MEETING NOTES

DORE + WHITTIER

Meeting Date: **April 3, 2024**
Project Name: **Lexington High School**
Project Number:
Subject: **MEP and Sustainability Focus Group Meeting**
Attendees:

Present	Name	Affiliation	Present	Name	Affiliation
✓	Cynthia Arens (CA)	Sustainable Lexington Committee Chair	✓	David Pinnsonnault (DP)	Director of Public Works
✓	Susan Barrett (SB)	Town Transportation Manager	✓	Todd Rhodes (TR)	Sustainable Lexington Vice Chair
✓	Chris Bouchard (CB)	Project Engineer	✓	Mark Sandeen (MS)	Select Board
✓	Phil Coleman (PC)	Permanent Building Committee		Sophie Shaw (SS)	Student
✓	Julie Hackett (JH)	Superintendent of Schools	✓	Nancy Sofen (NS)	Tree Committee
	Wendy Heiger-Bernays (WH)	Board of Health		Bernardo Streithorst (BS)	Student
✓	Jon Himmel (JH2)	Permanent Building Committee Chair		Jillian Tung (JT)	Board of Health
	Lin Jensen (LJ)	Support/Resident	✓	Dan Voss (DV)	Sustainable Lexington Committee
✓	Vincent Lerow (VL)	AV Technician	✓	Dave Wininger (DW)	Digital Learning Coach
✓	Erica Downs (ED)		✓	Brian Black	SMMA
✓	Tina McBride (TB)	Support/Resident		Lorraine Finnegan (LF)	SMMA-Project Manager
	Asa Mele (AM)	Student	✓	Matt Rice (MR)	SMMA-Project Architect
	Shawn Newell (SN)	Assistant Director of Facilities	✓	Martine Dion (MD)	SMMA-Director of Sustainability
✓	Glenn Parker (GP)	Appropriation Committee Chair		Andy Oldeman (AO)	SMMA-Director of Engineering
✓	Maggie Peard (MP)	Town of Sustainability and Resilience Officer	✓	Anthony Jimenez (AJ)	SMMA-Electrical Engineer
✓	Brian Black (BB)	SMMA-Design Architect	✓	Rebecca Rahmlow (RR)	SMMA-Project Manager for Sustainability
✓	Chris Shaffner (CS)	The Green Engineer	✓	Vamshi Gooje (VG)	SMMA-Principal in Charge for Sustainability
✓	Lisa Whelen (LW)		✓	Mike Burton (MB)	Dore + Whittier
✓	Michael Dowhan (MD2)		✓	Christina Dell Angelo (CD)	Dore + Whittier
✓	Mark Barrett (MB)			Rachel Rincon (RR2)	Dore + Whittier
✓	Sophie Shaw (SS)		✓	Jacob Greco (JG)	Dore + Whittier

✓	Kathleen Lenihan (KL)	SBC Chair	✓	Anoush Krafian (AK)	SMMA - Assistant Project Manager
✓	Mike Cronin (MC)		✓	Brenda Lam (BL)	
✓	Andy Oldeman (AO)				
✓	Chase Gibson (CB2)				

Agenda Item	Description
1.	**Introduction:** Refer to attendees list.

2.	Please refer to attached presentation for meeting materials as below is a summation of the presentation with Focus Group & Public member's comments.
	
	Meeting Overview
	
	Review Proposed PDP Recommendations from Focus Group to the SBC
	
	Climate Preparedness/Adaptability
	• **MEPS 2/3/4:** Thinking about the future and creating a cutting-edge building, Lexington could have a 75-year life cycle analyses - Given & Needs More Discussion
	• **MEPS 5:** The high school will be identified as a level 2 for the Gym/Field house whereas the rest of the school will be a level 3 - Given
	• **MEPS 7:** Emerging technology will be considered along with the militance and potential life cycle of those systems - Needs More Discussion **(NMD)**
	  ○ **MS:** The building should be modeled based on what the climate could be in 50 years
	
	Sustainable Sites
	• **MEPS 7 - 15:** Using the environment to promote student health and a positive environment through native plants, use of trees for cooling, and outdoor spaces - Given
	• **MEPS 16:** Sustainable Sites criteria will be used through LEED v4 and the Lexington IDP - Given
	• **MEPS 17/18/19:** Important to build green spaces for students to be involved with nature, easy access to outdoors and away from roads - Given
	• **DW:** Landscaping was originally done by a teacher and volunteers. The long-term landscaping needs to be monitored as LHS is currently overrun by invasive species.
	  ○ The extension of WIFI past the school building for use of technology outdoors
	  ○ Mulching, although not natural, could be helpful for preventing weeds and invasive species
	  ○ **CB:** Emphasis that whatever is installed for landscaping must be easy to maintain
	• **NS:** Noted that the canopy of trees should be pruned roughly around every 5 years
	• **MP:** If battery powered tools are used there should be adequate places to charge them on site
	
	Net Zero Energy/Renewable

- **MEPS 20/21:** Building orientation to maximize lighting and solar will be optimized but the current site will provide some limitations - Given
- **MEPS 22/23:** Massing of buildings should be utilized for multifunctional, spaces that are not in use can be combined to reduce energy usage - NMD
- **MEPS 24/25:** Lexington is eager to push the sustainability envelop to create a high-performance building. The new stretch code will require highly insulated and airtight enclosure systems at Net Zero Energy - Given
- **MEPS 26 - 32:** The Life Cycle Costs Assessment will be conducted at PSR (high level), Schematic Design, and updated at the DD and CD. - 50 year is Given, 75-year NMD
- **MEPS 33:** Lessons learned from recently built schools will be considered by the design team - Given
- **MEPS 34:** Communications and collaborations with utilities have already been started by the Design team - Given
    - **CS:** Asked for SMMA to include the current electricity rates in their Net Zero Energy "Snapshot" projections
    - **DW:** The current software for the HVAC system is very old and may not be compatible will future BMS or HVAC systems
    - **CA:** Asked for SMMA to share the life cycle model ahead of time, what they are planning on inputting and the parameters around it
- **MEPS 35 - 49:** The future LHS should be solar-ready and capable. This includes the proper infrastructure, batteries, and locations for solar. This will require a large amount of up-front planning and will follow the MA Stretch Code - Given
    - **CS:** Lexington is already taken advantage of energy storage incentives at the Hastings Elementary School
    - **DV:** How are we anticipating the load of electric vehicles/buses that will be on the school site. A large portion of the bus fleet will be electric within the next 7 years and there is the possibility for a large increase in citizen EV use.
        - Lexington by-laws require 4% off-street parking to have EV chargers.
        - The charging of EV will require its own service/transformers, this will need more discussion.
        - The Ev program can be kept out of the Net Zero Energy Equation, this will make it simpler
    - **MS:** What is the plan for engaging with distributed energy groups, Make Ready group, and Eversource. They should also be made aware of the possible heating/cooling requirements in the next 50 years, not just today
        - SMMA will be persistent and stay on top of reaching out and planning with these companies as early as possible
    - **JH2:** The first page of the IDP should be referenced throughout the planning of the project design, cost, and life cycle. Although Lexington wants LEED gold and Platinum it may not be affordable. The community should be aware of the costs associated with all the desires
- **MEPS 50/51:** The future LHS should strive for Net Positive, but this will require more than 3.3 MW of Solar PV - NMD
    - **CS:** The project should be looked at for maximizing solar just for the goal of using solar and energy storage not necessarily just for reaching net zero.

Sustainable Transportation and Electrification of Transportation

- **MEPS 52/53:** Batteries and EV charging stations will meet Lexington bylaws for zoning of installation and readiness. EV charging for students - Given

    - **DW**: The city/school should not pay for private EVs to be charged on campus but would be good for school vans or transport vehicles
    - **TR:** The lack of parking on campus is already tight, charging EV busses on may cause problems
- **MEPS 54 - 59:** Specialized Stretch Code will require battery storage readiness with permanent batteries. Electric transportation batteries may be considered for additional resiliency - NMD
- **MEPS 60 - 65:** LEEDv4 criteria will support bike access and storage, as well as preferred parking for electric vehicles/carpooling - Given but NMD for Electric Bike Charging

MEP Systems

- **MEPS 66:** Separate metering for water system and electrical system - Given
- **MEPS 67:** Where central systems are provided, consideration will be given to future expansion needs
- **MEPS 68:** The proposed water metering system could be used to create an alarm to the BMS where atypical use is measured and could close an isolation valve - Given
- **MEPS 69:** In relation to *MEPS 68* it is good practice to monitor makeup water in closed systems and in open systems a leak should trigger a makeup valve closure to mitigate loss - Given
- **MEPS 70 - 77:** Integration of all systems into one specific area, the design team will coordinate with utilities as to where they want their central system "hub". The initial and maintained costs will be kept in mind during the design process - Given
- **MEPS 78:** 24/7 HVAC and humidity control can be provided for specialized rooms when it is needed but this project is not planned on having a system that is running 24/7 - NMD for the special use cases
- **MEPS 79:** It is expected that the BMS will integrate with lighting controls, plumbing, and all other required electrical systems
- **DW:** Regarding the 24/7 use is the emergency shelter factor considered?
    - The HVAC and plumbing systems will be planned with the emergency shelter requirements
- **CB**: Wanted to confirm that Utility Grade Meters will be installed on this project
- **DW:** Asked about the possible use of rainwater or general water capture/reuse systems.

Geothermal

- **MEPS 80:** There are sizeable upfront costs with geothermal but has a very positive life cycle - Given
- **MEPS 81:** The estimates show there will be somewhere around 500, 500ft wells using 5 acres or 800ft wells bringing the size down to 3 acres - NMD
- **MEPS 82:** The ability to get exemptions for deeper wells will be better known after the test well in June - NMD
- **TR:** Will the space needed for wells affect the fields/landscaping?
    - The Landscape & Civil teams will coordinate with the Mechanical as there a lot of challenges using this method
    - **MC:** The playing and athletic fields can be placed above the well fields as the equipment can be below-grade
- **MS:** Is the plan to conduct an 800ft bore hole?
    - Yes, this is correct
- **JH2:** Are geothermal wells compatible with Article 97?

HVAC Systems & Loads

- **MEPS 83:** The system selection discussion will focus on the type of system that best suits the intended use of the building - Given

- **MEPS 84:** Provide a system that will last the lifetime of the building is the goal, some parts will need replacement but not the core systems - Given
- **MEPS 85:** Lessons have been learned in the past and the plan will be to not use a two-pipe system as it does not allow for flexibility in the swing seasons - Given
- **MEPS 86:** Each zone will be able to provide both heating and cooling but not both at any one time - Given
- **MEPS 87:** There will be supplemental backup for HVAC systems in selected spaces, such as IT and electric rooms via spit systems. The consideration of general pack up for spaces used for emergency shelter will be considered - NMD
- **MEPS 88:** The current incentives projections for heating/cooling are derived from installed Tons - Given
- **MEPS 89:** The current system used in the existing school for heating and cooling is inconsistent and inefficient - Given
- **MEPS 90:** Consider future expansion when location areas for the geothermal bore holes/wells - Given
- **MEPS 91:** The theater spaces may require larger amounts of electricity than commonly found; however the programming will decide this - NMD
- **MEPS 92:** Air source heat pumps are likely system to evaluate in the selection process - Given
- **MEPS 93:** Ensure the viability of heat pumps in 5-years-time - Given
- **MEPS 94:** ASHP's hold higher refrigerants volume vs. GSHP's, being mindful of climate impact and maintenance following future regulations - NMD
- **MEPS 95:** Heat pump maintenance on cold days, the pumps cycle off for up to 5 minutes +/- when the temp is between 20-40'F because the system must defrost the outdoor heat pump condenser unit. This normally does not affect FCUs but when supporting an AHU or DOAS a backup electric coil will be required - NMD
- **MEPS 96:** High efficiency MEP systems will be included as part of the design - Given
- **MS:** The main concern is to know what the heat load is currently to be able to better plan for the future, a ROM will be helpful
    - With the correct materials and construction heat loads for basic 900sf can be very small

Sustainable Materials and Healthfulness [IEQ/IAQ]

- **MEPS 97 - 100:** There will be no use of red-list materials as required by LEEDv4, the MSBA's Green Policy, and the IDP for Low Toxicity - Given
- **MEPS 101 - 104:** Noted that this goal is part of the IDP tracking sheet, ventilation is mostly where there is a tradeoff for slightly higher energy consumption - NMD
- **MEPS 105:**
- **MEPS 106:** The project will consider the option of a 600-ppm threshold for the CO2 sensors - NMD
    - **CS:** asked why this is yellow or NMD?
        - CO2 sensors are a given, but the goal of 600 ppm Is what needs more discussion
- **MEPS 107:**
- **MEPS 108:**
- **MEPS 109/110:** Reusables outside of cafeterias and lounges as well as reuseable dishware in the café will be integrated into the project - Given

Environmental Literacy

	• **MEPS 111 - 116:** The project design will engage with students throughout the design phases. A comprehensive Green Educational Program will be developed, including environmental signage, building tour and booklet, and case study. The project will address opportunities to give students access to day-to-day energy use data - Given
	• Embodied carbon is the carbon that is captured in materials throughout their whole lifecycle
	  ○ **TR:** Is the plan to have embodied carbon options this summer?
	  • Yes, during the PSR phase
	• **MP:** The current building is heavily filled with embodied carbon. It is good to note this for future materials used but the removal/demo of the old site needs to be considered. Even if a new building is constructed it could be better to leave the old foundation in place
	General - Sustainability/MEP Planning
	• **MEPS 117/118:** Focus Group Meetings will continue at upcoming design phases - Given
	• **MEPS 119 - 121:** The sustainability study outcomes are to be shared with the noted stakeholders in a transparent manner to promote collaboration, Sustainable Lexington would like a work session - NMD
	• **MEPS 122:** Task consultants to explore beyond business-as-usual solutions to be presented to the SBC and PBC - NMD
	
	General Questions
	• **JH2:** It is interesting to view MSBA historical prices, which High Schools have gone to LEED silver. When conducting cost estimates based on prior school projects it is important to note if those schools achieved LEED silver. Are the costs to get LEED silver the same as they were when those projects were conducted?
	  ○ LEEDv4 has been ongoing for the last 10 years
	  ○ There are examples of schools achieving LEEDv4 Gold on budget
	  ○ LEEDv4.1 has some leniency on credits compared to v4
	  ○ **CS:** Due to the MSBA requirements all historical school cost data would be at least LEEDv4 Silver (v4 2014 and on)

3.	**Close**

Sincerely,

DORE + WHITTIER
Jacob Greco
Assistant Project Manager

Cc: Attendees, File
The above is my summation of our meeting. If you have any additions and/or corrections, please contact me for incorporation into these minutes.