John R. Pierce School Building Committee – January 13, 2022

Agenda

1. Announcements, Updates, and Comments

2. Project Approvals:
    - December 6, 2021 Meeting Minutes
    - December 13, 2021 Meeting Minutes
    - LEFTFIELD Contract Amendment #2 for printing Preferred Schematic Report
    - MDS Contract Amendment #3 for Geothermal Due Diligence & Traffic Study
    - Budget Revision Request #5 (for MDS Amendment #3 and LEFTFIELD Amendment #2)

3. Budget Update - Feasibility Study Remaining Funds

4. CM at Risk Presentation – Comparison of DBB and CM at Risk Construction Delivery Methods
    - Possible Motion: That the School Building Committee vote to recommend approval of the CM at Risk construction delivery method for the John R. Pierce School, and to submit an application to the Office of the Inspector General for approval to proceed with CM at Risk.

5. Schedule Review
    - Early Packages
        - School Open - September 2026 vs February 2027
        - Demo & Abatement Package?
    - Review Work Plan through Schematic Design

Remaining Budget **$323,408**

Anticipated Uses:

Brookline Bldg Dept. Admin	$47,636	To Date
Brookline Bldg Dept. Admin	$52,364	Projected
Traffic Studies	$90,750	MDS Amendment #3
Geothernal Due Diligence	$44,000	MDS Amendment #3
Property Due Diligence	$15,000	(may be able to fund Town Counsel through TOB funds)
Additional Site Survey	$15,230	(only req'd if internal block property lines not established)
Test Well for Geothermal	$0	to be completed in DD
District Energy approach	$0	further conversation needed
CM Precon/SD Estimate	$60,000	

Total Anticipated **$324,980**
Remaining Budget **-$1,572**

Design-Bid-Build

(M.G.L. Chapter 149)

CM at Risk

(M.G.L. Chapter 149A)

Chapter 193 of the Acts and Resolves of 2004

Known as the public construction reform law, these Acts created a new statute, MGL Chapter 149A, which contained provisions authorizing and governing the use of two optional alternative delivery methods for public construction projects in Massachusetts: construction management at-risk (CM at Risk) for building projects estimated to cost $5 million or more and design-build for public works projects estimated to cost $5 million or more. The provisions of MGL Chapter 149A took effect on January 1, 2005.

Overall Comparison of Delivery Methods

Design-Bid-Build	Construction Manager at Risk
▪ Design and Construction Stages Proceed Sequentially ▪ Lump Sum Bid/Budget Based on Completed Design ▪ General Contractors are Prequalified ▪ General Contractor with Lowest Bid is Selected; No Choice ▪ Owner Executes Lump Sum Contract with General Contractor ▪ Typically there is One Bid Package but Site Prep can be Issued Separately	▪ CM at Risk Selected Early in the Design Stage and Design/Construction can Overlap for Faster Schedule/Occupancy ▪ Construction Cost is Collaboratively Developed ▪ CM Selected Based on Qualifications and Fee ▪ CM is Part of the Design Process/Partner ▪ Owner Negotiates a Guaranteed Maximum Price (Cost plus Fixed Fee) ▪ Ability for Multiple Bid Packages

Overall Comparison of Delivery Methods

Design-Bid-Build	Construction Manager at Risk
▪ Competitive Non-Collaborative Process	▪ Collaborative Process; Non-Adversarial
▪ All Changes Results in Change Orders	▪ CM during Design Results in Fewer Change Orders; Constructability Analysis
▪ Initial Costs for this Project are 5% Lower	▪ Ability to Accelerate Schedule and Fewer Change Orders Results in Comparable End Cost
▪ General Contractor with Lowest Bid is Selected	▪ Greater Ability for Risk Management
▪ Risk Equals Higher Cost	▪ Common Goals for Project Schedule
▪ Longer Schedule Equals Higher Cost	▪ Ability to Select/Negotiate with CM/Subcontractors
▪ No Ability to Select/Negotiate with Subcontractors	
▪ All Bid Savings go to General Contractor	

Advantages

Design-Bid Build

- Familiar delivery method
- Simpler process to manage
- Fully defined project scope for construction
- Lower initial price. Perceived as getting “best price” by awarding to lowest responsible bidder
- One single bid after construction documents are 100% complete
- Owner/Designer can completely control design
- Simple accounting

BEST SUITED FOR: Less complicated projects that are budget-sensitive, but are not schedule sensitive and not subject to change.

CM-R

- Selection based on qualifications, experience & proposed team rather than lowest price/bid
- Design phase assistance with budgeting, site logistics and constructability results in ability to address challenges early
- Early cost estimates & feedback to help in the design process results in a more accurate cost model
- Allows for multiple early bid packages to accelerate construction schedule
    - Typical higher initial cost, but comparable in the end once acceleration of construction and savings associated with escalation are factored
- Team concept with Owner, OPM, Designer
- Typically CMs have much larger bonding capacities

BEST SUITED FOR: Projects that are time sensitive, challenging to define or subject to potential changes; projects requiring high construction oversight due to site logistics and phases as well as multiple stakeholders.

Disadvantages

Design-Bid-Build

- Linear process may equate to a longer schedule duration
- No choice in GC; low bidder prevails
- Hard price not known until bids are received; may require re-design and re-bid if bids exceed budget
- Minimal GC project management
- No GC input in design, planning or budgets
- The designer may have limited ability to assess scheduling and cost ramifications as the design is developed which can lead to a more costly final product
- Typically fosters adversarial relationships between all parties and increases probability of disputes
- Prone to changes and claims which may increase final project cost
- All modifications and changes results in Change Orders with no ability or flexibility within the lump sum bid price

CM-R

- Requires an OPM or Owner with an understanding of the CM process and GMP mechanics
- Potential for higher up-front cost due to “filling holes” in scope and/or documents (with result of minimizing future change orders and avoiding delays)
- Potential adversarial relationship when design intent is challenged when “design-to-budget” or “price cutting” is pushed
- Bidding early requires extra due diligence in covering complete scope of work

Cost Comparison of Delivery Methods

Cost Differentiators:

- CMR Costs include a Change Contingency (GMP Contingency) and DBB does not . This represents 3% of the cost difference.
- CMR has preconstruction costs for their involvement during design which helps ensure that the construction budget is accurate and maintained.
- Schedule acceleration typically offsets the higher upfront costs.

Schedule Comparison of Delivery Methods

Schedule Issues Impacting Acceleration of Schedule:

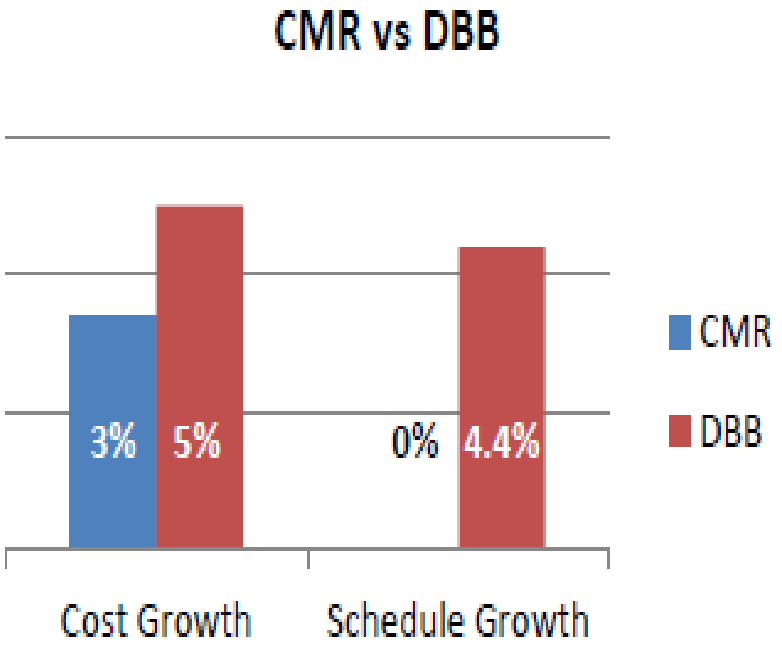
- Design Deliverables
- MSBA Submission Dates
- Construction Start and Weather
- School Schedule

These influences on the Construction Schedule need to be coordinated in order to deliver an accelerated construction schedule.

Project Delivery Metrics for Analysis

CMR Project Delivery Method Outperformed DBB in terms of following metrics:

- **Cost Performance**
- **Schedule Performance**
- **Quality Outcomes**



Overview of Research and Study performed by Construction Industry Institute, American Society of Civil Engineers, Pennsylvania State University, Iowa State University, University of North Carolina and State of Washington

General Project Risks with Both Project Delivery Methods

- Unforeseen Conditions (30, 39M) for both building and site conditions
- Incomplete architectural documents
- Poor or questionable qualifications of sub contractors, poor performance. Pool of contractors available
- Sub contractor or Trade contractor failures
- Working on and around occupied facilities
- Complex site logistics, phasing, occupied sites
- Less cooperative team environment
- Inadequate or over staffed GC/CM or general requirements
- Potential bid protests

Project Cost & Size –

Local CMR firms with School experience are large enough to bond this project. Small pool Of General Contractors that could bond the project.

Complex Construction Logistics –

Complexities include extremely tight, occupied site in an urban mixed-use environment, attachment to Historic Building, and attachment to existing parking garage.

Construction Phasing –

Close coordination with Town required to maintain access to other buildings and uses on civic campus

Existing Site Conditions –

Connecting to existing site conditions such as the Historic Building, Library loading dock, and partial existing parking garage, coupled with the dramatic slope across the site and minimal lay down space, it will be important to talk through logistics early on.

Construction Schedule –

CMR allows for an early bid package for demo/abatement and site prep to occur before the main package which could be the difference between a January 2027 open and a September 2026 open.

Preconstruction Services –

Bringing a CMR on for Precon allows them to provide input on schedule, budget, logistics, and constructability throughout the design of the project. This is invaluable in a complex project like Pierce.

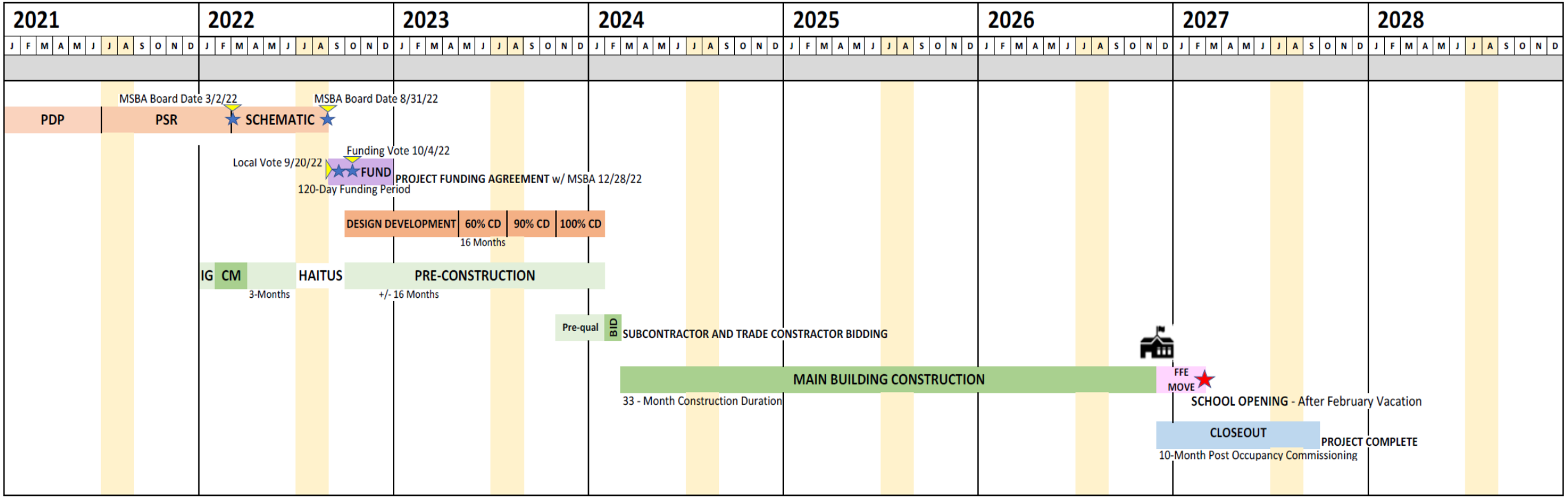
Questions & Answers

Possible Motion: That the School Building Committee vote to recommend approval of the CM at Risk construction delivery method for the John R. Pierce School, and to submit an application to the Office of the Inspector General for approval to proceed with CM at Risk.

Schedule Implications of One versus Two Bid Packages

- Abatement & Demolition and a Site Enabling Package can be a stand alone Bid Package from the Building Bid Package
- Allows for Demolition to better inform the Design, Construction Documents and Construction Logistics
- Provides Additional Time for what will be the most Complicated Phase of Construction
- Provides Additional Float or Comfort in the Schedule
- Saves 6 Months on the overall Project Schedule
- Allows for a Fall 2026 School Start
- Requires Additional 6 Months of Swing Space
- Moves Students at the Start of a School Year for 3 Full School Years versus Mid-Year to Mid-Year which would impact 4 School Years

Schedule Implications
Option 3B-H – One Bid Package



Schedule Implications
Option 3B-H – Two Bid Packages