

# **BROOKLINE HIGH SCHOOL EXPANSION**

**BHS BUILDING ADVISORY COMMITTEE MEETING  
MARCH 26, 2020**



# **AGENDA**

- **Construction Progress Update**
- **BHS Expansion Background**
- **Project History - What has happened from 2017 to 2020**
- **The Budget**



**SKANSKA** BROOKLINE HIGH SCHOOL EXPANSION PROJECT: STEM PROGRESS PHOTOS



BHS Expansion Building Committee Meeting: March 26, 2020

**SKANSKA** BROOKLINE HIGH SCHOOL EXPANSION PROJECT: STEM PROGRESS PHOTOS



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**SKANSKA** BROOKLINE HIGH SCHOOL EXPANSION PROJECT: STEM PROGRESS PHOTOS



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**STEM**



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**Cypress - Looking North**



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Cypress - Looking West



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**SKANSKA** BROOKLINE HIGH SCHOOL EXPANSION PROJECT: CYPRESS PROGRESS PHOTOS

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**SKANSKA** BROOKLINE HIGH SCHOOL EXPANSION PROJECT: CYPRESS PROGRESS PHOTOS



BHS Expansion Building Committee Meeting: March 26, 2020



# BROOKLINE HIGH SCHOOL EXPANSION PROJECT: 111 CYPRESS 3 MONTH LOOK AHEAD



BROOKLINE HIGH SCHOOL EXPANSION PROJECT  
3 MONTH LOOK AHEAD SCHEDULE

111 CYPRESS ST

MARCH					April				May			
WEEK 1	WEEK 2	WEEK 3	WEEK 4	WEEK 5	WEEK 1	WEEK 2	WEEK 3	WEEK 4	WEEK 1	WEEK 2	WEEK 3	WEEK 4
2-Mar	9-Mar	16-Mar	23-Mar	30-Mar	6-Apr	13-Apr	20-Apr	27-Apr	4-May	11-May	18-May	25-May
SUBCONTRACT PROCUREMENT AND SUBMITTAL APPROVAL												
MEP COORDINATION												
IN PLACE FAÇADE MOCK UP DESIGN AND CONSTRUCTION												
STRUCTURAL STEEL AND PRECAST CONCRETE FABRICATION (OFF-SITE)												
FORM AND POUR CONCRETE FOUNDATIONS AND WALLS												
					WATERPROOFING							
					BACK FILL WALLS AND FOUNDATIONS							
									SCHOOL BREAK			
					STRUCTURAL STEEL AND PRECAST CONCRETE ERECTION							

The above information was compiled prior to the recent Corona Virus / COVID 19 Declaration of Emergency and Public Health Crisis.

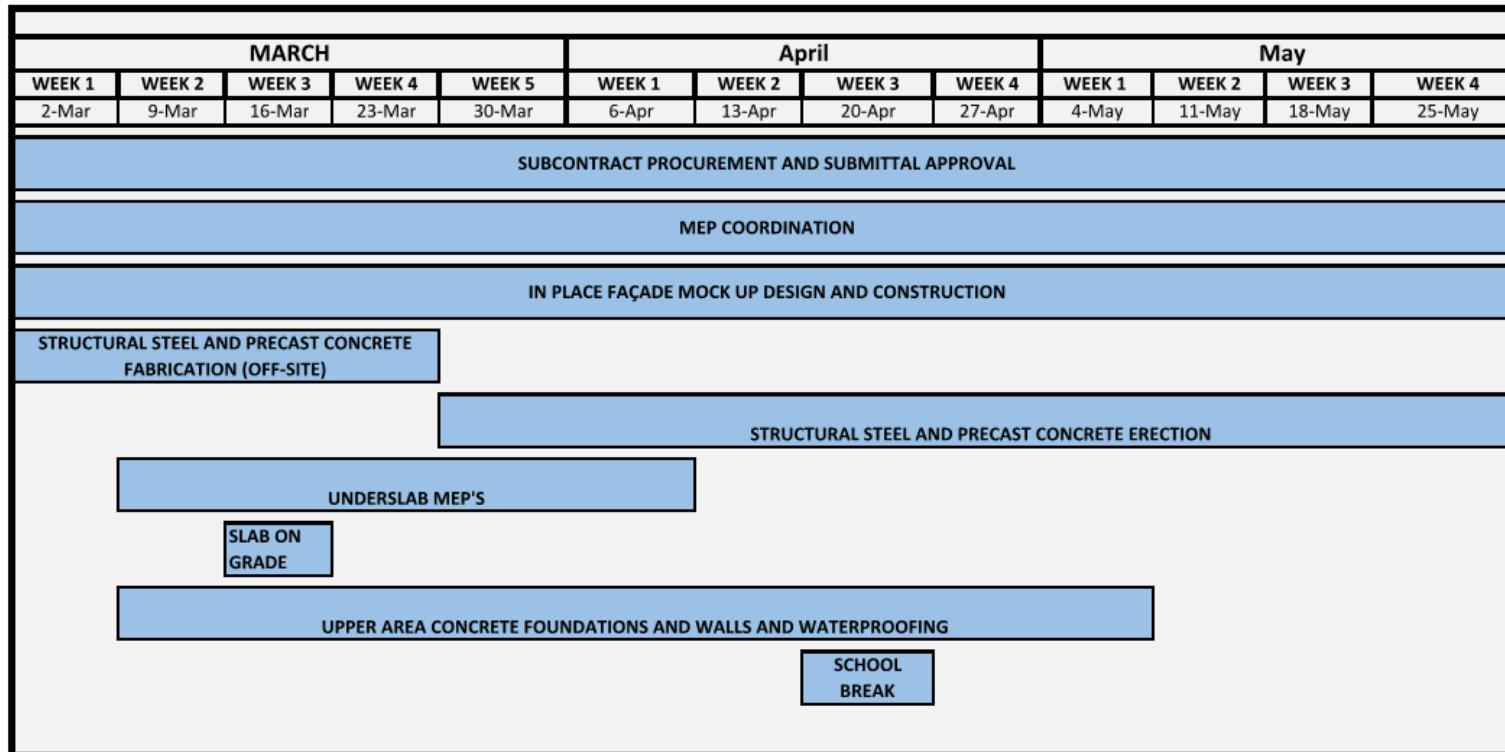


# BROOKLINE HIGH SCHOOL EXPANSION PROJECT: STEM ADDITION 3 MONTH LOOK AHEAD



## BROOKLINE HIGH SCHOOL EXPANSION PROJECT 3 MONTH LOOK AHEAD SCHEDULE

## STEM ADDITION



The above information was compiled prior to the recent Corona Virus / COVID 19 Declaration of Emergency and Public Health Crisis.

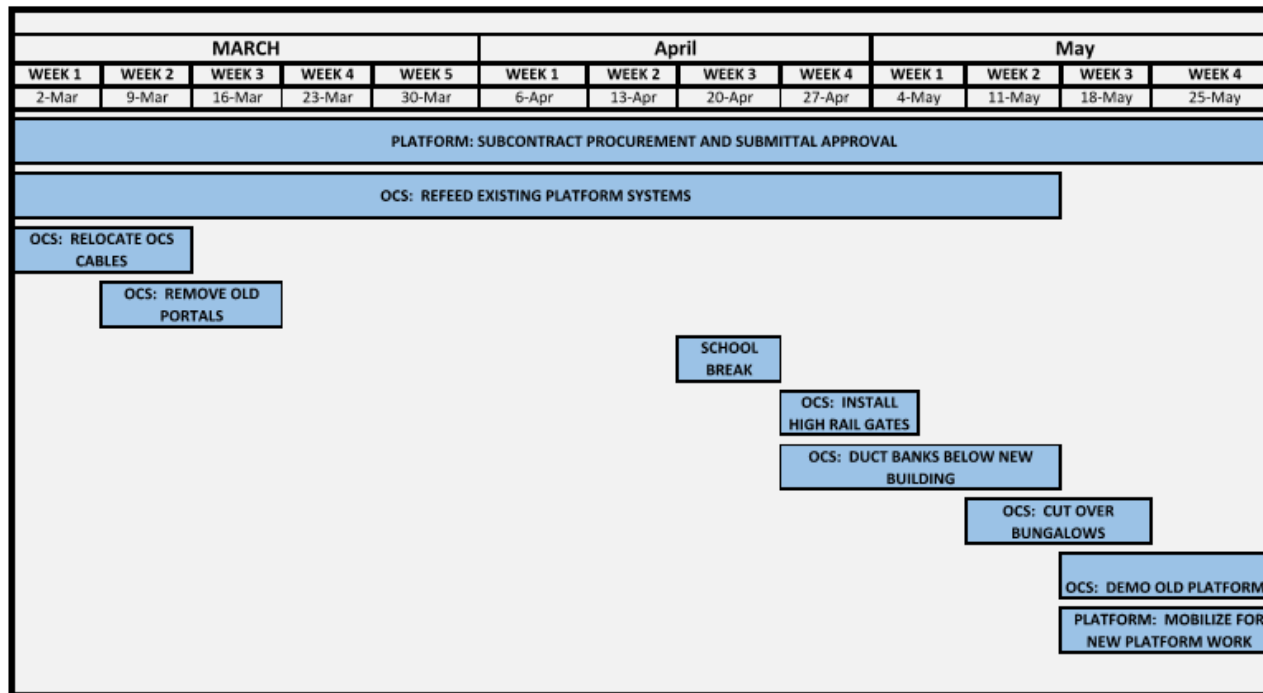
BHS Expansion Building Committee Meeting: March 26, 2020

# SKANSKA BROOKLINE HIGH SCHOOL EXPANSION PROJECT: MBTA 3 MONTH LOOK AHEAD



BROOKLINE HIGH SCHOOL EXPANSION PROJECT  
3 MONTH LOOK AHEAD SCHEDULE

MBTA WORK



The above information was compiled prior to the recent Corona Virus / COVID 19 Declaration of Emergency and Public Health Crisis.

BHS Expansion Building Committee Meeting: March 26, 2020

# RECENT IMPACTFUL EVENTS

**1. COVID-19**

**2. MBTA TEMPORARY SUSPENSION OF OPERATIONAL  
SUPPORT TO PROJECT 3/23/20 THRU 4/13/20**





# PROJECT HISTORY - PROJECT TEAM ASSEMBLED

## TOWN OF BROOKLINE

OWNERS PROJECT MANAGER  
**HILL INTERNATIONAL**

ARCHITECT  
**WILLIAM RAWN ASSOCIATES**

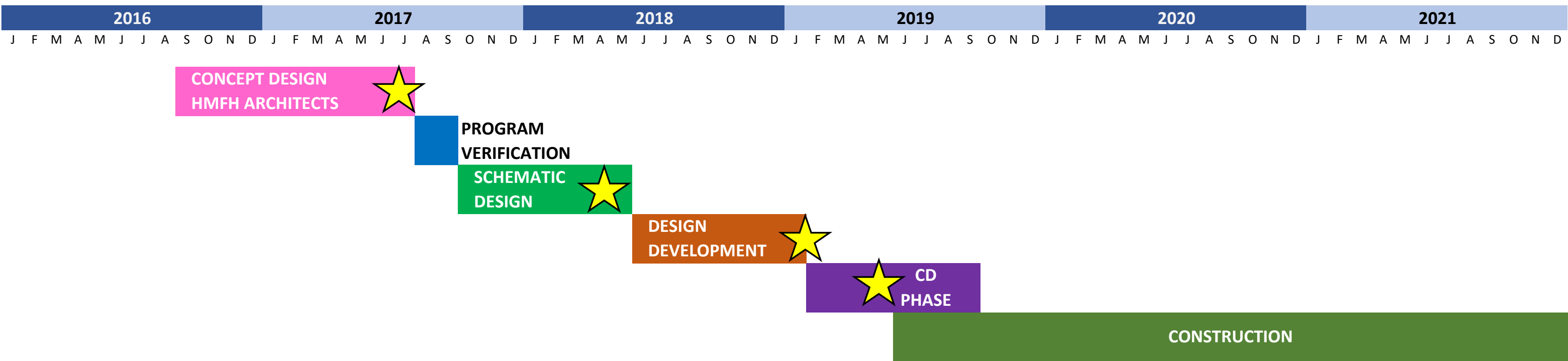
CONSTRUCTION MANAGER  
**SKANSKA**

MBTA PLATFORM ARCHITECT  
**AECOM**

MBTA PLATFORM CM  
**SKANSKA CIVIL**



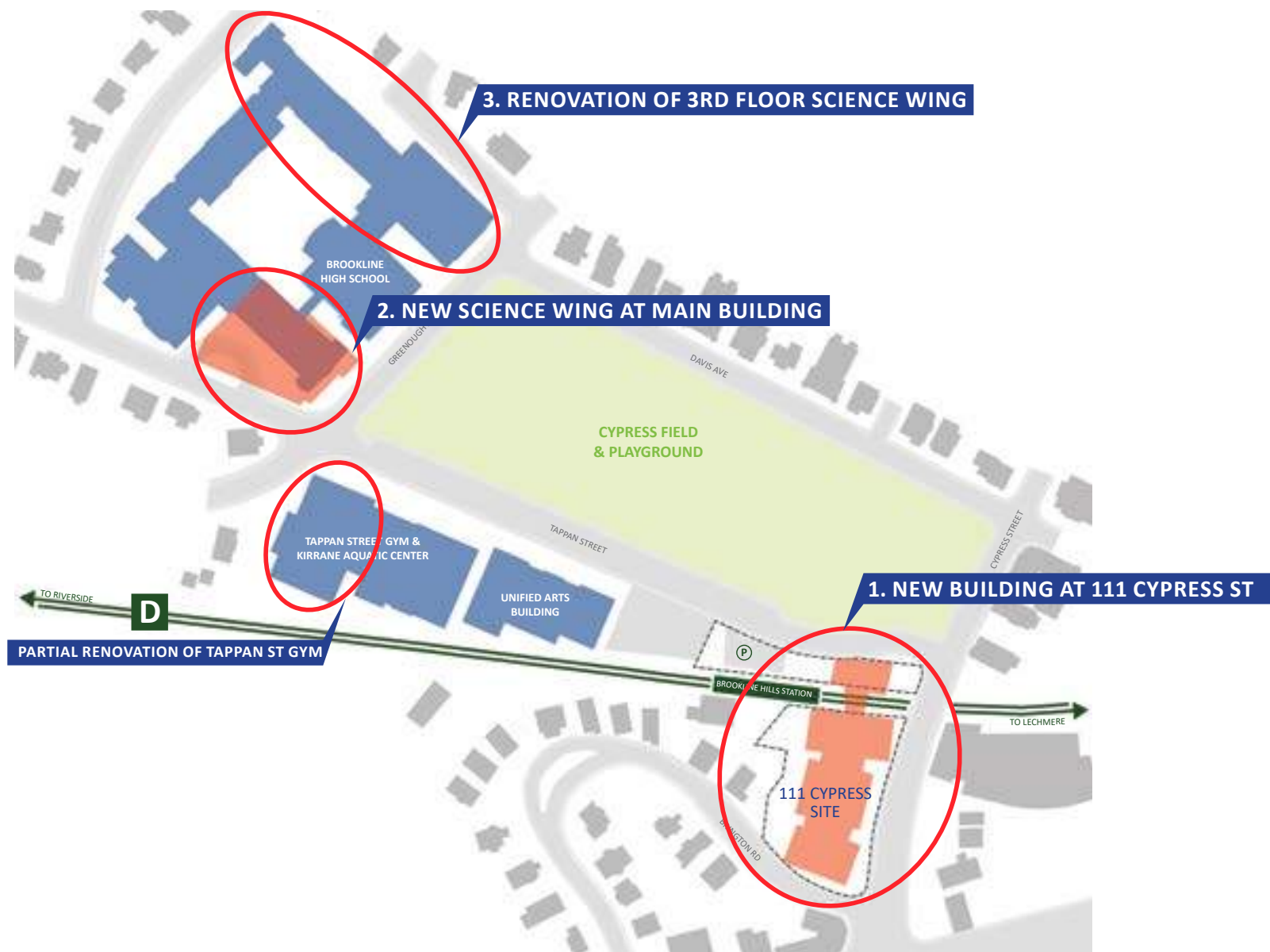
# PROJECT SCHEDULE



 **Cost Estimate**



# ORIGINAL PROJECT SCOPE IN 2017 (OPTION 4D)



## 2017 FEASIBILITY STUDY COST ESTIMATE

New Cypress Building	58,266,700
Premium for building over MBTA	2,000,000
New STEM Wing	32,264,250
3rd Floor Renovation	7,398,000
Deferred Maintenance	6,857,750
Construction Contingency	5,339,335
Professional Fees & Services	14,982,271
Misc. Project Costs	6,300,900
Project Contingency	3,203,601
Tappan Gym Minimal Renovation	13,290,000
<b>Project Cost*</b>	<b>\$149,902,807</b>

*\* The following items are not included in the Project Cost listed above:*

1. Cypress 111 Site Acquisition
2. Cypress Field Renovation
3. Additional MBTA Real Estate Costs
4. Cost Escalation
5. Swing Space Cost
6. MBTA Station Renovation
7. MBTA Plaza

# PROJECT SCOPE COMPARISON

## ORIGINAL PROJECT SCOPE (2017)

- New 111 Cypress St. Building
- New STEM Wing
- 3rd Floor Renovation
- Tappan Gymnasium
- Deferred Maintenance

**PROJECT COST: \$149.9M**

## TOWN VOTE PROJECT SCOPE (2018)

- New 111 Cypress St. Building
- New STEM Wing
- 3rd Floor Renovation
- Tappan Gymnasium Reno.
- Tappan Street Improvements
- Deferred Maintenance
  - New Boilers in UAB
  - Campus Fire Alarm Upgrades
  - Elevator Refurbishment
  - Oil Tank Removal
- MBTA Brookline Hills Station
- Cypress Field
- Old Lincoln Swing Space

**PROJECT COST: \$205.6M**

## CURRENT PROJECT SCOPE

- New 111 Cypress St. Building
- New STEM Wing
- 3rd Floor Renovation\*
- Tappan Gymnasium Reno.\*
- Tappan Street Improvements\*
- Deferred Maintenance
  - New Boilers in UAB\*
  - Campus F.A. Upgrades
  - Elevator Refurbishment
  - Oil Tank Removal\*
- MBTA Brookline Hills Station
- Cypress Field
- Old Lincoln Swing Space
- MBTA Enlarged Plaza

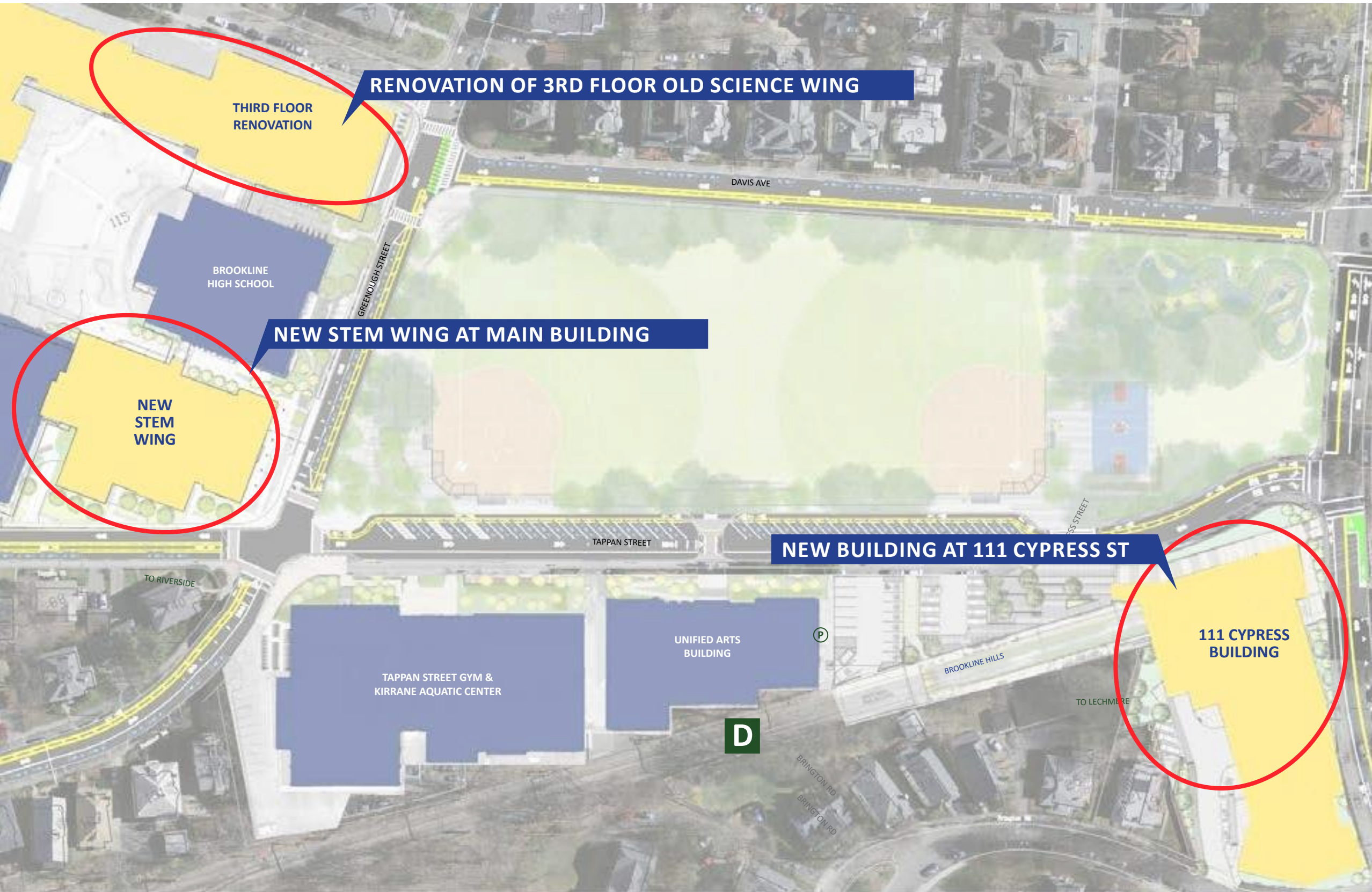
**PROJECT COST: \$237.8M\*\***

*\*Not bid yet*

*\*\* Does not include cost or schedule impacts associated with Covid 19 and temporary suspension of MBTA operational support*



# ORIGINAL PROJECT SCOPE (2017)



NEW CYPRESS BUILDING

NEW STEM WING

3RD FLOOR RENO. (OLD SCIENCE WING)

0' 50' 100' 200'



# TOWN VOTE PROJECT SCOPE (2018)



NEW CYPRESS BUILDING

BROOKLINE HILLS PLATFORM RENO.

NEW STEM WING

3RD FLOOR RENO. (OLD SCIENCE WING)

TAPPAN GYM RENOVATION

CYPRESS FIELD RENOVATION

DEFERRED MAINTENANCE

TAPPAN STREETScape IMPROVEMENTS

OLD LINCOLN SWING SPACE

0' 50' 100' 200'

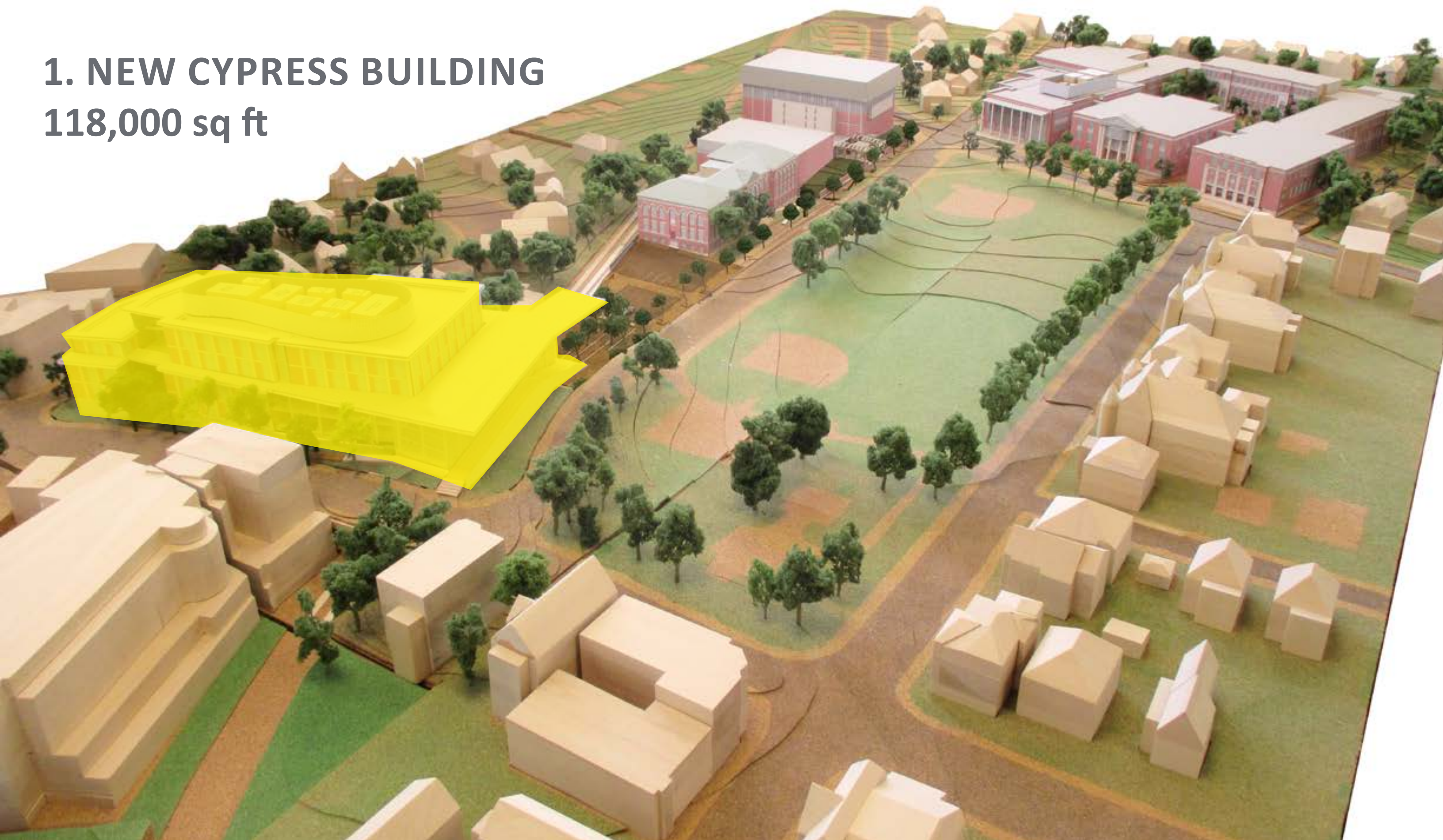


# CURRENT PROJECT SCOPE (2020)



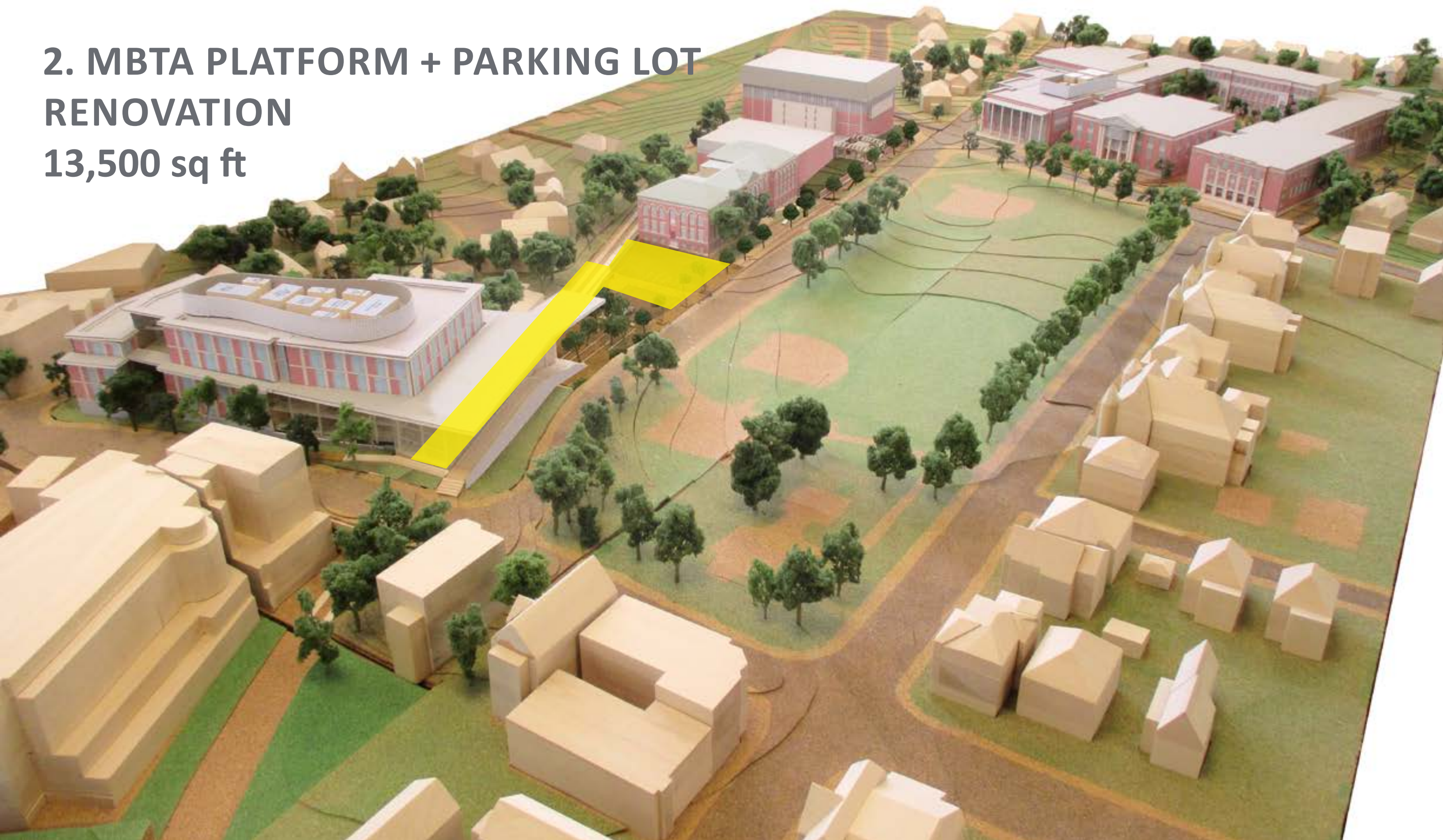
- NEW CYPRESS BUILDING
- BROOKLINE HILLS PLATFORM RENO.
- NEW STEM WING
- 3RD FLOOR RENO. (OLD SCIENCE WING)
- TAPPAN GYM RENOVATION
- CYPRESS FIELD RENOVATION
- DEFERRED MAINTENANCE
- TAPPAN STREETScape IMPROVEMENTS
- MBTA PLAZA
- OLD LINCOLN SWING SPACE

**1. NEW CYPRESS BUILDING**  
**118,000 sq ft**





# 2. MBTA PLATFORM + PARKING LOT RENOVATION 13,500 sq ft



# 3. NEW MBTA PLAZA 11,200 sq ft



# 4. NEW STEM WING ADDITION

70,000 sq ft



# 5. THIRD FLOOR RENOVATION

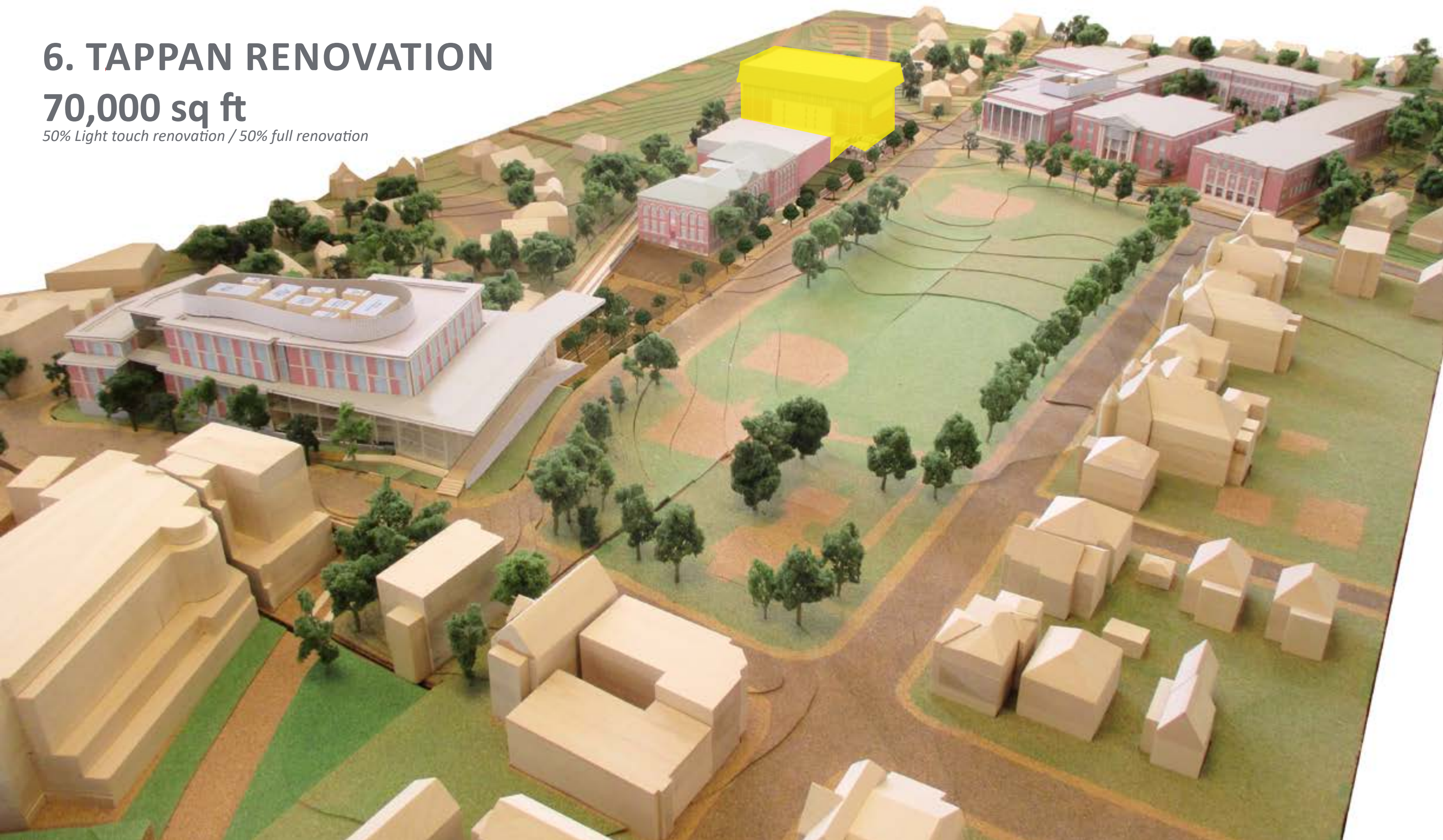
30,000 sq ft



# 6. TAPPAN RENOVATION

## 70,000 sq ft

50% Light touch renovation / 50% full renovation



# 7. CYPRESS FIELD RENOVATION



# 8. DEFERRED MAINTENANCE

- ELEVATOR REPLACEMENT (5 ELEVATORS)
- NEW BOILERS IN UAB
- FIRE PROTECTION UPGRADES
- FIRE ALARM REPLACEMENT\* (NOW IN STEM PROJECT)
- HEAT EXCHANGER REPLACEMENT
- BELOW GRADE OIL TANK REMOVAL
- PUMPS VFD REPLACEMENT



# 9. TAPPAN STREETScape





# 10. OLD LINCOLN SWING SPACE



# BUDGET AND COST ESTIMATING HISTORY PRIOR TO 2018 TOWN VOTE

- |   |                      |
|---|----------------------|
| <b>1. CONCEPT DESIGN COST ESTIMATE (HMFH)</b>         | <b>SPRING 2017</b>   |
| <b>2. SCHEMATIC DESIGN COST ESTIMATE (PM+C / WRA)</b> | <b>FEBRUARY 2018</b> |



# ORIGINAL BUDGET APPROVED DURING 2018 TOWN MEETING

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## **1. Hard Costs** \$137.6 Million

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New Cypress Street Building  
New STEM Building  
3rd Floor Renovation  
Deferred Maintenance  
Tappan Gym Renovations  
Construction Contingency

## **2. Soft Costs** \$23.6 Million

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Professional Fees  
Commissioning Agent  
CM at Risk Preconstruction  
Utility Costs  
Testing Agents  
Moving Costs  
Project Contingency

## **3. FF&E & Technology** \$5.5 Million

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Furniture  
Fixtures and Equipment  
A/V equipment  
IT and Telephone

## **4. Real Estate Costs** \$23.5 Million

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Cypress Street Acquisition & Relocation  
MBTA Air Rights

## **5. Other Costs** \$9.6 Million

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Campus Landscaping, Sidewalks and Student Safety  
Swing Space at Old Lincoln School  
Real Estate Contingencies

## **6. Cypress Field** \$5.8 Million

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## **Total Preliminary Project Costs** **\$205.6 Million**

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# BUDGET AND COST ESTIMATING HISTORY AFTER 2018 TOWN VOTE

- |   |                     |
|---|---------------------|
| <b>1. PROJECT BUDGET (TOWN VOTE)</b>        | <b>MAY 2018</b>     |
| <b>2. CONSTRUCTION MANAGER HIRED</b>        | <b>JUNE 2018</b>    |
| <b>3. RECONCILED GOOD FAITH SD ESTIMATE</b> | <b>OCTOBER 2018</b> |
| <b>4. DESIGN DEVELOPMENT ESTIMATE</b>       | <b>JANUARY 2018</b> |
| <b>5. 60% CONSTRUCTION COST ESTIMATE</b>    | <b>MAY 2019</b>     |
| <b>6. FIRST EARLY BID PACKAGE ISSUED</b>    | <b>JANUARY 2019</b> |



# CONTINUOUS DUAL ESTIMATING AND VALUE MANAGEMENT EFFORTS

## 1. DESIGN DEVELOPMENT ESTIMATE

HARD COSTS	\$133.5 M
VALUE MANAGEMENT	- \$3.2 M (47 Accepted VE items)
SOFT COSTS (INCLUDES \$5.8 FOR CYPRESS FIELD)	\$75.3 M
<b>TOTAL:</b>	<b>\$205.6 M</b>

## 2. 60% CONSTRUCTION COST ESTIMATE

HARD COSTS	\$136.2 M
VALUE MANAGEMENT	- \$4.8 M (43 Accepted VE items)
SOFT COSTS (INCLUDES \$5.8 FOR CYPRESS FIELD)	\$74.2 M
<b>TOTAL:</b>	<b>\$205.6 M</b>

## 3. CURRENT PROJECTED COST

GMP HARD COSTS (CYPRESS, STEM, ELEVATOR MODERNIZATION, MBTA (GMP UNDER REVIEW)	\$145.6 M
ESTIMATED HARD COSTS (TAPPAN, 3RD FLOOR, DEFERRED MAINTENANCE, STREETSCAPE)	\$22.6 M*
ESTIMATED HARD COST (CYPRESS FIELD)	\$5.8 M*
SOFT COSTS	\$63.8 M
<b>TOTAL:</b>	<b>\$237.8 M**</b>

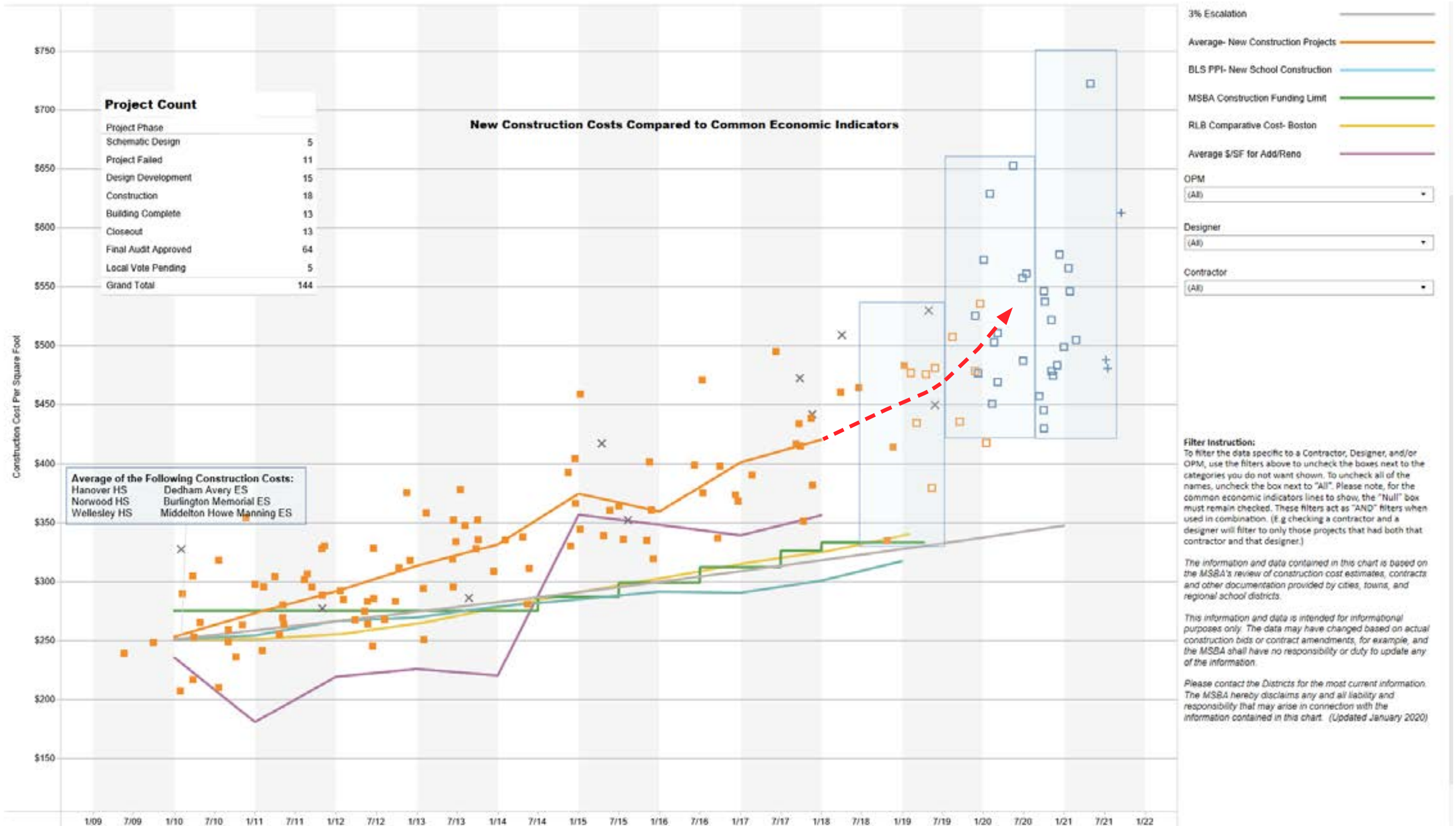
\* NOT BID YET

\*\* DOES NOT INCLUDE COST OR SCHEDULE IMPACTS ASSOCIATED WITH COVID-19 AND TEMPORARY SUSPENSION OF MBTA OPERATIONAL SUPPORT.



# WHAT CHANGED?

1. UNPRECEDENTED ESCALATION IN THE CONSTRUCTION MARKET
2. UNKNOWN CONDITIONS
3. STEM BASEMENT LEVEL (ADDED SCOPE, REDUCED RISK)
4. COMMUNITY MEETINGS - MBTA PLAZA (ADDED SCOPE)
5. WORK AROUND AND FOR THE MBTA (ADDED SCOPE)
  - BUILDING REQUIREMENTS
  - SITE ACCESS / DIVERSIONS
  - STATION DESIGN



Graph from MSBA Website : <http://info.massschoolbuildings.org/TabPub/TableauCostData.aspx>



# MSBA PROJECT COMPARISONS

SCHOOL	NEW OR RENO/ADD	COST/SF	GMP
WALTHAM SR HIGH SCHOOL	NEW	\$722	APR 2021
WESTBOROUGH ELEMENTARY	NEW	\$652	MAY 2020
BOSTON ARTS ACADEMY	NEW	\$652	JAN 2020
ARLINGTON HIGH SCHOOL	NEW	\$577	DEC 2020
FRAMINGHAM FULLER MIDDLE SCHOOL	NEW	\$573	JAN 2020
BROOKLINE HIGH SCHOOL EXPANSION	BLENDED (70% NEW / 30% RENO)	\$570	MAR 2020
BELMONT HIGH SCHOOL	NEW	\$521	MAR 2020
WEYMOUTH MARIA WESTON M.S.	NEW	\$510	SEP 2020
NAUSET HIGH SCHOOL	RENO/ADD	\$489	MAY 2021





# WHAT CHANGED?

## 1. UNPRECEDENTED ESCALATION IN THE CONSTRUCTION MARKET

### STEM + CYPRESS SAMPLING OF KEY TRADES

Trade	60% Estimate Value	RTA Value	Delta	% Delta	# Bidders Contacted	# of Bids Received
Sitework and Deep Foundations	\$ 5,176,108	\$ 7,121,042	\$ 1,944,934	38%	11	6
Concrete - Foundations & Flatwork	\$ 5,084,570	\$ 5,910,040	\$ 825,470	16%	12	4
Misc. and Ornamental Metals	\$ 1,742,224	\$ 3,352,185	\$ 1,609,961	92%	12 Pre-qual trades	6
HVAC	\$ 10,836,149	\$ 11,783,900	\$ 947,751	9%	15 Pre-qual trades	9
Architectural Millwork/Casework	\$ 1,522,419	\$ 2,411,887	\$ 889,468	58%	10	7
Waterproofing/Joint Sealant	\$ 670,335	\$ 1,200,660	\$ 530,325	79%	15 Pre-qual trades	7
Drywall	\$ 6,711,736	\$ 9,972,950	\$ 3,261,214	49%	18	4
Tile	\$ 988,176	\$ 1,471,062	\$ 482,886	49%	8 Pre-qual trades	5

# WHAT CHANGED?

## 2. UNKNOWN CONDITIONS: ROBERTS WING WALL REINFORCING



# WHAT CHANGED?

## 2. UNKNOWN CONDITIONS: UNSUITABLE SOILS ALONG MBTA TRACKS

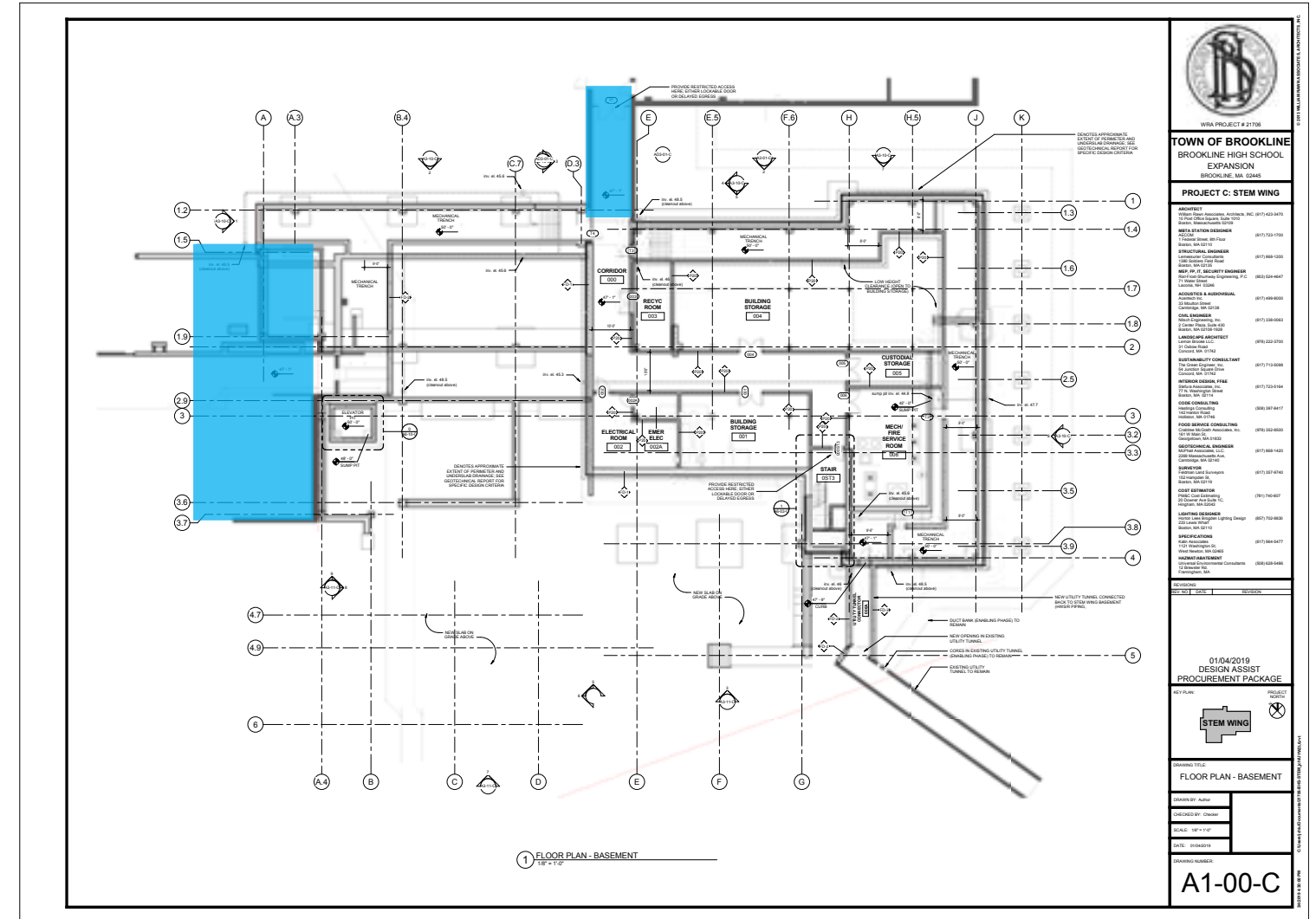
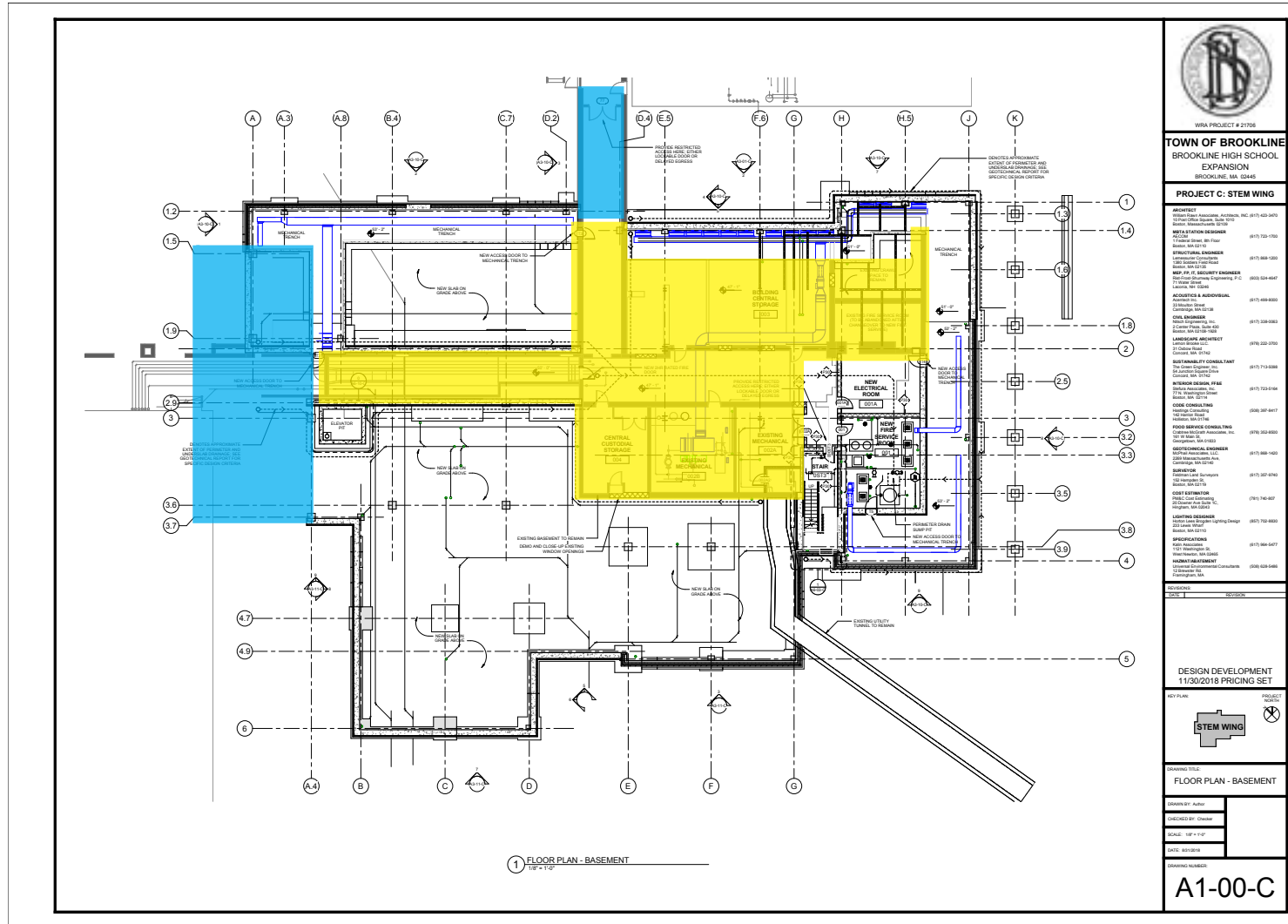


# WHAT CHANGED?

## 3. STEM BASEMENT: EXISTING BASEMENT REMOVED TO AVOID CONSTRUCTION RISK

### DD PHASE

### CURRENT DESIGN



**EXISTING BUILDING TO REMAIN**

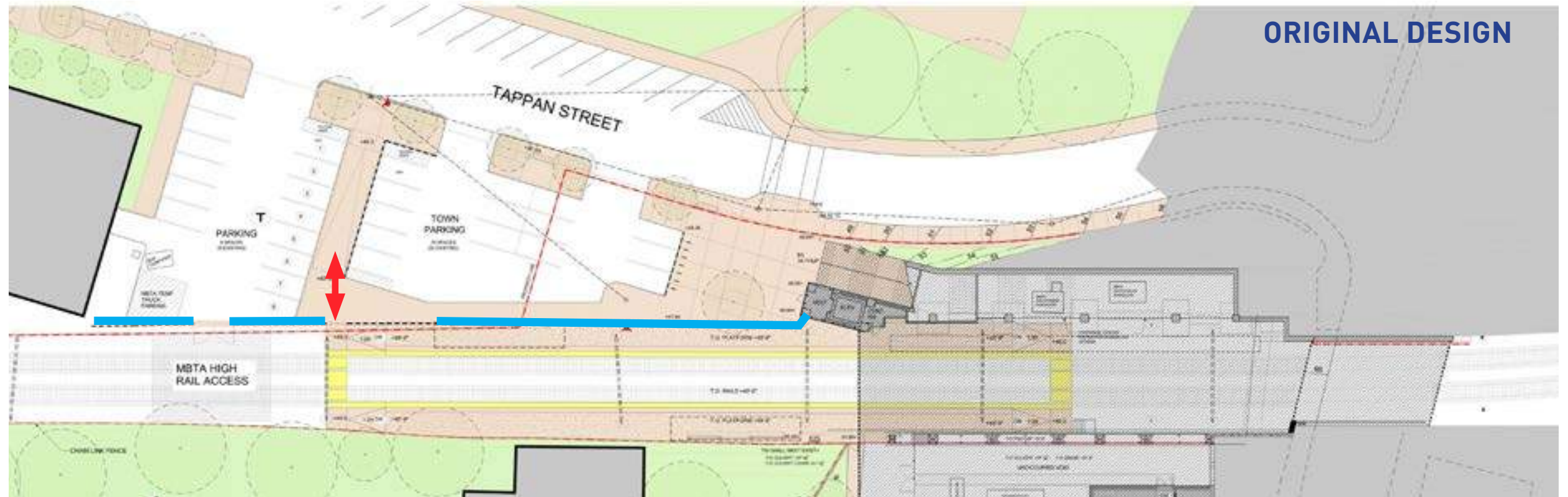
**EXISTING BASEMENT TO REMAIN**

# WHAT CHANGED?

## 4. COMMUNITY MEETINGS: MBTA PLAZA

### ORIGINAL DESIGN

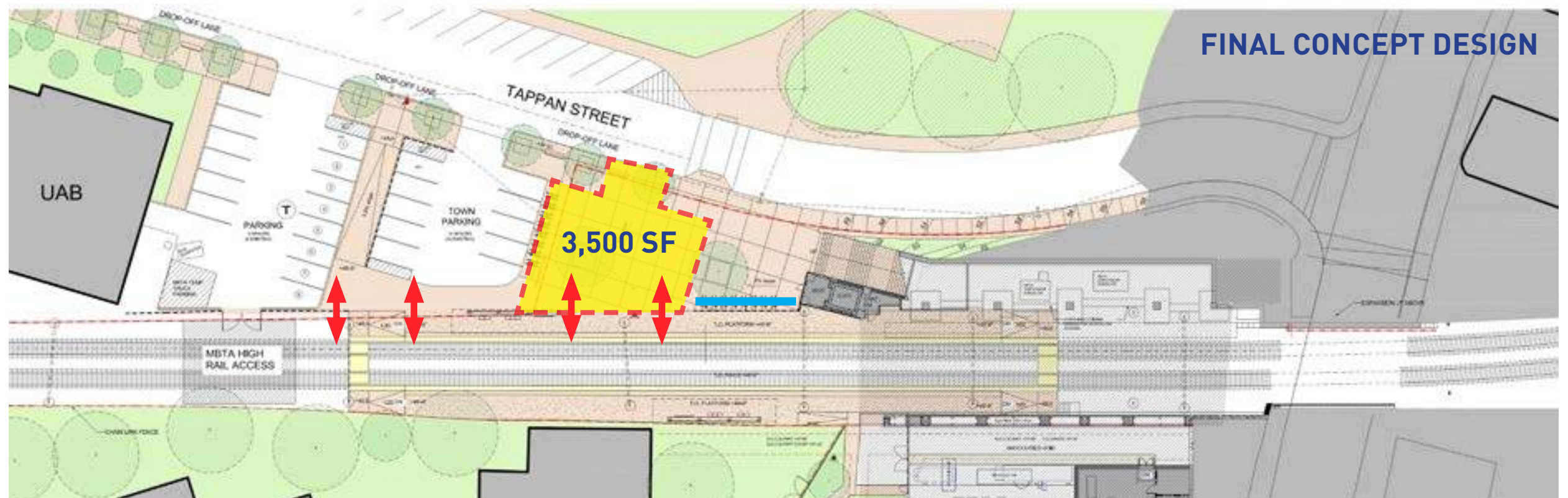
- 20 Town parking spaces



ORIGINAL DESIGN

### FINAL CONCEPT DESIGN

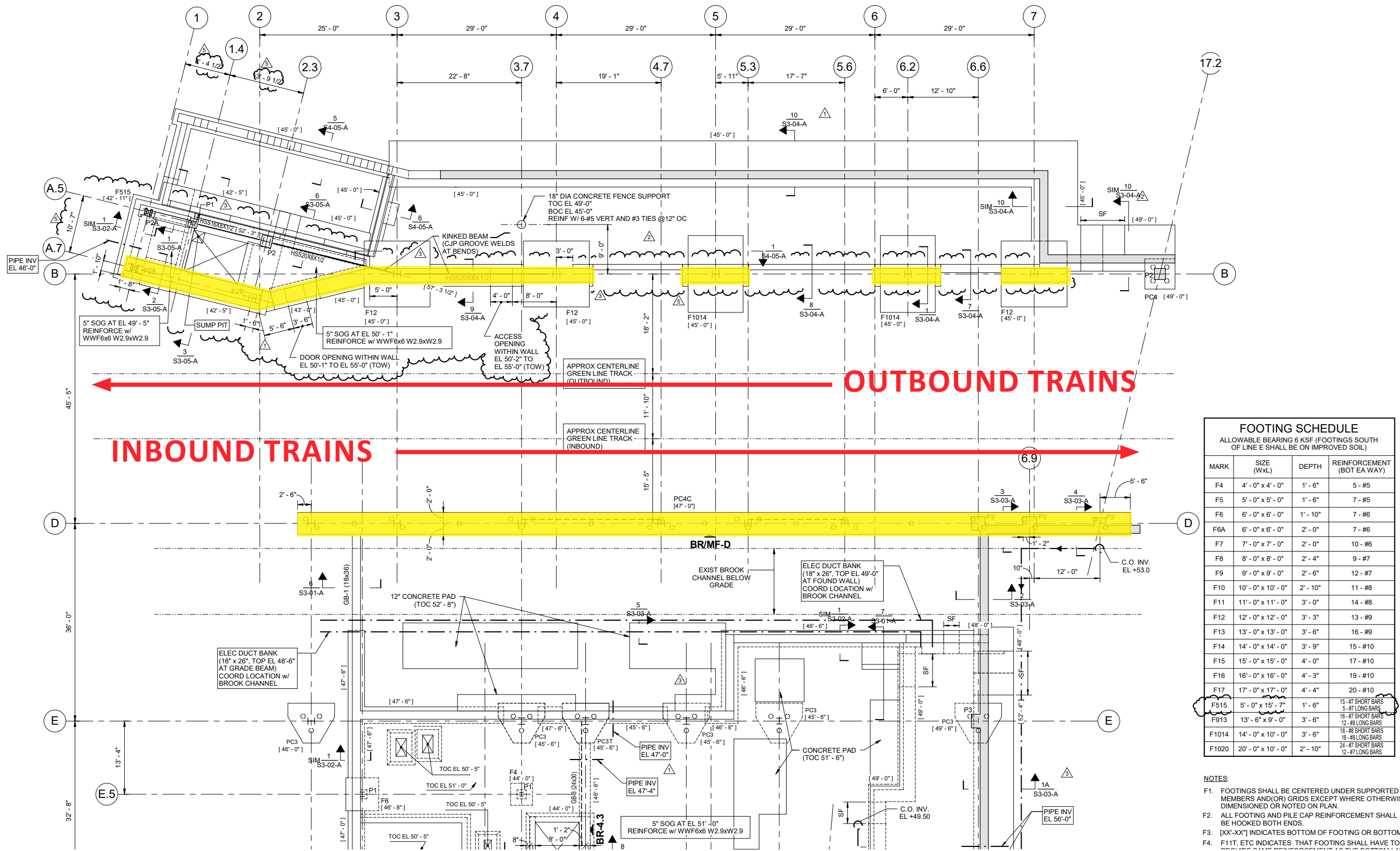
- 16 Town parking spaces
- Crosswalk moved to align with Cypress Field Path (3 parking spaces removed at north side of Tappan St)
- New drop-off lane
- Enlarged Plaza
- Fence, bike racks at level change at Cypress Building elevator
- ~80 feet of access to MBTA platform



FINAL CONCEPT DESIGN

# WHAT CHANGED?

## 5. WORK AROUND AND FOR THE MBTA: BUILDING REQUIREMENTS



# WHAT CHANGED?

## 5. WORK AROUND AND FOR THE MBTA: **SITE ACCESS / DIVERSIONS**



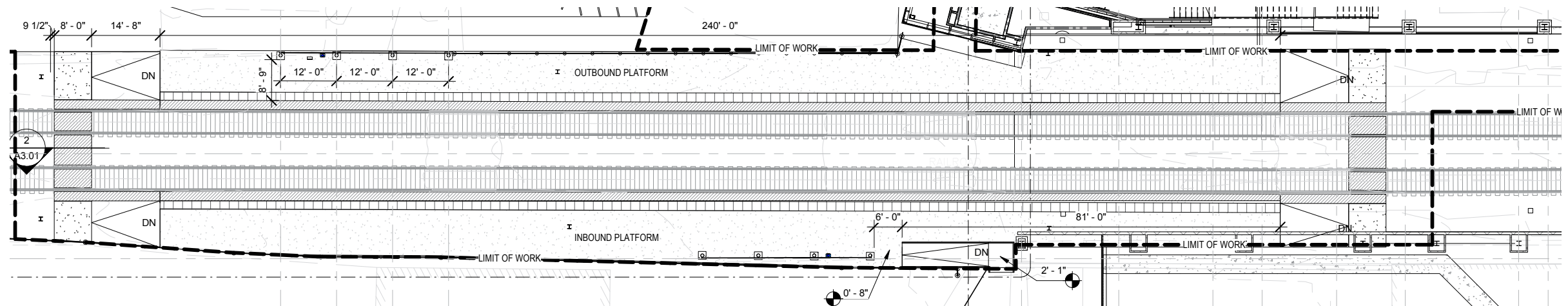
Shuttles will replace Green Line service during scheduled maintenance.



# WHAT CHANGED?

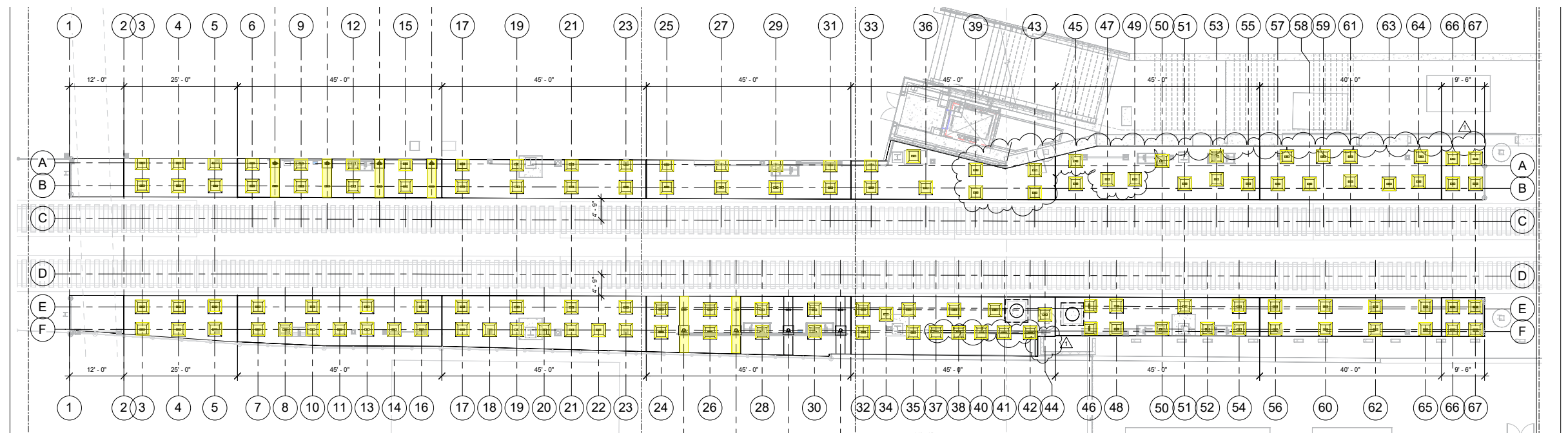
## 5. WORK AROUND AND FOR THE MBTA: PLATFORM DESIGN

### ORIGINAL DESIGN - SLAB ON GRADE



ORIGINAL DESIGN BASED ON STATIONS SUCH AS BROOKLINE HILLS - SLAB ON GRADE WITH PAVERS

### REVISED DESIGN - HELICAL PILES



REVISED DESIGN REQUESTED BY MBTA ACCESSIBILITY GROUP - WILL ELIMINATE PLATFORM SETTLING DUE TO FROST







# UNFORESEEN COST INCREASES

## MARKET CONDITIONS

\$17M - \$19M

- SIGNIFICANT SPIKE IN COSTS BETWEEN MAY 2018 AND Q1 2020 \*

*\*SIMILAR TO MSBA SCHOOL CONSTRUCTION COST INCREASES*

## MBTA

\$8M - \$11M

- PLATFORM FOUNDATION DESIGN
- PLATFORM DESIGN CHANGES
- MBTA REQUIRED ADDITIONAL DIVERSIONS AND OTHER FORCE ACCOUNT COSTS

## UNKNOWN CONDITIONS

\$1M - \$2M

- UNSUITABLE SOILS NORTH OF MBTA TRACKS
- EXISTING ROBERTS WING STRUCTURAL REINFORCING

## TOTAL

**\$26M - \$32M\*\***

*\*\*NOT INCLUDED - UNKNOWN COVID 19 IMPACTS: MBTA TEMPORARILY SUSPENDING STAFF SUPPORT FOR PROJECT DIVERSION FOR 3 WEEKS*



# WHERE ARE WE NOW

	Project Budget	Projected Costs	Variance over/(under)
<b>Hard Costs</b>	\$137.6 Million	\$161.6 Million	\$24 Million
<ul style="list-style-type: none"> <li>New Cypress Street Building</li> <li>New STEM Building</li> <li>3rd Floor Renovation *</li> <li>Deferred Maintenance *</li> <li>Tappan Gym Renovations *</li> <li>Construction Contingency</li> </ul>			
<b>Soft Costs</b>	\$23.6 Million	\$23.3 Million	(\$0.3) Million
<ul style="list-style-type: none"> <li>Professional Fees</li> <li>Commissioning Agent</li> <li>CM at Risk Preconstruction</li> <li>Utility Costs</li> <li>Testing Agents</li> <li>Moving Costs</li> <li>Project Contingency</li> </ul>			
<b>FF&amp;E &amp; Technology</b>	\$5.5 Million	\$4.8 Million	(\$0.7) Million
<ul style="list-style-type: none"> <li>Furniture</li> <li>Fixtures and Equipment</li> <li>A/V equipment</li> <li>IT and Telephone</li> </ul>			
<b>Real Estate Costs</b>	\$23.5 Million	\$38.9 Million	\$15.4 Million
<ul style="list-style-type: none"> <li>Cypress Street Acquisition &amp; Relocation</li> <li>MBTA Air Rights &amp; Station Improvements</li> <li>Real Estate Contingencies</li> </ul>			
<b>Other Costs</b>	\$9.6 Million	\$3.4 Million	(\$6.2) Million
<ul style="list-style-type: none"> <li>Campus Landscaping, Sidewalks and Student Safety *</li> <li>Swing Space at Old Lincoln School</li> </ul>			
<b>Cypress Field *</b>	\$5.8 Million	\$5.8 Million *	N/A
<b>Total Project Costs</b>	<b>\$205.6 Million</b>	<b>\$237.8 Million **</b>	<b>\$32.2 Million</b>

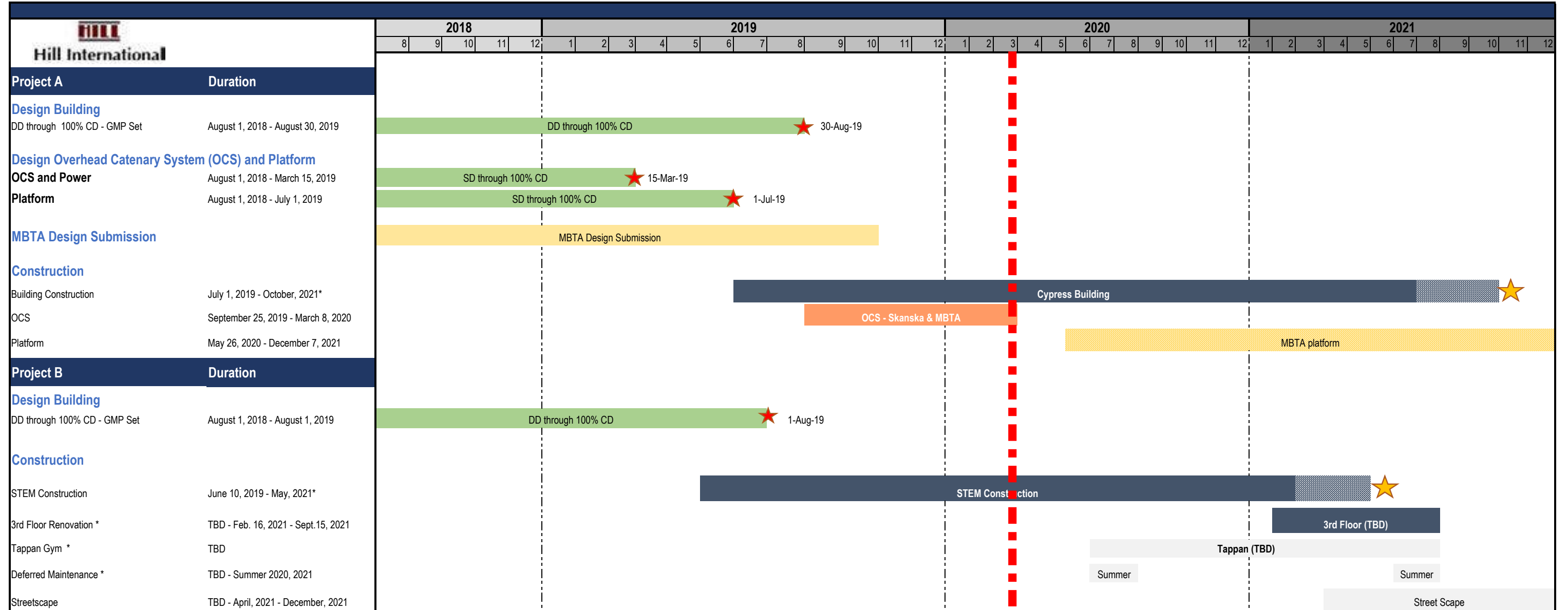
\* NOT BID YET

\*\*NOT INCLUDED - UNKNOWN COVID 19 IMPACTS: MBTA TEMPORARILY SUSPENDING STAFF SUPPORT FOR PROJECT DIVERSION FOR 3 WEEKS

# WHERE WE ARE NOW

March 24, 2020

## Brookline High School Expansion Project DRAFT Summary Schedule



★ Ongoing review for mitigation options to schedule impact. However, subject to change once impacts due to COVID-19 is more clearly known.

# CHOICES TO BE MADE

- **INCREASE FUNDING**
- **ALREADY REMOVED SCOPES OF WORK**

REDUCED TAPPAN RENOVATION

REDUCED 3RD FLOOR RENOVATION

- **REMOVE SCOPES OF WORK**

TAPPAN RENOVATION

3RD FLOOR RENOVATIONS

DEFERRED MAINTENANCE

CYPRESS FIELD



# RECOMMENDATIONS

- **INCREASE FUNDING THROUGH TOWN MEETING**
- **PURSUE ADDITIONAL MBTA COST SHARING**



**END**

