

Norwich Selectboard  
Regular Meeting – July 12, 2023 – 6:30 p.m.  
Participation: Hybrid Physical Location: Tracy Hall meeting room  
ZOOM access information: <https://us02web.zoom.us/j/89116638939> Meeting ID: 891 1663 8939  
US Toll-free: 888-475-4499 (Press \*9 to raise hand; Press \*6 to unmute after recognized by Chair)

Welcome

1. Agenda..... Motion required.

**Correspondence, AP Warrant, Minutes** – SB considers each category. Public comment possible.

2. Minutes – June 21, 27, and 28, 2023 meeting minutes..... Motion(s) required.

3. Correspondence..... Motion required.

4. AP Warrant(s) ..... Motion required.

**Public Comments for Items not on the Agenda.**

**Informational Items** – Important information for which there will be no immediate action.

- Police Department Update
- Open positions on the DRB (full and alternate) to be advertised
- Open position on the Land Management Council

**Action Items for motions** – Introduction by the chair on items being decided, any related correspondence, public comment, SB discussion, SB action.

5. Tracy Hall information/presentations .....Motion(s) anticipated/possible.

6. RFP for Town Manager position.....Motion anticipated/possible.

7. Set Town Tax Rate.....Motion(s) anticipated/possible.

8. Update on Finance Department with possible Executive Session regarding contract(s)  
.....Motion anticipated/possible.

9. Recreation Scholarship Fund Deficit.....Motion anticipated/possible.

10. Engagement letter with auditors: Sullivan, Powers & Co. ....Motion anticipated/possible.

11. Application for Liquor License.....Motion anticipated/possible.

12. Contract for Innovative Surface Solutions .....Motion anticipated/possible.

13. Contract for the Better Bin application.....Motion anticipated/possible.

**Check-in for Work in Progress**

- **Interim Town Manager’s Office**
  - Personnel Policies
  - H.R. structure, ID nature of assistance, scope/purpose
  - Wage Study
  - Budget preparation for FY 24
- **Selectboard**
  - Committees: coordination with overall town priorities
  - RFP for Town Manager position
  - Norwich/Sharon Town Line
  - Public Safety
  - Financial Policies & Procedures

**Reports Submitted** -- Reports from appointed committees, departments, or other town-related entities submitted without comment or request for agenda time. The chair will identify such reports for the record, and the SB may or may not determine action is necessary.

- None submitted at time of publication

**Discussion Items** – Issues being framed for future action.

- None

**Future Meeting Dates**

- July 26, 2023; and, August 9 and 23, 2023

**Adjournment**

**DRAFT Minutes of the Special Selectboard Meeting of**  
**Wednesday, June 21, 2023, at 6:30 pm**

This hybrid meeting was held in the Multipurpose Room in Tracy Hall.

Members present: Marcia Calloway, Chair; Mary Layton, Vice Chair; Roger Arnold; Pamela Smith; Priscilla Vincent

Also participating: Brennan Duffy, Interim Town Manager; Wade Cochran, Chief of Police; Cheryl Lindberg, Treasurer; Wilbert C. (Scooter) Hardy; Stuart Richards; Daniel Goulet; Joel Stettenheim; Troy McBride; Jim Merriam; Mary Gorman; Kris Clement; Linda Cook; Kris Clement; Robert Pape; Robert Gere; Linda Gray

**1. Welcome.** Meeting was called to order at 6:35 PM by Calloway. She also noted that from now on, anyone wishing to join via Zoom must present with both first and last names. This will help prevent unwanted intrusions, generally known as “Zoom bombing.”

**2. Agenda Review.** Calloway said in reference to Item #11 that recent developments necessitate the Board postpone its discussion of the Katucki case until a later date, a point granted by consensus. Layton moved, seconded by Smith, to approve the agenda. **Passed unanimously.**

**3. Minutes – May 31 & June 7, 2023.** Smith moved, seconded by Layton, to approve the minutes of **May 31** and **June 7**. **Passed unanimously.**

**4. Correspondence.** Layton moved, seconded by Smith, to accept the correspondence. **Passed unanimously.**

**5. AP Warrant(s).** Layton moved, seconded by Vincent, to approve AP Warrant number 1008 in the amount of \$27,190. **Passed unanimously.**

Layton moved, seconded by Vincent, to approve AP Warrant number 1009 in the amount of \$105,559.71. **Passed unanimously.**

At this point, Calloway invited public comments on any issues not on the Agenda.

Richards urged the Board to “stop wasting money” defending the Town against the Katucki lawsuit regarding alleged violations of the Open Meeting Law (OML).

Duffy said that with her recent report to the Board, the Interim Finance Director, Joyce Hasbrouck is looking for feedback and direction. Calloway added that this particularly pertains to any actions that might require a motion by the Board.

Goulet, Stettenheim, Gorman (via Zoom), McBride (via Zoom), Richards, and Merriam (via Zoom) extended a previous meeting's debate concerning Norwich Solar Technologies' proposed development of a solar power array in Norwich.

Hardy expressed concerns regarding the recent trend toward Town employees working largely from home as well as particular issues related to DPW, the Town Clerk, and the Interim Town Manager.

Smith moved, seconded by Layton, to reassign expenditures in the amount of \$8,847 for new automated speed signs from the Public Safety Reserve Fund to the Operating Budget. **Passed unanimously.**

Cook reported that had the Town employed a different vendor for handling food waste composting it might have saved \$10,000.

Duffy reported two of the Town Garage's support pillars are in such bad repair that a structural engineer has recommended it not be used at this time. He anticipated receiving further information in the next week on how long the building may be unsafe to use and what temporary measures might allow it at least to withstand the snow loads of the next winter.

**6. Planning Commission Appointments – 2 vacancies.** The Board heard from three applicants for the two current openings on the Planning Commission: Clement, Gere, and Pape. Arnold moved, seconded by Smith, to appoint Robert (Bob) Pape to the Planning Commission for a term expiring on April 30, 2025. **Passed unanimously.**

Smith moved, seconded by Vincent, to appoint Kris Clement to the Planning Commission for a one-year term. **Motion Passed** (Calloway, Layton, Smith, Vincent: **Yes**; Arnold: **No**).

**7. DPW Paving Bid Request.** Arnold moved, seconded by Layton, to authorize the expenditure of an amount not to exceed \$50,000 for the Transfer Station Paving Project, to be completed by Springfield Paving, \$30,000 of which is to be expended from the operating budget and the remainder of which is to be expended from the Paving Fund. **Passed unanimously.**

**8. Three-month Extension of contract with TRORC for services of Kyle Katz, Planner.** Layton moved, seconded by Vincent, to approve the three-month extension of contract with TRORC for services of Kyle Katz. **Passed unanimously.**

**9. Delinquent Dog Licenses.** Chief Cochran expressed surprise via Zoom that a warrant concerning delinquent dog licenses had been proposed. He recommended against any such measure, suggesting that a simple letter from the Police Department should suffice. No action taken.

**10. Personnel Policy Revision Plan.** Layton said she's consulted the VLCT and that although there are templates available, she thinks there is sufficient expertise in Town administration to develop such a document. Layton moved, seconded by Arnold, to direct the Interim Town Manager and Assistant Town Manger to review and make recommendations for the Interim Town Manager to act upon previous motion to create an RFP for human resources support, and to ask the interim town manager create a wage study RFP to support edits to personnel policy.

**11. Update on Katucki case.**

**Tabled.**

**12. Interim Town Manager contract discussion.** Layton moved, seconded by Vincent, to find that premature general public knowledge would clearly place the public body or a person involved at a substantial disadvantage pursuant to 1. V.S.A. § 313(a)(1). **Passed unanimously.**

Layton moved, seconded by Arnold to enter Executive Session pursuant to 1 V.S.A. § 313(a)(1)(A) to discuss the Interim Town Manager Contract, and to invite the Interim Town Manager. **Passed Unanimously.**

**Entered Executive Session: 8:57 PM.**

Layton moved, seconded by Arnold, to enter Public Session. **Passed unanimously.**  
**Entered Public Session: 9:34 PM.**

**13. Solar Preferred Site Letter.** Layton moved, seconded by Vincent, to find that premature general public knowledge would clearly place the public body or a person involved at a substantial disadvantage pursuant to 1. V.S.A. § 313(a)(1). **Passed unanimously.**

Layton moved, seconded by Arnold to enter Executive Session pursuant to 1 V.S.A. § 313(a)(1)(F) to discuss confidential attorney-client communications made for the purpose of providing professional legal services to the body and to invite the Interim Town Manager. **Passed Unanimously.**



**Entered Executive Session:** 9:36 PM.

Layton moved, seconded by Smith, to enter Public Session. **Passed unanimously.**

**Entered Public Session:** 10:30 PM.

**14. Tracy Hall Report from Living Buildings and Priscilla Vincent, and Any Available Quotes for Boiler work.** Arnold moved to table Item #14 on account of the late hour. Motion failed for lack of a second. There ensued wide-ranging discussion of issues involved with various approaches to heating Tracy Hall in the future, with some urgency noted because as Duffy stated, to meet the needs of next winter, purchasing decisions must be made as soon as possible.

Arnold moved to request that the Interim Town Manager invite Living Buildings to present their recent report at a future meeting and to do so at a time no later than 7:00pm. **Motion fail for lack of second.**

The Board determined that an essential next step will be to engage an architect to help develop and compare options.

Arnold left the meeting at approximately 11:10pm.

**15. Continued discussion of Agenda planning for the remainder of 2023.**

**Tabled.**

**16. July meeting dates.** The Board determined they will hold another special meeting on June 28 to work on setting the Town tax rate and review the Interim Town Manager's contract. Calloway indicated they should be able to limit it to two hours or less. They expect to return to the regular schedule of meetings on the second and fourth Wednesdays in July. Via Zoom, Lindberg assured that if the tax rate were set by the meeting on July 12, it would not be a problem to have tax bills mailed by August 30.

**Adjournment.** Layton moved to adjourn, seconded by Smith. **Passed Unanimously.**

**Meeting adjourned:** 11:28 PM.

Respectfully submitted,

Ralph C. Hybels,

Minutes Taker

**From:** [Pam Smith](#)  
**To:** [Marcia Calloway](#); [Mary Layton](#); [Roger Arnold](#); [Priscilla Vincent](#)  
**Cc:** [Brennan Duffy](#); [Miranda Bergmeier](#); [Cheryl Lindberg](#)  
**Subject:** Corrections to June 21, 2023 Minutes  
**Date:** Wednesday, July 5, 2023 9:14:13 AM

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Good morning,

As stated at the last SB meeting, I believe several items need to be changed in the June 21, 2023 mInutes.

I am requesting the following changes:

**Also participating:** Robert Pape

**2. Agenda Review.** Calloway said in reference to Item #11 that there has been a change of counsel for the Plaintiff in the Katucki case, therefore, the Board should postpone its discussion of this case until a later date, a.....

**5. AP Warrant(s)**

(Paragraph 8) Smith moved, seconded by Layton, to reclass the expenditure of \$8,847 for the 3 solar speed signs from the Public Safety Reserve Fund to the Speed Sign line item in the operating budget. Passed unanimously.

**6. Planning Commission Appointments:**

.....Arnold moved, seconded by Smith, to appoint Robert Pape.....

**10: Personnel Policy Revision Plan.**

Did the motion by Layton (seconded by Arnold) pass? There is no record of the vote on this motion.

**16, July meeting dates.**

The Board determined that they will hold another special meeting on June 28 to discuss the contract with the Interim Town Manager. The Board will return to its regular 2nd and 4th Wednesday meetings in July. Lindberg stated that the Listers will lodge the April 1, 2023 Grand List with the Town Clerk on Friday, July 7, 2023. Smith stated that the SB will need to set the tax rate at the July 12 meeting to allow ample time for the Finance Office to issue tax bills. Tax bills must be mailed at least 30 days prior to the due date of August 30.

Thank you for considering the requested changes above.

Pam

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Pam Smith, Selectboard

Please note that any reply or response to this email is subject to the disclosure provisions under the Vermont Open Meeting Law and Public Records Act.

Norwich Selectboard Special Meeting

June 27, 2023

Time meeting started: 6:30 pm

Active participants: Marcia Calloway, Mary Layton, Priscilla Vincent, Pam Smith, Brennan Duffy

Public Comments: None

1. Layton moved, second by Vincent to approve the agenda. Vote: Yes-Calloway, Layton, Vincent. Abstained-Smith
2. Layton moved, second by Vincent to find that premature public knowledge would place the public body or a person involved at a substantial disadvantage pursuant to 1 V.S.A. section 313(a)(1) Vote: Yes-Calloway, Layton, Vincent. Abstained-Smith
3. Layton moved, second by Vincent to enter Executive Session under 1 V.S.A. section 313 (a)(1)(A) to discuss the Interim Town Manager Contract and to invite the Interim Town Manager. Vote: Yes-Calloway, Layton, Vincent. Abstained-Smith
4. Time executive session entered: 6:33 pm
5. Layton moved, second by Vincent to enter public session. Vote: Yes-Unanimous
6. Time public session entered: 7:05 pm
7. Layton moved, second by Smith to adjourn. Vote: Yes
8. Time meeting adjourned: 7:06 pm

Minutes taken by Mary Layton

**DRAFT Minutes of the Special Selectboard Meeting of**  
**Wednesday, June 28, 2023, at 6:30 pm**

This hybrid meeting was held in the Multipurpose Room in Tracy Hall.

Members present: Marcia Calloway, Chair; Mary Layton, Vice Chair; Roger Arnold; Pamela Smith; Priscilla Vincent

Also participating: Brennan Duffy, Interim Town Manager; John (“Jack”) Cushman; Linda Gray; Linda Cook; April Andrews

**1. Welcome.** Meeting was called to order at 6:39 PM by Calloway. She also reminded that anyone wishing to join via Zoom must present with both first and last names, which will help prevent unwanted intrusions, commonly known as “Zoom bombing.”

**2. Agenda Review.** Layton moved, seconded by Vincent, to approve the agenda.  
**Passed unanimously.**

In response to concerns expressed about changes having been made to the agenda prior to the meeting, Calloway said she considers an agenda to be a working document subject to revision via Google Docs by one or more of its authors prior to the meeting in question, but that from now on, she will make that status more evident by marking any preliminary versions “DRAFT”.

**3. Minutes – June 21, 2023.** Following discussion of potential corrections, in which it was noted that any revision(s) will require a formal motion, Smith moved, seconded by Layton to **Table** until the next meeting. **Passed unanimously.**

Duffy updated the Board on issues related to the DPW building, reporting that the structural engineer recommends a temporary measure with wooden columns added alongside the problematic metal supports until metal reinforcements can be added. Longer term, however, a more permanent solution will need to be discussed, including the capital-improvements budget implications.

**4. Interim Town Manager contract discussion.** Layton moved, seconded by Vincent, to find that premature general public knowledge would clearly place the public body or a person involved at a substantial disadvantage pursuant to 1. V.S.A. § 313(a)(1). **Passed unanimously.**

Layton moved, seconded by Vincent to enter Executive Session pursuant to 1 V.S.A. § 313(a)(1)(A) to discuss the Interim Town Manager Contract, and to invite the Interim Town Manager. **Passed Unanimously.**

**Time Entered Executive Session:** 6:59 PM.

Arnold moved, seconded by Layton, to enter Public Session. **Passed unanimously.**

**Time Entered Public Session:** 7:05 PM.

Layton moved, seconded by Vincent, to execute the Town of Norwich offer of employment and contract extension to Brennan Duffy. (Note that although not stated explicitly in the motion, the public discussion in relation to the motion made clear it concerned a period of one year.) Calloway, Arnold, Layton, Vincent Yes; Smith, Abstain. **Motion Passed.**

**5. Tracy Hall Physical Plant Issues: Heating/Oil Burner, etc.** Duffy reported on a site visit at Tracy Hall this same day with Will Mudge of Randall T. Mudge & Associates, an architecture firm in Lyme, NH., whom Vincent had recommended be consulted by the Board. Duffy went on to recommend the Board issue an RFP to replace the currently non-operational oil burner.

Arnold expressed concern any momentum for a longer-term renewable-energy solution might be lost should such an interim fix be employed. He suggested that while renewable energy options are pursued, greater use of work-from-home as well as relocating to trailers or other available office space might provide effective temporary solutions. Layton disagreed, saying it would continue to be important to have at least one operating oil burner during the necessary transition period.

Layton moved, seconded by Calloway, to solicit bids to replace one of the existing oil burners in Tracy Hall. Discussion followed, with Vincent saying she wanted to look fairly at all the long-term solutions, Smith saying she thought the motion was premature, and Arnold suggesting the Board review the virtues of proposals already received. Arnold also said the Board should further engage with Jeff Grout to assess those and other options.

Jack Cushman joined via Zoom, noting he was with Vincent and Smith earlier that day on the site visit with Mudge. It was his understanding that one the non-operatiing burners could be repaired, which was confirmed by Duffy. Cushman said he would prefer that option because it would not commit the Town so definitely to continuing to rely on fossil fuels. Duffy responded that both of the existing burners are at the end of their useful lives and that no one would describe them as continuing to be safe and reliable. Calloway added that already this year there has been a “call out” to the fire department because of smoke at Tracy Hall coming from one of the oil burners. Linda Gray, via Zoom, reinforced Cushman’s comment that adopting biomass (wood pellets) technology—an option whose

consideration was suggested by Layton—would necessitate addressing a number of other issues as well. She said it should only be considered as part of a larger plan to get off fossil fuels.

The discussion came full circle to vote on the motion still pending. Layton, Calloway, Yes; Arnold, Smith, No; Vincent, Abstain. **Motion Failed.**

The conversation then turned to the possibility of repairing the existing burner, with Vincent mentioning that Ben Trussell, the custodian at Tracy Hall, has reviewed the availability of repair parts on eBay. Layton moved, seconded by Calloway, to repair the existing oil burner that needs repair. Vincent, Layton, Calloway, Yes; Arnold, No; Smith, Abstain. **Motion passed.**

Much of the ensuing discussion focused on the proper leadership role for an architect on the overarching renovation project for Tracy Hall as it may ultimately be defined.

Arnold moved, seconded by Smith, to direct the Interim Town Manager to investigate alternate space in the event Tracy Hall is not available this winter. Arnold, Smith, Vincent, Yes; Calloway, No; Layton, Abstain. **Motion passed.**

## **6. Continued discussion of Agenda planning for the remainder of 2023.**

The Board determined that on July 12 they will hold a regular meeting, to which Jeff Grout will be invited as well as an architect. In advance, Vincent will present in writing what she and Smith have learned relative to solving Tracy Hall's needs. The Town tax rate will also be determined at that meeting.

Issues enumerated by Arnold for consideration over the remaining meetings in 2023 include committee work, an RFP for the Interim Town Manager position, the Town budget, personnel policies and HR issues in general, and a boundary dispute with the neighboring community of Sharon.

Smith said they should schedule a joint meeting with the Sharon Selectboard, which Calloway asked Duffy to set up.

Duffy noted that the steps toward a financial audit are already underway and that there is now a contract in place for the audit itself. He said setting the budget is the most critical challenge at this time.

Calloway said the capital budget will be a major topic at the July 26 meeting. Duffy noted, however, that that is not within the scope of the current Interim Finance Director's contract.

Calloway concluded by saying that she will be developing a long-term agenda to share with the Board.

**Adjournment.** Layton moved to adjourn, seconded by Vincent. **Passed Unanimously.**

**Meeting adjourned:** 8:56 PM.

Respectfully submitted,

Ralph C. Hybels

Minutes Taker

Approved by the Selectboard on

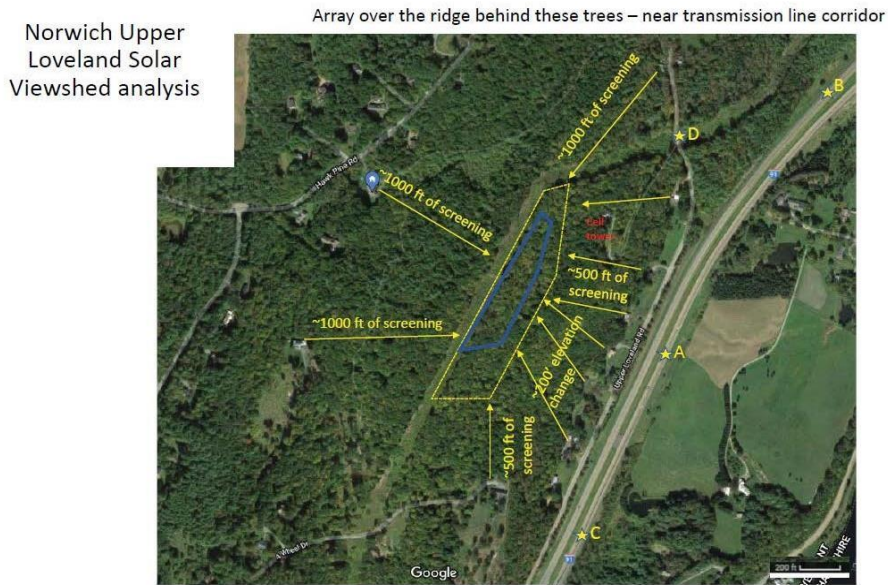
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Marcia Calloway, Selectboard Chair

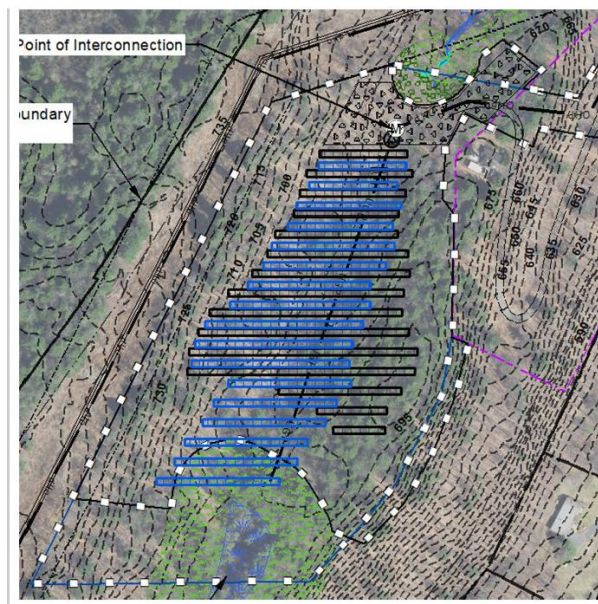
Dear Members of the Norwich Selectboard,

At the June 7<sup>th</sup> Selectboard Meeting Joel Stettenheim, president of Norwich Solar Technologies, noted that Troy McBride sent then town employee Rod Francis an email with an update on the NST plans for the Upper Loveland Road solar installation. We assert that his email and his arguments further reinforce our position that the Planning Commission and Selectboard approved one site plan which is significantly different from the plan presented to the TRORC and the State of Vermont.

We agree that on August 23, 2021, NST shared a **partial version** of a site plan with Rod Francis in an email noting “the two features don’t change our proposed solar project much -- there is a small amount of squishing -- one feature is to the north and one to the south.” **This could not be further from the truth.** The Planning Commission and the Selectboard approved the following plan:



The partial plan that was in NST’s August 23, 2021 email was very different. It is a version of the plan submitted to the State of Vermont. This version however was not reviewed by or approved by the Town of Norwich Selectboard or Planning Commission.





The comment by Joel Stettenheim on June 7, 2023 reinforces our point: Norwich Solar Technologies did not acknowledge that the plan submitted to the State of Vermont and revised in this email were and are significantly different from the plan approved by the Norwich town boards. NST promised to return to the Planning Commission if the plan changed. The plan changed significantly from the plan that was approved and they did not return. It was not a “small amount of squishing.” Instead it was fundamentally different plan – It was the plan they intended to build and did not discuss this plan with the Selectboard or Planning Commission.

We ask the Selectboard to do the right thing. The Selectboard members did not approve the plan that NST is presenting to the State for construction. Please support the Town Plan and our ridgelines.

Respectfully submitted,  
Heather and Jay Benson  
Mary and Stephen Gorman  
Jenn and Dan Goulet  
Lisa and Bob Holley  
Joy Kenseth  
Larry Ufford

**From:** [Mary Gorman](#)  
**To:** [Marcia Calloway](#); [Pamela Thompson Smith](#); [Roger Arnold](#); [Priscilla Vincent](#); [Mary Layton](#); [Miranda Bergmeier](#)  
**Cc:** [Robert Holley](#); [Dan Goulet](#); [Larry Ufford](#); [Stephen Gorman](#); [Jenn Goulet](#); [Joy Kenseth](#); [Jay Benson](#); [Lisa Holley](#)  
**Subject:** Please Include in Correspondence for the Next Selectboard Meeting  
**Date:** Thursday, June 15, 2023 4:15:33 PM  
**Attachments:** [Upper Loveland Road - June 15 letter.pdf](#)

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Thank you for your continued thoughtful attention to this matter. Would you please include this in correspondence for the next Selectboard meeting.

Regards,  
Mary Gorman on behalf of signatories

**From:** [Stuart Richards](#)  
**To:** [Debi Wade](#)  
**Cc:** [Brennan Duffy](#)  
**Subject:** FW: OPEN MEETING LAW - \$100,000.00  
**Date:** Monday, June 19, 2023 3:03:13 PM

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Debi,

Please acknowledge and put this in correspondence for the next Selectboard meeting.

Many thanks,

Stuart L. Richards, Senior Vice President  
Global Rescue LLC  
Ph: Direct 617-459-4199, Main 617-459-4200  
Fax: 858-712-1295  
<http://www.globalrescue.com>

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**From:** Stuart Richards <[srichards@globalrescue.com](mailto:srichards@globalrescue.com)>  
**Date:** Monday, June 19, 2023 at 2:54 PM  
**To:** "norwich@lists.vitalcommunities.org" <[norwich@lists.vitalcommunities.org](mailto:norwich@lists.vitalcommunities.org)>  
**Cc:** Miranda Bergmeier <[mbergmeier@norwich.vt.us](mailto:mbergmeier@norwich.vt.us)>, Brennan Duffy <[bduffy@norwich.vt.us](mailto:bduffy@norwich.vt.us)>, Mary Layton <[marydlayton@gmail.com](mailto:marydlayton@gmail.com)>, Roger Arnold <[rogerarnoldvt@gmail.com](mailto:rogerarnoldvt@gmail.com)>, Marcia Calloway <[msbcalloway@gmail.com](mailto:msbcalloway@gmail.com)>, Priscilla Vincent <[priscilla.e.vincent@gmail.com](mailto:priscilla.e.vincent@gmail.com)>, Pam smith <[pamsmith.SB@gmail.com](mailto:pamsmith.SB@gmail.com)>  
**Subject:** OPEN MEETING LAW - \$100,000.00

Dear Selectboard Members,

The ongoing lawsuit concerning the Open Meeting Law is slated for an Executive Session discussion this coming Wednesday. As you are aware over the last couple of years our town of Norwich has wasted in my opinion and the opinion of many others \$100,000.00 trying to avoid the statutory requirements of the Open Meeting Law. The Town claimed that “working groups” formed by the Town Manager, Herb Durfee at the time, were not subject to the Open Meeting Law when the statutes clearly say they are. The judge in the case cited the statutory requirements and said if you didn’t make “working groups” subject to the Open Meeting Law that would make a “mockery” of the Open meeting Law.

The next claim the Town advanced was that these working groups were independent of the

Town. The Town's lawyer who has been full of what two local lawyers have said is full of bad advice is prepared to continue the lawsuit. The real question is why hasn't the Selectboard put a stop to this and formally acknowledged that the Town is mistaken? I guess I can understand why the Town's lawyers want to continue the lawsuit but I'd like someone to explain why even if the Selectboard is right why it's so hard for various committees to issue timely agendas, timely minutes, invite the public and allow the public to speak. Oh and the Town doesn't want to mediate this. I just don't get it and I'm concerned that additional expenditures if they are anything like past expenditures could cost taxpayers an additional \$100,000.00. Our Selectboard needs to put a stop to this lawsuit NOW.

Please put this note in correspondence for the next Selectboard meeting.

Many thanks,

Stuart Richards

**From:** [Don McCabe](#)  
**To:** [Select Board](#)  
**Cc:** [Bridge McDowell](#)  
**Subject:** Opinion  
**Date:** Tuesday, June 27, 2023 1:16:13 PM

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Marcia and members,

As you know the Kids Bridge project manager and members have met and started working on project details.

I've agreed to do fundraising. Before asking Norwich residents and groups for donations to cover expected costs of the project I would like the Selectboard's opinion on soliciting donations. It is our plan to fully fund the bridge with private donations.

I have been advised by members of the Norwich Women's Club that an application for funding needs to be done soon as discretionary funds do not last long.

Can you, Marcia, or the Selectboard approve my asking the Women's Club as a private citizen for a donation to this project?

Don

Sent from my iPad

**From:** [Jen Goulet](#)  
**To:** [Miranda Bergmeier](#)  
**Subject:** Proposed Upper Loveland Solar Array  
**Date:** Friday, June 30, 2023 7:35:25 AM

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To the Norwich Selectboard:

I would like to call to your attention an editorial published in the Upper Valley News on June 26, 2023.

***Norwich Solar projects not for the public good***

*Letter:*

*Vermont is revising its rules that govern net-metering. A month ago, after public comment and revisions, the Public Utilities Commission (PUC) filed new rules with the Vermont Interagency Committee on Administrative Rules, and with the Vermont Secretary of State.*

*An important rule change is in the approach to Greenhouse Gas (GHG) emissions. Large net-metering installations that sell most of their power to the utility raise the cost of electricity for other ratepayers. In order to justify raising the cost to other ratepayers, Vermont requires the developer to obtain a Certificate of Public Good (CPG). The principle behind the CPG is that in return for the lucrative net-metering payments, the developer's project will have a beneficial effect on GHG emissions and climate change.*

*Under the current rules, GHG emissions are a criterion that the PUC looks at when issuing a CPG. Under the new rules, GHG emissions are no longer a criterion. That sounds regressive, but it is coupled with a prohibition against significant deforestation. The PUC has figured out that converting a forest into a solar energy facility does not ameliorate climate change and has adverse effects on water quality and wildlife. Generally, if a solar project is properly sited and does not involve deforestation it is beneficial to climate change.*

*Norwich Solar Technologies has projects under review on Upper Loveland Road in Norwich and on Davis Road in Randolph Center. Because Norwich Solar Technologies has proposed significant deforestation on these projects, neither would be eligible for a CPG under the new rules. It is disappointing that Norwich Solar Technologies has represented to the towns of Norwich and Randolph that their projects are justified because they will help save our environment from the ravages of climate change.*

*Michael Binder*

This letter is significant because it mentions the proposed deforesting of Norwich ridgelines in order to install a 500 kW, commercial scale solar array. It is important to point out that the state Public Utilities Commission's decision to deny a Certificate of Public Good (CPG) to solar proposals that involve significant forest clearing does not apply to the Norwich project because Norwich Solar Technologies applied for a CPG in 2021, before the decision on forest clearing was made. However, the Norwich Selectboard can still protect our ridgelines from clearcutting by revoking the Preferred Site Letter.

Thank you for your consideration,

Dan and Jenn Goulet  
Norwich Residents

**From:** [John Farrell](#)  
**To:** [Select Board](#)  
**Subject:** LAWN SIGNS  
**Date:** Sunday, July 2, 2023 8:47:10 AM

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It is time to either enforce or tighten the law regarding the proliferation of the obnoxious lawn signs advertising a business or service that are abundant at the "gateway" to Norwich and on the lawns of many homes. It seems it is getting out of control as more and more of these ugly advertising signs appear, some of which are never removed by the people who place them.

State law prohibits these signs on state highways yet the state does not have the time or resources to remove them.

Please add this to your official town correspondence  
Thank you,

John Farrell  
Norwich

**Michael Hennessey  
249 Bragg Hill Rd  
Norwich, VT 05055**

TO: Persons and Entities Entitled to Notice Pursuant to Public Utility Commission Rule 5.107(B) (See Enclosed List)

RE: Michael Hennessey's Proposed Net-Metered Solar Project in Norwich, VT  
45-Day Notice of Application to be filed with Vermont Public Utility Commission

DATE: June 30, 2023

Dear Interested Persons and Entities,

Pursuant to 30 V.S.A. §§ 8010 and 248 and Public Utility Commission Rule 5.107(B), Michael Hennessey is pleased to submit the following pre-application notice concerning his proposed 50 kilowatt (kW) net-metered solar project ("the Project"), to be sited on his property at 249 Bragg Hill Road, Norwich, Vermont.

### **I. Introduction**

Michael Hennessey is preparing to file an application for a Certificate of Public Good ("CPG") with the Vermont Public Utility Commission ("Commission"), requesting approval to install and operate a 50 kW (alternating current or "AC") solar electric generation facility in Norwich, Vermont (the "Project"). Michael Hennessey is developing this net-metering project as a "Preferred Site" (item 9) under Commission Rule 5.103.

The Project will be a net-metered facility interconnected to the Green Mountain Power ("GMP") electric distribution system and will produce power to offset the electricity requirements of the Hennessey property.

The remainder of this letter briefly describes: (1) Michael Hennessey's plans for construction and operation of the Project, including how equipment and materials will be transported to the site; (2) expected benefits of the Project; (3) a preliminary assessment of impacts; (4) the expected date an application will be filed with the Commission; and (5) the rights of persons and entities receiving this notice to comment on the Project in accordance with Commission Rule 5.107(B).

### **II. Project Description and Construction Plans**

The Project will be located on a portion of his approximately 197 acre parcel of land on Bragg Hill Road, Norwich, Vermont, and owned by Michael Hennessey. See Location Map and Site Plan, *Attachment A*.



The 50 kW solar electric generation facility will consist of approximately 152 solar modules (485 Watt) each mounted on fixed metal racks, string inverters, electrical collector system components consisting of underground conduit, wire, AC combiner panel, and AC disconnects. The Project proposes to install the system disconnect and inverters on the north side of the racking system.

Michael Hennessey chose the site based upon its solar exposure, accessibility to existing roads and its minimal impacts on natural resources and the character of the area. The array area is on an underutilized portion of the property out of sight from the neighboring properties.

The project parcel is not subject to any Act 250 permits.

The attached site plan represents the current preferred layout. The final layout to be applied for may vary somewhat based upon further engineering, environmental, and other siting considerations. However, the final layout will fall within the overall site area where environmental and other impacts have been evaluated for the purposes of this 45-day notice.

The basic parameters of the site plan include the following working assumptions:

- The parcel on which the solar site will be located can be accessed from existing public roads within the area, specifically Bragg Hill Rd, Town Highway 59, and Elm St.
- Construction will be performed in accordance with the Vermont Standards & Specifications for Erosion Prevention and Sediment Control (2006).
- Year-round daily access to the array is not required. No on-site septic or water supply systems will be constructed. The solar project's energy production will be monitored remotely and, if any abnormal conditions are detected, technicians will be dispatched as required.

#### Site Access & Equipment Delivery

Standardized trucking methods will be used to transport the panels and other project components (e.g. racking, wire, conduit, and construction materials) to the site. Typical tractor trailer/box truck vehicles and/or pick-up trucks will be used to transport materials to the site for construction. The Project will not require any oversized loads. The property's access roads coming off Bragg Hill Road and or Elm St will be used for bringing in all construction-related equipment and machinery. Construction equipment will likely include a mini excavator, a rough terrain forklift or similar equipment to lift the panels in place and to move material around the site.

#### Solar Panels and Electrical Collection System

The Project will utilize (152) 485-watt solar panels, or the equivalent, mounted at a fixed angle of 35 degrees to maximize solar collection. The bottom of the solar panels will be at approximately three feet above existing grade and the top at approximately 12 feet above grade.

The array will be arranged in a single row running east-west. The row will be connected to string inverters at the north side of the array, which convert the electricity from DC to AC. From the inverters, the electrical interconnect will take place at a new dedicated service.

The final selection of all equipment will be made after a CPG is issued and contractors and vendors are selected.

### **III. Project Benefits**

The Project will provide several benefits to Norwich and the state, including but not be limited to:

- Payment of municipal property taxes.
- Purchasing equipment from Vermont businesses, when commercially feasible.
- Employing Vermont businesses for pre-application, construction, and operation and maintenance work, when commercially feasible.

In addition to these economic benefits, the proposed solar electric facility will also result in important environmental benefits. The 2016 Vermont Comprehensive Energy Plan set a goal for the State to receive 90% of its energy from renewable resources by the year 2050, and solar power is needed to meet that goal. The solar energy produced by this Project will result in less electricity needed in the New England region from plants that likely use fossil fuel or nuclear energy. It will emit no air pollutants (including CO<sub>2</sub>) in generating electricity, and thus could help in a small but measurable way to reduce global climate change, acid rain, and the negative public health effects associated with the use of fossil fuel and the waste storage challenges presented by nuclear energy production.

### **IV. Preliminary Impact Assessment**

Based upon our initial review including the use of the State's environmental databases, the Project will either avoid or not cause undue adverse impacts to environmental resources, and will not create public health or safety concerns. Key elements include the following:

- The Project will not impact any wetlands, streams, or other sensitive environmental resources.
- The Project will be designed to meet electric safety and utility interconnection standards for safe and reliable operation of solar electric facilities.
- The Project will require no new municipal services and will not pose undue burdens on town fire, police, or water/sewer services. The Project will not impact the ability of the town to provide educational services.

With respect to aesthetic impacts, the Project site is away from the road and neighboring properties, giving it little or no visibility from any public roads or area residences.

### **V. Expected Petition Filing Date with Vermont Public Utility Commission**

Michael Hennessey intends to file a Section 8010 application and supporting materials with the PUC soon after the 45-day notice period expires, approximately August 15, 2023.

## **VI. Comments and Inquiries Concerning the Project**

At this juncture, if you have any questions or comments concerning the Project please feel free to contact us as follows:

Catamount Solar Attn: Philip Parrish  
44 Hull St. Suite 3  
Randolph, VT 05060  
802-728-3600  
phil@catamountsolar.com

Michael Hennessey hopes that you will support this Project, given the benefits it will provide the town and the state, and given its extremely limited impacts. You will have an opportunity to file comments with the Public Utility Commission once the application for a certificate of public good is filed. In the meantime, I invite you to contact me with any questions or comments you have, as we welcome your input and suggestions to make this a successful project.

Sincerely,  
Michael Hennessey

Enclosures:  
List of Persons and Entities Receiving Notice  
Attachment A – Location Map, Site Plan

**Michael Hennessey – Proposed Solar Project in Norwich, VT  
List of Persons and Entities Receiving 45-Day Notice of the Application**

**By ePUC:**

Vermont Public Utility Commission  
112 State Street, 4<sup>th</sup> floor  
Montpelier, VT 05620-2701  
*(1 hard copy via first class mail)*

Vermont Division for Historic Preservation  
1 National Life Drive, # 6  
Montpelier, VT 05620

Vermont Public Service Department  
Commissioner's Office  
112 State Street, 3<sup>rd</sup> Floor  
Montpelier, VT 05620-2601

Vermont Agency of Agriculture,  
Food and Markets  
116 State Street  
Montpelier, VT 05602

Vermont Agency of Natural Resources  
Secretary's Office  
1 National Life Dr., Davis 2  
Montpelier, VT 05620-3901

Green Mountain Power  
163 Acorn Lane  
Colchester, VT 05446

**By first class mail:**

Town of Norwich Selectboard  
Tracy Hall  
300 Main St.  
PO Box 376  
Norwich, VT 05055

Two Rivers-Ottawaquechee  
Regional Commission  
128 King Farm Rd  
Woodstock, VT 05091

Town of Norwich Planning Commission  
Tracy Hall  
300 Main St.  
PO Box 376  
Norwich, VT 05055

**Adjoining Landowners (by certified mail)**

Dept Of Interior National Park Service  
1849 C Street NW  
Washington, DC 20241

Jon Wilkinson  
391 Bragg Hill Rd  
Norwich, VT 05055

Peter Silberfarb  
287 Bragg Hill Rd  
Norwich, VT 05055

Phillip McCaull  
28 Goddard Rd  
Norwich, VT 05055

Redpath Trust Margaret C  
PO Box 202  
Norwich, VT 05055

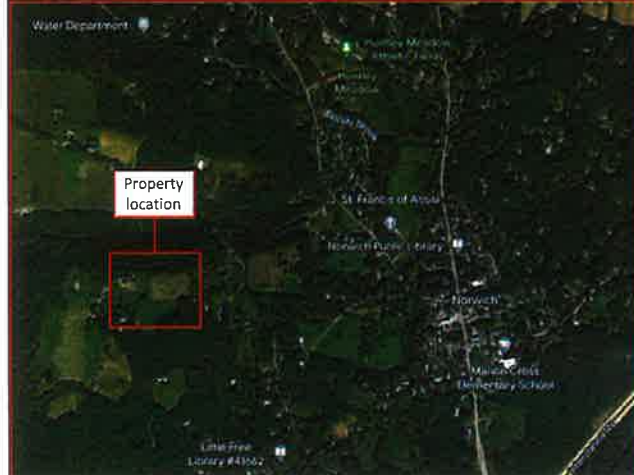
Katherine Fisher  
117 Dutton Hill Rd  
Norwich, VT 05055

Sarah Reeves  
PO Box 887  
Norwich, VT 05055

Peter Griggs  
256 Dutton Hill Rd  
Norwich, VT 05055

Charles Richards  
54 Simpson Rd  
Norwich, VT 05055

Michael Hennessey  
249 Bragg Hill Rd  
Norwich, VT 05055



Catamount Solar  
 44 Hull St, Suite #3,  
 Randolph, VT 05060  
 802-728-3600  
 www.catamountsolar.com

PROJECT NAME  
 HENNESSEY, MICHAEL  
 ADDRESS  
 259 BRIDGE HILL ROAD, NORWICH, VT

DATE  
 6/22/2023

REVISIONS

#	DATE

SHEET  
 SITE PLAN

DRAWN BY  
 CB

SCALE  
 NTS

ORIGINAL SHEET SIZE  
 11" x 17"

**Hennessey Residence Preliminary Site Plan**  
 (152) Hanwha Q Cell 485 Modules  
 (4) Fronius Primo 12.5k Inverters

- Impacts:**
- Limits of disturbance: 0.42 acres +/-
  - Array area: 0.37 acres +/-
  - Utility trench area: 0.055 acres +/-
  - Transformer area: 0.0022 acres +/-

THIS DRAWING IS THE PROPERTY OF CATAMOUNT SOLAR. THIS INFORMATION IS CONFIDENTIAL AND IS TO BE USED ONLY IN CONNECTION WITH WORK DESCRIBED BY CATAMOUNT SOLAR. NO PART IS TO BE DISCLOSED TO OTHERS WITHOUT WRITTEN CONSENT FROM CATAMOUNT SOLAR.

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Vendor	Invoice	Invoice Description	Purchase Amount	Discount Amount	Amount Paid	Check Number	Check Date
INGRAHAM ANNA INGRAHAM	629EMPREIMB	PD-ANNA HOTEL & MEALS	941.16	0.00	941.16	13316	07/12/23
INGRAHAM ANNA INGRAHAM	629MLGREIMB	PD-ANNA MILEAGE REIMB	175.54	0.00	175.54	13316	07/12/23
					Check Total		1116.70
ANYTIME ANYTIME CARPET CARE & CLEANING 832021		PD-STATION CLEANING	360.00	0.00	360.00	13317	07/12/23
ANYTIME ANYTIME CARPET CARE & CLEANING 832024		PD-STATION CLEANING	360.00	0.00	360.00	13317	07/12/23
					Check Total		720.00
COTTAS ASHLEY E COTTER	622OFFICIAL	P&R-LOCROSSE OFFICIAL	50.00	0.00	50.00	13318	07/12/23
ATYOUR AT YOUR HOUSE APPARATUS SERVIC 703		FD-AIR COMPRESSOR REPAIR	181.62	0.00	181.62	13319	07/12/23
BETHELMIL BETHEL MILLS	179854/7	DPW-TOWELS & TAPE	59.90	0.00	59.90	13320	07/12/23
BETHELMIL BETHEL MILLS	195737/6	DPW-SPRAYPAINT & SCREWS	19.97	0.00	19.97	13320	07/12/23
BETHELMIL BETHEL MILLS	196932/6	DPW-HYDROFLECTOR	14.99	0.00	14.99	13320	07/12/23
BETHELMIL BETHEL MILLS	197289/6	DPW-SQUEEGEES & POLE	51.97	0.00	51.97	13320	07/12/23
BETHELMIL BETHEL MILLS	197755/6	DPW-STORE SEED BAG	113.97	0.00	113.97	13320	07/12/23
BETHELMIL BETHEL MILLS	200634/6	DPW-TRASH CAN	113.97	0.00	113.97	13320	07/12/23
BETHELMIL BETHEL MILLS	206573/8	DPW-SPRAYPAINT & STORAGE	33.97	0.00	33.97	13320	07/12/23
					Check Total		408.74
BLAKTOP BLAKTOP INC	31555	DPW-PAVE CULVERT CROSSIN	4647.70	0.00	4647.70	13321	07/12/23
BCBS BLUE CROSS/BLUE SHIELD OF VERM 163193456		TH-JULY '23 INSURANCE	31865.49	0.00	31865.49	13322	07/12/23
BUSINESS BUSINESS CARD	0791459	TM-STANDING DESK CONVERT	99.99	0.00	99.99	13323	07/12/23
BUSINESS BUSINESS CARD	1070665	TM-STANDING DESK	219.10	0.00	219.10	13323	07/12/23
BUSINESS BUSINESS CARD	2486712732	TH-DEBI ANNUAL ADOBE	239.88	0.00	239.88	13323	07/12/23
BUSINESS BUSINESS CARD	2581043	TM-ETHERNET CABLE	13.99	0.00	13.99	13323	07/12/23
BUSINESS BUSINESS CARD	2974619	TM-DESK CHAIR	109.99	0.00	109.99	13323	07/12/23
BUSINESS BUSINESS CARD	3297825	P&R-ASSORTED SUPPLIES	678.09	0.00	678.09	13323	07/12/23
BUSINESS BUSINESS CARD	4028216	PD-CAMERA & EQUIPMENT	1599.00	0.00	1599.00	13323	07/12/23
BUSINESS BUSINESS CARD	616ADOBE	TH-MIRANDA ANNUAL ADOBE	239.88	0.00	239.88	13323	07/12/23
BUSINESS BUSINESS CARD	626WHTPGS	TC-ADDRESS LOOKUP	20.99	0.00	20.99	13323	07/12/23
BUSINESS BUSINESS CARD	6837019	DPW-BALL VALVE	529.96	0.00	529.96	13323	07/12/23
BUSINESS BUSINESS CARD	7025842	TM-MONITOR RISER	19.40	0.00	19.40	13323	07/12/23
BUSINESS BUSINESS CARD	7173855	TM-TWO FANS	79.98	0.00	79.98	13323	07/12/23
BUSINESS BUSINESS CARD	H3406-162943	P&R/NCC-FENCING & LUMBER	1324.57	0.00	1324.57	13323	07/12/23
BUSINESS BUSINESS CARD	INV207255029	TH-ZOOM MAY '23	503.83	0.00	503.83	13323	07/12/23
					Check Total		5678.65
CANON CANON SOLUTIONS AMERICA, INC.	6004718552	TH-COPIER MAINTENANCE	519.97	0.00	519.97	13325	07/12/23
CCI CCI MANAGED SERVICES	CW-57052	TH-NEW MONITOR	189.00	0.00	189.00	13326	07/12/23
CHAPPELL CHAPPELL TRACTOR/ B-B CHAIN, I P90856		DPW-ASSORTED PARTS	876.97	0.00	876.97	13327	07/12/23

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Vendor	Invoice	Invoice Description	Purchase Amount	Discount Amount	Amount Paid	Check Number	Check Date
LINDBERG	CHERYL A LINDBERG	628EMPREIMB LISTERS-CHERYL POSTAGE	164.24	0.00	164.24	13328	07/12/23
LINDBERG	CHERYL A LINDBERG	628MLGREIMB LISTERS-CHERYL MILAG WKS	136.63	0.00	136.63	13328	07/12/23
					-----		
					Check Total	300.87	
CKAUFMAN	CHRIS KAUFMAN	626EMPREIMB DPW-COFFE SUPPLIES	40.77	0.00	40.77	13329	07/12/23
COMCAST	COMCAST	601PDINT PD-JUNE '23 INTERNET	439.61	0.00	439.61	13330	07/12/23
COMCAST	COMCAST	620DPWINT DPW-JULY '23 INTERNET	234.02	0.00	234.02	13330	07/12/23
					-----		
					Check Total	673.63	
COOP	COOP SERVICE CENTER	18068 PD-TIRES	1092.00	0.00	1092.00	13331	07/12/23
CRYSTAL	CRYSTAL ROCK, LLC	736065062023 DPW-WATER COOLER	62.97	0.00	62.97	13332	07/12/23
DHMC	DARTMOUTH-HITCHCOCK	609LOUPIS DPW-LOUPIS DRUG SCREEN	39.00	0.00	39.00	13333	07/12/23
DELTA DEN	DELTA DENTAL	JULY23DENTAL TH-JULY '23 DENTAL INSUR	1236.64	0.00	1236.64	13334	07/12/23
DIRIGO	DIRIGO SAFETY, LLC	2023-505 PD-IN PERSON TRAINING	225.00	0.00	225.00	13335	07/12/23
ECFIBER	ECFIBER	2306-0172709 FD-INTERNET INSTALLATION	209.76	0.00	209.76	13336	07/12/23
ECFIBER	ECFIBER	2307-0173434 FD-INTERNET	76.00	0.00	76.00	13336	07/12/23
					-----		
					Check Total	285.76	
KIRKER	ERIN MARGARET KIRKPATRICK	629OFFICIAL P&R-LACROSSE OFFICIAL	50.00	0.00	50.00	13337	07/12/23
EVANSMOTO	EVANS GROUP, INC.	0049433-IN DPW-DIESEL 300 GALLONS	810.06	0.00	810.06	13338	07/12/23
FIRSTLIGH	FIRSTLIGHT FIBER	14503662 TH-JUNE '23 FIBER OPTIC	44.80	0.00	44.80	13339	07/12/23
FPHTANK	FPH TANK AND INSTALLATION & SE	9197 DPW-INSTALL DROP TUBES	3215.61	0.00	3215.61	13340	07/12/23
GIROUX	GIROUX GENERAL TRANSPORT INC	UFAN06192023 DPW-CLASS B TRAINING	3900.00	0.00	3900.00	13341	07/12/23
GMPC	GREEN MOUNTAIN POWER CORP	616ACDMYRD ACDMY RD LTS 05119200003	39.85	0.00	39.85	13342	07/12/23
GMPC	GREEN MOUNTAIN POWER CORP	626 24NWBSTN 24 NW BSTN RD 1469500000	65.94	0.00	65.94	13342	07/12/23
GMPC	GREEN MOUNTAIN POWER CORP	626BVRMDWRD SS-BVR MDW RD 2496600000	3.58	0.00	3.58	13342	07/12/23
GMPC	GREEN MOUNTAIN POWER CORP	626MNSTTWR MN ST TWR 35066725603	129.11	0.00	129.11	13342	07/12/23
GMPC	GREEN MOUNTAIN POWER CORP	628STRTLTS STRT LGHTS 24926000001	1088.96	0.00	1088.96	13342	07/12/23
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					Check Total	1327.44	
GUVSWMD	GRTR UPPR VLLY SOLID WASTE MGT	705PERMIT TC-FY23 PERMITS	615.00	0.00	615.00	13343	07/12/23
HOMEDEPOT	HOME DEPOT CREDIT SERVICES	1521539 FD-BATTERIES	35.74	0.00	35.74	13344	07/12/23
LEMASURIE	JANE LEMASURIER	620OFFICIAL P&R-MOUNTAIN BIKING CLAS	1825.00	0.00	1825.00	13345	07/12/23



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Vendor	Invoice	Invoice Description	Purchase Amount	Discount Amount	Amount Paid	Check Number	Check Date
MACKINNON JON MACKINNON	622EMPREIMB	DPW-JON SHOES & SHIRTS	183.46	0.00	183.46	13346	07/12/23
POWELLJUD JUDITH POWELL	630EMPREIMB	PD-JUDY POSTAGE & LUNCH	88.18	0.00	88.18	13347	07/12/23
WATERMAN KEITH WATERMAN	626EMPREIMB	DPW-KEITH BOOTS	200.00	0.00	200.00	13348	07/12/23
LAWTARGET LAW ENFORCEMENT TARGETS, INC.	0572079-IN	PD-TRAINING SUPPLIES	514.61	0.00	514.61	13349	07/12/23
LEAF LEAF CAPITAL FUNDING, LLC	14969838	PD-COPIER LEASE PAYMENT	82.00	0.00	82.00	13350	07/12/23
LEBFORD LEBANON FORD	436416/1	FD-CAR 1 REPAIRS	3574.61	0.00	3574.61	13351	07/12/23
LYBA LEBANON YOUTH BASEBALL ASSOCIA	ICH2023-LYBA P&R-AWARDS		194.79	0.00	194.79	13352	07/12/23
MISC LILY TRAJMAN	616EMPREIMB	TC-LILY INDEX CARD HOLDE	31.99	0.00	31.99	13353	07/12/23
NAT'L INS MADISON NATIONAL LIFE INS CO.,	1565123	TH-JULY '23 LIFE INSURAN	980.46	0.00	980.46	13354	07/12/23
MAYER MAYER & MAYER	PR-06/30/23	Payroll Transfer	25.00	0.00	25.00	13355	07/12/23
MODERN MODERN CLEANERS & TAILORS	7F6656	PD-UNIFORM CLEANING	50.25	0.00	50.25	13356	07/12/23
PBA NEW ENGLAND PBA, INC	35164	TH-UNION DUES JUNE '23	225.36	0.00	225.36	13357	07/12/23
NRRA NORTHEAST RESOURCE RECOVERY AS	133583	DPW-RELEASE #701285	191.20	0.00	191.20	13358	07/12/23
NORTHFIELD NORTHFIELD SAVINGS BANK	620LOANPAY	TH-FY24 LOAN PAYMENT	14042.56	0.00	14042.56	13359	07/12/23
NORSCHOOL NORWICH SCHOOL DISTRICT	621RENTAL	TH-'22-'23 RENTAL	15730.00	0.00	15730.00	13360	07/12/23
OTIS OTIS ELEVATOR COMPANY	100401220229	TH-JULY '23 ELEVATOR MN	311.48	0.00	311.48	13361	07/12/23
PITNEYBOWES PITNEY BOWES	1023368507	TH-INK FOR METER MACHINE	91.29	0.00	91.29	13362	07/12/23
ROBERT HA ROBERT HALF	62116123	FIN-JOYCE WK END 6/02	1146.70	0.00	1146.70	13363	07/12/23
ROBERT HA ROBERT HALF	62154440	FIN-JOYCE WK END 6/09	3554.77	0.00	3554.77	13363	07/12/23
ROBERT HA ROBERT HALF	62159031	FIN-JOYCE WK END 6/16	3640.77	0.00	3640.77	13363	07/12/23
ROBERT HA ROBERT HALF	62204856	FIN-JOYCE WK END 6/09	88.16	0.00	88.16	13363	07/12/23
ROBERT HA ROBERT HALF	62213005	FIN-JOYCE WK END 6/23	3612.11	0.00	3612.11	13363	07/12/23
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					Check Total	12042.51	
SABIL SABIL & SONS INC	98274	FD-INSPECTION & AIR SYST	112.78	0.00	112.78	13364	07/12/23
SABIL SABIL & SONS INC	98312	FD-INSPECTION & LIGHT	156.36	0.00	156.36	13364	07/12/23
					-----		
					Check Total	269.14	
SOLAFLECT SOLAFLECT SOLAR PARK I, LLC	JUNE 23	TH-JUNE '23 SOLAR ALLOCA	848.13	0.00	848.13	13365	07/12/23
SOLAIV SOLAFLECT SOLAR PARK IV, LLC	2306_01	TH-JUNE '23 SOLAR ALLOCA	900.00	0.00	900.00	13366	07/12/23

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STAPLES. STAPLES CREDIT PLAN	18267	FD-SHIPPING TAGS	48.49	0.00	48.49	13367	07/12/23
SMALST STEPHEN K SMALL	620OFFICIAL	P&R-LACROSSE OFFICIAL	195.00	0.00	195.00	13368	07/12/23
STEPNFLAN STEPHEN N FLANDERS	622EMPREIMB	NCC-KIOSK SIGNS	131.98	0.00	131.98	13369	07/12/23
STITZEL STITZEL PAGE & FLETCHER PC	75187	TH-MAY '23 LEGAL EXPENSE	9860.50	0.00	9860.50	13370	07/12/23
STO-COTE STO-COTE PRODUCTS, INC.	1241	P&R-ICE RINK	2351.44	0.00	2351.44	13371	07/12/23
TDS LEASE TDS LEASING INC	01085024	PD-WATER COOLER	90.00	0.00	90.00	13372	07/12/23
TOP STITC TOP STITCH EMBROIDERY, INC.	21479	P&R-TEAM HATS	447.50	0.00	447.50	13373	07/12/23
TOP STITC TOP STITCH EMBROIDERY, INC.	406582	P&R-TEAM HATS	447.50	0.00	447.50	13373	07/12/23
Check Total					895.00		
HANOVERTO TOWN OF HANOVER	01617	DPW-ALARM MONITORING	118.75	0.00	118.75	13374	07/12/23
HARTFORD TOWN OF HARTFORD	13225	PD-MAY '23 VERIZON	185.33	0.00	185.33	13375	07/12/23
VTTREASUR TREASURY OPERATIONS DIVISION,	706MARRIAGE	TC-MARRIAGE LICENSES	450.00	0.00	450.00	13376	07/12/23
TSSAND TWIN STATE SAND & GRAVEL	109125	DPW-STONE	123.13	0.00	123.13	13377	07/12/23
TSSAND TWIN STATE SAND & GRAVEL	109126	DPW-SAND	23878.30	0.00	23878.30	13377	07/12/23
TSSAND TWIN STATE SAND & GRAVEL	109127	DPW-STONE	6190.09	0.00	6190.09	13377	07/12/23
TSSAND TWIN STATE SAND & GRAVEL	109330	DPW-STONE & GRAVEL	40577.66	0.00	40577.66	13377	07/12/23
Check Total					70769.18		
TWORIVERS TWO RIVERS - OTTAUQUECHEE	24-2	TH-FY24 ENERGY COORDINAT	15335.00	0.00	15335.00	13378	07/12/23
TWORIVERS TWO RIVERS - OTTAUQUECHEE REGI	628MMBRSH	P&Z-FY24 MMBRSH DUES	5888.00	0.00	5888.00	13379	07/12/23
UNIFIRST UNIFIRST CORPORATION	1070237669	DPW-UNIFORM CLEANING	284.83	0.00	284.83	13380	07/12/23
UNIFIRST UNIFIRST CORPORATION	1070239522	DPW-UNIFORM CLEANING	271.93	0.00	271.93	13380	07/12/23
Check Total					556.76		
UNITEDREN UNITED RENTALS (NORTH AMERICA)	19954334-001	DPW-DITCHING	2481.54	0.00	2481.54	13381	07/12/23
UVTRAILS UPPER VALLEY TRAILS ALLIANCE	622COUNTER	NCC-2 TRAIL COUNTERS	1260.00	0.00	1260.00	13382	07/12/23
VDOL VERMONT DEPT. OF LABOR	626INTEREST	TH-INTEREST	3.08	0.00	3.08	13383	07/12/23
VLCT VERMONT LEAGUE OF CITIES & TOW 1990		TH-FY24 ANNUAL DUES	5863.00	0.00	5863.00	13384	07/12/23
MISC VICTOR CHILD	616EMREIMB	FD-BUCK EMT CLASS	750.00	0.00	750.00	13385	07/12/23
VLCTPACIF VLCT PROP & CASUALTY INTER FUN INT455060923		TH-INSURANCE FORD EXPLOR	563.00	0.00	563.00	13386	07/12/23

07/06/23  
01:31 pm

Town of Norwich Accounts Payable  
Check Warrant Report # 1010 Current Prior Next FY Invoices  
For checks For Check Acct 03(General) 07/12/23 To 07/12/23

Vendor	Invoice	Invoice Description	Purchase Amount	Discount Amount	Amount Paid	Check Number	Check Date
VMERS	VMERS DB	PR-06/02/23 Payroll Transfer	7972.01	0.00	7972.01	13387	07/12/23
VMERS	VMERS DB	PR-06/16/23 Payroll Transfer	8086.50	0.00	8086.50	13387	07/12/23
VMERS	VMERS DB	PR-06/30/23 Payroll Transfer	8103.32	0.00	8103.32	13387	07/12/23
VMERS	VMERS DB	REFUNDREMIT RETURN 5/3 REFUND CHECK	147.49	0.00	147.49	13387	07/12/23
					Check Total	24309.32	
Report Total			254,717.52	0.00	254,717.52		

To the Treasurer of Town of Norwich, We hereby certify that there is due to the several persons whose names are listed hereon the sum against each name and that there are good and sufficient vouchers supporting the payments aggregating \$ \*\*\*254,717.52  
Let this be your order for the payments of these amounts.

Staff Accountant:

*Ashley Wohler*  
Ashley Wohler

Town Manager:

DocuSigned by:  
*Brennan Duffy*  
D4520EC72DA7484...  
Brennan Duffy

SELECTBOARD:

Marcia Calloway  
Chair

Mary Layton  
Vice Chair

Priscilla Vincent

Roger Arnold

Pam Smith

## Summary of Tracy Hall Energy Proposals

Jeff Grout – TRORC Intermunicipal Regional Energy Coordinator  
July 7, 2023

### SCOPE:

The scope of this report is to provide a summary of recent Tracy Hall energy assessments that includes sufficient information to update and determine the next steps and desired outcome of the Tracy Hall energy upgrade project.

### BACKGROUND:

Tracy Hall's energy systems have received extensive attention in the last 5 years, beginning in 2018 when the Norwich Energy Committee updated the 2010 energy audit of Tracy Hall. The town of Norwich then submitted a statewide RFQ seeking a town-wide energy assessment to develop proposals for heating and cooling town buildings without the use of fossil fuels per the directive recently approved by town voters.

In January 2020, Energy Efficient Investments Inc. (EEI) submitted a townwide energy audit report detailing Energy Conservation Measures with cost estimates for Tracy Hall, The Public Safety Building and DPW. Only the Tracy Hall proposal is covered in this report.

Living Buildings did not respond to the RFQ, but was selected by the Town Manager in early 2022 to submit an energy assessment report detailing recommendations for Tracy Hall only.

This report summarizes both Tracy Hall reports.

### OVERALL SUMMARY:

The energy upgrade concept of the two companies is similar, to reduce overall energy consumption, eliminate fossil fuel use, and improve the ventilation of Tracy Hall. Both solutions include weatherization, ventilation improvements, and installing a modern programmable control system that allows off-site control and monitoring of the building's energy systems.

The EEI solution essentially consists of electrifying the entire building HVAC systems and consists of ventilation with heat recovery, ground source heating and air conditioning, a backup electrical boiler, LED lighting, digital controls, weatherization (primarily attic space), and removal of the existing oil tank and boilers.

The Living Building (LB) solution consists of utilizing passive energy collection and storage techniques to reduce the overall heating and cooling load resulting in smaller energy systems requirements and very long life. However, some of the Living Building energy conservation measures are conceptual and not proven in the New England region. The proposed thermal storage walls would take up valuable space in some of the offices.

Both proposals would require either a backup battery system or emergency generator to power the systems during power outages, and an electrical upgrade to accommodate larger electrical loads would likely be required.

William B Emmons III, Chair ~ Peter G. Gregory, AICP, Executive Director  
128 King Farm Rd. Woodstock, VT 05091 ~ 802-457-3188 ~ [trorc.org](http://trorc.org)

It should be noted that the Tracy Hall ventilation system does not currently comply with building codes, but as a “grandfathered” building, this is allowed. However, anything other than a simple replacement of the oil boiler would require that the building meet Vermont Commercial Building Energy Standards, including ventilation and cooling. This is a significant expense, but a key component of any energy upgrades to Tracy Hall.

Additional detail and provided pricing are included below.

**EEI Report Summary:**

The EEI report includes an analysis of 12 months of historical natural gas and electricity bills from June 2017 through May 2018. The energy consumption data was weather normalized using heating (HDD) and cooling degree days (CDD) so that it may be used as a baseline to compare future energy usage and determine energy savings realized by the implementation of their Energy Conservation Measures (ECM). The EEI proposal includes semi-annual Measurement & Verification (M&V) Reports to document actual savings.

The key components of the EEI proposal are listed below:

1. LED lighting upgrade throughout the building
2. New Direct Digital Control (DDC) building control system
3. Electrical service upgrade and wiring distribution to all new components
4. Attic Insulation: Blown-in cellulose to R-60.
5. Removal of both existing oil burners.
6. Removal of existing DX split cooling systems.
7. Heating and Cooling Supplied by 9 water to air and 6 water to water heat pumps
8. Installation of 4 new outside air ventilation units with backup electrical duct mounted heating coils
9. New domestic heat pump water heater

<b>EEI - Tracy Hall Proposed Measures</b>	<b>Cost</b>
LED Lighting	\$61,299
Direct Digital Controls (DDC)	\$133,000
Geothermal Excavation and Backfill	\$402,724
Carpentry Allowance	\$95,000
Weatherization	\$30,000
Electrical Upgrades	\$158,460
Ventilation and Central Cooling	\$924,350
<b>Total Cost Estimate:</b>	<b>\$1,804,833</b>

**NOTES:**

1. EEI pricing is 2 years old and will require updating.
2. The DDC price includes controls for all 3 buildings covered in the EEI energy audit.
3. Grants are likely available to cover a portion of the energy upgrade costs.

## Living Buildings (LB) Report Summary

The Living Building scope of work was slightly different than the original RFQ and consisted of the evaluation of the Tracy Hall building systems and their interaction, with recommendations for improvements to aid in decision-making.

The two existing oil burners in Tracy Hall are considered at the end of their useful life. The Living Buildings energy analysis includes recommending the installation of a new, controlled efficient boiler as a cost-effective primary solution in the short term, and later as a backup system after a less carbon-intensive system is installed. This takes into consideration that the underground oil storage tank is only 4 years old and has many years of useful life left, but can be phased out as fossil fuel free alternatives are proven.

A key component of the LB report is a rammed earth thermal mass wall panels coupled with geothermal energy storage wells. This concept has potential but the Living Building report goes on to state that, “a skilled and knowledgeable workforce well acquainted with rammed-earth, geothermal, and other emerging technologies does not yet exist in our region. However, effective workforce development is under way to bring this knowledge and shift in thinking to Vermont. Projects such as the transformation of Tracy Hall offer the opportunity to create a campus of knowledge sharing, where appropriate technologies are installed as part of regional workforce development. From this strategy can grow local knowledge of high-performing, high-impact building techniques, and the ability to operate and maintain what has been built.”

Some fine, but unproven technologies play a key role in the LB proposal, resulting in key parts of the proposal being “experimental” with unpredictable costs and results.

The primary components of the Living Building Energy Audit Proposal are:

1. Attic Insulation: Blown-in cellulose to R-60.
2. Wall Insulation: sandwiched between the existing brick and concrete and new rammed-earth walls in the basement and panels on the first and second floors.\*
3. Weatherization: Complete air seal all penetrations including piping and wall plates. Replace existing weather stripping and door sweeps.
4. Heating: One efficient backup oil burner combined with solar collecting atrium on building south side with “right-sized” geothermal system.\*
5. Cooling: Primarily by night-time cooling with geo-thermal heat pump during periods of high cooling loads.
6. Ventilation: Natural ventilation strategies with operable windows paired with a dedicated outdoor air mechanical ventilation system.\*
7. Electrical: Upgrade likely not required.
8. Energy Storage: Thermal Wells \*

\* Pricing incomplete or not supplied.

<b>Living Buildings - Tracy Hall Proposed Measures</b>	<b>Cost</b>
Distech Controls	\$15,000
LED Lighting upgrade and attic air seal & insulation	\$60,000
Efficient back-up oil burner	\$40,000
Thermal Energy Storage, rammed earth panels	TBD
Solar Atrium	TBD
Geothermal Heat pump heating and cooling	TBD
Mechanical ventilation system	TBD
<b>Total Cost Estimate:</b>	TBD



# **ENE Systems, Inc./Energy Efficient Investments, Inc. Energy Audit Report**

FOR:

**Town of Norwich**

Prepared by:

Michael Davey, CEM

Date: January 2, 2020  
With Revision 2-22-20





## Executive Summary

EI is located in Merrimack, NH, and has a proven track record of designing and implementing energy improvements to mechanical systems, building controls systems, insulation, and renewable systems. EI is also an approved energy management contractor with Better Buildings, Pay for Performance, Eversource, Liberty Utilities, and Unil in New Hampshire. Recently, EI has completed comprehensive energy improvement projects for Addison Northwest School District (VT), Bennington School District (VT) and the City of Manchester, New Hampshire.

At the request of the energy committee, EI looked into the possibility of heating and cooling the buildings without the usage of fossil fuel per the directive recently approved by town voters. The Town of Norwich has three main facilities that are their primary Fossil Fuel Users (excluding transportation) and they include the Tracy Hall, DPW Garage and the Public Safety Complex. After a detailed review of each building it was determined that the best improvement at the current time is a Geothermal heating system at Tracy Hall and more targeted energy improvements at the other two complexes. The reason behind this decision is that the cost for a radiant geo-thermal heating system at DPW and the Public Safety Building was deemed to be too costly as this time.

On the following page, the Energy Conservation Measures Matrix shows the upgrades for Norwich, including conversion of oil to geothermal, LED lighting, digital controls and insulation improvements. Approval of this Audit will lead to an **Energy Performance Contract (EPC)** which will clearly define the responsibilities of each party and will include a **Measurement and Verification (M&V)** procedure that will be used to measure the energy performance of the new systems and equipment installed throughout the town.



# Utility Data Analysis

Currently the Town of Norwich meets its electric needs through an offsite power purchase agreement with a solar provider. The offsite power purchase energy was not included in the utility analysis below. The Town Hall, DPW garage and Public Safety building garage are heated with oil/propane heating units. The proposed system will include both complete ventilation and central air conditioning for Town Hall.

In order to understand the energy use at the three buildings, we analyzed 12 months of historical natural gas and electricity bills from June 2017 through May 2018. The data shows an average Energy Use Index (EUI) of 77 for Tracey Hall, 56 for the Police/Fire Station, and 67 for the DPW. The energy consumption data was weather normalized using heating (HDD) and cooling degree days (CDD) so that it may be used as a baseline to compare future energy usage and determine energy savings realized by ECM implementation. These savings will be described in semi-annual Measurement & Verification (M&V) Reports.

## Measurement And Verification Document



Prepared by: Energy Efficient Investments, Inc.  
19D Star Drive  
Merrimack, NH 03054

Prepared for: Norwich School District  
**Tracey Hall**

Contract Number: \_\_\_\_\_  
Report Date: 01/01/20  
Starting Period: 06/01/17  
Ending Period: 05/01/18

### Contract Rates:

Electricity	\$ 0.15	/kWh	#2 Fuel Oil	\$ 1.78	/gal
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### Baseline Year

Month	HDD @ 65F Monthly	CDD @ 65F Monthly	Baseline Electrical Use (kWh)	Baseline #2 Fuel Oil Use (gal)	Baseline Total Energy Use (kBtu)	Actual Electrical Use (kWh)	Actual #2 Fuel Oil Use (gal)	Actual Total Energy Use (kBtu)	Baseline Elec Cost (\$)	Baseline Natural Fuel Oil Cost(\$)	Baseline Total Cost (\$)	Actual Elec Cost (\$)	Actual Fuel Oil Cost (\$)	Actual Total Cost (\$)	Savings	Baseline EUI	Actual EUI	
Jun	Jun-17	129	148	5,240	-	17,879	5,240	-	17,879	\$ 786	\$ -	\$ 786	\$ 786	\$ -	\$ 786	\$ -	18	18
Jul	Jul-17	65	173	5,360	-	18,288	5,360	-	18,288	\$ 804	\$ -	\$ 804	\$ 804	\$ -	\$ 804	\$ -	18	18
Aug	Aug-17	112	147	4,960	-	16,924	4,960	-	16,924	\$ 744	\$ -	\$ 744	\$ 744	\$ -	\$ 744	\$ -	17	17
Sep	Sep-17	151	98	5,840	5	20,607	5,840	5	20,607	\$ 876	\$ 9	\$ 885	\$ 876	\$ 9	\$ 885	\$ -	21	21
Oct	Oct-17	334	37	6,280	191	47,976	6,280	191	47,976	\$ 942	\$ 340	\$ 1,282	\$ 942	\$ 340	\$ 1,282	\$ -	48	48
Nov	Nov-17	857	0	6,480	927	150,963	6,480	927	150,963	\$ 972	\$ 1,650	\$ 2,622	\$ 972	\$ 1,650	\$ 2,622	\$ -	151	151
Dec	Dec-17	1392	0	6,600	971	157,488	6,600	971	157,488	\$ 990	\$ 1,728	\$ 2,718	\$ 990	\$ 1,728	\$ 2,718	\$ -	157	157
Jan	Jan-18	1381	0	5,760	390	73,863	5,760	390	73,863	\$ 864	\$ 694	\$ 1,558	\$ 864	\$ 694	\$ 1,558	\$ -	74	74
Feb	Feb-18	1007	0	6,400	853	140,404	6,400	853	140,404	\$ 960	\$ 1,518	\$ 2,478	\$ 960	\$ 1,518	\$ 2,478	\$ -	140	140
Mar	Mar-18	1016	0	6,680	866	143,166	6,680	866	143,166	\$ 1,002	\$ 1,541	\$ 2,543	\$ 1,002	\$ 1,541	\$ 2,543	\$ -	143	143
Apr	Apr-18	739	2	5,960	487	88,029	5,960	487	88,029	\$ 894	\$ 867	\$ 1,761	\$ 894	\$ 867	\$ 1,761	\$ -	88	88
May	May-18	217	100	5,720	220	50,097	5,720	220	50,097	\$ 858	\$ 392	\$ 1,250	\$ 858	\$ 392	\$ 1,250	\$ -	50	50
<b>Total</b>	<b>2017-2018</b>	<b>7,400</b>	<b>705</b>	<b>71,280</b>	<b>4,910</b>	<b>925,683</b>	<b>71,280</b>	<b>4,910</b>	<b>925,683</b>	<b>\$ 10,692</b>	<b>\$ 8,740</b>	<b>\$ 19,432</b>	<b>\$ 10,692</b>	<b>\$ 8,740</b>	<b>\$ 19,432</b>	<b>\$ -</b>	<b>77</b>	<b>77</b>



**Measurement And Verification Document**

Prepared by: Energy Efficient Investments, Inc.  
19D Star Drive  
Merrimack, NH 03054

Prepared for: Norwich School District  
**Police & Fire Station**

Contract Number: \_\_\_\_\_  
Report Date: 01/01/20  
Starting Period: 06/01/17  
Ending Period: 05/01/18

Contract Rates:

Electricity	\$ 0.15	/kWh	#2 Fuel Oil	\$ 1.78	/gal
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Baseline Year

Month	HDD @ 65F Monthly	CDD @ 65F Monthly	Baseline Electrical Use (kWh)	Baseline #2 Fuel Oil Use (gal)	Baseline Total Energy Use (kBtu)	Actual Electrical Use (kWh)	Actual #2 Fuel Oil Use (gal)	Actual Total Energy Use (kBtu)	Baseline Elec Cost (\$)	Baseline Fuel Oil Cost (\$)	Baseline Total Cost (\$)	Actual Elec Cost (\$)	Actual Fuel Oil Cost (\$)	Actual Total Cost (\$)	Savings	Baseline EUI	Actual EUI
Jun Jun-17	129	148	1,344	-	4,586	1,344	-	4,586	\$ 202	\$ -	\$ 202	\$ 202	\$ -	\$ 202	\$ -	9	9
Jul Jul-17	65	173	1,558	-	5,316	1,558	-	5,316	\$ 234	\$ -	\$ 234	\$ 234	\$ -	\$ 234	\$ -	11	11
Aug Aug-17	112	147	1,620	-	5,527	1,620	-	5,527	\$ 243	\$ -	\$ 243	\$ 243	\$ -	\$ 243	\$ -	11	11
Sep Sep-17	151	98	2,025	50	13,859	2,025	50	13,859	\$ 304	\$ 89	\$ 393	\$ 304	\$ 89	\$ 393	\$ -	28	28
Oct Oct-17	334	37	3,225	100	24,904	3,225	100	24,904	\$ 484	\$ 178	\$ 662	\$ 484	\$ 178	\$ 662	\$ -	50	50
Nov Nov-17	857	0	3,370	220	42,078	3,370	220	42,078	\$ 506	\$ 392	\$ 897	\$ 506	\$ 392	\$ 897	\$ -	84	84
Dec Dec-17	1392	0	5,932	229	52,071	5,932	229	52,071	\$ 890	\$ 408	\$ 1,297	\$ 890	\$ 408	\$ 1,297	\$ -	104	104
Jan Jan-18	1381	0	3,057	429	70,061	3,057	429	70,061	\$ 459	\$ 764	\$ 1,222	\$ 459	\$ 764	\$ 1,222	\$ -	140	140
Feb Feb-18	1007	0	3,496	232	44,176	3,496	232	44,176	\$ 524	\$ 413	\$ 937	\$ 524	\$ 413	\$ 937	\$ -	88	88
Mar Mar-18	1016	0	4,710	174	40,257	4,710	174	40,257	\$ 707	\$ 310	\$ 1,016	\$ 707	\$ 310	\$ 1,016	\$ -	81	81
Apr Apr-18	739	2	3,073	49	17,296	3,073	49	17,296	\$ 461	\$ 87	\$ 548	\$ 461	\$ 87	\$ 548	\$ -	35	35
May May-18	217	100	3,016	40	15,851	3,016	40	15,851	\$ 452	\$ 71	\$ 524	\$ 452	\$ 71	\$ 524	\$ -	32	32
<b>Total 2017-2018</b>	<b>7,400</b>	<b>705</b>	<b>36,426</b>	<b>1,523</b>	<b>335,983</b>	<b>36,426</b>	<b>1,523</b>	<b>335,983</b>	<b>\$ 5,464</b>	<b>\$ 2,711</b>	<b>\$ 8,175</b>	<b>\$ 5,464</b>	<b>\$ 2,711</b>	<b>\$ 8,175</b>	<b>\$ -</b>	<b>56</b>	<b>56</b>



**Measurement And Verification Document**

Prepared by: Energy Efficient Investments, Inc.  
19D Star Drive  
Merrimack, NH 03054

Prepared for: Norwich School District  
**DPW**

Contract Number: \_\_\_\_\_  
Report Date: 01/01/20  
Starting Period: 06/01/17  
Ending Period: 05/01/18

Contract Rates:

Electricity	\$ 0.15	/kWh	Propane	\$ 1.21	/gal
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Baseline Year

Month	HDD @ 65F Monthly	CDD @ 65F Monthly	Baseline Electrical Use (kWh)	Baseline #2 Propane Use (gal)	Baseline Total Energy Use (kBtu)	Actual Electrical Use (kWh)	Actual #2 Propane Use (gal)	Actual Total Energy Use (kBtu)	Baseline Elec Cost (\$)	Baseline Propane Cost (\$)	Baseline Total Cost (\$)	Actual Elec Cost (\$)	Actual Propane Cost (\$)	Actual Total Cost (\$)	Savings	Baseline EUI	Actual EUI
Jun Jun-17	129	148	516	-	4,586	516	-	4,586	\$ 77	\$ -	\$ 77	\$ 77	\$ -	\$ 77	\$ -	11	11
Jul Jul-17	65	173	889	-	5,316	889	-	5,316	\$ 133	\$ -	\$ 133	\$ 133	\$ -	\$ 133	\$ -	13	13
Aug Aug-17	112	147	820	-	5,527	820	-	5,527	\$ 123	\$ -	\$ 123	\$ 123	\$ -	\$ 123	\$ -	13	13
Sep Sep-17	151	98	960	100	13,859	960	100	13,859	\$ 144	\$ 121	\$ 265	\$ 144	\$ 121	\$ 265	\$ -	33	33
Oct Oct-17	334	37	1,465	177	24,904	1,465	177	24,904	\$ 220	\$ 214	\$ 434	\$ 220	\$ 214	\$ 434	\$ -	60	60
Nov Nov-17	857	0	2,132	600	42,078	2,132	600	42,078	\$ 320	\$ 726	\$ 1,046	\$ 320	\$ 726	\$ 1,046	\$ -	101	101
Dec Dec-17	1392	0	2,667	1,051	52,071	2,667	1,051	52,071	\$ 400	\$ 1,272	\$ 1,672	\$ 400	\$ 1,272	\$ 1,672	\$ -	125	125
Jan Jan-18	1381	0	2,072	1,492	70,061	2,072	1,492	70,061	\$ 311	\$ 1,805	\$ 2,116	\$ 311	\$ 1,805	\$ 2,116	\$ -	168	168
Feb Feb-18	1007	0	1,555	926	44,176	1,555	926	44,176	\$ 233	\$ 1,120	\$ 1,354	\$ 233	\$ 1,120	\$ 1,354	\$ -	106	106
Mar Mar-18	1016	0	1,926	813	40,257	1,926	813	40,257	\$ 289	\$ 984	\$ 1,273	\$ 289	\$ 984	\$ 1,273	\$ -	97	97
Apr Apr-18	739	2	1,275	275	17,296	1,275	275	17,296	\$ 191	\$ 333	\$ 524	\$ 191	\$ 333	\$ 524	\$ -	42	42
May May-18	217	100	1,926	-	15,851	1,926	-	15,851	\$ 289	\$ -	\$ 289	\$ 289	\$ -	\$ 289	\$ -	38	38
<b>Total 2017-2018</b>	<b>7,400</b>	<b>705</b>	<b>18,203</b>	<b>5,434</b>	<b>335,983</b>	<b>18,203</b>	<b>5,434</b>	<b>335,983</b>	<b>\$ 2,730</b>	<b>\$ 6,575</b>	<b>\$ 9,306</b>	<b>\$ 2,730</b>	<b>\$ 6,575</b>	<b>\$ 9,306</b>	<b>\$ -</b>	<b>67</b>	<b>67</b>

## Energy Conservation Measures

In this section of the document we will define the Energy Conservation Measures we have evaluated for this project. Then we will define the measures on a building by building basis. Careful consideration was given to each measure and its interaction with the overall building performance.

ECM #	ECM Matrix	Cost for Installed Measure \$	Potential Rebates	Change in Electrical Usage	Reduction in Fuel Oil Gallons	Reduction in LP gallons
<b>Tracey Hall</b>						
TH1	LED Lighting	\$61,299.00		-46,875		
TH2	DDC Controls	\$133,000.00		-1,000.00		
TH3	Geothermal Excavation and Backfill	\$402,724.00		0.00		
TH4	Carpentry Allowance	\$95,000.00		0.00		
TH5	Weatherization	\$30,000.00		-1,000.00	500.00	
TH6	Electrical Upgrades	\$158,460.00		0.00		
TH7	Add Ventilation and central cooling to building	\$924,350.00		85,850.00	4,500.00	
	<b>Total Tracey Hall</b>	<b>1,804,833.00</b>		<b>36,975.00</b>	<b>5,000.00</b>	
<b>Public Safety</b>						
FD1	LED Lighting	\$25,020.00		-19,444.44		
FD2	DDC Controls	\$48,650.00		-2,000.00		
	<b>Total Public Safety</b>	<b>73,670.00</b>		<b>-21,444.44</b>		
<b>DPW</b>						
DPW1	LED Lighting	\$11,120.00		-11,111.11		
DPW2	DDC Controls	\$48,650.00		0		870.00
	<b>Total DPW</b>	<b>\$59,770.00</b>		<b>-11,111.11</b>		<b>870.00</b>
	<b>Total All Buildings</b>	<b>\$1,938,273.00</b>		<b>4,419.44</b>	<b>5,000.00</b>	
	Payment and Performance Bond	\$19,382.00				
	Contingency 5%	\$96,913.65				
	<b>Total</b>	<b>\$2,054,568.65</b>	<b>\$50,000.00</b>			

## **TRACY HALL.**

Under this option all the oil heat would be converted over to geothermal heating with a new ventilation system. The existing DX split cooling systems would be removed and replaced with the geothermal cooling option.

The proposed project energy upgrade would consist of the following:

1. LED lighting upgrade throughout: (8) 2x2 LED High bays Install 40 LED recessed can lights, and 92 LED pendant lights. Install LED Tubes and LED drivers to 158 fixtures
2. New DDC building control system. System will be Distech or approved equal
3. Electrical service upgrade note specification attached.
4. Electrical distribution to mechanical equipment.
5. Geothermal wells.
6. Site excavation, back fill and landscaping.
7. Blacktop and parking lot striping.
8. New outside air ventilation systems (4 units)
9. Water to air zone heat pumps (9 units)
10. Water to water heat pumps (6 units)- provide building heat through radiation panels, cabinet unit heaters.
11. Backup electric boiler heating.
12. Backup electric duct mounted heating coils (on HRU's).
13. Pumps and hydronic appurtenances.
14. New domestic water heater-heat pump.
15. General carpentry and finish work, includes all required patching and painting and soffits for new pipe chases
16. Attic insulation. EEI proposes air sealing measures in the attic space including pipe penetrations and wall plates to reduce the air infiltration and exfiltration. Once the attic space is air sealed this ECM includes the installation of blown in cellulose insulation to achieve R-60. The floor of the storage space to be densely packed with cellulose insulation from above. Replacement of existing weather stripping and door sweeps to exterior doors is included.

Excluded in this facilities upgrade would be the following:

1. Window upgrades
2. Wall insulation
3. Door replacements
4. Emergency generator upgrades and replacements

After reviewing the total cost of upgrading the PWD and the PSD apparatus bay heating system, it was determined that focusing on the lighting and DDC controls would be better economical and practical solution on the aging structures.

### **PUBLIC SAFETY BUILDING**

The proposed energy project upgrade would consist of the following:

1. LED lighting upgrade in the apparatus bay.
2. DDC controls in the older part of the facility (Distech or approved Equal).

### **PUBLIC WORKS DEPARTMENT**

The proposed energy project upgrade would consist of the following:

3. DDC controls (Distech or approved Equal).

### **EXCLUSIONS**

The following base budget above does not include emergency generators or upgrades to the emergency power systems.

### **SUMMARY**

The upgrades to the systems as described above utilizes the most current technology for implementing fossil fuel and carbon footprint reduction. Through this strategy lighting and mechanical systems are also upgraded providing energy efficiency and building occupant comfort.



9 Washington Street  
Rutland, Vermont 05701  
Tel: 802-855-8091

Note (The scope of work for Tracy Hall is included in this project  
Other buildings were not selected at this time)

Norwich Municipal Buildings

Norwich, Vermont

Electrical Basis of Design

November 13, 2019

**DIVISIONS 26 ELECTRICAL**

1. General

- a. The work described in this document is to modify electrical services and distribution systems as necessary to allow for mechanical renovations at four municipal buildings in Norwich, Vermont. Along with the service and distribution modifications, the work necessary to disconnect and remove wiring to mechanical equipment being removed, and the connections to the equipment to be installed is included in the electrical scope of work.
  - i. Town of Norwich, Tracy Hall
- b. Provide a complete electrical system in accordance with all applicable codes, to include electrical service, electrical distribution and general power as appropriate for the building mentioned in this document. Codes applicable to the electrical work on this project are the Code of Ordinances of the Town of Norwich, Vermont which include, but are not limited to:
  - i. State of Vermont, Fire and Building Safety Code
    1. 2015 Fire and Building Safety Code is presently adopted and we expect to adopt a revised Code based on 2018 IBC within 5 months.
  - ii. IBC-2018, International Building Code, with State of Vermont amendments
  - iii. NFPA 1-2018, Fire Code, with State of Vermont amendments
    1. NFPA 70-2017, National Electrical Code (NEC), with State of Vermont amendments
- c. Coordinate with power utility companies and their requirements as necessary.

- d. Coordinate with the Construction Manager and the contractors of other trades (general, civil/site, mechanical, plumbing, temperature control) as necessary to provide an overall professional and complete project.
1. Electrical Service and Distribution
    - a. Provide coordination with Green Mountain Power (GMP) for electrical service to the building. All aspects of the service wiring installation shall be as per GMP requirements.
    - b. Wiring Methods:
      - i. Follow all applicable codes and use good electrical construction practices when determining types of wiring methods and sizing of conductors and conduit. Install all power, control and signal wiring using methods as follows.
        1. Underground Wiring or Beneath Concrete Slab: Individual conductors in schedule 80 PVC rigid non-metallic conduit (RNC) for direct burial; transition to galvanized steel rigid metallic conduit (RMC) where conduit rises to be exposed above grade or concrete slab, from a minimum of 24" below finished grade.
        2. Exposed Exterior Wiring: Individual conductors in galvanized steel rigid metal conduit (RMC).
        3. Exposed Wiring in Utility Areas (Mechanical, Electrical Rooms, etc.): Individual conductors in electrical metallic tubing (EMT) with set screw fittings and metal clad (type MC).
        4. Inaccessible Concealed Wiring: Individual conductors in electrical metallic tubing (EMT) with set screw fittings and metal clad (type MC).
        5. Concealed Wiring above Accessible Ceilings: Individual conductors in electrical metallic tubing (EMT) with set screw fittings.
        6. Final connections to mechanical/vibrating equipment will be maximum 4' flexible metallic conduit (FMC) in dry areas and liquid tight flexible metallic conduit (LFMC) in damp/wet areas.
      - ii. All wiring in finished areas will be routed concealed and devices will be flush/recessed mounted. Wiring in the utility areas will be exposed where no wall finish exists. Wiring routed exposed on vertical surfaces will be routed vertically; horizontal wiring will be routed at the ceiling level of these spaces, not on the walls.
      - iii. Service and feeder wiring shall be aluminum conductors, XHHW insulation. All branch wiring shall be copper, THHN/THWN-2 insulation.



- iv. Provide an insulated equipment ground conductor within all cables and raceways.
- v. Where necessary, provide fire-rated putty pads on boxes in fire rated walls that are located in common stud space with boxes from the adjacent space.

## 2. Mechanical and Building Equipment Connections

- a. Provide disconnection and reconnection of all mechanical equipment. Actual connection information will be determined by this Contractor through coordination with the Mechanical Contractor.
  - i. Provide new local disconnecting means as necessary.
    - 1. Each heating system circulation pump shall have individual disconnecting means.
    - 2. Label all disconnecting devices.
  - ii. Coordinate 120V power connection to mechanical equipment controls with Mechanical Contractor for all mechanical equipment being provided.
- b. Coordinate testing of power connections to all mechanical equipment with Mechanical Contractor to confirm proper operation.

Town of Norwich, Tracy Hall - Scope of Electrical Work

1. Existing Electrical Distribution
  - a. Main Electrical Service
    - i. Panel "MDP"
      1. 400 Amp MCB, 120/208 Volt, 3 Phase, 4 Wire
  - b. Electrical Distribution
    - i. Lower Level Treas. Office - Panel "P1":
      1. 200 Amp MLO, 120/208 Volt, 3 Phase, 4 Wire – 30 Space
    - ii. Kitchen - Panel "P2":
      1. 200 Amp MLO, 120/208 Volt, 3 Phase, 4 Wire – 42 Space
    - iii. Entry Level Office - Panel "P3":
      1. 200 Amp MLO, 120/208 Volt, 3 Phase, 4 Wire – 24 Space
    - iv. (Unlabeled) - Panel "P4":
      1. Assumed to be Panel located in gymnasium on stage.
        - a. 200 Amp MLO, 120/208 Volt, 3 Phase, 4 Wire – 42 Space
    - v. Top Floor Office - Panel "P5":
      1. 150 Amp MLO, 120/208 Volt, 3 Phase, 4 Wire – 24 Space
    - vi. Mechanical Rm - Panel "P6":
      1. 200 Amp MLO, 120/208 Volt, 3 Phase, 4 Wire – 42 Space
  - c. Generator
    - i. 100KW 120/208 Volt, 3 Phase, 4 Wire
1. Electrical Distribution Modifications
  - a. Disconnect and remove existing electrical service and replace as follows.
  - b. Provide upgraded 800 Amp 120/208 Volt, 3 Phase, 4 Wire Service:
    - i. Provide new 800 Amp CT meter per GMP specifications
    - ii. Provide new 800 Amp MCB, 120/208 Volt, 3 Phase, 4 Wire Distribution panel "MDP"
      1. Disconnect and refeed existing panel MDP from the new MDP
        - a. Rename existing panel MDP as "DP1"
      2. Provide multi-section panel as may be necessary to accommodate the feeder to new panel "DP2" from new MDP.
    - iii. Provide new 400 Amp 120/208 Volt, 3 Phase, 4 Wire panel "DP2"
  - c. Existing Generator and associated distribution shall be disconnected for future replacement.

2. Mechanical and Building Equipment

- a. Refer to Mechanical Equipment Schedule on Sheet EC1.
  - i. Provide power connection from new panel DP2 for all new mechanical equipment as indicated.

Note Page 6 was not used

Norwich Highway Department Town Garage - Scope of Electrical Work

1. Existing Electrical Distribution
  - a. Main Electrical Service
    - i. (Unlabeled) Panel
      1. 200 Amp MCB, 120/208 Volt, 3 Phase, 4 Wire – 40 Space
  - b. Electrical Distribution
    - i. Addition Sub Panel - Panel "NP":
      1. 100 Amp MLO, 120/208 Volt, 1 Phase, 3 Wire – 24 Space
  - c. Generator
    - i. 100KW 120/208 Volt, 3 Phase, 4 Wire
2. Electrical Distribution Modifications
  - a. Disconnect and remove existing electrical service and replace as follows.
  - b. Provide upgraded 600 Amp 120/208 Volt, 3 Phase, 4 Wire Service:
    - i. Provide new 600 Amp CT meter per GMP specifications
    - ii. Provide new 600 Amp MCB, 120/208 Volt, 3 Phase, 4 Wire Distribution panel "MDP"
      1. Disconnect and refeed existing main panel from the new MDP.
        - a. Rename existing main electrical panel as "DP1"
      2. Provide multi-section panel as may be necessary to accommodate the feeder to new panel "DP2" from new MDP.p
    - iii. Provide new 400 Amp 120/208 Volt, 3 Phase, 4 Wire panel "DP2"
  - c. Existing Generator and associated distribution shall be disconnected for future replacement.
3. Mechanical and Building Equipment
  - a. Refer to Mechanical Equipment Schedule on Sheet EC1.
    - i. Provide power connection from new panel DP2 for all new mechanical equipment as indicated.

**Town of Norwich Fire & Police Station - Scope of Electrical Work**

1. Existing Electrical Distribution
  - a. Main Electrical Service
    - i. Panel "PP1"
      1. 300 Amp MCB, 120/240 Volt, 1 Phase, 3 Wire – 42 Space
  - b. Electrical Distribution
    - i. Panel "EPP"
      1. 125 Amp MLO, 120/240 Volt, 1 Phase, 3 Wire – 54 Space
  - c. Generator
    - i. Existing to Remain
2. Electrical Distribution Modifications
  - a. Disconnect and remove existing electrical service and replace as follows.
  - b. Provide upgraded 600 Amp 120/208 Volt, 3 Phase, 4 Wire Service:
    - i. Provide new 600 Amp CT meter per GMP specifications
    - ii. Provide new 600 Amp MCB, 120/208 Volt, 3 Phase, 4 Wire Distribution panel "MDP"
      1. Disconnect and refeed existing panel PP1 from the new MDP.
      2. Provide multi-section panel as may be necessary to accommodate the feeder to new panel "PP2" from new MDP.
    - iii. Provide new 400 Amp 120/208 Volt, 3 Phase, 4 Wire panel "PP2"
  - c. Generator and associated distribution to remain.
3. Mechanical and Building Equipment
  - a. Refer to Mechanical Equipment Schedule on Sheet EC1.
    - i. Provide power connection from new panel PP2 for all new mechanical equipment as indicated.

# Tracy Hall findings and recommendations



Prepared for  
Town of Norwich



Marcus Jones  
Living buildings  
June 7th, 2023

# Executive summary

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Tracy Hall is Norwich's longtime town hall and community space. It has operated for nearly 90 years and is durable enough to continue serving the community for generations to come. Stone and brick structures can last 500 years, so in broad terms, the building is just getting started with its life.. However, from occupant health and energy use standpoints—both important considerations for decisions relating to resilience in increasingly severe weather events and changes to the climate—the building is underperforming.

This underperformance will not significantly improve unless the Town adopts a holistic approach to addressing Tracy Hall's significant deficiencies in indoor air quality, thermal shell (outer walls and attic) energy performance, and reliance on fossil fuel sources for heat and operations. These deficiencies already limit and will continue to constrain Tracy Hall's future as a well-functioning community space.

This report addresses the pivotal deficiency in this trifecta of challenges—the building's reliance on fossil fuels—and looks at alternative strategies for improving building performance. Because the current heating system is at risk of failure in the short term, *Living buildings* recommends the following sequence of decisions:

1. Install an adequate controls system to capture real-world data that can inform the design of an optimal building-wide system (~\$15,000 quoted in 2022)
2. Upgrade to LED lighting, air seal and insulate attic (~\$60,000 quoted in Jan 2020)
3. Purchase an efficient oil boiler to replace the equipment that is nearing its end of life—as (1) a primary source of heat while the Town scopes a more emissions-friendly building energy system, and (2) a source of backup heat, once the new system is in place (~\$30,000-\$40,000 quoted in 2022)
4. Design and scope a new system that cost-effectively meets the Town's energy and greenhouse gas (GHG) emissions goals

This report also specifically examines two paths for reducing the reliance on fossil fuels:

- **Path 1** does not address thermal storage or the root causes of indoor air quality (IAQ).
- **Path 2** addresses both thermal storage and IAQ root causes.

**Path 1** considers the January 2020 proposal for a geothermal system proposed by the New Hampshire firm, [Energy Efficient Investments, Inc.](#) Geothermal systems are very effective at removing heat from the ground and pumping it into a building. It is a viable solution for reducing reliance on fossil fuels. The proposed new ventilation system can provide an adequate rate of exchange of fresh air and thus improve IAQ for the building's occupants. However, the January 2020 proposal does little to reduce the building's heat loss, nor does it address the underlying causes of the building's current poor IAQ. Although the January 2020 proposal achieves the goal of eliminating site fossil fuel use and provides adequate ventilation, the resulting system will

be more complex to operate than the current system, and will create high operational costs and lower building resilience. It will also not provide a permanent solution, because of the relatively short lifespan of mechanical components of the geothermal and ventilation equipment.

**Path 2**, centered on a *living building* concept, takes a holistic approach to dramatically reducing heat loss, increasing passive solar heat gain, and lowering overall system sizing of heating and ventilation systems. This strategy concurrently addresses root causes of and solutions to IAQ, energy performance, and reliance on fossil fuels.

**Path 2** also adds insulation and [passive thermal mass](#) to the interior face of the brick wall structure (thermal shell). The detail of sandwiching insulation between two thermal masses—the brick outer wall and interior wall panels constructed of rammed earth—provides many benefits. This rammed-earth (also known as *modern earth*) construction technique results in arguably the highest-performing wall construction available today.

One particularly valuable measure, adding a well-ventilated atrium on the south and west sides of Tracy Hall, would offer a passive, natural heat generator and ventilation system to further lower heating costs, enhance indoor air quality, and create a welcoming communal space for staff and other occupants. The health literature contains significant [scientific evidence](#) that an abundance of natural light can enhance overall occupant health, well-being, and productivity.

Although both paths can achieve the Town’s desired goal of reducing its reliance on fossil fuels, the lifespan of each solution and their operational costs are very different.

- **Path 1**, the geothermal system without any other improvements to the building, relies heavily on mechanical equipment that has a useful life of 20 to 40 years. Another drawback is that a geothermal system offers no building insulation benefits and no thermal storage—so the system will not be capable of flexibly [managing electric load](#) when electricity use and demand fluctuate. This means that Tracy Hall is likely to experience intermittent power reductions or outages under a standalone geothermal system. The power fluctuations and outages could be the result either of severe local weather disruptions or Vermont grid failures, due to the other influences on its ability to supply electricity when needed.<sup>1</sup> Grid reliability has implications for high-cost electricity as electric rates adapt to the changing needs of the grid.
- **Path 2**, the *living building* approach, reduces system complexity while lowering overall operations costs for hundreds of years. The modern earth panel strategy, the passive solar atrium, and removal of the root causes of the current poor IAQ enable smaller mechanical systems to be installed, lessening the replacement costs for future generations.

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<sup>1</sup> If Vermont is to meet its aggressive [clean-energy goals](#), it must continue to promote the use of renewable energy. However, managing that energy flow to the grid means the state must find ways to store the generated renewable energy and manage bi-directional renewable energy flows to the regional grid, without grid system failures. [Flexible load management](#) helps municipal, commercial, and industrial buildings reduce peak demand on the grid. Reducing peak demand helps prevent high-cost electricity purchases and keep electricity rates in check.



## Living buildings' philosophy and approach

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A building comprises many systems that, when in balance, operate synergistically to meet the needs of the occupants. When there is a deficiency in any one system's function, other systems must compensate for that deficiency—or risk failing to meet the occupants' needs. Like living beings, all buildings experience birth, growth, and death. We construct buildings (birth), renovate them (growth) and demolish or deconstruct them (death). At each phase, questions inevitably arise that will affect how long the building lives—or what happens with its remains.

The *Living buildings* company provides holistic consulting services for the built environment. We guide our partners along the journey of decarbonization, providing low-energy-using, long-lived solutions that reduce system complexity and environmental impact.

We look holistically at buildings, their systems, and the energy systems they rely on. With the belief that ideal solutions are simple, intuitive to use, and serve generations to come, we have worked with customers to conceptualize achievable paths for reducing system complexity and using local renewable energy.

The Town of Norwich asked *Living buildings* to weigh options for reducing its reliance on fossil fuels in Tracy Hall and the town garage. This report presents options for upgrading both Norwich buildings, factoring in a significantly lower reliance on fossil fuels, the complexity of installation and maintenance, long-term operations costs, generational impact, and the various options' ability to meet the needs of the building occupants.

## The state of Tracy Hall

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Tracy Hall has longstanding status as the home to Norwich Town government and the town's principal community meeting space. The building has been in service for nearly 90 years. We know that stone and brick structures can last 500 years, so we can say that it is just getting started with its life.

During a walkthrough of the building on July 26, 2022, *Living buildings* examined the thermal shell, its electrical system, and its HVAC and control systems. We also spoke with building occupants. The building has office space for approximately 10 staff; its other primary space is the main hall, which is used for contra dancing and other community events.

The deficiencies of high concern are the water damage and mold found in several places (**Figure 1** and **Figure 2**). In the summer months, the 1993 carpet contributes to poor IAQ, because temperature and humidity levels are well suited for mold growth. In the winter, the building leaks air, which also contributes to poor IAQ.

### The call to think differently

**Nature is a totally efficient, self-regenerating system. If we discover the laws that govern this system and live synergistically within them, sustainability will follow and humankind will be a success.**

—R. Buckminster Fuller

That is, as the building's heat escapes through the leaky attic, the system pulls an equal amount of cold air in at the lowest points of the building (creating a phenomenon known as the *chimney effect*). If the outdoor air were always clean, this would not present the IAQ problem. However, the north-side windows overlook the parking lot, generator, and fuel tank. Fumes from idling cars, the running generator, and fuel delivery trucks are pulled through the leaky windows and into the main workspace for the Town Clerk's office via the chimney effect.



Figure 1. Planning and zoning condensate damage from air conditioning systems.

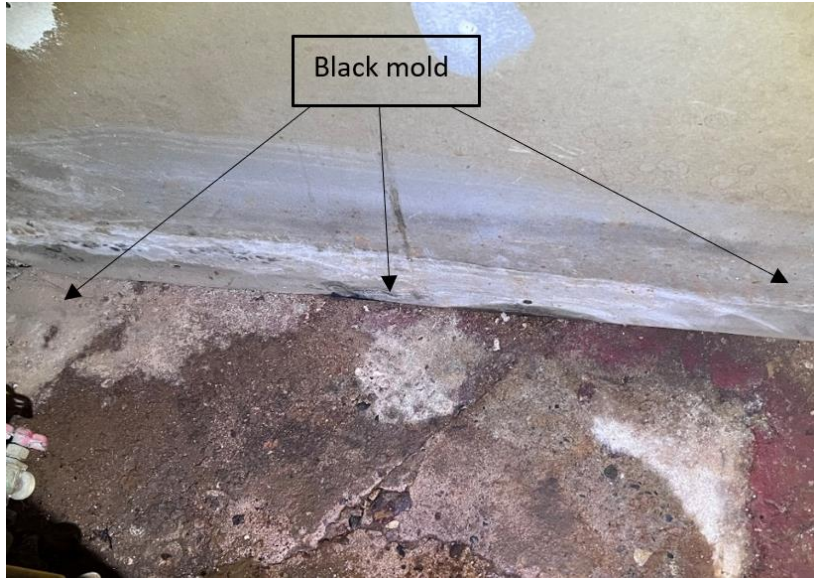


Figure 2. Mold from leaking pressure relief valve on the boiler.

**Figure 3** and **Figure 4** show the effects of ongoing water damage to the building.



Figure 3. Water damage from roof runoff.



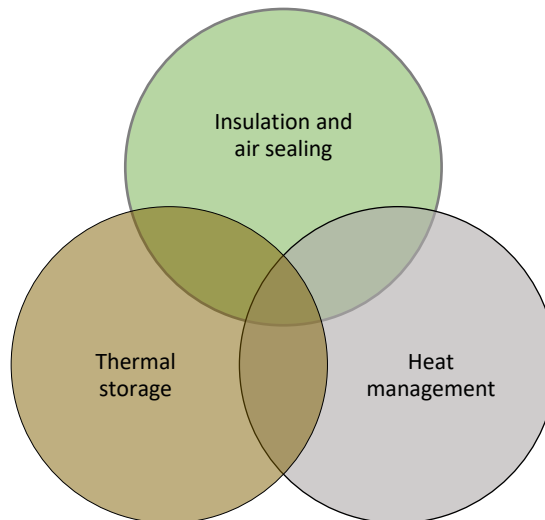
Figure 4. Interior water damage.

# Building System Basics

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## How a balanced system operates

Successful construction and renovation projects apply a balanced approach of insulation and air sealing, thermal storage, and heat management systems.



### Insulation and air sealing

Investments made in thermal shell improvements reduce the amount of heat loss and last for many generations when installed and maintained correctly. The primary benefits are:

- Increased occupant comfort
- Reduced size of the electrified heating system
- Reduced costs of installation, maintenance, and operations

### Thermal energy storage

After reducing overall energy use in a building, another valuable strategy for ensuring building resilience is thermal energy storage (TES). Overall system efficacy depends on the amount of heat storage available. It allows a building to decouple from standard energy supply when energy is used for heat production and when the stored heat is used within the building. The duration of storage depends on the mass and heat loss rate of the thermal shell. In low-energy-load buildings with well-balanced thermal storage, heat generation system sizing can be based on the average heat loss of the building, rather than on just the momentary, prevailing conditions that guided the designer's assumptions for the system .

As strange as it might sound, one form of energy storage is air. A space can be overheated or undercooled and within a few hours, the temperature will drift back to normal settings. Heat can be stored in tanks of water (hydronic heat) and saved for hours or days. High-mass wall structures made of brick, stone,

earth, or concrete can passively store energy and moderate temperature and humidity swings for weeks or months.

## Heat management

With a good thermal shell and right-sized energy storage systems in place, the heat generation and rejection are next on the list of strategies for achieving a very low-energy-using building.

Where does the energy we use to heat our buildings come from? Nearly all of it comes from the sun. The sun's energy keeps our buildings heated through three distinct, primary methods. Each variation is appropriate as a technology with holistic system planning.

- Fossil fuels are the sun's energy from hundreds of millions of years ago, stored in carbon bonds created during the photosynthetic process.
- Photovoltaic energy is the most well-known and adopted technology used to produce electricity to power heat pumps or resistance heating systems.
- Direct heat absorption is a less common way to bring energy to heat a building, via passive solar design.

## The role of modern earth / rammed-earth construction in heat management

Tracy Hall's exterior brick mass buffers diurnal temperature swings and keeps the insulation and interior spaces from being exposed to the coldest and hottest temperatures. But despite these benefits of the brick mass, the building's IAQ and interior comfort for its occupants are less than optimal without appropriate insulation, air-sealing, and ventilation systems. The internal thermal mass from modern earth / rammed-earth panels can moderate temperature **and humidity**, producing consistently comfortable indoor conditions. The chapter, "Application of Modern Earth Construction: International Case Studies," in [Modern Earth Buildings: Materials, Engineering, Construction, and Applications](#) (2012) contains well-researched information about the benefits of this wall system.

Such high-mass wall construction makes it possible to avoid having compressor-based cooling strategies. Instead, this building design [combines longstanding techniques that consider](#) the local climate, optimize the characteristics of the thermal mass, and install appropriate controls to flush cool night air through the building to remove heat and stale air.

# Current system health of Tracy Hall

The color coding in **Table 1** and subsequent tables examining building system health enables easy visualization of the remaining life of current building systems. The coding also makes it easy to compare two paths for Tracy Hall (**Table 3** and **Table 4**), discussed toward the end of this report. The chart here shows the criterion for each color, in terms of the system’s condition, its lifespan in terms of generations remaining, and the frequency requirements for adequate maintenance.

Condition	Lifespan	Maintenance Intervals
Excellent	4+	None
Good	3	Decades
Moderate	2	2-10 years
Fair	1	Annual
Poor	0	Monthly

Table 1. Overview of Tracy Hall’s building system health, with estimates for system component longevity

System components		Existing conditions and estimated longevity with proper maintenance	
System	Building	Potential life remaining (generations)	Observations and field notes
Structural	Brick exterior	8	The concrete foundation, brick shell and slate roof are in excellent shape and are at the beginning of their useful life.
	Poured concrete foundation	3	Reinforced concrete is believed to have a lifespan of 100 to 150 years, depending on what kind of reinforcement was used.
	Roof	4	Roof structure and slate shingles all appear to be in excellent condition.
Thermal shell	Attic insulation	1	Insulation and air sealing are generally insufficient, and deficient (if not absent) in most areas of the building. The exception is the attic space, which is insulated to R30 with cellulose and fiberglass batts. This insulation is the only reason for achieving a rating of <i>fair</i> instead of <i>poor</i> . Two previous energy audits recommended extensive air sealing to reduce heat loss in the attic and windows.
	Wall insulation	0	No below-grade insulation is visible.
Heating, ventilation, and cooling	Heat generation	<1	All heat generation is supplied by 2 oil boilers that have reached their end-of-life state. In the 2021 / 2022 heating season, Tracy Hall made 8 emergency calls to an HVAC contractor, to keep the system functioning. Parts are no longer readily available and have had to be sourced through eBay. Annual emissions of this system are around 1.5 million pounds of carbon dioxide (CO <sub>2</sub> ). In the 2022 / 2023 heating season, there were only 2 emergency service calls.
	Heat distribution	1-2	The distribution system comprises 2 parts: pumps and piping. These carry heat from the boiler to the fan coils, which transfer heat to the space. With further evaluation, it is possible that the piping might still have useful life left, perhaps requiring boiler room re-piping and adding new efficient pumps. The fan coils, on the other hand, are at the end of their useful lives, and should be replaced.
	Ventilation	0	Ventilation is provided by either opening windows or relying on the building’s ability to leak air. As warm air escapes through the attic, it pulls cold air in from below. In winter, the fumes of idling vehicles, fuel oil delivery trucks, and scheduled generator tests are pulled into the main section of offices on the ground level. The carpet was installed in 1993, nearly 30 years ago. Mold and water damage are present in the boiler room and 2 <sup>nd</sup> -floor offices.



System components		Existing conditions and estimated longevity with proper maintenance	
System	Building	Potential life remaining (generations)	Observations and field notes
	Cooling	0	Cooling is currently provided by 10 split air conditioning (AC) systems dating to 1994. Collectively, they have over 50 pounds of ozone-depleting R-22 refrigerant with a high <a href="#">global warming potential</a> of 1700. According to <a href="#">Project Drawdown</a> , refrigerant management (using up-to-date technologies and remediating / repairing refrigeration leaks) is essential for reducing large amounts of greenhouse gas (GHG) emissions. Tracy Hall’s current cooling system alone contributes 80,000 pounds of CO <sub>2</sub> -equivalent gases, when released to the atmosphere.
Energy	Electrical	2	The electric system is a 400-amp 3-phase system that is meeting the needs of the building.
	Energy storage	1	Storage is in the form of a 3+ year-old underground fuel oil tank with enough life to serve for another generation.
Sensory network	Control	0	The HVAC is controlled by a first-generation Barber Coleman electronic system that is past its useful life. There are few technicians capable of providing service and maintenance for these controls. A new system would be remotely accessible, which the current, standalone system is not.

## Discussion

Although the Town of Norwich has specified both Tracy Hall and the town garage for evaluation, this report is concentrated on Tracy Hall, which has several immediate needs. Considerations for the town garage will be provided in a separate report, although the concepts covered here are in alignment with recommendations —from addressing IAQ to specifying improvements in building resilience.

Tracy Hall’s existing oil-fired boiler system must remain operational long enough to decide on and install a new solution. And decision makers must consider the following market disruption: Large renovation projects are being booked for 2024 and into 2025 due to supply chain and workforce constraints. And public spending on large infrastructure projects means those wait times in the construction industry are going to grow. Any electrified heating system option will therefore most likely take 2 or more years to implement.

In the meantime, emergency calls on the oil boilers are costing the Town significant amounts of money, and it is problematic to assume parts needing replacement will be available anywhere—let alone, on eBay. Thus, the Town is taking on significant risk, should the current system fail. Parts and service will likely be delayed, necessitating costlier emergency measures to keep the building from freezing. In single-digit temperatures, Tracy Hall might have only tens of hours before pipes freeze. With a majority of the Town’s files stored in the lower level, a burst pipe could cause significant damage.

## Controls system

A controls system is analogous to a human body’s nervous system. No matter what the Town of Norwich decides about Tracy Hall’s heating system, a controls system is a necessary component of the

building's operations. It consists of sensory networks that collect temperature, humidity, and air quality readings and sends them to a control center (brain) that makes decisions and sends controlling signals back through the network to control heating, cooling, and ventilation for the building. Controls handle a wide variety of factors, and are necessary for aligning building energy use with times when power is cleaner and at its lowest cost.

A good controls system in place at Tracy Hall can inform the design of an electrified heating system, because the collected data can in turn inform the proper sizing of a new system. Other benefits of installing an appropriate controls system before installing a building heating / cooling / operating system are:

- Controls can be installed quickly, relative to the time it takes to install mechanical systems
- It enables efficient operation and reduced oil use because it responds to actual conditions
- Town staff can monitor IAQ
- It provides time to design a new, decarbonized solution based on the least number of dependencies and lowest system complexity—with the greatest generational impact

The only shortcoming to a controls system is its lifespan. As with any computer system, regular upgrades are necessary within, say, a 25-year window. However, steps can be taken to ensure that replacement is easier to accomplish at reduced cost. It is important to implement protocols that are open-source and interoperable with the grid. The Town should carefully consider (and avoid) any proprietary system that creates vendor lock-in.

## Options for immediately addressing Tracy Hall's heating system

The Town has two essential options that respond to its interest in decarbonization; these options offer different perspectives for decision makers. Each option starts with air sealing and insulating to lower energy consumption and increase building resilience. Each option also assumes the installation of a system to control the current hot water equipment. That installation must be flexible enough to accommodate the electrification of the heating system.

### First steps

1. Air seal and insulate the attic with R60 blown-in cellulose, and repair the basement windows (\$40,000-\$55,000)
2. Install a control system with IAQ sensors on the current hot water equipment, at a size that can accommodate a future electrified heating system (\$10,000-\$15,000)

### Next-step options

- **Option 1:** Maintain the existing boiler system (estimated at \$2,000 or more), and have a backup plan in case a system failure happens (this can cost tens of thousands of dollars)
- **Option 2:** Install one new oil boiler (\$30,000-\$40,000). This will stave off a catastrophic loss for the building, and because of the sealing and controls, will count as a first step toward building decarbonization—despite the boiler's use of fuel oil.

From a productivity standpoint, a new boiler will reduce stress on those responsible for ensuring Town government operations are uninterrupted. The underground oil tank is only 4 years old and has many years of useful life left. If properly maintained, a new, well-controlled boiler, air-sealing in the building, and a maintained oil tank can be a cost-effective primary solution in the short term, while other solutions are under way—and later, as a backup system after a less carbon-intensive system is installed.

Because the Town is interested in building decarbonization with a non-fossil-fuel system (that is, an electrified heating system), having the option to draw on more than one heating source adds to building resilience and can reduce complexities in electric system design.

A fully electrified building—that is, a building dependent on electricity alone for all of its operating needs—would have to be sized to meet the building’s worst-case scenario. This would mean the worst case in the coldest of conditions and across the longest term. Thus, the system would have to be oversized to meet the heating needs for perhaps only a few hours of the year. The rest of the year, the system would operate less efficiently than if it were sized for non-extreme conditions. A larger system has more complexity because it requires more refrigerant, and costs more to install and operate than a right-sized system able to switch to oil for heat during extreme cold. The flexibility of switching fuel sources from electricity to oil for a few hours can significantly lower annual electricity costs, especially if the Town participates in a [load reduction program](#) with its utility, Green Mountain Power.

*Living buildings* has modeled 2 scenarios (**Table 2**) showing that because below-zero temperatures create conditions that constrain the grid, they also result in overall savings in relative source energy use, and thus emissions, when oil is used for heating, instead of electricity.

## System efficiency and grid considerations

This winter, over 40 percent of New England's electric power generation came from oil use during cold snaps. Therefore, what is the most efficient use of oil for providing heat in below-zero weather?

When building heat loss increases in the deep cold, electrified heating systems are unable, in standard operating mode, to keep pace with heating needs. To meet those needs, they cause increased demand on the grid—when the grid is constrained by higher demand systemwide. In below-zero conditions, electrified heating systems range in efficiency (in terms of energy consumed to provide heat) from 100 to 200 percent; by contrast, oil systems similar to Tracy Hall’s operate between 80 and 85 percent, regardless of temperature.



Table 2. Results of scenario modeling for oil system use in below-zero conditions

Factors in oil system use	Scenarios (estimates)	
	Conservative	Likely reality
Oil generator efficiency	40%	36%
Transmission and distribution losses	20%	35%
Below-zero electric heat efficiency	200%	150%
Effective electric heat system efficiency	64%	35%
Oil system efficiency	80%	85%
<b>Savings from using oil boiler when outdoor temperature is below 0°F</b>	<b>16%</b>	<b>50%</b>

These periods of grid constraint are likely to result in rolling blackouts if electric load exceeds available generation capacity. Buildings solely reliant on a single heat source, and without thermal storage, are inherently less resilient and are compromised in their ability to serve future generations.

## Two longer-term paths for Tracy Hall’s replacement system

### Path 1: Standalone geothermal energy system

This path considers the January 2020 proposal for a geothermal system proposed by [Energy Efficient Investments](#), Inc. (EEI). Geothermal systems are very efficient at removing heat from the ground and pumping it into a building. It is a sound solution for reducing reliance on fossil fuels. A new ventilation system for distributing the air will provide fresh air exchange, improving IAQ.

However, a geothermal system does little to reduce the heat loss of the building (thermal storage deficiency); nor does it address the underlying causes of poor IAQ.

Using the same color-coding system in **Table 1**, **Table 3** shows the benefits and deficiencies in how a standalone geothermal system is expected to perform.

Table 3. Likely performance of a standalone geothermal system in meeting the Town’s needs for improving Tracy Hall

System	Building	Lifespan remaining (generations)	Maintenance intervals	Observations and field notes
Structural	Brick exterior	8	Decades	The concrete foundation, brick shell, and slate roof are in excellent condition and are at the beginning of their useful life. Brick buildings require repointing every 20 to 30 years on exterior surfaces.

System	Building	Lifespan remaining (generations)	Maintenance intervals	Observations and field notes
	Concrete foundation	3	Decades	Reinforced concrete is believed to have a lifespan of 100 to 150 years, depending on type of reinforcement.
	Roof	4	Decades	Roof structure and slate are well constructed and should last another 100 years with regular maintenance.
Thermal shell	Attic insulation	5	None	Attic: Needs to be air-sealed, including around pipe penetrations and wall plates to reduce air infiltration and exfiltration. After air-sealing, blown-in cellulose insulation is necessary to achieve R-60. The floor of the storage space should be densely packed with cellulose insulation. Existing weather stripping and door sweeps to exterior doors should also be replaced.
	Wall insulation	0		No below-grade insulation is visible.
Heating, ventilation, and cooling	Heat generation	2	Annual	All heat generation is supplied via 9 water-to-air and 6 water-to-water heat pumps and an electric resistance boiler. Recommend keeping oil-fired backup system instead of electric resistance boiler.
	Heat distribution	3	2-10 years	All heat would be extracted from the geothermal wells via pumps that serve the 9 water-to-air and 6 water-to-water heat pumps.
	Ventilation	2	Annual	Install 4 new, code-compliant outside energy recovery air ventilation systems.
	Cooling	2	Annual	Cooling is provided by the 9 water-to-air heat pumps
Energy	Electrical	3	Decades	Install new 3-phase, 800-amp main distribution panel and new 400-amp panel. With a geothermal system, the existing generator would be removed, and Tracy Hall would no longer have backup power. The loss of functionality and resilience due to not having a generator gives this measure to yellow.
	Storage / Geothermal wells	4	2-10 years	Geothermal wells, once installed, have little to no maintenance other than yearly testing and replacing glycol every 5+ years. With a large system such as this, that cost could range from \$5,000-\$10,000 or more each time. This high-cost maintenance item is the reason for a yellow rating.
Sensory network	Controls	1	Annual	All-new Distech or approved equal control system for remote access to the building's HVAC system.

The estimate for the geothermal proposal from EEI was \$1,805,000. It was made prior to the COVID lockdown in 2020 and its subsequent effects. Because of increasing equipment costs, supply chain disruptions, and workforce availability, the price tag for this option is more likely to range from \$2.5 to \$3 million today.

## Path 2: Applying a “living building” concept to Tracy Hall

Although *Living buildings* has compared a building to a living being, another analogy is to a tree. Each spends its entire life in one place. The tree’s life is sustained from the sun, rain, soil, and air around it, and

buildings today are highly dependent on external energy sources to serve the needs of the occupants. Using holistic design principles based on balancing air sealing and insulation, thermal storage, and heat management makes it possible for buildings to live on the resources that fall around them. Ancient construction techniques and today's technology can result in buildings that absorb and store heat from the sun and slowly release it to maintain healthful and comfortable indoor environments that meet occupants' needs.

### **The *Living buildings* approach to Tracy Hall**

We recommend a full basement renovation, along with a partial renovation to the remaining building to address the indoor air quality affecting the current occupants. Although it is disruptive in the short term, making this first step in a cost-effective, holistic approach will result in a building with lower overall complexity and cost to operate and maintain, while ensuring benefits for many generations to come.

*Living buildings* also makes the following recommendations to ensure a high-value, permanent solution that reduces the reliance on fossil fuels, while also addressing IAQ and thermal shell performance—neither of which can be addressed by a standalone geothermal system. The recommendations comprise a cost-effective holistic solution that prioritizes long-term financial value to the Town; responds to human needs; reduces GHG emissions (in service to Town and State energy / decarbonization goals); and ensures optimal building resilience against profound, episodic climate change events. See **Figure 5**.

#### **Insulation and air-sealing**

- Air-seal the attic and add cellulose insulation to R-60
- Install air / vapor barrier and 4" foam board insulation on the interior surface of the concrete foundation and brick exterior walls
- Remove carpet in basement, and install a vapor barrier and new flooring that is not susceptible to mold growth

#### **Thermal storage**

- Install 4"-8" thick rammed-earth (modern earth) wall panels over new insulation, carrying the load from the basement up all 3 floors

#### **Heat management**

- Design and install smaller geothermal system
- Implement flexible load management strategies via the new controls system to optimize system for weather and grid conditions
- ***A special enhancement:*** Assuming historic preservation and Town permitting regulations can approve an appropriate design, add a thermal energy-collecting atrium on the south and west sides of the building; when heat is plentiful, it can be circulated and distributed throughout the building

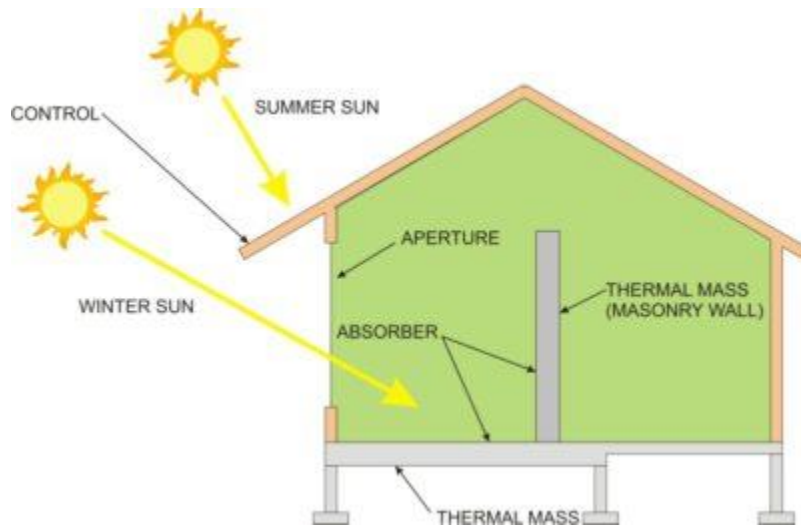


Figure 5. The role of the sun, controls, and interior thermal masses to optimize passive solar energy use. Source: [Off the Grid News](#).

Table 4. *Living buildings'* proposed solution and estimated performance

System	Building	Lifespan remaining (generations)	Maintenance intervals	Observations and field notes
Structural	Brick exterior	8	Decades	The concrete foundation, brick shell and slate roof are in excellent shape and are at the beginning of their useful life. Brick buildings require repointing every 20 to 30 years on the exterior surfaces.
	Poured concrete foundation	3	Decades	Reinforced concrete is believed to have a lifespan of 100 to 150 years, depending on reinforcement type.
	Roof	4	Decades	Roof structure and slate are well constructed and should last another 100 years, if not longer, with regular maintenance.
Thermal shell	Attic insulation	5	None	Attic: Air-seal attic space to include pipe penetrations and wall plates and thus reduce the air infiltration and exfiltration. After air-sealing, install blown-in cellulose insulation to achieve R60 and densely packed cellulose insulation for the attic floor. Doors: Replace existing weather stripping and exterior door sweeps.
	Wall insulation	5	None	New insulation will be sandwiched between the existing brick and concrete and new rammed-earth walls in the basement and panels on the first and second floors.
Heating, ventilation, and cooling	Heat generation	2	2-10 years	Add solar-collecting atrium on south and west sides of building to absorb available heat from sun.
	Heat distribution	3	2-10 years	Install right-sized geothermal system able to meet new heating demands.
	Ventilation	2	Annual	Increase natural ventilation strategies where feasible with operable windows paired with a dedicated outdoor air mechanical ventilation system.

System	Building	Lifespan remaining (generations)	Maintenance intervals	Observations and field notes
	Cooling	2	Annual	Primary cooling provided by available nighttime cooling and via geothermal heat pump system during periods of high cooling loads.
Energy	Electrical	4	Decades	Replace the many split AC systems with a right-sized geothermal heating system; the 3-phase, 400-amp system should be sufficient to continue to meet the needs of the building.
	Storage / geothermal wells	4	2-10 years	Geothermal wells, once installed, have little to no maintenance other than yearly testing and replacing glycol every 5+ years. With a large system such as this, replacing glycol could \$5,000-\$10,000 or more each time. This high-cost maintenance item is the reason for a yellow rating.
Sensory network	Controls	1	Annual	All-new Distech or approved equal control system for remote access to the building's HVAC system.

## A final note about electrical service

The needs for electrical service upgrades can be seen in **Table 1**, **Table 3**, and **Table 4**. In **Table 5**, we present a summary of the considerations for two systems: (1) for a building entirely operating on electricity alone (as in a standalone geothermal energy system); and (2) for a building operating primarily on electricity (from a geothermal system), with an oil backup system.

Table 5. Comparison of electricity panel upgrades needed for each type of energy system, with and without thermal energy storage (TES) from modern earth panels

	100% electric building (January 2020 proposal)		Electricity and oil (living building concept)	
	Without TES	With TES	Without TES	With TES
Electric service	New 800-amp electric service	Might need a 600-amp upgrade	Existing 400 amp	Existing 400 amp
Generator	Need upsized generator	May need upgrade	Can keep existing	Can keep existing
Heating equipment	Need electric resistance boiler and heat pump	Heat pump with backup electric resistance	Heat pump with oil load shifting	Heat pump with oil as backup

## Conclusion

Tracy Hall has provided benefits to the community for nearly 4 generations, and has the structural ability to serve 7 generations more. Applying a “living building” concept is bold and requires a paradigm shift in thinking about how buildings interact with their surrounding environments—to the benefit of human experience in those buildings and the buildings’ resilience in the face of severe weather events and power outages.

By applying nature-based systems thinking to the built environment, we can adapt existing buildings to harness the sun's energy, while dramatically reducing traditional, complex ways of building, operating, and maintaining a structure. Well-lit, beautiful buildings bring health and wellbeing benefits to their occupants.

Putting it all together, *Living buildings* offers a technical solution that combines appropriate principles for meeting Town and State energy goals with an effective use of taxpayer dollars, an environmentally sustainable solution for Tracy Hall and the town garage, and a highly effective and durable building resilience solution.

One shift comes in the form of asking the question, "How many generations do we want to benefit from this solution?" before asking "What is the cost?" It appears that the response that makes the most sense is one that weights return-on-investment calculations on generational impact—with a follow-up consideration for how many natural resources were extracted in the process.

The appropriate technology exists to begin on this work now. However, a skilled and knowledgeable workforce well acquainted with rammed-earth, geothermal, and other emerging technologies does not yet exist in our region. However, effective workforce development is under way to bring this knowledge and shift in thinking to Vermont. Projects such as the transformation of Tracy Hall offer the opportunity to create a campus of knowledge sharing, where appropriate technologies are installed as part of regional workforce development. From this strategy can grow local knowledge of high-performing, high-impact building techniques, and the ability to operate and maintain what has been built.

*Living buildings* applies systems thinking to the built environment. This strategy, along with the basic concept, can lead to enduring, beneficial solutions. *Living buildings'* experts are ready to guide and support the installation of a **Path 2** strategy, from concept through completion, should Town officials and residents embrace this solution.

Excerpts from March 3, 2020 and August 10, 2020 Town Meeting reports

Report of Annual Meeting, March 3, 2020  
Town of Norwich, Vermont and Norwich Town School District

**Article 8.** *Shall the voters of the Town of Norwich authorize the issuance of not more than \$2,055,000 (with possible reduction through receipt of federal, state and/or other grant funds) of general obligation bonds or notes to be amortized over a period of not more than twenty years, to be used for capital improvements to implement the first phase of the elimination of fossil fuel use in town operations as directed by the voters in Article 36 of the 2019 ballot, including, without limitation, the renovation and upgrading of HVAC, control, and lighting systems in Tracy Hall and upgrades of the lighting and controls systems in the Public Safety apparatus bay and in the Public Works Garage?*

(Result = Yes 849; No 801)

.....

Report of the Special Town Meeting, August 10, 2020  
Town of Norwich, Vermont

**Article 2.** *Shall the voters of the Town of Norwich authorize the issuance of not more than \$2,055,000 (with possible reduction through receipt of federal, state and/or other grant funds) of general obligation bonds or notes to be amortized over a period of not more than twenty years, to be used for capital improvements to implement the first phase of the elimination of fossil fuel use in town operations as directed by the voters in Article 36 of the 2019 ballot, including, without limitation, the renovation and upgrading of HVAC, control, and lighting systems in Tracy Hall and upgrades of the lighting and controls systems in the Public Safety apparatus bay and in the Public Works Garage.*

(Result = Yes 608; No 1,041)

07 July 2023

Town of Norwich Selectboard  
300 Main Street  
Norwich, Vermont

Re: Tracy Hall Architectural Services

Dear Selectboard Members,

Our office has been contacted in reference to potential project(s) at Tracy Hall that may benefit from the professional services of an Architect. We would be very interested in engaging with the Selectboard to provide these services, but it is our understanding that a public process is required before an Architect may be engaged. Below is our recommendation for the creation of a Request for Proposals (RFP) that may help facilitate this process.

An RFP for potential projects at Tracy Hall should consist of two primary sections:

1. Establish goals for the project.
2. Create design options to meet those goals.

1. In order to establish goals for the project, the Architect would:

- Conduct a thorough physical assessment of the building including taking measurements to create base building plans.
- Engage with any necessary consultants to assess specific building components (this may include a Mechanical, Electrical and/or Structural Engineer).
- Meet with user groups, such as Town Staff, Selectboard Members and members of the public to better understand issues with the building.

The deliverable for this phase would be a written report supplemented by existing plan drawings as well as diagrams of desired spaces and uses.

2. In order to create design options for the project, the Architect would:

- Create schematic drawings that illustrate the goals of the project established in Phase 1.
- Develop a variety of options for the Selectboard and or the Town to choose from (good, better, best).

The deliverable in this phase would be plan drawings, with notes and narrative descriptions of the proposed work that would allow the Town to engage with a Professional Estimator or Contractor in order to create an Estimate of Probable Cost for the proposed options. After an option has been selected, another RFP would be posted for full design and construction phases services.

Sincerely,

William F. Mudge, AIA



## Memorandum

TO: Norwich Selectboard  
FROM: Marcia Calloway  
DATE: December 6, 2022  
RE : Town Manager Search

Norwich resident Mary Gorman has volunteered a web search and annotated that search with her own deep background in the area of recruitment. Below are the firms she identified with some helpful questions the Selectboard might include in any RFP the board might choose to draft.

**Municipal resources Inc.** (<https://www.mrigov.com/>)

Located in Plymouth, NH, this firm has a NE focus and works for many smaller towns as both an adviser and a recruiter. They do a range of searches for police chiefs to town HR to town managers.

Questions should include: What is their practice vis-à-vis identification of talent, placement of advertisements? What is the firm's background and experience with recruitment and assessment in addition to running a hiring process?

**Raftelis** (<https://www.raftelis.com/>)

This is the firm Hanover used for its recent search; a national rather than a regional firm.

Questions should include: What is the fee structure for smaller municipalities?

**Baker Tilly** <https://www.bakertilly.com/specialties/public-sector-executive-recruitment>

A large public sector recruitment firm with a strong reputation in recruitment and assessment. Questions should include: What is the fee structure for smaller municipalities?

**Colin Baenziger & Associates** (<http://www.cb-asso.com/>)

Small, national firm experienced with town manager searches in several northern New England municipalities including Concord, NH, Portland, ME and Norwich, CT.

**Questions as you explore search firms:**

- 1) Retained or contingency firm - I would recommend you work with a retained firm (you pay regardless of placement) versus contingency firm (you pay only if they place someone). A retained firm will be fully committed to the search whereas a contingency firm may lose interest if the search is too hard or more/easier/better work comes across the transom. All of the best firms are retained.
- 2) Approach to creating the position spec - you'll want to understand how they engaged the public and the town employees in developing the position spec. The spec should focus on competencies, rather than a laundry list of tasks that the person must accomplish. It's good to outline responsibilities or perhaps critical work in the first 18 months, but the spec should focus on the skills, experiences, competencies and attributes that will enable the person to be successful.
- 3) Process and likely timeline
- 4) Candidate development process - what tools and approaches do they use to identify and screen talent? What early references are conducted on emerging candidates?
- 5) Referencing - there are NO shortcuts to referencing. You'll want to know who conducts the references, at what point in the search, and how will the references be delivered to you.
- 6) Guarantees - Most firms will guarantee a placement for a year (with exceptions for situations/behaviors that could not be foreseen).
- 7) Fees for a retained search tend to be 1/3 of the annual compensation with often a minimum fee. There will also be direct costs (e.g. travel of the candidates for interviews) and possible an administrative fee.

Memo to the Town Manager

From: Interim Finance Director, J Hasbrouck

July 7, 2023

RE: FY24 Property Tax Rate Calculation

Using the Form 411 lodged on 7-7-23 the calculated property tax rates have been presented below.

<b>Summary</b>				
	<b>FY 24</b>	<b>FY23</b>	<b>% Change</b>	
School Homestead Tax Rate	\$ 1.9960	\$ 1.9178	4.08%	
School Non Residential Tax Rate	\$ 1.8676	\$ 1.7372	7.51%	
Town Tax Rate (With Local Agreement Rate)	\$ 0.6025	\$ 0.5395	11.67%	
Town Articles Rate	\$ 0.0585	\$ 0.0545	7.37%	
Windsor County Rate	\$ 0.0080	\$ 0.0077	3.69%	
<b>Total Homestead Tax Rate</b>	<b>\$ 2.6649</b>	\$ 2.5195	5.77%	
<b>Total Non Residential Tax Rate</b>	<b>\$ 2.5365</b>	\$ 2.3389	8.45%	

The Grand List reported on April 1, 2023 increased by \$6,537,900 compared to the December 31 2022 Grand List (\$763,843,300 vs \$770,381,200). The Homestead education rate increased \$0.0782 and the non-residential education rate increased by \$0.1304. The net total tax increase is 14.22% or 34 cents per hundred dollars assessed value.

Motion: To set the Fiscal year 2023-24 Homestead Rate at \$2.6649 (equal to a school homestead rate of \$1.9960 plus a town rate with local agreement of \$0.6025 plus the monetary articles rate of \$0.0585 plus a Windsor County rate of \$0.0080) and the Non-Residential Rate at \$2.5365 (equal to a school non-residential rate of \$1.8676 plus a town rate with local agreement of \$ 0.6025 plus the monetary articles rate of \$0.0585 plus a Windsor County rate of \$0.00800).

Thank you for your help.

Joyce

**Tax Rate Calculation  
FY24 Budget Final Adjusted**

DRAFT

**FY 2024 Tax Rate Calculation 07-07-2023**

**Grand List**

April 1 2023 Town Grand List	\$ 770,381,200	Comcast	\$ 1,122,674
1%	\$ 7,703,812	Town Exemptions	\$ 1,011,100
Check	\$ 7,715,681		\$ (11,869)

<b>School (Rates Set by State)</b>			
<b>Homestead Tax Rate</b>		<b>\$ 1.9960</b>	
HGL Education Grand List	\$ 4,781,471		
State Education Taxes		\$ 9,543,816	
<b>Non Residential Tax Rate</b>		<b>1.8676</b>	
NRGL Education Grand List	\$ 2,934,210		
State Education Taxes		\$ 5,479,931	
<b>Total State Education Taxes</b>		<b>\$ 15,023,746</b>	

	FY24	FY 23	
<b>Total Town Budget w/o Articles</b>	<b>\$ 5,522,124</b>	<b>\$ 0.6000</b>	<b>\$ 0.5372</b>
<b>Total Monetary Articles</b>	<b>\$ 450,560</b>	<b>\$ 0.0585</b>	<b>\$ 0.0545</b>
<b>Total Town Expenditures</b>	<b>\$ 5,972,684</b>	<b>\$ 0.6584</b>	<b>\$ 0.5916</b>

**11.68%**  
**7.31%**  
**11.30%**

**Offsetting Revenues:**

Property Tax Fees and Interest	50,000
Current Use Payment	205,000
Permit and License Fees	11,750
Intergovernmental Revenues	214,500
Grant Revenues	-
Service Fees	355,750
Public Safety Revenues	10,625
Other Town Revenues w/o Interest from Banks	32,000
Interest Earned from Banks	20,000
Miscellaneous Revenues	500
<b>Total Offsetting Revenues</b>	<b>\$ 900,125</b>

\$ 0.0668 yr/yr \$ change

**Amount to raise from Property Taxes w/o Local Agreement**

\$ 5,072,559	\$ 0.6584	\$ 0.5917	11.28%
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**Town Tax Rate**

<b>Local Agreement Taxes</b>	\$ 19,191	\$ 0.0025	\$ 0.0023	
<b>Total Town Tax Rate</b>	<b>\$</b>	<b>\$ 0.6609</b>	<b>\$ 0.5940</b>	11.27%
<b>Grand Total to be raised in Property Taxes</b>	<b>\$ 5,091,750</b>			

**Summary**

	FY 24	FY23	% Change
School Homestead Tax Rate	\$ 1.9960	\$ 1.9178	4.08%
School Non Residential Tax Rate	\$ 1.8676	\$ 1.7372	7.51%
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<b>Total Non Residential Tax Rate</b>	<b>\$ 2.5365</b>	\$ 2.3389	8.45%

**Tax Rate Calculation  
FY24 Budget Final Adjusted**

<b>Local Agreement Taxes:</b>		
<b>Town Exemptions:</b>		
Beaver Meadow Chapel	\$ 133,900	
Community Grange	\$ 388,500	
Norwich Fire District	\$ 40,000	
Root District Game Club	\$ 208,700	
		Non-resid.
Subtotal	\$ 771,100	\$ 14,401
<b>Homestead:</b>		
Veterans	\$ 240,000	Homestead
Energy (Metcalf, Lake, Brownell)	\$ -	
Subtotal	\$ 240,000	\$ 4,790
<b>Total</b>	<b>\$ 1,011,100</b>	<b>\$ 19,191</b>

<b>**Exemptions by Statute</b>	
Veterans	80,000
Child Care Center	573,500
Montshire Museum of Sc	6,883,500
Norwich Historical Society	770,500
Norwich Nursury Sch	272,500
Family Place	813,900
Norwich Pulic library assn	1,618,600
American Legion	271,200
Religious Orgs (6)	4,479,000
Willing Hands Entpr	488,800
Town/fire/sch/State/Fed parcels	21,498,200
<b>TTL Exemptions by Statute</b>	<b>37,749,700</b>

\*\*Not in the 411 because they are not taxable

Land UseRev FY2023	\$ 219,465.50
Land UseRev FY2022	\$ 220,190.00
Land UseRev FY2021	\$ 189,218.00
<b># Yr Average</b>	<b>\$ 209,624.50</b>

	% of Town Budget
Emergency Reserve fund balance #50	
750,000	13.58%

Tax Due Dates	8/30/2023
	2/9/2024

<b>Windsor Co. Amount</b>	
\$ 61,443.52	FY24 see email recvd 1-11-22
\$ 61,443.52	58,829.45 FY23#

(Taxable properties only - State and Non-tax status properties are not listed below)

REAL ESTATE Category/Code	Parcel Count	Municipal Listed Value	Homestead Ed Listed Value	Nonhmstd Ed. Listed Value	Total Education Listed Value
Residential I R1	832	360,182,600	256,300,592	103,882,008	360,182,600
Residential II R2	507	352,601,900	226,589,714	126,012,186	352,601,900
Mobile Homes-U MHU	2	5,700	0	5,700	5,700
Mobile Homes-L MHL	11	1,831,900	738,100	1,093,800	1,831,900
Seasonal I S1	4	427,100	0	427,100	427,100
Seasonal II S2	11	3,204,800	0	3,204,800	3,204,800
Commercial C	44	33,356,300	0	33,356,300	33,356,300
Commercial Apts CA	7	6,839,900	0	6,839,900	6,839,900
Industrial I	0	0	0	0	0
Utilities-E UE	7	11,278,600	0	11,278,600	11,278,600
Utilities-O UO	0	0	0	0	0
Farm F	10	8,366,700	6,108,769	2,257,931	8,366,700
Other O	28	7,685,800	5,168,600	2,517,200	7,685,800
Woodland W	0	0	0	0	0
Miscellaneous M	122	22,729,500	0	22,729,500	22,729,500
<b>TOTAL LISTED REAL</b>	<b>1,585</b>	<b>808,510,800</b>	<b>494,905,775</b>	<b>313,605,025</b>	<b>808,510,800</b>
P.P. Cable	1	1,122,674		1,122,674	1,122,674
P.P. Equipment	0	0			
P.P. Inventory	0	0			
<b>TOTAL LISTED P.P.</b>	<b>1</b>	<b>1,122,674</b>		<b>1,122,674</b>	<b>1,122,674</b>
<b>TOTAL LISTED VALUE</b>		<b>809,633,474</b>	<b>494,905,775</b>	<b>314,727,699</b>	<b>809,633,474</b>
<b>EXEMPTIONS</b>					
Veterans 10K	8/8	80,000	80,000	0	80,000
Veterans >10K		240,000			
<b>Total Veterans</b>		<b>320,000</b>	<b>80,000</b>	<b>0</b>	<b>80,000</b>
P.P. Contracts	1	1,122,674			
Contract Apprv VEPC	0/0	0	0	0	0
Grandfathered	0/0	0	0	0	0
Non-Apprv (voted)	5/5	771,100			
Owner Pays Ed Tax	0/0	0			
<b>Total Contracts</b>	<b>6/5</b>	<b>1,893,774</b>	<b>0</b>	<b>0</b>	<b>0</b>
FarmStab Apprv VEPC	0/0	0	0	0	0
Farm Grandfathered	0/0	0	0	0	0
Non-Apprv (voted)	0/0	0			
Owner Pays Ed Tax	0/0	0			
<b>Total FarmStabContr</b>	<b>0/0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
Current Use	158/158	37,038,500	16,678,700	20,359,800	37,038,500
Special Exemptions	4		0	946,900	946,900
Partial Statutory	0/0	0	0	0	0
<b>Sub-total Exemptions</b>		<b>39,252,274</b>	<b>16,758,700</b>	<b>21,306,700</b>	<b>38,065,400</b>
<b>Total Exemptions</b>		<b>39,252,274</b>	<b>16,758,700</b>	<b>21,306,700</b>	<b>38,065,400</b>
<b>TOTAL MUNICIPAL GRAND LIST</b>		<b>7,703,812.00</b>			
<b>TOTAL EDUCATION GRAND LIST</b>			<b>4,781,470.75</b>	<b>2,934,209.99</b>	<b>7,715,680.74</b>
<b>NON-TAX</b>					

56 NON-TAX PARCELS ARE NOT INCLUDED ON THE 411

(Taxable properties only - State and Non-tax status properties are not listed below)

REAL ESTATE Category/Code	Parcel Count	Municipal Listed Value	Homestead Ed Listed Value	Nonhmstd Ed. Listed Value	Total Education Listed Value
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Status on Personal Property

1) Has inventory been exempted by vote of town/city? Yes\_\_\_\_ No\_XX\_

2) Has machinery and equipment been exempted by  
vote of your town/city? Yes\_\_\_\_ No\_XX\_

3) If yes for #2, what portion is now exempt?  
(include percentage) \_\_\_\_\_

4) If no for #2, please indicate below how your town/city is  
assessing business personal property (Place "X" by option used)

a) at fair market value \_\_XX\_      b) at depreciated value \_\_\_\_\_

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Summary of Adjustments to Taxable Values (Local Agreements Etc.)	
Approved (VEPC) Contracts/Exemptions	0
Grandfathered Contracts/Exemptions	0
Non-Approved (Voted) Contracts/Exemptions	771,100
Homestead Non-Approved (Voted) Contracts/Exemptions	0
Nonhmstd Non-Approved (Voted) Contracts/Exemptions	771,100
Municipal Contracts (Owner Pays Ed Tax)	0
Special Exemptions	946,900
Current Use (Use Value Appraisal Program)	37,038,500
Veteran Exemptions	80,000
Homestead Veteran Exemptions beyond 10K	240,000
Nonhmstd Veteran Exemptions beyond 10K	0
Partial Statutory Exemptions	0

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**State of Vermont**  
**Department of Taxes**  
133 State Street  
Montpelier, VT 05633-1401

Agency of Administration

## Notice of Education Tax Rates for FY24

As per 32 V.S.A § 5402(b)(1) the Education Property Tax Rates for your municipality have been calculated and set for FY24.

**Town/City:** Norwich  
**2023 Reappraisal** (blank unless reappraising):  
**Common Level of Appraisal (CLA):** 74.48%  
**Calculation Date:** 06/27/2023

**Homestead Education Tax Rate to be Assessed:** \$1.9960

*Your Homestead Education Tax Rate is calculated from your city/town voter-approved per pupil education spending adjusted by the common level of appraisal (CLA).*

**Nonhomestead Education Tax Rate to be Assessed:** \$1.8676

*Nonhomestead property, previously called “non-residential,” is any property which is not homestead property. Your city/town Nonhomestead Education Tax Rate is the statewide rate adjusted by the CLA.*

Please refer to [Education Property Tax Rates | Department of Taxes \(vermont.gov\)](https://tax.vermont.gov) for a summary table of Education Property Tax Rates for all municipalities and/or to review frequently asked questions about Education Property Taxes.

If you have questions about your Education Tax Rates, please call Property Valuation and Review (PVR) at the Vermont Department of Taxes at (802) 828-5860 or email [tax.pvr@vermont.gov](mailto:tax.pvr@vermont.gov).



Memo to the Town Manager

From: Interim Finance Director, J Hasbrouck

July 5, 2023

RE: Scholarship Expense Booking

As a result of the FY22 audit, Brie and I have been working on the process to award, track and book the scholarships for the Recreation Department. During the FY22 Audit a booking process was created and the FY22 scholarships awarded were expensed. At that time, some FY23 scholarships had already been awarded and before my time Brie was told there was money in the Scholarship Fund- #40 to make those awards. Because the process had not been created nor reconciled and the awards were not booked for FY22, we are now short in the fund for booking the FY23 scholarships awarded.

Since the Audit, Brie has also drafted a policy and process document related to scholarship awards and fund raising. I'll let her speak to that, But I will need to book the FY23 scholarships on June 30<sup>th</sup>.

The total Recreation scholarships awarded in FY23 was \$2,330.00. The total currently in the Scholarship fund is \$1,886.47 leaving a short fall of \$443.53. FY24 will need to have fundraising completed prior to any more scholarship awards.

We need a motion to Expense the FY23 scholarships awarded. There are 2 ways this can be booked:

1. We transfer the \$1,886.47 from the scholarship fund #40 (GL40-5-425248.00-Scholarships) to the Scholarship Revenue Account (GL01-4-000811.10-TRX from Scholarship Fund). The shortfall will be netted in the year end surplus.
2. We transfer the \$1,886.47 from the scholarship fund #40 (GL40-5-425248.00-Scholarships) and \$443.53 from the Unrestricted Fund (GL01-3-001300.00-General Fund Bal-Unrestricted) to the Scholarship Revenue Account (GL01-4-000811.10-TRX from Scholarship Fund). This is the clearest audit trail.

I would ask that you please add this to the agenda for the SB meeting on July 12, 2023.

Thank you for your help.

Joyce



# Sullivan, Powers & Co., P.C.

Certified Public Accountants

77 Barre Street  
P.O. Box 947  
Montpelier, VT 05601  
802/223-2352  
[www.sullivanpowers.com](http://www.sullivanpowers.com)

Richard J. Brigham, CPA  
Chad A. Hewitt, CPA  
Jordon M. Plummer, CPA  
VT Lic. #92-000180

June 29, 2023

Selectboard  
Town of Norwich, Vermont  
300 Main Street  
P.O. Box 376  
Norwich, VT 05055

This letter is to confirm our understanding of the terms and objectives of our engagement.

## AUDIT SCOPE AND OBJECTIVES

We will audit the financial statements of the governmental activities, each major fund, and the aggregate remaining fund information, and the disclosures, which collectively comprise the basic financial statements of the Town of Norwich, Vermont as of and for the year ended June 30, 2023.

Accounting standards generally accepted in the United States of America (GAAP) provide for certain required supplementary information (RSI), such as management's discussion and analysis (MD&A), to supplement the Town of Norwich, Vermont's basic financial statements. Such information, although not a part of the basic financial statements, is required by the Governmental Accounting Standards Board who considers it to be an essential part of financial reporting for placing the basic financial statements in an appropriate operational, economic, or historical context. As part of our engagement, we will apply certain limited procedures to the Town of Norwich, Vermont's RSI in accordance with auditing standards generally accepted in the United States of America (GAAS). These limited procedures will consist of inquiries of management regarding the methods of preparing the information and comparing the information for consistency with management's responses to our inquiries, the basic financial statements, and other knowledge we obtained during our audit of the basic financial statements. We will not express an opinion or provide any assurance on the information because the limited procedures do not provide us with sufficient evidence to express an opinion or provide any assurance. The following RSI is required by GAAP and will be subjected to certain limited procedures, but not be audited:

1. Management's Discussion and Analysis, if presented.
2. Statement of Revenues, Expenditures and Changes in Fund Balance – Budget and Actual – Budgetary Basis – General Fund.
3. Schedule of Proportionate Share of the Net Pension Liability – VMERS Defined Benefit Plan.
4. Schedule of Contributions – VMERS Defined Benefit Plan.



In connection with our audit of the basic financial statements, we will read the following other information and consider whether a material inconsistency exists between the other information and the basic financial statements, or the other information otherwise appears to be materially misstated. If, based on the work performed, we conclude that an uncorrected material misstatement of the other information exists, we are required to describe it in our report.

1. Combining Balance Sheet – Non-Major Governmental Funds.
2. Combining Schedule of Revenues, Expenditures and Changes in Fund Balances – Non-Major Governmental Funds.
3. Combining Balance Sheet – Non-Major Special Revenue Funds.
4. Combining Schedule of Revenues, Expenditures and Changes in Fund Balances – Non-Major Special Revenue Funds.
5. Combining Balance Sheet – Non-Major Capital Projects Funds.
6. Combining Schedule of Revenues, Expenditures and Changes in Fund Balances – Non-Major Capital Projects Funds.

The objectives of our audit are to obtain reasonable assurance as to whether the financial statements as a whole are free from material misstatement, whether due to fraud or error; issue an auditor's report that includes our opinion about whether your financial statements are fairly presented, in all material respects, in conformity with GAAP. Reasonable assurance is a high level of assurance but is not absolute assurance and therefore is not a guarantee that an audit conducted in accordance with auditing standards generally accepted in the United States of America (GAAS) and *Government Auditing Standards* will always detect a material misstatement when it exists. Misstatements, including omissions, can arise from fraud or error and are considered material if there is a substantial likelihood that, individually or in the aggregate, they would influence the judgment of a reasonable user made based on the financial statements.

The objectives also include reporting on internal control over financial reporting and compliance with provisions of laws, regulations, contracts, and award agreements, noncompliance with which could have a material effect on the financial statements in accordance with *Government Auditing Standards*.

#### AUDITOR'S RESPONSIBILITIES FOR THE AUDIT OF THE FINANCIAL STATEMENTS

We will conduct our audit in accordance with GAAS and the standards for financial audits contained in *Government Auditing Standards*, issued by the Comptroller General of the United States, and will include tests of your accounting records of the Town of Norwich, Vermont and other procedures we consider necessary to enable us to express such opinions. As part of an audit in accordance with GAAS and *Government Auditing Standards*, we exercise professional judgment and maintain professional skepticism throughout the audit.



We will evaluate the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management. We will also evaluate the overall presentation of the financial statements, including the disclosures, and determine whether the financial statements represent the underlying transactions and events in a manner that achieves fair presentation. We will plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether from (1) errors, (2) fraudulent financial reporting, (3) misappropriation of assets, or (4) violations of laws or governmental regulations that are attributable to the government or to acts by management or employees acting on behalf of the government. Because the determination of waste and abuse is subjective, *Government Auditing Standards* do not expect auditors to perform specific procedures to detect waste or abuse in financial audits nor do they expect auditors to provide reasonable assurance of detecting waste or abuse.

Because of the inherent limitations of an audit, combined with the inherent limitations of internal control, and because we will not perform a detailed examination of all transactions, there is an unavoidable risk that some material misstatements may not be detected by us, even though the audit is properly planned and performed in accordance with GAAS and *Government Auditing Standards*. In addition, an audit is not designed to detect immaterial misstatements or violations of laws or governmental regulations that do not have a direct and material effect on the financial statements. However, we will inform the appropriate level of management of any material errors, fraudulent financial reporting, or misappropriation of assets that comes to our attention. We will also inform the appropriate level of management of any violations of laws or governmental regulations that come to our attention, unless clearly inconsequential. Our responsibility as auditors is limited to the period covered by our audit and does not extend to any later periods for which we are not engaged as auditors.

We will also conclude, based on the audit evidence obtained, whether there are conditions or events, considered in the aggregate, that raise substantial doubt about the government's ability to continue as a going concern for a reasonable period of time.

Our procedures will include tests of documentary evidence supporting the transactions recorded in the accounts, and direct confirmation of receivables and certain assets and liabilities by correspondence with selected customers, creditors, and financial institutions. We may also request written representations from your attorneys as part of the engagement.

We have identified the following significant risks of material misstatement as part of our audit planning.

- . Management override of controls.
- . Revenue recognition.

Our audit of the financial statements does not relieve you of your responsibilities.



### AUDIT PROCEDURES – INTERNAL CONTROL

We will obtain an understanding of the government and its environment, including internal control relevant to the audit, sufficient to identify and assess the risks of material misstatement of the financial statements, whether due to error or fraud, and to design and perform audit procedures responsive to those risks and obtain evidence that is sufficient and appropriate to provide a basis for our opinions. Tests of controls may be performed to test the effectiveness of certain controls that we consider relevant to preventing and detecting errors and fraud that are material to the financial statements and to preventing and detecting misstatements resulting from illegal acts and other noncompliance matters that have a direct and material effect on the financial statements. Our tests, if performed, will be less in scope than would be necessary to render an opinion on internal control and, accordingly, no opinion will be expressed in our report on internal control issued pursuant to *Government Auditing Standards*. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentation, or the override of internal control. An audit is not designed to provide assurance on internal control or to identify significant deficiencies or material weaknesses. Accordingly, we will express no such opinion. However, during the audit, we will communicate to management and those charged with governance internal control related matters that are required to be communicated under AICPA professional standards and *Government Auditing Standards*.

### AUDIT PROCEDURES – COMPLIANCE

As part of obtaining reasonable assurance about whether the financial statements are free of material misstatement, we will perform tests of the government's compliance with the provisions of applicable laws, regulations, contracts, agreements and grants. However, the objective of our audit will not be to provide an opinion on overall compliance and we will not express such an opinion in our report on compliance issued pursuant to "Government Auditing Standards".

### OTHER SERVICES

We will also assist in preparing the financial statements and related notes of the Town of Norwich, Vermont in conformity with GAAP based on information provided by you. These nonaudit services do not constitute an audit under Government Auditing Standards and such services will not be conducted in accordance with Government Auditing Standards. We will perform the services in accordance with applicable professional standards. The other services are limited to the financial statement services previously defined. We, in our sole professional judgement, reserve the right to refuse to perform any procedure or take any action that could be construed as assuming management responsibilities.

You agree to assume all management responsibilities relating to the financial statements and related notes and any other nonaudit services we provide. You will be required to acknowledge in the management representation letter our assistance with preparation of the financial statements and related notes and that you have reviewed and approved the financial statements and related notes prior to their issuance and have accepted responsibility for them. Further, you agree to oversee the nonaudit services by designating an individual, preferably from senior management, with suitable skill, knowledge, or experience; evaluate the adequacy and results of those services; and accept responsibility for them.



## RESPONSIBILITIES OF MANAGEMENT FOR THE FINANCIAL STATEMENTS

Our audit will be conducted on the basis that you acknowledge and understand your responsibility for designing, implementing, establishing and maintaining internal controls relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error, and for evaluating and monitoring ongoing activities to help ensure that appropriate goals and objectives are met; following laws and regulations; and ensuring that management and financial information is reliable and properly reported. Management is also responsible for implementing systems designed to achieve compliance with applicable laws, regulations, contracts, and grant agreements. You are also responsible for the selection and application of accounting principles, for the preparation and fair presentation of the financial statements and all accompanying information in conformity with GAAP and for compliance with applicable laws and regulations and the provisions of contracts and grant agreements.

Management is responsible for making drafts of financial statements, all financial records, and related information available to us and for the accuracy and completeness of that information (including information from outside of the general and subsidiary ledgers). You are also responsible for providing us with (1) access to all information of which you are aware that is relevant to the preparation and fair presentation of the financial statements, such as records, documentation, identification of all related parties and all related-party relationships and transactions, and other matters; (2) additional information that we may request for the purpose of the audit; and (3) unrestricted access to persons within the government from whom we determine it necessary to obtain audit evidence. At the conclusion of our audit, we will require certain written representations from you about your responsibilities for the financial statements; compliance with laws, regulations, contracts, and grant agreements; and other responsibilities required by GAAS and *Government Auditing Standards*.

Your responsibilities include adjusting the financial statements to correct material misstatements and for confirming to us in the written representation letter that the effects of any uncorrected misstatements aggregated by us during the current engagement and pertaining to the latest period presented are immaterial, both individually and in the aggregate, to the financial statements of each opinion unit taken as a whole.

You are responsible for the design and implementation of programs and controls to prevent and detect fraud, and for informing us about all known or suspected fraud affecting the government involving (1) management, (2) employees who have significant roles in internal control, and (3) others where the fraud could have a material effect on the financial statements. Your responsibilities include informing us of your knowledge of any allegations of fraud or suspected fraud affecting the government received in communications from employees, former employees, grantors, regulators, or others. In addition, you are responsible for identifying and ensuring that the government complies with applicable laws, regulations, contracts, agreements, and grants and for taking timely and appropriate steps to remedy fraud and noncompliance with provisions of laws, regulations, or contracts or grant agreements that we report.



You are responsible for the preparation of the supplementary information, which we have been engaged to report on, in conformity with accounting principles generally accepted in the United States of America (GAAP). You agree to include our report on the supplementary information in any document that contains, and indicates that we have reported on, the supplementary information. You also agree to include the audited financial statements with any presentation of the supplementary information that includes our report thereon or make the audited financial statements readily available to users of the supplementary information no later than the date the supplementary information is issued with our report thereon. Your responsibilities include acknowledging to us in the written representation letter that (1) you are responsible for presentation of the supplementary information in accordance with GAAP; (2) you believe the supplementary information, including its form and content, is fairly presented in accordance with GAAP; (3) the methods of measurement or presentation have not changed from those used in the prior period (or, if they have changed, the reasons for such changes); and (4) you have disclosed to us any significant assumptions or interpretations underlying the measurement or presentation of the supplementary information.

Management is responsible for establishing and maintaining a process for tracking the status of audit findings and recommendations. Management is also responsible for identifying and providing report copies of previous financial audits, attestation engagements, performance audits or other studies related to the objectives discussed in the Audit Scope and Objectives section of this letter. This responsibility includes relaying to us corrective actions taken to address significant findings and recommendations resulting from those audits, attestation engagements, performance audits, and other studies. You are also responsible for providing management's views on our current findings, conclusions, and recommendations, as well as your planned corrective actions, for the report, and for the timing and format for providing that information.

With regard to the electronic dissemination of audited financial statements, including financial statements published electronically on your website, you understand that electronic sites are a means to distribute information and, therefore, we are not required to read the information contained in these sites or to consider the consistency of other information in the electronic site with the original document.

With regard to including the auditor's report in an exempt offering document, you agree that the aforementioned auditor's report, or reference to Sullivan, Powers & Company, P.C., will not be included in any such offering document without our prior permission or consent. Any agreement to perform work in connection with an exempt offering document, including an agreement to provide permission or consent, will be a separate engagement.



## REPORTING

We will issue a written report upon completion of our audit of the Town of Norwich, Vermont's financial statements. Our report will be addressed to the Selectboard. Circumstances may arise in which our report may differ from its expected form and content based on the results of our audit. Depending on the nature of these circumstances, it may be necessary for us to modify our opinions, add a separate section, or add an emphasis-of-matter or other-matter paragraph to our auditor's report, or if necessary, withdraw from this engagement. If our opinions are other than unmodified, we will discuss the reasons with you in advance. If circumstances occur related to the condition of your records, the availability of sufficient, appropriate audit evidence, or the existence of a significant risk of material misstatement of the financial statements caused by error, fraudulent financial reporting, or misappropriation of assets, which in our professional judgment prevent us from completing the audit or forming an opinion on the financial statements, we retain the right to take any course of action permitted by professional standards, including declining to express an opinion or issue a report, or withdrawing from the engagement.

We will also provide a report (that does not include an opinion) on internal control related to the financial statements and compliance with the provisions of laws, regulations, contracts, and grant agreements, noncompliance with which could have a material effect on the financial statements as required by "Government Auditing Standards". The report on internal control and on compliance and other matters will state (1) that the purpose of the report is solely to describe the scope of testing of internal control and compliance, and the results of that testing, and not to provide an opinion on the effectiveness of the Town of Norwich, Vermont's internal control on compliance, and (2) that the report is an integral part of an audit performed in accordance with "Government Auditing Standards" in considering the Town of Norwich, Vermont's internal control and compliance. The report will also state that the report is not suitable for any other purpose. If during our audit we become aware that the Town of Norwich, Vermont is subject to an audit requirement that is not encompassed in the terms of this engagement, we will communicate to management and those charged with governance that an audit in accordance with U.S. generally accepted auditing standards and the standards for financial audits contained in "Government Auditing Standards" may not satisfy the relevant legal, regulatory, or contractual requirements.

## AUDIT ADMINISTRATION

Richard Brigham, CPA is the engagement partner and is responsible for supervising the engagement and signing the reports or authorizing another individual to sign them.

We will provide copies of our reports to Town of Norwich, Vermont; however, management is responsible for distribution of the reports and the financial statements. Unless restricted by law or regulation, or containing privileged and confidential information, copies of our reports are to be made available for public inspection.

We understand that your employees will prepare all cash, accounts receivable, and other confirmations we request and will locate any documents selected by us for testing.



We will schedule the engagement based in part on deadlines, working conditions, and the availability of your key personnel. We will plan the engagement based on the assumption that your personnel will cooperate and provide assistance by performing tasks such as preparing requested schedules, retrieving supporting documents, and preparing confirmations as requested on a timely basis. Some of our audit procedures may be performed remotely. As a result, your employees will need to send any requested information to us electronically through secure sites and/or allow us to view it utilizing available videoconferencing technology. If, for whatever reason, your personnel are unavailable to provide the necessary assistance in a timely manner, it may substantially increase the work we have to do and hinder our ability to complete the engagement within the established deadlines and result in an increase in our fees over our original fee estimate.

The audit documentation for this engagement is our property and constitutes confidential information. However, subject to applicable laws or regulations, we may be requested to make certain audit documentation available to a federal agency providing direct or indirect funding, or the U.S. Government Accountability Office for purposes of a quality review of the audit, to resolve audit findings, or to carry out oversight responsibilities. We will notify you of any such request. If requested, access to such audit documentation will be provided under the supervision of our personnel. Furthermore, upon request, we may provide copies of selected audit documentation to the aforementioned parties. These parties may intend, or decide, to distribute the copies or information contained therein to others, including other governmental agencies.

In the event we are required to respond to a subpoena, court order or other legal process for the production of documents and/or testimony relative to information we obtained and/or prepared during the course of this engagement, you agree to compensate us for the time we expend in connection with such response, and to reimburse us for all of our out-of-pocket costs incurred in that regard.

In the event that we are or may be obligated to pay any cost, settlement, judgment, fine, penalty, or similar award or sanction as a result of a claim, investigation, or other proceeding instituted by any third party, then to the extent that such obligation is or may be a direct or indirect result of your intentional or knowing misrepresentation or provision to us of inaccurate or incomplete information in connection with this engagement, and not any failure on our part to comply with professional standards, you agree to indemnify us, defend us, and hold us harmless as against such obligations.

To ensure that our independence is not impaired under the AICPA Code of Professional Conduct, you agree to inform us before entering into any substantive employment discussions with any of our personnel.



In connection with this engagement, we may communicate with you or others via email transmission. As emails can be intercepted and read, disclosed, or otherwise used or communicated by an unintended third party, or may not be delivered to each of the parties to whom they are directed and only to such parties, we cannot guarantee or warrant that emails from us will be properly delivered and read only by the addressee. Therefore, we specifically disclaim and waive any liability or responsibility whatsoever for interception or unintentional disclosure of emails transmitted by us in connection with the performance of this engagement. In that regard, you agree that we shall have no liability for any loss or damage to any person or entity resulting from the use of email transmissions, including any consequential, incidental, direct, indirect, or special damages, such as loss of revenues or anticipated profits, or disclosure or communication of confidential or proprietary information.

This engagement letter is contractual in nature, and includes all of the relevant terms that will govern the engagement for which it has been prepared. The terms of this letter supersede any prior oral or written representations or commitments by or between the parties. Any material changes or additions to the terms set forth in this letter will only become effective if evidenced by a written amendment to this letter, signed by all of the parties.

Our audit engagement ends on delivery of our audit report. Any follow-up services that might be required will be a separate, new engagement. The terms and conditions of that new engagement will be governed by a new, specific engagement letter for that service.

#### FEE ARRANGEMENTS

Based on our knowledge of your programs and accounting system and the current regulations and guidelines, we have determined that the audit services can be performed for a fee of \$28,600 provided that the books are closed and reconciled and our to do list is completed prior to our commencing fieldwork.

Our fee for any other accounting services we provide will be based on time of the individuals performing the services at our standard hourly rates plus out-of-pocket expenses.

Our procedure is to bill on a progress basis for work performed to date. Invoices are payable upon receipt. A finance charge of one percent (1%) per month will be charged on balances over thirty (30) days.



GENERAL CONDITIONS

We are prepared to commence work as soon as formally engaged. A draft of the audit report will be submitted for your review prior to its issuance. We will issue the final reports within one (1) week of your approval of the draft report.

The audit documentation for this engagement will be retained for a minimum of five years after the report release date. If we are aware that a federal awarding agency or auditee is contesting an audit finding, we will contact the party contesting the audit finding for guidance prior to destroying the audit documentation.

If the terms are acceptable to you and the services are in accordance with your requirements, please sign in the space provided and return an executed copy of this letter to us.

Respectfully submitted,

*Sullivan, Powers & Co.*

SULLIVAN, POWERS & CO.  
Certified Public Accountants

We understand that the purpose of this letter is to clarify the services to be performed by you and the fee arrangements. We hereby confirm to you that we agree to the contents of this letter.

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Dated: \_\_\_\_\_





**Application ID:** DLL - Application - 29800  
**Application for:** Second Class License  
**Category of Business:** Second Class

### Business/ Entity Information

**Business/ Entity Name:** Uncle Jame Industries DBA Half-Step Beer and Wine  
**Business ID:** 0430079  
**Entity Type:** Limited Liability Corporation  
**Business Address:** PO Box 707, Norwich, Vermont 05055  
**Management Type if LLC:** Member-managed  
**Phone:** 5129379607  
**Email:** halfstepbeerandwine@gmail.com

### People Information

- **Person:** Cole Flannery

**Business Role:** Business Principal  
**Email:** halfstepbeerandwine@gmail.com  
**Business Address:** PO Box 707, norwich, Vermont, 05055  
**US Citizen?**  
**Political Position**  
**Name:** Cole Flannery  
**Office:**  
**Jurisdiction:**

#### Violations:

Violation ID	Court/Traffic Bureau	Offense	Date of Offense
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### Location/ Premises Detail

**Location Name:**  
Half-Step Beer and Wine

**Location Address:**  
289 Main Street,  
Norwich, Vermont 05055

**Local Jurisdiction/ Town Clerk:**  
Norwich

**Do you lease this Premises:**

**Health License:**  
Food:  
Lodging:

**Vermont Tax Department:**

### Foundational License (if applicable)

**License Type:**

**License Number:**

**Licensee Name:**

**License Status:**

**Licensee Address:**  
,  
,

**License Start Date:**

**License End Date:**

### Documents Attached

Name	Document Type	Assosicated With
D-08046	Federal Employee Identification #	Uncle Jame Industries DBA Half-Step Beer and Wine
D-08047	Articles of Organization	Uncle Jame Industries DBA Half-Step Beer and Wine

### Payment and Acknowledgement

**Signed by:**  
Cole Flannery

**State of Vermont / DLL Application Fee:**  
70.00

**Date of Submission:**  
2023-06-28 00:23:53

**State of Vermont / DLL Payment Status:**

**Local Application Fee:**  
70

**Local Control Payment Status:**  
false

**TO:** Brennan Duffy, Interim Town Manager  
**FROM:** Chris Kaufman  
**RE:** Renewal of 3-Year Service Contract for Equipment and Supply of Magnesium Chloride for Dust Control – Innovative Surface Solutions, Inc.  
**DATE:** June 28, 2023

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Attached is the new proposed contract from Innovative Solutions to the Norwich DPW for continued use of magnesium chloride for dust control on gravel roads in the Town of Norwich, Vermont. Also attached is the existing contract which expires on July 30, 2023. These are 3-year contracts which includes the rental and maintenance of chloride equipment for the freightliner truck (not the tanker truck) and also a minimum purchase of 10,000 gallons of magnesium chloride per year for the term of the agreement at fair market pricing. Current pricing fluctuates with the market and is currently at \$1.09 per gallon. Our operating budget for the upcoming 2024 season for dust control is \$24,120.

I recommend we continue to use Innovative Solutions as they are effectively the sole distributor for magnesium chloride in the northeast area and are able to assist us with dust control equipment repair, maintenance, and application processes.



## STORAGE TANK AND EQUIPMENT RENTAL AGREEMENT

This Agreement is entered into by and between Innovative Municipal Products (U.S.) Inc., d/b/a Innovative Surface Solutions, a Delaware corporation, maintaining an office for the transaction of business at 454 River Road, Glenmont, NY (referred to hereinafter as "ISS") and the Town of Norwich, maintaining an office for the transaction of business at 26 New Boston Road, Norwich, VT, 05055 (referred to hereinafter as "Town") to be considered effective as of July 31<sup>st</sup>, 2020.

WHEREAS ISS is engaged in the business of marketing liquid products for road de-icing and dust control ("Liquid Products"); and

WHEREAS Town desires to acquire, without major capital outlay, the ability to effectively utilize ISS Liquid Products and, to do so, requires the acquisition of storage tanks and related equipment; and

WHEREAS ISS, to further the marketing of its products, is willing to assist Town in the acquisition of storage and related equipment.

The Parties hereby agree as follows: In consideration of Town's agreement to purchase minimum quantities of Liquid Products as hereinafter set forth, ISS hereby leases to Town, under the terms and conditions of this Agreement, the following storage tanks and equipment (referred to hereinafter as "Storage Tank & Equipment"):

<b>Storage Tank-</b>	NA
<b>Equipment-</b>	One 925 gal Spray system Item #949 value of \$4,952.86
<b>Freight-</b>	Freight charges of \$900.00
<b>Total-</b>	Freight, Equipment and Storage Tank value of \$5,852.86
<b>Commitment-</b>	Minimum annual purchase of 17,200 gallons ISS Liquid Products

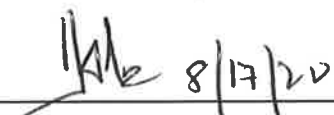
### Terms and Conditions of the Agreement:

- 1. Term of Contract:** This Agreement shall be in effect from July 31, 2020 for a period of three (3) years ("Initial Term"). Storage Tank and Equipment is to be delivered to Town's yard at 26 New Boston Rd, Norwich, VT.
- 2. Volume Commitment:** In consideration for the rental of Storage Tank and Equipment, Town covenants and agrees to purchase from ISS not less than 17,200 gallons of ISS Liquid Products per year for the term of the contract at fair market pricing.
- 3. First Order:** Town agrees to place their first order prior to the storage tanks and equipment delivery so that the storage tank can go into immediate service.
- 4. Storage Tank:** NA
- 5. Equipment:** ISS is the sole owner of the equipment. Ownership to be transferred in "as is" condition as the conclusion of 3 years rental if mutually agreed by both ISS and Town. Town shall use the equipment exclusively for ISS liquid products.
- 6. Modifications:** These are basic systems; any additional parts needed are not included and their purchase is the responsibility of the Town. Town shall refrain from modifying the equipment without the expressed written consent of ISS. Application for consent shall be addressed to ISS and sent via

454 RIVER ROAD • GLENMONT, NY • 12077  
PHONE 518.729.4319 • FAX 518.729.5181

INNOVATIVECOMPANY.COM

Initial by Town Official Signing  
Agreement


 8/17/20



email to [equipment@innovativecompany.com](mailto:equipment@innovativecompany.com) or fax at 518-729-5181. Any decision by Town to terminate this agreement or any unauthorized modification of the equipment will result in ISS having the right to repossess the equipment that is currently under Agreement.


- 7. **Manufacturer Warranty Equipment & Storage Tank:** ISS shall be responsible for any manufacturer defects to the Equipment and Storage Tank during the time title vests in ISS provided the Equipment and Storage Tank are not modified without the written consent of ISS, and used in the normal course of business and as intended by the manufacturer and ISS.
- 8. So long as title to the Storage Tank and Equipment shall remain in ISS and possession of the Storage Tank and Equipment shall remain in the Town, the Town shall be responsible for the repair or replacement of the Storage Tank and Equipment should either of them be damaged or destroyed.
- 9. **Successor and Assigns:** This Agreement is binding upon the parties hereto, their successors, assigns and legal representatives.
- 10. In the event that ISS, in its sole opinion, determines that the quantity of ISS Liquid Product being purchased by Town is insufficient to warrant ISS' investment in the Storage Tank and Equipment, then ISS may so notify Town and thirty (30) business days thereafter ISS shall have the right to repossess the Storage tank, Equipment and this Agreement shall terminate.

INNOVATIVE MUNICIPAL PRODUCTS (U.S.) INC.

By:  Authorized Signature  
Jeffrey Hicks Print Name  
Director of Operations Position/Title  
July 8, 2020 Date

I certify that I am the (title) \_\_\_\_\_ for the Town of Norwich, VT ("Town") and as an authorized officer of the Town, I certify that I am authorized to sign contracts and other legally binding documents related to Agreements with ISS and by signing below I am confirming that I am in agreement with above terms and conditions.

TOWN OF NORWICH, VT

By:  Authorized Signature  
HERBERT LUFFE, JR. Print Name  
Town Manager Position/Title  
8/17/20 Date



## STORAGE TANK AND EQUIPMENT RENTAL AGREEMENT

This Agreement is entered into by and between Innovative Municipal Products (U.S.) Inc., d/b/a Innovative Surface Solutions, a Delaware corporation, maintaining an office for the transaction of business at 454 River Road, Glenmont, NY (referred to hereinafter as “ISS”) and the Town of Norwich, maintaining an office of business at 26 New Boston Road, Norwich VT 05055 (referred to hereinafter as “Town”) to be considered effective as of July 31, 2023.

WHEREAS ISS is engaged in the business of marketing liquid products for road de-icing and dust control (“Liquid Products”); and

WHEREAS Town desires to acquire, without major capital outlay, the ability to effectively utilize ISS Liquid Products and, to do so, requires the acquisition of storage tanks and related equipment; and

WHEREAS ISS, to further the marketing of its products, is willing to assist the Town in the acquisition of storage and related equipment.

WHEREAS the Parties entered into Agreement on July 31, 2020, and Town rented from ISS the following equipment and storage tanks:

1x 925-gallon Spray System, having value of \$4,952.86

WHEREAS the Parties hereby agree to continue rental of items from previous Agreement in accordance with the terms provided here in.

In consideration of Town’s agreement to purchase minimum quantities of liquid products as hereinafter set forth, Parties hereby agree to this Agreement which supersedes any prior agreements, terms and/or conditions.

### **Terms and Conditions of the Agreement:**

- 1. Term of Agreement:** The Parties agree to a new 3-year rental term, beginning on July 31, 2023.
- 2. Volume Commitment:** Town covenants and agrees to purchase from ISS not less than 10,000 gallons of ISS Liquid Products per year for the term of the agreement at fair market pricing.
- 3. Storage Tank:** N/A
- 4. Equipment:** ISS is the sole owner of the equipment. Town shall use the equipment exclusively for ISS liquid products.
- 5. Modifications:** These are basic systems; any additional parts needed are not included and their purchase is the responsibility of the Town. Town shall refrain from modifying the equipment without the expressed written consent of ISS. Application for consent shall be addressed to ISS and sent via email to [equipment@innovativecompany.com](mailto:equipment@innovativecompany.com) or fax to 518-729-5181. Any decision by Town to terminate this agreement or any unauthorized modification of the equipment will result in ISS having the right to repossess the equipment that is currently under Agreement.
- 6. Manufacturer Warranty Equipment & Storage Tank:** ISS shall be responsible for any manufacturer defects to the Equipment and Storage Tank during the time title vests in ISS provided the Equipment and Storage Tank are not

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PHONE 518.729.4319 • FAX 518.729.5181

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Initial by Town Official Signing  
Agreement

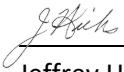




modified without the written consent of ISS, and used in the normal course of business, and as intended by the manufacturer and ISS.

- 7. So long as title to the Storage Tank and Equipment shall remain in ISS and possession of the Storage Tank and Equipment shall remain in the Town, the Town shall be responsible for the repair or replacement of the Storage Tank and Equipment should either of them be damaged or destroyed.
- 8. **Successor and Assigns:** This Agreement is binding upon the parties hereto, their successors, assigns and legal representatives.
- 9. In the event that ISS, in its sole opinion, determines that the quantity of ISS Liquid Product being purchased by Town is insufficient to warrant ISS' investment in the Storage Tank and Equipment, then ISS may so notify Town and ten (10) business days thereafter ISS shall have the right to repossess the Storage Tank, Equipment and this Agreement shall terminate.

INNOVATIVE MUNICIPAL PRODUCTS (U.S.) INC.

By:		Authorized Signature
	Jeffrey Hicks	Print Name
	Director of Operations	Position/Title
	June 7, 2023	Date

I certify than I am the (title) \_\_\_\_\_ for the Town of Norwich (“Town”) and as an authorized officer of the Town, I certify that I am authorized to sign contracts and other legally binding documents related to Agreements with ISS and by signing below I am confirming that I am in agreement with above terms and conditions.

TOWN OF NORWICH, VERMONT

By:		Authorized Signature
		Print Name
		Position/Title
		Date

## **License and Support Agreement**

This License and Support Agreement (“Agreement”) is made as of 07/01/2023 (the “Effective Date”), by and between KIGO LLC (dba Betterbin), a Wisconsin Limited Liability Company (“Company”) with its principal place of business in Kronenwetter, Wisconsin, and the Town of Norwich, Vermont, a Vermont Municipal Corporation (hereafter “Licensee”). Company and Licensee each are individually sometimes referred to as a “Party,” and collectively sometimes referred to as the “Parties.”

**WHEREAS**, Company has developed certain mobile applications, designed to educate the public about how to properly recycle and compost various materials and products (collectively with related documentation, revisions, error corrections, enhancements, and updates thereof, the “**Application**”);

**WHEREAS**, Company has developed intellectual property, including logos, images, and other graphic designs (collectively referred to as “**Images**”) for the purposes of marketing Company’s products and services;

**WHEREAS**, Company has developed models for providing marketing and support services for licensees implementing Application as described in Exhibit A (collectively referred to as “**Services**”); and

**WHEREAS**, Licensee desires to make the Application available to residents, to License the Application and Images and to purchase Services to implement the Application (collectively referred to as “**Licenses**”), and Company desires to provide Licenses for Application and Images and Services to Licensee as per the terms and conditions of this Agreement.

**NOW THEREFORE**, for and in consideration of the foregoing premises, covenants, and agreements hereinafter contained, the Parties hereto, subject to the terms and conditions of this Agreement, agree as follows:

1. **License.** Company hereby grants to Licensee, and Licensee hereby accepts from Company, a limited, non-exclusive, non-transferable and non-sublicensable license to use the Application and Images, in a manner consistent with the specifications and limitations set forth in this Agreement and the Documentation.
2. **Term.** This Agreement shall be effective from the Effective Date until Company:
  - a. Completes Services as described in Exhibit A or
  - b. Termination of the Agreement as described in Section 3.
3. **Termination.** Company or Licensee may terminate this Agreement without cause upon thirty (30) calendar days' written notice to the other Party. In the event Termination pursuant to this Section, the Licensee shall pay Company on a pro-rata basis any payment due for any Services completed up to and including the date of termination

4. **Quality of Services.** Parties agree that the Services shall be of the same general quality as industry standards and will be provided in a timely manner. If Licensee decides to use a Service listed on Exhibit A that Company causes a third-party provider to provide Services, the Parties agree that such Services will be of a quality provided for in this Agreement. Company alone may determine whether or not to use a third-party provider for Services. Company will use the same standards it would use for itself in such a determination.
5. **Intellectual Property.** During the Term of this Agreement, the Licensee may receive access and use of Company's intellectual property, including (but not limited to) the Company's trademarks and copyrights as described in Exhibit A. The Licensee hereby agrees to only use this intellectual property as explicitly authorized under this Agreement and attached exhibits. Upon completion or termination of this Agreement, Licensee agrees to return all copies of Company's intellectual property to the Company. Licensee further agrees to delete all digital copies of Company's intellectual property Licensee has in its possession upon completion or termination of this Agreement.
6. **Payment.** Licensee shall pay Company an annual fee of \$1,500 for consideration of Licenses and Services described in Sections 2, 4, and 5 of Exhibit A. Licensee shall pay Company via check or direct deposit in the amount of \$1,500 beginning within 30 days of the Effective Date of this Agreement and for the duration of the Agreement's Term.
7. **Assignment.** Neither Party shall assign, in whole or in part, any of the rights, obligations or benefits of this Agreement without the prior written consent of the other Party. Subject to the limits on assignment stated in this Section, this Agreement will inure to the benefit of, be binding on, and be enforceable against each of the Parties and their respective successors and assigns.
8. **Force Majeure.** This Agreement shall not terminate as a result of any failure of the Parties to perform this Agreement's obligations if such failure is due to circumstances beyond their reasonable control excluding foreseeable risks (an "Event of Force Majeure") provided that at such time as an Event of Force Majeure no longer exists, the respective obligations of the parties hereto shall resume and this Agreement shall continue in full force and effect. The Party affected by an Event of Force Majeure shall give prompt notice thereof to the other Party and each Party shall use good faith efforts to minimize the duration and consequences of the Event of Force Majeure.
9. **Limitation of Liability; Indemnification.** Company, its officers, directors, employees, and agents shall not be liable to Licensee for claims, demands, damages, losses, liabilities, costs or expenses (collectively referred to as "Damages") arising out of rendering Services, except that Company shall be liable to Licensee for negligence or willful misconduct in the rendering of Services. Company shall indemnify and reimburse Licensee promptly upon demand for the cost of Damages sustained relating to rendering of Services, except as a result from Licensee's gross negligence or willful misconduct.
10. **Governing Law.** This Agreement shall be construed in accordance with, and all disputes hereunder shall be governed by, the laws of the State of Vermont.

11. **Dispute Resolution.** In the event of a dispute regarding this Agreement, the Parties shall confer in good faith in an effort to cooperatively resolve their differences. If such efforts fail, the Parties shall engage the services of a qualified Vermont mediator and shall participate in mediation, the costs of which shall be shared equally. Thereafter, if necessary, either Party may commence an action, including for injunctive relief, in the Vermont Superior Court, Civil Division, Windsor Unit. .
12. **Compliance with Law.** Company represents and agrees that it will provide Services and Licenses only in accordance with all applicable federal, state and local laws and regulations. Licensee represents and agrees that it will use Services and Licenses only in accordance with all applicable federal, state and local laws and regulations and in accordance with the reasonable conditions, rules, regulations and specifications which may be set forth in any written manuals, materials, documents or instructions furnished from time to time by Company to Licensee.
13. **Severability.** In the event a court found any portion of this Agreement to be unenforceable, that portion of the Agreement will be null and void and the remainder of the Agreement will be binding on the Parties as if the unenforceable provisions had never been contained herein.
14. **Entire Agreement.** This Agreement and the Exhibits attached constitute the entire agreement of the parties relating to the subject matter of this Agreement. All prior or contemporaneous written or oral agreements are merged herein.
15. **Amendment or Modification.** This Agreement may be amended or modified only by a writing signed by the Parties.
16. **Headings.** The headings in this Agreement are for reference only and shall not affect the meaning or interpretation of any provision of this Agreement.
17. **Notices.** Any notices required to be given under this Agreement shall be in writing and shall be validly given or made if (a) personally delivered, (b) delivered electronically (e.g., via email or facsimile), (c) sent by overnight courier delivery service or (d) deposited in the United States mail, first class, postage prepaid, certified or registered, return receipt requested. The parties shall use the contact information provided on the signature page in addressing the notices. Any change of contact information shall be made by providing notice of the change of contact information in compliance with this Section.

# EXHIBIT A

## Description of Application, Licenses, and Services

This document (“Document”) is provided as “Exhibit A” as referenced in the License and Support Agreement (“Agreement”) between KIGO LLC, dba Betterbin (“Company”) and Town of Norwich, Vermont (“Licensee”) effective as of July 1, 2023 (“Effective Date”). Company and Licensee each are individually sometimes referred to as a “Party,” and collectively sometimes referred to as the “Parties.” Having mutually assented to Agreement, the Parties hereby adopt the proceeding terms and descriptions as a binding supplement to the Agreement.

1. **Application.** Company has developed Betterbin (“Application”), a mobile application designed to educate compost and recycle program participants about how to properly compost, recycle and dispose of various materials and products.
2. **Application License.** Company agrees to provide, and Licensee agrees to utilize, a license for Application (“Application License”) under the following terms:
  - a. Company shall make Application accessible to Licensee for the term of the Agreement (“Term”). The Term of the Agreement is July 1, 2023 to June 30, 2024.
  - b. Company shall make Application accessible to Licensee subscription members for the Term as an App Store download, Google Play store download, as well as a web application accessible via the URL betterbin.app.
  - c. Company shall allow all residents within the Licensee’s jurisdiction to enroll as users of the Application.
3. **Images.** Company has developed its own logos, images, and other graphic designs for Application promotional materials, as well as the logo(s) of local Application sponsor(s) (referred to collectively as “Images”).
4. **Images License.** Company agrees to provide, and Licensee agrees to utilize, a license for Images (“Images License”) under the following terms:
  - a. Company authorizes Licensee to use Images as displayed in all local Application digital and print promotional materials
  - b. Company agrees to sublicense Company’s license to use sponsor(s) name and logo.
5. **Services.** Company agrees to provide Licensee with the following services (“Services”):
  - a. Create one mobile application for Licensee program participants. The goal will be to launch the Application in July of 2023.
  - b. Add, edit, or otherwise update information in the Application. Company shall make such updates within two (2) business days of receiving such request from Licensee.
  - c. Provide documentation to the Licensee to support users to troubleshoot technical issues with the Application. Company will also be available as a direct mechanism of support for user technical troubleshooting.
  - d. Co-create with the Licensee an annual marketing and promotional plan to promote use of the app among Licensee users. While the Company will, within

reason, design (graphics) and generate content (text) to support the Licensee's promotional plans, the Licensee must be willing to execute the intended plans. Plans may include, but are not limited to:

- i. Co-develop content for Licensee website, newsletter and social media
    - ii. Create a QR code graphic unique to the Licensee's Application – note that Betterbin will design the graphic at no extra charge. However, printing and distribution costs will be the responsibility of the Licensee.
    - iii. If the Company is able to procure an external sponsor or advertiser to fill in-app ad space, the Company shall make a good faith effort to ensure Licensee assents to the advertiser procured and the advertiser's intended incorporations of its logo or other promotional information in the Application or other promotional materials.
    - iv. External advertisers or sponsors shall reserve the right to include their logo or other promotional information in the Application or other promotional materials Licensee utilizes for the promotion of Application.
  - e. Company will provide the Licensee with monthly Application user analytics reports. Company will schedule quarterly meetings with Licensee to determine potential changes in usership and content.
  - f. Licensee agrees to provide reasonable estimates of changes in contamination, changes in customer requests for information about how to properly participate in the program, in-app advertisement conversions or other measures that will help show the Company data to understand the usefulness of the app. With approval from the Licensee, the Company will use such information to create publicly available case studies to showcase the efficacy of the Application and success of the Licensee's program.
- 6. Payment.** Licensee shall pay Company an annual fee of \$1,500 for consideration of Licenses and Services described in Sections 2, 4, and 5. Licensee shall pay Company via check or direct deposit in the amount of \$1,500 within 30 days of the Effective Date of this Agreement. At Licensee's request, Company shall provide Licensee with the relevant information to properly execute the method of payments specified in the preceding sentence.
- 7. In-app advertising space.** It is the Company's standard business practice to seek out external advertisers to purchase ad space in the Application. The company will work together in good faith effort with the Licensee to ensure the Licensee is in agreement with any app advertisers.
- 8. Notices.** All communications and notices between the Parties as described in this Document are subject to Section 16 of the Agreement.

**KIGO LLC (dba Betterbin)**

By: \_\_\_\_\_

Name: Michelle Goetsch

Title: Founder & CEO

Address: 2260 Bonney Dune Dr., Kronenwetter, WI 54455

Email Address: mgoetsch@betterbin.app

Date: \_\_\_\_\_

**Town of Norwich, Vermont**

By: \_\_\_\_\_

Name:

Title:

Address:

Email Address:

Date: \_\_\_\_\_