Roseville Public Works, Environment and Transportation Commission
Meeting Agenda

Tuesday, June 28, 2015, at 6:00 p.m.
City Council Chambers, 2660 Civic Center Drive
Roseville, Minnesota 55113

6:00 p.m.	**1.**	**Introductions/Roll Call**
6:05 p.m.	**2.**	**Public Comments**
6:10 p.m.	**3.**	**Approval of May 26, 2015 Meeting Minutes**
6:11 p.m.	**4.**	**Communication Items (no discussion)**
6:11 p.m.	**5.**	**City Campus Solar Panel Installation Proposal Review and Recommendation**
6:14 p.m.	**6.**	**Items for August Agenda**
6:15 p.m.	**7.**	**Adjourn to Living Streets and Recycling Workshop**

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Roseville Public Works, Environment and Transportation Commission

Agenda Item

Date: July 28, 2015 **Item No:** 3

Item Description: Approval of the June 23, 2015 Public Works Commission Minutes

Attached are the minutes from the June 23, 2015 meeting.

Recommended Action:
Motion approving the minutes of June 23, 2015 subject to any necessary corrections or revision.

Move**:** _____

Second**:** _____

Ayes**:** _____

Nays**:** _____

Roseville Public Works, Environment and Transportation Commission Meeting Minutes

Tuesday, June 23, 2015, at 6:30 p.m.
City Council Chambers, 2660 Civic Center Drive
Roseville, Minnesota 55113

1. Introduction / Call Roll

Chair Dwayne Stenlund called the meeting to order at approximately 6:30 p.m. and Public Works Director Marc Culver called the roll.

Members Present: Chair Dwayne Stenlund; Members Joe Wozniak, Brian Cihacek, Sarah Brodt Lenz, , Duane Seigler, Kody Thurnau, and John Heimerl

Staff Present: Public Works Director Marc Culver

2. Public Comments

None.

3. Approval of May 26, 2015 Meeting Minutes

Member Cihacek moved, Member Heimerl seconded, approval of the May 26, 2015, meeting as amended.

Corrections:

- **Page 10, Line 441 (Stenlund)**
  Typographical correction: Change "graft" to "graph"
- **Page 14, Line 595 (Stenlund)**
  Typographical correction: Change "she" to "he"

Ayes: 7
Nays: 0
Motion carried.

4. Communication Items

Mr. Culver reviewed project updates and maintenance activities listed in the staff report and attachments dated June 23, 2015. Mr. Culver highlighted several projects, including the water meter replacement program and improvements made in the process, ensuring residents of the validity of third-party contractors performing the majority of the work; lift station replacement updates using the Best

Value Procurement Process providing the opportunity to get the best contractor for the job, not just awarding the work to the lowest bidder; and potential revisions to City Code related to permeable pavements as indicated in the case study (Attachment C) and addressing newer technologies.

Discussion included how and by whom surface area/impervious surface calculations are made as part of the building permit process and determining whether or not a variance is required; variables from one community to another, and differences for lake properties from typical city-wide parcels.

Chair Stenlund supported the City moving forward with any code revisions, as long as a formal, written maintenance plan was put in place to ensure the system would work for any future homeowners inheriting the driveway to keep it functional (e.g. draining) from one owner to another. Chair Stenlund expressed his interest in this particular case study to determine long-term drainage. As part of any written maintenance plan, Chair Stenlund suggested ordinance language provide for vacuuming or other methods to ensure the system continued to be permeable, and not become impermeable due to build in the cells.

At the request of Member Seigler, Mr. Culver reviewed options for existing homeowners who may wish to exceed impervious surface coverage under current regulations, by applying to the City for a stormwater management permit for installation of mitigation efforts (e.g. rain barrels, rain gardens, pervious pavements) all reviewed and approved or denied on a case by case basis. Mr. Culver advised that this was not an option for new construction, as expectations are that calculations will stay under the proscribed percentage allowed versus remodeling or adding onto an existing structure where every available means was undertaken to slow the rate and quality of water.

At the request of Member Cihacek, Mr. Culver clarified new construction options and residential stormwater permit processes requiring five year recertification of any device installed, with the City burdened in managing that certification process and added cost to the individual properties to go through that recertification. At the suggestion of Member Cihacek, Mr. Culver agreed that the City could always improve on their educational efforts for homeowners to be aware of and learn how to maintain their systems for successful recertification and to avoid additional costs.

Chair Stenlund opined that new purchasers of those properties should also be made aware of what they're buying with those systems, as part of the due diligence involved in the purchase.

At the request of Member Cihacek, Mr. Culver provided an update on the Lexington Avenue/Highway 36 bridge reconstruction project, with the Minnesota Department of Transportation (MnDOT) currently in the final design stages and planning for an informational meeting yet this fall. Mr. Culver reported that MnDOT was working

around the I-35E construction area, and the School District to accommodate school schedules while still accomplishing the work within one construction season.

At the request of Chair Stenlund, Mr. Culver reviewed proposals received and reviewed as part of the Best Value process versus typical bidding, and variables from one contractor to another. In the current bidding climate, Mr. Culver reported that contractors are bidding higher to increase their profit and/or employ more workers as they're busier now than during the economic downturn several years ago. Mr. Culver reported, unfortunately, that increased costs to the City as well as limiting the number of proposals as some contractors simply didn't have time to submit a proposal that took more time to do than submitting a bid. Mr. Culver opined that one solution was to make sure the Request for Proposals (RFP) was very clear as to the project itself.

At the request of Chair Stenlund in the increased number of water meters being installed now compared to when the contractor becomes fully operational, Mr. Culver clarified that he didn't see any concern with less quality in the work, since those technicians performing the work were very qualified and that was why they could perform the work more efficiently, as well as due to their support staff. Mr. Culver noted that Ferguson has been performing this type of work for many years, and have up to three technicians working on any given day; and there should be no concern that just because they're doing more replacements on any given day, the quality of their work was being impacted. Mr. Culver noted that City staff would continue installing meters as time allowed, but also as they performed their other daily work responsibilities. Mr. Culver advised that if a homeowner sees any indication of water around the floor by the meter after meter replacement, to be on the safe side, they should call the City or the number left by Ferguson Contractors to double-check the connections.

At the request of Chair Stenlund, Mr. Culver advised that the Victoria Street Project was a little behind schedule due to the land acquisition just approved by the City Council last week. Mr. Culver noted that this slowed down the contractor's ability to excavate the pond for the stormwater system until the property had been legally acquired. However, Mr. Culver advised they were still well within the specified timeline requirements.

5. Community Solar Update and Discussion

Mr. Culver introduced Trevor Drake from Great Plains Institute, also a representative from the Clean Energy Resource Teams (CERTs) to provide an update on the options for community solar garden participation.

Mr. Drake provided a summary of the eighteen-year-old Great Plains Institute and their mission to transform the way energy is produced, distributed and consumed for economic and environmental sustainability. Mr. Drake noted the four organizations partnering in the CERT's, one of seven regions across the State of MN.

Mr. Drake sought the experience of the PWETC related to solar gardens to-date, with Chair Stenlund and Vice Chair Cihacek providing a recap of past presentations, and the continued interest by Roseville residents in energy choices, whether through partnering or making investments; and the full support of the PWETC toward those efforts. Reports also included submission by the City for grants to place solar arrays on City rooftops and those of community schools as well; along with a roof-mounted photovoltaic assembly (PVA) for the City itself to purchase through a phased, city-shared system; and several church groups in the community making it part of their organizational efforts as well.

For the benefit of newer commissioners, Mr. Drake provided a basic overview of solar gardens, potential players involved in a solar garden project, how it worked with Xcel Energy Programs and a third party operator primarily running the solar garden with the utility approving the garden, tracking energy production and providing credit for subscribers.

Mr. Drake reviewed drivers behind solar gardens; 2013 policy enabling Xcel Energy's community solar garden, federal investment tax credits available at 30% through 2016 and then falling to 10% in 2017 and impacting subscription rates, and customer/community member demand potential. Mr. Drake advised that no projects had yet been approved in Minnesota, with a hearing scheduled in the next few days at the Public Utilities Commission (PUC), with one of the engineering questions being how much solar the energy grid can handle, and once the limit was reached, latecomers would be stuck with the cost to upgrade the grid, with those costs very unrealistic for most participants.

Discussion included how many and the varying sizes of projects and project partners involved.

Mr. Drake offered the option for the City to participate in a joint solicitation for the RFP process as part of a subscriber collaborative, with the Metropolitan Council publishing the RFP for solar garden subscriptions, and Hennepin County's legal team drafting and approving the document, thereby creating a Joint Powers Agreement (JPA) for any governmental agency to sign on to and buy off that Metropolitan Council process. Mr. Drake noted that the City of Minneapolis and Ramsey County provided the technical expertise, and CERT's role is to manage the process itself.

Mr. Drake further reviewed advantages in such a collaborative procurement process for the RFP, providing better subscription pricing due to larger scale and pools highest quality subscribers; faster entry into the solar garden market; reduced staff time with a standard subscription agreement to developers for easier comparison; and creating opportunities for local governments of all sizes and increased community impacts with a twenty-five year contract.

Mr. Drake outlined phases of the project, with the City of Roseville having the ability to sign a Non-Binding Letter of Intent by July 24, 2015 to participate. Phases are as listed below:

1) Non-Binding Letter of Intent (LOI) and Optional Joint Powers Agreement (JPA) Participation;
2) Developer selection through a lottery process for the first-right-of-refusal on a garden, at which time a subscription agreement would be executed, and then would become binding;
3) Solar garden(s) approved by Xcel Energy, garden construction, energy production, bill credits received.

Additional information available at: mncerts.org/solargardens/collaborative

Discussion included the payback period for a subscription; credits as soon as constructed lowering energy costs versus an asset to pay off; no money upfront to purchase solar panels; other financing options available versus this pay-as-you-go option for the developer to be paid the dollar amount for each kilowatt hour for each garden subscription seen as a credit on the Xcel Energy billing, with the City not owning the garden, just subscribing. Mr. Drake noted that the City would pay a set amount with an escalator increasing that percentage to developers as part of this standard subscription agreement, and developers would not increase that amount as established.

With the cost of solar continuing to come down, Mr. Drake advised that solar industry experts predict that incentives will have some effect on prices, but the soft cost of solar may actually get better over time and as technologies continue to improve, even though the whole solar garden (not solar rooftop panel) process remains brand new in Minnesota.

Mr. Culver thanked Mr. Drake for his summary, and reviewed the PWETC's recommendation to and subsequent action by the City Council to explore the possibilities and requirements of hosting a community solar installation. Due to size and administration costs, Mr. Culver stated that the consensus was that it would benefit all Roseville residents and spread reduced energy and operating costs to consider the City purchasing community garden shares. Mr. Culver noted that only so much can be done on a given roof, and energy consumption for City buildings is higher than could be produced, therefore, staff is recommending further discussion by the PWETC and City Council to purchase community garden shares to further offset operating costs for the City and benefit taxpayers.

Mr. Culver advised that proposals would be going out in a few days to solar developers for that rooftop system and future PWETC meetings (potentially in July) would finalize a recommendation to the City Council in August to move toward awarding a developer or entering into a developer agreement with a solar developer.

Mr. Culver suggested the PWETC, at a minimum, recommend submission of a non-binding Letter of Intent to participate in this RFP process to see what happens since it is intended for public agencies and the collaboration effort should prove beneficial versus the private sector competition in other options. Mr. Culver advised that the City of Roseville's Environmental Specialist Ryan Johnson had met with Mr. Drake and attended an informational meeting at the City of Falcon Heights to discuss this process, and prompting tonight's presentation and update. For the benefit of PWETC members, Mr. Culver clarified that the City would not enter into any binding agreement without knowing the final costs involved, and with the approval of the City Council.

By consensus, the PWETC recommended to the City Council entering into a non-binding Letter of Intent to participate in this collaborative RFP process.

At the request of Member Seigler, Mr. Drake reviewed the potential timeline for the lottery process for random selection of five tickets per garden, and fifteen days to opt in or not respond; and no commitment until the City signed a subscription agreement and agreed to those particular terms.

At the request of Chair Stenlund, Mr. Drake provided a synopsis of how CERT's is funded by the State of Minnesota, Department of Commerce, Division of Energy Resources, with that funding provided by two foundations: the McKnight and Carolyn Foundations.

6. Update on Resource Recovery Facility (Member Wozniak)

Chair Stenlund invited Ramsey County staff person and PWETC member Joe Wozniak to provide an update on Ramsey-Washington County efforts to purchase the Newport Resource Recovery Facility. Mr. Wozniak noted more detailed information was available at: <morevaluelesstrash.com>.

The presentation included a history of these collaborative efforts by Washington and Ramsey Counties in response to state goals for recycling and trash management; a review of the many players involved (e.g. cities, haulers, recyclers, and everyone producing waste); current issues with the private facility and intent of a public jurisdictional purchase to reduce expenses in diverting trash from landfills. Mr. Wozniak noted trash is currently trucked to the Newport facility, with a fee per load, and then may be further transported to one of the two burners in Redwing and Mankato, MN.

With new technologies available, Mr. Wozniak reviewed those emerging trends, higher recycling goals, expiration at the end of 2015 of the existing agreement between the two counties and the current owner of the Newport facility; and the purchase option allowing improvement to the facility and sorting system to become more economically and environmentally feasible. Mr. Wozniak noted there were policy issues also driving decision-makers, and a critical shift in policy thinking and new technologies for protecting the environment and keeping jobs more local.

Mr. Wozniak advised that the intent would be to build a recycling facility at Newport to sort materials and organics and then evaluate the need for more extensive equipment, its logic and financing as creating a market for recyclables versus the cost of getting rid of those materials, and ultimately reducing overall costs. Mr. Wozniak noted the guiding principles included a plan for the next 20-30 years, building on the current system, while allowing changes to emerge over time by assuring flexibility, managing risks, and revising the viewpoint from "waste," to "resources."

Discussion included capacity issues at the local, Minneapolis burner; Minnesota Pollution Control Agency (MPCA) requirements; mixed waste process (MWP); and the benefits and reduced costs if everyone recycled and sorted materials at their source (e.g. residence or business) rather than additional handling at a facility.

Regarding current organic recycling efforts, Mr. Wozniak noted Ramsey County's intent to make money available to cities in Ramsey County to expand their organics programs; and current lack of a Roseville yard waste site and ability to accept organics, with the closest site located in Arden Hills and their opting out of organic collections.

Member Cihacek clarified the advantages of the potential rebates to haulers to the Newport facility if operated publically versus privately eliminating the current subsidy paid trash vendors to use that site but addressing the higher cost of processing waste at Newport versus landfilling it. Member Cihacek noted, if the County took over ownership, they could dictate costs and require all haulers to use that facility, allowing the potential creation of secondary markets for materials; and noting current profit margins at the Newport Resource Recovery Technologies (RRT) facility as a private entity.

At the request of Member Seigler, Mr. Wozniak stated that the RRT was not really interested in selling the facility, but Ramsey and Washington Counties have expressed an interest in purchasing the facility, and hold the right-of-first-refusal to purchase it, with a purchase prices negotiated and arbitrated, with an additional cost for upgrades still being negotiated for the thirty-year old facility. By purchasing the facility, Mr. Wozniak noted the Counties would have more flexibility in materials received and how they're process, more predictable costs with no subsidy required due to a lack of competition with area landfills, and hopes to divert more trash from landfills into recycling or energy production.

Mr. Wozniak advised he would keep the PWETC updated as the negotiations continued until the August 27, 2015 Project Board meeting.

Chair Stenlund referenced a recent *Minneapolis Star/Tribun*e newspaper article addressing the difficult markets for recyclables at this time due to the China market. Chair Stenlund noted this may be important as the PWETC looks to update their

RFP process and begin negotiations in 2016 as the contract with Eureka Recycling expires, and as those market issues continue to evolve.

Mr. Culver noted that, as heard at the recent annual report from Eureka, they had already addressed reduced revenues being seen and fewer revenue share dollars to the City, which would in turn impact the City's recycling fee in 2016 to its residents due to that reduced market for plastics, colored/sorted glass. Mr. Culver admitted this is disappointing given past history and anticipation of how the contract would work when entering into the agreement with Eureka. Mr. Culver advised that staff was in the early stages of discussing the next RFP for that service contract, which would come before the PWETC for review and recommendation to the City Council. Mr. Culver stated that, depending on how the market plays out, either positive changes will be seen as the market rebounds, or it will be a rude awakening as a new contract is pursued.

Since the City of St. Paul is beginning their RFP process for an organics and recycling vendor(s), Member Wozniak opined that their decision on a vendor could impact the City of Roseville's choice of vendors as well, since Eureka also serves that City, and may go in similar directions.

For the benefit of new commissioners, Chair Stenlund noted the PWETC's development of an RFP that uses a Best Value Procurement process to obtain the best environmental services possible for residents and the City; with a scaled system to rank and weight proposals, reflecting Roseville values. Chair Stenlund noted the honesty and upfront nature of Eureka as a vendor.

Chair Stenlund asked staff to include a discussion of organic recycling and "blue bags" on a future PWETC agenda.

7. Review of Joint Meeting with the City Council

Chair Stenlund reviewed topics discussed at the joint meeting and thanked members for their attendance and participation. Chair Stenlund reviewed individual Councilmember comments; and consensus items for the PWETC to revisit and make recommendation to the City Council.

<u>An excerpt from the June 22, 2015 DRAFT City Council Meeting Minutes</u>

Joint Meeting with Public Works, Environment and Transportation Commission (PWETC) Parks and Recreation Commission

Mayor welcomed members of the PWETC Commission, represented by Chair Dwayne Stenlund; Vice Chair Brian Cihacek; and Members Sarah Brodt-Lenz, Joe Wozniak, John Heimerl, and Kody Thurnau…

As part of tonight's meeting materials, Chair Stenlund noted the PWETC's submission of a neighborhood organized trash collection guide (Attachment A to the RCA) for City Council consideration for the community. Chair Stenlund briefly reviewed the activities and accomplishments of the Commission since last meeting jointly with the City Council, and as detailed in the RCA dated June 22, 2015. Chair Stenlund sought City Council

feedback on proposed work plan items for the upcoming year, as well as presenting questions to the City Council and hearing their concerns as part of tonight's discussion as follows.

<u>Stormwater Management</u>

Councilmember McGehee expressed her interest in infiltration barrier curbs, other curbs, and swales as streets are replaced; noting her preference for ribbon curbs in parking areas to water vegetation in island parking areas.

Chair Stenlund opined that, to-date the City had done a marvelous job installing ribbon curbs, pervious pavers, and landscaping to treat rainwater where it fell. From a civil engineering versus lay person's perspective, Chair Stenlund spoke to the City's efforts, using the recent land acquisition as part of the Victoria Street Project as an example of securing sufficient land to address stormwater management issues. Chair Stenlund opined that he found the City to be quite advanced and doing a wonderful job looking at alternatives and considering future trending.

<u>Sanitary and/or Water Service Line Laterals</u>

Councilmember McGehee suggested a minimum notification of options available to residents when the City undertakes a sewer or water main lining project, allowing them to consider having their laterals lined at the same time. Councilmember McGehee expressed interest in a possible cost-sharing effort between the City and residents to get those stub lines done and address leakages currently occurring and no longer remaining a vulnerable part of the system.

Councilmember Willmus expressed his interest in the PWEC's review and subsequent recommendation to the City Council regarding the various water/sewer service lateral issues before the next cold weather season.

Councilmember Laliberte agreed that more work was needed from the PWETC on water/sewer service laterals; and expressed her eagerness to see the commission's recommendations.

Councilmember Etten agreed with Councilmember McGehee, opining he would love to have cost-sharing as an option in lining his service lateral before it fails.

Regarding sanitary sewer laterals, Member Cihacek sought clarification on what the City Council desired as a goal or solution. Member Cihacek questioned if the intent was for recommendation or a series of recommendations from the PWETC or what would be most beneficial for the end product for this complex and multi-faceted issue. Member Cihacek opined there may not be only one solution, and sought more guidance for the PWETC in order to provide sufficient information to the City Council in their policy decision-making and for the PWETC to perform their research better and provide the best possible recommendations.

Since the PWETC's work as a body flows to the City Council, Councilmember Willmus opined that the PWETC did not necessarily need to present a unified approach, as he often found dissent from their discussions helpful as well.

Mayor Roe clarified that the main issue involved the choice to leave lateral ownership as is with property owners responsible for anything up to the main and including the laterals; or to change that defined ownership to something else.

Councilmember Willmus agreed with those choices; stated he was not going to direct the PWETC one way or the other, as he wanted to review their discussion and subsequent recommendations.

Councilmember McGehee stated she saw it as a multi-faceted issue and used the example of residents able to negotiate with a contractor performing work for the City to have their private driveways replaced. Based on her past research of other metropolitan communities as part of her work with the League of Minnesota Cities, Councilmember McGehee agreed with Councilmember Willmus that the PWETC provide options. Councilmember McGehee expressed confidence in the PWETC performing their typical thorough research and coming forward with a well-thought out recommendation or recommendations.

Councilmember Laliberte noted the variables with certain situations treated differently in Roseville, based on the jurisdictional ownership of the road, as well as which side of the road on which the main was located. Councilmember Laliberte suggested a comparison with other communities of the same or similar age to Roseville, and comparison of their policies compared to that currently in Roseville. Councilmember Laliberte noted, when the HRA had recently met with the City Council, the availability of loan funds, and questioned if assistance to property owners may be considered as part of one of their loan programs.

Member Cihacek suggested the PWETC also look at other circumstances beyond ownership, including bid format, financial impacts, unfunded liability issues, options and other considerations that would prove productive and forward thinking in an effort to provide the best guidance for the City Council,.

Mayor Roe opined that a key part along with those other considerations would be the educational component, since most residents were unaware of the ownership of those connections until they developed a problem, at which time they became intimately aware of them. Mayor Roe opined that, if upfront education can be provided, the better for all.

Councilmember Laliberte concurred with Mayor Roe, opining that preventative measures were an important component to alert homeowners.

Councilmember McGehee concurred, noting the educational efforts provided in the past by the City related to backflow preventers for sewer lines. As an additional part of the educational efforts for this issue, Councilmember McGehee noted the disparity among homeowners in the City and lack of awareness as to the location of mains on one side of

the street or the other. Councilmember McGehee opined this was not something one even typically thought about when purchasing a home, or the potential variables in cost, nor was it part of their normal due diligence in that purchase.

Regarding City liability and costs, Chair Stenlund asked if it would be of value to the City Council for the PWETC to make recommendations on a potential ceiling for the cost of rehabilitation of the laterals, capping the cost for homeowners and the point the City should or could step in to share those costs.

By consensus, City Councilmember supported that suggested option.

Councilmember Willmus expressed appreciation already for this additional perspective from the PWETC, particularly preventative measures. Councilmember Willmus suggested additional consideration should be discussed about potential steps the City can take as laterals are repaired to make sure City inspectors are reviewing and monitoring those new lines from a basic perspective to ensure the longevity of laterals, and avoid added future expenses as part of preventative efforts.

<u>Pavement Management Plan (PMP)/Delamination of Streets/Sealcoating/Mill and Overlay/Pavement Condition Index (PCI) Ratings</u>

Councilmember McGehee expressed her hope that any future PWETC fieldtrip would include monitoring and following-up on the delamination issue and research on the latest thoughts and/or technologies to address that issue.

Mayor Roe agreed with concerns of the PWETC on potential impacts to streets with delamination and deferral of sealcoating that may have long-term effects on the PCI. Mayor Roe suggested different index standards may be needed in the future to address those correlated costs, while maintaining a balance. As part of that review by the PWETC and future recommendation to the City Council, Mayor Roe suggested their review of the City's current assessment policy based on those funding challenges going forward and whether changes were needed in that policy that may include revised cost-sharing calculations for those benefitting from street improvements.

<u>Pathway Master Plan Implementation</u>

Councilmember Willmus noted apparent issues among individual PWETC members during their last ranking of the Pathway Master Plan, and no standard criteria in their individual scoring exercises. Councilmember Willmus suggested that the PWETC's first step be to develop such a common set of scoring criteria for their next review and ranking exercise, opining that would be most beneficial to the commission and the community.

Councilmember Laliberte reported on her research of potential grant monies for sidewalks through the Statewide Health Improvement Program (SHIP). Since the City Council continued to hear from residents in their desire for more connectivity, and those sidewalks and pathways were expensive to fund and prioritize accordingly, Councilmember Laliberte suggested additional research on grant funds that may be available to accomplish those efforts.

Mayor Roe suggested the PWETC, in their review of the pathway system again, make it a priority to consider connections between multi-family residential buildings and transit, as well as connecting with schools. Mayor Roe provided several examples he and Councilmember Etten had discussed in their neighborhood in observing bus riders having to walk on the grass or on the street to get to a bus stop because there was no available pathway. Mayor Roe opined that making those short connections would certainly improve the quality of life for those needing to use transit.

Solar Power Discussions

Councilmember Willmus expressed his desire for the PWETC and City Council to continue their work on community solar and solar garden options, including the ability to write grants as applicable. Councilmember Willmus suggested one aspect should be recommending if the PWETC feels an outside grant writer is needed to assist with those efforts in a timely manner.

Councilmembers Laliberte and Etten spoke in support of continued solar power resources and more involvement.

Transportation

Councilmember Laliberte advised that she had spoken earlier today with a Ramsey County Commissioner serving on the Ramsey County Transit Advisory Board (TAB) who questioned why the City of Roseville did not apply for more grants. Councilmember Laliberte advised that the Commissioner noted, as a newer member of the TAB, money was frequently going elsewhere as there were no applications being received from the communities she represented. While the commissioner noted her feedback on the cumbersome nature of those grant application processes, she suggested such feedback would prove helpful going forward. Councilmember Laliberte suggested further research by staff and the PWETC of particular grants that may be available for City participation.

Leaf Pickup Program Outreach/Education

Councilmember Laliberte agreed that options were needed for those residents who needed to replace the leaf pickup program after discontinuation in 2015. While there are many services available to perform raking and removal for residents, Councilmember Laliberte noted the need for an option for residents choosing to rake and pile leaves on the curb for pick-up. Councilmember McGehee noted several questions she'd received to-date from residents seeking an option that would be comparable to the fee-based service they previously received from the City.

Capital Improvement Program (CIP)/Role of the PWEC for Equipment Replacement

Councilmember Laliberte encouraged the PWETC to work with staff to identify acceptable standards and capital improvement program (CIP) funding for street improvement projects (e.g. suggestions for those accepted standards, timelines, and funding) toward matching those efforts on a consistent basis.

Regarding the role of the PWETC in equipment replacement, Councilmember Etten suggested that staff may already have a cycle in place based on industry standards, but agreed that the PWETC may wish to review that schedule of replacement while recognizing staff's rationale in the cycle for replacement. However, Councilmember Etten suggested the PWETC's recommendations in addressing the PMP schedule, and PCI cost issues long-term would be beneficial to the City Council.

<u>Draft Neighborhood Organized Trash Collection Guide</u>
Mayor Roe noted he had seen the original draft in the PWETC meeting packet, and noted the revisions and improvements made to it, which he found to be on the right track. Mayor Roe sought input from his colleagues as to their preference for the next step: whether to seek public feedback at this time or bring it forward for action.

Councilmember Laliberte stated her understanding was that this version was made available by the PWETC for discussion tonight; and noted there had no public comment up to this point. If the item was placed on a future City Council agenda item for potential action, Councilmember Laliberte opined that it would provide for public comment at that point. Councilmember Laliberte stated that she had several minor technical items that she would review with the PWETC or Public Works Director Marc Culver.

At the request of Mayor Roe, Chair Stenlund confirmed that, from the PWETC's perspective, the guide was ready for submission to the City Council.

If the items mentioned by Councilmember Laliberte were policy related, Mayor Roe suggested it wait for City Council discussion and consideration.

<u>General Individual Comments</u>
As part of their field trips and from an operational standpoint, Councilmember McGehee suggested the PWETC recommend ways to beautify public boulevards, open spaces and rights-of-way that didn't require such intensive care (e.g. hand moving) by installing more natural areas where applicable.

Chair Stenlund noted some favorable comments the PWETC had received from residents regarding reduced road speed to improve safety on one section involving a City project.

Chair Stenlund asked if the City Council was interested in maintenance-free landscaping that interested butterflies and served as pollinators, as many communities were looking into.

Councilmember McGehee spoke in support of that suggestion.

Mayor Roe spoke in support of maintenance-free landscaping efforts, provided the options were not cost-prohibitive.

Mayor Roe thanked commissioners for their report, their ongoing work, and their attendance tonight, opining that there was no better advertisement for residents to apply

for future PWETC vacancies than tonight's discussion. Mayor Roe expressed the City Council's and community's appreciation of the work of the PWETC and looked forward to the next joint meeting.

In reviewing the joint meeting, areas of focus were discussed and highlighted as follows:

- Continue pursuit of solar energy options
- Revisit the Pathways Master Plan with a clear ranking system
- Sanitary sewer/water lateral ownership options; potential cap for homeowner expense such as used for sewer back-ups with a "buffet" of options to address the complex issues, including but not limited to location of laterals to the main, depth, lining options, consideration of using HRA loan program; available grant programs
- Integration of Transit options with infrastructure components and projects; safety and capacity improvements and funding available
- Develop educational components and options for residents beyond the City's leaf pick-up program when it expires in 2015
- Sustainability of the Pavement Management Program (PMP) following recent review by the Finance Commission at the request of the City Council, should the pavement condition index (PCI) target of 75 be lowered; and what that meant to the sustainability of the fund and potential increased maintenance.

Mr. Culver suggested the PMP be revisited during the winter months, as well as pathways, then recycling leading up to a new RFP for recycling services.

Member Seigler mentioned the Walmart roundabout and trees making it dangerous and difficult to see around them.

Mr. Culver responded that is an intentional part of their design to slow traffic and better address lines of sight.

Members noted the City Council's apparent acceptance of the organized collection guide for residents/neighborhoods for consideration at an upcoming City Council meeting, depending on their schedule and allowing for public feedback before adoption.

Allowing for staff to provide some research, Mr. Culver suggested the PWETC consider water/sewer services as part of their October/November timeframe; with August serving to address educational efforts and communication to residents on options for the leaf pickup program, with Member Wozniak suggesting organic collection be part of that discussion as well.

Chair Stenlund noted solar updates would continue on a monthly basis.

8. Possible Items for Next Meeting – July 28, 2015

- Review of Proposals and Staff Recommendation for City Campus Solar Installation

As a bench handout, ***attached hereto and made a part hereof***, Mr. Culver noted staff's receipt of a notice for a "Living Streets and Recycling Workshop" geared to City Environmental Commissions, scheduled for Tuesday, July 28 from 6 to 9:00 p.m. Since this is a regularly-scheduled meeting date for the PWETC, Mr. Culver sought consensus and interest from them in using that workshop to be held at Roseville City Hall as their meeting, with a brief business meeting as needed immediately prior to the workshop (e.g. 6:00 p.m.) Recognizing the agenda of the PWETC, Mr. Culver suggested this may be beneficial to the actual issues coming before the PWETC over the next year, allow them to network with other communities, and hear their experiences and presentations as well.

Discussion ensued regarding timing and items to be addressed as part of the business meeting; open meeting law implications and notice requirements; location of the PWETC business meeting and this workshop; or meeting on an alternate day, which was not supported by the majority of members.

Member Cihacek moved, Member Lenz seconded, rescheduling the July 28, 2015 PWETC meeting to 6:00 p.m. for a brief business meeting; with the workshop standing in for the remainder of the meeting.

Mr. Culver duly noted the change; and advised staff would address the logistics of both meetings.

Ayes: 7
Nays: 0
Motion carried.

Since losing the July meeting agenda, Member Cihacek suggested that at the August meeting, the PWETC address the community survey update, and develop an educational process for leaf collection/organics; with Pathways and the PMP revisited in October.

Chair Stenlund noted the need to schedule water/sewer lateral discussions in September and October.

Member Cihacek offered to bring a proposed vision for water/sewer laterals and a schedule with him in September and October for PWETC consideration, and allowing staff time to perform their research as well.

Member Cihacek suggested future winter discussions on considering worm composting at leaf collection sites as a tactic to improve the quality of compost and perhaps derive some revenue from the use of the worms. Member Cihacek also

suggested discussing a potential code change to mandate sanitary sewer clean-outs for new construction.

9. Adjourn

Lenz moved, Seigler seconded, adjournment of the meeting at approximately 8:46p.m.

Ayes: 7
Nays: 0
Motion carried.

10.

Roseville Public Works, Environment and Transportation Commission

Agenda Item

Date: July 28, 2015 **Item No:** 4

Item Description: Communication Items

Please note that due to the Commission's participation in the Living Streets & Recycling Workshop, there is very limited time to discuss these items. Therefore, if you have questions on any of the items below please email Marc Culver before the meeting.

Projects update:

- Victoria Street Reconstruction and Sidewalk Project: Construction is well underway. The pond on the newly acquired parcel adjacent to Pioneer Park has been constructed and is in service (accepting storm water). Curb was placed last week and milling and paving operations will follow in the coming weeks.
- Pavement Maintenance Program follow-up: This project is mostly on hold now until after the State Fair when Roselawn Avenue will be milled and paved. There will be some water main replacement in the month of August along Draper and Ryan Ave east of Hamline Ave.
- Lift Station Replacements: The City opened proposals for the St Croix Stormwater Lift Station and presented the results of the scoring to the City Council on July 20. The City only received one proposal but the firm received a score of 91 out of 100. The bid price was $827,875 including two alternate items in the proposal (Variable Frequency Drives for the pumps and a larger generator). The engineer's estimate for the project was $1,029,325.59. There was a brief discussion in the Council packet regarding the budgeted amount in the CIP for this project which was $500,000 and the discrepancy. Staff recommended Council award the project and indicated that projects in 2016 would be adjusted to keep the spending within limits over the next few years in the Stormwater Enterprise Fund Capital Improvement Plan (CIP). The City Council voted to award the project to Magney Construction, Inc.
- Twin Lakes Parkway Open House – The City will be hosting an Open House on Thursday, July 30 from 4 PM to 7 PM in the City Council chambers to discuss the design of the final phase of the Twin Lakes Parkway project. This project will extend Twin Lakes Parkway from Prior Ave to Fairview Ave. Attendees will have the opportunity to comment on several design elements of the project. It is anticipated that City staff will request authorization from the City Council to advertise for bids for the Twin Lakes Parkway project on August 10th.

- 35W North Corridor Project: MnDOT is conducting a study and starting an environmental review process for the widening of 35W from Hwy 36 in Roseville to Lexington Ave in Blaine. Attached is some brief information on this potential project which still needs to secure funding. The project website is: http://www.dot.state.mn.us/metro/projects/i35wroseville/

Attachments:
A: Living Streets & Recycling Workshop Information Sheet
B: 35W North Corridor Project Information

Living Streets & Recycling Workshop

For City Environmental Commissions

Parks and Planning Commission Members are also invited!

Tuesday July 28 6pm to 9pm

Roseville City Hall 2660 Civic Center Dr, Roseville, MN 55113

FREE Event, please RSVP on line at

http://allianceforsustainability.com/livingstreets

Learn from Maplewood & other cities in Ramsey County how they are implementing their **Living Streets Policies** to improve water quality, walking and biking during street re-construction. **Refreshments and snacks provided**. We will be joined by volunteers from 10 or more cities in Ramsey County.

Questions? Please call **Sean Gosiewski**, Alliance for Sustainability, **612-250-0389** sean@afors.org

6pm – Networking time with Environmental, Parks and Planning Commission volunteers in Ramsey County

6:15 pm – Introductions - Volunteers from each Commissions will share their current projects.

6:30 pm – Large Group Presentations

Ramsey Communities Pedestrian and Bicycle Plan - Connie Bernard from Active Living Ramsey Communities and their contractor Alta Planning and Design, will share the draft first-ever county-wide Pedestrian and Bicycle Plan for commission volunteers to offer feedback. See where your city fits into the big picture! www.ramseycountypedbike.org/about-the-plan.html

New Opportunities to increase home & businesses in recycling – Kate Bartelt from Ramsey County Environmental Health will give updates on

- **Resource Recovery Project** and our vision for the next 20 years
- **BizRecycling** – Helping East Metro businesses start or enhance recycling programs with funding and technical assistance http://lesstrash.com/
- **New opportunities for cities**, examples of MUD recycling, innovations (White Bear grant)

7:30 Small Group Conversations. On the topics listed above and other topics (we have 4 rooms)

- **BizRecycling** – Helping East Metro businesses start or enhance recycling programs & new opportunities for **expanding residential recycling**
- **Ramsey County Pedestrian and Bicycle Plan** – offer your feedback and ideas
- **Complete Streets** – building neighborhood support for sidewalks and bike lanes & rain gardens
- **Community Solar Gardens** – how we help make solar gardens available to residents and businesses

Event Sponsors – Ramsey County Environmental Health, , Active Living Ramsey Communities, Alliance for Sustainability, Fresh Water Society, Alliance for Sustainability, Emmons Olivier Resources, Earth Wizards, MPCA.

Alliance for Sustainability
Ecologically sound, economically viable, socially just and humane

Minnesota GreenStep Cities
Achieving sustainability through proven best practices
www.MnGreenStep.org

RAMSEY COUNTY

PUBLIC HEALTH

EOR water ecology community

I-35W

Roseville, Blaine

About

MnDOT is designing a road project that includes adding a lane, in each direction, to I-35W between Hwy 36 in Roseville and Lexington Avenue (County Road 17) in Blaine. MnDOT is also analyzing the need and locations for building noise walls along the interstate.

MnDOT's goal is to design a project that:

- Reduces congestion and improves safety on the highway
- Increases the number of people that are moved along the highway during peak hours
- Provides reliable travel times for commuters during peak hours
- Optimizes and reuses existing roads and bridges (without needing to acquire homes and properties)

To learn why a construction project is necessary in this location, visit the background page (background.html).

Cost

- The project is not fully funded.

Through the Corridors of Commerce program (http://www.dot.state.mn.us/corridorsofcommerce/), the project was awarded $1.1 million in State funds and $800,000 in Federal funds.

Local and federal elected officials and the Governor of Minnesota support the efforts to design this project. They have helped secure funding with the goal of having a project that is ready for construction when funding becomes available.

Click map for larger PDF version.

Schedule

- Status: We are designing options for a project and assessing the environmental impacts (environment.html) of a project.

  Construction timeline is dependent on funding.

Location

- I-35W between Hwy 36 in Roseville and Lexington Avenue in Blaine

Related studies

- Previous study completed at this location (http://www.dot.state.mn.us/metro/projects/i35wstudy/index.html)

Nearby projects

- I-35W between Hwy 36 and I-694 (/metro/projects/i35wardenhills/index.html)

Connect with us

Email updates (http://visitor.r20.constantcontact.com/d.jsp?llr=pehis8bab&p=oi&m=1101510483087&sit=yrwm7lacb)

Follow us on Facebook (http://www.facebook.com/pages/Minnesota-Department-of-Transportation/153795482248)

Follow us on Twitter (/socialmedia/index.html)

Get Connected: Answers to your questions about transportation funding (http://www.dot.state.mn.us/getconnected/)

Roseville Public Works, Environment and Transportation Commission

Agenda Item

Date: July 28, 2015 **Item No:** 5

Item Description: City Campus Solar Installation Proposal Review

Background:
Through the ongoing research into solar options for the City Campus, and after our unsuccessful application for the Made in Minnesota grant funds, the PWET Commission recommended staff pursue a large scale solar installation on one of our two large roofs, either the Public Works Maintenance building roof or the Skating Center roof.

In early July, staff received two proposals in response to our Request for Proposal (RFP). The proposals are attached. Based on the quick time for ownership and no upfront costs, City staff is recommending that we enter into an agreement with Sundial Solar for a Power Purchase Agreement system which the City will be able to purchase in the sixth year after the installation with the use of a charitable contribution for a private sector third party.

Attached is a comparison of the two proposals as well as the full submittals from both of the solar developers. The proposal from Sundial was much more detailed and contained several tables with cost analysis and power production analysis.

The July agenda does not budget much time for the discussion of this item. Therefore staff encourages members to contact staff directly before Tuesday night's meeting. Also, this item could be tabled to the August meeting if the Commission felt more time was needed to review and discuss the proposals.

Recommended Action:
Review City Campus Solar Installation Proposals and make a recommendation to the City Council.

Attachments:
A. Proposal Summary
B. TruNorth Solar Proposal
C. Sundial Solar Proposal

Skating Center Solar Panel Installation Proposal Summary

TruNorth Solar

Proposed a 200kW system financed through either a Power Purchase Agreement (PPA) or a Direct Purchase option.

PPA:

- 200 kW system
- $200,000 "Down Payment" in the form of a 15 year Energy Savings Partnership Loan through St Paul Port Authority at 2.5%
    - $16,500 annual loan payment
- Purchase power from TruNorth at $0.075 per kWh. Price increases 2.75% per year
- Approximate annual savings of $2125
- Approximate net savings of $53,125 over 25 years (does not include annual increase in electricity rates, so actual net savings would be higher)
- Buyout option to purchase system at Fair Market Value in year seven (no estimate of what fair market value would be at that time)

Direct Purchase:

- Total system cost of $420,000
- Proposed loan with St Paul Port Authority of $294,000 for 15 years at 2.5%
    - $23,750 annual loan payment
- Sale of Tax Equity at 30% of system cost or approximately $126,000
- Approximate annual savings of $4250
- Approximate net savings of $106,250 over 25 years (does not include annual increase in electricity rates, so actual net savings would be higher)

Sundial Solar

Proposed a 375kW system financed through a Power Purchase Agreement (PPA):

- Total system cost of $1,050,000
- Purchase power from Sundial Solar at $0.09 per kWh produced. Price increases 3.5% a year for each 12-month period thereafter
- Estimated annual cost savings of $9,217 (does not include annual increase in electricity rates, so actual net savings would be higher)
- Approximate net savings of $230,425 over 25 years (does not include annual increase in electricity rates, so actual net savings would be higher)
- Proposed buyout option at year 6 for approximately $39,375 which is 5% of estimated Fair Market Value at that time. Remaining 95% of cost is charitable contribution from tax equity partner.

TruNorth Solar

July 21, 2015

Mr. Ryan Johnson
Environmental Specialist
City of Roseville Public Works
2660 Civic Center Drive
Roseville, MN 55113

VIA EMAIL: ryan.johnson@ci.roseville.mn.us

RE: RFP Solar Power Purchase Agreement

Dear Ryan,

Thank you for the opportunity to present this proposal to install a 200kW roof mounted solar on the Roseville Skate Center. We would like to present two distinctly different proposals in order to provide the City of Roseville with an option of either direct ownership or a modified Power Purchase Agreement. Below are the basic parameters for each with estimated costs and savings over 25 years.

1. Prepaid PPA :

Down Payment - $200,000 – $200,000 Pre-Paid by the City at Commercial Operation Date for 50% of the energy and the Balance of energy paid as usual. Financed with a 2.5% Energy Savings Partnership Loan with the St. Paul Port Authority. Annual Payment estimated at $16,500.

Kilowatt Hour Charge - $0.075 cents per kWh with a 2.75% annual escalator.

Savings – Approximate Annual Savings of $2125 after $16,500 annual loan Payment to SPPA. Net savings of $53,125 over 25 year plus the Annual increase in electricity rates.

Buyout Option – Option to purchase the system at Fair Market Value in Year Seven (7).

2. Direct Purchase:

Purchase - $420,000 - $294,000 Energy Savings Partnership Loan with the

TruNorth Solar

SPPA for 15 years at 2.5%. Sale of Tax Equity at 30% or approximately $126,000. Annual Savings of $4250 after annual payment to the SPPA $23,750. Net savings of $106,250 over 25 years plus the annual increase In electricity rates.

We would appreciate the opportunity to meet with you and your staff in order to fully explain the options and benefits of each. We look forward to the opportunity to work with you and your team.

Regards,

Michael Kampmeyer
Patrick Wier
TruNorth Solar

City of Roseville
PROPOSAL FOR 374.74 kW SOLAR ENERGY FACILITY

I. Design, Engineering and Permitting

A. Timeline and Schedule

Sundial proposes the following milestone schedule for Design, Engineering and Permitting of this project:

Contract execution with City	09.01.15
Engineering and design completed	10.01.15
Permitting and environmental review	11.01.15
Interconnection analysis and design	12.01.15
Procurement Initiation	03.01.16
Assembly and construction start*	04.01.16
Assembly and construction complete*	06.01.16
Testing and commissioning	06.01.16
Commercial operation	06.15.16

*Subject to weather conditions

B. System Description

Sundial recommends installation of 914 of the tenKsolar 410-watt RAIS WAVE XT panels manufactured in Bloomington, MN or a Tier 1 PV panel system with a total DC-rated capacity of 374.74 kilowatts. The tenKsolar equipment package comes with an integrated system of inverters and racking. Sundial's proposal includes all required "balance of system" equipment for interconnection to the electrical grid and a web-based monitoring system. Subject to further discussions with the City and due diligence by Sundial, we are willing to negotiate use of tenKsolar or a comparable Tier 1 solar equipment package for this project.

C. Equipment Details

The tenKsolar RAIS WAVE system offers one of the industry's best DC-to-AC efficiency ratios. A reference tenKsolar ground-mount system tested at the National Renewable Energy Laboratories (NREL) facility in Golden, Colorado in April 2012 found an efficiency ratio of 97.2 percent, which compared with a conventional reference system at 89.3 percent. The technology's elimination of single-cell dependence minimizes losses from non-uniform soiling and snow loads. Overall, the technology has a module efficiency of 15.14 percent with a performance ratio (kWh-received-to-kWh-produced) of 82.82 percent.

On this basis, the proposed system of 914, 410-watt tenKsolar Titan panels with a total DC capacity of 374.74 kW will produce a minimum of 470,000 kilowatt-hours of AC power in Year 1, with annual degradation of 0.3% annually thereafter. Sundial will guarantee 98 percent of this power output to the City, subject to adjustment for Typical Meteorological Year (TMY) data.

The footprint for the array itself will be approximately 32,522 square feet with periodic gaps between rows and a 20-foot perimeter between the outer edges of the array and the edge of the roof area.

tenKsolar, Inc. is headquartered in Bloomington, Minnesota USA and has been selling its new generation of solar technology since 2008. At the core of this technology is the proprietary RAIS-WAVE module architecture (Redundant Array of Integrating Solar), in which cells in each module are interconnected redundantly in mesh rather than series. When combined with a unique digital control algorithm and embedded low-voltage redundant electronics that were also developed by tenK, the module eliminates nearly all of the serial constraints found in other solar modules.

To extend this redundancy from the modules to the grid, and take full advantage of the proprietary control methods in the module, a simplified conversion process is used to create grid-quality alternating current (AC). A proprietary stepped-pulse transformer (SPT) technology uses a simplified set of automotive-grade, low-voltage electronics to step-pulse the energy into a solid-state transformer. Unlike conventional inverters, no active electronics are exposed to grid-level voltages, improving up-time performance and reducing operating and maintenance costs. The technology also uses fully embedded, anti-islanding controls that have been third-party validated and certified for U.S. and many international solar markets.

Because of the controls residing in its electronics, tenK is able to interconnect SPTs in parallel, allowing the AC conversion process to operate redundantly. If one fails, the energy that would normally be lost is able to flow to another SPT. At times of low solar radiation, a reduced number of SPTs still operate, improving overall system efficiency. As a result, each tenK solar installation delivers full, 480-volt AC grid-quality power directly from the array.

Within the array, the maximum voltage of any DC component is 60 V, compared to conventional arrays at 600-1000 V, and each module has full, built-in ground-fault and arc-fault protection. The modules are intelligent, and can sense an active connection. In case of a fire, de-activating the system from the grid anywhere on the AC side causes the modules to stop internally, avoiding safety issues for firefighters and first-responders. These same safety and embedded assembly features also simplify the installation process.

The RAIS-WAVE module control technology and stepped-pulse transformer technology are ideal configurations for integrating energy storage directly into the system without additional electronics or infrastructure. And due to its phasing controls, the system can also be used to actively balance phases.

Beyond the improvements in reliability from eliminating all single points of failure and the high-voltage active electrical components in conventional solar arrays, tenKsolar panels take advantage of cell independence within the module to add illumination from static reflection. A proprietary spectroscopic reflector-based racking system developed by tenK and 3M gathers additional light from the unused gaps in typical solar arrays to increase energy delivered by the system. This results in a much higher level of energy density for the system as a whole.

With its low-voltage systems design and integration, tenK is able to manufacture and sell its product at competitive pricing. The non-reflected efficiency of a tenK system is at or above

conventional systems when just environmental losses in the system are considered. When including the energy gain from reflection, the efficiency of a tenK system is 20-40 percent higher than a conventional system, which has been validated in comparisons against other commercially deployed systems.

The RAIS-WAVE modules are certified by third-party agencies to all of the applicable standards, including UL1703 and UL1741, and the stepped-pulse transformers are also certified to UL1741 and other standards. All tenK equipment, including solar panels and inverters, carries a 25-year limited product warranty and power production guarantee.

D. Layout

A preliminary layout showing the footprint of the proposed system is attached.

E. Structural Engineering

Sundial will subcontract with a licensed structural engineer for analysis of the Skate Center roof area. The structural engineer will be required to stamp its review of the roof system's ability to hold the weight of the solar and related equipment. The structural engineering review will be completed for review by the City before the application for permits is made for construction.

F. Performance and Performance Monitoring

In addition to design and installation of the proposed system, Sundial will serve as the Operations and Maintenance (O & M) contractor for the system during the term of the proposed Power Purchase Agreement (PPA). Sundial will conduct a SAM analysis of the proposed facility based on the site coordinates and equipment specifications of this proposal. Annual estimates are listed below and Sundial will guarantee the following energy production for any period in which it is contracted for O & M services, subject to adjustment based on actual Typical Meteorological Year (TMY) data.

Year 1	460,875 kWh
Year 2	459,492
Year 3	458,114
Year 4	456,740
Year 5	455,369
Year 6	454,003
Year 7	452,641
Year 8	451,283
Year 9	449,929
Year 10	448,580

Performance will be monitored on a continuous, real time basis by a web-based monitoring system. The monitoring system will be available to the City at all times and can also be made available for public education purposes through links from the City's official information website.

G. Integration with Other Power Sources

The proposed system will be fully integrated with the electrical grid, which will provide power when the solar arrays are not receiving enough solar irradiance to serve 100 percent of the facility's electrical demand.

At the City's request, Sundial will prepare a project option that includes integration of the proposed system with battery storage for the provision of emergency power and as a load-management strategy with the utility provider.

H. Interconnection Requirements

Sundial will subcontract with a licensed electrical contractor for interconnection of the solar array with the Skate Center's electrical service and the utility distribution grid. Sundial and the selected electrical contractor will work jointly on engineering, design and installation of the system's interconnection, subject to all applicable NEC standards and all local and state electrical code requirements.

I. Controls, Monitors and Instrumentation

In addition to the system's web-based monitoring system, solar production will be separately metered by a revenue grade meter that will be the final determination for purposes of the Power Purchase Agreements due from the City.

II. Contractor Qualifications and Experience

Sundial Solar Energy (www.sundialsolarenergy.com) is a Minnesota-chartered limited liability corporation with over 15 years of solar energy experience, including more than 100 solar energy installations in Minnesota. The company's founder, Jon Kramer, lives in Minneapolis but grew up with solar cells that were brought home by his father from Goddard Space Flight Center in Washington, DC. Jon installed his first solar array in 1969 and later graduated from the University of Maryland with a degree in engineering that included an emphasis on alternative energy technologies.

Sundial is a full service engineering, procurement and construction (EPC) solar energy developer and general contractor with a broad base of in-house technical, electrical engineering and project management expertise. The firm is committed to using local building trades and local labor as subcontractors on its projects to the greatest extent possible. All supervisory Sundial staff are trained as North American Board of Certified Energy Practitioners (NABCEP) and hold NABCEP certification in solar photovoltaics (PV). Staff also receive continuing education in the latest and best solar practices through programs such as the Florida Solar Energy Center and Solar Energy International (SEI) in Colorado.

Sundial is well-known in Minnesota for its innovative and creative applications of solar technology, delivering solar PV designs that optimize performance for its commercial-industrial, institutional and governmental customers. It is committed to the highest levels of customer service, and the best operations, maintenance and monitoring of the projects it designs and installs. Sundial maintains a safety training worksite safety program that is one of the most

rigorous in the solar industry. Sundial is an active member of the Minnesota Solar Energy Industries Association (MnSEIA) and the Minnesota Renewable Energy Society (MRES).

Sundial is committed to building the capacity of the Minnesota solar energy market. On this project, Sundial will voluntarily set a goal of subcontracting at least 20 percent of the installation labor hours with certified minority, women and/or veteran-owned small businesses qualified for work in solar project installation.

A. PRIMARY CONTACT and CONTACT INFORMATION

Jon Kramer
Sundial Solar Energy
3209 W. 76th Street, Suite 305
Edina, MN 55435
952-835-1160
240-463-3688

B. RELEVANT PROJECT EXAMPLES

1.) Performance Office Papers. Sundial conducted the feasibility analysis and provided full engineering, design, installation, interconnection, commissioning and maintenance services to this client for a 200-kilowatt rooftop solar PV array. Sundial also managed negotiations with the client's utility provider for a preferential solar energy rate structure.

2.) Murphy Warehouse. Sundial has provided commercial solar development services to this client for several years, including design and installation of advanced solar arrays integrated with backup power systems. Work for Murphy has included projects at multiple sites and of varying sizes and configurations.

3.) St. Christopher Episcopal Church. Sundial is currently installing a 40- kilowatt roof-mounted system for this church in Roseville. The system includes a unique layout design and will receive rebates from the State of Minnesota through the Made-in-Minnesota rebate program.

4.) Ikea-Bloomington. Sundial was selected as the maintenance contractor for this 1.6 megawatt rooftop installation in Bloomington. Although it was not part of the original EPC team, Sundial was selected based on its superior trouble-shooting, technical capabilities and maintenance experience.

III. Pricing

Sundial has a development financing agreement with Olson Energy Corporation (OEC) for financing of solar energy projects for local units of government. Under the terms of OEC financing, the solar project will be initially owned by Olson and tax investors who will receive the 30 percent federal Investment Tax Credit (ITC) and accelerated depreciation benefits. The City will have an option to purchase the solar project after five years for an amount equal to five percent (5%) of the project's Fair Market Value (FMV). FMV will be determined based on the discounted or Net Present Value (NPV) of the remaining projected cashflows from the system.

This heavily discounted purchase price will be a charitable contribution or charity sale for investors who will receive an additional tax benefit from the donation.

This proposal also includes an estimate of solar capacity credits available from Xcel Energy for system's in its service territory that are greater than 100 kilowatts in DC capacity. Sundial has been the local leader in negotiating these capacity credit agreements with Xcel, which add an average of 5.3 cents per kilowatt-hour to the value of energy production.
No revenue has been assumed from the sale of Renewable Energy Certificate (REC) or other environmental attributes associated with the solar project or its operation. The City shall be entitled to these RECs and all other environmental attributes, which may have a value in the future.

The proposed PPA represents a maximum and the development team is willing to negotiate an initial PPA price with the City that best meets its needs. A higher PPA rate and higher rate of annual escalation will assure that the solar project is debt-free at the time of its sale to the City and will generate a higher donation value to the initial owners of the solar project. A lower PPA price will amortize construction debt over a longer period and deliver more immediate energy savings to members but may result in some remaining construction debt at the time of the gift. The PPA rate proposed here will amortize all of the debt needed to complete the project over the first five years of operation.

A. PPA TERMS and STRUCTURES

The Project Structure includes integration of OEC financing and the charitable donation of the facility after five years to the City. It also includes a solar capacity credit from Xcel, which will appear as a "solar credit" on monthly utility bill statements received by the City. The buyout at five percent of the system's FMV is an estimate that may be 10 percent higher or lower.

20-year term (with donation after Year 5)
Guaranteed Year 1 production: 460,893 kWh with 0.3% annual degradation
9 cents/kWh with 3.5% annual escalator
Actual amount of solar credit paid to Sundial for first five years
Sundial pays all O & M expenses for the first five years of the PPA

PPA Schedule (per kWh of delivered AC power)

	Energy Value	Solar Credit
Year 1	$41,479.	$24,427.
Year 2	$41,354.	24,354.
Year 3	$41,230.	24,281.
Year 4	$41,107.	24,208.
Year 5	$40,983	24,135.
Year 6	Donation to City	12,750.

DRAFT PPA Termsheet

The following points are intended as the framework for further negotiations between Sundial, its financial partner and the City of Roseville for development of a solar energy facility and Power Purchase Agreement and are not intended to be construed as a final offer by either party to enter into a transaction on these or any other terms.

1. Sundial and its finance partner will design, construct, own and operate a solar electric generating facility of approximately 375 kW DC capacity at the site designated for such use by the City (the "Facility"). The Facility will be a qualifying renewable energy project under Minnesota's Renewable Energy Portfolio Standard that will include tenKsolar or comparable Tier 1 solar photovoltaic equipment mounted on the building rooftop.

2. Sundial and the City will enter into a Power Purchase Agreement (PPA) pursuant to which the Facility sells, and the City purchases, all the net electric capacity, energy output and environmental attributes (renewable energy certificates and/or carbon credits) associated with the power that is produced by the Facility.

3. The electric power will be delivered to the City at the Point of Delivery on the Project Site to be determined by the City as part of an interconnection study to be conducted by Sundial. Sundial will make all interconnection applications with Xcel Energy on behalf of the City.

4. Sundial will provide all operation and maintenance services for the Facility at no cost to the City during the term of the PPA. When the City assumes ownership of the Facility it may contract with Sundial for these services. Sundial will provide an energy guarantee to the City as part of its O&M contract.

5. The term of the PPA will be 20 years from the date that Commercial Operation begins, estimated to be May 15, 2016. The City will provide information and assist Sundial as may be requested to finalize the terms for permanent financing and such other development or construction financing as may be required to complete and operate the Facility.

6. The price for the electric power capacity, energy output and environmental attributes produced and delivered to the City shall be .09 cents per kilowatt- hour for the initial 12 months of commercial operation and will escalate at a rate of three-and-one-half percent (3.5%) a year for each 12-month period thereafter.

7. Sundial will be responsible for securing all necessary air, water and other environmental permits required by the Facility by state or local agencies, as well as all land use approvals required for operation of the Facility.

8. Sundial shall be entitled to any contingency financing that is budgeted but is not used for design and construction of the Facility.

9. As a provision of a final PPA, Sundial and its financial partner will include an option for the City to purchase the Facility at any time after five (5) years of commercial operation, including all rights related to interconnection and related agreements. The price for such purchase will be based on five percent (5%) of the Facility's actual Fair Market Value. In the

event the City elects to purchase the Facility, it also agrees to assume all financial and contractual obligations of the Facility as of the date of the purchase, provided such financial obligations related to debt financing do not exceed five percent (5%) of the total cost to initially design and construct the Facility. In the event the City decides to exercise its option to purchase the Facility, Sundial agrees to fully disclose to the City all costs of design, construction, financing and related project expenses that were required to build and operate the Facility during the initial five years of operation.

TO BE SIGNED BY PARTIES AS AN ADDENDUM TO PROJECT AGREEMENT

IV. Schedule

Sundial proposed the following milestone schedule for completion of this project, based on the Design and Engineering schedule above:

Procurement Initiation	03.01.16
Assembly and construction start*	04.01.16
Assembly and construction complete*	06.01.16
Testing and commissioning start	06.01.16
Commercial operation	06.15.16

*Subject to weather conditions

Commercial - Industrial

Solar Electric Prospectus - Three Options

Minnesota Xcel Energy Territory

			SOLAR SYSTEM LOCATION	
		date	**Latitude**	44 degrees
		6/13/2015	**Azimuth angle**	East/west
address:	Multiple Sites	*prepared by*	**Array tilt angle**	10 degrees
client:	***City of Roseville***		**Array location**	flat roof
contact:	Ryan Johnson Ryan.Johnson@cityofroseville.com	***AC / PC***	**array footprint (sf)**	40,000

Solar Site

This visual may not represent the final layout, size, or location of the proposed PV system.

SOLAR PV SYSTEM
INVESTMENT ANALYSIS

Solar Cities Initiative

System Size (kw) 375

Net Cash Flow Calculations

6/11/2015	Y0	1	2	3	4	5	6	7	8	9
Operating Expenses										
Power Purchase Agreement (PPA)		(41,479)	(41,354)	(41,230)	(41,107)	(40,983)	-	-	-	-
O&M		-	-	-	-	-	(7,500)	(7,688)	(7,880)	(8,077)
Total Operating Expenses		**(41,479)**	**(41,354)**	**(41,230)**	**(41,107)**	**(40,983)**	**(7,500)**	**(7,688)**	**(7,880)**	**(8,077)**
Operating Income										
PV (Photovoltaic) Energy Value		64,523	65,593	66,687	67,807	68,952	70,123	71,321	72,546	73,799
Total Operating Benefits		**64,523**	**65,593**	**66,687**	**67,807**	**68,952**	**70,123**	**71,321**	**72,546**	**73,799**
Operating Cash Flow	##	**23,044**	**24,238**	**25,457**	**26,700**	**27,969**	**62,623**	**63,633**	**64,667**	**65,723**
Cumulative Operating Cash Flow		**23,044**	**47,282**	**72,739**	**99,439**	**127,407**	**190,030**	**253,664**	**318,330**	**384,053**
Discounted Operating Cash Flow	##	**$ 21,946**	**$ 21,985**	**$ 21,991**	**$ 21,966**	**$ 21,914**	**$ 46,730**	**$ 45,223**	**$ 43,769**	**$ 42,365**

Investment Analysis Results:	
NPV of Cash Flow	**$746,546**
IRR (25 years)	**29.7%**
Simple Payback Period	4 Yrs 10 Mos
Discounted Payback Period	5 Yrs 3 Mos
PV System Productive Life	30+ years

Assumptions:	
Cost to Install PV system ($/w)	$2.80
Total Installed Cost	$1,050,000
O&M Cost ($/w)	$0.02
O&M Cost Escalation Factor	2.50%
PPA - Years 1-5 ($/kwh)	$0.090
Utility blended energy rate ($/kwh)	$0.110
PPA % savings from utility rate	18%
Discount Rate	5.00%

Initial Installation Cost		**$1,050,000**
FMV of Array After 5 Years	75.0%	$787,500
Client Buyout % of FMV	5.0%	($39,375)
Debt Financing as % of Initial Cost	20.0%	$210,000
Client % of Debt Financing thru PPA	40.0%	($84,000)

NOTES

All Cash Flows Occur at the End of the Year.
Client investment (buyout and debt) deferred until Year 6.
Savings from Years 1 - 5 pay for buyout and debt.
Utility blended rate includes all monthly charges.

SOLAR PV SYSTEM
INVESTMENT ANALYSIS

6/11/2015	10	11	12	13	14	15	16	17	18
Operating Expenses									
Power Purchase Agreement (PPA)	-	-	-	-	-	-	-	-	-
O&M	(8,279)	(8,486)	(8,698)	(8,915)	(9,138)	(9,366)	(9,601)	(9,841)	(10,087)
Total Operating Expenses	**(8,279)**	**(8,486)**	**(8,698)**	**(8,915)**	**(9,138)**	**(9,366)**	**(9,601)**	**(9,841)**	**(10,087)**
Operating Income									
PV (Photovoltaic) Energy Value	75,081	85,336	86,761	88,217	89,703	91,222	92,772	94,356	95,973
Total Operating Benefits	**75,081**	**85,336**	**86,761**	**88,217**	**89,703**	**91,222**	**92,772**	**94,356**	**95,973**
Operating Cash Flow	**66,802**	**76,851**	**78,064**	**79,302**	**80,565**	**81,855**	**83,172**	**84,515**	**85,887**
Cumulative Operating Cash Flow	**450,856**	**527,706**	**605,770**	**685,072**	**765,637**	**847,493**	**930,664**	**1,015,180**	**1,101,066**
Discounted Operating Cash Flow	**$ 41,011**	**$ 44,933**	**$ 43,469**	**$ 42,055**	**$ 40,691**	**$ 39,374**	**$ 38,102**	**$ 36,874**	**$ 35,688**

SOLAR PV SYSTEM
INVESTMENT ANALYSIS

6/11/2015	19	20	21	22	23	24	25
Operating Expenses							
Power Purchase Agreement (PPA)	-	-	-	-	-	-	-
O&M	(10,339)	(10,597)	(10,862)	(11,134)	(11,412)	(11,697)	(11,990)
Total Operating Expenses	**(10,339)**	**(10,597)**	**(10,862)**	**(11,134)**	**(11,412)**	**(11,697)**	**(11,990)**
Operating Income							
PV (Photovoltaic) Energy Value	97,626	99,313	101,036	102,797	104,595	106,432	108,308
Total Operating Benefits	**97,626**	**99,313**	**101,036**	**102,797**	**104,595**	**106,432**	**108,308**
Operating Cash Flow	**87,287**	**88,716**	**90,174**	**91,663**	**93,183**	**94,734**	**96,318**
Cumulative Operating Cash Flow	**1,188,353**	**1,277,069**	**1,367,243**	**1,458,906**	**1,552,089**	**1,646,823**	**1,743,141**
Discounted Operating Cash Flow	**$ 34,542**	**$ 33,436**	**$ 32,367**	**$ 31,335**	**$ 30,338**	**$ 29,374**	**$ 28,443**

PHOTOVOLTAIC (PV) ENERGY VALUE WORKSHEET

	1	2	3	4	5	6	7	8	9
PV Production (kwh)	460,875	460,875	459,492	458,114	456,740	455,369	454,003	452,641	451,283
System Degradation	0.00%	0.30%	0.30%	0.30%	0.30%	0.30%	0.30%	0.30%	0.30%
Net PV Production (kwh)	460,875	459,492	458,114	456,740	455,369	454,003	452,641	451,283	449,929
Energy Value	$0.110	$0.113	$0.116	$0.118	$0.121	$0.124	$0.128	$0.131	$0.134
Energy Value Increase Factor	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%
Solar Credits	$0.03	$0.03	$0.03	$0.03	$0.03	$0.03	$0.03	$0.03	$0.03
Net Rate of PV Energy	$0.140	$0.143	$0.146	$0.148	$0.151	$0.154	$0.158	$0.161	$0.164
Renewable Energy Credit (REC) Value	$0	$0	$0	$0	$0	$0	$0	$0	$0
REC Value ($/kwh)	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total PV Energy Value	**$64,523**	**$65,593**	**$66,687**	**$67,807**	**$68,952**	**$70,123**	**$71,321**	**$72,546**	**$73,799**

Assumptions:	
PV Technology	Tier 1 Panels
PV Efficiency (kwh/kw)	1,229
PV Guaranteed Production Year 1(kwh)	460,875
PV System Degradation Factor (%/yr)	0.30%

Assumptions:	
Blended Energy Value ($/kwh)	$0.110
Energy Value Increase Factor (%/yr)	2.50%
Net Solar Credits Value ($/kwh)	$0.03
REC Value ($/kwh)	$0.05
REC Value Increase Factor	0.50%

Notes:

Rate of PV Energy (Blended Energy Value) based on client-supplied information.

This analysis uses 2.5% per annum as an energy value escalator. Xcel historic rate escalation is higher.

Solar Credits are available for Xcel customers only. These will cease when REC market matures.

REC value based on conservative projections assumes Minnesota moves to REC market in Year 10.

NOTE: Currently there is no official REC market in Minnesota. One is expected in 5 - 10 years

PHOTOVOLTAIC (PV) ENERGY VALUE WORKSHEET

	10	11	12	13	14	15	16	17	18
PV Production (kwh)	449,929	448,580	447,234	445,892	444,555	443,221	441,891	440,566	439,244
System Degradation	0.30%	0.30%	0.30%	0.30%	0.30%	0.30%	0.30%	0.30%	0.30%
Net PV Production (kwh)	448,580	447,234	445,892	444,555	443,221	441,891	440,566	439,244	437,926
Energy Value	$0.137	$0.141	$0.144	$0.148	$0.152	$0.155	$0.159	$0.163	$0.167
Energy Value Increase Factor	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%
Solar Credits	$0.03								
Net Rate of PV Energy	$0.167	$0.141	$0.144	$0.148	$0.152	$0.155	$0.159	$0.163	$0.167
Renewable Energy Credit (REC) Value	$0	$22,362	$22,406	$22,451	$22,495	$22,540	$22,585	$22,629	$22,674
REC Value ($/kwh)	$0	$0.0500	$0.0503	$0.0505	$0.0508	$0.0510	$0.0513	$0.0515	$0.0518
Total PV Energy Value	**$75,081**	**$85,336**	**$86,761**	**$88,217**	**$89,703**	**$91,222**	**$92,772**	**$94,356**	**$95,973**

PHOTOVOLTAIC (PV) ENERGY VALUE WORKSHEET

	19	20	21	22	23	24	25
PV Production (kwh)	437,926	436,612	435,302	433,997	432,695	431,397	430,102
System Degradation	0.30%	0.30%	0.30%	0.30%	0.30%	0.30%	0.30%
Net PV Production (kwh)	436,612	435,302	433,997	432,695	431,397	430,102	428,812
Energy Value	$0.172	$0.176	$0.180	$0.185	$0.189	$0.194	$0.199
Energy Value Increase Factor	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%
Solar Credits							
Net Rate of PV Energy	$0.172	$0.176	$0.180	$0.185	$0.189	$0.194	$0.199
Renewable Energy Credit (REC) Value	$22,719	$22,764	$22,810	$22,855	$22,900	$22,946	$22,991
REC Value ($/kwh)	$0.0520	$0.0523	$0.0526	$0.0528	$0.0531	$0.0533	$0.0536
Total PV Energy Value	**$97,626**	**$99,313**	**$101,036**	**$102,797**	**$104,595**	**$106,432**	**$108,308**

PAYBACK CALCULATION WORKSHEET

	Investment	1	2	3	4	5	6	7	8	9
Operating Cash Flow	$ 123,375	$ 23,044	$ 24,238	$ 25,457	$ 26,700	$ 27,969	$ 62,623	$ 63,633	$ 64,667	$ 65,723
Cumulative Operating Cash Flow*		$ 23,044	$ 47,282	$ 72,739	$ 99,439	$ 127,407	$ 190,030	$ 253,664	$ 318,330	$ 384,053
Discounted Operating Cash Flow	$ 123,375	$ 21,946	$ 21,985	$ 21,991	$ 21,966	$ 21,914	$ 46,730	$ 45,223	$ 43,769	$ 42,365
Cumulative Discounted Operating Cash Flow*		$ 21,946	$ 43,931	$ 65,922	$ 87,888	$ 109,802	$ 156,532	$ 201,755	$ 245,524	$ 287,890
*Excludes Impact of Client Deferred Investment										

PAYBACK CALCULATION WORKSHEET

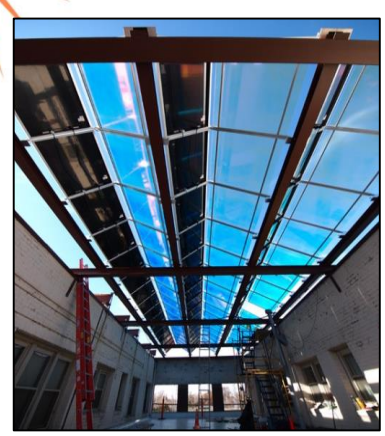
	10	11	12	13	14	15	16	17	18	19
Operating Cash Flow	$ 66,802	$ 76,851	$ 78,064	$ 79,302	$ 80,565	$ 81,855	$ 83,172	$ 84,515	$ 85,887	$ 87,287
Cumulative Operating Cash Flow*	$ 450,856	$ 527,706	$ 605,770	$ 685,072	$ 765,637	$ 847,493	$ 930,664	$ 1,015,180	$ 1,101,066	$ 1,188,353
Discounted Operating Cash Flow	$ 41,011	$ 44,933	$ 43,469	$ 42,055	$ 40,691	$ 39,374	$ 38,102	$ 36,874	$ 35,688	$ 34,542
Cumulative Discounted Operating Cash Flow*	$ 328,901	$ 373,834	$ 417,303	$ 459,358	$ 500,049	$ 539,423	$ 577,525	$ 614,398	$ 650,086	$ 684,628
*Excludes Impact of Client Deferred Investment										

PAYBACK CALCULATION WORKSHEET

	20	21	22	23	24	25
Operating Cash Flow	$ 88,716	$ 90,174	$ 91,663	$ 93,183	$ 94,734	$ 96,318
Cumulative Operating Cash Flow*	$ 1,277,069	$ 1,367,243	$ 1,458,906	$ 1,552,089	$ 1,646,823	$ 1,743,141
Discounted Operating Cash Flow	$ 33,436	$ 32,367	$ 31,335	$ 30,338	$ 29,374	$ 28,443
Cumulative Discounted Operating Cash Flow*	$ 718,064	$ 750,432	$ 781,767	$ 812,105	$ 841,479	$ 869,921
*Excludes Impact of Client Deferred Investment						

Sundial Solar references

Commercial References



Commercial grid-connected - 40kW
St. Paul Corner Drug, St Paul, MN
Contact: John Hoeschen - jhoeschen@stpaulcornerdrug.com

John Hoeschen runs the landmark St.Paul Corner Drug on Snelling Ave. It has been a local institution for nearly 100 years. As a business that promotes energy conservation and clean technology it was a natural fit to install a solar system that not only helps power his building, but proves the point that good economics can be realized with a solar energy system installed on the roof. Sundial designed and installed a new technology solar PV system that has transparent reflectors which cast a blue light down below the array.

Industrial grid-connected - 340kW
Murphy Warehouse, Minneapolis, MN
Contact: Richard Murphy, rmurphy@MurphyWarehouse.com

Murphy Warehouse is one of the largest warehousing companies in the Upper Midwest. Located in the Twin Cities, this family business has been going strong for over 100 years. In the last several years Murphy has enacted many green building initiatives aimed at acquiring LEED certification for their buildings. Sundial has installed over 300 kw of solar on their Minnesota portfolio buildings.

Municipal grid-connected – 25kW
Fire Station #19, Minneapolis
Contact: Michael Krause michaelkrause61@yahoo.com

The City of Minneapolis was not about to utilize a typical standard PV panel to sit atop their fire stations. After reviewing dozens of proposals the City chose Sundial as the preferred developer to design and install a PV station atop their historic MFD#19 next to the University of Minnesota.

Industrial grid-connected - 202kW
Performance Office Papers, Lakeville, MN
Contact: Russ DeFauw, rdefauw@perfpapers.com

Performance Office Papers is a progressive paper supplier that runs 3 shifts at their main facility in Lakeville. The owners are dedicated to sustainable business practices. They recycle everything that is a byproduct of their manufacturing and send virtually nothing to the landfill. Sundial performed an exhaustive exploration of the options and made recommendations based on the company desire to locally source as much solar equipment as possible. This resulted in a 202kw tenKsolar PV installation – currently the largest such installation in the state.

Sundial Solar references

Municipal & Nonprofit projects

Minnesota's First Micro-grid

Steger Wilderness Center, Ely, MN
Contact: Will Steger
stegerw@gmail.com

For over 20 years famous Polar Explorer Will Steger and his foundation have been constructing a leadership center in the North Woods outside Ely, MN. Up until recently the only power they had came from diesel generators, which make a huge racket when they run. This system combines power from solar, wind, and propane gen-sets to meet the needs of the campus. It is the first such system in the state.

Minnesota's First Municipal Solar Array

Royalton City Hall, Royalton, MN
Contact: Mayor Andrea Lauer
mayor@royaltonmn.com

It was not so long ago that solar energy was in the Dark Ages in Minnesota. It took the guts and determination of a few solar pioneers to make the leap of faith required to install solar on their property. One of those pioneers was the City of Royalton, a small municipality northwest of the Twin Cities. Mayor Andrea Lauer educated herself and her constituents and took the plunge. Sundial crafted a unique financial model that allowed the City to reduce its bottom line costs with a capital lease and PPA.

Cherokee Park United Church

St Paul, MN
Contact: Tom Murphy
tmmurphymn@gmail.com

With all the solar activity going on in the Twin Cities lately, members of the Cherokee Park United Church began asking their pastor if there was any possibility of installing solar on their building. Not one to waste time, Pastor Tim Johnson and his staff dug in to learn what options were available. What they discovered was the unique financing options and the variety of equipment offered by Sundial. This array stands as one of the largest on a church in Minnesota.

Edison High School

Northeast Minneapolis, MN
Contact: Michael Krause
michaelkrause61@yahoo.com

With such huge growth in the solar industry it is only natural that some of the educational potential should filter down into the school system. Sundial is the leader in school deployment which is highlighted with this most ambitious project. By school year 2015 Edison H.S. will nearly 500kw of panels made up of several different solar technologies on roofs and canopies. Each will be connected to a central monitoring station and utilized in educational curriculum.

Roseville Public Works, Environment and Transportation Commission

Agenda Item

Date: July 28, 2015 **Item No:** 6

Item Description: Look Ahead Agenda Items/ Next Meeting August 25, 2015

Suggested Items:

- Review of Proposals and staff recommendation for City Campus Solar Installation (if tabled form July meeting)
- Discussion of final year of the Leaf Pickup program, outreach to residents about termination of the program and alternatives for residents.
-
-

Recommended Action:
Set preliminary agenda items for the August 25, 2015 Public Works, Environment & Transportation Commission meeting.