

# Lexington High School

## Design Meeting #7

03/31/2025



smma dw Turner

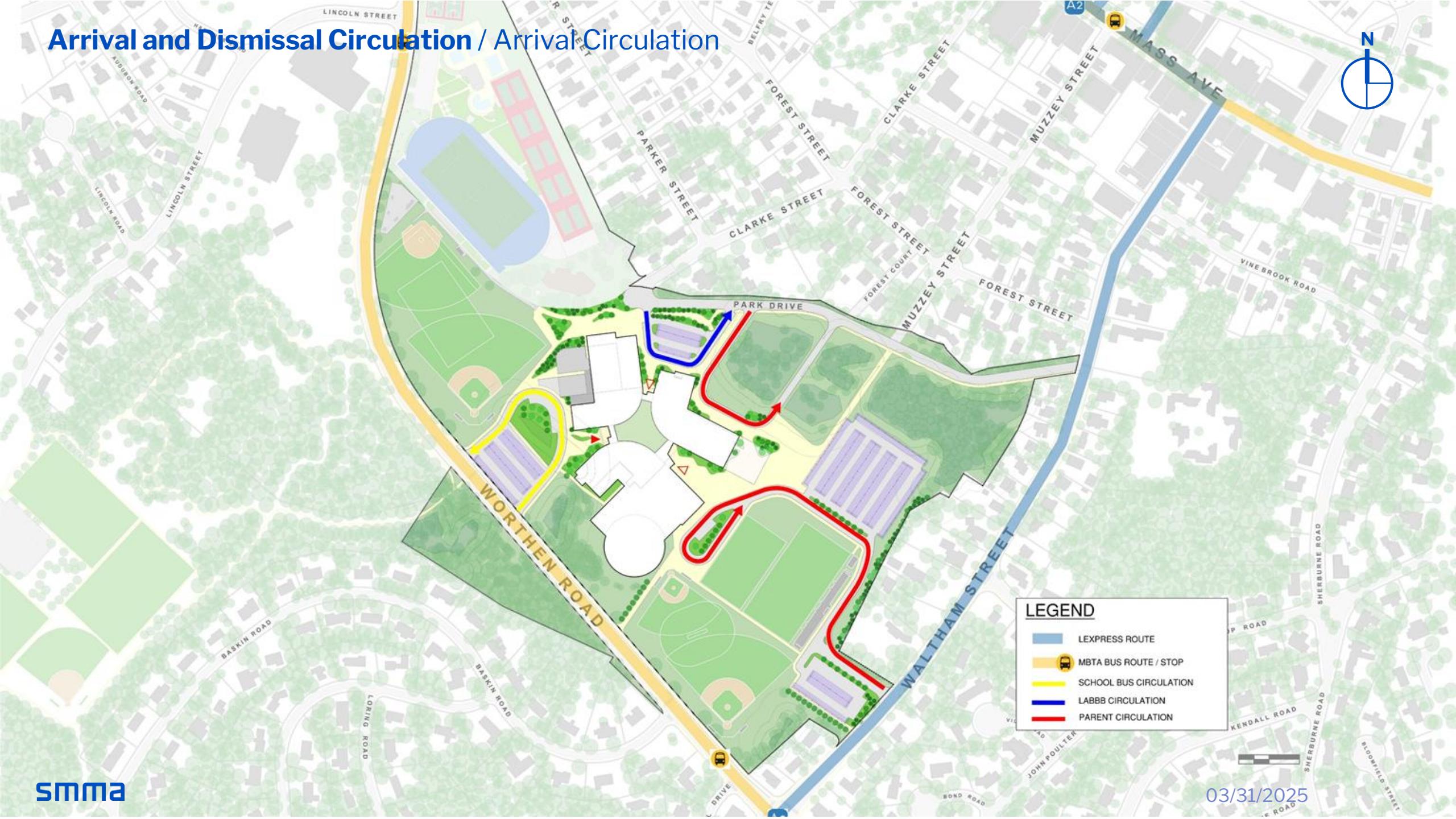
## Site Design

- Arrival & Dismissal Circulation
- Bicycle Parking
- Alternative Modes of Transportation
- Lighted Fields
- Field Material
- Bleacher System
- Outdoor Storage Requirements
- Fencing
- Non-Athletic Field Program in Park

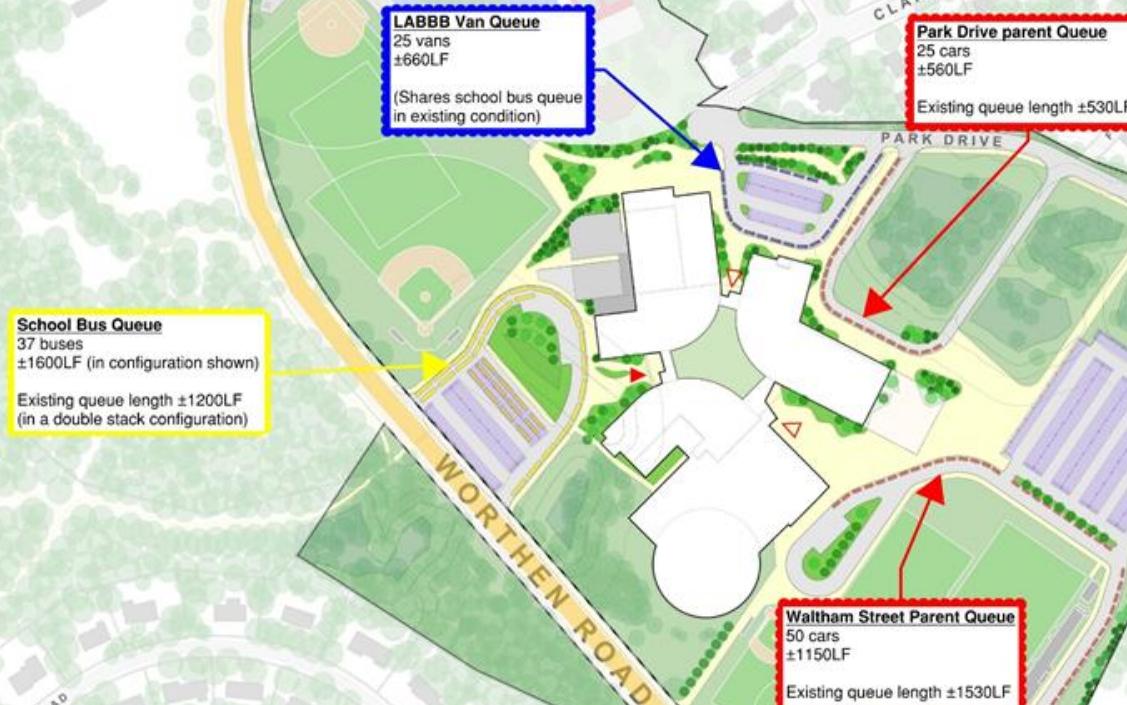
## Building Design

- Space Layouts & Circulation
- Location & Access to Central Office
- Elevators
- Future Expansion GSF
- Feature Space Design

## Arrival and Dismissal Circulation / Arrival Circulation



# Arrival and Dismissal Circulation / Dismissal Circulation



## LEGEND

- EXPRESS ROUTE
- MBTA BUS ROUTE / STOP
- SCHOOL BUS CIRCULATION
- LABBB CIRCULATION
- PARENT CIRCULATION

## Bicycle Network and Facilities



- EXISTING SHARED LANE
- PROPOSED SHARED USE PATH
- PROPOSED BIKE STORAGE LOCATION

### LEED Guidance for Bicycle Facilities at Schools

-Provide bicycle storage for at least 5% of all building occupants (faculty, staff, students)

386 LHS staff  
100 LABBB staff  
2395 students  
2881 building occupants x 5%

**145** bicycle spaces minimum

# Bicycle Network and Facilities



Cycle Dock™



Bike Bike Rack™



Rolling Rack



Campus Rack™



Swerve Rack™



Downtown Rack™



Round Rack™



# Alternative Modes of Transportation

DRAFT Lexington Town-wide Bicycle and Pedestrian Plan

## 3.5 Policy Recommendations Related to E-bikes and E-Micromobility

As part of the TBPP, the planning team explored ways for the Town of Lexington to "address challenges related to the increasing number and type of electric-assist bicycles and other E-vehicles needing accommodation," and is seeking "recommendations as to appropriate policy to ensure safety of all users." (from the original RFP for the TBPP)

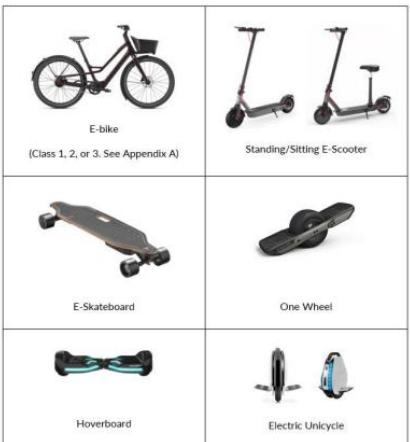
This section of the TBPP report summarizes a much longer technical memorandum found in Appendix B that includes a full overview of the policy, infrastructure, and enforcement contexts nationally, throughout New England, and in Lexington for what are often called "E-micromobility" devices. The full memorandum also offers recommendations to manage common concerns with these electric-powered transportation devices and small-scale vehicles. The E-micromobility devices shown below are included in the analysis:

- E-bicycles (Classes 1-3; also referred to throughout this memorandum as "E-bikes")
- E-scooters (standing or sitting)
- Other E-Micromobility Options
- E-skateboards (including One Wheels)
- Hoverboards
- E-unicycles

In general, there is considerable variability in how E-micromobility devices are regulated in the U.S. (with the exception of E-bikes). While some devices (E-skateboards, in particular) still operate in an ambiguous legal zone, best practice appears to advise operators to behave like bicycle riders on public ways.

To summarize the technical memorandum's recommendations for Lexington:

- Since E-bikes and E-scooters are already regulated under Massachusetts state law, the plan recommends that the Town of Lexington follow state law and permit these devices to use all public ways open to bicycles, including the Minuteman Bikeway and all other shared use paths where bikes are already permitted.
- While the legality of E-boards may be uncertain, these devices are already appearing on public ways in Lexington. Lexington should adopt "rules of the road" for these devices that generally align with bicycle operational rules.



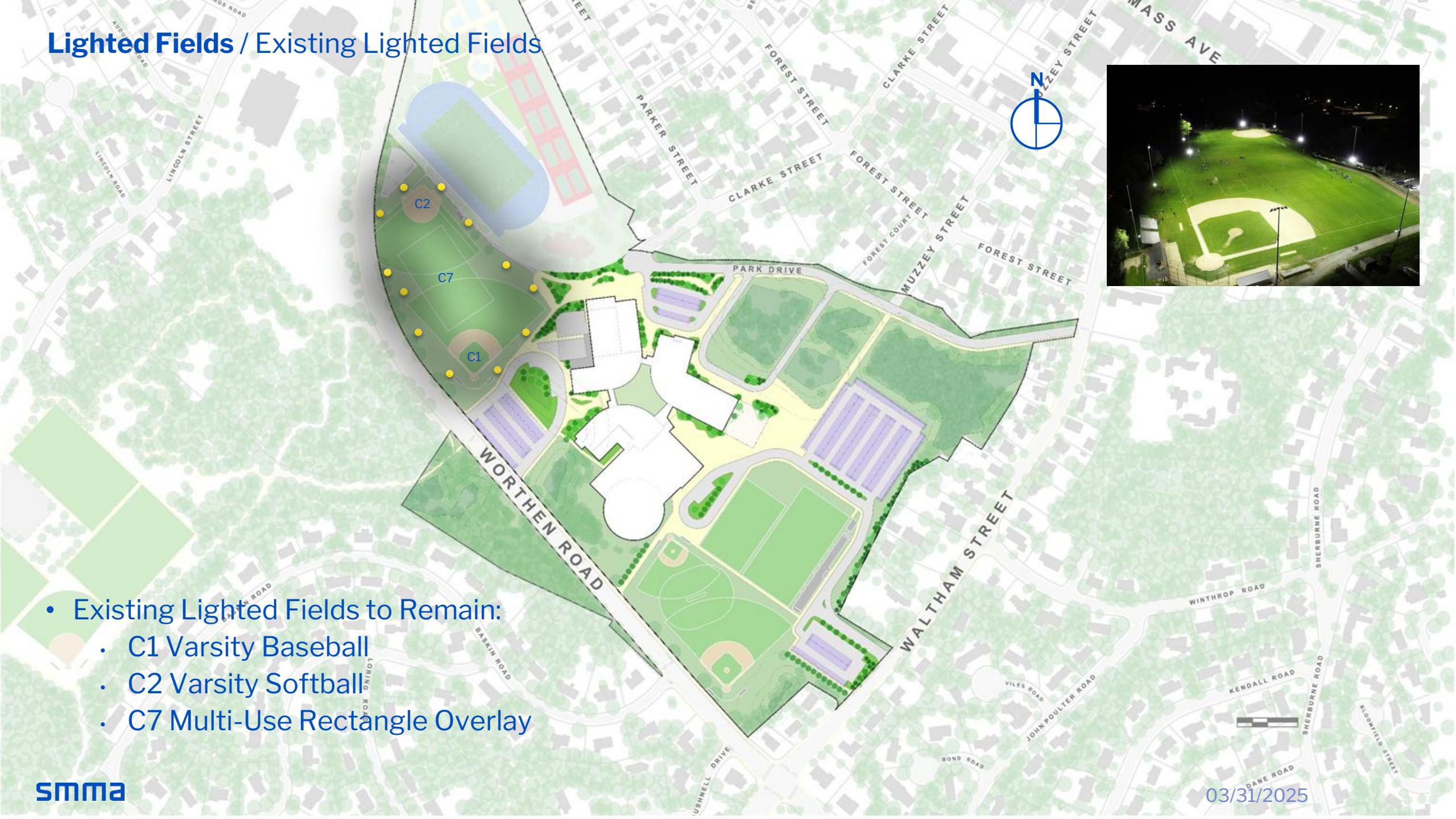
## E-bikes and E-Micromobility

- Permitted on all Shared Use Paths
- Can share bicycle parking facilities
- No current accommodation for charging

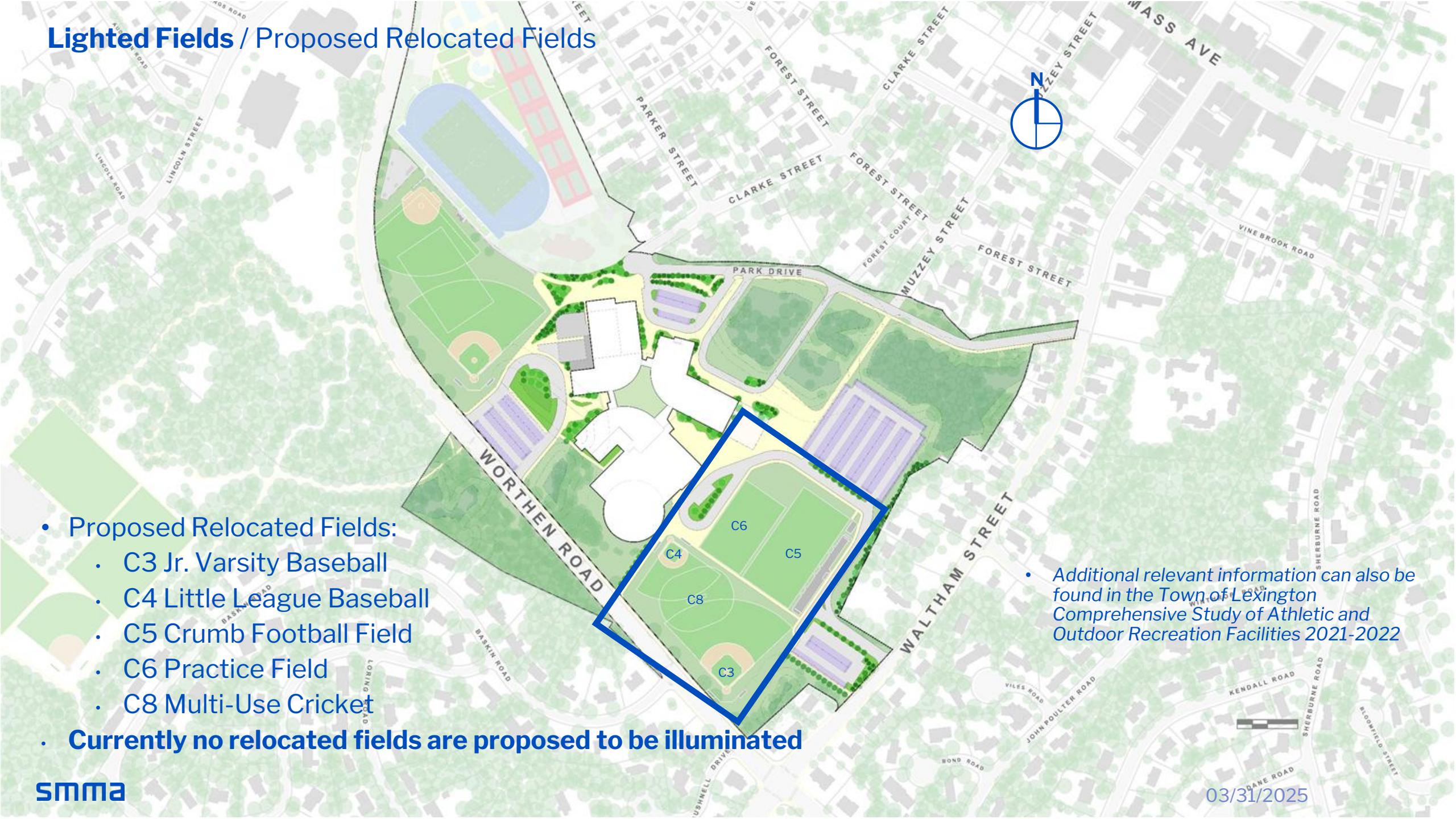


## Lighted Fields / Existing Lighted Fields

- Existing Lighted Fields to Remain:
  - C1 Varsity Baseball
  - C2 Varsity Softball
  - C7 Multi-Use Rectangle Overlay



## Lighted Fields / Proposed Relocated Fields



- Proposed Relocated Fields:
  - C3 Jr. Varsity Baseball
  - C4 Little League Baseball
  - C5 Crumb Football Field
  - C6 Practice Field
  - C8 Multi-Use Cricket
- **Currently no relocated fields are proposed to be illuminated**

• Additional relevant information can also be found in the Town of Lexington Comprehensive Study of Athletic and Outdoor Recreation Facilities 2021-2022

# Athletic Field Surfacing

## Natural Turf (Seed or Sod)

### Pros

- Natural Aesthetics
- Cooler Surface
- Environmental Benefits
  - Carbon sequestration, reduce excess stormwater runoff
- Cost Effective to Install
- **Sod Requires a Minimum of 2-3 Weeks for Root Establishment Prior To Use**

### Cons

- High Maintenance
- Water Usage
- Durability Issues
  - Overuse and excessive traffic lead to compaction and bare spots; saturated soils/standing water limit playability
- Inconsistent Surface
- Pesticide and Fertilizer Use
- **Seed Requires 2 Full Growing Seasons Before Use**



## Synthetic Turf

### Pros

- Low Maintenance
- Durability
- Consistent Appearance
- Long-Term Cost Effectiveness
- **Able to Use Field Immediately**

### Cons

- High Initial Cost
- Heat Retention
- Several Environmental Impacts

**Note: Sod was priced at PSR, and the intent is to proceed with sod upon confirmation by the SBC on 5/12.**

*\*\*Additional relevant information can also be found in the Town of Lexington Comprehensive Study of Athletic and Outdoor Recreation Facilities 2021-2022*

# Athletic Field Surfacing

## Comparative Cost Analysis - Installation

### Seed

- Seed: \$0.50 - \$0.75/sf
- Topsoil: \$85.00/cy
- Amendment & Place: \$25.00/cy
- Crushed Stone Base: \$55.00/cy
- Geotextile Fabric: \$0.75/sf
- Irrigation: \$1.50/sf

### Sod

- Sod: \$2.50 - \$3.00/sf
- Topsoil: \$85.00/cy
- Amend & Place: \$25.00/cy
- Crushed Stone Base: \$55.00/cy
- Geotextile Fabric: \$0.75/sf
- Irrigation: \$1.50/sf

### Synthetic

- Synthetic: \$6.00 - \$6.50/sf
- Field Top Stone: \$48.00/tn
- Field Base Stone: \$40.00/tn
- Geotextile Fabric: \$0.75/sf
- Turf Anchor: \$80.00/lf
- Water Cannon

## Comparative Cost Analysis - Maintenance

### Seed

- Weekly Mowing
- Aeration (3X/yr)
- Fertilizer
- Soil Amendments/Topdressing
- Overseeding
- Irrigation shut down/start up
- Game Field Prep
- Water

### Sod

- Weekly Mowing
- Aeration (3X/yr)
- Fertilizer
- Soil Amendments/Topdressing
- Overseeding
- Irrigation shut down/start up
- Game Field Prep
- Water

### Synthetic

- Top Dressing/Infill
- Brushing/Sweeping
- Water Cooling
- Typical Lifespan of 8-10 yrs.

# Bleacher System

EXISTING BLEACHER SYSTEM – LEXINGTON MA



TERRACED SEATING – ROCKLAND MA



BLEACHER SEATING – HOLBROOK MA



BLEACHER SEATING WITH INDIVIDUAL MOLDED SEATS



## Outdoor Storage Requirements \ Existing Storage



1. Left - Lexington Little League  
1. Right - Lexington Youth Lacrosse



2. LHS Track



3. Front - Lexington Farmer's Market  
4. Rear - LHS Track



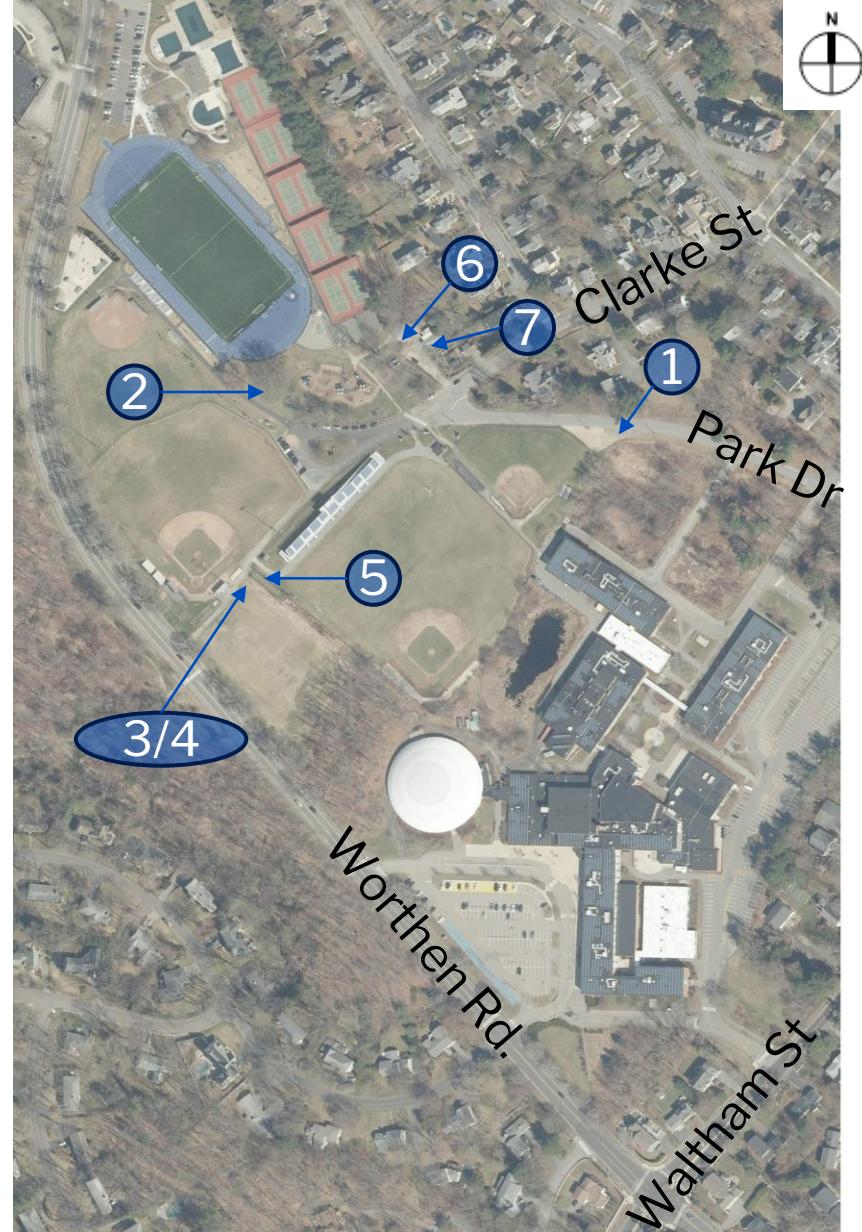
6. DPW Maintenance



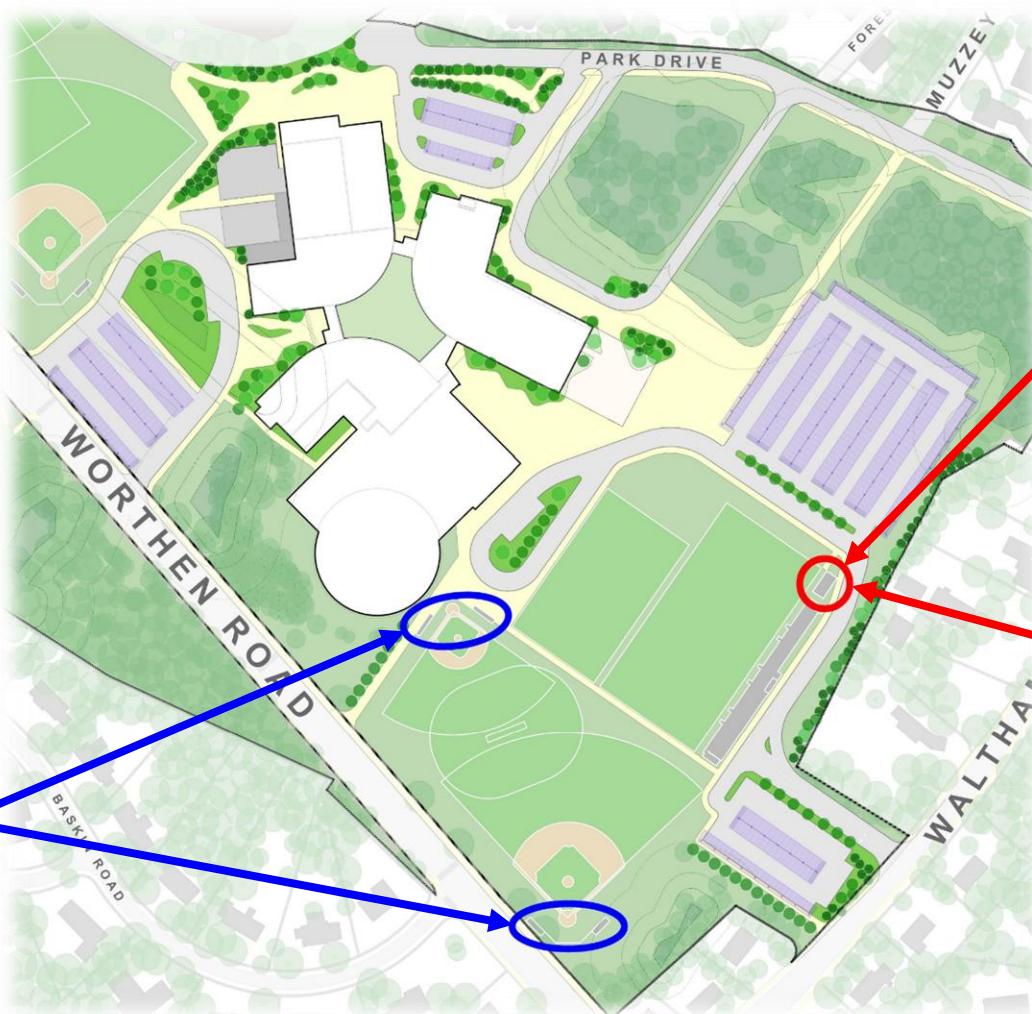
5. LHS Baseball and Blue Sox



7. DPW Mower



## Outdoor Storage Requirements \ Proposed Storage



ENCLOSED DUGOUT



MULTI-USE - HOLBROOK MA



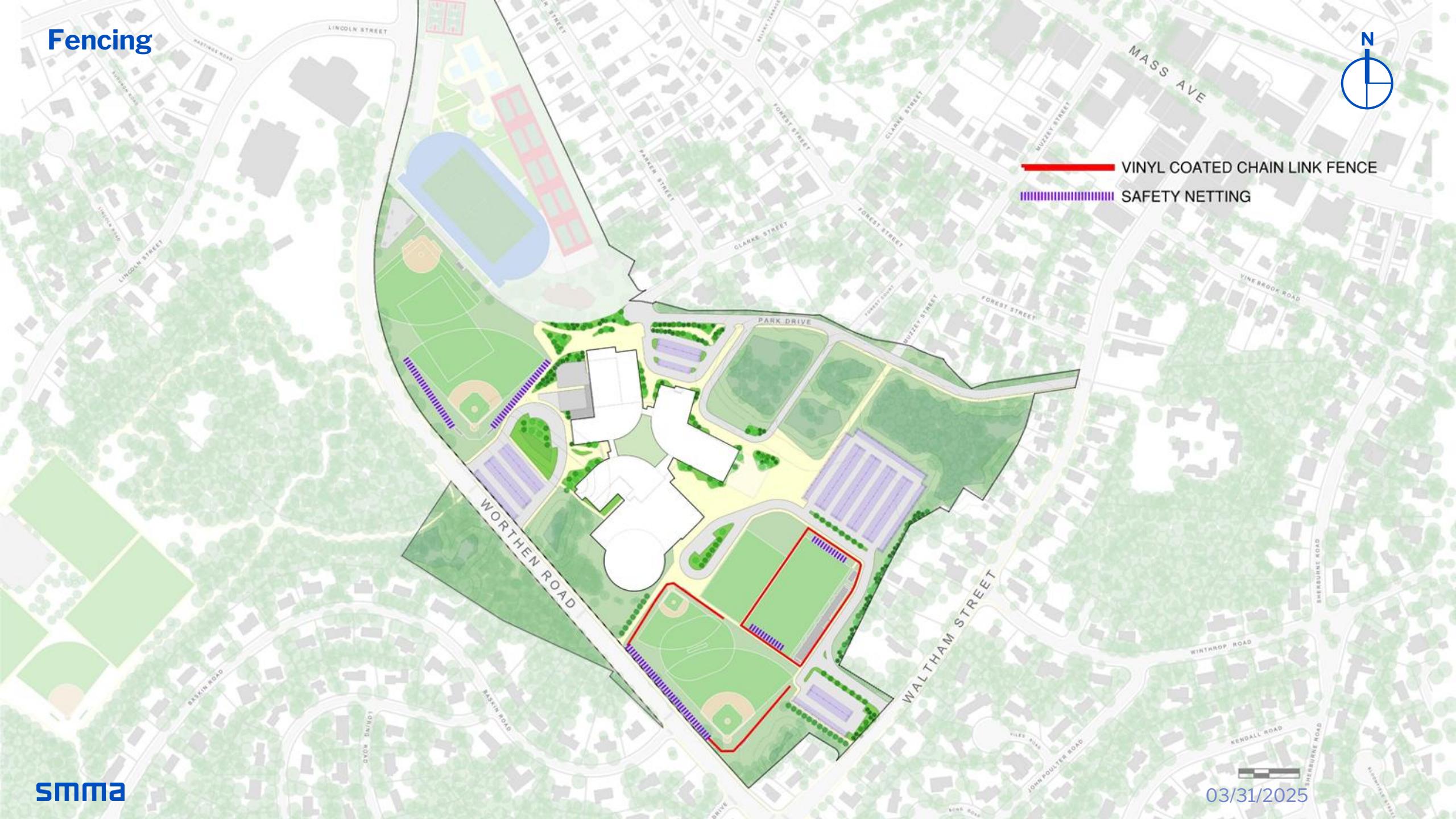
MULTI-USE - W. BRIDGEWATER MA



# Fencing



— VINYL COATED CHAIN LINK FENCE  
— SAFETY NETTING



## Fencing



# Non-Athletic Field Park Program in Complex



Water Fountain



Outdoor Dining Area



Bicycle Maintenance Station



Boardwalk Path



Movable Furniture

# Non-Athletic Field Park Program in Complex



Shade Structure



Parkour



Fitness Stations



Playgrounds

## **Site Design**

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## **Building Design**

- Space Layouts & Circulation
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- Future Expansion GSF
- Feature Space Design

## Building and Site Relationship

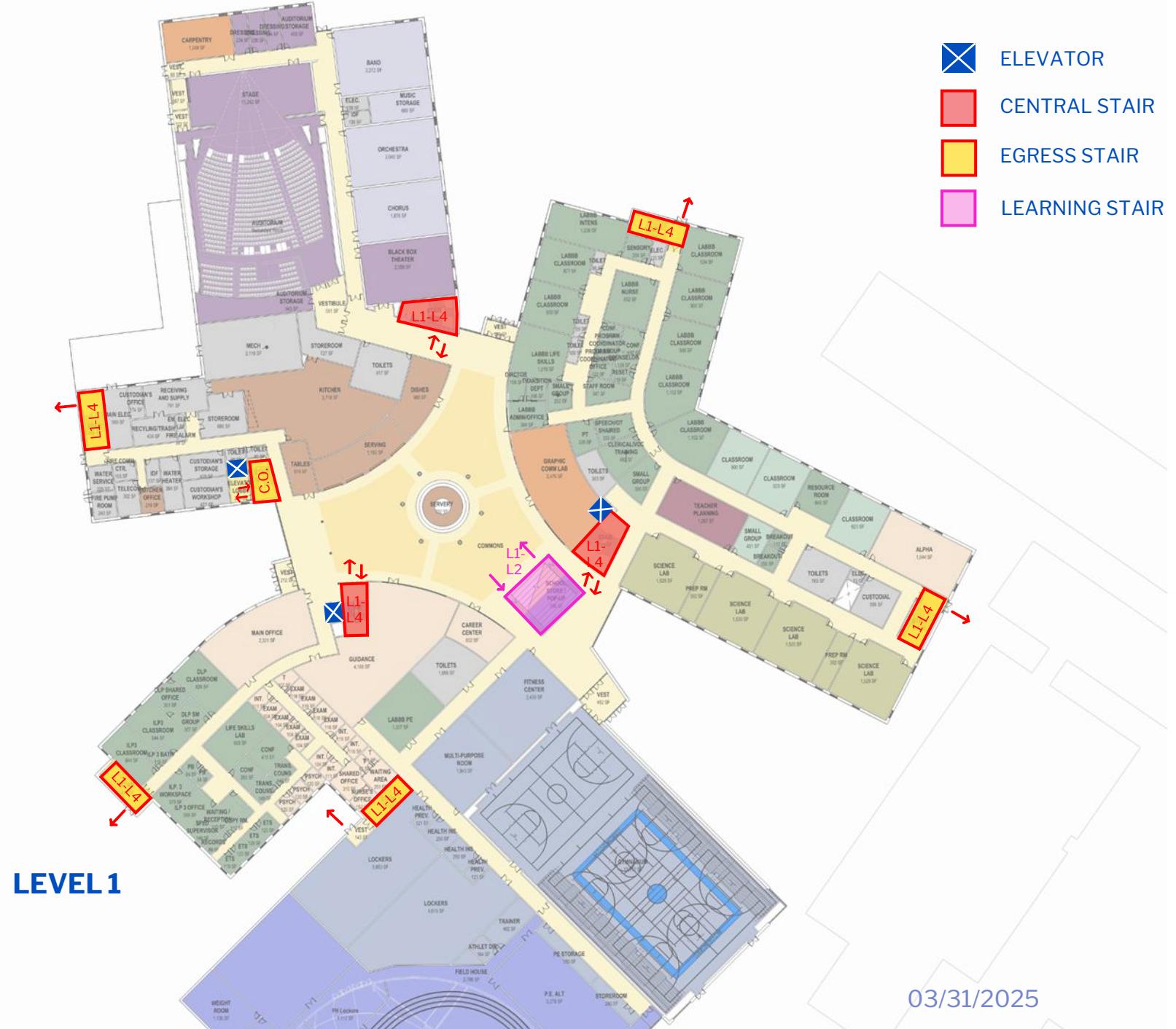
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- Science
- Teacher Planning & Small Group
- Admin, Guidance, ALPHA, METCO, Central Offices
- Auditorium / Drama
- Art & Music
- Media Center
- Vocation & Technology
- Physical Education
- Special Education
- Medical
- Restrooms, Custodial
- Kitchen
- Commons
- Circulation
- Vertical Circulation
- Rooftop Open Space
- Other
- Expansion



# Building Floor Plans

## Vertical Circulation

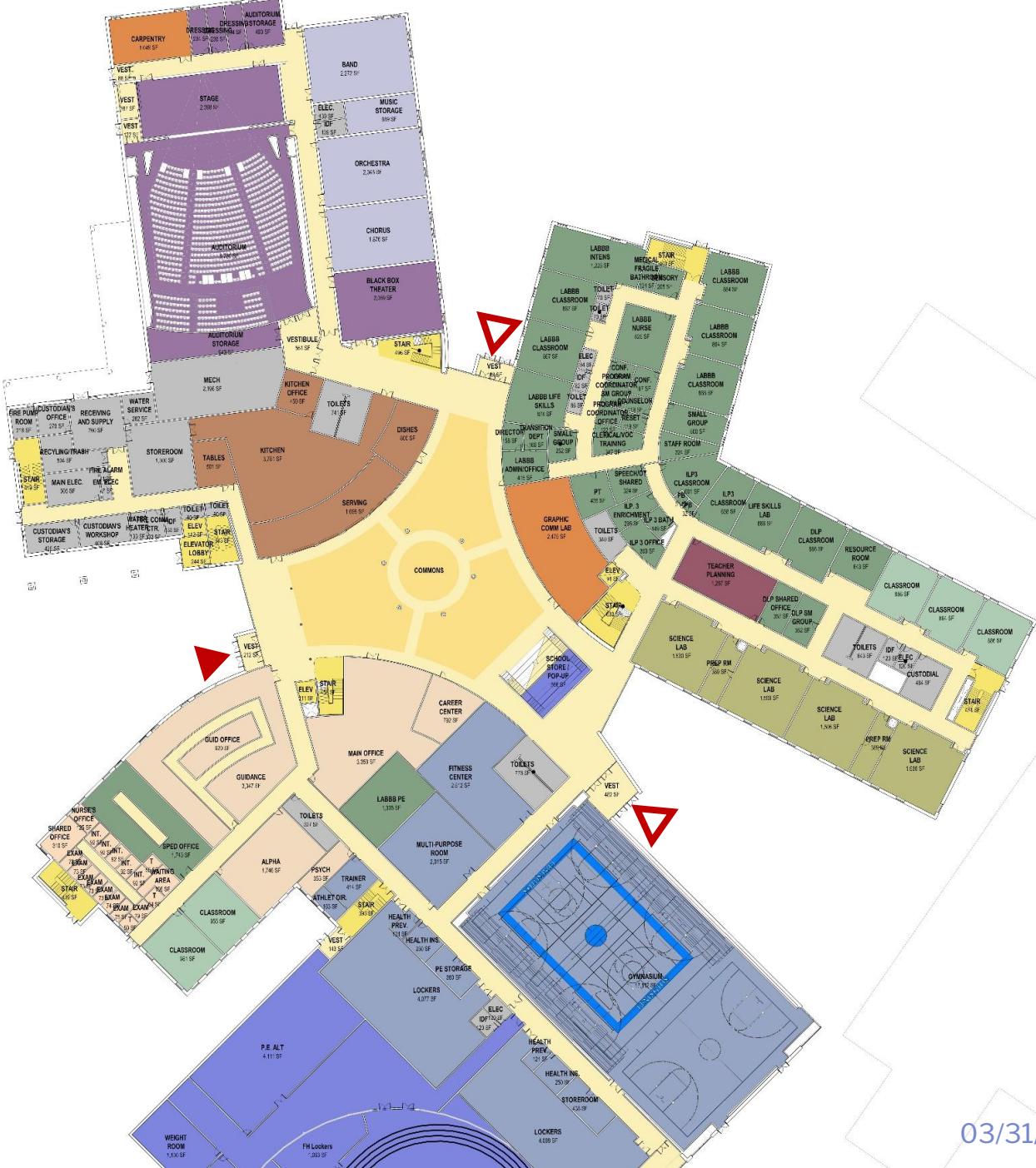
- Open stairs and elevators adjacent to the Dining Commons are the primary vertical circulation in the central part of the school
- The Learning Stair provides additional access between Levels 1 & 2
- Additional communicating stairs may be considered
- Egress stairs are located at the ends of each wing. These also act as local communicating stairs.
- (3) Elevators shall be traction type, sized for stretcher with 5,000lb capacity @ 200fpm
- One elevator will serve Central Office on Level 4, but also programmed to serve students with accessibility needs



# Building Floor Plans

## Level 1

- Core Academic
- Science
- Teacher Planning & Small Group
- Admin, Guidance, ALPHA, METCO, Central Offices
- Auditorium / Drama
- Art & Music
- Media Center
- Vocation & Technology
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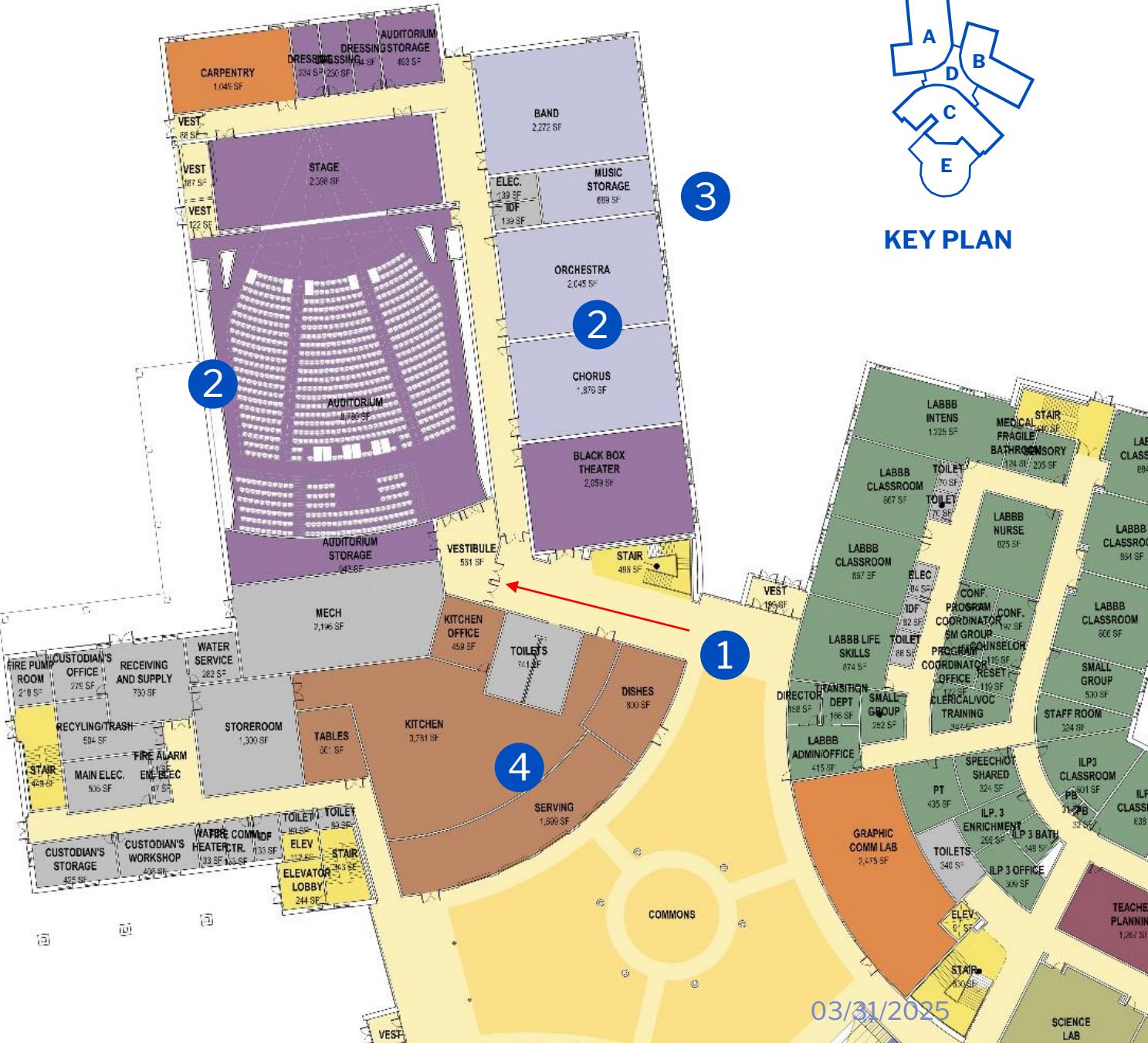
KEY PLAN

# Building Floor Plans

## Level 1 – Wing A

### Option A

- 1 Auditorium placement creates challenges for public visibility
- 2 Music space is located on the quieter side of Wing A. Western wall of Auditorium will receive solid CMU acoustic barrier wall.
- 3 Music space is a better scaled volume relative to the northern plaza, and is animated with windows
- 4 Kitchen with dishwashing room area cannot be reduced. Servery needs to maximize frontage along Commons.

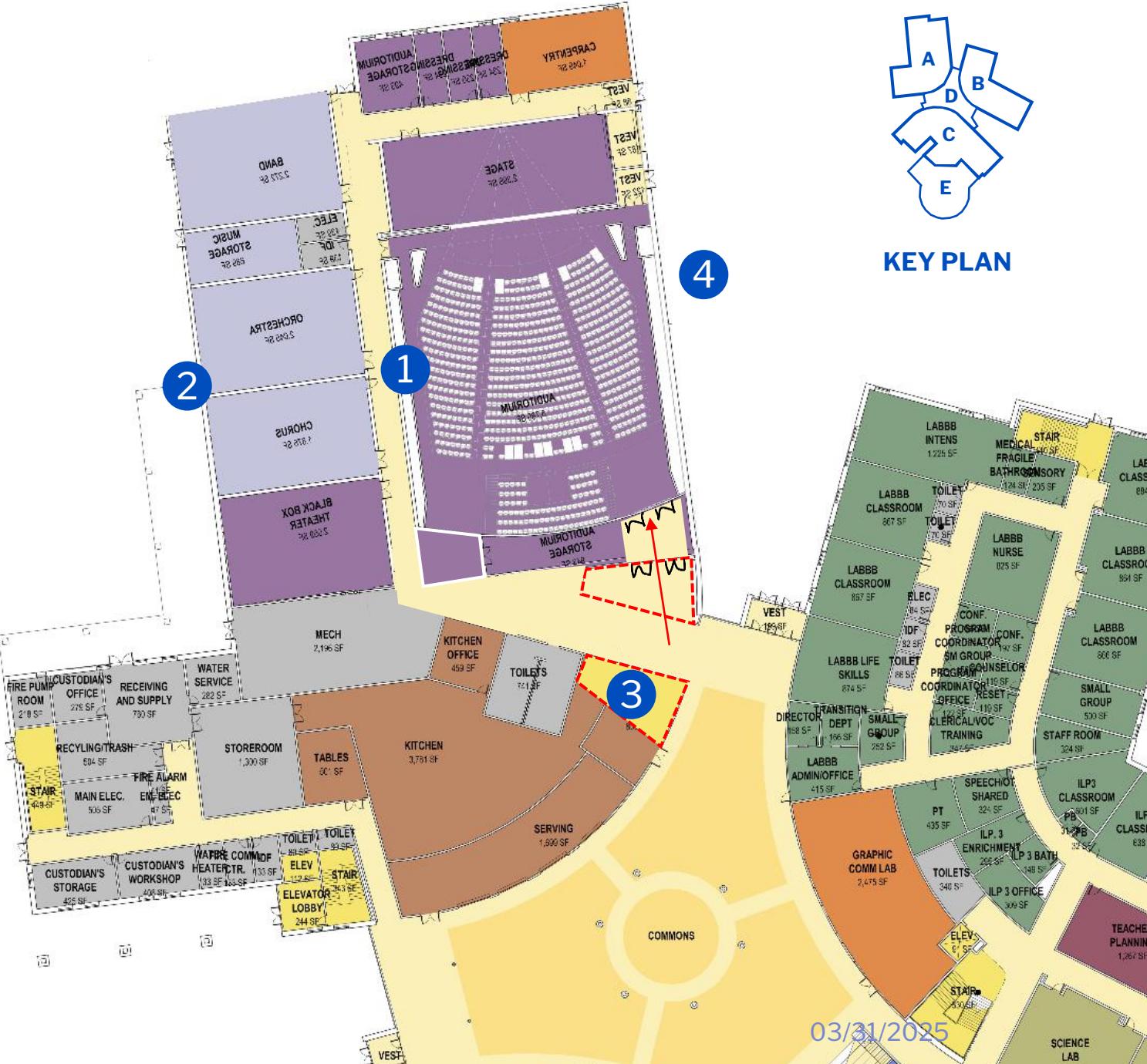


# Building Floor Plans

## Level 1 – Wing A

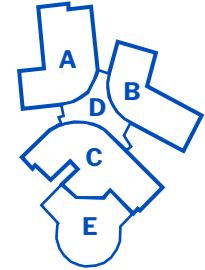
## Option B

- 1 Flip of Auditorium and Music spaces could bring Auditorium entrance closer to the Commons
  - 2 Music space moves adjacent to exterior loading dock and utility pad which may be a source of significant noise.
  - 3 Stair moving inward to free up Auditorium entrance would be disruptive to planning on floors above – needs further study
  - 4 50' windowless wall of Auditorium faces north entry plaza



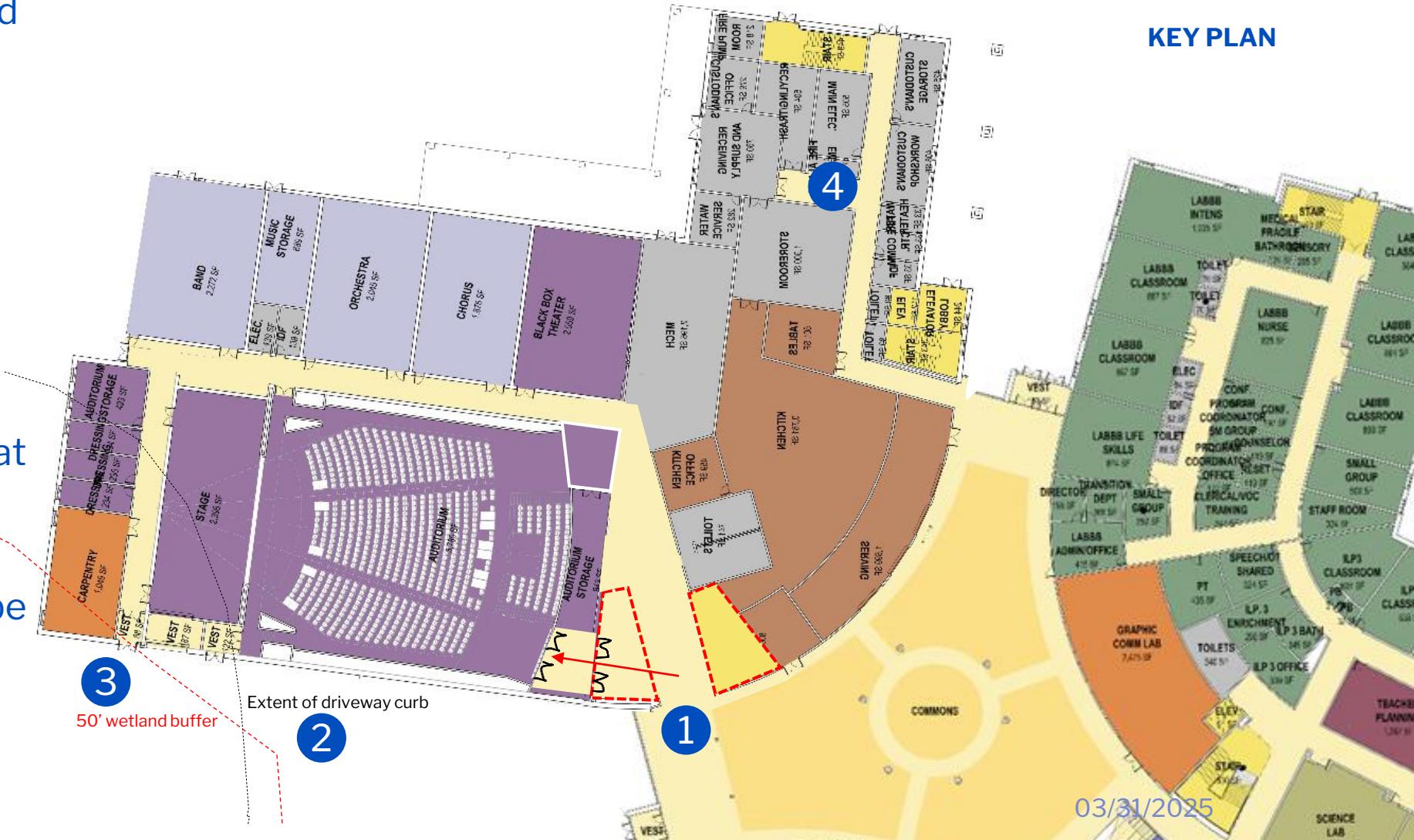
# Building Floor Plans

## Level 1 – Wing A



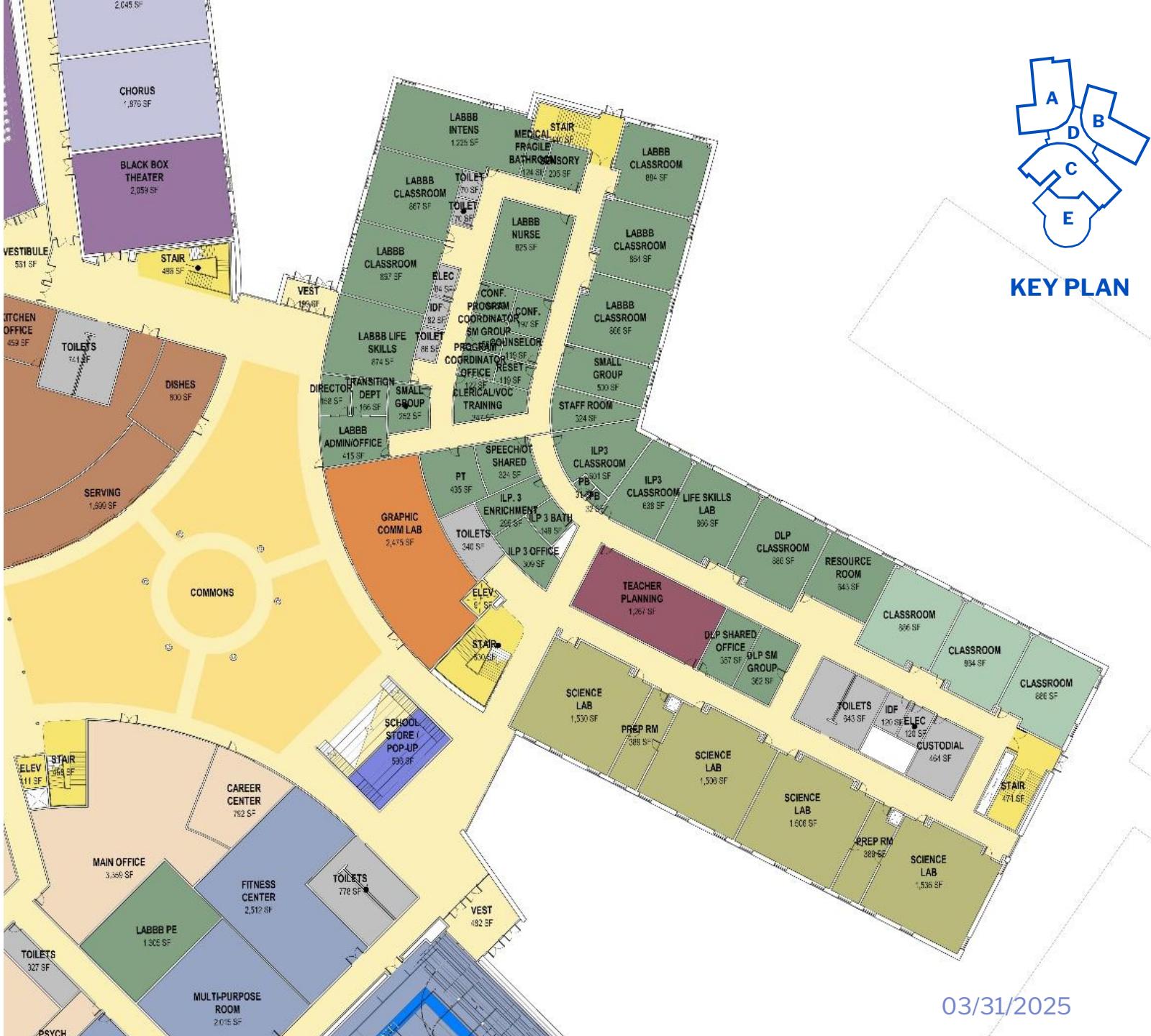
KEY PLAN

- Option C – not recommended**
- 1 Flip of entire Wing A would place Auditorium immediately adjacent to main entrance
  - 2 Length of building would not allow for appropriate vehicular circulation as currently planned.
  - 3 Length of building would not allow 50' buffer zone at wetlands as currently planned
  - 4 Media Center (L2) would be further from the main entrance and Humanities programs



# Building Floor Plans

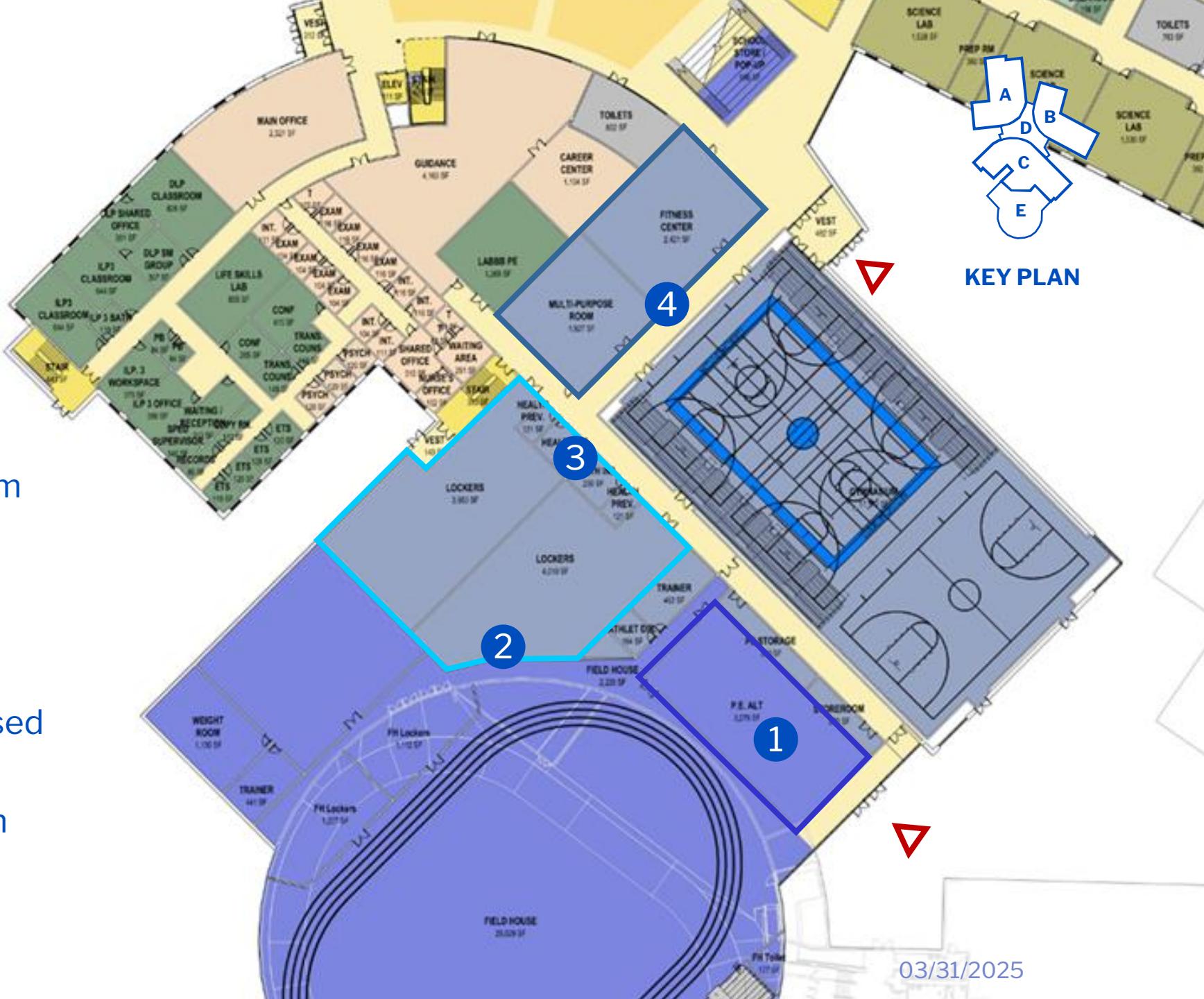
## Level 1 - Wing B



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# Building Floor Plans

## Level 1 – Wings C&D

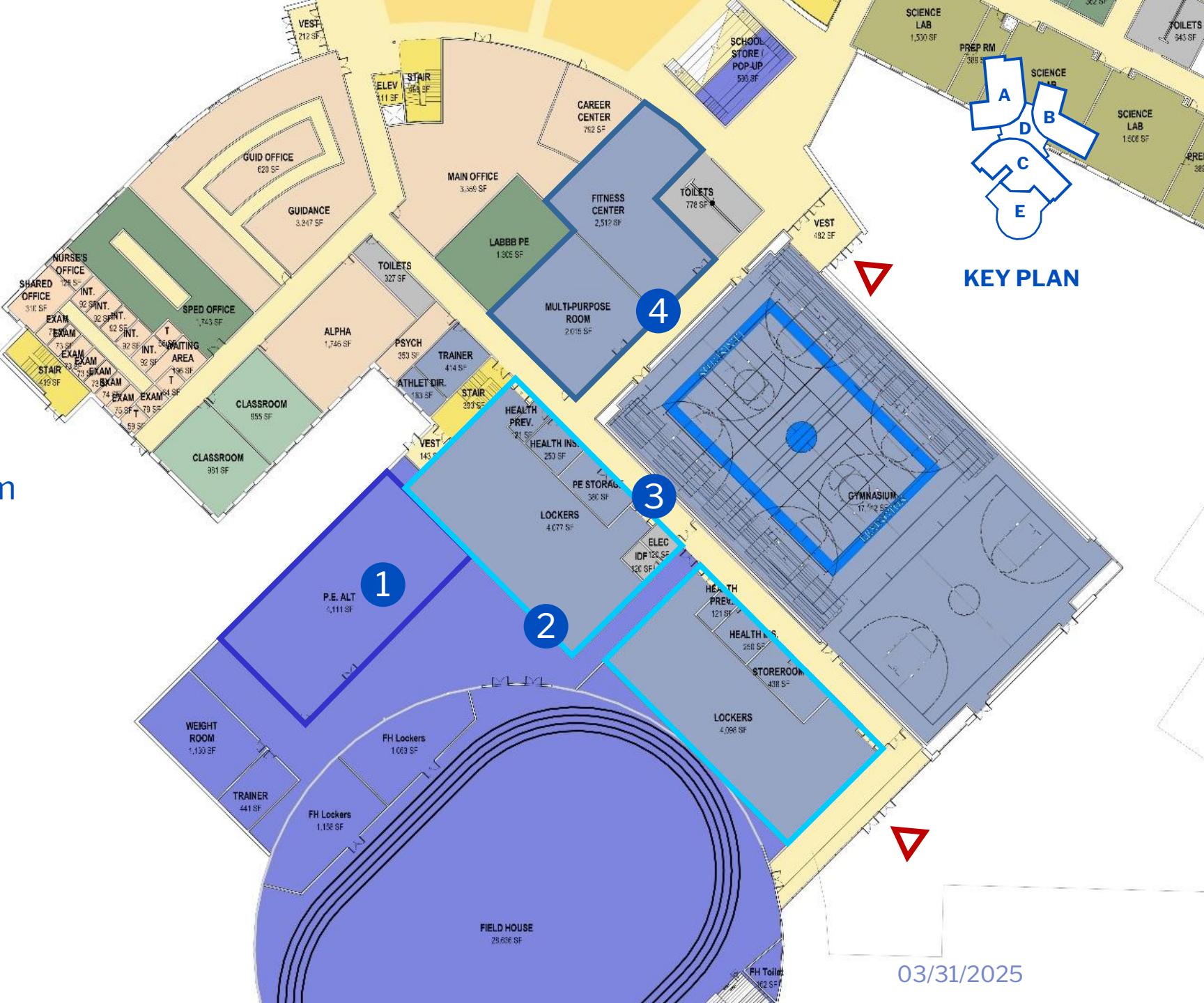


### Option A

- 1 Field House  
Wrestling/Multipurpose Room closer to public entrance
- 2 Irregular School/Field House delineation
- 3 High School program access along corridor very compressed
- 4 Good visibility/monitoring of Phys Ed Alt spaces from Gym

# Building Floor Plans

## Level 1 – Wings C&D

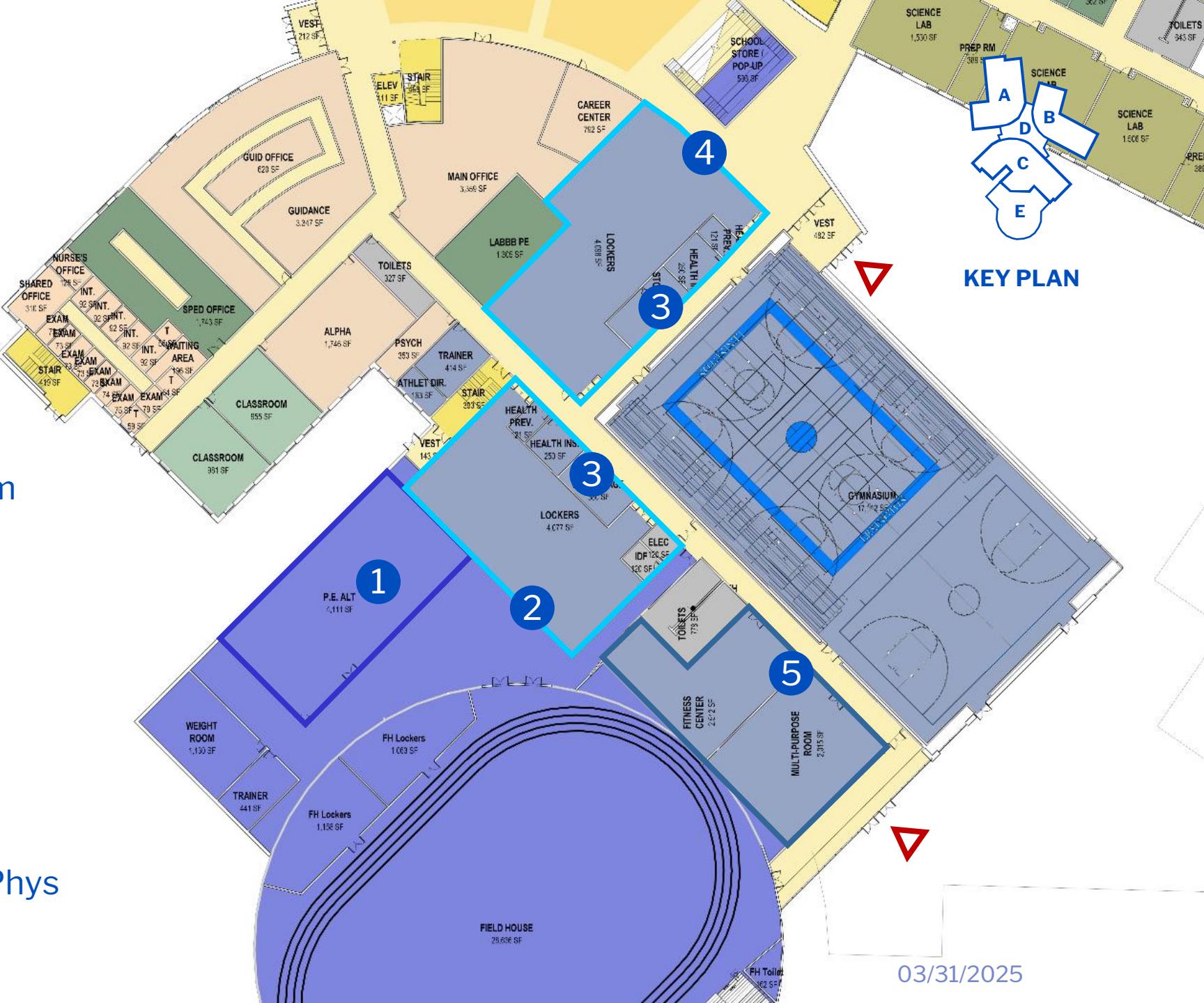


### Option B (recommended)

- 1 Field House  
Wrestling/Multipurpose Room  
further from public entrance
- 2 Regular School/Field House  
delineation possible
- 3 Better High School program  
access along corridor
- 4 Good visibility/monitoring of  
Phys Ed Alt spaces from Gym

# Building Floor Plans

## Level 1 – Wings C&D

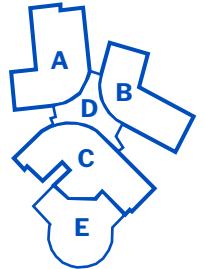


### Option C

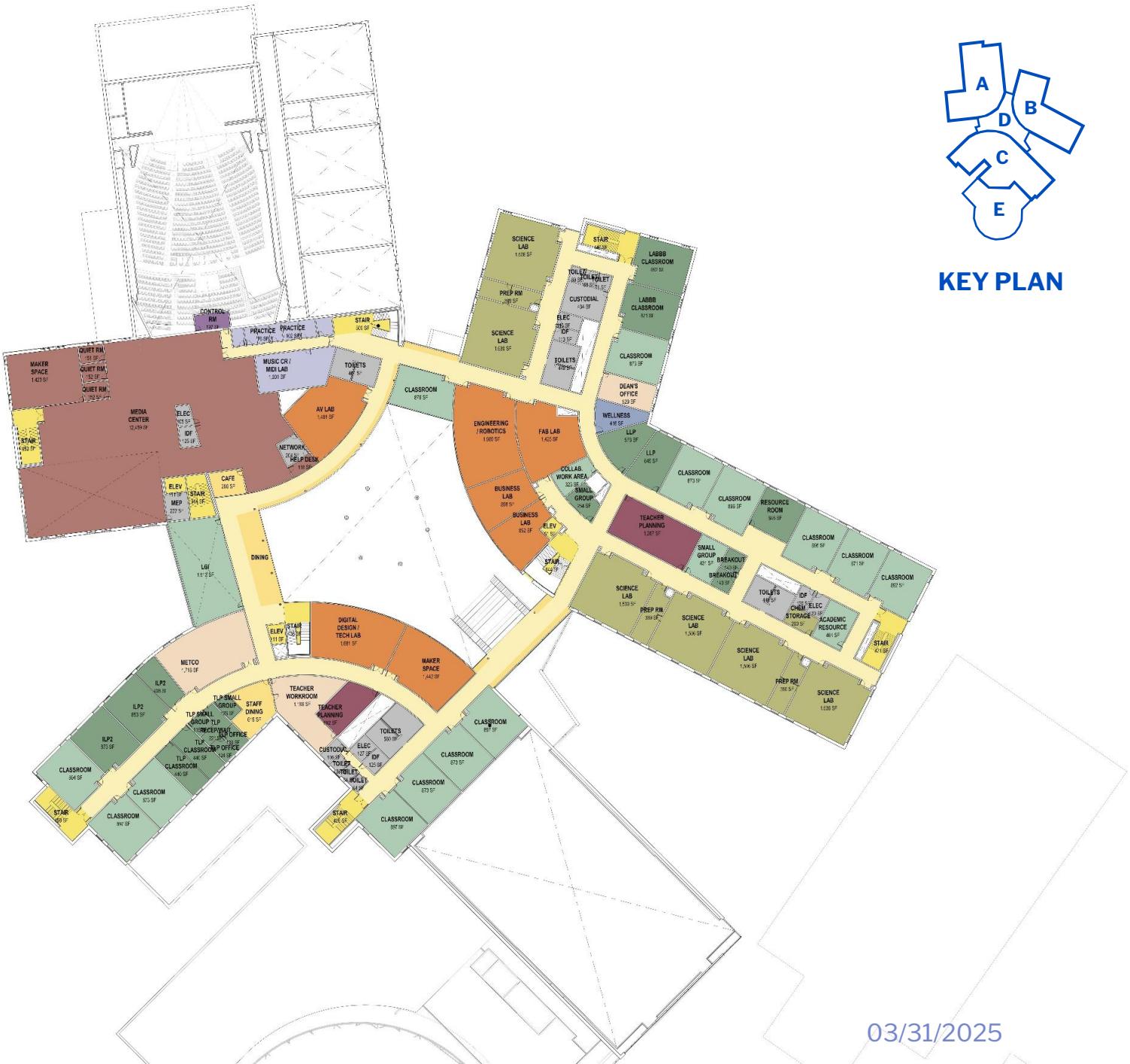
- 1 Field House
- 2 Regular School/Field House delineation possible
- 3 Good High School program access along corridor
- 4 Locker rooms don't animate Commons or adjacent space
- 5 Poor visibility/monitoring of Phys Ed Alt spaces from Gym

# Building Floor Plans

## Level 2



## KEY PLAN

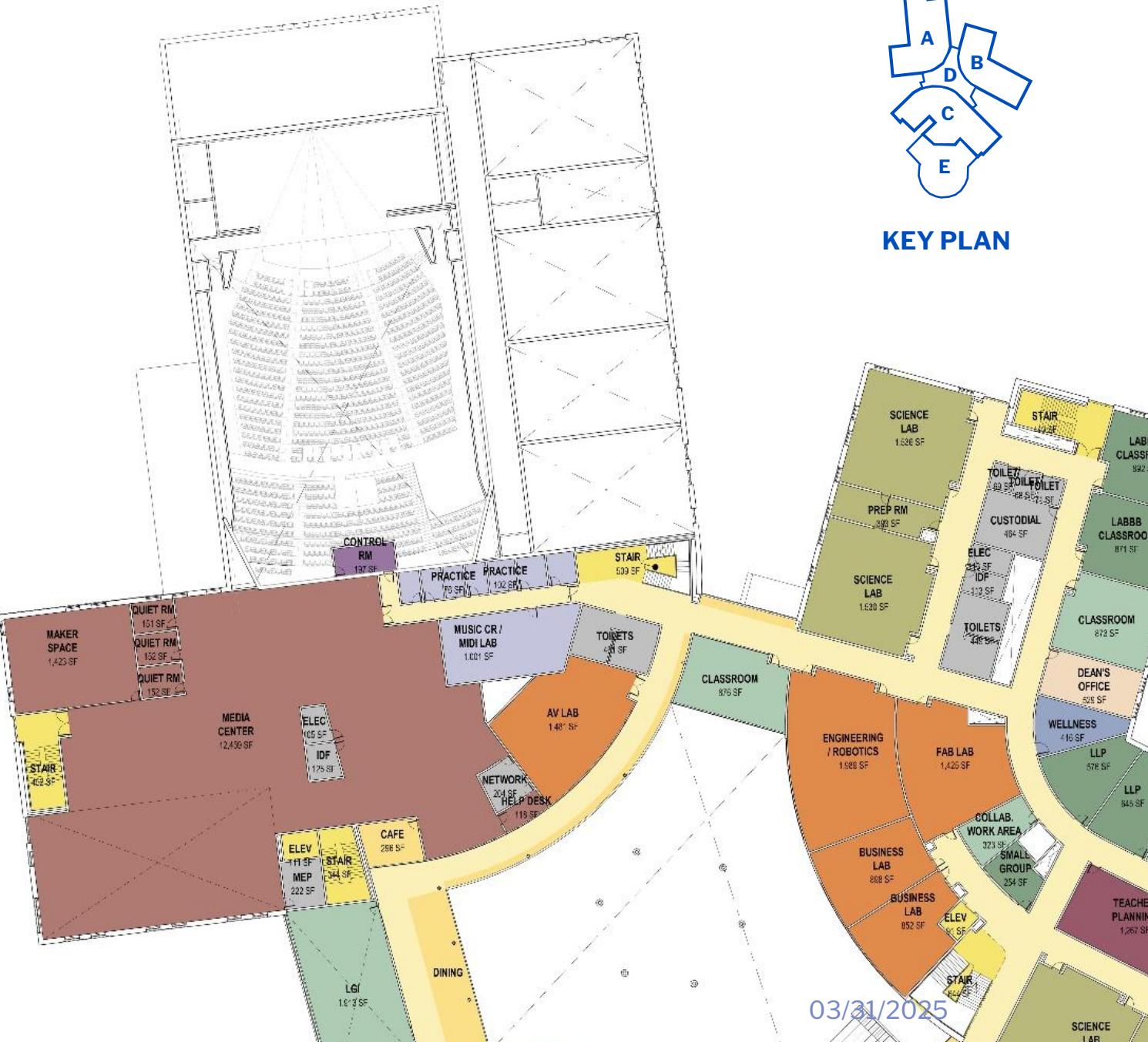


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# Building Floor Plans

## Level 2 – Wing A

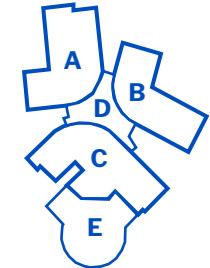


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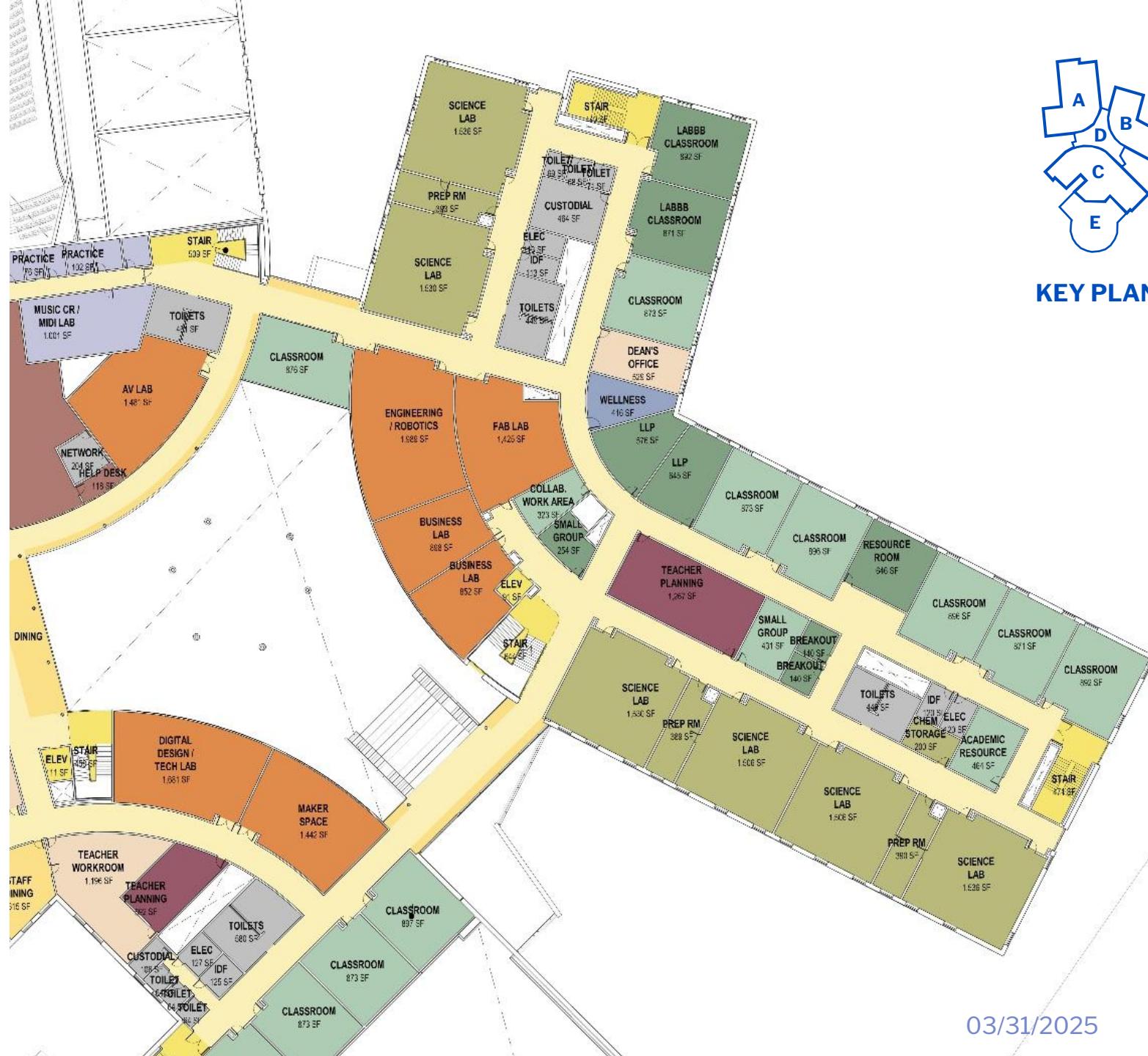
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# Building Floor Plans

## Level 2 – Wing B



## KEY PLAN

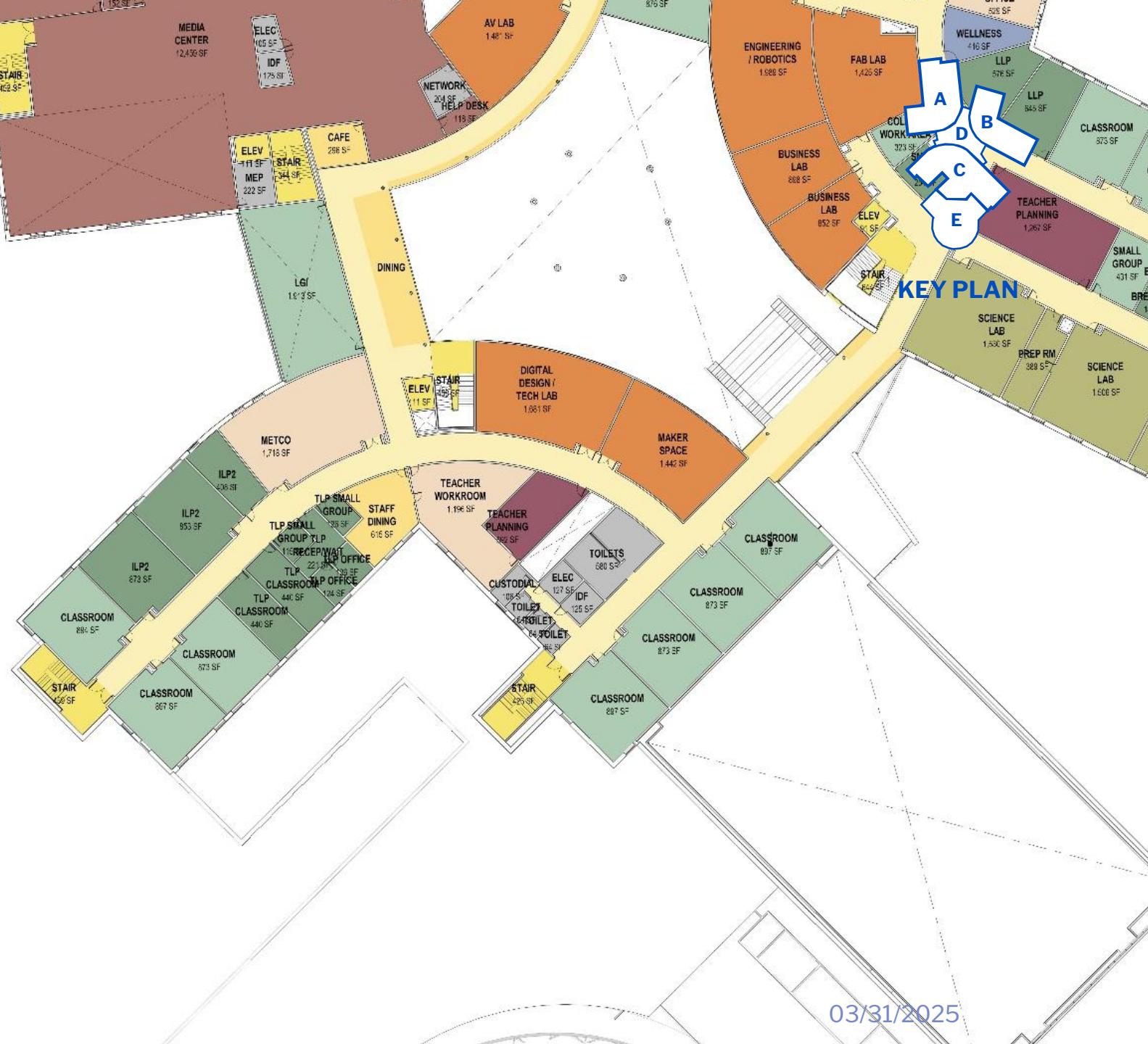


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# Building Floor Plans

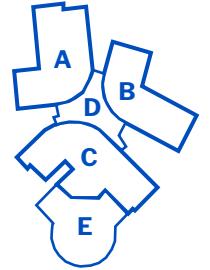
## Level 2 – Wing C

- Core Academic
- Science
- Teacher Planning & Small Group
- Admin, Guidance, ALPHA, METCO, Central Offices
- Auditorium / Drama
- Art & Music
- Media Center
- Vocation & Technology
- Physical Education
- Special Education
- Medical
- Restrooms, Custodial
- Kitchen
- Commons
- Circulation
- Vertical Circulation
- Rooftop Open Space
- Other
- Expansion



# Building Floor Plans

## Level 3



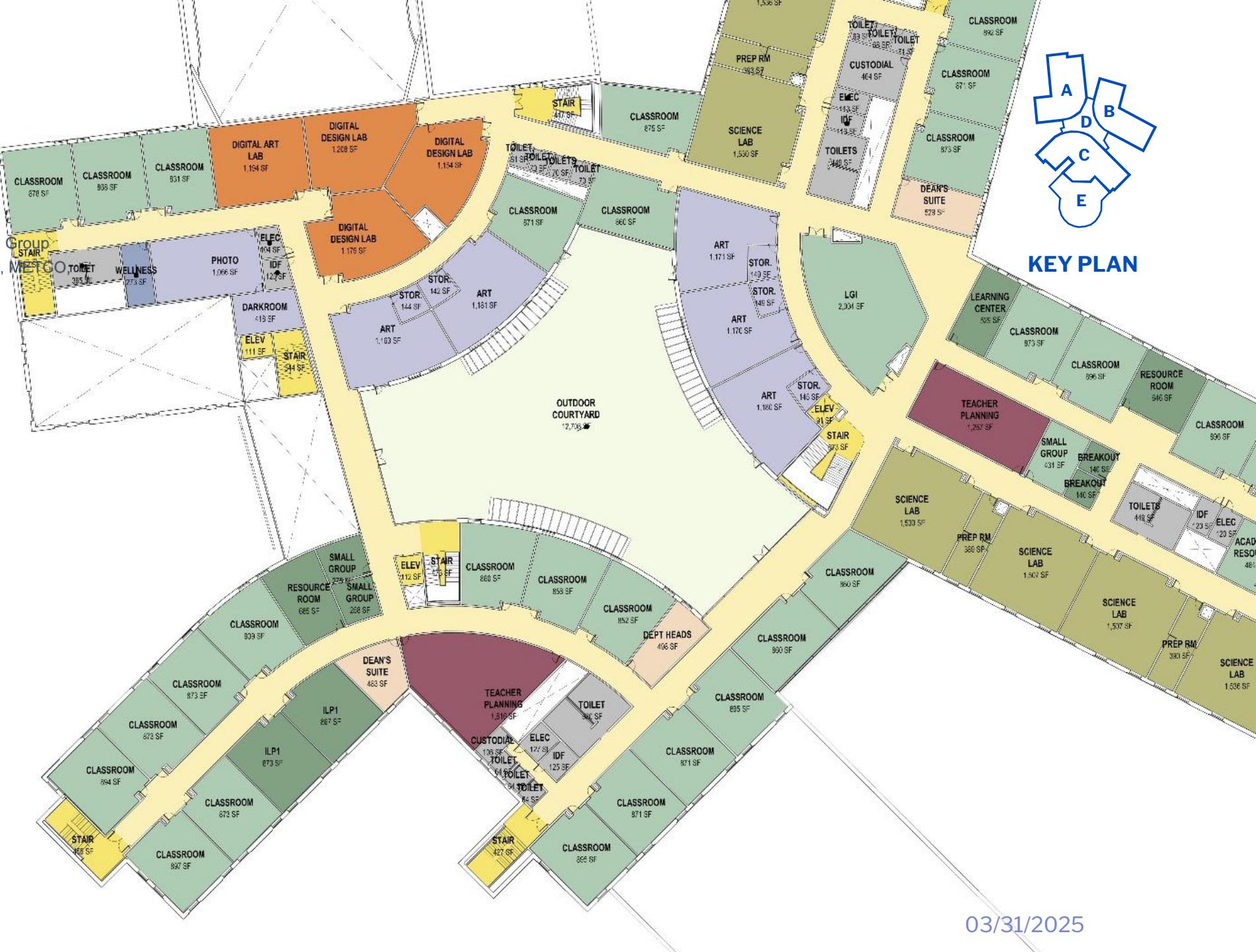
## KEY PLAN



# Building Floor Plans

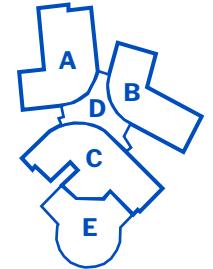
## Level 3

- Core Academic
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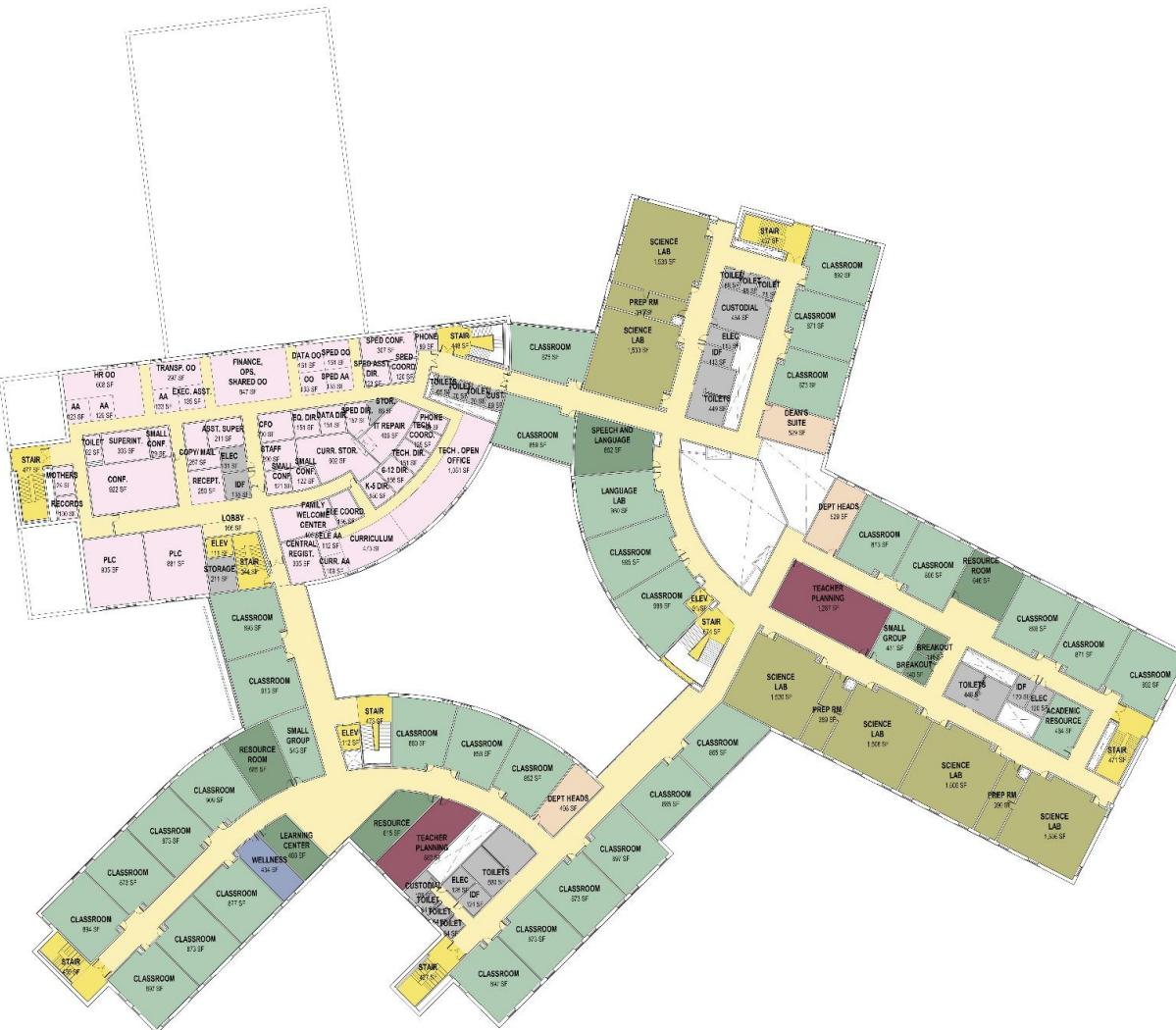
## Level 4



## KEY PLAN

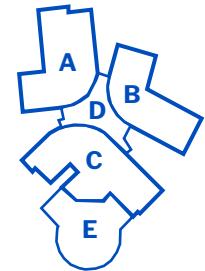


## Central Office / Expansion

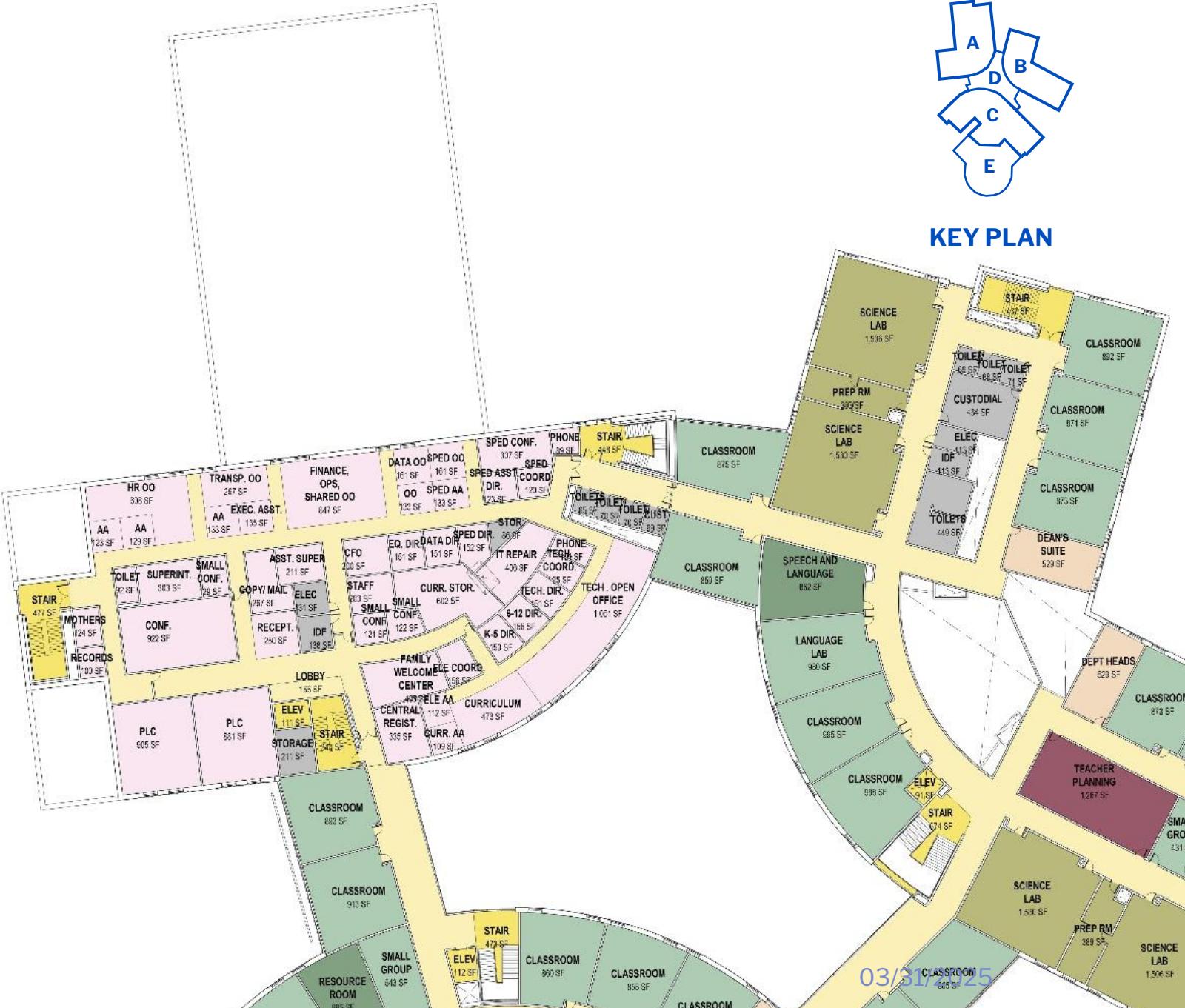


# Building Floor Plans

## Level 4



## KEY PLAN

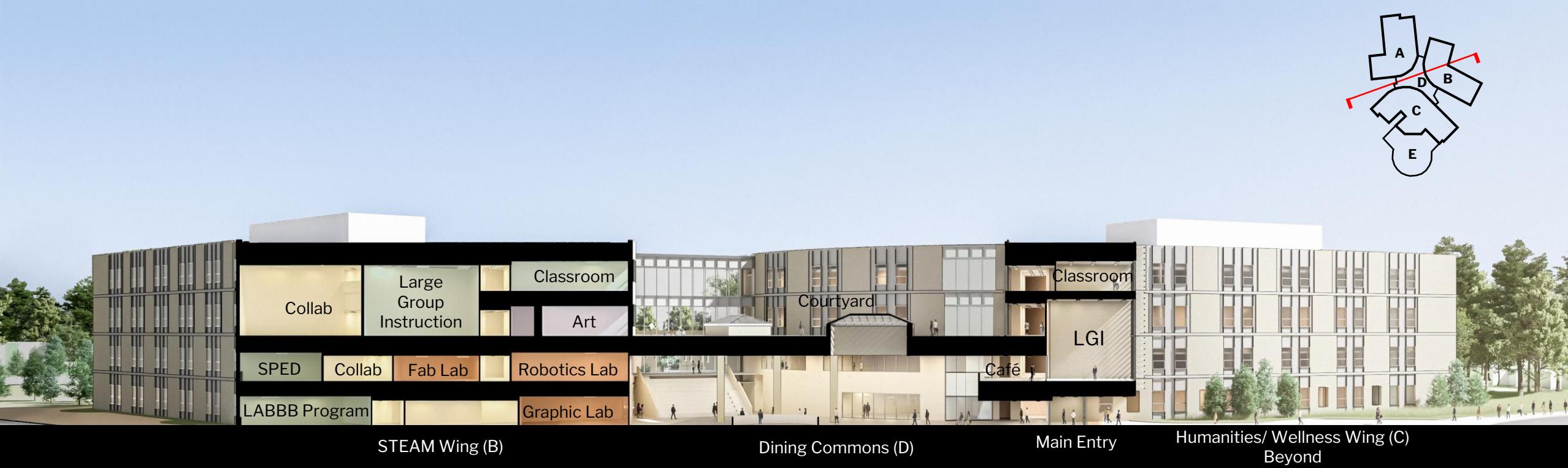


## Central Office / Expansion



- Core Academic
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  - Expansion

# Building Section



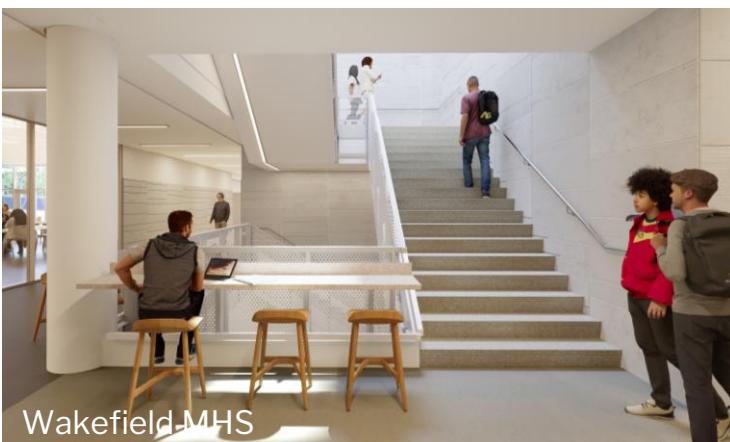
## Dining Commons Precedent Images



Somerville HS



Waltham HS



Wakefield MHS



Waltham HS

## Feature Space Model Images/ Dining Commons



## Student Enrollment Considerations

Increase #of Students per Class and Classroom Utilization Rates		
# of Students per Class	Classroom Utilization Rate	Total # of Students
23	85%	2395
24	85%	2491
25	85%	2587
25	90%	2738

**Increased Class Size:** This would be across the board except in rooms that have identified capacities. E.g. special education, science labs where safety is a concern; science lecture/labs. In each of these cases, additional rooms would need to be added.

**Utilization:** It is industry standard to program a High School at 85%. One cannot simply translate an increased utilization rate to an increased number of students. Utilization is the percentage of time a room is used. The higher the rate, the more reduced opportunity for students to be accepted into the desired classes. The higher the rate the more difficult it is for Administration to schedule the spaces.

## Student Enrollment Considerations

Plus Expansion into Central Office Space		
# of Students per Class	Classroom Utilization Rate	Total # of Students
23	85%	299

**Central Office Retrofit:** At this level of analysis this space has been calculated as general education classrooms only, although some of that space may need to be SPED or Admin space.

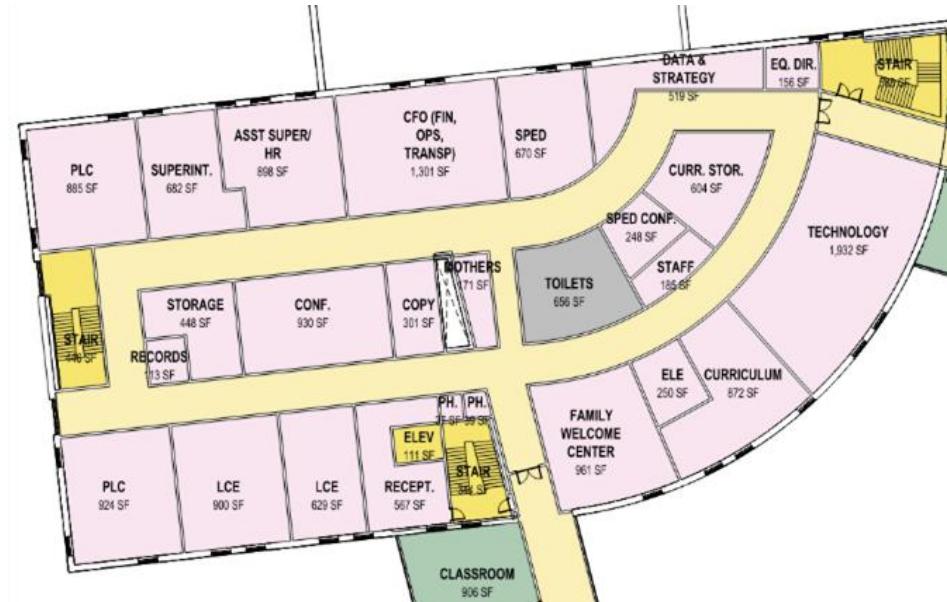
Plus Additional Expansion		
# of Students per Class	Classroom Utilization Rate	Total # of Students
23	85%	Option 1: 552
23	85%	Option 2: 460

**Expansion Space:** At this level of analysis this space has been calculated as general education classrooms only, although some of that space will most likely need to include SPED classrooms, Additional Dining and Media Center capacity and Admin space. Field House addition may allow future flexibility for Health/PE program overcrowding.

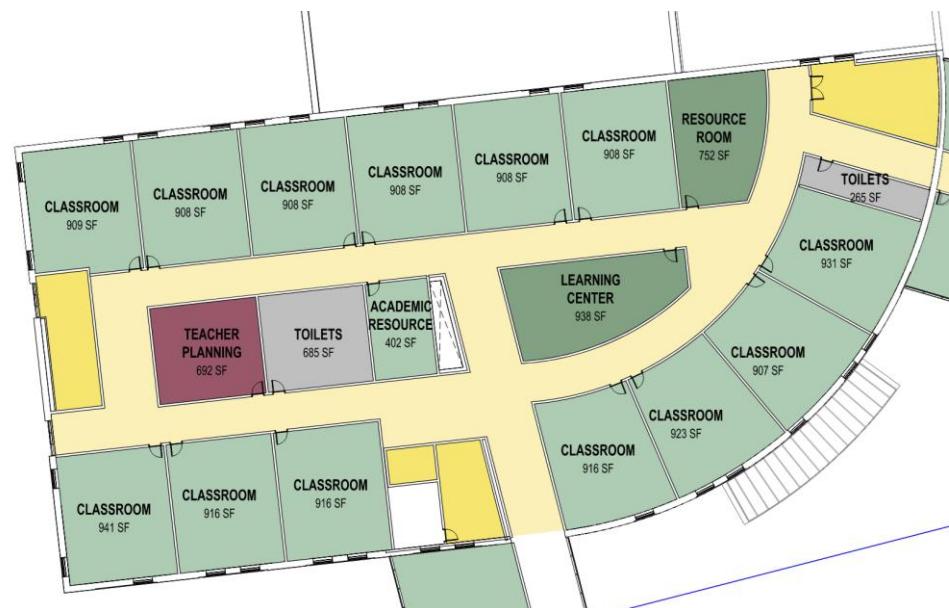
# Student Enrollment Considerations

## Level 4 Central Office Expansion Space

- Office spaces are being planned within classroom bay dimensions for ease of future conversion to educational space
- Additional Capacity based on Gen Ed classroom layout: **299 students**  
(conversion to science classrooms or other lab space may reduce total)



Schematic Design with Central Office

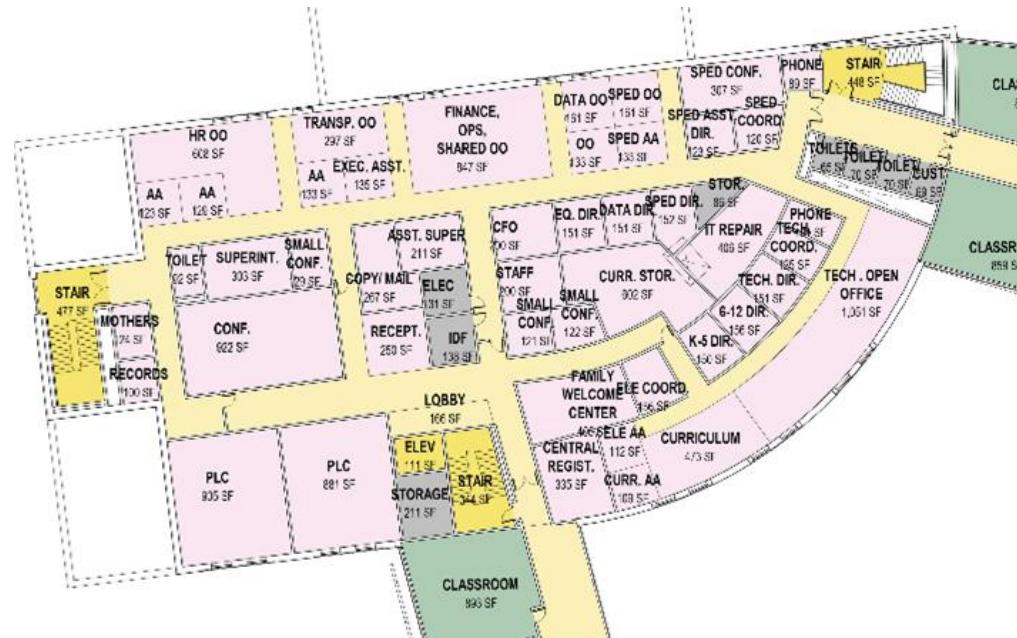


Future Classroom Wing Conversion

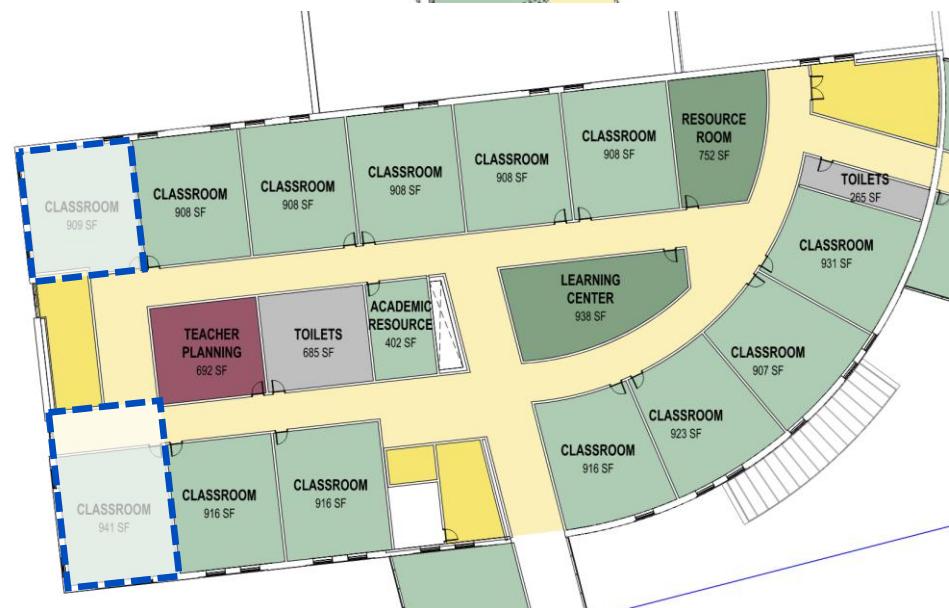
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**Schematic Design with Central Office**  
**Updated 3/31**

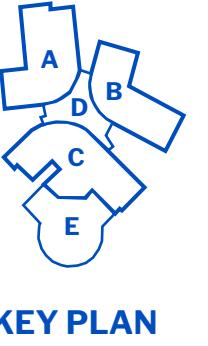
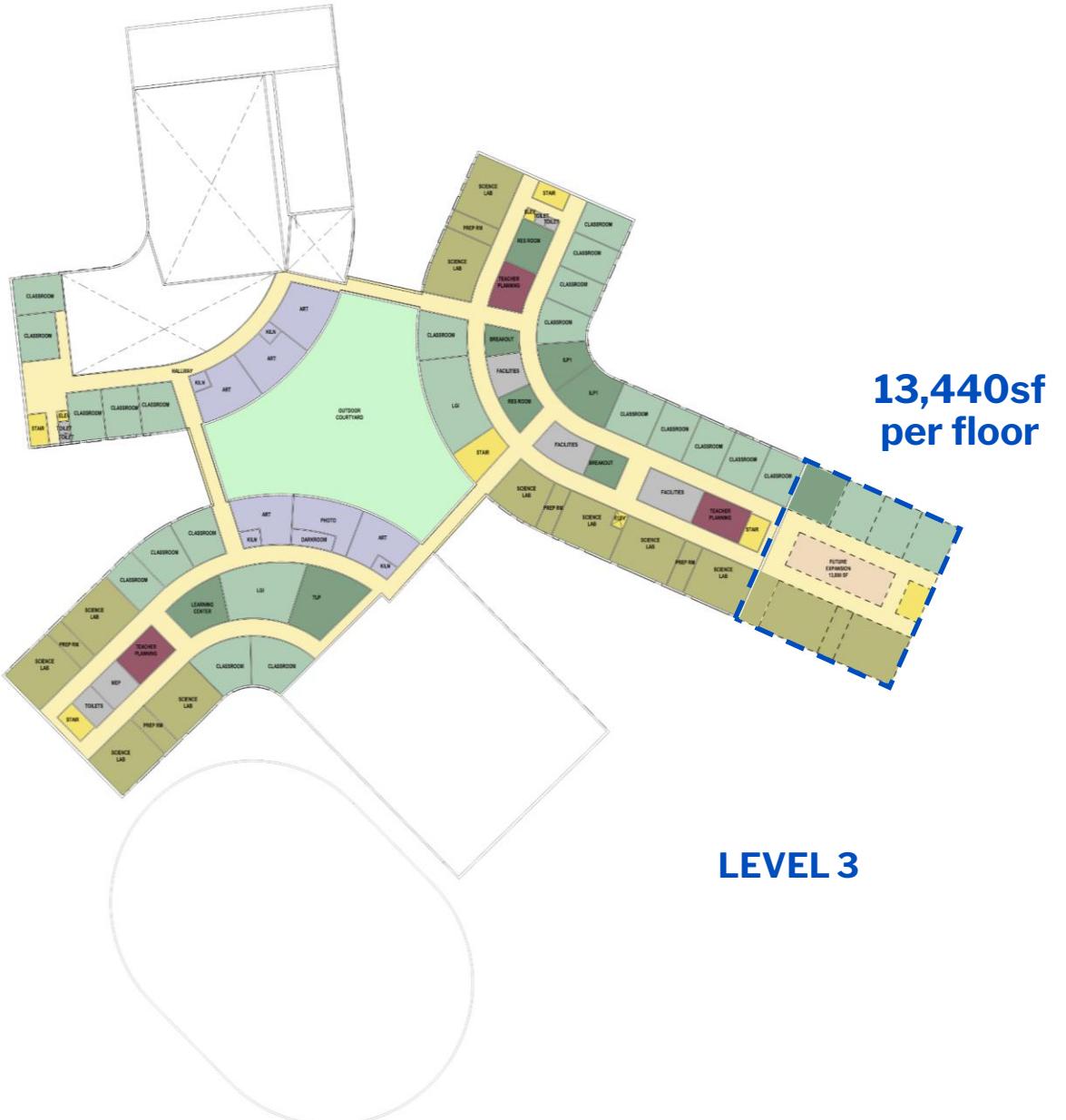


**Future Classroom Wing Conversion**  
**Updated 3/31**

## Student Enrollment Considerations

## Option 1 - 53,760 GSF

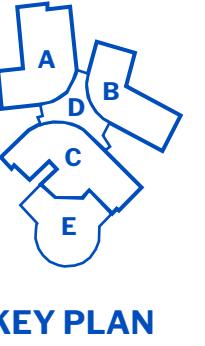
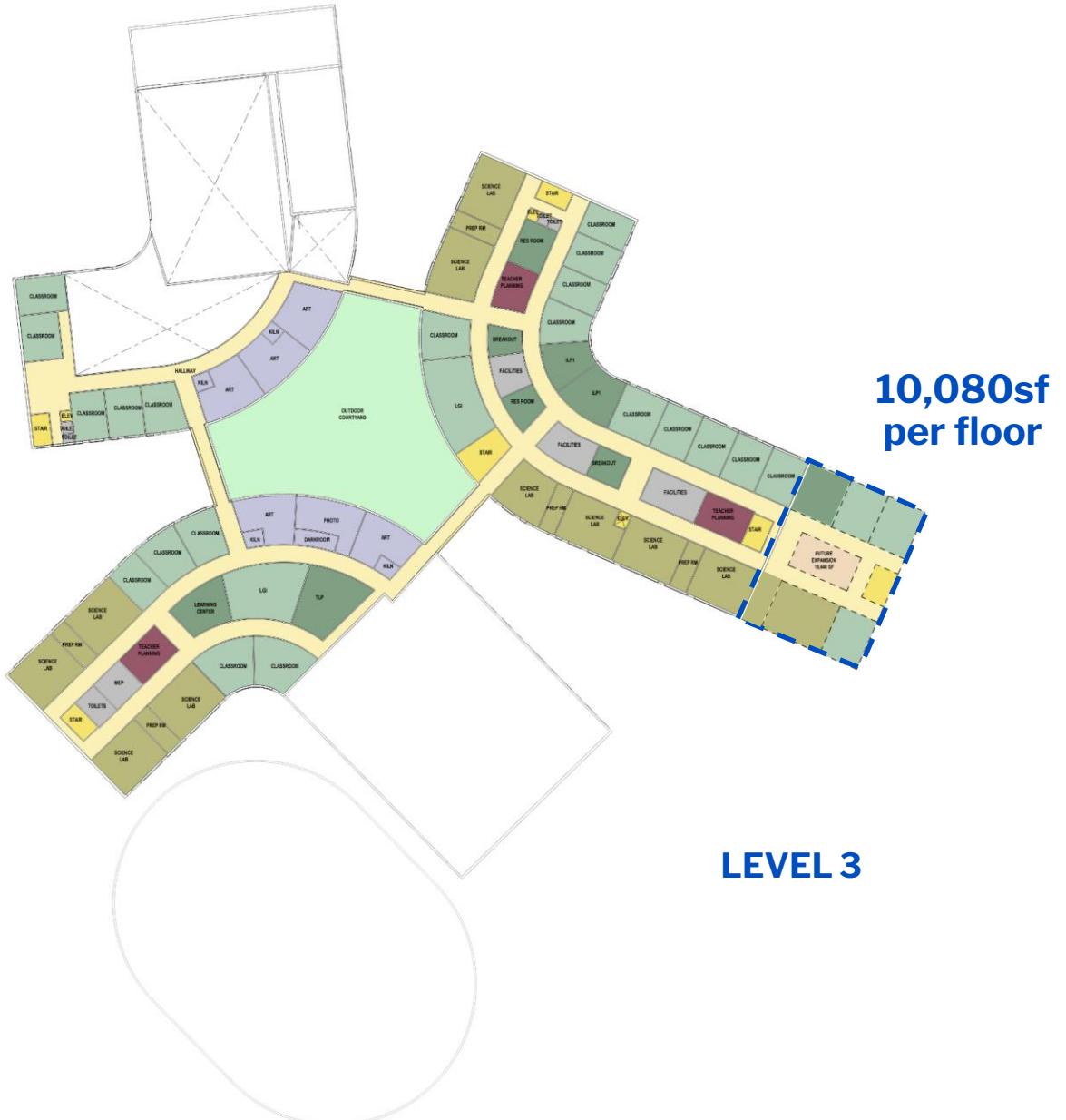
- Adds (4) full Gen Ed Classroom bays floors 1-4: Total 16
  - Adds (2) Science Labs and (1) Prep Room floors 1-4: Total 8/4
  - Adds an egress stair at end of wing
  - Allows space for exit from internal egress stair
  - Includes internal zone for support space, toilets
  - Additional Capacity: **552 students**
  - Total Capacity at 85% Utilization: **3,246 students (enrollment + CO + Larger Addition)**



# Student Enrollment Considerations

## Option 2 – 40,320 GSF

- Adds (4) full Gen Ed Classroom bays floors 1-4: Total: 16
  - Adds (1) Science Lab and (1) Prep Room floors 1-4: Total: 4/4
  - Adds an egress stair at end of wing
  - Allows space for exit from internal egress stair
  - Includes internal zone for support space, toilets
- 
- Additional Capacity: **460 students**
  - Total Capacity at 85% Utilization: **3,154 students (enrollment + CO + Smaller Addition)**



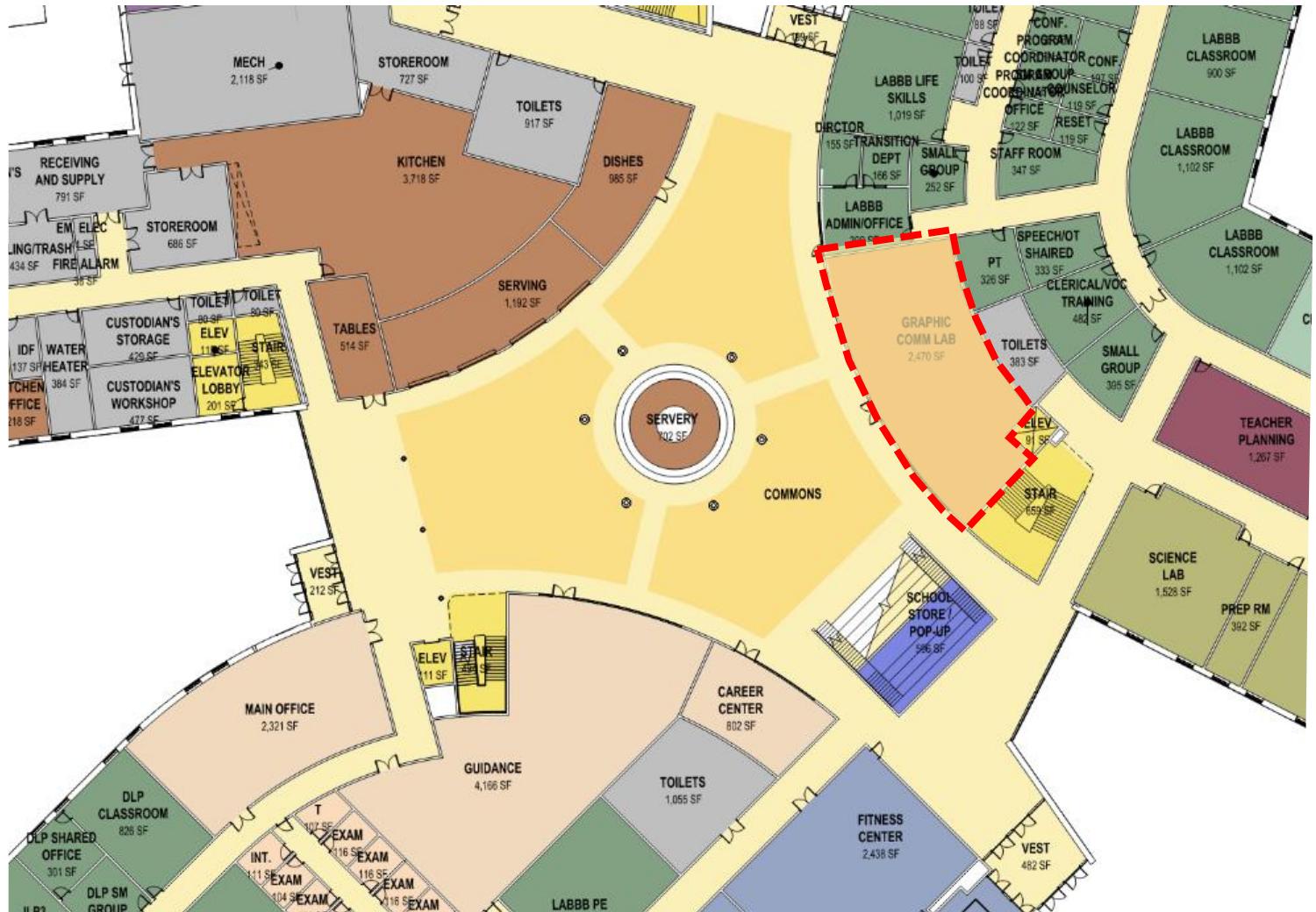
## Student Enrollment Considerations

## Potential Future Conversion to Dining for 200 Students (600/3 seatings)

**Displaces 3.5 classroom bays or 80 students – may be offset in Wing B expansion options**



## LEVEL 2



# Thank you.