

| SMMA

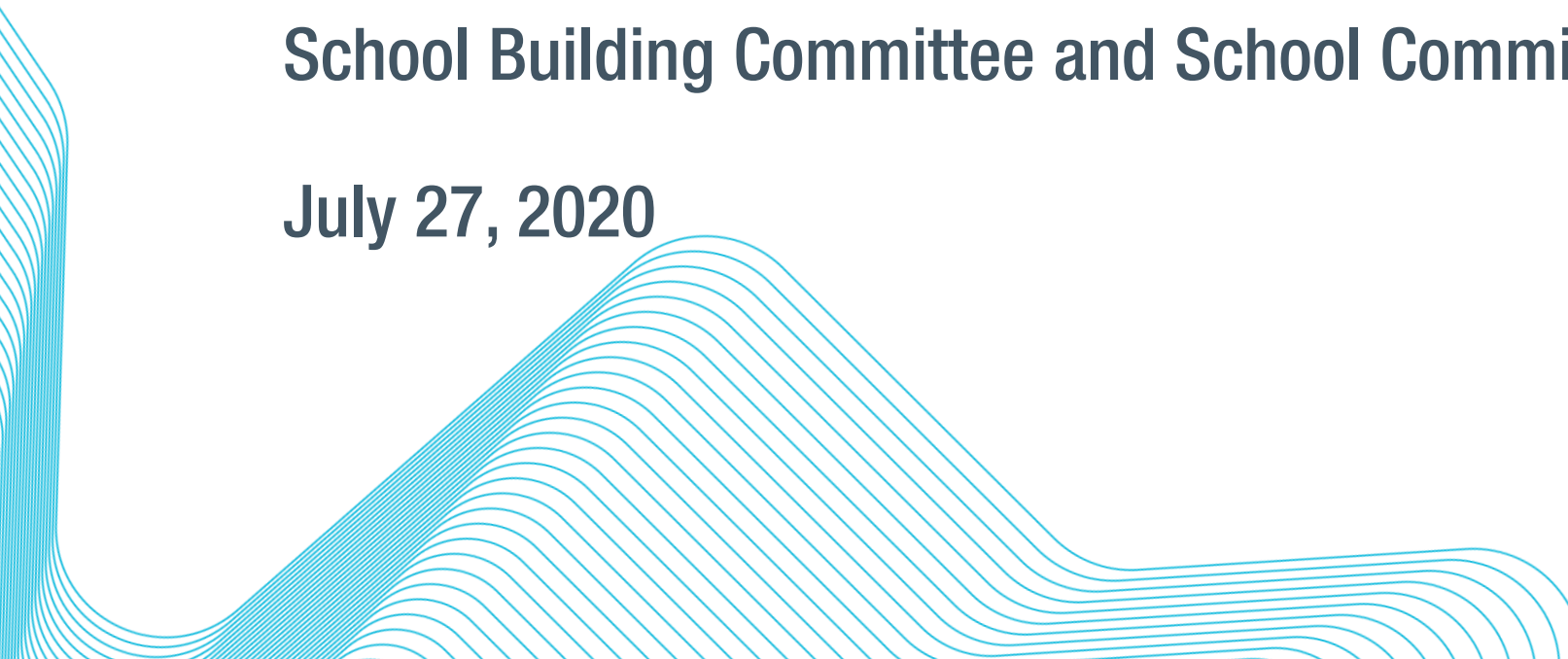


LEFTFIELD

Waltham High School

School Building Committee and School Committee Joint Meeting

July 27, 2020



Design Update

Focus Group Recommendations

- Interiors
- Technology
- Sustainable Design
- Site Design

Traffic Signal Design

Look head topics for next SBC meeting

Design Update

Focus Group Recommendations

- Interiors
- Technology
- Sustainable Design
- Site Design

Traffic Signal Design

Look head topics for next SBC meeting

Dining Commons: Schematic Design

Wood Ceiling



Tiered Seating



Floor Tile /
Terrazzo

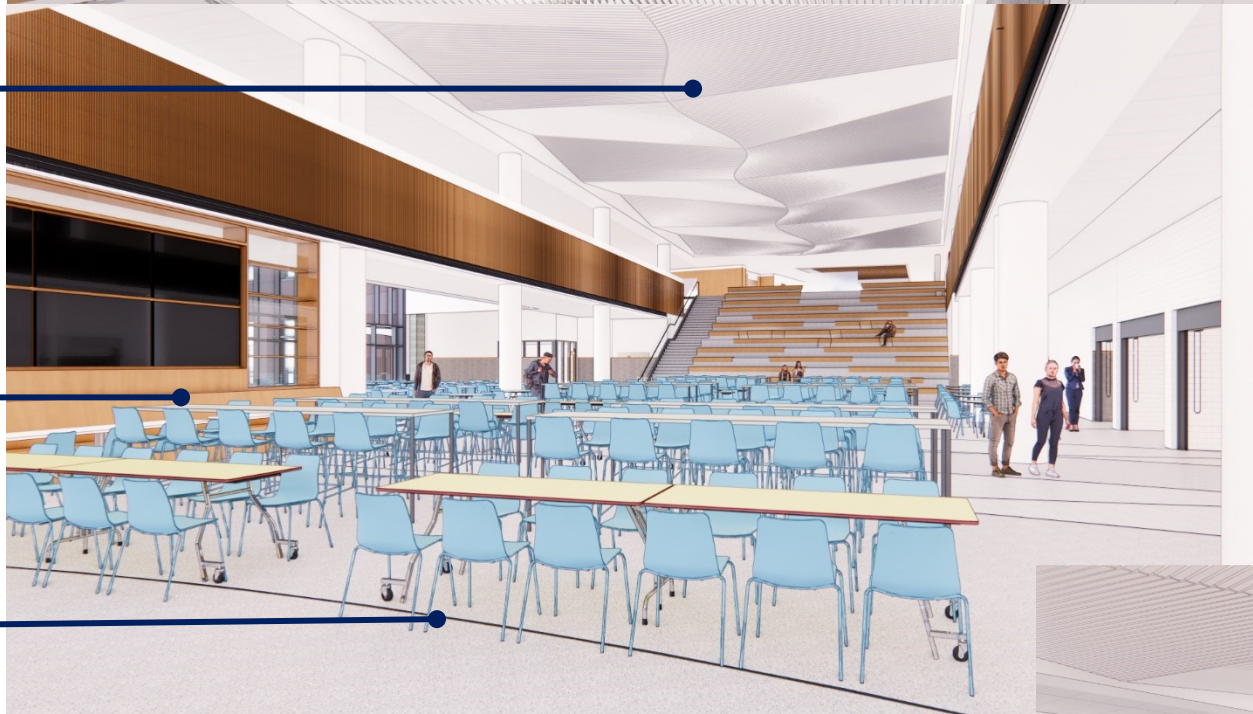
Dining Commons: Design Development

Sculptural
Ceiling Accent

Wood Accents

Epoxy
Terrazzo Floor

Display
Opportunities



Servery: Schematic Design

Wood Look
Ceiling



Porcelain
Tile Walls

Porcelain Tile
/ Epoxy
Terrazzo Floor



Servery: Design Development

Wood Look
Ceiling

Porcelain
Tile Walls

Epoxy
Terrazzo Floor



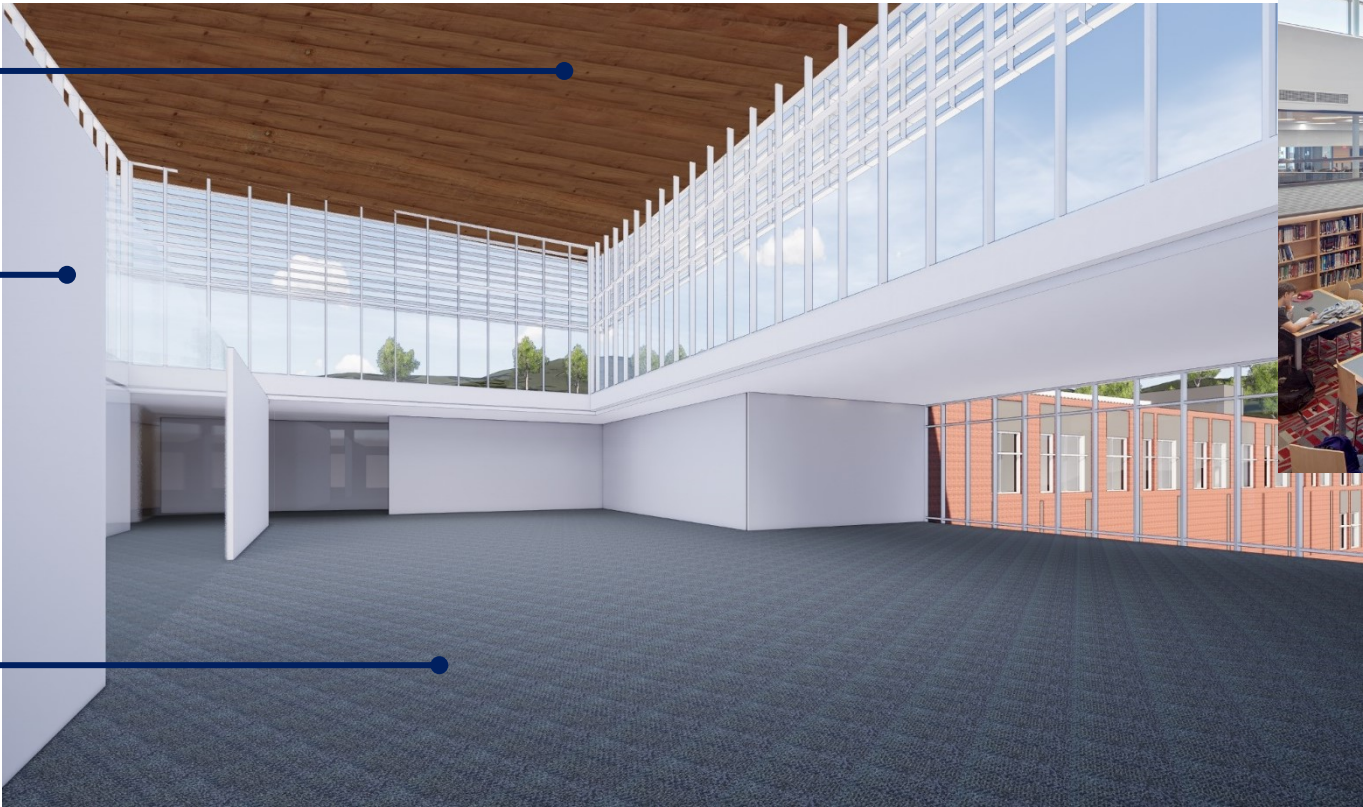
Media Center: Schematic Design

Wood Look Ceiling

Acoustic Wall Panels

Wood Accents

Carpet



Media Center: Design Development

Wood Look Ceiling

Mobile Stacks

Low wall

Linoleum

Carpet

Porcelain Tile



Art & Maker Spaces: Schematic Design

Exposed Ceiling

Laminate Casework
Epoxy Counters

Paint

Epoxy Resin /
Polished Concrete



Art & Maker Spaces: Design Development

Exposed Ceiling

Paint

Laminate Casework
Epoxy
Counters

Epoxy Resin



Design Update

Focus Group Recommendations

- Interiors
- Technology
- Sustainable Design
- Site Design

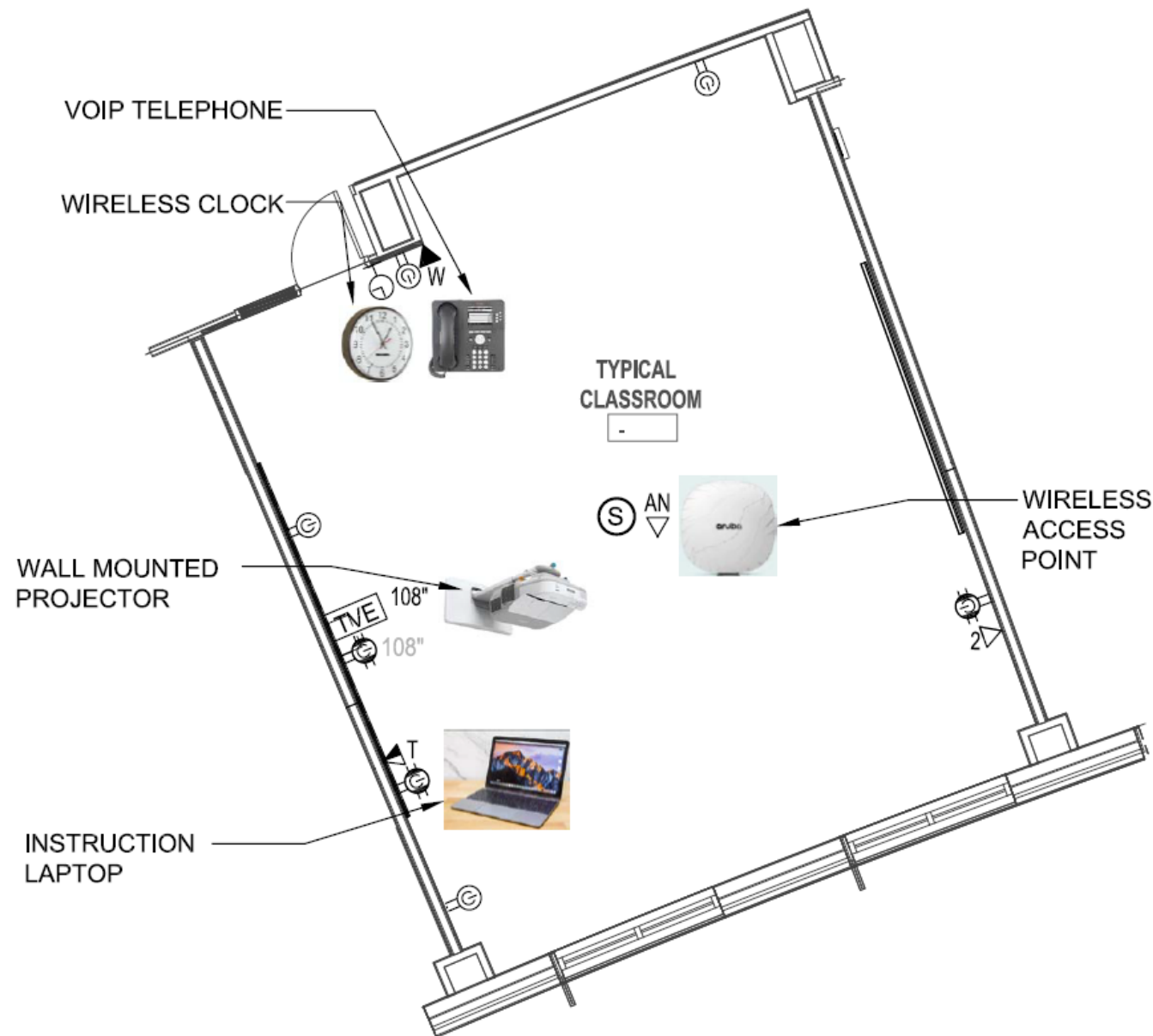
Traffic Signal Design

Look head topics for next SBC meeting

Typical Classroom Layout



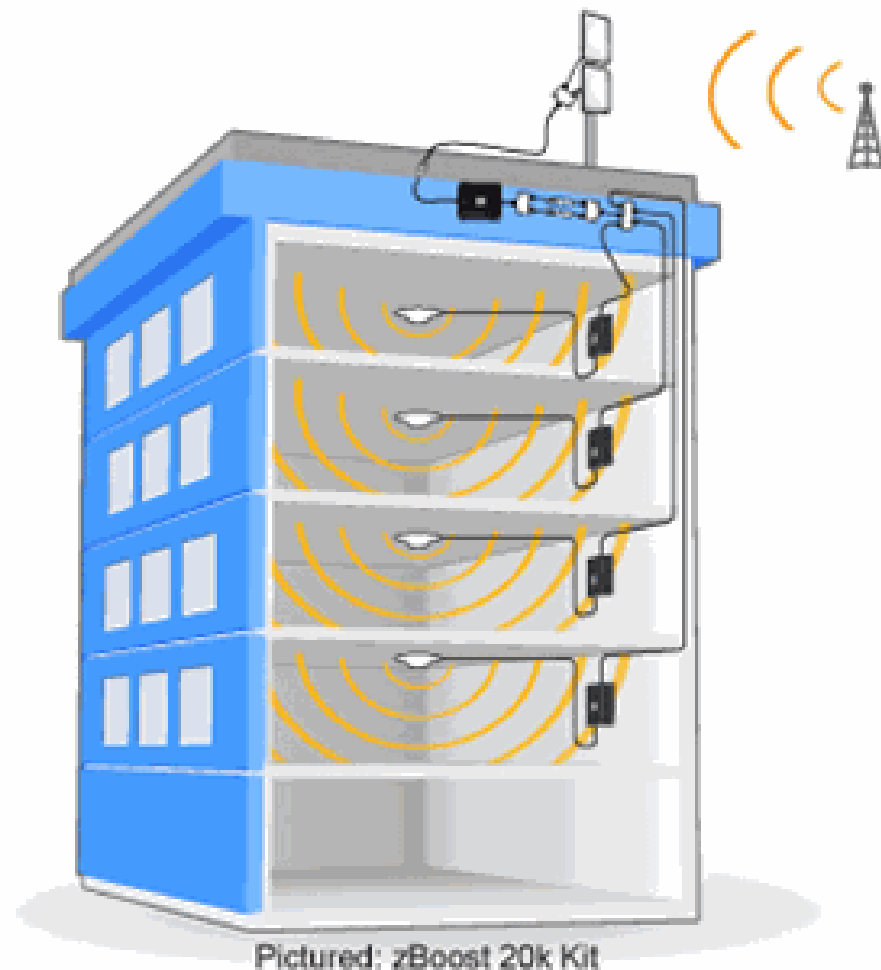
Typical Classroom Layout - Update



- Provide one wall-mounted, short-throw projector per classroom. Laser vs LED technology to be priced.
- No interactive projectors will be provided in classrooms
- Provide one document camera per classroom
- Carry 15 portable systems for ADA-compliant classroom amplification



Cellular Phone Repeater System



Design Update

Focus Group Recommendations

- Interiors
- Technology
- **Sustainable Design**
- Site Design

Traffic Signal Design

Look head topics for next SBC meeting

MEPA Life Cycle Cost Analysis

Life Cycle Cost Analysis - HVAC Systems & Building Enclosure							
System Options		System Costs as Present Value					30-Year Life
		Installation	Replacement	Maintenance	Energy		
Scenario 1	Stretch Code	NATURAL GAS BOILERS + DOAS + AIR COOLED CHILLER (Stretch Code)	\$17,026,689	\$9,108,543	\$1,790,000	\$63,083,000	\$91,008,000
Scenario 2	Proposed Design	NATURAL GAS BOILERS + DOAS + AIR COOLED CHILLER	\$17,576,528	\$10,145,649	\$1,789,909	\$57,413,000	\$86,925,000
Scenario 3	Proposed Design w/ Electric Heating	VRF + DOAS + PROPOSED DESIGN ENCLOSURE	\$17,522,000	\$12,346,236	\$1,952,000	\$69,675,000	\$101,495,000
Scenario 4	Electric Heating w/ NZER Enclosure	VRF + DOAS + NZER ENCLOSURE	\$19,923,000	\$15,418,000	\$1,952,000	\$68,973,000	\$106,266,000

Notes:

1. Installation costs are based on Schematic Design project cost estimate.
2. Replacement costs are specific to each system, based on ASHRAE useful life data and using unit costs brought forward as Present Value costs.
3. Maintenance costs are estimated to include third-party service to systems, but in-house routine maintenance.
4. Energy costs are based on energy modeling analysis and current energy costs based on EIA 2020 -\$0.1648/kWh and \$1.26/therm.
5. Total Cost is the sum of Installation, Replacement, Maintenance and Energy costs..
6. Present Value modeled on a 30-year lifecycle cost, 3% depreciation

MEPA Life Cycle Cost Analysis

Preliminary Project Cost & Payback Analysis									
System Options		System Description	Installation Costs	Incremental costs		Annual Energy Costs Savings	Payback	Estimated Incentives ⁴	Payback with Incentives (years)
			\$	\$	%	\$	Yrs.	\$	
Scenario 1	Stretch Code	NATURAL GAS BOILERS + DOAS + AIR COOLED CHILLER (Stretch Code)	\$17,026,689	\$0					
Scenario 2	Proposed Design	NATURAL GAS BOILERS + DOAS + AIR COOLED CHILLER	\$17,576,528	\$549,839	0.3%	\$49,099	11.2	\$209,000	2.13
Scenario 3	Proposed Design w/ Electric Heating	VRF + DOAS + PROPOSED DESIGN ENCLOSURE	\$17,521,528	\$494,839	0.3%	(\$57,080)	0.0	\$184,394	N/A
Scenario 4	Electric Heating w/ NZER Enclosure	VRF + DOAS + NZER ENCLOSURE	\$19,923,096	\$2,896,406	1.8%	(\$51,004)	0.0	\$377,552	N/A

Notes:

- Utility Incentives are based on the current incentives program, under which the project is already registers for: \$0.30/kWh and \$1.70/Therm. Preliminary AEC incentives based on DOER's \$2/AEC [\$1,519 for Scenario 3 and \$1,352 for Scenario 4]. The estimated incentives are not confirmed not approved by the utility, they are included in the payback calculations for the sole purpose of the FEIR, as required in the DEIR comment letter.
- All cost estimates are sourced from recent project costs estimate and bids (SMMA Schools).
- Incremental Costs percentage (%) is compared to the estimated construction costs and budget: \$160,000,000.
- EIA 2020 energy costs, based on \$0.1648/kWh and \$1.26/therm.

Design Update

Focus Group Recommendations

Site Design Topics:

- West Entrance Plaza
- Green Roof Spaces
- Natural Turf Field Program
- Trail Connections
- Site Signage
- Loading Area
- Emergency Access
- Post-Construction Maintenance
- Parking Distribution

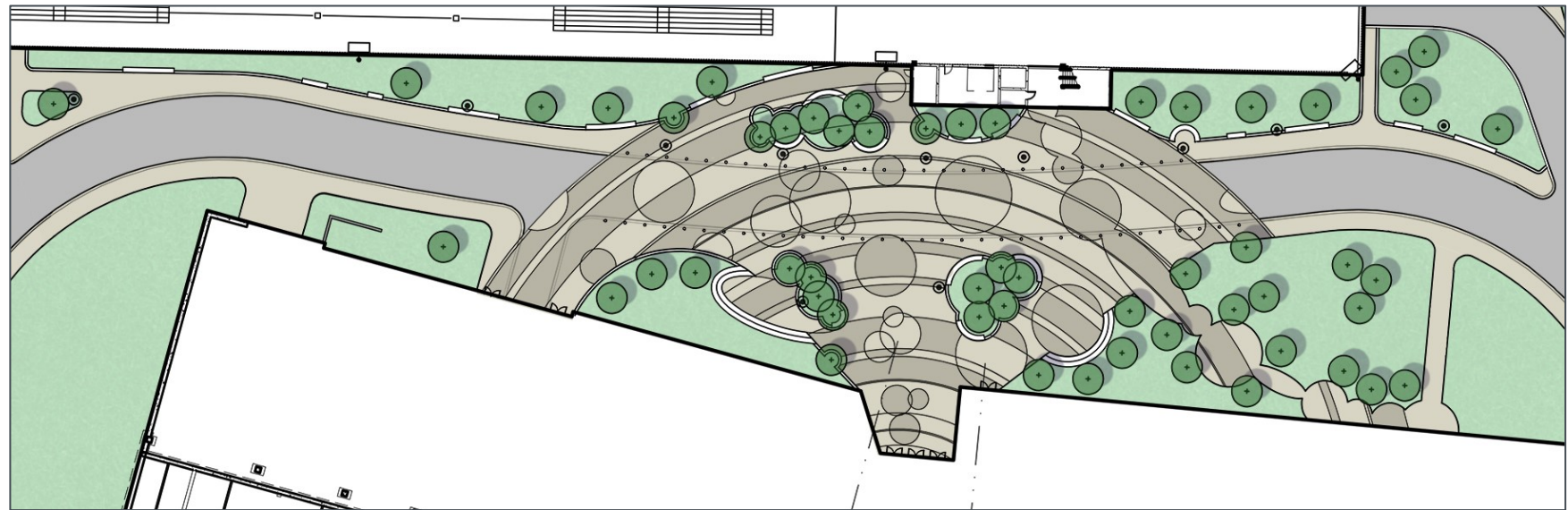
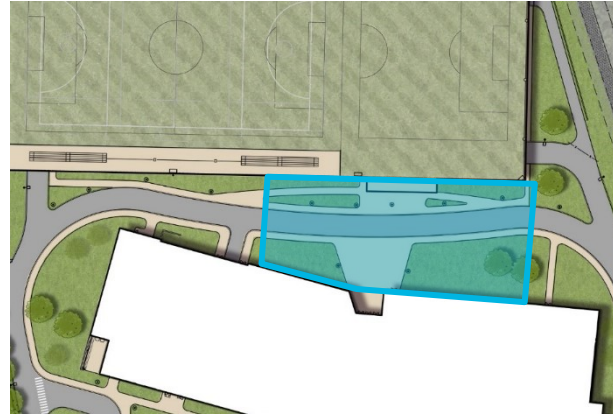
West Entrance Plaza

Recommendation:

Provide social seating and gathering areas for athletic and theatre events.

Expand plaza across to garage entrance.

Incorporate pedestrian safety features into vehicular crossing area of plaza.

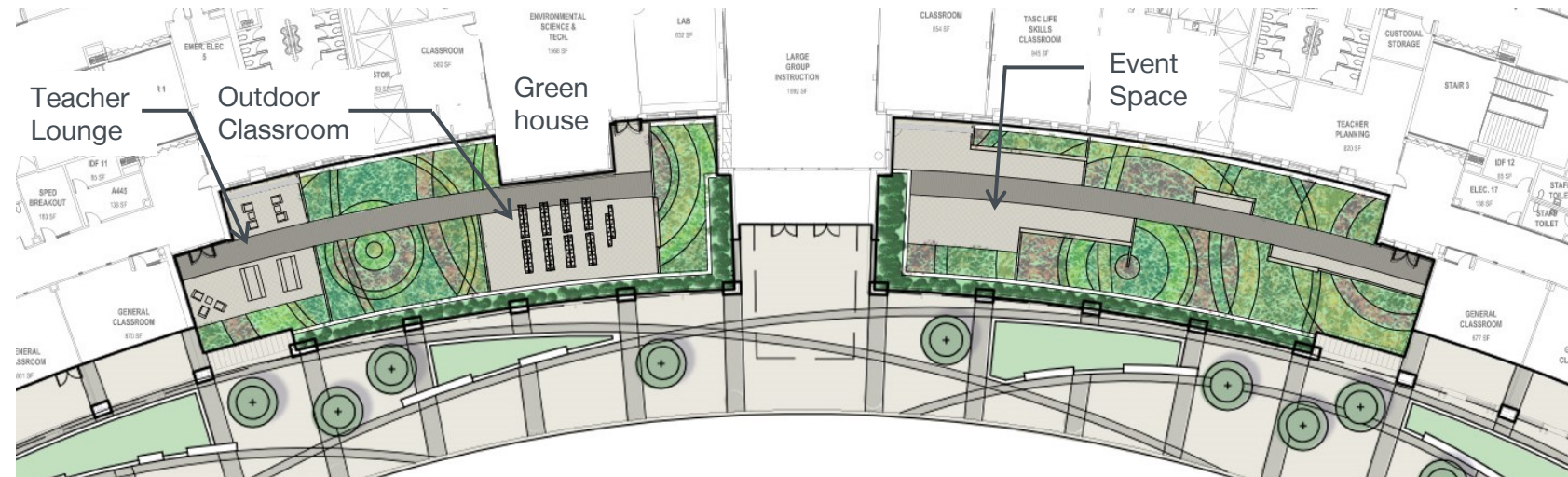
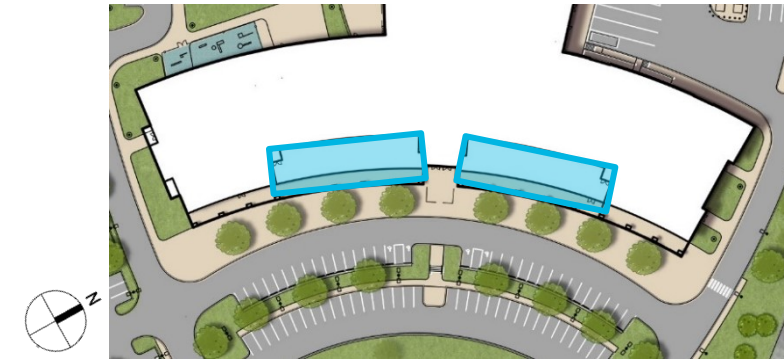


Green Roof Spaces

Recommendation:

Provide outdoor classroom with more traditional furnishings, teacher lounge area, and event space.

Allow flexibility for multi-purpose use of green roof spaces.



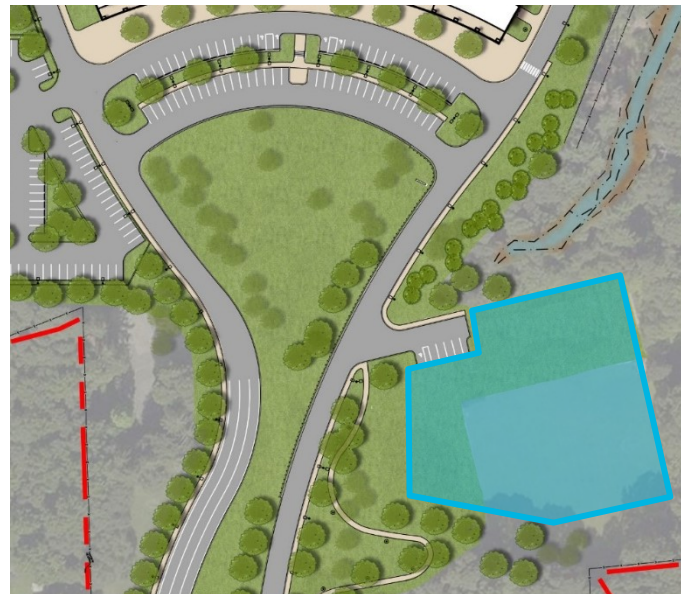
Natural Turf Field Program

Recommendation:

Provide Outdoor Classroom Space, Space for two U8 or one U10 Soccer Fields, netting for ball control.

Incorporate landscape feature into slope along entrance road.

Potential future program: Expansion of adventure ropes course, garden space.



Trail Connections

Recommendation:

Provide accessible connection from Natural Turf Field to informal outdoor learning space at Wetland Restoration Area.






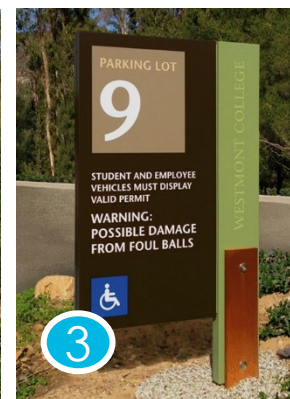
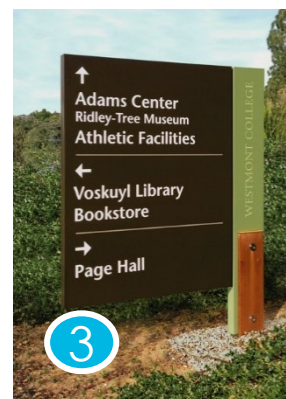
Site Signage

Recommendation:

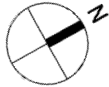
Provide hierarchal family of signage and wayfinding for vehicles and pedestrians. Include programmable LED message board along entrance road.

Aesthetics to be coordinated between site, architecture, interiors, and environmental graphics.

	Audience	Sign Type
 Type 1	Everyone	Monumental Entrance
 Type 2	Everyone	Digital Message Board
 Type 3	Vehicles	Directional Roadside Pylons
 Type 4	Pedestrians	Informational Placard



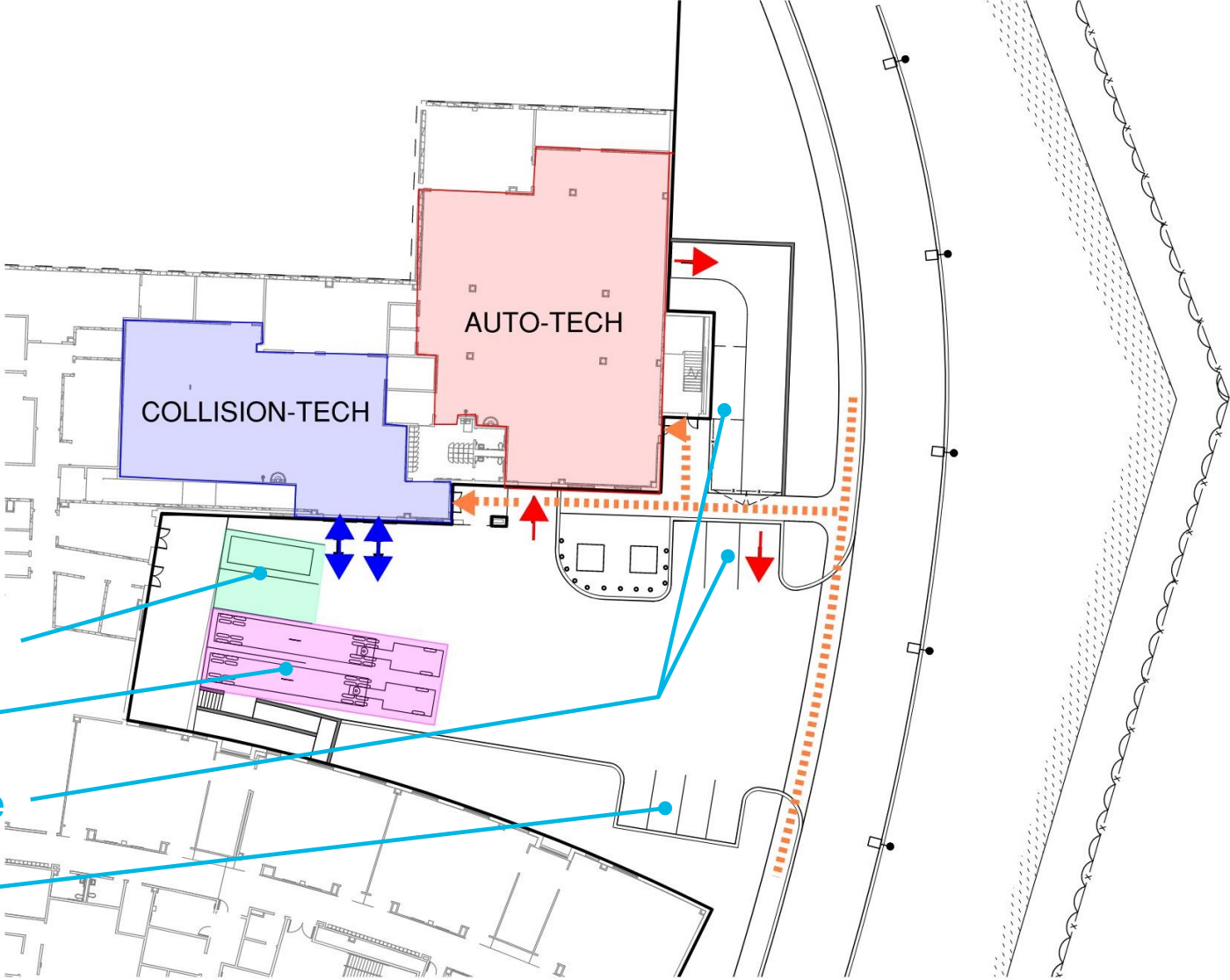
Loading Dock & Auto-Tech / Collision-Tech



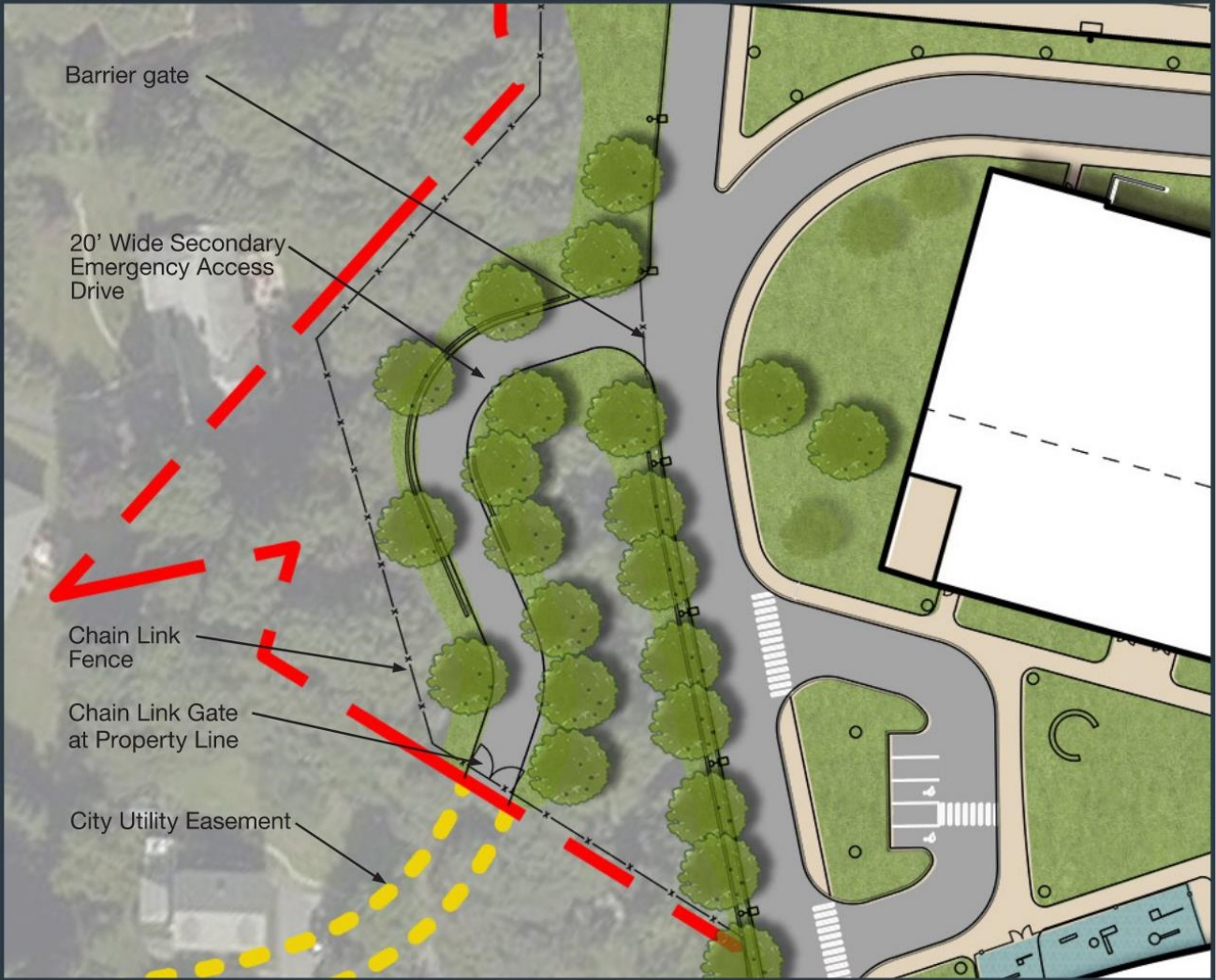
Recommendation:

Provide screening for adjacent classrooms and where possible for passing pedestrians and vehicles.

- (2) Recycle/Compactor Bays
- (2) Receiving Bays
- (4+) Staging Spaces/Storage
- (4) Vehicle Staging Spaces



Emergency Access



Enlargement Area



Recommendation:

Secondary emergency access only in the event primary access (Lexington Street) is inaccessible. No vehicular or pedestrian access. Gated at both ends.

Post-Construction Maintenance - Stormwater

Recommendation: Routine maintenance of the system is essential to achieving effective long-term pollution prevention!

Weekly:

- Remove trash and natural litter from site

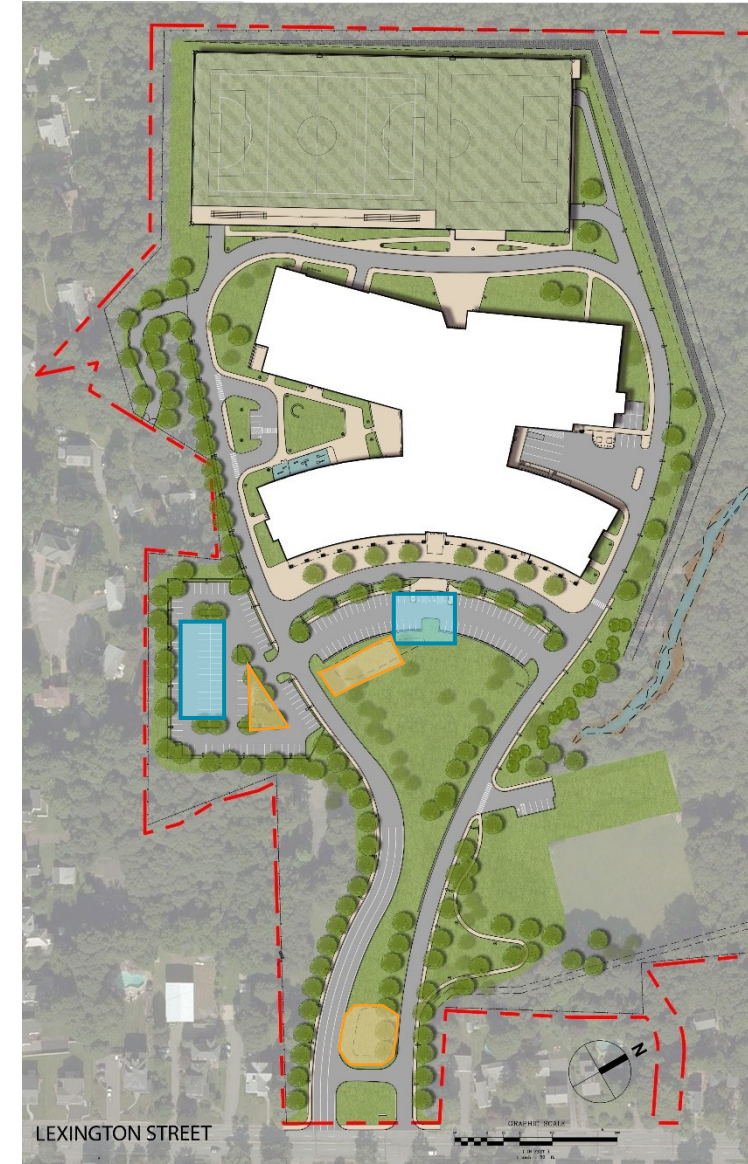
Twice Annually:

- Sweep pavement areas
- Mow/trim bioretention areas
- Inspect CBs, DMHs, and WQUs

Annually:

- Remove sediment from forebays, CBs, DMHs, WQUs
- Inspect subsurface detention systems

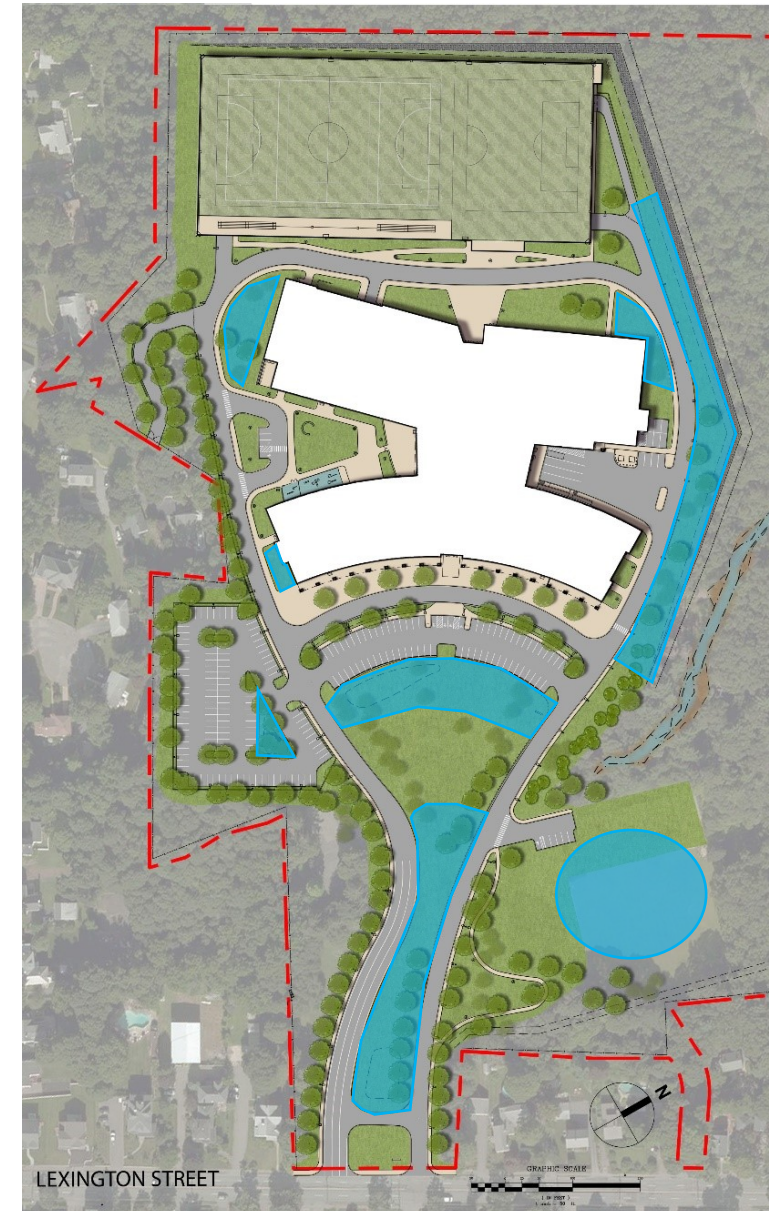
Develop maintenance log and plans to identify tasks, to be included in Conservation Commission filings.



Post-Construction Maintenance – Snow Management

Recommendation:

- Zoning requires 40 sf of snow storage per at-grade parking space ($\pm 8,000$ sf)
- Store snow to avoid pedestrian zones, plant material, and loss of parking spaces
- Any snow clearing on synthetic turf field to be done by 3rd party with appropriate equipment.



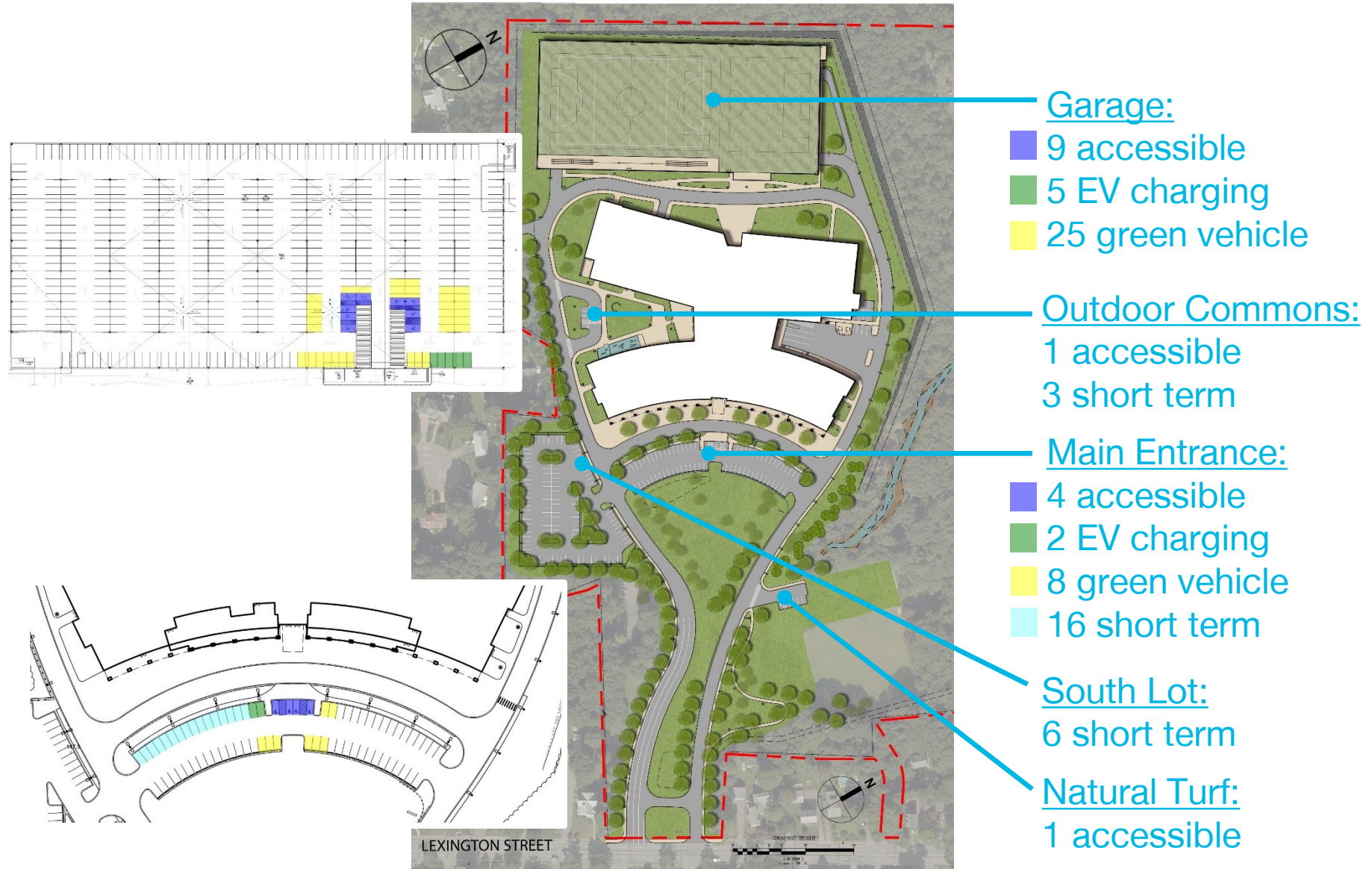
Parking Distribution – Priority Parking Spaces

Recommendation:

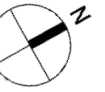
The following locations and distributions are recommended for priority parking.

Substitute teachers and other long-term visitors will be handled administratively.

School utility vans are not required.



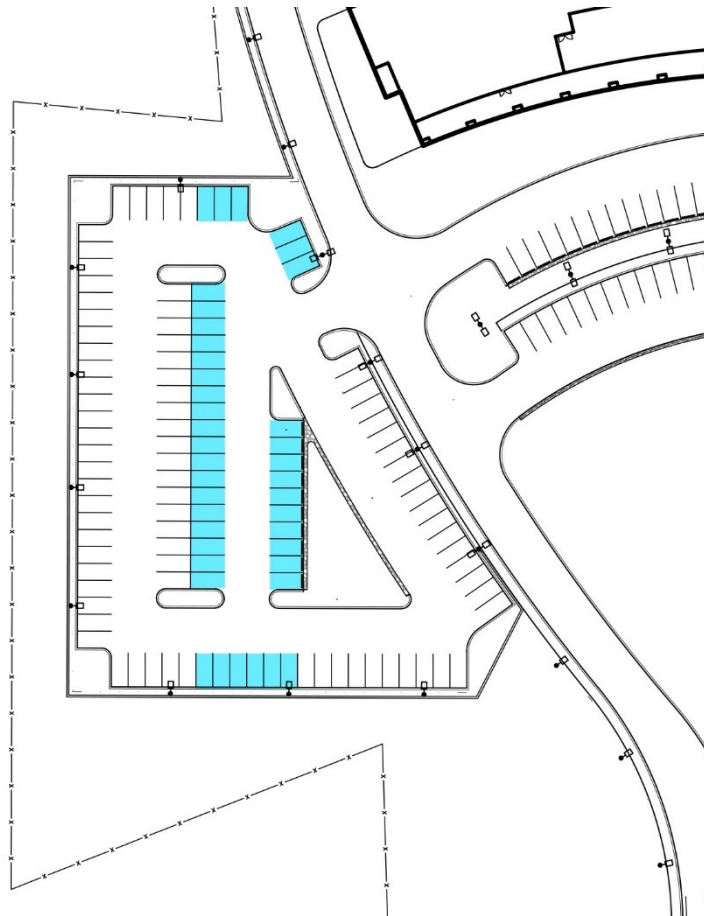
Parking Distribution – Reduce At-Grade Parking



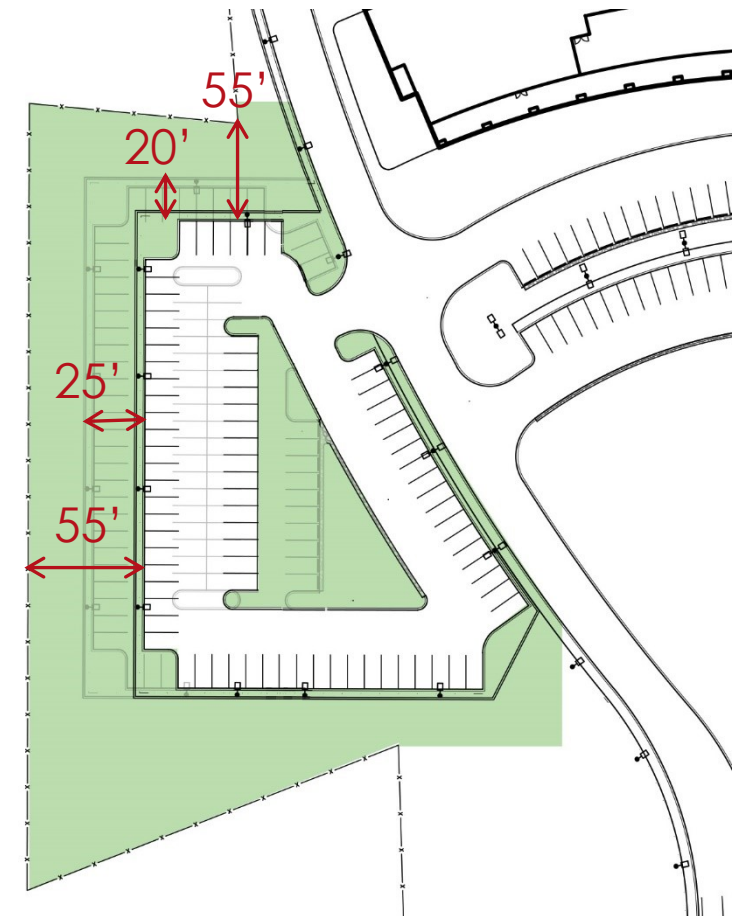
Recommendation:

Continue to study and make efficient the garage parking layout so that reductions in at-grade spaces can be made, up to 40 spaces

Previously shown:



If reduced by 40 spaces:



Design Update

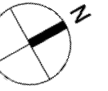
Focus Group Recommendations

- Interiors
- Technology
- Sustainable Design
- Site Design

Traffic Signal Design

Look head topics for next SBC meeting

Site Plan Updates: Lexington Street Signal



Option 1: Two Signalized Driveways



Option 2: One Signalized Driveway



Design Update

Focus Group Recommendations

- Interiors
- Technology
- Sustainable Design
- Site Design

Traffic Signal Design

Look head topics for next SBC meeting

| SMMA



LEFTFIELD

Thank You

