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## **SECTION 1.1      EXECUTIVE SUMMARY**

### **INTRODUCTION**

The following final report summarizes the work of Symmes Maini & McKee Associates (SMMA), and the School Building task Force (SBTF) on the Facilities Master Plan for the Town of Stow, Nashoba Regional School District.

The report documents both the process and the resulting recommendations arrived at by the task force. Numerous meetings of the committee were held to discuss the issues and options. In most cases through the process, unanimous or near unanimous agreement was reached on issues and direction. The task force also conducted four community meetings to discuss goals and objectives, priorities and site and building options for achieving the communities' educational needs.

Based on the educational, enrollment and infrastructure needs, conceptual planning options for renovation only, renovation and addition, and new construction were developed. Each conceptual option was assessed against the project goals and the needs, leading to the selection by the task force of the recommended option.

### **PROJECT GOALS**

The Town of Stow has been looking for a solution to the problems at the Pompositticut and Center Schools since 1995.

The charge of the 2006 Town Meeting was to bring two options to the 2007 Town Meeting. The SBTF reviewed seven options, referred to in this report as Scenarios, selected two for presentation, though recommended one. The recommended Scenario #3, consolidates the PreK through grade 5 on the Center School site with the renovation of the existing Center building with a large addition to provide classrooms, public and core spaces for the entire elementary population. This scenario identifies that the Pompositticut School would be decommissioned as a school and turned over to the town for other community uses.

The Charge of the Committee was defined as:

1. Agree on the needs.
2. Prioritize those needs and determine their costs.
3. Understand and use the information and data already compiled by the School Building Committee; i.e., don't "reinvent the wheel".

4. Provide sufficient space for the ten-year projected enrollment
5. Provide space for the preK - 5 students that are acceptable by today's educational standards.
6. Minimize cost and tax impact.
7. Maximize state reimbursement.
8. Prepare two to three proposals reflecting various costs and the associated priority needs that are included.

## SCOPE OF MASTER PLAN

Review student enrollment projections and apply those projections to the curriculum space needs.

Develop educational specifications and correlate with the MSBA space standards

Review existing building drawings, previous reports and studies and note changes to the physical conditions

Develop multiple conceptual design alternatives to meet the projected population and resulting educational program requirements.

Develop preliminary project schedules accounting for both design and construction time

Develop conceptual cost estimates accounting for construction costs and turn key project costs.

Assist the SBTF and Superintendent of Schools with the preparation and submission of the Statement of Interest (SOI) form to the Massachusetts School Building Authority

## ENROLLMENT PROJECTIONS

Stow's enrollment concerns combine both population increases already experienced as well as anticipated future growth.

Enrollment projections were a subject of a good deal of discussions by the SBTF and the community. Over the various studies conducted by Stow, the projections have varied. The projections undertaken as part of this Master Plan were no exception. The most recent projections in December 2006 reduced projections largely because of the current housing slow down.

Following the analysis and discussions, the SBTF decided to base the Master Plan on a PreK – 5 population of 660 students but set the program of spaces for “core facilities” at 700 students to better accommodate the possible high end of the projections if the housing market were to improve.

### Class Sizes

In accordance with the school department policy, we used the following target class size in the evaluation of the buildings and educational program:

Kindergarten	18 to 20 students per class
Grades 1 through Grades 2	18 to 22 students per class
Grades 3 through 5	20 to 24 students per class

### EDUCATIONAL PROGRAM

This Master Plan explored retaining the Town's two elementary schools (Center and Pompositticut) and combining the schools into a single building. Since each building requires certain spaces such as gym, cafeteria, library, administrative spaces etc., the space programs vary depending on the number of buildings. A combined building does afford certain economies of space.

Included in Section 3.1 are spread sheets that summarize all of the necessary spaces that make up a school to meet Stows' elementary grades needs. These tables include the classroom spaces as well as the many spaces that are not classrooms such as: teachers work spaces, student support areas, storage room's conference rooms as well as spaces that serve the entire school community such as: school administration, gymnasium, library and cafeteria.

The summary of spaces are expressed in Net Educational Area. This is the usable space within the rooms. A 1.45 net to gross multiplier is applied to account for other areas of the building including: corridors, mechanical rooms, wall thicknesses, toilet rooms etc. This resulting figure is referred to as the gross building area.

For a single school solution, Scenario 3, this process has determined that Stow Elementary Schools needs approximately 70,740 square feet of net educational area compared to the current 50,605 net educational area. This results in the need for approximately 102,573 square feet of gross area compared to the current 72,775 gross area.

The two school solution, Scenario 1, for the reasons explained above would require approximately 86,160 square feet of net educational space and approximately 124,961 gross square feet.

## MASTER PLAN OPTIONS

The Options development, first took the form of what possibilities existed at each of the three school sites: Pompositticut, Center and Hale. These were classified as “Component Options”. Component options could have sub options that reflect different grade configurations or building sizes.

The combination of Component Options that work to form a possible solution for the PreK- 8 system are then referred to as “Scenarios”.

Developing and exploring Options for the schools included varying combinations of the following variables: Existing Sites; Grade Configurations; Renovations of building(s); Additions and Renovations of building(s); New Construction; Needs vs. Wants

Component Options were discussed in detail with the SBTF before moving forward to develop Scenarios.

Seven scenarios were developed in both spread sheet form and graphically to demonstrate the building areas needed; the approximate site coverage and a possible design parti for each.

These scenarios combined component options from above to address the Pre-K -8 grades and populations

Through a series of SBTF meetings as well as community meetings, the pros and cons were discussed along with the possible site and building configurations. The process reduced the Scenarios to #1 Heavy and #3

The SBTF recommended proceeding with Scenario 3 that renovates the existing Center School building to accommodate Grades 4 – 5, and constructs an addition behind the school to accommodate Grades PreK – 3 and the core spaces of cafeteria, gymnasium, library and administration.

A detailed list of all 26 Component Options and 7 Scenarios can be found in Section 4.1 of this report.

## HALE MIDDLE SCHOOL

This Master Plan explored the educational needs for the Hale Middle School. The largest limiter on expansion of this building is the capacity of the core spaces. During the last renovation and addition, the cafeteria was made smaller, turning some space over to offices. Any expansion of the school will require the reversing of that space.

Similar to the elementary school populations, the projections vary depending on when they were done. The most recent in December of 2006, reflect the housing slow down as discussed for the elementary grades.

The current population for grades 6 through 8 is 252 students. This is expected to rise to 300 to 378 students in approximately five years. The ten year projections show an enrollment of 300 - 350 students. An increase from the current enrollment but a decline from the peak enrollment.

The most logical location for a classroom addition, if required, would be at the north end of the current classroom wing. This would require extending the corridor through the science room and recreating the proper sized science room. The addition would be 2 stories and could be 2 or 4 classrooms per floor, based on the classroom need. This could result in an additional 4 or 8 classrooms.

The short term solution would be to relocate the 4 temporary classrooms from the Pompositticut School to the Middle School once the Center School project is completed. Following the completion of the Center School project, the Hale school population project should be revisited to determine the long term educational needs.

## **COST ANALYSIS**

In the course of the study, SMMA explored various Options for satisfying the educational school building needs of the school system, all options were estimated on a unit rate basis. The preferred options we further developed to include more detail.

The total Project Costs are comprised of “hard” and “soft” costs. Hard costs include all direct construction costs, general contractor’s overhead and profit and contingencies. Soft costs include non direct construction costs such as furnishings and equipment; computers and other technology; design fees, Owners Project Manager fees; Clerk of Works, site survey & borings; hazardous material and geotechnical testing and monitoring; and other construction phase testing, etc. Project Budgets for Scenarios 1 and 3 are included in Section 4.2.1 of this report.

All costs identified are based upon unit rates per square foot based upon current prevailing rates for construction in this market and represents a reasonable opinion of cost. Costs vary due to fluctuating markets conditions; lack of surplus bidders; perception of risk and material availability. Preliminary Construction Estimates for Scenarios 1 and 3 are included in Section 4.2.2 of this report.

Escalation costs were factored into the two preferred options only based upon the timeline noted in section 4.3. This escalation assumed 8% per annum from Stow Town Meeting in May to the midpoint of construction since all estimated construction costs were based upon a January 2007 publicly bid project

## **TIMELINES**

We developed several schedules to address the estimated durations of each scenario and the overall impact on project costs due to escalation.

The schedules included in Section 4.3 of this report are a result of numerous discussions which reviewed in detail the possibility of commencing multiple projects at the same time, using rented facilities for swing space and reducing the impact on students and staff. Ultimately the committee decided that the best option for the Town was to leap frog the construction process to reduce the number of modular classrooms required and minimize the disruption for the occupant of the buildings

## **ALTERNATIVE CONSTRUCTION**

The SBTF expressed an interest in exploring alternative construction methods to accomplish the project. These could include pre-engineered steel structures or pre-fabricated modular construction.

Pre-engineered steel structures are most often used for large span open areas. The gym and cafeteria may be places where this method can be further explored.

The committee did have a representative of Kullman Buildings present pre-fabricated modular construction techniques and methods. The methodology does appear to be realistic with respect to achieving the type of classroom spaces desired (not long span spaces).

The cost of this type of modular construction does appear to be similar to that of conventional construction. Since the erection time is shorter, there may be some financial savings.

The representative noted that they construct buildings only, still requiring a General Contractor for foundations, site work and other related activities.

What needs to be explored further (primarily by the vendor) is how this construction type can work within the Massachusetts bid laws.

The SBTF felt that further exploration of alternative construction methodology should be left up to the School Building Committee, yet to be formed.

## EXISTING CONDITIONS REPORTS

The Town of Stow had previously commissioned a feasibility study of their elementary schools in 2002 which included existing condition reports for Center and Pompositticut Schools. Furthermore, some repairs and capital maintenance as a result of those studies was undertaken in 2004 under the direction of previous school building committees.

The SBTf determined that a repeat of this existing condition analysis could be a redundant task and an unnecessary cost to the Town. Therefore it was decided that SMMA would review the previous reports and incorporate into the SMMA report format. If any information was missing SMMA could work with the School and Town departments to obtain this information. The 2002 study did not include the Hale Middle school and therefore a full on-site evaluation was requested and performed for that facility.

Section 5 of this report includes our reformatting and updating of the Center and Pompositticut Schools existing conditions reports as well as the new existing conditions report for the Hale Middle School.

## MASSACHUSETTS SCHOOL BUILDING AUTHORITY (MSBA)

In May of 2006, the MSBA published Draft Regulations and in early September final regulations were promulgated. The work of this study was developed adhering to the new regulations, where regulations exist. The MSBA has not yet developed space standards for renovation projects. Prior to moving forward with proposed projects, it will be necessary to work with the MSBA to determine that the space requirements are acceptable.

### Statement of Interest

The MSBA has established the Statement of Interest Form as the first step in the Application Process. The purpose of the SOI is to ascertain from communities whether they believe they have any deficiencies in their school facility that meets one or more of the statutory priorities.

The SBTf voted to submit an SOIs' for both the Pompositticut and Center Schools. The SBTf, the School Administration and SMMA worked together to evaluate the school issues with respect to the SOI Priorities.

Priorities 1, 2, 5 and 7 were determined to have direct applicability for the Pompositticut School and priorities 1, 2, 5 and 7 were determined to have direct applicability for the Center School.

The Committee presented the Statement of Interest Form to the Nashoba Regional School Committee on April 5, 2007 and the Stow Board of Selectmen

on April 10, 2007. At each meeting, the respective boards approved the SOI. It has since been submitted to the MSBA. A copy of the SOI can be found in, Appendix D of this report.



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## **SECTION 1.2 PROJECT GOALS**

### **BACKGROUND**

The Town of Stow has been looking for a solution to the problems at the Pompositticut and Center schools since 2001. A School Building Committee was formed in 2001 and commissioned the architectural firm of The Design Partnership of Cambridge (TDPC) to perform a Feasibility Study. Over a four year period, the Building Committee explored numerous options including renovations of the existing buildings and new construction. In 2005, the Building Committee brought a proposal for a new Pre-K through 5 school on a new site to Town Meeting. The proposal was unsuccessful. The School Building Committee was disbanded in 2006 and the School Building Task Force (SBTF) was created to re-examine the issue with a mandate to bring at least two options to Town Meeting in May of 2007.

In July 2006, the SBTF developed a Request for Qualifications including a scope for the Master Plan and began the process of designer selection. The firm of Symmes Maini & McKee Associates (SMMA) was selected in October 2006.

### **COMMITTEE**

The committee was charged to develop a School System Master Plan, grades K – 8 (herein referred to as “Master Plan”) to address the long term needs of the schools’ curriculum and growing enrollment. The original charge from the Scope of Designer Services was to address grades Pre-K through 6. As the study developed, the SBFT recognized that grades 6 through 8 should also be reviewed for space needs and the ability to expand the middle school if necessary. Also considered were possible grade reconfigurations as part of the master planning process.

The Charge of the Committee was defined as:

1. Agree on the needs.
2. Prioritize those needs and determine their costs.
3. Understand and use the information and data already compiled by the School Building Committee; i.e., don’t “reinvent the wheel”.
4. Provide sufficient space for the ten-year projected enrollment
5. Provide space for the PreK-5 students that is acceptable by today's educational standards.
6. Minimize cost and tax impact.
7. Maximize state reimbursement.
8. Prepare two to three proposals reflecting various costs and the associated priority needs that are included.

The SBTF developed “Pre-Screen” and “Evaluative criteria” as a basis for reviewing potential options for the master plan.

Pre-screen sets minimum criteria for inclusion in either one or two buildings, and whether the facilities could be shared between the schools.

Evaluative Criteria is areas that the Task Force wanted to consider as part of the project but which would be considered optional given other needs.

## **SCOPE OF STUDY**

Review student enrollment projections and apply those projections to the curriculum space needs.

Develop educational specifications and correlate with the MSBA space standards

Review existing building drawings, previous reports and studies and note changes to the physical conditions

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	CRITERION	PREScreen OR EVALUATIVE	DEFINITION FOR ONE BLDG	DEFINITION FOR TWO BUILDINGS	SHARED IF SO, HOW?	Comments/Reservations
<b>DONE</b>	Cafeteria	Pre-Screen	2 preferable, 3 maximum	2 preferable, 3 maximum	Yes	stage meetings prefer to have cafeteria shared, not gym, due to #hours used
<b>done</b>	Gymnasium	Pre-Screen	single purpose	two gyms; higher grades need more	Not if single building; share with OT/PT	voted 8-2 (Lynn absent) to support single purpose; prefer to have cafeteria shared, not gym, due to #hours used
<b>done</b>	Kitchen: Efficient Design Consistent w/MSBA	Pre-Screen	Need full size to service entire pop	Minimum 1 full size for larger bldg; smaller may only need warming	No	Hale kitchen outdated; can't necessarily support elem schools
<b>done</b>	Media Center/Library	Pre-Screen	better economy or scale; one space	could be split proportionally	Yes	
<b>done</b>	Art: Efficient Design Consistent w/MSBA	Pre-Screen	2 classrooms	one each	No	
<b>done</b>	Music: Efficient Design Consistent w/MSBA	Pre-Screen	2 classrooms	one each	no	
<b>done</b>	OT/PT Efficient Design Consistent w/MSBA	Pre-Screen	small group/resource room	same	Yes	with gym?
<b>done</b>	Nursing: Efficient Design Consistent w/MSBA	Pre-Screen		same	no	need to be able to have at least 2 distinct areas within nursing space
<b>done</b>	Guidance: Efficient Design Consistent w/MSBA	Pre-Screen	2 rooms	one room each	no	space for records/storage?
<b>done</b>	Planning/Meeting space	Pre-Screen	one for guidance/admin/health; one for teacher dining/wkrm/conf; one more conference space	similar	Yes	fewer team spaces in elem school; perhaps space off library to access other resources
<b>done</b>	Science Storage:	Pre-screen	sufficient space to store science materials, particularly if no science lab	same	possibly	with other storage space
<b>done</b>	Administrative Offices: Efficient Design Consistent w/MSBA	Pre-screen	Two offices required	one office each	No	doesn't include reception area; could be looking at three administrators for 700+ students
<b>done</b>	Consistency with MSBA Guidelines	Pre-Screen	Where there is a specific SF #, we	ditto	n/a	
<b>done</b>	Septic & Water Capability	Pre-screen	Meet all bldg, health codes for max school population	ditto	n/a	Need to know MAX school population
<b>done</b>	Stage	Pre-screen			Yes	With cafeteria or other space 4 definitions of stage in bldg code: platform 18" high
<b>done</b>	Traffic Safety					should include both school based traffic as well as town impact; safety has to be pre-screen;
	<b>HOLD ITEMS</b>					
<b>16</b>	Number of classrooms and students	Pre-Screen	722-750 enrollment # of classrooms TBD Determine absolute minimum	same as one	n/a	Introduce security into pre-screen Consider adding sinks for K-2
<b>17</b>	Computers: Efficient Design Consistent w/MSBA	Pre-Screen	To be incorporated with library	same	Yes	Media/Library
<b>tbd</b>	SPED: Efficient Design Consistent w/MSBA	Pre-Screen	classroom; resource room		No	would like to talk direct to SPED teachers administrators