APPENDIX

TOWN OF BELMONT HIGH SCHOOL

MODULE 3: PREFERRED SCHEMATIC REPORT REVISION #1

SUBMISSION DATE: FEBRUARY 16, 2018

REV.1 SUBMISSION DATE: APRIL 12, 2018

PERKINS+WILL

APPENDIX

APPENDIX

A. GRADE CONFIGURATION PRESENTATION

Belmont Public Schools
District Configuration Presentation and Discussion

1

SCHOOL COMMITTEE
DECEMBER 12, 2017

AGENDA

2

- Context of BHSBC and BPS Work
- Purpose of meeting
- Context of Building Project and Configuration Options
- Summary of District and Community Visioning Work
- Discussion of Pros and Cons of Configuration Options

A. GRADE CONFIGURATION PRESENTATION

Context

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- The School Committee working in partnership with the Belmont High School Building Committee (BHSBC) will make the decision on the choice of three grade configurations for the MSBA project.
- The MSBA approved options are:
  - 9-12
  - 8-12
  - 7-12

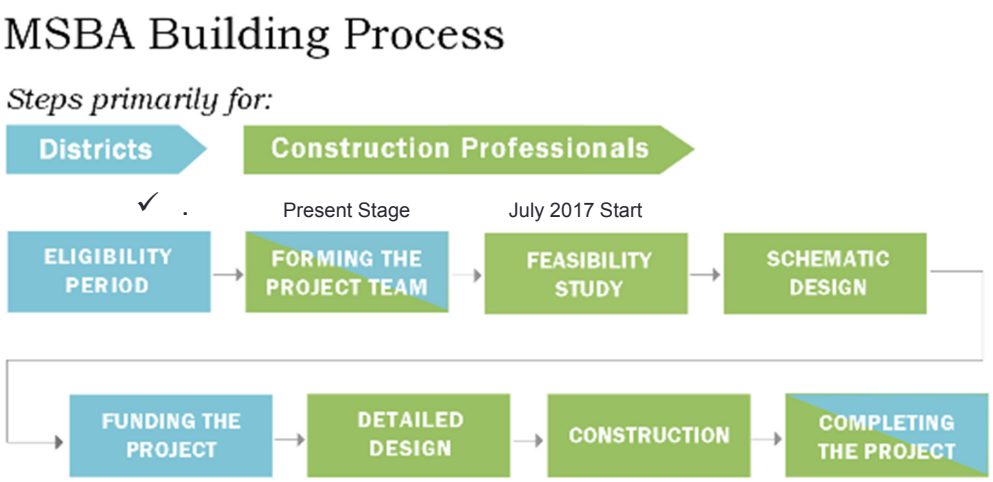
Context

4

- The BHSBC project could directly impact the grouping of grades 7-12 pending the final option chosen
- AND will ***indirectly*** impact the groupings for grades Pre K – 6.

5

MSBA Building Process



BHSBC/ MSBA: Grade Configurations

MSBA Configuration Options	Elementary	Middle School	Notes
9-12 *	❑K-4	❑5-8	MS and Elementary enrollment / space issues not addressed.
8-12 * 8/9…10-12 8… 9-12	❑K-4	✓5-7	HS and MS levels would have space – Elementary level issues not addressed.
7-12 * 7/8…9-12 7-9 … 10-12	✓K-3	✓4-6	All levels would be provided space to accommodate increased enrollment.
* MSBA / BHSBC	❑Space Issues Still to be Resolved by Town		

A. GRADE CONFIGURATION PRESENTATION

Context

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- Each MSBA option is connected to the corresponding options with the remaining grades in our district.
- There has been discussion not only about what the choice of grade configurations will be for the BHSBC project;
- And what the corresponding configuration options remain.

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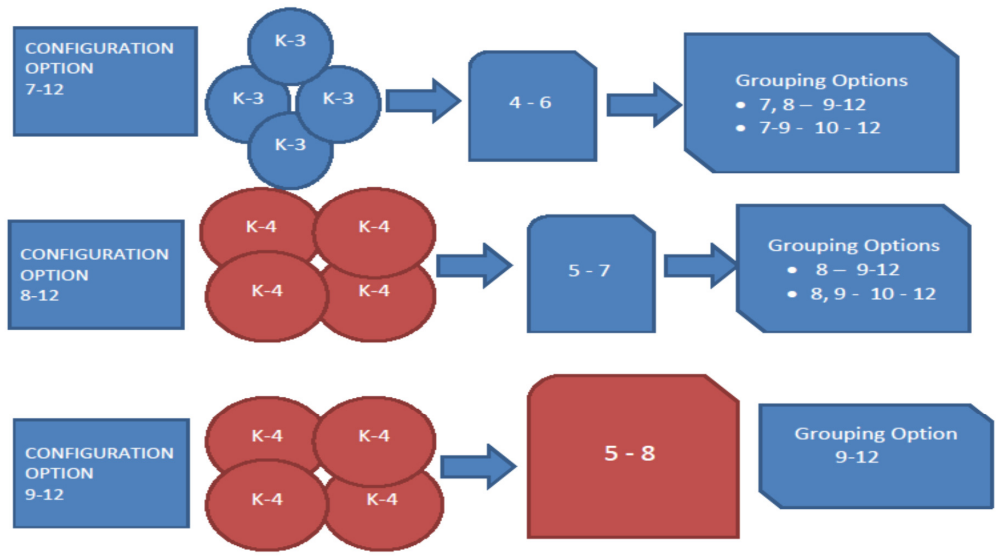
Belmont Public Schools Configurations Flow Chart



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A. GRADE CONFIGURATION PRESENTATION

Purpose of Process

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- To inform the School Committee and Belmont Community of the pros and cons of the configuration options in preparation for a School Committee decision on January 23, 2018.

Grades by developmental grouping

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- At what ages and grades do students have more in common?
  - Do 8th graders have more in common with 9th graders?
  - Do 9th graders have more in common with 10th graders?
  - Do 5th graders have more in common with 4th graders?

K 1 2 3 4 5 6 7 8 9 10 11 12

A. GRADE CONFIGURATION PRESENTATION

Belmont Public Schools Visioning Work

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December 19, 2016 and January 4, 2017 - Two days of Educator Planning

(20 BPS Educators)

April 3, 2017 - One day of Educator Visioning

(31 BPS Educators)

May 4-5, 2017 - Two days of Community Members, Students and Educator Visioning

(44 students, educators and parents)

September 2017 – Two days of Vision with Community

(68 students, educators and parents)

Grade Configuration Preferences

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- Visioning Workshop, May 4-5
  - 7-12 → 26 votes
  - 8-12 → 4 votes
  - 9-12 → 0 votes
  - *3 abstentions*
- Visioning Workshop, September 19-20
  - 7-12 → 58 votes
  - 8-12 → 2 votes
  - 9-12 → 6 votes
- Leadership Council, November 9
  - 7-12 → 20 votes
  - 8-12 → 1 vote
  - 9-12 → 0 votes

APPENDIX

A. GRADE CONFIGURATION PRESENTATION

Summary of Pros and Cons – Option 1
K-4, 5-8, 9-12

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Pros:

- Maintains our current grade configurations for all schools, and no teachers have to move to a different school.
- Systems and structures in place at each school do not need to change.
- There is potential to create a different structure/experience for 9th graders (e.g., 9th grade academy) within the traditional high school grade configuration.
- With limited/few changes at other grade levels, we can keep our focus on teaching and learning.

Cons:

- Does not address the enrollment issues for the elementary schools or the middle school.
- Some students face challenges as they transition 8th→9th grade; this option does not provide an opportunity to address this transition through the construction of a new building.

Summary of Pros and Cons – Option 2
K-4, 5-7, 8-12 (8, 9-12)

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Pros:

- Removes one grade from Chenery, relieving the enrollment issues there.
- Transition challenges from 8th to 9th grade could be addressed by gradually releasing them to more independence and autonomy.
- Maintains teaching model for grades 5-7.
- Does not change K-4 schools/structures.
- 8th grade students would have opportunities to participate in different activities.

Cons:

- Does not address the enrollment issues for the elementary schools.
- Has 8th grade on its own, separate from other grades.
- Concerns regarding influence of older students on 8th graders.
- Adds a 4th transition for students, K-12.
- Requires some middle school teachers to move to a new building.

Summary of Pros and Cons – Option 3

K-4, 5-7, 8-12 (8-9, 10-12)

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Pros:

- Removes one grade from Chenery, relieving the enrollment issues there.
- Less disruption to Chenery (taking out one grade and not adding 4th grade).
- Maintains teaching model for grades 5-7.
- Does not change K-4 schools/structures.
- Allows the opportunity to create an "academy" combining 8th and 9th grade, providing more support to 9th grade students and gradually giving more autonomy to 8th grade students.

Cons:

- Does not address the enrollment issues for the elementary schools.
- Concern that this grade grouping is not beneficial for 8th or 9th graders
- Adds a 4th transition for students, K-12.
- Requires some middle school teachers to move to a new building.
- Would require high school teachers of multiple grades (9 and 10, 11, 12) to move between sections of the building or teach only 9th grade.

Summary of Pros and Cons – Option 4

K-3, 4-6, 7-12 (7-8, 9-12)

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Pros:

- Addresses enrollment issues at all levels (elementary, middle, high).
- Allows for a K-3 (primary) and 4-6 (elementary) model.
- Preserves current model for grades 7-8 (teams) and 9-12.
- Provides multiple opportunities for students to have leadership roles as the oldest in the school (grade 3, grade 6, grade 8, grade 12).
- Grouping grades 4-6 is more developmentally appropriate than grouping grades 5-8.
- Allows for continuity of curriculum and collaboration among teachers 7-12.

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A. GRADE CONFIGURATION PRESENTATION

Summary of Pros and Cons – Option 4

K-3, 4-6, 7-12 (7-8, 9-12)

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Cons:

- Adds a 4th transition for students, K-12.
- Requires more middle school teachers to move to a new building.
- Requires 4th grade teachers to move to a new building.
- May require more staff to travel between buildings.
- May make curriculum continuity 5-12 more challenging.
- Does not provide additional support to 9th grade students.
- Concern about having younger students (grades 7-8) on campus with high school students.
- Concern about moving 4th grade out of neighborhood schools to larger school.

Summary of Pros and Cons – Option 5

K-3, 4-6, 7-12 (7-9, 10-12)

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Pros:

- Addresses enrollment issues at all levels (elementary, middle, high).
- Allows for a K-3 (primary) and 4-6 (elementary) model.
- Provides multiple opportunities for students to have leadership roles as the oldest in the school (grade 3, grade 6, grade 8, grade 12).
- Grouping grades 4-6 is more developmentally appropriate than grouping grades 5-8.
- Allows for continuity of curriculum and collaboration among teachers 7-12.
- Provides additional support for 9th grade students – ready for more autonomy in grades 10-12.
- Provides the opportunity for some changes to college prep/honors "tracking" for 9th graders.
- Creates two smaller schools under one roof (lower school - grades 7,8,9; upper school - grades 10,11,12).

Summary of Pros and Cons – Option 5
K-3, 4-6, 7-12 (7-9, 10-12)

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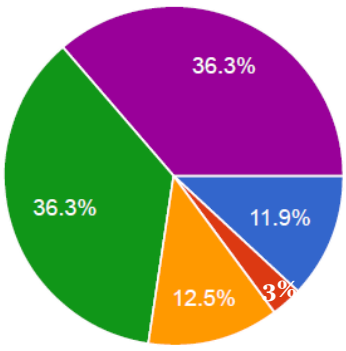
Cons:

- Adds a 4th transition for students, K-12.
- Requires more middle school teachers to move to a new building.
- Requires 4th grade teachers to move to a new building.
- May require more staff to travel between buildings.
- Will need to ensure grade 4 RtI structure remains (and extends to grades 5 and 6).
- May make curriculum continuity 5-12 more challenging.
- Will need to make sure the impact of this grade grouping is positive for 9th graders (not lowering expectations or eliminating some of their experiences).
- Would require high school teachers of multiple grades (9 and 10, 11, 12) to move between sections of the building or teach only 9th grade.

Educator Survey Results on Preferred Choice
168 Responses

20



- Option 1: K-4 – 5-8 – 9-12
- Option 2: K-4 – 5-7 – 8-12 (grade 8 in one section of the building, grades 9-12 in another)
- Option 3: K-4 – 5-7 – 8-12 (grades 8-9 in one section of the building, grades 10-12 in another)
- Option 4: K-3 – 4-6 – 7-12 (grades 7-8 in one section of the building, grades 9-12 in another)
- Option 5: K-3 – 4-6 – 7-12 (grades 7-9 in one section of the building, grades 10-12 in another)

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A. GRADE CONFIGURATION PRESENTATION

Survey Results, disaggregated

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	District	Elementary School	Middle School	High School	Total
Option 1 K-4, 5-8, 9-12	4	5	3	8	21
Option 2 K-4, 5-7, 8-12 (8 and 9-12)		5			5
Option 3 K-4, 5-7, 8-12 (8-9 and 10-12)		8	7	6	21
Option 4 K-3, 4-6, 7-12 (7-8, 9-12)	2	19	15	25	61
Option 5 K-3, 4-6, 7-12 (7-9, 10-12)	8	19	20	14	61

Grades
Totality of Options

22

Now what do you think given the totality of the project and the students we serve?

K 1 2 3 4 5 6 7 8 9 10 11 12

A. GRADE CONFIGURATION PRESENTATION

Grade Grouping Discussion

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- How are your grade groupings the same (before and after the presentation of pros and cons)?
- How are they different?
- What impacted your thinking?

Grade-Span Configurations
District Administration, March 2005

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"Effective programs and practices, not grade configurations, determine the quality of schools." Wayne Seller's recent review of the literature suggests that making wise decisions about grade configuration means "finding a balance between the needs of the students, the needs of the school system, and the expectations of the community." *National Middle School Association*

A study by John Alspaugh also found that as the number of transitions increased, "there was an associated increase in the high school dropout rates."

Student achievement is, of course, only one factor districts must consider in making decisions about school configurations. Fiscal constraints, projected enrollments, political tensions, school size, school and community goals, and geographic realities also come into play.

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A. GRADE CONFIGURATION PRESENTATION

Grade Configuration: What the Research Says

Education Partnerships, Inc., February 2012

25

Grade configuration is not a predictor of student academic success (McKenzie et al., 2006).

Middle grades students located in the same building or on the same campus as high school students had greater access to specialized teachers and more opportunities for advanced classes (Wren, 2003).

More grade levels per building (i.e. fewer transitions to new schools) is related to higher achievement and improved behavior regardless of SES (Offenberg, 2001; Wren, 2003)

When 7th and 8th graders are part of a K-8 school some studies found more individualized student attention and more personal student-teacher relationships (Weis & Kipnes, 2006).

When middle grades students remain in an elementary setting there are fewer discipline problems (Cook, MacCoun, Muschkin & Vigdor, 2007).

How (and How Much) Do Schools Matter?

Society for Research on Educational Effectiveness, Spring 2015 Conference

26

Given early adolescence as a potentially disruptive period in development and school transitions as a time of inherent potential for the promotion of academic achievement, it is critical to identify the school structures and processes that maximize positive outcomes for youth.

Importantly, once student and school characteristics are considered, school grade configuration does not significantly contribute to students' academic achievement trajectories before or after the middle grade school transition. This finding supports developmental mismatch theory (Eccles et al., 1989) and systems theories of social settings (Tseng & Seidman, 2007) in suggesting that it may be the attributes of the school context – rather than the presence of a school transition – that places youth at risk during the middle grade years. These results illuminate the need to attend to school composition and climate in policies and practices designed to improve academic achievement.

A. GRADE CONFIGURATION PRESENTATION

Next Meeting on Configurations

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- When - January 9, 2018 at 7:00pm
- Where – Belmont High School Auditorium
- What - The School Committee will host a Community Forum on the topic of District Configuration.
- Why – To seek community feedback and to have the school department provide additional information on the corresponding space options for the lower grades as supported through our work with SMMA.

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A. GRADE CONFIGURATION PRESENTATION

SMMA

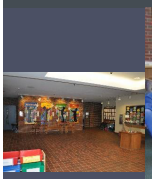
January 9th, 2018

School Committee Presentation

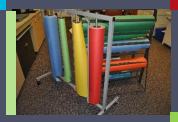
Belmont Public Schools

Grade Configuration Study

Interim Report







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Context

2

The charge of this study is to identify short & long term options for Belmont Public Schools elementary and middle years in the context of the ongoing high school study. Three grade configuration options are being considered for the high school:

- 9 - 12
- 8 - 12
- 7 - 12

How can the elementary and middle schools best serve the students and community to complement the secondary grade configurations?

A. GRADE CONFIGURATION PRESENTATION

Assumptions

3

- **Anticipated Design Enrollment –** 360 students / grade level = 3,240 students K-8 + PreK
- **Modular classrooms** are seen as short term solutions and are not included in building capacity numbers
- All schools contain appropriate learning environments for **art, music and physical education**
- All schools contain appropriate learning environments for **Special Education** including pull out and support spaces
- All schools contain appropriate learning environments are provided for **English Learners** (EL's) including pull out and support spaces
- Classroom **capacities** may vary based on room sizes
- To the extent possible, a **maker / innovation** lab space will be provided in elementary schools
- **LABBB** Collaborative spaces will remain, with anticipated continued population growth
- **Community** rooms at Chenery and Wellington will remain

Capacity Analysis

4

Based upon prior assumptions, goals for right sizing schools and optimizing class size the following analysis per school determined the ideal capacity for each building as it currently exists (no modular classrooms and no additions assumed).

- **Right Sizing of Schools** is set as a goal for the long-term of Belmont Public Schools. The term "right sizing" of schools is used to describe matching the number of classrooms and resulting student capacities with the capacity of the core spaces and non-core academic spaces, such as: Gym, cafeteria, library, music and art, as well as properly provide for special education EL and other student service needs. Right sizing may have slightly different implications at each school.

- **Class Sizes Guidelines**

Grade	Belmont Class Size Guidelines	MSBA Class Size Guidelines
K	18-22	18
1	19-23	23
2	19-23	23
3	20-24	23
4	20-24	23

APPENDIX

A. GRADE CONFIGURATION PRESENTATION

Capacity Analysis

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	Grades	Nov. 1,2017 Enrollment	Right Sized Capacity	Delta	GSF Size	Opened	Additions/Renovation
Burbank	K-4	374	267	107	85,107	1931	1989
Butler	K-4	388	277	111	57,300	1900	1920, 1930, 1979
Winn Brook	K-4	490	417	73	103,263	1934	1941, 1947, 1989
Wellington	PreK-4	626	531	95	88,000	2011	
Chenery	5-8	1,422	1,104	318	182,000	1997	
Totals		3,300	2,596	704			

Impact of Possible High School Grade Configurations

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Option 1 - New High School 9-12; Middle and Elementary schools need additions

PreK	K	1	2	3	4	5	6	7	8	9	10	11	12

Option 2 & 3 - New High School 8-12, Chenery becomes grades 5-7, Elementary K-4's need additions

PreK	K	1	2	3	4	5	6	7	8	9	10	11	12

Option 4 & 5 - New High School 7-12, Chenery becomes grades 4-6, Elementary K-3's are right sized

PreK	K	1	2	3	4	5	6	7	8	9	10	11	12

Option 6 - New High School 9-12; Chenery becomes grades 6-8; Construct a new Elementary School and adjust ES grades

PreK	K	1	2	3	4	5	6	7	8	9	10	11	12

A. GRADE CONFIGURATION PRESENTATION

Options and Cost Impact of Possible High School Grade Configurations: 9-12 Configuration – Option #1

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- Right size / Reno only = minor reconfiguration for program + general renovation due to age and building condition
- Right size + additions = the above + building addition for increased capacity
- Order of Magnitude Cost ranges provided for comparison between options

Option 1 - New High School 9-12; Middle and Elementary schools need additions

	SF	Project Cost Range	
Burbank - Right size /Comprehensive Reno	85,107	$10 - $13M	Total Burbank
addition (say 10,000 sf)	10,000	$5 - $6M	$15 - $19M
Butler - Right size /Comprehensive Reno	57,300	$7 - $8.5M	Total Butler
addition (say 12,000)	12,000	$6.5 - $7M	$13.5 - $15.5M
Wellington - Right size only	103,263	$0	Total Wellington $0
Winn Brook - Right size /Comprehensive Reno only	88,000	$11 - $13M	Total Winn Brook $11 - $13M
Chenery - Right size /Light Reno	182,000	$3.5 - $7M	Total Chenery
addition (say 20,000)	20,000	$11 - $11.5M	$14.5 - $18.5M
Elementary & Middle School Total		$54 - $66M	$54 - $66M

Options and Cost Impact of Possible High School Grade Configurations: 8-12 Configuration – Option # 2 & 3

8

Option 2 & 3 - New High School 8-12, Chenery becomes grades 5-7, Elementary K-4's need additions:

Option 2/3 (A) additions at Burbank & Butler only

	SF	Project Cost	
Burbank - Right size /Comprehensive Reno	85,107	$10 - $13M	Total Burbank
addition (say 10,000 sf)	10,000	$5 - $6M	$15 - $19M
Butler - Right size /Comprehensive Reno	57,300	$7 - $8.5M	Total Butler
addition (say 12,000)	12,000	$6.5 - $7M	$13.5 - $15.5M
Wellington - Right size only	103,263	$0	Total Wellington $0
Winn Brook - Right size /Comprehensive Reno only	88,000	$11 - $13M	Total Winn Brook $11 - $13M
Chenery - Right size only	182,000	$0	Total Chenery $0
Elementary & Middle School Total		$39.5 - $47.5M	$39.5 - $47.5M

APPENDIX

A. GRADE CONFIGURATION PRESENTATION

Options and Cost Impact of Possible High School Grade Configurations: 8-12 Configuration – Option # 2 & 3 (cont.)

9

Option 2 & 3 - New High School 8-12, Chenery becomes grades 5-7, Elementary K-4's need additions:

Option 2/3 (B) addition at Winn Brook only

	SF	Project Cost	
Burbank - Right size / Comprehensive Reno only	85,107	$10 - $13M	Total Burbank $10 - $13M
Butler - Right size / Comprehensive Reno only	57,300	$7 - $8.5M	Total Butler $7 - $8.5M
Wellington - Right size only	103,263	$0	Total Wellington $0
Winn Brook - Right size / Comprehensive Reno addition (say 24,000 sf)	88,000 24,000	$11 - $13M $13 - $14M	Total Winn Brook $24 - $27M
Chenery - Right size only	182,000	$0	Total Chenery $0
Elementary & Middle School Total		$41 - $48.5M	$41 - $48.5M

Options and Cost Impact of Possible High School Grade Configurations: 7-12 Configuration – Option # 4 & 5

10

Option 4 & 5 - New High School 7-12, Chenery becomes grades 4-6, Elementary K-3's are right sized - Option 4/5

	SF	Project Cost	
Burbank - Right size /Moderate Reno	85,107	$5.5 - $7M	Total Burbank $5.5 - $7M
Butler - Right size /Moderate Reno only	57,300	$3.5 - $4.5M	Total Butler $3.5 - $4.5M
Wellington - Right size only	103,263	$0	Total Wellington $0
Winn Brook - Right size /Moderate Reno only	88,000	$5.5 - $7M	Total Winn Brook $5.5 - $7M
Chenery - Right size /Light Reno only	182,000	$3.5 - $7M	Total Chenery $3.5 - $7M
Elementary & Middle School Total		$18 - $25.5M	$18 - $25.5M

A. GRADE CONFIGURATION PRESENTATION

Options and Cost Impact of Possible High School Grade Configurations: 9-12 Configuration – Additional Option

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Option 6 - New High School 9-12; Chenery becomes grades 6-8; Construct a new Elementary School

	SF	Project Cost	
Burbank - Right size /Moderate Reno only	85,107	$5.5 - $7M	Total Burbank $5.5 - $7M
Butler - Right size / Moderate Reno only	57,300	$3.5 - $4.5M	Total Butler $3.5 - $4.5M
Wellington - Right size only	103,263	$0	Total Wellington $0
Winn Brook - Right size / Moderate Reno only	88,000	$5.5 - $7M	Total Winn Brook $5.5 - $7M
Chenery - Right size only	182,000	$0	Total Chenery $0
New 5th Elementary School	98,000	$54 - $57M	Total 5th Elem. $54 - $57M
Elementary & Middle School Total		$68.5 - $75.5M	$68.5 - $75.5M

Chenery amount revised from 1/9/18 presentation of $3.5-$7M to $0

Revised total of $68.5 - $75.5M reflects revised amount for Chenery

Summary of Potential K-8 Costs for Right- Sizing Schools

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Option 1 - New High School 9-12; Middle and Elementary schools need additions
Elementary & Middle School Total $54 - $66M

Option 2 & 3 - New High School 8-12, Chenery becomes grades 5-7, Elementary K-4's need additions
A) Elementary & Middle School Total $39.5 - $47.5M

B) Elementary & Middle School Total $41 - $48.5M

Option 4 & 5 - New High School 7-12, Chenery becomes grades 4-6, Elementary K-3's are right sized
Elementary & Middle School Total $18 - $25.5M

Option 6 - New High School 9-12; Chenery becomes grades 6-8; Construct a new Elementary School
Elementary & Middle School Total $68.5 - $75.5M

Includes revised amount for Chenery from 1/9/18 presentation from $3.5-$7M to $0.

APPENDIX

B. STEERING GROUP MEETING

Daedalus Projects, Incorporated
1 Faneuil Hall Marketplace | Boston, MA | 02109
(p) 617.451.2717 | (f) 617.451.2679
www.daedalusprojects.com

MEETING MINUTES

Project:	Belmont High School Belmont, MA	**Meeting Date:**	December 19, 2017
Time:	1:00 PM	**Meeting Location:**	Town Hall
Meeting:	Steering PSR 1	**Report by:**	Tom Gatzunis
Attending:	Thomas Gatzunis, DPI Shane Nolan, DPI William Lovallo, BHSBC Pat Brusch, BHSBC John Phelan, School Superintendent Phyllis Marshal, Int. Town Manager	Brooke Trivas, P+W Richard Kuhn, P+W Jeffrey Wheeler, T o B Spencer Gober, T o B	

Item		Action
1.1	**Meeting Called to order** The Meeting was called to order at 1:00pm.	
1.2	**Meeting Minutes** P+W will take notes at Town Department meetings and working meeting. DPI will take notes at operational and scheduling meetings.	
1.3	**Meeting List Summary** a review of the upcoming meetings was discussed. (copy attached) PSR Summary and Topics Outreach for the Sustainability meeting on 12-7 and Traffic on 1-11 was discussed. Design Workshop 12-14 HS and MS teachers meeting 12-12 and mid-January	WL to establish snow dates and locations for meetings listed, Cindy Papa and PM to assist. JP and WL will work with Public Relations members to get the word out for Sustainability, Traffic and Design Mtgs. BT to work with JP and WL and Dan Richards for teacher's workshop. Conference call will be set up.
1.4	**PDP** 3.1.2, 3.1.3, 3.1.6	JP will continue to review and update Education Plan and Variance Document. P+W will finalize document and send 1 hard copy to DPI on 12/8. P=W will send Final Copies to DPI on 12/13. DPI will deliver to MSBA.

B. STEERING GROUP MEETING

		12/19 PDP Submitted Preliminary comments received from MSBA. See note 1.9 below
1.5	**Tasks** Permitting Field House Demo State Legislator's Review	WL waiting for response from Jeffrey Wheeler. A meeting will be set with Jeffrey and Chuck after the PSR is submitted. **12/19** JW and SG attended the meeting, SG will draft a letter for the HDC to sign regarding the High School building and White Field House. JW will review department files and draft a letter using similar language from the CMS for MSBA review. WL will contact Spencer to schedule a meeting. WL will contact Legislators – PM will set up the call.
1.7	**Costs** Reimbursement Factor Timing on Financing Ineligible costs	WL asked DPI to review reimbursement factors and make presentation to BHSBC after the new rates are set WL, PB and PM to review Financing timing WL asked DPI to provide a summary and description of illegible costs.
1.8	**Next Meeting**	12/19 @1:00PM
1.9	**MSBA preliminary review 12/15/2017**	BT reviewed the responses she had prepared (mostly directing MSBA to locations where requested documents can be found) JP to draft responses regarding education program and send to DPI and P+W for complete response.
1.10	**Content and deliverables for PSR (review section 3.3)**	BT distributed a draft work plan. She will insert correct dates and distribute to all
1.11	**Future meetings/workshops with teachers (HS and MS)**	WL, JP, and BT will meet with CMS teachers on 1/8
1.12	**Planning Board engagement**	JW and WL to meet with planning board chair to review PSR options

1.13	**Ice rink discussion**	WL will meet with the chair prior to 1/9 meeting
1.14	**Discussion with Floyd**	NOT CLEAR ON ACTION ITEM HERE
1.15	**Channing Road connector**	After discussion it was determined that Alexander Avenue connector would be accommodated on all design options. It would not be included in the High School Plans due to timing and funding constraints.
1.16	**Preparation for representatives meeting**	WL and PM will meet with Senator and Representative to review plans and gather their comments.
1.17	**Comments from Design Workshops (Community and teachers)**	P+W will incorporate comments from meetings and workshops into design documents as appropriate.
1.18	**CONSULTANT MEETING: Determine a date for a Consultant meeting to review Building Systems to be outlined in PSR**	How was this left it was not clear to me what the final decision was
1.19	**NET ZERO : Direction on Net Zero – Review Proposal from AKF to engage in the early phases of Design.**	All options will need baselines with up-front costs and life cycle costs. The Building committee will review this information and proceed accordingly. P+W will prepare an analysis of the pros and cons of CHPs vs LEED for the Building Committee to review
9	**New Business** 1. 2. 3.	

B. STEERING GROUP MEETING

Daedalus Projects, Incorporated
1 Faneuil Hall Marketplace | Boston, MA | 02109
(p) 617.451.2717 | (f) 617.451.2679
www.daedalusprojects.com

MEETING MINUTES

Project:	Belmont High School Belmont, MA	**Meeting Date:**	January 2,2018
Time:	1:00 PM	**Meeting Location:**	Town Hall
Meeting:	Steering PSR 2	**Report by:**	Tom Gatzunis
Attending:	Thomas Gatzunis, DPI Shane Nolan, DPI William Lovallo, BHSBC Pat Brusch, BHSBC John Phelan, School Superintendent Phyllis Marshal, Int. Town Manager	Brooke Trivas, P+W Patrick Cunningham, P+W Floyd Carman, T o B	

Item		Action
1.1	**Meeting Called to order** The Meeting was called to order at 1:00pm.	
1.3	**Meeting List Summary** a review of the upcoming meetings was discussed. (copy attached) PSR Summary and Topics Outreach for the Sustainability meeting on 12-7 and Traffic on 1-11 was discussed. Design Workshop 12-14 HS and MS teachers meeting 12-12 and mid-January	WL to establish snow dates and locations for meetings listed, Cindy Papa and PM to assist. JP and WL will work with Public Relations members to get the word out for Sustainability, Traffic and Design Mtgs. BT to work with JP and WL and Dan Richards for teacher's workshop. Conference call will be set up. **1/2/2018** Next meeting will review Traffic and Sustainability/Building Systems. Building Committee meeting 1/11/2018 @ WES. P+W will need to provide "No Build" traffic Baseline
1.4	**PDP** 3.1.2, 3.1.3, 3.1.6	JP will continue to review and update Education Plan and Variance Document. P+W will finalize document and send 1 hard copy to DPI on 12/8. P+W will send Final Copies to DPI

		on 12/13. DPI will deliver to MSBA. **12/19** PDP Submitted Preliminary comments received from MSBA. See note 1.9 below
1.5	**Tasks** Permitting Field House Demo State Legislator's Review	WL waiting for response from Jeffrey Wheeler. A meeting will be set with Jeffrey and Chuck after the PSR is submitted. **1/2/2018** WL will follow up with PM **12/19** JW and SG attended the meeting, SG will draft a letter for the HDC to sign regarding the High School building and White Field House. JW will review department files and draft a letter using similar language from the CMS for MSBA review. WL will contact Spencer to schedule a meeting. **1/2/2018** Meeting Scheduled for 1/5/2018 WL will contact Legislators – PM will set up the call.
1.7	**Costs** Reimbursement Factor Timing on Financing Ineligible costs	WL asked DPI to review reimbursement factors and make presentation to BHSBC after the new rates are set WL, PB and PM to review Financing timing WL asked DPI to provide a summary and description of illegible costs.
1.8	**Next Meeting**	01/09 @1:00PM
1.9	**MSBA preliminary review 12/15/2017**	BT reviewed the responses she had prepared (mostly directing MSBA to locations where requested documents can be found) JP to draft responses regarding education program and send to DPI and P+W for complete response. **1/2/2018** SN sent responses to preliminary comments back to MSBA

B. STEERING GROUP MEETING

1.10	**Content and deliverables for PSR (review section 3.3)**	BT distributed a draft work plan. She will insert correct dates and distribute to all **1/2/2018** BT to update work plan dates and distribute to all. ½ size drawings are not a requirement. Town Council review is not required. BT to provide examples of operational cost templates that they have used for other projects. The Facilities Subcommittee of the MSBA will meet on 3/14 or 3/21 (they will give us the date after the PSR is submitted) MSBA Board meeting is 4/10/2018
1.11	**Future meetings/workshops with teachers (HS and MS)**	WL, JP, and BT will meet with CMS teachers on 1/8
1.12	**Planning Board engagement**	JW and WL to meet with planning board chair to review PSR options **1/2/2018** PM to assist in getting this scheduled
1.13	**Ice rink discussion**	WL will meet with the chair prior to 1/9 meeting **1/2/2018** meeting scheduled for 1/11/2018
1.14	**Discussion with Floyd**	Floyd will attend the 1-2 meeting at 1:00 to discuss funding the project and to prepare for a full Committee presentation on 1-16 **1/2/2018** FC will attend the Building Committee meeting on 1/16 to discuss funding. FC stressed the need for an accurate construction estimate. Especially the top-end amount.
1.15	**Channing Road connector**	After discussion it was determined that Alexander Avenue connector would be accommodated on all design options. It would not be included in the High School Plans due to timing and funding constraints.
1.16	**Preparation for representatives meeting**	WL and PM will meet with Senator and Representative to

		review plans and gather their comments. **1/2/2018** Meeting Scheduled for 1/12/2018
1.18	**CONSULTANT MEETING: Determine a date for a Consultant meeting to review Building Systems to be outlined in PSR**	The consultant meeting needs to be scheduled following the 1-23 Committee meeting, at that meeting once the program decisions are made P+W shall present the pros and cons of CHP's verses LEED for the Committee to decide, then discussion will follow on forming a sustainability subcommittee to engage in reviewing all issues associated with ZNE **1/2/2018** Traffic consultants to attend 1/9/2108
1.19	**NET ZERO: Direction on Net Zero – Review Proposal from AKF to engage in the early phases of Design**.	All options will need baselines with up-front costs and life cycle costs. The Building committee will review this information and proceed accordingly. P+W will prepare an analysis of the pros and cons of CHPs vs LEED for the Building Committee to review **1/2/2018** A preliminary discussion will take place on 1/9 a more detailed discussion on LEED vs CHPs will take place with the Building Committee on 1/16 this will include a mechanical systems overview.
2.1	**149 vs 149A Construction Methods**	WL reviewed the issues and cost implications of the two processes. This will be a Building Committee agenda item.
2.2	**School District Buildings Review**	JP reported that he expects to have the analysis on the other schools in the district from SMMA on 1/3. He will circulate them upon receipt. This will have overall cost implications to the district depending on which High School option is chosen.
	New Business 1.	

B. STEERING GROUP MEETING

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MEETING MINUTES

Project:	Belmont High School Belmont, MA	**Meeting Date:**	January 9,2018
Time:	1:00 PM	**Meeting Location:**	Town Hall
Meeting:	Steering PSR 3	**Report by:**	Tom Gatzunis
Attending:	Thomas Gatzunis, DPI Shane Nolan, DPI William Lovallo, BHSBC Pat Brusch, BHSBC John Phelan, School Superintendent	Brooke Trivas, P+W Patrick Cunningham, P+W Rick Kuhn P+W Glenn Clancy ToB Chief Frizzell ToB Asst. Chief Healey ToB Asst. Chief Macissac Capt. Hoerr	
Absent	Phyllis Marshal, Int. Town Administrator		

Item		Action
1.1	**Meeting Called to order** The Meeting was called to order at 1:00pm.	
1.3	**Meeting List Summary** a review of the upcoming meetings was discussed. (copy attached) PSR Summary and Topics Outreach for the Sustainability meeting on 12-7 and Traffic on 1-11 was discussed. Design Workshop 12-14 HS and MS teachers meeting 12-12 and mid-January	WL to establish snow dates and locations for meetings listed, Cindy Papa and PM to assist. JP and WL will work with Public Relations members to get the word out for Sustainability, Traffic and Design Mtgs. BT to work with JP and WL and Dan Richards for teacher's workshop. Conference call will be set up. **1/2/2018** Next meeting will review Traffic and Sustainability/Building Systems. Building Committee meeting 1/11/2018 @ WES. P+W will need to provide "No Build" traffic Baseline

1.4	**PDP** 3.1.2, 3.1.3, 3.1.6	JP will continue to review and update Education Plan and Variance Document. P+W will finalize document and send 1 hard copy to DPI on 12/8. P+W will send Final Copies to DPI on 12/13. DPI will deliver to MSBA. **12/19** PDP Submitted Preliminary comments received from MSBA. See note 1.9 below
1.5	**Tasks** Permitting Field House Demo State Legislator's Review	WL waiting for response from Jeffrey Wheeler. A meeting will be set with Jeffrey and Chuck after the PSR is submitted. **1/2/2018** WL will follow up with PM **1/9/2018** TGG to provide draft language for permitting letter submission to the MSBA. **12/19** JW and SG attended the meeting, SG will draft a letter for the HDC to sign regarding the High School building and White Field House. JW will review department files and draft a letter using similar language from the CMS for MSBA review. WL will contact Spencer to schedule a meeting. **1/2/2018** Meeting Scheduled for 1/5/2018 WL will contact Legislators – PM will set up the call.
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1.8	**Next Meeting**	01/16 @3:00PM
1.9	**MSBA preliminary review 12/15/2017**	BT reviewed the responses she had prepared (mostly directing MSBA to locations where requested documents can be found) JP to draft responses regarding education program

		and send to DPI and P+W for complete response. **1/2/2018** SN sent responses to preliminary comments back to MSBA
1.10	**Content and deliverables for PSR (review section 3.3)**	BT distributed a draft work plan. She will insert correct dates and distribute to all **1/2/2018** BT to update work plan dates and distribute to all. ½ size drawings are not a requirement. Town Council review is not required. BT to provide examples of operational cost templates that they have used for other projects. The Facilities Subcommittee of the MSBA will meet on 3/14 or 3/21 (they will give us the date after the PSR is submitted) MSBA Board meeting is 4/10/2018
1.11	**Future meetings/workshops with teachers (HS and MS)**	WL, JP, and BT will meet with CMS teachers on 1/8 **1/2/2018** JP confirmed that next HS teacher meeting is 1/31 and team will work together to form an agenda for that meeting **1/9/2018** An additional meeting may be scheduled on 1/18/2018 @ 7:30 am. WL will discuss on 1/11.
1.12	**Planning Board engagement**	JW and WL to meet with planning board chair to review PSR options **1/2/2018** PM to assist in getting this scheduled
1.13	**Ice rink discussion**	WL will meet with the chair prior to 1/9 meeting **1/2/2018** meeting scheduled for 1/11/2018
1.14	**Discussion with Floyd**	Floyd will attend the 1-2 meeting at 1:00 to discuss funding the project and to prepare for a full Committee presentation on 1-16 **1/2/2018** FC will attend the Building Committee meeting on

		1/16 to discuss funding. FC stressed the need for an accurate construction estimate. Especially the top-end amount, FC requested most accurate project costs and percent of project that is tax payer burden and he will prepare information on average tax changes based on HS project for 1/16 meeting
1.15	**Channing Road connector**	After discussion it was determined that Alexander Avenue connector would be accommodated on all design options. It would not be included in the High School Plans due to timing and funding constraints. **1/2/2018** Question on whether to discuss this at BC meeting and it was decided that if the topic comes up during the traffic meeting on 1/16 that the statement that the connector location is being accommodated in the design of all options but the connector cannot be a part of this HS project due mainly to schedule challenges should be sufficient
1.16	**Preparation for representatives meeting**	WL and PM will meet with Senator and Representative to review plans and gather their comments. **1/2/2018** Meeting Scheduled for 1/12/2018, WL requested presentation material from P&W
1.18	**CONSULTANT MEETING: Determine a date for a Consultant meeting to review Building Systems to be outlined in PSR**	The consultant meeting needs to be scheduled following the 1-23 Committee meeting, at that meeting once the program decisions are made P+W shall present the pros and cons of CHP's verses LEED for the Committee to decide, then discussion will follow on forming a sustainability subcommittee to engage in reviewing all issues associated with ZNE **1/2/2018** Traffic consultants to attend 1/9/2108, see 1.19

		for further discussions regarding sustainability subcommittee
1.19	**NET ZERO: Direction on Net Zero – Review Proposal from AKF to engage in the early phases of Design**.	All options will need baselines with up-front costs and life cycle costs. The Building committee will review this information and proceed accordingly. P+W will prepare an analysis of the pros and cons of CHPs vs LEED for the Building Committee to review **1/2/2018** An introduction to the need for a sub-committee will take place on 1/11, a more detailed discussion on LEED vs CHPs will take place with the Building Committee on 1/16 for a decision on one and at which time the sub-committee will be formed, on 1/23 at 3:00 the sub-committee will meet and hear consultants provide a mechanical systems overview, sub-committee to be called Building Systems and Operation.
2.1	**149 vs 149A Construction Methods**	WL reviewed the issues and cost implications of the two processes. This will be a Building Committee agenda item, time needs to be decided on when a decision is made, costs will be included in PSR to cover either option chosen.
2.2	**School District Buildings Review**	JP reported that he expects to have the analysis on the other schools in the district from SMMA on 1/3. He will circulate them upon receipt. This will have overall cost implications to the district depending on which High School option is chosen, discussion as to when to combine into HS project cost considerations did not confirm a date but possibly 1-9 or 1-16, at Steering meeting on 1-9 it will be reviewed based on information available at that time. **1/9/2018 JP** reviewed the presentation he will be making

		to the School Committee regarding the other schools in the District
3.1	**Traffic Consultants review**	Nelson\Nygaard provided a detailed review of their traffic presentation. See P+W meeting notes.
	New Business 1. Grant Foundation letter 2. Historic Commission meeting 3. Planning Board Meeting 4. Cost review for evening presentation 5. ZNE costs 6. Traffic follow up discussion (TAC) on 2/8 7. Grade Configuration re design 7-8 vs 7-9 MS 8. Ice Rink Meeting 9. Voting process for 1/23 decision 10.	

BELMONT
HIGH SCHOOL BUILDING PROJECT

Initial Community Input Survey

Final Report

January 2018

Developed and Analyzed by the Belmont High School Building Committee, Communications Sub Committee

Contents

BHS Building Committee Overview

The Belmont High School Building Committee (BHSBC) is an independent committee appointed by the Town Moderator and approved by the Town of Belmont at the February 2016 Town Meeting. The Committee is a requirement of the Massachusetts School Building Authority (MSBA).

The BHSBC Communications Sub-committee is tasked with establishing a reliable and professional communications infrastructure and engaging the community in thoughtful dialog, encouraging community participation, and giving people a voice in this process. This survey represents one tool that the BHSBC Communications Sub-committee has implemented to achieve this goal.

Survey Objectives

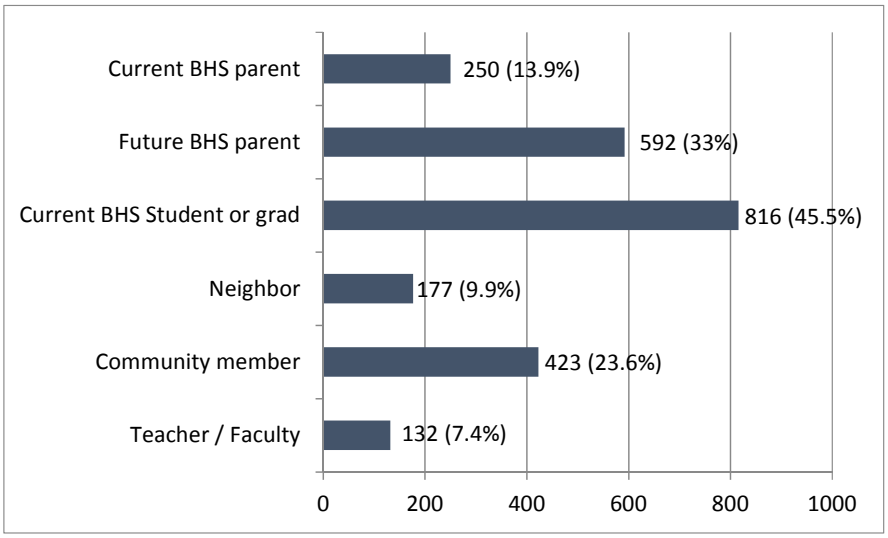
- Identify the community's biggest concerns about the current high school
- Identify the community's hopes and expectations for the future high school
- Identify the community's top priorities regarding the future facility
- Identify the community's top priorities regarding the design and construction process

Methodology

- Questionnaire was designed by the BHSBC Communications Sub-committee and approved by the BHSBC
- Survey was conducted online via the BHSBC website from 10/7/17 - 12/8/17
- Survey was publicized at numerous BHSBC meetings and public forums, at other town events such as Meet Belmont, Back to School nights, PTO/PTA meetings and school concerts, via local media, Town listservs, social media, email distribution, banners, and on the Town and Project websites
- Data from 1,794 respondents were collected and analyzed for this report

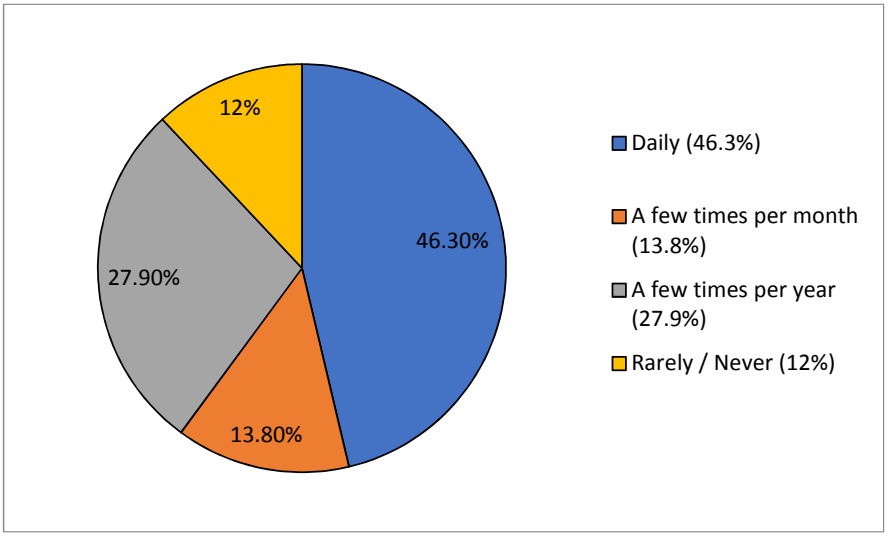
Respondent Characteristics

What is your connection with the high school? Select all that may apply. 1,794 responses



How frequently are you in the current high school building?

1,794 responses



Survey Results by Question

Question 1

- Question: What are your biggest concerns about the current high school?
- Response format: open-ended

- Most frequent themes (in no particular order):
  - **Physical Plant:** Run down, infrastructure, bad lighting, HVAC not working (some rooms are very hot, some rooms are very cold), terrible bathrooms, ceiling tiles falling down, building falling apart, inconvenient to go outside to get to mods, broken, dirty, rats, asbestos, decrepit
  - **Space Issues**: Not big enough, not enough space, enrollment, class sizes, overcrowding
  - **Inflexibility/aesthetics of current space**: Insufficient library space, not enough flex spaces, no place to go during frees, too many frees, need more books in the library, need more quiet spaces, uninspiring, outdated
  - **Safety and security**
  - **Bad traffic**, safe routes to school

Survey Results by Question

Question 2

- Question: What are your hopes or expectations for the future high school?
- Response format: open-ended

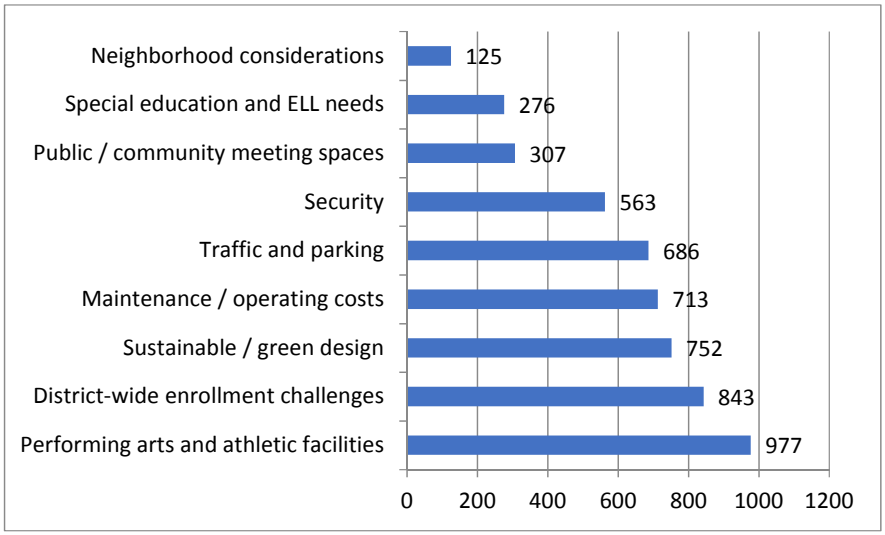
- Most frequent themes (in no particular order):

    - **Size:** Big enough, addresses overcrowding, addresses enrollment challenges
    - **Sustainability:** Sustainable design, operating costs, life cycle costs, zero net energy, use of daylight
    - **Flexible/inspiring spaces**
    - **Cost-Effective**: Not too extravagant, practical
    - **Traffic:** Improved traffic patterns, encourage biking / walking
    - **Community Use**: Incorporate public spaces in building, multi-purpose uses
    - More books

Survey Results by Question

Question 3

- Question: What are your top priorities regarding the future facility?
- Response format: select three

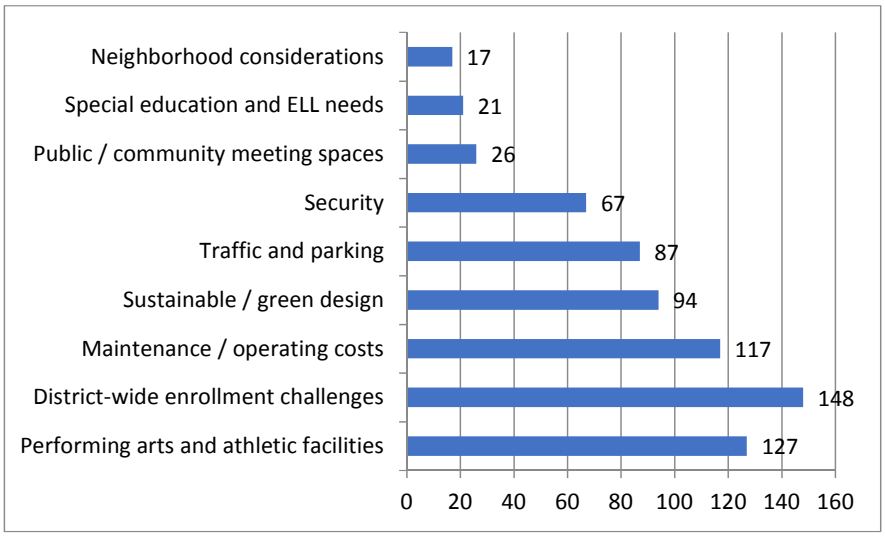


Due to significant variations in responses based on respondent characteristics, the charts on the next several pages show these same categories further broken down by the following respondent characteristics:

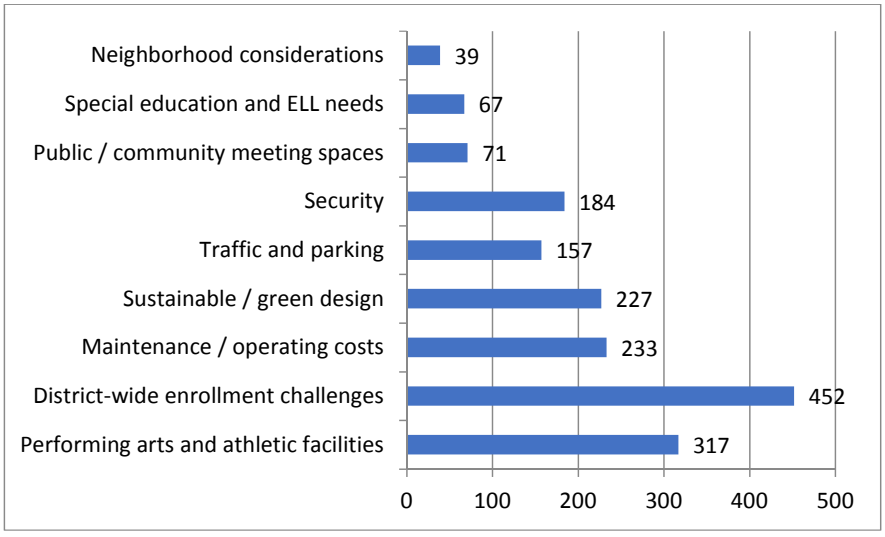
- Current BHS Parents
- Future BHS Parents
- BHS Students
- Neighbors
- Community members
- Teachers / Faculty

C. BHSBC SURVEY REPORT

Current BHS parents:



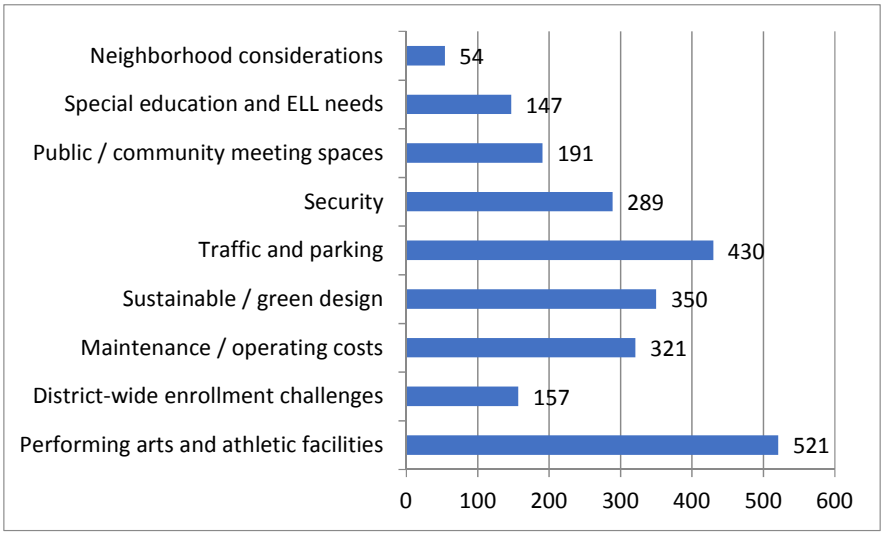
Future BHS parents:



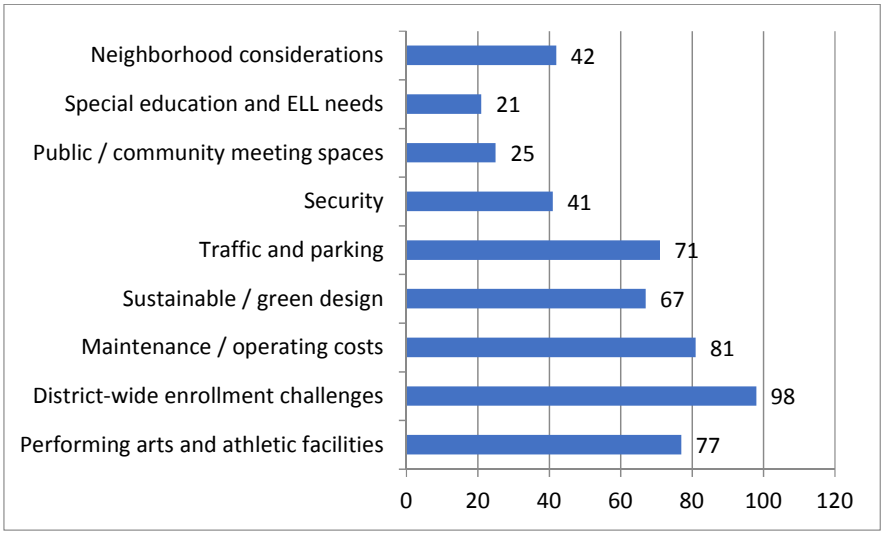
APPENDIX

C. BHSBC SURVEY REPORT

BHS students:

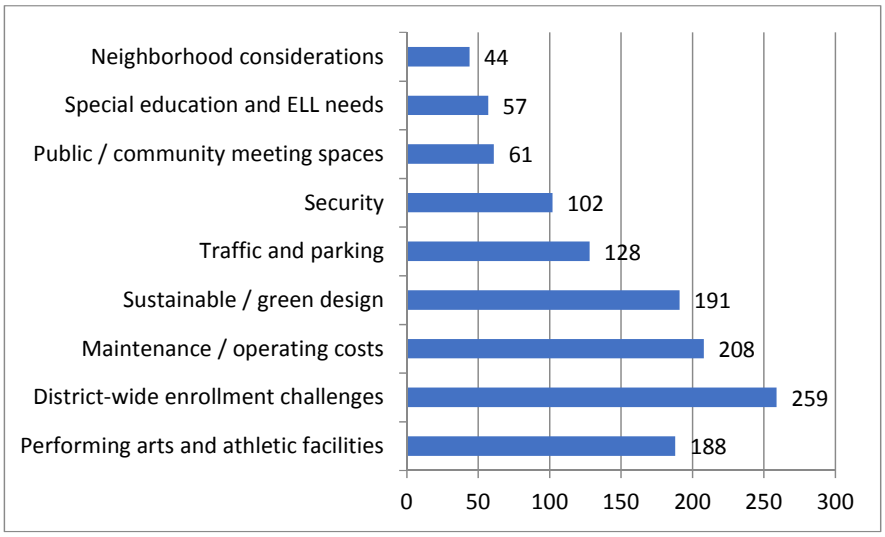


Neighbors:

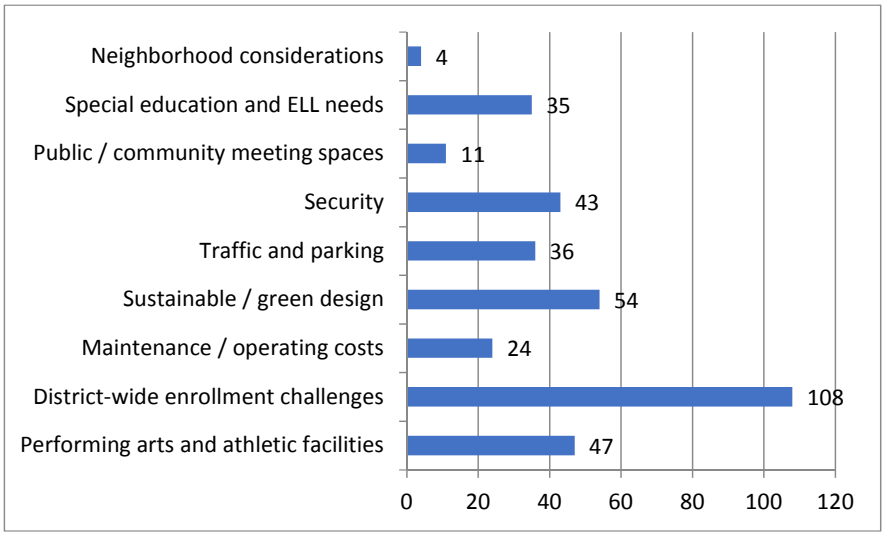


C. BHSBC SURVEY REPORT

Community members:



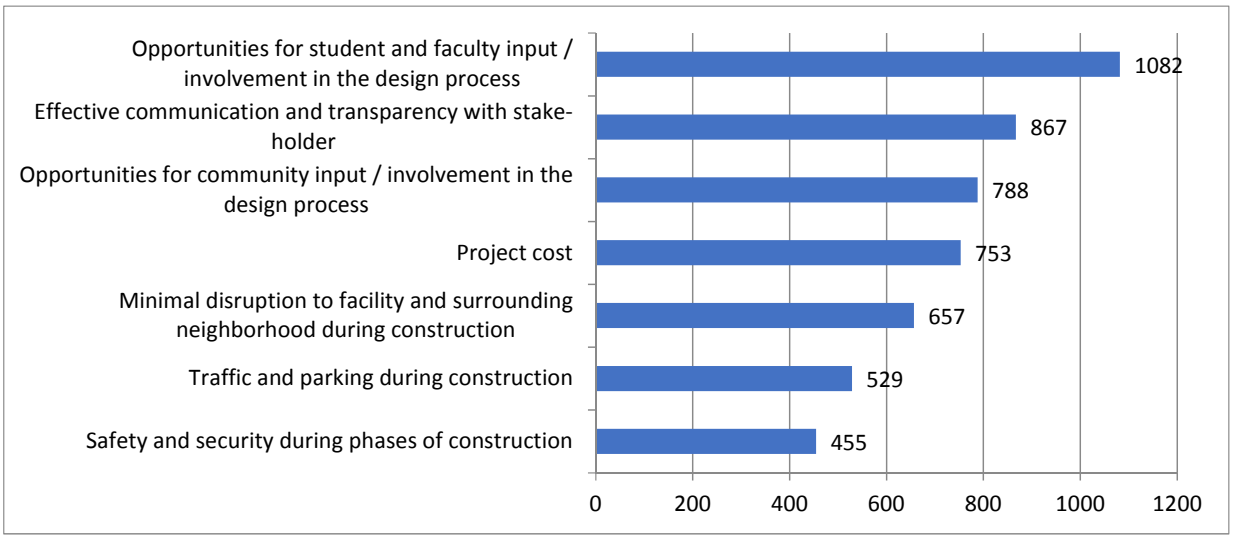
Teachers / Faculty:



Survey Results by Question

Question 4

- Question: What are your top priorities regarding the design phase and construction process?
- Response format: select three



Conclusions

Over the course of eight weeks during the Fall of 2017, the BHSBC surveyed the Belmont community to assess their concerns, hopes, and expectations regarding the High School Building facility and also their priorities regarding the design and construction process. The survey consisted of two questions to establish respondent characteristics (their relationship to the building and the frequency of their use of the building), two open-ended questions and two multiple choice questions. The survey was available online through the BHSBC website, and was publicized through many different channels.

A total of 1,794 people responded to the survey. The largest group of respondents was current BHS students or graduates (45.5%), followed by future BHS parents (33%) and community members (23.6%). 46.3% of the respondents reported using the building on a daily basis indicating an intimate familiarity with the building, followed by 27.9% who reported only using the building a few times per year.

In both the open-ended and the multiple choice questions, the respondents consistently expressed a strong emphasis on district-wide enrollment challenges, sustainable / green design, maintenance and operating costs, traffic and parking, and security as priorities for the new facility. Performing arts and athletic facilities received the most responses in the multiple choice question (Q3), but were not significantly

represented in the open-ended question (Q2). Intangible / aesthetic desires such as inspiring, modern, light, bright spaces were a consistent theme in the open-ended responses (Q2) but were not offered as a pre-determined option in the multiple choice question (Q3).

Due to significant variations in responses to top priorities regarding the future facility (Q3) based on respondent characteristics, the data were further analyzed and broken down by respondent characteristics. This revealed several noteworthy trends:

1. While performing arts and athletic facilities was the number one overall priority, it was only the number one priority for the BHS Student subgroup (64% of students), which was the largest group of respondents (comprising 45.5% of all respondents). **All of the other subgroups (current parents, future BHS parents, neighbors, community members, teachers / faculty) identified district-wide enrollment challenges as the number one priority, with two of those groups identifying it as a significant priority – 76% of future BHS parents and 82% of teachers / faculty**.
2. Traffic and parking emerged as the second priority for the BHS Student subgroup (53%), but much less of a priority for the other subgroups.
3. Sustainable / green design represented the third priority overall and this trend remained more or less

consistent over all subgroups with 42% of all respondents identifying it as a priority.

Most of the major themes that arose in the two questions regarding the future facility (Q2 and Q3) were also expressed as consistent concerns regarding the current facility (Q1).

Regarding the design and construction process (Q4), most respondents identified opportunities for involvement in the design process as a top priority. Other top priorities included effective communication and transparency with stake-holders and project cost.

The findings from the survey will be used to inform the BHSBC and their design team as they embark on the design process. The BHSBC will continue to actively pursue additional opportunities for members of the community to participate in the design process.

APPENDIX

D. BHSBC RESPONSE TO THE BRENDAN GRANT FOUNDATION

THE BRENDAN GRANT FOUNDATION

11 December 2017

Belmont High School Building Committee
Facilities Department, 19 Moore Street, Ground Floor
Belmont, MA 02478, United States
via email: BHS-BC@belmont-ma.gov

Dear Belmont High School Building Committee,

This is a statement of position for the record from The Brendan Grant Foundation to the Belmont High School Building Committee for the new Belmont High School project. It is our understanding that the Belmont High School baseball fields will be directly impacted, and our position is focused on that specific aspect of the project.

We acknowledge the many interested groups and variables that need to be addressed with this overall effort, and we seek to be collaborators amongst all providing input. As this effort proceeds, there are certain details to which we hope to contribute as an established and proven community partner, recognizing the noteworthy and extensive past and current contributions from The Brendan Grant Foundation to the town.

Foremost among the top priorities of The Brendan Grant Foundation is keeping the name of the varsity baseball field as the "Brendan Grant Memorial Field", and to restore the field to the highest level it was given with all the effort that went into making it a great field. In summary, the specific issues we would like the Belmont High School Building Committee to address for the varsity and junior varsity baseball fields are as follows:

- **Field Name**. In accordance with the unanimous vote of the Belmont School Committee at their meeting on 17 September 2001, and confirmed by the subsequent ceremony one week later held on the field, we would like the varsity baseball field to still be named the Brendan Grant Memorial Field.
- **Tribute Components**. Even if re-positioned, we would like to preserve certain tribute oriented field components such as the entrance archway, memorial plaque, and other similar details. These tribute components represent the significant contribution of effort, estimated in the range of a $1M gift from contributors led by The Brendan Grant Foundation, given to the Town of Belmont, for the re-building of the field that occurred from 2002 through 2007.

D. BHSBC RESPONSE TO THE BRENDAN GRANT FOUNDATION

- **Field Position and Orientation**. If the fields are re-positioned, we would like to provide input on their orientation, since this will impact their future use with regard to optimizing the field of play, foul balls, prevailing winds, direct sunshine, and other factors.
- **Distance to Backstop**. An existing problem with the current fields is the distance from home plate to the backstop, which is not in accordance with regulation field design. If possible we would like the true regulation distance to be observed on both fields.
- **Drainage**. The preservation, re-construction or enhancement of proper field drainage, which had been a significant problem at the old varsity field (prior to 2007).
- **Bleachers**. The preservation or enhancement of the current bleacher seating.
- **Shelters**. The preservation, re-construction or enhancement of the current shelters.
- **Artificial Turf**. Consideration of artificial turf instead of natural turf. This has a higher up-front cost, though it is clearly off-set by minimal maintenance that more than pays for itself over its normal lifespan (e.g., Harris Field).
- **Field Lighting**. Consideration of field lighting (consistent with the present installation at the girls' softball field and baseball fields in other towns).

This letter has been reviewed by The Brendan Grant Foundation Board of Trustees, and is transmitted on their behalf. We look forward to being a collaborative partner with the Belmont High School Building Committee and others as this important project proceeds.

Sincerely,

Casey C. Grant
President, The Brendan Grant Foundation

c: BGF Board of Trustees

THE
BRENDAN GRANT
FOUNDATION

PO Box 184
Belmont, MA 02478-0184
617.489.1514
www.brendangrant.org

walkBoston

courtesy of MA SRTS

Walk to school?
But how do I find the front door?

Strategies for designing a walkable school campus

April 2016
Prepared for Mass in Motion, an initiative of the MA Dept. of Public Health

MAKING MASSACHUSETTS MORE WALKABLE
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E. WALKABILITY STUDY REPORT

Introduction

Walking rarely enters the conversation when new schools are planned. In fact, the regulatory and approval processes focus on facilitating bus and automobile access to schools, and ensuring that there is sufficient parking. Public meetings are usually dominated by those who complain about traffic volumes or inadequate parking – not by those who seek a safe walking route to school. It happens in wealthy communities and in low-income communities alike.

> In most cases, it's not that drivers are given priority over walkers. It's that nobody is thinking about walking. And that needs to change.

School campuses should welcome children whether they arrive on foot, by bike, bus, or car. Too often, a student walking to school is confronted with traffic congestion, unsafe crossings and a circuitous route to the front door. As documented by the Safe Routes to School movement, children who travel by "active transportation modes" are more likely to get the physical activity they need every day, arrive at school ready to learn, and gain independence through mastery over their own environment.

Since 2002, when the National Trust for Historic Preservation published their influential report "Why Johnny Can't Walk to School," educators, community activists, and school committees across the country have made progress both in choosing walkable, central locations for new schools, and in realizing the benefits of either renovating, retrofitting, or expanding existing neighborhood schools. Communities have begun to:

- Reinvest in existing school properties before seeking new campuses
- Relax acreage and building square footage requirements for new schools to allow smaller, centrally located sites to be considered
- Choose locations for new schools in existing neighborhoods where pedestrian infrastructure already exists

However, as WalkBoston discovered in our work with communities across Massachusetts, even when communities build new schools in the right place, the design of school campuses still provides only limited support for walkers, and too often favors vehicles over walkers in their site layout.

APPENDIX

E. WALKABILITY STUDY REPORT

Purpose

When we searched for guidance on walkable campus planning principles for K-12 schools, we found little published information about best design practices that encourage walking. This document is intended to help fill that gap. The content and level of information is designed to be useful for a wide variety of decision makers and professionals, including school administrators and school boards; municipal planners, engineers, and transportation professionals; municipal government representatives, selectmen, town boards, mayors, and/or city managers; and design professionals, such as architects, landscape architects and civil engineers. The methodology described below may also be helpful to existing schools struggling with similar challenges.

Our goal is to provide a succinct set of best practices to help guide decision makers and design professionals to build school campuses that favor walking to school.[1]

This document is organized into four parts:

1. Definition of a walkable campus – a basis for redefining transportation priorities
2. Walkable campus design principles – general tenets and issues to consider when organizing campus uses, transportation patterns, parking and play spaces
3. Application of principles – assessment of two elementary school campuses using the design principles
4. Case studies – examples of walkable school campuses from across the country

This is a work in progress and we are looking for feedback on its usefulness. We welcome comments, contributions and criticism.

[1] Bicycling to school is also an important component of active transportation in many communities. Strategies to promote pedestrian safety will also increase bicyclists safety. However, this document does not address bicycling specific strategies.

E. WALKABILITY STUDY REPORT

Definition of a Walkable Campus

A brief search of adjectives and phrases used to describe a "walkable campus" yielded the list below:

Ease of access

Safe

Pathway network

Clear wayfinding

Consistent paving materials according to use

Places to wait

Adequate shade

Memorable

Human scale

Campus core as vehicle-free as possible

Limited vehicular through traffic

Minimize conflicts with pedestrians and vehicles

Clearly defined routes

Pedestrian movement as primary mode of transportation

Clear points of entry

Parking on the periphery

Reduced parking

All of the words describe the characteristics of what we imagine as a walkable campus. We offer the following as a working definition:

A walkable campus considers the needs of walkers first when organizing the movement of people, bicycles, buses and cars on the school grounds.

Ideally, children walking to school would arrive on campus and reach the building's front door on a clearly defined, continuous, smooth sidewalk separated from motor vehicle traffic, parking lots and drop-off.

credit: MA SRTS

credit: http://ww2.kqed.org/mindshift/wp-content/

APPENDIX

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Walkable Campus Design Principles

These campus design principles provide guidance on prioritizing conditions for walkers as they approach the campus; navigate across driveways and through parking lots; encounter drop-off zones; reach the front door; and, access playgrounds and other outdoor spaces. The principles outline issues to consider when organizing campus uses, transportation patterns, parking, and play spaces.

The principles are organized into six categories:

1. Safe Streets
2. Safe Crossings
3. Safe Drop-off Zones
4. Safe Parking Lots
5. Safe Front Doors
6. Safe Outdoor Spaces

They may be used in a variety of ways:

- Initial requests for proposals issued for school building design could require that respondents address principles of walkable campus design
- Decision makers could use the principles as a checklist to foster discussion with the project team early in the design process
- Designers (architects, landscape architects, and civil engineers) could evaluate their design concepts against these principles to measure their success in creating a walkable campus
- Parents, advocates and community members can use them to review and discuss design decisions to ensure that walking to school is as safe as possible on the new campus

credit: http://www.blogcdn.com/slideshows/images

Safe Streets

This category of principles addresses the safety and condition of streets and street crossings outside the school site boundaries. Generally, the scope of a school building project does not include these critical neighborhood connections. Without a safe route to the school campus, children and their parents will not walk. It is important to coordinate school building projects with other municipal planning efforts, such as road and sidewalk capital planning, and establish partnerships between municipal offices to support walk to school efforts. While the school building project may not have funding available to repair or complete sidewalk networks, coordinated efforts may lead to funding streams not imagined at the project's onset.

- Provide a connected sidewalk network
  - » Provide continuous sidewalks on both sides of the street that connect the school and residential areas within at least a half-mile walk of the school. The goal should be to make sure that student-friendly walking conditions extend to a one-mile distance, but the minimum area covered should reach at least a half-mile
  - » If a significant number of students attend an after school program nearby (e.g., at a youth center), examine the pedestrian link between the school and the after school program's location

- Build sidewalks wide enough to accommodate people walking in groups
  - » A typical minimum sidewalk width is 5 feet; the recommended width is 8 to 10 feet where larger numbers of walkers are anticipated. Students like to walk side by side; and parents are often holding hands with one or more children on their walk to school
  - » A planting strip wide enough to accommodate shade trees between the sidewalk and the roadbed is recommended where space allows; regularly spaced trunks form a barrier between pedestrians and vehicles

- Illuminate the sidewalks that connect the school to nearby residential areas. School schedules require students to walk to and from school during early mornings and late afternoons that are dark for a number of months during the academic year
  - » Street lights should provide light on the sidewalks and at crosswalks. Poles may be lower (15 feet tall) to provide pedestrian scale lighting
  - » Consider lighting any multimodal trails that connect to the school

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E. WALKABILITY STUDY REPORT

The safety of crosswalks both on the school campus and in the surrounding neighborhood is a key component of encouraging students to walk to school.

- Ensure well-marked street crossings
  - » Complete the sidewalk network by providing crosswalks at all intersections within at least a half-mile walk of the school. If the intersections are not signalized, drivers need visual cues, such as marked crosswalks and pedestrian crossing signs, to slow and stop
  - » Consider mid-block crosswalks when they provide the most direct route to a point of interest (e.g., a school's main entrance), and when a neighborhood's blocks are especially long. Raised crosswalks are more visible to drivers and may be appropriate in places where the volume of pedestrians is high (e.g., near a school's main entrance)

- Maintain sidewalks throughout the school year
  - » Clear sidewalks and curb ramps of snow and ice and ensure that crosswalks are visible in the winter
  - » Trim foliage, collect fallen leaves and branches, and sweep sidewalks of sand and debris after snow has melted

- Maintain crosswalks regularly
  - » Re-paint crosswalks near schools on an annual basis to ensure brightness and high visibility. If using thermoplastic paint, reapply on the manufacturer's time line which may be less often than every year
  - » If students ride a public bus to and from school, ensure that there is a convenient crosswalk and safe walking route between the school and the public bus stop

Curb extension at a mid-block crossing

Raised mid-block crossing (source: Safe Routes to School)

- Consider traffic calming strategies along heavily used walking routes
  - » Curb extensions, also known as bulb-outs, are used to shorten crossing distances and improve visibility of pedestrians. Additionally, extending a portion of the sidewalk into the street helps narrow the roadway and encourages slower vehicle speeds
  - » Raised crossings improve safety by providing a cue to motorists that they should slow their speed. Elevating a crosswalk also improves visibility of pedestrians

Safe Crossings

In addition to providing a connected, continuous sidewalk network from neighborhood streets to the school campus, street crossings must have adequate crosswalk markings, functioning pedestrian signals (at signalized intersections), and include curb ramps to make sidewalks accessible for all. Just one poorly designed intersection or unmarked crossing could be the difference in encouraging students to walk to school.

- Make all crosswalks leading to the school campus safe and child-friendly
  - » Provide pedestrian countdown signals at signalized intersections
  - » Shorten crossing distances by narrowing travel lanes and installing curb bump-outs
  - » Maintain clear lines of sight – e.g., trim vegetation
  - » Install signs or flashing beacons warning drivers of crosswalks ahead

- Do not allow parking near intersections or crosswalks to ensure good visibility (within 20' as a general rule; some Massachusetts municipalities have crosswalk ordinances that address parking distances)

- Minimize the need to cross driveways on the walk to the front door once on school grounds
- Provide continuous sidewalks across all campus driveways (retain sidewalk paving material and maintain gentle cross-slope to maintain level walking path). Continuous sidewalks are a signal to drivers that walkers have priority and drivers must slow down and check first before proceeding onto a driveway
- Use high visibility crosswalks, such as ladder or continental markings. Research showed an estimated 37% increase in safety at the intersections with high-visibility markings.[2]
    - » Decorative crosswalks, including impressed or inlaid preformed thermoplastic (e.g., may imitate the look of a brick crosswalk in between two, parallel white lines) help to define a district or zone where more pedestrians may be present

[2] McGrane, Ann and Meghan Mitman. "An Overview and Recommendations of High-Visibility Crosswalk Markings Styles." Pedestrian and Bicycle Information Center. August 2013.

Continuous sidewalk across a driveway

Whimsical crosswalk painting near a park

Marked crosswalk (continental design) across a campus driveway

Safe Drop-off Zones

Ensuring student safety is especially critical during student arrival and dismissal times due to the increased automobile and bus traffic volume, and the potential for conflicts between different modes of transportation. Walkers and bikers are particularly vulnerable during these stressful times of the day. The following overall principles suggest ways to make this most dangerous time safer:

- Separate walkers primary path to the front door from bus and vehicle drop-off lanes
- Consider closing neighborhood streets during school arrival and dismissal times rather than dedicating campus green space to drop-off zones
- Install signs to help define areas in drop-off and pick-up zones and their proper use; signs should be standard, highly visible, properly installed, and well maintained

The principles below are specific to the drop-off mode:

Car drop-off zones

- Design a simple approach that leaves little room for driver interpretation, such as:
  - » Employ curb striping and pavement markings
  - » Install signs indicating drop-off location and appropriate behavior (e.g, “do not leave your car unattended” or “no idling zone”)
  - » Establish a one-way circulation pattern to ensure children are dropped off on the curbside of the travel lane

Clearly defined drop-off zones and walking routes improve pedestrian safety
Credit: Google Maps Streetview

- Establish a parent drop-off lane or location away from where walkers and bus riders enter, and guide students dropped-off from their parents' vehicles to the primary pedestrian path
- Locate the student loading/unloading area at the far end of the drop-off lane to maximize the number of vehicles at the curb at any one time
- Prevent students from walking in between vehicles in the parent drop-off lane; employ a crossing guard if needed
- Do NOT encourage more parents to drive students to school; but do increase safety

Bus drop-off

- Designate exclusive "bus only" lanes or driveways separate from car drop-off. Signs, pavement markings, gates or orange cones may be used, but education and enforcement will also be needed[3]
- Ensure that the drop-off area design does not require students to walk between buses
- Locate pedestrian crossings outside of bus-loading zone; buses should not straddle crosswalks
- Locate bus area so that buses exit upstream of cars and gain priority

[3] http://guide.saferoutesinfo.org/dropoff_pickup/student_drop-off_and_pick-up_tools.cfm

Example of a car drop-off zone

Example of a bus drop-off zone

Safe Parking Lots

Parking lots are almost always designed to maximize the number of parking spaces, often at the expense of delineated crossing zones, adequate sidewalks, planted medians and efficient, logical drive lanes. Parking lots that also double as drop off zones present additional hazards and opportunities for vehicular back-ups. When thinking about the location and design of parking lots, consider the following principles:

- Locate parking lots and access drives away from walking routes
- Eliminate parking spaces near driveways and crossings to ensure good visibility for pedestrians
- Avoid locating driveways and establishing traffic patterns that facilitate shortcuts through parking lots
- Reduce the number of parking spaces or share parking with neighboring uses
  - » Plan parking for daily needs, not for graduation, sporting events, or concerts, to reduce the size of on-site parking lots
  - » Explore the possibility of issuing faculty and staff permits to park on neighborhood streets during school hours to reduce the need for a large, on-site parking lot
  - » Consider the use of off-site parking lots (e.g., at churches or other community facilities that are not heavily used during school hours)
- Mark walkways through parking lots and employ traffic calming strategies, such as raised crossings, to reduce driving speeds[4]

[4] http://guide.saferoutesinfo.org/dropoff_pickup/separating_motor_vehicles_from_pedestrians_and_bicyclists.cfm

Raised crossing from a school parking lot to the front door

Size of a typical elementary school student compared to an SUV (credit: MA SRTS)

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Safe Front Doors

For a walker, a safe front door is one that can be reached along a smooth, continuous pathway, without interruptions from parking lots, drop off zones and driveways. It is obvious, recognizable and given a prominent location that invites people in. The front yards of our schools should be built for children to run in circles, not for us to drive our cars in circles.

- Give the school building a presence on the street and make it multi-story, if appropriate, minimizing the school footprint to maximize green space
- Locate building entrances along obvious pedestrian desire lines
- Design the facade to be welcoming to walkers
- Post a sign with the school's name
- Use pedestrian paths, the location of the school's main entrance, and the placement of playgrounds, outdoor classrooms, and green spaces to receive and welcome students approaching from all directions
- Connect the main entrance to the street with a plaza, where possible; make this plaza welcoming by creating a sense of enclosure and by furnishing it with benches and planters; ensure that it is well-lit

Buildings with street presence where cars do not dominate the front yard

Safe Outdoor Spaces

Outdoor spaces in this context include play spaces, playgrounds, play fields, outdoor classrooms, and campus walkways or trail networks connecting these spaces. As school building footprints have continued to grow, outdoor spaces have become smaller and often bisected with roads. The principles in this section highlight the need for good lighting and adequate visibility from the street and buildings in these important outdoor spaces.

- Use site design principles that promote “eyes on the street”
  - » Locate walkways and gathering spaces in areas that are visible and central to school activity
  - » If the school grounds are fenced in, ensure that the location of any gates correspond to pedestrian paths and are unlocked during arrival and dismissal; post signs to inform students when the gates will be locked

- Install good lighting at the following locations throughout campus:
  - » Walkways
  - » Parking lots
  - » Building entrances
  - » Play fields

- Locate outdoor play spaces where children can reach them without crossing active driveways
- Reclaim space previously dedicated to cars for outdoor education and play

Playground at the main entrance where staff can observe students from the school windows
Credit: https://www.playlsi.com/globalassets/slideshows-design-files/playgrounds/east-somerville-school/somervillehero.jpg?width=1440&height=560&mode=crop

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E. WALKABILITY STUDY REPORT

Application of Walkable Campus Design Principles at Two Elementary School Campuses

Proposed campus plans for the Pedro Martinez Elementary School in White Oak, MA, and the Toni Morrison Elementary School in Red Oak, MA, exemplify some of the common pitfalls in school campus design. While the names and locations of these schools have been changed, the campuses and the issues they face are NOT fictional.

Pedro Martinez Elementary School

School profile: Pedro Martinez (PM) Elementary School enrolls approximately 365 students ranging in age from pre-K to 5th grade. Over 85 percent of the students are considered "walkers," meaning they live within 1.5 miles of the school and are not eligible for yellow bus service. Only about 50 students ride the bus to school, and some local day care centers drop off and pick up students using minivans. Any student not eligible for yellow bus service is officially tracked as a "walker." Of those children considered "walkers," many are driven to school and picked up at dismissal. Traffic congestion around the school in the morning and at dismissal is intense and often fosters unsafe and dangerous driving and walking behaviors. Those students who do walk to school come from all directions and cross many complicated intersections before arriving at the school.

The new PM school plan demonstrates many of the hazards that students walking to school face. Using the walkable campus design principles, the discussion below provides potential solutions to the described hazards.

Proposed site plan at Pedro Martinez Elementary School

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Safe Streets

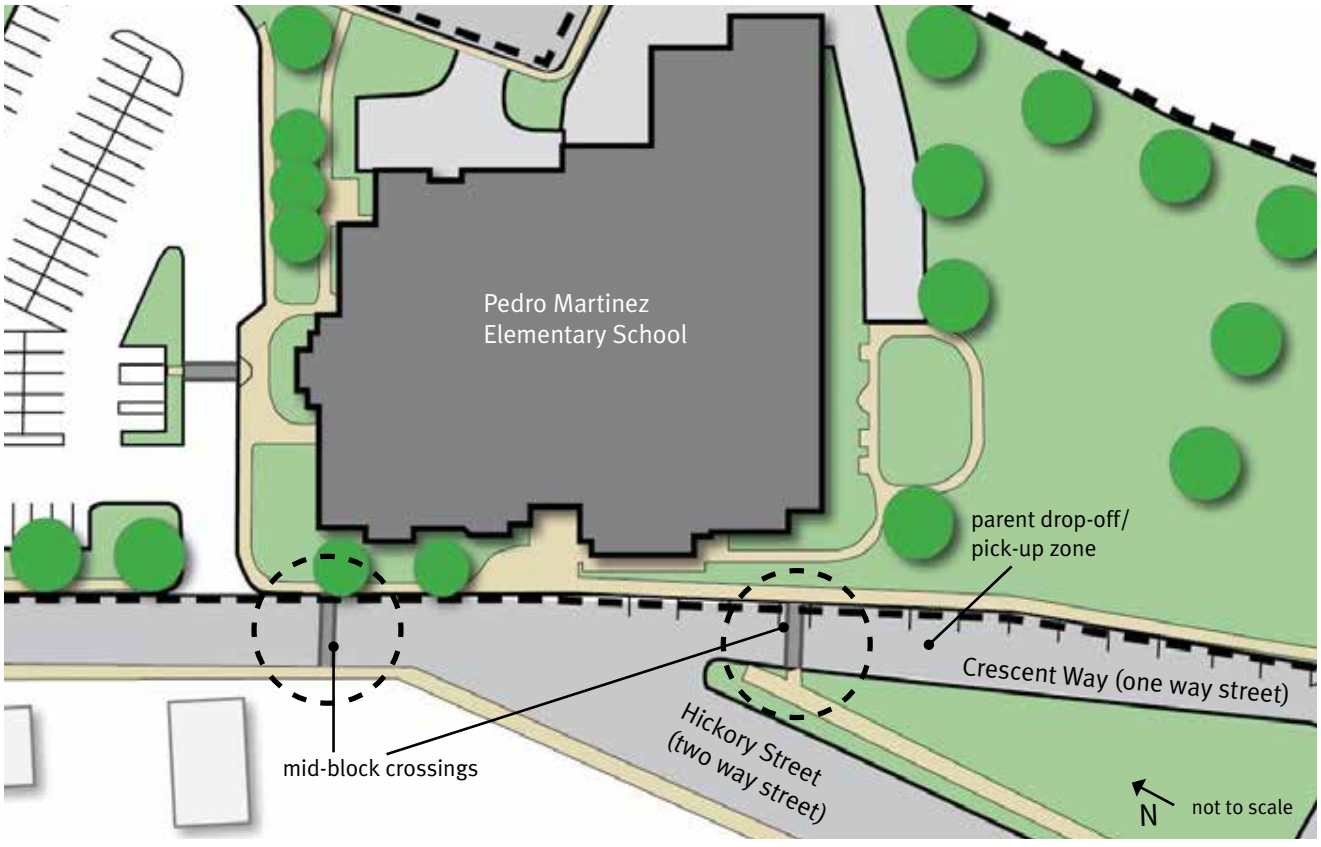
These principles addresses the safety and condition of streets and street crossings outside the school boundaries. Generally, the scope of a school building project does not include these critical neighborhood connections. The importance of building partnerships among municipal offices is vital to maintaining safe streets for students to continue walking to PM Elementary.

The street network within a half-mile of PM Elementary is full of complicated crossings, fast-moving traffic, and discontinuous sidewalks. The city is in the process of redesigning several of the worst intersections and installing pedestrian signals. However, the primary goal is still to improve traffic flow.

Safe Crossings

The primary crossing points for students living on the southwest side of Hickory Street are mid-block crosswalks (with no pedestrian signals) leading to the building's front door. The convergence of Hickory Street and Crescent Way, combined with the parent drop-off zone on this section of road makes these crosswalk locations potentially dangerous. Parents dropping off their children or waiting to pick up their children will queue in front of the main entrance limiting the visibility of walkers in the crosswalk.

While the crosswalks respect pedestrian desire lines, the vehicular traffic pattern and location of the car drop-off zone may jeopardize safety. Traffic calming devices, such as raised



Pedestrian crossings of Hickory Street occur within the parent drop-off/pick-up zone and at a location with compromised sight lines

crossings and curb extensions, can improve pedestrian safety and slow vehicle speeds. Raised crossings make pedestrians more visible and drivers are reportedly more likely to yield to pedestrians. Curb extensions shorten crossing distances and protect crosswalks from encroaching parked cars and idling vehicles.

Students walking from the residential neighborhood north of PM Elementary walk along the eastern side of Hickory Street and must cross the driveway leading to the bus drop-off zone and faculty/staff parking lot to reach the school's front door. Drivers entering and exiting this driveway may be more focused on the traffic on Hickory Street and not aware of children crossing in front of them. Ideally, children walking to school would arrive on campus and reach the building's front door on a clearly defined, smooth, uninterrupted sidewalk.

Given the decision to arrange the building and parking lot as shown, the site's elevation changes precluded moving the parking lot driveway to either of the other two adjacent streets. In part, the hilly site and size of each campus use (building and parking) determined the campus organization. It is hard to say whether an emphasis on creating a walkable campus would have altered the final plan. Steps such as a boldly painted crosswalk, stationing of a crossing guard, and narrowing curb radii on the driveway will improve walker safety at this driveway location.

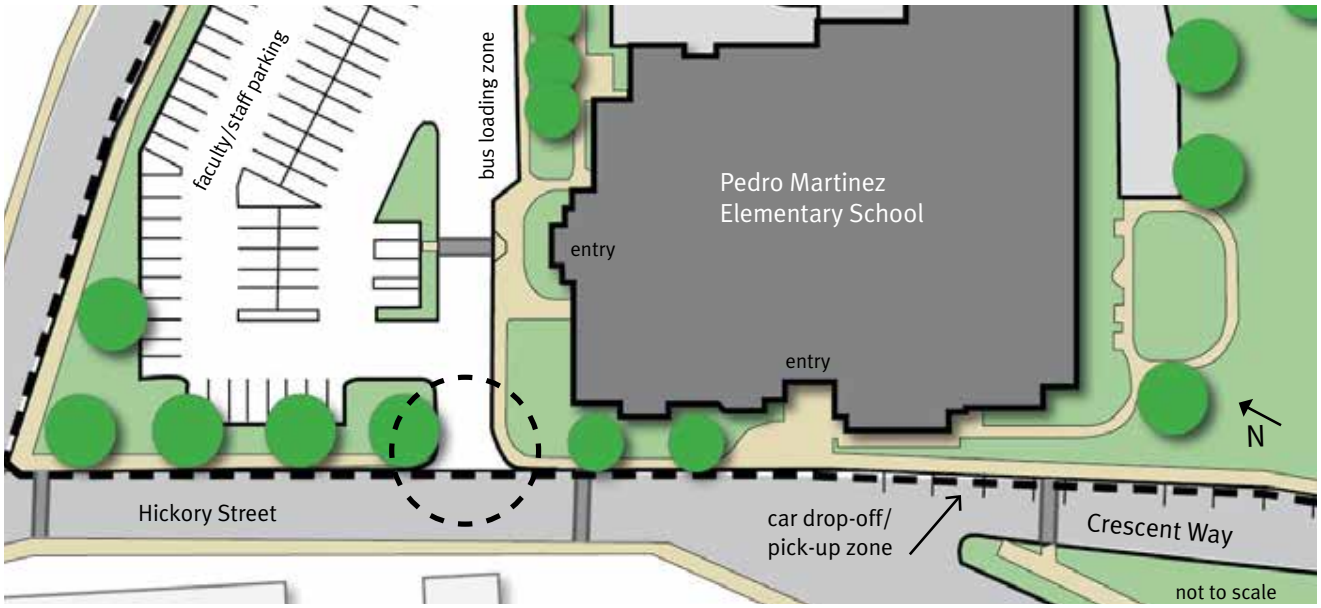


Diagram showing issues related to car and bus drop-off zones

Safe Drop-off Zones – Car drop-off

The car drop-off zone at PM Elementary is along the eastern edge of Crescent Way that runs along the front of the school building. The one-way traffic on the Crescent Way facilitates drop-off and pick-up with children unloading and loading directly to the sidewalk, and those students do not have to cross a vehicular path before reaching the front door. However, drivers leaving Crescent Way must drive north on Hickory Street encountering the primary crossing point for walkers and the staff parking lot entrance. The high volumes of cars, multiple turning movements and children crossing in this tight location increase the potential for conflicts.

E. WALKABILITY STUDY REPORT

The car drop-off/pick-up zone has marked parking stalls where drivers pull up and unload their passengers, and park and wait for their students at dismissal. The parking spaces are close to the crosswalk leading to the front door and cars parked in the first two spaces block the view of oncoming traffic for students trying to cross. Curb extensions would improve sight lines for students and enhance their visibility, and shorten the crossing distance. The wider curbs would also discourage drivers from parking in or close to the crosswalk. Ideally, the car drop-off and pick-up zone would be farther from the front door, clearing the way for walkers to enter without crossing the drop-off zone.

Safe Parking Lots

The parking lot is another potential barrier to students walking to school. As described in the Safe Crossings section, the parking lot driveway interrupts the sidewalk on which walkers from the residential neighborhoods to the north and west of the school reach the front door. This is the only instance when students are exposed to parking lot traffic flow when entering the school. The parking lot is for staff and visitors only. Buses come into the parking lot to drop off and pick up students along the school building's northern edge. The parking lot has only one point of egress, so cut-through traffic is not an issue.

Within the parking lot, there is no clearly defined walkway to the building. Staff and visitors can funnel to the accessible parking spaces where a marked crosswalk leads to the new school. However, additional sidewalks and marked crossings would provide drivers and walkers with a heightened awareness of each other's travel patterns.

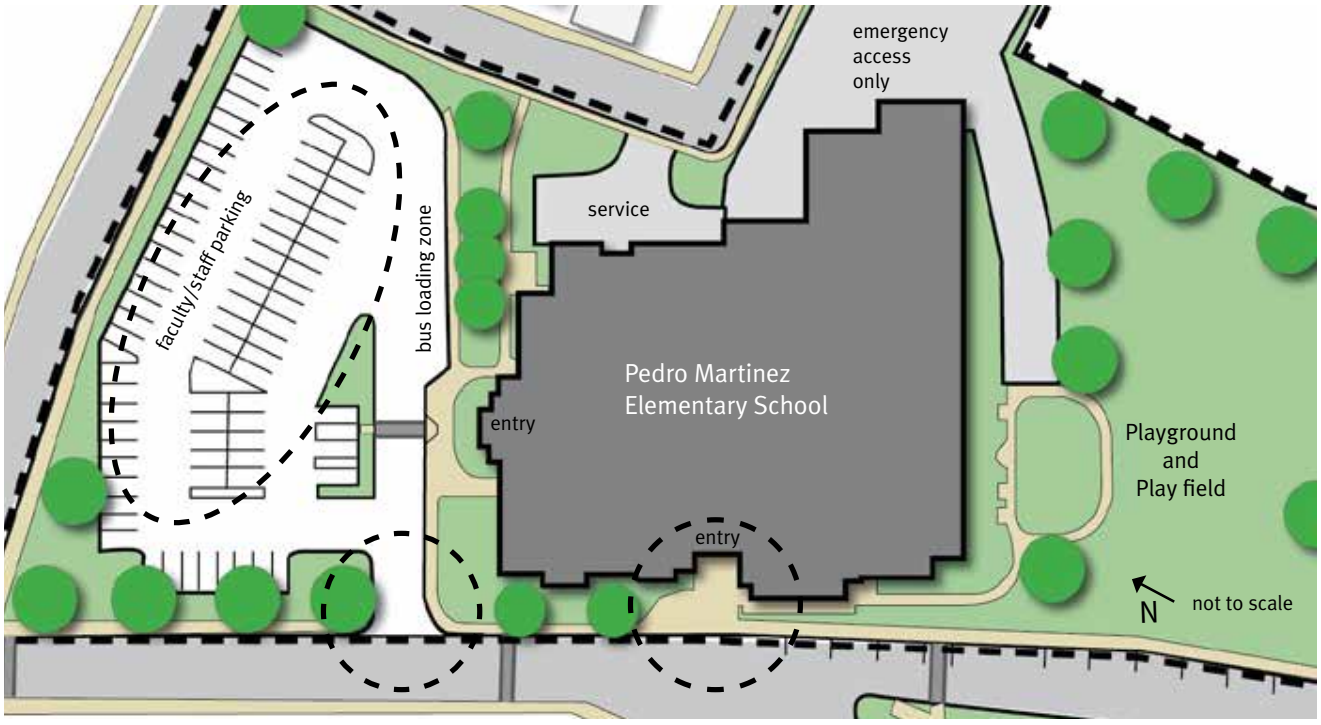


Diagram showing issues related to parking lots

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Safe Front Doors

The new PM Elementary School has a real presence on Hickory Street. Its height and active, colorful facade announce the institution as a welcoming, prominent building of learning in the neighborhood. It is visible to all walking toward it and the location of the front door is obvious with a clear path of arrival.

As noted in the Safe Drop-off Zones section, the confluence of the car drop-off zone, primary crosswalk and parking lot driveway at the school's front door create congestion at arrival and dismissal. Separating the drop-off zone and parking lot entrance from the front door would provide a safer, less hectic path for walkers.

Safe Outdoor Spaces

Children do not cross any active driveways or parking lots to reach the play space behind the school. It is adjacent to the building and fenced from the neighborhood, in part due to the grade changes between the school grounds and the neighborhood below. There is a paved access road to the playground, but it is for fire access and maintenance activities only.

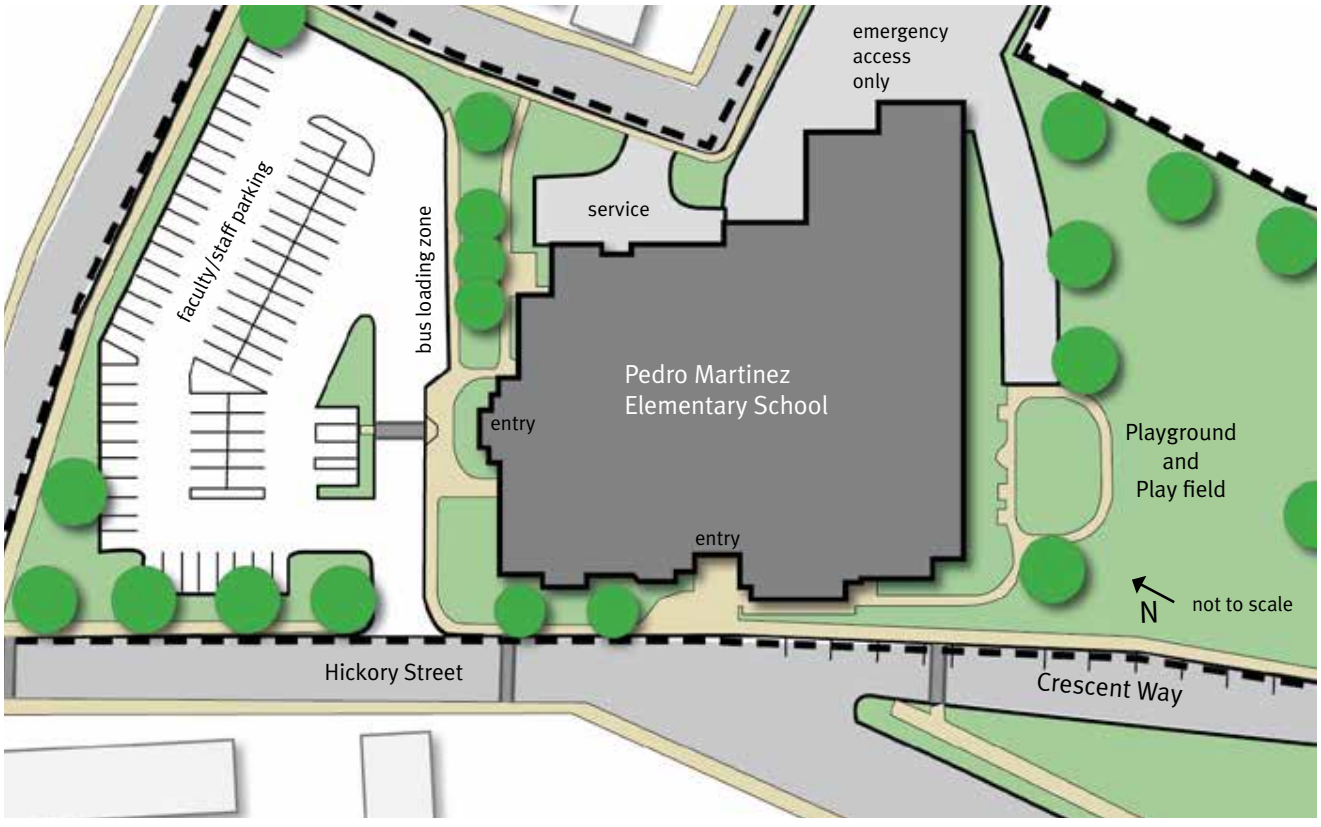


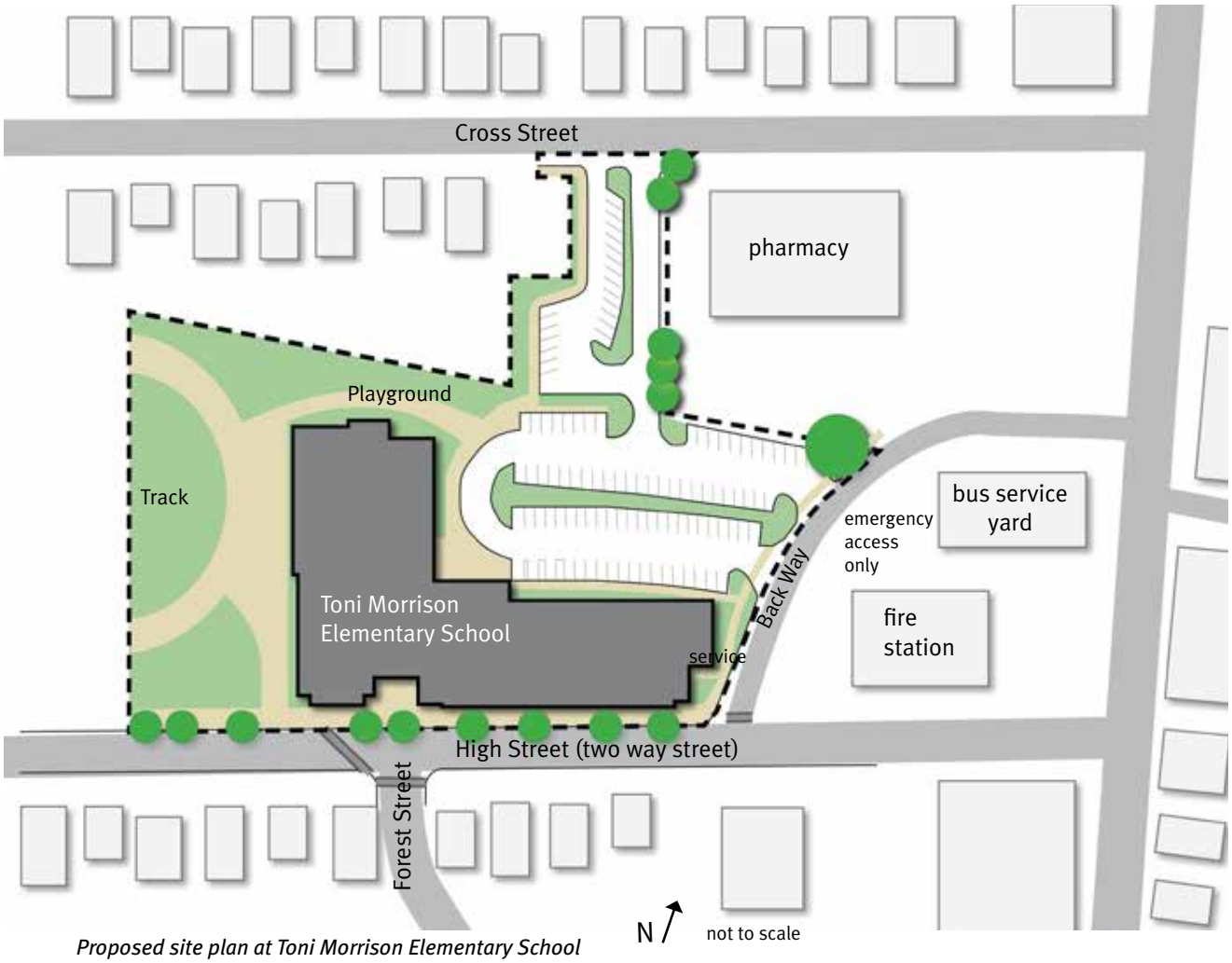
Diagram showing issues related to front doors and outdoor spaces

E. WALKABILITY STUDY REPORT

Toni Morrison Elementary School

School profile: The Toni Morrison Elementary School enrolls approximately 550 students with all students living within a mile of the school. Survey data shows that more than half of the students currently walk to and from school daily, indicating that walking to school is the preferred travel mode. Many families at the Toni Morrison School have only one family vehicle (45%) or no vehicle (16%), and therefore have no other option but to walk to school. Others with access to a car often choose to walk because of successful walk-to-school campaign efforts and the heavy traffic congestion around the school campus at arrival and dismissal times.

The new Toni Morrison School will be across the street from the existing school and enroll approximately 150 more students. The new Toni Morrison School campus plan raises some safety concerns for walkers and illustrates a planning process that did not prioritize walking to school despite the high numbers of students walking.



Proposed site plan at Toni Morrison Elementary School

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Safe Streets

As discussed above, these principles address the safety and condition of streets and street crossings outside the school boundaries. Generally, the scope of a school building project does not include these critical neighborhood connections. The importance of building partnerships among city offices and private land owners is vital to maintaining safe streets for students to continue walking to the Toni Morrison School.

The Toni Morrison School will be built along a major arterial road (High Street) that carries high volumes of vehicular traffic in and out of the city. The neighborhoods on the south side of High Street have a dense street network with continuous sidewalks and relatively slow traffic – good conditions for a safe walking environment. Strategic placement of crosswalks and crossing guards can improve the safety of crossing High Street and help to discourage students from crossing between cars when traffic is idle.

In addition to High Street, students coming from the neighborhoods to the east must cross a service road (Back Way) that provides access to a fire station, bus service yard, and a chain pharmacy store. Proper crosswalks, sight lines and sidewalks along this road are critical to maintaining safe access to the school. Given the varied owners and the shared responsibility of road improvement costs (since it is not a city-owned road), implementation of these changes will most likely involve a lot of coordination and compromise.

Neighboring streets at Toni Morrison Elementary School

E. WALKABILITY STUDY REPORT

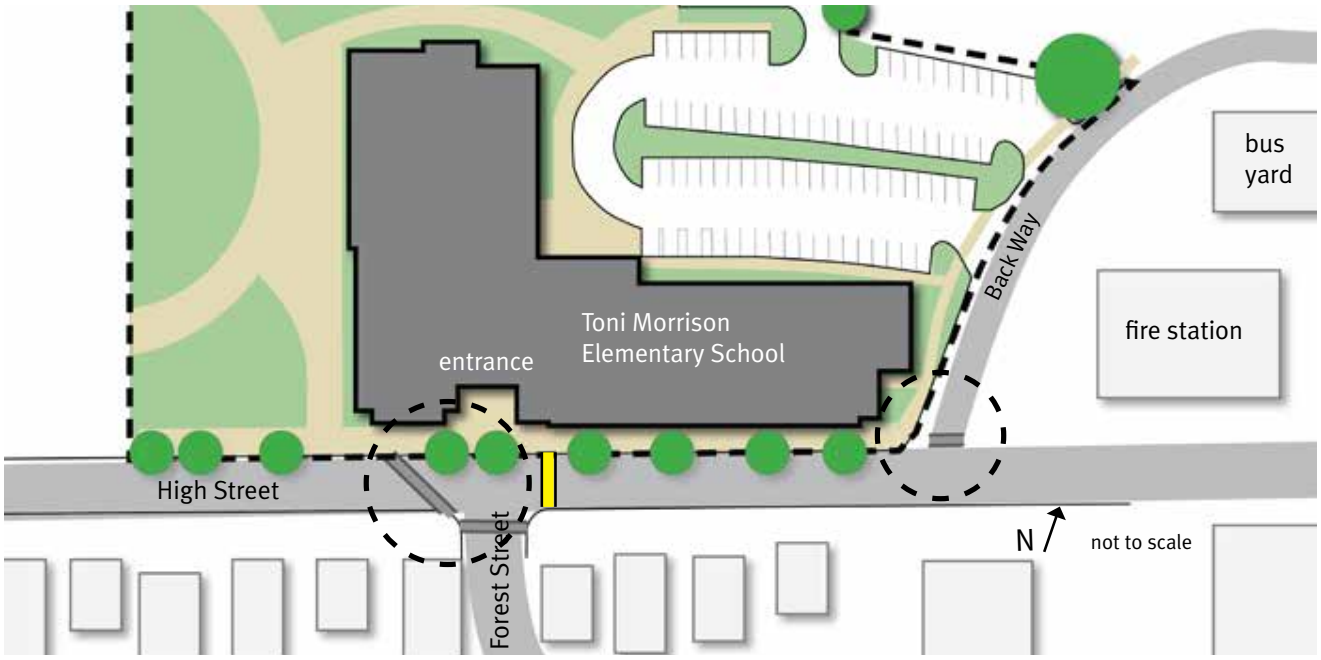
Safe Crossings

The new school building entrance is planned across the street from the intersection of High Street and Forest Street. This intersection is currently unsignalized with one diagonal crosswalk painted across High Street. This crossing will be the primary walking path to the school for students living on the south side of High Street. Therefore, at a minimum, the proposed plans should show three crosswalks with curb ramps at this intersection. One large raised crossing on High Street would further slow traffic and better accommodate groups of students crossing at one time.

Since there are no plans to signalize the intersection, a crossing guard at this location is critical to assist in stopping traffic and in encouraging children to use the crosswalk, rather than darting between idling cars. Other traffic calming techniques, such as an in-street pedestrian sign, should be used to highlight this crossing (could be stored in the school to be used only at arrival and dismissal if there are concerns about it disappearing). Parking should be prohibited within 20' of the crosswalk. School zone signage should be in place along with advance crosswalk signage.

A prominent crosswalk and stop line should be painted across Back Way to improve the safety of students walking to Toni Morrison from the east along High Street. Given the need for daily fire truck and bus access, the curb radii cannot be shortened, nor can a raised crossing be placed across Back Way.

Back Way also provides access to the new school's parking lot and planned bus and car drop-off zone. It is possible to access the parking lot from Cross Street to the north of the school, but this is undesirable for drivers who would have to navigate along other high volume arterials to reach the north side of the school. However, it would be prudent to consider restricting access to the parking lot from High Street to minimize the safety risk for those walking along High Street to reach the school.



Proposed crossing locations at Toni Morrison Elementary School

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E. WALKABILITY STUDY REPORT

Safe Drop-off Zones

The planned drop-off/pick-up routes for cars and buses are not clearly defined and the proposed layout suggests many points of conflict. Diagram A shows the potential combinations. If the proposed on-site circulation and parking plan remains as shown, clearly defining the direction of traffic, the location of official drop-off and pick-up zones, and points of entry would greatly improve pedestrian safety and ensure that students are not left wandering through active parking lots with little protection (Diagram B).

Access to the Cross Street staff parking lot should be limited to staff only. Limited access will prevent parents from using staff parking spaces. It will eliminate children being let out of cars in the middle of the parking lot and crossing through parked cars unprotected. Furthermore, it will eliminate cars from proceeding from the Cross Street staff parking lot into the main parking and drop-off zone.

The second driveway on Cross Street should be the main car drop-off access point. Drivers should proceed down the driveway to the semi-circle in front of the school before allowing their children to get out of the car. Drivers would then exit onto Back Way and either continue on Back Way to Main Street or proceed back through the parking lot and exit onto Cross Street.

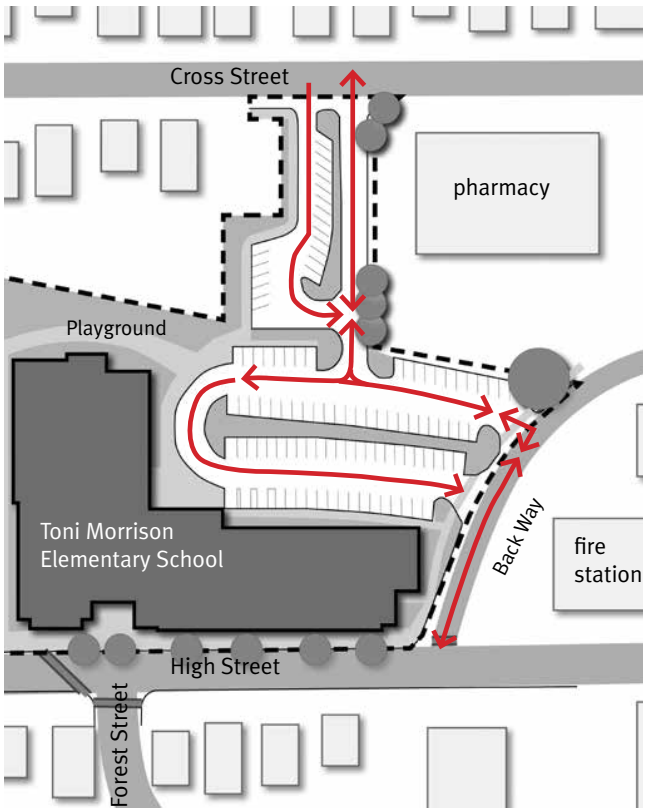


Diagram A - Unrestricted circulation

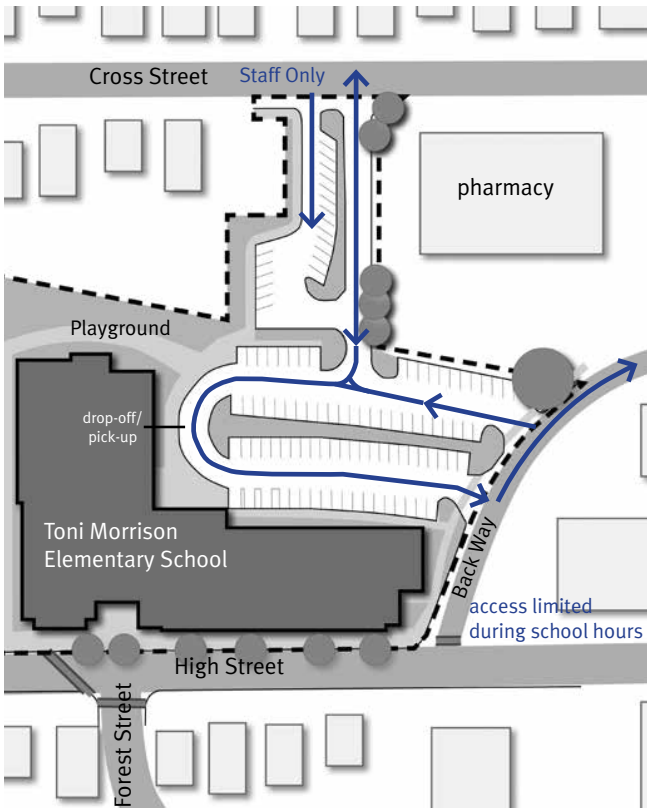


Diagram B - Restricted circulation

Access to the parking lot from High Street should be restricted to staff and buses only during arrival and dismissal hours. Drivers dropping students off must not be allowed to enter the school grounds from this entrance. If drivers enter from High Street, they may try to circumvent the supervised drop-off area leaving their children on the opposite side of the parking lot without a protected crossing. Furthermore, traffic entering from the south could cause a back-up on High Street.

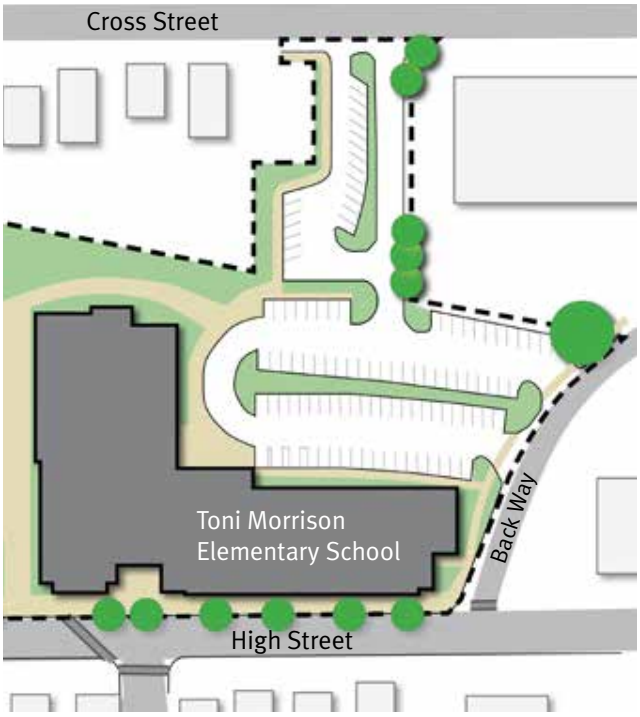
In general, it should be a goal to separate drop-off zones from parking areas whenever possible. The car drop-off approach should be simple and leave little room for driver interpretation. Traffic should flow in one direction allowing children to get out of the car on the sidewalk side and never be forced to cross a driving lane. The proposed traffic flow diagram (Diagram B) above makes the best out of a tough situation. Prioritizing a safe drop-off procedure over maximizing parking would have generated a different site plan.

Safe Parking Lots

The proposed parking lot at Toni Morrison was designed to maximize the number of spaces on the school property. The parking lot will double as event parking for the stadium adjacent to the school. This begins to explain the limited pedestrian infrastructure and the circuitous drive lanes planned on the site.

While most students will not be walking through the parking lot, staff and visitors will be and also need a delineated path network as far from the drop-off traffic as possible. A sidewalk should be considered within the large island and a curb ramp and crosswalk should be provided across the drop-off circle to the school's front door. A crosswalk should also be considered at the south end of the driveway connecting to Cross Street for those parking in the spaces closest to Back Way. While space is tight, a sidewalk connecting the parking spaces to the driveway would also help to improve pedestrian safety.

As mentioned above in the drop-off zone discussion, the proposed traffic flow within the parking lots seems problematic. Typically, it is best to keep drop-off and pick-up loops outside of the drive lanes in the parking areas. Given the site constraints, the proposed changes to the traffic flows discussed above may be the best solutions to the situation.



Proposed parking lots at Toni Morrison Elementary School

APPENDIX

E. WALKABILITY STUDY REPORT

Safe Front Doors

The new Toni Morrison School sits right on High Street in keeping with the urban character of the street. The parking is tucked behind. Walkers coming from the neighborhoods to the south of the school have a great landmark to see as they come out to High Street and cross at the proposed Forest Street crosswalk (see description of proposed improvement in the discussion of Safe Crossings). The wide sidewalks and front entrance plaza provide space for children to congregate. The other front door to Toni Morrison (near the drop-off circle on the opposite side of the school) also has a welcoming plaza space with benches for students to gather before and after school.

Safe Outdoor Spaces

Given the demand for parking spaces at the school and for the adjacent stadium, there was not much space left over to dedicate to outdoor play. A playground is proposed at the northwest corner of the school building. A service drive separates the play space from the school, but it will not be active while children are using the playground. There is a direct line of sight from the school building and from the stadium, which contributes to a feeling of safety while using the playground.

Conclusion

The analysis of both the Pedro Martinez and Toni Morrison Elementary School site plans illustrates a methodology for applying the walkable campus design principles discussed in this report. It provides an active transportation approach to a process typically dominated by vehicle-based thinking. Walkability is not the only priority when designing an elementary school campus. But, if the needs of children walking to school are considered at the outset, and continue to be represented throughout the design process, then all students, staff, faculty and parents will benefit from a school that is safer and more welcoming to all.

E. WALKABILITY STUDY REPORT

Case Studies

The following case studies exemplify some of the walkable campus design principles summarized in this document. Under each category of principles, we have listed the specific characteristics of that campus plan that meet our criteria for a walkable campus. We identified these schools from guidance documents and through internet research. This is by no means an exhaustive list, and we invite you to submit other schools you feel should be featured. Please contact us at info@walkboston.org with nominations.

APPENDIX

E. WALKABILITY STUDY REPORT

School Walkability Summary Table

Schools	Safe streets	Safe crosswalks	Safe drop-off zones	Safe parking lots	Safe front doors	Safe outdoor spaces
Bethesda-Chevy Chase High School	•	•	•	•	•	
Bush Elementary School	•	•	•	•	•	•
Cherry Crest Elementary School		•	•	•	•	•
Christa McAuliffe Elementary School	•		•	•		•
Daybreak Elementary	•	•	•	•		•
Eastlake Elementary	•	•	•	•	•	•
Emerson Elementary	•	•	•	•	•	•
Ensworth Elementary School	•	•		•		•
Geer Park Elementary School	•		•		•	•
Gray Middle School		•	•	•	•	•
Hood River Middle School	•	•		•		
Martin Luther King Jr. Elementary	•	•	•	•		•
Rosa Parks Elementary School	•	•			•	•

E. WALKABILITY STUDY REPORT

Bethesda-Chevy Chase High School

4301 East-West Hwy Bethesda, MD 20814
Grades: 9-12
Population: 1,875

Safe Streets	Safe Cross-walks	Safe Drop-off Zones	Safe Parking Lots	Safe Front Doors	Safe Outdoor Spaces
Connected side-walk network from neighbor-hood to school	Crosswalks painted and marked with signs; curb bump-outs at major crossing	Bus and vehicle drop-off zones are separated from pedestrian arrival	Pedestrian path-ways from near-by parking lots lead straight to school	Distinct front door to indicate “eyes on the street”	

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E. WALKABILITY STUDY REPORT

Bush Elementary School

410 14th St SE, Salem, OR 97301
Grades: K-5
Population: 320

Safe Streets	Safe Cross-walks	Safe Drop-off Zones	Safe Parking Lots	Safe Front Doors	Safe Outdoor Spaces
Connected side-walk network from neighbor-hoods to school	Well-marked crosswalks lead directly to front door	Use street net-work for drop-off and queuing	Majority of parking spaces located near pe-destrian paths	Building scales fits with neigh-borhood context	School rebuilt on site adjacent to park, easy ac-cess to outdoor space

E. WALKABILITY STUDY REPORT

Cherry Crest Elementary School

12400 NE 32nd St, Bellevue, WA 98005
Grades: K-5
Population: 670

Safe Streets	Safe Cross-walks	Safe Drop-off Zones	Safe Parking Lots	Safe Front Doors	Safe Outdoor Spaces
	Speed tables in front of main entrance	Modest-sized drop-off zone; adjacent to front door	Majority of park-ing in island, accessible by crosswalk	Front door has gathering space, landscaping, bike racks	Adjacent to neighborhood park

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E. WALKABILITY STUDY REPORT

Christa McAuliffe Elementary School

Tomashaw St, Lenexa, KS 66219
Grades: Pre-K-6
Population: 460

Safe Streets	Safe Cross-walks	Safe Drop-off Zones	Safe Parking Lots	Safe Front Doors	Safe Outdoor Spaces
Good sidewalk/ walking path network leading to the school		Satellite drop-off/pick-up zone at adjacent community center; bus drop-off separated from pedestrian routes	On-site parking lot separate from primary pedestrian paths; additional satellite parking at community center connected by walking path		Directly adjacent to green space and multi-use path network

E. WALKABILITY STUDY REPORT

Daybreak Elementary School

4544 Harvest Moon Dr, South Jordan, UT 84095
Grades: K-6
Population: 1,100

Safe Streets	Safe Cross-walks	Safe Drop-off Zones	Safe Parking Lots	Safe Front Doors	Safe Outdoor Spaces
Sidewalks well-connected throughout campus	Crosswalks clear and defined	Bus and car drop-off zones clearly separat-ed from primary walking path	Parking lot sep-arate from main entrance		Outdoor space on school grounds and safely accessi-ble

APPENDIX

E. WALKABILITY STUDY REPORT

Eastlake Elementary School

4389 Isla Daybreak Rd, South Jordan, UT 84095
Grades: K-6
Population: 1,070

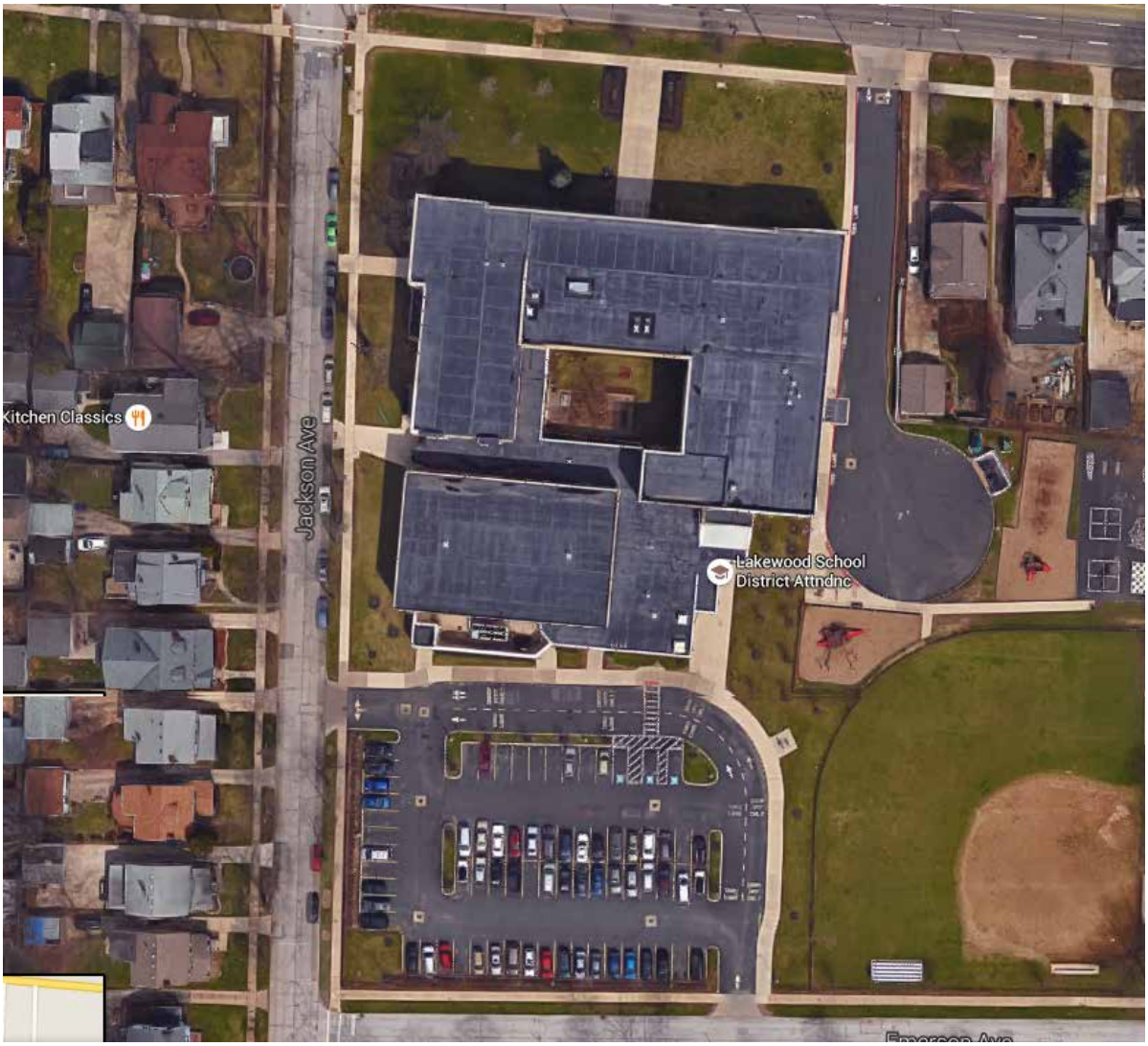
Safe Streets	Safe Cross-walks	Safe Drop-off Zones	Safe Parking Lots	Safe Front Doors	Safe Outdoor Spaces
Sidewalks well-connected throughout campus	Crosswalks clear and defined	Bus and car drop-off zones clearly separat-ed from main entrance	Parking lots straddle build-ing's edges, away from walk-ing routes	Large, distinc-tive entrance among green space	Outdoor space accessible by sidewalk with-out crossing a street

E. WALKABILITY STUDY REPORT

Emerson Elementary School

13439 Clifton Blvd, Lakewood, OH 44107
Grades: K-5
Population: 300

Safe Streets	Safe Cross-walks	Safe Drop-off Zones	Safe Parking Lots	Safe Front Doors	Safe Outdoor Spaces
Connected side-walk network from neighbor-hoods to school	Crosswalks well marked, pedes-trian signal at intersection	Parking and drop off zone located in the back corner of the site		Front door built close to the street edge, set in green tree lawn	Green space accessible by sidewalk with-out crossing a street



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E. WALKABILITY STUDY REPORT

Ensworth Elementary School

2150 NE Daggett Ln, Bend, OR 97701
Grades: K-5
Population: 233

Safe Streets	Safe Cross-walks	Safe Drop-off Zones	Safe Parking Lots	Safe Front Doors	Safe Outdoor Spaces
Location in res-idential neigh-borhood with good sidewalk connectivity	Elevated speed tables at major crosswalks near school		Protected side-walks around parking lot		Open space ac-cessible without crossing active travel lanes

E. WALKABILITY STUDY REPORT

Geer Park Elementary School

14767 Prospect St, Dearborn, MI 48126
Grades: K-5
Population: 330

Safe Streets	Safe Cross-walks	Safe Drop-off Zones	Safe Parking Lots	Safe Front Doors	Safe Outdoor Spaces
School integrated into neighborhood residential setting		Drop-off zones along neighborhood streets preserving site for play		Front door built close to the street edge with large plaza at building entrance	Adjacent to Geer Park, can access without crossing an active travel lane

APPENDIX

E. WALKABILITY STUDY REPORT

Gray Middle School

6229 S Tyler St, Tacoma, WA 98409
Grades: 6-8
Population: 600

Safe Streets	Safe Cross-walks	Safe Drop-off Zones	Safe Parking Lots	Safe Front Doors	Safe Outdoor Spaces
	Crossings are prominent; flashing beacons	Circular driveway attached to parking lot (presumably used for drop-off) separately from main entry	Parking lot is relatively small and located adjacent to pedestrian plaza; does not separate the school building from the street	Large entry plaza runs down entire western side of school	Can access open space without crossing an active travel lane; landscape spaces contribute to building site design

E. WALKABILITY STUDY REPORT

Hood River Middle School

1602 May St, Hood River, OR 97031
Grades: 6-8
Population: 540

Safe Streets	Safe Cross-walks	Safe Drop-off Zones	Safe Parking Lots	Safe Front Doors	Safe Outdoor Spaces
Located within neighborhood center; chose to renovate rather than move from convenient location when space became an issue; connected sidewalk network	Well-defined crosswalks at main points of entry		Parking located across the street; preserving site for play and mission-related uses	Multiple front doors with large green spaces and paved areas with benches to facilitate gatherings; traditional entry ways	Can access track and green space without crossing an active travel lane

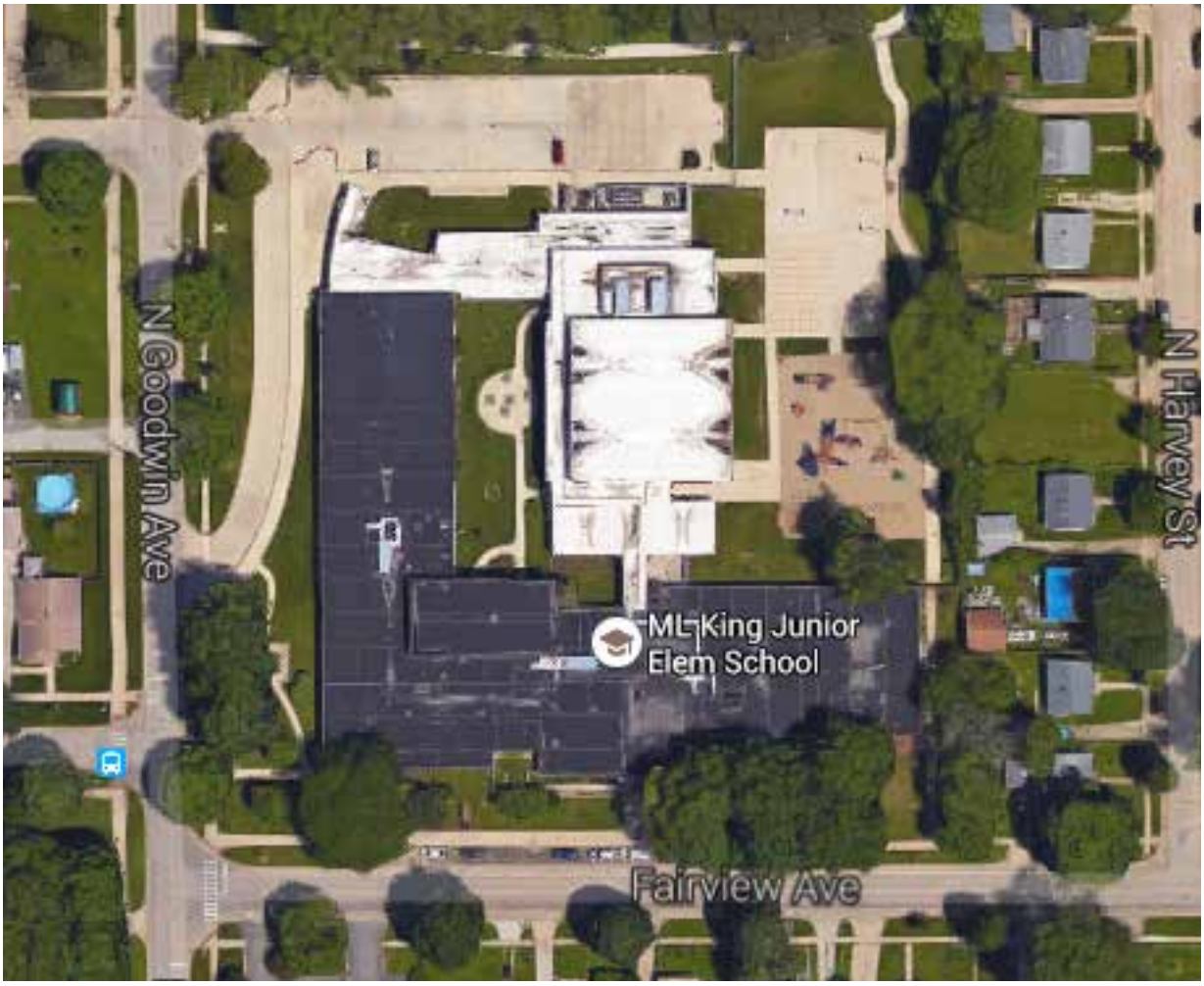
APPENDIX

E. WALKABILITY STUDY REPORT

Martin Luther King Jr. Elementary

1108 Fairview Ave, Urbana, IL 61801
Grades: K-5
Population: 300

Safe Streets	Safe Cross-walks	Safe Drop-off Zones	Safe Parking Lots	Safe Front Doors	Safe Outdoor Spaces
Connected side-walk network throughout residential neighbor-hood; pathway network from local park to the school	Crossings are well-marked on road surround-ing the school and across driveways on school grounds	Use remote drop off point to pro-mote walking to school	Parking lot adja-cent to, but not in front of main entrance		Playground and hardtop adja-cent to school and pathways connect to neighboring park; students do not have to cross an active travel lane

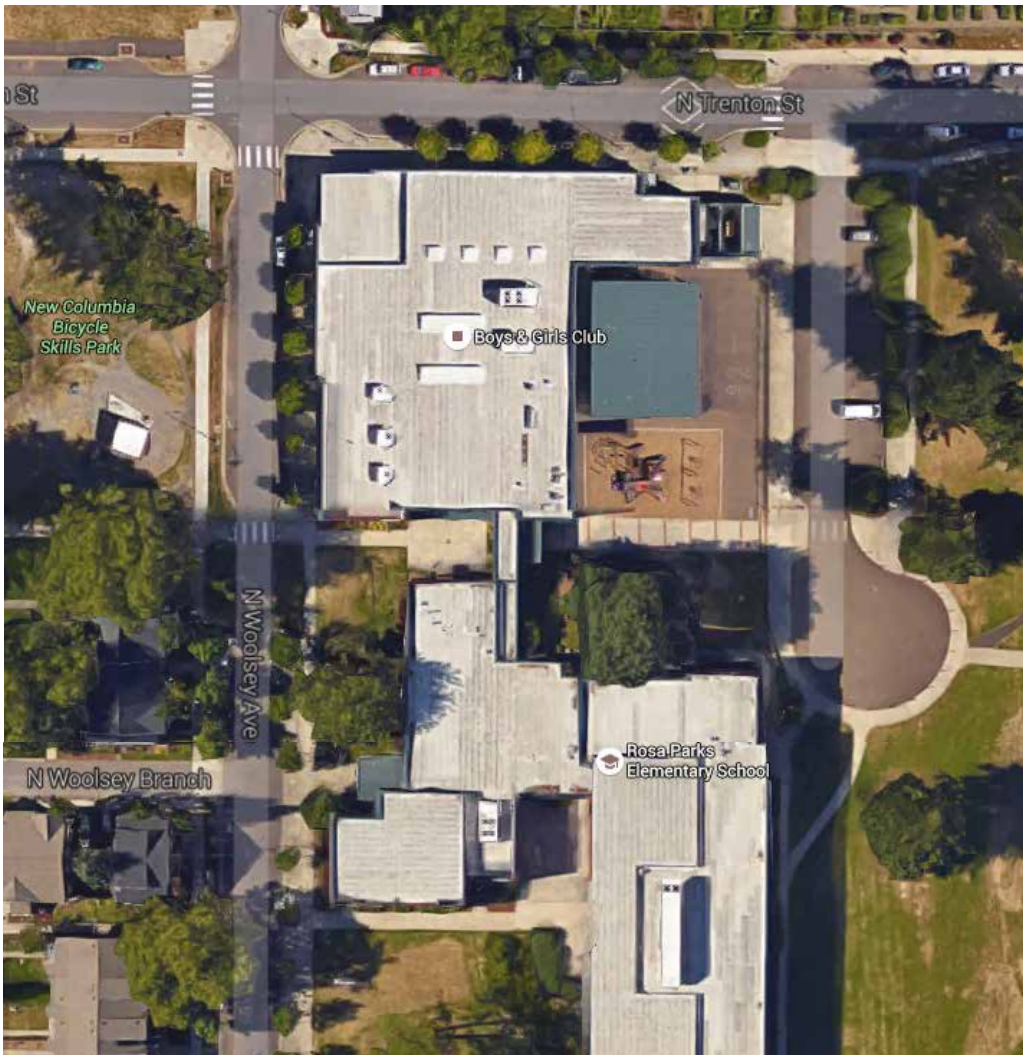


E. WALKABILITY STUDY REPORT

Rosa Parks Elementary

8960 N Woolsey Ave, Portland, OR 97203
Grades: K-5
Population: 367

Safe Streets	Safe Cross-walks	Safe Drop-off Zones	Safe Parking Lots	Safe Front Doors	Safe Outdoor Spaces
Connected side-walk network throughout residential neighborhoods; school connect-ed to other com-munity services	Crosswalks are well-marked, use curb bump-outs, located at pedestrian desire lines			Building along street edge with green tree lawn	Access to green space without crossing active travel lanes



APPENDIX

F. SYSTEMS REVIEW SUB-COMMITTEE MEETING

SYSTEMS REVIEW SUB-COMMITTEE MEETING

Project Name:	Belmont High School
Attachments:	SEE POWER POINT DATED 1.30.2018/ Hand-outs Mech+ Plumbing/ FP
Date:	January 30, 2018
Agenda:	Systems Review/ Civil, MEP/FP, IT, Sustainablity

Attendees:

Bill Lovallo, BHSBC

Phyllis Marshall, BHSBC/ ATA

Pat Brusch, BHSBC

Emma Thurstan, BHSBC

Brooke Trivas, Perkins+Will

Patrick Cunningham, Perkins+Will

Rick Kuhn, Perkins+Will

David Conway, Nitsch Engineering

Kevin Alles, Bala/ Electrical Engineer

Kevin Caddle, Bala Engineering/ Mechanical Engineer

Rob Diemer, AFK/ In Posse

Mike Doyle, AEI, Plumbing

Doug Faria, Edvance, Technology

Tom Gatzunis, DPI

Shane Nolan, DPI

Meeting Started at 1:00 PM.

Introductions

Topic for Discussion

- Systems Review
- Best technologies for achieving NETZERO
- Ultra Low Energy
- Budget for Feasibility Phase to lead into SD
- Look into alternatives in SD

Civil Engineering Overview:

- Geothermal Site Considerations on the site/ Closed Loop system

F. SYSTEMS REVIEW SUB-COMMITTEE MEETING

- Can be located under fields parking roadways, landscape areas
- Wellheads 4-5' below grade/ access is not required. No structure above
- Recirculating loop/ Geotech engineer will determine how many wells and spacing/6" diameter. Off-sets of 25-30'. Less wells you must go deeper. Number and configuration after the test wells. The test wells can be incorporated into the site design.
- Geotechnical write the requirements for Geothermal.
- Civil will arrange on the site working with MEP and Geotechnical.
- Hydrants around the facility.

Storm water

- Meet regulatory requirements
  - Improve storm water coming off the site
  - Decrease any potential for flooding either on site or downstream
  - REQUEST: What do we have today in terms of impervious vs. the future? Tennis courts separate.
- Integrate storm water into landscape
  - Avoid creating storm water systems that take away from available for program
  - Decentralized systems situated appropriately around the site.
  - Reuse/reclaim storm water as required for either building or site program
- Looking to create a learning environment opportunity
- Major issues/ sidewalk at front of high school large sanitary sewer/ brook coming in and leaving. Water line and gas is easy to relocate.

Mechanical

- HVAC systems
  - Central Systems
    - Common Approach
      - Hot water boilers/ Gas Fired/ Condensing 90% efficiency
    - Chillers/ serve part or the entire building (either or below)
      - Air Cooled Chillers/ large for our scale facility
      - Evaporate Cooled Chillers/ more efficient/ not that common
  - Terminal systems
  - Ventilation Systems (DOAS)
  - Dedicated Air Handling Units
    - Auditorium/ Gymnasiums
- ZNE Approach
  - Heating

- Gas-Fired Boilers
    - Can we have gas fired when it is below zero/ could be related to water temperatures?
- Electric Heat Pump/ Ground Loop Geo-exchange/ large water to water

o Cooling

- Electric/ Heat Pump/ Cooling Mode
- Ground Loop/ Geo-Exchange/ could provide full cooling
    - Maintenance: outside none / Inside
    - Determine if back up gas fired is necessary.
    - A lot of redundancy in geo-thermal because there are many wells. These units large-water-to-water creates redundancy. How much AC, summer program, hours of use. Build model to determine how much heating and cooling in the system. No reason can't do the school entirely with geo-thermal but redundancy of systems.
    - 2 soccer fields while the school is in session with other needs. How to get the geo-thermal needs before occupancy. May need temporary measures.
    - Benefits: High efficiency, renewable energy, no pollution, no maintenance outside, reliability.
    - Wellington partial wells/ 100% senior center heated and cooled with 2 deep wells.
- Large water to water Cooling
- K-12 ZNE Direction
    - Displacement Ventilation- Perimeter Classroom
        - o Air delivered low in space/ low velocity, spills on the floor, finds warm bodies and thermally lifted across the body and spills into the space. Cooler at the floor and warmer as it rises. Variations in temperature from Floor to Ceiling.
        - o No filers/ No Fans/ Low maintenance
        - o 2 pipe vs. 4 pipe / Classroom may get 4 pipe other areas 2 pipe.
    - Chilled Beam- in the ceiling interior locations
        - o Induction Unit/ lower pressure/ primary air supplies air through nozzles, high velocity air creates low pressure to induce air through coil to supply out into the space.
        - o Does not provide dehumidification.
        - o Good for acoustics/ low Maintenance/ no filter changes because it does not get wet/ need to get vacuumed
    - Radiant Heating and cooling in floor and ceiling- Lobbies and large glass exposures.
        - o Lobby space, taller space, occupy the lower part of the volume.

F. SYSTEMS REVIEW SUB-COMMITTEE MEETING

- Efficient, high level of thermal comfort, Smaller AHU,
- Dartmouth College has a lot of radiant heat. Get references for projects in which this has been done.

- ALTERNATIVES TO ABOVE SYSTEMS
  - Fan Coil Units- mounted in ceiling
  - Ground Source Heat Pumps- compressors, efficient, more maintenance. Best in closets.
  - VRF (variable refrigerant flow) Heat Pumps- distributes to multiple fan coils in the ceiling. Air cooled system, very efficient system. Office areas as a stand-alone system. Can be tied into the geo-thermal system.

- QUESTION: How much of the school is Air-conditioned? Is this a big driver? YES
  - Will the use of the building change over time?
  - The school has summer programs.
  - The times in which cooling is needed will creep into fall and spring.
- Can it be air-conditioned to a level is not so demanding?
  - Can operate it to comfort and energy and cost. Control this.
- Buildings are so contained/insulated so they hold the heat more- which puts a demand for more AC need to cool.
- Dehumidification- has great impact by opening doors and windows. Which makes it less effective.

- CHART- distributed for system comparison
- IN BASE LINE SQ FT: Displacement Ventilation, central plant, chilled beams no supplemental boiler, no water source heat pumps, ability to zone public, 4 pipe to classrooms.

Electrical

- New Main Electric Service
- New Emergency Distribution System
  - Generator- location, Diesel or Gas, Diesel needs remote tank, Gas can be located on roof.
  - Generator on the ground- acoustic issue, on the roof enhance the noise the neighbors may hear.
  - Flooding- impact on location. Rear or on plinth.
  - Resiliency should be considered.
  - On Generator: Circulator pumps?, life safety, refrigerators, coolers, fire alarm, security, IT, gas cooking, kitchen misc. items.
  - Shelter, Place of Refuge has not been determined.
    - If so, increase field house, cafeteria, associated toilets, ventilation, destratification fans.
- Fire Alarm- Maintain existing where applicable
  - New fire alarm system- reuse the head end if possible. Address this in phasing.

APPENDIX

F. SYSTEMS REVIEW SUB-COMMITTEE MEETING

- Technology per technology Section
- Integrated Intrusion, Access Control, CCTV and Alarm System, Door contacts on exterior doors, card readers.
- Ensure enough lights at the exterior of the building.
- Plan a PV room, multiple invertors. Or section of the electric rooms.
- Sports lighting- no lighting. Will varsity fields be lit? Carry in the budget.
- Ensure that path lighting is in the budget.
- No antenna for cell phones- provided by server.

Electrical systems/ Sustainability

- Metering and measurement of AC, fans, lighting and receptacle
- Plug and process load reductions through the use of vacancy/occupancy sensor controls
- High efficiency lighting, include LED
- Advanced lighting controls include a low voltage lighting control system with time schedule control for common areas,
- Exterior building mounted and pole top luminaries will be LED type with full cut off distribution
- Empty conduits and space provisions will be provided for future PV
- Empty conduit provisions will be provided for future green vehicles charger stations based on two percent of the building parking.

Plumbing/ Fire Protection

- Water Conservation and reducing water demands by:
    - Utilize low flow fixtures throughout
    - Dual flush water closets- manual
        - Small sign/ educational process
    - Pint flush urinals
    - Specifying energy efficient kitchen equipment/ fixtures
    - Utilize “grey water systems” waste water from sinks, showers and kitchen equipment reused to supply water closets and urinals
        - Separate piping system up and back- pumps. Premium for this system.
        - What is the biggest issue Belmont has to deal with? What you do with rainwater or what you do with waste water? What is the community priority? More expensive than the water saved. Belmont does not have issues with too much sanitary water leaving the town. Not a lot of impact to flooding because when needed it is raining.
    - Areas around football field are watered from Claypit pond.
    - Capture rainwater for re-use irrigation systems
    - Hardwire- put receptacle high under the sink- under the counter.
    - Kitchen interior grease trap, dishwasher and disposal, kitchen 3 pot sink to exterior grease trap.

F. SYSTEMS REVIEW SUB-COMMITTEE MEETING

- School being a teaching and learning environment. Mechanical systems, PV, acid neutralization.

Fire Protection

- New Service and systems throughout building
- Wet sprinkler system- throughout the building
- Special systems required? IT, records, unique storage- currently not in scope- Chief to reivew
- Types of Special Systems
    - Pre-action (in isolated areas)
    - Dry (not in scope)
    - Gaseous (Novec 1230, inergen)
- Hose bibs in system
- Standpipe in stair

Information Technology

- Structured Cabling
    - District Fiber- connects all schools and town
        - Relocating to a new location happen in early phase of the construction
        - 100 pairs of fiber to be relocated
    - New MDF and IDF Buildout
        - Cutting over new MDF before shutting down.
        - Above the office in the second floor/ Phase 3 area
    - Latest Standards: Fiber Category 6A (currently category 5 cable)
- Data and Voice Communications
    - VoIP System- telephone system
    - Network Hardware- servers, routers, etc…purchased with MDF cutover
    - WLAN- wireless access points, large group access areas, café, auditorium has ability to have all 750 seats to have access.
    - District Implications- VoIP services the entire school district, network hardware services all schools.
    - 3 hubs in town- Comtract doing additional existing condition work. Get them involved sooner than later. If anything needs to happen outside the project
- Capacity more based on size of service coming into the school/ multiple services into the school/ many devices per student/ one location from the street/ fiber into the school/ redundancy in the system.

- Distributed Communications
    - Building-wide Intercom System
    - Classroom Audio Reinforcement

F. SYSTEMS REVIEW SUB-COMMITTEE MEETING

- Digital Signage- throughout

Net Zero Process

- Setting energy targets: how much energy per sf they are using to get a target idea.
- Site energy Capacity: 219,324 sf of PV high level check. Do we have enough space?
- Energy Budget: Pool has high impact per energy. Fully enclosed AC pool based on. Early phase to think about the components for high energy use.
- Look at MDF, sports lighting etc…higher impacts energy use. Impact to ZNE.
- Understanding of the use of the school and spaces. SAMPLE lower school classroom.
- Schematic Phase- to develop energy used. Where used and how much energy use.
- Need schedule for NZE process.
- If better gets to 99% no need to go to "Best".

CHPS vs. LEED

- Acoustical performance could be an issue due to train which may require significant costs to the project budget.
- Determination to select LEED.

F. SYSTEMS REVIEW SUB-COMMITTEE MEETING

HVAC Systems Comparison							
		Central Heating/Cooling - Ground Loop				Heat Pump	
Feature/Item	No AC (Designed to accommodate future partial cooling)	Displacement with Induction	Chilled Beam	Radiant Heating and Cooling	4- Pipe Fan Coil Units	Ground Source Heat Pump	VRF Heat Pump
Terminal Ductwork	No	No	No	No	Yes	Yes	Partial
Full Cooling	No	Yes	Yes	Yes	Yes	Yes	Yes
Cost	1	4	4	3	3	4	3
Energy Use	1	2	2	2	3	2	2
Perimeter Radiation	Yes	No	Yes	No	No	No	No
Equipment on the floor	No	Yes	No	No	No	No	No
Local Fans in or near the room	No	No	No	No	Yes	Yes	Yes
Acoustical	1	2	2	1	3	4	3
Local Maintenance	No	Minimal	Minimal	Minimal	Yes - Fans/Filters	Yes - Fans/Filters/ Compressors	Yes - Fans/Filters
Quantity of Piping	1	4	4	4	4	3	3
Demand control ventilation	No	Yes*	Yes*	Yes*	Yes*	Yes*	Yes*
Life-Cycle Benefit	1	2	2	1	3	4	4

*Demand control provided with VAV box enhancement
Note: All rankings based on a subjective scale of 1 to 4 with 4 being the worst.

Bala Consulting Engineers

PLUMBING

Water Conservation and Reducing Water Demand

Low-Flow Plumbing Fixtures

- Water closets with flush valves discharging at a maximum of 1.6 gallons per flush (gpf)
    - Dual-flush water closets
        - Lifting handle UP initiates a reduced flush eliminating liquid and paper.
        - Pushing handle DOWN initiates a full flush eliminating all waste.

Urinals with one-pint flush (base design)

- Waterless urinals do not use any water. Liquids pass through a sealed biodegradable cartridge that also controls odors. Typical waste and vent piping connects to the fixture. Requires cartridge replacement after approximately 7,000 uses.

Grey Water Systems

- Greywater is water from bathroom sinks, showers, and laundry machines. It is not water that has come from waterclosets and urinals. It is stored and treated on site.
- Can be used to supply water to waterclosets and urinals for flushing.
- Can also be used for irrigation.

Rainwater Harvesting

- The collection of water from surfaces on which rain falls, and subsequently storing this water for later use. Normally water is collected from the roofs of buildings and stored in rainwater tanks.
- Can also be used for irrigation purposes.

FIRE PROTECTION

Wet Pipe System

Wet pipe sprinkler systems are the simplest and most common fire suppression method on the market today. They are comprised of pipes that constantly contain pressurized water. When an individual sprinkler in the system is activated by heat from fire, the automatic, closed-type sprinkler head immediately discharges water onto the fire. As more individual sprinkler heads are subsequently activated by heat, they too will discharge water onto the fire until it is controlled or extinguished.

Dry Pipe System

Specifically designed for area susceptible to freezing, dry pipe sprinkler systems feature automatic and closed-type sprinkler heads connected to pipes filled with pressurized air or nitrogen. The compressed air holds a remote valve, known as a dry pipe valve, in a closed position to prevent water from entering the pipe. When heat activates one or more

sprinklers, the compressed air in the pipe is released, and its pressure decreases, opening the dry pipe valve and allowing water to flow through open sprinklers.

Pre-Action System

Pre-action fire sprinkler systems employ the basic concept of a dry pipe fire sprinkler system in that water is not normally contained within the pipes. But rather holding water from piping via pressurized air or nitrogen, pre-action sprinkler systems restrain water with an electrically operated valve, known as a pre-action valve.

The system's discharge is a two-step process: First, the detection system identifies smoke or heat, which activates a pre-action valve that allows water to flow into piping and effectively creates a wet pipe sprinkler system. Second, individual sprinkler heads release to let water flow onto the fire. This second step provides an added level of protection against inadvertent discharge, which makes pre-action systems ideal for water-sensitive environments.

Novec 1230 Clean Agent System

A waterless fire suppressant typically installed to protect critical operations and high value assets where the use of water to control a fire would damage the asset being protected and critical operations.

Novec 1230 is a liquid stored in unpressurized containers and stored at room temperature. Upon activation from an automatic detection system, Novec 1230 fluid is released into the room and puts out the fire. It stops the combustion process by absorbing heat. Novec 1230 fluid will rapidly vaporize and evenly distribute throughout the protected space.

Inergen Clean Agent System

A waterless fire suppressant typically installed to protect critical operations and high value assets where the use of water to control a fire would damage the asset being protected and critical operations.

The Inergen system is an engineered clean-agent system utilizing a fixed nozzle agent distribution network. The Inergen system will suppress surface burning fires by lowering the oxygen content below the level that supports combustion.

The system can be actuated by detection and control equipment for automatic system operation along with providing local and remote manual operation as needed. Accessories are used to provide alarms, ventilation control, door closures, or other auxiliary shutdown or functions. When Inergen agent is discharged into a room, it introduces the proper mixture of gases that will allow a person to breathe in a reduced oxygen atmosphere.

Any room(s) protected by an Inergen system must have proper ventilation design to alleviate the agent after suppressing the fire.

SLOAN®

UPPERCUT® Flushometers
WES 111

▶ Code Number
3720000

▶ Description
Exposed Water Closet Sloan® Flushometer with Dual Flush Feature, for floor mounted or wall hung top spud bowls.

▶ Flush Cycle
1.6 / 1.1 gpf - 6.0 Lpf / 4.2 Lpf

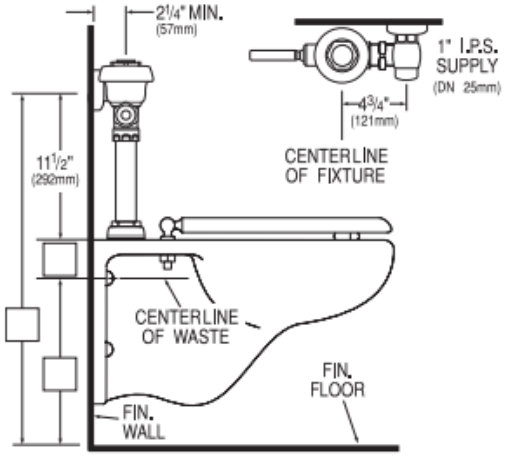
▶ Specifications
Dual Flush, Quiet, Exposed, Diaphragm Type, Chrome Plated Closet Flushometer with the following features:

- Lifting Handle UP initiates reduced flush (1.1 gpf/4.2 Lpf), eliminating liquid and paper waste, saving a ½-gallon of water
- Pushing Handle DOWN initiates full flush (1.6 gpf/6.0 Lpf), eliminating all waste
- Reduces water volume by up to 30% when activated UPWARDS
- PERMEX® Synthetic Rubber Diaphragm with Dual Filtered Fixed Bypass
- ADA Metal Non-Hold-Open Handle with Triple Seal Handle Packing
- Sweat Solder Adapter with Cover Tube & Cast Wall Flange with Set Screw
- Non-Hold-Open Handle, Fixed Metering Bypass and No External Volume Adjustment to Ensure Water Conservation
- Diaphragm, Handle Packing and Vacuum Breaker to be molded from PERMEX® Rubber Compound for Chloramine Resistance
- Includes two (2) adhesive backed Metal Wall Plates etched with Instructions
- Flush accuracy controlled by CID® technology
- Spud Coupling and Flange for 1 1/2" Top Spud

Valve Body, Cover, Tailpiece and Control Stop shall be in conformance with ASTM Alloy Classification for Semi-Red Brass. Valve shall be in compliance with the applicable sections of ASSE 1037 and ANSI/ASME 112.19.2.

▶ Accessories (Sold Separately)
See Accessories Section of the Sloan catalog for available accessories

▶ Fixtures
Consult factory for matching Sloan brand fixture options.



▶ Compliance & Certifications
Made In The USA

HIGH-EFFICIENCY TOILET

This space for Architect/Engineer Approval

SOLIS® Solar-Powered Flushometer
SOLIS 8186-0.125

▶ Code Number
3370010

▶ Description
Exposed, Solar Powered, Sensor Activated Sloan SOLIS® Model Urinal Flushometer, with Smart Sense Technology™.

▶ Flush Cycle
0.125 gpf/0.5 Lpf

▶ Specifications
Quiet, Exposed, Diaphragm Type, Chrome Plated Urinal Flushometer for either left or right hand supply with the following features:

- Handle Packing, Main Seat, Stop Seat and Vacuum Breaker Molded from PERMEX® Rubber Compound for Chloramine resistance
- Initial Set-up Range Indicator Light (first 10 minutes)
- User friendly three (3) second Flush Delay
- "Low Battery" Flashing LED
- Sweat solder adapter with cover tube and cast wall flange with set screw
- Spud coupling and flange for 3/4" top spud
- Solar Powered. The sensor assembly is powered by a solar cell that will harvest power from artificial indoor light, either incandescent or fluorescent light, and use it as the energy source. The solar cell can provide approximately 100% power with 650 Illuminance (lux).
- Four (4) Size AA Battery Back-up Power Source
- Synthetic rubber seals for chloramine resistance
- Infrared Sensor with Multiple-focused, Lobular Sensing Fields for high and low target detection
- Latching Solenoid Operator
- Infrared Sensor Range Adjustment Screw
- Fixed Metering Bypass and No External Volume Adjustment to Ensure Water Conservation
- Flex Tube Diaphragm designed for improved life and reduced maintenance
- Engineered Metal Cover with replaceable Lens Window
- ADA Compliant Sloan Solis® Solar Powered Infrared Sensor for automatic "No Hands" operation
- Reduces water usage up to 80% over Standard Sensor Urinals.
- ADA Compliant Solis® Solar Powered Infrared Sensor for automatic "No Hands" operation
- 3/4" IPS screwdriver Bak-Chek® angle stop with vandal resistant stop cap
- Courtesy Flush® Override Button
- Flush accuracy controlled by CID® technology

Valve Body, Cover, Tailpiece and Control Stop shall be in conformance with ASTM Alloy Classification for Semi-Red Brass. Valve shall be in compliance with the applicable sections of ASSE 1037 and ANSI/ASME 112.19.2.

▶ Smart Sense Technology™
The Sloan SOLIS® Solar powered Flushometer is equipped with Smart Sense Technology™ which applies extended range and logic techniques to significantly reduce water usage in high use urinal applications.

▶ Automatic Operation
Sloan SOLIS® Solar powered Flushometers are activated via multi-lobular infrared sensor. Sloan's SOLIS® Solar powered Flushometer is a breakthrough in design and function that transforms light into power. The SOLIS® Series of Flushometers provide the ultimate in conservation and performance.

▶ Manual Operation
Sloan SOLIS® Solar powered Flushometers incorporate a intuitive button design for easy manual activation. Straightforward graphics alert user to proper activation. To further educate the user, two (2) instructional wall plates are included with each Sloan Solis® Flushometer.

▶ Functional & Hygienic
Touchless, sensor operation eliminates the need for user contact to help control the spread of infectious diseases. The SOLIS® solar-powered flushometers is provided with an override button to allow a Courtesy Flush® for individual user comfort.

▶ Compliance & Certifications

This space for Architect/Engineer Approval

SLOAN®

SOLIS® Solar-Powered Flushometer
SOLIS 8186-0.125

▶ ELECTRICAL SPECIFICATIONS

Control Circuit
Solid State

6 VDC Input

8 Second Arming Delay

Sensor Type
Active Infrared

Sensor Range
Nominal 15"-30" (381 mm-762 mm), adjustable ± 8" (203 mm)

Battery Back Up Type
(4) AA Alkaline

Battery Life
6 Years @ 4,000 flushes/month

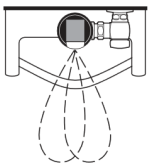
Indicator Lights
Range Adjustment

Operating Pressure
15 - 100 psi (104 - 689 kPa)

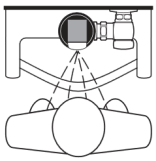
Sentinel Flush
Automatic flush once every 72 hours after the last flush. Product shipped from factory with feature turned off. Consult factory to activate.

▶ OPERATION

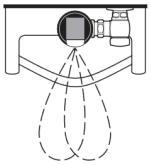
1. A continuous, invisible light beam is emitted from the SOLIS® Sensor.



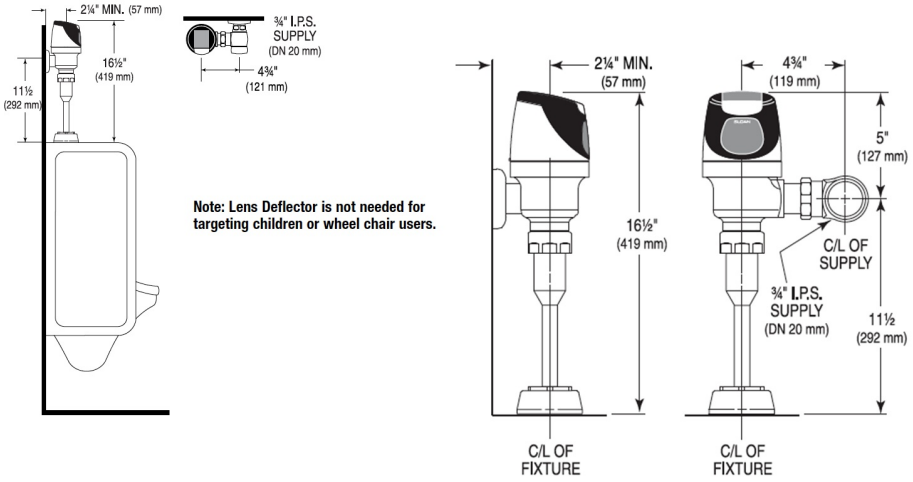
2. As the user enters the beam's effective range (15" to 30") the beam is reflected into the SOLIS® Scanner Window and ransformed into a low voltage electrical circuit. Once activated, the Output Circuit continues in a "hold" mode for as long as the user remains within the effective range of the Sensor.



3. When the user steps away from the SOLIS® Sensor, the Sensor initiates an electrical signal that operates the Solenoid. This initiates the flushing cycle to flush the fixture. The Circuit then automatically resets and is ready for the next user.



▶ ROUGH-IN



Note: Lens Deflector is not needed for targeting children or wheel chair users.

SLOAN®

Waterfree Urinals
WES-1000

▶ Code Number
1001000

▶ Description
Complete vitreous china urinal.

▶ SPECIFICATIONS
Complete, vitreous china water free urinal.

- White Vitreous China
- Cartridge Housing
- One piece Wall bracket with Anchors Included
- Uni-coupler (for new and retrofit installations)
- Drain Line test cap

† Cartridges sold separately

- Cartridge Kit - Engineered to last for at least 7000 uses
- Touch-free operation
- Uses no water
- Mechanical-free design
- Patented, sealing locking cartridge
- Smooth, non-porous surfaces
- Improved hygiene and safety
- Reduced water and sewer costs
- Water supply piping not required
- Odor-free
- Vandal Resistant
- Minimal care and easy cleaning

▶ Cartridge Filter

Patented, Sealed Cartridge uses a Biodegradable Sealant Liquid to control odors.

The patented Cartridge is engineered to last for an average of 7000 uses and to receive waste through drain holes. Waste passes through an immiscible layer of biodegradable Sealant, continues through a Trap System, and flows over a Baffle to prevent the loss of Sealant. A Discharge Tube in the housing directs the flow of waste into the building drain system. The Cartridge is designed as a replaceable component when its function has been exhausted.

▶ Preserves our Natural Resources and Saves Costs
Sloan Waterfree Urinals reduce water and sewer costs, maintenance and repair bills, and create more hygienic, odor-free restrooms. A Patented, Sealed Cartridge eliminates the need for water, conserving up to 40,000 gallons per unit per year. Installing Waterfree Urinals along with other Sloan Conservation Products ensures meaningful water savings. In addition, Sloan Waterfree Urinals do not require costly supply plumbing to fixture.

▶ Compliance & Certifications

Red List Free

This space for Architect/Engineer Approval

SLOAN®

Waterfree Urinals
WES-1000

▶ Mounting for ADA Compliance
For lip height of 17" (432 mm), distance from finished floor to drain centerline must be 10" (254 mm)

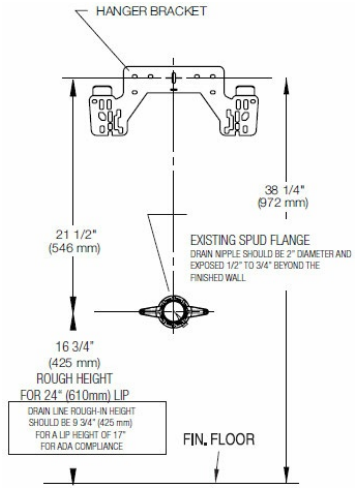
▶ Drain Connection and Material
Installs on standard 2-inch drain connections with spud flange or threaded nipple. Suitable DWV materials include cast iron, galvanized steel, ABS and PVC.

IMPORTANT-Do not install on copper DWV due to copper's susceptibility to corrosion.

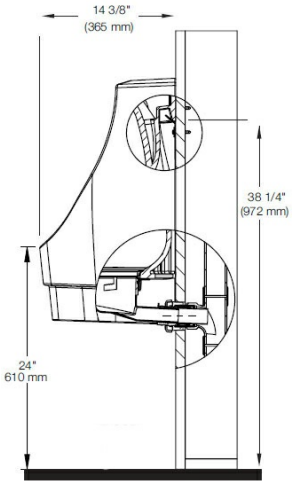
The Uni-Coupler connects the urinal housing to the building drain system and conforms to NSF 14 for plastic pipes and fittings. It is designed for use in both new and retrofit applications and offers a variety of configurations to meet most existing drain openings

▶ MAINTENANCE & CLEANING
- Perform cleaning once a day, or as needed
- Remove any litter in the bowl and clear cartridge drain slots
- Use mild disinfectant cleaner on a cloth to wipe the bowl

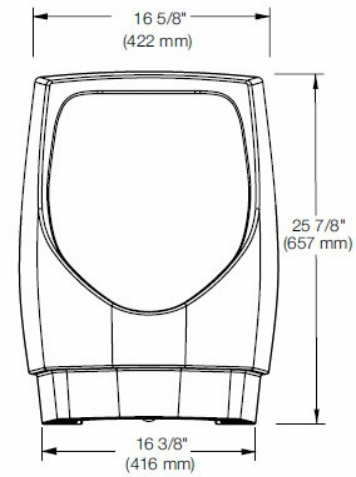
▶ ROUGH-IN



ROUGH-IN AND BRACKET LOCATION



Side View



Front View

AGENDA FOR THE
BELMONT HIGH SCHOOL BUILDING COMMITTEE
DATE OF MEETING: TUESDAY, JANUARY 16, 2018
TIME OF MEETING: 7:00PM
LOCATION: CHENERY MIDDLE SCHOOL, LARGE COMMUNITY ROOM
95 WASHINGTON STREET, BELMONT, MA 02478

1. Call to order
2. Minutes of previous meetings
3. Comments from Belmont residents
4. Update on Project costs (Tom Gatzunis)
5. Funding the Project (Floyd Carman)
6. Costs for K-8 schools (John Phelan)
7. Preliminary Site Design Updates (Brooke Trivas)
8. Future Building Committee meetings (Bill Lovallo)
9. New business
10. End meeting

Agenda Item #1

Call To Order

Agenda Item #2

Minutes of previous meetings

BELMONT HIGH SCHOOL BUILDING COMMITTEE
MEETING #33
January 9, 2018
BELMONT HIGH SCHOOL
7:00 PM

BHS Building Committee Members Attending:

Chair Lovallo; Members: Adam Dash, Tom Caputo, Bob McLaughlin, John Phelan, Chris Messer, Dan Richards, Pat Brusch, Emma Thurston, Diane Miller, and Jamie Shea

BHSBC Members Absent: Phyllis Marshall, Joe DeStefano, Joel Mooney

Board of Selectmen Attending: Chair Jim Williams and Adam Dash

Board of Selectmen Absent: Mark Paolillo

School Committee Attending: Chair Lisa Fiore, Susan Burgess-Cox, Catherine Bowen, Thomas Caputo, Andrea Prestwich, and Murat Bicer

The meeting was a joint meeting with the School Committee and Board of Selectmen in which the Belmont High School Building Committee was presented an overview of the District Grade Configuration work that the School Department has been undertaking.

APPENDIX

G. SCHOOL COMMITTEE MEETING

1. Call to Order

The Belmont High School Building Committee meeting was called to order at 7:05 p.m. by Chair Lovallo. A count of attendees totaled 73 in addition to the Building Committee, School Committee, and Board of Selectmen.

2. Presentation of Grade Configuration Options by School Department

Superintendent John Phelan presented the School Department work on district configuration studies. Mr. Phelan explained how the High School configuration affects the entire K-12 district and the School Department has been examining what those possible impacts will be.

Mr. Phelan explained the possible District grade configurations that fall into 5 categories:

1. Option 1: K-4, 5-8, 9-12 (existing conditions)
2. Option 2: K-4, 5-7, 8-12 (8, 9-12)
3. Option 3: K-4, 5-7, 8-12 (8-9, 10-12)
4. Option 4: K-3, 4-6, 7-12 (7-8, 9-12)
5. Option 5: K-3, 4-6, 7-12 (7-9, 10-12)

Mr. Phelan briefly reviewed the work that was done with visioning, surveys, meetings, etc. Much of this work was previously presented at the December 9th meeting. Mr. Phelan then sited some of the research that the School Department has read regarding grade configurations and number of moves from K-12. Several articles spoke to the impact to students socially and academically. Mr. Phelan noted that there was no consistency in the actual grade groupings. Rather, the articles generally stated that as much as a school move has an impact on students, the greater impact is the environment that is created for those students. This can have more of an impact on the students than the move itself.

Mr. Phelan noted that the School Department has reviewed the grade configuration options through the lens of educational appropriateness, space needs (both short term and long term), financial costs to Town (both short term and long term), and timeline to meet the District's challenges. Mr. Phelan noted that at this time, the preferred configuration has consistently been 7-12, although no decisions have been made and the School Department continues to discuss all three options.

Mr. Phelan then answered questions from the School Committee and the public regarding this presentation.

G. SCHOOL COMMITTEE MEETING

3. Presentation of Lower School Space Options by School Department

Mr. Phelan explained that the School Department retained the Design firm of SMMA to perform studies on the remaining District schools (the 4 elementary schools and the middle school) to provide recommendations for properly accommodating the students that do not get located at the new High School. He noted that they have examined the schools, met with principals and staff, and explored options in the district for building adjustments to meet the growing student enrollment.

The assumptions used included:

- 360 students in each grade level
- no modular classrooms
- all schools accommodating art, music, physical education, special education, EL's and LABBB

Each elementary school will contain a maker/innovation space to support the planned learning path at the upper levels. Chenery and Wellington will retain their Community rooms.

Classroom population is to be based on the room sizes and uses MSBA guidelines which limits classroom sizes to 23 students (with appropriate space) except for K which is limited to 18. These numbers are in line with the Belmont class size guidelines.

Considering those factors when one examines the entire district, the schools become "right-sized" which Mr. Phelan explains is the adjustment necessary to meet the target criteria. Existing schools will then see a reduction in student capacity from today's number requiring more classrooms to be added to the District. The net total number of students in K-8 requiring new space accommodating is 704 -- with 318 students requiring new space at the Chenery School and 386 at the four elementary schools.

Mr. Phelan then explained that SMMA examined all 5 Options for the HS project (explained previously) and offered solutions for space needs in the remaining 5 buildings. A 6th option was added, which was a new elementary school, however Mr. Phelan noted that there is currently no space available in Belmont to construct a new elementary school. He explained that the 6th option would allow K-5 in the elementary schools, 6-8 in the middle school, and 9-12 in the high school.

Mr. Phelan then summarized each solution by option. Some areas require light renovation, which can include minor changes such as modifying interior classroom setups. Some areas require comprehensive renovations, which involve moving walls and MEP systems, possible additions to cafeteria and gym, and upgrades for ADA. A summary of the solutions followed:

Option 1:

- renovations in Burbank along with an addition

APPENDIX

G. SCHOOL COMMITTEE MEETING

Option 1:

- renovations in Burbank along with an addition
- renovations in Butler along with an addition
- no work in Wellington, renovation in Winn Brook
- renovations in Chenery along with addition
- total project cost is $54-$66M

Option 2/3 (A):

- renovations in Burbank along with an addition
- renovations in Butler along with an addition
- no work in Wellington
- renovation in Winn Brook
- no work in Chenery
- total project cost is $39.5-$47.5M

Option 2/3 (B):

Option 2/3 (B):

- renovations in Burbank
- renovations in Butler
- no work in Wellington
- renovation in Winn Brook along with addition
- no work in Chenery
- total project cost is $41-$48.5M

Option 4/5:

- renovations in Burbank
- renovations in Butler
- no work in Wellington
- renovation in Winn Brook
- renovations in Chenery
- total project cost is $18-$25.5M

Option 6:

G. SCHOOL COMMITTEE MEETING

Option 6:

- renovations in Burbank
- renovations in Butler
- no work in Wellington
- renovation in Winn Brook
- renovations in Chenery
- construction of a new school
- total project cost is $72-$82.5M

Mr. Phelan noted that there is currently no vehicle for moving any of these projects forward. There is no committee formed, no funding in place for design, and there are other projects currently in the Belmont pipeline. Therefore, the reality is that these solutions outlined above will not come to fruition until well after the HS is complete. He also noted that for Option 4/5, the solution to accommodate the anticipated students in the current buildings, with no requirement for capital projects, seems possible given that the schools will all see a reduction in population and the needed adjustments can be reduced and/or phased in the future.

Mr. Phelan then answered questions from the School Committee and the public regarding this presentation.

4. Discussion of School Impact

Mr. Phelan asked principals of four of the District's six schools to comment on the challenges they see currently in their school, the opportunities that the "right sizing" of their school will bring, and their opinion of the configuration options being proposed. The following principals provided comments:

Dr. Tricia Clifford, Burbank Principal
Janet Carey, Winn Brook Principal
Dan Richards, Belmont High School Principal
Michael McAllister, Chenery Middle School Principal

Mr. Phelan then answered questions from the School Committee and the public regarding this presentation.

5. Related Meeting Documents

1. Presentation Slides on District Configuration prepared by School Department
2. Presentation Slides on Grade Configuration Study prepared by SMMA

4. End Meeting

The meeting ended at 9:00 p.m. by Mr. McLaughlin

Agenda Item #3

Comments from Belmont residents

Agenda Item #4

Update on Project costs (Tom Gatzunis)

BELMONT HS - CONCEPT COST SUMMARY - PDP
DAEDALUS PROJECTS INC.
Updated 01/16/18 Rev. 1

		Scheme A		Scheme B		Scheme C	
	Grade Configuration	9-12		8-12		7-12	
	Enrollment	1,470		1,845		2,215	
	existing SF	257,120		257,120		257,120	
	proposed SF Add/Reno	343,494		393,561		451,575	
	proposed SF New	311,619		363,186		422,700	
		Construction Cost	Project Cost	Construction Cost	Project Cost	Construction Cost	Project Cost
1	Renovation of existing only	$101,192,523	$124,740,654	N/A	N/A	N/A	N/A
	Belmont Cost		*$92,308,084*				
	Per Sq Ft.	*$393.56*	*$485.15*				
2.1	Major Renovation/Minor Addition Maintains existing Fieldhouse/Pool & Auditorium	$189,169,735	$235,962,169	$204,901,307	$255,626,634	$237,611,855	$296,514,819
	Belmont Cost		*$174,612,005*		*$189,163,709*		*$219,420,966*
	Per Sq Ft.	*$550.72*	*$686.95*	*$520.63*	*$649.52*	*$526.18*	*$656.62*
2.3	Minor Renovation/Major Addition Maintains existing Fieldhouse/Pool	$199,105,693	$248,382,116	$221,456,334	$276,320,418	$250,992,630	$313,240,788
	Belmont Cost		*$183,802,766*		*$204,477,109*		*$231,798,183*
	Per Sq Ft.	*$579.65*	*$723.10*	*$562.70*	*$702.10*	*$555.82*	*$693.66*
2.4	Minor Renovation/Major Addition Maintains existing Fieldhouse/Pool	$194,625,389	$242,781,736	$218,874,896	$273,093,620	$248,368,872	$309,961,090
	Belmont Cost		*$179,658,485*		*$202,089,279*		*$229,371,207*
	Per Sq Ft.	*$566.60*	*$706.80*	*$556.14*	*$693.90*	*$550.01*	*$686.40*
3.1	New Construction West Side of BHS Demo BHS, New Gym & Auditorium. No Pool	$188,311,282	$233,639,103	$211,361,213	$262,451,516	$237,856,311	$295,570,389
	Belmont Cost		*$172,892,936*		*$194,214,122*		*$218,722,088*
	Per Sq Ft.	*$604.30*	*$749.76*	*$581.96*	*$722.64*	*$562.71*	*$699.24*

APPENDIX

G. SCHOOL COMMITTEE MEETING

Information as of:

October 2017

Board Meeting

Estimated Construction & Total Project Cost Data at Schematic Design [ON OR AFTER JANUARY 1, 2014]

High Schools

The information and data contained in this spreadsheet, for construction projects starting January 2014, is based on the MSBA's review of construction cost estimates, contracts and other documentation provided by cities, towns, and regional school districts. This information and data is intended for informational purposes only. The data may have changed based on actual construction bids or contract amendments, for example, and the MSBA shall have no responsibility or duty to update any of the information contained in this spreadsheet. Please contact the Districts for the most current information. The MSBA hereby disclaims any and all liability and responsibility that may arise in connection with the information contained in this spreadsheet. This spreadsheet may include a preliminary review of scope exclusions but all costs identified are subject to review and audit by the MSBA and may not be eligible for reimbursement by the MSBA.

Date Board Approved			**Oct-12**	**Oct-13**	**Jul-13**	**Jan-14**	**Jul-14**	**Jul-14**	**Jun-15**	**Jan-16**	**Jan-16**
District			**Greater Lowell**	**Winchester**	**Berkshire Hills**	**North Middlesex****	**Holbrook**	**Plymouth**	**Pittsfield**	**Billerica**	**Minuteman Regional**
School Name			**Greater Lowell RTHS**	**Winchester High School**	**Monument Mountain Regional HS**	**Regional High School**	**Holbrook Jr./Sr. High School**	**Plymouth South High School**	**Taconic High School**	**Billerica Memorial HS**	**Minuteman Regional Vocational Technical HS**
Construction Type			**Repair**	**Add/Reno**	**Add/Reno**	**New**	**New**	**New**	**New**	**New**	**New**
Enrollment			**1,990**	**1,370**	**576**	**670**	**1,095**	**1,005**	**920**	**1,610**	**628**
GSF			**505,766**	**309,142**	**137,380**	**180,530**	**217,353**	**248,081**	**246,520**	**325,191**	**257,745**
Assumed Start of Construction			**Mar-14**	**Jun-14**	**Nov-14**	**May-15**	**Nov-15**	**Jun-15**	**Jan-16**	**Feb-17**	**Aug-17**
OPM			**Joslin, Lesser & Associates, Inc.**	**Skanska USA Building, Inc.**	**Strategic Building Solutions, LLC**	**Heery International, Inc.**	**SMMA**	**Ted Gentry Associates**	**Skanska**	**KV Associates, Inc.**	**Skanska**
Designer			**KBA Architects**	**Symmes Maini & McKee Associates**	**SMMA**	**Symmes Maini & McKee Associates**	**Flansburg Associates**	**Al3 Architects LLC**	**Drummy Rosanne Anderson, Inc.**	**Perkins+Will**	**Keestle Boos Associate, Inc.**
Cost Estimator			**Atlantic Construction & Management**	**AM Fogarty, Inc.**	**PM&C**	**A.M. Fogarty, Inc.**	**PM&C**	**PM&C**	**Gilbane**	**PM&C**	**PM&C**
Division #		**Description of Work**					**Total Cost**				
A		Substructure	$583,645	$2,250,990	$1,065,264	$3,560,992	$2,531,769	$3,393,470	$2,491,962	$3,519,889	$6,018,571
B		Shell	$10,186,500	$19,046,044	$7,189,937	$14,024,734	$16,057,582	$19,439,662	$18,777,964	$29,602,363	$20,391,786
	B10	Superstructure	$703,420	$3,689,083	$1,238,330	$5,055,274	$6,504,027	$8,662,654	$8,465,685	$12,929,882	$8,674,815
	B20	Exterior Enclosure	$4,394,050	$12,445,753	$1,784,661	$5,862,134	$7,147,168	$8,768,249	$7,715,637	$14,082,289	$8,248,516
	B2010	Exterior Walls	$1,882,185	$8,665,814	$276,948	$3,966,375	$5,023,603	$5,862,988	$6,373,942	$8,625,095	$8,246,516
	B2020	Exterior Windows	$2,239,285	$3,595,529	$1,350,617	$1,728,357	$2,025,365	$2,581,898	$1,183,935	$5,323,374	
	B2030	Exterior Doors	$272,600	$184,410	$157,096	$187,402	$98,200	$323,363	$157,780	$133,820	
	B30	Roofing	$5,089,030	$2,911,208	$4,166,946	$3,087,326	$2,406,387	$2,008,759	$2,596,642	$2,590,192	$3,470,455
C		Interiors	$4,530,640	$13,429,636	$5,063,669	$4,987,130	$10,410,725	$12,961,512	$12,416,341	$16,793,857	$13,748,466
D		Services	$19,286,749	$25,929,654	$11,339,242	$14,568,287	$19,130,764	$22,000,045	$23,287,917	$29,610,267	$25,631,184
	D10	Conveying	$15,000	$240,000	$51,800	$78,643	$182,300	$213,150	$285,000	$327,000	$365,350
	D20	Plumbing	$1,400,685	$3,869,317	$1,490,941	$1,923,161	$3,017,750	$3,097,714	$3,085,466	$4,310,240	$3,556,028
	D30	HVAC	$8,630,798	$13,068,172	$5,076,014	$6,819,124	$8,365,590	$7,993,730	$9,060,522	$11,597,500	$11,305,292
	D40	Fire Protection	$2,286,604	$1,453,858	$601,605	$768,616	$814,450	$1,069,800	$1,305,931	$1,622,980	$1,238,678
	D50	Electrical Utilities	$6,553,671	$7,298,307	$4,118,982	$4,978,543	$6,750,674	$9,625,651	$9,610,998	$11,752,547	$9,165,036
E		Furnishings & Fixed Equipment	$2,026,320	$3,206,606	$1,966,965	$3,081,919	$2,480,265	$2,217,620	$3,029,004	$5,872,590	$5,883,466
		Building Value Engineering									
		Building Subtotal	**$36,813,853**	**$63,862,930**	**$26,625,077**	**$44,223,062**	**$50,611,105**	**$60,612,309**	**$60,013,188**	**$85,398,966**	**$71,673,473**
F		Special Construction & Demo	$2,963,289	$5,223,227	$1,547,513	$3,326,174	$1,583,140	$1,949,100	$3,257,268	$7,045,280	$3,209,008
G		Other Site Construction	$1,198,558	$7,033,731	$2,448,700	$6,640,382	$8,212,630	$8,320,686	$8,293,358	$13,223,137	$8,784,416
	G10	Site Preparation	$135,812	$2,548,718	$375,400	$1,730,917	$1,282,844	$1,913,708	$2,923,933	$2,322,677	$2,457,415
	G20	Site Improvements	$603,340	$3,368,554	$1,085,800	$2,702,201	$4,258,749	$4,559,260	$3,258,432	$7,501,210	$3,622,404
	G30	Mechanical Utilities	$413,406	$764,943	$512,300	$1,881,170	$2,042,057	$1,575,718	$1,469,335	$1,729,100	$1,323,597
	G40	Electrical Utilities	$46,000	$351,514	$475,200	$326,094	$629,080	$272,000	$641,658	$1,670,150	$1,381,000
		Other Site Construction				$43,796			$50,000		
		Subtotal	**$40,775,700**	**$76,119,888**	**$30,621,290**	**$54,233,416**	**$60,406,875**	**$70,882,095**	**$71,613,814**	**$105,667,383**	**$83,666,897**
Z		Mark-Ups	$9,872,520	$21,035,587	$8,607,400	$12,581,367	$15,779,864	$10,207,021	$19,764,068	$26,766,422	$26,840,326
Z		Insurance	$1,419,606	$1,640,376		$583,735	$1,155,422	$354,410	$1,171,170	$12,435,144	$1,372,592
Z		Subcontractor Bond	$300,000		$682,000	$554,510		$637,939	$715,787		$1,139,006
Z		Design & Pricing Contingency	$4,577,111	$8,575,064	$3,441,000	$6,105,889	$5,783,066	$3,544,105	$8,325,257	$10,566,738	$8,366,689
Z		General Conditions	$2,242,664	$3,510,000	$3,788,800	$4,140,000	$3,840,000	$3,898,515	$5,783,556		$9,004,650
Z		Overhead & Profit / GMP Fee	$1,333,139	$4,480,376	$695,600	$1,197,233	$2,832,963	$1,772,052	$1,981,229	$3,064,354	$3,485,700
Z		GMP Contingency		$2,829,771			$2,168,650		$1,787,069	$2,700,186	$3,271,689
		Construction Subtotal	**$50,648,220**	**$97,155,473**	**$39,228,690**	**$66,814,782**	**$76,186,539**	**$81,089,116**	**$91,377,882**	**$134,433,805**	**$110,507,223**
		Project Scope Adjustments					$3,648,701				
Z		Escalation to Construction Mid-Point	$2,517,411	$3,780,135	$2,341,300	$2,014,943		$2,675,943	$6,379,491	$6,340,043	$8,693,669
		Total Construction Cost	**$53,165,631**	**$100,935,610**	**$41,569,990**	**$68,829,726**	**$79,835,240**	**$83,765,059**	**$97,757,373**	**$140,773,848**	**$119,200,892**
		Cost per Square Foot	**$105**	**$327**	**$303**	**$381**	**$367**	**$338**	**$397**	**$433**	**$462**
Bid Alternates				$183,012			$404,800	$4,398,483	$495,000		$6,516,200
CM Pre-Construction Services				$500,000			$600,000		$250,000	$250,000	$420,000
Construction Contingency			$2,658,282	$5,065,931	$3,139,000	$3,458,986	$4,012,000	$4,188,263	$3,484,613	$7,150,111	$5,000,000
Designer			$5,685,298	$10,848,500	$4,950,000	$7,893,000	$9,135,000	$7,706,049	$10,230,985	$15,085,710	$11,393,800
OPM & other Professional services			$1,926,000	$3,642,500	$2,520,650	$4,096,860	$3,125,756	$3,030,333	$3,537,370	$5,004,648	$4,173,183
FF&E/IT			$1,000,000	$4,932,000	$1,468,000	$3,132,000	$3,942,000	$3,741,000	$4,098,050	$5,071,500	$1,507,200
Legal Fees				$100,000	$15,000	$21,000	$120,000	$150,000	$30,000	$100,000	$0
Other Soft Costs			$275,000	$3,220,000	$505,000	$961,608	$990,000	$270,000	$250,000	$1,250,000	$2,035,396
Owner's Contingency			$600,000	$505,593	$1,500,000	$491,797	$802,400	$550,823	$1,161,538	$1,311,472	$1,192,009
Total Project Budget ***			**$65,310,211**	**$129,923,146**	**$55,667,640**	**$89,084,977**	**$102,967,198**	**$107,800,000**	**$121,294,929**	**$175,997,289**	**$151,438,680**
Bid Alternates				$183,012			$404,800	$4,398,483	$495,000	$0	$6,516,200
Ineligible Costs & Contingency					$3,831,650	$2,770,689	$3,213,650	$3,565,602	$2,507,039	$5,930,039	$3,807,991
Scope Exclusions			$125,000	$26,074,548		$19,983,308	$18,689,894	$12,019,689	$25,539,786	$40,644,736	$40,095,359
Basis for Total Facilities Grant			**$65,185,211**	**$103,665,586**	**$51,835,990**	**$66,430,980**	**$80,658,854**	**$87,816,216**	**$92,753,104**	**$129,422,515**	**$101,019,130**
Reimbursement Rate			**76.84%**	**42.92%**	**48.52%**	**60.63%**	**69.12%**	**53.37%**	**80.00%**	**56.99%**	**44.75%**
Maximum Facilities Grant			**$50,088,316**	**$44,493,270**	**$25,150,823**	**$40,210,027**	**$55,751,400**	**$46,867,514**	**$74,202,483**	**$73,757,891**	**$45,206,061**

** North Middlesex Regional HS - The Maximum Facilities Grant reflects the recovery of $67,076.

*** Total Project Budget Value includes the cost of Alternates.

Information as of:

October 2017

Board Meeting

Estimated Construction & Total Project Cost Data at Schematic Design [ON OR AFTER JANUARY 1, 2014]

High Schools

The information and data contained in this spreadsheet, for construction projects starting January 2014, is based on the MSBA's review of construction cost estimates, contracts and other documentation provided by cities, towns, and regional school districts. This information and data is intended for informational purposes only. The data may have changed based on actual construction bids or contract amendments, for example, and the MSBA shall have no responsibility or duty to update any of the information contained in this spreadsheet. Please contact the Districts for the most current information. The MSBA hereby disclaims any and all liability and responsibility that may arise in connection with the information contained in this spreadsheet. This spreadsheet may include a preliminary review of scope exclusions but all costs identified are subject to review and audit by the MSBA and may not be eligible for reimbursement by the MSBA.

Date Board Approved			**May-16**	**Feb-17**	**Jun-17**	**Aug-17**	**Oct-17**	
District			**Stoughton**	**Somerville**	**Saugus****	**Cape Cod ***	**Middleborough+**	
School Name			**Stoughton High School**	**Somerville High School**	**Saugus High School**	**Cape Cod Regional Technical HS**	**Middleborough HS**	**TOTAL**
Construction Type			**New**	**New**	**New**	**New**	**New**	**ALL**
Enrollment			**1,065**	**1,590**	**1,360**	**650**	**720**	**HIGH**
GSF			**214,600**	**369,496**	**269,070**	**220,880**	**166,650**	**HIGH**
Assumed Start of Construction			**Jul-17**	**Jan-18**	**Feb-18**	**Dec-20**	**Dec-17**	**SCHOOLS**
OPM			**Compass Project Management**	**PMA**	**PMA**	**Colliers International**	**Compass Project Management, Inc.**	
Designer			**Drummey Rosanne Anderson, Inc.**	**SMMA**	**HMFH**	**Drummey Rosane Anderson, Inc.**	**Drummey Rosane Anderson, Inc.**	
Cost Estimator			**PM&C**	**PM&C**	**PM&C**	**Rider Levett Bucknall**	**Miyakoda Consulting**	
Division #		**Description of Work**			**Total Cost**			
A		Substructure	$2,960,617	$6,035,997	$4,691,092	$5,278,100	$4,198,826	$49,181,186
B		Shell	$18,749,972	$35,855,220	$23,089,894	$20,993,600	$14,745,626	$268,150,884
	B10	Superstructure	$7,774,475	$12,519,992	$10,938,078	$7,836,500	$6,146,239	$101,140,450
	B20	Exterior Enclosure	$8,312,029	$17,722,553	$8,414,509	$10,281,100	$6,521,892	$129,718,540
	B2010	Exterior Walls	$5,952,208	$12,835,308	$5,639,966	$5,092,100	$4,507,560	$82,950,588
	B2020	Exterior Windows	$2,245,776	$4,681,245	$3,632,103	$4,963,200	$1,850,400	$37,301,074
	B2030	Exterior Doors	$114,112	$206,000	$142,440	$325,800	$163,932	$2,486,835
	B30	Roofing	$2,662,408	$5,612,675	$2,737,402	$2,874,000	$2,077,499	$44,291,996
C		Interiors	$14,700,892	$21,475,775	$18,632,387	$13,308,500	$10,815,632	$177,274,962
D		Services	$19,574,104	$43,459,701	$26,094,271	$22,861,600	$16,602,130	$319,365,914
	D10	Conveying	$408,000	$740,000	$350,000	$225,000	$310,529	$3,798,963
	D20	Plumbing	$2,727,760	$5,971,978	$3,551,465	$3,309,000	$2,055,770	$43,567,978
	D30	HVAC	$8,141,729	$19,949,223	$11,452,776	$9,562,500	$8,365,693	$136,474,653
	D40	Fire Protection	$1,021,835	$2,755,209	$957,025	$1,068,100	$892,625	$18,007,307
	D50	Electrical Utilities	$7,277,780	$15,043,302	$9,803,005	$8,677,000	$8,977,513	$117,533,013
E		Furnishings & Fixed Equipment	$2,625,398	$4,793,054	$4,513,661	$2,607,299	$4,175,675	$48,519,043
		Building Value Engineering						$0
		Building Subtotal	**$58,510,773**	**$111,565,951**	**$77,121,412**	**$65,139,000**	**$50,541,889**	**$862,512,986**
F		Special Construction & Demo	$3,015,750	$10,536,145	$5,160,025	$2,513,900	$2,969,000	$54,298,819
G		Other Site Construction	$8,753,777	$21,944,604	$13,337,293	$9,237,900	$11,160,444	$128,819,819
	G10	Site Preparation	$2,071,146	$6,434,250	$1,837,045	$2,043,000	$1,779,286	$29,856,151
	G20	Site Improvements	$4,874,490	$12,818,914	$8,984,703	$4,512,500	$6,580,304	$68,530,869
	G30	Mechanical Utilities	$808,445	$1,856,668	$1,833,225	$2,356,100	$1,881,104	$20,647,070
	G40	Electrical Utilities	$1,129,696	$834,972	$882,320	$326,300	$919,750	$9,885,234
		Other Site Construction		$0	$0	$0	$0	$93,795
		Subtotal	**$70,310,300**	**$144,044,900**	**$95,618,730**	**$76,890,800**	**$64,671,335**	**$1,045,525,423**
Z		Mark-Ups	$21,286,127	$38,463,421	$27,885,693	$21,125,900	$15,090,074	$276,726,069
Z		Insurance	$989,762	$2,373,693	$2,650,851	$1,473,400	$763,536	$28,582,397
Z		Subcontractor Bond	$1,074,742	$3,484,720		$842,000	$501,261	$9,932,016
Z		Design & Pricing Contingency	$7,304,276	$11,567,703	$10,039,967	$8,810,600	$6,170,233	$103,277,698
Z		General Conditions	$7,619,380	$14,288,470	$5,760,000	$4,613,400	$5,326,863	$73,816,426
Z		Overhead & Profit / GMP Fee	$2,579,380	$3,645,505	$5,527,982	$5,286,500	$2,328,551	$40,204,129
Z		GMP Contingency	$1,719,587	$3,123,260	$3,313,189	$0	$0	$20,913,421
		Construction Subtotal	**$91,596,427**	**$162,539,321**	**$122,904,419**	**$98,016,700**	**$79,761,909**	**$1,322,251,569**
		Project Scope Adjustments						$3,648,701
Z		Escalation to Construction Mid-Point	$5,632,303	$16,521,389	$4,780,937	$6,207,100	$3,007,980	$70,892,653
		Total Construction Cost	**$97,228,730**	**$180,051,710**	**$127,685,356**	**$104,223,800**	**$82,769,898**	**$1,396,792,923**
		Cost per Square Foot	**$453**	**$539**	**$475**	**$472**	**$497**	
Bid Alternates			$3,732,461	$0	$0	$0	$812,500	$18,542,458
CM Pre-Construction Services			$150,000	$696,196	$400,000	$0	$0	$3,266,196
Construction Contingency			$4,038,448	$12,764,470	$7,046,121	$3,126,700	$4,138,495	$69,261,412
Designer			$10,551,120	$22,805,171	$13,708,536	$11,050,549	$9,202,200	$150,245,919
OPM & other Professional services			$3,629,642	$10,196,956	$5,296,306	$3,737,833	$3,058,115	$56,867,155
FF&E/IT			$2,756,000	$5,096,000	$4,896,000	$3,306,500	$2,543,040	$47,489,290
Legal Fees			$20,000	$10,000	$25,000	$0	$20,000	$611,000
Other Soft Costs			$462,000	$3,780,000	$705,000	$743,800	$516,000	$15,973,804
Owner's Contingency			$972,287	$1,672,183	$969,234	$1,873,700	$413,849	$14,215,903
Total Project Budget ***			**$123,540,688**	**$285,982,764**	**$160,720,553**	**$128,062,881**	**$103,475,101**	**$1,771,265,997**
Bid Alternates				$0	$0	$1	$0	$11,997,495
Ineligible Costs & Contingency			$3,066,161	$8,783,436	$7,509,936	$2,158,241	$3,315,274	$50,459,807
Scope Exclusions			$34,324,555	$82,551,497	$39,159,674	$32,207,304	$29,504,855	$400,820,219
Basis for Total Facilities Grant			**$86,149,972**	**$164,647,771**	**$114,050,943**	**$93,697,336**	**$70,654,868**	**$1,307,988,476**
Reimbursement Rate			**60.66%**	**75.29%**	**57.72%**	**45.45%**	**61.29%**	
Maximum Facilities Grant			**$52,258,573**	**$123,963,307**	**$65,838,204**	**$42,585,439**	**$43,304,369**	**$783,669,678**

* Cape Cod RTHS- The Maximum Facilities Grant reflects the recovery of $73,779.

** Saugus High School - The Maximum Facilities Grant reflects the recovery of $1,740,669.

+ Middleborough High School - The Maximum Facilities Grant reflects the recovery of $4,578.

*** Total Project Budget Value includes the cost of Alternates.

-1772

Agenda Item #5

Funding the Project (Floyd Carman)

BELMONT HIGH SCHOOL BUILDING PROJECT

TOTAL COST CATEGORIES (RANGE)		
	Low	**High**
Project Cost 100%	$248.4M	$313.2M
MSBA Reimbursement	64.6M	81.4M
Belmont Cost 74%	**$183.8M**	**$231.8M**

TOTAL FINANCING COST (RANGE) 4% Interest, 30 Year Amortization, Level Payment		
	Low	**High**
Principal	$183.8M	$231.8M
Interest 4%	135.1M	170.3M
TOTAL	**$318.9M**	**$402.1M**

YOUR REAL ESTATE PROPERTY TAX EFFECT		
	Low	**High**
Per 100k Assessed Value	$146.00	$184.00
Cost Per $1.0M Average Assessed Value	$1,460.00	$1,840.00

Agenda Item #6

Costs for K-8 schools (John Phelan)

Summary of Potential K-8 Costs for Right- Sizing Schools

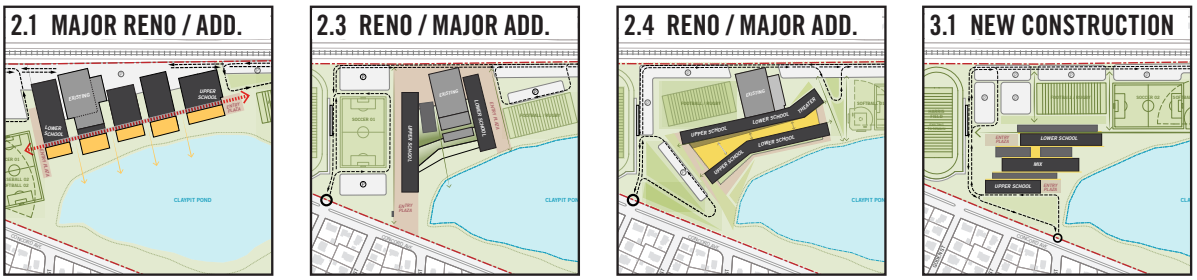
Option 1 - New High School 9-12; Middle and Elementary schools need additions		
	Elementary & Middle School Total	$54 - $66M
Option 2 & 3 - New High School 8-12, Chenery becomes grades 5-7, Elementary K-4's need additions		
	A) Elementary & Middle School Total	$39.5 - $47.5M
	B) Elementary & Middle School Total	$41 - $48.5M
Option 4 & 5 - New High School 7-12, Chenery becomes grades 4-6, Elementary K-3's are right sized		
	Elementary & Middle School Total	$18 - $25.5M
Option 6 - New High School 9-12; Chenery becomes grades 6-8; Construct a new Elementary School		
	Elementary & Middle School Total	$68.5 - $75.5M Includes revised amount for Chenery from 1/9/18 presentation from $3.5-$7M to $0.

Agenda Item #7

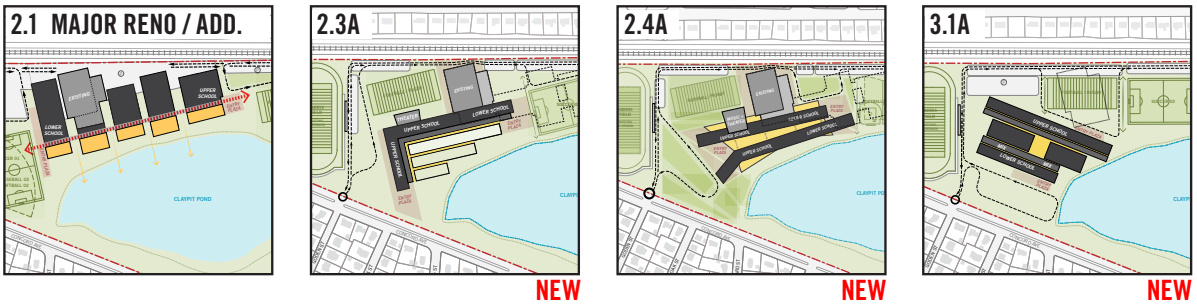
Preliminary Site Design Updates (Brooke Trivas)

SITE STRATEGIES MATRIX

NOV. 30TH BHSBC COMMITEE FEEDBACK



REVISED ALTERNATIVES / WHAT WE LEARNED



APPENDIX

G. SCHOOL COMMITTEE MEETING

BELMONT SCHOOL COMMITTEE/BELMONT HIGH SCHOOL BUILDING COMMITTEE
JOINT MEETING MINUTES
WELLINGTON ELEMENTARY SCHOOL CAFETERIA
JANUARY 23, 2018

Present:
Dr. Lisa Fiore, Chair
Ms. Susan Burgess-Cox, Secretary
Ms. Kate Bowen
Mr. Thomas Caputo
Mr. Murat Bicer
Ms. Andrea Prestwich
Mr. John Phelan, Superintendent
Ms. Janice Darias, Assistant Superintendent for Curriculum & Instruction
Mr. Anthony DiCologero, Director of Finance, Business and Operations

Also in attendance:
William Lovallo, Belmont High School Building Committee Chair
Patricia Brusch, Belmont High School Building Committee Member
Joel Mooney, Belmont High School Building Committee Member
Diane Miller, Belmont High School Building Committee Member
Chris Messer, Belmont High School Building Committee Member
Jamie Shea, Belmont High School Building Committee Member
Robert McLaughlin, Belmont High School Building Committee Member
Joseph DeStefano, Belmont High School Building Committee Member
Emma Thurston, Belmont High School Building Committee Member
Adam Dash, Board of Selectmen Chair
Phyllis Marshall, Assistant Town Administrator
Daniel Richards, Belmont High School Principal

1. **SCHOOL COMMITTEE WORKING SESSION**

The School Committee met to continue discussions on grade configuration options that began at the meeting held that morning in the School Administration Building. Superintendent Phelan provided copies of his presentation and the group agreed that the recommendation of a 7-12 or 8-12 configuration option would be a big change for the district. Questions and discussion focused on options that would cause this change (7-12 or 8-12) as well as the continuing needs of the district should the choice be a 9-12 option.

2. **JOINT MEETING CALL TO ORDER**[1]

School Committee Chair Dr. Lisa Fiore called the School Committee meeting to order at 7:06 p.m.

[1] As noted above, the meeting called to order was a joint meeting of the School Committee and Belmont High School Building Committee (BHS-BC). As the focus of the meeting was the BHS Building Project, the agenda of the BHS-BC is the primary reference for minutes. School Committee Members did not provide Subcommittee or Liaison Updates, Chair Fiore did not provide a Chair's Report, Superintendent Phelan's report was his presentation of the grade configuration options and there were no School Committee minutes presented for approval.

G. SCHOOL COMMITTEE MEETING

Belmont High School Building Committee (BHS-BC) Chair Bill Lovallo called the Belmont High School Building Committee meeting to order at 7:06 p.m.

3. **CITIZENS CONCERNS**

BHS-BC Chair Bill Lovallo provided an overview of the agenda and then invited members of the audience to ask questions or voice any concerns. Members of the community expressed concerns about the impact of different configuration options on the students in lower grades, as well as the project cost.

4. **PROJECT COSTS**

BHS-BC Chair Lovallo discussed how the costs are derived. Costs are derived from the square footage of the design. The numbers tend to be high for public schools due to the economy and prevailing wages for public projects. The square footage is controlled by Massachusetts School Building Authority (MSBA) and they do not allow for reduced square footage. In addition to construction costs, there are related fees for furniture, technology, etc.

5. **SUB-COMMITTEE ON BUILDING SYSTEMS AND OPERATIONS**

BHS-BC Chair Lovallo had previously asked for recommendations on a subcommittee to focus on Building Systems and Operations. Members of the subcommittee will meet approximately six times between now and July with one full design workshop. The subcommittee will report back to the full Building Committee.

6. **PRELIMINARY SITE DESIGN UPDATES**

BHS-BC Chair Lovallo invited Brooke Trivas of Perkins and Will to speak on the preliminary site design options. Brooke provided an overview of each of the design options explaining the pros and cons of each. The four options to be considered are:

C.2.1 – Major Renovation/Minor Addition
C.2.3 – Minor Renovation/Major Addition
C.2.4 – Minor Renovation/Major Addition
C.3.1 – New Construction

Brooke Trivas noted the MSBA will not take part in a project that includes the addition of a pool so if the decision is to continue to have a pool, the BHS-BC must agree to keep the current pool which can be renovated. The BHS=-BC is working with Superintendent Phelan and Athletic Director Jim Davis on the placement of athletic fields. Members of the School Committee and BHS-BC discussed the different options and asked questions.

7. **SELECTION OF GRADE CONFIGURATION (SCHOOL COMMITTEE)**

Superintendent Phelan presented an overview of the different grade configuration options and the process used to determine which grade configurations were best. The MSBA allowed Belmont to explore different configuration options based on growing enrollment in Belmont. The total number of students enrolled in Belmont during the 2016-17 school year was 4408 with a projection of 4888 for 2024-25.

Superintendent Phelan explained the impact of the different grade configurations. A 9-12 configuration will not address space issues associated with enrollment at the middle school and elementary level. A 8-12 configuration will address space issues at the high school and middle school alone. The elementary schools will still have issues with space due to growing enrollment. A 7-12 configuration will allow for an increase in space that will accommodate growing enrollment at all levels.

Superintendent Phelan also provided an overview of a K-6 grade configuration option. This option would allow for 6 classes per grade in grade 6 at the Chenery, 4 classes per grade at the Wellington, 3 classes per grade at the Winn Brook, 2 classes per grade at the Butler, and 2 classes per grade at the Burbank. This configuration would cause a shortage of 204 total seats across those schools.

All three grade configuration options, 9-12, 8-12, and 7-12, will fit on the current high school site. Superintendent Phelan noted that the grade configuration that fits the district's needs best is 7-12. Superintendent Phelan recommended a 7-12 configuration to the School Committee.

BHS-BC Chair Bill Lovallo requested the BHS-BC members leave the table while the School Committee discussed the grade configuration options.

The School Committee discussion addressed several issues related to configuration and the overall building project including transportation, space, zero-net energy and overall project costs. Following a discussion in which each member expressed thoughts and opinions on the project:

On a motion offered by Tom Caputo and seconded by Murat Bicer, it was

VOTED unanimously by the six School Committee members to accept the recommendation of Superintendent Phelan for a 7-12 grade configuration for the Belmont High School project.

On a motion offered by Murat Bicer and seconded by Tom Caputo, it was

VOTED unanimously to adjourn the School Committee meeting at 9:18 p.m.

8. **SELECTION OF PREFERRED SOLUTION (BUILDING COMMITTEE)**

The Belmont High School Building Committee returned to the meeting.

On a motion offered by Robert McLaughlin and seconded by Joel Mooney, it was

VOTED unanimously by the 11 Belmont High School Building Committee members to approve Option C.2.4 for the Belmont High School site design.

G. SCHOOL COMMITTEE MEETING

9. **FUTURE BUSINESS**

Upcoming Meetings:

February 6, 2018
Finance Subcommittee Meeting
SAB Conference Room – 7:30 a.m.

February 6, 2018
School Committee Meeting
CMS Community Room – 7:00 p.m.

10. **ENCLOSURES**

Strategic Plan
Important Dates for School Committee

Respectfully submitted by _____
Susan Burgess-Cox, Secretary

Belmont Public Schools
MSBA / BHSBC Configuration Vote

1

SCHOOL COMMITTEE
JANUARY 23, 2018

AGENDA

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- Goal of Meeting
- Why Explore Options?
- MSBA Options Explored
- Different Corresponding Options
  - Grade K-6 Review, New School K-5
- Reflection of Three MSBA / BHSBC Options
- Recommendation

Goal

3

To decide and vote on the grade configuration as proposed in the MSBA / BHSBC project:

- Grades 9-12
- Grades 8-12
- Grades 7-12

* We do not have to decide our corresponding configurations tonight.

Enrollment – District Wide

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	Oct. 1, 2011	Oct. 1, 2012	Oct. 1, 2013	Oct. 1, 2014	Oct. 1, 2015	Oct. 1 2016	Sept 1, 2017*	Oct. 1, 2019
BPS K-12 Enrollment	3900	3994	4136	4222	4303	4408	4531*	4705
		94	142	86	81	105	123*	
			Increase, 2011 to 2017				631	

Given the average six year increase of approximately 101 students per year our current projection of 4705 may be exceeded. * October 1 enrollment is the official DESE submission

Why did Belmont ask the MSBA to explore options?
Belmont Public School District K-12 Enrollment Forecast

Grade	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25
Elem.	1785	1824	1836	1805	1832	1830	1827	1823	1820
Middle	1359	1388	1419	1490	1491	1528	1539	1513	1546
BHS	1264	1301	1320	1360	1398	1427	1458	1528	1522
Total	**4408**	**4513**	**4575**	**4655**	**4721**	**4785**	**4824**	**4864**	**4888**

Why did Belmont ask the MSBA to explore options?

To have the Town of Belmont take full advantage of the opportunity to implement its vision for teaching and learning by exploring the impact on space and enrollment at all levels of the district.

G. SCHOOL COMMITTEE MEETING

MSBA Configuration Options	Elementary	Middle School	Notes
9-12 *	❑K-4	❑5-8	MS and Elementary enrollment / space issues not addressed.
8-12 * 8/9…10-12 8… 9-12	❑K-4	✓5-7	HS and MS levels would have space – Elementary level issues not addressed.
7-12 * 7/8…9-12 7-9 … 10-12	✓K-3	✓4-6	All levels would be provided space to accommodate increased enrollment.
* MSBA / BHSBC	❑Space Issues Still to be Resolved by Town		

look at the K-12 view

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Belmont Public Schools Possible Grade Configurations

Option 1 - New High School 9-12; Middle and Elementary schools need additions

PreK	K	1	2	3	4	5	6	7	8	9	10	11	12

Option 2 & 3 - New High School 8-12, Chenery becomes grades 5-7, Elementary K-4's need additions

PreK	K	1	2	3	4	5	6	7	8	9	10	11	12

Option 4 & 5 - New High School 7-12, Chenery becomes Upper Elementary grades 4-6, Elementary K-3's are right sized

PreK	K	1	2	3	4	5	6	7	8	9	10	11	12

Option 6 - New High School 9-12; Chenery becomes grades 6-8; Construct a new Elementary School and adjust ES grades

PreK	K	1	2	3	4	5	6	7	8	9	10	11	12

Option 7 - New High School 7-12; Chenery becomes a K-6; All ES's become K-6

PreK	K	1	2	3	4	5	6	7	8	9	10	11	12

K-6 Configuration Option

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K-6 Grades		Projected K-6 Enrollment by Strand	Right Sized Capacity	Delta in student capacity	Delta in CR
Chenery	6 classes per grade	978	1104	126	6 *
Wellington	4 classes per grades	652	628	-24	-1 **
Winn Brook	3 classes per grade	489	417	-72	-3
Butler	2 classes per grade	326	277	-49	-2
Burbank	2 classes per grade	326	267	-59	-3
	Elementary	Building	Delta	-204 seats	-9 classrooms

This data demonstrates lack of fit in four elementary buildings.

* Moves Pre K to CMS
** Use of Pre K space for regular education classrooms.

Options explored that do not work...

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- Option # 6
  - Build new elementary school – lack of site for school
- Option # 7
  - K-6, K-7, K-8 –
  - The amount of grade level classes of each grade in our small and big settings are not educationally sound
  - The CMS building would carry large enrollment, not suited for early grade level

BHSBC/ MSBA: Grade Configurations

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The good news is that all three configuration options (9-12, 8-12, 7-12) as presented to the Town by our Design Team fit on the current high school site location.

Superintendent's Recommendation

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2 Questions to answer:

1. Does the grade configuration work for the BHSBC project? AND
2. Does the grade configuration work for the corresponding needs and challenges of the district?

	9-12	8-12	7-12	
Educational Vision				
Enrollment, Space, Operations				
Financial Viability				
Timeline				

Green – Meets district needs
Yellow – Partially meets district needs
Red – Does not meet district needs