



## The Jones Library, Inc. Sustainability Subcommittee

🏠 **Location: Zoom webinar**  
📅 **Date: Thursday, July 23, 2020**  
🕒 **Time: 9:30-10:30am**

ADVISORY TO THE PUBLIC: The Jones Library System is closed to the public; this special Jones Library Trustee Committee meeting will occur virtually via ZOOM and will be streamed live here:

When: Jul 23, 2020 09:30 AM Eastern Time (US and Canada)

Topic: Sustainability Committee Meeting, Thursday, July 23, 2020; 9:30am on Zoom

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## Meeting Agenda

- I. **Call to Order** (Welcome, Sara, Todd, Lee, Chris, Alex, George, & Sharon!)
- II. **Approval of Minutes (7-2-20) \***
- III. **Sustainability Study Additional Items\***
- IV. **Adjournment**

\*\* Please note that the list of topics in this notice was comprehensive at the time of posting, however the public body may consider and take action on unforeseen matters not reasonably anticipated by the Chair 48 hours in advance of the meeting.

\* Denotes handout(s) will be made available.

**Red** indicates vote required.

**Joint Meeting of the Jones Library, Inc. Sustainability & Feasibility Subcommittees**  
**July 2, 2020 9:00 a.m. via Zoom**

Sustainability Members Present: Sara Draper, Chris Riddle, Todd Holland, Alex Lefebvre, Lee Jennings  
Feasibility Members Present: Austin Sarat, Tammy Ely, Lorin Starr, Bonnie Isman, Janice Ratner, Alex Lefebvre, Joan Temkin  
Also Present: Jim Alexander, Beth Persy, Ellen Anselone, Josephine Penta, Ken Beck, (Finegold Alexander) Sharon Sharry, George Hicks, and members of the public.

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- I. Sustainability meeting called to order at 9:03 am.
- II. Feasibility meeting called to order at 9:03 am
- III. **Minutes**
  - A. **MOTION:** To approve the minutes of February 26, 2020 for Feasibility Committee. Approved 6-0-0
  - B. **MOTION:** Motion to approve the minutes of February 13, 202 for Sustainability Committee. Approved 4-0-0 (Lee Jennings joined the meeting after the vote).
- IV. **Sustainability Report**
  - A. FAA presented their sustainability report.
  - B. Explained that the Tally Life Cycle Assessment does not figure in the demolition into lifecycle analysis. This would require an entirely different process and is very difficult to do the calculation. Can do an analysis on what would be demo'ed - assume transportation, where going and most common disposal method. Can do it, but there would be a lot of assumptions. Can do it as separate assumptions but can't roll into Tally as the program is not designed for this piece.
  - C. Question if FAA looked at other types of electrified heating and cooling other than geothermal wells? The base proposal uses a VRF system. The Environmental Consideration Measures are those beyond the base proposal for the renovation/expansion. The cost savings/operating costs is based on the base design.
  - D. Ground Source vs VRF - on this parcel, given the proximity of property line would an air-cooled system be able to meet the noise requirements? Would have to do calculation on boundary noise system but don't anticipate a problem.. VRF would be quieter in the library than the geothermal. Have run into same issues around noise in downtown Boston and have found that with proper screening and baffling they have been able to solve that problem.
  - E. Confirmation that the total embodied and operation carbon calculation includes both the existing and new building, not just the new. What does green bar show in the graph? It is the base design without the additional ECM measures and without the CLT.
  - F. EUI pie chart by use type - the % going to lighting seems very high? Library usage around lighting tends to be higher. The base considers code required lighting controls in the number. One of ECMs is to add further lighting controls. Comment that Hampshire College's predicted energy pie chart model actual overestimated lighting and underestimated HVAC. Believe that is primarily due to

voluntary human behavior - tend to be good with turning off lights but not as good with setting the temperature.

- G. Post COVID 19 operation of HVAC systems - one of recommendations is to disable control ventilation and run systems for pre- or post occupancy flush period (4 hour pre-occupancy purge). May need to rerun numbers on this new assumption. Doing things now for short term to mitigate issues around COVID 19 - don't know how long will need to deal with that.
- H. UV introduced into HVAC systems? Have looked at this and other systems. This system is primarily heat recovery, brought in without cross contamination.
- I. Could we relook at ECMs based on new realities for COVID-19? Would need to run these ideas as we move forward. Would run again and change during DD.
- J. Occupancy gate? 2022.
- K. Table showing ECM - is there a version that includes the Global warming /embodied potential of each measure to help us get a good look across everything? Can add a column to show that.
- L. Do we know how close we are to NetZero? The design is NetZero capable with offset renewables but can't do with what we can put on the building. Building configuration does not lend itself to a lot of PVs. May be able to get more than 10kw projected but likely need offsite or purchase to get to net zero. In DD consider looking at configuration of building to optimize? Have monitors on the roof which helps bring more daylight into the building. If don't have monitors could substitute more PV. With existing 1928 building have other limitations about what can be done.
- M. Tally assumptions for assessment calculations - includes most parts of the building. Timber would make a difference in global warming potential. What insulation was assumed? Included what is in the design package in the new building. What is in the existing, not particularly insulating 1928 portion of the building. One of the ECMs that was included was around insulation. No cavity in 1928, wood paneling and fireplaces trying to keep. What type of insulation system is going on in the slab, roof, walls (can make a difference in the bottom line footprint). At the end of report, everything assumed is articulated.
- N. Maybe a good amount of room for improvement just using insulation material and not having to get into redesign. No line item for type of insulation in new building (not R value but embodied carbon). Operation is looking good, so focus can be on embodied. Will add on to ECM chart. R32 for walls and roof.
- O. Geothermal - what type of landscape features are allowed over geothermal wells? Wells are down 3-4 feet so normal plantings are usually allowed. Nothing with deep roots or structural support. Wells are not big, spaced wide apart. The circles are the 15 foot diameter - in the middle only doing a 12" bore. Could something like the Kinsey garden go in the plan? The disturbance is limited to 12" bore and area around it but not entire 15 feet.
- P. Large parking lot behind the site. If we had permission, could do below the parking lot. The heat of the parking lot can sometimes mess with the heat of the water. Need to drill deeper to avoid those issues.
- Q. Hybrid systems, part geothermal and part air source to reduce the size of the field? Can and have done that before. The cost inside the building is the same for geothermal as VRF. Cost of geothermal is external to building and has to be treated as an add on.
- R. Discussed that this document is the beginning of the process and that the Sustainability should continue to review, discuss, and determine if we have the information needed for next steps. Will need to come up with recommendations to the Board. Also need to continue discussions as we move through actual design and development.

- S. How can you get to repair of wells? Rare to need repairs, would need to excavate.
- T. Are costs of ECM 4 and 5, net or gross? Those are net increases.
- U. ECM 4 - how much of cost and energy savings is for window replacement in the 1928 building?  
Did not break out that way. Can look at that and get back to us.
- V. \$0 for gas savings because not using gas at all. The baseline does not use gas.
- W. Estimated recovery for geothermal is 147 years. Is that normal? Every year it gets longer and longer for recovery. Several years ago, the cost of gas or electricity was higher and the efficiency of equipment was lower. Now when comparing against geothermal, using equipment that is extremely efficient and does not offset the outdoor well costs. Well costs are substantial. Everything inside building with current codes, does not change what doing inside the building from one system to another.
- X. Any knowable maintenance issues associated with what is being proposed? MEP - typical maintenance.
- Y. What is FAA's experience with these kinds of design elements. How comfortable about CLT approach in buildings like this one? Worked with structural engineer who is working on several CLT structures. Feel very confident. The person who did design has a lot of experience with CLT. CLT uses a burn rate to decide safety and each municipality approaches differently and would require investigation. Because of the Olver Building at UMass think may be less of a municipal issue. Given large meeting room and need long span, would be difficult with a flat ceiling, proposal was best solution to cut down the depth of the steel and transfer load to wood above.
- Z. How thinking about library design differently in light of COVID and what would be the implications to the sustainability of the building if we wanted to make changes, such as amount of seating in meeting room? Physical building - idea of separate children's entrance that has been discussed takes down the load of people heading to one place. People concerned about computer use and how we space out. Trying to squeeze down space works against what is needed with COVID. Do we need to rethink spacing in the building? What is most important is flexibility in the building, partitions, and the furnishings to address concerns related to COVID, future health issues, and future library usage.

V. **Public Comment**

- A. Does existing design contemplate single pane windows? no, double pane and ECM bumps to triple pane.
- B. Is it true the roof capacity limits solar PV potential? Yes

VI. **Next steps**

Looking for and depending upon a recommendation from the Sustainability Committee about the adequacy of what FAA has done and articulation of priorities from the point of view of Sustainability. Sara will send a list of follow up questions or information to be included with FAA revised report. Once revised report is received Sustainability will meet again to discuss priorities and send recommendations to the Board for consideration.

VII. **Accessibility Study**

A copy of the report was presented to both committees. No questions at this time. The report will be presented by Kuhn Riddle to the Town Council on July 13. Encouraged people to attend the meeting.

VIII. **MBLC Update**

No additional information to share. MBLC is meeting on July 9 where they will discuss the waitlisted libraries' requests for delay and additional money due to fiscal uncertainty from COVID-19.

Meeting adjournments

- Sustainability Committee adjourned 10:37 am
- Feasibility Committee adjourned 10:38 am

Respectfully submitted by Alex Lefebvre

DRAFT

**From:** Alex Lefebvre <[lefebvrealexandra@comcast.net](mailto:lefebvrealexandra@comcast.net)>  
**Sent:** Wednesday, July 15, 2020 4:19 PM  
**To:** Jim Alexander <[jga@faainc.com](mailto:jga@faainc.com)>  
**Cc:** Sharon Sharry <[sharrys@joneslibrary.org](mailto:sharrys@joneslibrary.org)>; Ellen Anselone <[eka@faainc.com](mailto:eka@faainc.com)>; Josephine Penta <[jpenta@faainc.com](mailto:jpenta@faainc.com)>; Beth Pearcy <[bpearcy@faainc.com](mailto:bpearcy@faainc.com)>  
**Subject:** Re: Additional Sustainability Items

Jim,

First, I want to say thank you for the incredible job at the Sustainability and Feasibility Committee meeting. The report you produced was excellent and we were very pleased with the information shared. I had a few questions regarding your response on the follow up items requested by the Sustainability Committee and Sharon asked that I follow up with you directly. For ease of discussion I am reiterating the clarification/follow up request made by the Committee below followed by my thoughts/questions"

A summary of the requests for FA re: Sustainability Report:

- Confirm: the Whole Building LCAs are for the original steel-and-concrete design, correct? And there is not currently a whole building LCA for the mass timber alternate? - Assume you can answer this one without additional cost as it seems a yes/no question? **Correct, the LCA is based on the baseline design which features a steel and concrete structure. The original contract did not include a study of alternative systems but we did include a design option comparison showing the environmental impact of the two different structural systems presented in the Structural System Schematic Schemes to show the scale of GWP reduction from switching to a heavy timber system.**
- Provide total annual power requirement for building (to determine the size of off-site array needed) - Assume you can answer this one as Section 1.c. of our Service Agreement includes "Total Power Requirement" **The total power requirement is 448 kWh. This is a representation of the peak demand that is required on the worst day of the year. It is important because it represents the amount of energy the system needs to be able to produce or the amount that needs to be stored above what can be produced. This number is most relevant in a situation where renewable energy is being produced on site. The total power requirement can be reduced by the implementation of the ECMS. This work is part of the \$2000 fee.**
  - To further clarify our discussion regarding how much power would need to be purchased that is determined by the EUI. In our case, the library would need to plan on purchasing 34.4kBTU/sf/year in renewable energy to be net zero.
- Add lifetime GWP column to Energy Conservation Measures table (and update description/assumptions for each ECM as needed) - Per our meeting this was able to be added without issue. **Ken provided a total Carbon Footprint Reduction for each of the ECMs in tons of carbon, that work is part of the \$2000 additional fee. This number represents the amount of operational carbon that is saved based on nationally published data that translates energy usage into carbon. Other greenhouse gas emissions are not included in this number because they are significantly lower (see the table below, note that the emissions rate is 658 for CO2 compared to .1 and .3.) We could roughly translate this into GWP by multiplying tons of carbon by 1016 to get KG.**
  - To determine total cradle to grave GWP for these items would require a great deal of additional modeling as we would have to do a design option comparison for each of the items and that would be an additional fee even above the \$2000 (assume 10 hour for

each ECM). Alternatively, it is safe to assume there are EPDs for most of these items which provide some insight into the environmental impact of the production of each item. However, an EPD is specific to a manufacturer so with a public bidding process this is not really an accurate assessment. We could provide EPDs for less of a fee than design option comparisons but it would still be in addition to the \$2000.

**Table 1-1  
2017 and 2018 ISO New England System Emissions (ktons)  
and Emission Rates (lbs/MWh)**

Annual System <sup>(a)</sup> Emissions						
	2017 Emissions (kTons)	2018 Emissions (kTons)	Change in Emissions (%)	2017 Emission Rate (lbs/MWh)	2018 Emission Rate (lbs/MWh)	Change in Emission Rate (%)
NO <sub>x</sub>	15.30	15.61	2.1	0.30	0.30	0.0
SO <sub>2</sub>	4.00	4.96	24.0	0.08	0.10	25.0
CO <sub>2</sub>	34,969	34,096	-2.5	682	658	-3.5

(a) The term "system" refers to native generation here and throughout the report.

- Add breakdown of window replacement for existing building and new building (in ECM table, per Budget committee request). This is a new request and I assume this would be part of the additional \$2,000 fee. We can break this down by area of new windows and area of old windows. This is included in the \$2000.
  - To clarify what we talked about in our meeting, breaking the windows down by area is somewhat representational of energy savings but it doesn't translate completely because it doesn't account for orientation. Especially during cooling cycles, triple paned glass will be more effective on some orientations than others. Ken is going to follow up with the energy modeler on this.
- Provide a rough estimate of demolition carbon footprint. Assume you can also provide this as Section 5 of our Service Agreement includes 'demolition'. Further on January 17, Sara Draper specifically requested clarification that LCA includes cost & carbon, demolition impact, and is based on the lifespan of the building, to which Ellen responded on February 20th that the Service Agreement incorporated all of the comments from Sara on January 17. In our meeting clarified that this would not be an exact number and that is understood. The Tally software does not specifically analyze demolition. In order to provide insight on the carbon impact of the portion of the building being demolished, FAA is prepared to run an analysis of the demo portion of the building. That analysis will provide an end-of-life GWP that is representational of demolition impact. This was part of our original contract and will be provided at no additional fee.

Other clarifications: - Assume these other clarifications are in addition to the Service Agreement and would be contemplated as part of the \$2,000.

- The Water ECMs aren't included in the table (presumably because it's about energy savings); is there a cost/benefit summary for these strategies too? Water was not included because it represents such a small portion of energy usage (1%) that even significant water savings would not result in significant overall energy savings.
- The current EUI estimate does not include energy for special collections (humidification, etc). When will this be done? And/or is there a ballpark estimate? The cost of this is included in both

the estimate and the EUI but is based on the MEP narrative and does not account for a specific system. A more specific estimate and energy analysis would require the selection of a specific system. The system selection will be done at the DD phase. Analysis of the impact of this system will be an additional fee.

- Does FA have recommendations on reducing the carbon footprint of the project based on the LCA? Or will this be forthcoming as a next step? The ECMs and study of a heavy timber structure are the result of FAAs analysis of ways to reduce the GWP of the project. We believe these items will have the greatest impact. As part of FAAs in-house sustainability standards, we will consistently review the environmental impact of the building throughout the process. Additional studies of LCA reduction can be provided for additional fee at subsequent phases.
- How will post-pandemic operational changes, such as disabling demand-controlled ventilation and running a pre-occupancy flush period, might affect the proposed EEMs We can provide ASHRAE studies that recommend various operational changes that could be implemented post-pandemic. At this time, none of these changes are being required by building code so they would be at the discretion of the client. A study of the environmental impacts of such measures would be at an additional fee.

Our next Board is meeting is on Friday at 3:00 and I will be providing an update regarding your presentation to the Sustainability and Feasibility Committees. I would appreciate confirmation prior to the meeting that my understanding above is correct and would also like an ETA on receipt of the items where clarification and updates will be coming that are within our original Service Agreement.

Thank you so much.

Alex Lefebvre