**CMS Sustainability Subcommittee – Feasibility Recommendations**

**February 26, 2021**

## Sustainability Framework

The Sustainability Subcommittee unanimously approved the following two bullets for the Project Charter on February 6, 2020:

- The CMS building will leverage green certification standards to ensure design rigor and construction quality. Energy goals of the project include super energy efficient (EUI of ~~less than~~ 25 or better), schematic design Passive House software modeling, reduced embodied carbon (20%), all electric (excluding emergency backup), and solar ready.
- The Committee will engage in a robust discussion on sustainability issues, grounded in expertise and life-cycle cost analysis, with the goal of ~~setting~~ achieving clear and ambitious targets that hold widespread support of the community.

The Subcommittee has six high level sustainability goals for the Design and Construction Teams:

1. Deliver a Healthy Indoor Environment
2. Inspire a Passion for Learning
3. Achieve High Performance Energy Efficiency[1] (EUI of 25 or better)
4. Reduce Embodied Carbon During Construction
5. Be All-Electric[1]
6. Be Solar[1] and Storage Ready*

*The Sustainability Sub-Committee is committed to Net Zero Energy and is working with the CMLP to develop a Zero Energy Building strategy with the CMS.

## Metrics for Success

The Sustainability Subcommittee has identified the following metrics for the Design and Construction Teams to support achievement of the goals listed above:

1. Compliance with the Energy Zero Code Version 2.0 (E-Z Code) as proposed to the Massachusetts Board of Building Regulations and Standards on November 5, 2020. The subcommittee adds the following clarifications to the E-Z Code:
    a. Follow the Prescriptive Compliance Path (AA104.3)
    b. Solar Ready (AA106.8.1) is the responsibility of the Design Team. The balance of the requirements within On-Site Renewable Energy (AA106.8) are the responsibility of the CMLP and/or the Town.
    c. AA106.9 through AA106.12, AA107.6.1, AA107.7, and AA107.8 are excluded as they are not within the scope of the CMS project.
2. Indoor Air Quality and Materials
    a. Dedicated outdoor air system shall maintain the $C0_2$ below 800 parts per million
    b. Install 20 building products that have a high impact on indoor environmental quality that provide full materials transparency and are Red List free

[1] Goal aligns with the Town Meeting Amendment to the funding article for the design of the new CMS.

3. Daylighting
    a. Spatial Daylight Autonomy – Greater than 75%
    b. Annual Sunlight Exposure – Less than 3%
4. Embodied Carbon
    a. Reduce the embodied carbon of the primary building materials by more than 20% compared to an equivalent baseline
5. LEED v4 Silver Certifiable

## Next Steps

The Sustainability Subcommittee will focus on the following topics with the design team as the project moves forward with the design:

1. Education
    a. Active design elements
    b. Educational sustainability features
    c. Integration of and connection to nature (biophilia)
    d. Opportunities for outdoor learning
2. Healthy Indoor Environment
    a. Daylighting and glare/shade control
    b. Healthier materials
    c. Indoor Air Quality
3. Mechanical Design
    a. Ventilation design
    b. Ground source heat pump feasibility
    c. Building zone compartmentalization
4. Embodied carbon
    a. Strategies to reduce embodied carbon
    b. Carbon reduction opportunities for concrete
5. Energy modeling
    a. Analyze design using Passive House guidelines
    b. Thermal bridging
6. Kitchen design and equipment selection
7. Load control
    a. Building management system
    b. Miscellaneous electrical loads, plug load controls, and user behavior
    c. EV car chargers
8. Water: Efficiency, recovery, and reuse
9. Photovoltaics and storage
    a. Develop a strategy with CLMP to achieve Net Zero Energy (separate from the project scope)
10. LEED credit targets