### CHELMSFORD PUBLIC SCHOOLS

Comprehensive Facilities Assessment













### leadership team

- 60+ person architectural firm
- 20+ year history
- specialize in public work
- expertise in educational projects











the value of a master plan is...

- to understand the facility and educational needs
- to identify priority project(s)
- as a maintenance, planning,
   & communication tool







### scope of work

- Chelmsford High School
- Parker Middle School
- McCarthy Middle School
- Byam Elementary School
- Harrington Elementary School
- Center Elementary School
- South Row Elementary School



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# scope of work

### work scope o f

- Westlands Community • **Education Center**
- School Administration • Building
- 101 Mill Road Farm House •







- building envelope
- architectural
- structural
- mechanical (heat & air conditioning), electrical, plumbing, fire protection
- site/civil
- hazardous materials
- technology & communication
- security
- accessibility
- fixtures & food service equipment

### 1. Health, Safety and Welfare

- Potential Indoor Air Quality
- Poor Electrical Devices
- Structural Issues of Concern
- Life Safety Concerns
- Poor Site Circulation

### 2. Handicap Accessibility

 Accessibility to the building and site per ADA & MAAB requirements

### 3. Code Compliance

• Issues not in compliance with CURRENT Codes

### 4. Maintenance

 Deterioration of fixtures, finishes, and building systems

### 5. Energy Efficiency/ Sustainability

- Mechanical, Electrical & Plumbing
   Systems
- Building Envelope
- Daylighting

### 6. Hazardous Materials

- Materials in poor condition or that need to be abated or removed per code
- Materials that need to be abated at the time of renovation or demolition

### 7. Functional Use of Building

 Programmatic / space analysis of existing facilities done on a limited basis



- 1. Health, Safety and Welfare
  - Potential Indoor Air Quality
    - AQ test were not conducted
    - No Air Quality Issues were noted
    - Some boiler rooms lack exhaust
    - Some interior office spaces and corridors spaces lack mechanical ventilation
    - Portable air conditioning units are used in some spaces
  - Poor Electrical Devices

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- Use of extension cords
- Poor light levels in some corridors
- Emergency power will should be separated from the normal (base building power)
- Structural Issues of Concern
  - No immediate concerns noted

- Life Safety Concerns
  - Exit signs lighting & battery backup, emergency generator
  - Guard rail in Center School Attic area (Center School)
  - Sprinklers throughout the buildings
  - Fire Alarms for schools require speaker / strobes
- Poor Site Circulation
  - Not observed
  - Damaged entrance steps







### 2. Handicap Accessibility

- Accessibility to the building and site per Americans with Disabilities Act (ADA) & Massachusetts Architectural Access Board (MAAB)
- Unlike the building code, accessibility discrimination can be pursued at any time in the form of civil lawsuits
- Items that met the accessibility guidelines of the 1991 ADA guidelines and they have not been altered may be considered "safe harbor"
- However Schools and other public buildings are required to meet the minimum of access to the front entrance of the building, a toilet room, and drinking fountain.

### Trigger

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- Any building renovation must comply
  - Building renovations or upgrades of any
    type over the course of **3 years** that
    amount to more than **30%** of building's
    "Fair Value" will trigger the requirement
    for the <u>entire facility</u> to be upgraded.
    This includes access to the site, parking,
    front entrance, playground, and playfields
    be upgraded to meet the MAAB
    guidelines for accessibility



2. Handicap Accessibility



Accessible curb cuts with textured material

Toilet Room Technical Requirements



1 Texas Access, LLC

Accessible toilet room requirements





Incorrect or Non accessible curb cuts



Existing toilet rooms



<u>+ 12"</u> 1 3051

> NOTE: Y = 12" min. 305 mm) plus the wid of one tread beyond the bottom riser

Handrail Extensions

### 2. Handicap Accessibility



Handrail Shape



Door Hardware, Push / Pull Clearances

Access to Stage & Platforms

Common Access for Accessibility









### 3. Code Compliance

Issues not in compliance with **CURRENT** Codes As an occupied building constructed under former building codes the facilities are code compliant with approved occupancies.

### Triggers

<u>Seismic</u>: if renovations, additions or alterations

of an existing building exceed **50%** of the aggregate **area** of the building then **the** entire

**facility** must be upgraded to meet current seismic codes.

All buildings would require seismic upgrades to the structural systems Fire Protection: where buildings exceed **7500 sq. ft**. any addition or renovation to the building will require that the entire facility have an automatic fire suppression system or fire separation walls.

Only Center School is fully sprinklered. The High School has some fire protection upgrades. All other schools will require full sprinkler systems or fire separation walls

### 3. Code Compliance

- Kitchen receptacles need to be GFI protected.
- Kitchen ceiling tiles are not scrubable
- Elevators may need to be increased in size
- Lightning protection should be provided where it is not already included
- Art sinks require sediment traps
- Science sinks require non-potable water per code and drainage requires acid resistant pipes and directed to an acid neutralizing system













### 4. Maintenance

Deterioration of building envelop, interior fixtures, finishes, and building systems

- Buildings have received upgrades to doors, windows and roofs
- Solar panels
- Replacement of bathroom fixtures and finishes
- Conversion of the pneumatic controls to DDC
- New boilers & heat pumps













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Deterioration of building envelop, interior fixtures, finishes, and building systems



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### 5. Energy Efficiency/ Sustainability

Mechanical, Electrical & Plumbing Systems, Building Envelope, Daylighting

- Portable cooling units are used
- Kitchen hood runs at full speed
- Rebuilt pumps are nearing end of useful life
- Hot water distribution is in fair / poor condition

- Older plumbing fixtures are not water conservative fixtures
- Pods are not well insulated
- Original switchboards are in poor condition
- Several roof top venting and fan units should be replaced
- Insulation required around through wall ventilators









### 6. Hazardous Materials

Materials in poor condition or that need to be abated or removed per code Materials that need to be abated at the time of renovation or demolition

- Older flooring tiles
- Caulking in the interior brick walls
- Older pipe insulation in boiler rooms





### 7. Functional Use of the Building Programmatic / space analysis



		SCHOOL NAME SAMPLE	Health, Saftey & Welfare	Code Compliance	Functional Use of Building (Impact on Learning - below MSBA standards)	Handicap Accessibility	Extending the Life of the Building (Maintenance)	Energy Efficiency / Energy, Water Saving / Sustainability	Hazardous Materials Abatement	Costs ind GC Markups <sup>1</sup>	Design and Estimating Contingency 10%	Owners Contingency 10%	Soft Cost Alowance 20%	Estimated Cost	High	Medium Low	
1	Site 8	. Civil	1		1		1			1		1			⊢		
	1.01	Install additional handicap parking spaces				Х				\$102,698	\$10,270	\$10,270	\$20,540	\$143,777			_
	1.02	Improve site drainage		х			X			\$273,861	\$27,386	\$27,386	\$54,772	Incl Above			
2	2 Exterior Building Elements																
	2.01	Repair foundation wall (+/- 10%)					Х	Х		\$228,218	\$22,822	\$22,822	\$45,644	\$319,505			
	2.02	Repair brick stepping and cracking in several location (+/- 50%)	х	х			х	х	х	\$28,750	\$2,875	\$2,875	\$5,750	\$40,250			
	2.03	Repair drainage at basement access area way	Х	Х	Х		Х			\$5,000	\$500	\$500	\$1,000	\$7,000			
	2.04	Review source of efflorence and repair								\$274,218	\$27,422	\$27,422	\$54,844	\$383,905			
3 Interior Architectural Elements																	
	3.02	Add tile to walls in smaller bathrooms					Х			\$11,500	\$1,150	\$1,150	\$2,300	\$16,100			
	3.03	Construct appropriate rooms for special education / tutoring needs		х	х	x				\$273,861	\$27,386	\$27,386	\$54,772	\$16,100			
	3.04	Provide acoustical panels for sound absorbtion in the auditorium space			х					\$241,500	\$24,150	\$24,150	\$48,300	\$383,405			
	3.05	Replace wet walls in janitor closets through out the facility	х				х			\$18,400	\$1,840	\$1,840	\$3,680	\$25,760			1
4	Struc	tural Elements															1
	4.01	Repair skylight support system	Х							\$5,750	\$575	\$575	\$1,150	\$8,050		+	1

### District Wide Overview SCHOOL NAME

	ABRHS	RJG-JHS	Parker Damon	Douglas	Gates	Conant	Blanchard	Admin	Maintenance
	1964, 1971, 2004	1955, 1960, 2002	2001	1965	1967	1970	1949, 1959, 1967,1970, 1995	1957	1980's
Health, Safety & Welfare					•				
Code Compliance									
Functional Use									
Handicap Accessibility									
Maintenance									
Energy Efficiency									
Hazardous Materials									
	KEY 🔴 🔴 💭 🌑								





Visioning #1 – Feb 10<sup>th</sup>, 21<sup>st</sup> Century Education Facility Assessment Field Visits – Feb 15<sup>th</sup>-18<sup>th</sup> Visioning #2 – Mar 9<sup>th</sup>, Master Plan Issues School Committee Update – Mar 22nd Visioning #3 – Apr 6<sup>th</sup>, Facility Implications **April 2016 – Options Development** Spring Town Meeting – Apr 25<sup>th</sup> Visioning #4 – May 4<sup>th</sup>, Options Exploration Public Meeting – Jun 14<sup>th</sup>, Study Findings **Final Report** 

Works In Progress

### analysis summary

1) Capacity Analysis by Gross Square Footage relative to MSBA Guidelines

- 2) Capacity Analysis by Classroom Count
- 3) MSBA Comparative Analysis Room by Room
- 4) Enrollment Projections

### msba comparative analysis



# Westlands School

	Existing Enrollment	Capacity by GSF	Capacity by Classroom Count	MSBA Instructional Space Comparative Analysis – Room by Room
Byam ES	473	346	463	34% are under by 10% or more
Center ES	enter ES 430		440	35% are under by 10% or more
Harrington ES	465	346	486	37% are under by 10% or more
South Row ES	392	310	394	89% are under by 10% or more

Analysis Summary - ES

	Existing Enrollment	Capacity by GSF	Capacity by Classroom Count	MSBA Instructional Space Comparative Analysis – Room by Room
McCarthy MS	864	928	800	67% are under by 10% or more
Parker MS	717	650	572	53% are under by 10% or more
Chelmsford High School	1508	1785	1470	84% are under by 10% or more
Westlands School	132 <sup>*</sup> *Pre-K only	<b>206</b> ** **Assumes K-4	<b>330</b> ** **Assumes K-4	95% are under by 10% or more

Analysis Summary

enrollment analysis



### **Grade Grouping Projections**

Data from NESDEC, Jan 2016

PK-12 Projection

## visioning outcomes

### Key Issues & Considerations

- Grade Configuration
- The Westlands School
- Full-day Kindergarten
- Traffic implications
- Neighborhood Schools
- Extended school year and day
- Class Size
- Parity across schools
- Parking and Site Circulation
- Accessibility
- Specialty spaces/ spaces for specialists/ address spaces that are shared by special education functions

- In-district special education program growth
- Thermal Comfort
- Building Systems: Electric/ HVAC/ Plumbing/ Kitchen
- Storage needs
- Administrative space/ district offices
- Athletic facilities
- Full-day/ ½ day pre-K
- ASD program space at the middle school and high school
- ELL program space

### 21<sup>st</sup> Century Trends Presentation

- 1. What questions do you have about the educational trends?
- 2. What, if anything, from the presentation sparked excitement?
- 3. Describe some advantages/ disadvantages of:
  - a) Student collaboration
  - b) Experiential/ hands-on learning
- 4. How might these student experiences manifest themselves in Chelmsford?
- No clear consensus...some interest, some hesitation

- Repeated Themes Include:
  - Flexible Spaces Needed
  - More variety in instructional environments...more than just classrooms
  - Professional Development Needed
  - Keeping up with Technology is a challenge
  - Special Education
  - Remember Pre-K
  - Cost Associated with Change?

### Key Master Plan Issues

- 1. Full Day Kindergarten
- 2. Location of Pre-Kindergarten
- 3. Grade Configuration
- 4. School Size
- 5. School Count
- 6. Neighborhood Schools

### **Repeated Themes Include:**

- Full-Day Kindergarten more advantages than disadvantages
- While neighborhood schools exist and PTOs are strong, if compelling reason exists, okay to consider other organization
- Consensus around considering Early Childhood or Early Elementary model
- Generally willing to consider alternative grade configurations
- Strong desire for parity at MS's

- 1. Instruction in Temporary Construction
- 2. Missing and/or Inappropriate spaces 10. Grade re-configuration may:
- South Row Most Overcrowded ES 3
- 4. Parker MS Overcrowded
- McCarthy Undercrowded 5.
- High School Undercrowded 6.
- 7. Westlands School to K-4 would increase ES capacity but would displace Pre-K and all Community Ed programs
- 8. Enrollment expected to swing back up over next decade

- 9. Interest in more variety and flexibility of instructional space
- - a) Allow Pre-K to exist as part of an elementary school
  - b) Relieve overcrowding at Parker MS.
  - 11. Most instructional spaces within District are more than 10% undersized relative to MSBA guidelines

