Dover High School &
Regional Career Technical Center

- Laura Wernick AIA, LEED AP—Project Director

HMFH Architects, Inc.

Feasibility Study Update

HMFH Architects, Inc.

Completed Tasks

- Existing Conditions Report
- Visioning Study
    - Participants included community members, business leaders, students, and teachers
- Academic and CTE space needs
- Site Exploration
- Selection of Construction Manager
- Cost Estimates

Site Goals

- Safety (minimizing street crossings, ease of access for emergency vehicles)
- Minimal Impact to students during construction
- Improved traffic conditions
- Plan for flexibility and adaptability as needs change
- Minimized impact on parking and ball fields to reduce replacement costs
- Strong pedestrian access and easy servicing for deliveries
- Solar orientation to optimize natural light

Site Exploration

Visioning Session Goals

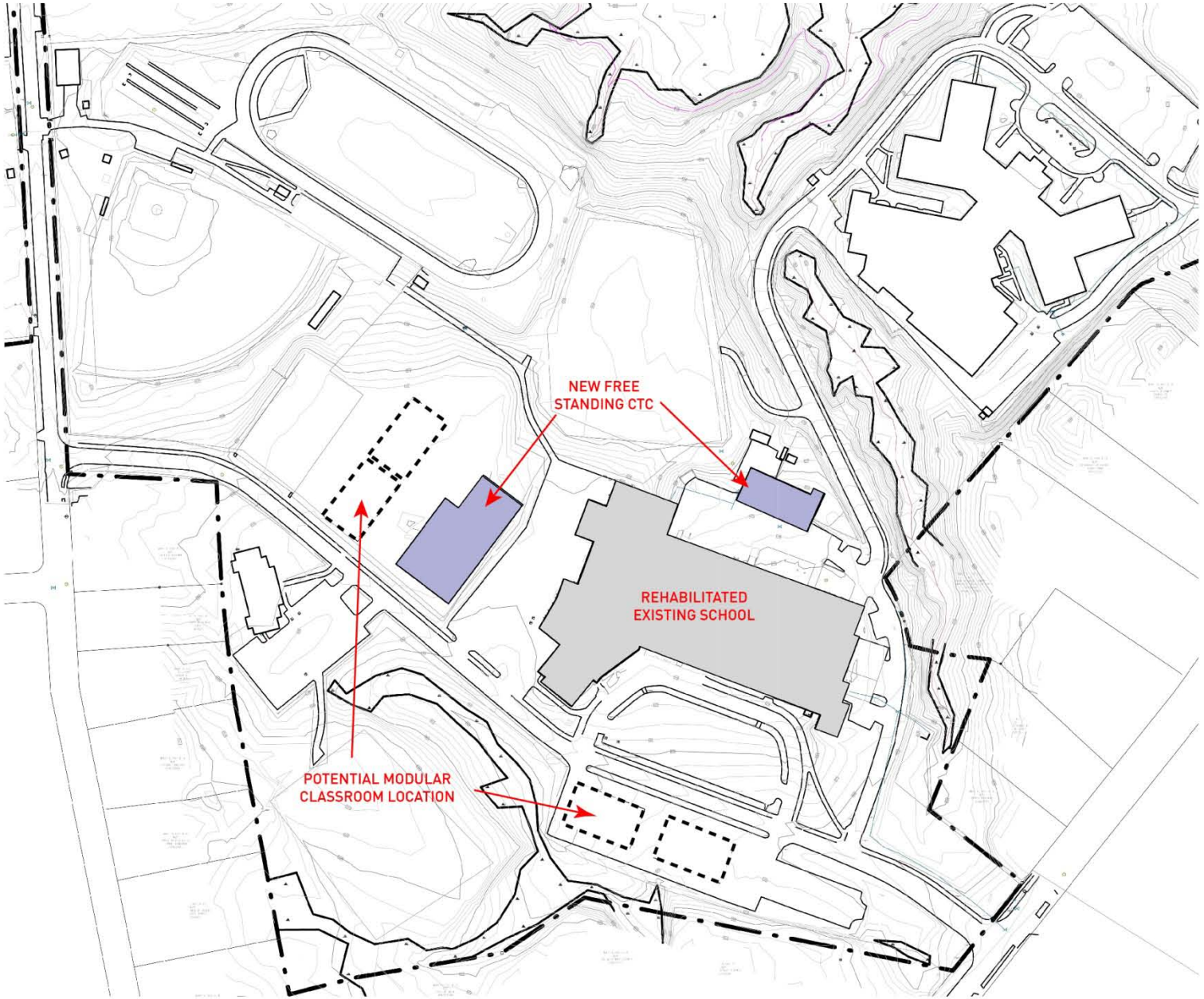
- Create small learning communities
- Create integrated academic and CTE programs as much as possible
- Create prominent and centralized Town Square that will be used by all students and the public, in addition to being viewed as the heart of the school
- Provide easy public access to the public career tech spaces such as cosmetology, marketing and culinary arts, ideally as part of the central space
- Provide opportunities for hands-on project based learning and interdisciplinary learning throughout the building
- Encourage a high level of visual connection throughout the school and visual connection to the outdoors.
- Provide a range of spaces for different types of learning experiences to take place
- Assure flexibility and adaptability for future needs in all planning

Current Investigation

1. Base Rehabilitation & CTE Addition
2. Addition and Renovation
3. New Construction

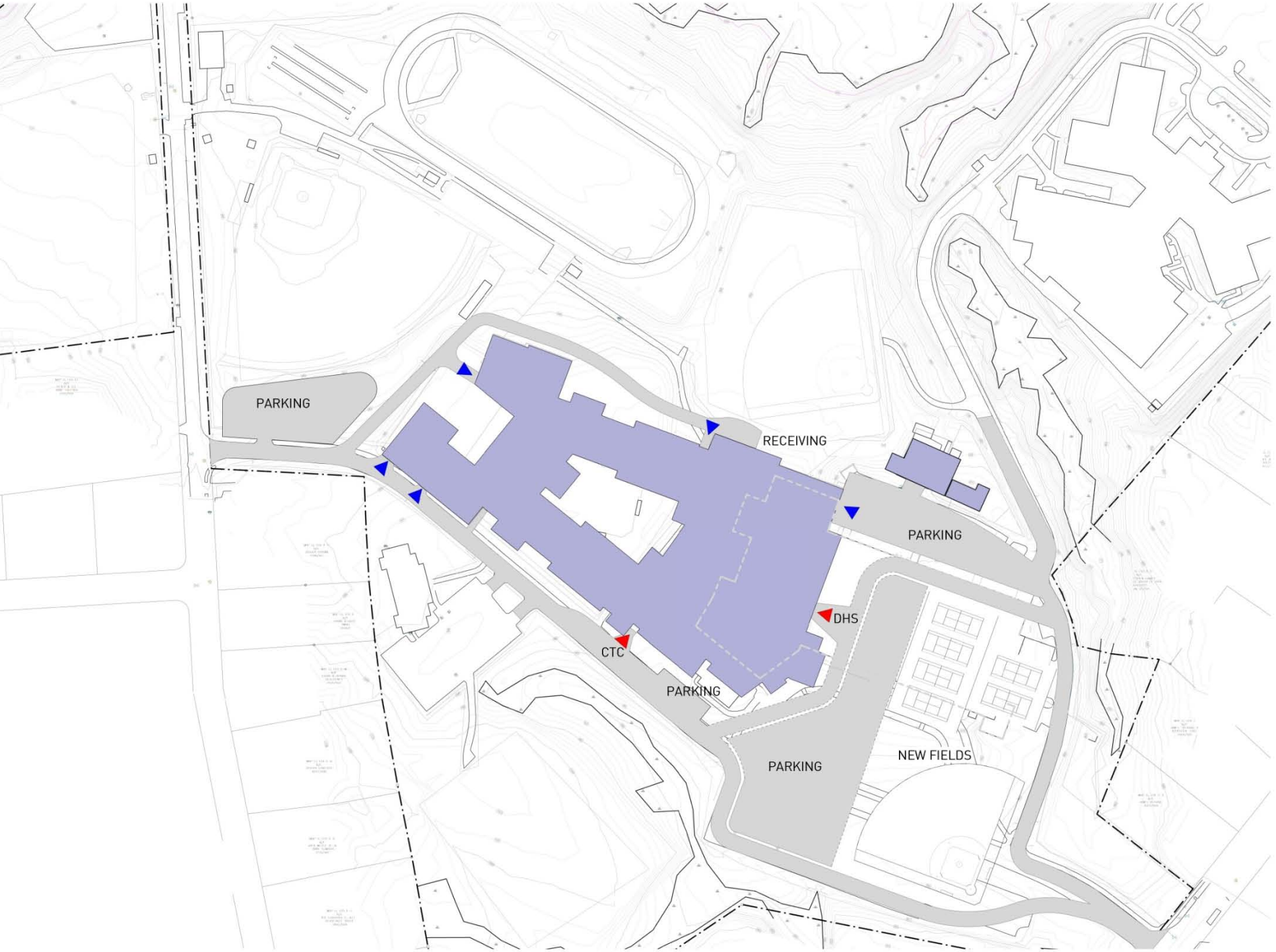
Base Rehabilitation

- New interior finishes, with structural, electrical, mechanical, plumbing, fire protection, and technology upgrades to meet current codes.
- Will not meet any of visioning study goals
- Will not meet all site goals
- Most amount of impact to students during construction
- Longest construction time
- Will require a minimum of 16 modular classrooms
- Will create free standing CTE buildings


NEW FREE
STANDING CTC
REHABILITATED
EXISTING SCHOOL
POTENTIAL MODULAR
CLASSROOM LOCATION

Addition and Renovation

- Preserves and Renovates the existing gymnasium and auditorium
- Will meet all visioning study goals
- Will meet all site goals
- Two stories
- Some impact to students during construction


PARKING
RECEIVING
PARKING
DHS
CTC
PARKING
PARKING
NEW FIELDS

SECOND FLOOR

FIRST FLOOR

COLOR LEGEND

- Administration
- Community / Shared
- Classroom
- Special Education
- Science
- CTC Integrated
- CTC Public
- CTC Service
- CTC Stand Alone
- Mechanical
- Storage
- Support
- Toilet Rooms
- Circulation
- Learning Commons

		New	Renovation
Ground Floor	-		12,810 sf
First Floor	-	150,581 sf	45,524 sf
Second Floor	-	78,288 sf	7,590 sf
Animal Science	-	8,500	2000 sf
Total	-	303,293 sf	
Net To Gross	-	1.40	

Reno Add Option - 2B

Dover HS / CTC

Dover, NH

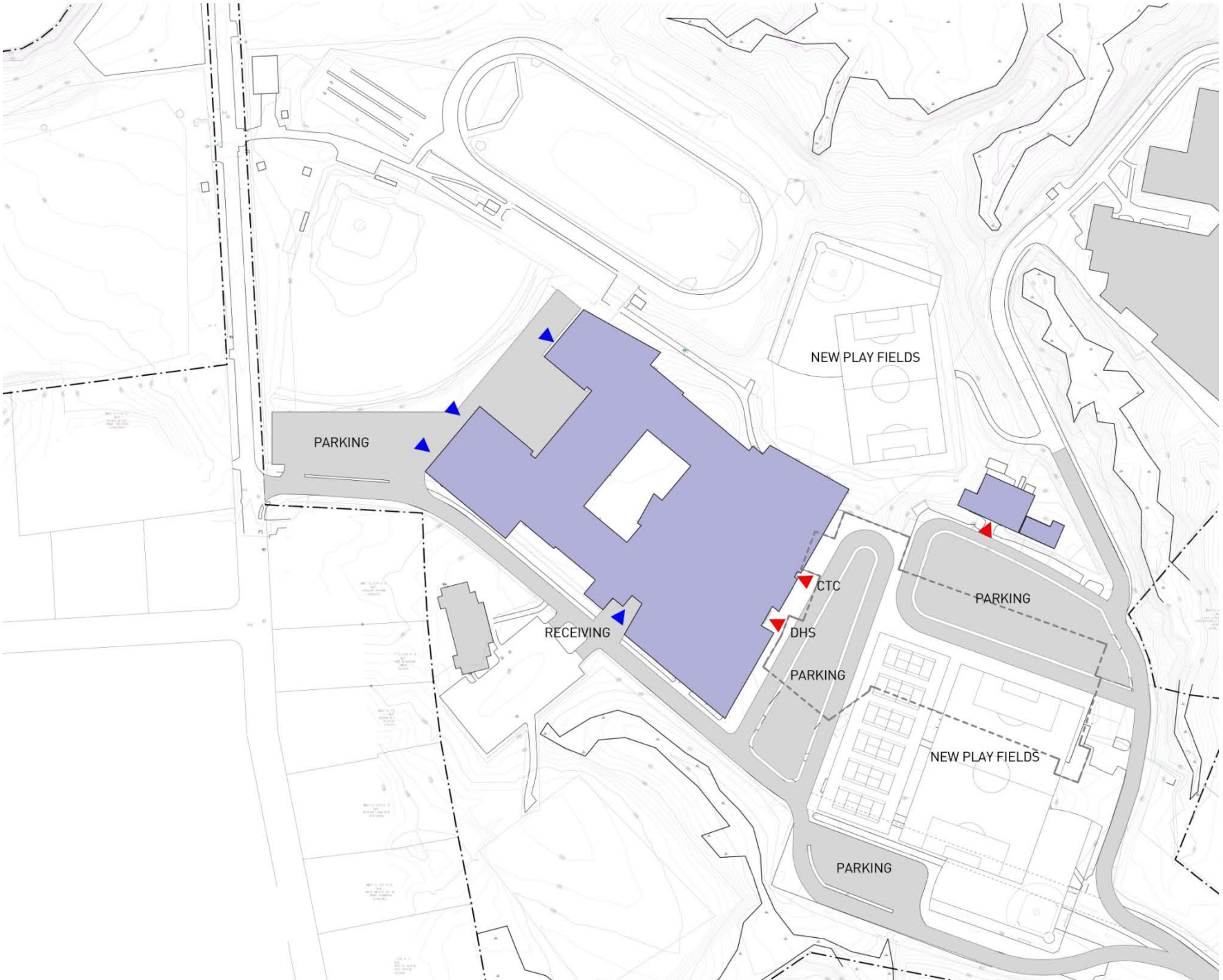
UPDATED 05/06/2015

GROUND FLOOR

HMFH Architects Inc.

New Construction

- Will meet all visioning study goals
- Will meet all site goals
- Three stories
- Least amount of impact to students during construction


NEW PLAY FIELDS
PARKING
CTC
PARKING
RECEIVING
DHS
PARKING
NEW PLAY FIELDS
PARKING


THIRD FLOOR
SECOND FLOOR
FIRST FLOOR
COLOR LEGEND
Administration
Community / Shared
Classroom
Special Education
Science
CTC Integrated
CTC Public
CTC Service
CTC Stand Alone
Mechanical
Storage
Support
Toilet Rooms
Circulation
Learning Commons
First Floor - 173,884 sf
Second Floor - 78,945 sf
Third Floor - 43,185 sf
Animal Science - 8,500 sf (6,500 new / 2000 existing)
Total - 304,514 sf
Net To Gross - 1.42
New Construction - Option 3A
Dover HS / CTC
Dover, NH
UPDATED 05/06/2015
HMFH Architects Inc.

CONSTRUCTION

Dover High School and Career Technical Center Project

Dover, New Hampshire | June 30, 2015

Joe Picoraro – Vice President
Garret Bertolini – Senior Project Manager
Scott Blair – Project Manager

SCHEMATIC ESTIMATE PROCESS

Dover High School - Option #1 - Full Renovation - Estimate Comparison				
		PC	PM&C	Cost Variance
	High School Total	$64,417,847	$65,141,515	$723,668
A1010	Standard Foundations	$586,118	$281,788	-$304,330
A1020	Special Foundations	$392,400	$566,000	$173,600
A1030	Lowest Floor Construction	$747,366	$659,778	-$87,588
B1010	Floor Construction	$570,000	$820,825	$250,825
B1020	Roof Construction	$276,199	$448,000	$171,801
B2010	Exterior Walls	$1,156,462	$918,878	-$237,584
B2020	Windows	$2,127,120	$2,052,062	-$75,058
B2030	Exterior Doors	$140,785	$182,490	$41,705
B3010/3020	Roof Coverings & Openings	$361,327	$481,000	$119,673
C1010	Partitions	$1,166,993	$1,423,750	$256,757
C1020	Interior Doors	$697,003	$794,250	$97,247
C1030	Specialties / Millwork	$2,135,630	$2,163,748	$28,118
C2010	Stair Construction	$123,729	$77,000	-$46,729
C3010	Wall Finishes	$874,439	$1,059,000	$184,561
C3020	Floor Finishes	$1,914,998	$2,080,534	$165,536
C3030	Ceiling Finishes	$1,182,465	$1,330,822	$148,357

- Kickoff Meeting with HMFH and PM&C
- Questions asked and answered, information shared
- Reconciliation meetings to align estimates
- Prepare Schematic Estimate Book

City of Dover, New Hampshire
Dover High School & Career Technical Center
DOVER SCHOOL DISTRICT
June 23, 2015

CONSTRUCTION

Schematic Estimate

SCHEMATIC ESTIMATE BOOK

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OPTIONS CONSTRUCTION COSTS

	Core Project Cost Elements	Selected Project Cost Drivers*	Total Construction Cost
Option 1: Complete Renovation	$57,185,564	$7,232,436	$64,418,000
Option 2: Partial Renovation with Addition	$61,305,794	$6,144,206	$67,450,000
Option 3: All New Construction	$65,001,626	$6,591,374	$71,593,000

*Selected Project Cost Drivers include aggregate piers with associated slab-on-grade, asbestos abatement, turf football field, kitchen equipment, baseball field work, stage lighting, linoleum (in lieu of VCT), and courtyard landscaping.

YOUR PROJECT | PROPOSED OPTION 1 - FULL REHAB

Compare and Contrast	
Pros	**Cons**
• Least cost • Minimal sitework	• Extremely invasive, most disruptive approach • Prolonged exposure to construction • High risk due to unknowns • Escalation costs unpredictable over extended period • Subcontractor pricing will be increase due to inefficiencies and by length of project • **No program / educational environment improvements (Centralized Common Space, Small Learning Centers, Integrating HS & CTS, Flexibility, Visibility, Daylight)** • Costly temporary classrooms • Useful life of building less than other options
Phasing	7 phases
Schedule	6+ years
Cost	$64.4 million

YOUR PROJECT | PROPOSED OPTION - 2B

Compare and Contrast	
Pros	Cons
• Keeps best parts of existing facility • Second-lowest cost • Reduces new construction from Option 3 • Minimizes disruptions • Maintains near-optimal program • Ability to work with design team to further decrease costs	• More precise demolition required • More risk than completely new construction • Fewer program choices in renovated space • Less flexibility in building layout
Phasing	2 phases
Schedule	6/16 – 9/19 (39 months)
Cost	$67.4 million

YOUR PROJECT | PROPOSED OPTION - 3A

Compare and Contrast	
Pros	Cons
• Least disruptive • Most flexible program / building shape • All new facilities • Maximize program • Smaller footprint • Longer Building life	• Most expensive option • New gym, auditorium increases square-foot costs • Most sitework / site disruption

Phasing	2 phases
Schedule	6/16 – 9/19 (39 months)
Cost	$71.6 million

Dover High School and Career Tech Center

Total Project Cost Review

	Option 1 - All Renovation	Option 2 - Renovation Addition	Option 3 - All New
PC Construction Estimate	64,418,000	67,450,000	71,593,000
Owner's Contingency 1 = 10%, 2 = 6%, 3 = 4%	6,441,800	4,047,000	2,863,720
A. A/E Basic Services Fees 1= 12%, 2= 10%, 3= 9.5%	7,730,160	6,745,000	6,801,335
B. Additional Services Items			
Subtotal	**273,000**	**243,000**	**233,000**
Furniture and Equipment Subtotal	**2,000,000**	**2,000,000**	**2,000,000**
Technology Subtotal	1,700,000	1,700,000	1,700,000
F&E and Technology Subtotal	**3,700,000**	**3,700,000**	**3,700,000**
Total Testing and Monitoring Subtotal	**350,000**	**350,000**	**350,000**
Contingency	100,000	100,000	100,000
B. Additional Services Items	**4,423,000**	**4,393,000**	**4,383,000**
C. Owners Budget for Direct Expenses (all are estimates)			
C. Owners Budget for Direct Expenses	**1,158,000**	**758,000**	**758,000**
Total Project Budget	**84,170,960**	**83,393,000**	**86,399,055**

New Dover High School and CTC

Original budget for new 1300 student facility	$68,000,000.00
Escalation per year	4%
Number of years	4
Total % of escalation	0.16
Total escalation	$10,880,000.00
Total for new 1300 student school in 2015	**$78,880,000.00**
Student increase from 1300 to 1500	200
SF per student	203.33
Total increase in SF	40,667
cost per SF	$222.00
Total additional cost for 200 students	**$9,028,000.00**
Cost for new 1500 student facility in 2015	**$87,908,000.00**

COST SAVINGS PROCESS

Dover HS & CTC Project

Design Development Estimate of 30Jun2015 - Cost Tracking Log
Updated June 30, 2015 Rev 0

a. Original Estimate	**$20,000,000**		e. Escalation	0.00%	0
			f. Building Permit	0.00%	0
b. Original Estimate - Cost of Work	$18,400,000		g. Builder's Risk Insurance	0.00%	0
c. Selected cost adjustments (status "yes")	(3,013,920)		h. Liability Insurance	0.75%	125,843
d. Adjusted cost of work	15,386,080		i. Estimating Contingency	5.00%	769,304
			j. Construction Manager Bond	0.53%	88,090
m. Total revised estimate with selected cost adjustments	**$16,779,000**		k. Construction Management Fee	2.50%	409,233
n. Amount over (under) estimate - item "a" above	($3,221,000)		l. Not Used		

Div	Item Number	Title/Description	Net Cost of Work	Remarks	Status: Yes/No	Gross Change (status "yes")
02	1	Reduce landscaping	($10,000)		Yes	($10,870)
02	2	Change site concrete to bituminous pavement	($100,000)		No	
	3	Storm changes	($20,000)		Yes	($21,739)
	4	Raise building grade to save fill	($200,000)		Yes	($217,391)
	5	Change fill requirements outside of building footprint	($50,000)		Yes	($54,348)
	6	Change brick coursing	($30,000)		Yes	($32,609)
	7	Change wood base to vinyl	($20,000)		Yes	($21,739)
	8	Retain existing Auditorium floor	($158,000)		No	
	9	Delete underdrain at foundations	($60,000)		No	
	10	Delete roof at covered riding arena	($83,000)		Yes	($90,217)
	11	Relocate building footprint to reduce H piles	($100,000)		Yes	($108,696)
	12	Reduce entrance canopy	($100,000)		Yes	($108,696)
	13	Firewalls instead of spray fireproofing	($50,000)		No	
	14	Use P-lam instead of solid surfacing	($40,000)		Yes	($43,478)
	15	Change 25% of brick veneer to metal siding (non-visible locations)	($110,000)		No	
	16	Change 10% of curtain wall to storefront (entry areas)	($64,000)		Yes	($69,565)
	17	Use VCT at floors instead of linoleum	($620,000)		Yes	($673,913)
	18	Change tile wainscot at corridors to impact-resistant drywall	($160,000)		Yes	($173,913)
	19	Reuse Gym floor instead of new	($133,000)		Yes	($144,565)
	20	Painting at Gym roofing structure to remain	($27,000)		No	
	21	Eliminate one elevator	($100,000)		No	
	22	Take Gym equipment out of scope	($105,000)		Yes	($114,130)
	23	Reuse existing Theater equipment	($175,000)		Yes	($190,217)
	24	Reduce casework	($231,000)		Yes	($251,087)
	25	Remove all student lockers	($473,000)		Yes	($514,130)
	26	Reuse ductwork in Gym and Auditorium	($200,000)		No	
	27	Change cast iron storm piping to PVC	($100,000)		Yes	($108,696)
	28	Reuse existing boilers	($200,000)		Yes	($217,391)
	29	Reuse existing stage lighting	($375,000)		No	
	30	Reduce courtyard allowance	($100,000)		Yes	($108,696)
	31	Delete turf field	($750,000)		No	
	32					
			(4,944,000)	**Total selected cost adjustments**		($3,276,000)

Categorize Items:

- Product and material choices
- Systems options
- Deferment – Define value and defer to later in the project if budget allows
- Scope reduction – last resort

Chosen Option – Areas to investigate

- Building siting - shift to reduce soils treatment
- Simplify foot print, more repetition
- Explore systems & materials – Structure & MEP
- Continual exploration of up front versus long term operating costs
- Reduce the square footage if possible

Next Steps

Schematic Design

- Further develop plans
- Further geotechnical investigation
- Explore systems options, Select systems
  - Understand energy efficiency/life cycle costs
  - Explore potential re-use of existing boilers
- Engage Dover Agencies
- Develop elevations
- Select major materials
- New cost estimating process