

INTRODUCTION & BACKGROUND

In the summer of 2016, the Canton School District issued a Request for Qualifications (RFQ) for a Comprehensive Facilities Assessment and Educational Visioning Study of its public school buildings. In October, the District selected Dore & Whittier Architects to perform this study which had two points of emphasis: establish the capital improvement needs of the six buildings in the District and build consensus among school administration, educators, and the community around the educational vision for Canton Public Schools. D&W proposed a dual track approach of simultaneously studying the physical infrastructure with our engineers while also leading an educational programming process.

The District currently serves over 3,300 students in pre-kindergarten through grade 12. There are six school facilities including three elementary schools, one middle school, one high school, and one administration building that houses the Canton pre-kindergarten program. This Study provides the following:

1. Documentation of existing conditions and physical assessment of each building and site. Cost estimates associated with District-wide facility needs and capital improvements.
2. Educational Programming, including demographic analysis, capacity analysis of the buildings, summaries of workshops with principals of the schools and review visioning sessions with the community.
3. Conceptual District-wide master plan options for building repair, renovation, and construction over the next 30 years

The initial phase of this study focused on the facilities assessments of the six buildings currently controlled by Canton Public Schools. CPS Facilities provided access to its extensive collection of existing drawings for the buildings including renovation work. Multiple teams of architects and engineers visited the schools in November 2016 to assess the condition of: heating and cooling systems, electrical systems, plumbing systems, fire protection, structural integrity, kitchen infrastructure, building envelope (windows, walls, and roofs), interior finishes, accessibility, and the buildings were tested for hazardous materials. These assessments by the engineering teams are included in Section II of this report along with a detailed cost analysis of the cost of work implied by these assessments (Capital Improvement Plan).

Existing buildings reviewed as a part of this study, date of construction, current enrollment:

Marilyn G. Rodman Education Center:

Address: 960 Washington Street

Opened in: 1949, with renovations in 2007

Building Area: estimated total 53,965 sf.

Current Enrollment: 90 Pre-K students.

Lt. Peter M. Hansen Elementary School:

Address: 25 Pecunit Street

Opened in: 1968, renovated in 2003, 2006, 2014, addition in 2016

Building Area: estimated total 69,204 sf.
Current Enrollment: 501 elementary (K-6) students.

John F. Kennedy Elementary School:

Address: 100 Dedham Street
Opened in: 1964, renovations in 1998, 2016, additions in 2008, 2011
Building Area: estimated total 59,666 sf.
Current Enrollment: 503 elementary (K-5) students

Dean S. Luce Elementary School:

Address: 45 Independence Street
Opened in: 1954, addition/ renovation in 2000
Building Area: estimated total 69,410 sf
Current Enrollment: 493 elementary (K-5) students

William H. Galvin Middle School:

Address: 45 Pecunit Street
Opened in: 1971
Building Area: estimated total 133,543 sf.
Current Enrollment: 787 middle school (6-8) students.

Canton High School:

Address: 900 Washington Street
Opened in: 1959, major renovation/ addition 2007
Building Area: estimated total 265,603 sf.
Current Enrollment: 954 high school (9-12) students.

Educational programming started with a comparison of the existing buildings to Massachusetts School Building Authority (MBSA) standards for classroom sizing and overall school area. Then in January 2017, Dr. Jerome McKibben of McKibben Demographics provided a detailed enrollment forecast with comparison to New England School Development Council's (NESDEC) projections. The first of three Visioning sessions was also held in January. Staff, students, parents and members of the community at large were invited to workshop style Visioning sessions. The first session included short presentations on national educational trends followed by small group discussion and analysis. The second Visioning session focused on the issue of grade configuration, school size, and the location of pre-kindergarten. The third session was a review of the conceptual options for the master plan pathways. During this time, D&W's educational programming team met with the principals of each school twice for workshops on what they, as educational leaders, saw as the needs of their schools. Educational Programming and Visioning are described in detail in Section III of this study.

In the final portion of this master plan study, D&W developed conceptual options that the Working Group reviewed and synthesized into 4 semi-finalists. The semi-finalists were evaluated further to arrive at one preferred option. Dore & Whittier generated the initial options and developed conceptual site plans for the 4 semi-finalists in order to establish that they were all viable. On a parallel course, the Design Team and Working Group explored options for the District Offices. Options included renovating space at the Revere Copper Mills, re-using the Rodman Building, and new construction. This effort included

programming for the ideal District Office configuration. Conceptual cost estimates were generated on a cost-per-square foot basis for the semi-finalists and the costs of capital improvement work was factored in from the facilities assessments. The total analysis of scope, schedule and cost for each semi-finalist were reviewed by the visioning group and then the general public. Descriptions of the conceptual options, cost, and schedule analysis for the semi-finalists are included in Section IV of this report.

Throughout the study the project team and Working Group followed a transparent process of gathering information, vetting it internally and then reaching out for public input. Presentations from the Working Group and Design Team were made in expanding circles of awareness to the School Committee, at the semi-public Visioning sessions, and there were two well-publicized (and well attended) meetings with the general public. With a strong voice from the student participants, a strong consensus emerged around options that leveraged an initial project to replace the middle school into a master plan that benefited the whole District.

Documentation

This report is based on information gathered by visual observations of each facility and site conducted by Dore & Whittier Architects, Inc. and its consultants, as well as the review of existing building drawings, documents, reports and enrollment projections provided by the Canton School District. Administration and staff, as well as local officials, contributed greatly to the information in this report and we thank them for their help.

EXECUTIVE SUMMARY

Kick-off

In November 2016, the District established the Working Group comprised of key representatives from the District Administration, the District Facilities Department, the elementary schools, the Town of Canton, and the School Committee. The Working Group met with Dore & Whittier's team to review the Master Plan Schedule and establish goals. Some of these goals were clear in the RFQ, such as assessing the capital improvement needs of the District's buildings while at the same time establishing the educational requirements for the schools. The Working Group emphasized that they were looking for public outreach and engagement as well as examples of current national trends in education and best practices in school planning and design to help inform the range of planning options available to the District.

Facilities Assessments

Teams of engineers and architects visited all six District buildings in November of 2016 and observed conditions inside and outside to generate an assessment of the physical condition of the buildings. These assessments were limited to what was visible in the buildings or what was documented on the existing drawings that the Facilities Department maintains; there was no destructive testing or similar exploratory work. The following assessments were made for each building and are included in Section II:

- Existing Building Data
- Regulatory Assessment
- Civil –Site
- Structural
- Architectural
- Mechanical
- Electrical
- Plumbing
- Fire Protection
- Hazardous Materials
- Food Service
- Technology Systems

The facilities have been well maintained and pro-active measures by the District have addressed ongoing maintenance items. Improvements have been made to mechanical and electrical equipment, fire alarm systems, and roofing repairs. Energy efficiency measures, accessibility upgrades, and other ongoing maintenance improvements have occurred in buildings throughout the District. The level of maintenance needs and required upgrades vary in each of the buildings, with some facilities requiring more work and others needing only minor repairs. The following outlines a general overview of our findings.

	SITE	EXTERIOR			INTERIOR			
		Circulation	Roof	Walls, Windows, and Doors	Thermal	MEP/FP	Finishes	ADA
Canton HS	●	○	◐	◐	○	○	○	○
Galvin MS	●	●	◐	●	●	●	◐	●
Hansen ES*	●	●	◐	●	●	◐	○	○
JFK ES	●	●	◐	●	◐	◐	○	○
Luce ES	◐	●	●	◐	◐	●	○	○
Rodman ECC	◐	○	◐	●	◐ ^M ● ^{E/FP}	◐	◐	◐

*Ratings indicate 1969 portions of building. New addition and its project components are in Excellent condition.

Marilyn G. Rodman Education Center

Built 1949/ Reno 2017 59,000sf

The Rodman Education Center building was for the most part well-built, and has been well-maintained and upgraded over its 67-year history. The plan is a simple and efficient double-loaded “bar” building with a gymnasium wing at the “head”. All educational spaces receive ample natural light (although first level spaces are darker) and most occupied spaces have views to the outside. The condition of both the exterior and interior are generally “fair” to “good” overall, with some maintenance and wear-and-tear items of note: for example, the brick could use re-pointing in some areas and there is a bowing in the rear exterior wall that is being closely monitored by the facilities staff. Given the age of construction and available documentation, it is assumed that there is very little insulation for the exterior, except for the new roof, so the thermal performance is sub optimal.

Major mechanical systems were replaced in 2011, but with unit ventilators which are no longer industry standard. If this continues to house the District Administration, Central AC should be installed. Most components of the electrical system are original and have essentially reached the end of their expected service life. The generator and its switchgear should be replaced. The interior lighting is low-quality and despite ballast and lamp upgrades, lacks efficiency by today’s standards. Technology systems are similarly outdated. The building has a relatively high level of accessibility for handicapped persons due to recent building upgrades, but it does not have a fire suppression system.

Overall the Rodman building is in fine physical condition, but with aging infrastructure. All MEP/FP systems should be replaced along with new technology systems. It is a candidate for moderate to heavy renovation, while preserving the historic exterior.

Lt. Peter M. Hansen Elementary School

Built 1968/ Reno 1996 64,000sf

The Hansen Elementary School building seems well-built. All educational spaces receive natural light with most having views to the outside. The condition of both the exterior and interior are generally “fair” to “good” overall, with some maintenance and wear-and-tear items of note. Overall, the building has a relatively high level of accessibility for handicapped persons due to new construction, the addition of an elevator and other accessibility upgrades. In terms of the building envelope it is assumed that insulation level of both walls and roof (except for the addition) are low. The windows were replaced in 2014, so they likely have enhanced thermal performance. Re-roofing has presumably added adequate insulation to the roof.

Aging, poor-performing, inefficient mechanical systems are of concern in the older portion of the building, especially in the gym and admin office suite. The 2016 addition project did not replace any of the classroom unit ventilators. The old unit ventilators are loud, inefficient, difficult to repair, and should be replaced with a central air distribution system with AC to spaces that require it. Most components of the electrical system are original and have essentially reached the end of their expected service life. The generator should also be replaced. The interior lighting is low-quality and despite ballast and lamp upgrades, lacks efficiency by today’s standards. The building recently had a full sprinkler system installed as part of the 2016 work.

The Hansen School is an efficient building that could be added onto at the rear (north) end of the classroom wing. Routine maintenance and upkeep combined with a moderate level of renovation (to replace the MEP systems) could extend serviceable life for the next 40+ years. Such a renovation should include thermal improvements like insulation.

John F. Kennedy Elementary School

Built 1964 54,800sf

The JFK Elementary School building appears to have been well-built, and has been well-maintained over its 52-year history. The plan is somewhat inefficient with three single-loaded corridor segments, but most educational spaces receive natural light and most have views to the outside. The condition of both the exterior and interior is generally “fair” to “good” overall, with some maintenance and wear-and-tear items of note. The building has a relatively high level of accessibility for handicapped persons due to toilet room accessibility upgrades and presence of a compliant elevator serving all floor levels of the building. It appears that envelope and insulation upgrades have not been completed, and the insulation level of both walls and roof (except for the additions) is assumed to be quite low. Window upgrades were made at some point in the last 20 years or so, but not with modern thermally broken Low-E windows which are much more efficient. The building recently had a full sprinkler system installed.

As is typical for buildings of this age, poor-performing, inefficient mechanical systems are of concern, especially in the cafetorium and gym. Unit ventilators are loud, inefficient, and difficult to repair and should be replaced with a central air distribution system. Most components of the electrical system are original and have essentially reached the end of their expected service life. The interior lighting is low-quality and despite ballast and lamp upgrades, lacks efficiency by today’s standards.

[Update 5/25/2017—the electrical transformer failed at this school during the 2016-2017 school year, and was presumably replaced with a similar new unit.]

In summary, there are some plan inefficiencies that make the building challenging to expand. The M-E-P systems are all due for complete replacement with new high-efficiency systems. If renovated consideration should be given to improving the thermal envelope and until then routine maintenance is needed in order to have a serviceable building for the next 40+ years

Dean S. Luce Elementary School

Built 1954/ Reno 1999 67,200sf

The Luce Elementary School building appears to have been well-built, and has been well-maintained for the most part over its 62-year history. It has a fairly efficient plan with a series of double-loaded corridor segments, and nearly all educational spaces receive natural light and views to the outside. Condition of both the exterior and interior are generally “fair” to “good” overall, with some exterior maintenance and wear-and-tear items of note on the older part of the building. The building has a relatively high level of accessibility to handicapped persons due to toilet room accessibility upgrades and the addition of the main entrance ramp. The building had a full sprinkler system installed during the 2000 addition. It is assumed that envelope and insulation upgrades have not been completed on the older portion of the building, and that the insulation level of walls is assumed to be low there while probably code-compliant in the newer portion. Window upgrades were made at some point in the last 20 years on some openings, but many of the original single-glazing windows remain in the older portion. Re-roofing has presumably added adequate insulation to the roof.

There is a mix of old and newer mechanical systems and components (most are still inefficient by present standards) some of which are of concern, especially in the cafetorium. Unit ventilators are loud, inefficient, and difficult to repair and should be replaced with a central air distribution system. Some electrical components have been upgraded, but remaining pieces have reached the end of their expected service life. Much of the interior lighting is low-quality and despite ballast and lamp upgrades, lacks efficiency by today’s standards.

In summary, the Luce School could be renovated but because the footprint is single-story, the existing building crowds the site. It will continue to need M-E-P-FP upgrades, envelope improvements (especially the single glazed windows), and routine maintenance in order to have a serviceable building for the next 40+ years.

William H. Galvin Middle School Galvin MS

Built 1971/ Reno 2002 133,150sf

The Galvin Middle School building is structurally sound, but certain floor plan issues—such as interior windowless classrooms limit its value for continued occupation. The condition of both the exterior and interior are generally “fair” to “good” overall, with some maintenance and wear-and-tear items of note. The school building appears to have been well-maintained over its 45-year history. The building has a relatively high level of accessibility for handicapped persons due to toilet room accessibility upgrades and a centrally-placed elevator serving all floor levels of the building, however the elevator cab (approx. 4’-10” wide x 7’-0” deep) does not meet dimensional requirements of the code. There do not appear to

have been significant insulation upgrades which leaves the thermal performance of the exterior walls as quite poor. However, window upgrades were made in 2014, which presumably increased overall thermal performance and decreased solar heat gain. The building lacks a full sprinkler system, which is a significant concern, and would need to be done for the whole building under almost any renovation scenario.

Typical of this vintage of building, poor-performing, inefficient mechanical systems are of concern. Many interior spaces are cooled with individual window AC units. Unit ventilators in classrooms are loud, inefficient, and difficult to repair and should be replaced with a central air distribution system, with AC for those spaces where it is required. The electrical system is original and has essentially reached the end of its expected service life. The interior lighting is low-quality and despite ballast and lamp upgrades, lacks efficiency by today's standards.

Overall, the Galvin School is structurally sound however, the poor plan layout and window-less classrooms make it a candidate for replacement. The building needs new M-E-P systems and a fire suppression system. The costs of the heavy renovation required to make these updates and provide daylight access to all classrooms make such a renovation impractical. Until it is replaced or renovated, routine maintenance will be needed in order to have a serviceable building for the next 40+ years.

Canton High School

Built 1959/ Add-Reno 2002

247,800sf

The Canton High School building and its additions appear to have been well-built, and with the recent 2007 renovation, no major issues of concern were noted. Condition of both the exterior and interior are generally "good" to "very good" overall, with very few minor items in the "fair" category. The school building appears to have been well-maintained over its 57-year history. A few normal wear and tear items that were not addressed in the recent renovation project are noted. With the recent renovation, the building has a very high level of accessibility for handicapped persons. Envelope and insulation upgrades to the '59 portions were done as part of the 2007 project; with the exception of a few locations. The building features full sprinkler protection throughout.

The 2007 project was partially funded by the MSBA, and was a comprehensive renovation with all-new M-E-P-FP building systems, as well as new technology and security infrastructure.

From a building systems and physical plant perspective, the building managers need only address the minor issues that have cropped up since 2007, possibly address further envelope improvements, and attend to routine maintenance and upkeep, in order to have a serviceable building for the next 40 years.

Capital Improvement Plan

The Capital Improvement Plan (CIP) section of this study summarizes the recommendations for each building along with itemized costs. The CIP is designed to assist in the planning and management of capital and maintenance improvements for District facilities. In the CIP spreadsheet, building needs and recommendations are organized into seven categories:

- Health, Safety, and Welfare
- Code Compliance
- Functional Use of the Building
- Handicap Accessibility
- Maintenance – Extending the Life of the Facility
- Energy Efficiency and Hazardous Materials Abatement.

Estimated cost of the repairs, replacement, or work noted was developed based on the current cost of the work (present value) and the items are prioritized as high, medium, and low based on when repairs should occur. High priority items should be addressed immediately (1-3 years), medium priority items can be addressed in the medium-term (4-6 years) and low priority items represent long-term needs (7-10 years). The School District and Dore & Whittier (D&W) worked together to organize the building needs, recommendations and priority levels.

The CIP should be considered a “working document” for the District to use as a guide for future improvements and can/should be modified as needs and changes arise. The CIP may also serve as a baseline of comparison for other options to be considered.

The costs utilized in the estimates are for publicly-funded construction in Massachusetts (in early spring 2017 dollars). Costs for temporary facilities, phasing, or increased escalation beyond this date are not included. These estimates were prepared for budgetary purposes, are preliminary and conceptual in nature and based on limited investigations. These estimates are identified as “Project Costs” and include contingencies as well as allowances for architect/engineering services, permitting, etc. Further refinement of costs will be necessary after a detailed scope of work is developed.

The chart on the following page summarizes the Capital Improvement Plan cost estimates. These costs assume that the work will be publicly bid. Use of School District Facilities staff to address certain maintenance items (that are within limits of MGL) could result in significant savings. The District has qualified staff and items that can be addressed by District staff are indicated in the detailed CIP.

Canton Schools Capital Improvement Plan Cost Summary					
	High	Medium	Low	Ongoing	Total
Rodman	\$2,459,141	\$1,690,362	\$6,946,370	\$1,530,921	\$12,626,794
Hansen	\$1,496,213	\$360,813	\$1,081,472	\$28,370	\$2,966,868
Luce	\$1,924,691	\$1,684,935	\$1,374,949	\$938,283	\$5,922,858
JFK	\$2,937,795	\$670,351	\$4,418,221	\$41,341.00	\$8,067,708
Galvin MS	\$2,231,209	\$734,980	\$11,483,542	\$41,290	\$14,491,021
Canton High	\$788,090	\$236,557	\$549,252	\$141,418	\$1,715,317
subtotal	\$11,837,139	\$5,377,998	\$25,853,806	\$2,721,623	
				GRAND TOTAL	\$45,790,566

It is important to note that the capital improvement items address the building conditions only and do not reflect the functional use of the space, or educational program. We noted conditions where space needs were not being met according to the educational program. Resolution of these educational needs is beyond a capital improvement plan, but is addressed in the conceptual options

Educational Program and Visioning

Another objective of this study was to create a transparent and inclusive process which led to a preferred master plan option that responds to community values. Canton Public Schools engaged a wide variety of stakeholders including students, teachers, administrators, community members, and local government officials to understand how space is currently being used throughout the District and the intent for space use for the future. The District understands that the educational paradigm has shifted and school buildings need to respond to the ever-changing demands of a 21st-century education. D&W facilitated targeted workshops with school staff and administrators, visioning sessions with invited participants, and public meetings open to the community to identify long-range educational goals, share the building analysis, and solicit feedback on developed options.

Space needs analysis

As part of Canton’s comprehensive facilities assessment, D&W studied the educational adequacy of the District’s building inventory. The assessment team used MSBA guidelines as a common benchmark to analyze each building’s capacity, overall district capacity, adequacy of the size of instructional spaces, classroom utilization, and missing or inappropriate space use. This portion of the analysis used objective data to understand where space needs exist throughout the District.

The guidelines established by the MSBA for designing 21st century schools can be used as a comparative measure for existing facilities to understand how the buildings perform in relation to modern schools being constructed throughout Massachusetts. The MSBA has guidelines for gross square footage per student, class size, sizes of instructional spaces based on program, and classroom utilization. The chart below shows how the schools in Canton are performing in relation to these guidelines.



	Capacity - GSF	Capacity – CR Count	Classroom Size	Utilization	Missing/ Inappropriate space
Rodman ECC	○	◐	●	◐	◑
Canton High School	○	◐	◐	◐	◐
Galvin Middle School	◑	◑	◑	◐	●
JFK ES	●	◑	◑	○	●
Hansen ES	●	●	◑	○	◐
Luce ES	◑	◑	◑	○	◑

This series of space needs analyses showed that many of the buildings in the District have significant unmet needs necessary to support the educational mission of the District.

The elementary schools are experiencing overcrowding. The school buildings are smaller than would be recommended for a new school built today and there are not enough classrooms to support the current enrollment, driving up class size. In addition to the buildings being undersized, classrooms are also smaller than would be recommended in a new facility. 21st century teaching methods require more space for movement, individualized learning, and collaboration both with peers and teachers.

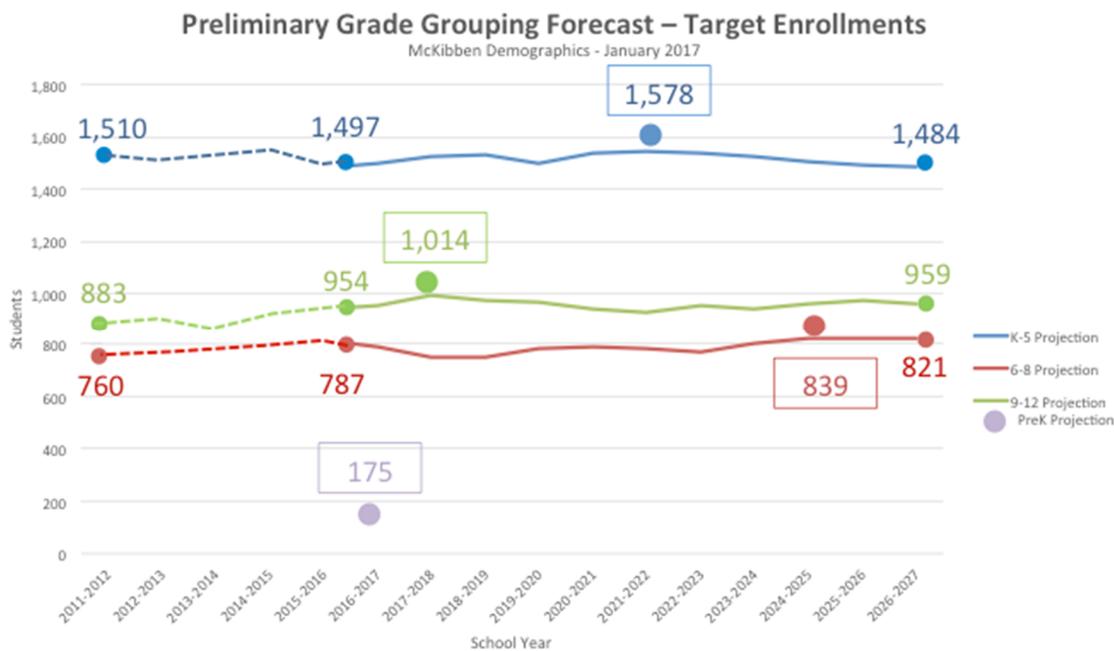
The Galvin Middle school also has spatial issues that negatively impact the delivery of education. The size of the building is adequate for the population; however, the interior partitioning of the facility and organization of spaces does not support the educational mission. Some classrooms, especially science spaces, are undersized compared to those that would be built today. The school is organized so that some classrooms and other instructional spaces have no access to natural daylight which has been shown to negatively affect student engagement and achievement. The school could benefit from smaller learning communities with dedicated break out space.

The renovated Canton High School re-opened 10 years ago. The building is appropriately sized and able to support program offerings. However, there are some missing building elements, such as break out spaces or collaboration spaces, which would augment the educational mission.

Enrollment analysis

Two independent enrollment projections were analyzed as part of this study. To provide a more detailed investigation of student enrollment in the District, an additional enrollment forecast was developed by Dr. Jerome McKibben of McKibben Demographics. The NESDEC projection predicts that total student population will increase slightly (4.9%) over the next 10 years. The McKibben forecast predicts that the total student population will remain basically level with a slight increase of 26 students over the 10-year period. The more detailed McKibben analysis was used as the basis for planning in the Master Plan. For purposes of developing Master Plan options, the highest enrollment value for each grade grouping over the forecast period was used. An additional two percent (the statistical margin of error) was added to each value as a conservative measure for developing future options.

The District determined that, for purposes of estimating Pre-Kindergarten enrollment, 175 students was the appropriate value. The District provides inclusionary prekindergarten to students with disabilities and peer students. Currently, 90 students are enrolled in the pre-kindergarten program however, peer enrollment is limited by the amount of space available. Based on the enrollment forecast and the existing waitlist for the prekindergarten program, the District believes that it could support 175 prekindergarten students should space be available. More detail on the enrollments analyses can be found in Section IIIA.



For purposes of the study, the Working Group identified the following enrollment targets:

- PK = 175
- K-5 = 1,578
- 6th-8th = 839
- 9th-12th = 1,014

Principal's Workshops

The District and design team hosted two sets of workshops (six total) with educators and administrators at the elementary, middle, and high school levels. Principals' Workshops were designed to dig deeper into specific needs within the schools and to further understand how space can support the educational goals in Canton Schools.

- Principals' Workshops #1: Overall Building Organization – How would an ideal elementary/ middle/ high school be organized to support next generation learning? What principles should guide design?
- Principals' Workshops #2: What is a classroom – How can individual spaces such as classrooms, collaborative spaces, media centers, etc. be designed to best support teaching and learning?

The principal's workshops helped establish idealized design characteristics for future school projects:

- Flexible and able to adapt to program changes over time
- Grade level/ team/ learning community organization
- Universal access to technology
- Separation of public and private space
- Variety of spaces to support a variety of learning activities: small group rooms, break out collaboration spaces, dedicated special education space, and grade level resource rooms
- Access to quality natural daylight
- Thermal comfort
- Access to outdoor learning

Visioning and Public meetings

Dore & Whittier facilitated three visioning sessions meant to explore the future of education and educational facilities in Canton. Each visioning session focused on a different aspect of the master planning process. Approximately 50 invited members of the Canton Public Schools' community participated in these day-long workshops. Participants included students, teachers, administrators, parents, community members, and local government leaders.

- Visioning #1: Explore best practices in next generation teaching and learning and share examples of next generation learning facilities
- Visioning #2: What key educational planning issues will affect the master plan options and best position the District to align educational practices and facilities?
- Visioning #3: How do the options respond to the desired direction of education in Canton?

Some key findings that influenced the master plan included:

- Canton elementary schools favor moving prekindergarten to elementary schools
- There is a desire for parity across all elementary schools

- The District is interested in exploring next generation teaching and learning practices including student centered, interdisciplinary organization, and emphasis on creativity, critical thinking, collaboration, communication, and understanding and application
- There may be opportunities for targeted interventions at the high school to improve student and teacher collaboration, student-centered learning, and safety and security
- There is interest in exploring alternate grade configurations
- Ideal school sizes: elementary school = 400-500 students, middle school = 800 students; high school = 1000 students

The District recognized that community buy-in is essential to the success of the master plan. The District held two public meetings to present study progress to the community and listen to questions and comments about the process and study findings. Public meetings were meant to communicate the current condition of the school building inventory, space deficiencies, options available to the District to alleviate or improve these deficiencies, and the cost associated with implementing these options. Both sessions were advertised to all Canton residents and open to the public. The meetings included some presentation from the design team, moments for question and answer, and interactive small and large group exercises designed around specific issues.

- Public Meeting #1: Share facilities assessment analysis, educational spaces needs analysis, and visioning sessions #1 and #2 findings
- Public Meeting #2: Share options development and evaluation process and detailed presentation of shortlisted options

Conceptual Options

After assessing the District's building inventory, understanding the physical and programmatic needs, and establishing capital improvement benchmarks, Dore & Whittier and the Working Group collaborated to create conceptual master plan options. Together, the Project Team followed a process that allowed the District to consider many available options, develop a short list based on community values, and ultimately arrive at a preferred option vetted by the community.

Options were developed to explore a range of grade configurations. Several focused on creating an early childhood focus, which emerged as a goal from programming and visioning exercises. Such schools would have several grades associated with Pre-Kindergarten allowing for a synergy among specialists in the early childhood field.

The demographic study also informed the development of the options, balanced with public feedback about the desire for continued neighborhood schools. The current set of schools is quite closely clustered and so the possibility of a new schools was considered in the 'eastern side' of Canton where there has been significant housing development. However, the demographer showed that such development is not likely to have a huge impact on enrollment, due to factors like declining family size and population density in that area of Town, and so would not justify a new school.

Alternate sites were considered for potential alternate school locations and for the District Administration. However, there were limited options. Like most of eastern Massachusetts, Canton is heavily developed with wetlands and parklands comprising most of the unbuilt parcels. There is the theoretical possibility to re-develop a light industrial parcel near the interstate highway, but the unoccupied buildings in that area are quite remote from the rest of town and lack space for athletic and play fields.

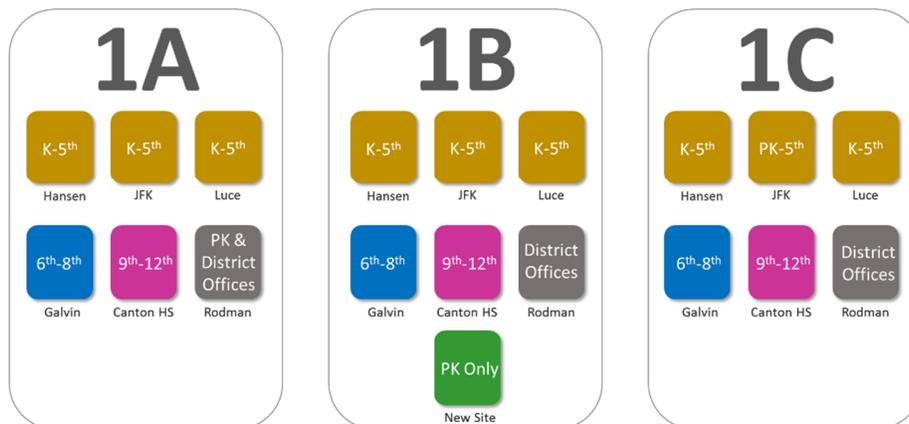
District-wide Master Planning Options

Dore & Whittier explored 12 District-wide options, represented below, organized around 5 different grade configurations. Ultimately, the Project Team generated the following list of objectives for the conceptual options:

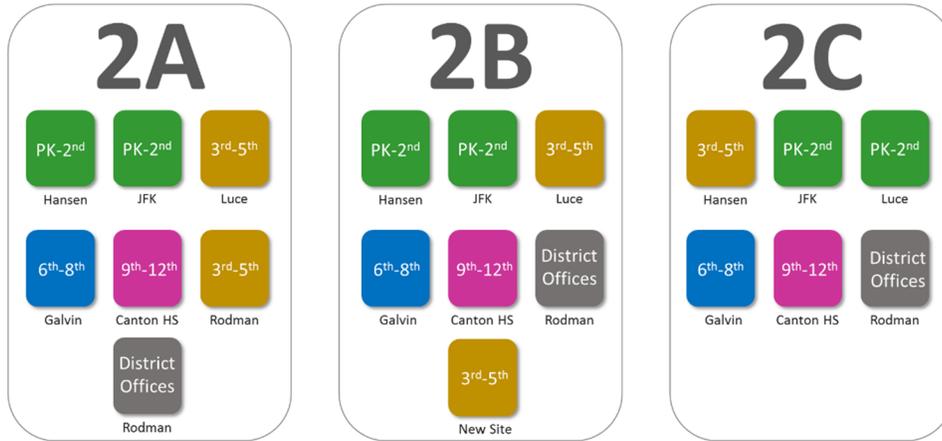
- Address Physical Conditions
- Align Facilities with Educational Delivery
- Eliminate Missing & Inappropriate Spaces
- Alleviate Existing and Future Overcrowding
- Co-locate Pre-Kindergarten Programs w/ Elementary Grades
- Improve District Offices

Option Group 1 maintained the current grade configuration and explored locations for an expanded Pre-K program (175) associated with one of the existing buildings or as a separate building. The Option Group 2 created an early childhood grouping of grades and an upper elementary grouping. Option Group 3 added the twist of an 8th grade academy (located in the Rodman) next to the High School and reduced the number of transitions for students to two. Option Group 4 was based on a middle school with 4 grades and an 8th academy in the Rodman building. Finally, the Series 5 Options also only had two transitions but with a longer grade span for elementary schools (Pre-K – 4th Grade).

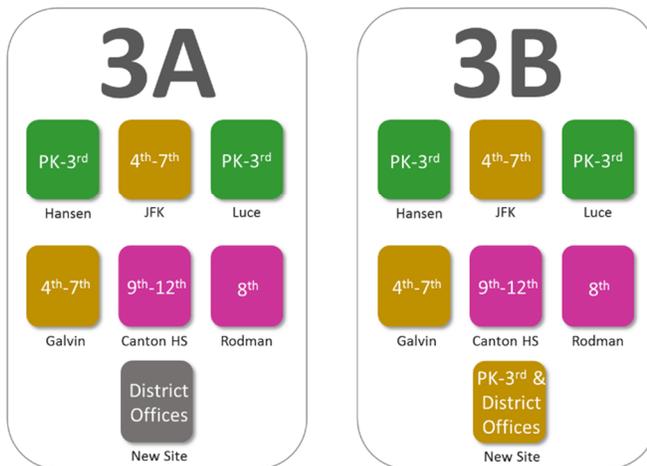
Options – Group 1: PK | K-5 | 6-8 | 9-12



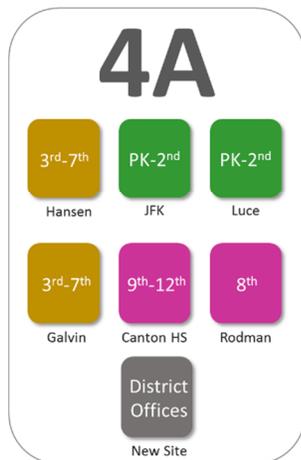
Options – Group 2: PK-2 | 3-5 | 6-8 | 9-12



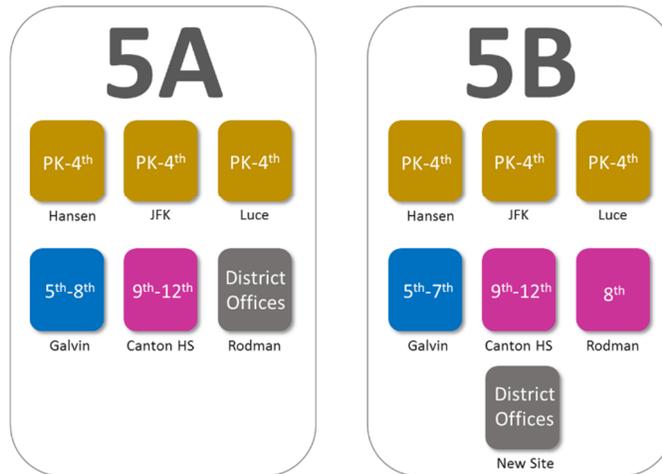
Options – Group 3: PK-3 | 4-7 | 8-12



Options – Group 4: PK-2 | 3-7 | 8-12



Options – Group 5: PK-4 | 5-8 | 9-12



Members of the Working Group developed a set of evaluation criteria to identify the most advantageous options. Based on feedback from School Committee, Visioning, the general public, the evaluation criteria were:

- How well does the option address building condition?
- Efficient use of existing space?
- Alignment with preferred grade configuration?
- Favor options that effect more students in the District?
- Enrollment parity across schools of the same grade level?
- School size?
- Location of prekindergarten?
- Effect on operational costs?

After applying the evaluation criteria, the Working Group arrived at a relatively short, but diverse, set of options for the School Committee and the Canton communities to continue their discussions prior to making a final Master Plan selection. These options were explored in more detail with a suggested sequence of construction projects, estimated costs, and preliminary site plans. The purpose of the site plans was to establish the feasibility of actual construction. The following pages summarize each shortlisted option. Please refer to Section III-C for more information on these options, including the construction timelines and site plans.

Short-listed Options



Option 1C

In Option 1C the existing grade configuration and schools are preserved, with the only change being the creation of a purpose-built Pre-K addition to one of the elementary schools- for example JFK. The addition will be sized to absorb any additional elementary school enrollment causing overcrowding throughout the District. In this option, portable classrooms are first added to JFK to accommodate the students currently at Hansen while the school is submitted to the MSBA as a potential project (Statement of Interest). After the elementary school construction project is complete, the District will start the MSBA process for the next school, the Galvin Middle School. Both of these projects will be eligible for MSBA reimbursement, if accepted into the school construction program. Generally, it takes 6-7 years from the time a school district submits a Statement of Interest until a Feasibility Study is completed, construction documents drafted, and finally a building is constructed. Under this option the next major project will be the renovation of the Rodman building for re-use as District Offices. This program will not require the entire building, so additional work can be done to create supplemental spaces for the High School. The MSBA does not fund District Offices either as a stand-alone project or even when attached to schools. Capital improvement work will need to proceed on the other buildings while these first three projects occur. In the second half of the 30-year planning cycle will address the other two elementary schools and the High School.

- Grade Configuration: PK, K-5, 6th-8th, 9th-12th
- Elementary School Count: 3 + Pre-K attached to one school
- 1st - Renovate/add to JFK to house Pre-K: \$43.5 M –potential MSBA partnership
- 2nd - Build new Galvin MS: \$71.1 M –potential MSBA partnership
- 3rd – renovate Rodman for District Admin: \$22.6 M – no MSBA
- CIP @ Hansen, Rodman, Luce, and CHS: \$11.4 M
- TOTAL MASTER PLAN COST: \$291.1 M (potential \$107.1 MSBA participation)

Option 2C

In Option 2C, the District will replace 3 schools with new construction over time: two elementary schools and the middle school. In this option, portable classrooms are also added to JFK initially, but unlike Option 1C, Hansen Elementary becomes the first project. Hansen will be a potential MSBA sponsored project under this scenario with predicted completion of 2024. Next, the JFK Elementary can be proposed, likely as an all new construction project with an estimated completion of 2029. Then the Town can undertake renovation of the District Offices at Rodman (without the MSBA). A new Luce Elementary School will be next with a new Galvin Middle School deferred until the fall of 2039 and finally the renovation of the High School by 2042. This pathway was referred to as “Elementary First” since all the elementary schools will be addressed before the middle school. By addressing the elementary needs upfront, it distributes Pre-K among the elementary schools and places students in appropriate space.

- Grade Configuration: PK-2, 3rd-5th, 6th-8th, 9th-12th
- Elementary School Count: 2 w/ Pre-K distributed at both
- 1st – Renovate/add to Hansen as upper elementary: \$34.9 M –potential MSBA partnership
- 2nd - Build new JFK Elementary as Pre-K – 2nd Grade: \$43.8 M –potential MSBA partnership
- 3rd – renovate Rodman for District Admin: \$22.6M – no MSBA
- 4th Build new Luce Elementary as Pre-K – 2nd Grade: \$44.5M –potential MSBA partnership
- Later –build new middle school and finally renovate the High School
- CIP @ Galvin, Rodman, Luce, and CHS: \$25.8.4 M
- TOTAL MASTER PLAN COST: \$292.3 M (potential \$107.6 MSBA participation)

Option 5A

In Option 5A the primary focus is on a new 5th- 8th grade middle school, with minor renovations to the elementary schools to house Pre-K classes, which will be distributed among all three elementary schools. In this option, portable classrooms are again added to JFK initially, but Galvin Middle School becomes the first project. This will be a potential MSBA sponsored project under this scenario with predicted completion of 2024. Next the JFK Elementary can be proposed, as either a renovation or new construction with an estimated completion of 2029. Then the Town can undertake renovation of the District Offices at Rodman (without the MSBA). A new Hansen Elementary School will be next with an estimated completion of 2039, followed by renovation of Luce Elementary, and finally the renovation of the High School by 2042.

- Grade Configuration: PK-4th, 5th-8th, 9th-12th
- Elementary School Count: 3 w/ Pre-K distributed at all
- 1st – Build new middle school: \$91.3 M –potential MSBA partnership
- 2nd - Renovate JFK Elementary as Pre-K – 4th Grade: \$29.1 M –potential MSBA partnership
- 3rd – Renovate Rodman for District Admin: \$22.6M – no MSBA
- 4th- Renovate Hansen Elementary as Pre-K – 4th: \$32.9M –potential MSBA partnership
- Later –renovate Luce ES and finally renovate the High School
- CIP @ Hansen, Rodman, Luce, and CHS: \$11.4 M
- TOTAL MASTER PLAN COST: \$286.4 M (potential \$104.7 MSBA participation)

Option 5B

In Option 5B the primary focus is also on a new middle school, with minor renovations to the elementary schools to house Pre-K classes. The difference from 5A is the renovation of Rodman as an 8th-grade academy. In this option, portable classrooms are needed at the elementary schools to house the pre-kindergarten program during renovations to the Rodman building, but can be removed when the new Galvin Middle School opens in the fall Of 2024 as a 5-7 school. This will free internal space in the elementary schools to house Pre-Kindergarten. The middle school project will be a potential MSBA sponsored project under this scenario. Neither the portable classrooms nor the conversion of Rodman will be reimbursable (the MSBA does not participate in single grade projects). Also, the Town will need to find space for the District Offices displaced from Rodman. Next, the JFK Elementary can be proposed, as either a renovation or new construction with an estimated completion of 2023. Then the Town can undertake renovation or replacement. Hansen Elementary School will be next with an estimated completion of 2037 followed by the replacement of Luce Elementary and finally the renovation of the High School by 2042.

- Grade Configuration: PK-4th, 5th-7th, 8th-12th
- Elementary School Count: 3 w/ Pre-K distributed at all
- 1st – Build new middle school: \$72.0.3 M –potential MSBA partnership
- 2nd – Relocate District Offices and Renovate Rodman as 8th Grade: \$35.1 M no MSBA
- 3rd – Build new JFK Elementary: \$43.3 M –potential MSBA partnership
- Later –replace Hansen ES, Luce ES and finally renovate the High School
- CIP @ JFK, Hansen, Luce, and CHS: \$11.4 M
- TOTAL MASTER PLAN COST: \$315.2 M (potential \$112.5 MSBA participation)

It should be noted that the costs identified in each of these options represent conceptual estimates and do not include escalation. The District would incur these costs at various points over the specific timeline of each option, and will have paid off the debt for some before the next project depending on the length of bonding. In other words, the Town would not be simultaneously incurring the cost of all these major projects in a master plan option.

Summary of Findings

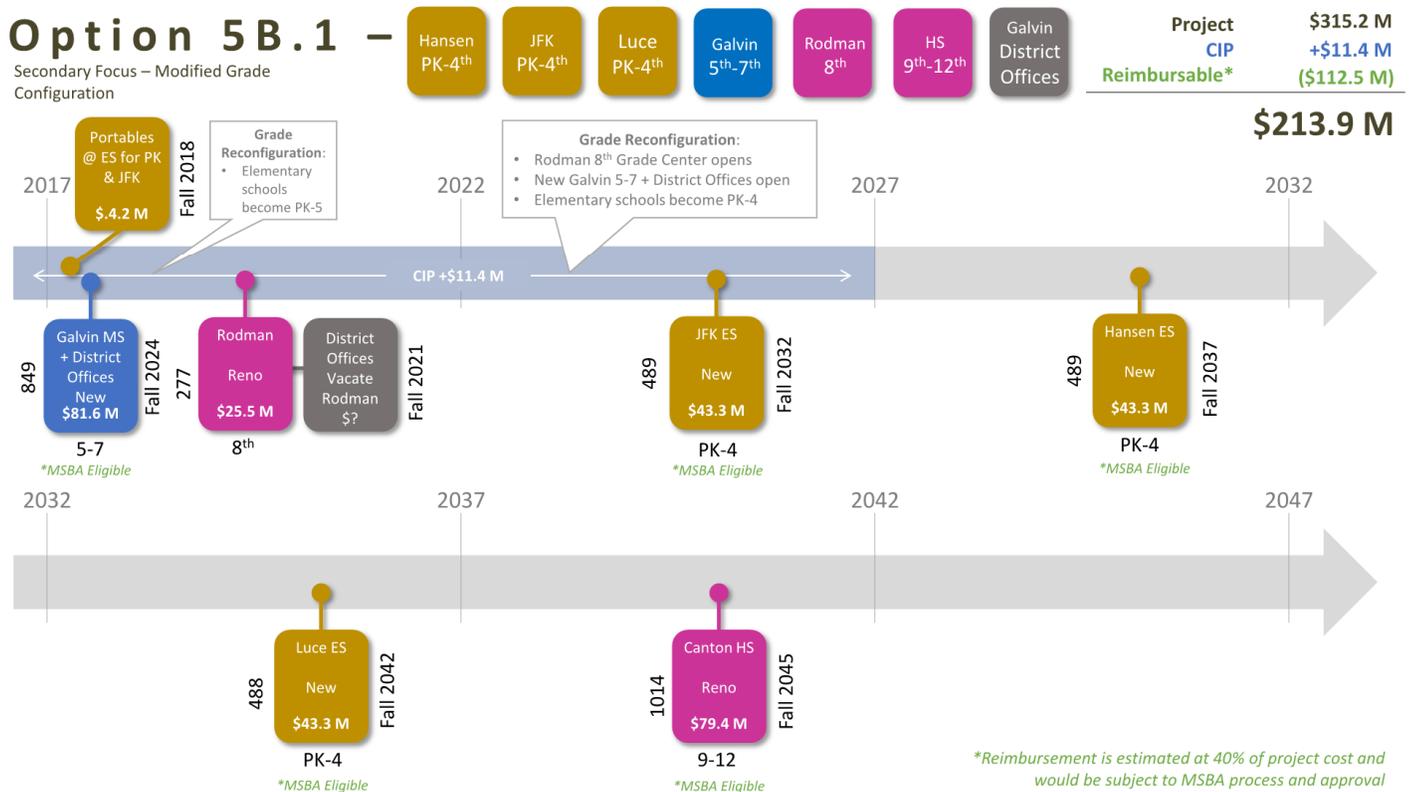
When the visioning group reviewed the 4 short listed options, a consensus emerged that the Galvin Middle School should be the priority. The third vision session concluded with a straw poll in which all votes were cast for either Option 5A or 5B and no votes were cast for Options 1C or 2C. After the polling, the student participants spoke in favor of the 8th-grade academy and expressed their feeling that eighth graders are more like high school students than like seventh graders. This seemed to increase support for Option 5B.

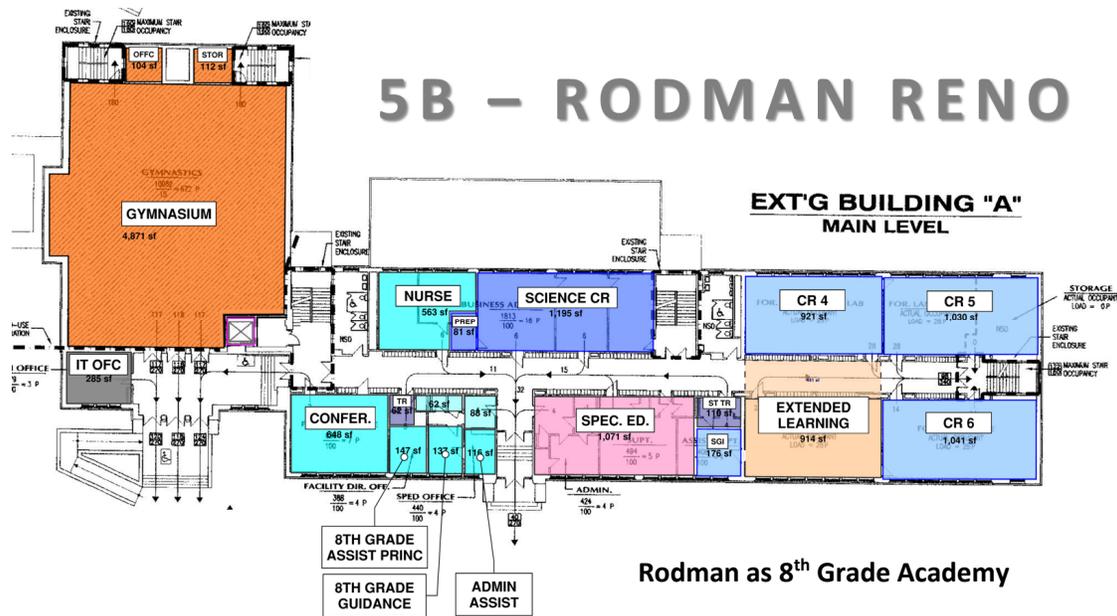
As the shortlist options were reviewed by the Working Group, a fifth option emerged which synthesized prioritizing the replacement of Galvin Middle School with the idea of an 8th-grade academy at the High School campus, while avoiding the costs of constructing a new building for the District Offices. This synthesis was called Option 5B.1 and was very positively received at the final public meeting.

Option 5B.1

This master plan option has the District Offices and pre-kindergarten program temporarily relocate (to allow the conversion of Rodman to an 8th-grade academy). The District will place modular classrooms at each elementary school to house the prekindergarten program until the middle school project is completed and the District can undergo a grade reconfiguration. When the Galvin is rebuilt as a 5-7 middle school it will also include new offices for the District Administration. The Galvin School project will be eligible for MSBA reimbursement, excluding the District Office portion. The Town would need to undertake the renovation of Rodman and any costs associated with temporary District Offices. One of the advantages of this option is that it benefits all the schools with the initial construction efforts by 2024. The new middle school will open and include the 5th grade, making space available in the three elementary schools for expanded Pre-K. The elementary schools will then be replaced sequentially in the second half of this 30-year master plan.

- Grade Configuration: PK-4th, 5th-7th, 8th-12th
- Elementary School Count: 3 w/ Pre-K distributed at all
- 1st – Temp. relocate District Offices and Renovate Rodman as 8th Grade: \$25.5 M no MSBA
- 2nd – Build new middle school, w/ District Offices: \$81.6 M –potential MSBA partnership
- Later –replace JFK, Hansen ES, Luce ES and finally renovate the High School
- CIP @ JFK, Hansen, Luce, and CHS: \$11.4 M
- TOTAL MASTER PLAN COST: \$315.2 M (potential \$112.5 MSBA participation)





Summary of Findings & Next Steps

- 10-year enrollment trajectory may allow reduction in number of active school facilities, but 20 yr trajectory may require additional facilities.
- Rodman Pre-K and Galvin MS need significant long-term improvements or replacement to address physical and educational needs.
- District should consider both Early Childhood groupings (PK & K) distributed at all three elementary schools.
- 10-year enrollment trajectory may allow reduction in number of active school facilities, but 20 yr trajectory may require additional facilities.
- Twin and Triple School alternatives are theoretically feasible on the Gates site.
- Phase I identified \$120M +/- worth of deferred maintenance, repairs, and physical upgrades ONLY. These costs would be almost entirely at District expense.
- Phase II identified \$250M +/- investment needed to address physical AND educational needs. MSBA participation will reduce District contribution.

The dialogue around the execution of the preferred master plan is ongoing. Over the next year, Canton Public Schools plans to actively engage the community for additional feedback and hold information sessions to ensure wide-reaching support for the preferred option. Meanwhile, the District will submit a Statement of Interest to the MSBA for a middle school project, consider temporary modular classrooms for the pre-kindergarten program, and an alternate location for district offices. Design efforts for an 8th grade academy at the Rodman building should commence in the spring of 2019 to support the master plan schedule.

