Lincoln Public Schools
School Building Committee Meeting
July 11, 2018
Today’s Agenda

• Floor Plan Update
• Sustainable Design Features, NZE Systems & Exterior Building Envelope
• Project Schedule
• Construction Phasing & Swing Space
Floor Plan Updates
Sustainable Design Features
Sustainable Design at Lincoln Elementary

Net Zero Energy (NZE)

Sustainable Site Measures
Water Efficiency Goals
Sustainable Materials
Indoor Environmental Quality
Innovative Design
Sustainable Design at Lincoln Elementary

Site Design
• Community use of facilities planned
• Heat Island Reduction Strategies included
• Light Pollution Reduction (nocturnal)
• Sensitive Land Protection
• Connectivity with Wetlands
• Green Vehicles Ready (conduits)

Water Efficiency
• Drought resistant landscape
• Indoor potable water use reduction (30%)
  ◦ Low flow toilet fixtures
  ◦ Efficient Kitchen Equipment
• Building Level Water metering
Sustainable Design at Lincoln Elementary

Indoor Enviro Quality
- Low VOC materials will be specified
- Access/optimization to natural light and views
- Thermal comfort controls
- Acoustic performance
- No smoking on campus
- Construction Indoor Air Quality Practices

Sustainable Materials
- Recycling program (by Town)
- Construction waste will be minimized (75-90% Goal)
- Sustainable materials attributes:
  - Recycled Content
  - Certified Wood
  - Regional Materials
  - Materials Transparency
Sustainable Design at Lincoln Elementary

Energy Efficiency
- Net Zero Energy (NZE)
  - All Electric heating and cooling
  - No natural gas (electric cooking)
  - Emergency Generator min. loads
- Renewable Energy (PV Roof & Canopies)
- Enhanced Commissioning (Cx)
- Building Enclosure Commissioning (BE Cx)
- Post-Occupancy Evaluation (POE)

Innovative Design
- Recommended Town practices for consideration:
  - Green Cleaning Program
  - Green Building Education Program
  - Local Food Production
  - Student/Community Gardens
## LEEDv4 for Schools (Certified Level)

### Certification Costs:

<table>
<thead>
<tr>
<th>Service</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>GBCI review</td>
<td>$15,000-$20,000</td>
</tr>
<tr>
<td>LEED Documentation</td>
<td>$60,000</td>
</tr>
<tr>
<td>Daylight Modeling</td>
<td>$8,000</td>
</tr>
<tr>
<td>Energy Modeling</td>
<td>$15,000**</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$98,000-$103,000</strong></td>
</tr>
</tbody>
</table>

**The LEED energy model is in addition to the NZE energy model. Each model uses different requirements and standards.**

### Additional Measures vs. Current Design:

- Environmental Site Assessment (ASTM-E-1527)
- Building Life Cycle Assessment (LCA)
- Expanded Recycling Program (Town Policy update)
- Advanced Energy Metering system
- Water metering and sub-metering
- Demand Response ready (adv. Lighting controls)
- Acoustic performance ($3,000/classroom door)
- Innovative Design Credits:
  - Ergonomic office/classroom furniture
  - Design for Fitness
  - Integrated Pest-management
NZE Systems
HVAC System

VRF Systems provide heating and cooling

VRF Diagram

VRF Components
HVAC System

Energy Recovery Units provide ventilation
HVAC System

VRF Systems can be used to serve large spaces
HVAC System

VRF Systems can make hot water
Exterior Building Envelope
High Performance Building Enclosure

- Continuous Insulation Layer
- Continuous Air Barrier Layer
- Triple Pane Windows
1948-1955
Existing Walls

Roof R-5
Windows R-2
Walls R-2.9
Existing 1948-1955 Smith Building:
Existing 1948-1955 Smith Building:
**Roof R-60**

- New Roof and Polyiso Insulation
- New Wood Blocking and Fascia
- New Continuous Air Barrier
- New Wood Soffit
- New Fiberglass Triple Pane Window

**Windows R-5**

**Walls R-34**

- New Brick Veneer
- Air Cavity
- New Exterior Mineral Wool Insulation
- New EPS Insulation and Foundation Wall Below Grade
1963-1970
Existing Walls
Existing 1963-1970 Brooks Building
Roof R-60
Windows R-5
Walls R-34

- Remove soffit decking and trim, install New wood T&G decking and trim
- New continuous exterior air barrier, (Tyvek with taped seams or equivalent) connection between roof and wall is easy since it is all on the outside
- New windows - airsealed
- New exterior mineral wool
- New brick
- New EPS below grade
- New foundation wall
1994
Existing Walls

Roof  R-12
Windows R-2
Walls R-9.9
Existing 1994 Link Building
Project Schedule
<table>
<thead>
<tr>
<th>Activity Name</th>
<th>Duration (Days)</th>
<th>Start Date</th>
<th>Finish Date</th>
<th>2018</th>
<th>2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>Schematic Design (S)</td>
<td>15.00</td>
<td>6/2/18</td>
<td>6/27/18</td>
<td>June</td>
<td>July</td>
</tr>
<tr>
<td>Call to Bid Application</td>
<td>30.00</td>
<td>9/2/18</td>
<td>10/2/18</td>
<td>August</td>
<td>September</td>
</tr>
<tr>
<td>Construction Manager PreQualification &amp; Selection</td>
<td>115.00</td>
<td>6/27/18</td>
<td>11/28/18</td>
<td>October</td>
<td>November</td>
</tr>
<tr>
<td>School Building Committee Meeting-Chamette: Hubs and Commons</td>
<td>1.00</td>
<td>6/27/18</td>
<td>6/27/18</td>
<td>December</td>
<td>January</td>
</tr>
<tr>
<td>School Building Committee Meeting-Chamette: Building Envelope &amp; Sustainability</td>
<td>1.00</td>
<td>7/1/18</td>
<td>7/1/18</td>
<td>February</td>
<td>March</td>
</tr>
<tr>
<td>School Building Committee Meeting-Chamette: Building Exteriors &amp; Site Circulation</td>
<td>1.00</td>
<td>7/25/19</td>
<td>7/25/19</td>
<td></td>
<td></td>
</tr>
<tr>
<td>School Building Committee Meeting-Chamette: Systems and Photovoltaic Panels</td>
<td>1.00</td>
<td>8/30/18</td>
<td>8/30/18</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Community Forum No. 9: TBO</td>
<td>1.00</td>
<td>9/1/18</td>
<td>9/1/18</td>
<td></td>
<td></td>
</tr>
<tr>
<td>School Building Committee Meeting-Chamette: Interior Spaces &amp; Security</td>
<td>1.00</td>
<td>9/25/18</td>
<td>9/25/18</td>
<td></td>
<td></td>
</tr>
<tr>
<td>School Building Committee Meeting-Chamette: Schematic Design Pricing Set</td>
<td>1.00</td>
<td>9/15/18</td>
<td>9/15/18</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SIMS to Distribute SD Pricing Set</td>
<td>1.00</td>
<td>9/15/18</td>
<td>9/15/18</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Draft SD Estimate Due</td>
<td>1.00</td>
<td>9/25/18</td>
<td>9/25/18</td>
<td></td>
<td></td>
</tr>
<tr>
<td>School Building Committee Meeting-Chamette: Cost Review</td>
<td>1.00</td>
<td>9/27/18</td>
<td>9/27/18</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reconciliation Meeting at SIMA</td>
<td>1.00</td>
<td>9/27/18</td>
<td>9/27/18</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Community Forum No. 7: TBO</td>
<td>1.00</td>
<td>9/27/18</td>
<td>9/27/18</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Final Estimate Due</td>
<td>1.00</td>
<td>10/1/18</td>
<td>10/1/18</td>
<td></td>
<td></td>
</tr>
<tr>
<td>School Building Committee Meeting Vote to Approve Construction Cost</td>
<td>1.00</td>
<td>10/5/18</td>
<td>10/5/18</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Community Forum No. 8: TBO</td>
<td>1.00</td>
<td>10/1/18</td>
<td>10/1/18</td>
<td></td>
<td></td>
</tr>
<tr>
<td>School Building Committee Meeting-Town Meeting Prep</td>
<td>1.00</td>
<td>11/7/18</td>
<td>11/7/18</td>
<td></td>
<td></td>
</tr>
<tr>
<td>School Building Committee Meeting-Town Meeting Prep</td>
<td>1.00</td>
<td>11/28/18</td>
<td>11/28/18</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Town Approval</td>
<td>8.00</td>
<td>12/18/18</td>
<td>12/18/18</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Town Meeting (Saturday, December 19)</td>
<td>8.00</td>
<td>12/18/18</td>
<td>12/18/18</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Town Deal Selection Set</td>
<td>8.00</td>
<td>12/18/18</td>
<td>12/18/18</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Retained Design</td>
<td>324.00</td>
<td>12/18/18</td>
<td>3/20/20</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Design Development</td>
<td>110.00</td>
<td>12/18/18</td>
<td>3/20/19</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Construction Documents</td>
<td>144.00</td>
<td>5/17/18</td>
<td>11/23/18</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PreQualification &amp; Bidding</td>
<td>140.00</td>
<td>6/18/19</td>
<td>3/2/20</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bid Early Work Packages (Demo, Bids, Steel)</td>
<td>30.00</td>
<td>9/23/19</td>
<td>11/1/19</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trade Sub Contractors PreQual and Bid</td>
<td>140.00</td>
<td>8/23/19</td>
<td>3/2/20</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non Trade Sub Contractors Selection &amp; Bid</td>
<td>87.00</td>
<td>11/23/18</td>
<td>1/28/20</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Guaranteed Maximum Price (GMP)</td>
<td>1.00</td>
<td>1/28/20</td>
<td>1/28/20</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Construction</td>
<td>1,213.00</td>
<td>3/20/19</td>
<td>11/10/23</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Install Modular Classrooms</td>
<td>120.00</td>
<td>3/20/19</td>
<td>9/30/19</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Construction</td>
<td>1,035.00</td>
<td>11/25/19</td>
<td>11/10/23</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Project Close Out</td>
<td>2.00</td>
<td>11/13/23</td>
<td>11/14/23</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Occupancy and Close Out</td>
<td>2.00</td>
<td>11/13/23</td>
<td>11/14/23</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Construction Phasing & Swing Space
Key Planning and Cost Issues

Building
- Administration Oversight
- Food Service Availability
- PE Availability
- Internal Circulation
- Temporary Space/Modular Quantity
- Electrical Power, Fire Alarm, Low Voltage Systems Continuity
- Construction Separation

Site
- Modular Location and Access
- Bus and Parent Circulation
- Existing Utilities Impact
- Playing Field Usage
- Contractor Staging and Access
Thank you