and explanations:

While reuse involves any activity that extends the life of an item and recycling includes reprocessing of an item into a new raw material, these indicators and metrics combine reuse and recycle into one rate.

Information about current rates for deconstruction/construction reuse and recycling does not exist for Monona. As a first step working towards this objective, an ordinance could be implemented requiring reuse and recycling plans and reports from deconstruction/construction, without a required rate.



OBJECTIVE SC4: SOLID WASTE, COMMUNITY
INCREASE SAFE DISPOSAL OF WASTE PRODUCTS NOT INCLUDED IN CURB PICK-UP, SUCH AS MEDICAL, HAZARDOUS AND ELECTRICAL WASTE

Potential strategies to help achieve this objective:

1. Develop programs that dispose of household hazardous, medical, and electronic waste.
2. Promote existing programs that dispose of household hazardous, medical, and electronic waste.

Evaluation Indicators and Metrics
1) Number of material types collected
2) Number of drop-off events & drop-off sites per year (available days/year)
3) Mass (pounds/year) of material brought to designated pick up locations



OBJECTIVE SM1: SOLID WASTE, MUNICIPALITY

DECREASE TOTAL SOLID WASTE COLLECTED

Potential strategies to help achieve this objective:

1. Develop a waste and materials management plan based on zero-waste principles, with specific goals, prepared and updated annually.
2. Develop a green purchasing policy.
3. Develop a green printing policy.

Evaluation Indicators and Metrics	2012 Baseline	2025 Target
1) Total waste for all municipal buildings and & department (pounds/year)	n/a	Decrease by 15%

*Waste data for Monona currently combines residential and municipal waste. Future plans exist for implementing a Waste Management System, allowing Monona to conduct waste audits. Waste audits will assist Monona in separating the amount of waste collected by residential homes and municipal buildings and departments.



OBJECTIVE SM2: SOLID WASTE, MUNICIPALITY

INCREASE PERCENTAGE OF SOLID WASTE BEING RECYCLED OR OTHERWISE DIVERTED FROM LANDFILLS

Potential strategies to help achieve this objective:

1. Develop a waste management plan for city facilities.
2. Conduct a waste audit at city facilities.

Evaluation Indicators and Metrics	2012 Baseline	2025 Target
1) Annual recycling rate (percentage) for municipal facilities	n/a	60%

Eventual addition when infrastructure exists:

2) Annual compost/digester rate (percentage)		
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* See SM1 for explanation about lack of municipal waste data.



OBJECTIVE SM3: SOLID WASTE, MUNICIPALITY

INCREASE PERCENTAGE OF CONSTRUCTION AND DECONSTRUCTION MATERIALS DIVERTED FROM LANDFILLS

Potential strategies to help achieve this objective:

1. Make a construction/deconstruction waste management plans and calculate reuse and recycling.

Evaluation Indicators and Metrics	2012 Baseline	2025 Target
1) Municipal construction waste reuse and/or recycle rate (percentage, pounds diverted/pounds total waste*year)	n/a	80

APPENDICES



APPENDIX A: GLOSSARY AND DEFINITIONS

Focus Area:

A major element (category) of the Monona Sustainability Plan. There are six total focus areas, taken together they are meant to encompass the many characteristics of a sustainable community. Each focus area includes a specific vision and a list of objectives and strategies.

Example: land use, energy, solid waste, etc.

Indicator:

A proxy measurement or assessment that indicates progress toward a given objective. One or more indicators are used if a direct quantifiable measurement (metric) cannot be easily/practically established for the objective.

Example: Number of green education sessions hosted, and number of visits to sustainability website, as indicators for raised sustainability awareness.

Metric:

A quantifiable measurement that can be used to assess a baseline value related to an objective, and then to evaluate progress toward meeting relevant targets.

Example: kWh electricity used/household/year.

Objective:

Each focus area includes a list of community objectives and municipal objectives. Objectives define gaps between a current practice and a sustainable practice and indicate a direction in which the practice should change.

Example: Decrease total electrical consumption (kWh).

Municipality objectives pertain to the city's public lands, buildings, and operations.

Community objectives more directly affect and involve private residents and businesses.

Strategies:

Each objective includes a list of strategies. Strategies are ideas, methods and actions that, when implemented, will move the community in the direction specified by the given objective.

Example: Encourage new homes to meet ENERGY STAR home standards.

Targets:

Quantitative or qualitative measurements that are set for each objective based on relevant baseline data.

Example: Achieve a 20% reduction in total annual municipal electricity use (kWh/year).

Vision:

Each focus area has a vision, and each vision consists of an aspirational description of what the community intends to accomplish in the long-term future. A vision is intended to serve as a clear guide for choosing current and future courses of action.

APPENDIX B: REFERENCE METRICS

The tables below contain reference metrics used for the calculation of certain baselines and targets included in the MSP.

Reference metrics which will need to be updated each year:

Reference Indicator and Metrics	2011	2012	2013	2014
Number of residents*	7,533	7,523	7,532	7,532
Number of households**	3,868	3,899	3,898	n/a
Number of residential water customers***	n/a	2,460	2,450	2,417
Number of commercial water customers***	n/a	317	318	320
Commercial Building Area (sq ft)****				17,605,242

*Wisconsin Department of Administration **American Fact Finder, an entity governed by the US Census ***Public Service Commission of Wisconsin ****City of Monona

Reference metrics that generally remain constant:

Reference Indicator and Metrics	Value
Total Land area, City of Monona (acres)*	2,100
Municipality Building Area (sq ft)**	
City Hall/Fire Dept/Police	29,450
Community Center	12,000
Library	26,882
Public Works Garage	28,468
Pool	3,000
Park Shelters	1,825

*Capital Area Regional Planning Commission **City of Monona's 25 x 25 *Plan for Energy Independence*

APPENDIX C: MONONA SUSTAINABILITY RESOLUTION (12-03-1843)

Resolution No. 12-03-1843 Monona Common Council

A COMMITMENT TO SUSTAINABILITY IN THE CITY OF MONONA

WHEREAS, the environment, society, and economy must all be stable and healthy to support and sustain a community; and,

WHEREAS, a commitment to local and regional cooperation is essential for stewardship of the natural systems that sustain us; and,

WHEREAS, the decisions made today in the City of Monona have far-reaching and long-lasting consequences and should be made with great consideration of their impacts on our natural systems, the economy, and people living now and in the generations to come; and,

WHEREAS, practicing sustainability means working to meet the needs of today's residents and visitors without compromising the needs of future residents and visitors; and,

WHEREAS, adopting principles of sustainability as a principle of decision-making will serve as both a framework for city decision-making and a model for our citizens, encouraging a strong local economy while protecting the natural systems in which residents live, work, and play; and,

WHEREAS, moving toward a more sustainable future is critical for attracting new residents and businesses; and,

WHEREAS, the City of Monona adopts endorses the following four Sustainability Guidelines as a basis for the development and implementation of the city's plans, policies and procedures.

1. Reduce dependence on 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; and
4. Reduce barriers to achieving present and future human needs fairly and efficiently.

WHEREAS, these guidelines have been has proven to be effective by the experience of many cities in Wisconsin and in the United States and over 75 cities worldwide; and

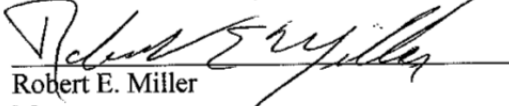
WHEREAS, it has been demonstrated that the application of these principles can reduce expenses and save taxpayer dollars; and,

WHEREAS, the City of Monona Sustainability Committee has recommended that these principles be adopted by the City of Monona as its guiding sustainability framework.

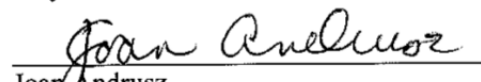
NOW, THEREFORE, BE IT RESOLVED that the City of Monona Common Council accepts the recommendation of the Sustainability Committee to adopt the Sustainability Guidelines described herein, and agrees to apply these principles in its planning, policy-making and procedures.

Adopted this 19th day of March, 2012.

BY ORDER OF THE CITY COUNCIL
CITY OF MONONA, WISCONSIN


Robert E. Miller
Mayor

ATTEST:


Joan Andrusz
City Clerk

Approval Recommend By: Sustainability Committee, 2/16/12

Council Action:

Date Introduced: 3-5-12

Date Approve: 3-19-12

APPENDIX D: FOSSIL FUELS RESOLUTION (14-7-1978)

**Resolution No. 14-07-1978
Monona Common Council**

**A RESOLUTION SUPPORTING PRACTICES THAT
REDUCE MONONA'S DEPENDENCE ON FOSSIL FUELS**

WHEREAS, the Common Council acknowledges that the climate crisis is a serious threat to current and future generations here in Monona, Wisconsin and around the world; and,

WHEREAS, the Common Council acknowledges that climate change is real, primarily caused by the burning of fossil fuels, poses significant risks of disruption of human and natural systems throughout the world including the melting of Arctic ice, sea level rise, increase in the ocean's acidity, flooding, and drought; and,

WHEREAS, the Common Council acknowledges that in 2009, 167 countries endorsed the non-binding Copenhagen Accord which, as drafted by the United States, China, India and Brazil, states that any warming above a 2°C (3.6°F) rise would be unsafe, and if all the known reserves of coal, oil, and gas were burned, they would emit roughly five times (2860GtCO₂) the amount we can safely release to maintain a 2°C limit of planetary warming; and,

WHEREAS, the City of Monona in 2010 pledged to become an Energy Independent Community (EIC) and released its '25 x 25 Plan' in which the City of Monona pledged to generate 25 percent of its energy from renewable resources by 2025, and,

WHEREAS, the City of Monona adopted a Sustainability Resolution (12-03-1843) in March 2012 committing the City of Monona to meet the needs of today's residents and visitors without compromising the needs of future residents and visitors; and,

WHEREAS, the City of Monona became part of the Green Tier Legacy Communities Charter (Sustainability Component) in July 2012, under which the city agreed to carry out sustainability initiatives in five categories, Land Use, Water, Energy, Transportation, and Waste; and,

WHEREAS, the City of Monona has invested in an innovative and precedent-setting solar energy project; and,

WHEREAS, the City of Monona has a responsibility to protect the health, safety, and welfare of its residents from the threats and consequences of climate change and is committed to ensuring a resilient and vibrant community for the future.

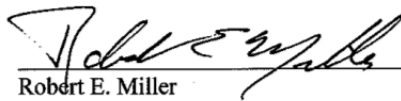
NOW, THEREFORE, BE IT RESOLVED, by the Common Council of the City of Monona, Dane County, Wisconsin, that the City will take the following steps to further that commitment:

1. That the Sustainability Committee focus on recommending additional methods that city government can implement to reduce the City of Monona's dependence on fossil fuels.
2. That the Sustainability Committee make it a priority to educate the residents and business owners of Monona about the importance of reducing carbon emissions from fossil fuels and suggest a variety of ways they can work towards that goal including; divestment and re-investment, and shareholder advocacy strategies.
3. That all departments of the City of Monona prioritize reducing their greenhouse gas emissions and the use of fossil fuels in their daily operations.
4. That where practicable the City of Monona contract with vendors who provide products and services in a way that would reduce the overall greenhouse gas emissions of the City.

5. That the City of Monona urges individuals, businesses, institutions, and other communities to reconsider their investments in practices and equipment that are dependent on the use of fossil fuels and to invest in, explore and adopt alternative energy sources.

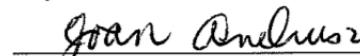
Adopted this 4th day of August, 2014.

BY ORDER OF THE CITY COUNCIL
CITY OF MONONA, WISCONSIN



Robert E. Miller
Mayor

ATTEST:


Joan Andrusz
City Clerk

Approval Recommended by: Sustainability Committee – 6/19/14

Council Action:

Date Introduced: 7-7-14

Date Approved: 8-4-14

APPENDIX E: COLLECTION OF STRATEGIES PROPOSED BY MONONA RESIDENTS

See separate PDF, will be included in plan going to city council.

APPENDIX F: EXAMPLE: ANNUAL IMPLEMENTATION PLAN 2015



Sustainability Plan Annual Implementation Plan 2015



SUSTAINABILITY PLAN OVERVIEW

The City of Monona's Sustainability Plan, (MSP) was developed by the Monona Sustainability Committee in collaboration with other city committees, city employees, community residents and businesses. The plan, adopted by the Monona City Council in July 2015, is a strategic document that establishes sustainability visions and objectives. In addition, measurable targets have been set for 2025 and strategies have been proposed for meeting each. The full plan can be found at www.mymonona.com/sustainability.

The strategies proposed in the MSP will be continuously updated to reflect current possibilities and challenges in the community. Each year an annual progress report will be presented and an annual implementation plan will be developed. This document presents the strategies (actions) which are proposed for implementation in 2015. Strategies chosen for implementation each year will be determined through the city's regular decision-making processes.

Monona's overall vision of sustainability is adapted from the sustainability principle identified in Brundtland's 1987 Report of the World Commission on Environmental Development. This general principle, states:

“...practicing sustainability means working to meet the needs of today's residents and visitors without compromising the needs of future residents and visitors...”

Along with this sustainability principle, the following four sustainability guidelines provide the foundation for the sustainability targets established in the MSP:

- Reduce dependence on fossil fuels and extracted underground metals and minerals.
- Reduce dependence on chemicals and other manufactured substances that can accumulate in nature.
- Reduce dependence on activities that harm life-sustaining ecosystems.
- Reduce barriers to achieving present and future human needs fairly and efficiently.

The plan addresses matters of sustainability in these six focus areas:

- | | |
|---------------------------------|-------------------------|
| • General Sustainability | • Energy |
| • Land Use | • Transportation |
| • Water | • Solid Waste |

Within each focus area, two groups of objectives are outlined, municipality and community. Municipality objectives pertain primarily to the city's public lands, buildings and operations, while community objectives more directly affect and involve private residents and businesses.

GENERAL SUSTAINABILITY

Following are the objectives or goals within the general sustainability focus area, along with a list of strategies for 2015 pertaining to each. Please note that for some objectives there are no strategies to be implemented in 2015. However, strategies for these objectives will be developed in future years.



COMMUNITY OBJECTIVES



Objective GC1: Raise the sustainability awareness of Monona residents.

- Improve sustainability information on the city website. Include links to organizations and other websites with information about sustainability concepts, including water conservation and pollution, energy conservation, solid waste management, sustainable transportation efforts and sustainable land use opportunities (*sustainability committee*).
- Partner with organizations and programs that offer education about environmental issues and sustainability practices, to raise citizen awareness about sustainability and increase the percentage of residents who have implemented sustainability practices (*sustainability committee*).
- Create an esthetically pleasing sustainability plan for outreach (*sustainability committee*).
- Inform the community about on-going sustainability work the city is doing (through the biannual newsletter, city website, signage in park shelters, articles in THI, etc.) (*City Administrator – Patrick Marsh*).
- Support the Green Tuesdays Film and Lecture Series (*Library – Sally Buffat*).
- Expand the sustainability section at the Library (*Library – Sally Buffat*).
- Increase the number events at the library with a sustainability theme (*Library – Sally Buffat*).
- Improve sustainability information on city website. Include links to organizations and other websites with information about sustainability concepts, including water conservation and pollution, energy conservation, solid waste management, sustainable transportation efforts and sustainable land use opportunities (*Director of Administrative Services – Leah Kimmel*).



Objective GC2: Increase the percentage of residents who have implemented sustainable practices, such as those listed in other sections of this plan.

- Improve sustainability information on the city website. Include links to organizations and other websites with information about sustainability concepts, including water conservation and pollution, energy conservation, solid waste management, sustainable transportation efforts and sustainable land use opportunities (*sustainability committee*).
- Partner with organizations and programs that educate about environmental issues and sustainability practices to raise citizen awareness about sustainability and increase the percentage of residents who have implemented sustainability practices (*sustainability committee*).



Objective GC3: Raise the sustainability awareness of Monona businesses.

- Initiate collaboration between the city and the Chamber of Commerce on sustainability issues (*City Administrator – Patrick Marsh*).



Objective GC4: Increase the number of businesses that have implemented sustainable practices, such as those listed in other sections in this plan.

- Review ordinances that require practices contrary to sustainability (e.g. minimum parking requirements) and evaluate possibilities for changes (*City Planner – Sonja Reichertz*).



MUNICIPALITY OBJECTIVES



Objective GM1: Ensure sustainability is considered in the decision making process, including the city budget process.

- Develop a process/system for how sustainability is to be considered/accounted for in the decision making process (in committees, city council and by employees) (*sustainability committee*).
- Develop a green purchasing policy (*sustainability committee*).
- Develop a green purchasing policy (*City Administrator – Patrick Marsh*).

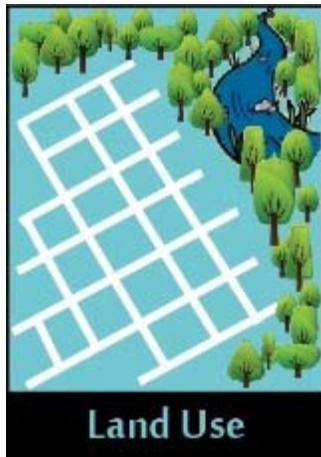


Objective GM2: Raise the sustainability awareness of citizen representatives to city committees.

- Require that some portion of the city savings from sustainability efforts is recycled back into more sustainability efforts (*City Administrator – Patrick Marsh*).
- Give a sustainability presentation to each city committee (*City Administrator – Patrick Marsh*).
- Develop sustainability checklists – one page – formatted to the needs of each specific committee and handed out for consideration in decisions (*City Administrator – Patrick Marsh*).

**Objective GM3: Raise the sustainability awareness of city employees.**

- Include sustainability in job descriptions (*City Administrator – Patrick Marsh*).
- Include sustainability in performance reviews of city employees, especially supervisors, to assess progress towards sustainability goals (*City Administrator – Patrick Marsh*).
- Maintain the city's Green Team with a clear vision and mission (*City Planner – Sonja Reichertz*).
- Include sustainability in job descriptions (*Director of Administrative Services – Leah Kimmel*).
- Include sustainability in performance reviews of city employees (especially supervisors) to assess progress towards sustainability goals (*Director of Administrative Services – Leah Kimmel*).
- Develop and require robust sustainability training for city employees (*Director of Administrative Services – Leah Kimmel*).



Land Use

Following are objectives related to land use, with a list of strategies for 2015 pertaining to each. Please note that for some objectives there are no strategies to be implemented in 2015. However, strategies for these objectives will be developed for future years.



COMMUNITY OBJECTIVES



Objective LC1: Integrate sustainability considerations into the evaluations and decisions made by the Plan Commission (e.g. landscaping, building performance).

- Develop strategies for how to bring sustainability into consideration (*City Planner – Sonja Reichertz*).
- Review ordinances to find those that require practices contrary to sustainability (e.g. required mowing). Analyze if obstacles to sustainability can be removed (*City Planner – Sonja Reichertz*).



Objective LC2: Integrate sustainability components in zoning code (e.g. reduction of impermeable surfaces)

- Review zoning code to find those that require practices contrary to sustainability (e.g. required mowing). Analyze if obstacles to sustainability can be removed (e.g. zoning regulations that prohibit/limit installation of solar panels) (*City Planner – Sonja Reichertz*).
- Zoning for office and retail districts permits floor area ratio >1 , on average (*City Planner – Sonja Reichertz*).



Objective LC3: Integrate sustainability components in comprehensive plan (e.g. efficient use of resources, mixed-use centers, high density/compact/transit oriented development, walkability)

For this objective, there are no strategies planned for 2015.



Objective LC4: Increase walkability to stores, restaurants and other amenities

For this objective, there are no strategies planned for 2015.



Objective LC5: Maintain percentage of land devoted to open space/parks/recreation

For this objective, there are no strategies planned for 2015.



MUNICIPALITY OBJECTIVES



Objective LM1: Maintain protection and restoration of natural habitats including wetlands

- Identify culverts that obstruct fish migration and install fish-friendly culverts where needed (*Public Works Director – Dan Stephany*).



Objective LM2: Integrate sustainability in landscape management

For this objective, there are no strategies planned for 2015.



Objective LM3: Land Use, Municipality Maintain percentage of land devoted to open space/parks/recreation

For this objective, there are no strategies planned for 2015.



Water

Following are objectives for the water focus area, along with a list of strategies for 2015 pertaining to each. Please note that for some objectives there are no strategies to be implemented in 2015. However, strategies for these objectives will be developed for future years.



COMMUNITY OBJECTIVES



Objective WC1: Increase water efficiency and conservation by residents.

- Develop an incentive program to encourage water conservation among citizens, e.g. incentives for low flow toilets, faucets and showerheads and water softeners (*Finance Director – Marc Houtakker*).



Objective WC2: Increase water efficiency and conservation by commercial and industrial properties.

- Develop an incentive program to encourage water conservation among citizens, e.g. incentives for low flow toilets, faucets and showerheads and water softeners (*Finance Director – Marc Houtakker*).



Objective WC3: Decrease quantity of stormwater runoff to lakes

- Create private-public partnerships for stormwater reduction initiatives (sustainability committee).



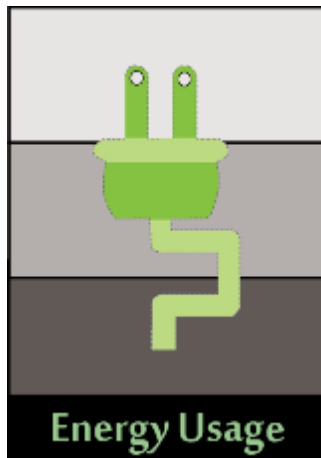
Objective WC4: Decrease pollutants and debris in stormwater runoff.

- Develop a website or other media to publicize methods by which the public can report spills, leaks, discharges, or other contamination events (*Public Works Director – Dan Stephany*).

 MUNICIPALITY OBJECTIVES **Objective WM1: Increase water efficiency and conservation by municipality.**
For this objective, there are no strategies planned for 2015. **Objective WM2: Maintain percentage of groundwater lost in distribution system.**
For this objective, there are no strategies planned for 2015. **Objective WM3: Decrease quantity of stormwater runoff to lakes.**

- Create landscaping on municipal land using plants that minimize the need for irrigation (xeriscaping) (*Public Works Director – Dan Stephany*).

 **Objective WM4: Decrease pollutants and debris in stormwater runoff.**
For this objective, there are no strategies planned for 2015. **Objective WM5: Continue participation in the Wisconsin Water Star Program and improve Monona's score and ranking.**
For this objective, there are no strategies planned for 2015.



Energy

Following are the objectives for the energy focus area, along with a list of strategies for 2015 pertaining to each. Please note that for some objectives there are no strategies to be implemented in 2015. However, strategies for these objectives will be developed for future years.



COMMUNITY OBJECTIVES



Objective EC1: Increase energy efficiency and conservation by residents.

For this objective, there are no strategies planned for 2015.



Objective EC2: Increase energy efficiency and conservation by commercial and industrial properties.

For this objective, there are no strategies planned for 2015.



MUNICIPALITY OBJECTIVES



Objective EM1: Increase energy efficiency and conservation of municipal facilities and services.

- Upgrade water utility equipment (e.g. variable frequency drive motors) to achieve energy efficiency (*Public Works Director – Dan Stephany*).
- Upgrade stoplights to LED or functional equivalent (*Public Works Director – Dan Stephany*).



Objective EM2: Increase percentage of energy consumption from renewable sources
For this objective, there are no strategies planned for 2015.



Transportation

Following are the objectives for the transportation focus area, along with a list of strategies for 2015 pertaining to each. Please note that for some objectives there are no strategies to be implemented in 2015. However, strategies for these objectives will be developed for future years.



COMMUNITY OBJECTIVES



Objective TC1: Increase percentage of residents using alternative transportation to destinations within Monona (e.g. library, pool, city hall, community center, stores, and restaurants).

- Provide bike racks at municipal buildings and other city operated destinations, e.g. parks (*City Administrator – Patrick Marsh*).
- Evaluate which transportation options are currently subsidized by the community and whether those subsidies promote sustainable transportation choices (*Finance Director – Marc Houtakker*).
- Require bike parking spaces for all new non-residential and multi-family land uses. Set standards for placement and quantity, as a function of intensity of use. (Ordinance for bike parking at businesses?) (*City Planner – Sonja Reichertz*).



Objective TC2: Increase percentage of students (K-12) using alternative transportation.
For this objective, there are no strategies planned for 2015.



Objective TC3: Increase percentage of residents using alternative transportation for commuting.

- Promote available transit services (*Finance Director – Marc Houtakker*).

- Collect more comprehensive data on what residents want in mass transit (*Finance Director – Marc Houtakker*).



MUNICIPALITY OBJECTIVES



Objective TM1: Increase percentage of city employees using alternative transportation for commuting.

- Keep city vehicles well maintained to ensure efficient performance (tire pressure, regular tuning, etc.) (*City Administrator – Patrick Marsh*).
- Provide transit passes at 50% or more off the regular price and/or provide parking cash-out options for local government employees (*Finance Director – Marc Houtakker*).



Objective TM2: Decrease greenhouse gas emissions from work related (city business) transportation.

For this objective, there are no strategies planned for 2015.



Solid Waste

Following are the objectives for the solid waste focus area, along with a list of strategies for 2015 pertaining to each. Please note that for some objectives there are no strategies to be implemented in 2015. However, strategies for these objectives will be developed for future years.



COMMUNITY OBJECTIVES



Objective SC1: Decrease total solid waste collected.

For this objective, there are no strategies planned for 2015.



Objective SC2: Increase the percentage of solid waste being recycled (or otherwise diverted).

- Create more recycling opportunities within the city by offering more recycling receptacles in public places and at events (e.g. parks, community center, and libraries) (*City Administrator – Patrick Marsh*).



Objective SC3: Increase the percentage of materials from construction and deconstruction diverted from landfills.

- Adopt a construction/deconstruction waste recycling ordinance (*sustainability committee*).
- Implement a construction/deconstruction waste recycling program (*City Administrator – Patrick Marsh*).



Objective SC4: Increase safe disposal of waste products not included in curb pick-up, such as medical, hazardous and electrical waste.

For this objective, there are no strategies planned for 2015.

 MUNICIPALITY OBJECTIVES **Objective SM1: Decrease total solid waste collected.**

For this objective, there are no strategies planned for 2015.

 Objective SM2: Increase the percentage of solid waste being recycled (or otherwise diverted).

- Develop a waste management plan for city facilities (*sustainability committee*).

 Objective SM3: Increase the percentage of materials from construction and deconstruction diverted from landfills.

- Develop a construction/deconstruction waste management plan and calculate reuse and recycling (*City Administrator – Patrick Marsh*).



Backside Top

This will feature a certain topic (or focus area), and will be different each year.

E.g. Year of water, Year of Biking, Energy, Waste.

Backside Bottom

This could give information about how to get engaged in the implementation of the sustainability plan and could also give tips on how to become more sustainable.

City of Sheboygan Green Tier Legacy Community Sustainability Plan 2015-2019



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Government page 19

Appendix

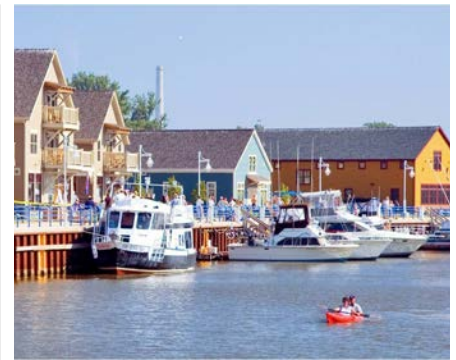
Complete List of Short- and Long-Term Action Steps

The City of Sheboygan is pleased to become the 11th community to join the Green Tier Legacy Charter. The City recognizes that being truly sustainable is a difficult challenge in today's society. We have found that acting sustainably means a balanced-approach; that not only protecting the environment, but improving human health and spending taxpayer dollars wisely are very important.

Defining Sustainability

The first step in defining sustainability for the City is to decide what we want to sustain into the future. In May 2008, the City of Sheboygan Common Council adopted a resolution establishing a Sustainable Sheboygan Task Force (SSTF). The purpose of the task force is to study and make recommendations to the Common Council regarding strategies to be adopted by the City for creating and maintaining a sustainable Sheboygan. The SSTF focuses on topics such as recycling, green purchasing, energy conservation, waste management, sustainability measures, and raising community awareness on environmental stewardship, which will result in cost savings and reduced consumption on resources throughout the City. Below is a list of Sheboygan attributes that are worth sustaining, or changing to become sustainable:

- Energy Production from renewable resources
- Local food production, sales and consumption
- The City's natural resources
- A safe and healthy atmosphere
- Safe, efficient, and environmentally sound transportation
- A local economy that attracts new businesses and encourages existing businesses to balance profit, people and planet
- Cost-effective, socially responsible and environmentally sound governmental practices to meet community needs



Public Declarations and Commitments

- Common Council passed an Eco-Municipality Designation (Oct. 2007)
- Common Council passed a State "Energy Independent Community" resolution (Oct. 2009): the resolution commits the City to obtain 25% renewable energy by the year 2025
- The City of Sheboygan's Harbor Centre Marina becomes a "Wisconsin Clean Marina" - The Wisconsin Clean Marina Program provides guidance and education that enable marina and boat yard operators to protect the resources that sustain their livelihood — clean water, clean air, and healthy fish and wildlife communities
- "Green Team" Resolution of 2010
- Common Council passed a resolution to join the "Green Tier Legacy Community" program (Jan. 2014)

In 2011, the City adopted an updated Comprehensive Plan that included a Sustainability component. The criteria set forth in this plan for building a self-sustaining economy include:

- Actively pursue economic diversification to increase professional level employment in the community.
- Advance economic initiatives based on place-based assets such as regional foods initiative.
- Strengthen the industrial and manufacturing sectors that founded Sheboygan.
- Tout Sheboygan's high quality of living including quality schools, large park and recreation system, and destinations to foster economic development.



Goal

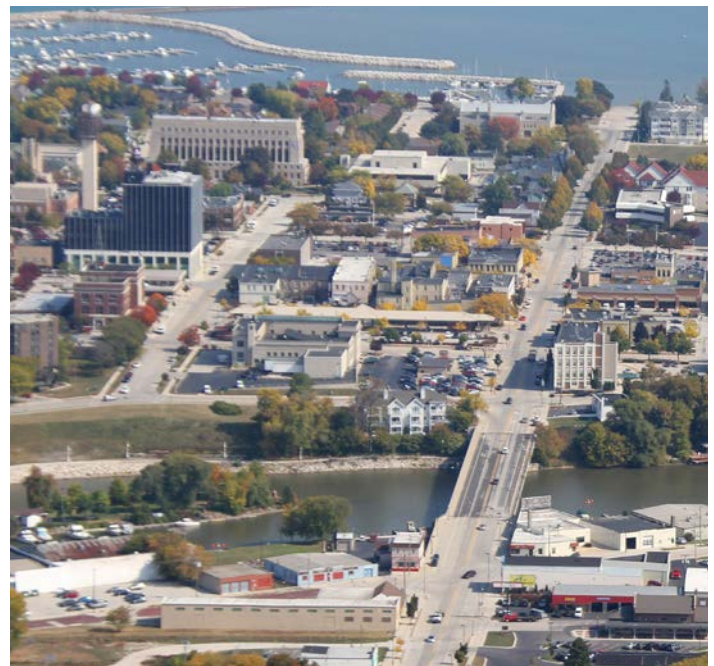
Improve the quality of life in Sheboygan by incorporating sustainability practices to meet the environmental, economic and social needs of the present without compromising the ability of future generations to meet their own needs.

Objectives

- **Energy:** Foster energy conservation and local energy production from renewable resources.
- **Local Food:** Promote local food production, sales and consumption.
- **Natural Resources:** Protect and enhance the City's natural resources.
- **Atmosphere:** Provide a safe and healthy atmosphere for all living things and the planet.
- **Waste:** Promote awareness, reduce initial consumption, promote reuse, increase recycling, and reduce the amount of substances entering the landfill.
- **Land Use and Planning:** Guide and promote sustainable city-wide development patterns and incorporate sustainable features into buildings and grounds.
- **Transportation:** Enhance and promote mobility alternatives to the automobile; design safe, efficient and environmentally sound transportation infrastructure; and connect to other local and regional networks.
- **Economic Development:** Enhance the local economy by attracting sustainable business and green-collar jobs, and encouraging existing businesses to become more sustainable.
- **Government:** Lead by example and foster sustainability policies and actions for cost-effective, socially responsible, and environmentally sound governmental practices to meet community needs.

Action Plan for 2014-2019

An action plan provides direction for accomplishing the objectives of the Sustainability Plan. For the 2014-2019 5-Year Action Plan, the Sheboygan Sustainable Task Force in conjunction with the Strategic Fiscal Planning Committee of the Common Council has endorsed the action items associated with each objective. Action steps have been divided into two groups, short-term (implementation in 0-3 years) and long-term (implementation in 4 or more years). The Task Force will work with City department personnel to implement the action steps and prepare an annual report to brief others on the accomplishments from that given year. The Task Force and Strategic Fiscal Planning Committee will update this Action Plan annually with input from all affected City staff, Common Council and citizens.



ENERGY

Objective: Foster energy conservation and local energy production from renewable resources.

Energy comes in various forms. Some sources are widely available and renewable such as the sun or wind. Other sources are less accessible, such as fossil fuels like coal, oil, natural gas or radioactive minerals that need to be extracted from the parts of the earth where they occur. Modern industrial societies use very large amounts of energy to heat and cool buildings, provide lighting, produce food, transport people and goods, run machines, and provide communications. The top energy sources for Wisconsin are oil (33%), coal (28%), natural gas (24%) and nuclear (7%), with several renewable sources providing the remaining 8%.

Cities need to import energy for their concentrated human populations. Transporting energy via roads, rail, ships, pipelines or wires takes energy, land and money and carries environmental risks. A more sustainable city would get more of its energy locally. The term “energy independence” has been coined to cover both import reduction and development of domestic energy sources. For a state like Wisconsin, which has no coal, oil, natural gas or uranium resources, energy independence is a call to develop state and local energy resources that build local economies. Wisconsin-based renewable energy resources include sun, wind, hydropower, geothermal, and biomass. All are renewable. Shifting away from fossil fuels has the significant benefits of avoiding pollution that negatively impacts health and increases greenhouse gases.

Energy conservation is a beneficial, achievable, and necessary step towards a sustainable energy system. On average, Americans and Canadians use about twice as much energy per person, and energy per dollar of economic activity, as competing industrialized countries. Our inefficient use of energy makes our way of life more expensive and more polluting. The technical means to improve energy efficiency is available and ranges from simple insulation to complex electronics. Ways to finance conservation improvements are also well known, and can be combined with government or private incentives and assistance. Considering economic, environmental, and social impacts, energy conservation investments are often more effective than expanding the energy infrastructure. Energy conservation should take top priority because the lowering of energy demand makes energy independence easier to achieve.



Current Policies, Programs and Actions

Buildings: The largest users of energy in most US cities are buildings. The City of Sheboygan currently ranks among the top three cities in Wisconsin with the most Energy Star Certified buildings per-capita. Sheboygan Area School District is the proud owner of 17 Energy Star Certified buildings, and is in the top 10 Energy Star building owners in Wisconsin. Sheboygan's Madison Elementary School received an Energy Star score of 100 - the most efficient score a building can receive. Sheboygan will continue to encourage sustainable green building practices, the wider use of Energy Star and other sustainable-labeled building materials, appliances and electronics (e.g. programmable thermostats, lighting fixtures, insulation, heating, water heaters, etc.) as well as conservative energy use in all buildings. The City will continue to stress the importance of measuring performance and promote methods and best practices individuals can implement concerning responsible energy usage, such as utilizing meterhero.com.

Outdoor Lighting: Sheboygan recognizes the need for energy conservation through responsible outdoor lighting practices. The City of Sheboygan was an early adopter, like many other communities, of high-efficiency light-emitting diode (LED) lamps in traffic lights. The City will continue to upgrade outdoor lighting to high efficiency lamps (street lighting, parks, athletic fields). The City will also continue to consider efficiency standards for outdoor lighting for all new and existing construction, especially as new technologies become available.

Pooled Resources: Pooling resources aids in achieving greater energy efficiency and putting less of a strain on existing resources and the environment. The Sheboygan Regional Wastewater Treatment Facility has become a nationally recognized leader in energy independence, and is a model for pooling energy resources. The Wastewater Treatment Facility (WTF) occasionally produces more energy than it uses, and has achieved Net Zero Energy Status. The WTF sells extra energy produced back to be used elsewhere, thus pooling resources for the betterment of the region. Sheboygan is committed to continuing to explore collaborations that provide opportunities to use energy more efficiently.

Renewable Energy: Sheboygan will focus on increasing use of renewable energy. Sheboygan offers reduced building fees for projects that include renewable energy systems. Sheboygan encourages and supports the development of renewable energy sources and is committed to increasing the portion of imported energy from renewable sources. The City will also partner with groups such as Focus on Energy and Alliant Energy's Second Nature Program that help residents install renewable energy projects. Focus on Energy is Wisconsin utility's statewide energy efficiency and renewable resource program. Alliant Energy's Second Nature Program is a voluntary program that allows Alliant Energy customers to purchase electricity generated from renewable resources by dedicating a percentage of their electricity usage to that which comes from renewable sources.

Local Participation: Achieving a more sustainable Sheboygan will require buy-in from local residents and businesses alike. The City of Sheboygan will continue to encourage businesses and homeowners to work with Alliant, Wisconsin Public Service and Focus on Energy Programs. It is important to the City to raise awareness on the issue of sustainability, and ways each person can contribute.



Energy Action Steps

Short Term (0-3 years)

- Develop an internal policy that when a new street light/park light is replaced, it is replaced with energy efficient lighting, such as LED fixtures.
- Ensure that building codes allow for development of solar, wind, geothermal, and biomass energy sources, with guidelines to protect public safety and maintain community standards for aesthetics.

LOCAL FOOD

Objective: Promote local food production, sales, and consumption

The local food movement is aimed at connecting consumers back to the land, providing fresh and nutritious food, protecting the environment and supporting the local economy. Locally grown food is considered sustainable because it reduces the need for processing, storing, shipping and retailing. This generally translates into reduced water use, pesticides, packaging, shipping, waste, fuel usage and emissions. Urban support for local food efforts continues to grow. While Sheboygan has relatively few acres zoned for agriculture, Sheboygan County provides substantial opportunity for agriculture, and the Northeast Wisconsin region contains significant farmland. Increasingly, locally grown food supports the regional economy and provides a healthy alternative to processed food.



Current Policies, Programs and Actions

Community Gardens: Gardens not only beautify and utilize unused property, but also encourage interaction and a sense of ownership in neighborhoods. The community garden movement, which began in the City in 2012/2013, established three thriving gardens in various neighborhoods. The City is committed to continuing partnerships, providing land, education, and various other services for gardens within the City. Apart from public gardens, the City of Sheboygan encourages private food plots and gardens on residential, business, industrial and institutional properties. Local greenhouses are encouraged to donate starter plants for community gardens or food plots in mixed to low income neighborhoods.

Local Food Co-op: Goodside Grocery, Sheboygan's local food Co-op is operating with approximately 3,500 members, is open year-round and offers a variety of local in-season products to the public. Sheboygan supports the operation and growth of the food co-op and will continue to do so into the future.

Local Food Stands: Local food stands provide farm-fresh, local food directly to consumers. These stands bolster local economic activity and provide residents with affordable and nutritious produce. Many local farmers from the surrounding area come to Sheboygan to sell fresh produce at temporary local food stands.

Local Food Markets: The Farmers Market is popular, accessible, and brings local residents and local farmers together. Sheboygan has two farmers markets run by Sheboygan County Interfaith Organization, one in the summer, and one in the winter to bring local food to residents all year.

Education and Partnerships: Sheboygan is home to organizations focusing on sustainable eating, farming, and growing the local food movement. One of these programs, Nourish, by the Sheboygan County Interfaith Organization, connects local farmers to residents, provides fresh local food for schools and homeless shelters, and educates everyone on the importance of eating well, eating local, and practicing sustainability. Sheboygan will continue to support these groups.



Local Food Action Steps

Short Term (0-3 years)

- Support sustainable gardening by creating an example set of rules against artificial fertilizers and pesticides and encourage community gardens to adopt these rules to protect people, water, and wildlife.
- Revise the zoning code ordinance to address community gardens, temporary or permanent, as permitted or conditional land uses in all districts.
- Partner with the Sustainable Task Force to provide food education for citizens to learn about the importance of growing, preserving and buying local and organic food, local food safety, such as advisories on fish eaten from the Sheboygan River.

NATURAL RESOURCES

Objective: Protect and enhance the City's natural resources

The City's natural resources provide a variety of necessary functions. Lake Michigan gives us our drinking water and carries effluent from the City's wastewater treatment plant. The Sheboygan River and Lake Michigan receive our storm water. These water bodies also provide habitat for fish and other wildlife. Woodlands, marshes, open spaces and parks provide places for ground water recharge and purify water of pollutants. Trees of the urban forest remove ozone, nitrogen oxide, and fine particulates from burning fossil fuels in buildings and vehicles. Urban wildlife habitat supports year-round resident and large populations of migratory birds. Urban birds, bats and insects control nuisance and disease-carrying pests.

We attempt to sustain these ecological functions in two ways, by federal or state regulation and by local choice. To protect and improve our local waterways, the city is under federal regulation on managing storm water and sewage treatment for pollution control.



Current Policies, Programs and Actions

Waterway Protection: Sheboygan's waterways are the heart of the City. Not only do they provide ecological functions, but also recreational, economic, and scenic benefits. Sheboygan mitigates harmful effects of flooding and pollution on our waterways by implementing a regular street sweeping program to remove total suspended solids. Sheboygan also continues to encourage education and citizen awareness and involvement in programs protecting Sheboygan's waterways.

Stormwater Management and Flood Control: Effective stormwater management helps to protect Sheboygan's waterways, drinking water, and prevents harmful erosion. Sheboygan requires best management practices be designed, installed and maintained to control pollution carried in runoff from post-construction sites and to reduce the risk of flooding, and this same ordinance protects sensitive areas near protected waterways from disruptive development. Sheboygan will continue to implement stormwater management plans to reduce pollution and mitigate flooding, especially high priority measures including construction of detention ponds, swales, and vegetative buffers.

Water Efficiency: Sheboygan is committed to water conservation efforts, one of those being water efficiency. Sheboygan will continue programs to quickly identify and eliminate leaks in the public water supply system.



Impervious Surfaces: Sheboygan promotes the use of subsurface drainage chambers, permeable pavers, and pervious pavement on appropriate soils. Increasing pervious surfaces helps to mitigate flooding, reduce runoff, erosion and pollution by allowing stormwater to filter into the ground, rather than redirecting the water.

Waterfront Development: Waterfront development is important to sustaining Sheboygan. Development will continue to be sensitive to the environment, and will continue to be accessible and serve the local residents. Development will continue to be respectful to protected waterways and wetlands and Sheboygan will continue to enforce best management practices at these sites. Sheboygan will continue to enforce sediment and erosion control requirements at construction sites and make public access to waterways a priority.

Native Landscaping: It is important to incorporate natural landscaping as native plants generally require less water, maintenance, and are more suited for our climate. Native landscaping is a beautiful, sustainable choice. Sheboygan encourages native plantings on sites to reduce irrigation, protect shorelines and provide natural beautification. The City of Sheboygan has a natural demonstration Site, Maywood Environmental Center, that showcases natural plantings. Sheboygan will continue to incorporate native plantings and seeds in roadside mixes to reduce maintenance.

Natural Resource Action Steps

Short Term (0-3 years)

- Consider developing maximum impervious thresholds for all zoning districts based on total building and hard surface lot coverage.
- Install low-flow faucet aerators and toilets at municipal sites.
- Review City building codes to update standards for water conserving plumbing fixtures.
- Offer education about how residents can reduce water useage and collect water for use.
- Include educational brochures with quarterly billings.
- Create a rain barrel program allowing citizens to purchase and learn how to use rain barrels.
- Compile and distribute a resource containing a list of hardy native plants appropriate for landscaping, and the importance of rain gardens.
- Review City weed and tree ordinances to ensure they do not discourage native landscaping practices.



Long Term (3 + years)

- Consider a program offering City stormwater utility rebate/credits for exceeding requirements for on-site stormwater management.
- Review ordinances to ensure the City is able to address drought situations by curtailing or banning non-essential water uses.
- Control non-native invasive species in right-of-ways, parks and other public areas.
- Offer innovative incentives for water conservation improvements such as plumbing fixtures.

ATMOSPHERE

Objective: Provide a safe and healthy atmosphere for people, nature and planet

The atmosphere includes the air we breathe, the sounds we hear, the odors we smell, the greenhouse gases that keep the planet habitable, weather systems that deliver water, and the high stratospheric ozone layer that protects us from harmful ultraviolet sunlight. People and cities can overload this atmosphere with pollutants, e.g., toxins, smog, allergens, noise, additional greenhouse gases, and ozone-depleting chemicals that diminish our health, harm wildlife, damage agriculture and structures, lower property values, and present new risks from changing climate.

Atmospheric pollution creates local and distant problems. Local effects in and near Sheboygan include indoor air pollution as people spend most of their time indoors; noise pollution from vehicles, trains, construction equipment, power tools and other human activity; air pollution from factories, buildings and motorized vehicles and small engines; and air pollution carried in from other cities (e.g. acid and mercury pollution of local waters and fish from coal-fired plants). Climate change may also be impacting Sheboygan in subtle ways, as Wisconsin has seen warmer winters, more precipitation, longer growing seasons, and shorter lake ice seasons. Air pollution from Sheboygan also contributes to global climate changes stressing other parts of the world, particularly for societies less affluent and able to adjust, and ecosystems less resilient than ours.



Current Policies, Programs and Actions

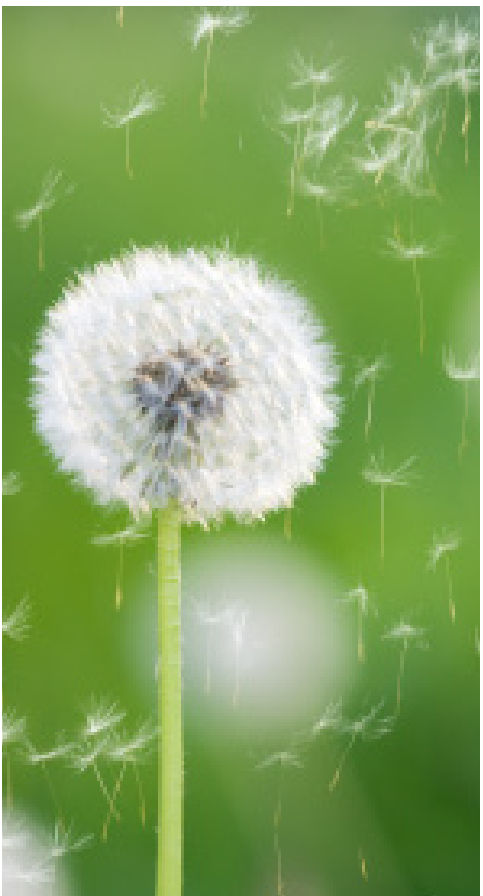
Air Quality: Sheboygan will continue to provide the bus transit service, Shoreline Metro, which reduces the need for car trips by individuals, thus reducing pollution. Sheboygan County is the only county in Wisconsin designated as “non-attainment” which can be costly to local businesses burdened with the added paperwork, time and costs. Continued support by Local/State Government officials and the Sheboygan County Chamber of Commerce can assist in removing this designation for the county. Additionally, the coal-burning power plant in Sheboygan, owned by WP&L and Alliant Energy Corp, is in the process of reducing the emission of pollutants linked to smog, asthma, heart attacks and premature deaths. The Environmental Protection Agency has required these reductions in emissions, which will improve the quality of life for everyone in Sheboygan. The City of Sheboygan will continue to educate the public on ways to reduce non-point source pollution and how they contribute to pollution, and how to mitigate their effect. Sheboygan continuously reviews and maintains high standards and ordinances against odor-producing sites and activities.

Greenhouse Gasses: Fossil fuel burning is the largest source of greenhouse gases, therefore it is important for the city and its residents to focus on energy conservation improvements, to build and purchase with energy efficiency in mind, and to develop renewable energy options. Reducing emissions from transportation related activities will help reduce the amount of greenhouse gasses produced. Sheboygan focuses on the reduction of fossil fuel burning transportation, and has seen an increase in various other transportation options with Sheboygan County’s Non-motorized program and the expansion of trails in Sheboygan and the surrounding area. Sheboygan stresses the 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.



Indoor Air Quality: Residents of Sheboygan spend the majority of their time indoors, especially in winter months, which makes maintaining clean and healthy indoor air a priority. Indoor air quality has seen steady improvement as public areas have been cleaner due to tightening of rules against tobacco smoke, including a statewide smoking ban. Indoor air quality is important to the health of all Sheboygan residents, and improving indoor air quality and pollutants can help reduce health concerns such as allergies and asthma, as well as improve overall health. Sheboygan enforces health ordinances as well as state and federal laws regarding indoor tobacco smoke, combustion products, molds, and radon. Sheboygan also discourages use of paints, glues, caulks and other materials with high levels of volatile organic compounds (VOC's), flame retardants, hazardous cleaning products and other chemicals that may negatively impact air quality. Indoor living plants in municipal buildings exist, and are encouraged, to reduce air pollution. Sheboygan will continue to educate homeowners, landlords, and renters in resolving indoor air quality issues and preventing potential hazards.

Noise Pollution: Controlling noise pollution leads to a greater quality of life. Sheboygan's Comprehensive Plan provides a land use plan that carefully considers the placement of land uses in regard to reducing the instance of noise nuisances to residents. Provisions are also made to reduce the nuisance of noise during development practices. Sheboygan's Police Department developed a community policing effort that includes Neighborhood Officers who respond to noise complaints.



WASTE

Objective: Promote awareness, reduce initial consumption, promote reuse, increase recycling and reduce the amount of substances entering the landfill.

Waste disposal practices have changed substantially over the past 40 years. Much of the unwanted material households and businesses produce returns to productive use through recycling, composting and beneficial use. Hazardous wastes are carefully separated for special handling. Businesses have reduced the waste they generate. Still, it is necessary to landfill solid wastes for which no recycling or reuse is currently available.

Today, solid waste landfills in Wisconsin are professionally designed, constructed and operated to minimize the risk of pollution. There are now fewer than 80 active landfills in the state compared to thousands of town dumps and other disposal sites a few decades ago. The DNR regulates landfills to prevent negative impacts to people and the environment. Landfills must collect and treat liquids and gases they generate before releasing them to the environment. Landfill operators must monitor their facilities to detect any contamination, report monitoring data to the DNR and respond quickly to any problems. Money is set aside during landfill operation to ensure that monitoring and maintenance continue after the landfill closes. DNR staff inspect landfills regularly. While Landfills have come a long way, recycling is an important factor in a sustainable community, along with promoting the reduction of initial use as well as the reuse of materials.



Current Policies, Programs and Actions

Education: Helping Sheboygan residents understand the impact their waste has on the environment, as well as effective ways to reduce that impact is pivotal in reducing waste. Sheboygan's Sustainable Task Force educates on and promotes reduction, reuse, recycling and recovery of waste materials. Information is made available to increase consumer product awareness and environmentally preferable purchasing. Sheboygan distributes information about proper disposal of hazardous waste, drugs, e-waste, and other items.

Recycling: An important component to reducing waste is to recycle. The City of Sheboygan currently provides a Single Stream Recycling program with curbside pickup on garbage collection days. Single stream recycling accepts glass, aluminum, steel, tin, plastic containers, paper products, newspapers & magazines, as well as cardboard. This recycling program has diverted over 40,000 tons of materials from our landfills since 1996 and currently accepts various materials including all types of plastics.

Special Events: Special events can produce large amounts of waste. Opportunities exist to reduce the amount of waste produced, as well as advertise and educate other sustainable practices at special events. Some events in Sheboygan elect to be more environmentally conscious by providing recycling bins, and using recycled materials.





Composting: Another way to reduce waste that ends up in a landfill is to compost. Food scraps and yard waste make up 20-30% of what we throw away and are the largest category of municipal solid waste going into landfills, according to the Environmental Protection Agency. Composting can also help gardening efforts and to promote sustainability and local food. Sheboygan has a drop-off site for community composting of leaves and yard debris. Residents are encouraged to compost food scraps at home.

Waste Action Steps

Short Term (0-3 years)

- Explore the merits of a pay-as-you-throw policy for material disposal programs, evaluating either weight or volume of waste such as purchased City garbage bags.
- Consider recycling containers in public areas and at public events next to waste barrels.
- Provide education on setting up and maintaining compost bins at home, community gardens, and the workplace for organic waste (e.g. grass, leaves, brush, fruit and vegetable trimmings and garden debris).

Long Term (3 + years)

- Explore a plastic bag reduction program.
- Provide information and incentives to promote recovery, reuse, and recycling of demolition debris and building scraps at construction sites.
- Create a pilot project to make an established community event zero-waste by using products that are bio-based, recyclable, or compostable using glass, bio-plastics and paper products instead of plastic and styrofoam. Go on to include sustainable practices at all events, and create incentives to promote zero-waste events.
- Offer innovative incentives for water conservation improvements such as plumbing fixtures.



LAND USE & PLANNING

Objective: Guide and promote sustainable city-wide development patterns and incorporate sustainable features into buildings and grounds.

The physical layout and land use of our communities is fundamental to sustainability. Over the past several decades, two main land use practices have converged to generate unsustainable trends in urban sprawl: (1) zoning that separates each type of land use discouraging mixed-use neighborhoods and isolating employment locations, shopping, services and housing from each other and (2) low density growth planning aimed at creating automobile access to increasing expanses of land. Community sustainability requires a transition from poorly-managed sprawl to Smart Growth planning. This entails land use practices that create and maintain efficient infrastructure, ensure close-knit neighborhoods, and preserve natural and agricultural systems. In Wisconsin, the Smart Growth law has begun to move communities in this direction. Smart Growth's vision is to promote denser settlement while providing mixed uses, open space and transportation choices--the antithesis to sprawl.

Sustainable development not only addresses the broad view of community land use, but also the detailed view of sustainable sites and buildings. Emphasis is on building with nature in mind, exemplified by the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) Green Building Rating System and the EPA's ENERGY STAR ratings for homes, appliances, and fixtures. LEED promotes a whole-building and neighborhood approach to sustainability. It recognizes performance in five key areas of human and environmental health: sustainable site development, water savings, energy efficiency, materials selection, and indoor environmental quality. Green rating programs are showing up more frequently in communities across the country and have proven to be a reliable tool to standardize the language of "green" buildings. Housing, too, is being influenced by new sustainable ideas as developers begin to employ such concepts as "life-cycle" design.

Current Policies, Programs and Actions

Promote Sustainable Development Patterns: One way to promote sustainable development is through planning and zoning. The City of Sheboygan continually reviews policies to provide more sustainable development patterns such as denser dwelling units per acre for single family development, while providing mixed -uses, open space, and transportation choices.

Neighborhoods and Mixed-use Corridors: Sheboygan will continue neighborhood improvement strategies, developing healthy, compact neighborhoods with mixed uses and housing types. Ideally, neighborhoods should have a mix of amenities close by with walkable streets, affordable housing with multi-unit and single-family homes, public spaces and well-connected streets serving pedestrians, cyclists, transit riders and drivers. Integrating multiple uses into an area can create walkability, reduce reliance on automobiles, as well as create a more desirable place to live, work, and shop. Sheboygan identifies high traffic corridors and targets them for redevelopment utilizing underused buildings, strip centers, and parking lots.

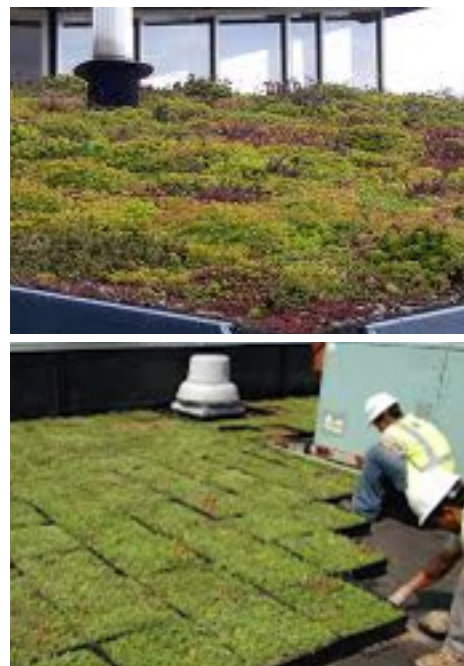


Green Buildings: Buildings use a large amount of energy, accounting for 40% of energy consumed in the U.S., Sheboygan focuses on reducing its building's impacts on the environment. Sheboygan encourages and promotes sustainable building practices using the LEED program, Energy Star or a similar system. Sheboygan partners with utility companies, Energy Star, and others to offer energy efficiency education and will continue to consider offering incentives to improve energy use in buildings. The City of Sheboygan encourages the recovery of all recyclable building materials and promotes adaptive reuse and renovation of older buildings while restoring historic integrity. Another sustainable building practice Sheboygan promotes is the utilization of building materials and products found in the immediate area or surrounding region.

Land Use & Planning Action Steps

Long Term (3 + years)

- Explore LEED's Neighborhood Design Rating System to help plan for more compact and complete neighborhoods.
- Consider green building for all new city building and remodeling projects.
- Consider offering incentives for green building and remodeling projects or requiring green buildings in Tax Incremental Districts.
- Consider a green roof pilot project on a city building. Green roofs absorb and clean rainwater, provide insulation, create habitat for wildlife and help to lower urban air temperatures.



TRANSPORTATION

Objective: Enhance and promote mobility alternatives to the automobile; design safe, efficient and environmentally sound transportation infrastructure; and connect to other local and regional networks.

Sustainable transportation generally refers to enhancing alternatives to the automobile—transit, bicycling, walking and rail—to reduce pollution, conserve energy, and decrease traffic congestion. It also implies attention to environmentally friendly infrastructure, alternative fuels and new transportation technologies. More and more communities around the country are incorporating these concepts into their transportation networks with increased support from state and federal funding.



Current Policies, Programs and Actions

Public Transit: In Sheboygan, only 1% of residents use public transportation to get to work. Sheboygan is focused on increasing ridership and functionality of public transportation. In Sheboygan, people can utilize Shoreline Metro, the area's bus transit. Shoreline Metro services all of Sheboygan as well as connecting Sheboygan with the nearby towns of Sheboygan Falls and Kohler. Sheboygan will continue to improve traveler information, comfort and convenience to attract locals, visitors, as well as the transit dependent. Sheboygan explores alternative fuels in fleet vehicles when financially feasible, and supports efforts to expand intercity bus service linking our area to areas throughout the state.



Bicycle and Pedestrian Facilities: Sheboygan County received a federally funded grant as a part of the Nonmotorized Transportation Pilot Program, which funds Sheboygan County Nonmotorized (NOMO) program. NOMO is investing in nonmotorized facilities and outreach initiatives that make bicycling and walking more convenient throughout Sheboygan County. The program is still developing its network of nonmotorized transportation facilities that connect neighborhoods, retail centers, schools, recreational amenities, and employment centers to give people transportation choices that encourage a mode shift from private automobile to biking or walking. Sheboygan will continue to maintain bicycle and pedestrian facilities as well as seek opportunities to increase connectivity and access to facilities. Sheboygan has recently installed pedestrian wayfinding signs to aid in pedestrian navigation throughout the downtown business district including South Pier. Sheboygan promotes programs such as Safe Routes to School, which encourage walking and biking to school.

Street Design, Maintenance, and Traffic

Enforcement: Sheboygan will continue to build and maintain infrastructure to serve a range of users – pedestrians, bicyclists, transit riders and automobiles. Sheboygan encourages elements of green design when reconstructing or building new streets, e.g. LED street lighting, landscaping, native vegetation, wider terraces, narrower pavements, biodegradable paint and pedestrian amenities. Sheboygan explores newer types of construction material and road design to reduce stormwater impacts or increase the lasting quality of the street. Sheboygan also has an aggressive street cleaning program to protect water quality, maintain pavement, and reduce the burden on the sewer system. Sheboygan currently enforces erosion control policies and practices, and will continue to do so into the future. Continued strict enforcement of speeding and other traffic laws will ensure streets are safe for all travelers – autos, pedestrians, and bicyclists – and reduce maintenance costs.

Parking Facilities and Trip Reduction: Sheboygan considers bio-filters and other sustainability practices when rebuilding or developing parking facilities, making such decisions on a development by development basis. Sheboygan encourages the development of parking facilities to incorporate pervious material where clay subsoil does not inhibit drainage, and the incorporation of landscaping for aesthetics and stormwater control, LED lighting, bike racks and other items to conserve energy and protect the environment. Sheboygan employs integrated land use planning and sprawl reduction policies to make destinations more pedestrian, bicycle, and transit friendly to reduce personal automobile trips.

Transportation Action Steps

Short Term (0 - 3 years):

- Address polluted run-off issues related to salt usage and other methods of snow and ice removal.

Long Term (3+ years):

- Provide incentives and flexibility for city employees and local businesses to use transit.
- Support statewide efforts to permit transit agencies to create their own funding authorities to improve mass transit options.
- Coordinate spur lines with industrial park sites, where applicable.
- Encourage rideshare programs and telecommuting.
- Explore the feasibility of adding infrastructure for future electric fueling/plug-in stations.

ECONOMIC DEVELOPMENT

Objective: Enhance the local economy by attracting sustainable business and green-collar jobs and encouraging existing businesses to become more sustainable.

The numerous factors motivating individuals, companies, and governments to act and invest more sustainably are also creating demand for new “green” products, services and jobs. The City is developing a strong social network to support less-fortunate residents, including innovative institutions providing an economic safety net through community funds, food banks, housing, re-use of donated materials, and services for women, children, and the homeless. We also have corporations proud to proclaim their sustainability. On the federal level, the 2007 Green Jobs Act authorized \$125 million to train workers for green-collar fields, with additional funding anticipated. In the face of such activities, equipping Sheboygan as a green business center makes good financial sense.

Current Policies, Programs and Actions

Green Economic Planning, Green Collar Jobs and Attracting Green Businesses:

Sheboygan identifies products and sectors for a sustainability-related manufacturing and production niche in Sheboygan. Sheboygan Area School District partners with area colleges and universities to bring together discussions on developing ways to grow the green collar industry. Sheboygan encourages the adoption of green building practices for new construction and renovation, which contributes to the number of green collar jobs. Sheboygan encourages synergistic businesses to locate in the City, including seeking out businesses to use by-products of other processes or whose wastes can be used as raw materials for other industries. Sheboygan encourages businesses to reuse processed water or make use of solid waste for materials or energy production and to maintain natural terrain, drainage, and vegetation, minimizing the disruption of natural systems.

Buying Local: Sheboygan promotes the buying of local and regional products to help strengthen our economy. Sheboygan is evaluating the potential for the creation of a Buy Local promotional campaign similar to the State of Wisconsin’s “Something Special from Wisconsin” program. Sheboygan emphasizes educating residents about the importance and benefits of supporting local businesses. There are many ways Sheboygan fosters the local buying movement, those include: increasing government purchasing of local products, developing tools to connect local suppliers with businesses, consumers, and government, promoting the sale of local food and drinks at events, encouraging the development of unique local shops to foster a distinct Sheboygan identity, and by supporting the creation of a store or display showcasing Sheboygan’s local products. Sheboygan has a Sustainability Directory that includes green collar companies and companies with improved sustainability. Sheboygan also has a strong art culture, and encourages local artists to work with businesses to display their products. Sheboygan supports businesses and non-profits offering products and services from people with disabilities, in local institutions or with other social needs.





Green Tourism: Sheboygan is working to attract and expand business-related eco-tourism, such as those related to waterways, biking and other outdoor activities. Sheboygan also encourages businesses to increase participation and certification in the Travel Green Wisconsin program, a voluntary program providing opportunities to be recognized as a green business.

Triple Bottom Line: Called “Triple Bottom Line” (the Planet or Natural Capital, People or Social Capital, and Profit or Economic Capital), this accounting approach has been endorsed by the United Nations and International Council for Local Environmental Initiatives (ICLEI) as a bona fide technique to measure corporate and governmental sustainability. Sheboygan encourages institutions and businesses to measure their success not only by financial profit, but by environmental and social performance as well. All levels of curriculum in schools and universities across Sheboygan are working toward developing a green or green business curriculum.

Low-income Needs: Sheboygan provides Community Development Block Grant funds to support social services based on yearly identified need in the community to make sure the monies are being targeted to the largest need for that year. Sheboygan supports programs for housing, transportation, education, work and social networks to improve the economic status of people in need. The Sheboygan Housing Coalition applies for federal assistance for new opportunities, emergencies, disaster relief, faith-based initiatives, etc. Sheboygan continually focuses on efforts to provide local warming shelters and adequate facilities for the homeless.

Economic Development Action Steps

Short Term (0-3 years)

- Promote, expand, and offer business incentives to attract green-collar companies including special funding and financing options.
- Work with the Sheboygan County Economic Development Corp. and the Chamber of Commerce to develop a marketing piece aimed at attracting industry in the sustainability sector.
- Create a sustainable best practices hand out for event planners, and work to attract sustainability-related conventions and events.
- Compile a list of companies in the region who show the value of the triple bottom line.

- Collaborate with the Chamber and local colleges to hold an annual conference to promote sustainability.



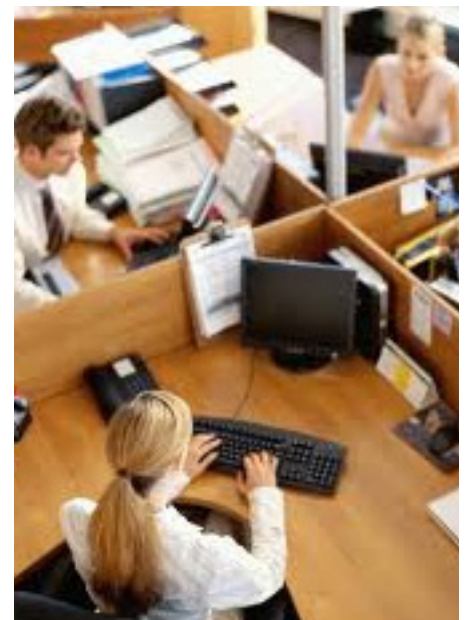
Long Term (3 + years)

- Establish venues for disseminating information to consumers on environmental product labeling.
- Create partnerships with area businesses to assist in informing consumers on environmentally and socially responsible choices.
- Inventory existing job training programs and link them to information provided in the green jobs needs assessment.
- Develop a strategy to secure available government and private funding to grow the industry.
- Analyze the potential for a “green business” incubator in the city.
- Highlight and market the Sheboygan’s infrastructure and amenities attractive to green technology businesses.
- Encourage local businesses to adopt sustainable accounting practices by leading by example and sharing successes.
- Promote the Wisconsin Department of Natural Resources’ Green Tier Program which supports environmentally innovative companies who go beyond compliance with minimum regulatory standards while improving their bottom line.
- Follow standardized environmental management procedures, such as International Organization for Standardization (ISO) 14001.

GOVERNMENT

Objective: Lead by example and foster sustainability policies and actions for cost-effective, socially responsible, and environmentally sound governmental practices to meet community needs.

With many employees and City-owned buildings, the City of Sheboygan has numerous opportunities to lead by example in sustainability efforts. This section provides sustainable policies and actions for city staff and departments to incorporate into daily operations and municipal projects. It also suggests administrative procedures to facilitate community actions. Some internal sustainability measures are already underway.



Current Policies, Programs and Actions

Energy Management: The City of Sheboygan believes it is best to lead sustainability efforts by example. The City has a demonstration site for alternative energies at Maywood Environmental Park, as well as energy conservation policies for city facilities. The City of Sheboygan is committed to planting and maintaining trees and native plants around city buildings and within and adjacent to city parking lots. The City of Sheboygan considers energy conservation and savings in purchasing equipment, computers and appliances. The City also uses a refill purchasing policy, replacing consumables instead of stocking excess, and uses recycled materials whenever possible. To reduce paper and ink use Sheboygan encourages use of electronic documents and email rather than generating paper copies.

Environmental Considerations: The City of Sheboygan considers environmental impact of daily operations and municipal facilities. The City replaces low flow faucet aerators and high efficiency toilets in municipal bathrooms in need of new fixtures to conserve water. Sheboygan municipal buildings provide bubblers to encourage the use of city water. Sheboygan also considers a fleet replacement program incorporating the use of hybrid, electric, flex-fuel, and bio-fuel vehicles.



Communication and Training: For sustainability practices to expand in Sheboygan it is important for many groups to communicate, learn, and share best practices related to sustainability. Officials in Sheboygan who attend Green Tier events and training are expected to report what they learned to all City department heads so that useful information can be disseminated to all City employees. The Sustainable Sheboygan Task Force is in the process of making informational videos about sustainable practices in the City of Sheboygan that will be posted online and available for anyone to view.

Human Resources: The City of Sheboygan's sustainable human resource practices include hiring and promoting people with diverse backgrounds, experiences and perspectives, offering incentives for use of biking and ride-sharing, as well as empowering employees to think creatively, to generate ideas, and to share suggestions on municipal sustainability.

Government Action Steps

Short Term (0-3 years)

- Officially designate a City staff member as the Sustainability Coordinator responsible for coordination of sustainability activities.
- Incorporate sustainability responsibilities in job descriptions for relevant city staff.
- Form a green team of representatives from each department under direction of the Sustainability Coordinator to evaluate and implement internal sustainable actions.
- The Common Council shall designate the Sustainable Task Force to move the Sustainability Plan forward, provide information for the public, and review pertinent resolutions going before the Common Council.
- Continue to involve the public in sustainability activities through the website, online surveys, social networks, governmental meetings, and workshops. Review the Sustainability Plan annually. Present an update of how well the city is meeting sustainability targets at the State of the City event presented by the Mayor.
- Review and adopt recycling practices at all municipal facilities.

- Encourage use of 100% post-consumer recycled content products.

Long Term (3 + years)

- Require energy modeling as part of architectural design in all new public building construction to help determine the greatest efficiencies for energy conservation.
- When possible, utilize Full Cost Accounting (FCA) to analyze all costs, advantages, and alternatives. Define 'cost' not just as the monetary cost, but also include social, environmental and life cycle costs. Use this process rather than relying solely on the low bid process.
- Eventually reduce or eliminate non-green products and cleaners.
- Demonstrate environmentally safe landscaping practices by using natural fertilizers and no chemicals in areas surrounding city buildings.
- Reduce mowing wherever possible. Install rain barrels and rain gardens at city facilities to reduce runoff.



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ACTION STEPS

For the 2014-2019 5-Year Action Plan, the Sheboygan Sustainable Task Force in conjunction with the Strategic Fiscal Planning Committee of the Common Council has endorsed the action items associated with each objective. Action steps have been divided into two groups, short-term (implementation in 0-3 years) and long-term (implementation in 4 or more years).

Short - Term Action Steps

Energy

- Develop an internal policy that when a new street light/park light is replaced, it is replaced with energy efficient lighting, such as LED fixtures.
- Ensure that building codes allow for development of solar, wind, geothermal, and biomass energy sources, with guidelines to protect public safety and maintain community standards for aesthetics.

Local Food

- Support sustainable gardening by creating an example set of rules against artificial fertilizers and pesticides and encourage community gardens to adopt these rules to protect people, water, and wildlife.
- Revise the zoning code ordinance to address community gardens, temporary or permanent, as permitted or conditional land uses in all districts.
- Partner with the Sustainable Task Force to provide food education for citizens to learn about the importance of growing, preserving and buying local and organic food, local food safety, such as advisories on fish eaten from the Sheboygan River.

Natural Resources

- Consider developing maximum impervious thresholds for all zoning districts based on total building and hard surface lot coverage.
- Install low-flow faucet aerators and toilets at municipal sites.
- Review City building codes to update standards for water conserving plumbing fixtures.
- Offer education about how residents can reduce water usage and collect water for use.
- Include educational brochures with quarterly billings.
- Create a rain barrel program allowing citizens to purchase and learn how to use rain barrels.
- Compile and distribute a resource containing a list of hardy native plants appropriate for landscaping, and the importance of rain gardens.
- Review City weed and tree ordinances to ensure they do not discourage native landscaping practices.

Waste

- Explore the merits of a pay-as-you-throw policy for material disposal programs, evaluating either weight or volume of waste such as purchased City garbage bags.
- Consider recycling containers in public areas and at public events next to waste barrels.
- Provide education on setting up and maintaining compost bins at home, community gardens, and the workplace for organic waste (e.g. grass, leaves, brush, fruit and vegetable trimmings and garden debris).

Trans.

- Address polluted run-off issues related to salt usage and other methods of snow and ice removal.

Economic Development

- Promote, expand, and offer business incentives to attract green-collar companies including special funding and financing options.
- Work with the Sheboygan County Economic Development Corp. and the Chamber of Commerce to develop a marketing piece aimed at attracting industry in the sustainability sector.
- Create a sustainable best practices hand out for event planners, and work to attract sustainability-related conventions and events.
- Compile a list of companies in the region who show the value of the triple bottom line.
- Collaborate with the Chamber and local colleges to hold an annual conference to promote sustainability.

Government

- Officially designate a City staff member as the Sustainability Coordinator responsible for coordination of sustainability activities.
- Incorporate sustainability responsibilities in job descriptions for relevant city staff.
- Form a green team of representatives from each department under direction of the Sustainability Coordinator to evaluate and implement internal sustainable actions.
- The Common Council shall designate the Sustainable Task Force to move the Sustainability Plan forward, provide information for the public, and review pertinent resolutions going before the Common Council.
- Continue to involve the public in sustainability activities through the website, online surveys, social networks, governmental meetings, and workshops. Review the Sustainability Plan annually. Present an update of how well the city is meeting sustainability targets at the State of the City event presented by the Mayor.
- Review and adopt recycling practices at all municipal facilities.
- Encourage use of 100% post-consumer recycled content products.

Long - Term Action Steps

Natural Resources

- Consider a program offering City stormwater utility rebate/credits for exceeding requirements for on-site stormwater management.
- Review ordinances to ensure the City is able to address drought situations by curtailing or banning non-essential water uses.
- Control non-native invasive species in right-of-ways, parks and other public areas.
- Offer innovative incentives for water conservation improvements such as plumbing fixtures.
- Explore a plastic bag reduction program.

Waste

- Provide information and incentives to promote recovery, reuse, and recycling of demolition debris and building scraps at construction sites.
- Create a pilot project to make an established community event zero-waste by using products that are bio-based, recyclable, or compostable using glass, bio-plastics and paper products instead of plastic and styrofoam. Go on to include sustainable practices at all events, and create incentives to promote zero-waste events.

Land Use & Planning

- Offer innovative incentives for water conservation improvements such as plumbing fixtures.
- Explore LEED's Neighborhood Design Rating System to help plan for more compact and complete neighborhoods.
- Consider green building for all new city building and remodeling projects.
- Consider offering incentives for green building and remodeling projects or requiring green buildings in Tax Increment Districts.
- Consider a green roof pilot project on a city building. Green roofs absorb and clean rainwater, provide insulation, create habitat for wildlife and help to lower urban air temperatures.

Economic Development

- Establish venues for disseminating information to consumers on environmental product labeling.
- Create partnerships with area businesses to assist in informing consumers on environmentally and socially responsible choices.
- Inventory existing job training programs and link them to information provided in the green jobs needs assessment.
- Develop a strategy to secure available government and private funding to grow the industry.
- Analyze the potential for a "green business" incubator in the city.

Economic Development

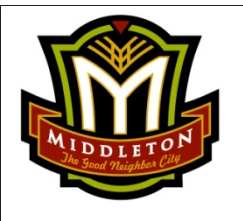
- Highlight and market the Sheboygan's infrastructure and amenities attractive to green technology businesses.
- Encourage local businesses to adopt sustainable accounting practices by leading by example and sharing successes.
- Promote the Wisconsin Department of Natural Resources' Green Tier Program which supports environmentally innovative companies who go beyond compliance with minimum regulatory standards while improving their bottom line.
- Follow standardized environmental management procedures, such as International Organization for Standardization (ISO) 14001.

Government

- Require energy modeling as part of architectural design in all new public building construction to help determine the greatest efficiencies for energy conservation.
- When possible, utilize Full Cost Accounting (FCA) to analyze all costs, advantages, and alternatives. Define 'cost' not just as the monetary cost, but also include social, environmental and life cycle costs. Use this process rather than relying solely on the low bid process.
- Eventually reduce or eliminate non-green products and cleaners.
- Demonstrate environmentally safe landscaping practices by using natural fertilizers and no chemicals in areas surrounding city buildings.
- Reduce mowing wherever possible. Install rain barrels and rain gardens at city facilities to reduce runoff.

Sustainable City Plan

November
2010



City
of
Middleton



THIS REPORT IS FORMATTED
FOR DOUBLE SIDED PRINTING



PREPARED BY MSA PROFESSIONAL SERVICES, INC.
SEVENTH GENERATION ENERGY SYSTEMS, AND GDS ASSOCIATES

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1. EXECUTIVE SUMMARY

The City of Middleton is a thriving City of approximately 17,000 residents. In recent years, the City has earned many accolades including being named the “Best Place to Live” in America in August 2007 by *Money Magazine*. Upon receiving this award and others, the City realized that it must continue to innovate in order to become a truly resilient, sustainable City. To this end, the City has undertaken numerous sustainable initiatives including the formation of a Sustainability Committee, receiving a grant to replace streetlights with LED lights, updating the Bike and Pedestrian Plan, creating a community garden space, and many others too numerous to list.

While the City embraced these actions, it has also become apparent that the City had no mechanism in place to measure the cumulative success of these initiatives. To that end, in 2009 and 2010, the Middleton Green Team Committee created a Middleton Sustainable City Plan: a systems approach to making the City efficient, sustainable, and resilient.

This document explains the Sustainable City Plan, as well as the intensive public process through which the system was developed.

The Sustainable City Plan addresses seven separate, yet interconnected aspects of life within the City of Middleton: Energy, Transportation, Land Use, Water, Waste, Economy/Food/Fair Trade, and Public Outreach and Education. For each of these seven categories, the City created a vision statement; identified indicators by which performance can be measured; selected desired performance trends; and prioritized a list of possible actions to accomplish these objectives.

The Sustainable City Plan is a living document – a system – and continual improvement and annual updates are an integral part of the system. This living Plan is designed to help the City adapt and improve performance each year through incremental changes that will cumulatively result in increased efficiency, cost-savings, environmental benefits, and long-term resilience. Each year the City will evaluate performance, adjust the desired targets if appropriate, and revise the action plan.

The public process through which this Sustainable City Plan was developed included:

- The creation of a City Green Team consisting of key City personnel and members of the Sustainability Committee
- Numerous public working meetings with the City Green Team, May 2009 through July 2010
- A Public Visioning Session, July 8, 2009
- A Community Survey, late July through September 2009
- Progress reports to the City Council, periodically
- A Public Draft Review Meeting, May 12, 2010
- Adoption by City Council on November 16, 2010

Through this intensive public process, the City has made strides toward integrating sustainability and resiliency into all facets of the City, ensuring that the City will not only be able to gauge the success and merits of initiatives, but also that the City will continue to be a desirable place to live.



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2. WHAT IS THE SUSTAINABLE CITY PLAN?

This document does not map out a specific path to a sustainable Middleton. This document describes the process by which the City of Middleton will pursue sustainability year by year, and it includes commitments to actions for the next 1-3 years. This system includes six essential components:

- **Vision statements**

These describe, in qualitative terms, what a sustainable Middleton looks like and how it functions

- **Baseline sustainability indicators (performance, calculated in 2009¹)**

These are specific metrics, aligned with the vision statements, by which the City can quantify performance and progress toward the Vision

- **Performance Targets (the City's improvement goals)**

These are specific, measurable goals to which the City aspires

- **Actions**

These are specific projects, programs, and initiatives to help the City achieve its Targets and Vision

- **Annual Renewal Commitment**

This is the commitment to measure performance toward the Targets each year, and to recommit to a set of actions each year

- **Adoption**

The Middleton City Council adoption formalizes the Sustainable City Plan by Resolution.

Together, the above six components constitute the Middleton Sustainable City System.

¹ Most of the 2009 baseline indicators use data for 2008, unless otherwise noted.



3. PUBLIC PARTICIPATION PROCESS

Because the Sustainable City Plan is a living document that is constantly evolving and growing to meet the needs of the City, an essential component to the System is an active public process. Opportunities for public participation included a series of Green Team working meetings, a public kickoff visioning event, an internet survey, the public presentation of the System, and finally, adoption of the System by the City Council.

Green Team Committee Meetings

The City formed a Green Team to coordinate the development of the Sustainable City System. The Green Team consisted of members of the Middleton Sustainability Committee and City staff including members of the Planning, Water Resources, Building Inspection, Police, and Library Departments. The Green Team met on a monthly basis to develop the Sustainability System, beginning in June 2009. As the process progressed, the Green Team also formed a Work Team that met periodically to keep the process moving forward. The Green Team kept the Sustainability Committee, the Plan Commission, and the City Council informed on progress throughout the process.

Public Kickoff Meeting

On July 8, 2009 the Sustainability Committee hosted a public visioning session to help kick off the project. The meeting's activities were organized around the seven categories or systems upon which this project focuses: Energy, Transportation, Land Use, Economy/Food/Fair Trade, Water Resources, Solid Waste Generation and Management, and Public Outreach and Education. During the meeting, participants moved from table to table, and examined their personal views of a sustainable future for Middleton. The visioning session was attended by more than 50 community members. This exercise resulted in two sets of ideas offered by participants: vision statements and actions.

The visions generated at this public meeting were synthesized and refined by the Green Team into the following Vision Statements:



Solid Waste

The residents, businesses, and government of Middleton utilize the most efficient and effective methods available to reduce, reuse, compost, and recycle waste. City government uses incentives and policies to limit unnecessary waste and to promote the profitable reuse of materials. Middleton is a leader in the application of technologies and practices that keep physical resources cycling within the local economy.

Water

Middleton has an abundance of clean water, including surface water and groundwater resources. All public and private users limit their use of groundwater while also seeking to maximize infiltration of stormwater so that there is equilibrium between water used and water returned to the ground. The City is vigilant in its efforts to keep harmful substances out of all water resources, to protect its aquatic ecosystems, and to ensure



that development is not vulnerable to flooding.

Transportation

Middleton has an extensive multi-modal transportation network that is accommodating to the needs of all people, regardless of age, ability or income. City transportation infrastructure is integrated with a regional system that combines timely, cost-effective public transportation options with a safe and ubiquitous network of routes for walking and bicycling.

Energy

The City of Middleton is a leader in energy efficiency and renewable energy generation and use. Public and private energy users are using innovative technologies to make Middleton a “net zero” City that produces all of its energy needs from renewable sources within the City limits.

Land Use

Land uses in the City of Middleton are smartly integrated and development is designed for flexibility and longevity. The City directs development to infill sites near existing mixed-use centers and corridors, thereby preserving surrounding agricultural land and open space around the City. The City also preserves land strategically within the City to enable recreation and small-scale community agriculture and to preserve biodiversity.

Economy/Food/Fair Trade

Middleton has a balanced, diversified economy which meets the needs of Middleton residents locally. There are unique nodes of retail, service, and office uses throughout the City such that all residents can satisfy at least a portion of their daily needs within walking distance of their homes. The City has a stable employment base which provides attractive, appealing, living-wage jobs to local residents. The skills and contributions of all citizens are valued and appreciated. Middleton residents understand how and where the goods they buy are produced and are empowered to make informed purchasing decisions. Middleton is a leader in the production and consumption of healthy food grown within the community and the region.

Public Outreach and Education

The City of Middleton promotes an environment of creative, innovative learning. It is a City where people of different ages, cultures, and languages respect and learn from each other. Local schools collaborate with the City to help make sustainability a part of every citizen’s life in Middleton. Together, as a community, the City focuses on finding the solution to any problem.



Survey Results

In the fall of 2009, the Green Team and the City of Middleton hosted an online survey in order to gain a deeper insight into Middleton citizens' existing knowledge and participation in sustainability issues and activities, and desired future direction for the City. The online survey tool was focused on residents of Middleton; however, a business survey was also available should local business-owners want to voice their opinions. In addition, members of the Green Team and the Sustainability Committee completed some random door-to-door samples to help increase participation in the survey.

While an online survey is an excellent tool for gathering information, it should not be confused with a statistically significant research study. It is possible for people who live outside of the City of Middleton to respond and for people to take the survey more than one time; therefore the results of this online survey were used simply as a means of gathering increased public participation. Comments and ideas from the community survey, the public meetings, as well as input from City staff and elected officials were used to inform the action items found in the next section of this document.

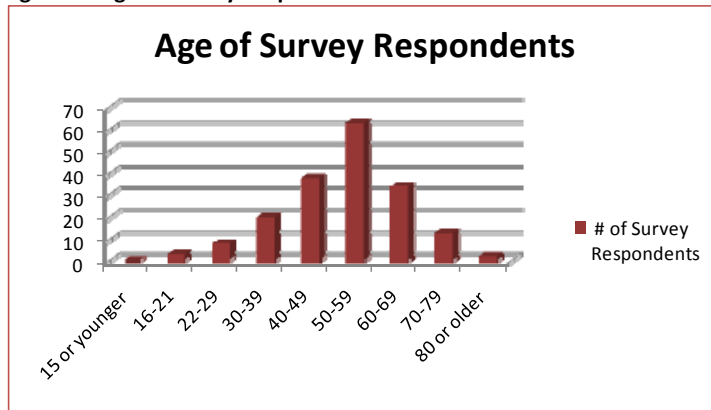
As with any survey, there were a wide range of responses, ranging from people who are very excited and passionate, as well as knowledgeable, about sustainability issues to respondents who were neither interested nor willing to support the efforts; and there were many responses that fell in between these two extremes. In general, survey respondents embraced many of the different facets of sustainability presented in the survey; however, there was also a general concern with the expenses of implementing many of the actions and with duplicating efforts that were already underway by other organizations. Each section of the survey included a question on willingness to pay. While survey respondents were often willing to pay *some* amount for the programs or services, one common complaint was that the survey did not provide enough information on specific costs and savings to answer the willingness to pay questions in an educated fashion.

The following section presents a brief summary of responses, and complete survey result can be found in Appendix C. In addition, the survey results were posted on the City's website.

There were 189 respondents (177 finished the survey completely). Seven of the respondents volunteered that they don't live in the City. The remaining 182 resident respondents represents a response rate of approximately 1% of the City's population. The majority of the respondents (55.8%) are between 40 and 60 years old; however there were at least a few respondents in each age category except the 15 years of age and younger category. The majority of the respondents (56.5%) have lived in the City for more than 10 years.



Figure 1: Age of Survey Respondents



The survey was divided into different sections, each gathering information on a certain topic:

- Trash and Recycling
- Water
- Transportation
- Energy
- Land Use
- Economy
- Public Outreach and Education
- Other
- A bit about the respondent

Trash and Recycling

In general, survey respondents were well-educated and proactive about recycling. The majority of the respondents answered “yes, always” when asked if they recycle at home and work. Not one survey respondent replied “never”. In addition, 68% of the respondents use the Clean Sweep Program to dispose of hazardous household waste. Only 12.2% of the survey respondents did not know about this program. Participation and education on food composting was much less widespread.

Figure 2: Programs and Services related to Trash and Recycling

Would it help you reduce the amount of food you put in your trash if the City did any of the following? (Check all that apply)		
	Response Percent	Response Count
Give out instructions on how to compost	37.8%	62
Sell compost bins at a discounted cost (\$40)	37.8%	62
Collect compost in a separate container along with trash and recycling	48.2%	79
The City should not be involved in this matter	22.6%	37
<i>answered question</i>		164
<i>skipped question</i>		25

Water

In general, survey respondents were supportive of activities to reduce water consumption and improve stormwater management. This was one area, however, where many of the comments reflected concern that this may duplicate the efforts of other organizations.

Figure 3: Programs and Services related to Water Reduction

The average Middleton household uses 172 gallons of water from the City wells each day. Should the City do any of the following to help households and businesses reduce water usage? (check all that apply)		
	Response Percent	Response Count
Give out information on indoor and outdoor water efficiency tips	66.7%	116
Offer rebates for low-flow showerheads, toilets and faucets that use less water	68.4%	119
Prohibit lawn watering during extended dry weather	56.9%	99
Offer water efficiency audits	50.6%	88
Encourage use of xeriscaping (plants that don't have to be watered to survive) for residential and business landscaping	68.4%	119
answered question		174
skipped question		15

Figure 4: Programs and Services related to Stormwater

Stormwater runoff is water from rain or melting snow that “runs off” hard surfaces like parking lots and roofs instead of soaking into the ground. This runoff can pick up pollution like road salt, oil, and trash before it goes to storm sewers and ends up in the Pheasant Branch Creek and eventually Lake Mendota. What should the City do to further reduce stormwater runoff? (Check all that apply)		
	Response Percent	Response Count
Offer a hands-on class on how to build a rain garden	57.4%	101
Give out information on chemical-free lawn and garden care	73.3%	129
Paint all City storm drains with "Drains to Creek" to discourage the dumping of pollutants	48.9%	86
Give out information on how to reduce your home's stormwater runoff	79.0%	139
Provide free mulch to City residents each spring.	42.6%	75
answered question		176
skipped question		13



Transportation

In the Transportation section, the most interest was generated in regards to biking as walking as alternative modes of transportation; very few respondents utilized other forms of mass transit (carpooling, Metro bus, etc.). In general, most of the survey respondents felt that the City ought to undertake activities which make walking and/or biking *safer* (more bike paths, fix hazardous sidewalks, safer crosswalks, etc.)

Figure 5: Survey Respondents who walk or bike to work or shopping (not specifically for exercise)

How often do you walk or bike to get to work or go shopping?						
Answer Options	Never	1-2 times a month	1-2 times a week	3-4 times a week	Every day	Response Count
April - September	47	45	32	33	21	178
Oct - March	66	49	30	8	11	164
answered question						179
skipped question						10

Figure 6: Programs and Services Related to Transportation

What would make you walk or bike more often to get to work or go shopping? (Check all that apply)		
	Response Percent	Response Count
More sidewalks	11.0%	15
More bike paths or marked bike lanes	53.7%	73
Stores closer to where I live	61.8%	84
Working closer to where I live	36.8%	50
answered question		136
skipped question		53

Energy

The section on energy was divided into questions on municipal energy use and individual energy consumption. The majority of the respondents valued renewable energy and energy efficiency, and many were willing to pay the up-front expenses of implementing these technologies. For example, 55% of the respondents thought that City ought to implement strategies and technologies to reduce electricity and natural gas usage *even if* the savings do not cover the cost. The survey respondents displayed a lot of interest in various programs and/or services that the City could offer to help reduce individual energy consumption. It is important to note, that this was another area of the survey where many of the comments cautioned against duplicating the efforts of other organizations.

Figure 7: Programs and Services Related to Individual Energy Consumption

As it pertains to energy usage in homes, which of the following City actions do you support? (Check all that apply)		
	Response Percent	Response Count
Give out information about energy efficient appliances, practices, and home construction	66.3%	120
Offer a class on weatherizing your home	53.6%	97
Offer a class on no-cost tips to save energy	58.6%	106
Give out free compact fluorescent light bulbs	32.6%	59
Require more energy-efficient building construction standards than current code requires	63.5%	115
Establish a loan fund for residents and businesses for energy efficiency upgrades	42.5%	77
Provide rebates for Focus on Energy Home Energy Audits	51.9%	94
Provide free hot water piping insulation to City residents	26.0%	47
Start a thermostat recycling program where residents can bring in their old thermostat in exchange for a low-cost 7-day programmable thermostat	47.0%	85
Waive or reduce the building permit fee if installing a renewable energy system	50.8%	92
Sell shade trees to residents each spring, at the City's cost, to be planted near homes to help reduce cooling costs	51.4%	93
I do not think that it is the role of the City to be involved in these activities	8.3%	15
answered question		181
skipped question		8

Land Use

The section focused on two general questions about land use patterns within the City. Survey respondents were in strong agreement that the City ought to encourage more shopping and service businesses within walking distance of existing neighborhoods; and they also were agreement that the City ought to encourage a mix of shopping, office, and multi-family buildings as part of future housing developments. In addition, there were many write-in comments encouraging infill over green field development. There were also many comments stating that Middleton ought to concentrate on existing businesses and developments before constructing new ones.

Economy/Food/Fair Trade

This section questioned respondents shopping habits, as well as the location of their place of employment. While many of the respondents would prefer to shop from local merchants, the majority of the respondents spend less than 50% of their budget for retail goods and services within the City of Middleton, most commonly leaving the City for better selection. There were many comments specifically mentioning that the City lacks good grocery store options within close proximity to residential neighborhoods. When questioned about the location of their employment, only 12.5% of the respondents reported that they would prefer to work in the city of Middleton but cannot find a job.



Public Outreach and Education

This section of the survey questioned respondents about how they receive information and what activities they would support to increase the public education of sustainability issues within the City of Middleton. Many of the programs and services presented elsewhere in the survey and in this summary would also increase the public outreach and education of Middleton residents.

Figure 8: Preferred contact method

How would you prefer to be informed about City news, initiatives, events, etc.? (Check all that apply)		
	Response Percent	Response Count
Local cable	11.5%	21
Local newspaper	48.4%	88
City website	56.0%	102
Mailing to your home address	29.1%	53
Email/Listserve	71.4%	130
answered question		182
skipped question		7

Figure 9: Public Education interest

What educational forums should the City support / promote to encourage greater sustainable practices in Middleton? (check all that apply)		
	Response Percent	Response Count
Study Circles centered on community sustainability (i.e. Natural Step)	31.8%	55
Neighborhood action teams (i.e. Madison Environmental Group's EnAct groups)	44.5%	77
Sustainability related presentations at a school or the library	71.1%	123
Environmental service-learning projects with the schools	70.5%	122
None – The City should not take an active role in this effort	12.1%	21
answered question		173
skipped question		16



4. SUSTAINABILITY FRAMEWORK

The Sustainability Framework is the core of the City of Middleton Sustainability System. This System is organized into seven interrelated categories: Solid Waste, Water, Transportation, Energy, Land Use, Economy, and Public Outreach/Education.

Within each category are five types of information:

- Vision Statement
- Sustainability Indicators (performance, baseline calculated in 2009²)
- Targets (the City's improvement goals)
- Progress Indicators (future performance, to be updated annually)
- Actions

The indicators in each category were prioritized in accordance with the following criteria:

1. Is the indicator worth tracking to see a pattern over time?
2. Does the indicator measure an area where action items can have an impact?
3. Does the indicator have a large impact on the reduction of CO₂ and/or impact on overall sustainability?
4. Is the indicator easy to measure?
5. Are the action items related to the indicators accomplishable?

- ❖ **High Priority Indicators** are coded in orange in the following tables. High Priority indicators often have more specific targets and actions. In addition, high priority indicators will be monitored annually.
- ❖ **Low Priority Indicators** are coded in yellow in the following tables. Low priority indicators are indicators which the City has deemed important enough to monitor; however, the targets and actions associated with these indicators may be less specific. In addition, low priority indicators may not be monitored and updated annually.

² Most of the 2009 baseline indicators use data for 2008, unless otherwise noted.



Solid Waste

VISION STATEMENT

The residents, businesses, and government of Middleton utilize the most efficient and effective methods available to reduce, reuse, compost, and recycle waste. City government uses incentives and policies to limit unnecessary waste and to promote the profitable reuse of materials. Middleton is a leader in the application of technologies and practices that keep physical resources cycling within the local economy.

Indicator	Baseline	Target	Performance		
			2010	2011	2012
Total solid waste (including recycling) collected per capita per year (lbs)	829.8	DECREASE by 10% by 2015 (746.8 lbs)			
Percentage of solid waste that is recycled	25%	INCREASE to 40% by 2015			

Solid Waste Actions	Timeframe	Responsible Party	Cost
Produce an A-Z Guide for Waste Mangement	Completed	Public Works Committee Solid Waste Task Force	\$\$ Time Reproduction costs
Update the web version of the A-Z Guide on an on-going basis.	On-going	Public Works Committee Solid Waste Task Force	\$ Time
Implement an Automatic garbage collection system	Completed	City Council	No cost to City
Enlarge the amount of items accepted at the Clean and Green event, including a metals drop-off area	2010	Sustainability Committee	No cost to City
Form a Task Force to investigate the use of plastic bags within the City.	2010	Sustainability Committee	--- No cost
Add a permanent MedDrop location	2010	Sustainability Committee	\$
Research current construction waste recycling efforts to determine how to improve recycling rates	2011	Planning Dept. and Public Works Dept	-- No cost
Determine whether Middleton participation in compost bin sale with Dane County can be resumed	2011	Sustainability Committee	-- No cost
Implement City-wide food compost collection services	2012	Sustainability Committee	\$
Research creation of permanent location for scrap metal, plastic bag, Styrofoam, cardboard, hard plastics, and other items that cannot be recycled curbside	2012	Planning Dept	\$
***Highlighted Actions have begun and/or been completed. These actions ought to be celebrated!			



Water

VISION STATEMENT

Middleton has an abundance of clean water, including surface water and groundwater resources. All public and private users limit their use of groundwater while also seeking to maximize infiltration of stormwater so that there is equilibrium between water used and water returned to the ground. The City is vigilant in its efforts to keep harmful substances out of all water resources and to ensure that development is not vulnerable to flooding.

Indicator	Baseline	Target	Performance		
			2010	2011	2012
Gallons of Groundwater Pumped Per Capita per year	42,688	DECREASE			
Percentage of groundwater lost	8-9%	DECREASE			
Gallons of Groundwater Delivered to Residential Users per capita	17,383	DECREASE by 10% by 2020 (15,645 gallons)			
Gallons of Groundwater Delivered to Commercial Users per square foot	49	DECREASE by 10% by 2020 (44.1)			
Gallons of Groundwater Delivered to Industrial Customers per square foot	Data on industrial square footage not available	DECREASE			
Gallons of Groundwater delivered to Municipal customers per square foot	150	DECREASE			



Water Actions	Timeframe	Responsible Party	Cost
Examine how to incentivize measures which encourage reduced water usage and increased water infiltration (possibly including rain barrels, rain gardens, low-flow fixtures, etc.)	2010	Sustainability Committee	\$\$
Evaluate all municipal buildings for water use, indentify and install water saving fixtures where appropriate	2012		\$\$
Research water use on residential and commercial lawns, including automatic sprinklers and make recommendations on improving efficiency of water use	2011		-- No cost
Research how City golf course utilizes water, determine if additional policies or technologies can improve water efficiency	2011		
Explore current pesticide and herbicide use on City property and develop recommendations for using environmentally safer products to minimize health impacts on children, animals, and water quality	2011	Public Lands Sustainability Committee	
Review the City's water rate structure, and eliminate incentive to use large volumes of water, while balancing the needs to business	2011	Public Works Committee	No cost to City
Recommend the use of porous pavement where appropriate	on-going	Plan Commission	No cost to City



Transportation

VISION STATEMENT

Middleton has an extensive multi-modal transportation network that is accommodating to the needs of all people, regardless of age, ability or income. City transportation infrastructure is integrated with a regional system that combines timely, cost-effective public transportation options with a safe and ubiquitous network of routes for walking and bicycling.

Indicator	Baseline	Target	Performance		
			2010	2011	2012
Percentage of Collector Streets with Marked Bike Lanes	11% (3.1 miles)	INCREASE to 65% by 2015 (18.1 mile)			
Metro Bus Trips per capita per year	8%	INCREASE 10% by 2014 (9.273)			
Ratio of Off-street Bike Path Miles to Total Street Length	18% (15.4 miles)				
Percentage of Collector Street with Sidewalks on Both Sides of the Street	71% (10.2 miles)	INCREASE			
Community Car members	61	INCREASE			
Morey Airport Non-Training Flights	6528	TRACK			
City Accidents per capita	0.0250	DECREASE			

Transportation Actions	Timeframe	Responsible Party	Cost
Adopt an ordinance requiring that all streets in Middleton are "complete streets" *	Completed	City Council	No cost to City
Add marked bike lanes through the City**	2010	Public Works	\$\$
Submit a TIGER grant application to fund parking/transit center	Completed	Planning Department	Time \$
Construct the Good Neighbor Trail and the bike path along the railroad corridor to Madison	2010-2020	Public Lands	\$\$\$
Work with the High School to encourage students to use alternative forms of transportation	2010	Sustainability Committee	No cost to City
Determine whether part-time telecommuting for certain city staff functions is feasible and develop policies	2011	City Administration	-- No cost
Use Safe Routes to School Air Quality grant for the Northside School to determine air quality and create program for improving air quality, including signs, that focuses on reducing idling	2010-2011		
Develop recommendations for bicycle parking in commercial areas	2011	Planning Department	-- No cost
Research potential uses for hybrid or alternative energy vehicles in the City fleet	2012		\$\$
Evaluate City vehicle idling policies and make recommendations	2011		-- No cost
Highlighted Actions have begun and/or been completed. These actions ought to be celebrated!			

*Complete streets are designed and operated to enable safe access for all users. Pedestrians, bicyclists, motorists, and public transportation users of all ages and abilities are able to safely move along and across a complete street.

**Allen Blvd (1 mile), Century Ave (1.3 miles), CTH Q (.5 miles), branch Street (.6 miles), University Ave (1.1 miles), Stonefield Rd (.9 miles), Century Ave (2.5 miles), Parmenter St. north (.75 miles), Parmenter St. south (.3 miles), Deming way (1.25 miles), Nursery Dr (.3 miles), Greenway Blvd (.5 miles), Pleasant View Rd (1.5 miles), Park/High Point/Gammon Rd. (2.5 miles)



Energy

VISION STATEMENT

The City of Middleton is a leader in energy efficiency and renewable energy generation and use. Public and private energy users are using innovative technologies to make Middleton a “net zero” City that produces all of its energy needs from renewable sources within the City limits.

Indicator	Baseline	Target	Performance		
			2010	2011	2012
Total Electricity Consumption (kWh)	301,900,191	REMAIN THE SAME, EVEN WITH GROWTH			
Residential electricity (kWh) consumed per capita	4,639 kWh	DECREASE 10% by 2020 (4,175.4)			
Commercial electricity (kWh) consumed per SF	28	DECREASE by 10% by 2020 (25.2)			
Industrial electricity (kWh) consumed per SF	Data not available on SF				
Municipal electricity (kWh) consumed per square foot	6.6	DECREASE by 20% by 2020 (5.28)			
Municipal electricity (kWh) consumed per streetlight	487	DECREASE 243.5 per streetlight			
kWh consumed by Water Utility/Total Gallons	0.19	DECREASE			
Percentage of Electricity Consumed in the City Generated by Renewable Sources	1.6%	INCREASE to 25% by 2025			
Total Natural Gas Consumption (therms)	11,347,396	REMAIN THE SAME, EVEN WITH GROWTH			
BTU Consumed by RESIDENTIAL USES per capita per HDD (Heating Degree Day)	3,340	DECREASE			
BTU Consumed by COMMERCIAL USES per square foot per HDD	12.04	DECREASE			
BTU Consumed by INDUSTRIAL USES per square foot per HDD	Data not available on SF				
BTU consumed by MUNICIPAL USES per square foot per HDD	4.56	DECREASE by 10% by 2020 (4.104)			
Liquid fuel energy consumed per acre of land area maintained	1.15	DECREASE			
Vehicle miles traveled per acre of land maintained	Data not available	DECREASE			



Energy Actions	Timeframe	Responsible Party	Cost
Replace 82 City streetlights with LED	2010	City Council	\$\$\$ - grant funding available
Upgrade government buildings so they are more energy efficient	On-going	City Council	\$\$\$
Adopt a lighting ordinance to encourage energy efficient lights and decrease light wastage	2010	City Council	--- No cost
Install solar panels or a wind turbine in a public place for educational purposes	2010	City Council	\$\$-\$\$\$\$
Offer Focus on Energy literature at City Hall and City of Middleton Library	2010		-- No cost
Evaluate the adoption of a more strict commercial building code to mandate increased energy efficiency	2010	Planning Department Building Inspection Department Plan Commission City Council	--- No cost
Verify municipal computers, where appropriate, are set to hibernate, encourage employees to turn off machines at night if they don't need to be kept on. Identify sources of vampire power use in municipal buildings and provide powerstrips to encourage turning them off when not in use	2010	Planning Intern	\$ powerstrips
Survey City staff on use of personal appliances including heaters, refrigerators, etc. and develop policies for acceptable use to maximize safety, energy efficiency, and staff productivity	2011	City Administration	Low cost
Determine whether set back thermometers are being used (and properly programmed) in all municipal buildings and implement where appropriate	2011	Planning Intern	\$
Review where motion sensor lighting is and is not currently being used in municipal buildings, and install where appropriate	2011	Planning Intern	\$
Research possible incentives to encourage residential building beyond minimum energy efficiency code	2011	Building Inspection Department	-- No cost
Purchase Energy Star rated office equipment, whenever possible	As updates are made	Purchasing Policy	
Require commissioning of all future City structures and determine whether recommissioning is warranted in existing city structures.	2012	City Administration	\$\$
Create a policy for temperature controls in municipal buildings	2011	City Administration	No cost
Highlighted Actions have begun and/or been completed. These actions ought to be celebrated!			



Land Use

VISION STATEMENT

Land uses in the City of Middleton are smartly integrated and development is designed for flexibility and longevity. The City directs development to infill sites near existing mixed-use centers and corridors, thereby preserving surrounding agricultural land. The City also preserves land strategically within the City to enable small-scale community agriculture and to preserve bio-diversity.

Indicator	Baseline	Target	Performance		
			2010	2011	2012
Residents per square mile of land in City limits	1,407	MAINTAIN OR INCREASE			
Area OF Community Gardens (Acres)	0.25	INCREASE			
Percentage of Land Devoted to Parks/Recreation/Open Space	20%	MAINTAIN OR INCREASE			
Proximity to Bus Stops (1/4 and 1/2 mile)	88% / 98%	INCREASE			
Proximity to Grocery Stores (1/4 and 1/2 mile)	8% / 24%	INCREASE			
Proximity to Middleton Parks (1/4 and 1/2 mile)	95% / 100%	TRACK			
Proximity to Conservation Areas (1/4 and 1/2 mile)	97% / 100%	TRACK			
Percentage of Housing Units in Multi-Unit Buildings	57%	DECREASE			
Percentage of Housing that is Owner Occupied	52%	DECREASE			

Land Use Actions	Timeframe	Responsible Party	Cost
As a part of the Plan Commission design review process, encourage new residential subdivision over 10 units (both single and multi-family) to provide garden spaces for their residents.	2010	Planning Commission	-- No cost
Open an additional community garden site	2011	Sustainability Committee	\$\$
Revise zoning standards to reflect parking maximums in commercial areas	2011	Plan Commission	\$\$
Review zoning and building codes to identify impediments to green and sustainable building practices such as green roofs, grey water systems, etc.	2010	Planning Department Plan Commission	\$ Time











VISION STATEMENT

Middleton has a balanced, diversified economy which meets the needs of Middleton residents locally. There are unique nodes of retail, service, and office uses throughout the City such that all residents can satisfy at least a portion of their daily needs within walking distance of their homes. The City has a stable employment base which provides attractive, appealing, living-wage jobs to local residents. The skills and contributions of all citizens are valued and appreciated. Middleton residents understand how and where the goods they buy are produced and are empowered to make informed purchasing decisions. Middleton is a leader in the production and consumption of healthy food grown within the community and the region.

Economy/Food/Fair Trade

Indicator	Baseline	Target	Performance		
			2010	2011	2012
City median household income	\$50,786	TRACK			
% of students that qualify for free and reduced lunch - Elm Lawn Elementary	7.46%	TRACK			
% of students that qualify for free and reduced lunch - Northside Elementary	14.07%	TRACK			
% of students that qualify for free and reduced lunch - Sauk Trail Elementary	40.31%	TRACK			
% of students that qualify for free and reduced lunch - Kromrey Middle	18.40%	TRACK			
Number of jobs in the City per capita	0.84	INCREASE			
% of City residents with jobs within the City	16.00%	INCREASE			
Number of businesses per capita	0.036	INCREASE			



Economy/Food/Fair Trade Actions	Timeframe	Responsible Party	Cost
Develop sustainability guidelines for City purchasing including office supplies, building and remodeling supplies (paint, carpet), and services to encourage local, environmentally-friendly products and/or fair trade purchases	2010	Sustainability Committee	No cost to the City
Research and institute green cleaning practices in municipal buildings	2011	Sustainability Committee	No upfront costs, on-going maintenance costs

Public Outreach and Education

VISION STATEMENT

The City of Middleton promotes an environment of creative, innovative learning. It is a City where people of different ages, cultures, and languages respect and learn from each other. Local schools collaborate with the City to help make sustainability a part of every citizen's life in Middleton. Together, as a community, the City focuses on finding the solution to any problem.

Indicator	Baseline	Target	Performance		
			2010	2011	2012
Residents who receive an environmental message (related to the implementation of this document)	Unknown	INCREASE			
Sustainability Seminar participation hits on site	Unknown	INCREASE			
Clean and Green participation by # of participants	Unknown	INCREASE			
MedDrop participation by # of lbs collected	2,509 (in 2009)	INCREASE			
Participants per year at Green Thursdays	Unknown	INCREASE			
Compost Bins Sold	N/A	INCREASE			



Public Outreach and Education Actions	Timeframe	Responsible Party	Cost
Offer Green Thursday Sustainability Events to provide information on a variety of sustainability topics to Middleton residents	on-going	Sustainability Committee	-- No cost
Promote at least one EnAct group annually	on-going	Sustainability Committee	-- No cost
Provide information on the City's website on renewable energy and available incentives	2011	Sustainability Committee	No cost to City
Encourage low water plans and vegetable gardens for productivity	2011	Sustainability Committee	No cost to City
Host a Green Home and Business Tour	2010	Sustainability Committee	\$
Provide information through neighborhood associations and alders (targeting older neighborhoods) on Focus on Energy home energy performance contracts	on-going	Sustainability Committee	No cost
Highlighted Actions have begun and/or been completed. These actions ought to be celebrated!			

5. METHODS

INDICATOR CALCULATIONS

The indicator calculations are based upon obtainable data that is normalized for the community in order to compare similar data from year to year. This data generally has several components and ensuring that the same calculation occurs every year, the following data is required.

Global Variables

The most common way to normalize data is to provide a common denominator that can be used by all components of the indicator category. Community wide data can most commonly be normalized using the following data:

- ❖ **Population – City of Middleton**
 - **Source:** Annual Department of Administration Estimate
 - **Baseline:** 2009 Estimate = 17,020
 - **Update:** Annually
 - **Definition:** This number is used to define the indicators of consumption of residents.
- ❖ **Population – Dane County**
 - **Source:** Annual Department of Administration Estimate
 - **Baseline:** 2008 Estimate = 471,559
 - **Update:** Annually
 - **Definition:** This number is used to define the indicators of consumption of the region.
- ❖ **Building Square Footage - Residential – City of Middleton Residential Buildings**
 - **Source:** City Assessor's Office
 - **Baseline:** 2008 = 14,081,813
 - **Update:** Annually
 - **Definition:** This number can be used to obtain a measure of residential building stock energy efficiency in the City that can be compared to the rest of Wisconsin and the Nation.
- ❖ **Building Square Footage - Commercial – City of Middleton Commercial Buildings**
 - **Source:** City Assessor's Office
 - **Baseline:** 2008: 7,156,144
 - **Update:** Annually
 - **Definition:** This number can be used to obtain a measure of commercial building stock energy efficiency in the City that can be compared to the rest of Wisconsin and the Nation.
- ❖ **Building Square Footage - Industrial – City of Middleton Industrial Buildings**
 - **Source:** State Assessor's Office
 - **Baseline:** Not obtained in time for this report; The State Assessor is in the process of revising their records to electronic. At that point it will be possible to obtain this record.
 - **Update:** Annually
 - **Definition:** This number can be used to obtain a measure of industrial energy use in the City.
- ❖ **Industrial Customers – City of Middleton Industrial taxed customers**



- **Source:** State Assessor's Office
- **Baseline:** 2008 = 53
- **Update:** Annually
- **Definition:** This number is used to define indicators to measure the industrial businesses in the City in the absence of square footage data.

❖ **Building Square Footage – Municipal – City of Middleton Municipal Buildings**

- **Source:** City Assessor's Office
- **Baseline:** 2008: 168,700
- **Update:** Annually
- **Definition:** This number can be used to obtain a measure of municipal building stock energy efficiency in the City that can be compared to the rest of Wisconsin and the Nation.

❖ **Land Area – City of Middleton**

- **Source:** City GIS Mapping
- **Baseline:** 2008 = 5,243 acres
- **Update:** Annually
- **Definition:** This number is used to define indicators that measure land area.

❖ **Heating Degree Days**

- **Source:** Wisconsin Department of Administration
- **Baseline:** 2008: 7,714
- **Update:** Annually
- **Definition:** This number is used to normalize the natural gas use in the residential and commercial sectors to annual temperature variations.

Transportation Data & Indicators

Transportation indicators provide a measurement of the opportunity for all forms of transportation within the City of Middleton.

❖ **Road Lengths – City of Middleton**

- **Source:** City GIS Mapping
- **Baseline:** 2008 = 86 miles

A) Total miles of principal arterials - Other Freeways (mi)	2.8
B) Total miles of other principal arterials (mi)	7.6
C) Total miles of minor arterials (mi)	5.9
D) Total miles of Urban Collectors (mi)	14.3
E) Total miles of Local Roads (mi)	49.0
F) Total miles of Private roads	6.4

- **Update:** Annually
- **Definitions:**
 - Principal Arterial = restricted access freeway (Hwy 12)
 - Other Principal Arterial =
 - Minor arterial =
 - Urban Collector =
 - Local roads =



- Private Roads =
- ❖ **Sidewalk Length – City of Middleton**
 - **Source:** City GIS Mapping
 - **Baseline:** 2008
 - 10.2 miles along collector street
 - 107.5 miles of total sidewalk
 - **Update:** Annually
 - **Definitions:** Does not include 4.8 miles of unpaved pedestrian only paths.
- ❖ **Bike Path Length – City of Middleton**
 - **Source:** City GIS Mapping
 - **Baseline:** 2008
 - 3.1 miles along collector street
 - 15.4 miles off street path
 - **Update:** Annually
 - **Definitions:** Does not include 4.8 miles of unpaved pedestrian only paths.
- ❖ **Flights – Middleton Municipal Airport**
 - **Source:** Airport Manager
 - **Baseline:** 2009 = 6,528
 - **Update:** Annually
 - **Definitions:** This is an estimated count of non-training flights at the airport.
- ❖ **Community Car Usage**
 - **Source:** Business owner
 - **Baseline:** 2008 = 61 “rentals”
 - **Update:** Annually
 - **Definitions:** This is defined as the number of times a Middleton based car is “rented” by the vehicle communal owners.
- ❖ **Public Transit Bus Trips**
 - **Source:** Metro Bus
 - **Baseline:** 2008 = 143,000
 - **Update:** Annually
 - **Definitions:** The number of rides originating in the City of Middleton.
- ❖ **Shared Ride Access Points**
 - **Source:** City Planning Department
 - **Baseline:** 2009 = 1
 - **Update:** Annually
 - **Definitions:** The number of available park and ride areas as designated by City Planning Staff.
- ❖ **State Van Pool Trips**
 - **Source:** State Department of Administration
 - **Baseline:** 2008 = 0
 - **Update:** Annually
 - **Definitions:** This is an estimated number based upon the State’s record of van pool pickups in



the City of Middleton.

❖ **Police Calls for Traffic Accidents – City of Middleton**

- **Source:** Comprehensive Plan – Chapter 5 (Police Department)
- **Baseline:** 2008
 - 373 police calls for public street accidents
 - 51 police calls for private street accidents
- **Update:** Annually
- **Definitions:** Police calls are not recorded for every accident.

❖ **INDICATORS: To What Extent Does the City Enable Alternative Modes of Transportation?**

- **Indicator:** Percent of Collector Street miles with sidewalk on both sides.
 - **Calculation:** Collector street miles with sidewalk on both sides ÷ collector street miles.
 - **Update:** Annually
 - **Definition:** These percentages measure the opportunity for pedestrian travel on the urban collector streets.
- **Indicator:** Percent of Collector Street miles with marked bike lanes.
 - **Calculation:** Collector street miles with marked bike lane ÷ Total collector street miles.
 - **Update:** Annually
 - **Definition:** These percentages measure the opportunity for bicycle travel on the major roads within the City of Middleton.
- **Indicator:** Ratio of Off-Street Bike Path Miles to total Street Length
 - **Calculation:** Measurement of total off-street bike path miles ÷ total street length
 - **Update:** Annually
 - **Definition:** The number of miles of off-street paths creates an alternative transportation system for non-motorized transportation where they are not competing with motor vehicles for space. The ratio provides a comparative analysis to determine if non-motorized travel services are keeping a similar growth pattern to motorized vehicle amenities solely on a length basis.
- **Indicator:** Middleton Municipal Airport Non-training Flights
 - **Calculation:** Number of data point collected
 - **Update:** Annually
 - **Definition:** Tracks the number of long haul trips from the local small airport.
- **Indicator:** Community Car Use
 - **Calculation:** Number from Data Point
 - **Update:** Annually
 - **Definition:** An increasing number of community car rentals indicates the acceptance of community members to not purchase an additional car for the small amount number of trips where it is necessary. This in turn will reduce the number of underutilized resources of the community and decrease the incidental fuel use from “convenience” vehicle trips.

- **Indicator:** Shared ride access points
 - **Calculation:** Number from Data Point
 - **Update:** Annually
 - **Definition:** An increasing number of shared rides indicated the ease of travel within and outside the City without operating a personal vehicle. Assuming the access points are used, the number of points will indicate the ease of operating on limited personal vehicle mileage budget.
- **Indicator:** State Van Pool Trips
 - **Calculation:** Number from Data Point
 - **Update:** Annually
 - **Definition:** An increasing number of van pool rides indicated the ease of travel within and outside the City without operating a personal vehicle. The State van pool represents a tracked number of customers for a service that is designed to increase car pooling to employment centers.

❖ **INDICATOR: How Safe are the Middleton Streets?**

- **Indicator:** Accidents per capita
 - **Calculation:** Number of police calls for traffic accidents on public and private streets ÷ population of Middleton.
 - **Update:** Annually
 - **Definition:** The number of police calls is an indicator of the number of traffic accidents; the number of accidents that do not have a police officer called to the scene is not determinable. Vehicle and pedestrian/bicycle accidents without injury typically are the highest percentage of unreported accident types. Assuming that accident reporting remains a relatively consistent percentage of total accidents, this indicator will provide information regarding the overall safety of the transportation system in Middleton.

Solid Waste Indicators

Solid Waste indicators provide a measurement of the efficiency with which the City of Middleton residents utilize the materials in the environment. This includes measuring the amount of material disposed, the amount of which is recycled, and the proper disposal of hazardous material.

❖ **INDICATOR: How Much Waste Does the City Produce?**

- **Indicator:** Pounds of residential solid waste per capita
 - **Calculation:** Total waste collected by City contracted waste hauler ÷ residents
 - **Source:** City contracted waste hauler records
 - **Update:** Annually, collected monthly
 - **Definition:** This indicator is a measure of the efficiency of consumption within the community. Decreasing consumption or decreasing the waste associated with the consumption will reduce this number. Recycling is included as collected waste.
- **Indicator:** Percentage of waste that is recycled
 - **Calculation:** Total waste recycled by City contracted waste hauler ÷ Total waste collected by City contracted waste hauler
 - **Source:** City contracted waste hauler records
 - **Update:** Annually, collected monthly



- **Definition:** This indicator is a measure of the residential use of the recycling system in place to handle their waste. Increasing the types of material and creating easier handling of materials will create increased recycling in the waste stream.

Energy Indicators

Energy indicators will measure the amount of energy consumed in different sectors of Middleton and how it is produced. A table following indicator definitions has the relevant data from the past five year and a duplicate blank table to be filled in future years:

❖ **INDICATOR: How Much Energy does the Middleton Community consume each year?**

- **Indicator:** Total Electricity Use
 - **Calculation:** Total community electricity delivered through regulated electric distribution grid
 - **Source:** MG&E and Alliant Energy
 - **Update:** Annually from Electricity supplier
 - **Definition:** This number is obtained by adding together the residential, commercial, industrial, agricultural and municipal consumption.
- **Indicator:** Residential Electricity Use per square foot
 - **Calculation:** Electricity delivered to residential customers of the regulated electric distribution grid ÷ Residential building square footage
 - **Source:** MG&E and Alliant Energy
 - **Update:** Annually from Electricity supplier
 - **Definition:** This number is obtained by summing the monthly data provided by the Electricity provider based upon billing record breakdown.
- **Indicator:** Commercial Electricity Use per Square Foot commercial space
 - **Calculation:** Total Electricity delivered to commercial customers through regulated electric distribution grid ÷ Building square footage commercial
 - **Source:** MG&E and Alliant Energy
 - **Update:** Annually from Electricity supplier
 - **Definition:** This number is obtained by summing the monthly data provided by the Electricity provider based upon billing record breakdown.
- **Indicator:** Industrial Electricity Use
 - **Calculation:** Total Electricity delivered to industrial customers through regulated electric distribution grid
 - **Source:** MG&E and Alliant Energy
 - **Update:** Annually from Electricity supplier
 - **Definition:** This number is obtained by summing the monthly data provided by the Electricity provider based upon billing record breakdown.
- **Indicator:** Total Natural Gas Use per Capita
 - **Calculation:** Total community natural gas delivered through regulated electric distribution system ÷ Population
 - **Source:** Alliant Energy, Harvey Dorn

- **Update:** Annually from natural gas supplier
 - **Definition:** This number is obtained by adding together the residential, commercial, industrial, agricultural and municipal consumption.
- **Indicator:** Natural Gas Consumption
- **Calculation:** Natural gas delivered to all customers of the regulated gas distribution grid
 - **Source:** MG&E
 - **Update:** Annually from natural gas supplier
 - **Definition:** This number is obtained by summing the monthly data provided by the natural gas supplier.
- **Indicator:** Residential Natural Gas Use per Square Foot residential space per HDD
- **Calculation:** Total natural gas delivered to residential customers through regulated gas distribution system ÷ Building Square Footage Residential ÷ Heating Degree Days (in BTU)
 - **Source:** MG&E, Alliant Energy, and Wisconsin DOA
 - **Update:** Annually from natural gas supplier
 - **Definition:** This number is obtained by summing the monthly data provided by the natural gas provider based upon billing record breakdown.
- **Indicator:** Commercial Natural Gas Use per Square Foot commercial space
- **Calculation:** Total natural gas delivered to commercial customers through regulated gas distribution system ÷ Building Square Footage Commercial ÷ Heating Degree Days (in BTU)
 - **Source:** MG&E, Alliant Energy, and Wisconsin DOA
 - **Update:** Annually from natural gas supplier
 - **Definition:** This number is obtained by summing the monthly data provided by the natural gas provider based upon billing record breakdown.
- **Indicator:** Industrial Natural Gas Use per Square Foot industrial space
- **Calculation:** Total natural gas delivered to industrial customers through regulated gas distribution system ÷ Building Square Footage Industrial ÷ Heating Degree Days (in BTU)
 - **Source:** MG&E, Alliant Energy, and Wisconsin DOA
 - **Update:** Annually from natural gas supplier
 - **Definition:** This number is obtained by summing the monthly data provided by the natural gas provider based upon billing record breakdown.
 - **Note:** The industrial building square footage was not obtained by the deadline for the report. In order to track this indicator, the square footage will have to be obtained from the State assessor's office.

❖ How Much Energy does the Middleton Government Consume Each Year?

- **Indicator:** Municipal Electricity Use per Square Foot municipal space
- **Calculation:** Total Electricity delivered to the municipality properties through regulated electric distribution grid ÷ Building square footage municipal
 - **Source:** MG&E and Alliant Energy
 - **Update:** Annually from Electricity supplier
 - **Definition:** This number is obtained by summing the monthly data provided by the Electricity provider based upon billing record breakdown.



- **Indicator:** Municipal Electricity consumer per street light
 - **Calculation:** Electricity estimate consumed by street light type * number of streetlights of that type/total number of streetlights
 - **Source:** MG&E and Alliant Energy
 - **Update:** Annually from Electricity supplier
 - **Definition:** This is the annual average consumption per streetlight fixture based upon the utility estimates of electricity consumption per various street light types.

- **Indicator:** Water utility Electricity consumption
 - **Calculation:** Total Electricity consumed by water utility ÷ total gallons pumped
 - **Source:** MG&E and Alliant Energy and Water utility
 - **Update:** Annually from Electricity supplier and Water utility
 - **Definition:** This number is obtained by summing the monthly data provided by the Electricity provider based upon billing record breakdown and dividing it by the total number of gallons pumped into the Middleton potable water distribution system.

- **Indicator:** Municipal Natural Gas Use per Square Foot municipal space per HDD
 - **Calculation:** Total natural gas delivered to municipal customers through regulated gas distribution system ÷ Building Square Footage Municipal ÷ Heating Degree Days (in BTU)
 - **Source:** MG&E, Alliant Energy, and Wisconsin DOA
 - **Update:** Annually from natural gas supplier
 - **Definition:** This number is obtained by summing the monthly data provided by the natural gas provider based upon billing record breakdown.

- **Indicator:** Municipal Liquid Fuel Use per Acre of Land
 - **Calculation:** Total municipal liquid fuel receipts (in MMBTU) ÷ Land Area acres
 - **Source:** City records
 - **Update:** Annually
 - **Definition:** This number is obtained by summing the annual bulk/tracked diesel and gasoline purchases from all applicable departments.

- **Indicator:** Municipal Vehicle Miles Traveled per Acre of Land
 - **Calculation:** Total municipal tracked vehicle miles traveled ÷ Land Area acres
 - **Source:** City records
 - **Update:** Annually
 - **Definition:** This number is obtained by summing the mileage associated with City business for all vehicles and department.

Water Indicators

Water indicators provide a measurement of the clean water used per resident in the community. Once extracted from the ground the water is subject to water quality issues and can carry those pollutants back to the underground aquifer. Extracting the water and treating it also consumed electricity within the municipal energy consumption indicator. The indicators measure the amount of use and the efficiency of the delivery and collection system.

❖ How efficiently is Our Use of Water in the City?

- **Indicator:** Gallons of groundwater pumped per capita
 - **Calculation:** Metered gallons at groundwater extraction point ÷ population
 - **Source:** City Water department records
 - **Update:** Annually, collected monthly and reported annually to Wisconsin PSC.
 - **Definition:** These indicators measure the amount of water that is extracted to serve the community water distribution and fire protection system. These measurements are taken at the groundwater extraction point prior to insertion into the distribution system.

- **Indicator:** Gallons of groundwater lost
 - **Calculation:** 100% - Total billed gallons ÷ total metered gallons at groundwater extraction point
 - **Source:** City Water department records or as Calculated by the Wisconsin PSC
 - **Update:** Reported annually to Wisconsin PSC.
 - **Definition:** This indicator measures the efficiency of the water distribution system to provide potable water. Losses include fire protection services, system losses, unmetered services, and meter calibration losses.

- **Indicator:** Gallons of groundwater delivered to residential customers, per capita
 - **Calculation:** Billed gallons for residential services ÷ residents
 - **Source:** City Water department records
 - **Update:** Annually, collected monthly and reported annually to Wisconsin PSC.
 - **Definition:** This indicator measures the amount of water that is consumed by each resident at their home per year. This measurement is taken at each customer meter after transmission through the potable water distribution system.

- **Indicator:** Gallons of groundwater delivered to commercial customers, per square foot
 - **Calculation:** Billed gallons for commercial services ÷ Building square footage Commercial
 - **Source:** City Water department records
 - **Update:** Annually, collected monthly and reported annually to Wisconsin PSC.
 - **Definition:** This indicator measures the amount of water that is consumed by each commercial service at the property line. This measurement is taken at each customer meter after transmission through the potable water distribution system.

- **Indicator:** Gallons of groundwater delivered to industrial customers, per square foot
 - **Calculation:** Billed gallons for industrial services ÷ Building square footage industrial
 - **Source:** City Water department records
 - **Update:** Annually, collected monthly and reported annually to Wisconsin PSC.
 - **Definition:** This indicator measures the amount of water that is consumed by each industrial service at the property line. This measurement is taken at each customer meter after transmission through the potable water distribution system.

- **Indicator:** Gallons of groundwater delivered to the municipal facilities, per square foot
 - **Calculation:** Billed gallons for municipal services ÷ Building square footage municipal
 - **Source:** City Water department records
 - **Update:** Annually, collected monthly and reported annually to Wisconsin PSC.
 - **Definition:** This indicator measures the amount of water that is consumed by each municipal service at the property line. This measurement is taken at each customer



meter after transmission through the potable water distribution system.

Land Use Indicators

Land Use indicators provide a comparative measurement of the existing City community. Goals can be set to alter the makeup of the community make up or they can be compared against similar communities.

❖ How efficiently are we using land?

- **Indicator:** Density
 - **Calculation:** Number of residents ÷ Total land area
 - **Source:** General Data; residents ÷ land Area (in square miles)
 - **Update:** Annually
 - **Definition:** This indicator of residents per square mile is easily calculated by many communities. It measures how efficiently we are using our developed land within a community.

❖ How Much City Land is protected as open Space, either for public use of Preservation?

- **Indicator:** Percentage of Land devoted to Parks/Recreation/Open Space
 - **Calculation:** Acres of Park/Recreation + Open Space ÷ Total land acre acres
 - **Source:** City GIS mapping
 - **Update:** Annually, or when GIS mapping land use layer is updated.
 - **Definition:** This percentage is the land amount of area that is not available for development.
- **Indicator:** Community Garden Area
 - **Calculation:** Cumulative land area of Community garden properties
 - **Source:** City records
 - **Update:** Annually, or when additional community gardens are set up.
 - **Definition:** The number of Community garden locations is an indicator of the potential for all residents to supply a portion of their own food from within the City limits.

❖ What percentage of properties are within walking distance of basic services?

- **Indicator:** Proximity to Transit Stop
- **Indicator:** Proximity to Grocery Store
- **Indicator:** Proximity to Open Space
 - **Calculation:** This is an interactive calculation utilizing GIS capabilities and known locations of open space, transit stops, and grocery stores. It will provide a percentage of land area or properties that are within ¼ mile or ½ mile of known amenities
 - **Source:** City GIS Map and GIS operator
 - **Update:** Annually, or when GIS mapping land use layer is updated.
 - **Definition:** The number of people within close proximity to these basic services is an indicator of how efficiently the City is using land and successfully the City is supplying basic services to its residents.
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❖ Is the Supply of Housing Balanced and Meeting the Needs of All that Would Like to Live Here?

- **Indicator:** Percentage of Housing that is other than single family detached.
 - **Calculation:** $\text{Number of Multiple unit family homes} \div (\text{Number of Single family homes} + \text{Number of Multiple family homes})$
 - **Source:** Federal Census
 - **Update:** 10 years on release of Census Data
 - **Definition:** This indicator is based upon the number of units available. It does not matter the size of each of the units.
- **Indicator:** Percentage of Housing that is owner-occupied.
 - **Calculation:** $\text{Number of owned homes} \div (\text{Number of owned homes} + \text{Number of rental homes})$
 - **Source:** Federal Census
 - **Update:** 10 years on release of Census Data
 - **Definition:** This indicator is based upon the number of units available. It does not matter the size of each of the units.

Economy/Food/Fair Trade Indicators

Economy indicators provide a theoretical analysis of the number of jobs available for residents and the number of different businesses offering those positions.

❖ Is there adequate employment with a living wage accessible to City residents?

- **Indicator:** City Household median income
 - **Calculation:** Data point from US Census.
 - **Source:** Federal Census
 - **Update:** 10 years on release of Census Data
 - **Definition:** This indicator is a data point developed by the US Census.
- **Indicator:** Number of jobs in the City per capita
 - **Calculation:** $\text{Economic census number of jobs data point} \div \text{population}$
 - **Source:** Federal Economic Census
 - **Update:** 10 years on release of Economic Census Data
 - **Definition:** This indicator is based on a data point developed by the US Economic Census which occurs approximately two years after the US Census.
- **Indicator:** Percentage of City Residents with jobs in the City
 - **Calculation:** $\text{Data points from US Census for number of city residents who have jobs within the city and number of residents that work from home} \div \text{population}$
 - **Source:** Federal Census
 - **Update:** 10 years on release of Census Data
 - **Definition:** This indicator is based on a data point developed by the US Census.

❖ To What Extent do families within the City and the entire school district have the resources to meet basic needs?



- **Indicator:** Percentage of students in elementary and Middle School that qualify for free and reduced lunch (Broken out per school)
 - **Calculation:** Number of students at Elm lawn Elementary/North side Elementary/Sauk Tail Elementary/Kromrey Middle schools ÷ total number of student
 - **Source:** Middleton School District
 - **Update:** Collected every year
 - **Definition:** This indicator provides a basis of the ability of families to provide basic needs for school aged children.

Public Education and Outreach Indicators

Public Education and Outreach indicators provide a level of knowledge within the community of the work being done. This is critical because the overall success of the communities initiative rely upon the individual actions of the residents. A better informed community will make the best long term decision.

❖ What is the Awareness Level of Middleton's Sustainability Initiatives?

- **Indicator:** Percentage of residents who receive an environmental message
 - **Calculation:** Number of residents on the email list serve ÷ population
 - **Source:** Email list serve administrator
 - **Update:** Annually
 - **Definition:** This is an indicator of the level of activity and support that the residents will provide to the City's communal goals.
- **Indicator:** Sustainability Seminar participation hits on website.
 - **Calculation:** Number of website hits on the City supported Sustainability Seminar website.
 - **Source:** Webmaster
 - **Update:** Annually
 - **Definition:** This is an indicator of the level of activity and support that the residents will provide to the City's communal goals.
- **Indicator:** Clean and Green Participation
 - **Calculation:** number of visits to clean and green Drop sites
 - **Source:** Site employees and volunteers
 - **Update:** At each clean and green Event
 - **Definition:** This is an indicator of the level of awareness residents have regarding disposal of materials.
- **Indicator:** Med Drop participation
 - **Calculation:** Pounds of material collected by MedDrop events
 - **Source:** med drop employees and volunteers
 - **Update:** at each med drop event
 - **Definition:** This is an indicator of the level of awareness residents have regarding disposal of materials.
- **Indicator:** Green Thursdays Participation
 - **Calculation:** number of participants at Green Thursday Events
 - **Source:** Site employees and volunteers at events
 - **Update:** Monthly

- **Definition:** This is an indicator of the level of awareness residents have regarding sustainability, which is the topic of the event.

➤ **Indicator:** Compost Bins Sold

- **Calculation:** number of compost bins sold
- **Source:** Site employees and volunteers at event
- **Update:** Per event
- **Definition:** This is an indicator of the level of awareness residents have regarding disposal of materials.

