



# **MONTGOMERY AREA SCHOOL DISTRICT**

**DISTRICT-WIDE FACILITY STUDY**

**SCHOOL BOARD MEETING  
MAY 17, 2022**



**Crabtree, Rohrbaugh & Associates**  
Architecture, Planning, Interior Design

- 10/2021: MASD ISSUES RFP FOR DISTRICT WIDE FACILITY STUDY
- 11/2021- MASD INTERVIEWS FIRMS FOR FACILITY STUDY
- 12/2021: MASD HIRES CRABTREE, ROHRBAUGH & ASSOC.
- 12/2021 STEERING COMMITTEE FORMED (STAFF, BOARD MEMBERS, PUBLIC)
- 12/2022 - 5/2023: 6 STEERING COMMITTEE MEETINGS HELD
  - DEFINE PROCESS, ESTABLISH NEEDS AND DEVELOP OPTIONS
- 5/2023: FACILITY STUDY PRESENTATION TO SCHOOL BOARD
  - PUBLIC ENGAGEMENT PROCESS BEGINS

1. STUDY OVERVIEW
2. EXISTING STUDENT CAPACITY
3. PROJECTED STUDENT ENROLLMENT
4. EDUCATIONAL AND FUNCTIONAL DEFICIENCIES
5. EXISTING FACILITY CONDITIONS
6. COST TO UPGRADE
7. CONSTRUCTION OPTIONS



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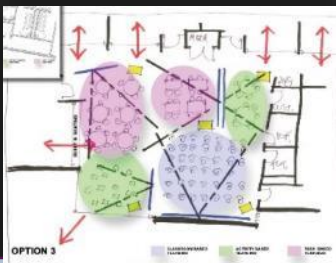
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Define Goals

Information  
Gathering

Analyze Data

Determine Needs

Develop Options

Recommendations



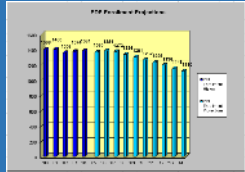
## Facility Needs

Infrastructure / Systems / Codes / Deferred Maintenance



## Educational Needs

Educational Program / Student Centered/ Equity - Parity



## Space Needs

Enrollment / Demographics / Capacity

## Options

Cost Estimates / Schedule / Final Report

**GUIDING PRINCIPLES**

## GUIDING PRINCIPLES

1. The design and location of educational facilities will be the result of a comprehensive planning process, with expenditures aligned with our financial resources.
2. The educational facilities will provide a comfortable, stimulating learning environment that is conducive to collaboration, meets the diverse learning styles of individual students, and supports an equal educational opportunity for all.
3. The educational facilities will respond to current, and future information, communication and technology needs that will empower staff to deliver a high quality rigorous instructional program blended for the needs of all students.

## GUIDING PRINCIPLES

4. The educational facilities will support community use and educational partnerships with local business and industry.
5. The educational facilities will be inspirational in design features that cultivate the critical thinking, communication, collaboration and creativity of our students.
6. The educational facilities will allow space to encourage academic, athletic and social/emotional growth of our students.
7. The District facilities will be adaptable to future demographic, educational, and community needs.



**EXISTING STUDENT CAPACITY**

# ELEMENTARY STUDENT CAPACITY

Montgomery Elementary School		Grade Alignment:		PK-6
Educational Spaces		No. of Rooms	Educational Capacity	Total Educ. Capacity
Pre-K/Kindergarten Classrooms				
	Pre-K Classrooms (Full Day)	3	25	75
	Kindergarten Classrooms (Full Day)	4	25	100
General Classrooms				
	1st Grade Classrooms	4	25	100
	2nd Grade Classrooms	3	25	75
	3rd Grade Classrooms	3	25	75
	4th Grade Classrooms	3	25	75
	5th Grade Classrooms	3	25	75
	6th Grade Classrooms	3	25	75
	Unassigned Classrooms	0	25	0
	Undersized Classrooms <660 Sq. Ft.	0	0	0
Special/Alternative Education Classrooms and Small Group Instruction				
	Special Educ. Classroom	2	0	0
	Special Educ. Classroom (Autistic Support)	1	0	0
	Special Educ. Classroom (Emotional Support)	1	0	0
	Special Educ. Classroom (Sensory Room)	1	0	0
	Title I Reading	1	0	0
	Small Group Instruction Rooms	0	0	0
Art and Music Classrooms				
	Art Classrooms	1	0	0
	Music Classrooms	1	0	0
	Band Room	0	0	0
	Chorus Room	0	0	0
	Orchestra Room	0	0	0
Labs				
	Science Lab	0	0	0
	Computer Lab	0	0	0
	STEM Lab	0	0	0
Support Spaces				
	Library	1	0	0
	Multipurpose (Cafeteria/Gymnasium)	1	0	0
	Cafeteria	0	0	0
	Gymnasium	0	0	0
	Auditorium	0	0	0
	Large Group Instruction	0	0	0

Total Educational Capacity 650

Utilization Rate 90%

Functional Building Capacity 585

Current Enrollment 541

# SECONDARY STUDENT CAPACITY

Montgomery Jr/Sr High School	Grade Alignment:		7-12
Educational Spaces	No. of Rooms	Educational Capacity	Total Educ. Capacity

## General Classrooms

General Classrooms (7/8 ELA)	2	25	50
General Classrooms (7/8 Math)	2	25	50
General Classrooms (7/8 Social Studies)	1	25	25
General Classrooms (9-12 ELA)	2	25	50
General Classrooms (9-12 Math)	4	25	100
General Classrooms (9-12 Social Studies)	2	25	50
General Classrooms (Foreign Language)	1	25	25
General Classrooms (Business)	1	25	25
General Classrooms (Health)	1	25	25
Unassigned Classrooms	0	25	0
Undersized Classrooms <660 Sq. Ft.	0	0	0

## Special/Alternative Education Classrooms and Small Group Instruction

Special Educ. Classroom	3	15	45
Alternative Education Classroom	0	20	0
Learning Support Small Group Instruction Rooms	0	0	0

## Art and Music Classrooms

Art Classrooms	1	20	20
Music Classrooms	0	25	0
Band Room	1	25	25
Chorus Room	0	25	0
Orchestra Room	0	25	0

## Labs

Science Labs (7/8)	2	20	40
Science Labs (9-12)	2	20	40
Computer Lab	0	20	0
Business Lab	0	20	0
FCS Lab	0	20	0

## Career & Tech-Ed

Tech Ed Lab (Construction)
Tech Ed Lab (Engineering/STEM)
Tech Ed Lab (Engineering/STEM)
Tech Ed Lab (Ag Science)
Tech Ed Lab/Classroom (Culinary)
Tech Classroom (Drafting/CAD)
Tech Classroom (Broadcasting/Drama)

## Library

Library
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## Physical Education

Gymnasium
Auxiliary Gymnasium
Wrestling Room
Natatorium

## Support Spaces:

Cafeteria
Auditorium
Large Group Instruction

1	20	20
1	20	20
1	20	20
1	20	20
1	20	20
1	25	25
1	25	25

1	0	0
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1	50	50
0	0	0
1	0	0
0	0	0

1	0	0
1	0	0
0	0	0

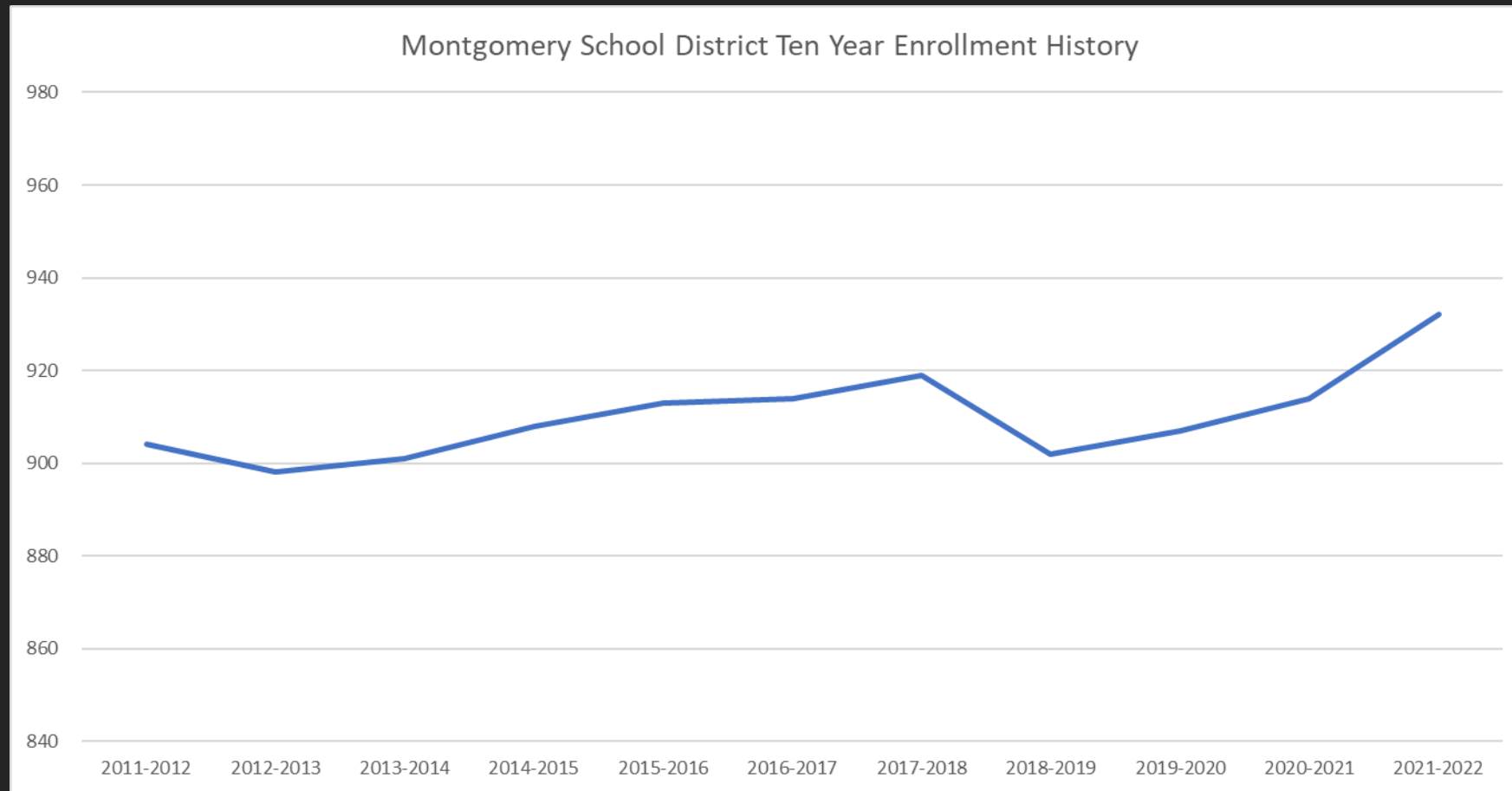
Total Educational Capacity 770

Utilization Rate 85%

Functional Building Capacity	655
Current Enrollment	410

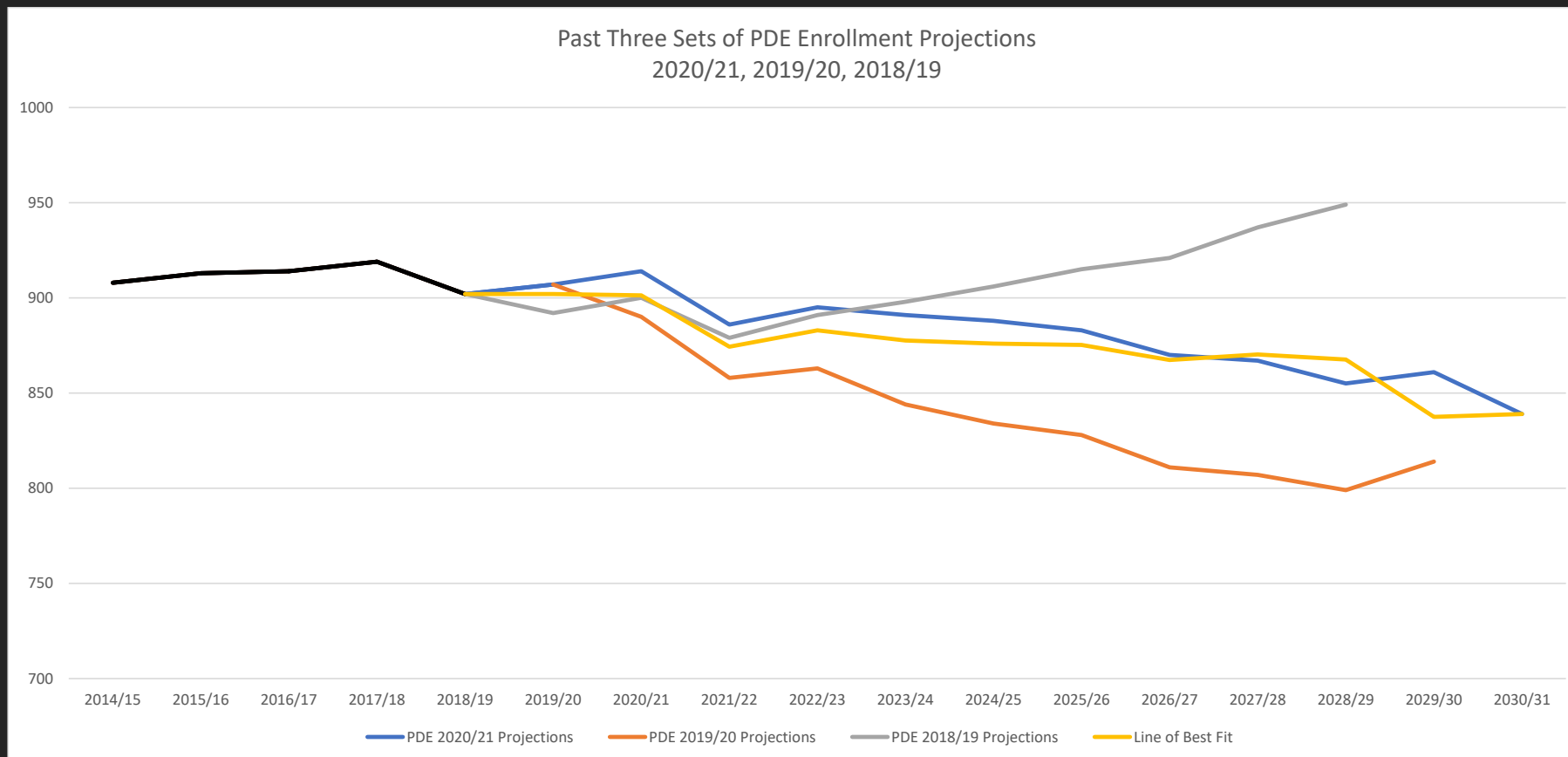
**PROJECTED ENROLLMENT**

# Historic Enrollments 2011/12 to 2021/22



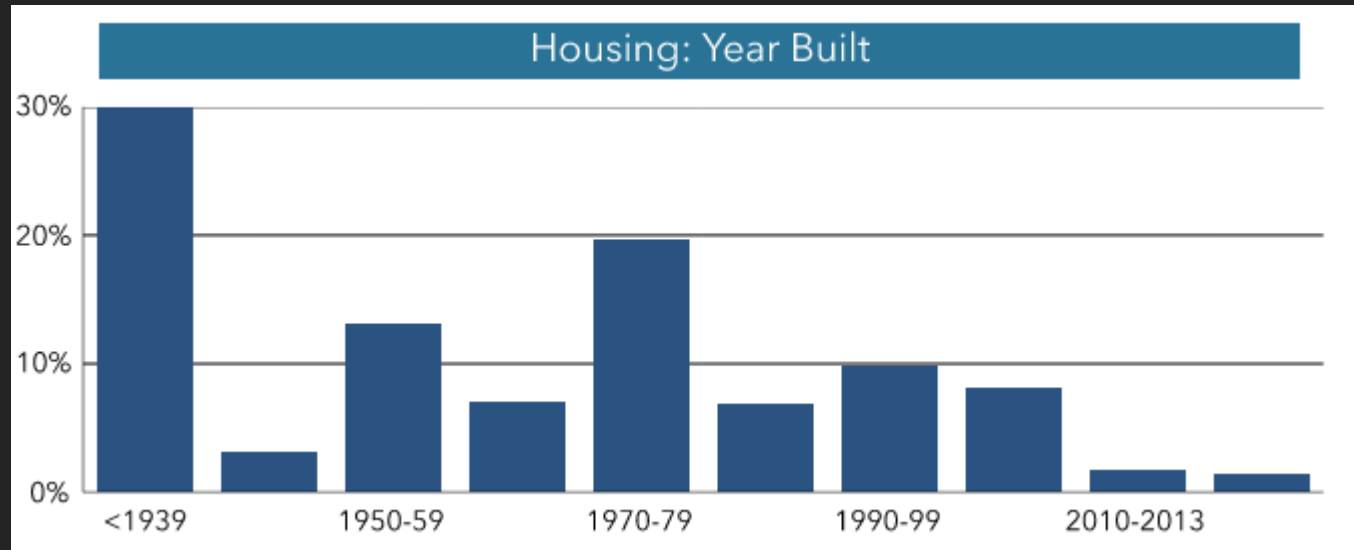
# PDE Enrollment Projections Comparison

- PDE Provides the District annually with new enrollment projections.
- PDE's projections have a greater margin of error in smaller districts.
- The yellow line represents the average of the past three projections.





# Potential Housing Developments

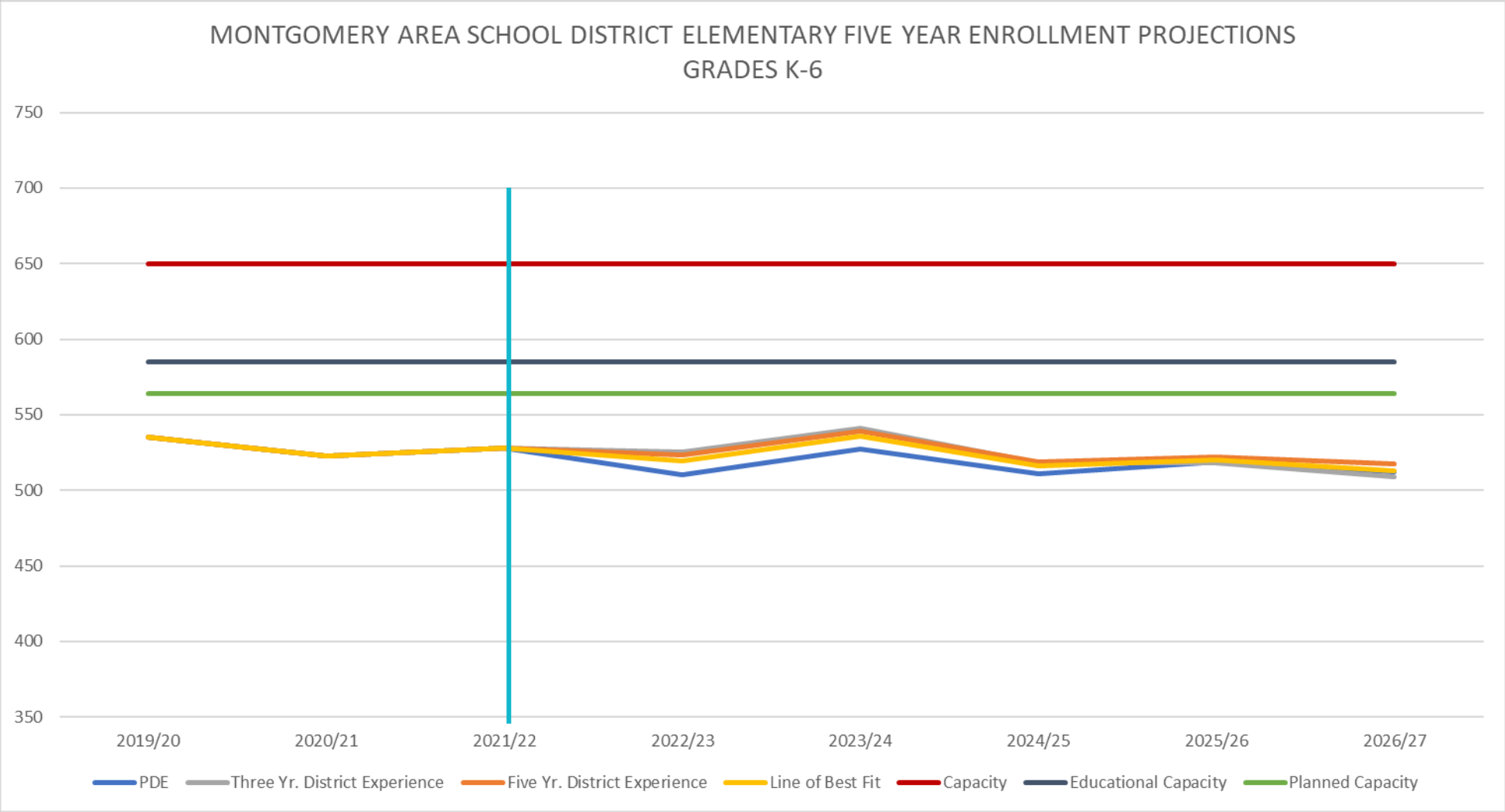


- 2021 Households – 2,268 (1 % decline from 2000)
- 2021 Enrollment - 951
- 0.42 students per household
- 100 new Households = 42 potential students (3 students per grade)

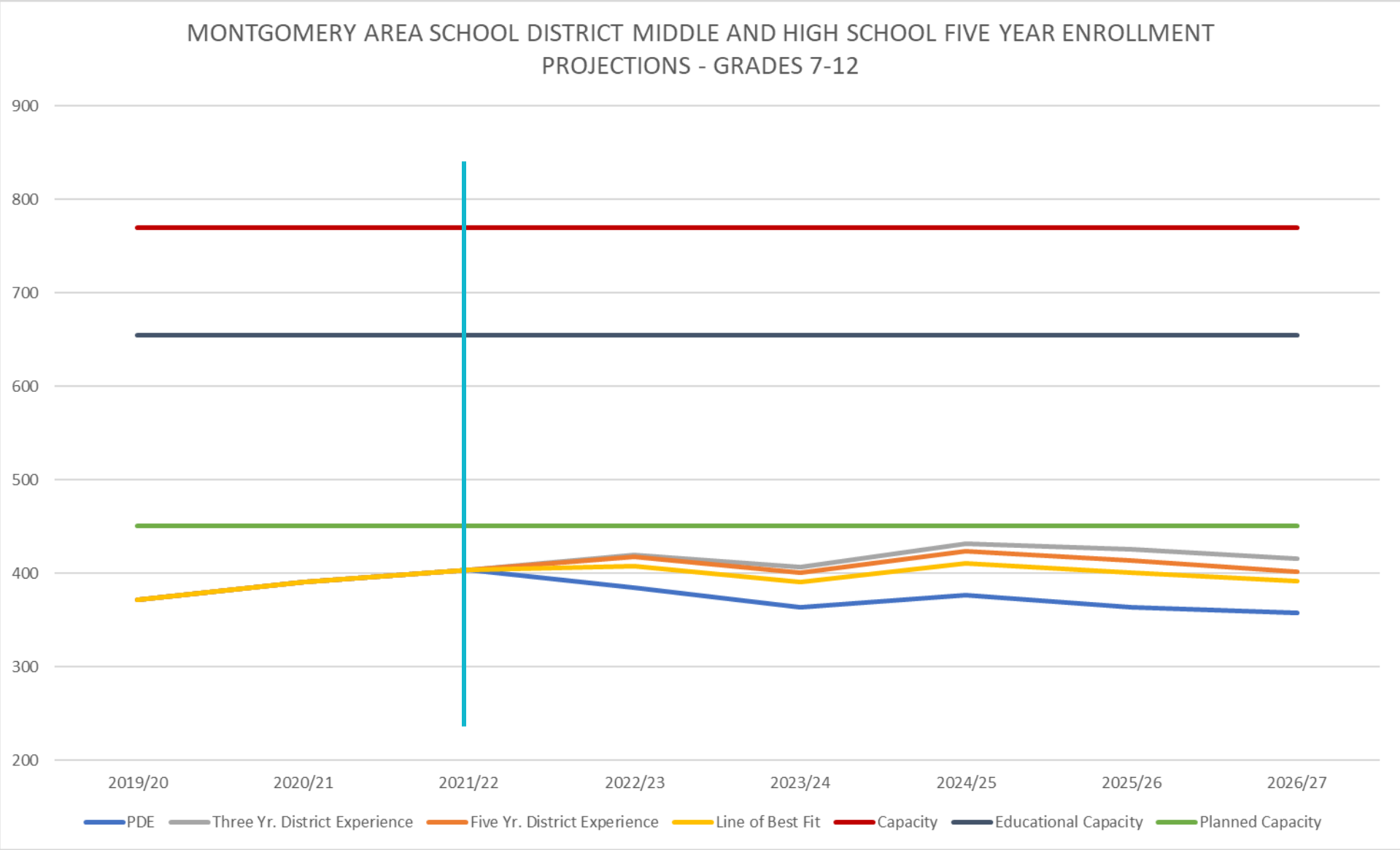
# CRA Enrollment Projection Model

- Growth rates utilized were three-year (2019/20 to 2021/2022) and five-year (2017/18 to 2021/2022) growth rates.
- Only the next five years' worth of projections are shown as beyond five years the margin of error increases greatly and are unreliable.
- The Line of Best Fit (LOBF-Yellow Line) is the average of the CRA and PDE projections. This is the line from which planned capacity is calculated.

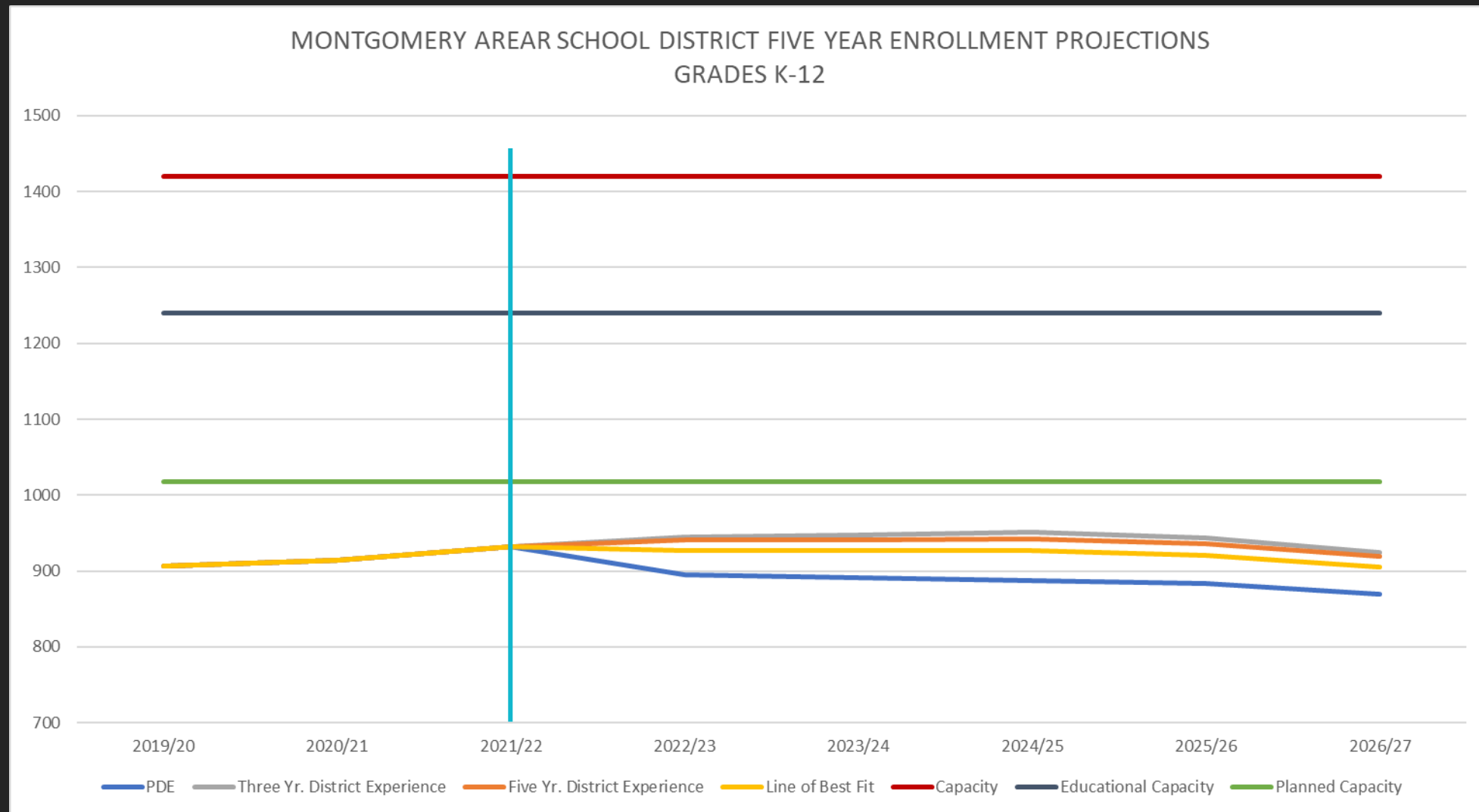
# Elementary Enrollment Projections (K-6)



# Middle/High School Enrollment Projections (7-12)



# Enrollment Projections (K-12)



# Enrollment Summary

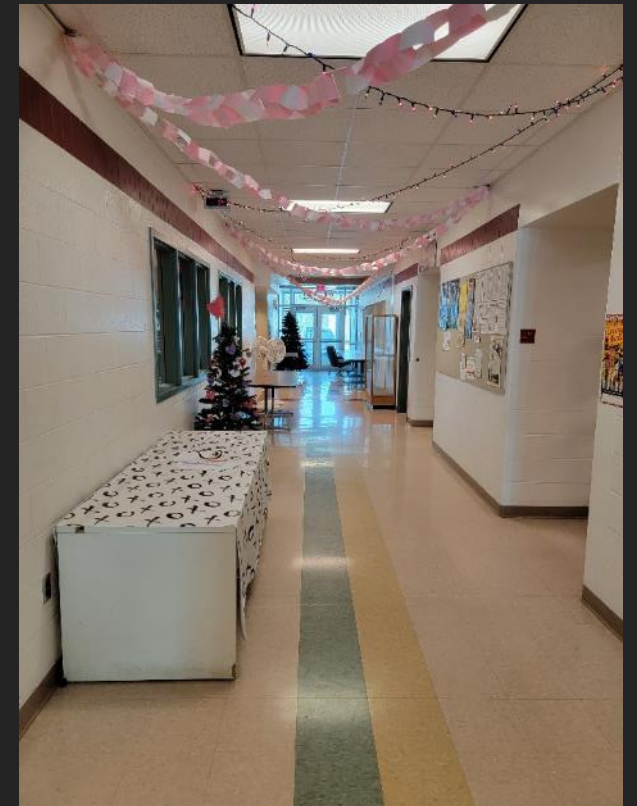
Overall, the Montgomery Area School District is projected to have a stable enrollment pattern over the next five years which will not significantly impact building capacity.



# EDUCATIONAL & FUNCTIONAL DEFICIENCIES

## EDUCATIONAL

- No dedicated classroom for STEM
- No common collaboration space
- No individual small group spaces for instructional support (shared room)
- Special education classroom undersized
- Life skills lab needed
- No safe room
- Music and Art Classrooms undersized
- Classroom furniture does not align with educational delivery



## FUNCTIONAL

- Elementary students intermix with secondary students
- No hard surface play area
- Playground severely undersized
- One multipurpose room for Gym & Lunch (schedule space in HS)
- Lacking adequate power for charging of devices and other needs
- 6<sup>th</sup> grade not located with other Elementary Grades
- Music and Art not located with Elementary Grades
- Sensory room not adjacent to emotional support
- Storage inadequate
- No common toilet rooms in classroom wings

## ELEMENTARY DEFICIENCIES





## STAFF SUPPORT

- No dedicated offices for itinerant support staff (OP/PT, Speech, Early intervention, mental health, etc.)
- No conference/meeting space.
- Administrative offices too small
- Faculty room too small for dining and planning/meetings



## EDUCATIONAL

- Inadequate space and amenities for Tech Ed programs
- No common collaboration space
- Health Classroom undersized
- Library undersized (portion shared with Elementary)
- Science labs are outdated and undersized
- No outdoor learning space
- No space for supplemental learning support
- No sensory classroom or safe room
- No space for Emotional Support
- Life skills activity suite needed
- Classroom furniture does not align with educational delivery
- No weight/fitness room available for Phys. Ed., outdoor field space lacking

## SECONDARY DEFICIENCIES





## FUNCTIONAL

- Secondary students intermix with elementary students
- Middle And High use same STEM space
- Storage space inadequate
- SRO not centrally located
- Lacking adequate power for charging of devices and other needs
- Stage rigging outdated
- Toilet facility inadequate
- Lacking adequate space for cafeteria serving
- Cafeteria undersized
- Kitchen undersized and equipment outdated

## SECONDARY DEFICIENCIES





## STAFF SUPPORT

## SECONDARY DEFICIENCIES

- No conference/meeting space
- Counselor Offices undersized
- Faculty room too small for dining and planning/meetings



## OTHER DEFICIENCIES

### ATHLETICS

- Wrestling room undersized
- Locker rooms at HS undersized
- Need individual showers
- No trainers room at High School
- Athletic amenities separate from Jr./Sr. High School
- Track surface inadequate
- No area for team meetings/film review
- HS Concessions undersized
- No ticket booth at HS or MAACC

### MAINTENANCE/CUSTODIAL

- Space for deliveries/loading inadequate
- Custodial storage inadequate
- Maintenance and outdoor equipment storage inadequate

### TRANSPORTATION

- Inadequate space for bus circulation
- Inadequate space for parent drop-off/pick-up (unsafe)
- Staff and event parking inadequate

### TECHNOLOGY

- Not all classrooms have interactive teaching technology
- No dedicated closets for IT equipment/servers



**EXISTING FACILITY CONDITIONS**



## Exterior & Building Envelope

- Mill & Resurface driveways and parking
- Repair various concrete sidewalks
- Resurface roofing
- Restore masonry in select areas
- Correct water infiltration at exterior walls
- Replace exterior integral blind windows
- Replace exterior doors

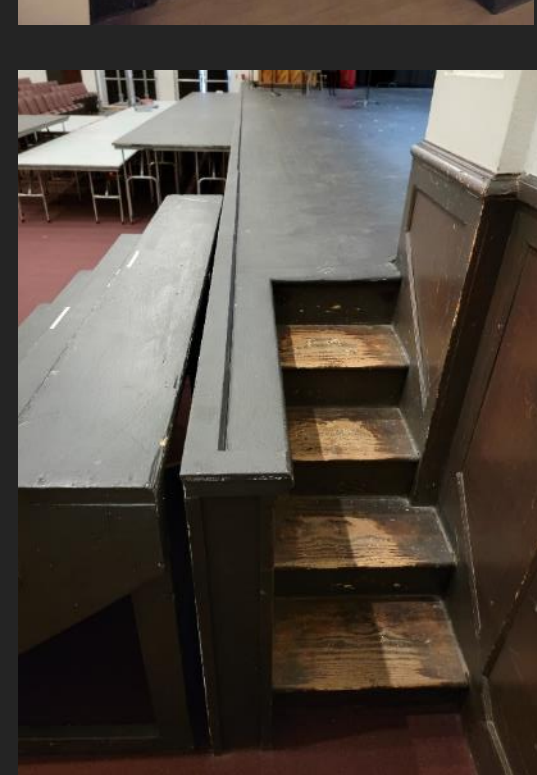




# Interior Building

## EXISTING FACILITY CONDITIONS

- Replace older sections of flooring & ceilings
- New wall finishes
- Replace doors, hardware and frames
- Replace outdated casework
- Replace outdated kitchen equipment
- Replace gymnasium & stage equipment
- Address accessibility issues (toilet rooms, stage, etc.)





# EXISTING FACILITY CONDITIONS

## Mechanical Systems

- HVAC system nearing the end of useful life – Replace
- Provide air conditioning to all areas of the building including tech ed shops
- Replace dust collector with appropriately sized unit
- Replace the domestic water heaters
- Replace older plumbing fixtures
- Perform camera scope of sanitary and storm water piping





## Electrical Systems

- Review capacity of existing electrical service to determine ability to upgrade
- Upgrade bus duct in tech ed shops
- Replace emergency generator - sized to accommodate essential systems
- Replace incandescent lighting with LED lighting
- Replace lighting controls
- Provide dedicated closets for IT equipment
- Provide a clock system connected to central correction system



# EXISTING FACILITY CONDITIONS

## MAACC

- Provide rubberized surface for track
- Pave parking lot



**COST TO UPGRADE**

# COSTS TO UPGRADE TO CURRENT STANDARDS

- Cost for existing facility components only
- Does not constitute total project cost
  - Excludes soft costs, escalation, etc.
- Cost to address deficiencies not included
  - These items will be included in the Construction Options



COSTS TO UPGRADE: ELEMENTARY & JR/SR HIGH SCHOOL

		EXISTING BUILDING AREA			183,051	SF	
		Unit	Quant	Cost	Cost Range		
Existing Facility Upgrades				LOW		HIGH	
Sitework							
	Paved Drives & Parking	SF	130,330	\$ 5.50	\$716,815	-	\$824,337
	Sidewalks	LS	1	\$ 15,000	\$15,000	-	\$17,250
	Athletic Fields						
Building Exterior							
	Exterior Walls - Masrony Restoration	LS	1	\$ 65,500	\$65,500	-	\$75,325
	Exterior Walls - Water infiltration	LS	1	\$ 32,000	\$32,000	-	\$36,800
	Roofing - Resurface	LS	1	\$ 850,000	\$850,000	-	\$977,500
	Exterior Windows	SF	183,051	\$ 7.50	\$1,372,883	-	\$1,578,815
	Exterior Doors & Hardware	EA	25	\$ 3,500	\$87,500	-	\$100,625
Building Interior							
	Structure						
	Finishes - Flooring	SF	91,526	\$ 6.50	\$594,916	-	\$684,153
	Finishes - Ceilings	SF	20,000	\$ 11.00	\$220,000	-	\$253,000
	Finishes - Walls	SF	183,051	\$ 1.75	\$320,339	-	\$368,390
	Interior Doors & Hardware	EA	240	\$ 1,500	\$360,000	-	\$414,000
	Accessibitliy Upgrades	LS	1	\$ 150,000	\$150,000	-	\$172,500
	Casework	SF	183,051	\$ 4.00	\$732,204	-	\$842,035
Specialties & Equipment							
	Food Service Equipment	LS	1	\$ 650,000	\$650,000	-	\$747,500
	Gymnasium & Stage Equipment	LS	1	\$ 585,000	\$585,000	-	\$672,750
	Elevator						



# COSTS TO UPGRADE: ELEMENTARY & JR/SR HIGH SCHOOL

<b><u>Building Systems - HVAC</u></b>							
Central Plant Equipment	EA	3	\$	65,000	\$195,000	-	\$224,250
Terminal Equipment and Air Distribution	SF	183,051	\$	23.00	\$4,210,173	-	\$4,841,699
Piping & Pumps	SF	183,051	\$	2.00	\$366,102	-	\$421,017
Exhaust Systems	LS	1	\$	35,000	\$35,000	-	\$40,250
Controls	LS	1	\$	75,000	\$75,000	-	\$86,250
<b><u>Building Systems - Plumbing / Fire Protection</u></b>							
Domestic Water System							
Sanitary & Storm Piping	LS	1	\$	50,000	\$50,000	-	\$57,500
Plumbing Fixtures & Trim	SF	183,051	\$	4.00	\$732,204	-	\$842,035
Water Heaters	EA	3	\$	30,000	\$90,000	-	\$103,500
Fire Protection Systems							
<b><u>Building Systems - Electrical</u></b>							
Electrical Service & Switchgear							
Power Distribution	SF	183,051	\$	4.50	\$823,730	-	\$947,289
Site Lighting							
Lighting & Controls	SF	183,051	\$	14.00	\$2,562,714	-	\$2,947,121
Fire Alarm							
Telecomm/Data Systems	SF	183,051	\$	5.00	\$915,255	-	\$1,052,543
Security Systems							
Clock & Intercom Systems	LS	1	\$	125,000.00	\$125,000	-	\$143,750
Sound Systems	LS	1	\$	35,000.00	\$35,000	-	\$40,250
SUBTOTAL					\$16,967,334	-	\$19,512,434
<b>TOTAL ESTIMATED CONSTRUCTION COST TO UPGRADE</b>					<b>\$16,967,334</b>	-	<b>\$19,512,434</b>
Cost/SF					\$93	-	\$107

COSTS TO UPGRADE: MAACC

Existing Facility Upgrades				LOW		HIGH	
<u>Sitework</u>							
	Paved Drives & Parking	SF	98,300	\$ 7.50	\$737,250	-	\$847,838
	Track Sruface	LS	1	\$ 535,000	\$535,000	-	\$615,250
<u>Building Exterior</u>							
	No Upgrades Needed						
<u>Building Interior</u>							
	No Upgrades Needed						
<u>Building Systems - HVAC/Plumbing/Electrical</u>							
	No Upgrades Needed						
SUBTOTAL					\$1,272,250	-	\$1,463,088
TOTAL ESTIMATED CONSTRUCTION COST TO UPGRADE					\$1,272,250	-	\$1,463,088

# NEEDS SUMMARY

# SUMMARY OF NEEDS

	Elementary School	Secondary School
Building Capacity	HIGH	MODERATE
Future Enrollment	LOW	LOW
Educational & Functional Deficiencies	HIGH	HIGH
Existing Facility Conditions	HIGH	MODERATE

**CONSTRUCTION OPTIONS**



1. Upgrades to Existing Building
2. Additions & Renovations to Existing Building
3. New 7-12 Addition at MAACC & K-6 Renovations

# OPTION 1

COMPREHENSIVE UPGRADES TO EXISTING BUILDING

- Baseline option for comparison
- Upgrade of existing building infrastructure only
- No additions or reconfiguration to meet educational or functional deficiencies

# OPTION 1

## ESTIMATED PROJECT COSTS

Montgomery Elementary & Jr/Sr HS				April 12, 2022
Comprehensive Renovations		COST RANGE		
Renovation Construction Costs	183,051 SF	\$ 17,023,743		\$ 18,726,117
Additions Construction Costs	SF	\$ -		\$ -
Site Construction Costs		\$ 750,000		\$ 825,000
Escalation & Contingency	10%	\$ 1,821,809		\$ 1,808,478
<b>Subtotal Construction Costs</b>		<b>\$ 19,595,552</b>		<b>\$ 21,359,596</b>
Construction Soft Costs	10.0%	\$ 1,959,555		\$ 2,135,960
<b>Total Construction Costs</b>		<b>\$ 21,555,107</b>		<b>\$ 23,495,555</b>
Project Soft Costs	16.0%	\$ 3,448,817		\$ 3,759,289
<b>TOTAL PROJECT COSTS</b>		<b>\$ 25,003,924</b>		<b>\$ 27,254,844</b>

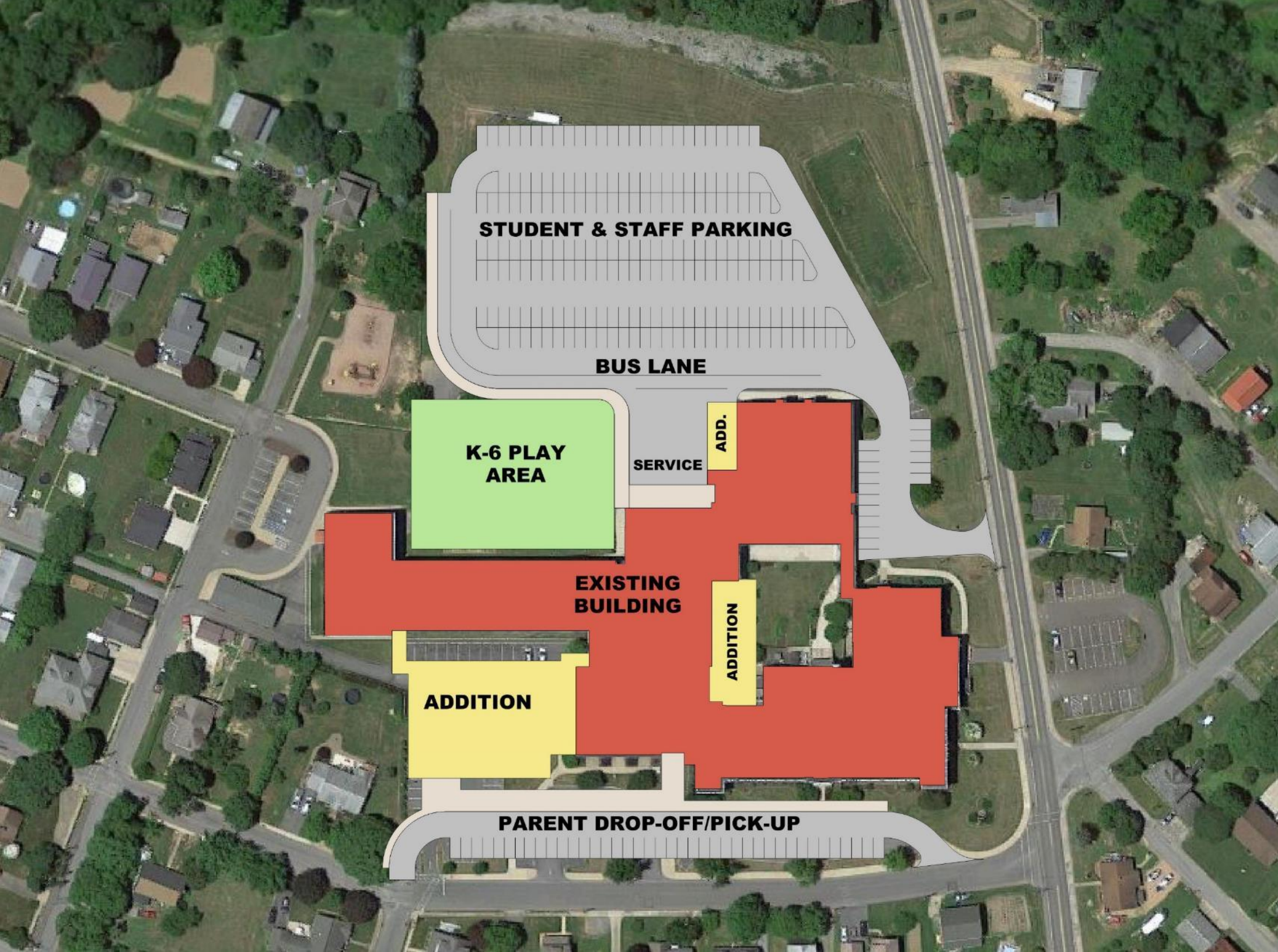


# OPTION 2

ADDITIONS & SELECTIVE RENOVATIONS TO EXISTING BUILDING

# OPTION 2

## K-12 SITE PLAN



OPTION 2

ESTIMATED PROJECT COSTS

Montgomery Elementary & Jr/Sr HS				
Additions & Renovations		COST RANGE		
Renovation Construction Costs	183,051 SF	\$ 12,817,000		\$ 14,165,200
Additions Construction Costs	38,500 SF	\$ 10,516,275		\$ 11,567,903
Site Construction Costs		\$ 2,300,000		\$ 2,530,000
New Softball Field		\$ 450,000		\$ 495,000
Escalation & Contingency	10%	\$ 2,673,536		\$ 2,660,124
Subtotal Construction Costs		\$ 28,756,811		\$ 31,418,227
Construction Soft Costs	10.0%	\$ 2,875,681		\$ 3,141,823
Total Construction Costs		\$ 31,632,492		\$ 34,560,050
Project Soft Costs	16.0%	\$ 5,061,199		\$ 5,529,608
TOTAL PROJECT COSTS		\$ 36,693,690		\$ 40,089,658

# OPTION 3

7-12 ADDITION @ MAACC

3a: K-6 SELECTIVE RENOVATIONS

3b: K-6 SELECTIVE RENOVATIONS & PARTIAL BUILDING DEMOLITION



# OPTION 3

## 7-12 SITE PLAN





OPTION 3

7-12 ESTIMATED PROJECT COSTS

New Jr/Sr HS @ MAACC				
Additions		COST RANGE		
New Building Construction Costs	105,500 SF	\$ 22,682,500		\$ 24,950,750
Site Construction Costs		\$ 2,000,000		\$ 2,200,000
Escalation & Contingency	9%	\$ 2,283,131		\$ 2,511,444
<b>Subtotal Construction Costs</b>		<b>\$ 26,965,631</b>		<b>\$ 29,662,194</b>
Construction Soft Costs	10.0%	\$ 2,696,563		\$ 2,966,219
<b>Total Construction Costs</b>		<b>\$ 29,662,194</b>		<b>\$ 32,628,414</b>
Project Soft Costs	16.0%	\$ 4,745,951		\$ 5,220,546
<b>TOTAL PROJECT COSTS</b>		<b>\$ 34,408,145</b>		<b>\$ 37,848,960</b>

# OPTION 3a

## K-6 SITE PLAN





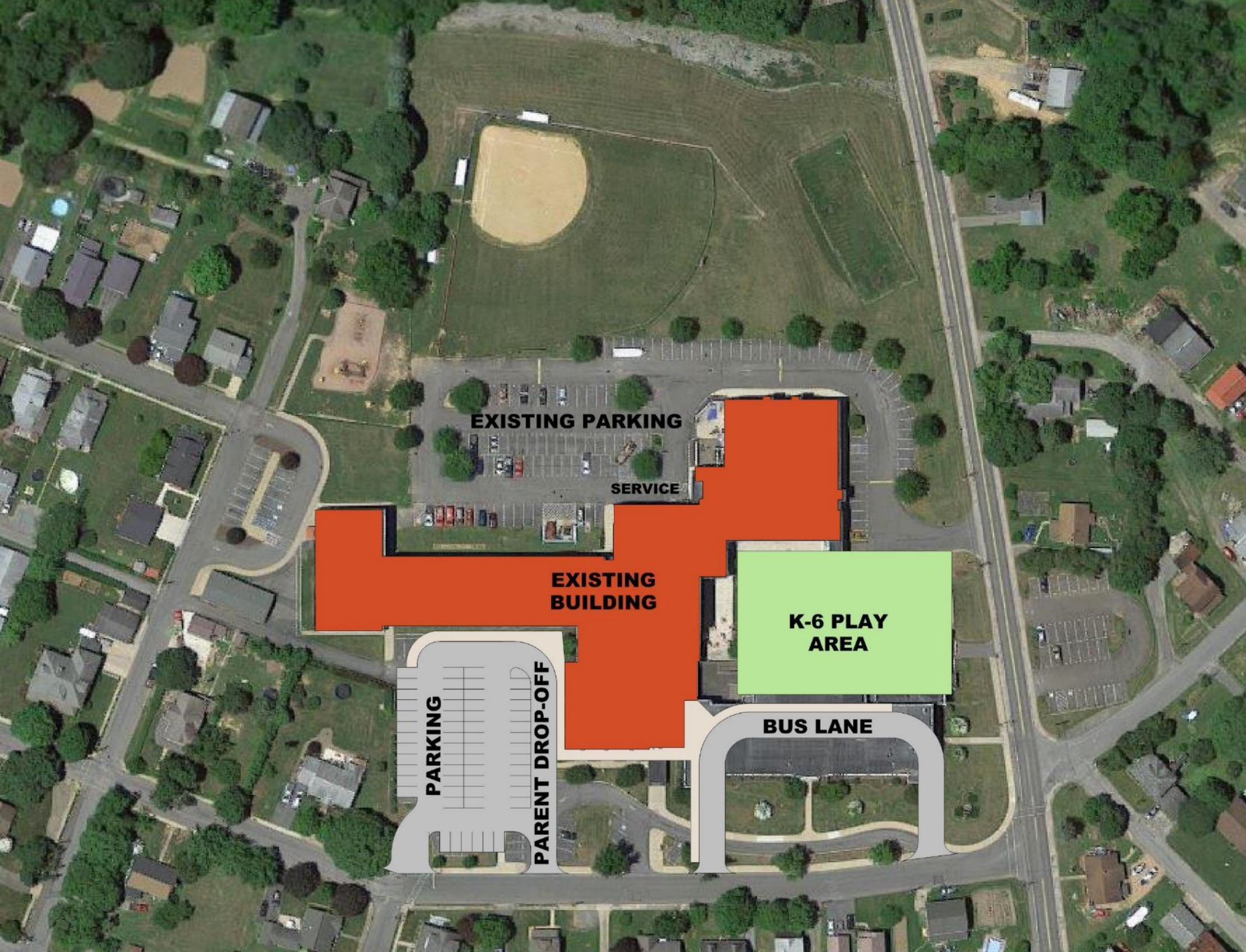
Montgomery Elementary				
Comprehensive Renovations		COST RANGE		
Renovation Construction Costs	183,051 SF	\$ 5,985,000		\$ 6,650,000
Additions Construction Costs		\$ -		\$ -
Site Construction Costs		\$ 1,000,000		\$ 1,100,000
Escalation & Contingency	10%	\$ 715,963		\$ 716,875
Subtotal Construction Costs		\$ 7,700,963		\$ 8,466,875
Construction Soft Costs	10.0%	\$ 770,096		\$ 846,688
Total Construction Costs		\$ 8,471,059		\$ 9,313,563
Project Soft Costs	14.0%	\$ 1,185,948		\$ 1,303,899
TOTAL PROJECT COSTS		\$ 9,657,007		\$ 10,617,461

COMBINED OPTION 3a PROJECT COSTS	\$ 44,065,152		\$ 48,466,421
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# OPTION 3b

## K-6 SITE PLAN





# OPTION 3b

## K-6 ESTIMATED PROJECT COSTS

Montgomery Elementary				
Comprehensive Renovations		COST RANGE		
Renovation Construction Costs	119,604 SF	\$ 8,361,400		\$ 9,250,540
Additions Construction Costs		\$ -		\$ -
Site Construction Costs		\$ 750,000		\$ 825,000
Escalation & Contingency	10%	\$ 1,031,468		\$ 1,028,823
<b>Subtotal Construction Costs</b>		<b>\$ 11,094,573</b>		<b>\$ 12,151,239</b>
Construction Soft Costs	10.0%	\$ 1,109,457		\$ 1,215,124
<b>Total Construction Costs</b>		<b>\$ 12,204,031</b>		<b>\$ 13,366,363</b>
Project Soft Costs	14.0%	\$ 1,708,564		\$ 1,871,291
<b>TOTAL PROJECT COSTS</b>		<b>\$ 13,912,595</b>		<b>\$ 15,237,654</b>

<b>COMBINED OPTION 3b PROJECT COSTS</b>	<b>\$ 48,320,740</b>		<b>\$ 53,086,614</b>
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# SUMMARY OF OPTIONS

# SUMMARY OF OPTIONS

## ESTIMATED PROJECT COSTS

OPTION 1 \$25 - \$27 Million

K-12 UPGRADES ONLY

OPTION 2 \$36 - \$40 Million

K-12 ADDITIONS & RENOVATIONS

OPTION 3 \$34 - \$37 Million

PHASE I NEW 7-12

OPTION 3a \$9 - \$10 Million

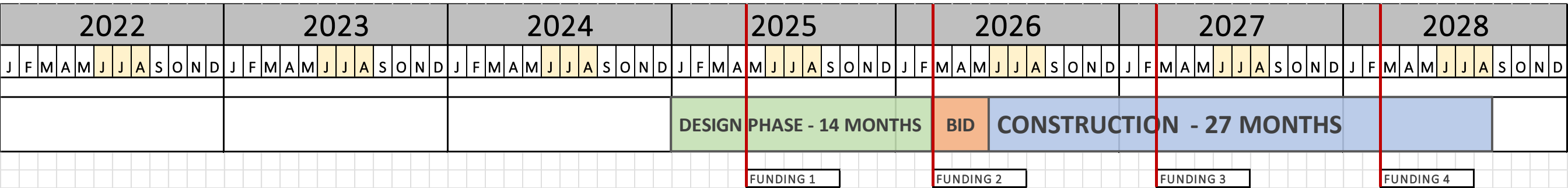
PHASE II K-6 UPGRADES

OPTION 3b \$13 - \$15 Million

PHASE II K-6 RENOVATIONS

**SCHEDULE**

# POTENTIAL PROJECT SCHEDULE



NOTE: OPTION COST ESTIMATES BASED ON CURRENT CONSTRUCTION COSTS



Crabtree, Rohrbaugh & Associates  
[www.cra-architects.com](http://www.cra-architects.com)