GREEN LAKE COUNTY

571 County Road A, Green Lake, WI 54941

Original Post Date: 03/31/2022

Amended* Post Date:

The following documents are included in the packet for the Property and Insurance Packet on April 5, 2022:

1) Amended Agenda
2) Minutes from 03/01/2022
3) Resolution Authorizing Entering into a MOU with the Green Lake Association for a Duckweed Mitigation Pilot Program
4) Purchase Requests- Highway
5) Maintenance Monthly Report

Green Lake County

GREEN LAKE COUNTY
OFFICE OF THE COUNTY CLERK

Elizabeth Otto
County Clerk

Office: 920-294-4005
FAX: 920-294-4009

Property & Insurance Committee
Meeting Notice

Date: April 5, 2022 Time: 4:30 PM
Location: Government Center, County Board Room, 571 County Road A, Green Lake WI

Amended* AGENDA

Committee Members

David Abendroth, Chair
Charles Buss
Patti Garro
Richard Trochinski
Keith Hess

Elizabeth Otto, Secretary

1. Call to Order
2. Certification of Open Meeting Law
3. Pledge of Allegiance
4. Approval of Minutes: 03/01/2022
5. Public Comment (3 Minute Limit)
6. Purchasing Policy Discussion
7. *Resolutions
   - *Resolution Authorizing Entering into a MOU with the Green Lake Association for a Duckweed Mitigation Pilot Program
8. Purchase Requests
   - Highway Department
9. Maintenance Report
   - Buildings and Grounds Report
   - Monthly Activities
10. Committee Discussion
    - Future Meeting Dates: Regular Meeting 05/03/2022 at 4:30 PM
    - Future Agenda items for action & discussion
11. Adjourn

Virtual attendance at meetings is optional. If technical difficulties arise, there may be instances when remote access may be compromised. If there is a quorum attending in person, the meeting will proceed as scheduled.

This meeting will be conducted through in person attendance or audio/visual communication. Remote access can be obtained through the following link:

Topic: Property and Insurance Committee
Time: Apr 5, 2022 04:30 PM Central Time (US and Canada)

Join Zoom Meeting
https://us06web.zoom.us/j/88506481526?pwd=TDBvVWRzUTVveXg0SE4zc1VaVy96UT09

Meeting ID: 885 0648 1526
Passcode: 399905

Dial by your location
+1 312 626 6799 US (Chicago)
+1 929 436 2866 US (New York)

Kindly arrange to be present, if unable to do so, please notify our office. Sincerely, Elizabeth Otto, County Clerk

Please note: Meeting area is accessible to the physically disabled. Anyone planning to attend who needs visual or audio assistance, should contact the County Clerk's Office, 294-4005, not later than 3 days before date of the meeting.

PROPERTY AND INSURANCE COMMITTEE
March 01, 2022

The meeting of the Property and Insurance Committee was called to order by Chair Abendroth on Tuesday, March 01, 2022 at 4:30 PM in the Green Lake County Board Room, Green Lake County Government Center, 571 County Road A, Green Lake, WI. The meeting was held both in person and via Zoom. Requirements of the open meeting law were certified as being met. The pledge of allegiance was recited.

Present: Dave Abendroth
Chuck Buss
Patti Garro
Richard Trochinski
Keith Hess

Other County employees present: Scott Weir, Maintenance Supervisor; Liz Otto, County Clerk; Dawn Klockow, Corporation Counsel; Jason Jerome, HHS Director; Harley Reabe, County Board Chair; Derek Mashuda, Highway Commissioner; Gene Thom, Supervisor #19

MINUTES

Motion/second (Hess/Buss) to approve the minutes of February 1, 2022 with no corrections or updates. Motion carried with no negative vote.

PUBLIC COMMENT – none

PURCHASING POLICY DISCUSSION

Committee members received an email from County Administrator Cathy Schmit at 2:10 PM today regarding some suggestions from the Highway Department. Corporation Counsel Dawn Klockow stated that the policy handed out last month pertains more toward grant funding and suggested there be two policies – one for grant funded projects and another for all other purchases. Discussion held. Chair Abendroth and Klockow suggested that Department Heads provide input as to what is required in the various departments. This will be placed on next month's agenda.

PURCHASE REQUEST

- **Highway Department**

  Highway Commissioner Derek Mashuda stated that the Highway Committee recommended approval of the bid from Quality Truck for the tri-axle cab and chassis in the amount of $310,000 and also is recommending approval of the bid from Monroe Equipment for the plow equipment in the amount of $279,566. Mashuda gave an overview of the bids. Discussion held.

  Motion/second (Buss/Garro) to approve the bids as recommended by the Highway Department. Motion carried with no negative vote.

- **Health & Human Services**

  HHS Director Jason Jerome explained the quote received for a procedure chair in the amount of $5,506.60 and the reasons for the purchase. The HHS Committee has approved the purchase. Discussion held. Jerome stated this will be paid for with federal COVID funding.

Motion/second (Garro/Trochinski) to approve the purchase as recommended by the HHS committee. Motion carried with no negative vote.

MAINTENANCE REPORT

- 2021 Annual Report
  Motion/second (Buss/Hess) to accept 2021 annual report. Motion carried with no negative votes. Chair Abendroth requested an update on expenses from Period 13 when available.
- Buildings and Grounds Report – no updates to the written report submitted by Scott Weir.
- Monthly activities

COMMITTEE DISCUSSION

Future Meeting Date: April 5, 2022 at 4:30 PM
Future Agenda items for action & discussion:

ADJOURNMENT

Chair Abendroth adjourned the meeting at 4:48 PM.

Submitted by,

Liz Otto
County Clerk

RESOLUTION NUMBER -2022

Resolution Authorizing Entering into a MOU with the Green Lake Association for a Duckweed Mitigation Pilot Program

The County Board of Supervisors of Green Lake County, Green Lake, Wisconsin, duly assembled at its regular meeting on this 19th day of April 2022, does resolve as follows:

WHEREAS, The Green Lake Association has presented a plan for a pilot project to harvest duckweed on Big Green Lake; and,

WHEREAS, The Green Lake Association reports that the presence of duckweed is the number one complaint it has received over the past three years and that the duckweed problem has been steadily getting worse over the last five years; and,

WHEREAS, The Green Lake Association has two concurrent duckweed mitigation strategies: (1) prevent duckweed flow and (2) control duckweed growth; and,

Fiscal note is not applicable.

Majority vote is needed to pass.

☐ Approved by P&I Committee

☐ Disapproved by P&I Committee

Roll Call on Resolution No. -2022

Ayes , Nays , Absent , Abstain

Passed and Adopted/Rejected this 19th day of April, 2022.

Submitted by Parks Commission Committee

/s/ Bill Boutwell
William Boutwell, Chair

Approved via Zoom
Curt Talma

/s/ Charlie Wielgosh
Charlie Wielgosh

County Board Chairman

ATTEST: County Clerk
Approve as to Form:

Todd Morris

Approved via Zoom
Jerry Specht

Corporation Counsel

/s/ Vonn Roberts
Vonn Roberts

Approved via Zoom
Michael Shattuck

WHEREAS, The Green Lake Association plans put its mitigation strategies in effect beginning in April 2022; and,

WHEREAS, The Green Lake Association has a duckweed harvester that it can use in its mitigation strategies but needs the County's consent to install it on-site at Sunset Park.

NOW THEREFORE BE IT RESOLVED, that the County Conservationist and County Administrator may execute the attached Memorandum of Understanding after final approval by the Corporation Counsel.

BE IT FURTHER RESOLVED, all County Departments that may become involved with permitting for the stationary harvester shall assist the Green Lake Association with its duckweed mitigation strategy.

FISCAL NOTE: No fiscal impact to the County.

STATIONARY HARVESTER MEMORANDUM OF UNDERSTANDING FOR FOUR MONTH TRIAL OF STATIONARY HARVESTER IN SUNSET PARK

March 28, 2022

Green Lake Association
Green Lake County, Wisconsin

THIS MEMORANDUM OF UNDERSTANDING (MOU)
is hereby entered into among the above parties

Whereas, duckweed is a native aquatic plant which, in normal amounts, is healthy for waterways; and

Whereas, in the last several years, duckweed has multiplied in such numbers that it has substantially impaired the beneficial use of portions of Big Green Lake; and

Whereas, duckweed's impairments of portions of Big Green Lake include:

- Swimming—reduces enjoyment of public beaches and lake by riparian owners and the public.
- Boating—covers boat trailers and boats with duckweed at public launches.
- Sailing—affects Sailing Club and Sailing School launches and dock use creating unsafe conditions, canceled classes, and postponed boat races.
- Maintenance—increases maintenance of boat launches, beaches, shorelines, and marinas.
- Aquatic Weed Harvesting—reduced effectiveness of existing aquatic weed harvesting equipment not being able to harvest duckweed, thus reducing the efficiency of the harvesting program on the main lake.
- Economic Impact—duckweed is reducing the positive image of Green Lake for recreation, tourism, and investment, demonstrated by multiple instances of prospective visitors contacting the Green Lake Association for information on duckweed, and then canceling a reservation upon learning of the potential and unpredictable shoreline impacts.
- Phosphorus Loading—potential uptake and transport of additional phosphorus in the Silver Creek Estuary to Green Lake in the form of plant biomass that ultimately decays in the lake, exacerbating low oxygen conditions in the metalimnion.
- Pictures of the impact of duckweed in portions of Big Green Lake are included in Attachment A; and

Whereas, the Green Lake Association (GLA), whose mission is to improve the water quality of Big Green Lake, received over 730 petitions from members of the Green Lake community asking that the GLA explore solutions to control excess duckweed; and

Whereas, the GLA is seeking permission from Green Lake County (County) to conduct a four month trial of a Stationary Harvester, which would remove excess duckweed from the Silver Creek Estuary from flowing into Big Green Lake. In recent years, duckweed has proliferated in great numbers in the Silver Creek Estuary. Operation of the Stationary Harvester is described in detail in Attachment A, which is made a part of this MOU; and

Whereas, specifically, the GLA is seeking permission from the County to locate the Stationary Harvester for a four-month trial at the west side of the County Highway A bridge (the "Subject Location"), utilizing a small strip of land owned by the County in Sunset Park, with some minor equipment at the southwest corner of the County Highway A bridge, as detailed in Figure 5 and Figure 6 on page 10 of Attachment A.

NOW THEREFORE, the Green Lake Association and Green Lake County enter this Memorandum of Understanding (MOU) to define the rights and duties of the parties to implement and operate a Stationary Harvester at the Subject Location in Sunset Park from June 1, 2022 – September 30, 2022. The parties agree:

1. Subject to the terms and conditions of this MOU, the County permits the GLA, at its sole cost, to place the equipment at the Subject Location as shown in Attachment A details the design and operation of this equipment.

2. The GLA shall provide insurance covering the equipment and operation of the Stationary Harvester. GLA shall carry a commercial general liability policy with a limit of no less than $1,000,000 per occurrence, $2,000,000 aggregate, $2,000,000 products/completed operations, and $1,000,000 for personal and advertising injury. GLA shall name the County as an additional insured.

3. The GLA agrees to protect, indemnify, defend and hold harmless Green Lake County, its boards, commissions, officers, agents, employees and representatives from and against any and all liability, including claims, causes of actions, damages, demands, costs, expenses, losses and damage to any property or bodily injury to any person including death, as a result of any act or omission of the GLA, its officers, members, employees, agents, representatives, directors in connection with the terms of this MOU. In case any action or proceeding is brought against Green Lake County by reason of any such claim or cause of action, the GLA, upon notice from Green Lake County, shall defend Green Lake County and be responsible for payment of attorney fees and costs.

4. The GLA may commence staging the Stationary Harvester upon the signing of this MOU but may not commence regular operation of the Stationary Harvester until June 1, 2022.

5. The GLA shall cease regular operation of the Stationary Harvester not later than September 30, 2022 and shall remove all equipment by not later than October 31, 2022. The GLA shall return the Subject Location to the County to the same condition it was prior to the installation of the Stationary Harvester, ordinary wear and tear excepted.

6. Any amendments or termination of this MOU shall be in writing and signed by all parties.

7. Miscellaneous

A. This MOU will be governed by the laws of the State of Wisconsin and venue shall be in the Green Lake County Circuit Court.

B. The parties agree to abide by all applicable state, federal and local laws or ordinances.

C. Severability. Any enforceable portions of this agreement shall be enforced even though other portions of the MOU may be deemed unenforceable.

D. Statutory Protections. It is agreed by the parties that nothing in this MOU, including but not limited to indemnification and hold harmless clauses, shall in any way constitute a waiver on the part of the County of any immunity, liability limitation or other protection available to the County under any applicable statute or other law. To the extent that any provision of this MOU is found by any court of competent jurisdiction to conflict with any such legal protection, then whichever protections, either legal or contractual, provide a greater benefit to the County shall apply unless the County elects otherwise.

E. No Partnership or Joint Venture. This Agreement shall not in any way be deemed to create a partnership or joint venture between the parties to the Agreement.

F. Multiple Originals. This MOU may be executed in multiple originals, each of which together shall constitute a single agreement.

G. The above "Whereas" clauses are incorporated in this MOU and made a part of it.

Signature page follows

APPROVED BY:

Stephanie Prellwitz, Executive Director Green Lake Association	Date
Catherine J. Schmit, County Administrator	Date
Paul Gunderson, County Conservationist Green Lake County Land Conservation Department	Date

ATTACHMENT A:
Green Lake Stationary Duckweed Harvester Pilot Project Proposal

March 2022

Prepared by the Green Lake Association for the Wisconsin Department of Natural Resources

Green Lake Stationary Duckweed Harvester Pilot Project Proposal

March 2022

INTRODUCTION

On behalf of the Duckweed Mitigation Task Force—comprised of members of the Green Lake Association (GLA) and Green Lake Sanitary District (GLSD)—this Green Lake Stationary Duckweed Harvester Pilot Project Proposal (Proposal) presents a summary of a proposed Stationary Harvester to mitigate the discharge of duckweed from the Silver Creek Estuary into Green Lake, Green Lake County, Wisconsin. **The Proposal is for a one-time pilot project permit in 2022, lasting a total of four months, from June 1 through September 30, 2022**.

This Proposal details how duckweed proliferation that originates in the Silver Creek Estuary and flows into Green Lake is contributing to "beneficial water use impairments"[1]—and how duckweed may also be contributing to the regulatory impairment resulting in Green Lake being listed by the WDNR pursuant to Section 301(d) of the Clean Water Act.

The Proposal describes in detail a Stationary Harvester Pilot (Pilot): an innovative application of existing, proven technologies integrated into a system designed to capture duckweed as it leaves the Silver Creek Estuary before it can enter Green Lake.

It is important to understand this is a Pilot, intended to determine if these technologies can be leveraged and applied to the harvesting of duckweed, specific to the Green Lake scenario.

The Proposal discussion includes:

1. The goals and objectives of the aquatic plant management activities, both current and proposed
2. The proposed location of the harvester
3. A description of the complete process from duckweed Capture to Beneficial Reuse, outlining pilot phase activities and equipment operation parameters
4. The involvement of affected local units of government, specifically Green Lake County
5. Considerations for wildlife movement, bycatch prevention, watercraft navigation, water intake/return, and safety
6. A strategy for measuring the effectiveness of the Pilot

Finally, the Proposal concludes with a Summary and Proposed Next Steps.

DUCKWEED'S CONTRIBUTION TO BENEFICAL USE AND REGULATORY IMPAIRMENTS ON GREEN LAKE

The worsening impact of duckweed on Green Lake appears more substantial each year it goes unchecked. It has reached a peak level during the past two years, as documented by the following:

1. Duckweed is the number one complaint received by the Green Lake Association.

[1] As defined in the recent WDNR response to comments to its proposed revisions to NR 107 and NR 109.

2. A 2021 Duckweed Petition received 730+ signatures in three months from the Green Lake community, who implored the Task Force to develop a solution to mitigate duckweed in response to adverse experiences on the lake.
3. Duckweed impairments to beneficial and desired uses on Green Lake include:
    a. **Swimming** - reduces enjoyment of public beaches and lake by riparian owners and the public.
    b. **Boating** - covers boat trailers and boats with duckweed at public launches.
    c. **Sailing** - affects Sailing Club and Sailing School launches and dock use creating unsafe conditions, canceled classes, and postponed boat races.
    d. **Maintenance** - increases maintenance of boat launches, beaches, shorelines, and marinas.
    e. **Aquatic Weed Harvesting** - reduced effectiveness of GLSD's aquatic weed harvesting equipment not being able to harvest duckweed, thus reducing the efficiency of the harvesting program on the main lake.
    f. **Economic Impact** - duckweed is reducing the positive image of Green Lake for recreation, tourism, and investment—demonstrated by multiple instances of prospective visitors contacting the Green Lake Association for information on duckweed, and then canceling a reservation upon learning of the potential and unpredictable shoreline impacts.
    g. **Phosphorus Loading** - potential uptake and transport of additional phosphorus in the Silver Creek Estuary to Green Lake in the form of plant biomass that ultimately decays in the lake, exacerbating low oxygen conditions in the metalimnion.

This is consistent to a WDNR et al. report that found duckweed, or metaphyton, causes "recreational impacts (i.e., direct impediments to fishing, boating, and swimming due to extensive metaphyton overage) and are common metaphyton-related issues."[2]

Photos taken throughout 2020 and 2021, shown on Pages 2 and 3, illustrate the nature and extent of the recent duckweed impairments on Green Lake. The photographs demonstrate that—once in the lake—duckweed does not quickly disseminate, and it persists throughout the lake's perimeter on all its shores, not just the eastern end where it originates within the SCE.

Duckweed at the Daycholah Center, on Green Lake's south end. July 19, 2021.

Duckweed at the Daycholah Center, on Green Lake's south end. July 19, 2021.

Silver Creek Estuary, where duckweed originates. June 30, 2021.

Enough duckweed distributes throughout Green Lake that boats cuts noticeable paths through it. July 1, 2021.

Duckweed on Green Lake's east end. August 8, 2020.

Duckweed on Green Lake's south end. July 4, 2021

Duckweed in the Sailing School, on Green Lake's east end. July 13, 2021.

Duckweed on Green Lake's west end, captured from three video stills. July 4, 2021.

These direct observations are a valid reflection of the worsening duckweed situation. A WDNR et al. report stated that "metaphyton [duckweed] is generally measured via direct observation, rather than by water sampling, as… much of the information available regarding metaphyton blooms results from recreational user observations. Due to the limited extent of standardized monitoring, there is no system for tracking the extent of metaphyton growth, including occurrences of excessive or nuisance biomass."[2]

SOURCE OF DUCKWEED: THE SILVER CREEK ESTUARY

The preponderance of duckweed entering Green Lake comes from the Silver Creek Estuary (SCE). The high nutrient levels and shallow, stagnant, warm waters of the SCE make it an ideal high production zone for duckweed. Thus, the SCE has become an unbalanced estuary producing a very high volume of duckweed—which then flows into Green Lake on a nearly 24x7 basis over a four-month period.

Most of the duckweed flow into Green Lake occurs after heavy rains, when the SCE water level rises, water velocity increases, and a large flush of duckweed flows into Green Lake. Though the conditions of the lake are

[2] From Upper Mississippi River Nutrient Monitoring, Occurrent and Local Impacts: A Clean Water Act Perspective (WDNR et al., 2011).

not ideal for duckweed, once it is in Green Lake, it persists for many weeks, collecting along shorelines and suspending throughout Green Lake waters.

In addition to its shorelines, duckweed can also be found in still bays within Green Lake. In the Sailing Club Lagoon, duckweed propagates rapidly under the right conditions. In these areas, measured dissolved oxygen concentrations in the water column beneath duckweed mats in 2021 were virtually zero—a clear concern for the ecosystem and the fishery. This is consistent with observations made by the WDNR, which found that high duckweed can cause "aquatic life impacts (i.e., low DO concentrations that may adversely affect fish and other aquatic life)." [2]

Ultimately, duckweed serves as a source of nutrients, particularly phosphorus, entering the lake—contributing to the regulatory impairment for which Green Lake is listed. Duckweed in the SCE absorbs phosphorus from the water. If it were to remain in the estuary (it doesn't), it would serve as a nutrient sponge and help reduce the impact of upstream sources of phosphorus on Green Lake. Instead, when the duckweed leaves the estuary and enters Green Lake, that benefit is lost, and duckweed contributes to the lake's phosphorus loading.

If duckweed were to be harvested, as the Task Force proposes, duckweed *could* serve as a potential source of phosphorus removal from Green Lake.

The actual contribution of phosphorus loading to the lake from this source has not yet been determined, as the USGS stream sampling program is not designed to measure its loading. The USGS has approved a video monitoring system to be installed at the County Highway A bridge that will use machine learning to begin to estimate duckweed volume and resultant phosphorus loading from duckweed into Green Lake.

Given recent climate patterns, the scenario of high intensity storms which trigger the release of large quantities of duckweed from SCE is likely to persist.

STATIONARY HARVESTER RATIONALE

Goals and Objectives

The primary goal of the Stationary Harvester is to capture duckweed flowing from the SCE into Green Lake before it can contribute to any beneficial use impairments on Green Lake. The primary objective of this duckweed harvesting process is to improve conditions on Green Lake for recreational use, including navigation. A secondary objective of capturing duckweed is to reduce nutrient loading to Green Lake attributed to duckweed emanating from the SCE.

The initial WDNR request reflected in this Proposal is for a flexible permit that accommodates a four-month Pilot (only), where the effectiveness of the Stationary Harvester can be vetted and adjusted as needed—with input from the WDNR, Green Lake County, and other partners. The purpose of the Pilot is to learn and optimize Stationary Harvester performance.

Current Aquatic Plant Management is Insufficient to Address Duckweed

The GLSD currently owns and operates two "mobile" harvesters—traditional aquatic weed harvesters from Aquarius Systems, optimized for cutting and capturing aquatic macrophytes in Green Lake. As part of its Aquatic Plant Management Plan, the WDNR has approved a 50-foot-wide harvesting lane to maintain a navigation lane in the SCE.

The primary aquatic plant hindering navigation in the SCE is duckweed. The current method of "harvesting" duckweed within this approved 50-foot harvesting lane using a traditional aquatic weed harvester boat has

proven to be ineffective and inefficient—particularly given the design of the harvest boat conveyors (intended for aquatic macrophytes, not 1/16-inch diameter duckweed), the slow cycle time required to unload the harvester boat, and the limited 5-day, 8 hour/day harvesting shifts. Aquarius Systems has acknowledged to the Task Force that its harvesting boats are not intended for duckweed removal.

Therefore, using the current harvesters to manually remove duckweed from the SCE within the WDNR-approved navigation lane was not deemed feasible given:

- The quantity of duckweed
- Its diverse locations in the SCE and lake, particularly in shallow areas where the mobile harvesters would cause adverse resuspension to lakebed sediments
- The inefficiencies of the mobile harvesters at collecting duckweed
- The mobile nature of duckweed, where a recently cleared navigation channel fills in with duckweed with any shift in wind

Additionally, the possibility of chemical herbicides of duckweed was immediately eliminated, per NR 107 and the mobile nature of duckweed.

STATIONARY HARVESTER DESIGN

This Proposal is to add a third harvester, which is a "stationary harvester" designed to capture floating duckweed. This Stationary Harvester leverages the Silver Creek Estuary water flow to deliver duckweed and floating biomass to the Stationary Harvester—rather than trying to chase duckweed inefficiently and ineffectively with a mobile harvester. This concept effectively "automates" the harvesting process, which will significantly increase the effectiveness and efficiency of the harvesting system.

The Stationary Harvester is located within the 50-foot-wide harvesting lane currently approved by the WDNR as part of the Green Lake Sanitary District's Aquatic Plan Management Permit (see Figure 1).

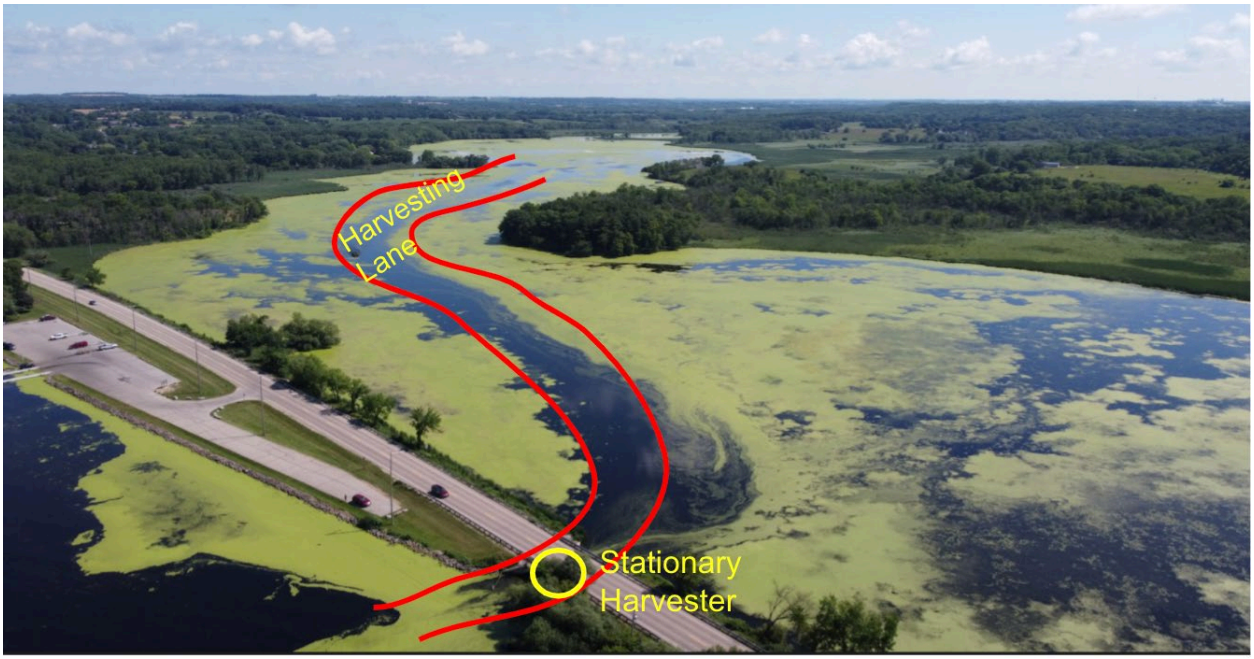


Figure 1. The Stationary Duckweed Harvester is located within an existing harvesting lane under the County Highway A bridge.

Location

The proposed location for the Stationary Harvester Pilot is on the west side of the County Highway A bridge, utilizing a small strip of land owned by the County in Sunset Park, with some equipment at the southwest corner of the County Highway A bridge. This location provides the necessary space for the various components of the Stationary Harvester.

STATIONARY HARVESTER PILOT: PHASE I

The Stationary Harvester is a very simple, four-step process—Capture, Dewater, Transport, and Beneficial Reuse—described in more detail below. The Stationary Harvester has two phases to maximize learning and system performance, minimize sunk costs of Phase II, and adjust the Stationary Harvester system as needed.

Phase I (see Figure 2 and Figure 3) will last for one week and will be used to test the various components of the Stationary Harvester. This will allow for a cost effective, sequential validation of the Stationary Harvester design. Its modular design allows for component placement optimization based on the learnings of Phase I.

Figure 2. Phase I of the Stationary Harvester will last one week only and utilize a temporary Floating Boom to test the system.

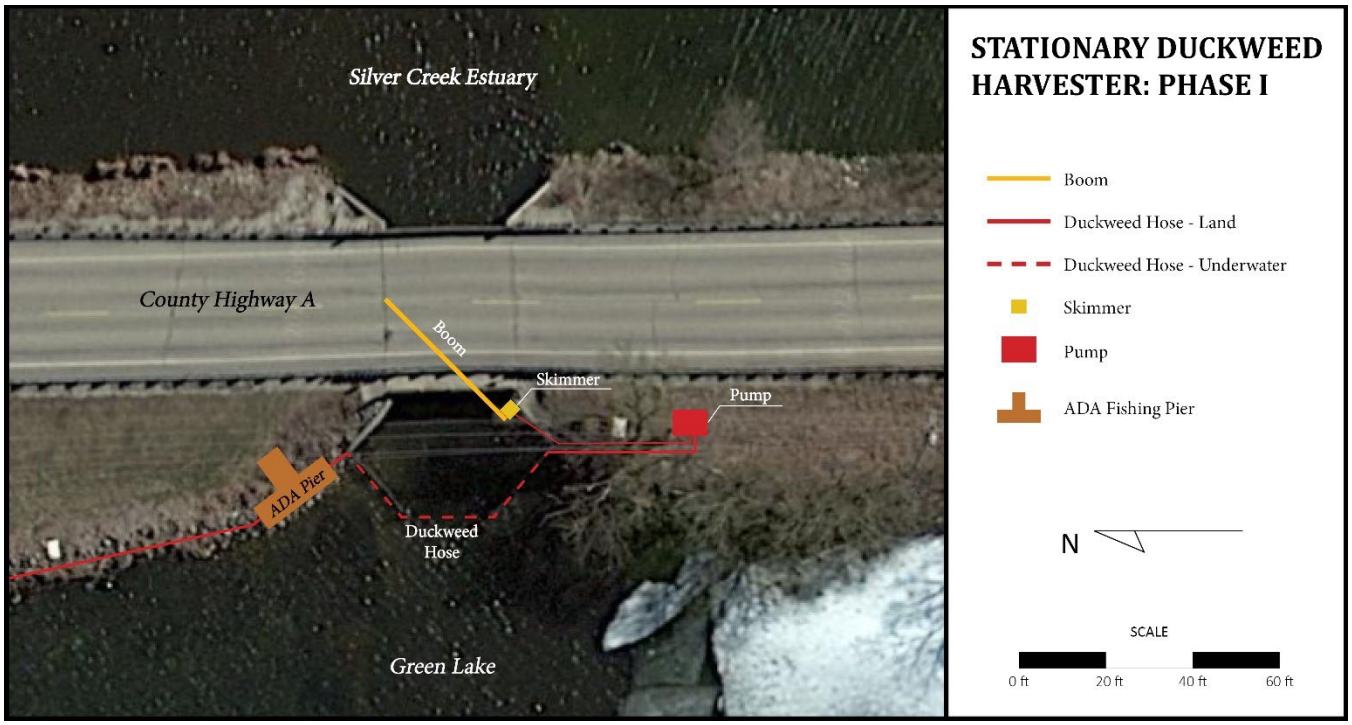


Figure 3. Detail at the County Highway A bridge of Phase I, which uses a floating boom to complete a system analysis of the Stationary Harvester.

The four components of the Phase I of the Pilot are:

(1) Capture: The Stationary Harvester utilizes the Silver Creek Estuary water flow to deliver duckweed to the Stationary Harvester.

In Phase I (only), a Floating Boom will be used to guide and consolidate duckweed from a 28-foot-wide flow at the entrance of the CTH A to a 3-foot-wide flow, where it enters a floating Skimmer. A discussion of navigation and safety considerations of the Floating Boom design is discussed later.

The Skimmer (see Figure 4) collects the consolidated duckweed. It is an adjustable Weir Skimmer, which uses pump suction to skim only the water's surface, where duckweed is concentrated. Discussed later, the Skimmer includes a Bycatch screen to limit any negative impacts to the fishery.

Figure 4. A Skimmer, retrofit with a Bycatch screen discussed later, captures consolidated duckweed.

There is considerable variance in the SCE water flow rate depending on time of year and amount of rainfall. The water surface flow rate typically varies from approximately 0.2 feet/second to 4 feet/second. The Skimmer/Pump systems will be capable of variable speed to accommodate for this flow rate variance. The Operator—present at all times while the Pilot Stationary Harvester is in operation—will adjust the speed of these components to match the flow rate as needed.

(2) Dewater: The duckweed/water slurry is pumped into an industrial scale Dewatering Box (25 cubic yards), which uses a filter fabric lining to capture the duckweed. All remaining water drains out of the Dewatering Box via two exit ports and re-enters Green Lake via hoses and an appropriate water return to avoid any lakebed erosion or sediment disruption. The features of the water intake and water return to avoid lakebed disturbance is discussed later.

(3) Transport: A local transportation company will pick up a fully loaded Dewatering Box and transport it to the appropriate destination for emptying. The transportation company will pick up on-demand based on the variable duckweed flows. It is anticipated that, during heavy flows, there could be multiple pickups per day. Low flow periods may require a pickup only once every few days.

(4) Beneficial Reuse: Currently, Green Lake macrophytes harvested by the mobile harvesters are repurposed as compost at the Green Lake City Compost Center. The plan is to also repurpose duckweed captured by Stationary Harvester as compost, initially using the same Green Lake City Compost Center(s)—though there are opportunities to expand to nearby farms for compost generation.

During Phase I, the Skimmer, Pump, Hoses, and Dewatering Box will be used to validate the Pilot system. The test will start with low pumping rate conditions and will then ramp to higher flow rates to ensure the systems can accommodate the wide range of operating conditions and estuary flows into Green Lake.

During Phase I, a moveable Floating Boom will be used to guide and consolidate the flow of duckweed into the Skimmer. The Floating Boom will be used for very short periods of time with an Operator always present to move the boom if placed where watercraft need to pass through. The Floating Boom will have no impact on Wildlife movement.

STATIONARY HARVESTER PILOT: PHASE II

Once Phase I is complete and the Stationary Harvester system is validated, Phase II is expected to last the remaining four months of the Pilot period. Phase II (see **Error! Reference source not found.**) is identical to Phase I, except that the Floating Boom is replaced with a Bubble Curtain.

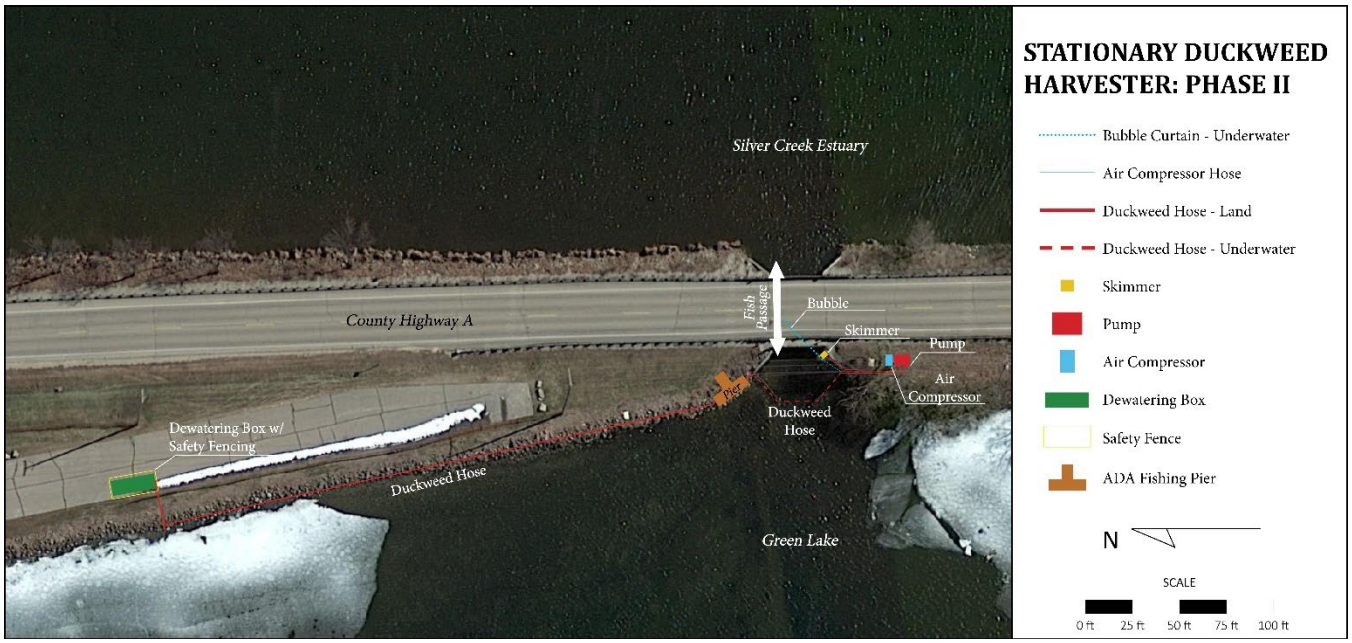


Figure 5. Phase II of the Stationary Harvester replaces the temporary Floating Boom with a Bubble Curtain.

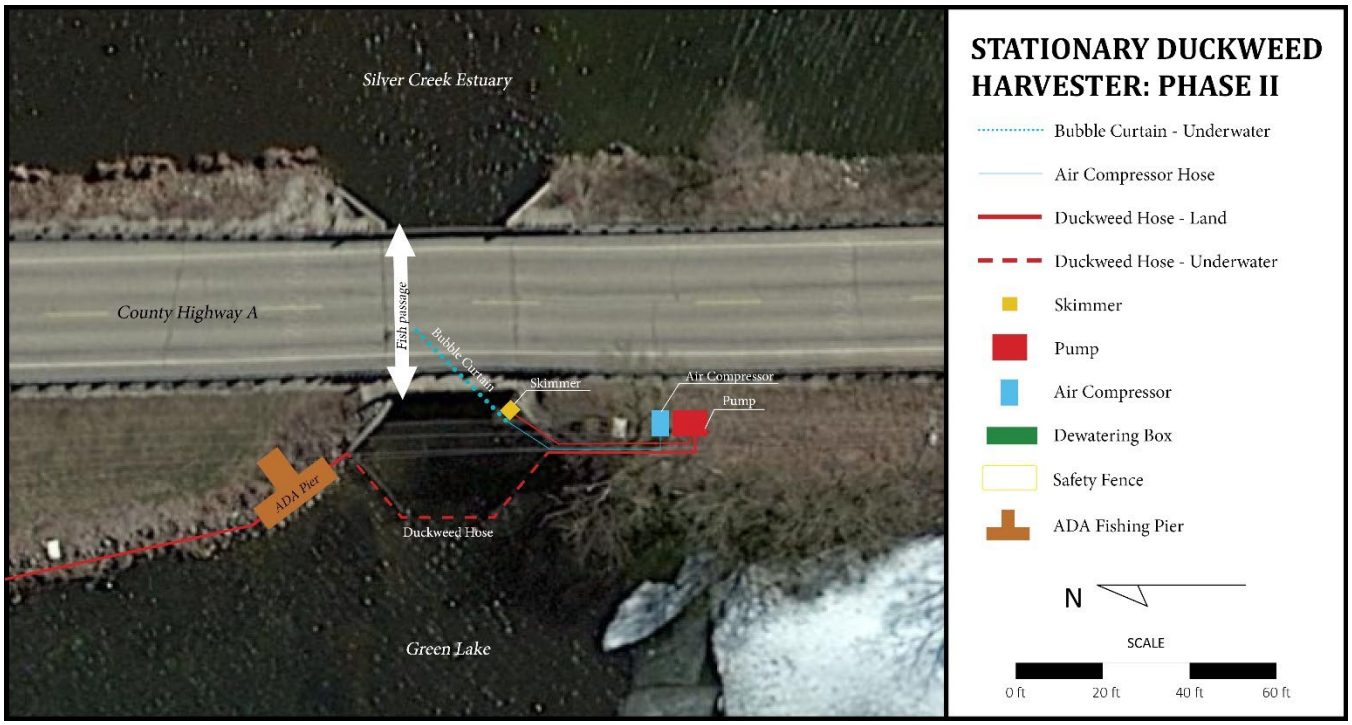


Figure 6. Detail at the County Highway A bridge of Phase II, which uses a Bubble Curtain to consolidate duckweed.

For Phase II, the four steps of duckweed capture include:

(1) Capture: In Phase II, the Floating Boom is replaced by a Bubble Curtain (see Figure 7) to consolidate the flow of duckweed to the Skimmer.

(2) Dewater: Same as Phase I. The duckweed/water slurry is pumped into an industrial scale Dewatering Box (25 cubic yards), which uses a filter fabric lining to capture the duckweed. All remaining water drains out of the Dewatering Box via two exit ports and re-enters Green Lake via hoses and an appropriate water return to avoid any lakebed erosion or sediment disruption. The features of the water intake and water return to avoid lakebed disturbance is discussed later.

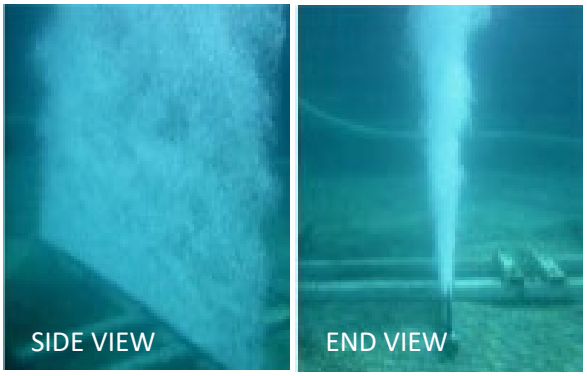


Figure 7. A Bubble Curtain is used in Phase II to consolidate duckweed.

(3) Transport: Same a Phase I. A local transportation company will pick up a fully loaded Dewatering Box and transport it to the appropriate destination for emptying. The transportation company will pick up on-demand based on the variable duckweed flows. It is anticipated that, during heavy flows, there could be multiple pickups per day. Low flow periods may require a pickup only once every few days.

(4) Beneficial Reuse: Same as Phase I. Repurpose duckweed captured by Stationary Harvester as compost, initially using the same Green Lake City Compost Center(s) and potentially expand to nearby farms for compost generation.

STATIONARY HARVESTER OPERATION

The design of the Stationary Harvester provides an inherent level of automation by leveraging continuous water flow to deliver duckweed to the Stationary Harvester and using simple components throughout the design. For both Phase I and Phase II, an Operator will always be onsite during system operation to ensure safe operation and to perform basic tasks including:

- Monitor Dewater Box loads and request transportation when needed.
- Monitor Skimmer and unclog as needed if there is floating debris, etc. entering the Skimmer.
- Adjust Pump speed to match water flow and optimize duckweed capture.

OTHER CONSIDERATIONS OF THE STATIONARY HARVESTER

This Task Force is focused and committed to meet the appropriate WDNR regulations, policies, and guidelines. Specifically, the Stationary Harvester Pilot prioritized a design that addressed four focus areas:

1. Supporting a healthy water resource
2. Supporting a healthy Green Lake fishery
3. Limiting impacts to lakebed disturbance
4. Assuring safety and navigation

The components that address these four focus areas are outlined in more detail below.

Supporting Healthy Water Resources

Duckweed flourishes in slow-moving, nutrient rich waters, making the SCE its target ecosystem. On the contrary, the rough, open waters of Green Lake proper *do not* provide suitable habitat for duckweed. This Pilot does not remove any duckweed from within the SCE and only prevents it from entering Green Lake. Therefore, this Pilot has no impacts on duckweed populations within its target ecosystem.

Supporting a Healthy Green Lake's Fishery

Once in Green Lake, duckweed can concentrate into thick mats within its coves and bays, such as near the Sailing Club and Sailing School on its east side. In these areas, duckweed is known to propagate within Green Lake. Dissolved oxygen readings measured under these duckweed mats in Green Lake in 2021 were near 0 mg/L. Reducing duckweed from Green Lake would improve the ecosystem in its near-shore areas, critical habitat for Green Lake's fishery.

In addition to improving near-shore dissolved oxygen concentrations, a key requirement of the Stationary Harvester is to allow for the uninhibited movement of wildlife between Green Lake and the SCE and low ecosystem disturbance.

The Floating Boom is only 18" deep and will not impede the movement of Wildlife. The Floating Boom will be in position only when an Operator is present. When a watercraft needs to pass through the channel, the Operator will immediately move the Floating Boom to allow for watercraft passage.

The Bubble Curtain technology used in this Pilot is not known to negatively affect fish movement. However, if the movement of some fish species is adversely affected by the presence of the Bubble Curtain, it is offset 6-feet from the northern bridge abutment to create a six-foot-wide Fish Lane (see Figure 8).

The system also includes modifications to reduce bycatch to the maximum extent practicable. One-inch by one-inch netting will be used to enable only the top two inches of water to be skimmed unobstructed. This will limit the type and number of species that can feasibly be a cause for concern for adult fish or reptile bycatch.

Additionally, in comparison to the cross-section of water under the bridge, this Skimmer area makes up <1% of the total area for fish passage within the water column, seemingly making it unlikely for a substantial among of bycatch to occur.

It is young-of-the-year (age-0) fish still in the larval or fry state of their growth cycle that are likely the most susceptible to bycatch from the Stationary Harvester. Fish in the larval or fry stages have not yet fully developed, and in many cases may not have the ability to swim against high water velocity flows. However,

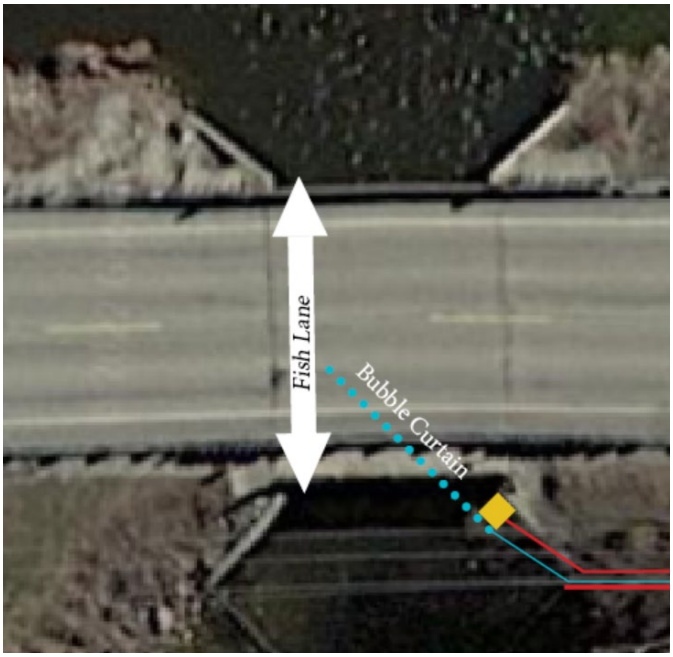


Figure 8. The Pilot includes a six-foot-wide fish passage lane to allow for free movement of all fish species.

this Pilot is only operational Monday through Friday, eight hours a day, resulting in 87% of duckweed continuing to flow into Green Lake (see Figure 9).

Regardless, bycatch will be closely monitored during the Pilot to ensure these mitigation measures are successful.

Harvester	Shift	# of Operators	Operator Coverage							Duckweed Season Coverage	Harvesting Efficiency	Harvest Lane Width	Harvest Time per Season	Duckweed Flow per Season
			M	T	W	R	F	Sat	Sun					
Stationary Harvester **PILOT**	1st Shift-5 days	1	24%							100%	75%	75%	13%	**87%**
	2nd Shift	0												
	3rd Shift	0												

Figure 9. The Stationary Harvester is intended to learn and optimize the Stationary Harvester performance, not maximize duckweed removal. Given the Pilot's Monday through Friday operation for 8 hours per day, and its 75% harvesting efficiency, 87% of the duckweed is estimated to still flow into Green Lake.

Limiting Impacts to Lakebed Disturbance

Water intake from the skimmer to the dewatering box will have an average flow rate of 375 gpm.

A water return system will limit negative impacts to the lakebed. The Dewatering Box will separate the duckweed solids from the water, which will exit the Dewatering Box from two 6-inch exit ports. All exit flow will be directed back towards the lake via 6-inch hose, where it will leach back into Green Lake through a stilling well—a vertical standpipe perforated with small holes to diffuse flow. The stilling well will be located on existing shoreline riprap to minimize any potential lakebed disturbance.

The pump will have variable speed to provide an adjustable, controlled Intake flow rate. In addition, a Discharge flow meter will be used to monitor the Discharge flow rate (GPM). This equipment enables the system to be operated in a carefully controlled manner and adjusted in real time as needed.

Assuring Safety and Navigation

In Phase I, only when an Operator is present, a Floating Boom will span the County Highway A bridge width at a 45-degree angle to consolidate duckweed flow. The Floating Boom will be opened whenever boaters need to pass. Phase I is anticipated to last a maximum of one week. When the Floating Boom is not in use, one end will be detached and wrapped around and secured to the Northeast quadrant of the County Highway A bridge.

Phase II will replace the Floating Boom with a Bubble Curtain. The Bubble Curtain is made of weight bubble tubing that will rest securely on the lake bottom, at an average depth of 6.5 feet.

The Skimmer will only be running when an Operator is on site and will be located next to the Southwest wingwall of the County Highway A bridge. This will protect the Skimmer device and prevent boaters from hitting the equipment.

INVOLVEMENT WITH LOCAL UNITS OF GOVERNMENT

Given that the Pilot will be located on Green Lake County property, use of this space will require the approval of Green Lake County Parks Commission, Green Lake County Property & Insurance, and the Green Lake County Board. The Task Force presented the Stationary Harvester to the Parks Commission on February 7, 2022 and, at their request, the Task Force is developing a resolution to be voted on during the next meeting, March 28, 2022.

Assuming the resolution is passed, it will be reviewed by Green Lake County Property & Insurance on April 5, 2022, and the Green Lake County Board on April 19, 2022.

MEASURING SUCCESS

The overall goal of the four-month Pilot is to learn and optimize the Stationary Harvester performance. A successful Pilot will:

(1) **System Validation:** Validate that the Stationary Harvester system can successfully Capture, Dewater, Transport, and Beneficially Repurpose duckweed.
(2) **Compost Repurpose:** Successfully work with nearby farms and/or the City of Green Lake Compost Center to repurpose the duckweed as compost.
(3) **Duckweed Capture Volume:** The total volume of duckweed collected (cubic yards) will be measured and reported on a weekly basis (consistent with the volume of aquatic weeds collected by "mobile" harvesters). This duckweed volume will be totaled and reported at the end of each harvest season.

SUMMARY AND NEXT STEPS

Summary

Duckweed on Green Lake has become the most pressing issue facing lake front property owners and lake users calling for an innovative mitigation strategy. We are aware that developing and implementing such a strategy will require WDNR involvement and approval in accordance with its established code and requirements.

The GLA and its partners recognize that mitigation alone is not a long-term solution, as it does not address the underlying causes of the duckweed problem. However, the preferred solution of addressing excessive nutrient loading at the source will take decades based on the most recent lake study findings and ten-year County plans.

As such, we believe interim measures or actions are warranted, consistent with approaches undertaken by other environmental programs when the final solution is years down the road. This proposal, the Stationary Harvester Pilot, is a pilot project designed to help find an interim solution to address the problem today. It involves employing existing, available technologies in a new way.

Next Steps

The Green Lake Duckweed Mitigation Task Force is excited about the opportunity to implement this innovative solution in a 2022 Pilot project, along with continued use of our two existing mobile harvesters.

After this Proposal is distributed to the appropriate WDNR Departments, the Task Force requests the opportunity to give a presentation to more thoroughly present the Stationary Harvester, answer any questions WDNR officials may have, and make adjustments to the Pilot as needed.

We appreciate WDNR's review of this proposal and your guidance to move forward.

REQUEST FOR PURCHASE APPROVAL

Item To Be Purchased:

Monroe 18" Rear Cross Conveyor Spreader $13,767.00

Department: Highway

Account Number: 22-701-29-53281-810-000

Governing Committee: Highway

Governing Committee Approval Date: 03/09/22

P&I Approval Date:

Reason for Purchase:

The highway department is requesting the purchase of a rear cross conveyor for our 2023 patrol truck. The current truck with our cross conveyor, "truck 33" is getting to the end of it's useful life for the highway department. It will be phased out with the addition of the 2023-2024 patrol trucks. The conveyor that is on 33 now is to narrow to fit the new trucks coming in and would require a substantial amount of time and materials to try and make it work with our new trucks. Our best route to go would be to purchase a new conveyor that is made to fit our new trucks and have the company, "Monroe" that is setting up the body on the truck, set up the conveyor at the same time. That way it is all properly installed at the most convenient time while they are setting up the rest of the truck. This will be the cheapest time to add this in and it's going to give us the best product result as well vs. cobbling it on to the truck later on. Additionally we locked in the price on the conveyor that has already increased since we got the quote. It will never be cheaper than doing it at this time.

1151 W Main Avenue
DePere, WI 54115
Sales Rep: Troy Redfearn
Ph: (920) 360-4446
www.MonroeTruck.com

J.O.

Quotation ID: 2MAW003240
Date: 2/17/2022
Valid thru: 3/19/2022
Terms: NET 30
Quoted by: Mark Woelfel
Ph/Fax: 920-347-4181 / 920-336-8118

Quoted to:
GREEN LAKE CO HWY DEPT (ATTN:)
570 SOUTH ST
GREEN LAKE, WI 54941
Ph: 920-294-4060 **/ Fax:** 920-294-4066
Email:

Chassis Information

Year:	*Make:*		*Model:*		*Chassis Color:*	*Cab Type:*
Single/Dual:	*CA:*	*CT:*	*Wheelbase:*	*Engine:*	*F.O. Number #:*	*Vin:*

Notes:

Monroe Truck Equipment, Inc. is pleased to offer the following quote for your review:

Description	Amount	
MONROE 18" REAR CROSS CONVEYOR SPREADER - MILD STEEL CONSTRUCTION - BI-DIRECTIONAL CONVEYOR - QUICK ATTACH/DETACH SELF-LEVELING MOUNTING HARDWARE - HI-TEMP STRAIGHT BELT W/ FLEXIBLE STAINLESS SPLICING - CAGED DESIGN DRIVE & IDLER PULLEYS - POLY SUPPORT ROLLERS W/ STAINLESS STEEL SHAFT - HEAVY-DUTY BEARING & BELT ADJUSTMENT - POWDER COATED ORANGE	$13,767.00	
HYDRAULIC BERM MASTER - STAINLESS LINES TO REAR TO OPERATE UP/DOWN, LEFT/RIGHT	$6,976.00	Amount can be removed - Do not need

***Due to current market conditions, pricing is subject to change at time of upfit.*

Additional Options:

Description	Amount	Add to quote? Yes / No

Terms & Conditions

- Terms are Due Upon Receipt unless prior credit arrangements are made at the time of order.
- Please note if chassis is furnished, it is as a convenience and terms are Net Due on Receipt of Chassis.
- State and Federal taxes will be added where applicable. **Out-of-state municipal entities may be subject to Wisconsin sales tax.**
- Restocking fees may be applicable for cancelled orders.
- MTE is not responsible or liable for equipment that does not meet local/state regulations if those laws are not made known at time of order.

By signing and accepting this quote, the customer agrees to the terms listed above and has confirmed that all chassis information listed above is accurate to chassis specs.

Re-Assign (Required for all pool units):	☐ Fleet	☐ Retail	**Customer P.O. Number:**	**Dealer Code:**	**Sourcewell Member Number:**
MSO/MCO (ONLY check if legally required):	☐ MCO	☐ MSO			
Customer Signature:				**Date of Acceptance:**	

TAILGATESPREADERS

Designed to withstand the harshest winter conditions

SPREADER | UNDER TAILGATE

SPREADER | ROLLSPREADER

SPREADER | REAR CROSS CONVEYOR

SPREADER | REPLACEMENT TAILGATE

municipal.monroetruck.com

MONROE
MUNICIPAL TRUCK EQUIPMENT

	MS886	MS966	MS969	MS964DA	88RS	96RS	RT	RTS	ZDRTS	MS10312	MS10318
CONSTRUCTION											
Mild Steel	X	X	X	X	X	X	X	X	X	X	X
Corrosion Resistant Stainless Steel	X	X	X	X	X	X	X	X	X	X	X
Spreader Width	88"	96"	96"	96"	88"	96"	Custom	Custom	88.5"	103"	103"
DRIVE											
Direct Drive	X	X	X			X	X	X			
Gearbox Drive 5:1	X	X	X		X	X	X	X			
Chain & Sprocket Drive	X	X		X	X	X	X	X	X	X	
AUGER											
Diameter	6"	6"	9"	4"	4.5"	4.5"	6"	6" or 9"	6"	Belt	Belt
DISCHARGE LOCATION											
One-Way	LH	LH	LH				LH/RH	LH/RH	X		
Reverse Flight	LH	LH		X			X	X			
Dual Discharge	X	X	X							X	X
Center Discharge	X	X	X	X			X	X	X		
Full Length					X	X					
SPREADING MATERIAL											
Sand	X	X	X	X	X	X	X	X	X	X	X
Salt	X	X	X	X	X	X	X	X	X	X	X
Gravel			X							X	X
Chip					X	X					
SPINNER											
18" Poly	X	X	X	X	X	X	X	X	X	X	X
18" Mildsteel	X	X	X	X	X	X	X	X	X	X	X
18" Stainless Steel	X	X	X	X	X	X	X	X	X	X	X
Accu-place		X	X				X	X			
OPTIONS											
Centerline Chute		X	X							X	X
Integral Speed Sensor	X	X	X	X			X	X	X	X	X
Flow Control Valve	X	X	X	X	X	X	X	X	X	X	X
Hose Kit	X	X	X	X	X	X	X	X	X	X	X
Control Valve Stand	X	X	X	X	X	X	X	X	X	X	X
Hydraulic Tanks	X	X	X	X	X	X	X	X	X	X	X
Spinner w/ Stabilizer Rod	X	X	X	X			X	X	X		
Gravity Leveled Spinner	X	X	X	X			X	X	X		
4' Extension										X	X
Light Bar	X	X	X	X	X	X	X	X	X	X	X
Custom Paint	X	X	X	X	X	X	X	X	X	X	X
Pre-wet Application	X	X	X	X	X	X	X	X	X	X	X
BermMaster										X	X
Chipper Attachment					X	X					
Extended Side Shields	X	X	X	X	X	X					

Hydraulic Interlock

Standard on all 6" and 9" Spreaders

Drive Options

Chain Drive

- Drive uses #60 Chain with 2.6:1 ratio
- Drive Assembly is Protected by a One Piece Chain Guard that is easily removable without the use of tools
- Requires some maintenance

Direct Drive

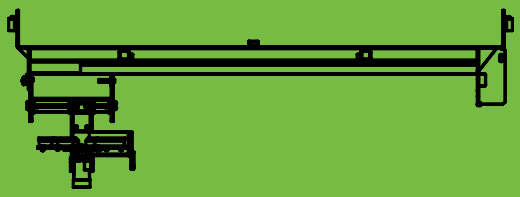
- Low Speed High Torque Hydraulic Motor directly coupled to the auger
- Provides higher performance
- Decreased maintenance costs

Gearbox Drive

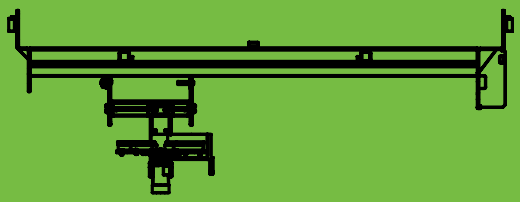
- Drive has 5:1 reduction with a direct attached motor coupled to the auger
- Better control at low spread rates for more efficient spreading
- Incorporated Thru-Shaft for convenient spread rate sensor mounting

Discharge Location

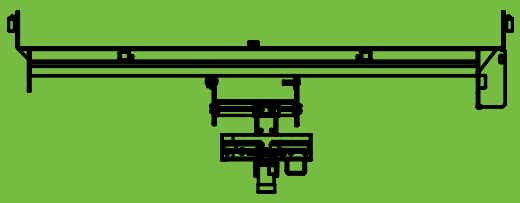
One-Way



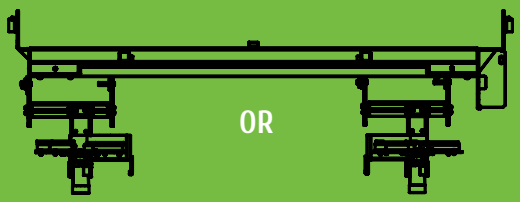
Reverse Flight



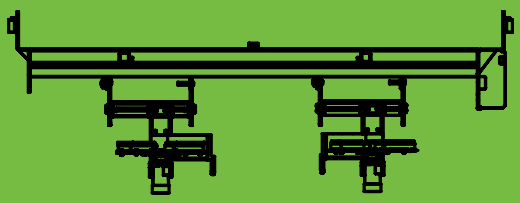
Center Discharge



Dual Discharge



Twin Spinner



An innovative and inexpensive way to extend the life of your tailgate spreader spinner!

The Seal Saver is designed to help eliminate the issue of sand, salt, or other granular products from migrating directly into the motor seal on spinner assemblies.

The complete Seal Saver System includes:

- Hydraulic motor with extended shaft
- Machined poly spacer with a grease groove and zerk installed

Installing the spacer and injecting grease on a regular basis with force undesired materials away from the motor seal.

Spinner Options

Standard Self Leveling Spinner with Stabilizer Rod

Stationary Bumper Mount Spinners on a One-Way Dual Discharge Spreader

Self Leveling Spinner without Stabilizer Rod

Accu-Place Spinner

Under Tailgate | MS886/MS966/MS969/MS964DA

- 7ga Trough and Lid
- (MS886/966/964) 3" x 2" Tube for rear reinforcement; (MS969) 2" x 5" Tube for rear reinforcement
- Fully opening lid top with easy access
- Fully opening bottom trough for assisting with complete clean out of unit, and also allowing full access for servicing unit with center lift handle
- Anti-Flow Plate to restrict material from free flowing when unit is stopped

Options:

- Centerline Chute
- Integral Speed Sensor
- Flow Control Valve
- Hose Kit
- Spinner Guards
- Gravity Leveled Spinner
- 304 Stainless Steel
- 5:1 Gearbox Drive
- Direct Drive

Q) Why should I use a Monroe undertailgate auger-style spreader?
A) The Monroe auger-style undertailgate spreader allows you to dispense free-flowing granular material for the purpose of making roads, driveways, parking lots, and runway lots for safe travel. Because these spreaders can spread salt, sand, pea gravel, and even small sized road stone, they are an extremely versatile and inexpensive option when used in conjuction with a standard dump body.

Features:

- Economical way to utilize existing dump body for maximum returns winter & summer
- Mildsteel Powdercoat
- Capable of spreading free flowing material from 4' to 40'
- Convenient chain hoist lifting slots placed at balance points for easy safe mounting and dismounting
- All welds are 100% continuously welded to prevent corrosion pockets

MS886

GENERAL SPECIFICATIONS		AUGER SPECIFICATIONS			
WIDTH:	88"	LENGTH:	76"	SHAFT:	1-1/4"
DEPTH*:	18"	DIAMETER:	6"	BEARINGS:	2-BOLT
HEIGHT*:	20"	PITCH:	4"	SELF-ALIGNING:	YES
ENDPLATES:	1/4"	FLIGHTING:	3/8"		

MS966

GENERAL SPECIFICATIONS		AUGER SPECIFICATIONS			
WIDTH:	96"	LENGTH:	84"	SHAFT:	1-1/4"
DEPTH*:	18"	DIAMETER:	6"	BEARINGS:	2-BOLT
HEIGHT*:	20"	PITCH:	4"	SELF-ALIGNING:	YES
ENDPLATES:	1/4"	FLIGHTING:	3/8"		

MS886/966-RF/CD/TS- based on 10 gallons of hyd flow, 4" Auger Pitch
CHAIN DRIVE- 8.96 cu. ft./min.
GEARBOX DRIVE- 7.40 cu. ft./min.
DIRECT DRIVE- 9.36 cu. ft./min.

MS969

GENERAL SPECIFICATIONS		AUGER SPECIFICATIONS			
WIDTH:	96"	LENGTH:	84"	SHAFT:	1-1/2"
DEPTH*:	19"	DIAMETER:	9"	BEARINGS:	4-BOLT
HEIGHT*:	22"	PITCH:	6"	SELF-ALIGNING:	YES
ENDPLATES:	1/4"	FLIGHTING:	3/8"		

MS969-DD/OW- based on 10 gallons of hyd flow, 6" Auger Pitch
DIRECT DRIVE- 10.02 cu. ft./min.

MS964DA

GENERAL SPECIFICATIONS		AUGER SPECIFICATIONS			
WIDTH:	96"	LENGTH:	84"	SHAFT:	1"
DEPTH*:	17-1/2"	DIAMETER:	4"	BEARINGS:	2-BOLT
HEIGHT*:	19-1/2"	PITCH:	4"	SELF-ALIGNING:	YES
ENDPLATES:	1/4"	FLIGHTING:	3/8"		

MS964- based on 10 gallons of hyd flow, 6" Auger Pitch
CHAIN DRIVE- 14.18 cu. ft./min.

Monroe Quick Hitch Brackets

*Dimension without Spinner attached.

Z-Latch

Optional Extended Side Shield

MONROE
MUNICIPAL TRUCK EQUIPMENT

Roll | 88RS/96RS

Features:

- 7ga. Trough Assembly
- 1/4" One-Piece Endplates
- Full Top and Bottom Openings
- 4-1/2" O.D. Roller Assembly
- Roller has an adjustable Steel Wear Plate on the front side
- Four Independent Spring Loaded Anti-Flow Gates on the back side that are adjustable from a dusting of material to applying 3" deep material

MS88RS

GENERAL SPECIFICATIONS		AUGER SPECIFICATIONS			
WIDTH:	97"	LENGTH:	87"	SHAFT:	1"
DEPTH*:	14-1/2"	DIAMETER:	4-1/2" O.D.	BEARINGS:	2-BOLT
HEIGHT*:	20"	PITCH:		SELF-ALIGNING:	YES
ENDPLATES:	1/4"	FLIGHTING:			
FLOWRATE:					

MS96RS

GENERAL SPECIFICATIONS		AUGER SPECIFICATIONS			
WIDTH:	105"	LENGTH:	95"	SHAFT:	1"
DEPTH*:	14-1/2"	DIAMETER:	4-1/2" O.D.	BEARINGS:	2-BOLT
HEIGHT*:	20"	PITCH:		SELF-ALIGNING:	YES
ENDPLATES:	1/4"	FLIGHTING:			
FLOWRATE:					

Optional Chip Attachment:
Swing out chip spreader attachment for 11' chip coverage

Q) Why should I use a Monroe undertailgate roll-style spreader?
A) The Monroe roll-style undertailgate spreader allows you to drop free-flowing material in an 88" or 96" wide path directly behind the truck. This is critical in areas where users don't want to broadcast material over a wider area, or they need to reclaim most of the spread material after the storm event. Also, for areas with environmental regulations, no other spreader has as much to offer. Finally, this spreader is ideal for chip spreading applications or seal-coating operations. The optional chip spreader re-distributes the material flow from 8" to 11" with no moving parts.

- Vertically-Mounted Spinner Assembly
- 10ga., 304 Stainless Steel Housing
- 2-Safety Bars constructed of 3/16", 304 Stainless Steel
- AR400 Impeller has Four Paddles
- Spinner Assembly Mounted with approx. 6" ground clearance
- The Impeller Drive Motor has low speed/high torque "Orbital-Type" Hydraulic Wheel Motor
- Spinner Assembly shall lift 6" by actuating remote in cab switch
- 45 degree rotation and left of center position by actuating remote in cab swtich
- Used in conjunction with under tailgate, replacement tailgate or V-Box spreader in lieu of conventional spinners

Accu-place

Replacement Tailgate | RT/RTS/ZDRT

RTS Spreader with built-in Pre-wet Tank and Twin Spinner

Options:

- Spinner Guards
- Agitator Bar
- Open Center and Closed Center Flow Control Valves
- 3/16" Bolt-On Mild Steel Backing Plate
- Hose Kits
- Custom Paint
- 3, 6, & 9 Panel Reinforcement
- Stainless Steel
- Integral Pre-wet Tanks

1-Ton Replacement Tailgate Spreader Application shown with optional Receiver Hitch Mounted Spinner

RTS Features:

- Tailgate is constructed of 3/16" Mild Steel Bodywith 1/4" Endplates
- 3" x 3" x 1/4" Minimum Tube Type Frame
- Full-Width Auger located below the dump body floor
- Auger has 3/8" flighting with a 4" pitch
- Agitator has ten, 3.5" x 3.5" x 1/4" interrupters angularly welded
- Both Auger and Agitator are direct driven by low speed high torque hydraulic motors
- Interior seams are 100% continuously welded
- Self-Leveling spinner assembly is equipped with an 18" spinner disc constructed of black polymer material
- Full Bottom Opening
- Powder Coat Paint

RT Features:

- Full Width Auger eliminates corner build-up
- Easy installation and removal
- 7ga. construction
- 6" Auger with 4" pitch and 3/8" thickness
- Continuous welded interior
- Maximum ground to spinner height
- Spinner remains parallel to ground at various dump angles
- Low speed high torque motor gives dependable spreading control
- Adjustable spinner for various spreading patterns
- Slip-off drive assembly guard

Q) Why should I use a Monroe full replacement style spreader?

A) The Monroe full replacement tailgate style spreader is designed to completely replace the original dump body tailgate. Each one is custom-built in our modern manufacturing facility here in Monroe, Wisconsin, by carefully trained welders and assemblers. By building each unit to the exact dimensions you provide from your existing dump body tailgate, we can help ensure a tight fit, no material leakage and excellent spinner clearance to the ground.

Q) What limitations do I need to take into consideration when choosing a Monroe Full Replacement style spreader?

A) Monroe builds two distinct styles of full replacement spreaders. Our RT unit is designed for small trucks where spinner clearance is a particular issue. Because the bottom trough does not open and the spinner sits at the level of the dump body floor, an extra 8" of clearance is obtained.

Conversely, the Monroe RTS unit has a full-opening bottom trough and the spreader is designed so the hopper sits below the level of the dump body floor. Typically used on larger trucks where spinner clearance isn't critical, the RTS may be up to 55" tall, depending on the provided tailgate dimensions.

Each of these two units allows the granular material to feed more evenly into the spreader since continuous load pressure can be maintained more easily than with an undertailgate spreader. Hinges and locking pins must be fitted by the installer.

Rear Cross Conveyor | MS1031/MS10318

MS10312

GENERAL SPECIFICATIONS		CONVEYOR SPECIFICATIONS	
WIDTH:	103"	ADJUSTABLE FEED GATE (x2):	10" x 10"
DEPTH*:	28.46 OAL	DISCHARGE:	LEFT AND/OR RIGHT
HEIGHT*:	26.94 OAL	BELT WIDTH:	12"
ENDPLATES:	1/4"	BELT THICKNESS:	3/8"

MS10318

GENERAL SPECIFICATIONS		CONVEYOR SPECIFICATIONS	
WIDTH:	103"	ADJUSTABLE FEED GATE (x2):	10" x 16"
DEPTH*:	34.46 OAL	DISCHARGE:	LEFT AND/OR RIGHT
HEIGHT*:	26.94 OAL	BELT WIDTH:	18"
ENDPLATES:	1/4"	BELT THICKNESS:	3/8"

Shown with Optional Spinner Assembly and Berm Chute

Optional 4' Extension with caged rollers

Features:

- Spreads a wide variety of material which includes all types of aggregate and hot mix asphalt
- Performs shoulder maintenance, rut-filling, asphalt-patching and ice control
- Available in a 12" or 18" Conveyor width
- Bi-directional conveyor provides driver side or passenger side discharge
- Quick Attach/Detach, Self-leveling mounting hardware
- Hi-Temp straight belt with flexible stainless splicing
- Caged design drive and idler pulleys
- Poly support rollers with stainless steel shaft, which eliminates the need for bearings
- Heavy duty bearing and belt adjustment

Options:

- 4' Extension with Belt to mount to Hydraulic Truck Conveyor
- Light Package - Stop, Turn & Tail Light with 3-light Cluster
- Sand Bag Attachment
- Corrosion-Resistant Stainless Steel
- Spinner Assembly
- Reversing Valve
- Berm Chute

Q) Why should I use a Monroe Rear Cross Conveyor Spreader?
A) The Monroe Rear Cross Conveyor spreader is designed to spread all types of aggregate, hot mix and even soil when used in conjunction with a standard dump body. It is ideal for shoulder maintenance, edge rut filling, patching and ice control. Available from Monroe in either a 12" or 18" wide belt, these versatile units are low-maintenance, self-cleaning units that are great for the small municipal entity that needs to spread good abrasives in the winter, yet can't afford a separate shouldering machine for spring and summer work.

- Available in Manual or Hydraulic Actuation
- Bolt-On Replaceable 1/2" x 4" Skid Shoe Weldments
- 24" Wide Leveling Box
- Height Adjustable Leveling Blade
- Universal Left or Right Hand Mounts
- Can be raised up and out of the way for transport
- Unit slides on six heavy duty UHMW slider blocks for better support
- Powder Coat Black
- Available for Monroe MS10318 Rear Cross Conveyor
- 1/4" x 2 - 1/2" Slider Angles for support of leveling box

Cross Conveyor Berm Master

4 LOCATIONS
TO SERVE YOU

MONROE, WI
MARSHFIELD, WI
DE PERE, WI
JOLIET, IL



municipal.monroetruck.com
800-880-0109

MONROE
MUNICIPAL TRUCK EQUIPMENT

OCT-1-V1

April 05, 2022
Property & Insurance Committee
Monthly Report
Green Lake County Maintenance Department

571 County Road A

Replaced 2'x2' light fixture with LED fixture above TV Unit E – Corrections
Replaced 2'x2' light fixture with LED back counter area - Corrections
Unclogged front shower drain Unit K – Corrections
Report of sink hot water button not working in Rec. #1- Checked and found valve was turned off/turned on/worked - Corrections
Cleaned debris out of shower nozzle Unit K - Corrections
Replaced lamps in fixture above toilets Unit N – Corrections
Repaired toilet in Unit M #1 - Corrections
Cleaned fan guards on ovens jail kitchen informed new kitchen staff of SOP weekly cleaning of these units – Corrections
Replaced 3-4' lamps in fixture Rec. #2 – Corrections
Report of hose spraying water out of connection by cleaning supplies kitchen-checked no spraying-back flow/vac breaker working as designed when discontinue pressure – Corrections
Replaced lamp in hood area far left with Led jail kitchen - Corrections
Unclogged sink drain closet to day room Unit N - Corrections
Replaced lamps in fixture in Unit B cell 1 – Corrections
Replaced lamps in fixture Unit D cell 2 – Corrections
Replaced 2 lamps in fixture LL hall by evidence room door – SO
Converted 2'x2' fixture to LED hallway outside office 1215 - SO
Replaced diaphragm on toilet- women's staff restroom - COC
Repaired broken safety lock pin mechanism on big mixer- jail kitchen - Corrections
Relocated large tv/monitor from Courtroom B to Courtroom A per request – CRTS
Replaced worn urethane drive belt for heat wheel OAHP4 services courts area – CRTS
Repaired door- stop on door to Jury Room B area - CRTS
Installed large tv/monitor Courtroom A per request – CRTS
Replaced expired controller for HP 2.23, services county admin. office – CA
Replaced expired blower motor for HP 2.27 services open office area - CA
Set up Training Room for election training per request 02/25/22 – CC
Moved file boxes to LL storage per request – CC
Disposed of 3 office chairs per request from room #2120 - HHS
Moved a residential refrigerator from clinic area to 2nd floor file area on trial basis for staff use – HHS
Moved old vaccine refrigerator from screening room to clinic area for staff use (unit has been de-identified) - HHS
Relocated environments 2nd floor open office area - HHS
Unplugged toilet- women's staff restroom 1st floor 3rd stall - HHS
Converted elevator 2 main light and emergency power fixtures to LED

HR notified on 03/18/22 to start recruitment for Summer Maint. LTE/Park Maint. LTE for late May early June seasonal start
Mandated inspection of emergency power operation for facilities elevators performed 03/22/22 at 7:54a-8:16a/system performed as designed
Facilities #2 hot water circulating pump mechanical seal unit replaced
Replaced lamp in fixture south parking area
2 south park area light fixtures converted to LED
General Maintenance performed
Scheduled Maintenance performed

500 Lake Steel Street

IDF room HVAC switched to summer mode
General Maintenance performed
Scheduled Maintenance performed

Tower Sites

General Maintenance performed
Scheduled Maintenance performed

Maintenance on seasonal equipment continues

Submitted By:

Scott A. Weir
Maintenance Director/Parks & Recreation Director
Green Lake County