STUDY COST RANGE $54 M - $58 M
• SIZED FOR 1200 STUDENTS
CURRENT COSTS $64.8 M
• Sized for 1400 students
• Construction cost increase
• Cost escalation increase
## Current Costs

### Area Summary

| a | Existing Building to Be Demolished SF | 130,000 SF |
| b | New Construction SF | 275,000 SF |

### Base Bid Costs Summary

| 1 | Demolition Cost | $ / SF |
| 2 | Selective Demolition | $0.00 |
| 3 | General Building Demolition | $4.00 |
| 4 | Subtotal | $4.00 |

| 3 | New Construction Cost - Base Bid | $ / SF |
| 4 | General Construction | $103.00 |
| 5 | HVAC Construction | $30.00 |
| 6 | Plumbing Construction | $9.50 |
| 7 | Fire Protection | $4.50 |
| 8 | Electrical / Data Construction | $25.00 |
| 9 | Subtotal | $172 |

| 4 | Asbestos Abatement Cost | $ / SF |
| 5 | Floor Tile | $175.00 |
| 6 | Transite Panels | $ - |
| 7 | Pipe Insulation | $ - |
| 8 | Subtotal | $175.00 |

| 5 | Site Work | LS | $4,500,000 |
| 6 | Subtotal | $4,500,000 |

| 7 | Subtotal Structure Cost - Base Bid | $52,495,000 |

### Escalation Factors

| 8 | Regional Construction Factor | 1 |
| 9 | Escalation to Mid Point | 3.75% |
| 10 | Estimating Contingency | 3.00% |
| 11 | Subtotal Escalation Factors | 6.75% |
| 12 | Subtotal Adjusted Structure Cost | $3,543,413 |

| 13 | Subtotal Structure Cost - Base Bid | $56,038,413 |
EVALUATION CRITERIA

- COST
- ABILITY TO INCORPORATE EDUCATIONAL PROGRAM
- PHASING/DISRUPTION OF STUDENTS & STAFF
- BUILDING ORGANIZATION
- STUDENT SAFETY
- SITE ADAPTABILITY
EVALUATION PROCESS

DETERMINED NEED FOR H.S. & I.S.

• DEVELOPED DRAFT EDUCATIONAL PROGRAMS
  • HIGH SCHOOL
  • INTERMEDIATE SCHOOL
  • 6TH GRADE (OPTION FOR INTERMEDIATE SCHOOL)

• DETERMINE SPACE NEEDS
  • ADDITIONS
  • NEW CONSTRUCTION

• DETERMINE EXISTING BUILDING NEEDS
  • RENOVATIONS

• SITE EVALUATION

• PROJECT COSTS FOR EACH OPTION
H.S. & I.S. NEEDS

• APPROPRIATE EDUCATIONAL SPACE TO IMPLEMENT 21ST CENTURY LEARNING ENVIRONMENTS.
• FLEXIBLE SPACES THAT ADAPT TO CHANGING EDUCATIONAL PROGRAMS.
• ADEQUATELY SIZED SPACES AND FACILITIES TO SUPPORT ARTS & ATHLETICS.
• MORE EFFICIENT LAYOUT TO PROMOTE SAFETY AND OPERATIONS.
Dover Area High School Building Analysis
June 12, 2017

CURRENT DEFICIENCIES

Arts
• Lack of usable auditorium stage space for productions
• Lack of professional auditorium equipment for hands-on production application and learning
• Minimal seating for larger attendance events in auditorium
• No small performance/practice spaces for multiple arts programs
• Visual arts program housed on second floor making materials movement and large equipment repair difficult
• Kiln exhaust is ventilated through wall space due to location on second floor
• Room layout for visual arts greatly limits enrollment capacity for students

Athletics
• Lack of practice fields
• Lack of playable surfaces on the high school site
• Natatorium located off-site
• Insufficient weight room facilities (size) to address student enrollment requests
• Lack of athletic training space in primary gym area
• Lack of air conditioning in the gymnasium

Educational Programs
• Current layout does not support transition to academy model
• Current layout spreads educational programs throughout the building rather than into cohesive units
• CTE program space does not meet OSHA requirements
• Current classrooms do not support Board-approved class sizes
• No collaborative work space outside of the Innovative Learning Center (Library)

Safety/Operations
• Multiple hidden access points to building
• Administration, counseling, and nurse not grouped locally
• Central gathering spaces are spread making supervision of students difficult
• No central entrance for the school (largest entrance holds approximately 40 people at any given point in time)
• Spread layout prohibits utilizing the space effectively for large school events
• Cafeteria space inadequate for high school size

BUILDING NEEDS

Arts
• Increased capacity for auditorium (seating and stage)
• Increased professional capability of production equipment in auditorium
• Small, black box theater space to provide additional performance/practice space
• Visual arts program located on lower level with direct outside access and natural lighting

Athletics
• Additional fields on high school site
• Natatorium located on high school site
• Increased capacity of weight room facility
• Air conditioned gym space
• Indoor walking track to maximize physical education course space

Educational Programs
• Collaborative work spaces for students
• Rooms able to adjust to modern class size requirements
• CTE program space designed to meet standards and be adaptable
• Flexible learning environments to support personalized learning
• Classrooms and learning spaces that support digital learning and instructional technology integration

Safety/Operations
• Central entrance way leading to primary shared spaces
• Central administrative suite
• Layout that supports flexibility and supports effective student supervision
EDUCATIONAL PROGRAM

HIGH SCHOOL

- EXISTING BUILDING – 216,700 SF
- PRELIMINARY EDUCATIONAL PROGRAM – 275,000 SF
EDUCATIONAL PROGRAM

INTERMEDIATE SCHOOL

- EXISTING BUILDING – 123,130 SF
- PRELIMINARY EDUCATIONAL PROGRAM – 135,200 SF
- 6TH GRADE TO I.S. – 12,000 SF
COST ESTIMATING

- RENOVATIONS - $115/SF
- ADDITIONS - $178/SF
- NEW CONSTRUCTION - $172
EXISTING SITE ANALYSIS

HIGH SCHOOL SITE

- 27.9 TOTAL ACRES
  - STADIUM, TENNIS, & MAINT. – 9.3 ACRES
  - FLOODPLAIN – 5.2 ACRES
- 13.4 USEABLE ACRES

INTERMEDIATE SCHOOL SITE

- 30.9 TOTAL ACRES
  - FLOODPLAIN & STEEP SLOPE – 7.6 ACRES
- 23.3 USEABLE ACRES
EXISTING SITE ANALYSIS

HIGH SCHOOL SITE
- PHYS ED.
- GIRLS/BOYS TRACK & FIELD
- FOOTBALL
- GIRLS/BOYS TENNIS

INTERMEDIATE SCHOOL SITE
- BASEBALL
- SOFTBALL
- GIRLS/BOYS SOCCER
- GIRLS/BOYS LACROSSE
- FIELD HOCKEY
- GIRLS/BOYS SWIMMING
3 OPTION REVIEW
MASTER PLAN OPTIONS
4 TOTAL OPTIONS
OPTION 1

- CONSTRUCT NEW HS ON HS SITE
- DEMOLISH EXISTING H.S.
- RENOVATIONS AND ADDITIONS TO I.S. TO ADDRESS CURRENT NEED
- ADDITIONS TO I.S. TO ACCOMMODATE 6TH GRADE
NEW HS = IDEAL ACCOMMODATION OF THE EDUCATIONAL PROGRAM

- APPROPRIATELY SIZED SPACES
- INCORPORATION OF 21ST CENTURY LEARNING ENVIRONMENTS
- FLEXIBLE ENVIRONMENTS FOR THE FUTURE
NEW HS = IDEAL BUILDING ORGANIZATION

- PROPER ADJACENCIES
- GROUPING OF PUBLIC SPACES
- FLOW OF STUDENTS
- HIGH OPERATIONAL EFFICIENCY
STUDENT SAFETY

NEW HS = IDEAL INCORPORATION OF SAFETY ELEMENTS

- SINGLE POINT OF ENTRY
- SECURE VESTIBULE
- SAFETY AMENITIES (CAMERAS, ACCESS CONTROL)
- ORGANIZATION OF STAFF SUPPORT SPACES
SITE ADAPTABILITY

- DEVELOPMENT LIMITED
- LESS FIELDS
- ADEQUATE PARKING
- WILL REQUIRE REWORK OF RIGHT OF WAY
PHASING/DISRUPTION

H.S. MODERATE DISRUPTION

- CONSTRUCTION OF NEW SCHOOL ADJACENT TO EXISTING SCHOOL
- ON-SITE CONSTRUCTION TRAFFIC
- SIMPLIFIED PHASING
PHASING/DISRUPTION

I.S. SIGNIFICANT DISRUPTION

- DEMOLITION AND CONSTRUCTION OF ADDITIONS TO AN EXISTING OCCUPIED SCHOOL
- RENOVATIONS TO AN OCCUPIED SCHOOL (SUMMER WORK WHERE POSSIBLE).
- PHASING - SHIFTING OF STUDENTS & STAFF (MULTIPLE TIMES)
COSTS

• H.S. – NEW CONSTRUCTION (275,000 SF)  
  $64.8 M
• I.S. – RENOVATIONS (121,190 SF) AND ADDITIONS (14,000 SF)  
  $ 26.3 M  
• 6TH GRADE ADDITION (12,000 SF) TO I.S.  
  $ 3.5 M

TOTAL COSTS - $94.6 M

*NEED TO VERIFY REIMBURSEMENT WITH PDE
OPTION 2

- CONSTRUCT NEW HS ON I.S. SITE
- DEMOLISH EXISTING I.S.
- CONVERT H.S. TO I.S. (MINOR ADDITIONS & RENOVATIONS)
- EXISTING H.S. CAN ACCOMMODATE 6TH GRADE WITHOUT ADDITIONS
EDUCATIONAL PROGRAM
BUILDING ORGANIZATION
STUDENT SAFETY

SIMILAR TO OPTION 1
NEW HS = IDEAL
SITE ADAPTABILITY

- ACCOMMODATE ADDITIONAL FIELDS
- ADEQUATE PARKING
- PROPER PHASING
PHASING/DISRUPTION

H.S. MODERATE DISRUPTION

- CONSTRUCTION OF NEW SCHOOL ADJACENT TO EXISTING SCHOOL
- ON-SITE CONSTRUCTION TRAFFIC
- SIMPLIFIED PHASING
PHASING/DISRUPTION

I.S. MINIMAL DISRUPTION

- RENOVATIONS TO CONVERT H.S. TO I.S. OCCUR OVER SUMMER
COSTS

• H.S. – NEW CONSTRUCTION (275,000 SF)  
  $64.8 M

• H.S. TO I.S. - MINOR RENOVATIONS (198,900) & ADDITIONS (8000 SF)  
  $5.0 M

• 6TH GRADE @ I.S. (EXISTING HIGH SCHOOL HAS CAPACITY)  
  $0 M

TOTAL COSTS - $69.8 M
• MAJOR ADDITIONS & RENOVATIONS TO H.S. TO ADDRESS CURRENT NEEDS
• MAJOR ADDITIONS & RENOVATIONS TO I.S. TO ADDRESS CURRENT NEEDS
• ADDITIONS TO I.S. TO ACCOMMODATE 6TH GRADE
LESS THAN IDEAL EDUCATIONAL PROGRAM

- SIZE OF CLASSROOMS
- EXISTING BUILDING STRUCTURE LIMITATIONS
  (IMPLEMENTATION OF 21\textsuperscript{ST} CENTURY EDUCATION)
- ADJACENCIES OF CURRICULUM NOT IDEAL
BUILDING ORGANIZATION

POOR BUILDING ORGANIZATION

- FLOW OF STUDENTS (DEAD END CORRIDORS)
- PIECEMEAL EXPANSION – UNORGANIZED
- CIRCUITOUS CIRCULATION
SAFETY SOMEWHAT COMPROMISED

- INCORPORATE SAFETY AMENITIES (CAMERAS, SECURE VESTIBULE, ETC.)
- NEGATIVE SAFETY FACTORS
  - MULTIPLE POINTS OF ENTRY
  - BUILDING LAYOUT RESULTS IN POOR SUPERVISION OF STUDENTS
  - SEPARATION OF PUBLIC USE SPACES (MULTIPLE ENTRANCES)
SITE ADAPTABILITY

- DEVELOPMENT LIMITED
- SAME QUANTITY OF FIELDS
- REDUCED PARKING (+/- 50)
- MAY REQUIRE REWORK OF RIGHT OF WAY
PHASING/DISRUPTION

H.S. & I.S. SIGNIFICANT DISRUPTION

- DEMOLITION AND CONSTRUCTION OF ADDITIONS TO AN EXISTING OCCUPIED SCHOOL
- RENOVATIONS TO AN OCCUPIED SCHOOL (SUMMER WORK WHERE POSSIBLE).
- PHASING - SHIFTING OF STUDENTS & STAFF (MULTIPLE TIMES)
- LONGEST DURATION FOR COMPLETING PROJECTS (INCREASED COST)
COSTS

- H.S. RENOVATIONS (200,600 SF) & ADDITIONS (96,500 SF)  
  $53.1 M
- I.S. – RENOVATIONS (121,190 SF) AND ADDITIONS (14,000 SF)  
  $26.3 M
- 6TH GRADE ADDITION (12,000 SF) TO I.S.  
  $3.5 M

TOTAL COSTS - $82.9 M

*NEED TO VERIFY REIMBURSEMENT WITH PDE*
• CONVERT I.S. TO H.S. (MAJOR ADDITIONS & RENOVATIONS)
• CONVERT H.S. TO I.S. (MAJOR ADDITIONS & RENOVATIONS)
• CONVERT H.S. TO I.S. (MINOR ADDITIONS & RENOVATIONS)
• EXISTING H.S. CAN ACCOMMODATE 6TH GRADE WITHOUT ADDITIONS
EDUCATIONAL PROGRAM
BUILDING ORGANIZATION
STUDENT SAFETY
PHASING/DISRUPTION

SIMILAR TO OPTION 3
EXISTING BUILDING = LESS THAN IDEAL
  o SAFETY – CORRIDOR WIDTH 8’-0”
  o ORGANIZATION - ABLE TO GROUP PUBLIC SPACES (REBUILD)
SITE ADAPTABILITY

- ACCOMMODATES ADDITIONAL FIELDS
- LARGE BUILDING FOOTPRINT
- INADEQUATE PARKING
- DIFFICULT PHASING (I.S. MAY LOOSE PROGRAM SPACES)
COSTS

- CONVERT I.S. TO H.S. – RENOVATIONS (90,000 SF), ADDITIONS (195,000 SF), & DEMOLITION (47,000 SF)  
  $60.8 M
- H.S. TO I.S. - MINOR RENOVATIONS (198,900) & ADDITIONS (8000 SF)  
  $5.0 M
- 6TH GRADE @ I.S. (EXISTING HIGH SCHOOL HAS CAPACITY)  
  $0 M

TOTAL COSTS - $65.8 M
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BOARD RANKING OF CRITERIA

- ABILITY TO INCORPORATE THE EDUCATIONAL PROGRAM
- COST
- STUDENT SAFETY
- SITE ADAPTABILITY
- BUILDING ORGANIZATION
- PHASING/DISRUPTION OF STUDENTS & STAFF
CRITERIA RANKING

🌟🌟🌟🌟🌟 HIGHEST RATING
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NEXT STEPS

MOVE FORWARD WITH PLANNING

- JULY - SELECT OPTION AND AUTHORIZE DESIGN

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QUESTIONS OR COMMENTS?

Crabtree, Rohrbaugh & Associates
www.cra-architects.com