



AGENDA FOR PUBLIC WORKS COMMISSION

A Public Works Commission meeting will be held on **Wednesday, August 24, 2022 at 5:30 PM**
in the **Council Chambers at City Hall, 819 Superior Avenue, Tomah, WI.**

Join Zoom Meeting

<https://us06web.zoom.us/j/2708608080?pwd=ZTZ0cmllVEFEb1dzVDNwdi91UHFYQT09>

Meeting ID: 270 860 8080

Passcode: 206751

One tap mobile

+13092053325,,2708608080#,,,,*206751# US

Call to Order - Roll Call

Approve Minutes

[July 2022 Minutes](#)

Discussion Items

1. Airport Update
2. Introduction of New Committee Member: Kerwin Greeno
3. [Sump Pump Reimbursement for the following properties:](#)
 - [715 W Council Street - \\$500.00](#)
 - [720 W Council Street - \\$500.00](#)
 - [1502 Butts Ave - \\$500.00](#)
 - [1506 Butts Ave - \\$500.00](#)
4. [Add Sanitation Operator duties to the Truck Driver position](#)
5. [Discussion and recommendation on Solar feasibility Desktop Study](#)
6. Project Updates
7. [Building Code/Violation Report](#)
8. Payment of Monthly Water & Sewer Bills
9. Departmental Reports
10. Director's Report

Adjourn

NOTICE: It is possible that 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. Please note that, upon reasonable notice, efforts will be made to accommodate the needs of disabled individuals through appropriate aids and services. For additional information or to request this service, contact Becki Weyer, City Clerk, at 819 Superior Avenue, Tomah, WI 54660.

MINUTES FOR PUBLIC WORKS COMMISSION

A Public Works Commission was held on **Wednesday, July 20, 2022 at 5:30 PM** in the Council Chamber at City Hall, 819 Superior Ave. Commission President, Lamont Kiefer called the meeting to order at 5:30 PM.

Call to Order - Roll Call

John Glynn (P), Dean Petersen (P) arrived at 5:32 PM, Lamont Kiefer (P), Brian Rice (P), Bruce Peth (P) arrived at 5:35 PM, Mayor Mike Murray (P), Adam Gigous (P). Quorum Present. Also present, Director Kirk Arity, Brandy Leis, Building Inspector Shane Rolff and Bill Kobleska.

Approve Minutes

June 2022 Minutes 1st Mayor Mike Murray, 2nd by Gigous. All ayes. Motion passed.

Discussion Items

Airport Update

The Public Works Department will be painting the hangar.

Driveway Width Variance Approval: 1215 Lincoln Ave

1st by Glynn, 2nd by Mayor Murray to approve the variance. All ayes. Motion passed.

Water Rate Increase

Due to inventory of bills and implementing new software, the previously approved rate increase did not take place in 2022. The PSC is allowing a 4.5% increase to be implemented in February 2023. 1st by Mayor Murray, 2nd by Peth to approve the increase. All ayes. Motion passed.

Project Updates

Gerkes have placed well points in, they will run for about 1-2 weeks. The current plan is to do W Monowau first, Brandon St second and finish up on Lakeside. The repairs that need to be done on King Ave will start soon. There is some work being done at the future site of the sports complex on Flare Ave. and some materials are being stored there for future use with that project. The City has applied for a grant for \$8.5 million to help build the sports complex. Approval/denial should be known around the end of September. Finished the sump pump lines.

Building Code/Violation Report

Building Inspector Rolff presented the code/violation reports. Council Members should be receiving emails regarding any property on the list in their district. Service master will be cleaning up properties and the City will bill the property owner that cost.

Payment of Monthly Water & Sewer Bills

- a. 1st by Peth, 2nd Mayor Murray to approve water bills as presented. All ayes. Motion passed.
- b. 1st by Peth, 2nd Mayor Murray to approve sewer bills as presented. All ayes. Motion passed.

Departmental Reports

Sewer Department- Pumping an average of 1.1 gallons. Grit removal pump alarm went off and needed to be repaired. Cleaning up the wet well. Sludge pile will be removed this week.

Water Department – Pumping average 1 million gallons. The VA submitted 5-year permit. Repaired five hydrants. Installed an 8-inch water service for the Fire/EMS building. Will be required to test 29 PFAS in March and September 2023.

Public Works

Doing a lot of mowing. Paint crew is out. Seal coating will take place in Lemonweir first week in August. Blacktop and concrete on Nott, Brownell and Saratoga to be done. Installing solar powered crosswalk signs, the TPD received them. Getting the fairgrounds ready for the fair.

Director's Report

Working on the budget. Public Works will be hiring soon, due to a retirement. There are four poles on backorder for traffic lights.

This will be Bruce Peth's last meeting.

Adjourn

1st by Kiefer, 2nd by Peth to adjourn meeting at 6:10 PM. All ayes. Motion passed.

John Shuck Plumbing & Repair LLC
 120 W Warren St
 P.O Box 611
 Tomah WI 54660
 608-344-1058
 MP640215
 PI 7629

Invoice

Handwritten signature in red ink

Number 14613

Date 7/29/2022

Bill To Carol Avne
 715 W Council St
 Tomah, WI, 54660

Ship To Carol Avne
 715 W Council St
 Tomah, WI, 54660

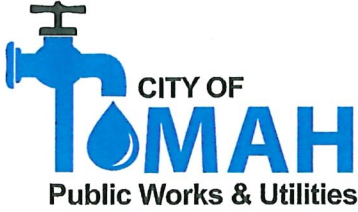
PO Number	Terms	Customer #	Ship	Via	Project
					sewer pump

Item #	Description	Quantity	Price Each	Tax	Amount
	Zoeller m-53 sump pump	1	\$301.32		\$301.32
	trenching for sewer line from house to street	1	\$275.00		\$275.00
	pvc pipe 2"	40	\$3.50		\$140.00
	pvc elbow 2"	3	\$7.49		\$22.47
	j-hooks 2"	4	\$2.05		\$8.20
	pvc sewer pipe 4'	60	\$4.69		\$281.40
	pvc sewer 4' elbow	4	\$9.54		\$38.16
	check valve 1 1/2 quiet	1	\$20.51		\$20.51
	pvc cleanout tee 2"	1	\$11.19		\$11.19
	labor	1	\$700.00		\$700.00

Amount Due	\$0.00
Amount Due	\$1,798.25
Discount	\$0.00
Shipping Cost	\$0.00

	\$1,798.25
0.00 % on \$0.00	\$0.00
0.00 % on \$0.00	\$0.00
Total	\$1,798.25

0 - 30 days	31 - 60 days	61 - 90 days	> 90 days	Total
\$1,798.25	\$0.00	\$0.00	\$0.00	\$1,798.25



819 Superior Ave, Tomah, WI 54660
608-374-7430 | www.tomahonline.com

Attn: City Resident

The City of Tomah is having a sump pump header line installed adjacent to your property. We would like to offer you a cost share program. By connecting to the header line you will help alleviate standing water on your property which can be a prime breeding ground for mosquitos. Discharging the water properly into the storm sewer will prevent hazardous conditions on the sidewalks and the roadways when temperatures drop below freezing.

In order to be approved for this program, you will need to supply receipts and the form below. Receipts can be for such things as materials, rentals, plumber/contractor costs, etc. The work needs to be completed along with the required information returned to the Public Works Department by November, 2021.

If you have any questions, please contact, Kirk Arity, Director of Public Works at 608-374-7430

REQUEST FOR REIMBURSEMENT FORM

Residential Sump Pump Installation Program

Name: Tim + Faith Callahan

Address: 720 W. Council St

Phone: (Home) 608-372-6013 (Cell) _____

Email: _____

Total cost of eligible expenses: 1725.⁰⁰

Total reimbursement requested (50% of eligible expenses, not to exceed \$500.00): 500.⁰⁰

Signature: Faith Callahan

Date: 7/14/22

Office Use Only: Director of Public Works Approval: YES NO

Initial: _____

Check No. _____ Check Issue Date: _____

John Shuck Plumbing & Repair LLC
 120 W Warren St
 P.O Box 611
 Tomah WI 54660
 608-344-1058
 MP640215
 PI 7629



Invoice

Number 14574

Date 7/14/2022

Bill To Tim & Faith Callahan
 720 W Council St
 Tomah, WI, 54660

Ship To Tim & Faith Callahan
 720 W Council St
 Tomah, WI, 54660

PO Number	Terms	Customer #	Ship	Via	Project

Item #	Description	Quantity	Price Each	Tax1	Amount
	material to redo sump pump	1	\$925.00		\$925.00
	labor and excavating charge	1	\$800.00		\$800.00

Amount Paid	\$0.00
Amount Due	\$1,725.00
Discount	\$0.00
Shipping Cost	\$0.00

Sub Total	\$1,725.00
0.00% on \$0.00	\$0.00
0.00% on \$0.00	\$0.00
Total	\$1,725.00

0 - 30 days	31 - 60 days	61 - 90 days	> 90 days	Total
\$1,725.00	\$0.00	\$0.00	\$0.00	\$1,725.00

Item 3.

CK # 2751
 #1725
 7



819 Superior Ave, Tomah, WI 54660
608-374-7430 | www.tomahonline.com

Attn: City Resident

The City of Tomah is having a sump pump header line installed adjacent to your property. We would like to offer you a cost share program. By connecting to the header line you will help alleviate standing water on your property which can be a prime breeding ground for mosquitos. Discharging the water properly into the storm sewer will prevent hazardous conditions on the sidewalks and the roadways when temperatures drop below freezing.

In order to be approved for this program, you will need to supply receipts and the form below. Receipts can be for such things as materials, rentals, plumber/contractor costs, etc. The work needs to be completed along with the required information returned to the Public Works Department.

If you have any questions, please contact, Kirk Arity, Director of Public Works at 608-374-7430

REQUEST FOR REIMBURSEMENT FORM

Residential Sump Pump Installation Program

Name: Meredith Stott

Address: 1506 Butts Ave Tomah WI 54660

Phone: (Home) 608 374-4452 (Cell) 608 377 0325

Email: mstott0225@gmail.com

Total cost of eligible expenses: 1391.58

Total reimbursement requested (50% of eligible expenses, not to exceed \$500.00): 500.00

Signature: Meredith Stott

Date: 8-10-22

Office Use Only: Director of Public Works Approval: YES NO

Initial: _____

Check No. _____ Check Issue Date: _____

John Shuck Plumbing & Repair LLC
 120 W Warren St
 P.O Box 611
 Tomah WI 54660
 608-344-1058
 MP640215
 PI 7629



Invoice

Number 14611

Date 7/29/2022

Bill To Meredith Stott
 1506 Butts Ave
 Tomah, WI, 54660

Ship To Meredith Stott
 1506 Butts Ave
 Tomah, WI, 54660

PO Number	Terms	Customer #	Ship	Via	Project
					sump pump line

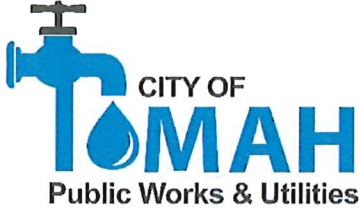
Item #	Description	Quantity	Price Each	Tax1	Amount
	trenching for sewer line from house to street	1	\$275.00		\$275.00
	pvc sewer pipe 4'	50	\$5.69		\$284.50
	fernco 6 x 4	1	\$30.21		\$30.21
	pvc sewer 4' elbow	3	\$9.54		\$28.62
	pvc pipe 2"	25	\$3.50		\$87.50
	pvc coupling 2"	2	\$5.79		\$11.58
	pvc elbow 2"	2	\$6.49		\$12.98
	pvc cleanout tee 2"	1	\$11.19		\$11.19
	labor	1	\$650.00		\$650.00

pd
ck 10.17.8-2-22

Amount Paid	\$0.00
Amount Due	\$1,391.58
Discount	\$0.00
Shipping Cost	\$0.00

Sub Total	\$1,391.58
0.00% on \$0.00	\$0.00
0.00% on \$0.00	\$0.00
Total	\$1,391.58

0 - 30 days	31 - 60 days	61 - 90 days	> 90 days	Total
\$1,391.58	\$0.00	\$0.00	\$0.00	\$1,391.58



819 Superior Ave, Tomah, WI 54660
608-374-7430 | www.tomahonline.com

Attn: City Resident

The City of Tomah is having a sump pump header line installed adjacent to your property. We would like to offer you a cost share program. By connecting to the header line you will help alleviate standing water on your property which can be a prime breeding ground for mosquitos. Discharging the water properly into the storm sewer will prevent hazardous conditions on the sidewalks and the roadways when temperatures drop below freezing.

In order to be approved for this program, you will need to supply receipts and the form below. Receipts can be for such things as materials, rentals, plumber/contractor costs, etc. The work needs to be completed along with the required information returned to the Public Works Department.

If you have any questions, please contact, Kirk Arity, Director of Public Works at 608-374-7430

REQUEST FOR REIMBURSEMENT FORM

Residential Sump Pump Installation Program

Name: Dennis D. Beth

Address: 1502 Butts Ave. Tomah, WI 54660

Phone: (Home) 608-372-3152 (Cell) 608-387-6679

Email: ddbeth@yahoo.com

Total cost of eligible expenses: \$1580.73

Total reimbursement requested (50% of eligible expenses, not to exceed \$500.00): \$500.00

Signature: Dennis D. Beth

Date: 8/4/2022

Office Use Only: Director of Public Works Approval: YES <input type="checkbox"/> NO <input type="checkbox"/>	Initial: _____
Check No. _____	Check Issue Date: _____

John Shuck Plumbing & Repair LLC
 120 W Warren St
 P.O Box 611
 Tomah WI 54660
 608-344-1058
 MP640215
 PI 7629



Invoice

Number 14612

Date 7/29/2022

Bill To Dennis Peth
 1502 Butts Ave
 Tomah, WI, 54660

Ship To Dennis Peth
 1502 Butts Ave
 Tomah, WI, 54660

PO Number	Terms	Customer #	Ship	Via	Project
					sump pump

Item #	Description	Quantity	Price Each	Tax1	Amount
	trenching for sewer line from house to street	1	\$275.00		\$275.00
	pvc sewer pipe 4'	50	\$5.69		\$284.50
	pvc sewer 4' elbow	3	\$9.54		\$28.62
	fernco 6 x 4	1	\$30.21		\$30.21
	pvc clean out tee	1	\$11.19		\$11.19
	pvc elbow 2"	5	\$6.49		\$32.45
	pvc elbow 90 2" st	1	\$7.91		\$7.91
	pvc elbow 45 2"	3	\$6.95		\$20.85
	pvc pipe 2"	40	\$3.50		\$140.00
	labor	1	\$750.00		\$750.00

Amount Paid	\$0.00
Amount Due	\$1,580.73
Discount	\$0.00
Shipping Cost	\$0.00

Sub Total	\$1,580.73
0.00% on \$0.00	\$0.00
0.00% on \$0.00	\$0.00
Total	\$1,580.73

0 - 30 days	31 - 60 days	61 - 90 days	> 90 days	Total
\$1,580.73	\$0.00	\$0.00	\$0.00	\$1,580.73

STAFF COMMITTEE PREPARATION REPORT

Agenda Item:

Add Sanitation Operator duties to the Truck Driver position.

Summary and background information:
(Appropriate documents attached)

In October 2020, the City Council made a motion to approve the abolishment of three sanitation operator positions and create three additional full time truck driver positions. The attached job description shows the added duties to the Truck Driver position.

Fiscal Note:

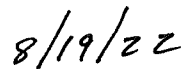
N/A

Recommendation:

I would recommend the Public Works and Utilities Commission approve the changes to the job description as presented and forward to City Council



Public Works Director
Kirk Arity



Date

CITY OF TOMAH JOB DESCRIPTION

POSITION TITLE: Truck Driver
SUPERVISOR: Public Works Supervisor
PAGE: 1 of 2

DEPARTMENT: Public Works & Utilities
CLASSIFICATION: Hourly/Non-Exempt
Represented

REVISED: ~~March 2019~~ **August 24, 2022**
COUNCIL APPROVED: ~~June 11, 2019~~ **September 20, 2022**

GENERAL DESCRIPTION OF DUTIES:

Under the direction of the Public Works Supervisor, this position operates snow plows, drives trucks, prepares infrastructure, trims trees, landscaping duties, performs maintenance on vehicles and equipment, maintains logs of work performed and planned maintenance.

ESSENTIAL DUTIES AND RESPONSIBILITIES:

1. Plowing, salting, snow removal.
2. Hauls snow, sand and debris by truck.
3. Assist in emergency responses, special events, parades, detours, natural disasters, banners and Christmas decorations as needed.
4. Street Management to include asphalt, shouldering, ditching, saw cut, crack seal, patching, painting, haul aggregate, and chemical weed control.
5. Landscaping to include tree removal and trimming, backfilling, stump removal, seeding, grading, building retaining walls, brush pickup, and leaf pickup.
6. Mowing of Airport facilities, interconnecting highways, and landfill.
7. Operates City bucket truck.
8. Cleans catch basins.
9. Paints striping on City streets.
10. Installs street signs and performs sign maintenance/repair, inventory and computer updating when necessary.
11. Replaces/maintains infrastructure pipe when necessary.
12. Performs concrete work on sidewalks and curbs.
13. **Collects refuse and waste daily.**
14. **Delivers refuse and waste daily to the County Landfill.**
15. **Cleans trucks daily**
16. Performs planned maintenance on equipment and vehicles and keeps logs.
17. Performs other duties as assigned.

EDUCATION AND EXPERIENCE REQUIRED:

1. High school diploma or G.E.D. required.
2. Two (2) or more years of truck driving experience.
3. Possession of a valid Wisconsin Class A ~~and~~-or B Commercial driver's license and good driving record.

KNOWLEDGE, SKILLS AND ABILITIES:

1. Knowledge of City Safety Policies, planned maintenance and material safety data sheets.
POSITION TITLE: Public Works Truck Driver DEPARTMENT: Public Works & Utilities
PAGE 2 of 2

KNOWLEDGE, SKILLS AND ABILITIES (CONTINUED):

2. Knowledge of construction and/or repair of streets, sidewalks and storm sewers.
3. Ability to be available on short notice for snow plowing or emergency situations.
4. Completion of Chain Saw Safety Course
5. Forklift Certification preferred
6. CPR/First Aid Certification
7. Demonstrate good oral and written communication skills.

PHYSICAL REQUIREMENTS:

1. Frequent bending, lifting and twisting.
2. Ability to lift 75 pounds.
3. 40% of the day is spent sitting.
4. 30% of the day is spent walking.
5. 30% of the day is spent standing.
6. Percentages of time sitting, standing and walking may vary depending on tasks performed and the time of year.
7. Reaching above and below shoulder height frequently.

PHILOSOPHY AND GOALS:

Each employee must be committed to the goals of the department/city and communicate to the public the highest level of service, fair treatment, and ethical behavior. Employees shall actively employ diligent care of department/city equipment and resources. Employees must further a personal commitment to physically and mentally maintain the highest level of professional appearance and actions reflecting skill and enthusiasm in all assignments and duties. Employees must provide to the public a trust in the department by always being honest, fair, diligent, and courteous.

Employee Signature

Date

Employer Signature

Date

**This is only a draft. Final version will be available after approval by City Council on September 20, 2022.

Technical Memorandum for the City of Tomah, Wisconsin

Solar Feasibility Desktop Study–Tomah Wastewater Treatment Plant



Prepared by:

STRAND ASSOCIATES, INC.®
910 West Wingra Drive
Madison, WI 53715
www.strand.com

August 2022



This technical memorandum provides a desktop electrical and economic assessment for solar photovoltaic (PV) generation at the City of Tomah (City) Wastewater Treatment Plant (WWTP). The following assessment is based on information provided by the City and information generated by Strand Associates, Inc.® (Strand) via a software-based solar PV analysis. On-site investigations were not included in the scope of this assessment. The software-generated reports for each system are included in Appendix A.

Because the scope was limited to a desktop study, the existing electrical distribution systems and structural components of the facilities were not reviewed as part of this feasibility study. This initial feasibility assessment is intended to identify whether efficient solar PV generation is feasible at the WWTP. The expectation is that this desktop study will be followed up with additional site assessments. If significant modifications are required to improve the electrical distribution and/or the building structure, the estimated construction costs and cost recovery periods reported herein will increase.

SITE DESCRIPTION AND ESTIMATED ENERGY PRODUCTION

A. Description

The City identified an open area in the southwest corner of the WWTP site for the potential installation of a ground-mounted solar PV system. Unlike the other large open areas on the site, this area is not reserved for future plant expansion. If the City desires to increase the capacity of the solar PV system, there are additional areas on the site to do so, however, future plant expansion should be considered. The existing buildings on the site have pitched roofs that are generally very small or oriented east to west. Because of this, solar PV systems on these roofs would be significantly less efficient than a ground-mounted system. Thus, no buildings were included in this feasibility study. According to the City there is a chain-link fence around the site that could be relocated to accommodate additional access around the PV array, if necessary, or to add additional PV modules to increase the system capacity.

B. Electrical Interconnection

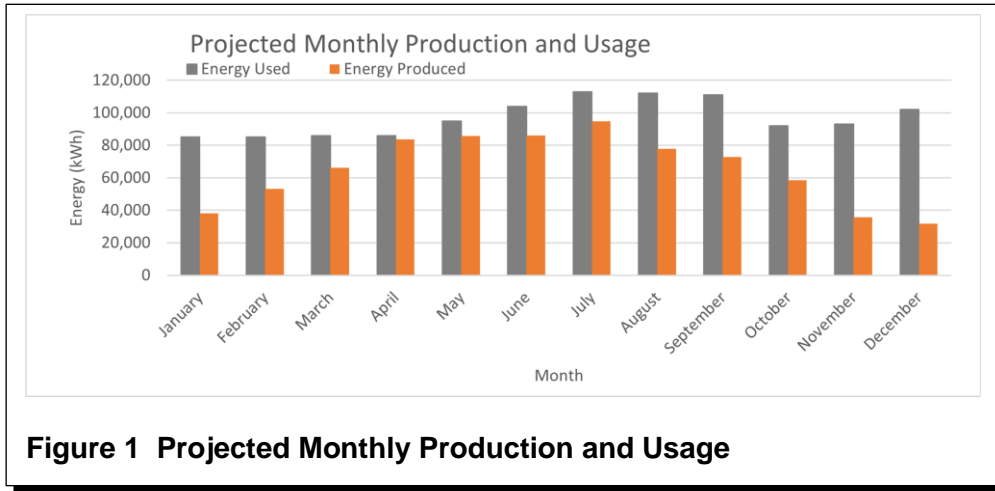
Although the existing electrical distribution system was not reviewed as part of this assessment, the proposed interconnection consists of an alternating current (AC) combiner panel which serves all of the system inverters. There would then be a single feed from the AC combiner panel to the connection point within the existing electrical distribution system. Ideally, the solar PV system should be completely isolated from any backup generation in the event that utility power is lost. Due to the inconsistent power quality produced by generators, as well as the potential to back feed power to generators, it is typically not recommended to have a solar PV system connected to a synchronous generator. Thus, Strand recommends that the solar connection to the facility electrical distribution system be made on the utility side of any source transfer switching configuration.

C. Solar PV System Electrical Analysis

The area of the site can accommodate a system of up to approximately 568-kilowatts direct current (kW DC) using 395-watt PV modules. The system capacity could be increased further, while maintaining the same footprint, at the time of installation based on the availability of higher-rated PV

modules. Using HelioScope software to generate a preliminary computer model of this system, the annual production is estimated to be 784.8 megawatt hours (MWh) per year.

Based on the utility company (Alliant Energy) bills provided by the City, the total energy used by the WWTP in 2021 was approximately 1,164-MWh. If this solar PV system were installed, the expected energy offset is 67.4 percent. Figure 1 shows the projected monthly energy production versus the 2021 energy usage. There is additional energy usage that could be offset if additional space on the site is made available for more PV modules, increasing the system capacity by up to ten percent without negatively impacting the system payback period.



ECONOMIC CONSIDERATIONS

A. Net Metering

Net Metering is a program in which the utility company allows customers to connect renewable energy generators to the public utility power grid. Surplus power generated by the customer is able to be transferred to the grid, offsetting the cost of power supplied by the grid to the customer. The WWTP is currently on Alliant Energy’s industrial time-of-day rate schedule. This rate schedule consists of high, regular, and low energy charges, depending on the time of day and time of year. Each billing period, any excess solar PV production is sold back to the utility company at a reduced rate. Thus, it is more economically efficient to design the system such that it does not produce excess energy most months.

B. Economic Analysis

The estimated capital cost, including professional engineering services, for installing this system is \$1,135,000. This is based on a system cost of approximately \$2.00 per watt direct current (DC). Because of the recent impacts to supply chains, costs for solar PV equipment have risen approximately 30 percent in the past year. There is no definitive estimate on when prices will fall to normal levels. An approximate breakdown of the estimated construction cost is presented in Table 1.

Description	Percentage of Total Cost	Estimated Cost
Labor	12%	\$140,000
Racking	22%	\$250,000
PV Modules	40%	\$450,000
PV Inverters	8%	\$95,000
Miscellaneous Materials	16%	\$175,000
Professional Engineering Services (Design and Construction Phases)	2%	\$25,000
Totals	100%	\$1,135,000

Table 1 Estimated Construction Cost Breakdown

Using current estimated construction costs, the cost recovery period is approximately two years longer than if the project was constructed before the solar PV equipment cost increases. The current electricity rate using a blend of the time-of-day rates is approximately \$0.51 per kilowatt hour (kWh), and the system would save approximately \$40,000 in electricity costs in the first year. This savings is expected to increase as electricity rates are expected to rise approximately 3 percent per year. A financial analysis for this site is presented in Table 2 and Figure 2.

Estimated Cost Recovery (With Incentives)	22 years
Total Cash Gained (40-year period)	\$1,536,000
Return on Investment (40-year period)	153%

Table 2 Financial Analysis

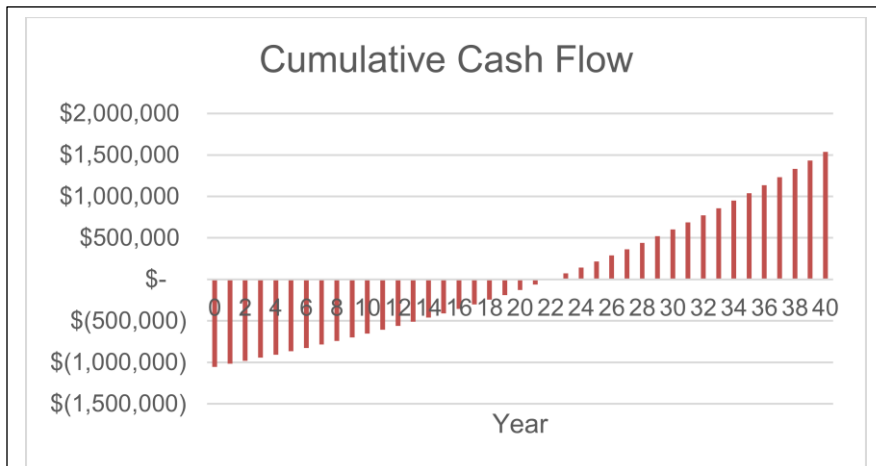


Figure 2 Estimated Cumulative Cash Flow

C. Maintenance Costs

The proposed solar PV modules have performance warranties, as described in a later section in this technical memorandum, and the modules are expected to perform well for 40 or more years. The solar

PV inverters have an anticipated useful life of 15 to 20 years. However, the inverter component of the project cost is only approximately 8 percent of the total cost. Thus, even a complete replacement of the inverters near the end of, or after, the payback term would bring another 15 to 20 years of nearly free power. For this reason, Strand recommends an annualized maintenance cost that incorporates the replacement of all of the inverters between years 15 to 20 for budgeting purposes. On that basis, the annualized maintenance cost is expected to be approximately \$4,750 total per year. This cost is included in the estimated cost recovery shown in Table 1 and Figure 2.

D. Funding and Rebate Opportunities

The following are known incentive opportunities that are subject to change based on the availability of program funding and the timing of construction:

1. **Focus on Energy Solar PV Incentive**

In Wisconsin, Focus on Energy offers an incentive program that can offset solar PV construction costs based on the system size and the sector in which it is installed. The current incentives for government entities are listed in Table 3.

System Size (kW DC)	Incentive per kW DC	Maximum Incentive
Up to 5	\$1,000	\$5,000
5 to 10	\$5,000 + \$700 per kW above 5 kW	\$8,500
10 to 100	\$8,500 + \$250 per kW above 10 kW	\$31,000
100 to 300	\$31,000 + \$150 per kW above 100 kW	\$61,000
300 to 500	\$61,000 + \$100 per kW above 300 kW	\$81,000
500+		\$81,000

Table 3 Focus on Energy Solar PV Incentives

Based on the system presented in this study, the City would be eligible for an incentive of \$81,000, which has been included in the economic analysis described in Table 2. The availability of program funding should be reviewed during the planning and design phases.

SOLAR PV SYSTEM EQUIPMENT

A. Solar PV Modules

Solar PV modules consist of a series of semiconducting circuits that conduct electrons (electricity) when excited by sunlight (photons). The modules can be specified as monocrystalline, polycrystalline, or thin film modules. Each module type has specific advantages related to efficiency, longevity, and cost. However, each module type is also technologically advancing at a fast rate. Currently, Strand recommends using monocrystalline modules for their superior efficiency and aesthetics. Monocrystalline modules use a purer form of silicon to form each solar cell and have a black hue, whereas polycrystalline have a deep blue hue. Modules can be connected in series or parallel as necessary to produce the desired DC voltage and DC ampere flow. All modules have published performance warranties, which

guarantee no less than 80 percent of rated output after 25 years. Research over the past 40 years, as published in the “National Renewable Energy Laboratory (NREL) Photovoltaic Degradation Rates–An Analytical Review”, has shown that most modules on the market today lose less than 0.4 percent of their output annually for at least the first ten years, so the modules are performing much better than the 80 percent standard. Strand generally specifies modules with expectations that efficiency will be closer to 85 to 90 percent after 25 years. Thereafter, the module output would likely degrade 0.5 percent to 1 percent annually. Thus, the modules generally perform very well for 40 years or more.

B. Solar PV Inverters

Solar PV inverters take the DC electricity flowing from the modules and convert it to AC electricity for connection to the electrical distribution system. For building-mounted solar PV arrays, inverters are often paired with module-level DC power optimizers, which help to increase the efficiency of the system, as well as assist in meeting increasingly stringent National Electric Code requirements. Modular inverter systems, recommended here, use several smaller inverters to improve overall reliability, while a central larger inverter is generally more efficient. Inverters are susceptible to damage from ambient temperatures and internal heat production, so they could fail in the range of 15 to 20 years. Typical manufacturer warranties for inverters are ten years but extended 15-year and 20-year warranties are a common option that manufacturers provide.

CARBON FOOTPRINT IMPACT

The installation of this solar PV system would reduce the City’s carbon footprint. Based on calculations used by the United States Environmental Protection Agency, each year this is estimated to be equivalent to:



374 tons of carbon dioxide (CO₂) eliminated from carbon footprint



Driving reduced by 842,700 miles, or 38,200 gallons of gasoline used



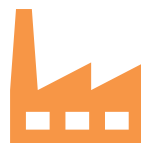
5,600 trees planted and grown for 10 years



117 tons of waste recycled instead of landfilled



66 homes powered for one year



375,600 pounds of coal burned

**APPENDIX
SOFTWARE-GENERATED REPORT**

Preliminary Design Tomah WWTP, Tomah, WI

Report

Project Name	Tomah WWTP
Project Address	Tomah, WI
Prepared By	Sean Bridwell sean.bridwell@strand.com

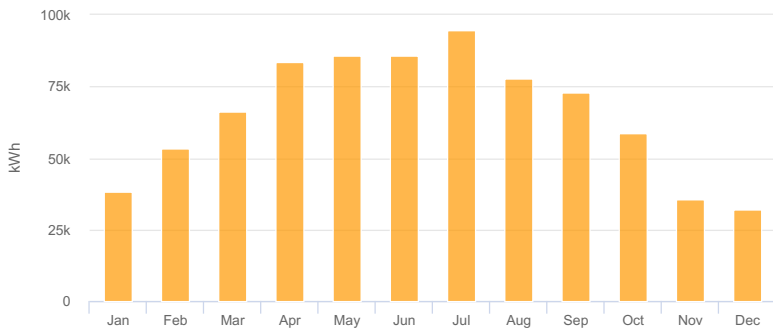
System Metrics

Design	Preliminary Design
Module DC Nameplate	568.0 kW
Inverter AC Nameplate	466.2 kW Load Ratio: 1.22
Annual Production	784.8 MWh
Performance Ratio	83.8%
kWh/kWp	1,381.6
Weather Dataset	TMY, 10km Grid (43.95,-90.45), NREL (prospector)
Simulator Version	d9c9f76558-ac39475d2e-c4a029d14b-dab0516eb2

Project Location

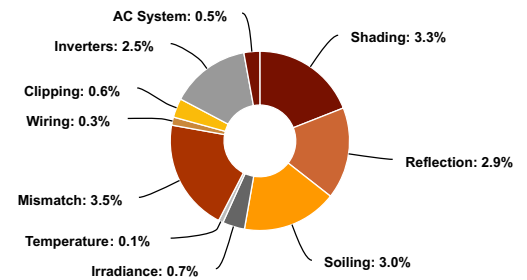


Monthly Production



Month	GHI (kWh/m ²)	POA (kWh/m ²)	Shaded (kWh/m ²)	Nameplate (kWh)	Grid (kWh)
January	47.0	78.4	71.7	38,252.7	38,168.8
February	70.8	103.7	100.1	53,465.4	53,240.9
March	107.9	132.8	129.3	69,039.7	66,318.9
April	157.2	176.8	172.7	92,352.6	83,746.5
May	177.4	180.8	176.1	94,287.3	85,781.3
June	188.8	185.0	180.1	96,374.1	85,928.2
July	203.9	205.5	200.3	107,280.8	94,740.1
August	158.0	169.6	165.2	88,422.5	77,955.5
September	128.0	154.8	151.4	81,307.2	72,814.5
October	85.6	120.0	117.1	62,802.6	58,599.3
November	47.0	73.4	69.6	37,286.2	35,641.0
December	38.8	68.1	60.4	32,223.8	31,845.6

Sources of System Loss



⚡ Annual Production			
	Description	Output	% Delta
Irradiance (kWh/m ²)	Annual Global Horizontal Irradiance	1,410.5	
	POA Irradiance	1,648.8	16.9%
	Shaded Irradiance	1,594.1	-3.3%
	Irradiance after Reflection	1,548.0	-2.9%
	Irradiance after Soiling	1,501.5	-3.0%
	Total Collector Irradiance	1,501.5	0.0%
Energy (kWh)	Nameplate	853,094.9	
	Output at Irradiance Levels	847,150.8	-0.7%
	Output at Cell Temperature Derate	845,899.7	-0.1%
	Output After Mismatch	816,055.6	-3.5%
	Optimal DC Output	813,970.2	-0.3%
	Constrained DC Output	809,069.7	-0.6%
	Inverter Output	788,724.2	-2.5%
	Energy to Grid	784,780.6	-0.5%
Temperature Metrics			
	Avg. Operating Ambient Temp		9.7 °C
	Avg. Operating Cell Temp		16.7 °C
Simulation Metrics			
	Operating Hours		4702
	Solved Hours		4702

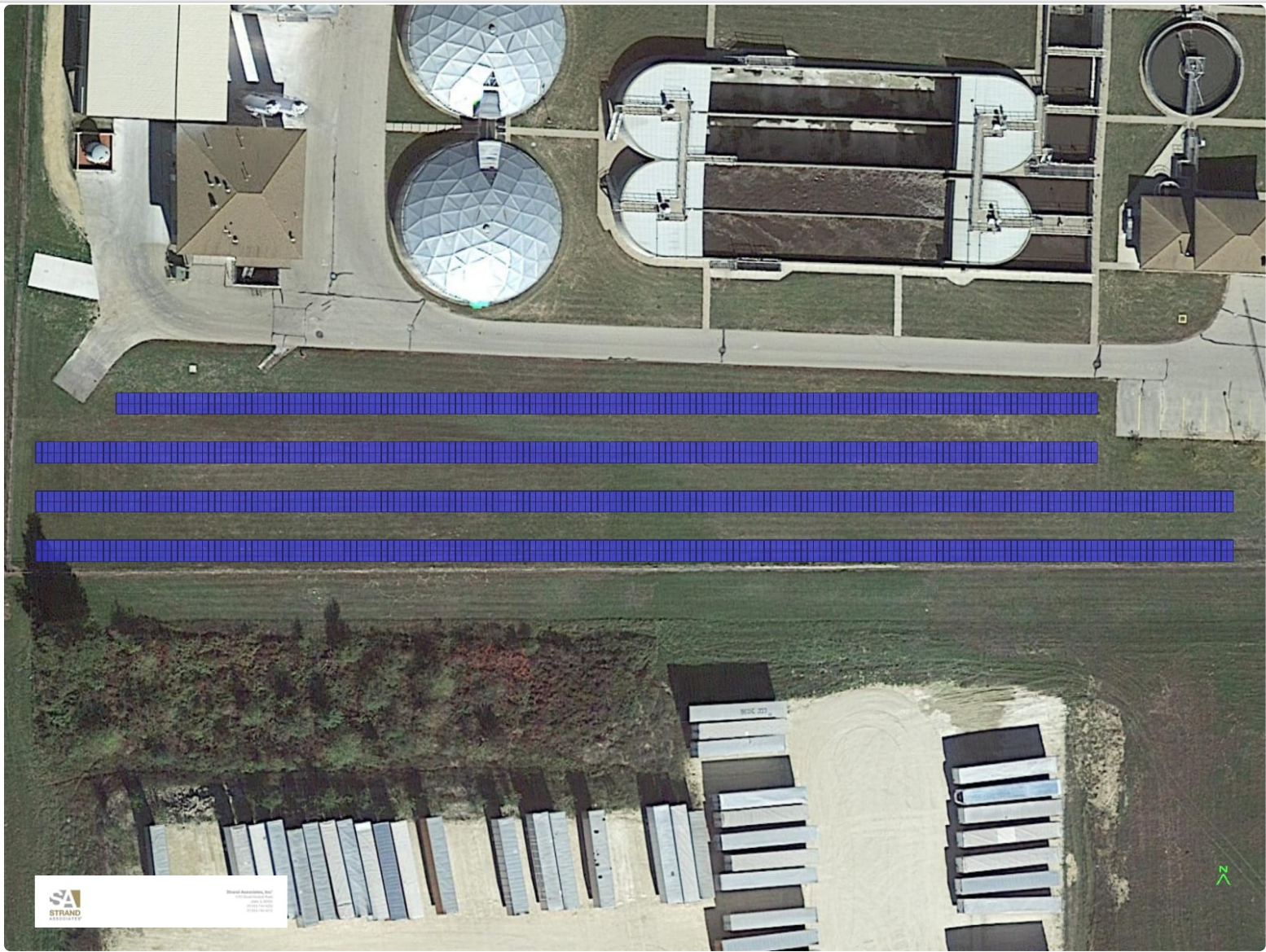
☁ Condition Set													
Description		Condition Set 2											
Weather Dataset		TMY, 10km Grid (43.95,-90.45), NREL (prospector)											
Solar Angle Location		Meteo Lat/Lng											
Transposition Model		Perez Model											
Temperature Model		Sandia Model											
Temperature Model Parameters		Rack Type	a	b	Temperature Delta								
		Fixed Tilt	-3.56	-0.075	3°C								
		Flush Mount	-2.81	-0.0455	0°C								
Soiling (%)		J	F	M	A	M	J	J	A	S	O	N	D
		3	3	3	3	3	3	3	3	3	3	3	3
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									
		REC395TP2SM-72 (REC)	HelioScope	Spec Sheet Characterization, PAN									
Component Characterizations		Device	Uploaded By	Characterization									
		Sunny Tripower CORE1 33-US (SMA)	HelioScope	Spec Sheet									

📦 Components		
Component	Name	Count
Inverters	Sunny Tripower CORE1 33-US (SMA)	14 (466.2 kW)
Strings	10 AWG (Copper)	94 (17,543.7 ft)
Module	REC, REC395TP2SM-72 (395W)	1,438 (568.0 kW)

🔌 Wiring Zones			
Description	Combiner Poles	String Size	Stringing Strategy
Wiring Zone	-	9-17	Along Racking

🏠 Field Segments									
Description	Racking	Orientation	Tilt	Azimuth	Intrarow Spacing	Frame Size	Frames	Modules	Power
Field Segment 1	Fixed Tilt	Portrait (Vertical)	30°	180°	15.0 ft	2x1	719	1,438	568.0 kW

Detailed Layout



July Permit Report

07/01/2022 - 07/31/2022

Permit #	Permit Date	Permit Type	Project Description	Parcel Address	Total Fees	Construction Value
6225	7/1/2022	Electrical	Service upgrade 200 amps	721 W COUNCIL STREET	\$50.00	2,499.00
6224	7/1/2022	Electrical	Extension of existing 15A circuit in garage, adding interior & exterior receptacles, adding exterior light by side door.	917 ALDERMAN STREET	\$35.00	400.00
6223	7/1/2022	Electrical	Replacing overhead service with underground	1209 MC LEAN AVENUE	\$35.00	900.00
6222	7/1/2022	Electrical	Adding GFCI receptacle to deck	729 W JACKSON STREET	\$35.00	500.00
6221	7/1/2022	Electrical	Electrical for rewire of second story apartment	1104 SUPERIOR AVENUE	\$160.00	5,500.00
6220	7/11/2022	Electrical	Electrical for connecting upgraded elevator controller, new fire alarm devices to elevator	120 E MILWAUKEE STREET	\$98.00	21,000.00
6219	7/1/2022	Electrical	Set meter pedestal, add expansion coupling, ground rods, install 4-wire system to home	800 Sime Ave.	\$50.00	1,100.00
6218	7/28/2022	Sign Permit	New directional ground sign	WTC parking lot on Milwaukee & Kilbourn	\$40.00	0.00
6215	7/20/2022	Fence	New 6' wooden fence >2' from property lines	1511 LAKEVIEW DRIVE	\$20.00	0.00
6214	7/18/2022	Land Disturbance Permit	Grading and site preparation for Tomah Athletic Complex	1201 Eggleston St.		0.00
6213	7/14/2022	Fence	4' chain link fence in rear yard on property line on one side (property boundary located)	520 MC CAUL STREET	\$20.00	0.00
6212	7/13/2022	Land Disturbance Permit	Removing underground storage tank and piping	1710 WINNEBAGO AVENUE		0.00
6211	7/12/2022	Alt/Addition Commercial Building	Adding bathroom in existing storage building (C)	1605 TOWNLINE ROAD	\$320.00	32,000.00
6208	7/5/2022	Electrical	100 amp service from	Countrv View Estates	\$35.00	700.00

			pedestal to panel			
6207	7/5/2022	Electrical	100 amp service from pedestal to panel	Edgewood Terrace	\$35.00	700.00
6200	7/7/2022	Sign Permit	New sign cabinets on existing poles, new wall signage	102 E VETERANS STREET	\$40.00	0.00
6199	7/6/2022	Township-Tomah (New const.)	New Single Family Home	27888 Cty Hwy CA	\$1,056.00	0.00
6198	7/5/2022	Alter/Addition One or Two Family	Constructing a roof over existing patio	1506 BUTTS AVENUE	\$110.00	11,575.00
					\$2,139.00	76,874.00

Total Records: 18

8/9/2022



Code Enforcement Violation Report JULY 2022

07/01/2022 - 07/31/2022

Case Date	Case #	Parcel Address	Violation Name	Complaint Type	Due Date	Status
7/29/2022	2022097	405 E FOSTER STREET	38-145 Obstructions and Encroachments	Obstructions and Encroachments	8/14/2022	Issued Order to Correct
7/19/2022	2022094	223 GLENDALE AVENUE	18-19 Nuisances Generally - Prohibited	Nuisance - Junk Accumulation	7/22/2022	TOT Public Works & Utility
7/13/2022	2022091	1410 BUTTS AVENUE	18-20. - Public Health Nuisances	Public Health Nuisance	7/15/2022	Open
7/13/2022	2022091	1410 BUTTS AVENUE	18-52- Public Nuisance	Public Health Nuisance	7/15/2022	Open
7/13/2022	2022093	813 MC LEAN AVENUE	18-52- Public Nuisance	Nuisance - Junk Accumulation	7/28/2022	Open
7/13/2022	2022091	1410 BUTTS AVENUE	48-65- Grass Mowed & Maintained	Public Health Nuisance	7/15/2022	Open
7/13/2022	2022092	1813 GOODLAND AVENUE	48-65- Grass Mowed & Maintained	Grass/Weeds	7/18/2022	TOT Snow & Weed Contractor
7/12/2022	2022090	803 PACKARD STREET	18-54 - Storage of Vehicles Restricted	Public Health Nuisance	7/14/2022	Open
7/12/2022	2022090	803 PACKARD STREET	18-20. - Public Health Nuisances	Public Health Nuisance	7/14/2022	Open
7/12/2022	2022090	803 PACKARD STREET	18-52- Public Nuisance	Public Health Nuisance	7/14/2022	Open
7/6/2022	2022104	222 W COUNCIL STREET	18-19 Nuisances Generally - Prohibited	Nuisance - Junk Accumulation	7/9/2022	Completed
7/1/2022	2022099	327 N SUPERIOR AVENUE	18-19 Nuisances Generally - Prohibited	Nuisance - Junk Accumulation	7/5/2022	Completed
7/1/2022	2022100	229 N Superior Ave.	18-19 Nuisances Generally - Prohibited	Nuisance - Junk Accumulation	7/5/2022	Completed
7/1/2022	2022101	607 SCHNEIDER AVENUE	18-19 Nuisances Generally - Prohibited	Nuisance - Junk Accumulation	7/5/2022	Completed
7/1/2022	2022102	1107 HANSEN STREET	18-19 Nuisances Generally - Prohibited	Nuisance - Junk Accumulation	7/5/2022	Completed
7/1/2022	2022103	1218 HANSEN STREET	18-19 Nuisances Generally - Prohibited	Nuisance - Junk Accumulation	7/5/2022	Completed
	32353528					

Total Records: 16

8/4/2022