LAWRENCE SECONDARY SCHOOLS MASTERPLAN

(ADDITIONAL COLLATERAL)

This material is provided in response to questions received at the Nov. 28 School Board Meeting. A final deliverable, containing all masterplan studies and supporting material will be submitted prior to the January 9 Board Meeting

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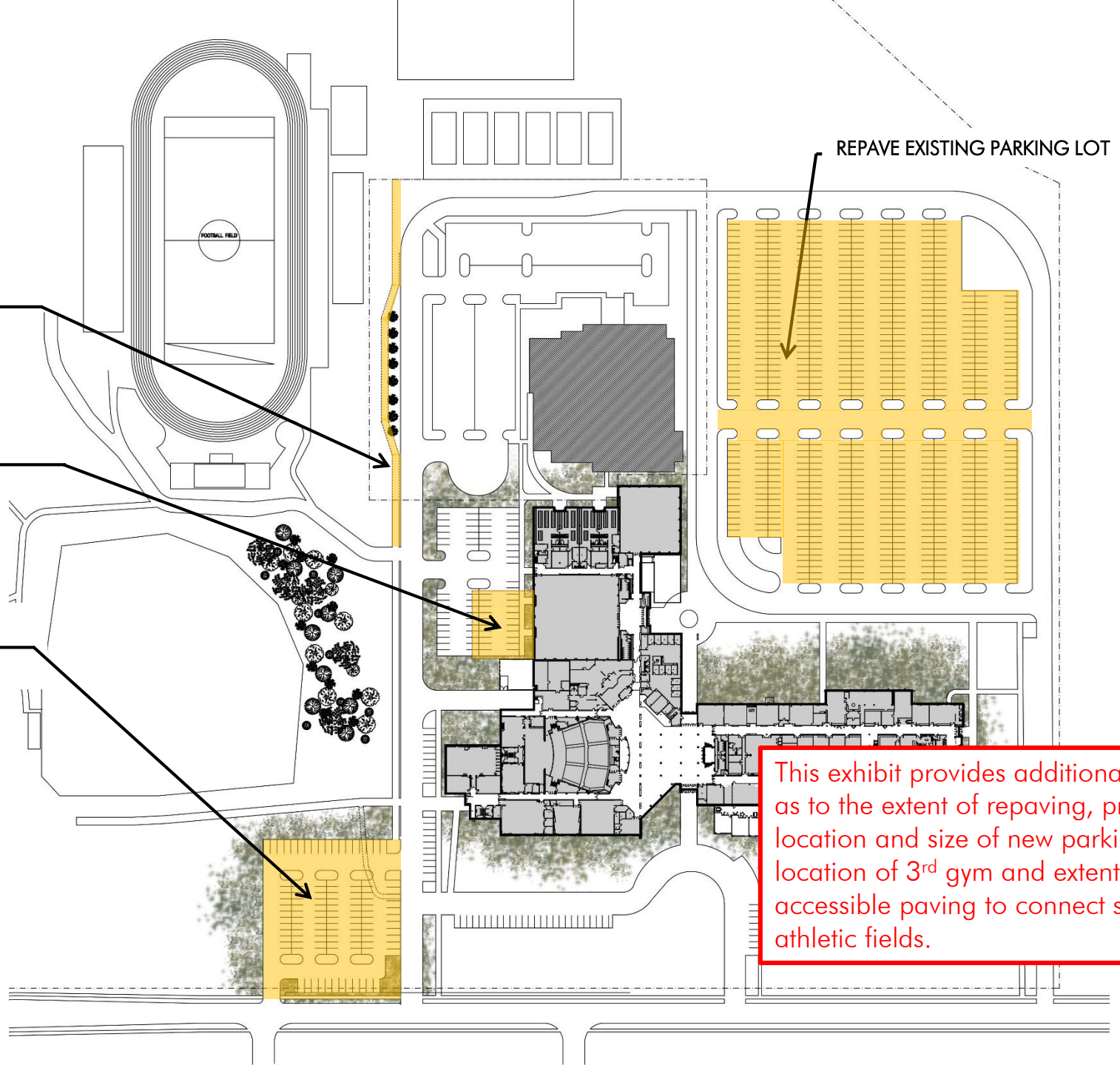
FSHS PARKING/PAVING UPGRADES



This exhibit provides additional clarification as to the extent of repaving, proposed location and size of new parking, proposed location of 3rd gym and extent of ADA accessible paving to connect school and athletic fields.

FSHS – PROPOSED SITE PLAN

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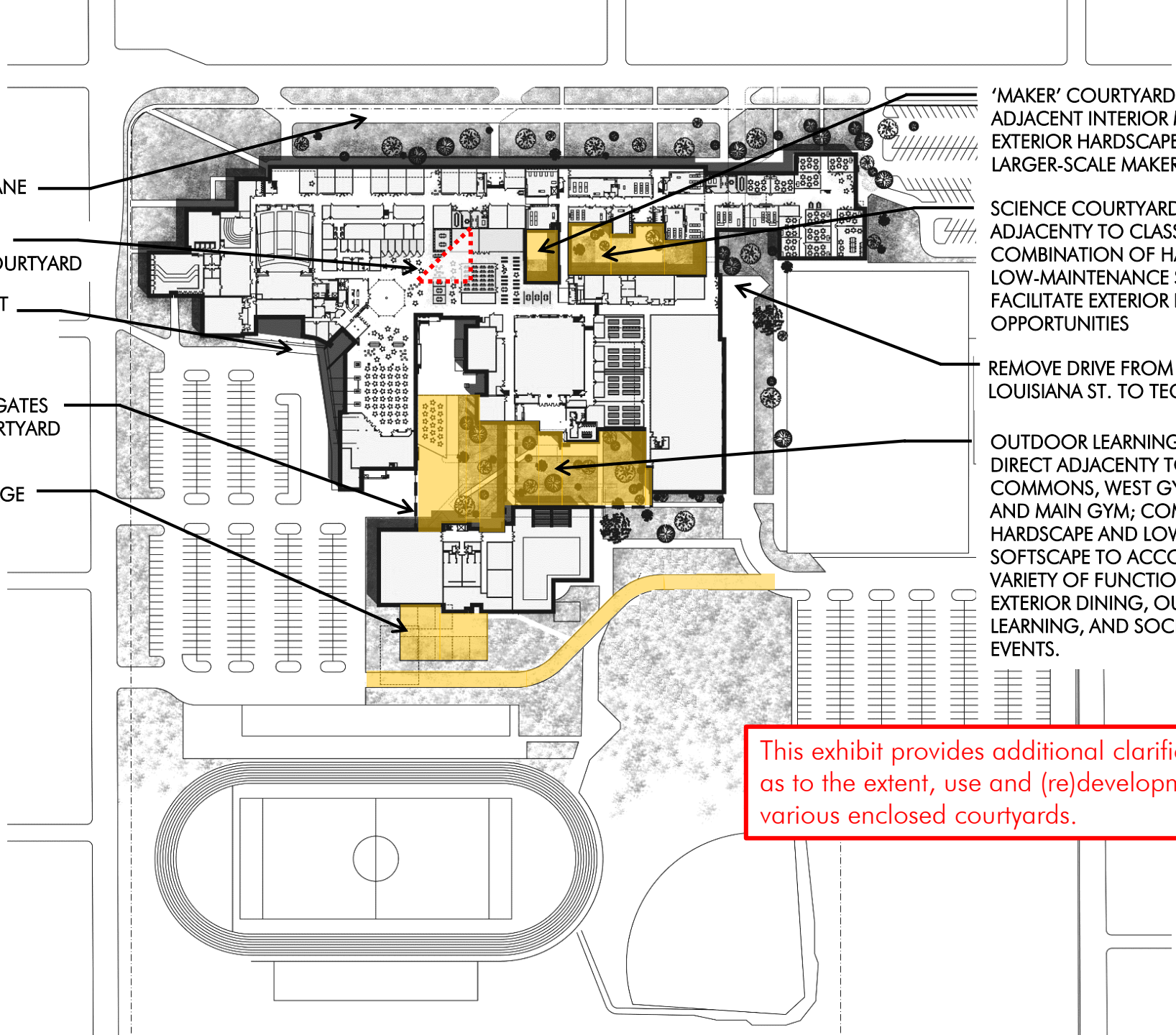
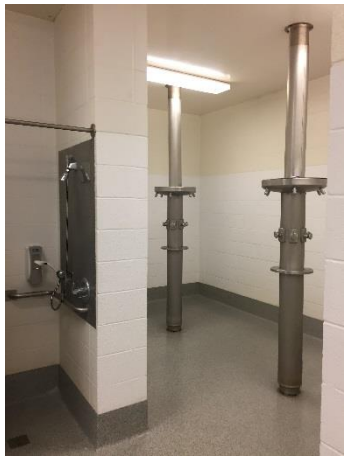
LHS COURTYARD UPGRADES

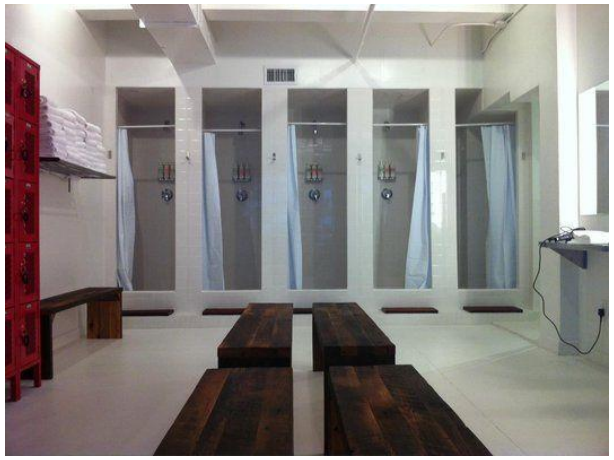


This exhibit provides additional clarification as to the extent, use and (re)development of various enclosed courtyards.

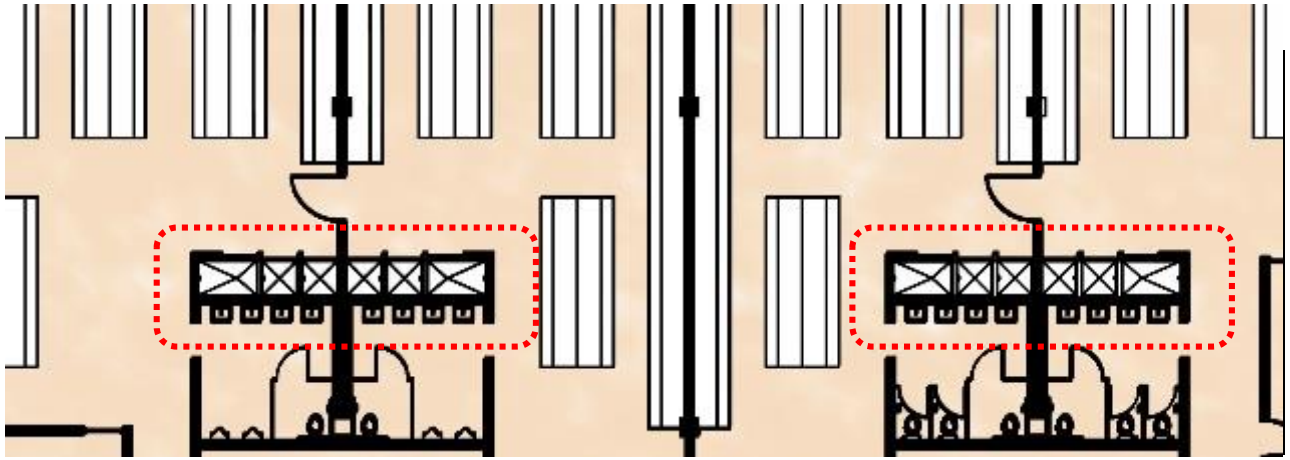
RESTROOM/SHOWER UPGRADES AT ALL SECONDARY SCHOOLS



Existing LHS locker room showers



Proposed solution for individual showers



Proposed Individual stalls at FSHS

INDIVIDUAL SHOWER / CHANGING STALLS

In secondary schools across the school district, locker rooms are equipped with "gang", or group, showers. Many students are uncomfortable showering in front of their peers, resulting in underutilized shower facilities. Replacing gang showers with individual shower stalls would provide the option for students to both change and shower within a private setting.

An allowance is included in the base cost for modifications to all secondary school shower facilities, and pending secondary school restrooms, to address student/faculty preference for private facilities.

SOUTH / SOUTHWEST UPGRADES

SMS - EXISTING FLOOR PLAN

BEGIN TO POPULATE THE TRADITIONAL CAFETERIA WITH SOFT SEATING AND MOVEABLE WHITE BOARDS FOR STUDENTS TO UTILIZE THE SPACE 7 PERIODS A DAY

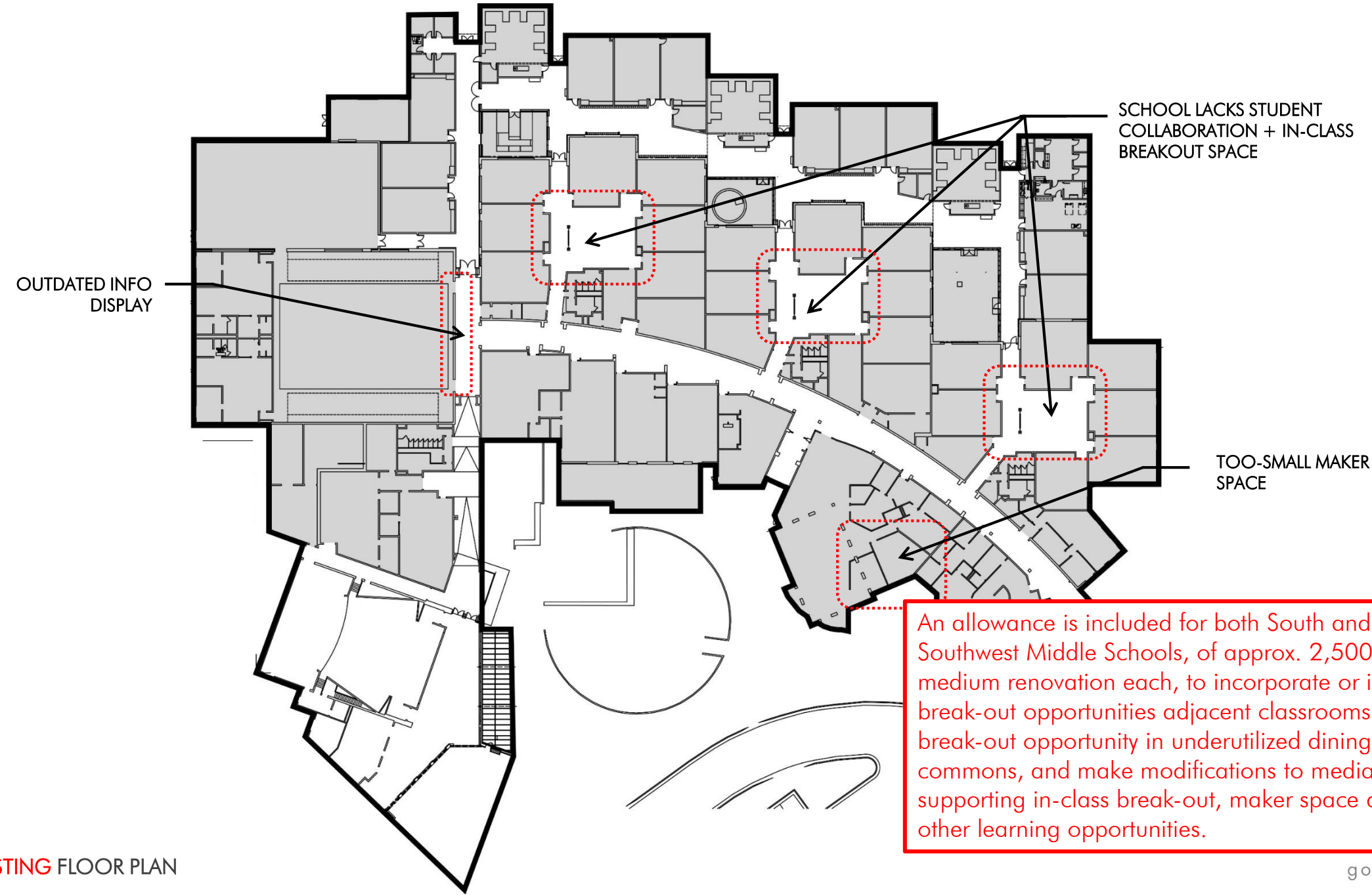
REMOVE WALL TO OPEN UP MULTIPURPOSE ROOM

HANG WHITEBOARDS, ADD SOFT SEATING FOR STUDENT BREAKOUT ADJACENT CLASSROOMS

REDUCE LOCKERS TO 50%, CREATE LEARNING POCKETS

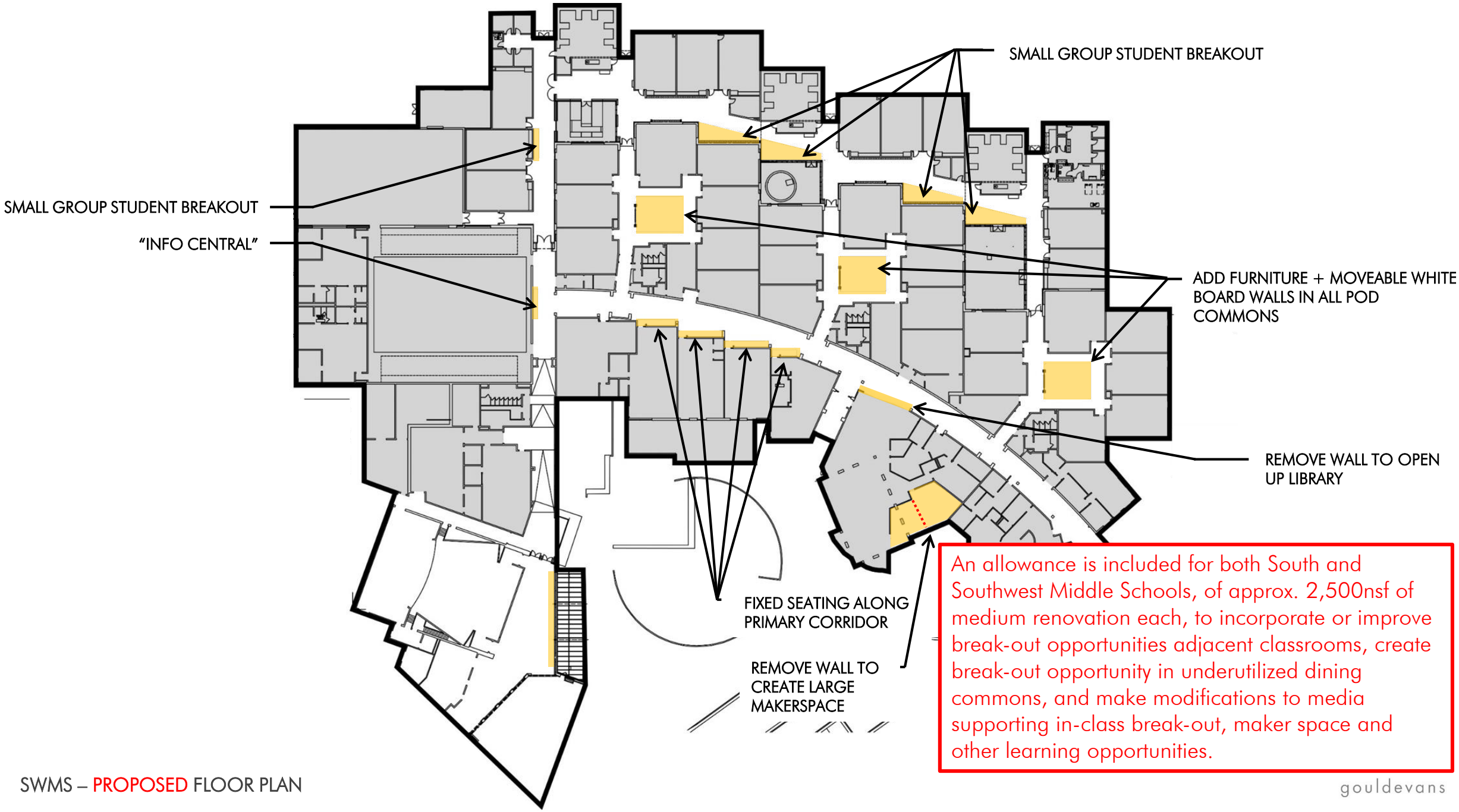
REMOVE WALL, ALLOWING LIBRARY TO SERVE AS A SOCIAL, LEARNING AND MEDIA COMMONS

SMS – PROPOSED FLOOR PLAN



An allowance is included for both South and Southwest Middle Schools, of approx. 2,500nsf of medium renovation each, to incorporate or improve break-out opportunities adjacent classrooms, create break-out opportunity in underutilized dining commons, and make modifications to media supporting in-class break-out, maker space and other learning opportunities.

SWMS - EXISTING FLOOR PLAN



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SWMS – PROPOSED FLOOR PLAN

in-class student breakout
adjacent classrooms

Provide learning pockets within corridors for casual study spaces and small-group collaboration zones

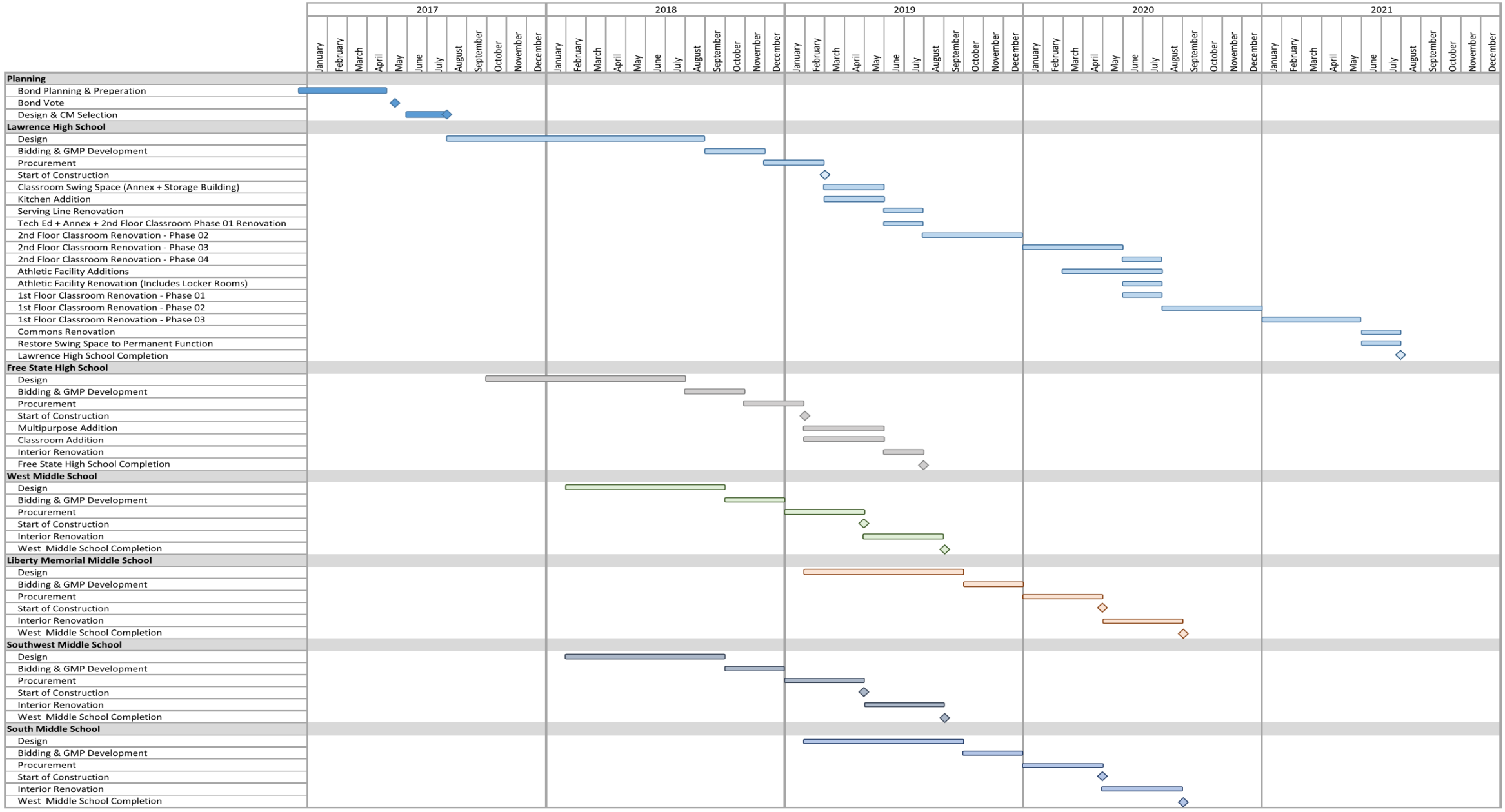
dining + study commons

Begin to populate the traditional cafeteria with soft seating and moveable white boards for students to utilize the space 7 periods a day

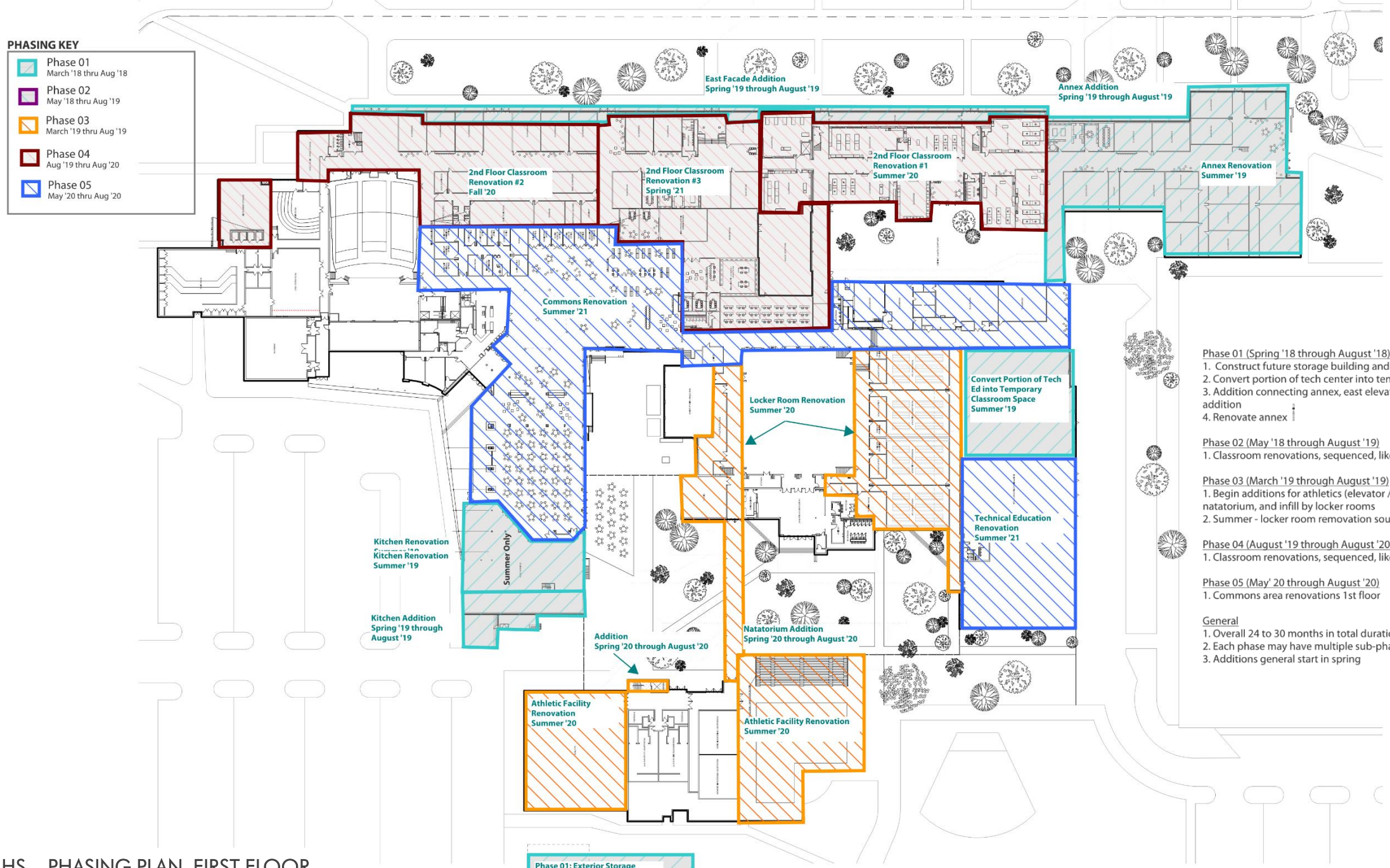
Transparency within media puts "learning on display"

Providing a variety of seating options allows students to feel independent by taking control of their learning environment; solutions accommodate both head's down and group study

CONSTRUCTION PHASING



PRELIMINARY CONSTRUCTION SCHEDULE FOR ALL SECONDARY SCHOOLS



Phase 01 (Spring '18 through August '18)
1. Construct future storage building and install temporary classrooms
2. Convert portion of tech center into temporary classrooms
3. Addition connecting annex, east elevation addition, and kitchen addition
4. Renovate annex

Phase 02 (May '18 through August '19)
1. Classroom renovations, sequenced, likely focused on second floor

Phase 03 (March '19 through August '19)
1. Begin additions for athletics (elevator / stair tower, covered walk way, natatorium, and infill by locker rooms
2. Summer - locker room removation south of gym

Phase 04 (August '19 through August '20)
1. Classroom renovations, sequenced, likely focused on 1st floor

Phase 05 (May' 20 through August '20)
1. Commons area renovations 1st floor

General
1. Overall 24 to 30 months in total duration
2. Each phase may have multiple sub-phases
3. Additions general start in spring

LHS – PHASING PLAN, FIRST FLOOR

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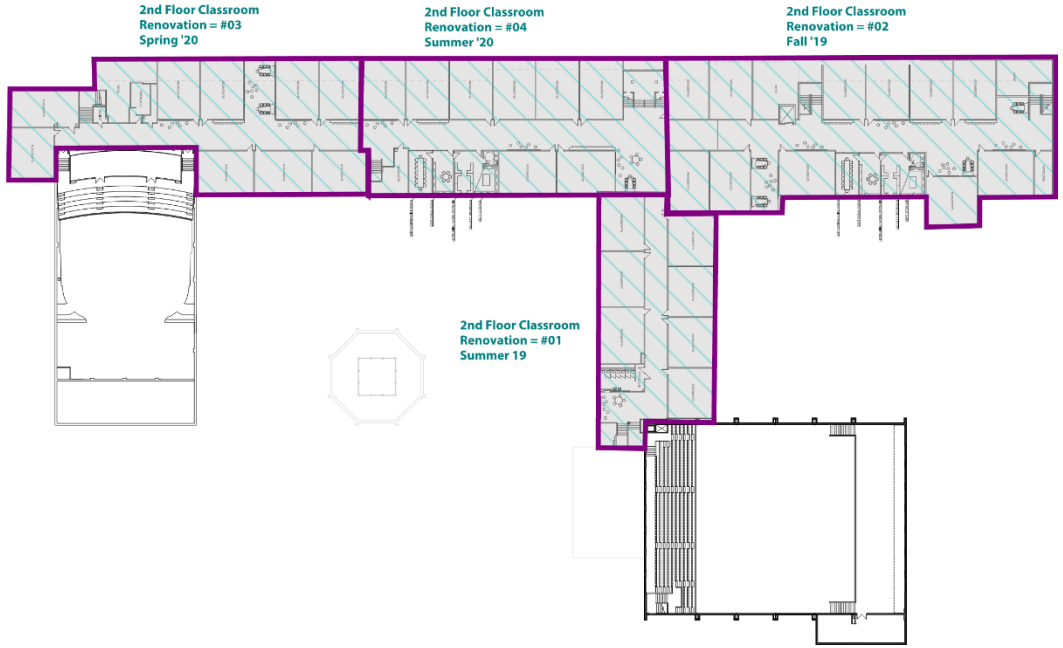
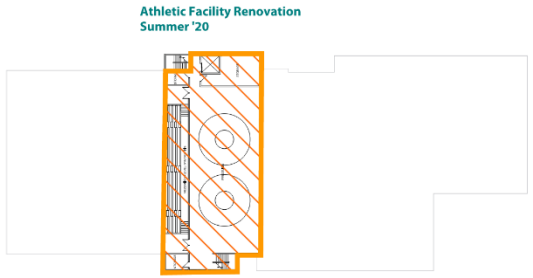
PHASING KEY

- Phase 01
  March '18 thru Aug '18
- Phase 02
  May '18 thru Aug '19
- Phase 03
  March '19 thru Aug '19
- Phase 04
  Aug '19 thru Aug '20
- Phase 05
  May '20 thru Aug '20





LHS – PHASING PLAN, SECOND FLOOR

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MEP LIFE CYCLE ANALYSIS

ECM Name	Description
Baseline	Existing Building
ECM 1	Replace Water Cooled Chillers
ECM 2	Replace Steam Boilers and AHU Coils
ECM 3	VFD CHW Pumps
ECM 4	VFD HW Pumps
ECM 5	Take ECM's 1-4

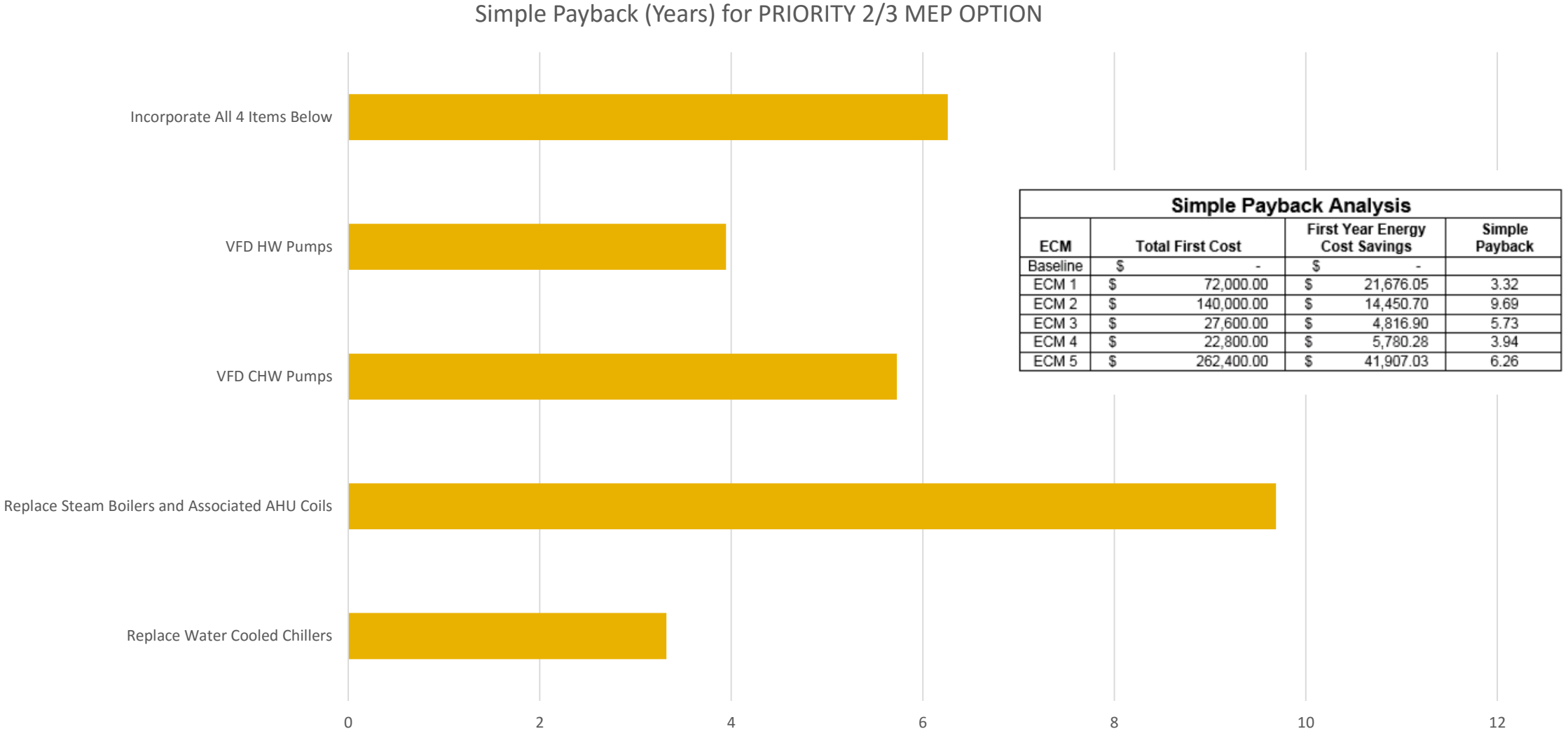
Life Cycle Cost Analysis Global Parameters		
Project Name	Lawrence High School	
Building Area	240,845	gross sq ft
Basline Capacity	900	Tons cooling
Analysis Duration	25	years
Discount Rate	5.0%	
Inflation Rate	2.0%	
Escalation Rate	2.0%	
Total Escalation	4.0%	

MEP Replacement Cost Summary	Baseline	ECM 1	ECM 2	ECM 3	ECM 4	ECM 5
Escalation Rate:				Inflation Rate		
Euipment Life Cycle (Years)	10	30	30	2	20	0
Equipment Replacement Cost	$ -	$ 72,000	$ 140,000	$ 27,600	$ 22,800	$ 262,400
One-Time Costs	$ -	$ -	$ -	$ -	$ -	$ -
Salvage Value	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Cost per Ton	$ -	$ 80	$ 156	$ 31	$ 25	$ 292
Lifetime Equipment Cost	$ -	$ (42,000)	$ 44,000	$ 364,058	$ 56,680	$ 262,400
Net Replacement $ Savings vs. Baseline	$ -	$ 42,000	$ (44,000)	$ (364,058)	$ (56,680)	$ (262,400)

Building Energy Cost Summary	Baseline	ECM 1	ECM 2	ECM 3	ECM 4	ECM 5
Escalation Rate:				Inflation Rate		
Annual Energy Cost per sq. ft.	$ 1.61	$ 1.52	$ 1.55	$ 1.59	$ 1.59	$ 1.44
Lifetime Energy Cost	$ 12,420,083	$ 11,725,793	$ 11,957,223	$ 12,265,797	$ 12,234,939	$ 11,077,789
Net Energy Cost Savings vs. Baseline	$ -	$ 2,472,187	$ 1,648,125	$ 549,375	$ 659,250	$ 4,779,561

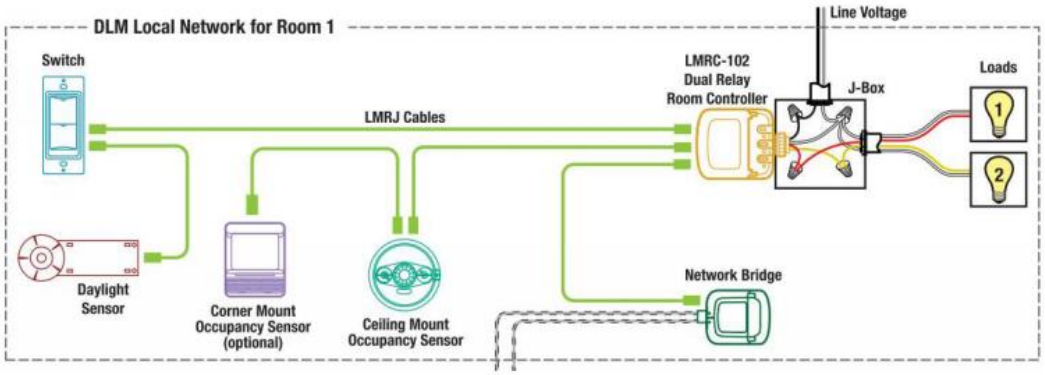
MEP Maintenance Cost Summary	Baseline	ECM 1	ECM 2	ECM 3	ECM 4	ECM 5
Escalation Rate:				Inflation Rate		
Annual Maint. Cost per sq ft	$ 0.50	$ 0.50	$ 0.50	$ 0.50	$ 0.50	$ 0.50
Lifetime Maint. Cost	$ 3,857,169	$ 3,857,169	$ 3,857,169	$ 3,857,169	$ 3,857,169	$ 3,857,169
Net Maint. Cost Savings vs. Baseline	$ -	$ -	$ -	$ -	$ -	$ -

25-year Life Cycle							
ECM #	Description	Building Energy Costs	MEP Replacement Costs	MEP Maintenance Costs	Total Lifetime Cost	Net Savings vs. Base	Net Present Value (NPV)
Baseline	Existing Building	$ 12,420,083	$ -	$ 3,857,169	$ 16,277,252	$ -	N/A
ECM 1	Replace Water Cooled Chille	$ 11,725,793	$ 42,000	$ 3,857,169	$ 15,624,962	$ 652,290	$303,913.07
ECM 2	Replace Steam Boilers and A	$ 11,957,223	$ 44,000	$ 3,857,169	$ 15,858,392	$ 418,860	$114,989.66
ECM 3	VFD CHW Pumps	$ 12,265,797	$ 364,058	$ 3,857,169	$ 16,487,023	$ (209,771)	($164,263.44)
ECM 4	VFD HW Pumps	$ 12,234,939	$ 56,680	$ 3,857,169	$ 16,148,788	$ 128,465	$65,454.09
ECM 5	Take ECM's 1-4	$ 11,077,789	$ 262,400	$ 3,857,169	$ 15,197,357	$ 1,079,895	$470,231.93



Simple Payback Analysis

ECM	Total First Cost	First Year Energy Cost Savings	Simple Payback
Baseline	$ -	$ -	
ECM 1	$ 72,000.00	$ 21,676.05	3.32
ECM 2	$ 140,000.00	$ 14,450.70	9.69
ECM 3	$ 27,600.00	$ 4,816.90	5.73
ECM 4	$ 22,800.00	$ 5,780.28	3.94
ECM 5	$ 262,400.00	$ 41,907.03	6.26

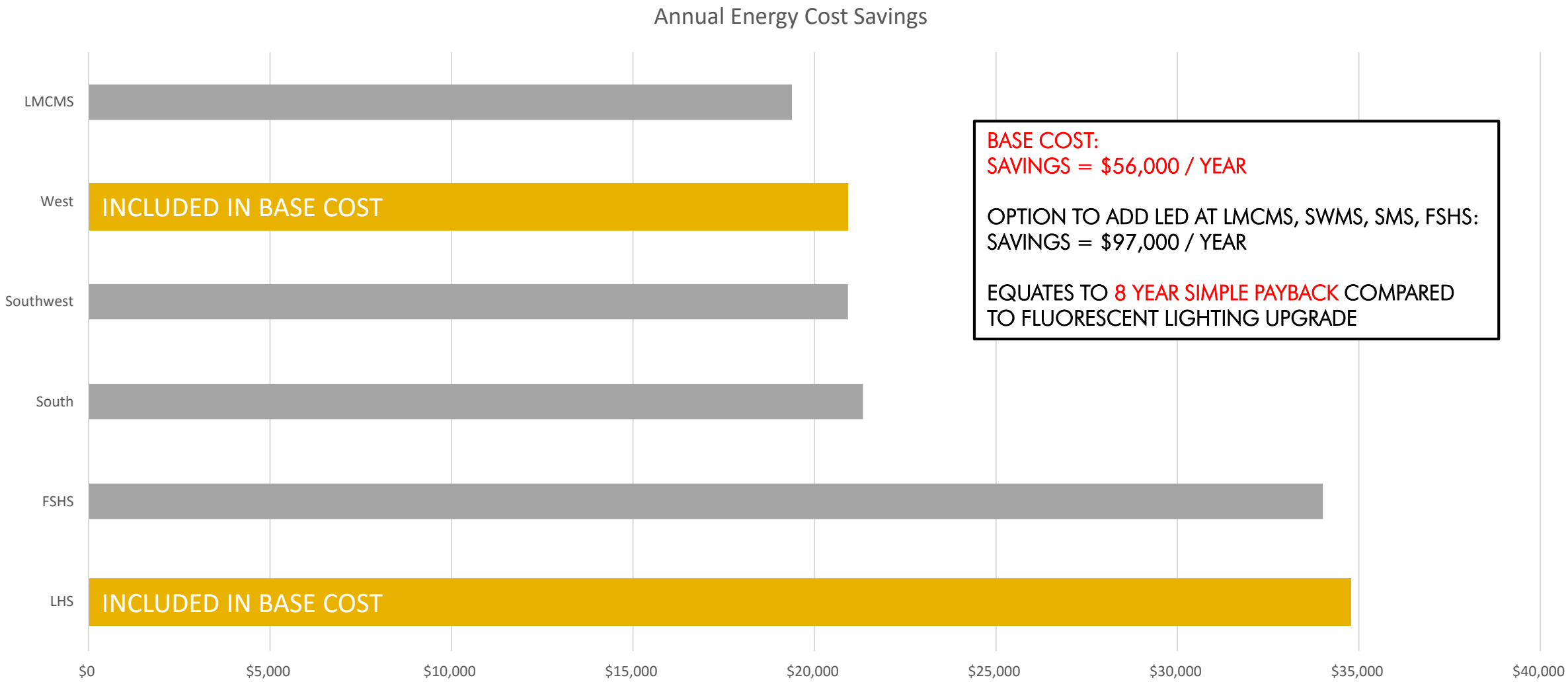


LED Lighting Payback:

8 Years

Payback period based on first cost of LED system and energy and maintenance savings only. Assumes that the current lighting system does not need to be replaced.

City of Lawrence Energy Code - IECC 2015/ASHRAE 90.1 2013: Both codes require automatic daylight dimming in classrooms. If the lighting system needs to be replaced, the first cost of an LED system will be comparable to a new, dimmable fluorescent system.


Annual Energy Cost Savings
LMCMS
West
INCLUDED IN BASE COST
Southwest
South
FSHS
LHS
INCLUDED IN BASE COST
$0
$5,000
$10,000
$15,000
$20,000
$25,000
$30,000
$35,000
$40,000
BASE COST:
SAVINGS = $56,000 / YEAR
OPTION TO ADD LED AT LMCMS, SWMS, SMS, FSHS:
SAVINGS = $97,000 / YEAR
EQUATES TO 8 YEAR SIMPLE PAYBACK COMPARED TO FLUORESCENT LIGHTING UPGRADE