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Executive Summary

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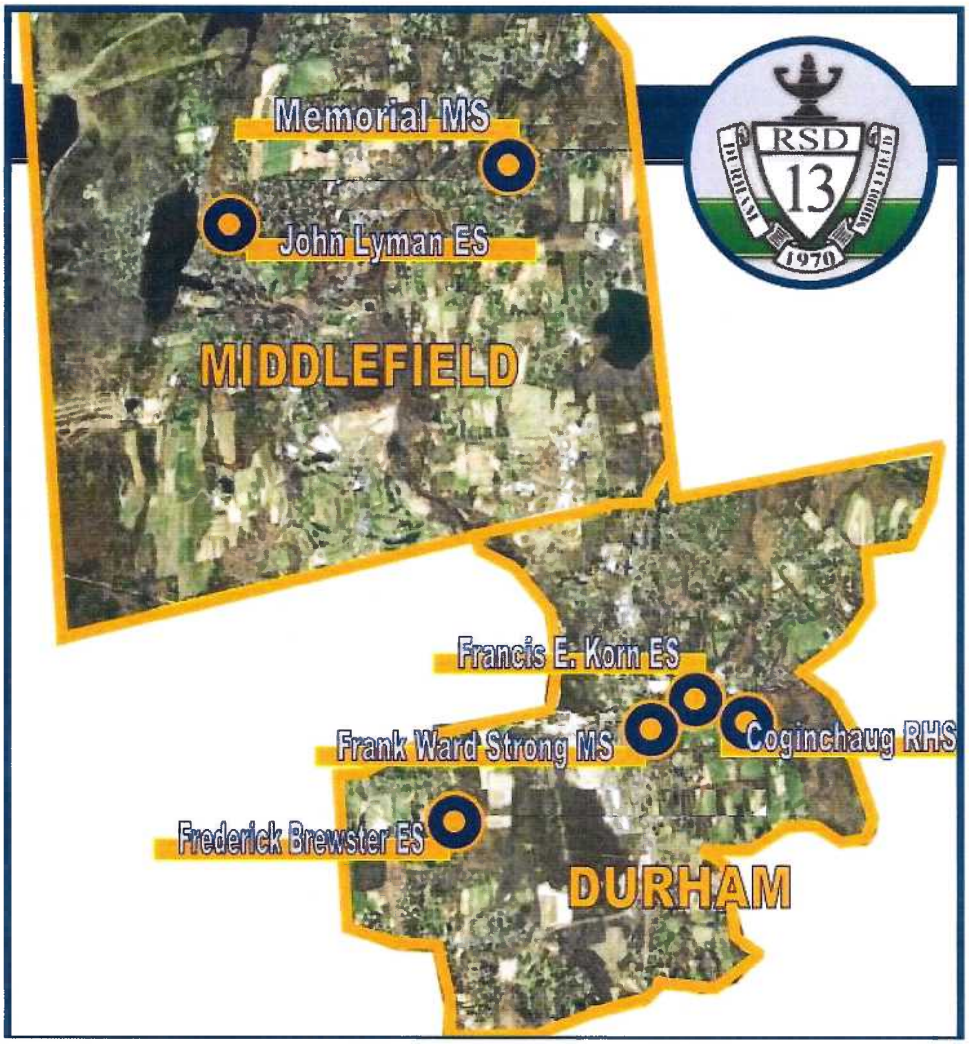
1.1 Introduction

Regional School District 13's schools are facing changes and planning challenges today and in the foreseeable future. This Facilities Utilization Study seeks to document these factors and to explore a range of possible responses to them. The study team, led by the architectural firm of Drummey Rosane Anderson (DRA) and working on behalf of the Board of Education Utilization Committee, hosted three community workshops for public discussions of the issues and a range of solutions. The results of this transparent and interactive process are being presented in this report, with descriptions of the range of options considered, recommended options, advantages/disadvantages, and projected costs.

Buildings Included in the Study



1.2 *Existing Conditions Analysis*

This study encompasses the Frederick Brewster Elementary School (built 1955); the Francis E. Korn Elementary School (built 1963); the John Lyman Elementary School (built 1966); the Middlefield Memorial Middle School (built 1954); the Frank Ward Strong Middle School (built 1923); Coginchaug Regional High School (built 1969); each has had one or more permanent additions, and all buildings except Strong have added freestanding modular spaces over time (throughout this report, "modular" is used to describe these temporary structures which are sometimes also referred to as "portable"). Each of the buildings has been well maintained in most respects, although to varying degrees, systems and finishes are showing the cumulative effects of years of wear and tear.

Some of the major building systems are at or near the end of their useful life expectancy. If not addressed as part of any future plans for these buildings, breakdowns of these systems can be anticipated on an ongoing basis.

In addition to the physical infrastructure work needed, there are functional improvements to be addressed (e.g., some architectural features fail to meet today's ADA requirements for handicapped accessibility). There is also an interest in providing space for an Early Childhood Center (ECC) program, a combined Kindergarten/Pre-Kindergarten area.

All district schools considered (except Strong) also use freestanding temporary/portable structures. These units are of low quality, and some are at or near the end of their service life; they also present a security risk, as they are detached from the main building and can be entered directly without passing though any secure check-in area. As explained in the Chapter 3 (Enrollment Projections), overall enrollments are on a downward trend, offering the needed opportunity to retire these structures, but also to reconfigure the schools and/or put them to new or additional uses in ways which may require renovation and/or new construction and/or school closure.

1.3 *Enrollment Projections*

Consultants Milone & MacBroom were commissioned to do a ten-year enrollment projection for the RSD 13 schools.

Enrollments for RSD 13 have been extremely stable between 2001 until 2010 (with a median of 2,112 students). These stable enrollments were despite extremely strong periods of economic growth, especially in the housing market in the towns. The enrolment trends are reflective of a period of stable births in RSD 13, averaging 120 births each year from 1996 to 2004 (with births appearing as kindergarten students

five years later). After 2004, births dropped tremendously, leading to the beginning of the enrollment decline post-2010, which has continued.

All district-wide projections show a continuation of the ten-year trend of declining enrollment in the district. The PreK-12 enrollment is projected to decline over 30% over the next ten years to approximately 1,200 students district-wide. The enrollment decreases are projected to vary slightly among the grade groups, with the largest decline among middle enrollments and the least decline among the elementary school enrollments, which have already seen much of their decline. Additionally the elementary enrollments are expected to "bottom-out" during the second half of the ten-year horizon, and are projected to increase slightly after 2022-23, although the rate of this increase is strongly tied to the birth projections.

The following table shows the ten-year enrollment projections for RSD 13 by grade:

District-wide Projections

Ten-Year Enrollment Projections

School Year	Birth Year	Births	K	1	2	3	4	5	6	7	8	9	10	11	12	PK
2014-15	2009	79	81	99	137	114	139	125	169	160	181	125	156	139	141	30
2015-16	2010	86	88	90	99	140	114	138	124	169	161	151	123	156	134	30
2016-17	2011	88	90	98	90	101	140	113	137	124	170	135	148	123	151	30
2017-18	2012	66	68	100	98	92	101	139	112	137	125	142	133	148	119	30
2018-19	2013	77	79	76	100	100	92	100	138	112	138	104	140	133	143	30
2019-20	2014	77	79	88	76	102	100	91	99	138	113	115	102	140	129	30
2020-21	2015	76	78	88	88	78	102	99	90	99	139	94	113	102	135	30
2021-22	2016	79	81	87	88	90	78	101	98	90	100	116	92	113	99	30
2022-23	2017	81	83	90	87	90	90	78	100	98	91	84	114	92	109	30
2023-24	2018	84	86	92	90	89	90	89	77	100	99	76	83	114	89	30

School Year	PK-12th TOTAL	PK-12th % Change	PK-4th Total	PK-4th % Change	5th-8th Total	5th-8th % Change	9th-12 Total	9th-12 % Change
2014-15	1,796	-3.91%	600	-4.76%	635	-3.93%	561	-2.94%
2015-16	1,717	-4.40%	561	-6.50%	592	-6.77%	564	0.53%
2016-17	1,650	-3.90%	549	-2.14%	544	-8.11%	557	-1.24%
2017-18	1,544	-6.42%	489	-10.93%	513	-5.70%	542	-2.69%
2018-19	1,485	-3.82%	477	-2.45%	488	-4.87%	520	-4.06%
2019-20	1,402	-5.59%	475	-0.42%	441	-9.63%	486	-6.54%
2020-21	1,335	-4.78%	464	-2.32%	427	-3.17%	444	-8.64%
2021-22	1,263	-5.39%	454	-2.16%	389	-8.90%	420	-5.41%
2022-23	1,236	-2.14%	470	3.52%	367	-5.66%	399	-5.00%
2023-24	1,204	-2.59%	477	1.49%	365	-0.54%	362	-9.27%
1st 5-YR Percent Change		-17.32%		-20.50%		-23.15%		-7.31%
2nd 5-YR Percent Change		-14.12%		0.42%		-17.23%		-25.51%
10-YR Percent Change		-32.96%		-20.50%		-42.52%		-35.47%

~2.1-6.4% annual decrease

Elem. decline 20% 1st 5 yrs
Flattens 2nd 5 yrs

MS decline 23% in 1st 5 yrs

HS decline 25% in 2nd 5 yrs

Milone & MacBroom 20

1.4 Educational Space Needs

The projected enrollment drop means that the square footage of all three buildings will continue to be adequate (though see below regarding widely undersized/underequipped classrooms), but if the choice were made today to close one or more schools and/or redistribute grade levels among the remaining facilities, then there would be a square footage shortage in one or more buildings. Furthermore, if the Lyman modular classrooms were demolished today, the shortage of space would be even greater. For these reasons, please note that any demolition and/or building closure discussed in the options below are slated for implementation in 2016-17 at the earliest.

Typical classrooms

Average existing classrooms sizes are listed in the following table by grade level:

Grade	Avg. size (sq.ft.)	Comment
PK	911	
K	893	
1	887	
2	740	
1/2 (Lyman ID)	789	
3	792	Incl. two modular classrooms (larger than classrooms in permanent bldg at this level
4	787	
3/4 (Lyman ID)	797	
5	803	
6	762	Large science classroom converted to 6th gr.
5/6 (Memorial ID)	733	
Strong	892*	
Coginchaug	788*	

Across all buildings, a majority of classrooms and other spaces fall well below best-practices size recommendations; this includes classrooms for RSD 13's youngest students. (With the exception of all new construction in Option D, no planned options currently provide for the enlargement of these classrooms.)

Similar space analysis in other existing spaces demonstrated needs for more space in the testing areas, conference rooms, foreign language and music rooms, and storage.

A typical Pre-Kindergarten, Kindergarten, elementary, or middle school classroom needs more space now than when it was originally built. The currently recommended, best-practices sizes for these classrooms are:

Grades:	Size:
PK – K	1,200 sq.ft.
1-5	900-1,000 sq.ft.
6-8	850 sq.ft.
9-12	800 sq.ft.

These sizes allow greater flexibility in frequent rearrangements of student desks, better accessibility for teacher and paraprofessionals to help students, more storage, and more space demanded by technology (30 sq. ft. per computer station is a good rule of thumb).

Finally, 14,000 sq.ft. is the approximate net square footage assumed to accommodate an ECC (adjacent PK-K) program, where relevant.

All square footages would need to be verified when such projects are planned to proceed.

Capacity

RSD 13 has supplied class size targets for each grade level;* where a range is indicated, DRA has taken the high end of the range in making all calculations and recommendations in this report:

Grade Level:	Students per classroom
PK	30*
K	18
1	18
2	20
3	22
4	20-24
5	21-25**
6	21-25**
7	22-26**
8	22-26**
9-12	26***

*This best-practices class size target for Pre-Kindergarten has been supplied by Milone & MacBroom in their enrollment projection study. Note that Pre-Kindergarten takes place on a half-day basis, and so, e.g., only 15 students of a 30-student count will occupy the classroom at one time. Lastly, note that

according to district rules, Kindergarten shall always have an aide in the classroom unless the attendance goes below 15 students.

**Exempting high participation classes such as band and chorus.

***With the approval of the Board of Education Utilization Committee, DRA has continued to use the 26-student limit for grades 9-12 facilities.

1.5 Planning Options

A full range of options has been considered. The options were sorted into 3 families, as described in the "Families of Options" chart below. Please note:

(i) It is recommended that the **maintenance** component of Options B through D **should be performed as soon as possible**, regardless of a given option's implementation year.

(ii) No options include any potential costs for **hazardous waste mitigation** made necessary by demolition.

(iii) **Option families A, B and D, and most options in family C,** use enrollment projections for the **2016-17 school year,** since these options require that enrollments fall to a certain extent before they become feasible. For the same reason, option C1 is slated for the **2017-18 school year.**

Given these target years, any *over*capacity will be determined by the planning option chosen (see Chapter 5, Planning Options).

FAMILY LABEL		DESCRIPTION
A	Do Nothing	DO NOTHING means deciding to continue using the six school buildings in the same grade configuration and programs with no improvement projects. Upgrades and repairs are undertaken in reaction to deteriorating conditions as needed.
B	Maintain All Schools & Demo	Considers maintaining all schools, upgrading all facilities, and demolishing all portable structures.
C	Close School/s	Family of Options considers closing schools, reconfigure select grades, and additions at select schools. Demolish all portable structures at schools remaining in operation.
D	New Buildings	Considers building three new schools: Build two new Elementary schools and a Middle School, maintain the existing H.S.

A. Do Nothing

This option involves making no major changes to any existing buildings or sites. This option is not cost-free, however, and DRA, working from the surveys supplied by Consulting Engineering Services, Inc. (CES), has identified systems* likely to fail within the next ten years, noting the likely costs of repair/replacement on an emergency basis. No costs related to this option are eligible for reimbursement by the State of Connecticut.

**These systems are identified (with reference to the CES surveys, see Appendix B) as those scoring a "System Rating" of "1" or "2" (on a scale of 1 to 5, five being the highest, or best condition); AND/OR those systems with a projected replacement date within ten years (or already past).*

B. Maintain All Schools & Demo

In this option, all systems surveyed by CES are now maintained on a proactive basis, resulting in significant cost savings. The modular/portable structures at all schools are demolished. Under this option, all schools are designated "renovate as new," which qualifies work for possible 56.07% reimbursement by the State of Connecticut (current rate). This option is implemented for the 2016-17 school year at the earliest.

C. Close School(s)

In different versions, between zero and two schools are closed (in C.5, Korn can be returned to district use); grade levels are variously redistributed among facilities; all systems surveyed by CES are replaced across all remaining schools, and all modular/portable structures are demolished. In all versions (excepting C.1), one or more facilities receive additions; the ECC program may or may not be accommodated. Also, for all options in which Brewster receives a classroom addition,

it will also receive a new gymnasium to accommodate increased enrollment. Under this option family, all remaining schools in a given version are designated "renovate as new," which qualifies all work there for possible 56.07% reimbursement by the State of Connecticut; the newly built additions are potentially reimbursable at 46.07% (current rates). Different versions of this option family are implemented for either the 2016-17 or 2017-18 school year at the earliest.

D. New Buildings

All systems surveyed by CES are replaced at Coginchaug. All remaining buildings are demolished, and two new elementary schools (PK-5) and a middle school (6-8) are built with appropriate square footages, on current school sites or others. No potential additional costs for the preparation of new building sites have been included in this option. Coginchaug is designated as "renovate as new," which qualifies work for possible 56.07% reimbursement by the State of Connecticut; the newly built schools are potentially reimbursable at 46.07% (current rates). This option is implemented for the 2016-17 school year at the earliest.

1.6 Project Costs

Construction cost ("hard costs") includes construction costs, contractor's general overhead and profit, project general conditions, bonds, and an estimating design contingency. Project "soft costs" are those project related cost centers beyond "brick and mortar". These "soft cost" centers include, but are not limited to legal fees, technology, design fees, furniture-fixtures-&-equipment, construction contingency, site surveys, borings, geotechnical studies, testing, inspections, independent structural reviews, telephone, and security systems. The "hard costs" and the "soft costs" taken together form the total project cost for a project scope of work.

Construction costs for feasibility study purposes are based on standard industry costs per square foot for demolition, renovation, and/ or new construction. Land acquisition costs (if any) are not made part of the Opinion of Probable Cost at this time. Costs reported are given in year 2014 (current-year) dollar values and do not include escalation or inflation.

An additional contingency is used (Option A only) to account for the additional costs of replacing systems only when they fail, i.e., on an emergency rather than a proactive basis – this contingency represents increased costs for labor and materials on an emergency basis, clean-up and collateral repairs from the system failure, and so on; this contingency is established at 20%.

The overall Opinion of Probable Cost is developed utilizing gross square footage cost centers and combining those square footage calculations as they are divided between renovation and new construction scopes of work. The following tables capture the cost centers described in this section, and a final likely cost range is provided (+/- 5% of the raw cost, rounded).

Final note: Demolitions may LOWER the costs of SOME maintenance (a building may lose plumbing facilities in its demolished modulars, for example).

State of Connecticut Reimbursement

We have chosen to use the most conservative interpretation of the State's **current (2014)** reimbursement program, which specifies:

- 56.07%, for "renovate-as-new" renovation
- 46.07%, for new construction

The **net cost to RSD 13** in the case of each recommended option has been calculated by applying these rates to the appropriate types of construction where it seems logical to do so. These net costs are given below:

1.7 Recommended Options

The recommended options are B, C4 and C4.1. These range from a simpler choice for upkeep of existing facilities and demolition of unneeded space, to additions and renovations aimed at accommodating grade redistributions at some schools, while other schools are closed. None of these options are the most expensive or the least, but they offer the best chance of providing maximal value to the town in addressing its educational goals. The feasibility and flexibility of these options were demonstrated by studying them in more detail, although final details will be developed during the design process. The details as developed so far are recorded here both to describe the options and to become the first step in that process.

Option B: Summary of Details

Brewster School Description
Brewster will have all systems identified by CES replaced as part of "renovation-as-new." All temporary/portable structures will be demolished as well.

Korn School Description
Korn will have all systems identified by CES replaced as part of "renovation-as-new." All temporary/portable structures will be demolished as well.

Lyman School Description
Lyman will have all systems identified by CES replaced as part of "renovation-as-new." All temporary/portable structures will be demolished as well.

Memorial School Description
Memorial will have all systems identified by CES replaced as part of "renovation-as-new." All temporary/portable structures will be demolished as well.

Strong School Description
Strong will have all systems identified by CES replaced as part of "renovation-as-new."

Coginchaug High School Description
Coginchaug will have all systems identified by CES replaced as part of "renovation-as-new." All temporary/portable structures will be demolished as well.

PROS	CONS
• Low upfront cost. • 'Renovate as New' qualifies work for State reimbursement. • All schools are a better fit for their population. • Eliminates low-quality/nonpermanent structures. • Decreased SF lowers operational cost. • PK centralized at Brewster. • Grade configuration remains the same and all schools remain in operation. • Proactive approach. • Bundled repairs cost less. • Comfort with status quo. • Fixes immediate concerns • Flexibility for future needs. • Changes can be implemented soon: 2016-17	• No planning for future educational improvements. • Remaining excess capacity at all schools (to various degrees).

Option B Probable Costs

Work	Square feet	Cost per SF	Total cost
Demo (at Brewster)	2,250	@ $10 / SF	= $23,000
Demo (at Korn)	1,848	@ $10 / SF	= $18,000
Demo (at Lyman)	3,696	@ $10 / SF	= $37,000
Demo (at Memorial)	2,250	@ $10 / SF	= $23,000
Demo (at Coginchaug)	3,696	@ $10 / SF	= $37,000
Reno-as-new (Brewster)	38,672	@ $425 / SF	= $16,436,000
Reno-as-new (Korn)	31,275	@ $425 / SF	= $13,292,000
Reno-as-new (Lyman)	33,434	@ $425 / SF	= $14,209,000

Reno-as-new (Memorial)	49,877	@ $425 / SF	= $21,198,000
Reno-as-new (Strong)	77,762	@ $425 / SF	= $33,049,000
Reno-as-new (Coginchaug)	138,670	@ $425 / SF	= $58,935,000
Total cost range:			**= $149m – $165m**
NET cost range to RSD 13, with Connecticut state reimbursement:			**= $69m – $76m**

Option C4: Summary of Details

Brewster School Description
Brewster will host grades 1-5 in the Contemporary program, and will have all systems identified by CES replaced as part of "renovation-as-new."

Korn School Description
Korn will be repurposed to host grades PK-K as an ECC (with one extra classroom of unprogrammed space), and will have all systems identified by CES replaced as part of "renovation-as-new."

Lyman School Description
Lyman will be closed and can be returned to town use if desired.

Memorial School Description
Memorial will host grades 1-5 in the ID/HOT program, and will have all systems identified by CES replaced as part of "renovation-as-new."

Strong School Description
Hosting grades 6-8, Strong will have all systems identified by CES replaced as part of "renovation-as-new." Also as part of the renovation process, language and grade-level classrooms will be relocated, with grade-level classrooms clustered; all three grade levels of the ID program will also be located together. 7th and 8th grades (Contemporary) will have integrated team spaces for "breakout" groups, etc. To accommodate these arrangements, Strong will require 2 additional classrooms of approx. 800 sq.ft. each (see test fit drawing below), to be located on the upper level; however, enrollments will have fallen sufficiently by 2019-20 for these classrooms not to be needed, and so in 2016-17, the use of temporary construction – producing a structure which is less expensive and can be easily demolished later -- is recommended.

Coginchaug High School Description
Coginchaug will have all systems identified by CES replaced as part of "renovation-as-new." All temporary/portable structures will be demolished as well.

PROS	CONS
• Keeps 5 of 6 schools operational. • Less one building's operational cost. • 'Renovate as New' qualifies work for State reimbursement. • PK centralized at Korn as ECC. • Parity between Elementary Schools' in grade configuration and space utilization. • Middlefield and Durham both have a 1-5 Elementary School with good space utilization. • Consistency with program offerings: Contemporary program remains in Durham and ID/HOT program remains in Middlefield. • Creates ideal 3-grade Middle School; Social, Academic, and Logistic benefits. • Shared staff. • Proactive approach. • Efficient Space Utilization: Korn=77% ECC program Brewster=84% enrollment Memorial=82% enrollment Strong=- 93% enrollment Regional High School=79% enrollment. • Changes can be implemented soon: 2016-17	Turning over Lyman school to the district restricts future flexibility. Korn has one extra classroom • Strong=2 classrooms needed • Cost associated with building addition to Strong. • Logistical challenges of cafeteria schedules at elementary schools.

Option C4 Probable Costs

Work	Square feet	Cost per SF	Total cost
Demo (at Brewster)	2,250	@ $10 / SF	= $23,000
Demo (at Korn)	1,848	@ $10 / SF	= $18,000
Demo (at Memorial)	2,250	@ $10 / SF	= $23,000
Demo (at Coginchaug)	3,696	@ $10 / SF	= $37,000
Reno-as-new (Brewster)	38,672	@ $425 / SF	= $16,436,000
Reno-as-new (Korn)	31,275	@ $425 / SF	= $13,292,000
Reno-as-new (Memorial)	49,877	@ $425 / SF	= $21,198,000
Reno-as-new (Strong)	77,762	@ $425 / SF	= $33,049,000
Reno-as-new (Coginchaug)	138,670	@ $425 / SF	= $58,935,000
Addition (Strong)	2 modular CRs*		= $147,000

Total cost range: **= $136m – $150m**

NET cost range to RSD 13,
with Connecticut state reimbursement: **= $63m – $69m**

Option C4.1: Summary of Details

Brewster School Description
Brewster will host grades 1-5 in the Contemporary program, and will have all systems identified by CES replaced as part of "renovation-as-new."

Korn School Description
Korn will be closed and can be returned to town use if desired.

Lyman School Description
Lyman will be repurposed to host grades PK-K as an ECC (leaving four extra classrooms of unprogrammed space), and will have all systems identified by CES replaced as part of "renovation-as-new."

Memorial School Description
Memorial will host grades 1-5 in the ID/HOT program, and will have all systems identified by CES replaced as part of "renovation-as-new."

Strong School Description
Hosting grades 6-8, Strong will have all systems identified by CES replaced as part of "renovation-as-new." Also as part of the renovation process, language and grade-level classrooms will be relocated, with grade-level classrooms clustered; all three grade levels of the ID program will also be located together. 7th and 8th grades (Contemporary) will have integrated team spaces for "breakout" groups, etc. To accommodate these arrangements, Strong will require 2 additional classrooms of approx. 800 sq.ft. each (see test fit drawing below), to be located on the upper level; however, enrollments will have fallen sufficiently by 2019-20 for these classrooms not to be needed, and so in 2016-17, the use of temporary construction – yielding structures which are less expensive and can more easily be demolished later -- is recommended.

Coginchaug High School Description
Coginchaug will have all systems identified by CES replaced as part of "renovation-as-new." All temporary/portable structures will be demolished as well.

PROS	CONS
• Keeps 5 of 6 schools operational. • Less one building's operational cost. • 'Renovate as New' qualifies work for State reimbursement. • Lyman repurposed as ECC; centralizing early ed . • Parity between Elementary Schools' in grade configuration and space utilization. • Middlefield and Durham both have a 1-5 Elementary School with good space utilization. • Consistency with program offerings: Contemporary program remains in Durham and ID/HOT program remains in Middlefield. • Creates ideal 3-grade Middle School; Social, Academic, and Logistic benefits. • Shared staff. • Proactive approach. • Efficient Space Utilization: Brewster=84% enrollment Memorial=82% enrollment Strong=- 93% enrollment Regional High School=79% enrollment. • Changes can be implemented soon: 2016-17	Turning over Korn school to the district restricts future flexibility. Additions/Demo needed at: • Lyman=4 extra classrooms-*not ideal fit.* • Strong=2 classrooms needed • Regional High School=demo portables. • Cost associated with building addition to Strong. • Logistical challenges of cafeteria schedules at elementary schools.

Option C4.1 Probable Costs

Work	Square feet	Cost per SF	Total cost
Demo (at Brewster)	2,250	@ $10 / SF	= $23,000
Demo (at Lyman)	3,696	@ $10 / SF	= $37,000
Demo (at Memorial)	2,250	@ $10 / SF	= $23,000
Demo (at Coginchaug)	3,696	@ $10 / SF	= $37,000
Reno-as-new (Brewster)	38,672	@ $425 / SF	= $16,436,000
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Reno-as-new (Memorial)	49,877	@ $425 / SF	= $21,198,000
Reno-as-new (Strong)	77,762	@ $425 / SF	= $33,049,000
Reno-as-new (Coginchaug)	138,670	@ $425 / SF	= $58,935,000
Addition (Strong)	2 modular CRs*		= $147,000
Total cost range:			**= $137m – $151m**

NET cost range to RSD 13,
with Connecticut state reimbursement: **= $63m – $70m**

*The estimated cost for Strong's two modular classrooms is based on an industry quote for installation, 36-month lease, and removal of two 900-sq.ft. classrooms (approx. 2,571 gross sq.ft.).