Town of Mansfield
Project Update
SBC, BOE, and Town Council Meeting
April 2, 2019

TSKP STUDIO
ARCHITECTURE | PLANNING | INTERIORS
Project Update | Agenda

1. Project Schedule
2. Existing Buildings
3. Ed Specs for New Building
4. State Guidelines
5. Conceptual Building Plan
6. Net Zero and Sustainability
7. Site Evaluation
What We Observed | Floor Plans
What We Observed | Teacher Innovation
What We Observed | Goodwin SF

Dorothy Goodwin Elementary School
37,980 (per State) GSF
What We Observed | Southeast SF

Southeast Elementary School
38,400 (per State) GSF
What We Observed | Vinton SF

Annie Vinton Elementary School
34,800 (per State) GSF
Space Summary from Ed Specs:

**ED SPECS:**
566 Pupils, Grades PK-4, in 33 Classrooms, 3 Groupings, plus Support Spaces.

**Distribution of Classrooms for 566 Pupils**

<table>
<thead>
<tr>
<th>Groupings</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grades PK - K</td>
<td>9</td>
</tr>
<tr>
<td>Grades 1 - 2</td>
<td>12</td>
</tr>
<tr>
<td>Grades 3 - 4</td>
<td>12</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>33</td>
</tr>
</tbody>
</table>

**Net Program SF** 60,865

\[ \times 40\% \] 24,300*

**Gross SF** 85,165

*Estimated Square Footage for Non-Program Building Components such as Corridors, Columns, Wall Thicknesses, Chases, etc.
Elementary School Design | DESIGN GOALS

- Child-Friendly, Small Scale
- Three Schools within a School
- Open, Bright & Inviting
- Flexible Plan, with Multi-Use Spaces
- Integration with Nature
- Sustainable Design
ED SPECS:
566 Pupils, Grades PK-4, in 33 Classrooms, 3 Groupings, plus Support Spaces.

CONCEPTUAL PLAN
New Elementary School
83,000 (per State) GSF
Elementary School Design | SF: Existing vs New

Vinton
34,800 (per State) GSF

Southeast
38,400 (per State) GSF

Goodwin
37,980 (per State) GSF

Existing Elementary Schools
111,180 (per State) GSF

New Elementary School
83,000 (per State) GSF
Elementary School Design | Net Zero Energy

New Elementary School
One Story
83,000 (per State) GSF

<table>
<thead>
<tr>
<th>Building Characteristics for Net Zero Energy</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>EUI – 27 to 29 kBtu/sf/year</strong></td>
<td></td>
</tr>
<tr>
<td>Building Type</td>
<td>School with 50% summer occupancy</td>
</tr>
<tr>
<td>Climate Zone</td>
<td>5A</td>
</tr>
<tr>
<td>Walls</td>
<td>R-13 + R-15ci</td>
</tr>
<tr>
<td>Roof</td>
<td>R-30ci</td>
</tr>
<tr>
<td>Floor Slabs on Grade</td>
<td>R-15 for 24 inches</td>
</tr>
<tr>
<td>Glazing</td>
<td>U-0.35</td>
</tr>
<tr>
<td>Infiltration</td>
<td>50% tighter than Code</td>
</tr>
<tr>
<td>Lights</td>
<td>0.55 W/sf</td>
</tr>
<tr>
<td>Lighting Controls</td>
<td>Occupancy / Vacancy Sensors</td>
</tr>
<tr>
<td>Daylighting Controls</td>
<td>Maximized Daylighting with Controls</td>
</tr>
<tr>
<td>Load Controls</td>
<td>Automatic Receptacle Controls</td>
</tr>
<tr>
<td>Heating &amp; Cooling Plant</td>
<td>Geothermal Ground Source</td>
</tr>
<tr>
<td>Photovoltaic Capacity</td>
<td>576 – 618 kW</td>
</tr>
<tr>
<td>PV Area</td>
<td>35,500 sf</td>
</tr>
<tr>
<td>Glazing Ratio</td>
<td>35% to 45% of Exterior Walls</td>
</tr>
</tbody>
</table>
Elementary School Design | Utility Costs: Existing vs New

Existing Elementary Schools
$205,961 / year

New Elementary School

<table>
<thead>
<tr>
<th>Rate Structure</th>
<th>Estimated Utility Costs</th>
<th>PV ZRECS Income</th>
<th>Est. Net Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rate 37</td>
<td>$141,000</td>
<td>$0</td>
<td>$141,000</td>
</tr>
<tr>
<td>Rate 37 with PV</td>
<td>$70,000</td>
<td>$45,000</td>
<td>$25,000</td>
</tr>
<tr>
<td>Rate 56</td>
<td>$153,000</td>
<td>$0</td>
<td>$153,000</td>
</tr>
<tr>
<td>Rate 56 with PV</td>
<td>$80,000</td>
<td>$45,000</td>
<td>$35,000</td>
</tr>
</tbody>
</table>
Evaluation & Selection | **Parcels ≥ 15 Acres**
Evaluation & Selection | Restricted Parcels
Evaluation & Selection | Public Facilities

Legend
- Geographic Center
- Radius
  - 1 - Mile
  - 2.5 - Miles

Public Facilities
- Town of Mansfield Currently Developed
- Regional School District #19
- University of Connecticut
Evaluation & Selection | Buildable Areas

Legend
- Geographic Center
- Radius
  - 1 - Mile
  - 2.5 - Miles
- Estimated Buildable Areas
Evaluation & Selection | Remaining Parcels on Collectors
Evaluation & Selection | Buildable Areas on Remaining
Parcel A | Constraints
Evaluation & Selection  |  Sites on Parcel A

[Diagram showing various sites on Parcel A with a highlighted workable location]
Evaluation & Selection | Parcel A - Middle School Site
Parcel A | Test Fit with One Story & Playfields

Workable Location
Parcel A | Test Fit with One Story & Playfields
Elementary School Design | One vs Two Story Layout

One-Story

Two-Story
Parcel A | Test Fit with Two Story & Playfields

Workable Location
Parcel A | Test Fit with Two Story & Playfields
Photovoltaic Requirements for Net Zero Energy School = approx. 35,500 SF of PV area, or 2,045 panels.

Geothermal Ground Source Heat Pumps
Possible Sites | Town Zoning Map

Zoning Map
of the
Town of Mansfield,
Connecticut
(Effective June 7, 2011)

Map Sources

"Aquifer Protection Areas", scale = 1:14,000, 2007, CT DEP
"FEMA Flood Insurance Rate Maps (FIRM)", scale = 1:24,000, 1981, Federal Emergency Management Agency (FEMA)
"Mansfield Digital Tax Map", scale = 1:24,000, 2001, Passalacqua
updated 2005, Mansfield GIS
"Roads", scale = 1:24,000, 1995, CT DEP
"Towns", scale = 1:24,000, 1995, CT DEP
"Zoning Map 2011", scale = 1:24,000, 2011, Windham COG
* Mansfield's July 1980 FEMA Flood Insurance Study shall take precedence over flood hazard zone boundaries depicted on this map. Prepared by the Windham Regional Council of Governments.
Evaluation & Selection | Buildable Areas on Remaining

Legend
- Geographic Center
- Buildable Area within Parcels on Collector Roads

Radius
- 1 - Mile
- 2.5 - Miles
Evaluation & Selection | Parcel D – Southeast School Site
Setback Requirements
Rural Agricultural Residence 90 Zone
Side Yard = 35 ft.
Rear Yard = 50 ft.
Wetlands Regulated Area = within 150 ft. of wetlands boundary
The existing building, parking, and playfields remain in use during construction of the New Building.
After the New Building is built, the existing building can be removed and the remaining site work can be completed.
Arborist’s Comments:
- 90% of the oak trees are in major decline or already dead due to gypsy moth damage;
- a large majority of the white pines are in decline;
- There are no notable trees in the area identified for the new school.
## Evaluation & Selection | Earthwork

<table>
<thead>
<tr>
<th></th>
<th>Parcel A</th>
<th>Parcel B</th>
<th>Parcel C</th>
<th>Parcel D</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Town Owned</td>
<td>Privately Owned</td>
<td>Privately Owned</td>
<td>Town Owned</td>
</tr>
<tr>
<td>1 or 2 Story</td>
<td>1 or 2 Story</td>
<td>2 Story Only</td>
<td>1 or 2 Story</td>
<td>13,000 CY</td>
</tr>
<tr>
<td>Total Cut</td>
<td>48,500 CY</td>
<td>56,000 CY</td>
<td>13,000 CY</td>
<td>13,000 CY</td>
</tr>
<tr>
<td>Total Fill</td>
<td>75,500 CY</td>
<td>36,000 CY</td>
<td>20,000 CY</td>
<td>20,000 CY</td>
</tr>
<tr>
<td>Net Change</td>
<td>+ 27,000 CY</td>
<td>- 20,000 CY</td>
<td>Undetermined</td>
<td>+ 7,000 CY</td>
</tr>
</tbody>
</table>
## Site Costs

<table>
<thead>
<tr>
<th>Parcel A Estimated Costs</th>
<th>Parcel B Estimated Costs</th>
<th>Parcel C Approx. Costs</th>
<th>Parcel D Approx. Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 or 2 Story</td>
<td>1 or 2 Story</td>
<td>2 Story Only</td>
<td>1 or 2 Story</td>
</tr>
<tr>
<td>Admin.</td>
<td>$50,000</td>
<td>$50,000</td>
<td>$50,000</td>
</tr>
<tr>
<td>Erosion Con.</td>
<td>$44,290</td>
<td>$42,870</td>
<td>$40,000</td>
</tr>
<tr>
<td>Earthwork</td>
<td>$2,912,500</td>
<td>$2,070,000</td>
<td>$710,000</td>
</tr>
<tr>
<td>Surfaces Imp.</td>
<td>$1,542,550</td>
<td>$1,205,270</td>
<td>$1,000,000</td>
</tr>
<tr>
<td>Drainage</td>
<td>$1,050,300</td>
<td>$852,200</td>
<td>$800,000</td>
</tr>
<tr>
<td>Site Utilities</td>
<td>$3,857,450</td>
<td>$1,906,250</td>
<td>$1,900,000</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>$9,457,090</strong></td>
<td><strong>$6,126,590</strong></td>
<td><strong>Undetermined</strong></td>
</tr>
<tr>
<td>Abatemt, Demo</td>
<td>TBD</td>
<td>TBD</td>
<td>$500,000</td>
</tr>
<tr>
<td>+Escal,Contincy</td>
<td></td>
<td></td>
<td>$5,000,000</td>
</tr>
</tbody>
</table>
## Mansfield Elementary School Site Selection Matrix

4/2/2019
Working Draft

### Criteria

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Parcel A</th>
<th>Parcel B</th>
<th>Parcel C</th>
<th>Parcel D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction Duration</td>
<td>30 Months, Early Phase.</td>
<td>24 Months</td>
<td>24 Months</td>
<td>24 Months</td>
</tr>
<tr>
<td>One Story Achievable</td>
<td>Yes, but site will be tight.</td>
<td>Yes</td>
<td>Yes. 11 Classrooms</td>
<td>Yes. 11 Classrooms +</td>
</tr>
<tr>
<td>Future Expansion</td>
<td>Yes. 11 Classrooms</td>
<td>Yes. 11 Classrooms +</td>
<td>Undetermined</td>
<td>Undetermined</td>
</tr>
<tr>
<td>Cost of Land</td>
<td>0</td>
<td>$6.1 Million *</td>
<td>$6.1 Million *</td>
<td>$6.1 Million *</td>
</tr>
<tr>
<td>Site Development Costs</td>
<td>$9.5 Million *</td>
<td>$6.1 Million *</td>
<td>$6.1 Million *</td>
<td>Prob. $5.0 Million *</td>
</tr>
<tr>
<td>Ineligible Site Costs</td>
<td>$2.6 Million *</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Avoids Wetlands</td>
<td>No. Will encroach.</td>
<td>Yes</td>
<td>Yes. Amount TBD.</td>
<td>Yes. Amount TBD.</td>
</tr>
<tr>
<td>Loss of Tax Revenue</td>
<td>None</td>
<td>Yes</td>
<td>Yes. Amount TBD.</td>
<td>None</td>
</tr>
<tr>
<td>Available Public Utilities</td>
<td>Gas and electricity only.</td>
<td>Gas and electricity only.</td>
<td>TBD</td>
<td>Electricity only.</td>
</tr>
<tr>
<td>Septic System Costs</td>
<td>$2.5 Million *</td>
<td>$700,000 *</td>
<td>Prob. $700,000 *</td>
<td>Prob. $700,000 *</td>
</tr>
<tr>
<td>Available PV Area</td>
<td>Yes, but limited.</td>
<td>Yes</td>
<td>Yes, but limited.</td>
<td>Yes</td>
</tr>
<tr>
<td>Traffic Safety/Access</td>
<td>OK, but congested.</td>
<td>OK</td>
<td>OK</td>
<td>OK</td>
</tr>
<tr>
<td>Environmental Concerns</td>
<td>Remove UST.</td>
<td>Remediation TBD.</td>
<td>Remediation TBD.</td>
<td>Remediation TBD.</td>
</tr>
</tbody>
</table>

* Plus Escalation and Contingency

**Colors**
- **Red**: Negative. Least advantageous.
- **Orange**: Somewhat Negative.
- **Yellow**: Neutral.
- **Light Green**: Somewhat Positive.
- **Green**: Positive. Most advantageous.

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TSKP STUDIO
Project Timeline | Next Steps

- **Town Council/PZC**
  - April 2: Joint meeting with SBC, BOE and Town Council on Site Recommendation.
  - April 8 (Tentative): 8-24 referral of site from Town Council to P&Z.
  - April 15 (Tentative): P&Z meeting to discuss 8-24 referral.
  - End April/early May: Receive project budget from SBC
  - June 10: Town Council resolution, set referendum date.

- **School Building Committee**
  - April 17: Meeting with the State on the proposed project
  - Week of April 22: Begin Part 1 public presentations.
  - End April/early May: Provide project budget to Town Council
  - Week of May 6: Begin Part 2 public presentations.
  - June 14: Submit Grant Application.