SCHOOL SPACE NEEDS STUDY

READING MEMORIAL HIGH SCHOOL

READING PUBLIC SCHOOLS
READING, MASSACHUSETTS

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TABLE OF CONTENTS

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READING MEMORIAL HIGH SCHOOL
READING, MASSACHUSETTS

PURPOSE

The purpose of this report is to describe in broad terms the structure of the existing building, to comment on the condition of the existing building, and to comment on the structural code issues related to the feasibility of renovation and expansion of the facility.

SCOPE

1. Description of existing structure
2. Comments on the existing condition
3. Discussions of the Primary Structural Code Issues that would influence the renovations or the design of new additions to the school.

BASIS OF THE REPORT

This report is based on visual observations during our site visit on December 15, 1998, the review of the available drawings of the additions and renovations made to the existing building dated September 15, 1969 by Stoner Associates Architects.

During our site visit, we did not remove any finishes so our understanding of the structure is limited and may have to be further refined as the design evolves.

BUILDING DESCRIPTION

The high school is located on Oakland Road in Reading, Massachusetts. The original structures were built in 1952 and major additions were subsequently made in 1969. The entire school is a complex of nine interconnected buildings except for the field house, which is not directly connected to any buildings. The structures are named building A through building I.

ORIGINAL 1952 STRUCTURES

Since there are no available drawings for these original buildings, all our comments and descriptions are based on observations made during our walk through the school. It is hard to comment on the existing structural systems except in general terms as we did not remove any finishes during our visit.

Building D

This building houses the cafeteria and the kitchen presently. The roof of this one-story structure is framed with steel beams bearing on exterior masonry bearing walls and interior steel columns. The floor is a concrete slab-on-grade. The foundations are probably continuous concrete strip footings and isolated column spread footings.

Building E

This is a three-story building and abuts the cafeteria wing (building D) on its North face. The auditorium (building F) and building G are to its East. This building houses classrooms on all its three levels. The structural framing was not evident from visual observations. The framing appeared to be a mixture of load bearing masonry and steel framing.

Building F

This building houses the auditorium. It is separated from the cafeteria wing (building D) by way of a corridor on its West side and is attached to building G is attached to it on its North side. The auditorium is a two-story column free space. The structural framing was not exposed, but it appears to be a combination of load bearing masonry and steel framing.

Building G

This is a three-story building sandwiched between the auditorium (building F) on it South side and the gymnasium (building H) on its North. This building houses the administrative offices and classrooms on all three floors. The ground floor is a partially finished floor. The unfinished portion is used as storage and utility corridor, most of the unfinished space has a dirt floor. The first floor appears to be a concrete flat slab supported on concrete columns as observed from the unfinished ground floor space. There is a four storied concrete tower attached to this building, adjacent to the main lobby.

Building H

This is a two-story space gymnasium. The roof deck is supported on steel purlins, which span between roof trusses which in turn as supported by steel columns at the ends.

Building I

This is a one-story structure with a basement. The basement houses the boiler room, wood shops, garage, and the maintenance department. The Industrial Arts department is located in the ground floor. The basement is a concrete slab-on-grade. The ground floor appears to be a concrete slab supported on steel framing. Building I is located to the North of the gymnasium building (building H) and linked to it by way of a corridor.

1969 ADDITIONS

Buildings A, B, and C were added to the school and major additions were made to existing buildings D and I in 1969.

Building A

This building is essentially a classroom wing, which houses the Math and Science departments. It is linked to building E by way of a corridor link to its South and abuts building B to its West.

This three-story structure for the most part with a crawl space under most of the building. At the lowest level is a partial floor at the northern end. This floor is framed with precast concrete planks supported on steel beams. The ground, first, and second floors are concrete slab on metal deck supported on bar joists, which in turn are supported on steel beams and columns. The roof construction is poured gypsum concrete on bulb tees supported on bar joists, which frame into wide flange steel girders and columns. The columns and the perimeter walls are supported on unreinforced concrete spread footings and continuous wall footings.

Building B

This is a three-story structure connected to building G on its East and building E on its South by way of corridor links. Building A abuts it on its West. This building is also called the library building with a lecture room and classrooms at its lowest level and reading rooms at the two upper stories.

The lowest level is a slab-on-grade. The upper floor framing and the roof are similar to building A. The columns and the walls are supported on unreinforced concrete spread footings and continuous wall footings.

Building C

This building is located to the northwest corner of the campus. This is an independent structure and not connected to any of the other school buildings. This building houses the double story field house. It has a balcony and space for gymnastics and wrestling programs at an intermediate level.

The field house has a poured gypsum roof supported by bulb tees. The bulb tees are supported on wide flange beams, which in turn are supported on 12'-0" deep trusses spanning 140 feet.

The balcony and wrestling areas have a low roof that is separated from the high roof by way of an expansion joint. This low roof is also a poured gypsum roof on bulb tees supported on 20 inch deep bar joists spanning 51'-0" between beams.

The intermediate floor is framed with precast concrete planks spanning between steel beams and columns. The ground floor is a concrete slab-on-grade. The columns and perimeter walls are supported on unreinforced concrete spread footings and continuous wall footings.

Addition to Building D

This is a one-story addition to the cafeteria wing. This addition was made to the West side of the cafeteria. A link was also added to connect this addition to building E.

The roof of this addition is the typical roof construction used elsewhere on the project. It is a poured gypsum roof on bulb tees supported on bar joists and beams. The floor is a concrete slab-on-grade. The columns and walls are supported on unreinforced concrete spread footings and continuous wall footings.

Addition to Building I

This addition has three main components. The one-story boiler room to the East of building I, the two-story addition to the Industrial Arts wing to the North of building I, and the two-story addition to the East of the link connecting buildings H and I.

The roof on all of these additions is the poured gypsum roof on bulb tees supported on bar joists and steel beams. The framed floors at the link extension are concrete slabs on metal deck supported on bar joists. The framed floor at the industrial arts wing extension is precast concrete plank supported on steel beams. The lowest level is a concrete slab-on-grade. The columns and walls are supported on unreinforced concrete spread footings and continuous wall footings.

EXISTING CONDITIONS

Based on our observations, we did find that the structures are performing satisfactorily. We noticed a few maintenance items and some signs of water leakage at a few locations.

The exterior brick facade was typically in good shape. The original 1952 building facade showed more cracks then the later 1969 additions. This may be due to the lack of control joints in the original construction. Spalling of concrete was observed at a few locations where the concrete foundation was exposed.

In the area adjacent to the large courtyard in the vicinity of buildings A, B, and E, a number of building columns are exposed. These columns are steel columns encased in concrete. There are signs of previous repairs to the spalling or cracked concrete on the column encasements. Some rust signs are evident at a couple of locations. The reasons for this could be numerous. The most probable reason for the spalling concrete is that the reinforcing steel does not have adequate concrete cover. The concrete encasement is probably non-structural in nature and may not be a cause for concern. This could be determined when an analysis is conducted for the existing structure as the project evolves. No obvious signs of foundation settlement were observed anywhere. No excessive deflections or excessive perceptible floor vibrations were observed due to foot falls.

PRIMARY STRUCTURAL CODE ISSUES RELATED TO THE EXISTING STRUCTURE

If any repairs, renovations, or additions are made to the structures, a check for compliance with 780 CMR, Chapter 34 "Repairs, Alterations, Additions, and Change of Use of Existing Buildings", of the Massachusetts State Building Code is required. The intent of the 780 CMR, Chapter 34 is to permit repairs or alterations to the existing buildings without requiring compliance with the Code for new construction.

Assuming no major structural renovations are made to the existing buildings and any additions made are structurally separated from the existing buildings, the existing structures would probably be classified as being in Structural Hazard Category 2, as defined in 780 CMR, Chapter 34. At a minimum, the following structural issues have to be addressed for the existing buildings.

1. The existing structures have to be investigated for the presence of special earthquake hazards, such as parapets, unreinforced/unbraced masonry walls, and connections to precast concrete elements. All such hazards that are present have to be corrected. In our case it implies that:

   A. All the interior and exterior masonry walls have to be clipped or braced to the structural framing members for lateral stability.

   B. The cantilevered walls, parapets, masonry walls having a continuous strip windows above have to be checked for loads as per the Massachusetts State Building Code. The elements will have to be braced or removed if they do not comply.

   C. The interconnections of precast concrete structural elements have to be investigated and reinforced if necessary. The connections have to conform to the requirements of 780 CMR, Chapter 19.

2. All cracked and spalled areas of concrete have to be repaired.

COMMENTS

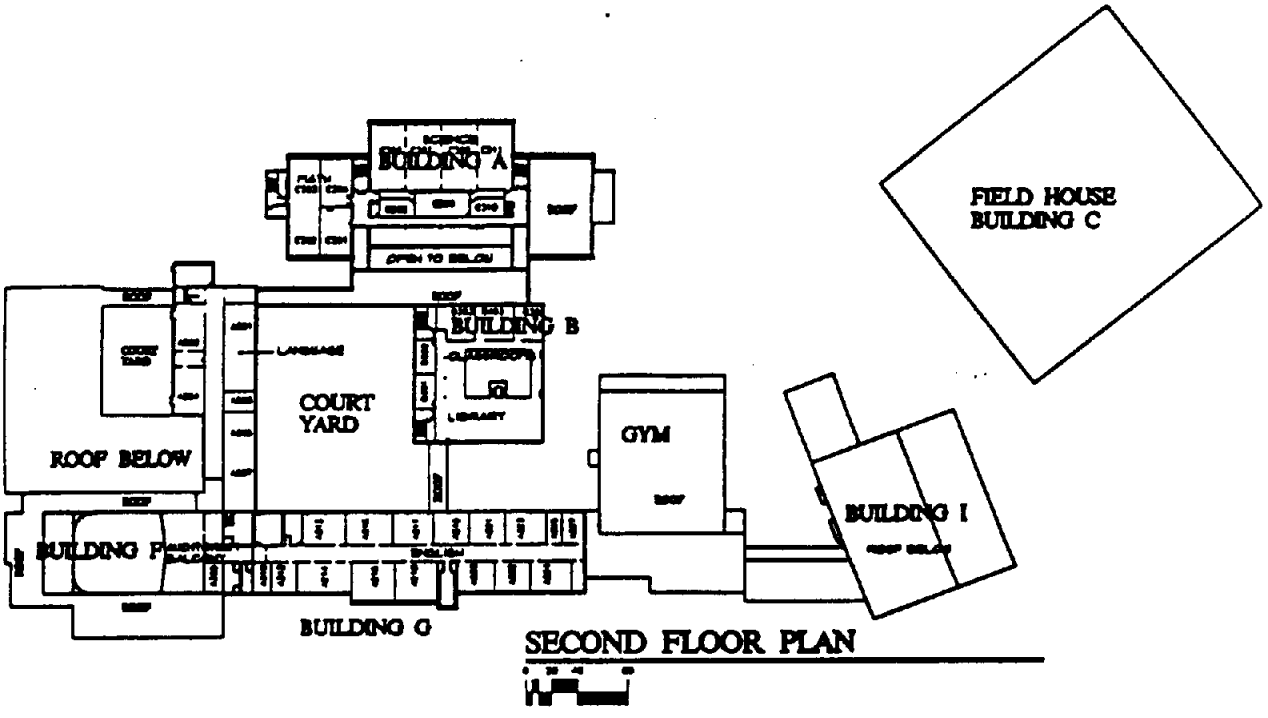
The walk through the buildings was not exhaustive. A more thorough and detailed investigation of the buildings would be required for identifying all the structural hazards as the design moves forward. A couple of areas with structural hazards were very evident and require a closer look. The detail of support of the CMU block/brick facade below the continuous strip windows at numerous locations requires further study. The interior masonry walls did not appear to be braced at a number of locations. Cantilevered CMU walls in the locker rooms and cantilevered CMU railing wall in the library require a closer look. They may have to be braced or removed.

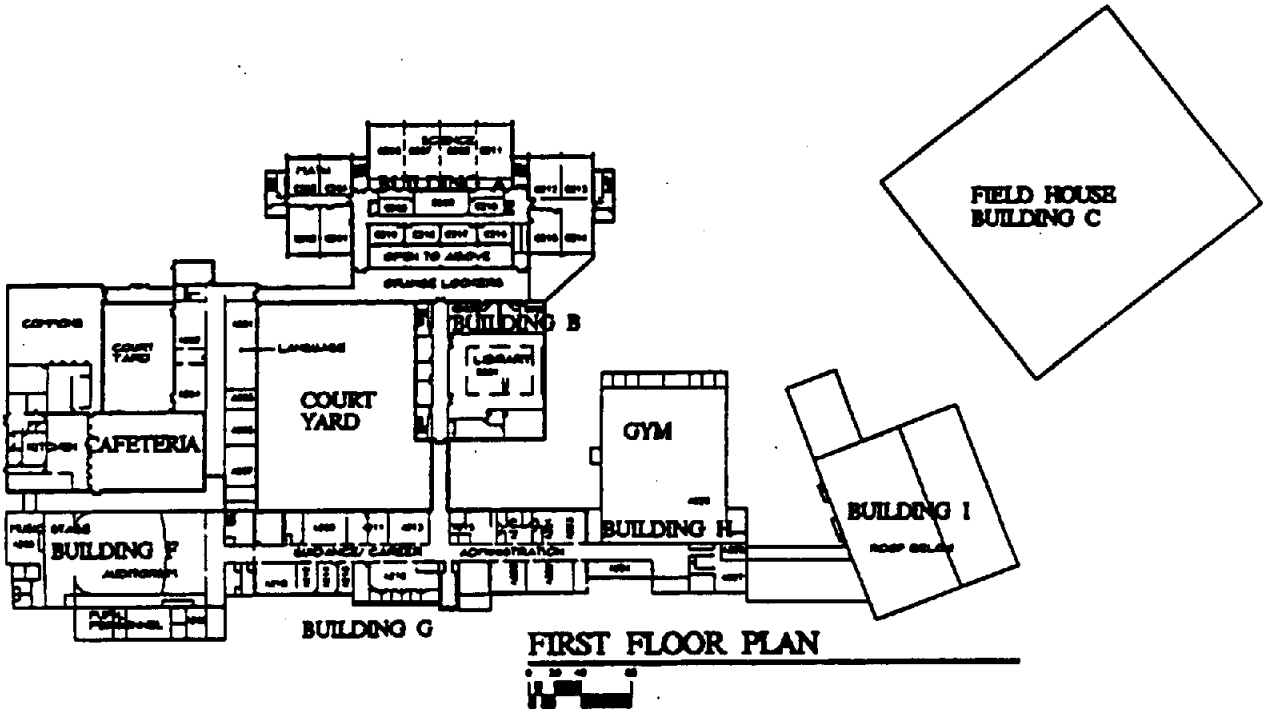
On the other hand, if major structural work is undertaken in the existing buildings, (major structural work means modifications to the existing structural framing and removal of any shear walls, etc.) the whole structure would have to be analyzed for conformance with the code of new construction. This implies that if the buildings do not comply with the loads for new construction, additional braces or shear walls may have to be added.

ADDITIONAL INVESTIGATIONS AND ANALYSES

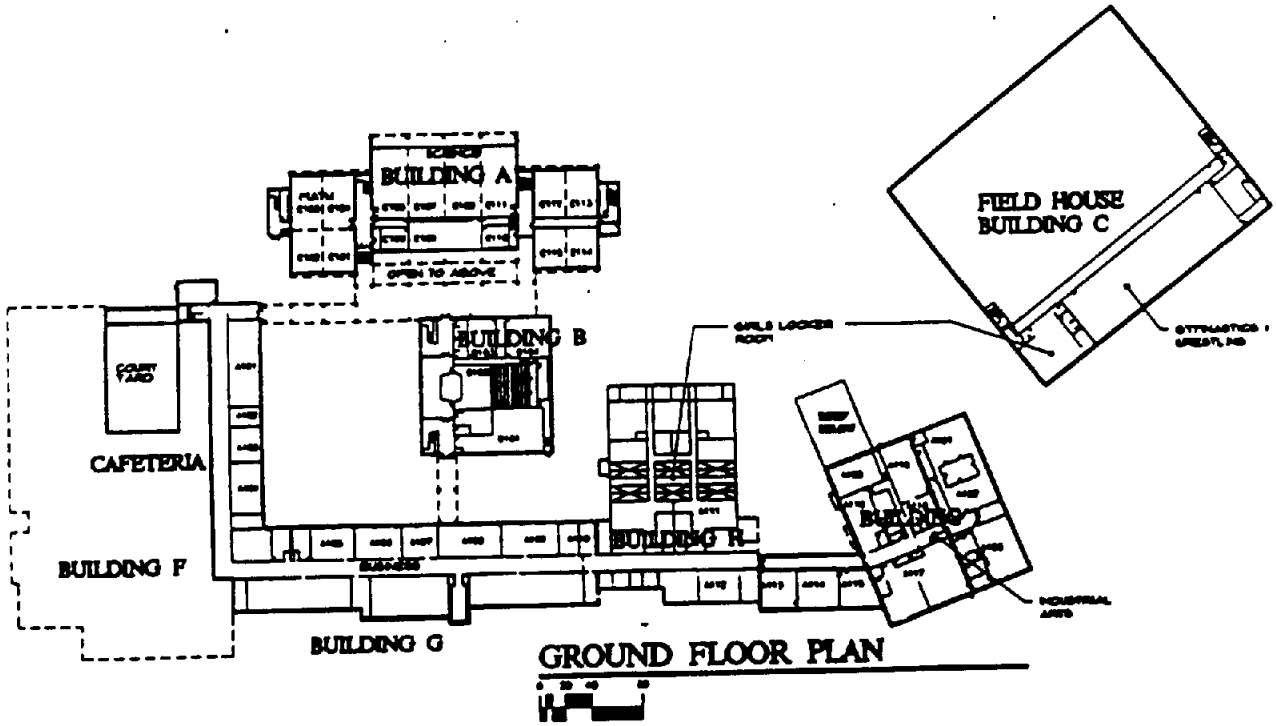
As you are aware, our investigation was limited to the study of the existing drawings and a walk through of the buildings. As the project moves forward, additional site visits would be required to verify information on the drawings and identify all of the structural hazards. A study of the as-built drawings or shop drawings for precast concrete would be required if the shop drawings are available; or an investigation would be required if the shop drawings are not available. Additional investigations could also include the services of a Geotechnical Engineer to investigate the soil properties and provide recommendations for the foundation design for any future additions.

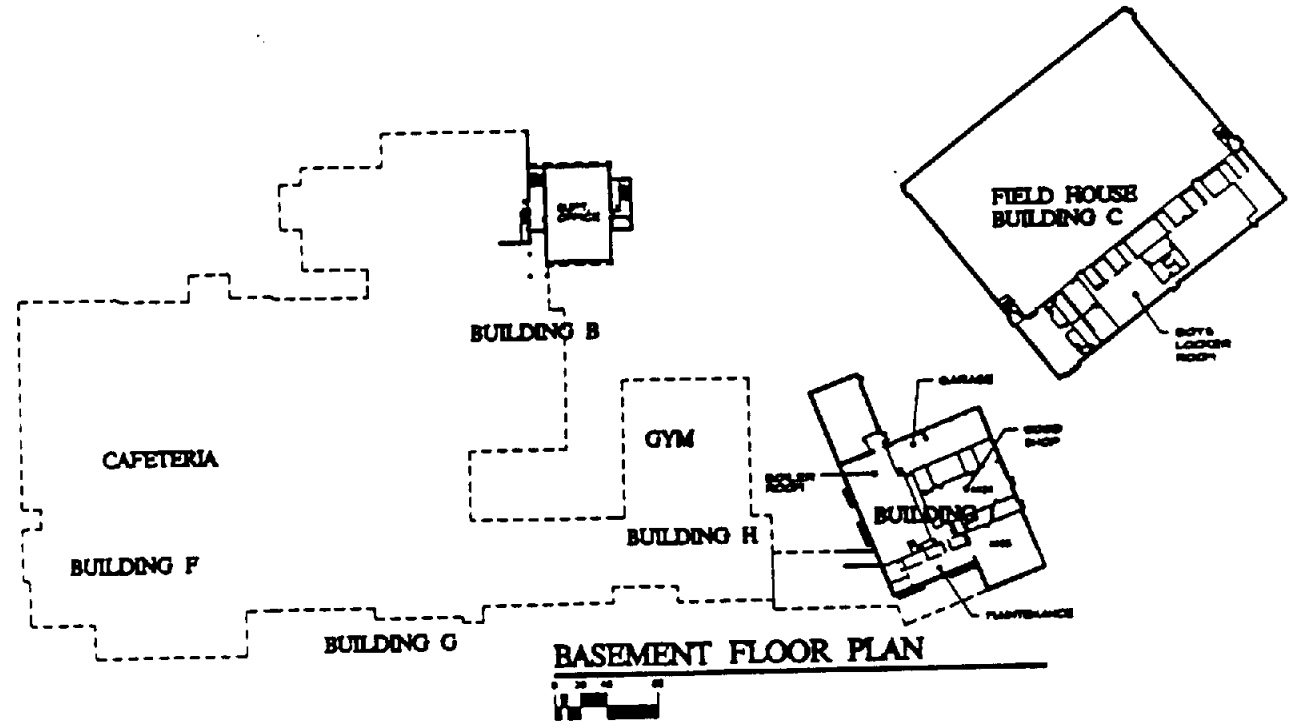
- **Existing First and Second Floor Plans**





- Existing Basement and Ground Floor Plans





Executive Summary

This "School Space Needs Study" is the result of a commitment by the Town of Reading, acting through the Reading School Committee, the Office of the Superintendent of Schools, and the Reading Memorial High School Administration and Staff to evaluate the existing conditions at the Reading Memorial High School and to provide the town with options to address both current deficiencies and anticipated future needs at the high school. This study begins by identifying projected enrollments, existing educational deficiencies, and future programmatic needs at the High School. It then goes on to document a number of viable development options which could address the needs. Finally, it identifies a single preferred development option which, in the opinion of the study team and the school department, best meets the needs of the Reading Memorial High School for the foreseeable future.

Task:

In the Summer of 1998, the architectural firm of Strekalovsky & Hoit, Inc. was retained by the Reading School Committee to provide a space needs study for the Reading Memorial High School. Strekalovsky & Hoit, Inc. was charged with completing the following tasks:

1. Review and supplement the physical needs assessments and educational specifications contained in a previous feasibility study entitled 'Reading Memorial High School Feasibility Study', dated February 21, 1997.

2. Determine whether the existing space and building systems at the Reading Memorial High School could be reconfigured to consolidate high school operations and allow for the use of any projected surplus space for other purposes.

3. Compare the cost and educational/operational implications of a renovation project at the existing Reading Memorial High School with the construction of a new High School Building.

4. Prepare conceptual plans for the renovation option(s) and the new school option, including preliminary cost estimates.

5. Provide insight regarding School Building Assistance Funding from the Department of Education for the renovation option(s) and the new school option.

6. Prepare a final report documenting existing conditions, programmatic needs, development options, and the preferred development option.

Physical Needs Assessment:

The Reading Memorial High School is made up of two portions, constructed at different times. The original three story building was built in 1952. This wing includes classrooms, an auditorium, a cafeteria and kitchen, and the girls gymnasium and locker rooms. An extensive series of additions were added to the original structure in 1969. These additions include the library, the math/science wing, an additional dining commons, the industrial and visual arts wing, and the fieldhouse. The entire facility contains approximately 340,000 gross square feet of space.

The study team reviewed the physical needs assessment contained in the previous study. In addition, the team also conducted a thorough on-site inspection of the existing school building in order to supplement the previous work and to document any additional issues regarding physical conditions and/or deficiencies. The building's "users" were interviewed to discuss daily operations and physical deficiencies. These "users" consisted of the principals, staff, teachers, custodians, and central maintenance staff. The information compiled through inspection and interview is synthesized and highlighted in Section Three of this report. The detailed engineering surveys, recommendations, and cost estimates are included in the Appendix to the report.

Recommendations for upgrades or replacement of various architectural, mechanical, or electrical systems within the existing building are numerous. These suggested upgrades are included as part of the work scope in the expansion and renovation development options outlined in Section Four of this report. The inclusion of these recommendations in the scope of work assures not only the adequate maintenance of the physical plant but, even more importantly, that the State will participate in the high cost of implementing these improvements.

Educational Analysis:

The Reading Memorial High School currently serves approximately 1,071 pupils.

In order to gain a full understanding of the existing educational deficiencies and the future educational goals at the school, the services of the New England School Development Council (NESDEC) were retained. System-wide enrollment projections through the school year 2007-08 had previously been developed by Dr. Richard Dussault of NESDEC as part of the study team's work at the Coolidge Middle School in 1997.

As part of this study, Dr. Dussault was given current enrollment data from the Reading School Department. Dr. Dussault was then able to provide the study team with updated enrollment projections through the year 2009-10 for use in this study. Based upon these updated projections, it was determined that the high school must plan for an enrollment of 1,386 students in grades 9 – 12 within 10 years (school year 2009-10).

SCHOOL DISTRICT: READING, MA
BASE YEAR 1997-98

ENROLLMENT PROJECTIONS BY GRADE

YEAR	BIRTHS	SCHOOL YEAR	K	1	2	3	4	5	6	7	8	9	10	11	12	SPEC. ED.	TOTAL
1992	283	1997-98	319	353	376	319	350	370	336	347	295	258	280	264	244		4121
1993	267	1998-99	291	364	367	374	322	354	364	334	344	283	257	270	259		4183
1994	298	1999-00	325	332	368	385	378	325	349	362	331	330	282	248	265		4260
1995	341	2000-01	372	371	335	366	369	382	320	347	358	318	328	272	243		4381
1996	298	2001-02	325	424	375	333	370	373	378	318	344	344	316	317	267		4482
1997	347	2002-03	378	371	428	373	336	374	367	374	315	330	342	305	311		4604
1998	329 est.	2003-04	358	431	375	426	377	339	368	365	370	302	328	330	299		4868
1999	325 est.	2004-05	354	408	435	373	430	381	334	368	361	355	300	317	323		4737
2000	333 est.	2005-06	363	404	412	433	377	434	375	332	362	347	353	290	311		4793
2001	329 est.	2006-07	358	414	408	410	437	381	427	373	329	348	345	341	284		4855
2002	329 est.	2007-08	359	408	418	408	414	441	375	425	369	316	346	333	334		4944
2003	330 est.	2008-09	360	409	412	416	410	418	434	373	421	354	314	334	326		4981
2004	329 est.	2009-10	359	410	413	410	420	414	412	432	369	404	352	303	327		5025

(1444)

(1386)

1,617 PUPILS × .96 =

1,552 PUPILS WHEN THEY REACH GRADES 9-12

96% RETENTION RATIO

(96% = 1,386 ÷ 1,444)

PROJECTED ENROLLMENTS IN GRADE COMBINATIONS

YEAR	K-4	K-5	K-6	K-8	5-8	6-8	7-8	5-12	9-12	
1997-98	1727	2097	2433	3075	1348	978	642	2394	1046	
1998-99	1718	2072	2436	3114	1396	1042	678	2465	1069	CURRENT HS ENROLLMENT
1999-00	1768	2093	2442	3135	1367	1042	693	2492	1125	
2000-01	1813	2195	2515	3220	1407	1025	705	2568	1161	
2001-02	1827	2200	2576	3238	1411	1038	662	2655	1244	
2002-03	1886	2260	2627	3316	1430	1056	689	2718	1288	
2003-04	1967	2306	2674	3409	1442	1103	735	2701	1259	
2004-05	2000	2381	2715	3442	1442	1061	727	2737	1295	PROJECTED
2005-06	1989	2423	2798	3492	1503	1069	694	2804	1301	
2006-07	2027	2408	2835	3537	1510	1129	702	2828	1318	
2007-08	2005	2446	2821	3615	1610	1169	794	2939	1329	
2008-09	2007	2425	2859	3653	1646	1228	794	2974	1328	
2009-10	2012	2426	2838	3639	1627	1213	801	3013	1386	PROJECTED

Based upon the projected enrollments at the elementary level, it is possible that the long range enrollments at the high school could continue to trend upwards in the years beyond 2009-10. For example: 1,617 students are projected to be enrolled in grades K - 3 during the 2008-09 school year. The Reading school system has a recent history of retaining 96% of it's students as they move from the lower grades to the upper grades. Using the retention ratio of 96%, it is entirely possible that the 1,617 students in grades K - 3 could result in a grade 9 - 12 enrollment of approximately 1,550 students at the high school nine years later during the 2017-18 school year.

The existing school building was reviewed in terms of it's existing enrollment capacity. It was determined that the building's 'Current Operating Capacity' (COC) based upon the current classroom configuration/count and educational program is approximately 1,299 pupils. This figure is based upon a typical 85% scheduling factor and the fact that significant portions of the existing building are taken up by 'non-high school' uses. The Current Operating Capacity does not include the decreases in classroom count which would be required to enlarge undersized classrooms and does not account for the need to address educational/programmatic deficiencies (i.e. foreign language lab, music and drama, etc.).

In order to address deficiencies such as the enlargement of undersized classrooms, providing a proper music/drama suite, and providing a foreign language lab, it would be necessary to capture an additional 12 - 13,000 square feet of space within the building. This would translate into taking approximately 17 classrooms off-line. The result would be a lower enrollment capacity for the existing high school building. This 'Planned Operating Capacity' (POC) would be approximately 315 students lower than the 'Current Operating Capacity'. The planned operating capacity would therefore be stated as 985 students. This POC assumes that all current 'non-high school uses' remain in the building, that teachers were provided with individual classrooms, and that dedicated classroom-size departmental offices remain. The 'Planned Operating Capacity' would rise to 1,185 students if classrooms were shared and departmental offices were removed from classroom-size spaces. The 'Planned Operating Capacity' would rise to 1,400 students if all of the 'non-high school uses' were eliminated along with the individual classrooms and the departmental offices.

In seeking a fair comparison between the cost of renovation options and the cost of a new building, it is imperative that the town assume that classroom size and educational programmatic deficiencies would be addressed as part of a renovation option. In this manner, a rational choice can be made between two potential projects, each of which would meet the school's educational specifications and the teaching space standards established by the Department of Education. Because of this, the 'Planned Operating Capacity' figures should be kept in mind when enrollment needs and renovation options are discussed.

The 1,386 pupil enrollment projection for grades 9 - 12 in the school year 2009-10 is considered very reliable because the children have already been born and are most likely living in Reading (see 1992 through 1995 'actual births'). Because of this, an educational specification (building program) for 1,400 students was developed by NESDEC in concert with the high school administration. These educational specifications (see the 'Educational

Analysis' portion of the report) outline the number of rooms and the size of spaces required at the school in order to house 1,400 students while running the envisioned high school educational program.

Because it is entirely probable that the birth data for 1998 and 1999 will be consistent with the estimates shown on the enrollment projections, and that the births over the next couple of years will be fairly consistent, the study team feels that it is most prudent to discuss any development options at the high school in light of a projected 1,600 student enrollment. As such, the alternative design schemes documented in the 'Development Options' are discussed in terms of 1,550 to 1,600 pupil enrollments.

In order to modify the educational specifications contained in this report, NESDEC recommends that one additional classroom be provided for each additional 22 pupils projected above 1,400 in the core areas of English, Math, Science, Social Studies, and World Languages (10 total). Additional teaching spaces are also required in Business and Art. Finally, in order adjust for the way science labs are scheduled at Reading High School (double blocks), the administration feels it necessary to provide an additional two Science Labs above the 16 suggested by the NESDEC analysis. Because of this, the development options for 1,600 students contained in this report contain more classrooms in the floor plans than are carried in the educational specifications in order to account for the additional 200 student enrollment.

Surplus Space:

Development Options B.1 and B.2 apply the modified educational specifications to the existing high school building (no additions). It was determined that the building could correct educational space deficiencies (i.e. enlarge classrooms) and house the anticipated enrollment needs of 1,600 students only if all non-high school uses were removed from the building and teachers shared classrooms (see Option B.1). Limited non-high school uses (i.e. superintendents office) could remain within the existing building if existing undersized classrooms were not enlarged (see Option B.2).

Based upon these explorations, it is the study team's opinion that surplus space does not exist within the existing building.

Development Options:

There is an urgent need for a major redesign/reconfiguration of the Reading Memorial High School in order to upgrade building systems, enlarge undersized classroom space, improve internal circulation patterns, establish appropriate spatial relationships among program areas, eliminate the isolation of staff, and provide a more cohesive, inviting, and efficient environment for pupils and staff. This requirement is based upon a thorough evaluation of the existing building by the study team and the need to address specific comments articulated by staff and the administration during the educational programming process documented in Section Four of this report.

Given the context of the existing building and site, the options explored for meeting the projected educational and enrollment needs were exhaustive. The simplest option involved only administrative changes and necessary renovations to building systems within the existing building envelope (Options A and B.2), while more complex options involved extensive reconfiguration of space within the existing building (Option B.1) or the construction of only small additions, including an enclosed link to the feildhouse (Option C.1). Two more complicated options (Options C.2 and C.3) included the replacement of one story links between the administrative, library, and science wings with multi-story links, the construction of girls locker room facilities at the fieldhouse, and the construction of either a new enclosed link to the feildhouse (Option C.2) or additions for programmatic areas such as music or theatre arts (Option C.3). The final option explored was the construction of a new multi-story school on the same site (Option D).

Though all seven of the conceptual development options explored in Section Five of this study would provide sufficient space for meeting the projected enrollment needs at the high school over the next ten years (1,400 students), only six of the seven development options can provide enrollment capacity for 1,550 to 1,600 students as will most likely be required in subsequent years.

Option A (administrative changes) does not meet the long term enrollment or programmatic needs. It is not considered reimbursable by the state nor a viable development option by the study team. The Reading School Committee voted to remove this option from consideration during deliberations in the Spring of 1999.

Option D (new school) could meet the long-term enrollment and programmatic needs of the school, however, discussions with a representative from the Department of Education have led the school department to believe that it would not be considered reimbursable by the state due to the sound structural condition of the existing building. The Reading School Committee voted to remove this option from consideration during deliberations in the Spring of 1999.

Though the five remaining and viable development options differ in the degree to which they address the physical and programmatic needs at the school, they are all eligible for reimbursement by the Department of Education.

The costs associated with the five viable options differ significantly, with Option B.2 being the least expensive and Option C.3 being the most expensive. An inflation factor of 4% per year has been shown on the cost estimates due to the uncertainty of the project timetable.

Reading Memorial High School **Overview of Development Options**	Option A *(administrative)*	Option B.1 *(renovations)*	Option B.2 *(renovations)*	Option C.1 *(add / reno)*	Option C.2 *(add / reno)*	Option C.3 *(add / reno)*	Option D *(new school)*
School Committee Review Status:	*rejected - not reimbursable*	*reviewed title 9 issues??*	*reviewed title 9 issues??*	*reviewed not preferable*	*reviewed acceptable*	*reviewed preferable*	*rejected - not reimbursable*
Reimbursable by GESS ?	no	yes	yes	yes	yes	yes	no justification
Enrollment Capacity (1,600 pupils required)	1500	1580	1620	1580	1580	1600+	1600
Building Envelope / Additions							
renovations within existing envelope	mep/ada only	reconfig. space	reconfig. space	reconfig. space	reconfig. space	reconfig. space	fieldhouse only
additions	none	none	none	fieldhouse link	fieldhouse link	music / cr's	attach to fld. hse
				aux gym	aux gym	fieldhouse track	fieldhouse track
					girls lckr/wgt rm	girls lckr/wgt rm	girls lckr/wgt rm
					math/sci link	math/sci link	
					libr/admin link	libr/admin link	
						cafeteria (2 lunch)	
Space Standards for Teaching Stations							
enlarge undersized teaching stations to GESS standards	undersized	enlarged	undersized	enlarged	enlarged	enlarged	meet standards
Shared Classrooms							
individual or share 1 - 2 cr's per department	share 2cr's /dept	share 2cr's /dept	share 2cr's /dept	share 2cr's /dept	individual	individual	share 2cr's /dept
Departmental Offices							
relocate dept. offices from cr's to smaller spaces	relocate / smaller	relocate / smaller	relocate / smaller	relocate / smaller	relocate / smaller	relocate / smaller	small
Non-High School Uses							
superintendent	stays	removed	stays	stays	stays	removed	removed
district special needs office	stays	stays	stays	stays	stays	stays	removed
district maintenance dept.	stays	stays	stays	stays	stays	stays	removed
seem collaborative (special ed)	stays	removed	removed	removed	removed	removed	stays
rise preschool	stays	removed	removed	removed	stays	stays	stays
reap	stays	removed	removed	removed	removed	removed	removed
reading cable television	stays	removed	removed	stays	stays	stays	stays
chinese cultural center	stays	removed	removed	removed	removed	removed	removed
High School Core Spaces Impacted							
lecture hall	remains	lost to music	lost to music	remains	remains	convert to comp	n/a
girls gymnasium	remains	remains	remains	lost to music	lost to music	lost to mini aud	n/a
girls locker room	remains	remains	remains	remains	convert to cr's	convert to cr's	new in fieldhouse
science labs	13 / no dbl per.	14 / no dbl per.	14 / no dbl per.	14 / no dbl per.	15 / some dbl per.	18 / dbl per. Ok	15 / some dbl per.
Drama and Music Issues							
new drama spaces (cr and storage)	no	yes - auditorium	yes - auditorium	yes - auditorium	yes - auditorium	yes - auditorium	yes
new music spaces (band/orch, choral, comp., cr, stor.)	no	yes - lecture hall	yes - lecture hall	yes - girls gym	yes - girls gym	yes - addition	yes
Physical Education Issues							
renovate/use existing girls gymnasium in 1952 bldg.	mep/ada only	yes	yes	convert to music	convert to music	convert to mini aud.	n/a
renovate existing girls locker room in 1952 bldg.	mep/ada only	yes	yes	yes	convert to cr's	convert to cr's	n/a
enclosed link between 1952 locker rm. + fieldhouse	no	no	no	yes	yes	no	n/a
new girls locker room / weight room in fieldhouse	no	no	no	no	yes	yes	yes
new auxiliary gymnasium attached to fieldhouse	no	no	no	yes	yes	no	no
extend fieldhouse for 200 meter track + 1 PE station	no	no	no	no	no	yes	yes
Circulation Issues							
enclosed link between library bldg and math/sci bldg.	exist. 1 story	exist. 1 story	exist. 1 story	exist. 1 story	new 2 story	new 2 story	n/a
enclosed link between library bldg and 1952 bldg.	exist. 1 story	exist. 1 story	exist. 1 story	exist. 1 story	new 3 story	new 3 story	n/a
enclosed link between 1952 locker rm. + fieldhouse	no	no	no	new encl. bridge	new encl. bridge	no	n/a
Square Footage							
gross square footage	340,000	340,000	340,000	355,225	380,900	410,075	288,000
Cost							
construction costs	$ 10,917,250	$ 24,030,875	$ 21,525,375	$ 27,712,500	$ 32,665,000	$ 34,782,250	$ 46,696,000
project costs	$ 13,646,563	$ 30,038,594	$ 26,906,719	$ 34,640,625	$ 40,831,250	$ 43,477,813	$ 51,696,000
reimbursable by state??	no	yes	yes	yes	yes	yes	hard to justify
project costs to be paid by Reading after reimbursement	$ 13,646,563	$ 10,213,122	$ 9,148,284	$ 11,777,813	$ 13,882,625	$ 14,782,456	$ 17,576,640

Option A: *Administrative Changes Only (no additions or renovations)*
Undersized classrooms remain 'as-is'
All existing non-high school uses remain within the building
1,500 Student Capacity does not meet long term enrollment needs.
Not reimbursable by SBA due to enrollment and programmatic deficiencies

- department offices are relocated from classrooms to non-classroom spaces in order to free up five classrooms.
- each major department (math, english, foreign language, science, and social studies) shares two classrooms in order to free up five classrooms.
- each major department is assigned a dedicated computer lab.
- music and drama space needs are not addressed.
- physical education space needs are not addressed

Option B.1: *Renovations and Major Reconfiguration of Existing Space (no additions)*
Enlarges undersized classrooms
Removes most non-high school uses
1,580 Student Capacity
Does not provide equity for girls athletics.

- department offices are relocated from classrooms to non-classroom spaces in order to free up five classrooms.
- each major department (math, english, foreign language, science, and social studies) shares two classrooms in order to free up five classrooms.
- each major department is assigned a dedicated computer lab.
- undersized teaching stations are enlarged (results in fewer available classrooms).
- new music space is created below library.
- dedicated drama space is provided in former music suite behind auditorium stage.
- physical education space needs are not addressed.
- district special needs office and maintenance facility remain.
- town must provide space for superintendent's office and RISE preschool elsewhere within the district.

Option B.2: *Renovations and Minor Reconfiguration of Existing Space (no additions)*
Undersized classrooms remain 'as-is'
Important non-high school uses remain
1,620 Student Capacity
Does not provide equity for girls athletics.

- department offices are relocated from classrooms to non-classroom spaces in order to free up five classrooms.
- each major department (math, english, foreign language, science, and social studies) shares two classrooms in order to free up five classrooms.
- each major department is assigned a dedicated computer lab.
- undersized teaching stations are enlarged (results in fewer available classrooms)
- new music space is created below library.
- dedicated drama space is provided in former music suite behind auditorium stage.
- physical education space needs are <u>not</u> addressed.
- superintendent's office, district special needs office and maintenance facility remain.
- town must provide space for RISE preschool elsewhere within the district.

Option C.1: *Renovations and Additions*
Enlarges undersized classrooms
Constructs enclosed link to fieldhouse
Creates music space within existing girls gymnasium
Important non-high school uses remain
1,580 Student Capacity

- department offices are relocated from classrooms to non-classroom spaces in order to free up five classrooms.
- each major department (math, english, foreign language, science, and social studies) shares two classrooms in order to free up five classrooms.
- each major department is assigned a dedicated computer lab.
- undersized teaching stations are enlarged (results in fewer available classrooms).
- new music space is created in former girls gymnasium.
- dedicated drama space is provided in former music suite behind auditorium stage.
- physical education space needs are <u>partially</u> addressed by renovations to existing girls locker room and the construction of an enclosed link to fieldhouse.
- auxiliary gymnasium constructed at fieldhouse
- superintendent's office, district special needs office and maintenance facility remain. RCTV space is maintained as educational elective.
- town must provide space for RISE preschool elsewhere within the district.

Option C.2: *Renovations and Additions*
Enlarges undersized classrooms
Provides individual teacher classrooms (built-in expansion potential)
Constructs enclosed link to fieldhouse
Constructs multi-story links between remote portions of existing school
Creates classroom space within existing girls gymnasium
All reimbursable non-high school uses may remain until space needed for enrollments (RISE, Superintendent).
1,580 Student Capacity

- department offices are relocated from classrooms to non-classroom spaces in order to free up five classrooms.
- teachers maintain individual classrooms.
- each major department is assigned a dedicated computer lab.
- undersized teaching stations are enlarged (results in fewer available classrooms).
- new music space is created in former girls gymnasium.
- dedicated drama space is provided in former music suite behind auditorium stage.
- physical education space needs are fully addressed by construction of a girls locker room in the fieldhouse.
- the construction of an enclosed link to fieldhouse is included.
- auxiliary gymnasium constructed at fieldhouse.
- superintendent's office, RISE preschool, district special needs office and maintenance facility remain. RCTV space is maintained as educational elective.

Option C.3: *Renovations and Additions*
Enlarges undersized classrooms
Provides individual teacher classrooms (built-in expansion potential)
Does not construct enclosed link to fieldhouse
Constructs multi-story links between remote portions of existing school
Creates lab theatre/mini-auditorium within existing girls gymnasium
Constructs music addition adjacent to the library building.
Converts lecture hall into computer assisted learning station.
Enlarges cafeteria in order to keep lunches at two servings.
All reimbursable non-high school uses may remain until space needed for enrollments (RISE, Superintendent).
1,600 Student Capacity

- department offices are relocated from classrooms to non-classroom spaces in order to free up five classrooms.
- teachers maintain individual classrooms.
- each major department is assigned a dedicated computer lab.
- undersized teaching stations are enlarged (results in fewer available classrooms).
- new music space is created an addition.
- existing girls gymnasium is maintained for drama, music, and community use.
- dedicated drama space is provided in former music suite behind auditorium stage.

- physical education space needs are fully addressed by construction of a girls locker room in the fieldhouse.
- indoor track at feildhouse is enlarged to 200 meters via an addition.
- RISE preschool, district special needs office and maintenance facility remain. RCTV space is maintained as educational elective.

Option D: *New Construction on the Existing Site*

- Pros: Provides appropriate number and sized teaching spaces
  Provides individual teacher classrooms (built-in expansion potential)
  Construct next to existing fieldhouse
  Opportunity to design the building around the educational program
  Potential to make better use of the site
  1,600 Student Capacity
  Potential to lease out existing building?
  Easiest construction phasing

- Cons: Provides 52,000 less square feet than existing building
  Provides 122,000 less square feet than the largest renovation/addition option
  Costs Reading $2,800,000 more than most expensive renovation/addition
  District-wide offices and maintenance garage not reimbursable (Addt'l $)
  Hard to justify reimbursement according to SBAB due to structural integrity

School Building Assistance Funding:

Six potential development options (A – C.2) were reviewed with a representative of the School Building Assistance Bureau (SBAB) at a working meeting held in February 1999. Attending the meeting were a representative of the School Building Committee, two School Committee members, the Superintendent, the High School Principal, and a member of the study team. The purpose of the meeting was to discuss each option in terms of potential reimbursement by the Commonwealth. A secondary goal of the meeting was to establish which, if any, of the 'non-high school' uses could remain within the building as part of a reimbursable project.

The SBAB representative stated that district-sponsored 'non-high school uses' would be allowed to remain within the building without jeopardizing reimbursement of costs for the entire project by the Department of Education. The allowable uses which could remain in the building and definitely be eligible for direct reimbursement were defined as the special needs RISE preschool and the SEEM special needs collaborative. The allowable uses which could remain in the building and could well be considered for direct reimbursement were the cable tv studio, the district special education offices, and the district maintenance facility. The spaces which were not reimbursable were the superintendent's office, the Chinese Cultural Center, and the REAP program. Because they were not district-sponsored, the Chinese Cultural Center, and the REAP program should be removed from the building in order to avoid jeopardizing state reimbursement for the entire project. The superintendent's office would be allowed to remain within the facility up until the time when the space is needed for enrollment without jeopardizing reimbursement.

It was clearly stated by the SBAB representative that Option A would not be eligible for state reimbursement because the vast majority of educational and programmatic deficiencies within the existing building are not addressed.

The SBAB representative was also of the opinion that the construction of a new high school, as is envisioned under Option D, would be hard to justify given the sound structural condition of the existing building.

It was stated that any of the four remaining options (B.1, B.2, C.1, C.2) would clearly be eligible for reimbursement as long as they included a complete renovation and upgrade of the existing physical plant, including roofs, windows, structural systems, hvac systems, electrical systems, and handicap accessibility.

If the town of Reading wished to leave any of the undersized teaching spaces within the existing high school unchanged (Option B.2), the SBAB would not require these spaces to be enlarged. On the other hand, there was no question that, if the Town of Reading wished to increase the size of these existing classrooms (Option B.1), the expense incurred would be reimbursable. It was also stated that building enclosed links between portions of the school, or expanding the field house (Options C.1 and C.2) were reimbursable expenses. Any of these renovation and addition options would most likely be considered Category 2 projects due to enrollment growth, though it was pointed out that the difference in funding cycles between Category 2 and Category 3 projects was negligible.

It is the belief of the study team that Option C.3, which was developed subsequent to the February 1999 meeting, would also be fully reimbursable because it shares the same physical and programmatic systems outlined in Options C.1 and C.2.

The next step in the SBA process would be the scheduling of a 'building needs conference', during which time inventories of existing educational space and enrollment projections are presented to the Department of Education. Subsequent to the building needs conference, educational specifications and preliminary schematic plans would be submitted.

Preferred Development Option:

It is the opinion of the study team that Option C.3 (reconfiguration of existing space within the existing building, including a new lab theatre/mini-auditorium, the construction of multi-story circulation links, and additions to the field house, cafeteria, and music department) is the most effective way to provide the Reading Memorial High School with the space and educational facilities it needs to provide for it's increasing school enrollments and, more importantly, to address the current deficiencies in the educational program.

The positive attributes of Option **C.3** are many, with major highlights outlined as follows:

- **Project Costs vs. Square Footage.** The five viable development options ranged in project cost (1999 dollars) from $26.9 million ($9.1 million Reading Cost) under Option B.2 to $51.7 ($17.6 million Reading Cost) under Option D. While Option D provides the town with a new 288,000 square foot school, Option C.3 addresses all of the educational and physical needs for less money ($2.8 million) and provides the town with much more space (410,075 sf). This additional square footage provides the school department with space for programs which would otherwise have to be housed somewhere else within the district at the Town's expense. It should also be noted that the cost to the Town of Reading for Option C.3 is just slightly higher than the cost of Option A, which does not address any of the educational deficiencies or long-term enrollment needs, and is therefore not reimbursable through the Department of Education.

- **Major improvements to the circulation pattern, safety, and the sense of community within the school.** While other options involve renovations which improve programmatic space, Option C.3 offers the same improvements plus a significant transformation in the circulation pattern within the building. The creation of multi-story corridor links between the administrative building, the library building, and the science/math building are strongly endorsed by both the school administration and the study team. A proper circulation pattern will reduce the amount of time wasted traveling between classes and drastically improve the safety of both students and staff by eliminating the many isolated areas prevalent throughout the existing school building. An enclosed link to the fieldhouse was not considered necessary under this option. Instead, the same funding is dedicated to programmatic space.

- **Simplest construction phasing with no need to relocate students to other facilities during construction.** The addition of the girls locker room and weight room at the field house can be built while school operations continue uneffected within the existing building. After the addition has been constructed, it will be possible to construct new classroom space within the existing girls locker room, girls gymnasium (temporary), and weight room. The creation of this new classroom space will allow other renovations within the existing building to proceed easily on a phased basis. All classrooms and core facilities can remain intact during the school year, allowing the school to maintain it's full enrollment.

- **Improves flexibility for departmental space assignments.** The multi-story links allow the administration to 'capture' educational space at the mezzanine level of the library by linking it to the other classroom wings. Use of the mezzanine is currently restricted because it is only accessible through the library. The multi-story links also provide flexibility in room assignments and departmental layouts as the educational program changes over the years. Departments which grow could be housed in different areas connected on the same floor level. This would avoid having to segregate portions of individual departments on remote floor levels as is the case in other options.

- **Fully addresses inequity in the girls Physical Education program.** By providing girls locker facilities in the field house, this option provides equal physical education facilities for both girls and boys without spending significant funding on an enclosed link to the field house. Options A and B which maintain the status quo of girls changing in the high school building and then traveling outside to the field house is untenable. Even with an enclosed link to the field house (as is envisioned in other Option C.1), the travel distance between the remote girls locker room in the existing school and the field house is undesirable.

- **Expands the feildhouse.** The addition to the feildhouse will allow for the installation of an additional teaching station to replace that lost by the renovation of the girls gymnasium. It will also allow for the installation of a regulation 200 meter indoor track.

- **Provides the Music and Drama programs with superior facilities.** The addition shown adjacent to the library building allows for the creation of musical space which is superior to those which can be created in the bottom of the library building in other options. Drama is placed in appropriate facilities located adjacent to the existing auditorium stage for practice. Both programs can make use of the lab theatre/mini-auditorium created by the renovation of the girls gymnasium.

- **Links the Technical Education program with the Math and Science programs.** Technical education programs are more appropriately located adjacent to the math and science classrooms. Other options make use of the space below the library for a music suite.

- **Provides the largest number of Science Labs.** Option C.3 provides 18 science labs to allow for the current 'double block' scheduling and the creation of an 'all-purpose' lab for academic support.

- **Expands the cafeteria.** Option C.3 encloses the courtyard adjacent to the existing cafeteria. This allows the district to maintain two lunches, saving yearly operating costs, and provides the administration with flexibility in academic subject scheduling.

- **Maintains all reimbursable 'non-high school uses'.** Other options make use of space required for some other 'non-high school uses'. All allowable 'non-high school uses' are maintained under Option C.3, negating the need and expense of providing replacement space somewhere within the district.

- **Provides flexibility for future enrollment growth.** Because Option C.3 maintains all allowable 'non-high school district uses' within the building and provides individual classrooms for teaching staff, the district could choose to take advantage of this 'built-in' expansion capacity if necessary in the future.

The Scope of Work included under Option C.3 is described further in this report with major highlights as follows:

- **Additional Classrooms.** Provides new classroom space in all departments to address programmatic deficiencies and meet projected increases in enrollments. Included are a new foreign language lab, computer labs, science labs, and music / drama spaces.
- **Enlarges Undersized Teaching Stations.** Reconfigures undersized classrooms in the existing building to meet Department of Education square footage standards. This will allow for flexibility in class size, room configuration, and technology stations.
- **Classroom Improvements.** Provides new acoustic ceilings, lighting, new teaching surfaces (whiteboards and tackboards), room darkening shades, and additional storage in existing classrooms.
- **Science Lab Upgrades.** The existing labs would be retrofitted with state-of-the-art lab equipment.
- **Technology.** Provides technology infrastructure throughout the school, including all teaching stations, for 21st century learning. By ensuring that all teaching stations meet Department of Education space standards, sufficient room is assured for the installation of computer stations within each teaching station, including dedicated stations for teachers. In addition, each department is assigned a dedicated classroom-sized computer lab.
- **Core Facilities.** Existing core facilities (library, cafeteria, auditorium, and feildhouse) are appropriately sized for projected enrollments of 1,400 to 1,600 students and would be fully modernized. The auditorium would be completely gutted and reconstructed, including new lighting, sound system, seating, stage, and the adjoining 'green rooms' and back stage areas. A new Gymnasium teaching station would be added to the feildhouse to replace the existing girls gymnasium. Girls locker facilities, the weight room, and the athletic director's office would be relocated to an addition to the feildhouse. A library classroom is provided on the mezzanine level for 'whole class'

activities. The courtyard adjacent to the cafeteria would be enclosed, allowing expansion to maintain the existing two lunch schedule.

- **Locker Rooms.** The existing boys locker room in the fieldhouse would be renovated to meet the standards set by the new girls locker room.
- **Special Needs Programs.** Appropriate Special Needs, Guidance, and Tutorial spaces would be provided, as well as space for special needs collaboratives. A large resource room is provided.
- **Music and Drama Enrichment Programs.** Provides appropriate facilities for enrichment programs: Music and Drama would be housed in new rooms, appropriately sized and equipped. The drama program would make use of the single music classroom and greenrooms behind the stage and would have nearly uninterrupted access to the stage for practice. The music program would make use of completely new facilities created within an addition adjacent to the library building. Separate spaces are created to provide for band, chorus, music appreciation classes, practice rooms and storage. Once the physical space is provided, additional music staffing (this program is currently grossly understaffed) could be provided. A significant plus for the music and drama programs would be the creation of a lab theatre/mini-auditorium in the former girls gymnasium.
- **Staff Areas.** Provides individual classrooms for staff. Departmental offices (common faculty team offices) are maintained, however, smaller spaces are provided. A common staff room is created in close proximity to the administrative suite.
- **Administrative Areas.** Separate offices scattered throughout the building are maintained for assistant principals. In addition, this option provides for the essential upgrading of the existing administrative, guidance, and health suites, including much needed conference areas.
- **Corridors, Lobbies, and Public Areas.** The state of the finishes in the public spaces throughout the building does not reflect well on the school. All corridors would receive new finishes including paint, acoustic ceilings, floor tiles, and display boards.
- **Mechanical and Building System Upgrades.** Upgrades would be made to all of the existing building systems including the envelope (windows, doors, walls, roofs), interior finishes, and all existing mechanical and electrical systems. This option provides new fire alarm and sprinkler system throughout the school. It also provides for improved air quality throughout the structure and for central air conditioning of selected areas. The cracked concrete casings at the columns between the science/math wing and the library (orange locker area) would be replaced. The existing building would be structurally upgraded to improve safety during seismic events.
- **Hazardous Materials Removal.** Asbestos containing materials and pcb light ballast's would be removed or encapsulated as part of this renovation.
- **Handicapped Accessibility.** This option brings the school into full compliance with all State and Federal regulations for handicap accessibility.
- **Supervision, Circulation, and Safety.** Improves the interconnection of, and communication between, existing isolated spaces within the school. Reduces the arduous and time-consuming task of getting from one part of the building to the other. Major disconnects between program areas are eliminated. The administrative suite is maintained in a spot directly abutting the main entrance lobby in order to provide direct control over persons entering the building.

A budget for Scope of Work included under Option C.3 is outlined further within the report, with the following highlights:

- **Project Cost: $43,477,813.** Includes all expenses, furnishings, and contingency.
- **State Reimbursement: 66 % of all project costs.** All costs are reimbursable to the Town of Reading by the Department of Education S.B.A. program.
- **Cost to Reading: $14,782,456.** This represents the 'turnkey' cost to the Town of Reading after State reimbursement.

- **Estimate of Construction Cost - Option C.3**

Reading Memorial High School			Option C.3: Renovations and Additions (no link to gymnasium)				
	existing		Renovations		New Construction		
	sf	sf	$/sf	total	sf	$/sf	total
Bldg I: Art/Boiler							
basement	16000	16,000	$ 38	$ 600,000			$ -
ground	15000	15,000	$ 71	$ 1,061,500			$ -
Bldg. H: Girls Gym/Locker							
ground (new classrooms)	20000	20,000	$ 46	$ 918,500			$ -
first (mini-auditorium)	17000	17,000	$ 75	$ 1,275,000			$ -
Bldg. G: 1950 Academic Wing							
ground	28000	28,000	$ 71	$ 1,985,500			$ -
first	19250	19,250	$ 80	$ 1,545,500			$ -
second	30000	30,000	$ 78	$ 2,326,500			$ -
Link: 1950 Wing to Library (Bldg. G to Bldg. B)							
ground	0				800	$ 112	$ 89,834
first	800				800	$ 112	$ 89,833
second	0				800	$ 112	$ 89,833
Bldg B: Library							
ground w/ band/stor. Addition	10500	10,500	$ 65	$ 687,500	6,000	125	$ 750,000
first w/ music cr addition	10500	10,500	$ 65	$ 687,500	6,000	125	$ 750,000
second w/ cr addition	9200	9,200	$ 94	$ 869,000	6,000	125	$ 750,000
Link: Library to Math/Science (Bldg. B to Bldg. A)							
first	3500				3,500	$ 251	$ 877,250
second	0				3,500	$ 251	$ 877,250
Bldg. A: Math/Science							
basement (former supt.)	5325	5,325	$ 80	$ 426,000			$ -
ground	18000	18,000	$ 89	$ 1,602,000	1,200	200	$ 240,000
first	21000	21,000	$ 89	$ 1,869,000	1,300	200	$ 260,000
second	16250	16,250	$ 89	$ 1,446,250	1,300	200	$ 260,000
Bldg. F: Auditorium/Music/Balcony							
first and balcony	13500	13,500	$ 126	$ 1,700,500			$ -
Bldg. F: Cafeteria/Kitchen/Commons							
first	30750	30,750	$ 72	$ 2,219,000			$ -
addition - cafeteria/corridor					5,000	120	$ 600,000
Bldg. C: Fieldhouse							
play surface (basement plan)	33000	33,000	$ -	$ -			$ -
boys lockers	11500	11,500	$ 80	$ 918,500			$ -
wrestling	11500	11,500	$ 67	$ 775,500			
girls lockers (incl. mech. link)	0				12,000	$ 208	$ 2,500,000
weight room	0				12,000	$ 95	$ 1,135,000
track/locker room extension	0				9,600	$ 125	$ 1,200,000
2nd floor classroom/storage	0				4,000	$ 125	$ 500,000
Link: Field House to School (Bldg. H to Bldg. C)							
ground	0						
Sitework Allowance: Drives, Parking, Fields				$ 900,000			
Subtotals	340575	336,275	$ 71	$ 23,813,250	73,800	$ 149	$ 10,969,000
Total 1999 Construction Cost: Option C.3					*410,075*	*$ 85*	*$ 34,782,250*

- **Summary of Project Costs - Options A, B.1, B.2, C,1, C.2, C.3 and D**

A.	**Administrative Changes**								Net Cost
	Necessary Mech./ ADA Systems	340,575	sf	$	10,217,250				To Reading
	Site Allowance			$	700,000				
	Total Construction Cost	*340,575*	*sf*	$	***10,917,250***	$	*32*	*per sf*	
	Project Cost Multiplier (25% = F & E, Fees, Misc. Expenses)			$	2,729,313				
	Total Project Cost - 1999 dollars			$	13,646,563	$	40	per sf	$ 13,646,563
B.1	**Renovations** (*with enlarged classrooms*)								
	Reconfigure and Renovate Existing Areas	340,000	sf	$	23,330,875				
	Site Allowance			$	700,000				
	Total Construction Cost	*340,000*	*sf*	$	***24,030,875***	$	*71*	*per sf*	
	Project Cost Multiplier (25% = F & E, Fees, Misc. Expenses)			$	6,007,719				
	Total Project Cost - 1999 dollars			$	30,038,594	$	88	per sf	$ 10,213,122
	Inflation at 4% - year 2000 project cost			$	31,240,138				
	Inflation at 4% - year 2001 project cost			$	32,489,743				
	Inflation at 4% - year 2002 project cost				33,789,333				
	Inflation at 4% - year 2003 project cost			$	35,140,906				
B.2	**Renovations** (*without enlarged classrooms*)								
	Reconfigure and Renovate Existing Areas	340,000	sf	$	20,825,375				
	Site Allowance			$	700,000				
	Total Construction Cost	*340,000*	*sf*	$	***21,525,375***	$	*63*	*per sf*	
	Project Cost Multiplier (25% = F & E, Fees, Misc. Expenses)			$	5,381,344				
	Total Project Cost - 1999 dollars			$	26,906,719	$	79	per sf	$ 9,148,284
	Inflation at 4% - year 2000 project cost			$	27,982,988				
	Inflation at 4% - year 2001 project cost			$	29,102,307				
	Inflation at 4% - year 2002 project cost				30,266,399				
	Inflation at 4% - year 2003 project cost			$	31,477,055				
C.1	**Renovations and Additions** (*link to fieldhouse*)								
	Reconfigure and Renovate Existing Areas	340,575	sf	$	22,931,500				
	New Construction - Fieldhouse Aux. Gym.	7,500	sf	$	951,500				
	New Construction - Fieldhouse Link to RMHS	7,150	sf	$	3,129,500				
	Site Allowance			$	700,000				
	Total Construction Cost	*355,225*	sf	$	***27,712,500***	$	*78*	*per sf*	
	Project Cost Multiplier (25% = F & E, Fees, Misc. Expenses)			$	6,928,125				
	Total Project Cost - 1999 dollars			$	34,640,625	$	98	per sf	$ 11,777,813
	Inflation at 4% - year 2000 project cost			$	36,026,250				
	Inflation at 4% - year 2001 project cost			$	37,467,300				
	Inflation at 4% - year 2002 project cost				38,965,992				
	Inflation at 4% - year 2003 project cost			$	40,524,632				
C.2	**Renovations and Additions** (*more extensive links and fieldhouse addition*)								
	Reconfigure and Renovate Existing Areas	330,000	sf	$	22,225,000				
	New Construction - 3 Floor Link of G to B	2,250	sf	$	269,500				
	New Construction - 2 Floor Link of A to B	10,000	sf	$	1,754,500				
	New Construction - Fieldhouse Lck's/Wgt Rm.	24,000	sf	$	3,635,000				
	New Construction - Fieldhouse Link to RMHS	7,150	sf	$	3,129,500				
	New Construction - Fieldhouse Aux. Gym.	7,500	sf	$	951,500				
	Site Allowance			$	700,000				
	Total Construction Cost	*380,900*	*sf*	$	***32,665,000***	$	*86*	*per sf*	
	Project Cost Multiplier (25% = F & E, Fees, Misc. Expenses)			$	8,166,250				
	Total Project Cost - 1999 dollars			$	40,831,250	$	107	per sf	$ 13,882,625
	Inflation at 4% - year 2000 project cost			$	42,464,500				
	Inflation at 4% - year 2001 project cost			$	44,163,080				
	Inflation at 4% - year 2002 project cost				45,929,603				
	Inflation at 4% - year 2003 project cost			$	47,766,787				

- **Summary of Project Costs - Options A, B.1, B.2, C,1, C.2, C.3 and D**

C.3	**Renovations and Additions** *(more extensive links and fieldhouse addition)*									
	Reconfigure and Renovate Existing Areas	336,275	sf	$	22,913,250					
	New Construction - 3 Floor Link of G to B	2,400	sf	$	269,500					
	New Construction - 2 Floor Link of A to B	7,000	sf	$	1,754,500					
	New Construction - Band / Choral / CR's	18,000	sf	$	2,250,000					
	New Construction - Expand Sci. at Ground Fl.	1,200	sf	$	240,000					
	New Construction - Sci. Offices, Stor., Prep	2,600	sf	$	520,000					
	New Construction - Expand Cafeteria	5,000	sf	$	600,000					
	New Construction - Girls Lockers/Weight Rm	24,000	sf	$	3,635,000					
	New Construction - Extend Track/Lockers	9,600	sf	$	1,200,000					
	New Construction - CR's / Stor @ Fieldhse	4,000	sf	$	500,000					
	Site Allowance			$	900,000					
	Total Construction Cost	*410,075*	*sf*	$	***34,782,250***	$	*85*	*per sf*		
	Project Cost Multiplier (25% = F & E, Fees, Misc. Expenses)			$	8,695,563					
	Total Project Cost - 1999 dollars			$	43,477,813	$	106	per sf	$	14,782,456
	Inflation at 4% - year 2000 project cost			$	45,216,925					
	Inflation at 4% - year 2001 project cost			$	47,025,602					
	Inflation at 4% - year 2002 project cost				48,906,626					
	Inflation at 4% - year 2003 project cost			$	50,862,891					
D.	**New High School**									
	1,600 students x 155 sf/student x $177/sf =	248,000	sf	$	43,896,000	project costs				
	Demolition and Site Prep			$	7,000,000					
	Community/Reno Fieldhouse = 40,000 x $70=	40,000	sf	$	2,800,000					
	Total Project Cost - 1999 dollars	288,000	sf	$	53,696,000	$	186	per sf	$	23,343,600
	Inflation at 4% - year 2000 project cost			$	55,843,840					
	Inflation at 4% - year 2001 project cost			$	58,077,594					
	Inflation at 4% - year 2002 project cost				60,400,697					
	Inflation at 4% - year 2003 project cost			$	62,816,725					
	(Construction Costs - For Comparison Purposes)									
	(Demolition and Site Prep = $7 mil. = $2 mil abatement + $3 mil demolition/disposal + $2 mil site prep)									
	($42 mil construction cost = 248,000 sf x $130/sf = $32 mil + $3 mil fieldhouse + $5 mil demo + $2 mil site prep)									
	(Maximum Reimbursement = 65% of $43,896,000 + $2,800,000 = $30,352,400. Reading's share = $53,696,000 - $30,352,400 = $23,343,600)									

Development Options Not Presented:

As could be expected in any study of this nature, there are bound to be additional options which may be offered as alternatives to the options presented in this study. This is an appropriate time to discuss some of the more obvious ones.

- Do Nothing: The existing school is operating under significant programmatic and physical deficiencies and this condition will only worsen over time as enrollments increase. While living with the 'status quo' is possible over the next few years, the study team does not consider it a viable option for the foreseeable future.

- Grade Reconfiguration: An examination of grade reconfiguration scenarios was beyond the scope of this study. It should also be noted that the recent work on the elementary and middle schools have been structured around K - 5 and 6 - 8 grade configurations.

- Relocation of 'Non-High School Uses' to New Locations Outside the School: The majority of 'non-high school uses' within the building are programs either sponsored by, or critical to, the district's operation. The identification of, and cost estimating for, alternative sites for these programs was beyond the scope of this study.

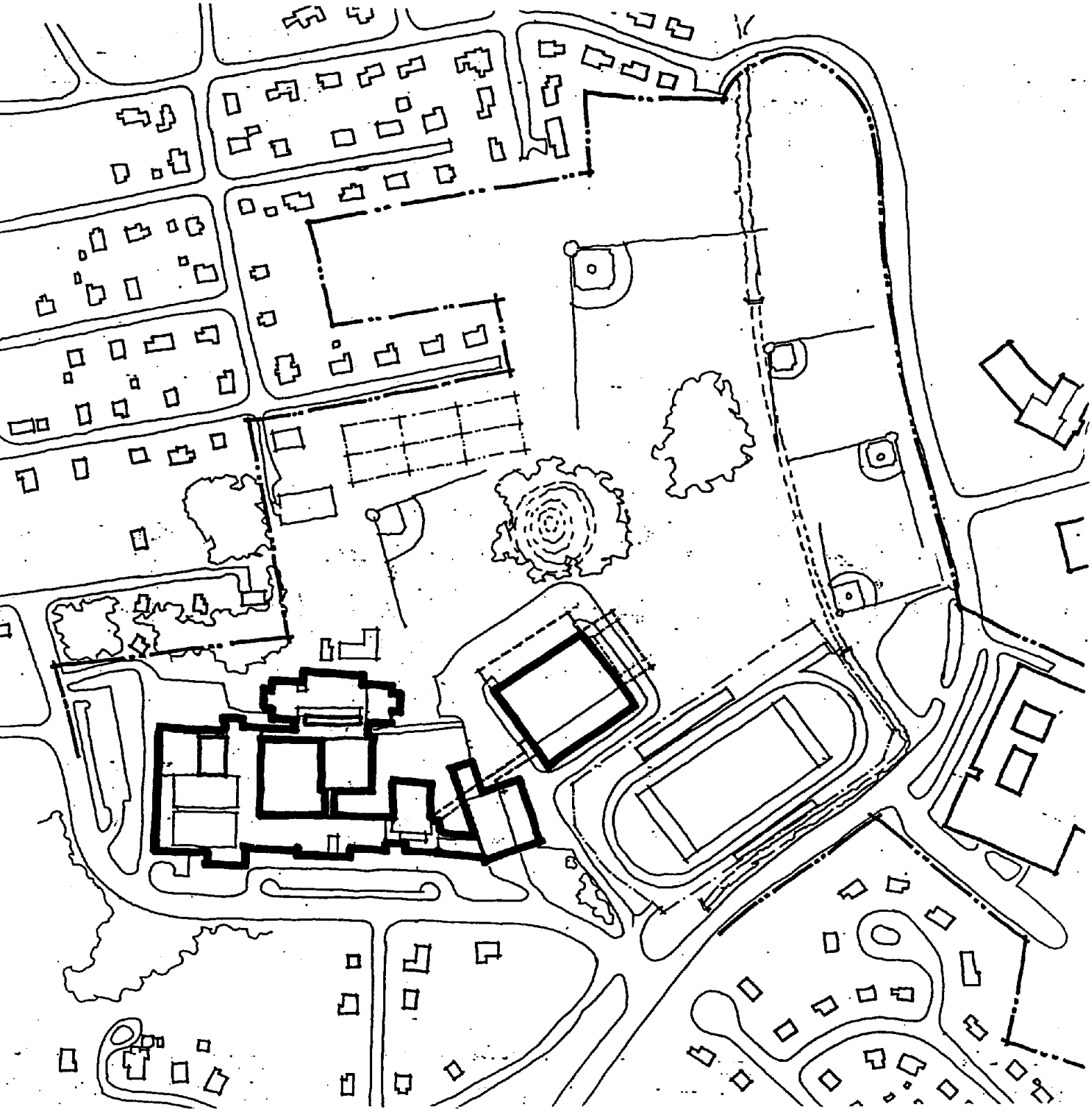
- New Building on a New Site: The identification and analysis of potential sites for new construction were beyond the scope of this study, however, it must be pointed out that the purchase price of a new 20-30 acre site (or any site regardless of size) would not qualify for 66% reimbursement from the state. Purchasing a new site would add significantly to the costs already established for a new school shown in Option D.

Existing Conditions & Physical Needs Assessment

The study team was charged with reviewing the physical needs assessment contained in a report entitled 'Reading Memorial High School Feasibility Study', dated February 21, 1997, by Drummey Rosane Anderson Inc., architects.

In order to properly review the previous report, Strekalovsky & Hoit, Inc. retained the services of Engineers Design Group (structural engineers) and Thompson Consultants Incorporated (hvac, plumbing, fire protection, and electrical engineers). The combined study team then conducted a thorough review of previous study and followed up with it's own on-site inspections in order to supplement the previous work and to document any additional issues regarding physical conditions and/or deficiencies.

- **Existing Site Plan**



Site:

The Reading Memorial High School is situated on a steeply sloping site running along Oakland Street. The site is highest on the southern end and slopes downhill towards the playfields and feildhouse at the northern end of the site. Birch Meadow Drive forms the edge of the site at it's northern end. The school is bordered on the east and south sides by residential properties across Oakland Street, while playfields border the school to the north and most of the west side. There is a wooded area between the school and it's abutting neighbors to the west. The Coolidge Middle School and the Birch Meadow Elementary School are situated across Birch Meadow Drive to the north of the school, and a community play structure known as the Imagination Station is also located on the RMHS property adjacent to Birch Meadow Drive.

Vehicular access to the site is available along the eastern and southern edges, all off of Oakland Street: access and parking for the field house and the school department offices/maintenance facility is provided via a driveway located on the northern end of Oakland Rd. near it's intersection with Birch Meadow Drive; parking and bus drop-off is provided further up the hill, at the main school entrance off of Oakland Rd.; two parking lots and service access to the kitchen is provided at the far southern end of the campus.

Parking and site circulation are major issues. Not enough parking capacity exists at the front entrance. This forces on-street parking up and down Oakland Rd. Also, because the bus drop-off is not segregated from visitor and staff parking at the main entrance drive, potential safety issues exist. The parking lot and entry drive adjacent to the school department offices/maintenance facility at the northern end of the site pose even more serious safety issues. The entry drive and parking lot are crossed by students constantly throughout the school day in order to access athletic programs in the fieldhouse. Improvements to the underutilized parking lots on the southern end of the site could reduce pressure on site circulation conflicts at the main entrance and at the fieldhouse parking lot. These improvements would most likely involve, lighting and improved access to the school from the upper lot.

The previous study team did an adequate job in describing the existing conditions and in providing appropriate recommendations for site development and improvements to address circulation and safety issues. The following is a summary of their recommendations:

- Develop a new front entry drive and bus drop-off area, isolating the bus drop-off from other vehicular traffic.
- Narrow Oakland Road, displace the parallel parking along both sides, and provide head-in parking instead. This could add approximately 50 spaces to the east edge of the site.
- Redesign and rebuild the remote parking lots at the south end of the site. A set of stairs was suggested to connect the upper parking lot to the school via the lower service drive.

- Reconfiguration of the entry drive adjacent to the school department offices/maintenance facility at the northern end of the site to allow for a new drop-off lane for the preschool and segregation of parking for the school department offices. The remaining parking lots could be expanded without impacting surrounding playfields.
- Resurfacing the outdoor track and rejuvenating playfields.
- Potentially adding lighting to the football stadium and adding bleachers at the baseball field and tennis courts.

In addition, the study team recommends:

- The study team has also investigated the implications associated with the construction of an enclosed pedestrian link between the RMHS building and the fieldhouse in order to segregate student foot traffic from the vehicular traffic.

The study team agrees with the previous budgeting work for site improvements and would suggest that the total cost for these potential improvements is probably in the range of $700,000 to $1,000,000 in 1999 dollars, exclusive of potential closed pedestrian links.

Building Envelope:

The building envelope is composed of the exterior walls (including window and door systems) and the roof. The building is a multi-story structure broken up into numerous 'separate buildings' which, for the most part, are linked with enclosed corridors. The original school building was built in 1952 and major additions were constructed in 1969. For the most part, exterior wall systems have not been significantly improved since their construction. In contrast, many of the roof surfaces have been replaced.

The exterior walls of the 1952 building consist of concrete foundations, brick facades, metal windows with glass block infill above, cast stone window sills, concrete fascias, and metal copings. The concrete foundations appear to be in good shape, though spalled concrete was observed in some areas. The brick is a running bond and is generally in good shape. It does show more cracks than the 1969 addition, most probably due to a lack of control joints. Window systems are outdated and inefficient in terms of energy consumption. Windows are steel, with glass block infill. All windows are single glazed outward projecting types. All windows are suffering from sealant failure. Window sills are cast stone and are in good condition. The previous study identified exposed rusting reinforcing steel at the concrete roof eaves and deterioration of the concrete fascias at the main entry as areas of concern.

The exterior walls of the 1969 buildings and feildhouse consist of brick, metal windows and infill panels, exposed concrete columns, concrete fascias and banding, and metal copings. The brick is a running bond and is generally in good shape. Window systems here are also outdated and inefficient in terms of energy consumption. Windows are aluminum, with metal infill panels. All windows are single

glazed projecting types. All windows in this portion of the building are also suffering from sealant failure.

Exposed concrete covered steel columns at the 1969 building have been an area of special concern to the school department over the years due to cracking and spalling concrete. The study team reviewed the situation and has confirmed that there is no structural emergency associated with this condition. The concrete is simply an encasement of structural steel columns. It is the steel columns that are holding up the building. The previous study had identified three potential reasons for the cracking seen in the non-structural concrete cover. Though any of the three possibilities remain valid, the structural engineers report which was commissioned as part of this study states that the most probable reason for the cracking concrete is improper cover over the reinforcing steel embedded within the concrete. As the project moves forward, a detailed physical analysis should be conducted to determine the actual cause and properly address long-term solutions to the problem.

The roofs are all flat and, with the exception of the science/math wing, the roofing systems have been replaced over the past ten years. The previous study identified the status of the roofing systems as follows: 1994 fully adhered PVC membrane over tapered rigid insulation over the majority of the 1952 portion of the building; 1985 fully adhered rubber membrane over the cafeteria, girl's gym, and gym lobby; 1989 fully adhered rubber membrane over the fieldhouse. Leaking is not currently a major problem, with the exception of the original roofing at the science/math wing.

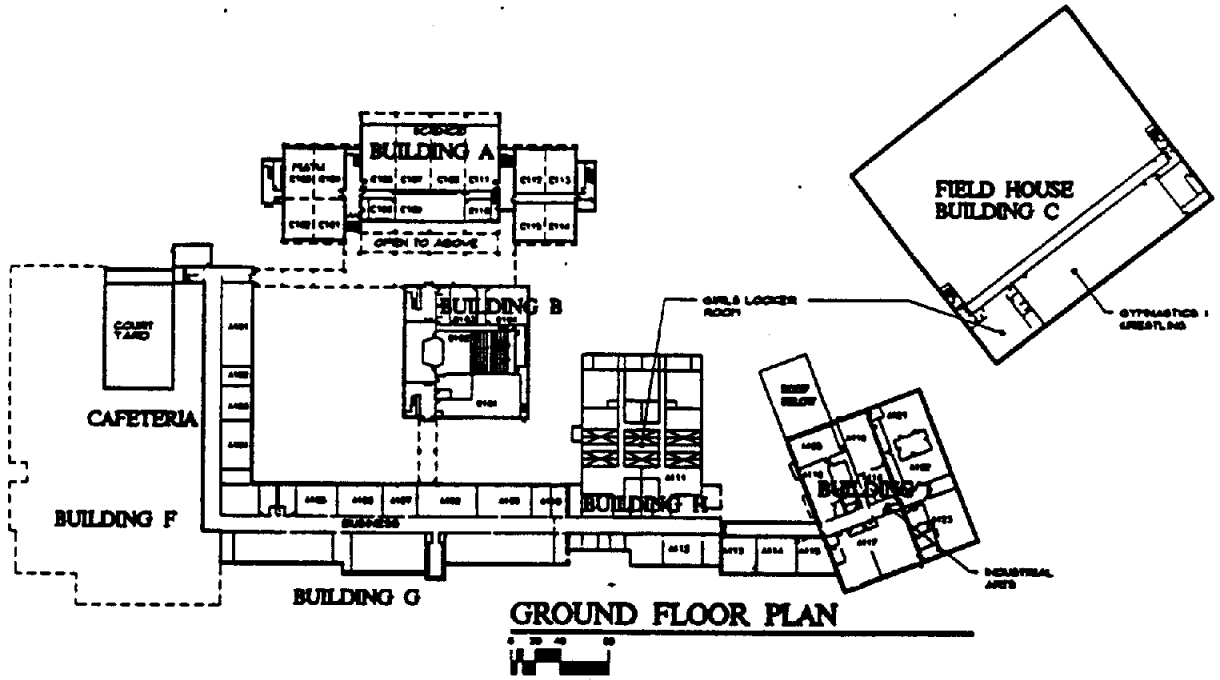
The study team endorses the following recommendations from the previous study:

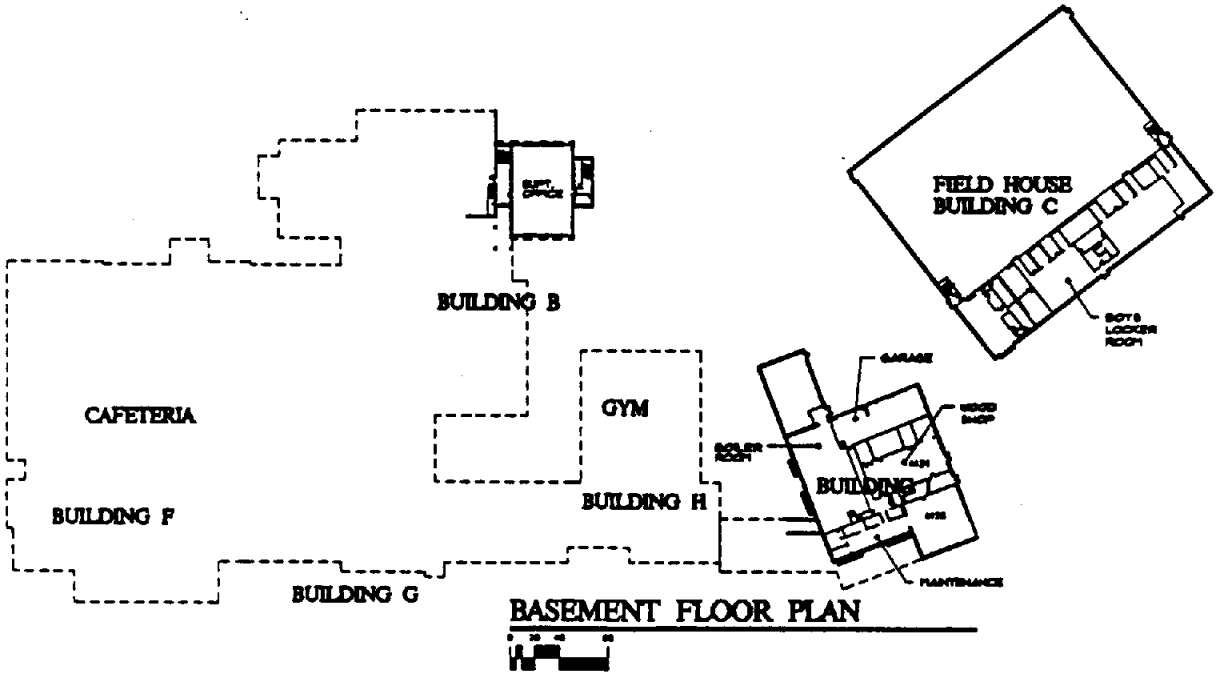
- Replacement of all existing window systems with energy efficient insulated window systems.
- Repair of exposed concrete on both the 1952 and 1969 buildings.
- Repointing and sealant work on the masonry walls.

In addition, the study team recommends:

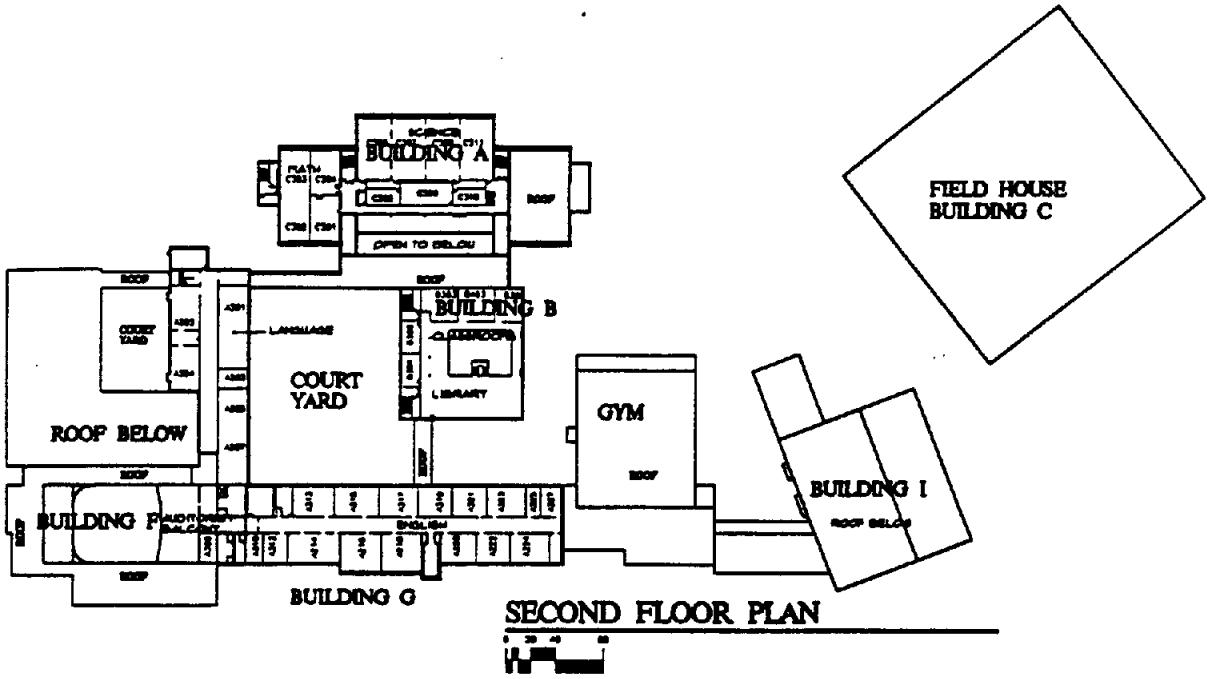
- Replace the original roof on the science/math building with a new adhered membrane roofing system.
- Replace all exterior doors with low maintenance fiberglass doors of the proper clearance and existing hollow metal door frames with aluminum.
- Handicapped accessible transitions to grade should be installed at landings outside all exterior doors.

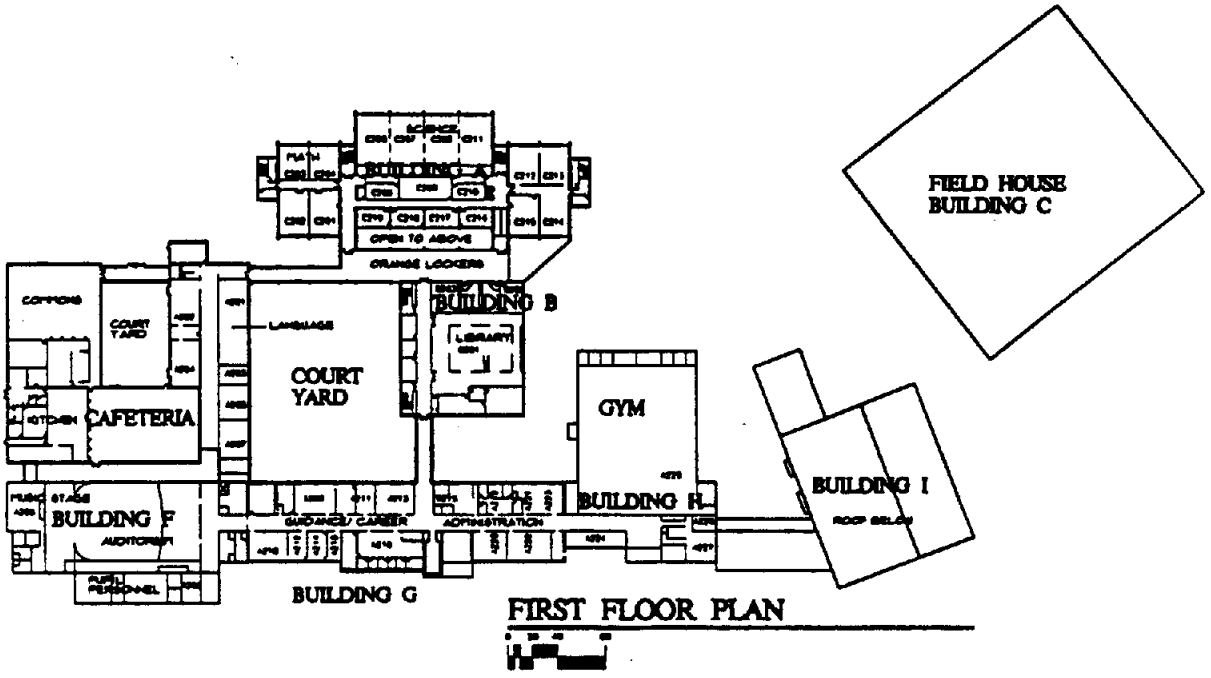
- **Existing Basement and Ground Floor Plans**





- **Existing First and Second Floor Plans**





Classrooms:

The classroom teaching spaces vary from building to building, however, within the various buildings, the spaces are fairly consistent.

In general, the classroom spaces within the original 1952 building are undersized and require enlargement to meet square footage standards for reimbursement through the School Building Assistance Act. In addition, all of the teaching spaces within this 50 year old portion of the school require upgrading of finishes, mechanical/electrical systems, and teaching surfaces. The rooms have a continuous band of painted wood paneling three feet high around the room (including storage shelves and countertop at the outside wall) and continuous teaching surfaces to seven feet on every wall. Above the teaching surfaces are 1 x 1 act tiles glued to the wall. Unfortunately the chalkboards are extremely outdated (green surfaces) and the painted wood trim shows it's age. The act on the walls and ceilings is way past it's prime.

Classrooms and laboratories within portions of the 1969 building are generally adequately sized, with adequate finishes and teaching surfaces. Like the 1052 building, teaching surfaces wrap the room completely. The remaining wall surfaces are glazed block below and 1 x 1 act above. Occasionally, new walls have been added which have gypsum wallboard surfaces. These have held up to date. The science laboratories are also adequate, however fixtures should be updated.

As part of any future development, the following classroom related items must be addressed:

- The installation of more storage. Base cabinets and shelving could easily be installed in many locations, especially if under-sized classrooms are enlarged.
- New teaching surfaces (markerboards) to replace the chalkboards. This will avoid problems between chalk dust and computer equipment.
- Acoustic ceiling systems and lighting.
- Provisions for technology infrastructure.
- New electrical outlets for additional technology.
- Replacing the VCT and VAT flooring with new VCT.
- Paint and refinish all wall surfaces.
- New windows and shades on the exterior walls as part of envelope upgrades.
- New corridor and passage doors with accessible hardware where existing doors are damaged or at the end of their serviceable life. Serviceable doors require new hardware and refinishing of their natural finish surfaces.
- New low voltage systems including cable tv, security, intercom and telephone, fire alarm, etc.

Corridors and Public Spaces:

Finishes in the corridors and public spaces within the school are varied and, in general, are in drastic need of replacement or upkeep. About half of the vinyl asbestos tile (VAT) has been removed and replaced with vinyl composition tile (VCT).

In the corridors, the exposed wall surfaces are quality, long lasting materials: glazed masonry block, or painted CMU. There are metal lockers along the walls in the 1952 building and these are said to be in good condition (actually better than those in the 1969 building). The ceilings in both sections of the building are 1 x 1 concealed spline ACT which is in need of replacement. There are areas in building A where the ceilings have suffered extensive damage due to roof leaks and vandalism The lighting in all corridors should be replaced under the electrical budget with more energy efficient fixtures. This would do a lot to brighten some of the darker, less inviting corridors.

Stairwells and guards in both portions of the building require new handrails to meet current building and accessibility codes. The stairwells in the 1969 portion of the building may well require substantial modifications due to their steepness, though practically speaking, it would be almost impossible to do so without a very expensive rebuild.

Under a major renovation scheme, suggested upgrades in the corridors and stairwells would include:

- Painting all metal lockers and replacing those that are no longer serviceable.
- Replacing the VCT and VAT flooring with new VCT and floor mats at entries.
- Installing slip resistant rubber flooring, risers, and treads in the stairwells
- Installing new vinyl cove base.
- Cleaning glazed block walls and repainting block walls above the glazed dado.
- Painting all doors, door and window frames.
- Installing new tack surfaces and display areas.
- Installing new 2 x 2 ACT ceilings with new 2 x 2 tectum ceilings (vandal resistant wood fiber) in areas subject to damage.
- Installing new lighting.
- Modifying handrails and guards in the stairwells.

It should also be noted here that the circulation pattern within the building is a major problem. There are many remote and isolated corners within the building and a number of dead-end corridors, particularly in the art department. Options should be explored for the improvement of circulation within the building through the creation of new corridors or links between remote parts of the building.

Though the classrooms and the corridors make up the majority of area within the building, other specialized spaces would benefit from various upgrades. A few of the more obvious finish upgrades follow:

- The toilet rooms would be upgraded as part of handicapped accessibility requirements. Finishes should include ceramic tile floors and walls, gypsum board or tectum tile ceilings, and new toilet partitions.
- The auditorium would be subject to a complete overhaul, including replacement of the existing seating, the installation of new flooring over the existing concrete floors, ceiling treatments such as 'clouds' to improve the acoustical characteristics of the space, painting all exposed surfaces, new floor and stage lighting, new sound systems, etc. In general, this important space should be treated with special respect and be restored to the best of the town's ability.
- Many other common areas, including the library, cafeteria and dining commons are in serviceable condition, though all finishes should be updated, including ceilings and floors. All painted surfaces should be patched and painted.
- The girls gymnasium floor should be refinished and relined. Bleachers in the gymnasium should be replaced. Both the gymnasium and the girls locker rooms below should have all exposed surfaces repainted. The locker room should have a major overhaul, including reconfiguration of walls, new plumbing fixtures, and new mechanical/electrical systems.
- The administrative, health and guidance suites require total reconfiguration, an increase in size, and an overhaul of all finishes and mechanical/electrical systems. These areas are severely deficient when compared to current standards. The office has little supervision over the front entrance and the health suite is grossly undersized.
- Art facilities are adequately sized and laid out appropriately. They could benefit from new finishes and mechanical/electrical improvements.
- The music/drama facilities are woefully undersized. Though they could be improved from an aesthetic viewpoint, major increases in space are required for these programs.

Handicap Accessibility:

Though the school does provide wheelchair access to portions via an elevators and chairlifts, there are many portions of the building which are inaccessible to the handicapped and the building is not in compliance with the regulations of the Commonwealth of Massachusetts Architectural Barriers Board.

Deficiencies exist in almost every area of their regulations, from toilet rooms, to door hardware and stair handrails. As part of any future development, the following accessibility related items must be addressed regardless of budget constraints:

- Accessible sinks and counters with proper knee space and wheelchair clearances must be provided in all science labs.
- All interior and exterior door hardware must be changed to lever type handles.
- All exterior doors must provide at least one door leaf which is 3 ft. wide.

- Existing handrails in stairwells must be supplemented with continuous handrails which are the correct diameter and are mounted at the proper height.
- Elevators or ramps must be used to provide access to floor levels which are currently not accessible or are only served by chair lifts. The only areas allowed to be served by chair lifts are stages or platforms.
- Access must be provided to the platform in the auditorium.
- Toilet rooms must be retrofitted with handicapped accessible fixtures and proper clearances must be established.
- Accessible shower stalls must be provided in locker rooms.
- Drinking fountains must be replaced with units which provide proper clearances.
- Room signage must be provided with braille characters.
- Audible and visual fire alarms must be installed.
- Food service lines may require retrofit to provide proper clearances.

Structural Systems:

The 1952 building's structural system appears to consist of a mixture of structural steel framing and masonry bearing walls. The floors are concrete slab.

The 1969 building's structural system consists of concrete floor slabs on metal deck supported by bar joists on steel beams and columns. The roof is poured gypsum concrete on bulb tees supported on bar joists held up on a structural steel framing system. Many of the exterior steel columns on this portion of the building are encased in concrete. The concrete encasement has cracked in numerous places and this cracking has been a cause for concern over the years. As was noted earlier, the concrete encasement appears to be non-structural in nature. It is suggested that a detailed analysis of the columns be performed as the project evolves.

In general, the structural condition of the building can be described as good, with no major signs of distress. There are no signs of foundation settlement and only minor cracking in the brick on the exterior skin which is cosmetic in nature. There was no sign of excessive deflection in any of the structural components.

The existing building was not designed for resistance to significant lateral loads (wind or seismic), however, any major changes to portions of the existing structure which contribute to lateral resistance (roof or walls) would necessitate some upgrade of the existing structural system. These upgrades are typically progressive in nature as the amount of work effecting the existing structural system increases.

The modifications within the existing building proposed by the study team in it's preferred development option would necessitate only minor upgrades to the lateral load capacity of the existing building. These would include clipping the existing masonry walls to the structural framing members for lateral stability, bracing any cantilevered masonry walls, reinforcing the intersections of any precast concrete structural elements, and repairing any cracked or spalled areas of concrete.

As part of any future development, the following structural related items must be addressed:

- Analysis and possible reinforcing of the structural roof decking system for snowdrift, as well as minor seismic upgrades to comply with updated building code requirements adopted in the years since the school was built.

The complete structural survey report is contained in the Appendix.

Heating and Ventilating Systems:

The building is heated by 2 new steam boilers in the 1952 boiler room and 3 hot water boilers in a 1974 boiler room built adjacent to the original boiler room. The 1952 portions of the building are heated by steam and the 1969 portions of the building, including the field house, are heated by hot water. The condition of the 1974 boilers and 5 hot water circulating pumps associated with them is very poor.

Hot water is provided to the 1974 portion of the building by a converter installed in the 1952 boiler room with the new steam boilers. The new boilers in the 1952 boiler room are intended to provide the majority of the school's heating and domestic hot water needs, though, the btu output appears slightly smaller than would be anticipated for schools with proper outside ventilation air.

The boilers are fired with #4 fuel oil from a 24 year old buried 30,000 gallon steel storage tank. Though the tank has been cleaned, tested, and had spill protection installed, it does not comply with current regulations for monitoring and leak protection.

Unit ventilators act as terminal heating devices and provide required fresh air ventilation in most areas. New unit ventilators were installed in buildings A and B recently. Larger heating and ventilating units serve the cafeteria, auditorium, gymnasium, kitchen, shops, and locker rooms. Exhaust from interior spaces is provided by roof fans ducted to individual spaces. There is no mechanical ventilation provided in the corridors, and various spaces along the exterior of the building. These areas depend upon open doors and windows as was allowed when the building was constructed.

Temperature control is provided by a pneumatic system with individual space thermostats. A new energy management system was recently installed within the building.

As part of any future development, the following heating and ventilating related items must be addressed:

- Remove and replace underground fuel oil storage tank.
- Provide one new firetube boiler to increase btu capacity
- Replace the hot water circulating pumps
- Inspect and replace heating piping as necessary.
- Replace the classroom unit ventilators, heating and ventilating units, and associated piping and control systems in building A and cafeteria.
- Replace outdated heating and ventilating units throughout building.
- Expand building management system.
- Complete steam trap maintenance.
- Provide code-required ventilation in corridor areas.
- Provide air conditioning in Administration, Computer rooms, and Library.
- Replace existing roof fans.
- Clean existing duct systems.
- Provide new chimney and proper make-up air in the boiler rooms.

The complete heating and ventilation survey report is contained in the Appendix.

Plumbing Systems:

The quality and style of the plumbing components and systems, including roof drainage, sanitary waste and venting, hot and cold water, laboratory waste, and natural gas, are consistent with what was installed at the time the building was constructed in 1952 and 1969. Many of the systems have evolved as the building has been added on to and maintained over the past 47 years.

Most systems are operational, but the older systems, components, and fixtures are showing their age. For instance, the sanitary drainage system is reported to be in poor condition and is easily damaged when attempts are made to perform service. There is a substantial need for upgrading or replacement of this and many other systems due to age, operational efficiency, or most often, stricter code requirements. Those systems in the original building have reached the end of their useful life and are in need of replacement or upgrading. The fixtures and piping in the 1969 additions need some upgrading to meet current codes, but are for the most part serviceable.

As part of any future development, the following plumbing related items must be addressed:

- Upgrade toilet room and locker room fixtures to meet handicapped accessibility and water conservation requirements.
- Upgrade drinking fountains to meet handicapped accessibility requirements and provide a greater number throughout the school to satisfy plumbing code requirements.
- Provide new fixtures with vacuum breakers at any fixtures such as hose bibs or faucets with threaded outlets to prevent cross connection control.

- Inspect and possibly reline existing hot water tanks.
- A gas shut-off valve should be provided to the equipment under the kitchen hood.
- Master gas control valves should be provided for the science classrooms so that supply to the gas outlets may be isolated/controlled by the instructors.
- Provide emergency showers/eyewash stations with tempered water.
- Change the hot water heating concept to provide new stand alone hot water heating systems at the field house.
- Replace existing gate valves throughout the building with ball valves for longer life and improved isolation capability.
- Provide acid neutralization and pH monitoring systems for the science labs.

The complete plumbing survey report is contained in the Appendix.

Fire Protection Systems:

The building does not currently have a sprinkler system installed. Substantial renovations within the building will most likely trigger a requirement to sprinkle the existing building.

As part of any future development, the following fire protection related items should be addressed:

- With renovations of the magnitude proposed by the study team, the existing building should be sprinkled.
- Any addition of over 12,000 square feet will have to be provided with a complete sprinkling system in accordance with the Massachusetts State Building Code.

Electrical Systems:

The building is served by five electrical sub-stations served by the main electrical service. Building A is rated at 1,000 amps, Building B at 2,500 amps, Building C at 800 amps and both buildings D and E at 1,600 amps. There is a 250 KVA emergency generator to protect heating and plumbing equipment in case of power failure in freezing weather. Both the normal and emergency power equipment is in fair condition.

Telephone and cable TV service is provided via an underground conduit. Cable TV outlets are provided in classrooms and labs, though not at every instructional area. The telephone system is at capacity and outdated.

The intercom and sound systems have functional problems and should be replaced. Speakers in some areas are damaged. The original clock system has been replaced with simplex clock/speaker units, though the clocks are of many manufacturers and are not all operational.

The fire alarm system has 20 zones with battery backup and direct connection to the fire department. It is outdated and does not meet code or ADA requirements. Exit signage with individual battery backup are only 3 to 4 years old. There are some emergency battery lights in corridors, though exit lights are of many types, have broken face plates and/or have no lamps at all.

The lighting is typically original to the building and is fluorescent and incandescent surface mounted. The lighting fixtures do not have energy saving lamps and ballasts.

Overall, the electrical systems within the building are in substantial need of replacement. As part of any future development, the following electrical related items must be addressed:

- Provide new addressable fire alarm system to meet all code and ADA requirements.
- Smoke detectors must be installed as part of the fire alarm system.
- Horn/strobe units must be installed as part of the fire alarm system.
- Additional pull stations must be installed and the height of existing pull stations must be lowered.
- GFI receptacles must be provided in wet areas.
- A new electrical services and/or new distribution panels and wiring should be installed to meet additional loads for electrical equipment and classroom technology programs.
- Provide branch circuit wiring and outlets for four to six computers per classroom.
- New energy efficient lighting fixtures should replace existing original fixtures.
- A new emergency generator should be provided for emergency lighting, fire alarm backup, refrigerators and freezers, and the heating system.
- A complete new telephone system should be installed.
- Security system coverage should be expanded.
- A new television system should be provided as a part of the integrated communications system.
- New intercom and sound systems should be provided.
- New clock system should be provided.

As part of any future development, the following electrical related items should be addressed if possible given budget constraints:

- Provide new clocks in classrooms which are wired into the clock system.
- Provide new phone system with voice mail, paging, etc...
- Provide new sound systems for the gymnasium, cafetorium, and auditorium areas.

The complete electrical survey report is contained in the Appendix.

Hazardous Materials:

The previous study had commissioned an extensive hazardous materials survey as part of it's scope. As can be expected of any building of this age, there are many asbestos containing materials in the building including floor tiles and pipe insulation. There are PCB's in the ballasts of the fluorescent lighting fixtures. Levels of lead paint appear to be significant also.

It appears that the costs associated with the removal of hazardous materials during any renovation or addition scenario could run in the area of $500 – 750,000.

The complete hazardous materials survey report from the previous report is included in the appendix for ease of reference.

READING MEMORIAL HIGH SCHOOL
Educational Consultant Report

Dr. William G. Zimmerman
Senior Associate, New England School Development Council
March 30, 1999

OVERVIEW

NESDEC was retained by Stekalovsky and Hoit, Inc. Architects, to assist in the planning for future school facilities at Reading Memorial High School. Two full-day site visits (Oct. 19th and 28th) included sixteen in-depth individual interviews with the Principal, Assistant Principal, each Department Head, the Athletic Director, and other key staff members. The NESDEC consultant, accompanied by the Principal, observed classrooms and other teaching stations while school was in session and also met with the Superintendent of Schools.

Reading High School was constructed in 1952 with an addition in 1969. The current structure is a rambling, multi-level building with exceptionally difficult internal traffic and communication patterns.

The school currently houses approximately 1,071 pupils in grades 9-12 and enrollments are projected to increase, based on 1997-98 baseline data and assumptions, to about 1,295 pupils in six years and to approximately 1,390 pupils in eleven years...an increase of about 319 pupils (+30%).

NESDEC has set the current operating capacity (COC) for the grade 9-12 high school program at approximately 1,299 students (based upon a 85% 'scheduling factor' – see text on page 14 and table on page 16). This takes into account that significant portions of the building are currently leased to or used by non-high school entities (School District Offices; RISE; REAP; Media One; Maint. Offices/Garage; District-Wide Special Eductaion; Chinese Culture Center; SEEM = 22,800 sq.ft. app.). If teachers shared their rooms and departmental offices were moved out of classrooms, then an additional 200 students could be added to the COC total. Non-high school programs use space that could reasonably house approximately 215 students.

There are two other variables, which effect the definition of 'capacity' at the high school. The first is the scheduling factor. If an 80% scheduling factor is used (see page 15), the COC of the high school would be classified as 1,222 instead of 1,299. Though an 80% factor could be justified at the Reading Memorial High School, given the school's educational program, 85% is the typical factor used by the Department of Education. The true COC of the high school is probably somewhere between 1,200 and 1,300, depending upon the actual scheduling factor on a yearly basis.

The second variable revolves around the issues of classroom size and the correction of existing programmatic deficiencies. For future planning purposes, the study team has been asked to contrast renovations to the existing high school with the construction of a new building. It is therefore imperative that the study team assume that any space or programmatic deficiency within the existing building be corrected as part of a renovation project. In this manner, a fair comparison can be made between the two potential projects, each of which would meet the school's educational specifications and the teaching space standards established by the Department of Education.

There are several teaching spaces within the existing building which are undersized when compared to square footage standards issued by the Department of Education. These spaces are shown in the charts labeled 'Basic Educational Space for Planned Program' in the Educational Specifications section of the report. Many classroom spaces in the 1954 portion of the school (see English and World Languages) are either at or below 713 square feet. The Department of Education standards for typical classrooms are between 750 and 850 square feet each. The higher end of the scale (850 sq.ft.) is appropriate for rooms with multiple computer stations. There are also educational programs which should be expanded (e.g.: music/drama and foreign language lab) to include more rooms than currently exist within the department.

In order to provide room for a proper music/drama suite, a foreign language lab and the enlargement of smaller classrooms, it would be necessary to capture an additional 12,000-13,000 square feet of space within the building. This would translate into taking approximately 17 classrooms off line. The result would be a lower capacity for the existing high school building. This 'Planned Operating Capacity' (POC) would be approximately 315 students lower than the 'Current Operating Capacity'. If all small classrooms were expanded and proper music/drama and foreign language spaces were created, the POC would equal 985 pupils (85% schedule) under the assumption that all of the non-high school uses remained in the building and the program continued to provide individual teacher classrooms and dedicated departmental offices; 1,185 pupils if classrooms were shared and departmental offices were removed from classroom space; and 1,400 pupils if non-high school uses were eliminated along with the individual classrooms and the departmental offices.

In brief, the high school building complex needs to be able to accommodate about one third (319+) more pupils within eleven years than it currently serves (approximately 90 more than its current operating capacity of 1,299) and should also be substantially redesigned and reconstructed to provide proper space for a modern-day secondary school instructional program which meets Department of Education space guidelines.

A number of preliminary development options exist for meeting the future enrollment and programmatic needs at Reading Memorial High School. Some of the more obvious options are listed below; ranked from least expensive to most expensive:

ADMINISTRATIVE CHANGES: Leave existing small classrooms, institute shared classrooms for staff, and free up additional full size classroom space by relocating departmental offices to smaller spaces within the building. This will add capacity for approximately 200 students, will meet the projected enrollment needs, may free up some room for expansion of the music/drama program, and will allow for all non-high school uses to remain in the building. Some classrooms will remain undersized and other issues will still need to be addressed (i.e. Girls P.E.; Music/Drama; Language Lab).

RENOVATIONS: Enlarge all undersized classrooms and provide properly sized teaching spaces for the educational program, share clasarooms, relocate departmental offices to smaller spaces, and remove non-high school uses from the building. This will result in a POC of 1,420, meet the projected enrollment needs, meet the programmatic needs, and provide all teaching spaces with the proper square footage. Though space could be found within the existing building for some of the non-high school uses, others would have to be relocated elsewhere.

RENOVATIONS AND ADDITIONS: Enlarge all undersized classrooms and provide properly sized teaching spaces for the educational program (e.g. music/drama), share classrooms and relocate departmental offices to smaller spaces. Do <u>not</u> remove the non-high school uses from the building. This will result in a POC of 1,220. Additions would then be constructed in strategic areas, which would add the additional 180-pupil capacity and help to consolidate the sprawling educational plant. For example, an addition to the

fieldhouse could solve the Girl's P.E./Athletic issues while the "old gym" could be converted to a modern music/drama area. Non-high school uses could also be consolidated and located in a manner, which assists in the efforts to consolidate the educational plant.

NEW HIGH SCHOOL: Replace the existing school with a new facility sized for the projected 1,400 pupils. All educational programmatic and space needs would be accounted for. Any non-high school spaces, such as the School District Offices, which would be included within the new facility would not be eligible for reimbursement from the Department of Education, nor would land acquisition costs.

This report to the School Committee is intended to engender feedback prior to the identification of a preferred development option by the study team.

A. Highlights of Current and Planned Educational Program

The Following "General Findings" and "Program Findings" summarize feedback given to NESDEC from the high school administrators, department heads, and other key leadership personnel during the site visits and interviews, which took place in the fall of 1998. These summaries document perceived deficiencies in the existing high school and suggested improvements for the planned educational program.

In general, the school offers a fairly traditional, predominantly college preparatory program (90% to college), in a relatively traditional manner...i.e., organized around the major disciplines and presented in a fairly straightforward seven-period day. Although consideration of moving toward a block-schedule format is a continuing one, the school appears to be more inclined to stay with a more traditional seven-period schedule.

Courses in the major academic disciplines are offered at four levels (Basic, Intermediate, Moderately Difficult and Honors...including AP in math and science) and students are required to take four major courses and must be in credit courses for 6 out of the 7 periods. The school is clearly well-ordered and well-disciplined and the decorum during the academic day is scholarly and conducive to serious academic pursuits...a real tribute to the administration and staff, as the physical layout of the buildings really militates against an orderly climate.

It is not necessary that all of the findings be included in the planned educational program, though all should be reviewed and addressed in one way or another by the School Administration and the School Committee prior to the implementation of a building project. For planning purposes, the design team explored development options, which attempted to account for the majority of the building related needs outlined under the 'General' and 'Program' findings, which follow. The complete educational specification for the planned 1,400-pupil high school educational program is included in this report under the titles Basic Educational Space for Planned Program (Table 1) and Space Needs Summary (Table 2).

General Findings:

- Desire that each teacher has his/her own classroom (not shared space) (see page 21 on shared space).
- Desire to retain (or establish) common faculty team office rooms for each discipline (or combination thereof).
- Current space in the building is chopped up, divided, given over to several other uses with major disconnects between program areas that should be in close proximity or in one location (e.g., Fine Arts; P.E./Athletics). Internal communications (among the staff and students) is very difficult. Getting from one part of the building to another is often an arduous and time-consuming task.
- General agreement that there should be a combination of computer labs and 4-6 computers in most classrooms.
- Material and book storage in each classroom.
- Major need to locate staff restrooms strategically throughout the building (for staff comfort, efficiency and pupil supervision/control purposes).
- Nearly all staff want "whiteboards" in their teaching stations.
- Each classroom should be equipped with a computer-driven, large screen, multi-media teacher's workstation.
- Each classroom/teaching station should be equipped with tackboards (w/map/chart clips), darkening curtains, excellent high-intensity lighting. The staff desires a variety of moveable classroom furniture...flexible...some trapezoidal tables...some desk-top pupil desks with separate chairs...some small tables with separate chairs...some tablet-arm chairs, etc.
- As enrollments increase, there will be a need to increase staff and instructional space.

Program Findings

1. **Administrative Overview** (Based on projected growth to 1400 pupils)

- Sees eventual movement to some form of modified block scheduling; classes of 22:1 or less; interdisciplinary teaching, especially 9th grade English and Social Studies; maintenance of departmental structure according to the academic disciplines. Need to build in common planning time for teachers in each discipline.

- One additional Assistant Principal...Assistant Principals are responsible for supervision/evaluation in 3-4 departments and Assistant Principals should be located in various sections of the building.
- Full-time Athletic Director who also supervises the student activities program...full-time clerk/bookkeeper for these functions.
- Additional full-time R.N.
- Major expansion of staff and facilities needed in music and drama.
- Additional staff in all areas, consistent with projected enrollment increases.
- World Languages Lab.
- Expansion of Advanced Placement (A.P.) program, especially in English; Social Studies; Languages.
- Major need for conference room and seminar room spaces.

2. **Business and Technology**

- Needs two 20-station computer labs and one smaller (10 p.c.) lab for Accounting.
- Can share classrooms in this department.
- 6.6 FTE staff now. Need to add as enrollments increase.
- Need CAD Lab, Pentium P.C. – equipped, for Tech. Ed. Program.

3. **Physical Education**

- Developing heavy emphasis on wellness and good health.
- 2.6 FTE positions for full-time staff plus .8 and a .4 part time positions. Will need to increase as enrollments/sections increase.
- Now have two teaching stations in the fieldhouse and one in old gym. Will need to expand.
- Impossible storage situation now.
- Need to develop a wellness room, similar to a health club.
- Need additional weight room.
- Girls' P.E. lockers are in two separate gyms.

4. **Athletics**

- Girls' locker rooms a major need...dress in old gym, go outdoors to fieldhouse and then outdoors again to go back to old gym to change.
- Possibly add boys and girls Lacrosse in future?
- Need separate male and female coaches' rooms.
- Need major new storage spaces, both indoors and outdoors for athletic equipment.
- Expand girls' locker room in fieldhouse.
- Need team rooms for visiting teams.

5. **Library**

- Envisions more networking with other facilities; more project-oriented pupil work; more print and non-print materials...students will need extended times (before/after school and some evening/weekend times).
- Typical week = 62 class sections coming to library to work on research-oriented projects (especially Social Studies and Science).
- 1.0 FTE Tch/Lib and 2 1/2 Aides...will need more aide staff as population/use increases.
- Small conference room should be connected to mini-lab with computers for "power point" project preparation and reports.
- Keep mezzanine areas for "whole class" section work and equip them technologically.
- Air-condition a 25 p.c. lab.

6. **Social Studies**

- Moving toward project-oriented work...confusion over state frameworks and directions it will drive program (facts and memorization in World and U.S. History rather than engaging pupils in active learning). Department sees a need for 4th year of Social Studies with: community service; social issues; involvement in political campaigns, as well as course electives in Law, Economics, Human Behavior.
- 10.6 FTE staff now; will need more with enrollment increases.

- Need secure storage areas for pupil projects (both vertical and horizontal storage areas).
- Display areas for student project work...maybe combined with an art gallery?
- Lecture-hall facility for large group instruction (utilize existing space).
- One classroom in the department area equipped with a small raised platform (small stage), lighting, etc.
- 4-6 computer (networked) per classroom.
- Ability to take entire class to computer lab (Library? or our own Social Studies Lab).
- Social Studies classrooms located next to or near English rooms.

7. **English**

- More interdisciplinary courses: writing; utilizing computers; more oral presentations; structured study skills program (requiring additional space) in conjunction with other departments...there should be a full four-year sequence of drama/theatre arts courses taught by a specialist, not an add-on for an English teacher!
- 10.6 FTE and .4 Reading, but will need more staff as enrollments increase. Reading should go to 1.0 now.
- Will need at least one writing class each period in a computer lab. Need access to two labs plus 4-6 computers in each classroom.
- Small performance "theatre" with stage, leveled seating, lighting...oral presentations, Shakespeare courses, etc...could use current lecture hall and shared with social studies.
- Need secured (closed) book storage space.
- Rooms can be shared with others in the department but most staff members should have their own room. (see page 21 on shared space)

8. **Art**

- Program should be more centered in the building and not out in a separate wing.
- The visual arts should be more integrated with the other fine arts and some of the academic disciplines. Would like to have the program located near music-drama-dance.

- 3 FTE staff (2 Studio Art and one Graphics) may need more staff as enrollments increase.
- Major need for an Art Gallery for professional hanging of pupil work...not just "hung in the corridor."
- Studio space with northern exposure; good lighting; ventilation; flat and vertical storage (ample!) for pupil projects within each studio; large material storage space for the department's supplies.
- 2 art studios; 1 ceramics studio with kiln; 1 graphic area and a related photography area...with computers.
- Can share studio space but would like fine arts staff in one team office area, possibly shared with music and drama.

9. **Guidance**

- Moving toward a "developmental guidance" program...counselors going out into classes more...but, individual counseling still is the basis of the program.
- Will be a more effective program with 200:1 ratio (now 260:1) 4.4 FTE and a need for staffing increases as enrollment increases.
- Need: General Office/Reception/Browsing Area...Conference Room; office for each counselor; office for an intern; small, enclosed video room for student use; large storage room; 6 p.c.s with internet access for student use.

10. **Special Education**

- Open, support-type program...needs a centrally located area, probably near media center; should be available for any student (with or without an I.E.P.) who needs academic support.
- 5 Sp. Ed. teachers; 2 speech and language teachers; 8 paraprofessionals and 1 secretary...will probably grow by 1 or 2 teachers and 2-4 paraprofessionals.
- Need: large Resource Room (20+ P.C.s, including some "talking computers"...need to be isolated in booths/carrels as these pupils are easily distracted)...also, smaller seminar-sized rooms; one medium-sized OT/PT Room; one Speech/Language Room; School Psychologist Office; standard classroom for the self-contained Math/Science

and English/Social Studies sections; one totally self-contained (.4) classroom; departmental office with secretary.

- Need: Handicapped toilets; location near outside egress and nurse's office; close to elevator; near guidance and near the Resource Room.
- Do not need a separate "office area"...staff can utilize the main Resource Room.
- Need to provide additional classrooms as students currently in self-contained programs in the lower grades reach the high school.

11. Music

- Performance groups are growing in both number of groups and size...110 Band; 70 Chorus; Jazz Vocal has 10; Jazz Ensemble has 22; plus Brass Quintet and other small ensembles. In the future, a need to develop a string program; music theory classes will be expanded.
- 1.0 FTE staff now; grossly understaffed. Need one more full-time teacher immediately and could expand to a third within time.
- Space needs are acute...No band room. No chorus room. No ensemble room.
- Need an entire music suite: full size band room with equipment, uniform, marching band storage, music library room; computer/synthesizer electronic music mini-lab; two small ensemble rooms; 2-4 practice rooms; departmental office space. Need pupil restrooms and outdoor access. Need two large and deep sinks in band room and water coolers in both band and chorus rooms.
- Auditorium: needs complete gutting and reconstruction (lighting; sound system; seating; stage; acoustics, etc.)

12. Science

- Program moving toward more inquiry activities – student-centered, student generated, problem-solving. More interdisciplinary work. Ninth grade multi-discipline science survey program.
- 13.4 FTE with more staff and labs/classrooms needed as enrollment increases.
- Currently use 13 class/lab combinations.

- Would like to take down the walls in the storage areas to create more open space with moveable tables, perimeter storage for pupil projects...new shelving and better organization of storage area...teachers prefer to do prep work in their own lab/classrooms.
- Convert "prep rooms" to small group project or "seminar rooms".
- Internet access; major multi-media large screen computerized teacher lecture/demo workstations in each classroom/lab.
- 12 computers, mobile, on carts, per floor to be wheeled into classroom/labs as needed. Or, ideally, a P.C. at end of each lab table. Each lab should have one or more printers connected to the computers. Classroom seating area should have moveable furniture to facilitate group work.

13. **Mathematics**

- Envisions more active-learning pupil activities; extensive use of databases; easy access to computer labs; more connections with other disciplines.
- 10.6 FTE plus a .2 (part-time) staff and sees this increasing as enrollments increase.
- White boards; major large-screen, computer driven multi-media teaching station in every classroom.
- Graphing calculators are used more than P.C.s. However, 4-5 networked P.C.s per classroom would be desirable.

14. **Foreign Language**

- Number of pupils taking foreign languages is increasing. Moving toward A.P. courses in French and Spanish. Sees larger sequences. Would also like to offer Italian and Russian, in the future. Envisions proficiency-based grouping of pupils.
- 8.6 FTE and department head at .6 teaching and will need to add staff with enrollment increases.
- Some classrooms are too small...classes range from 20-28 and it is extremely difficult to handle 28 foreign language pupils in one room...far better to have 20 pupils!

- Major need: 30-station, state-of-the-art Language Laboratory – computers, audio, visual components, connected to Internet.
- Each classroom with 4-6 computers plus teacher workstation.
- Prefer to have our own classrooms, not "shared". Definitely need to have common departmental office and team room area. (see page 21 on shared space)

B. Current Operating Capacity (COC) and Planned Operating Capacity (POC)

Explanation of Terms

Current Operating Capacity - The Current Operating Capacity (COC) is the capacity based on class size policy and current usage of the building (including use of "portables" and existing deficiencies in core and specialized facilities).

Planned Operating Capacity - For future planning/construction purposes, it is imperative that current deficiencies in space availability be corrected. Thus, the Planned Operating Capacity (POC) maintains the district's class-size policies and ascertains that all school facilities, including core facilities, are appropriately sized and meet all Department of Education and code requirements.

Determining High School Capacity

The process for determining the capacity for a high school is similar to that used for elementary/middle schools only in that support areas such as cafeteria, auditorium, offices, and those areas for special needs instruction, multi-use computer labs, departmental resource rooms, internal suspension room, and prep-storage rooms are not counted in the capacity.

At the high school level, in addition to the general classrooms, the special area rooms, such as art rooms, science laboratories and shops are included in the determination of capacity. Each general classroom has been assigned a capacity depending upon size and use. The capacity assigned to each special area room is usually contingent upon the number of workstations existing in the space. Once the capacity of each instructional space is determined, a total capacity can be computed based on the sum of the individual capacities.

No secondary school building can operate effectively at 100% capacity. First, students cannot be scheduled into neat groups of 22, 20 or 18. Second, the elective system provides opportunities for students to choose from a variety of course offerings. Third, schools, which choose to provide ability-level grouping, enrichment classes and programs for the academically talented, accept increased problems in achieving evenly balanced classes. A comprehensive educational program requires, therefore, a greater

number of teaching stations than would be the case in a school without an elective program. If secondary schools were to operate at total capacity, comprehensiveness and course electives would have to be severely curtailed. For this reason, the operating capacity of a high school reflects not only spaces available, but also the program design of the school, and is usually set, for scheduling purposes, at 80-85% of the maximum capacity of the building. NESDEC calculates Reading Memorial High School's operating capacity at 85% of the maximum capacity of the building. Given the school's program, a more realistic scheduling factor might be 80%.

Current Operating Capacity

NESDEC sets the current operating capacity of Reading Memorial High School at approximately 1,299 pupils. This is a maximum capacity and assumes efficiencies in scheduling and programming. (see chart on following page).

In order to provide room for: a complete music/drama suite; Foreign Language Lab; Art Gallery; enlargement of some of the smaller classrooms; certain core facilities, a minimum of 17 current classrooms would need to be taken off line. In any scenario, the need to redesign much of this building is paramount. The chart below assumes that little or no redesign/reconstruction will take place and the school will continue to function in its present mode of operation.

READING MEMORIAL HIGH SCHOOL CAPACITIES

Enrollments		Current Operating Capacity	Variance
10/1/98	1,071	1,299	+282
2003/04	1,259	1,299	+40
2009/10	1,386	1,299	-87

Note: Building currently has several non-high school operations.

Reading Memorial High School

Description		Number	Capacity	Total
General Classrooms		40	22	880
Social Studies	9			
English	9			
Math	10			
Foreign Language	7			
Humanities	4			
Library Mezzanine	1			
Science				
12 Lab/Classroom		12	22	264
Business				
5 Classrooms		5	20	100
1 Computer Lab (dedicated use)		1	20 (always a cr use)	20
1 Computer Lab (shared use)		1	---	---
1 Co. Op. program		1	---	---
Art (former Occ.Ed. Area)				
4 Studio Classroom		4	18	72
1 Graphic Workroom		1	15	15
1 Graphics/Business Mac. Lab (A-114)		1	---	---
Technical Education				
1 Tech. Drawing Room		1	18	18
1 Woodshop		1	18	18
Physical Education				
2 Decisions Program		2	22	44
1 Weight Room (A-117)		1	---	---
P.E. Office		1	---	---
Old Gym		1	24	24
Fieldhouse		2	24	48
Library				
2 Library Classrooms		2	---	---
Music				
1 Classroom (A-206)		1	25	25
Special Education				
Learning Center (C-217 and 219)		2	---	---
Computer Labs				
English Writing Lab (A-316)		1	---	---
Math Lab (C-204)		1	---	---
Foreign Language (A-309)		1	---	---
		TOTAL		1,528
		Scheduling/Utilization Factor		85%
		Current Operating Capacity		1,299

Note: If a scheduling/utilization factor of 80% were used (and this would be justifiable based on the number of electives, the several levels of instruction, the number of alternative and special programs offered), the current operating capacity would be 1,222 pupils.

Planned Operating Capacity (in existing building): In order to provide room for: a complete music suite; Foreign Language Lab; Art Gallery; enlargement of some of the smaller classrooms; certain core facilities, a minimum of 17 current classrooms would need to be taken off line. This would drop the Planned Operating Capacity (POC) to approximately 990 pupils assuming that teachers maintain their own classrooms, departmental offices remain in classroom size spaces, and all of the non-high school functions remain in the building. Obviously, if any of these policies were to change, the POC would increase accordingly.

SCHOOL DISTRICT: READING, MA
BASE YEAR 1997-08

ENROLLMENT PROJECTIONS BY GRADE

YEAR	BIRTHS	SCHOOL YEAR	K	1	2	3	4	5	6	7	8	9	10	11	12	SPEC. ED.	TOTAL
1992	283	1997-98	319	363	376	319	350	370	336	347	295	258	280	264	244		4121
1993	267	1998-99	291	364	367	374	322	354	364	334	344	283	257	270	259		4183
1994	298	1999-00	325	332	368	365	378	325	349	362	331	330	282	248	265		4260
1995	341	2000-01	372	371	335	386	369	382	320	347	358	318	328	272	243		4381
1996	298	2001-02	325	424	375	333	370	373	376	316	344	344	316	317	267		4482
1997	347	2002-03	378	371	428	373	336	374	367	374	315	330	342	305	311		4604
1998	329 est.	2003-04	358	431	375	426	377	339	368	365	370	302	328	330	299		4668
1999	325 est.	2004-05	354	408	435	373	430	381	334	366	361	355	300	317	323		4737
2000	333 est.	2005-06	363	404	412	433	377	434	375	332	362	347	353	290	311		4793
2001	329 est.	2006-07	358	414	408	410	437	381	427	373	329	348	345	341	284		4855
2002	329 est.	2007-08	359	408	418	406	414	441	375	425	369	316	346	333	334		4944
2003	330 est.	2008-09	360	409	412	416	410	418	434	373	421	354	314	334	326		4981
2004	329 est.	2009-10	359	410	413	410	420	414	412	432	369	404	352	303	327		5025

PROJECTED ENROLLMENTS IN GRADE COMBINATIONS

YEAR	K-4	K-5	K-6	K-8	5-8	6-8	7-8	5-12	9-12
1997-98	1727	2097	2433	3075	1348	978	642	2394	1046
1998-99	1718	2072	2436	3114	1396	1042	678	2465	1069
1999-00	1768	2093	2442	3135	1367	1042	693	2492	1125
2000-01	1813	2195	2515	3220	1407	1025	705	2568	1161
2001-02	1827	2200	2576	3238	1411	1038	662	2655	1244
2002-03	1886	2260	2627	3316	1430	1056	689	2718	1288
2003-04	1967	2306	2674	3409	1442	1103	735	2701	1259
2004-05	2000	2381	2715	3442	1442	1061	727	2737	1295
2005-06	1989	2423	2798	3492	1503	1069	694	2804	1301
2006-07	2027	2408	2835	3537	1510	1129	702	2828	1318
2007-08	2005	2446	2821	3615	1610	1169	794	2939	1329
2008-09	2007	2425	2859	3653	1646	1228	794	2974	1328
2009-10	2012	2426	2838	3639	1627	1213	801	3013	1386

NEW ENGLAND SCHOOL DEVELOPMENT COUNCIL--MARLBOROUGH, MA
DATE: 11-24-1998
SCHOOL DISTRICT: READING, MA (Revised with updated 1997 birth data)
Includes Metco Enrollment

HISTORICAL ENROLLMENTS BY GRADE

3-31-99 revised to add years 2008-09 and 2009-10 to thee base projection of 10-6-97

YEAR	BIRTHS	SCHOOL YEAR	K	1	2	3	4	5	6	7	8	9	10	11	12	SPEC. ED.	TOTAL
																	0
1982	248	1987-88															
1983	257	1988-89	257	295	283	283	273	263	285	253	267	248	234	293	321	48	3603
1984	304	1989-90	274	277	281	294	286	273	265	287	248	286	255	226	279	44	3555
1985	311	1990-91	303	294	278	278	290	287	274	267	285	231	268	248	227	47	3577
1986	296	1991-92	291	336	299	285	280	285	281	276	263	277	230	259	236	42	3640
1987	312	1992-93	309	333	328	299	293	285	279	285	256	252	261	210	261	49	3694
1988	303	1993-94	314	363	337	337	307	294	286	269	291	246	258	261	202		3757
1989	286	1994-95	292	339	355	341	338	315	286	285	268	281	249	242	252		3843
1990	297	1995-96	327	326	351	357	346	340	308	282	291	286	279	241	245		3957
1991	307	1996-97	317	378	327	351	365	347	344	307	279	281	263	257	236		4052
1992	283	1997-98	319	363	376	319	350	370	336	347	296	258	280	264	244		4121

HISTORICAL ENROLLMENTS IN GRADE COMBINATIONS

YEAR	K-4	K-5	K-6	K-8	5-8	6-8	7-8	9-12	9-12
1987-88	0	0	0	0	0	0	0	0	0
1988-89	1391	1654	1939	2459	1068	805	520	2164	1096
1989-90	1412	1685	1950	2485	1073	800	535	2099	1026
1990-91	1443	1730	2004	2566	1113	826	552	2087	974
1991-92	1491	1776	2057	2596	1105	820	539	2107	1002
1992-93	1562	1847	2120	2661	1099	814	541	2083	984
1993-94	1648	1942	2228	2788	1140	846	560	2109	969
1994-95	1665	1980	2286	2819	1154	839	563	2178	1024
1995-96	1705	2045	2353	2926	1221	881	573	2252	1031
1996-97	1738	2085	2429	3015	1277	930	586	2314	1037
1997-98	1727	2097	2433	3075	1348	978	642	2394	1046

HISTORICAL ENROLLMENT DATA
ANNUAL PERCENTAGE CHANGES

Year	Total	Diff.	%
1987-88	0		
1988-89	3603		
1989-90	3555	-48	-1.3
1990-91	3577	22	0.6
1991-92	3640	63	1.8
1992-93	3694	54	1.5
1993-94	3757	63	1.7
1994-95	3843	86	2.3
1995-96	3957	114	3.0
1996-97	4052	95	2.4
1997-98	4121	69	1.7
TOTAL CHANGE 1987-1997		518	14.4

C. Outline of Building Deficiencies Based on Requirements of the Current-Planned Educational Program.

1. Overall

There is an urgent need for a major redesign/reconfiguration of the building to improve the internal circulation patterns, establish appropriate spatial relationships among the several program areas, eliminate the isolation of staff, and provide a more cohesive, inviting and efficient environment for pupils and staff. Refer to earlier sections for more specific space needs as articulated by the staff during the interviews.

2. Fine and Performing Arts

The Fine and Performing Arts programs should be clustered in one interrelated area. A major component of this Arts Cluster would be a refurbished Auditorium with additional space to house a complete Theatre Arts program, including an adjoining "green room" (that can double as a Theatre Arts classroom); changing rooms and pupil restrooms; set storage area; properties room; costume storage room; mini-shop area for set construction. The stage should be available at all times for Theatre Arts classes and not be used as a band/chorus rehearsal room!

- Music: Needs a full-sized band room; a full-sized chorus room plus ancillary spaces as outlined in *Section A-11* of this report.
- Art. Needs studio and classroom space and a gallery that is located nearby and, preferably, in or in close proximity to a major internal traffic pattern area of the building. See A-8.
- Dance. Some provision should be made for a modest dance studio, adjacent to the music/drama area for future program expansion.

If given the proper facilities, closely coordinated and interrelated with each arts discipline, this Fine and Performing Arts cluster area could become an exceptionally dynamic and exciting component of the school. Currently, the music is grossly understaffed, facilities are non-existent, there is no real Theatre Arts/Drama program, and the arts programs are uncoordinated and are scattered and separated throughout the building. This is an opportunity to make a quantum program improvement in this area.

3. **Science**

The labs are, for the most part, obsolete and need substantial upgrading. The layout of the science area is quite unsatisfactory and not at all aligned with what the staff is trying to do. See Section A-12. This area needs to be gutted and redesigned with state-of-the-art lab equipment and major technology upgrades.

4. **Library/Media Center**

A good deal of further thought and consideration needs to be given to this area. First, the future programmatic uses need to be carefully defined. Then, there needs to be some redesign and reconfiguration of the spaces to develop maximum compatibility with the program. Its location is and should remain central in the building mass, with ease of access from all of the program areas. This space is probably ample and it does have some nice amenities...its potential as a real "hub" of the educational program should be developed further.

5. **Physical Education/Athletics**

The physical education program seems right on target with its emphasis on life-long health and wellness. The athletic program likewise appears well developed and wholesome in its philosophy and program offerings. Both programs suffer from serious space limitations. See Sections A-3 and A-4.

Both the old gym and the Fieldhouse need significant upgrading and substantial additional space should be provided to provide equal locker room facilities for girls. One option might be to abandon the old gym...either convert this space to other uses or raze it...and construct a major addition to the existing Fieldhouse to include one or two additional teaching stations (full sized gym, preferably), with a complete array of related areas: two weight training rooms, one for boys athletic teams and one for girls athletic teams; a fully-equipped Athletic Trainer's Room; sufficient locker rooms for both boys and girls; visiting team rooms; male and female coach's rooms; Physical Education teachers offices; Wrestling/Gymnastics Room; a Wellness Room (similar to a "Health Club Room"); ample storage both inside and outside for both P.E. and athletic equipment

and materials/supplies; a segregated and confined concession stand and "eating area" so that food/beverages can be kept off the track and gym court areas. (This is a health and safety matter). The "Castino Field" should be built up, properly drained and made more usable as a field hockey field; there is also the need for an additional soccer field and a baseball diamond.

6. Central Administration

If the Superintendent's office remains in this building, the district-wide Special Education Office, Building/Grounds Dept., and any other district-wide functions should, perhaps, be consolidated in close proximity to the Superintendent's office...both for purposes of getting them out of the mainstream of the high school building and to further internal communications among the district-wide staff.

7. Faculty Team Rooms

Given the current and projected size of the school and assuming that a construction project will result in significant redesign of the building and improvement of internal communications, there remains a need to have common office/work/team areas for the staff. The team room would include a complete staff workstation (desk, files, networked computer, telephone, locked wardrobe unit) for each staff member in the department. These areas might be paired (English and Social Studies; Math and Science; Business and Technology Education; Fine and Performing Arts; etc.) with a workroom between each pair of team rooms (to include: copier; printer; work/conference table; etc.).

8. On "Shared" Classrooms

There are clear and compelling reasons why every teacher should have his/her own classroom, without sharing it with anyone else...special maps, posters, charts and other *realia;* specialized equipment, such as cassette players, overhead projectors; thematic units; carry-over projects; the seating arrangement of the room; set-up and takedown of demonstrations; the ability to speak with a student before or after class.

There is an equally compelling reason why this is difficult to attain...money. Classrooms would not have classes assigned to them 2 or 3 periods each day, which

would be very inefficient and would necessitate overbuilding, well beyond what the state would likely allow. (The state assumes an 85% scheduling factor for the high school.) When enrollments decline and space opens up, schools assign more teachers to their "own rooms". When enrollments increase, teachers have to "share" rooms. However, most teachers can be assigned their four or five teaching periods to the same room; only a few teachers in each department would need to "float", and they can normally be assigned to the same room for 2 or 3 periods. Well-equipped team office/workroom areas will help to alleviate this matter.

9. **Non-High School Use of the Building**

The Administration and staff would do well to give serious consideration to this matter. Unless there is some clear programmatic reason for including non-school functions in the high school (such as a pre-school class to serve as a laboratory class in a sequence of courses in Early Childhood Education, Child Growth and Development), one needs to question this practice. In brief, high school pupils really should have their own facility, their own school designed and programmed for them and their unique needs. To intersperse throughout the building mass the large variety of non-high school operations as is currently the case in Reading High School, would seem to detract from the cohesiveness of the school for 14-18 year olds. If this pattern is to continue, it might be better to gather up all of these non-high school functions and relocate them into one isolated wing of the building.

School Building Assistance
Middle/High School Educational Specifications

Date: January 11, 1999 **Version #:** Preliminary

School District: Reading School District **Type of Project:** New School for Students
School Name: Reading High School Addition of Seats and Core Spaces
Renovation of
Acquisition/Renovation of 1400 Seats and Related Core Facilities

Completed By: Dr. William Zimmerman

ENROLLMENT INFORMATION

Grades	Current Enrollments as of 1998/99 (Yr.)	Projected Enrollments as of 2007/08 (Yr.)
9	283	316
10	257	346
11	270	333
12	259	334
Total	1069	1329

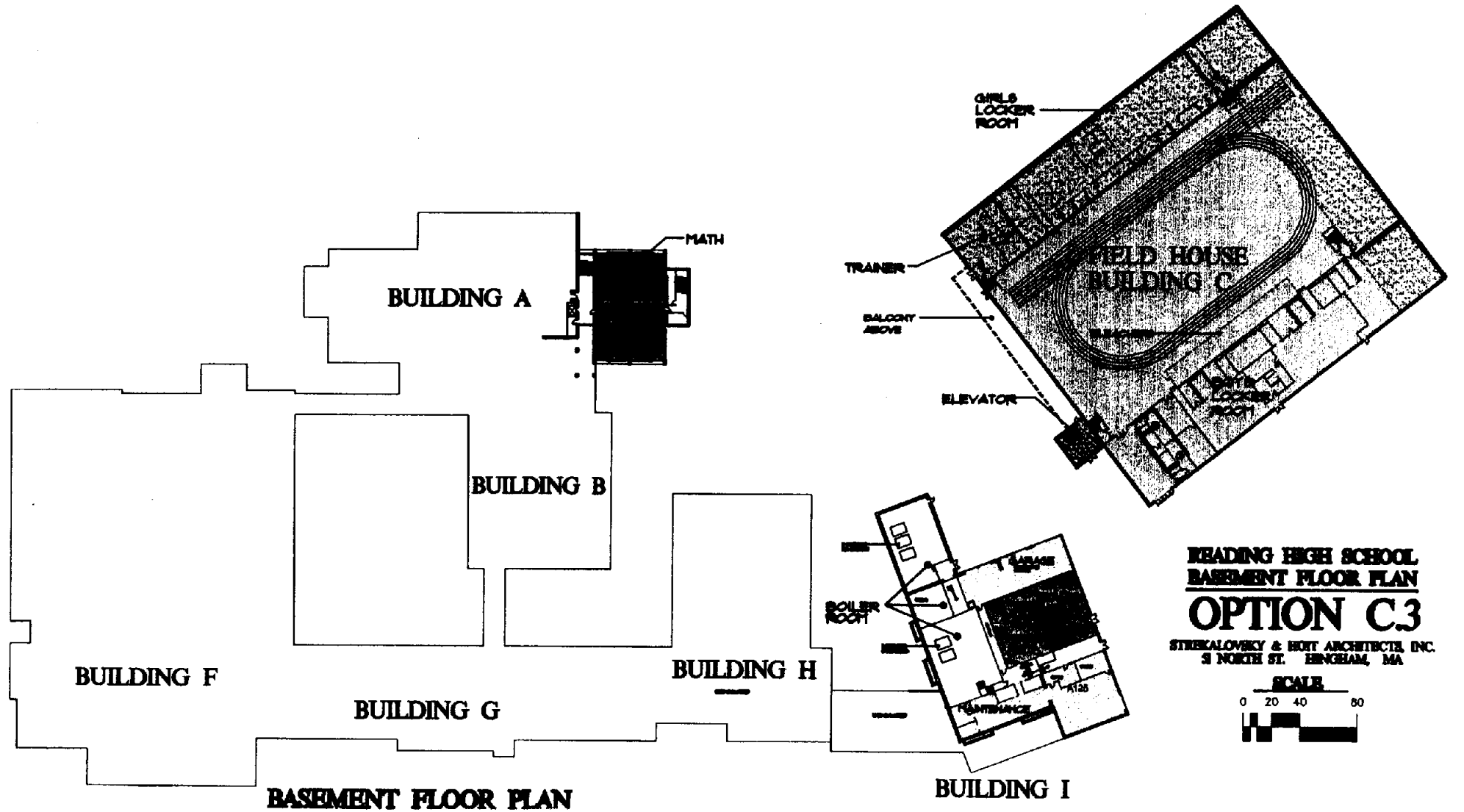
In order to determine the teaching station for the projected enrollment, the following information is needed to complete the Tables on this form.

1) Projected students in each class: the total number of students who will be taking each subject.
2) Class size: the maximum proposed class size for each project.
3) Sections: the number of sections of each course needed to serve the projected enrollment. Divide the total projected enrollment by the class size.
4) Sessions per week: the number of times the class meets each week (usually 3 or 5).
5) Periods per week: the number of periods each day times 5.
6) Teaching stations required for program: multiply the number of sections by the sessions per week that each subject is taught.

LEGEND - 1,600 PUPILS

- OTHER USES
- ADMIN / GUID / CONF / HEALTH
- MATH 13 CR, 1 COMP LAB
- FOREIGN LANGUAGES 13 CR, 1 LANG LAB
- SCIENCE 14 LABS, 1 ALL PURPOSE LAB
- HEALTH 2 CR
- TECHNOLOGY EDUCATION 1 COMP LAB, 1 CR, 1 SHOP
- ART 5 STUDIOS, 1 COMP LAB
- MUSIC 1 BAND / ORCHESTRA, 2 CR, 1 COMP/[illegible] GRAPHIC ARTS)
- BUSINESS 6 CR, 1 COMP LAB
- ENGLISH 13 CR, 1 COMP LAB, 1 READING RM, 1 MINI LAB
- HUMANITIES
- SPECIAL EDUCATION 1 CR, 4 TUTORIALS
- SOCIAL STUDIES 13 CR, 1 COMP LAB
- NEW BUILDING FOOTPRINT
- FACULTY OFFICE DEPARTMENT COLOR
- DRAMA
- PHYSICAL EDUCATION
- CORE FACILITIES / MECH / TOILETS / CUST

ENLAR[illegible]HING 6'
PROVIDE INDIVIDUAL CLASSROOMS FOR EACH TEACHER -
(NO SHARING / LEAVES ROOM FOR GROWTH)
RELOCATE DEPARTMENTAL OFFICES TO SMALLER NON-CLASSROOM SPACES
CREATE DRAMA CENTER AT MUSIC CLASSROOM / STAGE
CONVERT GIRLS GYM TO COMMUNITY USE MINI-AUDITORIUM
CONVERT GIRLS LOCKER ROOM INTO CLASSROOM SPACE
- CONSTRUCT GIRLS LOCKER ROOM ADDITION TO FIELD HOUSE
CONVERT WEIGHT ROOM TO ART SPACE
- NEW WEIGHT ROOM TO BE LOCATED IN ADDITION TO FIELD HOUSE
CONSTRUCT MUSIC ADDITION ADJACENT TO LIBRARY
CONVERT LECTURE HALL TO COMPUTER ASSISTED INSTRUCTIONAL CLASSROOM
CONSTRUCT ADDITIONS TO CAFETERIA
REVISE TRAFIC CIRCULATION AND PARKING AROUND FIELD HOUSE.
REPLACE EXISTING (1) LEVEL TO "ORANGE LOCKERS" LINK TO SCIENCE BUILDING WITH A (2) LEVEL LINK CREATING PROPER CIRCULATION AT SECOND FLOOR.
REPLACE EXISTING (2) LEVEL LINK BETWEEN 1950 BUILDING AND LIBRARY WITH A (3) LEVEL ENCLOSED LINK TO CREATE PROPER CIRCULATION PATTERN AT GROUND AND SECOND FLOOR LEVELS.
NON-HIGH SCHOOL SPACES TO REMAIN:
DISTRICT SPECIAL NEEDS OFFICE
RISE PRE-SCHOOL
MEDIA ONE
DISTRICT MAINTENANCE FACILITY
NON-HIGH SCHOOL SPACES TO BE REMOVED:
REAP
CHINESE CULTURAL CENTER
SEEM COLLABORATIVE

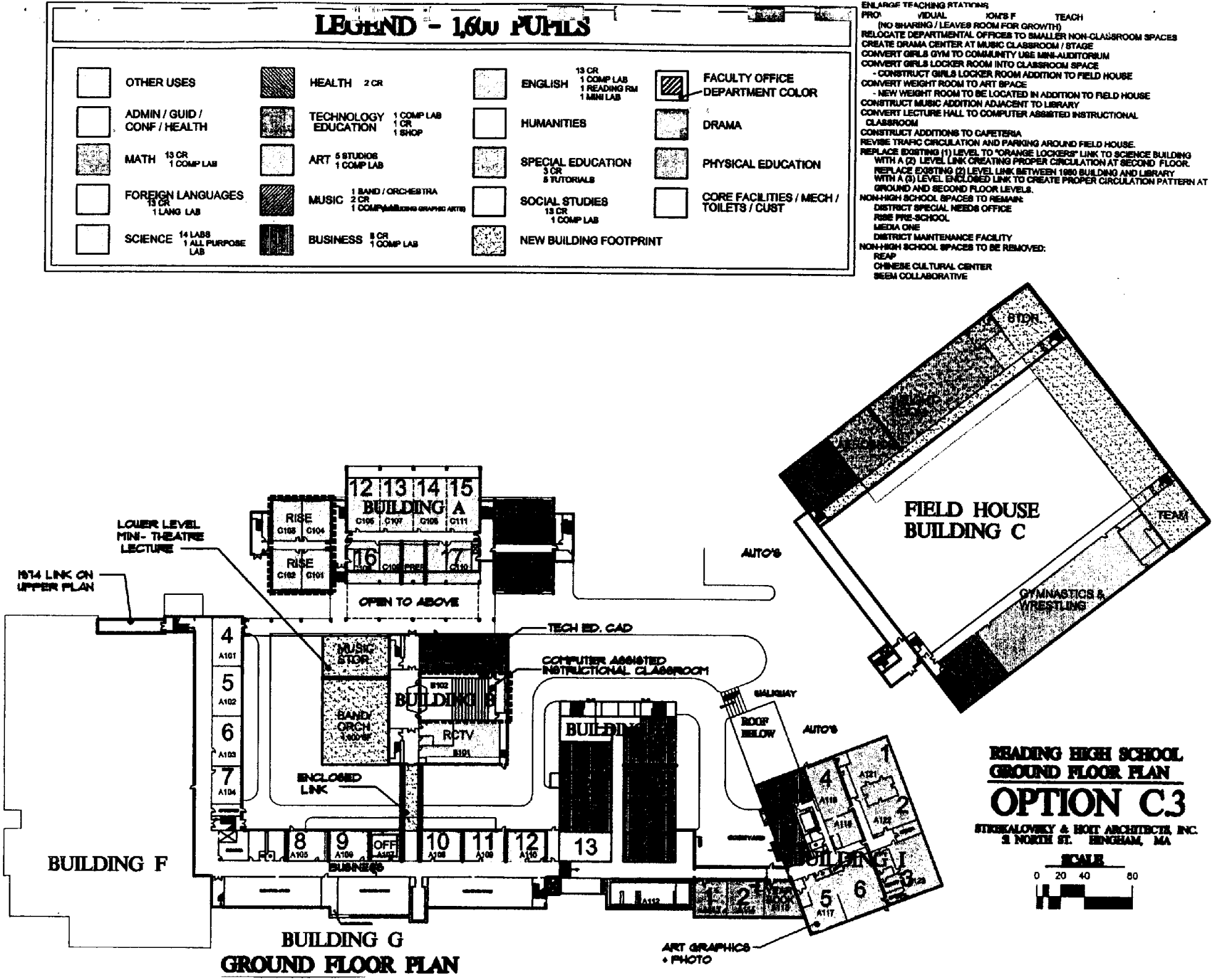


READING HIGH SCHOOL
BASEMENT FLOOR PLAN

OPTION C3

STREKALOVSKY & HOIT ARCHITECTS, INC.
31 NORTH ST. HINGHAM, MA

SCALE
0 20 40 80


LEGEND - 1,600 PUPILS
OTHER USES
ADMIN / GUID / CONF / HEALTH
MATH 13 CR 1 COMP LAB
FOREIGN LANGUAGES 13 CR 1 LANG LAB
SCIENCE 14 LABS 1 ALL PURPOSE LAB
HEALTH 2 CR
TECHNOLOGY EDUCATION 1 COMP LAB 1 CR 1 SHOP
ART 5 STUDIOS 1 COMP LAB
MUSIC 1 BAND / ORCHESTRA 2 CR 1 COMP
BUSINESS 5 CR 1 COMP LAB
ENGLISH 13 CR 1 COMP LAB 1 READING RM 1 MINI LAB
HUMANITIES
SPECIAL EDUCATION 3 CR 5 TUTORIALS
SOCIAL STUDIES 13 CR 1 COMP LAB
NEW BUILDING FOOTPRINT
FACULTY OFFICE DEPARTMENT COLOR
DRAMA
PHYSICAL EDUCATION
CORE FACILITIES / MECH / TOILETS / CUST
ENLARGE TEACHING STATIONS
PRO VIDUAL ION'S F TEACH
(NO SHARING / LEAVES ROOM FOR GROWTH)
RELOCATE DEPARTMENTAL OFFICES TO SMALLER NON-CLASSROOM SPACES
CREATE DRAMA CENTER AT MUSIC CLASSROOM / STAGE
CONVERT GIRLS GYM TO COMMUNITY USE MINI-AUDITORIUM
CONVERT GIRLS LOCKER ROOM INTO CLASSROOM SPACE
- CONSTRUCT GIRLS LOCKER ROOM ADDITION TO FIELD HOUSE
CONVERT WEIGHT ROOM TO ART SPACE
- NEW WEIGHT ROOM TO BE LOCATED IN ADDITION TO FIELD HOUSE
CONSTRUCT MUSIC ADDITION ADJACENT TO LIBRARY
CONVERT LECTURE HALL TO COMPUTER ASSISTED INSTRUCTIONAL CLASSROOM
CONSTRUCT ADDITIONS TO CAFETERIA
REVISE TRAFIC CIRCULATION AND PARKING AROUND FIELD HOUSE.
REPLACE EXISTING (1) LEVEL TO "ORANGE LOCKERS" LINK TO SCIENCE BUILDING WITH A (2) LEVEL LINK CREATING PROPER CIRCULATION AT SECOND FLOOR.
REPLACE EXISTING (2) LEVEL LINK BETWEEN 1950 BUILDING AND LIBRARY WITH A (3) LEVEL ENCLOSED LINK TO CREATE PROPER CIRCULATION PATTERN AT GROUND AND SECOND FLOOR LEVELS.
NON-HIGH SCHOOL SPACES TO REMAIN:
DISTRICT SPECIAL NEEDS OFFICE
RISE PRE-SCHOOL
MEDIA ONE
DISTRICT MAINTENANCE FACILITY
NON-HIGH SCHOOL SPACES TO BE REMOVED:
REAP
CHINESE CULTURAL CENTER
SEEM COLLABORATIVE
STOR.
FIELD HOUSE
BUILDING C
TEAM
GYMNASTICS & WRESTLING
LOWER LEVEL MINI- THEATRE LECTURE
1974 LINK ON UPPER PLAN
AUTO'S
RISE C103 C104
RISE C102 C101
12 13 14 15
BUILDING A
C105 C107 C108 C111
16 17
C109 PREP C110
OPEN TO ABOVE
TECH ED. CAD
COMPUTER ASSISTED INSTRUCTIONAL CLASSROOM
MUSIC STOR.
BAND ORCH
BUILDING B
B102
RCTV
B101
BUILDING D
ROOF BELOW
AUTO'S
4 A101
5 A102
6 A103
7 A104
ENCLOSED LINK
8 A105
9 A106
OFF A107
10 A108
11 A109
12 A110
13
BUSINESS
BUILDING F
BUILDING G
GROUND FLOOR PLAN
BUILDING I
1 A121
2 A122
3 A123
4 A118
A119
5 A117
6
A112
ART GRAPHICS + PHOTO
READING HIGH SCHOOL
GROUND FLOOR PLAN
OPTION C.3
STEKALOWSKY & HOIT ARCHITECTS, INC.
2 NORTH ST. HINGHAM, MA
SCALE
0 20 40 80

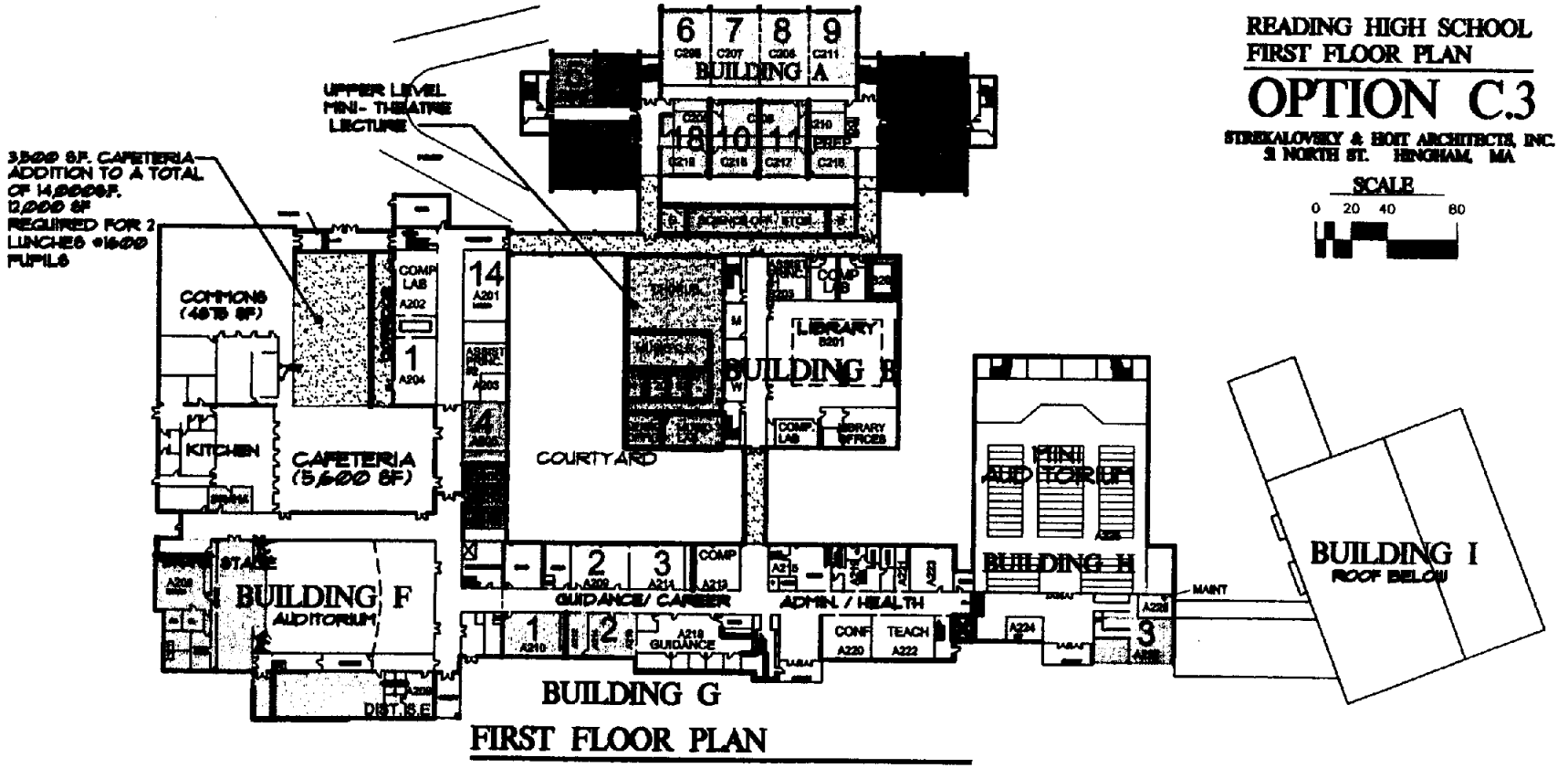
LEGEND - 1,600 PUPILS

OTHER USES	HEALTH 2 CR	ENGLISH 13 CR, 1 COMP LAB, 1 READING RM, 1 MINI LAB	FACULTY OFFICE DEPARTMENT COLOR
ADMIN / GUID / CONF / HEALTH	TECHNOLOGY EDUCATION 1 COMP LAB, 1 CR, 1 SHOP	HUMANITIES	DRAMA
MATH 13 CR, 1 COMP LAB	ART 5 STUDIOS, 1 COMP LAB	SPECIAL EDUCATION 3 CR, 5 TUTORIALS	PHYSICAL EDUCATION
FOREIGN LANGUAGES 13 CR, 1 LANG LAB	MUSIC 1 BAND / ORCHESTRA, 2 CR, 1 COMP/[illegible] GRAPHIC ARTS)	SOCIAL STUDIES 13 CR, 1 COMP LAB	CORE FACILITIES / MECH / TOILETS / CUST
SCIENCE 14 LABS, 1 ALL PURPOSE LAB	BUSINESS 6 CR, 1 COMP LAB	NEW BUILDING FOOTPRINT	

ENLARGE TEACHING STATIONS
PROVIDE INDIVIDUAL CLASSROOMS FOR EACH TEACHER -
(NO SHARING / LEAVES ROOM FOR GROWTH)
RELOCATE DEPARTMENTAL OFFICES TO SMALLER NON-CLASSROOM SPACES
CREATE DRAMA CENTER AT MUSIC CLASSROOM / STAGE
CONVERT GIRLS GYM TO COMMUNITY USE MINI-AUDITORIUM
CONVERT GIRLS LOCKER ROOM INTO CLASSROOM SPACE
- CONSTRUCT GIRLS LOCKER ROOM ADDITION TO FIELD HOUSE
CONVERT WEIGHT ROOM TO ART SPACE
- NEW WEIGHT ROOM TO BE LOCATED IN ADDITION TO FIELD HOUSE
CONSTRUCT MUSIC ADDITION ADJACENT TO LIBRARY
CONVERT LECTURE HALL TO COMPUTER ASSISTED INSTRUCTIONAL CLASSROOM
CONSTRUCT ADDITIONS TO CAFETERIA
REVISE TRAFIC CIRCULATION AND PARKING AROUND FIELD HOUSE.
REPLACE EXISTING (1) LEVEL TO "ORANGE LOCKERS" LINK TO SCIENCE BUILDING WITH A (2) LEVEL LINK CREATING PROPER CIRCULATION AT SECOND FLOOR.
REPLACE EXISTING (2) LEVEL LINK BETWEEN 1950 BUILDING AND LIBRARY WITH A (3) LEVEL ENCLOSED LINK TO CREATE PROPER CIRCULATION PATTERN AT GROUND AND SECOND FLOOR LEVELS.

NON-HIGH SCHOOL SPACES TO REMAIN:
DISTRICT SPECIAL NEEDS OFFICE
RISE PRE-SCHOOL
MEDIA ONE
DISTRICT MAINTENANCE FACILITY

NON-HIGH SCHOOL SPACES TO BE REMOVED:
REAP
CHINESE CULTURAL CENTER
SEEM COLLABORATIVE



BUILDING G
FIRST FLOOR PLAN

READING HIGH SCHOOL
FIRST FLOOR PLAN
OPTION C.3

STREKALOVSKY & HOIT ARCHITECTS, INC.
31 NORTH ST. HINGHAM, MA

SCALE
0 20 40 80

LEGEND - 1,600 PUPILS

- OTHER USES
- ADMIN / GUID / CONF / HEALTH
- MATH 13 CR, 1 COMP LAB
- FOREIGN LANGUAGES 13 CR, 1 LANG LAB
- SCIENCE 14 LABS, 1 ALL PURPOSE LAB
- HEALTH 2 CR
- TECHNOLOGY EDUCATION 1 COMP LAB, 1 CR, 1 SHOP
- ART 5 STUDIOS, 1 COMP LAB
- MUSIC 1 BAND / ORCHESTRA, 2 CR, 1 COMP LAB (Long w/ GRAPHIC ARTS)
- BUSINESS 6 CR, 1 COMP LAB
- ENGLISH 13 CR, 1 COMP LAB, 1 READING RM, 1 MINI LAB
- HUMANITIES
- SPECIAL EDUCATION 3 CR, 5 TUTORIALS
- SOCIAL STUDIES 13 CR, 1 COMP LAB
- NEW BUILDING FOOTPRINT
- FACULTY OFFICE DEPARTMENT COLOR
- DRAMA
- PHYSICAL EDUCATION
- CORE FACILITIES / MECH / TOILETS / CUST

ENLARGE TEACHING STATIONS
PROVIDE INDIVIDUAL CLASSROOMS FOR EACH TEACHER -
(NO SHARING / LEAVES ROOM FOR GROWTH)
RELOCATE DEPARTMENTAL OFFICES TO SMALLER NON-CLASSROOM SPACES
CREATE DRAMA CENTER AT MUSIC CLASSROOM / STAGE
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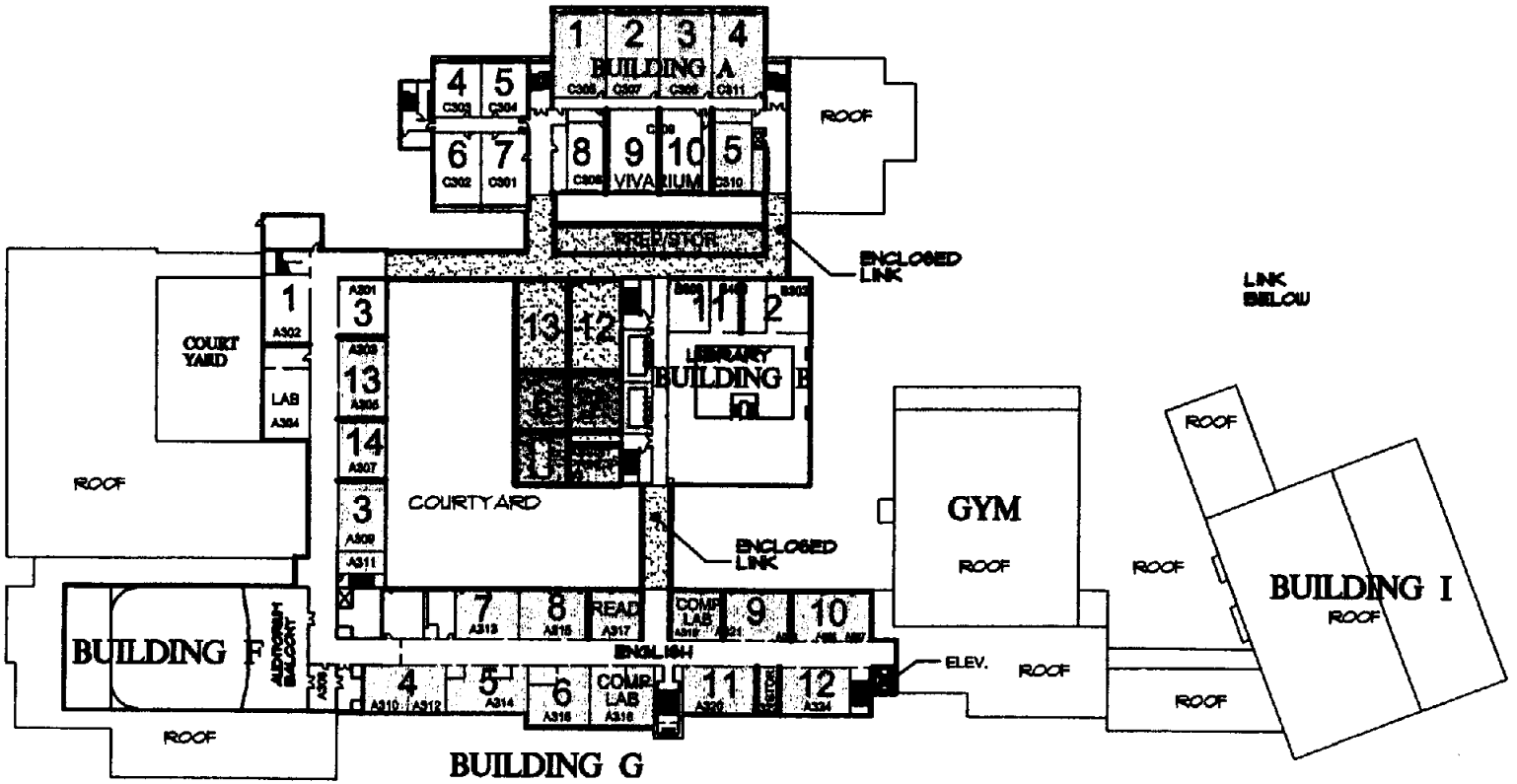
CONVERT GIRLS LOCKER ROOM INTO CLASSROOM SPACE
- CONSTRUCT GIRLS LOCKER ROOM ADDITION TO FIELD HOUSE
CONVERT WEIGHT ROOM TO ART SPACE
- NEW WEIGHT ROOM TO BE LOCATED IN ADDITION TO FIELD HOUSE
CONSTRUCT MUSIC ADDITION ADJACENT TO AUDITORIUM
CONVERT LECTURE HALL TO COMPUTER ASSISTED INSTRUCTIONAL CLASSROOM, CONSTRUCT
CONSTRUCT ADDITIONS TO CAFETERIA
REVISE TRAFIC CIRCULATION AND PARKING AROUND FIELD HOUSE.
REPLACE EXISTING (1) LEVEL TO "ORANGE LOCKERS" LINK TO SCIENCE BUILDING WITH A (2) LEVEL LINK CREATING PROPER CIRCULATION AT SECOND FLOOR.
REPLACE EXISTING (2) LEVEL LINK BETWEEN 1950 BUILDING AND LIBRARY WITH A (3) LEVEL ENCLOSED LINK TO CREATE PROPER CIRCULATION PATTERN AT GROUND AND SECOND FLOOR LEVELS.
NON-HIGH SCHOOL SPACES TO REMAIN:
DISTRICT SPECIAL NEEDS OFFICE
RISE PRE-SCHOOL
MEDIA ONE
DISTRICT MAINTENANCE FACILITY
NON-HIGH SCHOOL SPACES TO BE REMOVED:
REAP
CHINESE CULTURAL CENTER
SISSM COLLABORATIVE



BUILDING G
SECOND FLOOR PLAN

READING HIGH SCHOOL
SECOND FLOOR PLAN

OPTION C.3

STEFKALOVSKY & HOIT ARCHITECTS, INC.
51 NORTH ST. HINGHAM, MA

SCALE
0 20 40 80

In order to determine the number of NEW teaching stations needed for projected enrollments, the following information is needed:

1) After you determine the total number of teaching stations required, subtract the number of teaching stations currently available from the teaching stations required to support your educational program, to determine the number of new stations that will be needed to serve the projected enrollment (only needed for additions).

2) Determine the net area of each station, both new and existing (proposed renovations). Include storage space:

Subtotal the net basic educational space, the net miscellaneous space and the gross square footage; these figures will be used in the space computations on the last page and are necessary to evaluate the efficiency of the structure.

The following column designations and calculations will determine the net educational space to be renovated and/or newly constructed:

A	B	C	D	E	F	G	H	I	J	K	L	M	N
Subject	Projected Students per Class	Class Size	Sections	Sessions per Week	Total Sessions	Periods per Week	Total Stations Required	Stations Available	Sq.Ft. each Station	Total Area Available	New Stations Required	Sq.Ft. each Station	Total Area New

Calculations

Step 1: Sections

$\frac{B}{C}$ =D

Step2: Total Sessions

D x E =F

Step 3: Stations Required

$\frac{F}{G}$ =H

Step 4: New Stations Needed

H - I =L

Step 5: Total Area Available

I x J =K

Step 6: Total New Area to be built

L x M =N

TABLE 1 - BASIC EDUCATIONAL SPACE FOR PLANNED PROGRAM

A	B	C	D	E	F	G	H	I	J	K	L	M	N
Subject	Projected Students per Class	Class Size	Sections	Sessions per Week	Total Sessions	Periods per Week	Total Stations Required	Stations Available	Sq.Ft. each Station	Total area Available	New Stations Required	Sq.Ft. each Station	Total Area New
Music													
Band/Orchestra	150	varies	(incl.: ensembles; practice; instr. storage, etc.)				1	0	0	0	1	4000	4000
Music Classroom	70	10	7	5	35	35	1	0	0	0	1	850	850
Choral Music	150	varies	varies		varies		1	1	1200	1200	0	0	0
Elect. Music Lab	50	5 – 10	5	3	15	35	1	0	0	0	1	500	500
Special Education													
Learning Center	200	5 – 10	varies	1 – 5	varies	varies	3	3	500	1500	1	500	500
Speech/Language	50	1 to 2	7	1 – 5	245	35	1	0	800	0	1	800	800
Sp.Ed. Classroom	8 – 12	8 – 12	2 (self-contained classroom)				2	1	1000	0	1	1000	1000
OT/PT	varies	1 – 3	varies	1 – 5	varies	varies	1	0	400	0	1	400	400
Conference Room							1	0	360	0	1	350	350
Physical Education/Wellness													
Physical Education	1000	25	40	2.5	100	35	4	4			0	0	0
Health/Decisions	350	20	8	2.5	20	35	2	2			0		
Weight Training	varies	20	varies	3	varies	35	1	1			0		
Locker/Team Rooms	Major need to expand												
Storage	Major need to expand												
Other													
Computer Labs	varies	15 – 25	varies	varies	varies	35	5	3	696	1392	2	800	1600
Theater Arts Classroom	150	15 – 25	8	5	40	35	1	0	0	0	1	1500	1500
Collaborative	30+	15 self. cont.		5	self. cont.	35	1	1	700	1400	0	0	0
Large Group Instruction	varies	n/a				varies	1	1					

Art/Tech.ed.; English; Social Studies; Math/Science; Business/Technology

TABLE 2 - CONTINUED

Miscellaneous Educational Space

Station/Space	Sq.Ft Required	-	Sq.Ft Available	=	New Area Needed	Comments
Administration	1500	-	1600	=	-100	Actually needs more space
Auditorium/Stage	12000	-	11313	=	687	Capacity: 1,100 (plus community use)
Cafeteria	10500	-	11563	=	-1063	Seatings: two (community use
Guidance	1000	-	2991	=	-1991	Actually, needs more space
Health Suite	1000	-	760	=	240	
Library/IMC	10000	-	10250	=	-250	Fully utilized
Locker/Shower Rooms and Storage	20000	-	20750	=	-750	Need more team rooms & athletic storage
Kitchen	2400	-	5861	=	-3461	Services two cafeterias
Teachers' Dining	1000	-	625	=	375	
Teachers' Workrooms	8500	-	9132	=	-632	
Student Activities	3000	-	3000	=	0	
School Strorage	15000	-	7000	=	8000	
Sub-Total	85900	-	84845	=	1055	

Architectural Development Options

Overview:

A number of potential options were developed as part of this study in an attempt to meet the long term physical, educational, and space needs identified in this report.

The seven options presented in this section all meet the projected ten year enrollment needs for 1,400 students. Of the seven however, only six meet the longer term enrollment needs for 1,600 students (Option A does not).

In light of the fact that Option A is not eligible for state reimbursement, the study team has classified Options B.1, B.2, C.1, C.2, C.3 and D as 'viable' options. Even though all six of these options meet the long term enrollment needs, they do differ significantly in the extent to which they meet the required educational needs. The differences are evident in the way the options reconfigure the existing school facility and the impact that these renovations and/or additions have on both high school programs and 'non-high school uses' which are currently housed in the building.

The simplest option, Option A, involves only administrative changes and necessary upgrades to building's mechanical, electrical, and accessibility systems. There are no renovations or additions involved which would reconfigure existing space or address educational deficiencies. Because it does not meet the long term programmatic and enrollment needs, this option is not eligible for state reimbursement.

Options B.1 and B.2 involve extensive reconfiguration of space within the existing building to meet the long term programmatic and enrollment needs of the high school. Because they do not involve additions, these options require the removal of either some or most of the non-high school uses which currently are housed in the building. Under Option B.1, most non-high school uses are removed in order to allow for the expansion of undersized classrooms. Under Option B.2, undersized classrooms are not enlarged. This allows some of the non-high school uses to remain within the building.

Options C.1, C.2, and C.3 combine extensive renovations of the existing building with the construction of small additions. These three options are unique in that they address the inequities that exists between the boys and girls physical education programs. Of these, Options C.2 and C.3 are the more complicated options. In addition to providing female locker facilities within the fieldhouse and/or other additions, they combine extensive reconfiguration of space within the existing building with new multi-story links between the administrative, library, and science wings of the existing building.

The final option explored was the construction of a new multi-story school on the same site (Option D). The configuration of the site would suggest that the new building be placed in the same location as the existing school. This would allow the flat portions of the site to remain as playfields. In many ways, this is the most complicated of the options from a phasing perspective. An alternative location is also explored which would allow

Option A: Administrative Changes

Option A was explored by the study committee as a response to the question: 'What is the ultimate enrollment capacity of this building if things remain 'status quo', i.e.: the existing educational program and non-high school uses within the building remain in place and little, if anything, is done to physically upgrade the facility beyond necessary mechanical/electrical and handicap access issues?'

Option A has the least expensive project cost (in absolute terms) and is the least physically disruptive of the options explored by the study team. However, because it does little to address the educational deficiencies within the school and does not meet the long-term enrollment needs, the Department of Education will not consider it for reimbursement. Without 66% reimbursement from the Commonwealth, this option actually becomes the fourth most costly to the Town of Reading of the six options explored by the study team.

The costs associated with Option A in the budget overview presented in the Executive Summary revolve around necessary improvements to the mechanical/electrical systems and compliance with architectural access regulations.

At best, the administrative changes outlined under Option A provide the school department with a short term, interim means of housing some increased enrollments. The long term enrollment need of 1,600 students can not be accommodated under the assumptions established for Option A. It would make little sense to implement any of the mechanical/electrical or accessibility upgrades required within the facility because these costs will not be eligible for 66% reimbursement.

Short term enrollment needs would be addressed by freeing up existing classroom space from programs which can be relocated elsewhere. This comes in the form of capturing five classroom-sized spaces which are currently being used as departmental offices and also capturing an additional five classrooms by asking each of the major departments (science, math, social studies, english, and foreign languages) to make use of one shared classroom per department. In this manner, the school could add ten classrooms to it's educational inventory and increase Current Operating Capacity from it's current 1,299 (see Educational Analysis portion of this study) to approximately 1,500 students.

Option A does not enlarge undersized classrooms or address educational deficiencies within the school such as providing proper music/drama facilities. Option A also does not address the deficiencies in the girls physical education program, nor any of the circulation or architectural systems issues within the building.

Under Option A, the existing non-high school uses remain in place within the building: the district's school department offices (4 classrooms), special needs office (0 classrooms), and maintenance facility (0 classrooms); the district sponsored RISE special needs preschool (4 classrooms) and SEEM special needs collaborative(1 classroom); the REAP program (2 classrooms), Media One cable tv studios (1 classroom), and the Chinese Cultural Office (0 classrooms). As Option B.2 shows, it is possible that classroom space for high school programs could be captured should any of these programs be removed from the building, however, with the exception of REAP (2 classrooms) and possibly

Reading Memorial High School					Option A: Administrative Changes			
					(necessary mechanical and ADA upgrades)			
	existing	Renovations			New Construciton			
	sf	sf	$/sf	total	sf	$/sf	total	
Bldg I: Art/Boiler								
basement	16000	16,000	$ 30	$ 480,000			$	-
ground	15000	15,000	$ 30	$ 450,000			$	-
Bldg. H: Girls Gym/Locker								
ground (girls lockers)	20000	20,000	$ 30	$ 600,000			$	-
first (convert gym to music)	17000	17,000	$ 30	$ 510,000			$	-
Bldg. G: 1950 Academic Wing								
ground	28000	28,000	$ 30	$ 840,000			$	-
first	19250	19,250	$ 30	$ 577,500			$	-
second	30000	30,000	$ 30	$ 900,000			$	-
Link: 1950 Wing to Library (Bldg. G to Bldg. B)								
first	800	800	$ 30	$ 24,000			$	-
Bldg B: Library								
ground	10500	10,500	$ 30	$ 315,000			$	-
first	10500	10,500	$ 30	$ 315,000			$	-
second	9200	9,200	$ 30	$ 276,000			$	-
Link: Library to Math/Science (Bldg. B to Bldg. A)								
first	3500	3,500	$ 30	$ 105,000				
Bldg. A: Math/Science								
supt. office (basement plan)	5325	5,325	$ 30	$ 159,750			$	-
ground	18000	18,000	$ 30	$ 540,000			$	-
first	21000	21,000	$ 30	$ 630,000			$	-
second	16250	16,250	$ 30	$ 487,500			$	-
Bldg. F: Auditorium/Music/Balcony								
first and balcony	13500	13,500	$ 30	$ 405,000			$	-
Bldg. F: Cafeteria/Kitchen/Commons								
first	30750	30,750	$ 30	$ 922,500			$	-
Bldg. C: Fieldhouse								
play surface (basement plan)	33000	33,000	$ 30	$ 990,000			$	-
boys lockers	11500	11,500	$ 30	$ 345,000			$	-
wrestling	11500	11,500	$ 30	$ 345,000				
girls lockers (incl. mech. link)	0						$	-
weight room	0						$	-
auxillary gymnasium	0						$	-
Link: Field House to School (Bldg. H to Bldg. C)								
ground	0						$	-
Sitework Allowance: Drives, Parking, Fields				$ 700,000				
Subtotals	340575	340,575	$ 30	$ 10,917,250	-		$	-
Total 1999 Construction Cost: Option A			-		***340,575***	***$ 32***	***$ 10,917,250***	

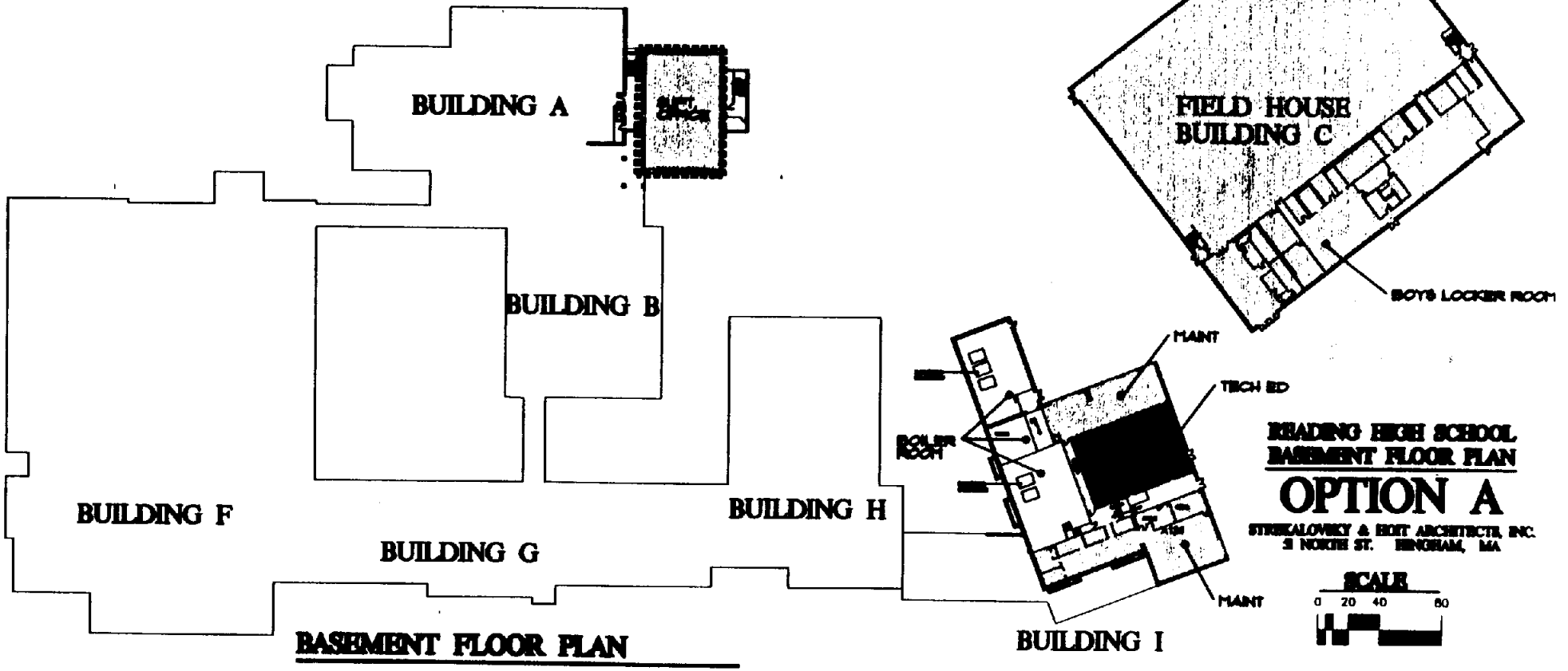
LEGEND - 1500 PUPILS

- OTHER USES
- ADMIN / GUID / CONF / HEALTH
- MATH 11 CR, 1 COMP LAB
- FOREIGN LANGUAGES 8 CR, 1 LANG LAB
- SCIENCE 13 LABS, PREP ROOMS, OFFICE
- HEALTH 2 CR
- TECHNOLOGY EDUCATION 1 COMP LAB, 1 CR, 1 SHOP
- ART 5 STUDIOS (INCLUDING GRAPHIC ARTS), 1 COMP LAB
- MUSIC 1 BAND / ORCHESTRA, 1 CR
- BUSINESS 6 CR, 1 COMP LAB
- ENGLISH 11 CR, 1 COMP LAB, 1 READING RM, 1 MINI LAB
- HUMANITIES
- SPECIAL EDUCATION 1 CR, 4 TUTORIALS
- SOCIAL STUDIES 11 CR, 1 COMP LAB
- NEW ENCLOSED LINKS
- FACULTY OFFICE DEPARTMENT COLOR
- DRAMA
- PHYSICAL EDUCATION
- CORE FACILITIES / MECH / TOILETS / CUST
- POTENTIAL CLASSROOMS

TEACHING STATIONS REMAIN THE SAME SIZE (SOME UNDERSIZED)
(NOT REIMBURSABLE BY DEPARTMENT OF EDUCATION)
RELOCATE DEPARTMENT HEADS TO SMALLER, NON-CLASSROOM SPACES
EACH DEPARTMENT TO SHARE CLASSROOM SPACE
MUSIC AND DRAMA SPACE NEEDS ARE NOT ADDRESSED
GIRLS PHYSICAL EDUCATION DEFICIENCIES ARE NOT ADDRESSED

NON-HIGH SCHOOL USES TO REMAIN

- SUPERINTENDENT'S OFFICE
- DISTRICT SPECIAL NEEDS OFFICE
- SEEM COLLABORATIVE
- DISTRICT MAINTENANCE FACILITY
- RISE PRESCHOOL
- REAP
- RCTV
- CHINESE CULTURAL CENTER



BASEMENT FLOOR PLAN

READING HIGH SCHOOL
BASEMENT FLOOR PLAN

OPTION A

STREKALOVSKY & HOIT ARCHITECTS, INC.
3 NORTH ST. BINGHAM, MA

SCALE
0 20 40 80

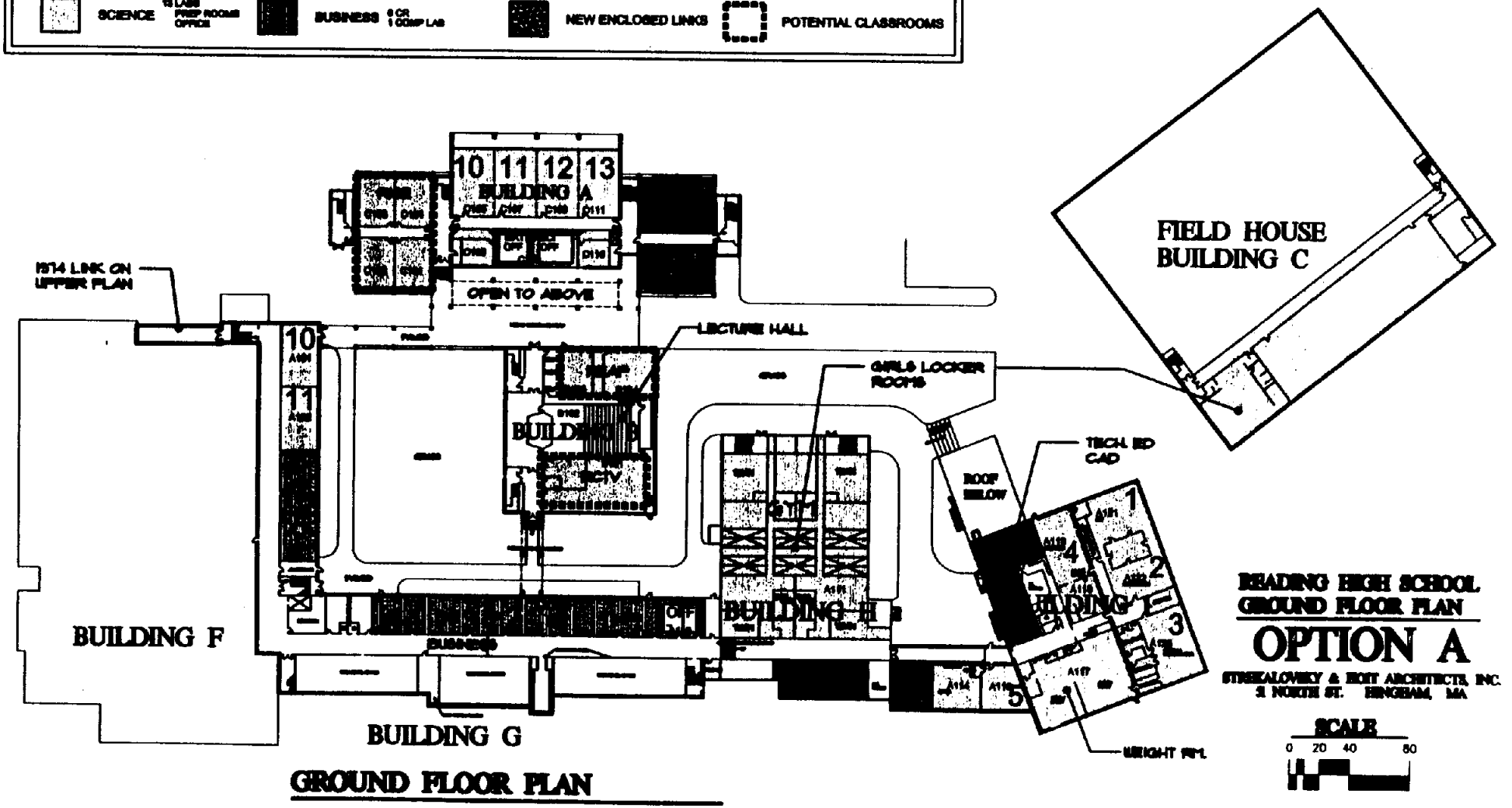
LEGEND - 1500 PUPILS

- OTHER USES
- ADMIN / GUID / CONF / HEALTH
- MATH 11 CR, 1 COMP LAB
- FOREIGN LANGUAGES 10 CR, 1 LANG LAB
- SCIENCE 10 LABS, PREP ROOMS, OFFICE
- HEALTH 2 CR
- TECHNOLOGY EDUCATION 1 COMP LAB, 1 CR, 1 SHOP
- ART 6 STUDIOS (INCLUDES GRAPHIC ARTS), 1 COMP LAB
- MUSIC 1 BAND / ORCHESTRA, 1 CR
- BUSINESS 6 CR, 1 COMP LAB
- ENGLISH 11 CR, 1 COMP LAB, 1 READING RM, 1 MINI LAB
- HUMANITIES
- SPECIAL EDUCATION 1 CR, 4 TUTORIALS
- SOCIAL STUDIES 11 CR, 1 COMP LAB
- NEW ENCLOSED LINKS
- FACULTY OFFICE DEPARTMENT COLOR
- DRAMA
- PHYSICAL EDUCATION
- CORE FACILITIES / MECH / TOILETS / CUST
- POTENTIAL CLASSROOMS

TEACHING STATIONS REMAIN THE SAME SIZE (SOME UNDERSIZED)
(NOT REIMBURSABLE BY DEPARTMENT OF EDUCATION)
RELOCATE DEPARTMENT HEADS TO SMALLER, NON-CLASSROOM SPACES
EACH DEPARTMENT TO SHARE CLASSROOM SPACE
MUSIC AND DRAMA SPACE NEEDS ARE NOT ADDRESSED
GIRLS PHYSICAL EDUCATION DEFICIENCIES ARE NOT ADDRESSED

NON-HIGH SCHOOL USES TO REMAIN

SUPERINTENDENTS OFFICE
DISTRICT SPECIAL NEEDS OFFICE
SEEM COLLABORATIVE
DISTRICT MAINTENANCE FACILITY
RISE PRESCHOOL
REAP
RCTV
CHINESE CULTURAL CENTER



GROUND FLOOR PLAN

READING HIGH SCHOOL
GROUND FLOOR PLAN

OPTION A

STREGALOWSKY & BOIT ARCHITECTS, INC.
3 NORTH ST. HINGHAM, MA

SCALE
0 20 40 80

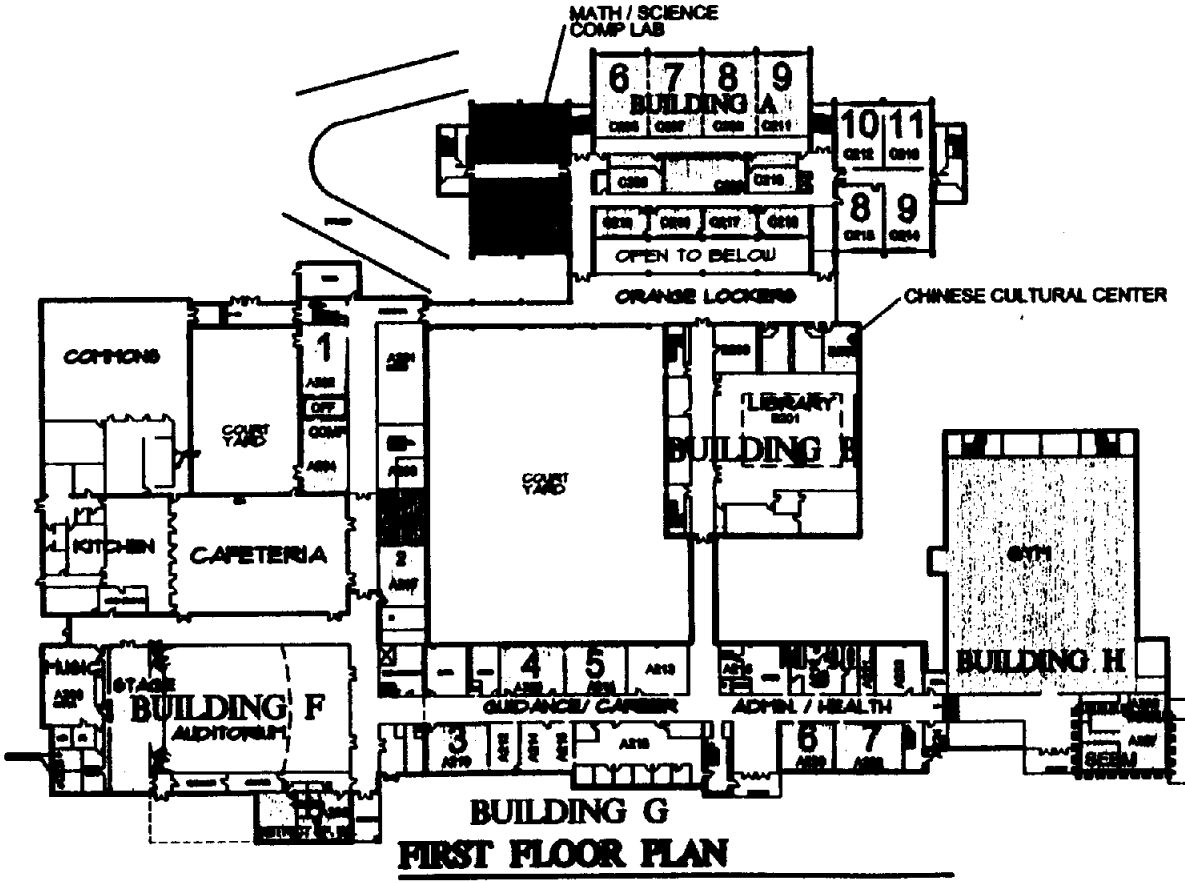
LEGEND - 1500 PUPILS

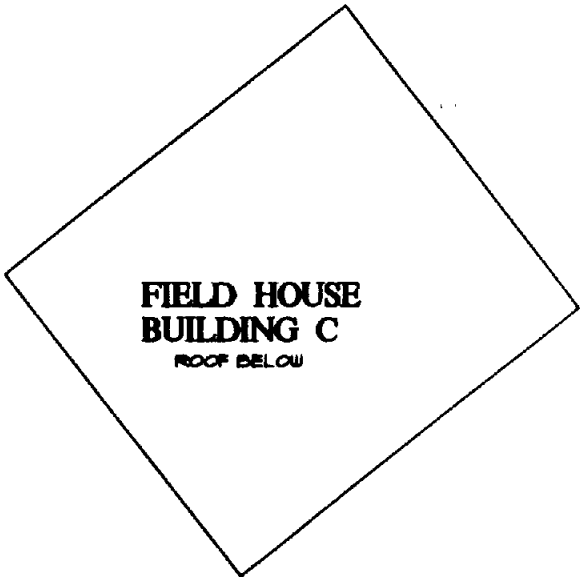
- OTHER USES
- ADMIN / GUID / CONF / HEALTH
- MATH 11 CR, 1 COMP LAB
- FOREIGN LANGUAGES 10 CR, 1 LANG LAB
- SCIENCE 13 LABS, PREP ROOMS, OFFICE
- HEALTH 2 CR
- TECHNOLOGY EDUCATION 1 COMP LAB, 1 CR, 1 SHOP
- ART 8 STUDIOS (INCLUDING GRAPHIC ARTS), 1 COMP LAB
- MUSIC 1 BAND / ORCHESTRA, 1 CR
- BUSINESS 6 CR, 1 COMP LAB
- ENGLISH 11 CR, 1 COMP LAB, 1 READING RM, 1 MINI LAB
- HUMANITIES
- SPECIAL EDUCATION 1 CR, 4 TUTORIALS
- SOCIAL STUDIES 11 CR, 1 COMP LAB
- NEW ENCLOSED LINKS
- FACULTY OFFICE DEPARTMENT COLOR
- DRAMA
- PHYSICAL EDUCATION
- CORE FACILITIES / MECH / TOILETS / CUST
- POTENTIAL CLASSROOMS

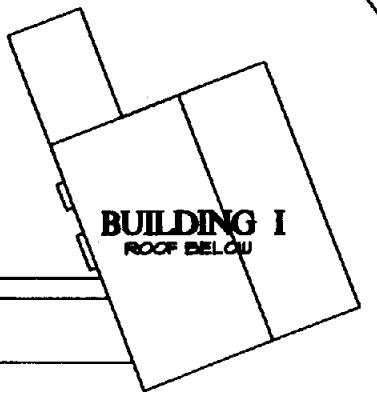
TEACHING STATIONS REMAIN THE SAME SIZE (SOME UNDERSIZED)
(NOT REIMBURSABLE BY DEPARTMENT OF EDUCATION)
RELOCATE DEPARTMENT HEADS TO SMALLER, NON-CLASSROOM SPACES
EACH DEPARTMENT TO SHARE CLASSROOM SPACE
MUSIC AND DRAMA SPACE NEEDS ARE NOT ADDRESSED
GIRLS PHYSICAL EDUCATION DEFICIENCIES ARE NOT ADDRESSED

NON-HIGH SCHOOL USES TO REMAIN

SUPERINTENDENT'S OFFICE
DISTRICT SPECIAL NEEDS OFFICE
SEEM COLLABORATIVE
DISTRICT MAINTENANCE FACILITY
RISE PRESCHOOL
REAP
RCTV
CHINESE CULTURAL CENTER







READING HIGH SCHOOL
FIRST FLOOR PLAN

OPTION A

STREKALOVSKY & HOIT ARCHITECTS, INC.
31 NORTH ST. BINGHAM, MA

SCALE
0 20 40 80

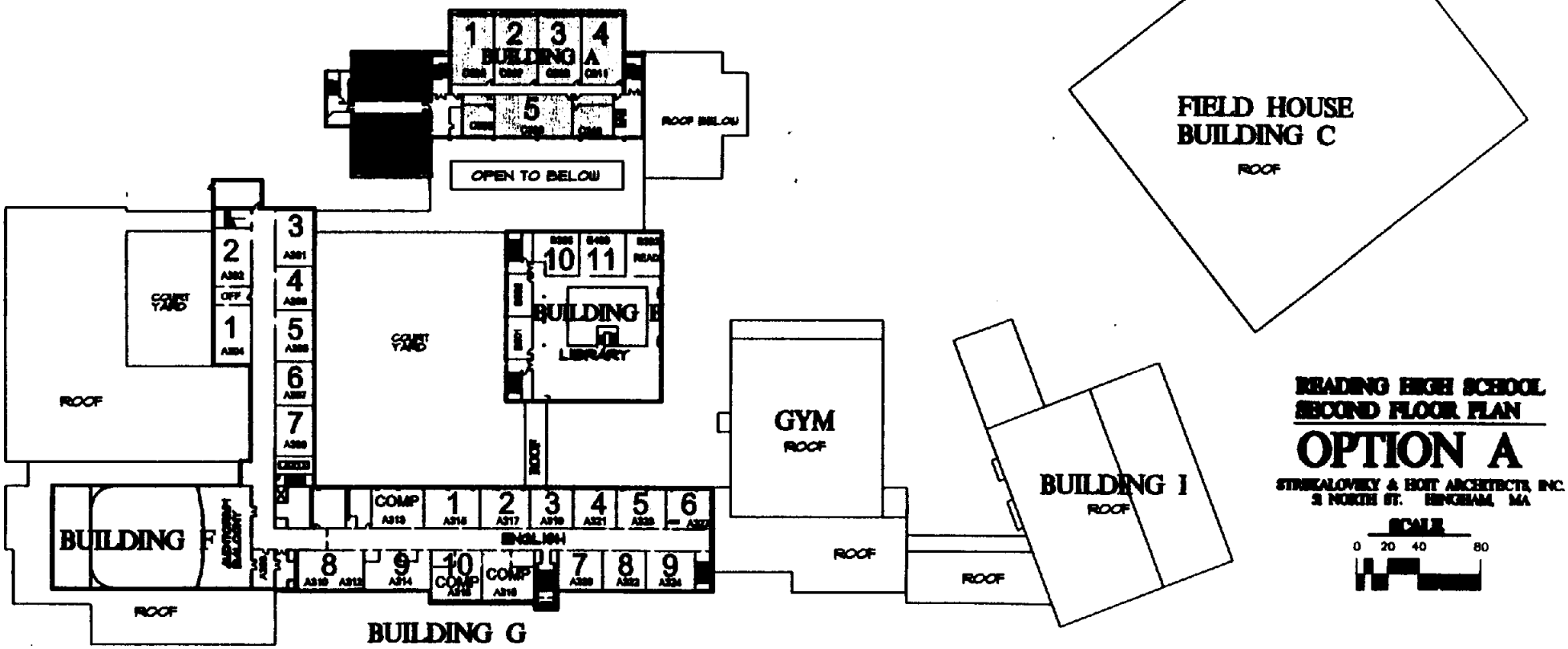
LEGEND - 1500 PUPILS

- OTHER USES
- ADMIN / GUID / CONF / HEALTH
- MATH 11 CR, 1 COMP LAB
- FOREIGN LANGUAGES 10 CR, 1 LANG LAB
- SCIENCE 13 LABS, PREP ROOMS, OFFICE
- HEALTH 2 CR
- TECHNOLOGY EDUCATION 1 COMP LAB, 1 CR, 1 SHOP
- ART 5 STUDIOS (EXCLUDING GRAPHIC ARTS), 1 COMP LAB
- MUSIC 1 BAND / ORCHESTRA, 1 CR
- BUSINESS 6 CR, 1 COMP LAB
- ENGLISH 11 CR, 1 COMP LAB, 1 READING RM, 1 MINI LAB
- HUMANITIES
- SPECIAL EDUCATION 1 CR, 4 TUTORIALS
- SOCIAL STUDIES 11 CR, 1 COMP LAB
- NEW ENCLOSED LINKS
- FACULTY OFFICE - DEPARTMENT COLOR
- DRAMA
- PHYSICAL EDUCATION
- CORE FACILITIES / MECH / TOILETS / CUST
- POTENTIAL CLASSROOMS

TEACHING STATIONS REMAIN THE SAME SIZE (SOME UNDERSIZED)
(NOT REIMBURSABLE BY DEPARTMENT OF EDUCATION)
RELOCATE DEPARTMENT HEADS TO SMALLER, NON-CLASSROOM SPACES
EACH DEPARTMENT TO SHARE CLASSROOM SPACE
MUSIC AND DRAMA SPACE NEEDS ARE NOT ADDRESSED
GIRLS PHYSICAL EDUCATION DEFICIENCIES ARE NOT ADDRESSED

NON-HIGH SCHOOL USES TO REMAIN

SUPERINTENDENTS OFFICE
DISTRICT SPECIAL NEEDS OFFICE
SEEM COLLABORATIVE
DISTRICT MAINTENANCE FACILITY
RISE PRESCHOOL
REAP
RCTV
CHINESE CULTURAL CENTER



SECOND FLOOR PLAN

READING HIGH SCHOOL
SECOND FLOOR PLAN

OPTION A

STREKALOVSKY & HOIT ARCHITECTS, INC.
5 NORTH ST. BINGHAM, MA

SCALE
0 20 40 80

Options B.1 and B.2: Renovations within the Existing Building Envelope

Options B.1 and B.2 were explored by the study committee as a response to the question: 'What is the ultimate effect on this building if enrollment needs are met and educational deficiencies are addressed to the best of the town's ability without enlarging the existing building?'

Option B.1 assumes that the undersized classroom spaces within the building are enlarged to improve the educational program. This results in less available space within the building and forces the removal of the superintendent's offices and the RISE preschool.

Option B.2 attempts to maintain space for either the superintendent's offices or the RISE preschool (both require space equivalent to four classrooms). In order to accomplish this goal, the undersized classroom spaces within the building must remain.

Both Options B.1 and B.2 are considered fully reimbursable by the Department of Education. Because they limit themselves to renovations only, and are 66% reimbursable, they are the two least expensive project costs to the Town of Reading (after state reimbursement).

Option B.1

Though some enrollment capacity is lost through the enlargement of undersized classrooms, Option B.1 makes up for this by increasing enrollment capacity through the same 'administrative changes' outlined under Option A (remove departmental offices from classroom-sized spaces and share classrooms) and by freeing up existing classroom space used by some of the non-high school programs which are housed in the building.

The school would lose capacity for approximately 300 students by taking classrooms off-line as part of the enlargement program and providing proper space for music/drama and a foreign language lab. However, the school would gain capacity for approximately 200 students through the administrative changes and another 240 students by capturing classroom space currently used by the following non-high school programs: RISE preschool (4 classrooms), REAP (2 classrooms), Media One (1 classroom), the superintendent's office (4 classrooms), and SEEM (1 classroom). In addition, capacity for an additional 140 pupils is created by capturing space within the existing school by scheduling changes and physical reconfiguration of existing space. The spaces included in this category are an additional 3 classrooms carved out from the over-abundant supply of science prep. rooms, the use of the lecture hall as a music classroom, and the use of 2 classrooms on the library mezzanine. When combined, these changes result in a net increase in enrollment capacity of 281 students. The Current Operating Capacity of 1,299 students (see Educational Analysis portion of this study) increases to approximately 1,580 students.

Under both options, renovations within the existing building would include the many system upgrades and educational/programmatic improvements outlined previously in this report.

Because of the extensive renovations within the existing building and the lack of additions, the phasing of this option is difficult. Options which construct an addition allow more flexibility in phasing because the additions can be used to house students while renovations within the existing building take place. Because enrollment increases are going to occur over a multi-year period, it may be possible to ease the difficulty of renovations by instituting some of the administrative changes immediately in order to free up space for a phased renovation project.

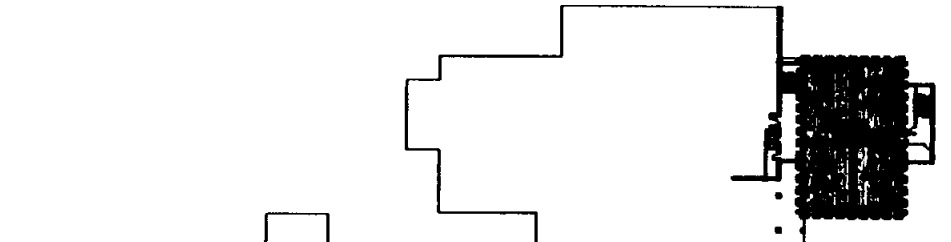
LEGEND - 1600 PUPILS

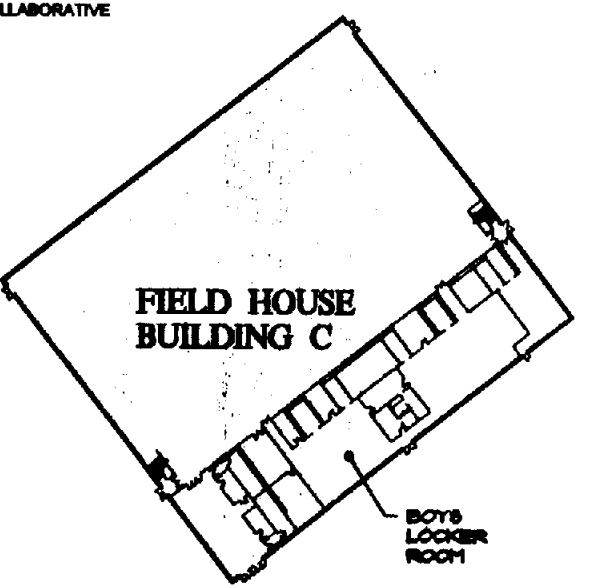
- OTHER USES
- ADMIN / GUID / CONF / HEALTH
- MATH 12 CR, 1 COMP LAB
- FOREIGN LANGUAGES 12 CR, 1 LANG LAB (COMP)
- SCIENCE 14 LABS, PREP ROOMS, OFFICE
- HEALTH 2 CR
- TECHNOLOGY EDUCATION 1 COMP LAB, 1 CR, 1 SHOP
- ART 5 STUDIOS (INCLUDING CERAMIC AREA), 1 COMP LAB
- MUSIC 1 BAND / ORCHESTRA, 2 CR, 1 COMP LAB
- BUSINESS 1 CR, 1 COMP LAB
- ENGLISH 12 CR, 1 COMP LAB, 1 READING RM, 1 MINI LAB
- HUMANITIES
- SPECIAL EDUCATION 2 CR, 2 TUTORIALS
- SOCIAL STUDIES 12 CR, 1 COMP LAB
- NEW ENCLOSED LINKS
- FACULTY OFFICE DEPARTMENT COLOR
- DRAMA
- PHYSICAL EDUCATION
- CORE FACILITIES / MECH / TOILETS / CUST
- POTENTIAL CLASSROOMS

ENLARGE TEACHING STATIONS
RELOCATE DEPARTMENTAL OFFICES TO SMALLER NON-CLASSROOM SPACES
EACH DEPARTMENT TO SHARE CLASSROOM SPACE.
CREATE DRAMA CENTER AT MUSIC CLASSROOM / STAGE
CREATE MUSIC CENTER AT BOTTOM OF "B" BUILDING
PHYSICAL EDUCATION STAYS "AS IS" (GIRLS LOCKER AND GYM IN 1950 BUILDING)

NON-HIGH SCHOOL USES TO REMAIN:
- DISTRICT SPECIAL NEEDS OFFICE
- DISTRICT MAINTENANCE FACILITY

NON-HIGH SCHOOL USES TO BE REMOVED:
- RISE PRESCHOOL
- REAP
- RCTV
- CHINESE CULTURAL CENTER
- SUPERINTENDANTS OFFICE
- SEEM COLLABORATIVE





BASEMENT FLOOR PLAN

READING HIGH SCHOOL
BASEMENT FLOOR PLAN
OPTION B.1

STREKALOVSKY & HOIT ARCHITECTS, INC
5 NORTH ST. HINGHAM, MA

SCALE
0 20 40 80

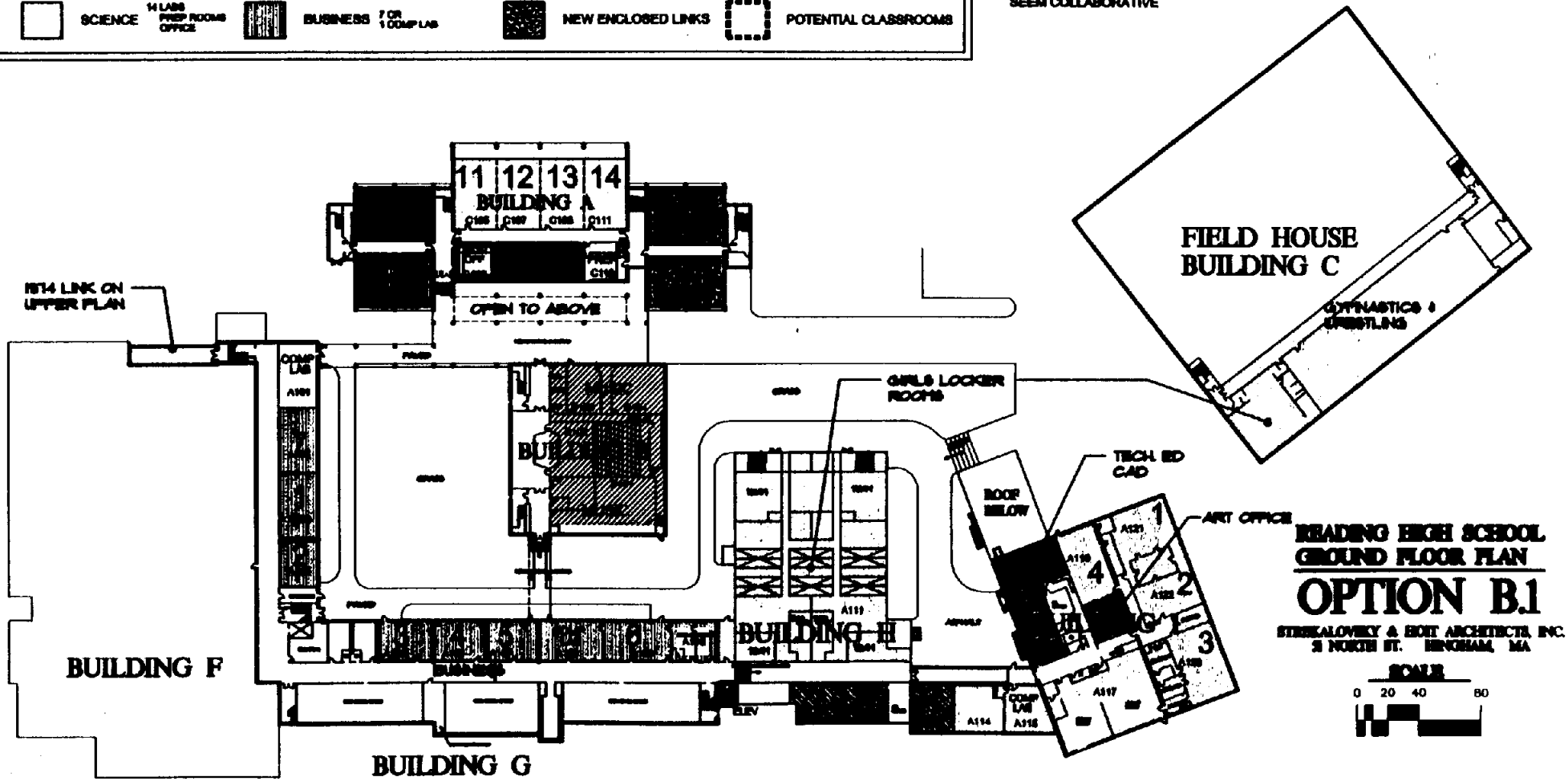
LEGEND - 1600 PUPILS

- OTHER USES
- ADMIN / GUID / CONF / HEALTH
- MATH 12 CR, 1 COMP LAB
- FOREIGN LANGUAGES 10 CR, 1 LANG LAB
- SCIENCE 14 LABS, PREP ROOMS, OFFICE
- HEALTH 2 CR
- TECHNOLOGY EDUCATION 1 COMP LAB, 1 CR, 1 SHOP
- ART 6 STUDIOS (INCLUDING GRAPHIC ARTS), 1 COMP LAB
- MUSIC 1 BAND / ORCHESTRA, 2 CR, 1 COMP LAB
- BUSINESS 7 CR, 1 COMP LAB
- ENGLISH 12 CR, 1 COMP LAB, 1 READING RM, 1 MINI LAB
- HUMANITIES
- SPECIAL EDUCATION 2 CR, 2 TUTORIALS
- SOCIAL STUDIES 12 CR, 1 COMP LAB
- NEW ENCLOSED LINKS
- FACULTY OFFICE, DEPARTMENT COLOR
- DRAMA
- PHYSICAL EDUCATION
- CORE FACILITIES / MECH / TOILETS / CUST
- POTENTIAL CLASSROOMS

ENLARGE TEACHING STATIONS
RELOCATE DEPARTMENTAL OFFICES TO SMALLER NON-CLASSROOM SPACES
EACH DEPARTMENT TO SHARE CLASSROOM SPACE.
CREATE DRAMA CENTER AT MUSIC CLASSROOM / STAGE
CREATE MUSIC CENTER AT BOTTOM OF "B" BUILDING
PHYSICAL EDUCATION STAYS "AS IS" (GIRLS LOCKER AND GYM IN 1950 BUILDING)

NON-HIGH SCHOOL USES TO REMAIN:
- DISTRICT SPECIAL NEEDS OFFICE
- DISTRICT MAINTENANCE FACILITY

NON-HIGH SCHOOL USES TO BE REMOVED:
- RISE PRESCHOOL
- REAP
- RCTV
- CHINESE CULTURAL CENTER
- SUPERINTENDANTS OFFICE
- SEEM COLLABORATIVE



GROUND FLOOR PLAN

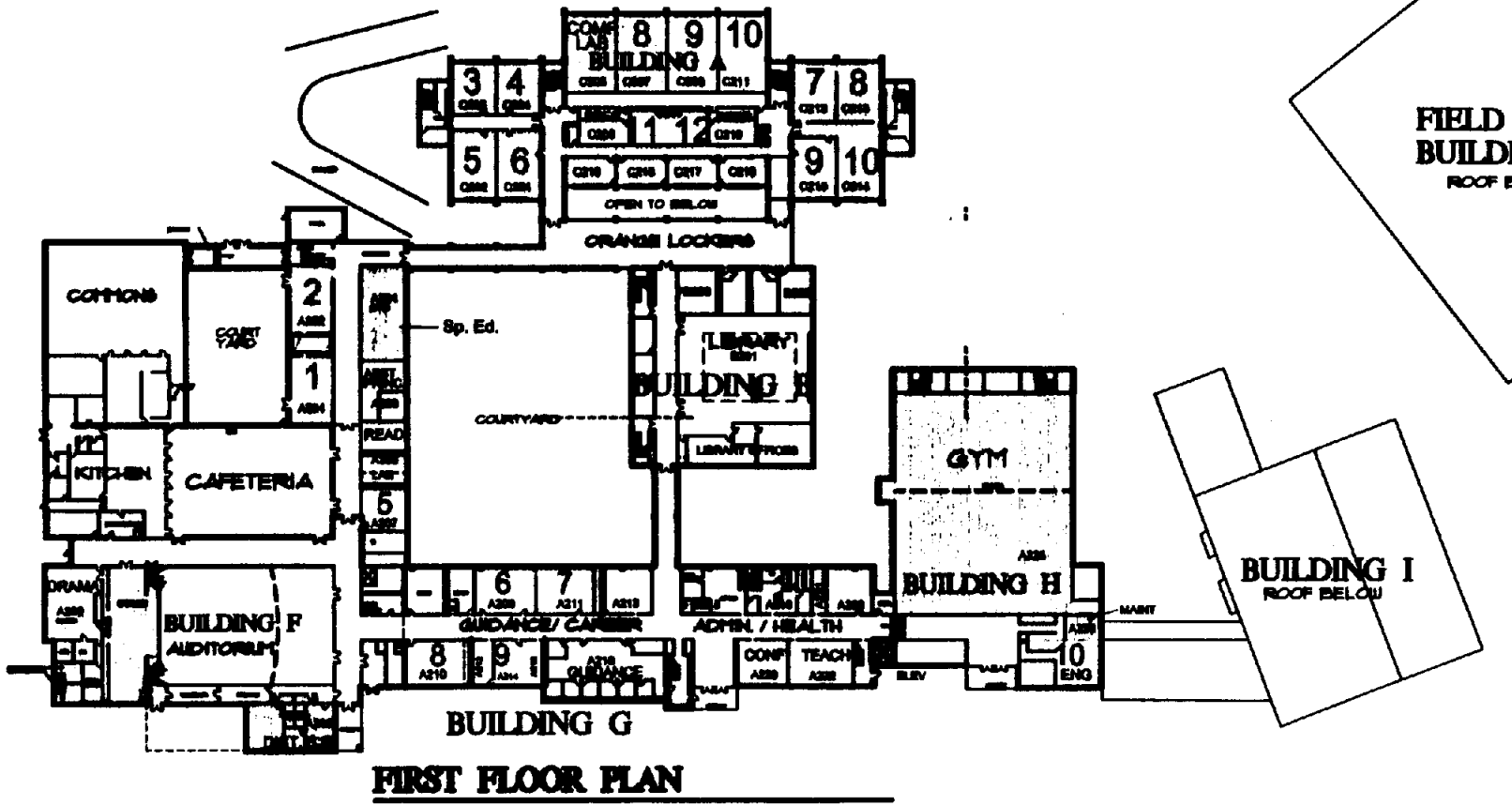
LEGEND - 1600 PUPILS

- OTHER USES
- ADMIN / GUID / CONF / HEALTH
- MATH 12 CR, 1 COMP LAB
- FOREIGN LANGUAGES 12 CR, 1 LANG LAB
- SCIENCE 14 LABS, PREP ROOMS, OFFICE
- HEALTH 2 CR
- TECHNOLOGY EDUCATION 1 COMP LAB, 1 CR, 1 SHOP
- ART 5 STUDIOS (INCLUDING GRAPHIC ARTS), 1 COMP LAB
- MUSIC 1 BAND / ORCHESTRA, 2 CR, 1 COMP LAB
- BUSINESS 7 CR, 1 COMP LAB
- ENGLISH 12 CR, 1 COMP LAB, 1 READING RM, 1 MINI LAB
- HUMANITIES
- SPECIAL EDUCATION 1 CR, 2 TUTORIALS
- SOCIAL STUDIES 12 CR, 1 COMP LAB
- NEW ENCLOSED LINKS
- FACULTY OFFICE DEPARTMENT COLOR
- DRAMA
- PHYSICAL EDUCATION
- CORE FACILITIES / MECH / TOILETS / CUST
- POTENTIAL CLASSROOMS

ENLARGE TEACHING STATIONS
RELOCATE DEPARTMENTAL OFFICES TO SMALLER NON-CLASSROOM SPACES
EACH DEPARTMENT TO SHARE CLASSROOM SPACE.
CREATE DRAMA CENTER AT MUSIC CLASSROOM / STAGE
CREATE MUSIC CENTER AT BOTTOM OF "B" BUILDING
PHYSICAL EDUCATION STAYS "AS IS" (GIRLS LOCKER AND GYM IN 1950 BUILDING)

NON-HIGH SCHOOL USES TO REMAIN:
- DISTRICT SPECIAL NEEDS OFFICE
- DISTRICT MAINTENANCE FACILITY

NON-HIGH SCHOOL USES TO BE REMOVED:
- RISE PRESCHOOL
- REAP
- RCTV
- CHINESE CULTURAL CENTER
- SUPERINTENDANTS OFFICE
- SEEM COLLABORATIVE



FIRST FLOOR PLAN

READING HIGH SCHOOL
FIRST FLOOR PLAN
OPTION B.1

STEREALOVSKY & HOIT ARCHITECTS, INC.
2 NORTH ST. HINGHAM, MA

SCALE
0 20 40 80

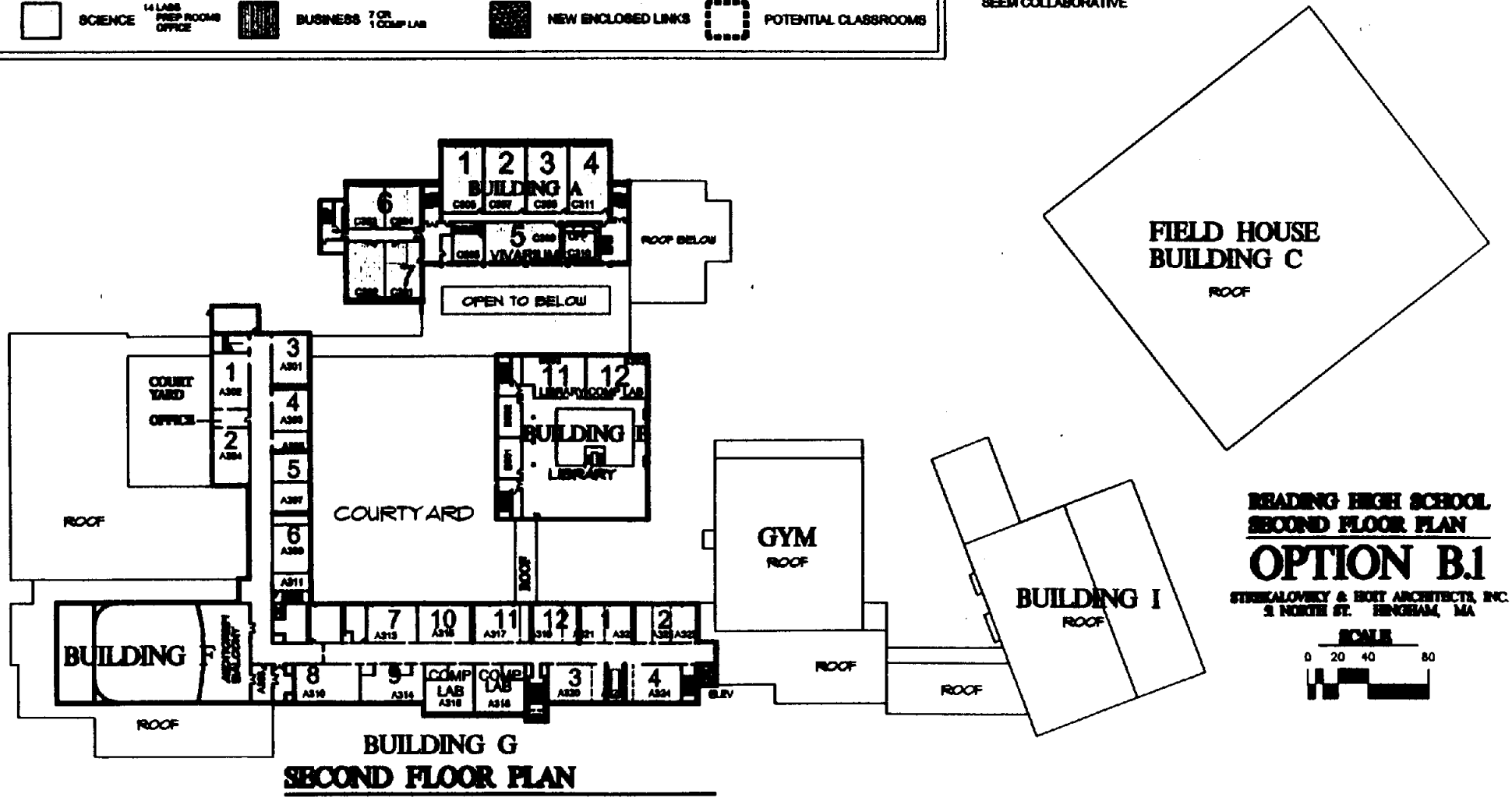
LEGEND - 1600 PUPILS

- OTHER USES
- ADMIN / GUID / CONF / HEALTH
- MATH 12 CR, 1 COMP LAB
- FOREIGN LANGUAGES 12 CR, 1 LANG LAB
- SCIENCE 14 LABS, PREP ROOMS, OFFICE
- HEALTH 2 CR
- TECHNOLOGY EDUCATION 1 COMP LAB, 1 CR, 1 SHOP
- ART 6 STUDIOS (EXCLUDES GRAPHIC ARTS), 1 COMP LAB
- MUSIC 1 BAND / ORCHESTRA, 2 CR, 1 COMP LAB
- BUSINESS 7 CR, 1 COMP LAB
- ENGLISH 12 CR, 1 COMP LAB, 1 READING RM, 1 MINI LAB
- HUMANITIES
- SPECIAL EDUCATION 2 CR, 2 TUTORIALS
- SOCIAL STUDIES 12 CR, 1 COMP LAB
- NEW ENCLOSED LINKS
- FACULTY OFFICE DEPARTMENT COLOR
- DRAMA
- PHYSICAL EDUCATION
- CORE FACILITIES / MECH / TOILETS / CUST
- POTENTIAL CLASSROOMS

ENLARGE TEACHING STATIONS
RELOCATE DEPARTMENTAL OFFICES TO SMALLER NON-CLASSROOM SPACES
EACH DEPARTMENT TO SHARE CLASSROOM SPACE.
CREATE DRAMA CENTER AT MUSIC CLASSROOM / STAGE
CREATE MUSIC CENTER AT BOTTOM OF "B" BUILDING
PHYSICAL EDUCATION STAYS "AS IS" (GIRLS LOCKER AND GYM IN 1950 BUILDING)

NON-HIGH SCHOOL USES TO REMAIN:
- DISTRICT SPECIAL NEEDS OFFICE
- DISTRICT MAINTENANCE FACILITY

NON-HIGH SCHOOL USES TO BE REMOVED:
- RISE PRESCHOOL
- REAP
- RCTV
- CHINESE CULTURAL CENTER
- SUPERINTENDANTS OFFICE
- SEEM COLLABORATIVE



BUILDING G
SECOND FLOOR PLAN

READING HIGH SCHOOL
SECOND FLOOR PLAN
OPTION B.1

STREKALOVSKY & HOIT ARCHITECTS, INC.
9 NORTH ST. HINGHAM, MA

SCALE
0 20 40 80

Reading Memorial High School			**Option B.2: Renovations**				
			(without enlarged classrooms)				
	existing		Renovations		New Construciton		
	sf	sf	$/sf	total	sf	$/sf	total
Bldg I: Art/Boiler							
basement	16000	16,000	$ 38	$ 608,000			$ -
ground	15000	15,000	$ 65	$ 975,000			$ -
Bldg. H: Girls Gym/Locker							
ground (girls lockers)	20000	20,000	$ 65	$ 1,300,000			$ -
first (convert gym to music)	17000	17,000	$ 65	$ 1,105,000			$ -
Bldg. G: 1950 Academic Wing							
ground	28000	28,000	$ 65	$ 1,820,000			$ -
first	19250	19,250	$ 65	$ 1,251,250			$ -
second	30000	30,000	$ 65	$ 1,950,000			$ -
Link: 1950 Wing to Library (Bldg. G to Bldg. B)							
first	800	800	$ 65	$ 52,000			$ -
Bldg B: Library							
ground	10500	10,500	$ 75	$ 787,500			$ -
first	10500	10,500	$ 65	$ 682,500			$ -
second	9200	9,200	$ 65	$ 598,000			$ -
Link: Library to Math/Science (Bldg. B to Bldg. A)							
first	3500	3,500	$ 65	$ 227,500			
Bldg. A: Math/Science							
supt. office (basement plan)	5325	5,325	$ 65	$ 346,125			$ -
ground	18000	18,000	$ 75	$ 1,350,000			$ -
first	21000	21,000	$ 75	$ 1,575,000			$ -
second	16250	16,250	$ 75	$ 1,218,750			$ -
Bldg. F: Auditorium/Music/Balcony							
first and balcony	13500	13,500	$ 110	$ 1,485,000			$ -
Bldg. F: Cafeteria/Kitchen/Commons							
first	30750	30,750	$ 65	$ 1,998,750			$ -
Bldg. C: Fieldhouse							
play surface (basement plan)	33000	33,000	$ -	$ -			$ -
boys lockers	11500	11,500	$ 65	$ 747,500			$ -
wrestling	11500	11,500	$ 65	$ 747,500			
girls lockers (incl. mech. link)	0						$ -
weight room	0						$ -
auxillary gymnasium	0						$ -
Link: Field House to School (Bldg. H to Bldg. C)							
ground	0						$ -
Sitework Allowance: Drives, Parking, Fields				$ 700,000			
Subtotals	340575	340,575	-	$ 21,525,375	-		$ -
Total 1999 Construction Cost: Option A					***340,575***	***$ 63***	***$ 21,525,375***

LEGEND - 1600 PUPILS

- OTHER USES
- ADMIN / GUID / CONF / HEALTH
- MATH 12 CR, 1 COMP LAB
- FOREIGN LANGUAGES 12 CR, 1 LANG LAB
- SCIENCE 14 LABS, PREP ROOMS, OFFICE
- HEALTH 2 CR
- TECHNOLOGY EDUCATION 1 COMP LAB, 1 CR, 1 SHOP
- ART 6 STUDIOS (INCLUDING GRAPHIC ARTS), 1 COMP LAB
- MUSIC 1 BAND / ORCHESTRA, 2 CR, 1 COMP LAB
- BUSINESS 2 CR, 1 COMP LAB
- ENGLISH 12 CR, 1 COMP LAB, 1 READING RM, 1 MEDIA LAB
- HUMANITIES
- SPECIAL EDUCATION 1 CR, 4 TUTORIALS
- SOCIAL STUDIES 12 CR, 1 COMP LAB
- NEW ENCLOSED LINKS
- FACULTY OFFICE DEPARTMENT COLOR
- DRAMA
- PHYSICAL EDUCATION
- CORE FACILITIES / MECH / TOILETS / CUST
- POTENTIAL CLASSROOMS

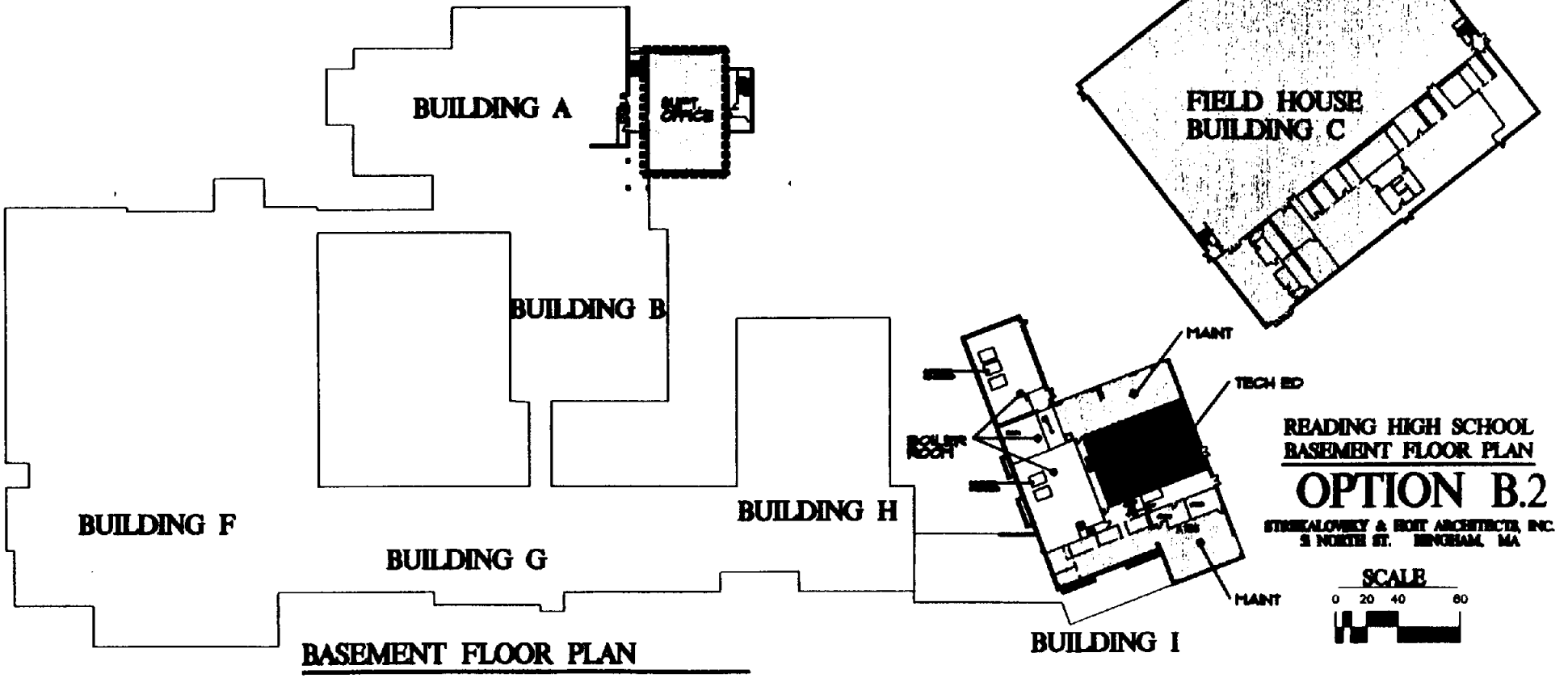
TEACHING STATIONS REMAIN THE SAME SIZE (SOME UNDERSIZED)
(REIMBURSABLE BY DEPARTMENT OF EDUCATION)
RELOCATE DEPARTMENT HEADS TO SMALLER, NON-CLASSROOM SPACES
EACH DEPARTMENT TO SHARE CLASSROOM SPACE
MUSIC AND DRAMA SPACE NEEDS ARE ADDRESSED
GIRLS PHYSICAL EDUCATION DEFICIENCIES ARE NOT ADDRESSED

NON-HIGH SCHOOL USES TO REMAIN:

SUPERINTENDENTS OFFICE
DISTRICT SPECIAL NEEDS OFFICE
DISTRICT MAINTENANCE FACILITY

NON-HIGH SCHOOL USES TO BE REMOVED:

SEEM COLLABORATIVE
RISE PRESCHOOL
RSAP
RCTV
CHINESE CULTURAL CENTER



BASEMENT FLOOR PLAN

READING HIGH SCHOOL
BASEMENT FLOOR PLAN

OPTION B.2

STREGALOWSKY & HOIT ARCHITECTS, INC.
51 NORTH ST. HINGHAM, MA

SCALE
0 20 40 80

LEGEND - 1600 PUPILS

- OTHER USES
- ADMIN / GUID / CONF / HEALTH
- MATH 12 CR, 1 COMP LAB
- FOREIGN LANGUAGES 12 CR, 1 LANG LAB
- SCIENCE 14 LABS, PREP ROOMS, OFFICE
- HEALTH 2 CR
- TECHNOLOGY EDUCATION 1 COMP LAB, 1 CR, 1 SHOP
- ART 8 STUDIOS INCLUDING GRAPHIC ARTS, 1 COMP LAB
- MUSIC 1 BAND / ORCHESTRA, 2 CR, 1 COMP LAB
- BUSINESS 7 CR, 1 COMP LAB
- ENGLISH 12 CR, 1 COMP LAB, 1 READING RM, 1 MINI LAB
- HUMANITIES
- SPECIAL EDUCATION 1 CR, 4 TUTORIALS
- SOCIAL STUDIES 12 CR, 1 COMP LAB
- NEW ENCLOSED LINKS
- FACULTY OFFICE DEPARTMENT COLOR
- DRAMA
- PHYSICAL EDUCATION
- CORE FACILITIES / MECH / TOILETS / CUST
- POTENTIAL CLASSROOMS

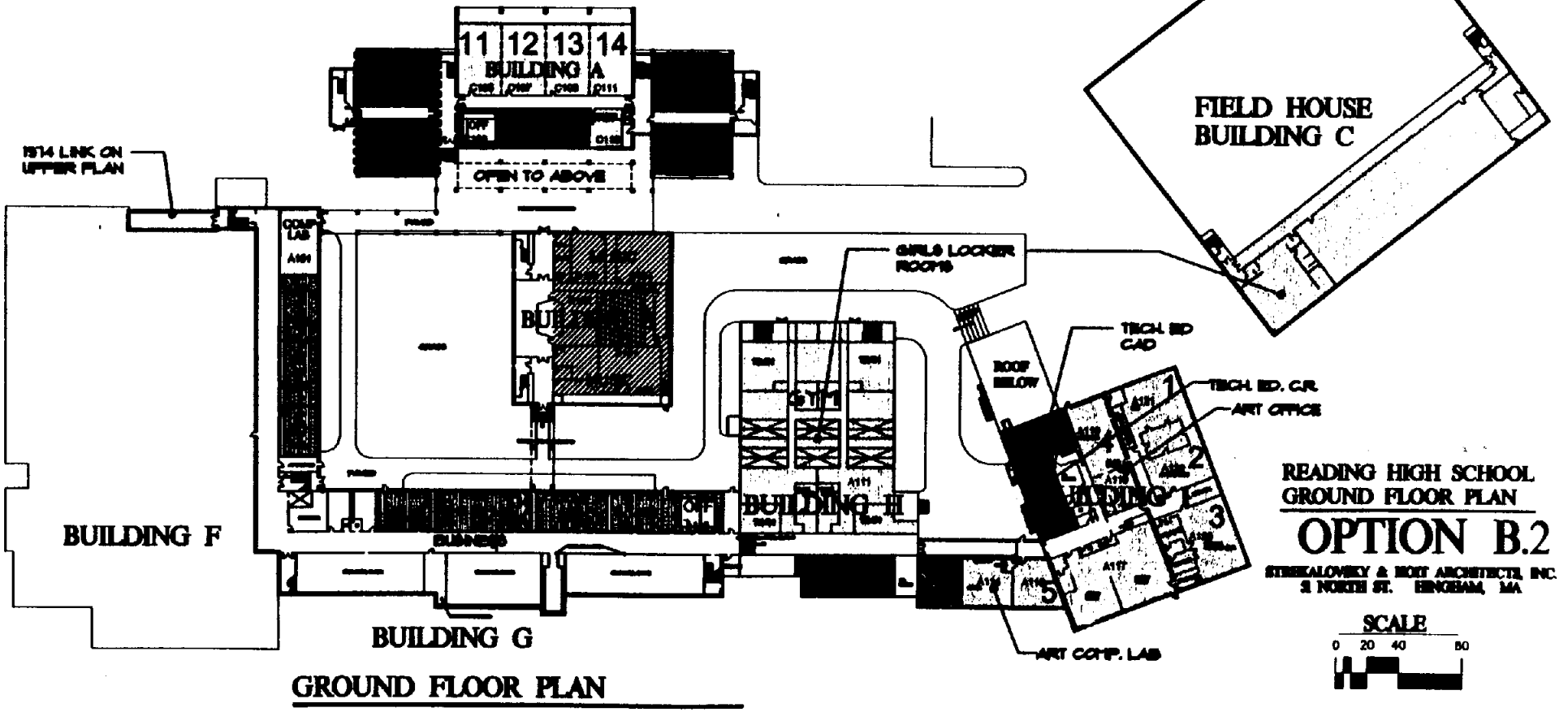
TEACHING STATIONS REMAIN THE SAME SIZE (SOME UNDERSIZED)
(REIMBURSABLE BY DEPARTMENT OF EDUCATION)
RELOCATE DEPARTMENT HEADS TO SMALLER, NON-CLASSROOM SPACES
EACH DEPARTMENT TO SHARE CLASSROOM SPACE
MUSIC AND DRAMA SPACE NEEDS ARE ADDRESSED
GIRLS PHYSICAL EDUCATION DEFICIENCIES ARE NOT ADDRESSED

NON-HIGH SCHOOL USES TO REMAIN:

SUPERINTENDENTS OFFICE
DISTRICT SPECIAL NEEDS OFFICE
DISTRICT MAINTENANCE FACILITY

NON-HIGH SCHOOL USES TO BE REMOVED:

SEEM COLLABORATIVE
RISE PRESCHOOL
REAP
RCTV
CHINESE CULTURAL CENTER



GROUND FLOOR PLAN

READING HIGH SCHOOL
GROUND FLOOR PLAN

OPTION B.2

STREKALOVSKY & HOIT ARCHITECTS, INC.
2 NORTH ST. HINGHAM, MA

SCALE
0 20 40 80

LEGEND - 1600 PUPILS

- OTHER USES
- ADMIN / GUID / CONF / HEALTH
- MATH 12 CR, 1 COMP LAB
- FOREIGN LANGUAGES 10 CR, 1 LANG LAB
- SCIENCE 14 LABS, PREP ROOMS, OFFICE
- HEALTH 2 CR
- TECHNOLOGY EDUCATION 1 COMP LAB, 1 CR, 1 SHOP
- ART 5 STUDIOS (INCLUDING GRAPHIC ARTS), 1 COMP LAB
- MUSIC 1 BAND / ORCHESTRA, 2 CR, 1 COMP LAB
- BUSINESS 7 CR, 1 COMP LAB
- ENGLISH 12 CR, 1 COMP LAB, 1 READING RM, 1 MINI LAB
- HUMANITIES
- SPECIAL EDUCATION 1 CR, 4 TUTORIALS
- SOCIAL STUDIES 12 CR, 1 COMP LAB
- NEW ENCLOSED LINKS
- FACULTY OFFICE DEPARTMENT COLOR
- DRAMA
- PHYSICAL EDUCATION
- CORE FACILITIES / MECH / TOILETS / CUST
- POTENTIAL CLASSROOMS

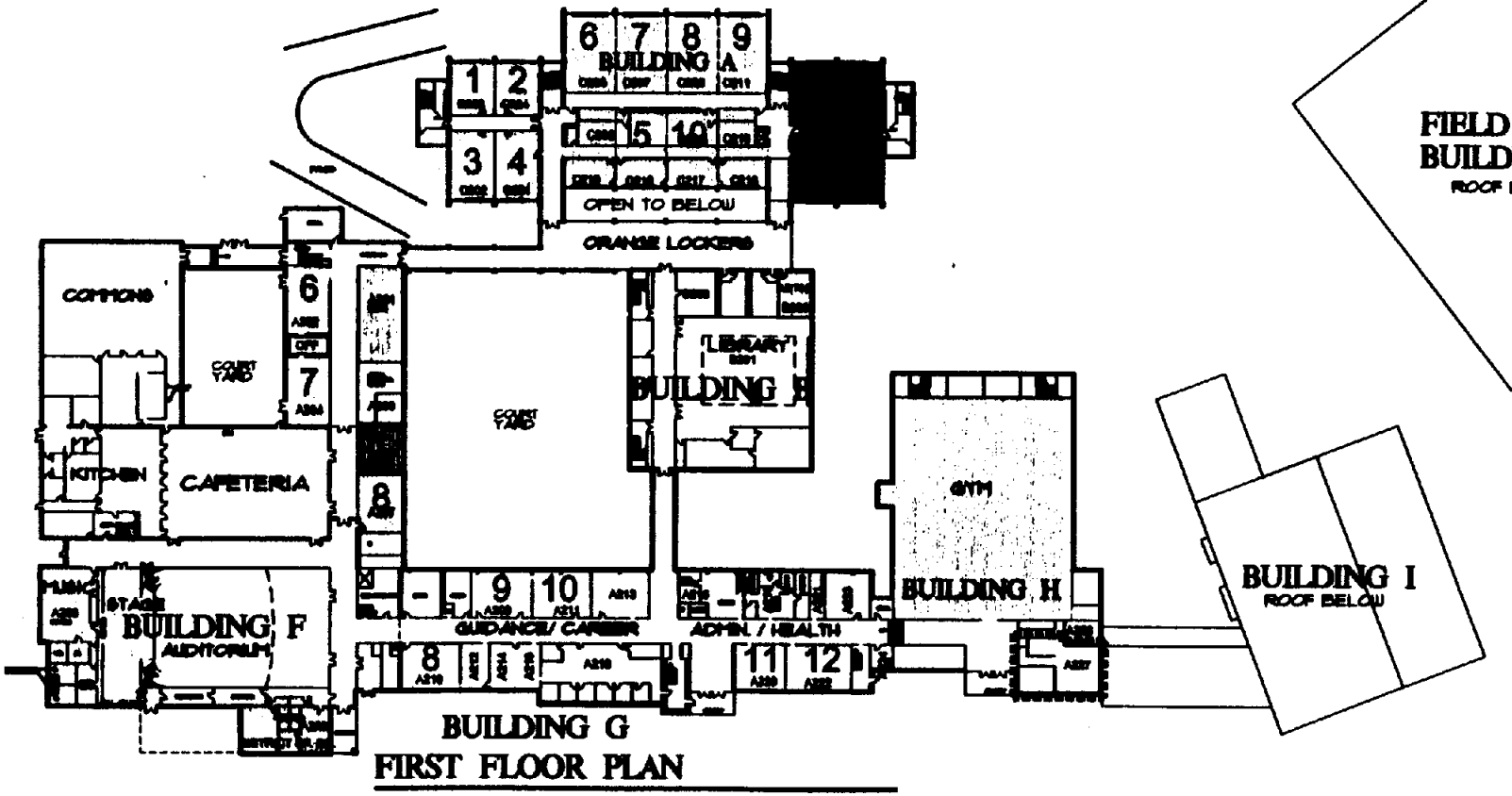
TEACHING STATIONS REMAIN THE SAME SIZE (SOME UNDERSIZED)
(REIMBURSABLE BY DEPARTMENT OF EDUCATION)
RELOCATE DEPARTMENT HEADS TO SMALLER, NON-CLASSROOM SPACES
EACH DEPARTMENT TO SHARE CLASSROOM SPACE
MUSIC AND DRAMA SPACE NEEDS ARE ADDRESSED
GIRLS PHYSICAL EDUCATION DEFICIENCIES ARE NOT ADDRESSED

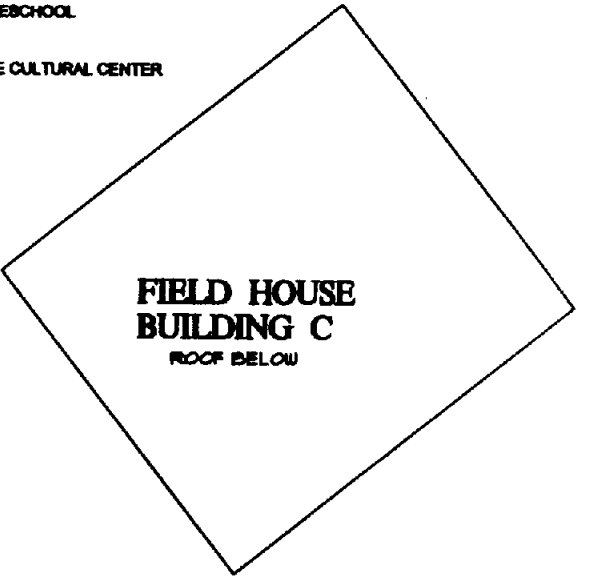
NON-HIGH SCHOOL USES TO REMAIN:

SUPERINTENDENT'S OFFICE
DISTRICT SPECIAL NEEDS OFFICE
DISTRICT MAINTENANCE FACILITY

NON-HIGH SCHOOL USES TO BE REMOVED:

SEEM COLLABORATIVE
RISE PRESCHOOL
REAP
RCTV
CHINESE CULTURAL CENTER





READING HIGH SCHOOL
FIRST FLOOR PLAN

OPTION B.2

STRICKLAND & HOIT ARCHITECTS, INC
3 NORTH ST. HINGHAM, MA

SCALE
0 20 40 60

LEGEND - 1600 PUPILS

- OTHER USES
- ADMIN / GUID / CONF / HEALTH
- MATH 12 CR, 1 COMP LAB
- FOREIGN LANGUAGES 10 CR, 1 LANG LAB
- SCIENCE 14 LABS, PREP ROOMS, OFFICE
- HEALTH 2 CR
- TECHNOLOGY EDUCATION 1 COMP LAB, 1 CR, 1 SHOP
- ART 5 STUDIOS (INCLUDING GRAPHIC ARTS), 1 COMP LAB
- MUSIC 1 BAND / ORCHESTRA, 2 CR, 1 COMP LAB
- BUSINESS 7 CR, 1 COMP LAB
- ENGLISH 12 CR, 1 COMP LAB, 1 READING RM, 1 MINI LAB
- HUMANITIES
- SPECIAL EDUCATION 1 CR, 4 TUTORIALS
- SOCIAL STUDIES 12 CR, 1 COMP LAB
- NEW ENCLOSED LINKS
- FACULTY OFFICE DEPARTMENT COLOR
- DRAMA
- PHYSICAL EDUCATION
- CORE FACILITIES / MECH / TOILETS / CUST
- POTENTIAL CLASSROOMS

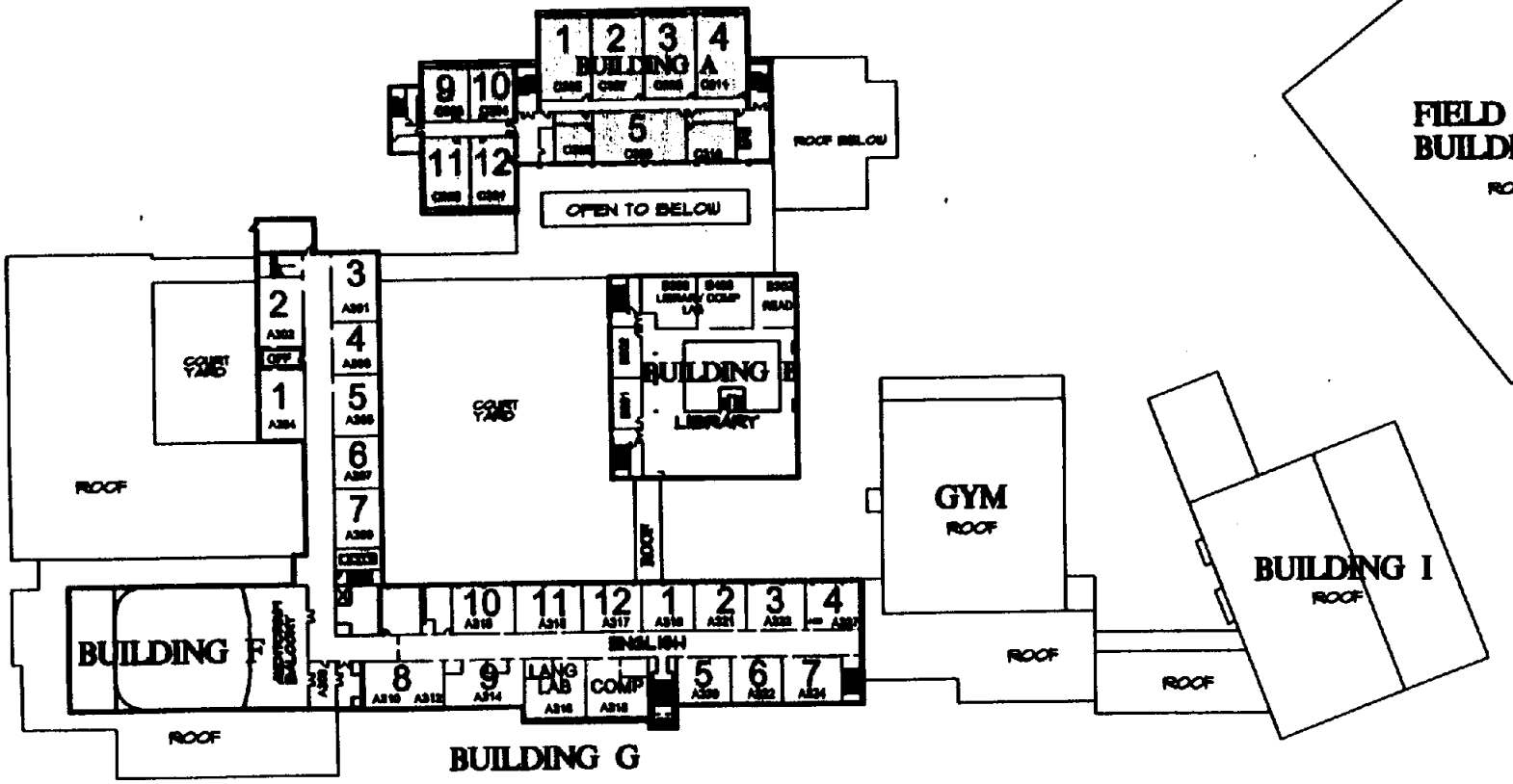
TEACHING STATIONS REMAIN THE SAME SIZE (SOME UNDERSIZED)
(REIMBURSABLE BY DEPARTMENT OF EDUCATION)
RELOCATE DEPARTMENT HEADS TO SMALLER, NON-CLASSROOM SPACES
EACH DEPARTMENT TO SHARE CLASSROOM SPACE
MUSIC AND DRAMA SPACE NEEDS ARE ADDRESSED
GIRLS PHYSICAL EDUCATION DEFICIENCIES ARE NOT ADDRESSED

NON-HIGH SCHOOL USES TO REMAIN:

SUPERINTENDENTS OFFICE
DISTRICT SPECIAL NEEDS OFFICE
DISTRICT MAINTENANCE FACILITY

NON-HIGH SCHOOL USES TO BE REMOVED:

SEEM COLLABORATIVE
RISE PRESCHOOL
REAP
RCTV
CHINESE CULTURAL CENTER



BUILDING G

SECOND FLOOR PLAN

READING HIGH SCHOOL
SECOND FLOOR PLAN

OPTION B.2

STREKALOVSKY & HOIT ARCHITECTS, INC.
9 NORTH ST. HINGHAM, MA

SCALE
0 20 40 80

Options C.1, C.2, and C.3: Renovations and Additions

By constructing an enclosed link from the existing school to the fieldhouse and an auxiliary gymnasium at the fieldhouse, both Options C.1 and C.2 free up the space within the 1952 girls gymnasium for use as classroom space.

Option C.2 goes even further. It frees up space within the 1952 girls locker room by constructing new girls locker facilities at the fieldhouse.

Option C.3 constructs the new girls locker facilities at the fieldhouse, but deletes the enclosed link. Instead, it provides additional programmatic space in the form of a cafeteria extension, new music and classroom facilities, and a new lab theatre/mini-auditorium.

Due to the construction of additions, all three of these options are able to provide the same (or better) enrollment capacity and improvements to the educational program as Options B.1 and B.2. However, these options then go on to address the major inequities within the girls physical education program (traveling outside after dressing) and allow the district to maintain most, if not all, important non-high school programs (the superintendent's office, the RISE preschool and/or the Media One cable tv studio) within the high school building.

Options C.1, C.2, and C.3 are considered fully reimbursable by the Department of Education. Because they involve both additions and renovations, the project cost of these options are more expensive than Options B.1 and B.2. For the same reason though, they allow more flexibility in phasing the construction within the school while the building remains in use.

Option C.1

Though some enrollment capacity is lost through the enlargement of undersized classrooms, Option C.1 makes up for this by increasing enrollment capacity through the same 'administrative changes' outlined under Option A (remove departmental offices from classroom-sized spaces and share classrooms), by freeing up existing classroom space used by some of the non-high school programs which are housed in the building, and by capturing under-utilized space within the existing building.

The school would lose capacity for approximately 300 students by taking classrooms off-line as part of the classroom enlargement program and providing proper space for music/drama and a foreign language lab. However, the school would gain capacity for approximately 200 students through the administrative changes (captures 10 classrooms) and another 160 students by capturing classroom space currently used by the following non-high school programs: REAP (2 classrooms), RISE preschool (4 classrooms) SEEM (1 classroom) and the Chinese Cultural Office (1 classroom). An additional 80 students are accounted for by converting the existing girls gymnasium into teaching stations for the music program (4 classrooms). And finally, capacity for an additional 140 pupils is created by capturing space within the existing school by scheduling changes and physical reconfiguration of existing space. The spaces included under this category are an additional 3 classrooms carved out from the over-

way, circulation is improved, and spaces which were formally remote (i.e. the second floor of the 1952 building and the science building) and under-utilized (i.e. basement and mezzanine of the library building) are brought into better use.

Option C.2 also goes the furthest in addressing the inequities of the physical education program. Whether or not a link to the fieldhouse is constructed, the girls and boys are guaranteed equal facilities by the construction of a girls locker room at the field house.

Option C.3

Though some enrollment capacity is lost through the enlargement of undersized classrooms, Option C.3 is similar to Option C.2 in that it adds enrollment capacity through the conversion of the girls locker room into teaching spaces and by creating four other classrooms in an addition placed to the side of the library building. The 'administrative changes' outlined under Option A would need only to be limited to removing departmental offices from classroom-sized spaces. The concept of shared classrooms would not need to be implemented at this time and could be held in reserve as a strategy to deal with enrollments should they increase above the 1,600 pupil level after the planning period.

Option C.3 allows for the RISE preschool to remain in the building, while the superintendent's office is relocated at the time when space is needed for programmatic uses. Educationally appropriate (i.e. Media One tv studio) non-high school uses remain in the building, with the exception of the Superintendent's office. Option C.3 negates the need to house most non-high school programs which remain in the building off-site at district expense. It should be noted that these non-high school spaces could also be held in reserve as a strategy to deal with enrollments should they increase above projections. At that time, the school department could choose between sharing classrooms or removing some non-high school uses from the building.

The school would lose capacity for approximately 300 students by taking classrooms off-line as part of the classroom enlargement program and providing proper space for music/drama and a foreign language lab. However, the school would gain capacity for approximately 240 students by capturing classroom space in the girls locker room (8 classrooms) and by building a music/classroom addition adjacent to the library (4 classrooms). The school would also create an additional classroom capacity of 40 pupils in the fieldhouse (2 classrooms) where the Health program would be consolidated with the physical education program, 40 pupils due to the removal of the REAP program (2 classrooms), 20 pupils by removing the SEEM program, and 40 pupils (2 classrooms) by making use of newly accessible space at the library mezzanine. In addition, an additional 100 pupils would be housed in 5 classrooms created by the reconfiguration of the science/math wing. When combined with the administrative change of removing departmental offices from classroom-sized spaces (5 classrooms/ 100 pupils), the changes under Option C.3 would result in an increase in enrollment capacity. The Current Operating would rise to approximately 1,600 students.

Reading Memorial High School		Option C.1: Renovations and Additions *(link to fieldhouse)*						
	existing	Renovations			New Construciton		
	sf	sf	$/sf	total	sf	$/sf	total
Bldg I: Art/Boiler							
basement	16000	16,000	$ 38	$ 600,000			$ -
ground	15000	15,000	$ 71	$ 1,061,500			$ -
Bldg. H: Girls Gym/Locker							
ground (girls lockers)	20000	20,000	$ 80	$ 1,600,000			$ -
first (convert gym to music)	17000	17,000	$ 91	$ 1,540,000			$ -
Bldg. G: 1950 Academic Wing							
ground	28000	28,000	$ 71	$ 1,985,500			$ -
first	19250	19,250	$ 80	$ 1,545,500			$ -
second	30000	30,000	$ 78	$ 2,326,500			$ -
Link: 1950 Wing to Library (Bldg. G to Bldg. B)							
first	800	800	$ 75	$ 60,000			$ -
Bldg B: Library							
ground	10500	10,500	$ 65	$ 687,500			$ -
first	10500	10,500	$ 65	$ 687,500			$ -
second	9200	9,200	$ 94	$ 869,000			$ -
Link: Library to Math/Science (Bldg. B to Bldg. A)							
first	3500	3,500	$ 50	$ 175,000			
Bldg. A: Math/Science							
supt. office (basement plan)	5325	5,325	$ -	$ -			$ -
ground	18000	18,000	$ 75	$ 1,350,000			$ -
first	21000	21,000	$ 76	$ 1,590,000			$ -
second	16250	16,250	$ 89	$ 1,450,000			$ -
Bldg. F: Auditorium/Music/Balcony							
first and balcony	13500	13,500	$ 110	$ 1,490,500			$ -
Bldg. F: Cafeteria/Kitchen/Commons							
first	30750	30,750	$ 72	$ 2,219,000			$ -
Bldg. C: Fieldhouse							
play surface (basement plan)	33000	33,000	$ -	$ -			$ -
boys lockers	11500	11,500	$ 80	$ 918,500			$ -
wrestling	11500	11,500	$ 67	$ 775,500			
girls lockers (incl. mech. link)	0						$ -
weight room	0						$ -
auxillary gymnasium	0				7,500	$ 127	$ 951,500
Link: Field House to School (Bldg. H to Bldg. C)							
ground	0				10,831	$ 289	$ 3,129,500
Sitework Allowance: Drives, Parking, Fields				$ 700,000			
Subtotals	340575	340,575	$ 69	$ 23,631,500	18,331	$ 223	$ 4,081,000
Total 1999 Construction Cost: Option C.1					***358,906***	***$ 77***	***$ 27,712,500***

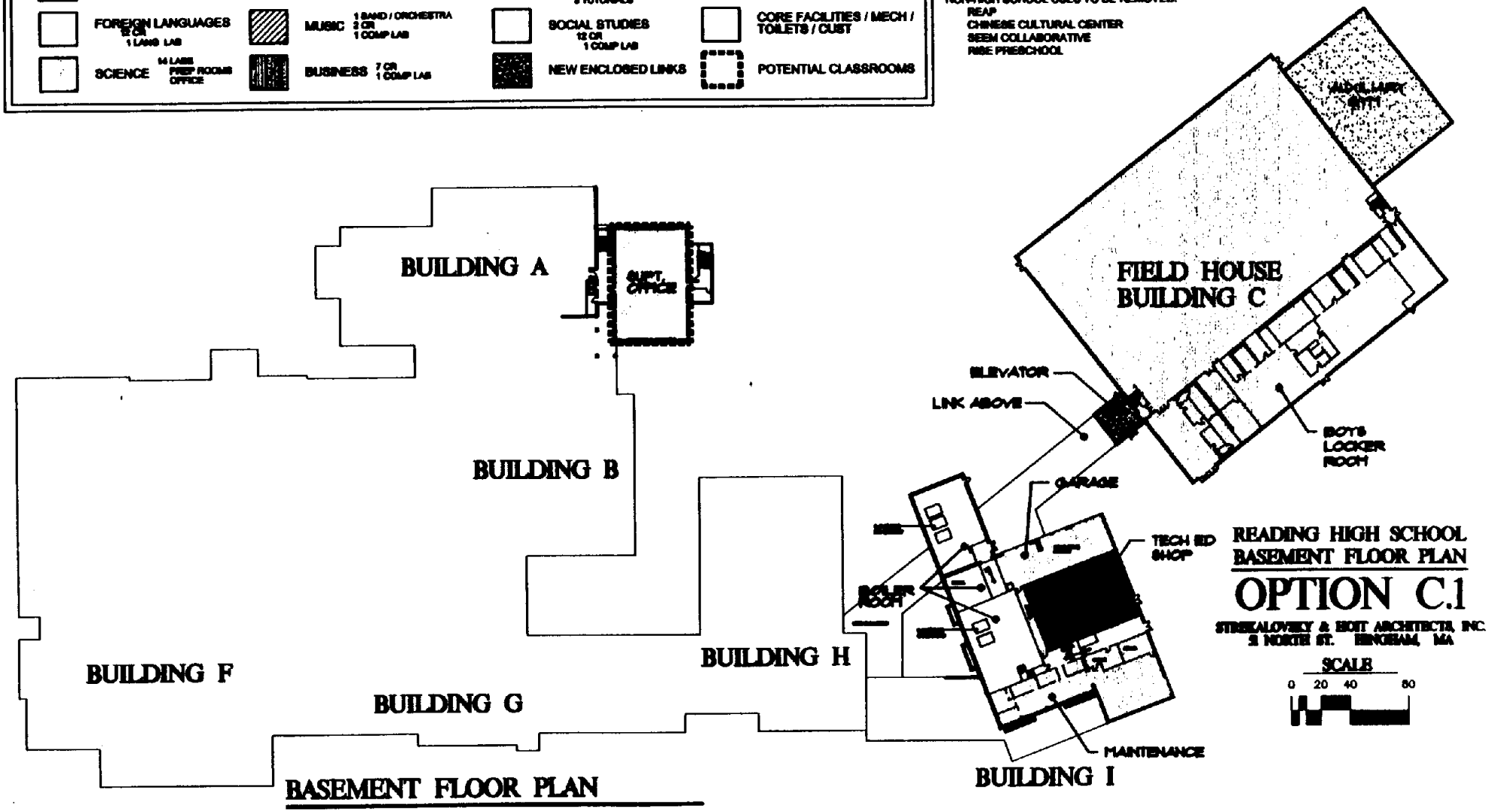
LEGEND - 1600 PUPIL

- OTHER USES
- ADMIN / GUID / CONF / HEALTH
- MATH 12 CR, 1 COMP LAB
- FOREIGN LANGUAGES 12 CR, 1 LANG LAB
- SCIENCE 14 LABS, PREP ROOMS, OFFICE
- HEALTH 2 CR
- TECHNOLOGY EDUCATION 1 COMP LAB, 1 CR, 1 SHOP
- ART 8 STUDIOS (INCLUDING GRAPHIC ARTS), 1 COMP LAB
- MUSIC 1 BAND / ORCHESTRA, 2 CR, 1 COMP LAB
- BUSINESS 7 CR, 1 COMP LAB
- ENGLISH 12 CR, 1 COMP LAB, 1 READING RM, 1 MINI LAB
- HUMANITIES
- SPECIAL EDUCATION 1 CR, 3 TUTORIALS
- SOCIAL STUDIES 12 CR, 1 COMP LAB
- NEW ENCLOSED LINKS
- FACULTY OFFICE, DEPARTMENT COLOR
- DRAMA
- PHYSICAL EDUCATION
- CORE FACILITIES / MECH / TOILETS / CUST
- POTENTIAL CLASSROOMS

ENLARGE TEACHING STATIONS
RELOCATE DEPARTMENTAL OFFICES TO SMALLER NON-CLASSROOM SPACES
EACH DEPARTMENT TO SHARE CLASSROOM SPACE.
CREATE DRAMA CENTER AT MUSIC CLASSROOM / STAGE
CONVERT EXISTING GIRLS GYM (1950 BUILDING) TO MUSIC CENTER
CONSTRUCT "MINI GYM" ADDITION TO FIELD HOUSE
GIRLS LOCKER ROOM TO REMAIN IN 1950 BUILDING
CONSTRUCT ENCLOSED ADDITION TO FIELDHOUSE

NON-HIGH SCHOOL USES TO REMAIN:
SUPERINTENDENTS OFFICE
DISTRICT SPECIAL NEEDS OFFICE
DISTRICT MAINTENANCE FACILITY
RCTV

NON-HIGH SCHOOL USES TO BE REMOVED:
REAP
CHINESE CULTURAL CENTER
SEEM COLLABORATIVE
RISE PRESCHOOL



BASEMENT FLOOR PLAN

READING HIGH SCHOOL
BASEMENT FLOOR PLAN

OPTION C.1

STREKALOVSKY & HOIT ARCHITECTS, INC.
2 NORTH ST. HINGHAM, MA

SCALE
0 20 40 80

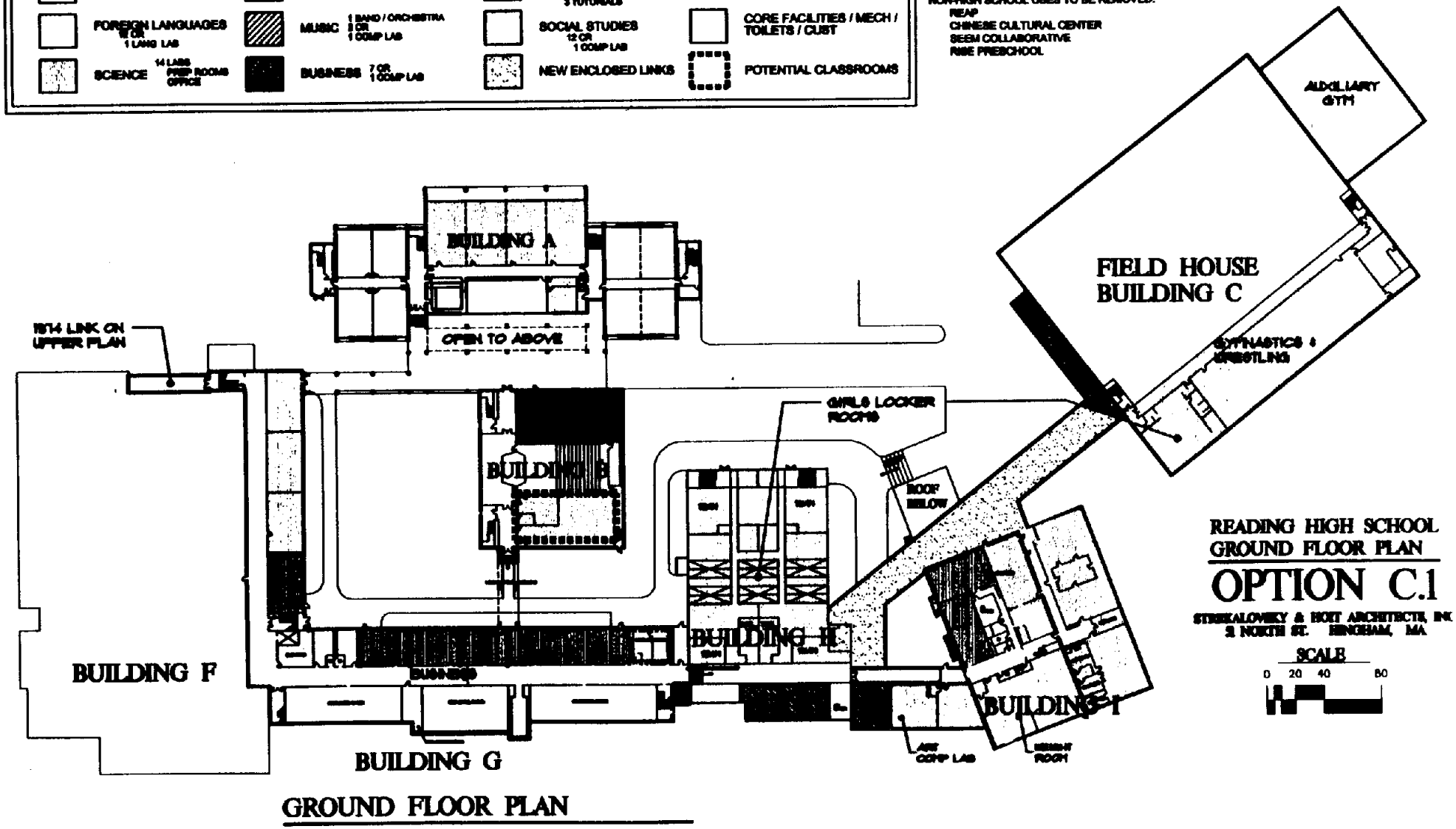
LEGEND - 1600 PUPIL

- OTHER USES
- ADMIN / GUID / CONF / HEALTH
- MATH 12 CR 1 COMP LAB
- FOREIGN LANGUAGES 10 CR 1 LANG LAB
- SCIENCE 14 LABS PREP ROOMS OFFICE
- HEALTH 2 CR
- TECHNOLOGY EDUCATION 1 COMP LAB 1 CR 1 SHOP
- ART 5 STUDIOS (INCLUDING GRAPHIC ARTS) 1 COMP LAB
- MUSIC 1 BAND / ORCHESTRA 2 CR 1 COMP LAB
- BUSINESS 7 CR 1 COMP LAB
- ENGLISH 12 CR 1 COMP LAB 1 READING RM 1 MINI LAB
- HUMANITIES
- SPECIAL EDUCATION 1 CR 3 TUTORIALS
- SOCIAL STUDIES 12 CR 1 COMP LAB
- NEW ENCLOSED LINKS
- FACULTY OFFICE DEPARTMENT COLOR
- DRAMA
- PHYSICAL EDUCATION
- CORE FACILITIES / MECH / TOILETS / CUST
- POTENTIAL CLASSROOMS

ENLARGE TEACHING STATIONS
RELOCATE DEPARTMENTAL OFFICES TO SMALLER NON-CLASSROOM SPACES
EACH DEPARTMENT TO SHARE CLASSROOM SPACE.
CREATE DRAMA CENTER AT MUSIC CLASSROOM / STAGE
CONVERT EXISTING GIRLS GYM (1980 BUILDING) TO MUSIC CENTER
CONSTRUCT "MINI GYM" ADDITION TO FIELD HOUSE
GIRLS LOCKER ROOM TO REMAIN IN 1980 BUILDING
CONSTRUCT ENCLOSED ADDITION TO FIELDHOUSE

NON-HIGH SCHOOL USES TO REMAIN:
SUPERINTENDENTS OFFICE
DISTRICT SPECIAL NEEDS OFFICE
DISTRICT MAINTENANCE FACILITY
RCTV

NON-HIGH SCHOOL USES TO BE REMOVED:
REAP
CHINESE CULTURAL CENTER
SEEM COLLABORATIVE
RISE PRESCHOOL



GROUND FLOOR PLAN

READING HIGH SCHOOL
GROUND FLOOR PLAN

OPTION C.1

STREKALOWSKY & HOIT ARCHITECTS, INC.
5 NORTH ST. HINGHAM, MA

SCALE
0 20 40 80

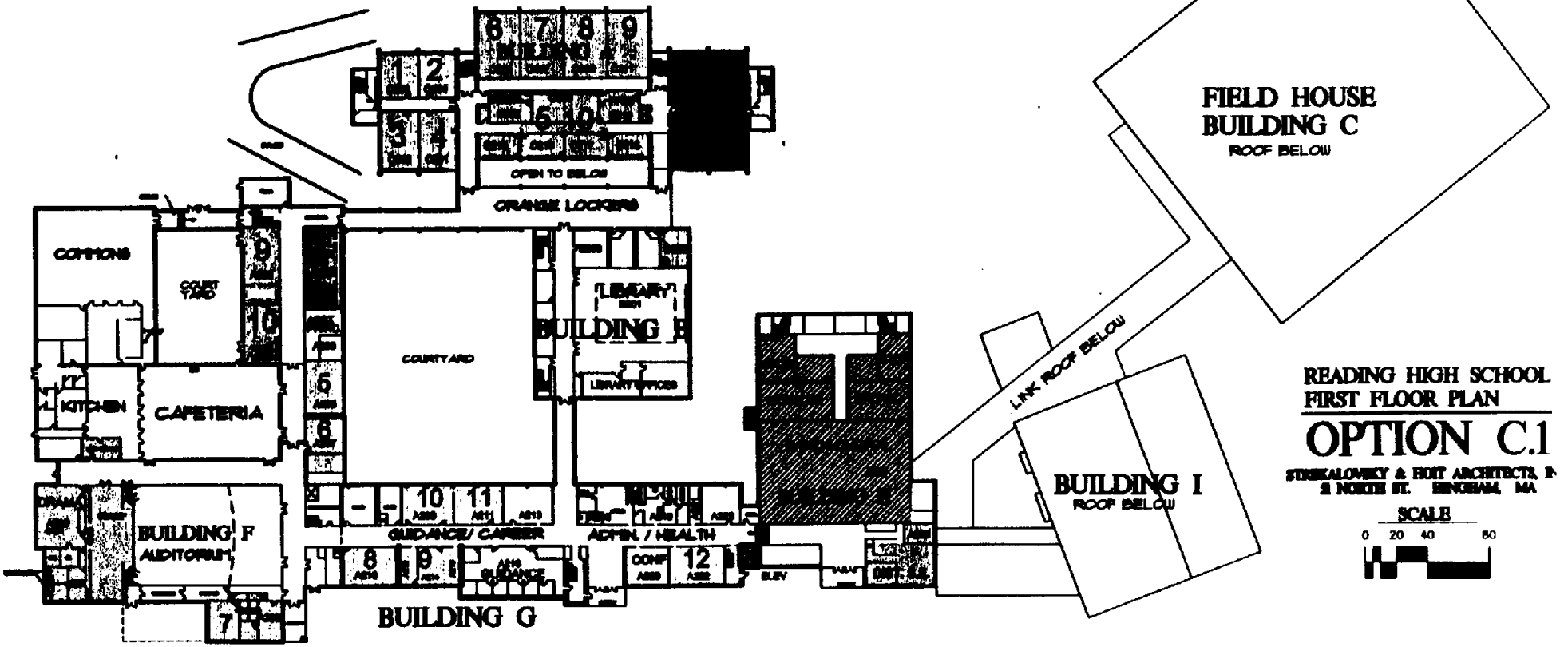
LEGEND - 1600 PUPIL

- OTHER USES
- ADMIN / GUID / CONF / HEALTH
- MATH 12 CR, 1 COMP LAB
- FOREIGN LANGUAGES 6 CR, 1 LANG LAB
- SCIENCE 14 LABS, PREP ROOMS, OFFICE
- HEALTH 2 CR
- TECHNOLOGY EDUCATION 1 COMP LAB, 1 CR, 1 SHOP
- ART 5 STUDIOS (INCLUDING GRAPHIC ARTS), 1 COMP LAB
- MUSIC 1 BAND / ORCHESTRA, 2 CR, 1 COMP LAB
- BUSINESS 7 CR, 1 COMP LAB
- ENGLISH 12 CR, 1 COMP LAB, 1 READING RM, 1 MINI LAB
- HUMANITIES
- SPECIAL EDUCATION 1 CR, 5 TUTORIALS
- SOCIAL STUDIES 12 CR, 1 COMP LAB
- NEW ENCLOSED LINKS
- FACULTY OFFICE, DEPARTMENT COLOR
- DRAMA
- PHYSICAL EDUCATION
- CORE FACILITIES / MECH / TOILETS / CUST
- POTENTIAL CLASSROOMS

ENLARGE TEACHING STATIONS
RELOCATE DEPARTMENTAL OFFICES TO SMALLER NON-CLASSROOM SPACES
EACH DEPARTMENT TO SHARE CLASSROOM SPACE.
CREATE DRAMA CENTER AT MUSIC CLASSROOM / STAGE
CONVERT EXISTING GIRLS GYM (1950 BUILDING) TO MUSIC CENTER
CONSTRUCT "MINI GYM" ADDITION TO FIELD HOUSE
GIRLS LOCKER ROOM TO REMAIN IN 1950 BUILDING
CONSTRUCT ENCLOSED ADDITION TO FIELDHOUSE

NON-HIGH SCHOOL USES TO REMAIN:
SUPERINTENDENTS OFFICE
DISTRICT SPECIAL NEEDS OFFICE
DISTRICT MAINTENANCE FACILITY
RCTV

NON-HIGH SCHOOL USES TO BE REMOVED:
REAP
CHINESE CULTURAL CENTER
SEEM COLLABORATIVE
RISE PRESCHOOL



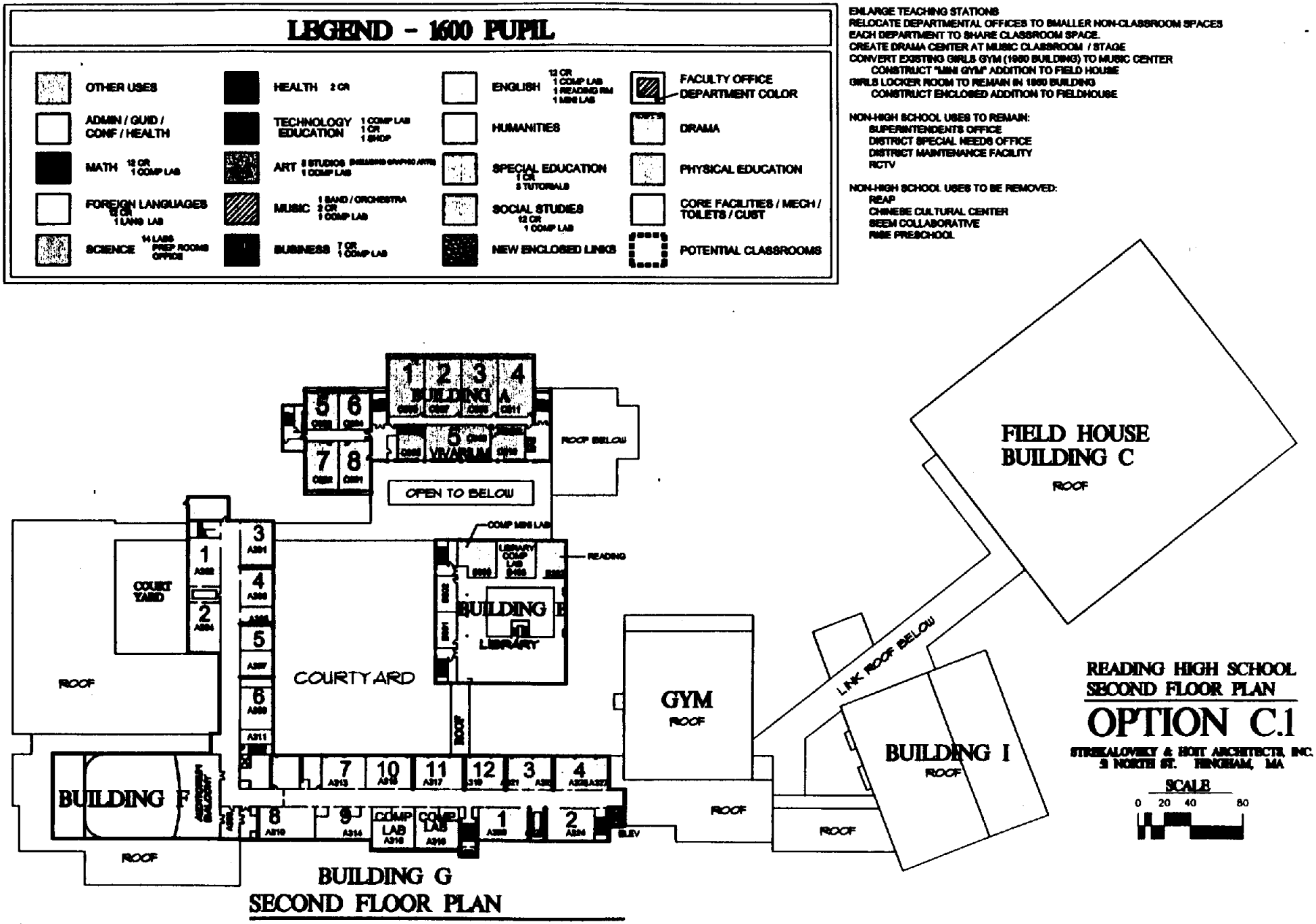
FIRST FLOOR PLAN

READING HIGH SCHOOL
FIRST FLOOR PLAN

OPTION C.1

STREKALOWSKY & HOIT ARCHITECTS, P.
2 NORTH ST. BINGHAM, MA

SCALE
0 20 40 80


LEGEND - 1600 PUPIL
OTHER USES
ADMIN / GUID / CONF / HEALTH
MATH 12 CR 1 COMP LAB
FOREIGN LANGUAGES 6 CR 1 LANG LAB
SCIENCE 14 LABS PREP ROOMS OFFICE
HEALTH 2 CR
TECHNOLOGY EDUCATION 1 COMP LAB 1 CR 1 SHOP
ART 5 STUDIOS 1 COMP LAB
MUSIC 1 BAND / ORCHESTRA 2 CR 1 COMP LAB
BUSINESS 7 CR 1 COMP LAB
ENGLISH 12 CR 1 COMP LAB 1 READING RM 1 MINI LAB
HUMANITIES
SPECIAL EDUCATION 1 CR 5 TUTORIALS
SOCIAL STUDIES 12 CR 1 COMP LAB
NEW ENCLOSED LINKS
FACULTY OFFICE DEPARTMENT COLOR
DRAMA
PHYSICAL EDUCATION
CORE FACILITIES / MECH / TOILETS / CUST
POTENTIAL CLASSROOMS
ENLARGE TEACHING STATIONS
RELOCATE DEPARTMENTAL OFFICES TO SMALLER NON-CLASSROOM SPACES
EACH DEPARTMENT TO SHARE CLASSROOM SPACE.
CREATE DRAMA CENTER AT MUSIC CLASSROOM / STAGE
CONVERT EXISTING GIRLS GYM (1950 BUILDING) TO MUSIC CENTER
CONSTRUCT "MINI GYM" ADDITION TO FIELD HOUSE
GIRLS LOCKER ROOM TO REMAIN IN 1950 BUILDING
CONSTRUCT ENCLOSED ADDITION TO FIELDHOUSE
NON-HIGH SCHOOL USES TO REMAIN:
SUPERINTENDENTS OFFICE
DISTRICT SPECIAL NEEDS OFFICE
DISTRICT MAINTENANCE FACILITY
RCTV
NON-HIGH SCHOOL USES TO BE REMOVED:
REAP
CHINESE CULTURAL CENTER
SEEM COLLABORATIVE
RISE PRESCHOOL
BUILDING A
ROOF BELOW
OPEN TO BELOW
FIELD HOUSE
BUILDING C
ROOF
COURT YARD
COMP MINI LAB
READING
LIBRARY COMP LAB
BUILDING E
LIBRARY
ROOF
COURTYARD
GYM
ROOF
LINK ROOF BELOW
BUILDING I
ROOF
BUILDING F
ROOF
ROOF
ROOF
BUILDING G
SECOND FLOOR PLAN
READING HIGH SCHOOL
SECOND FLOOR PLAN
OPTION C.1
STREKALOVSKY & HOIT ARCHITECTS, INC.
SCALE
0 20 40 80

Reading Memorial High School		**Option C.2: Renovations and Additions**						
		(more extensive links and fieldhouse addition)						
	existing	Renovations			New Construciton			
	sf	sf	$/sf	total	sf	$/sf	total	
Bldg I: Art/Boiler								
basement	16000	16,000	$ 38	$ 600,000			$	-
ground	15000	15,000	$ 71	$ 1,061,500			$	-
Bldg. H: Girls Gym/Locker								
ground (new classrooms)	20000	20,000	$ 46	$ 918,500			$	-
	17000	17,000	$ 91	$ 1,540,000			$	-
Bldg. G: 1950 Academic Wing								
ground	28000	28,000	$ 71	$ 1,985,500			$	-
first	19250	19,250	$ 80	$ 1,545,500			$	-
second	30000	30,000	$ 78	$ 2,326,500			$	-
Link: 1950 Wing to Library (Bldg. G to Bldg. B)								
ground	0				800	$ 112	$	89,834
first	800				800	$ 112	$	89,833
second	0				800	$ 112	$	89,833
Bldg B: Library								
ground	10500	10,500	$ 65	$ 687,500			$	-
first	10500	10,500	$ 65	$ 687,500			$	-
second	9200	9,200	$ 94	$ 869,000			$	-
Link: Library to Math/Science (Bldg. B to Bldg. A)								
first	3500				3,500	$ 251	$	877,250
second	0				3,500	$ 251	$	877,250
Bldg. A: Math/Science								
basement	5325	5,325	$ -	$ -			$	-
ground	18000	18,000	$ 75	$ 1,350,000			$	-
first	21000	21,000	$ 76	$ 1,590,000			$	-
second	16250	16,250	$ 89	$ 1,450,000			$	-
Bldg. F: Auditorium/Music/Balcony								
first and balcony	13500	13,500	$ 126	$ 1,700,500			$	-
Bldg. F: Cafeteria/Kitchen/Commons								
first	30750	30,750	$ 72	$ 2,219,000			$	-
Bldg. C: Fieldhouse								
play surface (basement plan)	33000	33,000	$ -	$ -			$	-
boys lockers	11500	11,500	$ 80	$ 918,500			$	-
wrestling	11500	11,500	$ 67	$ 775,500				
girls lockers (incl. mech. link)	0				12,000	$ 208	$	2,500,000
weight room	0				12,000	$ 95	$	1,135,000
auxillary gymnasium	0				7,500	$ 127	$	951,500
Link: Field House to School (Bldg. H to Bldg. C)								
ground	0				10,831	$ 289	$	3,129,500
Sitework Allowance: Drives, Parking, Fields				$ 700,000				
Subtotals	340575	336,275	$ 68	$ 22,925,000	51,731	$ 188	$	9,740,000
Total 1999 Construction Cost: Option C.2					***388,006***	***$ 84***	***$***	***32,665,000***

Reading High School
Feasability Budget Analysis

Bldg " I " Basement	600,000
Bldg " I " Ground Floor	1,061,500
Bldg " H " Ground Floor	918,500
Bldg " H " 1st Floor	1,540,000
Bldg " G " Ground Floor	1,985,500
Bldg " G " 1st Floor	1,545,500
Bldg " G " 2nd Floor	2,326,500
Bldg " B " Ground Floor	687,500
Bldg " B " 1st Floor	687,500
Bldg " B " 2nd Floor	869,000
Bldg " A " Ground Floor	1,350,000
Bldg " A " 1st Floor	1,590,000
Bldg " A " 2nd Floor	1,450,000
Bldg " F " Auditorium	1,700,500
Bldg " F " Kitchen	2,219,000
Bldg " B – G " Link	269,500
Bldg " B – A " Link	1,754,500
Girl's Locker Room / Mezzanine	3,635,000
New Auxiliary Gym	951,500
Renovate Boy's Locker Room	918,500
Renovate Weight Room	775,500
Field House Link	3,129,500
Total	**$31,965,000**

Reading High School		3 / 5 / 98
Feasability Budget Analysis		Bldg " I " Basement
		'99 Cost $$$
General Conditions		50,000
Demolition		
Site		
Concrete		
Structural Steel		
Misc Metals		25,000
Masonry		
Roofing		
Windows		40,000
Interior Architectural		100,000
Fire Protection		20,000
Plumbing		40,000
HVAC		125,000
Electrical		100,000
Total	Incl O H + P	$550,000
***** New Particulate System *****		$50,000

Reading High School		3 / 5 / 98
Feasability Budget Analysis		Bldg " I " Ground Floor
		'99 Cost $$$
General Conditions		80,000
Demolition		
Site		
Concrete		
Structural Steel		
Misc Metals		40,000
Masonry		
Roofing		110,000
Windows		75,000
Interior Architectural		240,000
Fire Protection		30,000
Plumbing		50,000
HVAC		200,000
Electrical		140,000
Total	Incl O H + P	$1,061,500

Reading High School		3 / 5 / 98
Feasability Budget Analysis		Bldg " H " Ground Floor
		'99 Cost $$$
General Conditions		70,000
Demolition		40,000
Site		
Concrete		15,000
Structural Steel		10,000
Misc Metals		30,000
Masonry		30,000
Roofing		
Windows		60,000
Interior Architectural		240,000
Fire Protection		30,000
Plumbing		40,000
HVAC		160,000
Electrical		110,000
Total	Incl O H + P	$918,500

Reading High School		3 / 5 / 98
Feasability Budget Analysis		Bldg " H " 1st Floor
		'99 Cost $$$
General Conditions		90,000
Demolition		50,000
Site		
Concrete		20,000
Structural Steel		30,000
Misc Metals		40,000
Masonry		30,000
Roofing		110,000
Windows		75,000
Interior Architectural		325,000
Fire Protection		70,000
Plumbing		60,000
HVAC		300,000
Electrical		200,000
Total	Incl O H + P	$1,540,000

Reading High School		3 / 5 / 98
Feasability Budget Analysis		Bldg " G " Ground Floor
		'99 Cost $$$
General Conditions		150,000
Demolition		40,000
Site		
Concrete		25,000
Structural Steel		
Misc Metals		60,000
Masonry		100,000
Roofing		50,000
Windows		120,000
Interior Architectural		540,000
Fire Protection		65,000
Plumbing		70,000
HVAC		350,000
Electrical		235,000
Total	Incl O H + P	$1,985,500

Reading High School		3 / 5 / 98
Feasability Budget Analysis		Bldg " G " 1st Floor
		'99 Cost $$$
General Conditions		100,000
Demolition		60,000
Site		
Concrete		15,000
Structural Steel		45,000
Misc Metals		60,000
Masonry		100,000
Roofing		
Windows		80,000
Interior Architectural		400,000
Fire Protection		40,000
Plumbing		80,000
HVAC		260,000
Electrical		165,000
Total	Incl O H + P	$1,545,500

Reading High School		3 / 5 / 98
Feasability Budget Analysis		Bldg " G " 2nd Floor
		'99 Cost $$$
General Conditions		160,000
Demolition		100,000
Site		
Concrete		15,000
Structural Steel		
Misc Metals		75,000
Masonry		60,000
Roofing		190,000
Windows		125,000
Interior Architectural		560,000
Fire Protection		60,000
Plumbing		120,000
HVAC		400,000
Electrical		250,000
Total	Incl O H + P	$2,326,500

Reading High School		3 / 5 / 98
Feasability Budget Analysis		Bldg " B " Ground Floor
		'99 Cost $$$
General Conditions		60,000
Demolition		20,000
Site		
Concrete		
Structural Steel		
Misc Metals		30,000
Masonry		
Roofing		
Windows		50,000
Interior Architectural		165,000
Fire Protection		25,000
Plumbing		25,000
HVAC		150,000
Electrical		100,000
Total	Incl O H + P	$687,500

Reading High School		3 / 5 / 98
Feasability Budget Analysis		Bldg " B " 1st Floor
		'99 Cost $$$
General Conditions		60,000
Demolition		
Site		
Concrete		
Structural Steel		
Misc Metals		25,000
Masonry		
Roofing		
Windows		50,000
Interior Architectural		165,000
Fire Protection		25,000
Plumbing		
HVAC		200,000
Electrical		100,000
Total	Incl O H + P	$687,500

Reading High School		3 / 5 / 98
Feasability Budget Analysis		Bldg " B " 2nd Floor
		'99 Cost $$$
General Conditions		90,000
Demolition		20,000
Site		
Concrete		10,000
Structural Steel		20,000
Misc Metals		25,000
Masonry		30,000
Roofing		70,000
Windows		50,000
Interior Architectural		200,000
Fire Protection		25,000
Plumbing		10,000
HVAC		150,000
Electrical		90,000
Total	Incl O H + P	$869,000

Reading High School		3 / 5 / 98
Feasability Budget Analysis		Bldg " A " Ground Floor
		'99 Cost $$$
General Conditions		100,000
Demolition		65,000
Site		
Concrete		
Structural Steel		
Misc Metals		60,000
Masonry		
Roofing		
Windows		85,000
Interior Architectural		300,000
Fire Protection		40,000
Plumbing		100,000
HVAC		280,000
Electrical		200,000
Total	Incl O H + P	$1,350,000

Reading High School		3 / 5 / 98
Feasability Budget Analysis		Bldg " A " 1st Floor
		'99 Cost $$$
General Conditions		120,000
Demolition		30,000
Site		
Concrete		10,000
Structural Steel		
Misc Metals		50,000
Masonry		50,000
Roofing		
Windows		100,000
Interior Architectural		375,000
Fire Protection		40,000
Plumbing		150,000
HVAC		300,000
Electrical		220,000
Total	Incl O H + P	$1,590,000

Reading High School		3 / 5 / 98
Feasability Budget Analysis		Bldg " A " 2nd Floor
		'99 Cost $$$
General Conditions		90,000
Demolition		40,000
Site		
Concrete		10,000
Structural Steel		
Misc Metals		40,000
Masonry		30,000
Roofing		110,000
Windows		75,000
Interior Architectural		260,000
Fire Protection		30,000
Plumbing		150,000
HVAC		285,000
Electrical		200,000
Total	Incl O H + P	$1,450,000

Reading High School		3 / 5 / 98
Feasability Budget Analysis		Bldg " F " Auditorium
		'99 Cost $$$
General Conditions		100,000
Demolition		100,000
Site		
Concrete		30,000
Structural Steel		30,000
Misc Metals		30,000
Masonry		30,000
Roofing		100,000
Windows		
Interior Architectural		250,000
Fire Protection		50,000
Plumbing		10,000
HVAC		375,000
Electrical		250,000
Total	Incl O H + P	$1,490,500

Seats	$100,000
Theatre Lights	$60,000
Acoustics	$50,000

Reading High School		3 / 5 / 98
Feasability Budget Analysis		Bldg " F " Kitchen
		'99 Cost $$$
General Conditions		160,000
Demolition		50,000
Site		
Concrete		
Structural Steel		
Misc Metals		70,000
Masonry		30,000
Roofing		185,000
Windows		125,000
Interior Architectural		475,000
Fire Protection		60,000
Plumbing		60,000
HVAC		375,000
Electrical		250,000
Total	Incl O H + P	$2,024,000

Kitchen Equipment	$125,000
Mechanical	$70,000

Reading High School		3 / 5 / 98
Feasability Budget Analysis		Bldg " B – G " Link
		'99 Cost $$$
General Conditions		20,000
Demolition		10,000
Site		10,000
Concrete		25,000
Structural Steel		25,000
Misc Metals		5,000
Masonry		25,000
Roofing		15,000
Windows		10,000
Interior Architectural		30,000
Fire Protection		5,000
Plumbing		5,000
HVAC		40,000
Electrical		20,000
Total	Incl O H + P	$269,500

Reading High School		3 / 5 / 98
Feasability Budget Analysis		Bldg " B – A " Link
		'99 Cost $$$
General Conditions		100,000
Demolition		300,000
Site		75,000
Concrete		100,000
Structural Steel		200,000
Misc Metals		20,000
Masonry		175,000
Roofing		50,000
Windows		300,000
Interior Architectural		75,000
Fire Protection		15,000
Plumbing		10,000
HVAC		100,000
Electrical		75,000
Total	Incl O H + P	$1,754,500

Reading High School		3 / 5 / 98
Feasability Budget Analysis		Girl's Locker / Mezzanine
		'99 Cost $$$
General Conditions		125,000
Demolition		75,000
Site		150,000
Concrete		125,000
Structural Steel		375,000
Misc Metals		50,000
Masonry		275,000
Roofing		150,000
Windows		100,000
Interior Architectural		450,000
Fire Protection		75,000
Plumbing		250,000
HVAC		400,000
Electrical		250,000
Total	Incl O H + P	$3,135,000

Upgrade Exisitng Mech Systems $500,000

Reading High School		3 / 5 / 98
Feasability Budget Analysis		New Aux Gym
		'99 Cost $$$
General Conditions		40,000
Demolition		20,000
Site		50,000
Concrete		50,000
Structural Steel		125,000
Misc Metals		15,000
Masonry		80,000
Roofing		50,000
Windows		30,000
Interior Architectural		125,000
Fire Protection		20,000
Plumbing		10,000
HVAC		150,000
Electrical		100,000
Total	Incl O H + P	$951,500

Reading High School Feasability Budget Analysis		3 / 5 / 98 Renovate Boy's Locker '99 Cost $$$
General Conditions		60,000
Demolition		25,000
Site		
Concrete		
Structural Steel		
Misc Metals		30,000
Masonry		15,000
Roofing		
Windows		50,000
Interior Architectural		250,000
Fire Protection		30,000
Plumbing		75,000
HVAC		200,000
Electrical		100,000
Total	Incl O H + P	$918,500

Reading High School Feasability Budget Analysis		3 / 5 / 98 Renovate Weight Room '99 Cost $$$
General Conditions		60,000
Demolition		10,000
Site		
Concrete		
Structural Steel		
Misc Metals		30,000
Masonry		
Roofing		75,000
Windows		50,000
Interior Architectural		180,000
Fire Protection		40,000
Plumbing		10,000
HVAC		150,000
Electrical		100,000
Total	Incl O H + P	$775,500

Reading High School		3 / 5 / 98
Feasability Budget Analysis		Link Field House / School
		'99 Cost $$$
General Conditions		200,000
Demolition		150,000
Site		175,000
Concrete		200,000
Structural Steel		750,000
Misc Metals		30,000
Masonry		175,000
Roofing		100,000
Windows		500,000
Interior Architectural		200,000
Fire Protection		50,000
Plumbing		15,000
HVAC		150,000
Electrical		150,000
Total	Incl O H + P	$3,129,500

LEGEND - 1,600 PUPILS

- OTHER USES
- ADMIN / GUID / CONF / HEALTH
- MATH 13 CR, 1 COMP LAB
- FOREIGN LANGUAGES 13 CR, 1 LANG LAB
- SCIENCE 15 LABS, PREP ROOMS
- HEALTH 2 CR
- TECHNOLOGY EDUCATION 1 COMP LAB, 1 CR, 1 SHOP
- ART 6 STUDIOS, 1 COMP LAB
- MUSIC 1 BAND / ORCHESTRA, 2 CR, 1 COMP/[illegible] BAND/HD ARTS
- BUSINESS 6 CR, 1 COMP LAB
- ENGLISH 13 CR, 1 COMP LAB, 1 READING RM, 1 MINI LAB
- HUMANITIES
- SPECIAL EDUCATION 1 CR, 3 TUTORIALS
- SOCIAL STUDIES 13 CR, 1 COMP LAB
- NEW ENCLOSED LINKS
- FACULTY OFFICE - DEPARTMENT COLOR
- DRAMA
- PHYSICAL EDUCATION
- CORE FACILITIES / MECH / TOILETS / CUST
- POTENTIAL CLASSROOMS

ENLARGE TEACHING STATIONS
EACH DEPARTMENT TO SHARE CLASSROOM SPACE
RELOCATE DEPARTMENTAL OFFICES TO SMALLER NON-CLASSROOM SPACES
CREATE DRAMA CENTER AT MUSIC CLASSROOM / STAGE
CONVERT GIRLS GYM (1950 BUILDING) TO MUSIC CENTER
- CONSTRUCT MINI GYM ADDITION TO FIELD HOUSE

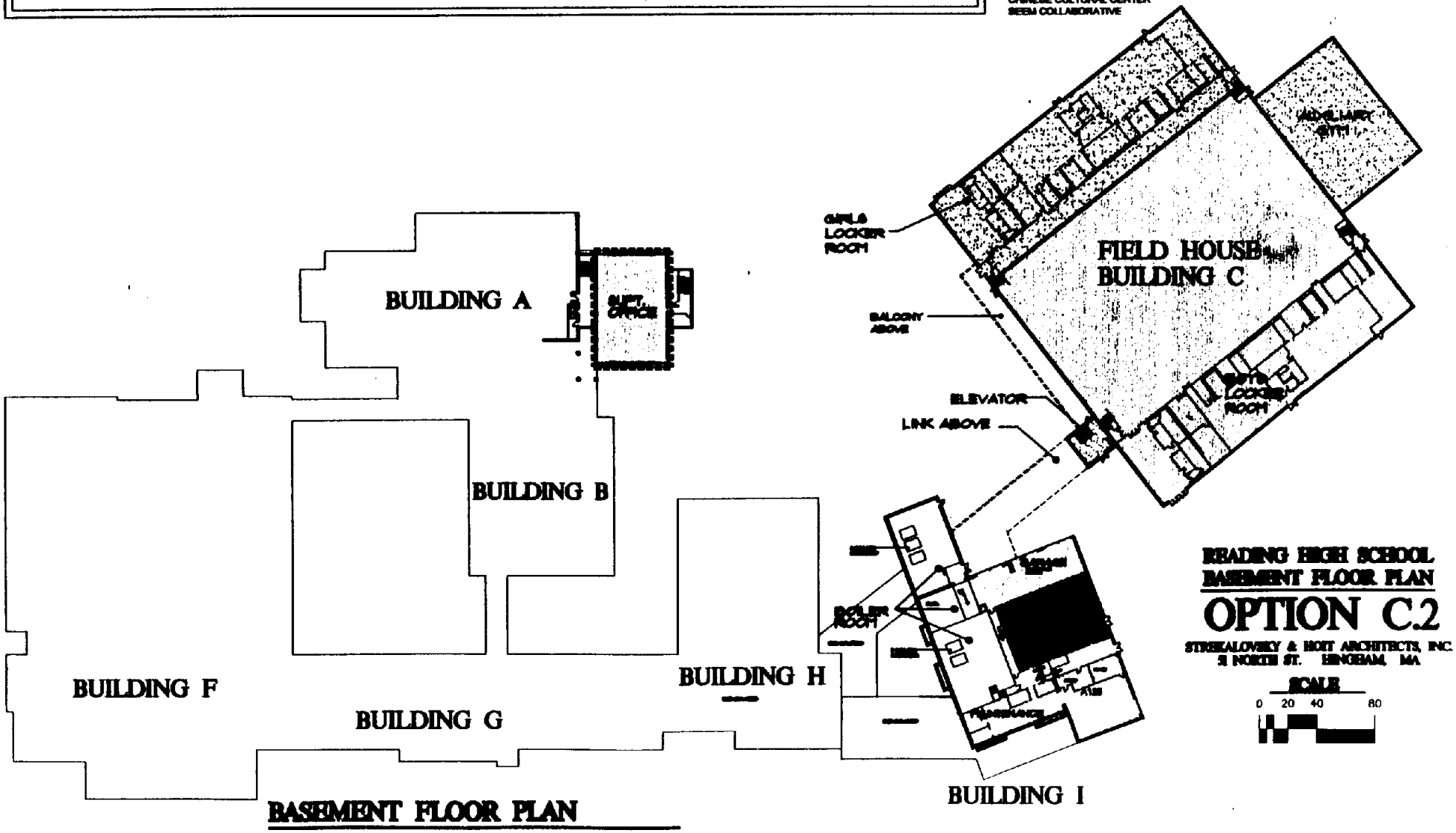
CONVERT GIRLS LOCKER ROOM INTO CLASSROOM SPACE
- CONSTRUCT GIRLS LOCKER ROOM ADDITION TO FIELD HOUSE

CONVERT WEIGHT ROOM TO MUSIC STORAGE
- NEW WEIGHT ROOM TO BE LOCATED IN ADDITION TO FIELD HOUSE

CONSTRUCT ENCLOSED LINK TO FIELD HOUSE
REPLACE EXISTING (1) LEVEL "ORANGE LOCKERS" LINK TO SCIENCE BUILDING WITH A (2) LEVEL LINK CREATING PROPER CIRCULATION AT SECOND FLOOR.
REPLACE EXISTING (1) LEVEL LINK BETWEEN 1950 BUILDING AND LIBRARY WITH A (3) LEVEL ENCLOSED LINK TO CREATE PROPER CIRCULATION PATTERN AT GROUND AND SECOND FLOOR LEVELS.

NON-HIGH SCHOOL SPACES TO REMAIN:
- SUPERINTENDENTS OFFICE
- DISTRICT SPECIAL NEEDS OFFICE
- RMC PRE-SCHOOL
- RCTV
- DISTRICT MAINTENANCE FACILITY

NON-HIGH SCHOOL SPACES TO BE REMOVED:
- REAP
- CHINESE CULTURAL CENTER
- SEEM COLLABORATIVE



BASEMENT FLOOR PLAN

READING HIGH SCHOOL
BASEMENT FLOOR PLAN
OPTION C.2

STREKALOVSKY & HOIT ARCHITECTS, INC.
3 NORTH ST. HINGHAM, MA

SCALE
0 20 40 80

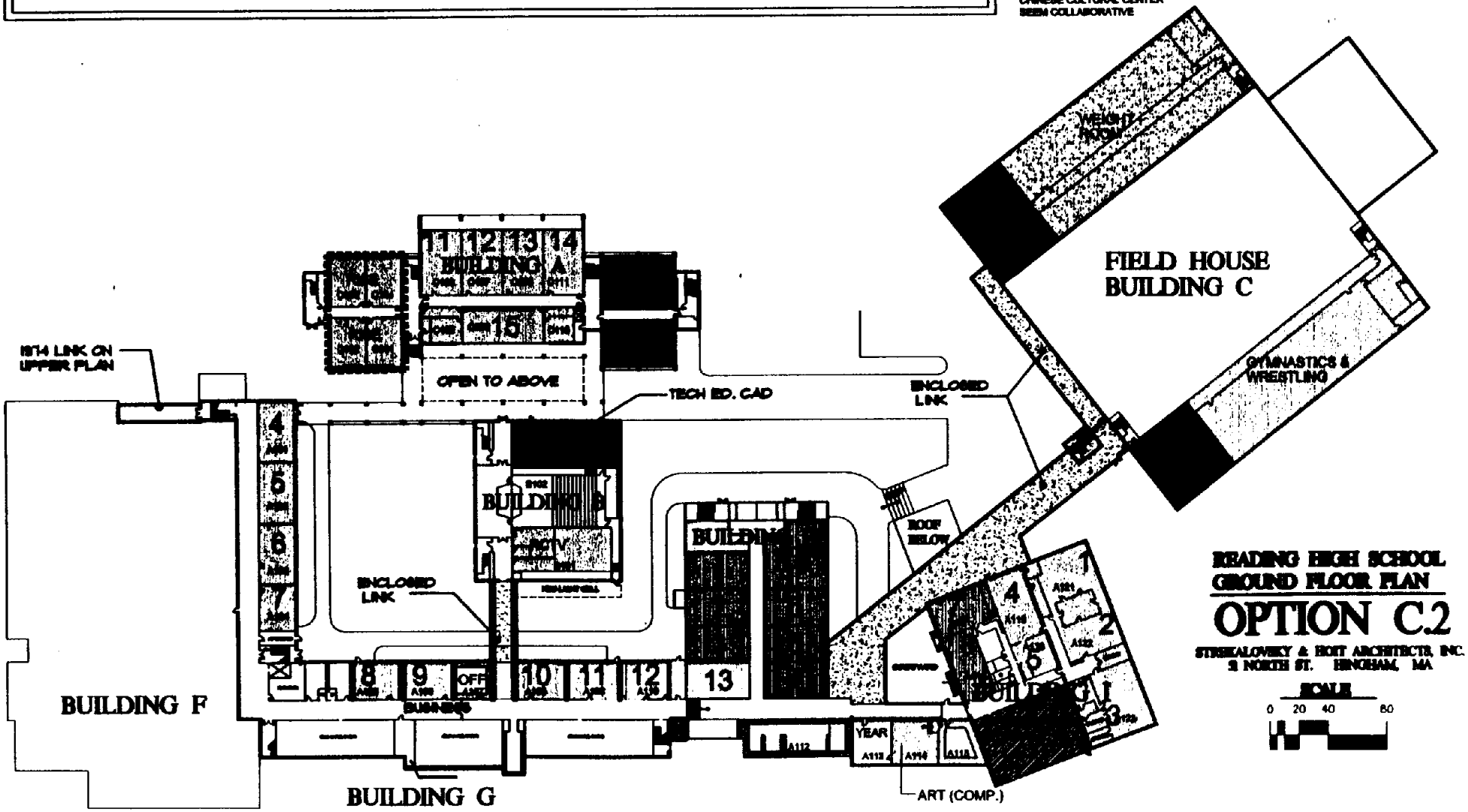
LEGEND - 1,600 PUPILS

- OTHER USES
- ADMIN / GUID / CONF / HEALTH
- MATH 13 CR, 1 COMP LAB
- FOREIGN LANGUAGES 8 CR, 1 LANG LAB
- SCIENCE 18 LABS, PREP ROOMS
- HEALTH 2 CR
- TECHNOLOGY EDUCATION 1 COMP LAB, 1 CR, 1 SHOP
- ART 6 STUDIOS, 1 COMP LAB
- MUSIC 1 BAND / ORCHESTRA, 2 CR, 1 COMP/MUSIC/VIDEO GRAPHIC ARTS
- BUSINESS 6 CR, 1 COMP LAB
- ENGLISH 13 CR, 1 COMP LAB, 1 READING RM, 1 MINI LAB
- HUMANITIES
- SPECIAL EDUCATION 1 CR, 3 TUTORIALS
- SOCIAL STUDIES 13 CR, 1 COMP LAB
- NEW ENCLOSED LINKS
- FACULTY OFFICE - DEPARTMENT COLOR
- DRAMA
- PHYSICAL EDUCATION
- CORE FACILITIES / MECH / TOILETS / CUST
- POTENTIAL CLASSROOMS

ENLARGE TEACHING STATIONS
EACH DEPARTMENT TO SHARE CLASSROOM SPACE
RELOCATE DEPARTMENTAL OFFICES TO SMALLER NON-CLASSROOM SPACES
CREATE DRAMA CENTER AT MUSIC CLASSROOM / STAGE
CONVERT GIRLS GYM (1968 BUILDING) TO MUSIC CENTER
- CONSTRUCT MINI GYM ADDITION TO FIELD HOUSE
CONVERT GIRLS LOCKER ROOM INTO CLASSROOM SPACE
- CONSTRUCT GIRLS LOCKER ROOM ADDITION TO FIELD HOUSE
CONVERT WEIGHT ROOM TO MUSIC STORAGE
- NEW WEIGHT ROOM TO BE LOCATED IN ADDITION TO FIELD HOUSE
CONSTRUCT ENCLOSED LINK TO FIELD HOUSE
REPLACE EXISTING (1) LEVEL "ORANGE LOCKERS" LINK TO SCIENCE BUILDING WITH A (2) LEVEL LINK CREATING PROPER CIRCULATION AT SECOND FLOOR
REPLACE EXISTING (1) LEVEL LINK BETWEEN 1968 BUILDING AND LIBRARY WITH A (3) LEVEL ENCLOSED LINK TO CREATE PROPER CIRCULATION PATTERN AT GROUND AND SECOND FLOOR LEVELS.

NON-HIGH SCHOOL SPACES TO REMAIN:
SUPERINTENDENT'S OFFICE
DISTRICT SPECIAL NEEDS OFFICE
RISE PRE-SCHOOL
RCTV
DISTRICT MAINTENANCE FACILITY

NON-HIGH SCHOOL SPACES TO BE REMOVED:
REAP
CHINESE CULTURAL CENTER
SEEM COLLABORATIVE



READING HIGH SCHOOL
GROUND FLOOR PLAN
OPTION C.2

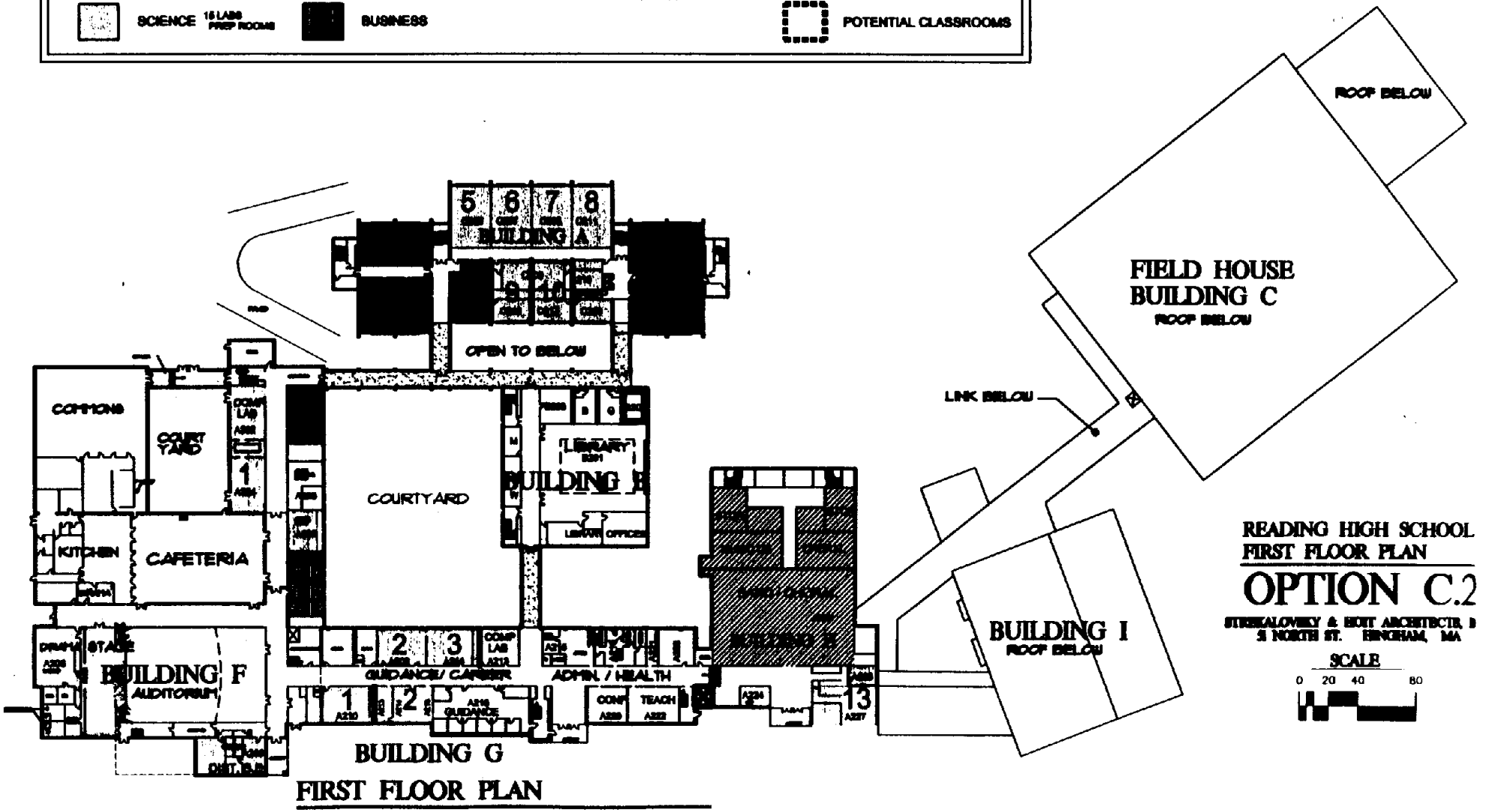
STRIKALOVSKY & HOIT ARCHITECTS, INC.
2 NORTH ST. HINGHAM, MA

SCALE
0 20 40 80

LEGEND - 1,600 PUPILS

- OTHER USES
- ADMIN / GUID / CONF / HEALTH
- MATH 13 CR, 1 COMP LAB
- FOREIGN LANGUAGES 15 CR, 1 LANG LAB
- SCIENCE 16 LABS, PREP ROOMS
- HEALTH 2 CR
- TECHNOLOGY 1 COMP LAB, 1 CR, 1 SHOP
- ART 5 STUDIOS, 1 COMP LAB
- MUSIC (EXCLUDES GRAPHIC ARTS)
- BUSINESS
- ENGLISH 13 CR, 1 COMP LAB, 1 READING RM, 1 MINI LAB
- HUMANITIES
- SPECIAL EDUCATION 1 CR, 3 TUTORIALS
- SOCIAL STUDIES 13 CR, 1 COMP LAB
- FACULTY OFFICE, DEPARTMENT COLOR
- DRAMA
- PHYSICAL EDUCATION
- CORE FACILITIES / MECH / TOILETS / CUST
- POTENTIAL CLASSROOMS

WITH A (2) LEVEL LINK CREATING PROPER CIRCULATION AT SECOND FLOOR



READING HIGH SCHOOL
FIRST FLOOR PLAN

OPTION C.2

STEREALOWSKY & SCOTT ARCHITECTS
5 NORTH ST. HINGHAM, MA

SCALE
0 20 40 80

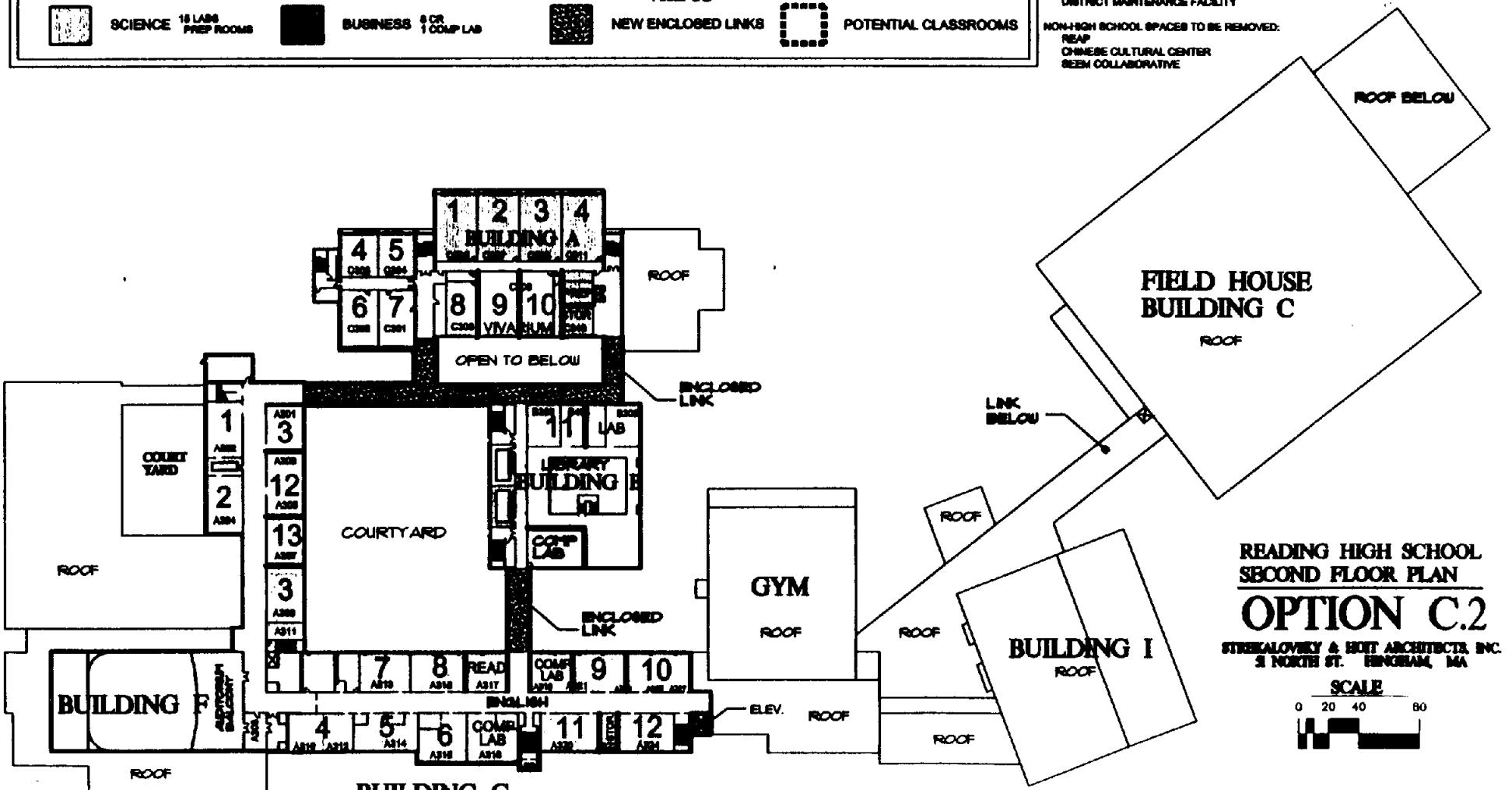
LEGEND - 1,600 PUPILS

- OTHER USES
- ADMIN / GUID / CONF / HEALTH
- MATH 13 CR, 1 COMP LAB
- FOREIGN LANGUAGES 13 CR, 1 LANG LAB
- SCIENCE 18 LABS, PREP ROOMS
- HEALTH 2 CR
- TECHNOLOGY EDUCATION 1 COMP LAB, 1 CR, 1 SHOP
- ART 5 STUDIOS, 1 COMP LAB
- MUSIC 1 BAND / ORCHESTRA, 2 CR, 1 COMP LAB (GRAPHIC ARTS)
- BUSINESS 5 CR, 1 COMP LAB
- ENGLISH 13 CR, 1 COMP LAB, 1 READING RM, 1 MINI LAB
- HUMANITIES
- SPECIAL EDUCATION 1 CR, 3 TUTORIALS
- SOCIAL STUDIES 13 CR, 1 COMP LAB
- NEW ENCLOSED LINKS
- FACULTY OFFICE DEPARTMENT COLOR
- DRAMA
- PHYSICAL EDUCATION
- CORE FACILITIES / MECH / TOILETS / CUST
- POTENTIAL CLASSROOMS

ENLARGE TEACHING STATIONS
EACH DEPARTMENT TO SHARE CLASSROOM SPACE
RELOCATE DEPARTMENTAL OFFICES TO SMALLER NON-CLASSROOM SPACES
CREATE DRAMA CENTER AT MUSIC CLASSROOM / STAGE
CONVERT GIRLS GYM (1980 BUILDING) TO MUSIC CENTER
- CONSTRUCT MINI GYM ADDITION TO FIELD HOUSE
CONVERT GIRLS LOCKER ROOM INTO CLASSROOM SPACE
- CONSTRUCT GIRLS LOCKER ROOM ADDITION TO FIELD HOUSE
CONVERT WEIGHT ROOM TO MUSIC STORAGE
- NEW WEIGHT ROOM TO BE LOCATED IN ADDITION TO FIELD HOUSE
CONSTRUCT ENCLOSED LINK TO FIELD HOUSE
REPLACE EXISTING (1) LEVEL "ORANGE LOCKERS" LINK TO SCIENCE BUILDING WITH A (2) LEVEL LINK CREATING PROPER CIRCULATION AT SECOND FLOOR
REPLACE EXISTING (1) LEVEL LINK BETWEEN 1980 BUILDING AND LIBRARY WITH A (3) LEVEL ENCLOSED LINK TO CREATE PROPER CIRCULATION PATTERN AT GROUND AND SECOND FLOOR LEVELS.

NON-HIGH SCHOOL SPACES TO REMAIN:
SUPERINTENDENT'S OFFICE
DISTRICT SPECIAL NEEDS OFFICE
RISE PRE-SCHOOL
RCTV
DISTRICT MAINTENANCE FACILITY

NON-HIGH SCHOOL SPACES TO BE REMOVED:
REAP
CHINESE CULTURAL CENTER
SEEM COLLABORATIVE



BUILDING G
SECOND FLOOR PLAN

READING HIGH SCHOOL
SECOND FLOOR PLAN

OPTION C.2

STREGALOWSKY & HOIT ARCHITECTS, INC.
31 NORTH ST. HINGHAM, MA

SCALE
0 20 40 80

Reading Memorial High School			Option C.3: Renovations and Additions				
			(no link to gymnasium)				
	existing		Renovations		New Construction		
	sf	sf	$/sf	total	sf	$/sf	total
Bldg I: Art/Boiler							
basement	16000	16,000	$ 38	$ 600,000			$ -
ground	15000	15,000	$ 71	$ 1,061,500			$ -
Bldg. H: Girls Gym/Locker							
ground (new classrooms)	20000	20,000	$ 46	$ 918,500			$ -
first (mini-auditorium)	17000	17,000	$ 75	$ 1,275,000			$ -
Bldg. G: 1950 Academic Wing							
ground	28000	28,000	$ 71	$ 1,985,500			$ -
first	19250	19,250	$ 80	$ 1,545,500			$ -
second	30000	30,000	$ 78	$ 2,326,500			$ -
Link: 1950 Wing to Library (Bldg. G to Bldg. B)							
ground	0				800	$ 112	$ 89,834
first	800				800	$ 112	$ 89,833
second	0				800	$ 112	$ 89,833
Bldg B: Library							
ground w/ band/stor. Addition	10500	10,500	$ 65	$ 687,500	6,000	125	$ 750,000
first w/ music cr addition	10500	10,500	$ 65	$ 687,500	6,000	125	$ 750,000
second w/ cr addition	9200	9,200	-$ 94	$ 869,000	6,000	125	$ 750,000
Link: Library to Math/Science (Bldg. B to Bldg. A)							
first	3500				3,500	$ 251	$ 877,250
second	0				3,500	$ 251	$ 877,250
Bldg. A: Math/Science							
basement (former supt.)	5325	5,325	$ 80	$ 426,000			$ -
ground	18000	18,000	$ 89	$ 1,602,000	1,200	200	$ 240,000
first	21000	21,000	$ 89	$ 1,869,000	1,300	200	$ 260,000
second	16250	16,250	$ 89	$ 1,446,250	1,300	200	$ 260,000
Bldg. F: Auditorium/Music/Balcony							
first and balcony	13500	13,500	$ 126	$ 1,700,500			$ -
Bldg. F: Cafeteria/Kitchen/Commons							
first	30750	30,750	$ 72	$ 2,219,000			$ -
addition - cafeteria/corridor					5,000	120	$ 600,000
Bldg. C: Fieldhouse							
play surface (basement plan)	33000	33,000	$ -	$ -			$ -
boys lockers	11500	11,500	$ 80	$ 918,500			$ -
wrestling	11500	11,500	$ 67	$ 775,500			
girls lockers (incl. mech. link)	0				12,000	$ 208	$ 2,500,000
weight room	0				12,000	$ 95	$ 1,135,000
track/locker room extension	0				9,600	$ 125	$ 1,200,000
2nd floor classroom/storage	0				4,000	$ 125	$ 500,000
Link: Field House to School (Bldg. H to Bldg. C)							
ground	0						
Sitework Allowance: Drives, Parking, Fields				$ 900,000			
Subtotals	340575	336,275	$- 71	$ 23,813,250	73,800	$ 149	$ 10,969,000
Total 1999 Construction Cost: Option C.3					***410,075***	***$ 85***	***$ 34,782,250***

LEGEND - 1,600 PUPILS

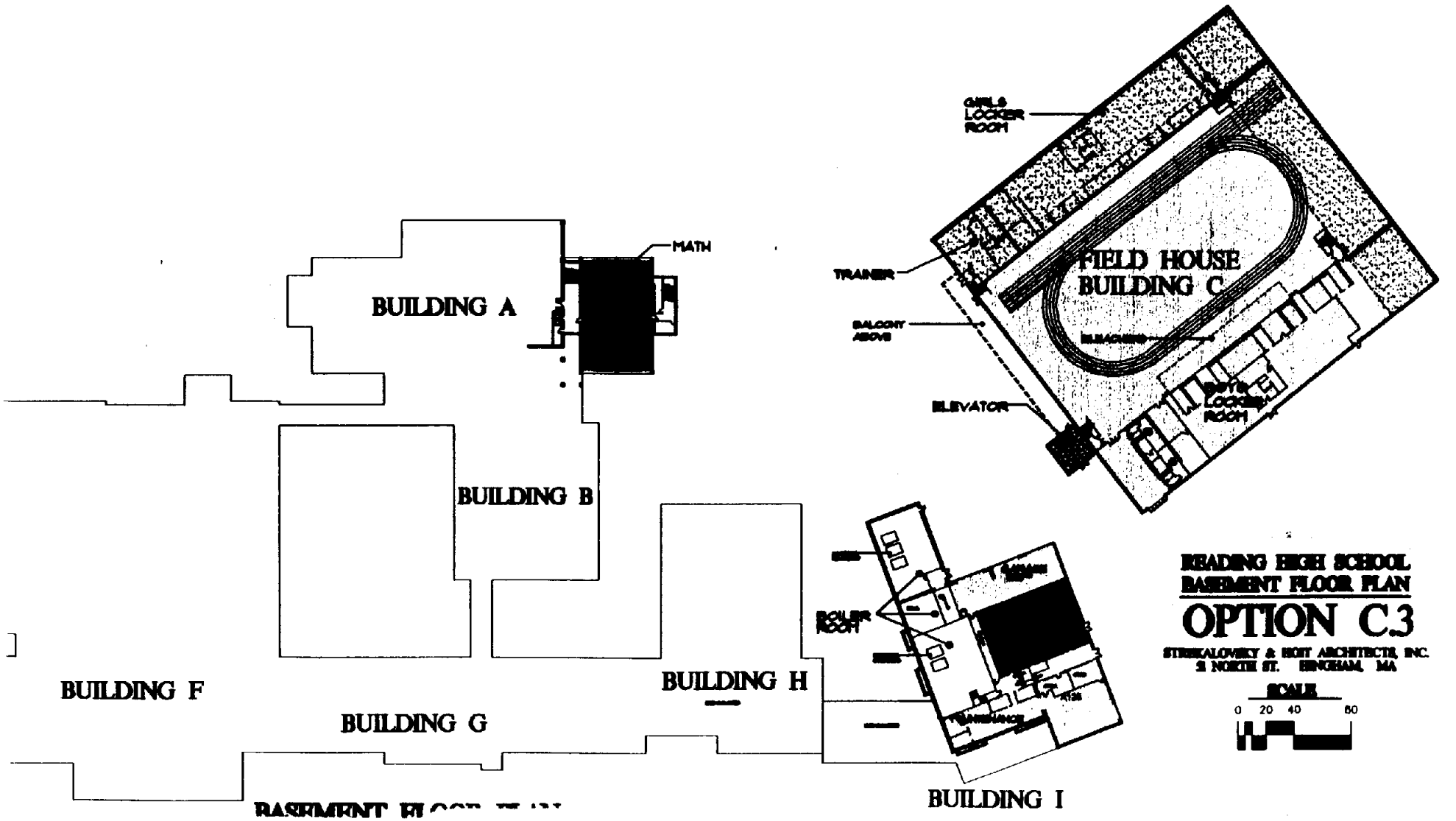
- OTHER USES
- ADMIN / GUID / CONF / HEALTH
- MATH 13 CR, 1 COMP LAB
- FOREIGN LANGUAGES 13 CR, 1 LANG LAB
- SCIENCE 14 LABS, 1 ALL PURPOSE LAB
- HEALTH 2 CR
- TECHNOLOGY EDUCATION 1 COMP LAB, 1 CR, 1 SHOP
- ART 5 STUDIOS, 1 COMP LAB
- MUSIC 1 BAND / ORCHESTRA, 2 CR, 1 COMP/MS/Band GRAPHIC ARTS
- BUSINESS 6 CR, 1 COMP LAB
- ENGLISH 13 CR, 1 COMP LAB, 1 READING RM, 1 MINI LAB
- HUMANITIES
- SPECIAL EDUCATION 1 CR, 4 TUTORIALS
- SOCIAL STUDIES 13 CR, 1 COMP LAB
- NEW BUILDING FOOTPRINT
- FACULTY OFFICE DEPARTMENT COLOR
- DRAMA
- PHYSICAL EDUCATION
- CORE FACILITIES / MECH / TOILETS / CUST

ENLARGING 81

PROVIDE INDIVIDUAL CLASSROOMS FOR EACH TEACHER - (NO SHARING / LEAVES ROOM FOR GROWTH)
RELOCATE DEPARTMENTAL OFFICES TO SMALLER NON-CLASSROOM SPACES
CREATE DRAMA CENTER AT MUSIC CLASSROOM / STAGE
CONVERT GIRLS GYM TO COMMUNITY USE MINI-AUDITORIUM
CONVERT GIRLS LOCKER ROOM INTO CLASSROOM SPACE
- CONSTRUCT GIRLS LOCKER ROOM ADDITION TO FIELD HOUSE
CONVERT WEIGHT ROOM TO ART SPACE
- NEW WEIGHT ROOM TO BE LOCATED IN ADDITION TO FIELD HOUSE
CONSTRUCT MUSIC ADDITION ADJACENT TO LIBRARY
CONVERT LECTURE HALL TO COMPUTER ASSISTED INSTRUCTIONAL CLASSROOM
CONSTRUCT ADDITIONS TO CAFETERIA
REVISE TRAFIC CIRCULATION AND PARKING AROUND FIELD HOUSE.
REPLACE EXISTING (1) LEVEL TO "ORANGE LOCKERS" LINK TO SCIENCE BUILDING WITH A (2) LEVEL LINK CREATING PROPER CIRCULATION AT SECOND FLOOR
REPLACE EXISTING (2) LEVEL LINK BETWEEN 1950 BUILDING AND LIBRARY WITH A (3) LEVEL ENCLOSED LINK TO CREATE PROPER CIRCULATION PATTERN AT GROUND AND SECOND FLOOR LEVELS.

NON-HIGH SCHOOL SPACES TO REMAIN:
- DISTRICT SPECIAL NEEDS OFFICE
- RISE PRE-SCHOOL
- MEDIA ONE
- DISTRICT MAINTENANCE FACILITY

NON-HIGH SCHOOL SPACES TO BE REMOVED:
- REAP
- CHINESE CULTURAL CENTER
- SEEM COLLABORATIVE



READING HIGH SCHOOL
BASEMENT FLOOR PLAN

OPTION C.3

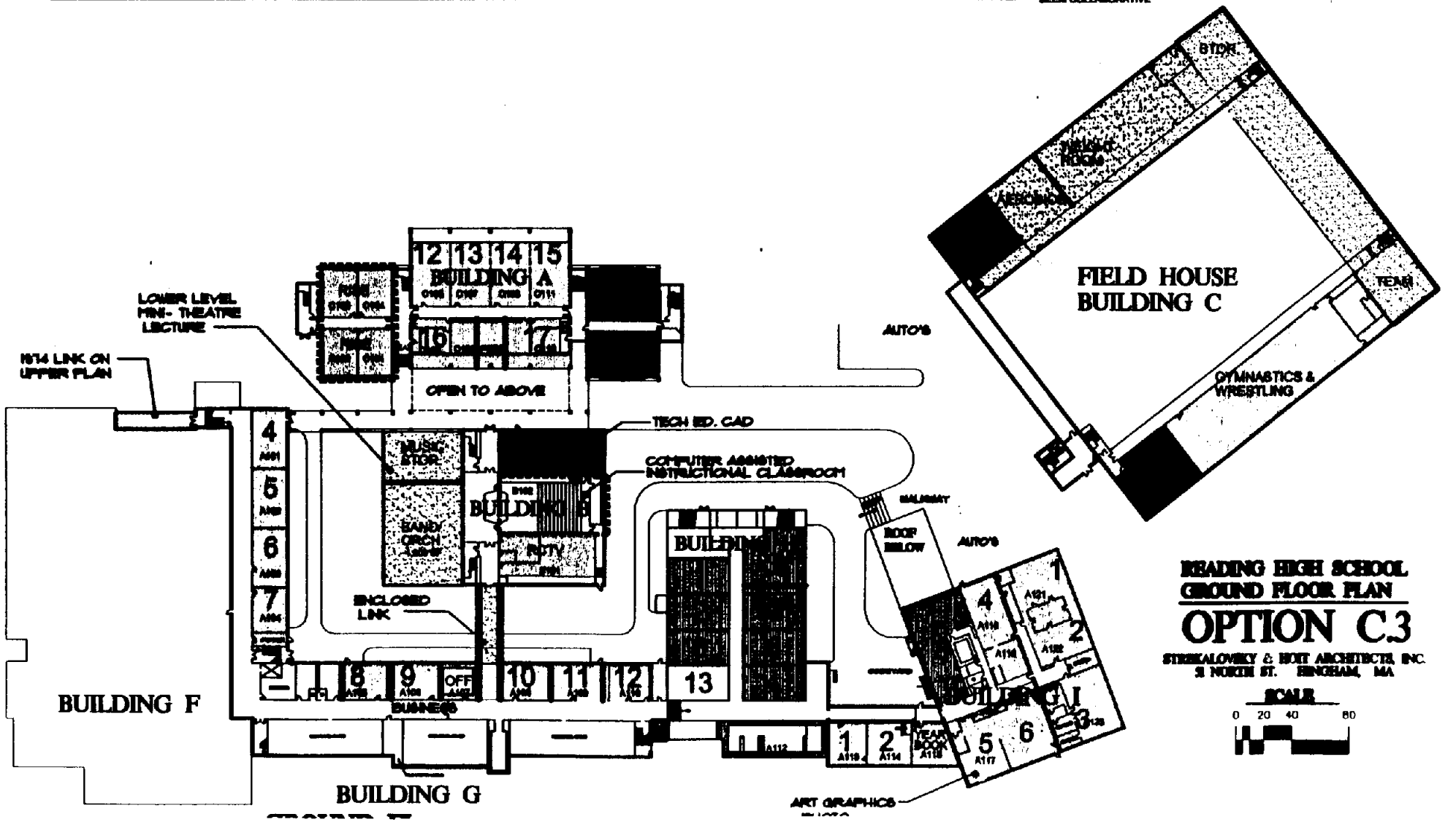
STRIKALOVSKY & HOIT ARCHITECTS, INC.
2 NORTH ST. BINGHAM, MA

SCALE
0 20 40 80

LEGEND - 1,600 PUPILS

- OTHER USES
- ADMIN / GUID / CONF / HEALTH
- MATH 13 CR, 1 COMP LAB
- FOREIGN LANGUAGES 10 CR, 1 LANG LAB
- SCIENCE 14 LABS, 1 ALL PURPOSE LAB
- HEALTH 2 CR
- TECHNOLOGY EDUCATION 1 COMP LAB, 1 CR, 1 SHOP
- ART 5 STUDIOS, 1 COMP LAB
- MUSIC 1 BAND / ORCHESTRA, 2 CR, 1 COMP/[illegible] GRAPHIC ARTS)
- BUSINESS 5 CR, 1 COMP LAB
- ENGLISH 13 CR, 1 COMP LAB, 1 READING RM, 1 MINI LAB
- HUMANITIES
- SPECIAL EDUCATION 3 CR, 5 TUTORIALS
- SOCIAL STUDIES 13 CR, 1 COMP LAB
- NEW BUILDING FOOTPRINT
- FACULTY OFFICE DEPARTMENT COLOR
- DRAMA
- PHYSICAL EDUCATION
- CORE FACILITIES / MECH / TOILETS / CUST

ENROLLMENT / TEACHING STATIONS
PROVIDE INDIVIDUAL CLASSROOMS FOR EACH TEACHER -
(NO SHARING / LEAVES ROOM FOR GROWTH)
RELOCATE DEPARTMENTAL OFFICES TO SMALLER NON-CLASSROOM SPACES
CREATE DRAMA CENTER AT MUSIC CLASSROOM / STAGE
CONVERT GIRLS GYM TO COMMUNITY USE MINI-AUDITORIUM
CONVERT GIRLS LOCKER ROOM INTO CLASSROOM SPACE
- CONSTRUCT GIRLS LOCKER ROOM ADDITION TO FIELD HOUSE
CONVERT WEIGHT ROOM TO ART SPACE
- NEW WEIGHT ROOM TO BE LOCATED IN ADDITION TO FIELD HOUSE
CONSTRUCT MUSIC ADDITION ADJACENT TO LIBRARY
CONVERT LECTURE HALL TO COMPUTER ASSISTED INSTRUCTIONAL CLASSROOM
CONSTRUCT ADDITIONS TO CAFETERIA
REVISE TRAFFIC CIRCULATION AND PARKING AROUND FIELD HOUSE
REPLACE EXISTING (1) LEVEL TO "ORANGE LOCKERS" LINK TO SCIENCE BUILDING WITH A (2) LEVEL LINK CREATING PROPER CIRCULATION AT SECOND FLOOR.
REPLACE EXISTING (2) LEVEL LINK BETWEEN 1960 BUILDING AND LIBRARY WITH A (3) LEVEL ENCLOSED LINK TO CREATE PROPER CIRCULATION PATTERN AT GROUND AND SECOND FLOOR LEVELS.
NON-HIGH SCHOOL SPACES TO REMAIN:
DISTRICT SPECIAL NEEDS OFFICE
RISE PRE-SCHOOL
MEDIA ONE
DISTRICT MAINTENANCE FACILITY
NON-HIGH SCHOOL SPACES TO BE REMOVED:
REAP
CHINESE CULTURAL CENTER
BEEM COLLABORATIVE



READING HIGH SCHOOL
GROUND FLOOR PLAN
OPTION C.3

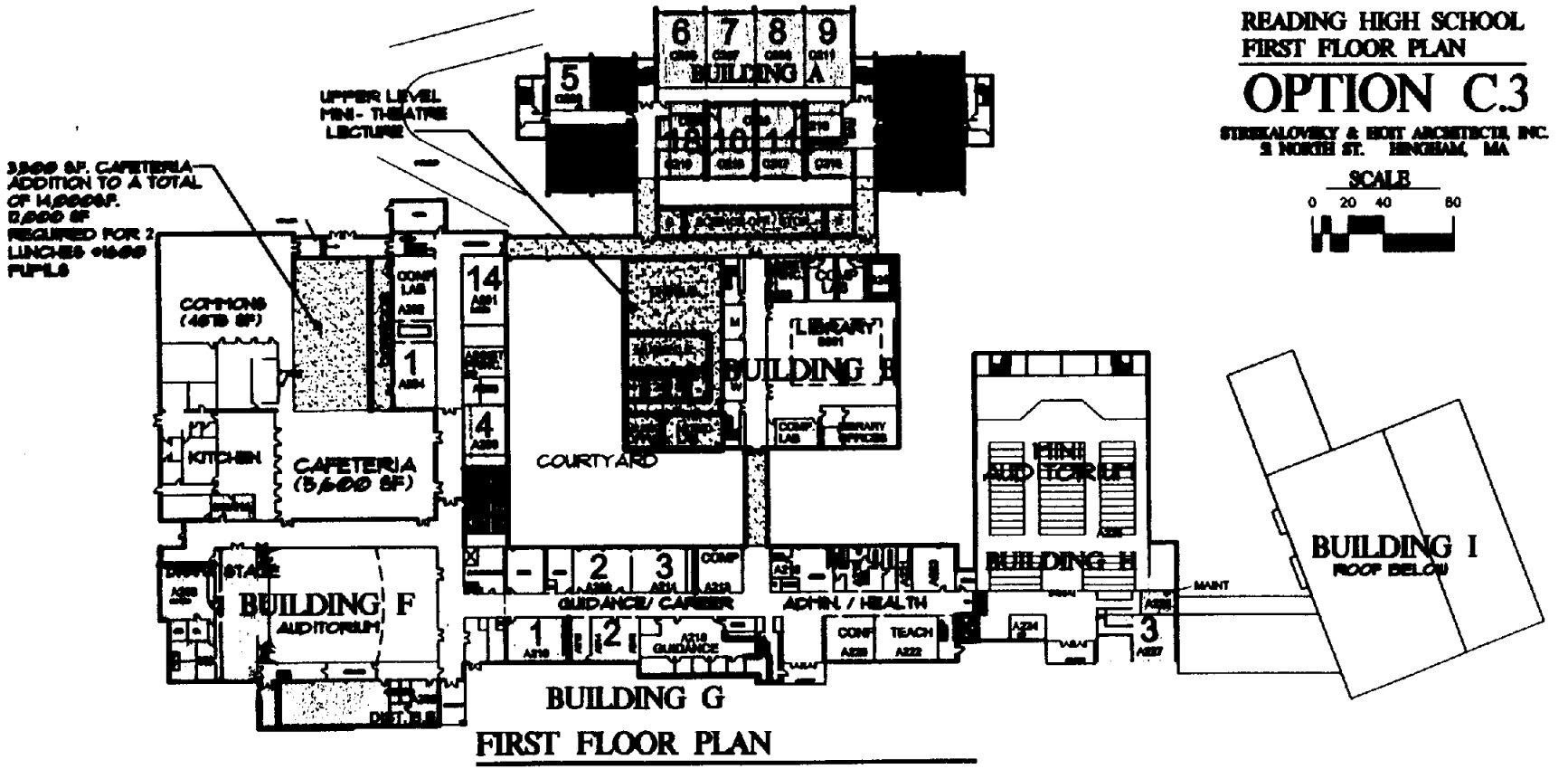
STREKALOVSKY & HOIT ARCHITECTS, INC.
3 NORTH ST. BINGHAM, MA

SCALE
0 20 40 80

LEGEND - 1,600 PUPILS

- OTHER USES
- ADMIN / GUID / CONF / HEALTH
- MATH 13 CR, 1 COMP LAB
- FOREIGN LANGUAGES 13 CR, 1 LANG LAB
- SCIENCE 14 LABS, 1 ALL PURPOSE LAB
- HEALTH 2 CR
- TECHNOLOGY EDUCATION 1 COMP LAB, 1 CR, 1 SHOP
- ART 5 STUDIOS, 1 COMP LAB
- MUSIC 1 BAND / ORCHESTRA, 2 CR, 1 COMP/[illegible] GRAPHIC ARTS)
- BUSINESS 6 CR, 1 COMP LAB
- ENGLISH 13 CR, 1 COMP LAB, 1 READING RM, 1 MINI LAB
- HUMANITIES
- SPECIAL EDUCATION 3 CR, 8 TUTORIALS
- SOCIAL STUDIES 13 CR, 1 COMP LAB
- NEW BUILDING FOOTPRINT
- FACULTY OFFICE DEPARTMENT COLOR
- DRAMA
- PHYSICAL EDUCATION
- CORE FACILITIES / MECH / TOILETS / CUST

ENLARGE TEACHING STATIONS
PROVIDE INDIVIDUAL CLASSROOM'S FOR EACH TEACHER -
(NO SHARING / LEAVES ROOM FOR GROWTH)
RELOCATE DEPARTMENTAL OFFICES TO SMALLER NON-CLASSROOM SPACES
CREATE DRAMA CENTER AT MUSIC CLASSROOM / STAGE
CONVERT GIRLS GYM TO COMMUNITY USE MINI-AUDITORIUM
CONVERT GIRLS LOCKER ROOM INTO CLASSROOM SPACE
- CONSTRUCT GIRLS LOCKER ROOM ADDITION TO FIELD HOUSE
CONVERT WEIGHT ROOM TO ART SPACE
- NEW WEIGHT ROOM TO BE LOCATED IN ADDITION TO FIELD HOUSE
CONSTRUCT MUSIC ADDITION ADJACENT TO LIBRARY
CONVERT LECTURE HALL TO COMPUTER ASSISTED INSTRUCTIONAL CLASSROOM
CONSTRUCT ADDITIONS TO CAFETERIA
REVISE TRAFIC CIRCULATION AND PARKING AROUND FIELD HOUSE.
REPLACE EXISTING (1) LEVEL TO "ORANGE LOCKERS" LINK TO SCIENCE BUILDING WITH A (2) LEVEL LINK CREATING PROPER CIRCULATION AT SECOND FLOOR.
REPLACE EXISTING (2) LEVEL LINK BETWEEN 1950 BUILDING AND LIBRARY WITH A (3) LEVEL ENCLOSED LINK TO CREATE PROPER CIRCULATION PATTERN AT GROUND AND SECOND FLOOR LEVELS.
NON-HIGH SCHOOL SPACES TO REMAIN:
DISTRICT SPECIAL NEEDS OFFICE
RISE PRE-SCHOOL
MEDIA ONE
DISTRICT MAINTENANCE FACILITY
NON-HIGH SCHOOL SPACES TO BE REMOVED:
REAP
CHINESE CULTURAL CENTER
SEEM COLLABORATIVE



READING HIGH SCHOOL
FIRST FLOOR PLAN

OPTION C.3

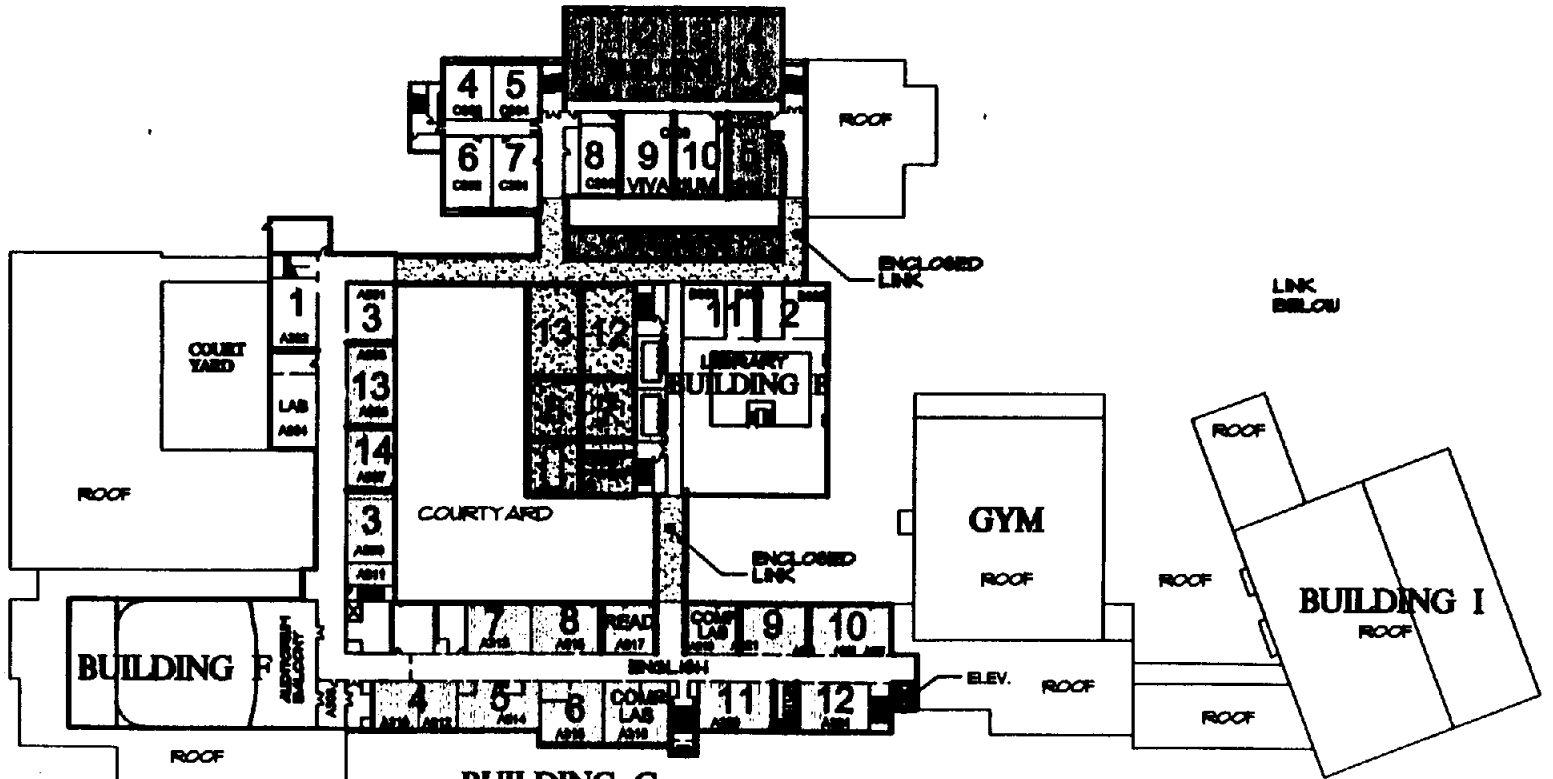
STRELALOVSKY & BOIT ARCHITECTS, INC.
2 NORTH ST. HINGHAM, MA

SCALE
0 20 40 80

LEGEND - 1,600 PUPILS

- OTHER USES
- ADMIN / GUID / CONF / HEALTH
- MATH 13 CR, 1 COMP LAB
- FOREIGN LANGUAGES 13 CR, 1 LANG LAB
- SCIENCE 14 LABS, 1 ALL PURPOSE LAB
- HEALTH 2 CR
- TECHNOLOGY EDUCATION 1 COMP LAB, 1 CR, 1 SHOP
- ART 5 STUDIOS, 1 COMP LAB
- MUSIC 1 BAND / ORCHESTRA, 2 CR, 1 COMP
- BUSINESS 6 CR, 1 COMP LAB
- ENGLISH 13 CR, 1 COMP LAB, 1 READING RM, 1 MINI LAB
- HUMANITIES
- SPECIAL EDUCATION 3 CR, 5 TUTORIALS
- SOCIAL STUDIES 13 CR, 1 COMP LAB
- NEW BUILDING FOOTPRINT
- FACULTY OFFICE DEPARTMENT COLOR
- DRAMA
- PHYSICAL EDUCATION
- CORE FACILITIES / MECH / TOILETS / CUST

ENLARGE TEACHING STATIONS
PROVIDE INDIVIDUAL CLASSROOM/S FOR EACH TEACHER -
(NO SHARING / LEAVES ROOM FOR GROWTH)
RELOCATE DEPARTMENTAL OFFICES TO SMALLER NON-CLASSROOM SPACES
CREATE DRAMA CENTER AT MUSIC CLASSROOM / STAGE
CONVERT GIRLS GYM TO COMMUNITY USE MINI-AUDITORIUM
CONVERT GIRLS LOCKER ROOM INTO CLASSROOM SPACE
- CONSTRUCT GIRLS LOCKER ROOM ADDITION TO FIELD HOUSE
CONVERT WEIGHT ROOM TO ART SPACE
- NEW WEIGHT ROOM TO BE LOCATED IN ADDITION TO FIELD HOUSE
CONSTRUCT MUSIC ADDITION ADJACENT TO AUDITORIUM
CONVERT LECTURE HALL TO COMPUTER ASSISTED INSTRUCTIONAL CLASSROOM, CONSTRUCT
CONSTRUCT ADDITIONS TO CAFETERIA
REVISE TRAFIC CIRCULATION AND PARKING AROUND FIELD HOUSE
REPLACE EXISTING (1) LEVEL TO "ORANGE LOCKERS" LINK TO SCIENCE BUILDING WITH A (2) LEVEL LINK CREATING PROPER CIRCULATION AT SECOND FLOOR.
REPLACE EXISTING (2) LEVEL LINK BETWEEN 1950 BUILDING AND LIBRARY WITH A (3) LEVEL ENCLOSED LINK TO CREATE PROPER CIRCULATION PATTERN AT GROUND AND SECOND FLOOR LEVELS.
NON-HIGH SCHOOL SPACES TO REMAIN:
DISTRICT SPECIAL NEEDS OFFICE
RISE PRE-SCHOOL
MEDIA ONE
DISTRICT MAINTENANCE FACILITY
NON-HIGH SCHOOL SPACES TO BE REMOVED:
REAP
CHINESE CULTURAL CENTER
SSSM COLLABORATIVE



READING HIGH SCHOOL
SECOND FLOOR PLAN

OPTION C.3

STREKALOVSKY & HOIT ARCHITECTS, INC.
3 NORTH ST. HINGHAM, MA

SCALE
0 20 40 80

Option D: New High School

Option D is the most expensive and would result in a much smaller facility for the Town. However, it would provide Reading with the opportunity to design a perfectly customized school.

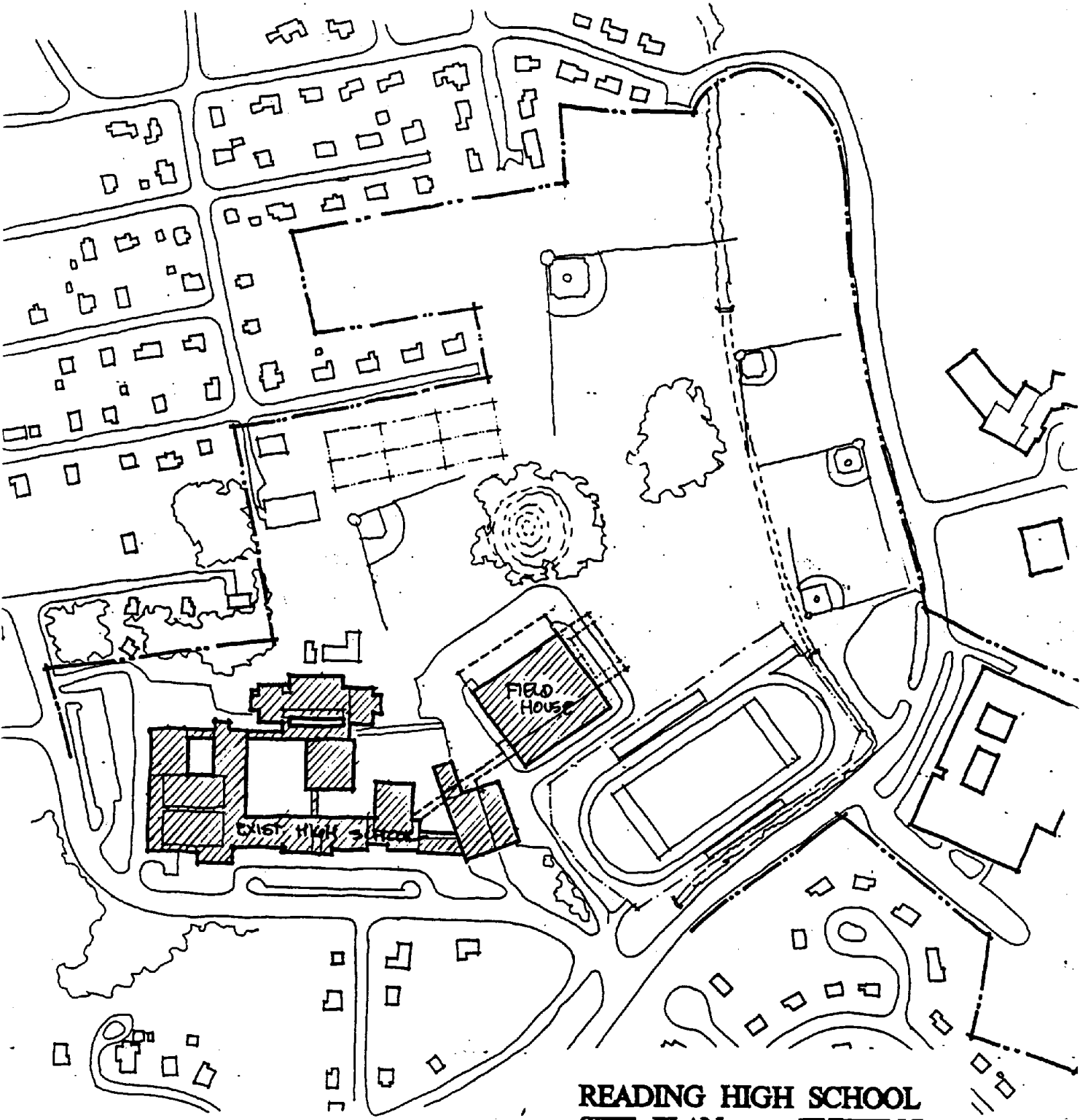
All of the educational program goals could be met with ease and all mechanical and electrical systems would be state of the art.

A new multi- story school could be designed for the existing site which would take up less space and allow for the maximization of Playfields and parking on site.

The topography of the site suggests that the proper location for a new high school is in the location of the existing building. This would leave the flat, open portions of the site available for playfields. However, the phasing under this scenario would be especially difficult and it would require an intricate phasing plan.

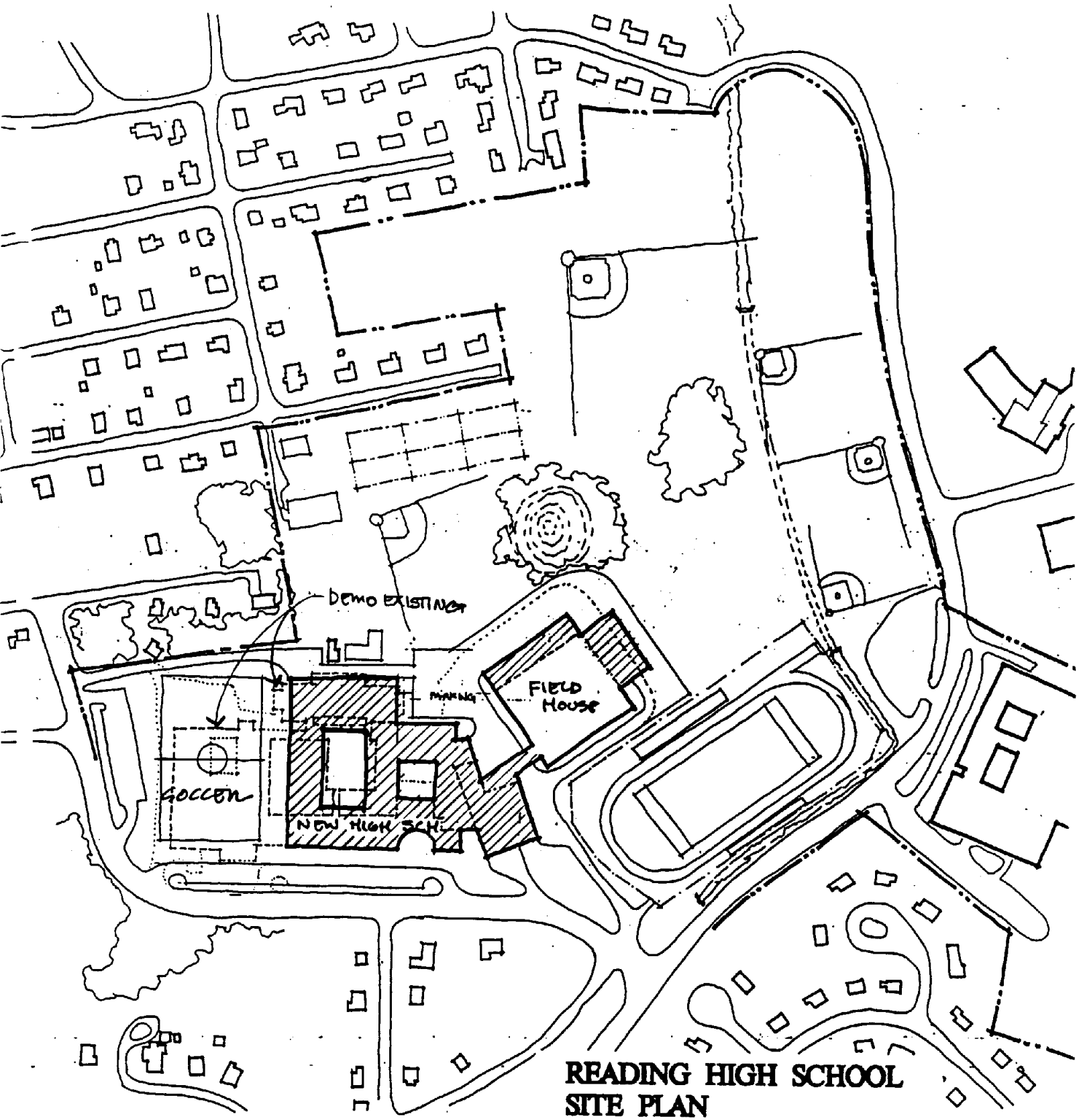
An alternative construction scenario would be to construct the new high school building in one of the areas immediately adjacent to the existing fieldhouse. Though it would take up 'prime' flat space, the new structure could be completed while students remain within the existing building. Replacement parking or playfields could be created when the existing building is removed.

Unfortunately, the state does not add additional funding for projects which involve substantial demolition such as this. Though the demolition would be considered a reimbursable expense, it would have to fit within the state's allowable project budget formula for a new high school.



READING HIGH SCHOOL
SITE PLAN - EXISTING

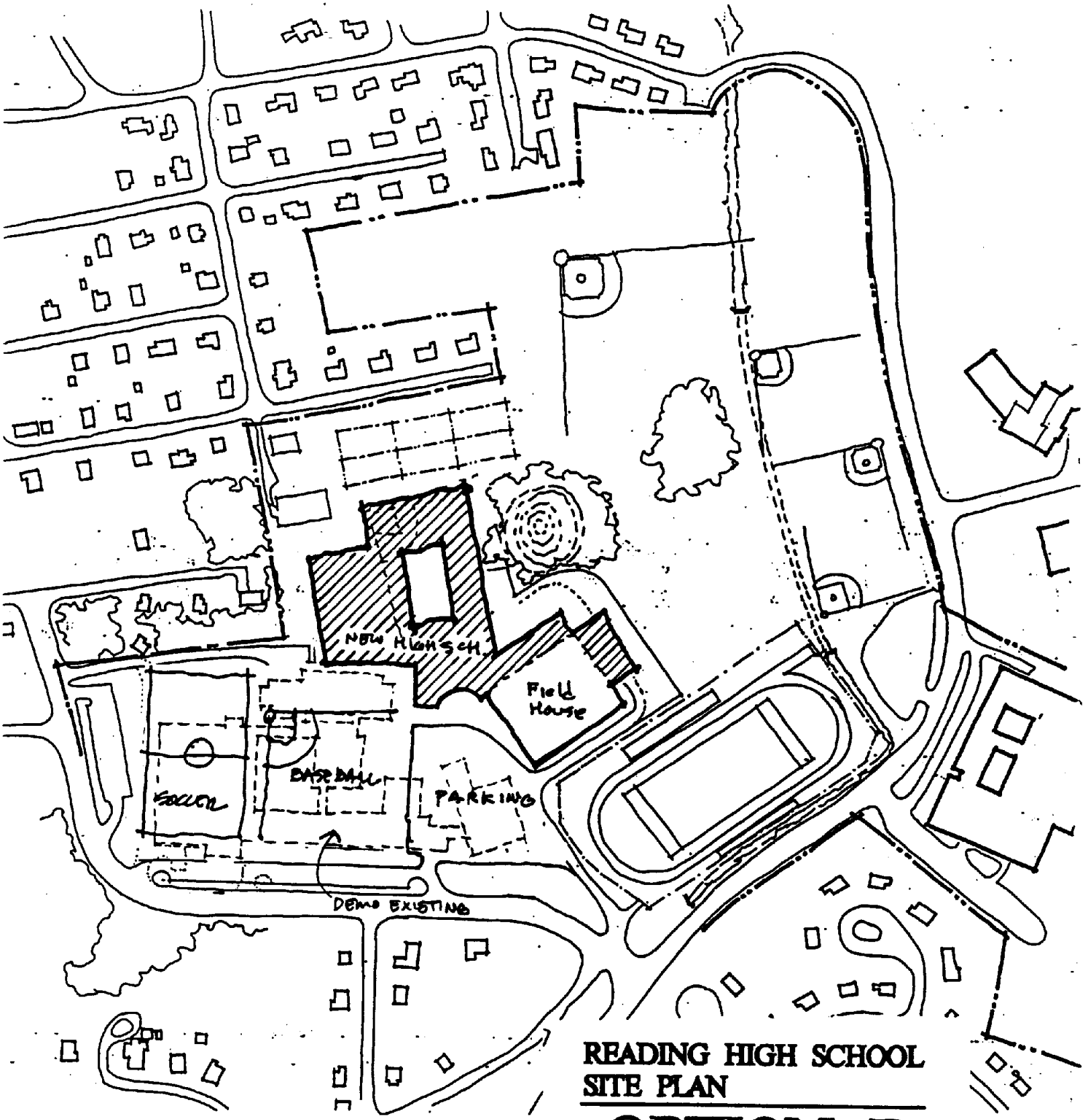
STREKALOVSKY & HOIT ARCHITECTS, INC.
51 NORTH ST. HINGHAM, MA



READING HIGH SCHOOL
SITE PLAN

OPTION D

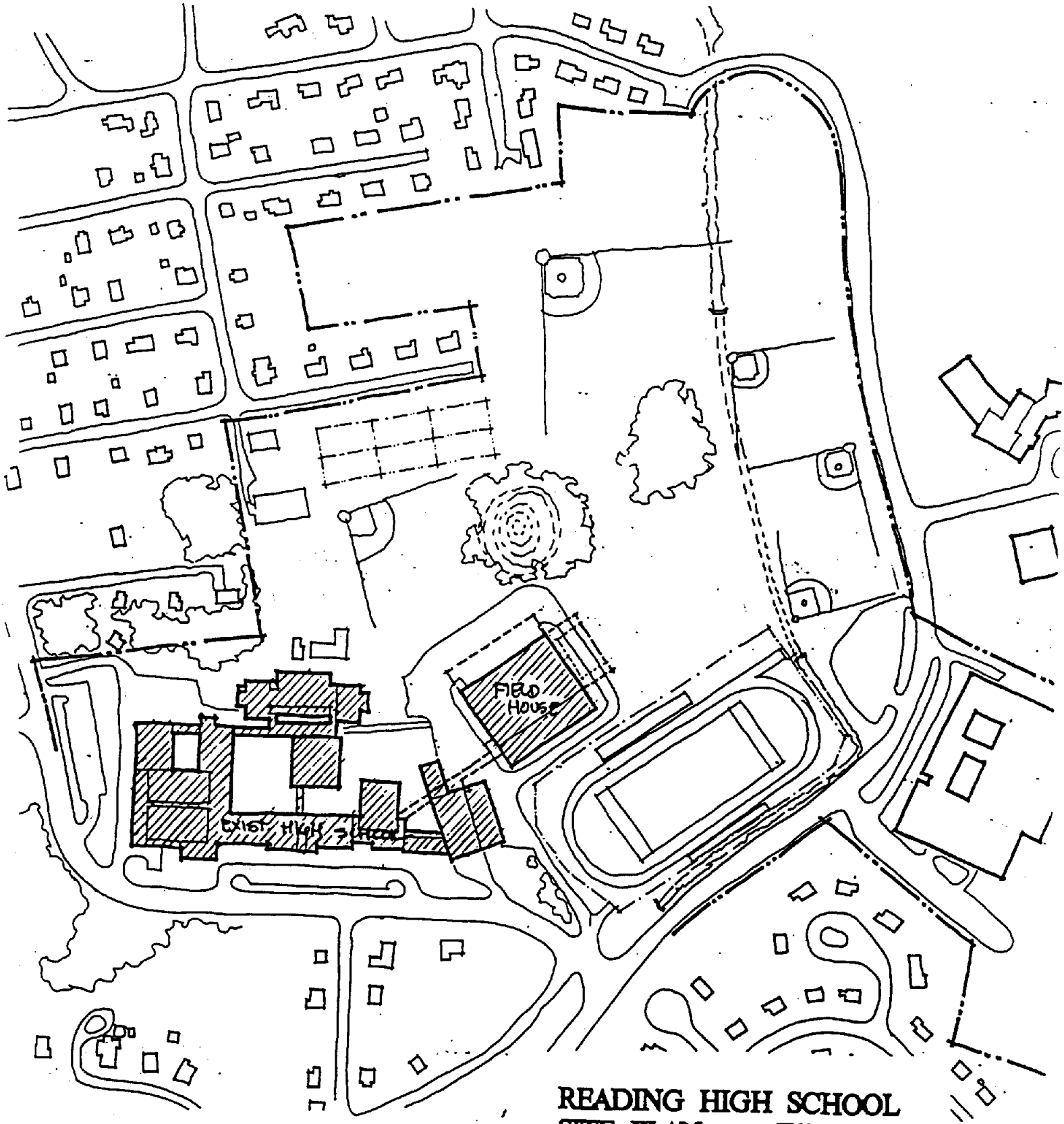
STREKALOVSKY & HOIT ARCHITECTS, INC
51 NORTH ST. HINGHAM, MA



READING HIGH SCHOOL
SITE PLAN

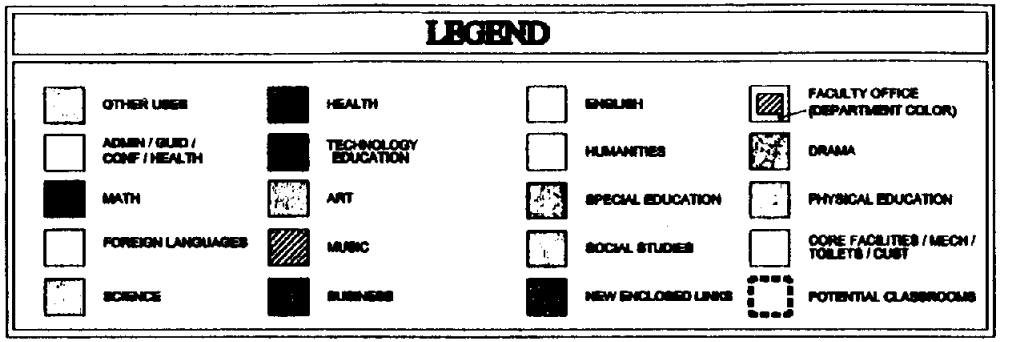
OPTION D

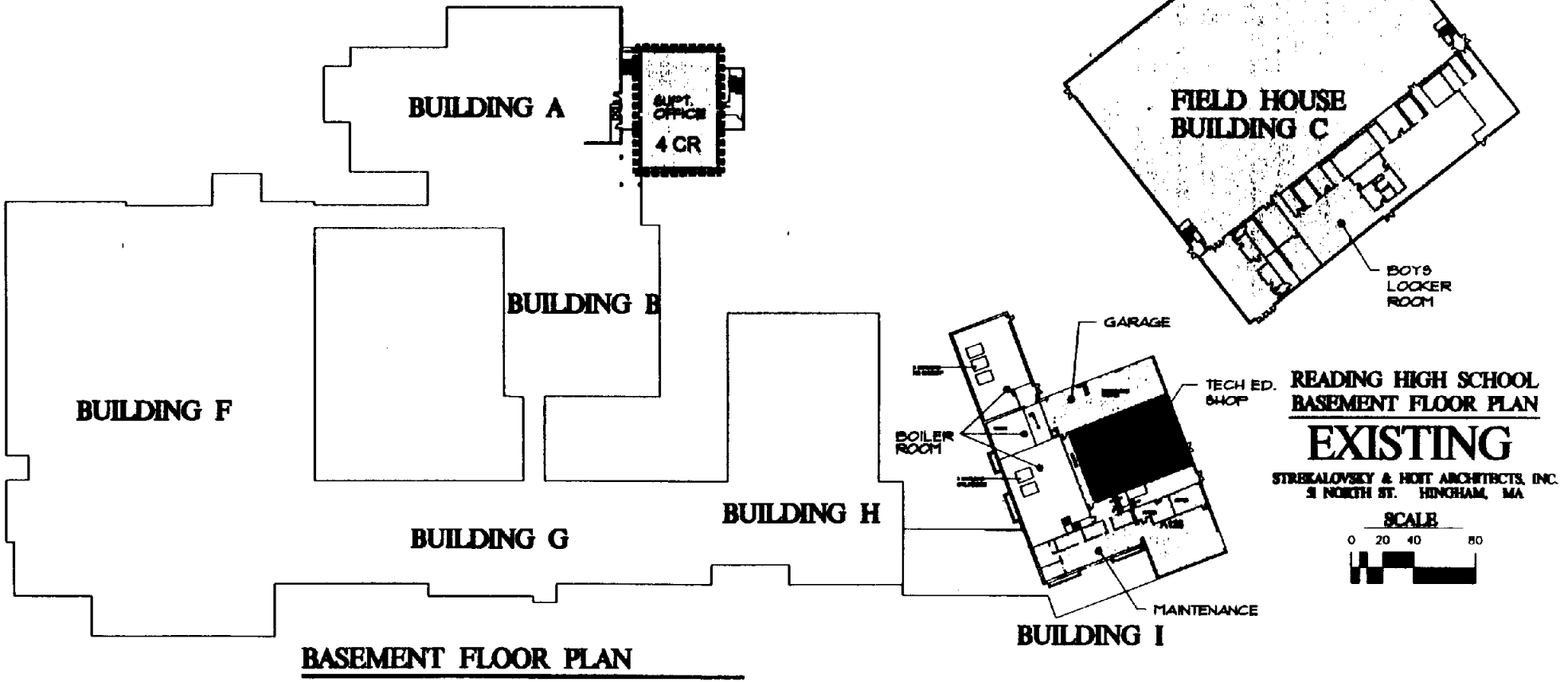
STREKALOVSKY & HOIT ARCHITECTS, INC
51 NORTH ST. HINGHAM, MA



READING HIGH SCHOOL
SITE PLAN - EXISTING

STREKALOVSKY & HOIT ARCHITECTS, INC.
51 NORTH ST. HINGHAM, MA





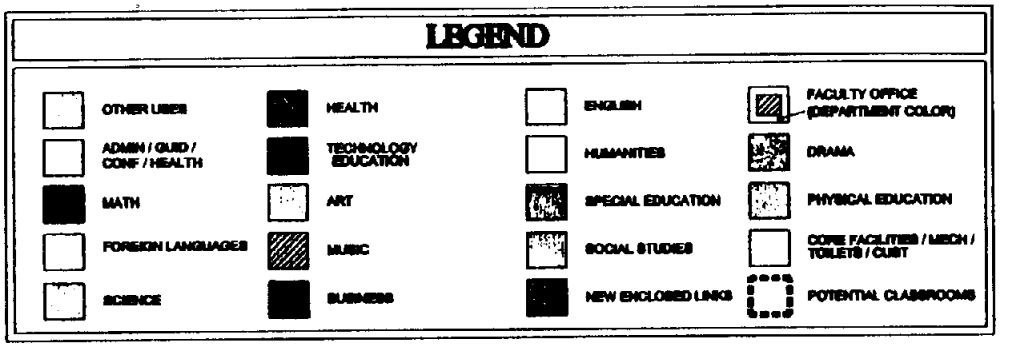
BASEMENT FLOOR PLAN

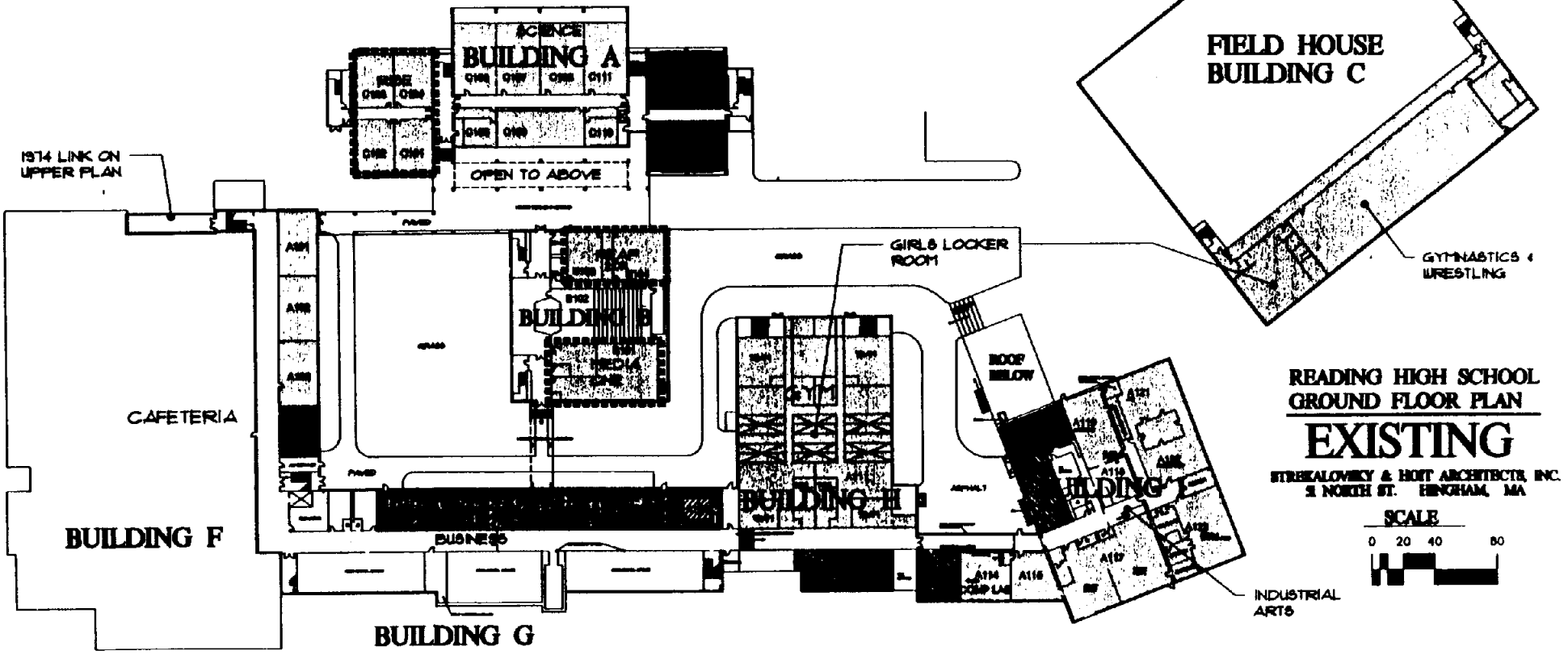
READING HIGH SCHOOL
BASEMENT FLOOR PLAN

EXISTING

STREKALOVSKY & HOIT ARCHITECTS, INC.
51 NORTH ST. HINGHAM, MA

SCALE
0 20 40 80





GROUND FLOOR PLAN

READING HIGH SCHOOL
GROUND FLOOR PLAN

EXISTING

STREKALOWSKY & HOIT ARCHITECTS, INC.
51 NORTH ST. HINGHAM, MA

SCALE
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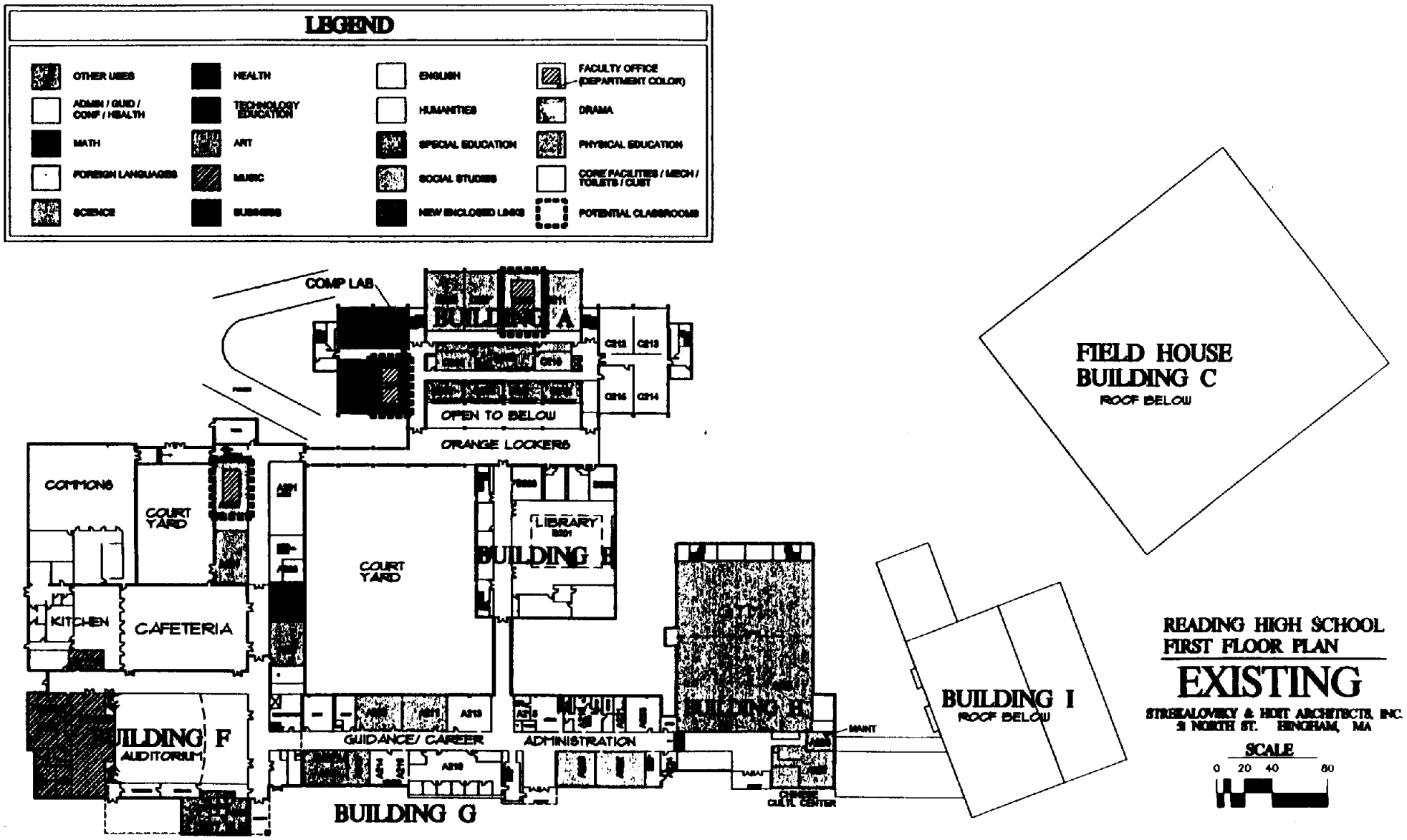
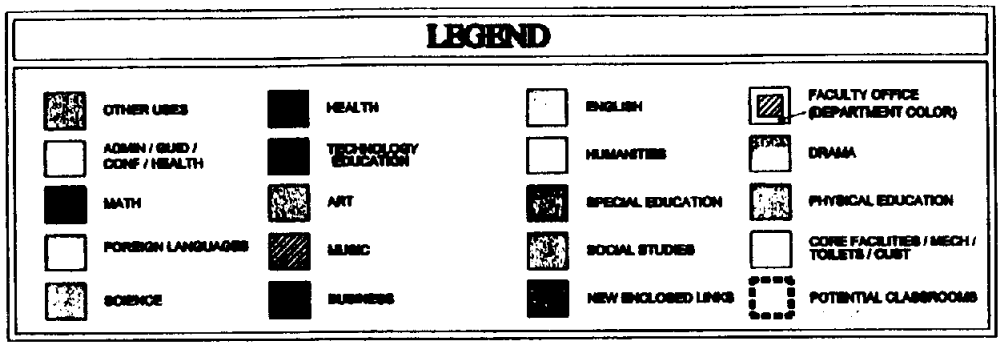
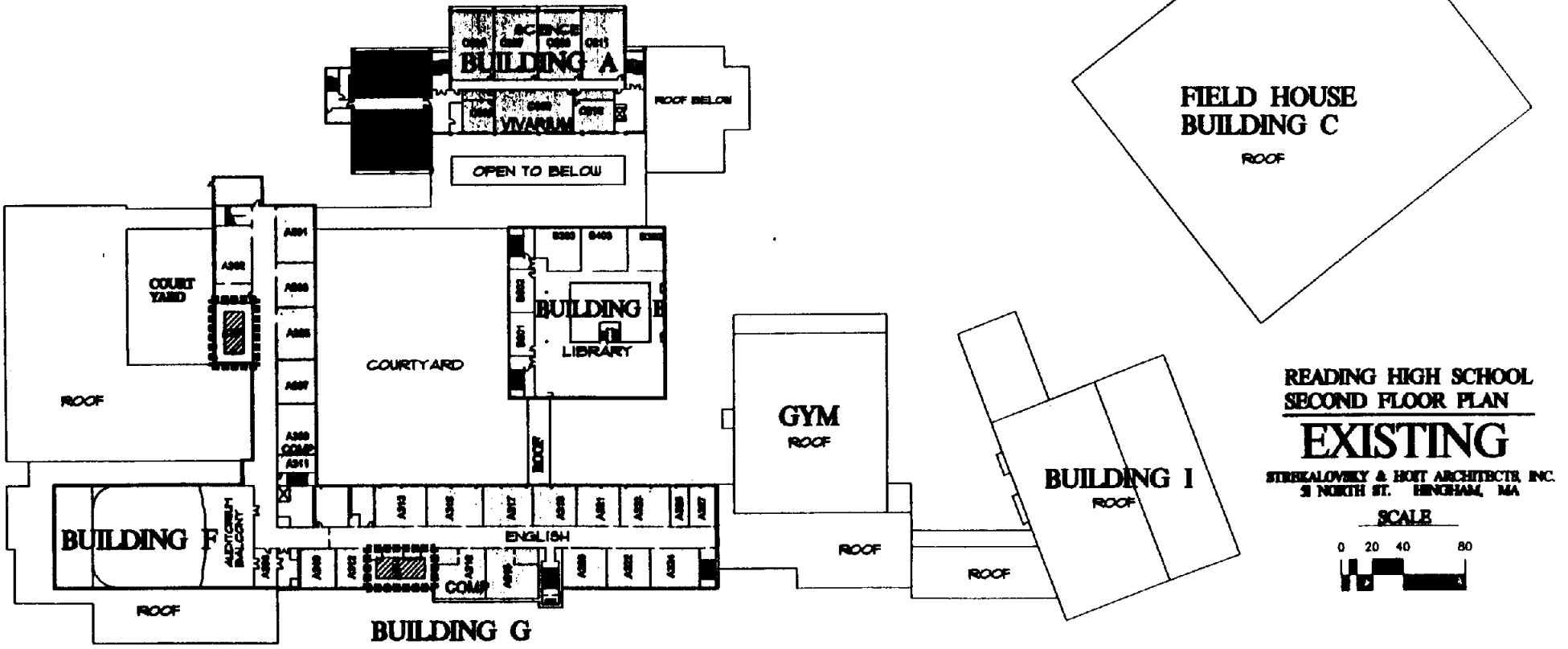


FIRST FLOOR PLAN





SECOND FLOOR PLAN

READING HIGH SCHOOL
SECOND FLOOR PLAN

EXISTING

STEREALOWSKY & HOIT ARCHITECTS, INC.
91 NORTH ST. HINGHAM, MA

SCALE

0 20 40 80

Appendix

The original reports from the following members of the study team are included in this appendix:

Structural Systems - Engineers Design Group, Inc.

Heating and Ventilation Systems - Thompson Consultants, Inc.

Plumbing Systems - Thompson Consultants, Inc.

Electrical Systems - Thompson Consultants, Inc.

A copy of the report from the previous study is included in this appendix:

Hazardous Materials Survey – Dennison Environmental, Inc.

READING MEMORIAL HIGH SCHOOL
READING, MASSACHUSETTS

PURPOSE

The purpose of this report is to describe in broad terms the structure of the existing building, to comment on the condition of the existing building, and to comment on the structural code issues related to the feasibility of renovation and expansion of the facility.

SCOPE

1. Description of existing structure
2. Comments on the existing condition
3. Discussions of the Primary Structural Code Issues that would influence the renovations or the design of new additions to the school.

BASIS OF THE REPORT

This report is based on visual observations during our site visit on December 15, 1998, the review of the available drawings of the additions and renovations made to the existing building dated September 15, 1969 by Stoner Associates Architects.

During our site visit, we did not remove any finishes so our understanding of the structure is limited and may have to be further refined as the design evolves.

BUILDING DESCRIPTION

The high school is located on Oakland Road in Reading, Massachusetts. The original structures were built in 1952 and major additions were subsequently made in 1969. The entire school is a complex of nine interconnected buildings except for the field house, which is not directly connected to any buildings. The structures are named building A through building I.

ORIGINAL 1952 STRUCTURES

Since there are no available drawings for these original buildings, all our comments and descriptions are based on observations made during our walk through the school. It is hard to comment on the existing structural systems except in general terms as we did not remove any finishes during our visit.

Building D

This building houses the cafeteria and the kitchen presently. The roof of this one-story structure is framed with steel beams bearing on exterior masonry bearing walls and interior steel columns. The floor is a concrete slab-on-grade. The foundations are probably continuous concrete strip footings and isolated column spread footings.

Building E

This is a three-story building and abuts the cafeteria wing (building D) on its North face. The auditorium (building F) and building G are to its East. This building houses classrooms on all its three levels. The structural framing was not evident from visual observations. The framing appeared to be a mixture of load bearing masonry and steel framing.

Building F

This building houses the auditorium. It is separated from the cafeteria wing (building D) by way of a corridor on its West side and is attached to building G is attached to it on its North side. The auditorium is a two-story column free space. The structural framing was not exposed, but it appears to be a combination of load bearing masonry and steel framing.

Building G

This is a three-story building sandwiched between the auditorium (building F) on it South side and the gymnasium (building H) on its North. This building houses the administrative offices and classrooms on all three floors. The ground floor is a partially finished floor. The unfinished portion is used as storage and utility corridor, most of the unfinished space has a dirt floor. The first floor appears to be a concrete flat slab supported on concrete columns as observed from the unfinished ground floor space. There is a four storied concrete tower attached to this building, adjacent to the main lobby.

Building H

This is a two-story space gymnasium. The roof deck is supported on steel purlins, which span between roof trusses which in turn as supported by steel columns at the ends.

Building I

This is a one-story structure with a basement. The basement houses the boiler room, wood shops, garage, and the maintenance department. The Industrial Arts department is located in the ground floor. The basement is a concrete slab-on-grade. The ground floor appears to be a concrete slab supported on steel framing. Building I is located to the North of the gymnasium building (building H) and linked to it by way of a corridor.

1969 ADDITIONS

Buildings A, B, and C were added to the school and major additions were made to existing buildings D and I in 1969.

Building A

This building is essentially a classroom wing, which houses the Math and Science departments. It is linked to building E by way of a corridor link to its South and abuts building B to its West.

This three-story structure for the most part with a crawl space under most of the building. At the lowest level is a partial floor at the northern end. This floor is framed with precast concrete planks supported on steel beams. The ground, first, and second floors are concrete slab on metal deck supported on bar joists, which in turn are supported on steel beams and columns. The roof construction is poured gypsum concrete on bulb tees supported on bar joists, which frame into wide flange steel girders and columns. The columns and the perimeter walls are supported on unreinforced concrete spread footings and continuous wall footings.

Building B

This is a three-story structure connected to building G on its East and building E on its South by way of corridor links. Building A abuts it on its West. This building is also called the library building with a lecture room and classrooms at its lowest level and reading rooms at the two upper stories.

The lowest level is a slab-on-grade. The upper floor framing and the roof are similar to building A. The columns and the walls are supported on unreinforced concrete spread footings and continuous wall footings.

Building C

This building is located to the northwest corner of the campus. This is an independent structure and not connected to any of the other school buildings. This building houses the double story field house. It has a balcony and space for gymnastics and wrestling programs at an intermediate level.

The field house has a poured gypsum roof supported by bulb tees. The bulb tees are supported on wide flange beams, which in turn are supported on 12'-0" deep trusses spanning 140 feet.

The balcony and wrestling areas have a low roof that is separated from the high roof by way of an expansion joint. This low roof is also a poured gypsum roof on bulb tees supported on 20 inch deep bar joists spanning 51'-0" between beams.

The intermediate floor is framed with precast concrete planks spanning between steel beams and columns. The ground floor is a concrete slab-on-grade. The columns and perimeter walls are supported on unreinforced concrete spread footings and continuous wall footings.

Addition to Building D

This is a one-story addition to the cafeteria wing. This addition was made to the West side of the cafeteria. A link was also added to connect this addition to building E.

The roof of this addition is the typical roof construction used elsewhere on the project. It is a poured gypsum roof on bulb tees supported on bar joists and beams. The floor is a concrete slab-on-grade. The columns and walls are supported on unreinforced concrete spread footings and continuous wall footings.

Addition to Building I

This addition has three main components. The one-story boiler room to the East of building I, the two-story addition to the Industrial Arts wing to the North of building I, and the two-story addition to the East of the link connecting buildings H and I.

The roof on all of these additions is the poured gypsum roof on bulb tees supported on bar joists and steel beams. The framed floors at the link extension are concrete slabs on metal deck supported on bar joists. The framed floor at the industrial arts wing extension is precast concrete plank supported on steel beams. The lowest level is a concrete slab-on-grade. The columns and walls are supported on unreinforced concrete spread footings and continuous wall footings.

EXISTING CONDITIONS

Based on our observations, we did find that the structures are performing satisfactorily. We noticed a few maintenance items and some signs of water leakage at a few locations.

The exterior brick facade was typically in good shape. The original 1952 building facade showed more cracks then the later 1969 additions. This may be due to the lack of control joints in the original construction. Spalling of concrete was observed at a few locations where the concrete foundation was exposed.

In the area adjacent to the large courtyard in the vicinity of buildings A, B, and E, a number of building columns are exposed. These columns are steel columns encased in concrete. There are signs of previous repairs to the spalling or cracked concrete on the column encasements. Some rust signs are evident at a couple of locations. The reasons for this could be numerous. The most probable reason for the spalling concrete is that the reinforcing steel does not have adequate concrete cover. The concrete encasement is probably non-structural in nature and may not be a cause for concern. This could be determined when an analysis is conducted for the existing structure as the project evolves. No obvious signs of foundation settlement were observed anywhere. No excessive deflections or excessive perceptible floor vibrations were observed due to foot falls.

PRIMARY STRUCTURAL CODE ISSUES RELATED TO THE EXISTING STRUCTURE

If any repairs, renovations, or additions are made to the structures, a check for compliance with 780 CMR, Chapter 34 "Repairs, Alterations, Additions, and Change of Use of Existing Buildings", of the Massachusetts State Building Code is required. The intent of the 780 CMR, Chapter 34 is to permit repairs or alterations to the existing buildings without requiring compliance with the Code for new construction.

Assuming no major structural renovations are made to the existing buildings and any additions made are structurally separated from the existing buildings, the existing structures would probably be classified as being in Structural Hazard Category 2, as defined in 780 CMR, Chapter 34. At a minimum, the following structural issues have to be addressed for the existing buildings.

1. The existing structures have to be investigated for the presence of special earthquake hazards, such as parapets, unreinforced/unbraced masonry walls, and connections to precast concrete elements. All such hazards that are present have to be corrected. In our case it implies that:

   A. All the interior and exterior masonry walls have to be clipped or braced to the structural framing members for lateral stability.

   B. The cantilevered walls, parapets, masonry walls having a continuous strip windows above have to be checked for loads as per the Massachusetts State Building Code. The elements will have to be braced or removed if they do not comply.

   C. The interconnections of precast concrete structural elements have to be investigated and reinforced if necessary. The connections have to conform to the requirements of 780 CMR, Chapter 19.

2. All cracked and spalled areas of concrete have to be repaired.

COMMENTS

The walk through the buildings was not exhaustive. A more thorough and detailed investigation of the buildings would be required for identifying all the structural hazards as the design moves forward. A couple of areas with structural hazards were very evident and require a closer look. The detail of support of the CMU block/brick facade below the continuous strip windows at numerous locations requires further study. The interior masonry walls did not appear to be braced at a number of locations. Cantilevered CMU walls in the locker rooms and cantilevered CMU railing wall in the library require a closer look. They may have to be braced or removed.

On the other hand, if major structural work is undertaken in the existing buildings, (major structural work means modifications to the existing structural framing and removal of any shear walls, etc.) the whole structure would have to be analyzed for conformance with the code of new construction. This implies that if the buildings do not comply with the loads for new construction, additional braces or shear walls may have to be added.

ADDITIONAL INVESTIGATIONS AND ANALYSES

As you are aware, our investigation was limited to the study of the existing drawings and a walk through of the buildings. As the project moves forward, additional site visits would be required to verify information on the drawings and identify all of the structural hazards. A study of the as-built drawings or shop drawings for precast concrete would be required if the shop drawings are available; or an investigation would be required if the shop drawings are not available. Additional investigations could also include the services of a Geotechnical Engineer to investigate the soil properties and provide recommendations for the foundation design for any future additions.

HEATING, VENTILATING & AIR CONDITIONING

Heating:

1. The heating median is a combination of low pressure steam and hot water.

2. There are two (2) boiler rooms adjacent to each other, located in Building A.

3. The original Boiler Room (1954) houses (2) steel fire tube steam boilers, one boiler is a Highlander.

   Automatic boiler/burner unit, Model MM84P, 15 psig steam, 56.0 GPH oil, approximately 1995, estimated 7,840,000 BTU/Hr input.

4. The other boiler is new, Cleaver Brooks, CB 800-200, 60 GPH oil, 8,370,000 BTU/hr input. Along with this new boiler installation, new vacuum condensate pump, receiver and boiler feed pumps were installed.

5. These boilers provide steam to a new convector (located in this room) which supplies hot water to the supply heater in adjacent boiler room built approximately 1974. They also heat the building domestic hot water system.

6. The 1974 Boiler Room houses three (3) H.B. Smith cast iron hot water boilers, Model 450 Mills, 18 sections with a net output of 3,217,000 BTU/Hr. Only one (1) of these boilers is in fair condition, the other two (2) are in very poor condition. These boilers have been moth balled and will not be used for building heat.

7. There are five (5) hot water circulating pumps located in the 1974 Boiler Room which provide hot water to the 1974 building additions. These pumps are in very poor condition and are due to be replaced.

8. Heating is provided by classroom unit ventilators. Heating and ventilating units, fintube radiation, convectors and unit heaters. The 1954 building areas are steam and the 1974 building areas are hot water.

Ventilation:

1. Ventilation is provided by classroom unit ventilators and heating and ventilating units serving auditorium, gym, locker shower areas, kitchen, cafeteria, shops and boiler rooms. Areas without mechanical ventilation at exterior have operable windows.

2. Exhaust is provided by roof fans and utility sets with connecting ductwork to spaces served.

HEATING, VENTILATING & AIR CONDITIONING

Temperature Controls:

1. Automatic temperature controls are basically pneumatic, with recently installed Building Management System, Model 8000, installed by SIEBE.

2. Unit heaters are generally controlled by electric thermostat, which cycles the unit fans.

3. Occupied/unoccupied control is provided by recently installed computer system.

Air Conditioning:

1. The superintendent's office area has a central air conditioning system.

2. Other miscellaneous administration type office areas have only window units.

General Descriptions & Conditions:

1. The 1954 Boiler Room, which houses the 1995 and 1998 steam fire tube boilers, is intended to provide the majority of the facilities heating and domestic hot water requirements.

   The 1995 boiler has an approximate output capacity of 6,272,000 BTU/Hr., and the new boiler has approximate capacity of 6,696,000 BTU/Hr. This information is based on 80% of the BTU/Hr., input capacity.

1995	6,272,000 BTU/HR
1998	6,696,000 BTU/HR
Total Capacity	12,968,000 BTU/HR

   If these boilers are to serve the entire building area of 375,000 square feet, the BTU/SF capacity is only 35 BTU/HR/SF, with both boilers operating.

   This is a very low per square foot capacity, and we question it being adequate.

   We normally see requirements of 65 BTU/SF for heating and ventilation requirements in schools with proper outside ventilation air.

2. The heating and ventilating unit serving the 1954 Boiler Room is not operating at this time. New louvers and automatic dampers were provided high on the wall when the Cleaver Brooks Boiler was installed.

HEATING, VENTILATING & AIR CONDITIONING

Most air for combustion is coming into the room through open doorway between the two (2) Boiler Rooms, and an open door to the 1974 Boiler Room.

On the day of site visit, November 4, 1998, the 1995 boiler was operating and fumes were noticeable in the boiler room.

A new vacuum condensate pump, receiver and boiler feed system have been installed recently, along with a new steam and water convertor. There is one (1) steel chimney stack serving these boilers.

3. The 1974 boilers are in very bad condition, and only one (1) appears operable. These boilers are connected to a masonry chimney.

4. Boiler fuel oil is #4 and is stored in one (1) 30,000 gallon buried steel tank, approximately 24 years old. The tank has been cleaned and tested and has had over spill protection installed, however it does not comply with current regulations for monitoring and leak protection.

5. Chemical treatment has been provided in the past, however the boiler contractor has told owners to hold off for awhile?

6. Building domestic hot water heating is provided from the boilers, therefore only available during the heating season.

7. Steam trap maintenance was not done in the past, however maintenance is now trying to keep up with it, as manpower allows.

8. Roof exhaust fan maintenance is being done, replacing motors, belts, etc., as required.

9. Buildings A and B had new unit ventilators, installed this past spring.

10. Building C has a lot of heating problems, single pane metal windows are very bad. Have been doing some heating valve work.

11. Most condensate is returned to boilers and have replaced some condensate pumps.

12. There is a problem keeping floor tiles down in ground floor corridor of Building A, due to heat from steam piping below floor.

    This piping is not accessible and is believed to be buried below slab.

HEATING, VENTILATING & AIR CONDITIONING

13. The Health Department checks air quality three (3) times per year. Approximately 7 - 8 weeks ago the State was called in due to a complaint, however there were no real problems.

14. With the exception of the kitchen hood systems, ductwork has not been cleaned.

15. Unit ventilator and heating and ventilating unit filters are changed four (4) times per year.

16. Building C was originally designed as open classroom concept, approximately 10 years ago it was divided into individual classrooms.

    Dividing partitions did not effect the basic ventilation system. Windows in this building are in extremely poor condition, and outside air is infiltrating through them.

17. There has been a lot of damage done to corridor and vestibule fintube radiation enclosures and unit heaters.

18. Building A Guidance Area has a lot of computers, there is no air conditioning, and no ventilation of interior areas.

19. The cafeteria area (1974 building) unit ventilators are in very bad condition.

20. The link exterior doors are in very bad condition and there is no heat.

21. There are quite a few corridor areas with lockers and no ventilation is provided, supply or exhaust. This is adding to tile problems noted above in Item #12.

22. For the most part, ventilation did not appear a problem, which is probably attributing somewhat to the fact that the windows are allowing a lot of infiltration.

    The 1971 design drawings do show that the heating and ventilating and unit ventilator equipment capacities allowed for substantial outside air quantities.

23. Walking down Building A ground floor corridor towards the boiler room, we noticed quite a draft coming from the boiler room area. The boiler room door was open at time of visit.

HEATING, VENTILATING & AIR CONDITIONING

Existing Building Requirements/Recommendations by Category:

Mandatory:

1. Remove and replace the existing buried oil tanks and piping systems with new code compliant systems.

2. Provide proper boiler room make-up air ventilation.

S.B.A.B.:

1. Provide code required ventilation in corridor areas.

2. Replace Building C unit ventilators.

Optional:

1. Clean duct systems and equipment.

READING HIGH SCHOOL
EXISTING SYSTEMS UPGRADES
COST ESTIMATES

H.V.A.C.

SYSTEM DESCRIPTION	SYSTEM COST
Remove and replace one 30,000 gallon buried oil tank and piping	$ 75 ,000.00
Provide one new 250 HP firetube boiler	$ 180,000.00
New chimney	$ 60,000.00
Provide proper boiler room make-up air	$ 20,000.00
Provide code required ventilation in corridor areas	$ 40,000.00
Replace Building C unit ventilators	$ 300,000.00
Clean duct systems	$ 200,000.00
Replace hot water pumps	$ 25,000.00
Replace heating piping as necessary	$ 75,000.00
Replace damaged radiation and unit heaters	$ 12,000.00
Expand building management system	$ 100,000.00
Complete steam trap maintenance	$ 10,000.00
Provide air conditioning in Administration area, Computer rooms and Media Center	$ 400,000.00
Replace Cafeteria area unit ventilators	$ 60,000.00
Provide heat int he link	$ 2,000.00
Replace H&V units	$ 360,000.00
Replace roof fans	$ 30,000.00
TOTAL	$1,949,000.00

PLUMBING

Existing Conditions and Comments:

General:

1. Plumbing systems installed in the building include roof drainage; sanitary waste and vent; hot and cold water, natural gas and laboratory drainage.

2. The original building was constructed in 1954, added to in 1969. The quality and style of systems and components vary throughout the building depending upon when they were last updated. Most systems are operational, but the older systems, components and especially fixtures are showing their age.

Storm Drainage:

1. The roofs of the various buildings are essentially flat.

2. Roof drainage consists of roof drains, internal rain leaders and below slab piping which collects the rain leaders in the crawl space or below slab and exits the building in multiple locations.

Sanitary Drainage:

1. Plumbing fixtures and equipment connect to a sanitary waste and vent system that includes branches, risers and horizontal collection systems that have evolved as the building was added to.

2. Below grade sanitary drainage piping exits the original building and various additions in multiple locations. These lines are collected by an on site sewer system which connects to the municipal system.

3. The pot sink and dishwasher in the kitchen are equipped with grease traps. The unit serving the dishwasher is recessed in the floor.

4. Sanitary drainage system is predominately cast iron pipe. Some of the original sanitary piping is reported to be in poor condition and is easily damaged when attempts are made to perform service.

PLUMBING

Hot and Cold Water Systems:

1. Water for the building comes from a municipal source. A 4" water service enters the building in the Boiler Room, is metered and then extends throughout the various portions of the building.

2. The Boiler Room contains four (4) domestic hot water heaters. All of the heaters are of the storage design utilizing steam and boiler water as the heating medium. Two (2) of the heaters are original and two (2) of the heaters were installed at the time of the expansion. All heaters are dependent upon boiler operation for hot water.

3. A single temperature hot water and recirculation system is provided from the Boiler Room to serve all areas of the facility.

4. Typically the hot water and cold water piping systems run parallel as they distribute through the facility. Piping is copper, gate valves are utilized for main and branch isolation. Most systems are insulated. The majority of the piping runs in the crawl spaces.

5. Cold water make-up for the heating system is provided with a reduced pressure backflow preventer. Threaded hose outlets on faucets, wall hydrants, hose bibbs and similar devices are not equipped with vacuum breakers.

6. It is reported that many isolation valves on the water system no longer function satisfactorily and building shut downs are required to perform service to many areas.

7. The field house has hot and cold water piped via buried lines from the boiler room. There is a recirculation line that is intended to maintain water temperature, however there are reported shortages of hot water.

8. The dishwasher is provided with an electric booster heater to increase water temperature.

Natural Gas:

1. The facility has natural gas which is supplied by Boston Gas Company. Gas is used for boiler pilots, cooking and science labs. Piping systems are Schedule 40 steel pipe.

PLUMBING

Laboratory Systems:

1. Science Labs are located in "C" Building which was built in 1969. The drainage system is equipped with a buried acid dilution chamber, essentially a manhole that traps waste, mixes it with existing contents and then allows it to flow out when contents exceed a preset level, prior to connecting to the sanitary system. Gas control valves are provided for each lab as are emergency showers. The water systems are potable which are now required to be non-potable. Tempered water as opposed to cold water is now required at emergency showers.

2. Lab waste drainage piping is predominately Durion pipe below grade and glass pipe above grade.

Plumbing Fixtures:

1. The age and style of plumbing fixtures vary according to the age of the building within which they are installed.

2. The 1954 building has floor mounted tank type water closets, wall hung urinals with flush valves, and wall hung vitreous china lavatories with spring loaded faucets.

3. Wall mounted drinking fountains exist in various locations. Fountain outlets are reported to be a constant source of leakage.

4. There are very limited accessible fixtures in the building.

5. Fixtures in the 1969 addition include wall hung flush valve water closets, wall hung flush valve urinals and wall hung lavatories with cold and hot water faucets.

6. Flush rates for water closets are approximately 5 gallons/flush. Today's standard is 1.6 gallons per flush.

7. Two (2) of the gang toilet rooms on the ground floor of the original building have been closed due to unacceptable conditions. Some janitors closet sinks do not drain properly. Other isolated toilet rooms have fixtures in poor or unusable condition.

8. There are two (2) boys shower areas in the Field House. Both utilize shower columns. Tempered water, regulated by thermostatic mixing valves, is supplied to all but two of the columns.

PLUMBING

One (1) column in each shower room has hot and cold water so individual heads can be temperature regulated. The girls shower area has individual stalls, each supplied with hot and cold water.

9. The majority of fixtures and plumbing equipment in the original building are close to 44 years old, have seen their useful life and now in need of replacement and/or upgrading.

10. The fixtures and piping in the 1969 additions need some upgrading to meet current codes but are serviceable.

Miscellaneous:

1. The kitchen exhaust hood is provided with a hood extinguishing system.

Existing Building Requirements/Recommendations:

1. The building is not fully compliant relative to ADA and Massachusetts Architectural Access Board Regulations for Plumbing Fixtures. Many toilet rooms are not compliant and require renovations to satisfy these requirements for students and staff.

2. Public access drinking fountains/water coolers are required to satisfy plumbing code requirements and for handicapped accessibility.

3. All hose bibbs, wall hydrants, faucets and similar devices equipped with threaded outlets are to be equipped with vacuum breakers for cross connection control.

4. Lavatory faucets should be of the metering style for water conservation and code compliance for public restrooms.

5. Water closets currently in use utilize up to three (3) times the volume of water per flush that new water closets use (5 vs 1.5 GPF). These fixtures should be changed for water conservation purposes. Change urinals for the same reason.

6. Repair/replace/upgrade damaged fixtures or trim.

7. Replace gate valves on hot and cold water systems with ball valves.

8. Upgrade all toilet rooms in the original building. Provide wall hung water closets for ease of cleaning and improved sanitation.

9. Provide hose bibbs in toilet rooms missing them.

PLUMBING

10. Drain down, clean, inspect and reline if required hot water storage tanks. Provide new stand alone hot water heating systems, one for the main building and one for the field house.

11. Convert Science Lab water piping from potable to non-potable.

12. Provide tempered water to emergency fixtures in Science Labs.

13. Provide accessible shower provisions in boys and girls shower rooms.

14. Upgrade thermostatic mixing valves on shower systems.

15. Provide acid neutralization and pH monitoring system for Science Labs.

16. Replace deteriorating sanitary piping.

READING HIGH SCHOOL
EXISTING SYSTEMS UPGRADES
COST ESTIMATES

PLUMBING

SYSTEM DESCRIPTION	SYSTEM COST
Upgrade toilet rooms due to condition, water conservation and ADA compliance	$ 372 ,000.00
Add/upgrade drinking fountains	$ 40,000.00
Provide cross connection control on various water devices	$ 5,000.00
Replace gate valves on hot and cold water system	$ 11,500.00
Upgrade water heating system	$ 80,000.00
Convert Science Lab water piping to non-potable	$ 20,000.00
Provide tempered water for Science Lab emergency fixtures	$ 20,000.00
Provide acid neutralization and monitoring for lab waste system	$ 30,000.00
Provide ADA compliant showers in locker rooms	$ 8,000.00
Upgrade thermostatic mixing valves at shower stations	$ 4,000.00
Replace deteriorating sanitary piping	$ 50,000.00
Replace/upgrade water piping	$ 40,000.00
TOTAL	$ 680,500.00

READING HIGH SCHOOL
EXISTING SYSTEMS UPGRADES
COST ESTIMATES

FIRE PROTECTION

SYSTEM DESCRIPTION	SYSTEM COST
Provide sprinkler protection throughout building	$ 937,500.00
TOTAL	$ 937,500.00

ELECTRICAL

System Descriptions:

Normal Power:

1. The main electrical service is primary underground to five (5) sub-stations at 13,8000 volts. The primary conductors loop from sub-station to sub-station.

2. The switchgear in each case has a primary section with a disconnect switch, transformer section and a 120/208 volt, 3 phase, 4 wire secondary distribution section.

3. Building `A' is rated at 1,000 amperes, Building `B' at 2,500 amperes, Building `C' at 800 amperes and Building `D' and `E' at 1,600 amperes and Building `I' at 1,600 amperes.

4. Secondary panel boards are the circuit breaker type, both recessed and surface.

Emergency Power System:

1. The main emergency generator is manufactured by Kohler and rated at 200 KW, 250 KVA, 694 amperes, 120/208 volts, 3 phase, 4 wire.

2. The automatic transfer switch is manufactured by Russellelectric and is rated at 600 amperes, 120/208 volts, 3 phase, 4 wire.

3. The emergency switchboard has a secondary of 1,000 amperes at 120/208 volts.

4. The distribution panelboards are rated at 800, 600 and 300 amperes.

Fire Alarm System:

1. The fire alarm control system is manufactured by Simplex and is located in the Administration Office.

2. The control panel has 20 zones.

3. The annunciator is located in the main lobby of Building `A' and has spaces for 24 zones.

4. The system has pull stations, heat detectors, horn/lights and door release devices.

ELECTRICAL

Sound/Program System:

1. The system is manufactured by Dukane and the master control is located in the administration area.

2. There are ceiling and wall mounted speakers by Simplex and Dukane.

Telephone System:

1. The system is a Merlin System by Centrex.

Television:

1. The system is Media One.

2. There is cable available in classrooms and labs.

Security:

1. The devices consist of door alarms, photo cells and cameras.

Clock System:

1. The control is a Simplex No. 2350.

2. The clocks are wall mounted and a part of the clock/speaker units.

Computer/Electronics:

1. There are devices in each classrooms and four (4) laboratories.

2. There is Internet.

Lighting:

1. There are many types of lighting fixtures.

2. Most are surface types fluorescent and incandescent.

3. Corridors have recessed fluorescent.

4. There are battery lights in the gymnasium.

5. There are different types of exit lights.

ELECTRICAL

Devices/Plates:

1. The devices are grounded receptacles, ground fault receptacles, toggle and key switches.

2. Plates are many type.

Intercom:

1. The intercom system is manufactured by East Coast Electronics.

2. The console is located in the administration area.

3. The classrooms have call switches to the console.

Observations:

Normal Power:

1. The equipment is 30 years old or more.

2. The condition is fair.

3. The capacity is sufficient for the existing equipment loads.

4. Identification should be updated.

Emergency Power Equipment:

1. The equipment is 30 years old and more.

2. The condition is fair.

3. The loads are lighting, boilers, oil heaters and other mechanical equipment.

4. The capacity is sufficient for the existing equipment loads.

5. Identification should be updated.

Fire Alarm System:

1. The system is outdated and does not meet codes and ADA requirements.

2. The horn/lights are broken and do not have lenses or lamps in some locations.

3. There are areas with no pull stations or horn/lights.

4. The annunciator is not visible without entering the building.

ELECTRICAL

Sound/Program System:

1. The console has functional problems as per the maintenance staff.

2. Speakers in some locations are damaged.

Telephone System:

1. The system is at capacity and outdated.

Television System:

1. Cable locations required in all instructional areas.

Security System:

1. The system is not operational in the Field House.

Clock System:

1. The clocks are of many manufacturers.

2. Not all clocks are operational.

Computer/Electronics:

1. Additional data outlets are required in the classrooms.

Lighting:

1. Lighting fixtures have lenses broken or missing.

2. Lighting fixtures have no lamp locks on the fixtures with exposed lamps.

3. Lighting fixtures do not have energy savings lamps and ballasts.

4. Lighting fixtures do not have lamp guards in the gym.

5. Exit lights are of many types, have broken face plates and/or have no lamps at all.

Devices/Plates:

1. Some devices have no plates.

2. Some areas require ground fault style receptacles.

ELECTRICAL

Intercom System:

1. The system has some functional problems, and should be replaced as per the maintenance staff.

Conclusions and Recommendations:

Normal Power:

1. Provide load testing.

2. Provide updated identification on all equipment, such as name, voltage, source of power and circuit indexes in all panelboards.

Emergency Power Equipment:

1. Provide load testing.

2. Provide updated identification on all equipment.

3. Provide a two-hour rated enclosure for all emergency equipment and power wiring.

Fire Alarm System:

1. Provide a new addressable system which will meet ADA requirements and Mass Electric Code.

Sound/Program System:

1. Provide a new system with Technology that will be adequate to meet the requirements of the staff.

Telephone System:

1. Provide a new system with Technology that will be adequate to meet the requirements of the staff.

Television System:

1. Provide a new system with Technology that will be adequate to meet the requirements of the staff.

Security System:

1. Provide a new system with Technology that will be adequate to meet the requirements of the staff.

ELECTRICAL

Clock System:

1. Provide a new system with Technology that will be adequate to meet the requirements of the staff.

Computer/Electronics:

1. Provide a new system with Technology that will be adequate to meet the requirements of the staff.

Lighting:

1. Provide a new lighting system with energy savings lamps and ballasts.

2. Provide lamp guards and safety lenses as required for safety and maintenance reasons.

Devices/Plates:

1. Provide new grounded receptacles, ground fault receptacles as per code and toggle and key type wall switches.

2. Provide stainless steel or damage resistant phenolic device plates.

Intercom System:

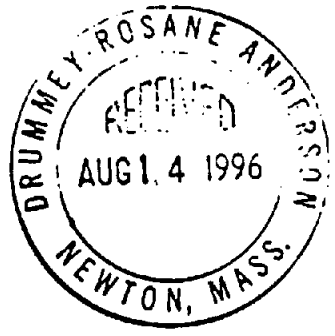
1. Provide a new system that will provide communication between classroom and activities and the administration office for safety reasons.

READING HIGH SCHOOL
EXISTING SYSTEMS UPGRADES
COST ESTIMATES

ELECTRICAL

SYSTEM DESCRIPTION	SYSTEM COST
Distribution System	$ 186,000.00
Emergency Generator and Distribution	$ 80,000.00
Branch Circuit Wiring	$ 460,000.00
Lighting System	$1,200,000.00
Devices	$ 125,000.00
Clock/Program	$ 83,000.00
Intercom/PA System	$ 124,000.00
Sound Reinforcing System (Gym, Cafeteria, Auditorium)	$ 37,000.00
Telephone System	$ 83,000.00
Fire Alarm System	$ 500,000.00
Security System	$ 40,000.00
Mechanical Equipment Connections (120)	$ 50,000.00
Demolition	$ 40,000.00
TOTAL	$3,008,000.00

Diversified Environmental Corp.



August 9, 1996

Drummey Rosane Anderson, Inc.
141 Herrick Road
P.O. Box 299
Newton Centre, MA 02159

Attention: Paul Moore, Design Architect

Reference: Reading High School - Lead Determination Report
Diversified Environmental Corporation, Project #96-25.01

Dear Mr. Moore:

This report presents the results of the Lead Determination performed at the Reading High School on July 30, 1996. Lead testing was performed by Massachusetts Licensed Master Lead Inspector, Mel Blackman (M#1377). Diversified was requested to test various surfaces throughout the school for lead content.

Under Massachusetts regulations, a dangerous level of lead when present in paint, plaster or other accessible substance in a residential dwelling is defined to be more than 1.2 milligrams lead per square centimeter of surface as measured on site by a mobile x-ray fluorescence analyzer or comparable equipment.

Lead paint concentrations were analyzed using a RMD x-ray fluorescence analyzer. The RMD measures the amount of lead within a given area of a painted surface using the principle of x-ray fluorescence (XRF). All surfaces tested and their associated results are provided in the attached Lead Paint Determination Report.

Based on the testing results, lead paint was found throughout the building on such surfaces as windows & doors as well as associated casings & trim. Other materials such as ceremic tile and stairwell components also were found to contain lead. Most of the surfaces found to contain elevated levels of lead have a metal substrate and if windows and doors are to be disposed of, contractors can take metal to recycling facility that will remove lead. As lead issue is more related to exposure and disposal/recycling issues, it is not possible to determine a cost for removal and/or compliance. However, you may consider adding 10-15% to the demolition costs and that should address any costs associated with lead paint.

It is required that if a building is to be renovated/demolished, that the contractor follow OSHA requirements concerning exposure to lead paint as well as EPA & DEP requirements for protection of public & environment and disposal.

If you have any questions concerning this report, or if we can be of further assistance, please feel free to contact me.

Sincerely,
DIVERSIFIED ENVIRONMENTAL CORPORATION

Michael Oriola

Michael Oriola
Manager, Technical Services

Enclosures

cc: M. Tibert, Diversified Environmental Corp.

ABBREVIATION KEY

Substrate
M- metal
B- brick
CB-cinder block
SR-sheet rock
P- plaster
C- concrete
W- wood
CT- ceramic tile
S- steel

Color
T-Tan
B- Blue
G- Green
Y- Yellow
BL- Black
BR- Brown
BE- Beige
P- Pink
O- Orange
Gy- Grey
TU/TQ- Turquoise
W- White

BUILDING	ROOM	SURFACE	SUBSTRATE	COLOR	READING
A	122	Door casing & jamb	M	T	0.4
A	122	Wall	CB	T	0.0
A	123	Radiator	M	M	-0.3
A	123	Wall	CB	B	0.0
A	Cor	Wall	B	B	0.1
A	Cor	door	M	G	0.0
A	Cor	Door casing & jamb	M	G	0.2
A	Cor	Wall	CB	Y	0.0
A	120	Door casing & jamb	M	B	0.1
A	116	Window	M	B	0.2
A	Cor	Wall	B	Y	0.4
A	M-3	Door casing & jamb	M	T	0.3
A	Cor	Rail	M	T	0.4
A	C-1	Door casing & jamb	M	G	0.1
A	110	Window trim	M	T	0.3
A	109	Wall trim	W	T	0.0
A	Cor	Lockers	M	T	0.3
A	Cor	Door	M	G	0.0
A	stairs #2	Baseboard	M	T	4.2
A	stairs #2	Window	M	T	0.0
A	stairs #2	Newell Posts	M	T	3.8
A	stairs #2	Baluster	M	T	4.0
A	stairs #2	Stinger	M	T	3.9
A	stairs #2	Baluster cover	M	T	1.8
A	202	Window	M	T	0.0
A	stairs #1	Baluster	M	T	5.0
A	stairs #1	Stringer	M	T	4.6
A	Cafe dining	Door casing & jamb	M	Y	0.1
A	Cafe	Lally columns	M	T	0.1
A	Cor	Door	M	Bk	0.5
A	music	Radiator	M	T	0.4
A	music	Window sill	W	T	0.0
A	AUD	Walls	P	T	0.0
A	AUD	Walls	P	Be	0.2
A	210	Door casing & jamb	M	T	0.5
A	210	Wall trim	W	T	0.0
A	210	Window	M	T	0.1
A	Lobby	Walls	C	P	0.0
A	Lobby	Tiles	Cer	T	5.8
A	Hall	Tiles	Cer	T	6.0

B	Hall	Window	M	Bl	0.2
B	Hall	Tiles	Cer	W	0.1
B	Hall	Window bars	M	Bl	0.0
B	Hall	Door C&J	M	Br	0.2
B	Hall	Door	M	Br	0.1
B	Bath	Bathroom stall div.	M	B	0.3
B	Stair #2	Baseboard	M	Br	1.4
B	Stair #2	Stringer	M	Br	0.8
B	Stair #2	Riser	M	Br	0.0
B	Locker	Lockers	M	O	0.3
C	Hall	Door	M	Br	0.2
C	Hall	Door C&J	M	Br	0.1
C	Hall	Door C&J elevator	M	G	0.3
C	Hall	Door elevator	M	G	0.6
C	3rd fl.	Door C&J	M	Br	0.2
C	3rd fl.	Tile	C	W	0.1
C	307	Radiator	M	T	0.5
C	307	Window	M	Bl	0.2
C	307	Window trim	M	Bl	0.0
C	307	Walls	CB	Bl	-0.1
C	307	Walls	SR	Y	0.0
C	Ground fl.	Door	M	Tu	0.2
C	1st fl.	Rails	M	T	0.7
B	Library	Support column	S	Br	0.3
B	Library	Walls	CB	O	0.3
B	Library	Walls	CB	Br	0.0
B	Library	Walls	CB	T	0.1
A	2FL hall	Door C&J	M	B	0.3
A	2FL hall	Door	M	B	0.6
A	2FL hall	Wall	CT	T	5.1
A	320	Window trim	M	Br	0.3
A	320	Walls	P	P	0.0
A	320	Ext.window	M	T	2.0
A	Hall	Radiator	M	T	0.0
A	309	Radiator	M	T	0.1
A	309	Radiator	M	T	0.1
A	309	Support columns	P	T	0.0
A	309	Ext. window	M	T	1.7
A	)	Window	M	T	1.7
A	'	Door C&J	M	T	0.3

B	stair #2	Baseboard	M	Br	0.8
B	REAP	Walls	CB	G	0.0
B	REAP	Walls	CB	W	0.2
B	REAP	Walls	CB	P	0.0
B	REAP	Door C&J	M	B	0.4
B	REAP	Door	M	B	0.5
B	Boiler rm	Door C&J	M	Bl	0.3
B	Boiler rm	Door	M	Gy	0.1
B	Boiler rm	Walls	B	W	0.1
B	Boiler rm	Railings	M	Gy	0.1
FA		Support columns	M	Gy	0.4
FA		Door C&J	M	Gy	0.3
FA		Door	M	Gy	0.5
FA		Walls	B	Gy	0.2
FA		Walls	CB	Gy	0.0
FH		Door C&J	M	Gy	0.7
FH		Door	M	Gy	-0.2
FH		Walls	CB	T	0.1
FH		Walls	CB	W	0.0
FH		Radiator	M	Gy	0.3

EXTERIOR

C		Rail	M	Bl	0.0
C		Door	M	B	0.2
C		Door C&J	M	Bl	0.1
C		Lally Col.	M	B	0.6
C		Overhead door	M	B	-0.2
A		Door trim	M	T	1.7
A		Side window	M	T	1.4
A		Window trim	M	T	1.6
A		Door C&J	W	T	3.4
A		Front Door C&J	M	Br	1.5
A		Window sills	M	T	1.6
A		Lally Col.	M	T	1.1
A		Door	M	Tq	0.6
A		Door C&J	M	Tq	0.3
A	B side	Windows	M	Bl	0.0
A	B side	Window trim	W	Bl	-0.1
A	C side	Windows	M	Gy	0.0
A	C side	Window trim	M	Gy	0.1
A	C side	Door C&J	M	Gy	0.1
A	C side	Door	M	Gy	0.0
A	C side	Windows	M	Bl	0.2

ADM office	Window trim	M	Bl	0.5
ADM office	Window	M	BL	0.2
ADM office	Window trim	M	BL	0.0
ADM office	Railings	M	B	0.1
Courtyard	Window	M	T	1.4
Courtyard	Window trim	M	T	1.3
Courtyard	Door C&J	M	Bl	0.1
Courtyard	Door	M	B	0.1
Courtyard	Railings	M	Gy	0.2
FA Bldg	Door C&J	M	B	0.3
FA Bldg	Door	M	B	0.5
FA Bldg	Window	M	Bl	0.3
FA Bldg	Window trim	M	Bl	0.4
Field house	Door	M	B	0.3
Field house	Door C&J	M	Bl	0.5

Diversified Environmental Corp.

August 10, 1996

Drummey, Rosane, Anderson, Inc.
Colby Hall, 141 Herrick Road
Newton Centre, MA 02159-0299

Attn: Mr. Paul Moore, Senior Designer

RE: Reading Memorial High School Renovation and Addition
Record Review and Cost Estimates for Asbestos and PCB Removal

Dear Mr. Moore:

As per our proposal, Diversified has conducted a record review of the AHERA Asbestos Re-inspection, the original AHERA Management Plan was not available, for Reading Memorial High School and an inspection of the facilities to confirm the types of asbestos-containing materials (ACM) present. Through previous sampling and analysis of materials the Re-inspection identified the following distinct ACM:

Pipe Insulation & Associated Fitting Insulation
Boiler Breech Insulation
Breeching Insulation
Tank Insulation
Floor Tiles & Associated Mastic

In order to minimize costs the Management Plan assumes that many other materials also contain asbestos. This is acceptable for the purposes of managing ACM "in place". Diversified agrees with these assumptions for some materials that have a high probability of containing asbestos. However, for renovation/demolition activities, treating materials as ACM that may not actually contain asbestos is expensive. Diversified has identified several different types of floor tiles and associated mastic which should be sampled as separate homogeneous areas to determine which floor tiles contain asbestos.

During our inspection of Reading Memorial High School, Diversified has identified several distinct materials suspected of containing asbestos that are not addressed in the Re-inspection. Samples of these materials should be collected and analyzed for asbestos content as part of the design process. We are, therefore, recommending that samples be collected of the following newly identified suspect materials. Due to limited sampling, these materials could not be sampled. The original AHERA Management Plan may identify these materials and have sampling results.

Glue Dots on 1'x 1' acoustical ceiling tiles
Pipe Fittings in Field House
Roof Drain Fittings in Girls Gym
Interior Window Caulking
Insulation inside of new boiler
Gasket Material inside of door of new boiler
Fire brick inside of new boilers

This report also presents the results of analyses performed on bulk samples which were collected by Michael Oriola on July 30,1996. The sampling included roofing materials and exterior window caulking at Reading Memorial High School. A total of twenty two bulk samples were collected and analyzed. Please see Appendix A for results. The roof flashing along the perimeter expansion joints and vents above the science wing, and exterior window caulking from the science wing and the rear of the fine arts wing were found to contain asbestos. The roofing material above the science wing, roofing material and flashing material above the boiler room, and three exterior window caulking from the existing building and two other exterior window caulkings from the fine arts building were found not to contain asbestos.

The bulk sample results attached were analyzed by Hygeia Environmental, Inc. of Dedham, MA using Polarized Light Microscopy as described in 40 CFR 7· Each bulk sample was analyzed in accordance with U.S. Environmental Protection Agency (EF ·00/M4-82-020 recommended protocol using polarized light microscopy (PLM).

Hygeia Environmental, Inc. is accredited through the National Voluntary Laboratory Accreditation Program (#2068) and is a Massachusetts certified analytical laboratory (AA000126). Appendix A contains copies of asbestos results.

Diversified also reports that after random inspections, light ballasts throughout Reading Memorial High School contain PCB dielectric fluid. There is an estimated 7,800 ballasts throughout the school. The cost of removal is approximately $10.00/light. The total cost is estimated at $78,000.00. Also, recent regulations now require certain handling and disposal procedures for Non-PCB ballasts.

Based on Diversified's review of asbestos containing material and results of limited sampling an estimate of cost of all ACM is $485,840.00 . A breakdown of the cost estimates for abatement of all identified asbestos containing materials is provided in Appendix B. Also Appendix C contains copy of AHERA Re Inspection findings.

If you have any questions regarding the information provided, please do not hesitate to contact us.

Sincerely,
Diversified Environmental Corp.

Michael Oriola

Michael Oriola
Manager Technical Services

Enclosures

cc: M. Tibert

Appendix B

Cost for Recommended Abatement of Asbestos-Containing Materials

Reading High School

August 1996

Location	Description	Amount	Condition	Removal Costs
Sub Ground Floor				
Old Boiler Room	Pipe Insulation	2000 lf	Good	20000.00
	Pipe Insulation	1900 lf	Good	19000.00
	Pipe Insulation	70 lf	Good	700.00
	Boiler Insulation	700 sf	Good	7000.00
	Tank Insulation	200 sf	Good	2000.00
	Breeching Insulation	1200 sf	Good	12000.00
New Boiler Room	Breeching Insulation	50 sf	Good	500.00
Crawlspace To Boiler Room	Pipe Insulation	4500 lf	Damaged	45000.00
	Pipe Insulation	3200 lf	Damaged	32000.00
Crawlspace, Civil Defense Area	Pipe Insulation	2900 lf	Good	29000.00
	Pipe Insulation	900 lf	Damaged	9000.00
	Contaminated Soil	1 in	Throughout	
Maintenance Office	Vinyl Asbestos Floor Tile	25 sf	Good	50.00
Room 48 Maintenance	Pipe Insulation	80 lf	Fair	800.00
	Pipe Insulation	65 lf	Fair	650.00
Storage Closet In Room 48	Pipe Insulation	180 lf	Fair	1800.00
	Pipe Insulation	25 lf	Fair	250.00
Back Storage Room In Room 48	Pipe Insulation	35 lf	Fair	350.00
	Pipe Insulation	35 lf	Fair	350.00
Second Storage Closet In Room 48	Pipe Insulation	100 lf	Fair	1000.00
	Pipe Insulation	20 lf	Fair	200.00
Hall Between Wood Shop & Maintenance Area	Vinyl Asbestos Floor Tile	300 sf	Good	600.00
Wood Shop	Transite (duct)	30 sf	Good	240.00
Hall Outside Superintendents Office (formerly focus area)	Vinyl Asbestos Floor Tile	400 sf	Good	800.00

Appendix B

Cost for Recommended Abatement of Asbestos-Containing Materials

Reading High School

August 1996

Location	Description	Amount	Condition	Removal Costs
Ground Floor				
Business Hallway	Vinyl Asbestos Floor Tile	6500 sf	Good	13000.00
Girls Bathroom In Business Hallway	Pipe Insulation	20 lf	Fair	200.00
Closet Between Bathrooms and Next To Room 105	Pipe Insulation	4 lf	Good	40.00
Stairwell Outside	Pipe Insulation	6 lf	Good	60.00
Room 101	Vinyl Asbestos Floor Tile	100 sf	Good	200.00
Room 101	Vinyl Asbestos Floor Tile	500 sf	Good	1000.00
Room 102	Vinyl Asbestos Floor Tile	900 sf	Good	1800.00
Room 103	Vinyl Asbestos Floor Tile	1100 sf	Good	2200.00
Room 104	Vinyl Asbestos Floor Tile	1100 sf	Good	2200.00
Room 105	Pipe Insulation	15 lf	Fair	150.00
	Vinyl Asbestos Floor Tile	700 sf	Good	1400.00
Room 106	Pipe Insulation	15 lf	Good	150.00
	Pipe Insulation	20 lf	Good	200.00
Room 107	Pipe Insulation	12 lf	Good	120.00
	Vinyl Asbestos Floor Tile	700 sf	Good	1400.00
Room 108	Pipe Insulation	45 lf	Good	450.00
	Pipe Insulation	12 lf	Good	120.00
	Vinyl Asbestos Floor Tile	1200 sf	Good	2400.00
Room 109	Vinyl Asbestos Floor Tile	1100 sf	Good	2200.00
Room 110 (formerly 109A)	Vinyl Asbestos Floor Tile	400 sf	Good	800.00
C-1 (next to Room 110)	Vinyl Asbestos Floor Tile	400 sf	Good	800.00

Appendix B

Cost for Recommended Abatement of Asbestos-Containing Materials

Reading High School

August 1996

Location	Description	Amount	Condition	Removal Costs
Ground Floor (cont.)				
Incinerator Room (next to C-1)	Pipe Insulation Vent Plaster	20 lf 40 sf	Damaged Good	200.00 320.00
Custodians Office & Bath (near 110)	Pipe Insulation	120 lf	Good	1200.00
Hallway Outside Room 111 (girls bathroom)	Vinyl Asbestos Floor Tile	2000 sf	Good	4000.00
Room 112	Vinyl Asbestos Floor Tile	600 sf	Good	1200.00
Room 113	Vinyl Asbestos Floor Tile	750 sf	Good	1500.00
Custodial Room (M-3)	Pipe Insulation	40 lf	Fair	400.00
Room 21	Vinyl Asbestos Floor Tile	700 sf	Good	1400.00
Room 22 & Storage Closet	Vinyl Asbestos Floor Tile	1000 sf	Good	2000.00
Lecture Hall	Vinyl Asbestos Floor Tile	1100 sf	Good	2200.00
Hallway Outside Room 301-305	Vinyl Asbestos Floor Tile	300 sf	Good	600.00
Room C-101 (formerly 301)	Vinyl Asbestos Floor Tile	800 sf	Good	1600.00
Room 303	Vinyl Asbestos Floor Tile	600 sf	Good	1200.00
Rooms 304 & 305	Vinyl Asbestos Floor Tile	1700 sf	Good	3400.00
Hallway Outside Rooms C-105 -C-111 (formerly 306-309)	Vinyl Asbestos Floor Tile	700 sf	Good	1400.00

Appendix B

Cost for Recommended Abatement of Asbestos-Containing Materials

Reading High School

August 1996

Location	Description	Amount	Condition	Removal Costs
Ground Floor (cont.)				
Room C-105 (formerly 306)	Transite (hood)	50 sf	Good	250.00
	Vinyl Asbestos Floor Tile	1200 sf	Good	2400.00
Room C-107 (formerly 307)	Transite (hood)	50 sf	Good	250.00
	Vinyl Asbestos Floor Tile	1200 sf	Good	2400.00
Room C-108 (formerly 308)	Transite (hood)	50 sf	Good	250.00
	Vinyl Asbestos Floor Tile	1200 sf	Good	2400.00
Room C-111 (formerly 309)	Transite (hood)	35 sf	Good	175.00
	Vinyl Asbestos Floor Tile	1200 sf	Good	2400.00
Room C-109 (formerly 310)	Vinyl Asbestos Floor Tile	1200 sf	Good	2400.00
Storage Room Off C-109	Transite (hood)	25 sf	Good	125.00
	Vinyl Asbestos Floor Tile	250 sf	Good	500.00
Room C-106 (formerly 310B) & Room Off C-106	Vinyl Asbestos Floor Tile	600 sf	Good	1200.00
Hallway & Stairwell Next To Foreign Language Wing	Vinyl Asbestos Floor Tile	500 sf	Good	1000.00
Hallway From Rooms 311-312	Vinyl Asbestos Floor Tile	375 sf	Good	750.00
Rooms 311 & 312, Used For Storage	Vinyl Asbestos Floor Tile	1700 sf	Good	3400.00
Rooms 313 & 314, Art Director	Vinyl Asbestos Floor Tile	1700 sf	Good	3400.00
Hall & Stairwell In Foreign Lang. Wing	Vinyl Asbestos Floor Tile	300 sf	Good	600.00
Industrial Arts Hallways	Vinyl Asbestos Floor Tile	1000 sf	Good	2000.00

Appendix B

Cost for Recommended Abatement of Asbestos-Containing Materials

Reading High School

August 1996

Location	Description	Amount	Condition	Removal Costs
Ground Floor (cont.)				
Bathrooms In Industrial Arts Hallways	Vinyl Asbestos Floor Tile	150 sf	Good	300.00
Room A-118, Testing Lab	Pipe Insulation	25 lf	Fair	250.00
	Vinyl Asbestos Floor Tile	600 sf	Good	1200.00
Room A-116, Electrical Classroom (formerly room 40)	Pipe Insulation	30 lf	Fair	300.00
	Vinyl Asbestos Floor Tile	1100 sf	Good	2200.00
Office By Electrical Classroom	Vinyl Asbestos Floor Tile	300 sf	Good	600.00
Room A-120, Graphics and Storage, (inc. small room to rear) (formerly 41)	Vinyl Asbestos Floor Tile	1000 sf	Good	2000.00
Room A-119, Graphics & Office (formerly 42) (formerly 42)	Vinyl Asbestos Floor Tile	1200 sf	Good	2400.00
Storage Between Rooms A-119- & A-121	Vinyl Asbestos Floor Tile	250 sf	Good	500.00
Room A-121 (formerly 43)	Vinyl Asbestos Floor Tile	1200 sf	Good	2400.00
Office Between Rooms 43 & 44	Vinyl Asbestos Floor Tile	400 sf	Good	800.00
Dark Room In Room 45	Vinyl Asbestos Floor Tile	300 sf	Good	600.00
Back Storage Room In Room 45	Vinyl Asb[illegible]s Floor Tile	150 sf	Good	300.00

Appendix B

Cost for Recommended Abatement of Asbestos-Containing Materials

Reading High School

August 1996

Location	Description	Amount	Condition	Removal Costs
Ground Floor (cont.)				
Room A-123, Print Shop (formerly room 45)	Vinyl Asbestos Floor Tile	1300 sf	Good	2600.00
First Floor				
Hall Outside Stairwell Leading To New Wing	Pipe Insulation	12 lf	Fair	120.00
	Vinyl Asbestos Floor Tile	400 sf	Good	800.00
Orange Locker Area	Vinyl Asbestos Floor Tile	4300 sf	Good	8600.00
Commons	Vinyl Asbestos Floor Tile	4900 sf	Good	9800.00
Teachers D.C.	Vinyl Asbestos Floor Tile	600 sf	Good	1200.00
Room A-206, Music Room & Office	Vinyl asbestos Floor Tile (under carpet)	1600 sf	Good	3200.00
Music Room Storage	Vinyl Asbestos Floor Tile	150 sf	Good	300.00
Music Storage	Vinyl Asbestos Floor Tile	400 sf	Good	800.00
Employees Dining Room Next To Music Storage	Vinyl Asbestos Floor Tile	400 sf	Good	800.00
Hallway Outside Faculty Bathrooms	Vinyl Asbestos Floor Tile	2000 sf	Good	4000.00
Cafeteria	Vinyl Asbestos Floor Tile	5400 sf	Good	10800.00
Stairwell Outside Social Studies Office	Vinyl Asbestos Floor Tile	300 sf	Good	600.00
Room A-223, Core Coordinator	Pipe Insulation	3 lf	Good	30.00
	Vinyl Asbestos Floor Tile	250 sf	Good	500.00

Appendix B

Cost for Recommended Abatement of Asbestos-Containing Materials

Reading High School

August 1996

Location	Description	Amount	Condition	Removal Costs
First Floor (cont.)				
Room A-221, Health Office	Vinyl Asbestos Floor Tile	600 sf	Good	1200.00
Access Panel In Main Corridor	Pipe Insulation Pipe Insulation	70 lf 70 lf	Good Good	700.00 700.00
Room A-218, Guidance Office (right & left closets)	Vinyl Asbestos Floor Tile	300 sf	Good	600.00
Electrical Closet Behind School Administration	Pipe Insulation Vinyl Asbestos Floor Tile	12 lf 60 sf	Fair Good	120.00 120.00
Room A-213 (formerly 133)	Vinyl Asbestos Floor Tile	700 sf	Good	1400.00
Room A-215, Scheduling Room (formerly 134)	Pipe Insulation Vinyl Asbestos Floor Tile	10 lf 400 sf	Fair Good	100.00 800.00
Room A-219, Assistant Principals Office & Conference Room	Vinyl Asbestos Floor Tile	1000 sf	Good	2000.00
Assistant Principals Left Office	Vinyl Asbestos Floor Tile	100 sf	Good	200.00
Assistant Principals Middle Office	Vinyl Asbestos Floor Tile	100 sf	Good	200.00
Assistant Principals Right Office	Pipe Insulation Vinyl Asbestos Floor Tile	2 lf 100 sf	Fair Good	20.00 200.00
Assistant Principals Main Office	Vinyl Asbestos Floor Tile	200 sf	Good	400.00

Appendix B

Cost for Recommended Abatement of Asbestos-Containing Materials

Reading High School

August 1996

Location	Description	Amount	Condition	Removal Costs
First Floor (cont.)				
Room A-220, Computer Room (formerly 140)	Vinyl Asbestos Floor Tile	700 sf	Good	1400.00
Room A-222 (formerly 142)	Vinyl Asbestos Floor Tile	800 sf	Good	1600.00
Room 144, Computer/Storage	Vinyl Asbestos Floor Tile	600 sf	Good	1200.00
Room A-224, METCO (formerly 116)	Vinyl Asbestos Floor Tile	200 sf	Good	400.00
Hall From Main Office To Girls Gym	Vinyl Asbestos Floor Tile	1500 sf	Good	3000.00
Physical Education Hallway	Vinyl Asbestos Floor Tile	150 sf	Good	300.00
Room A-209 (formerly 129)	Vinyl Asbestos Floor Tile	70 sf	Good	140.00
Custodial Room Near Room 129	Vinyl Asbestos Floor Tile	450 sf	Good	900.00
Girls & Boys Bathrooms Near Room A-209 (formerly 129)	Pipe Insulation	45 lf	Good	450.00
Room A-210 (formerly 130)	Pipe Insulation Vinyl Asbestos Floor Tile	30 lf 500 sf	Fair Good	300.00 1000.00
Room A-211 (formerly 131)	Vinyl Asbestos Floor Tile	800 sf	Good	1600.00
Room A-212 (formerly 132)	Vinyl Asbestos Floor Tile	400 sf	Good	800.00

Appendix B

Cost for Recommended Abatement of Asbestos-Containing Materials

Reading High School

August 1996

Location	Description	Amount	Condition	Removal Costs
First Floor (cont.)				
Room A-208, Pupil Personnel Rooms And Baths	Vinyl Asbestos Floor Tile (some under rugs)	2500 sf	Good	5000.00
Ticket Room	Vinyl Asbestos Floor Tile	40 sf	Good	80.00
Womens Bathroom Across From Auditorium	Vinyl Asbestos Floor Tile	120 sf	Good	240.00
Stairwell Outside Storage Closet At End Of Social Studies Corridor	Vinyl Asbestos Floor Tile	200 sf	Good	400.00
Room A-202 & Adjoining Office (formerly 120)	Vinyl Asbestos Floor Tile	1100 sf	Good	2200.00
Room A-201 (double room, formerly 121 & 123)	Pipe Insulation Vinyl Asbestos Floor Tile (under rug)	65 lf 1600 sf	Fair Good	650.00 3200.00
Room A-204 (formerly 122)	Vinyl Asbestos Floor Tile	800 sf	Good	1600.00
Rooms A-205 & A-207 (formerly 125 & 127)	Vinyl Asbestos Floor Tile	1700 sf	Good	3400.00
Hall Outside Room A-201 (formerly 121 & 123)	Vinyl Asbestos Floor Tile	1000 sf	Good	2000.00
School Administration Main Office & Conference Room	Vinyl Asbestos Floor Tile	800 sf	Good	1600.00

Appendix B

Cost for Recommended Abatement of Asbestos-Containing Materials

Reading High School

August 1996

Location	Description	Amount	Condition	Removal Costs
First Floor (cont.)				
Administration Office & Side Room	Vinyl Asbestos Floor Tile	300 sf	Good	600.00
Rooms C-203 & C-204 (formerly rooms 323 & 324)	Vinyl Asbestos Floor Tile	1500 sf	Good	3000.00
Room C-201, Math Office	Vinyl Asbestos Floor Tile	900 sf	Good	1800.00
Room C-202 (formerly 322)	Vinyl Asbestos Floor Tile	900 sf	Good	1800.00
Hallway Outside Rooms C-209 to C-205 (formerly 327 -325)	Vinyl Asbestos Floor Tile	700 sf	Good	1400.00
Room C-208 (formerly 330)	Vinyl Asbestos Floor Tile	400 sf	Good	800.00
Hallway Outside Room C-215 To C-218 (formerly 335-333)	Vinyl Asbestos Floor Tile	500 sf	Good	1000.00
Rooms C-219, C-218, C-217 & C-216 (formerly 332, 333, 334 & 335)	Vinyl Asbestos Floor Tile	1800 sf	Good	3600.00
Rooms C-210 & C-206 (formerly 331 & 329)	Vinyl Asbestos Floor Tile	1000 sf	Good	2000.00
Hallway Outside Rooms C-214 to C-212 (formerly 338-336)	Vinyl Asbestos Floor Tile	400 sf	Good	800.00
Stairwell Hall Outside Rooms 327-328	Vinyl Asbestos Floor Tile	500 sf	Good	1000.00

Appendix B

Cost for Recommended Abatement of Asbestos-Containing Materials

Reading High School

August 1996

Location	Description	Amount	Condition	Removal Costs
First Floor (cont.)				
Rooms C-205, C-207 & C-209 (formerly 325, 326, 327 and office)	Vinyl Asbestos Floor Tile	3200 sf	Good	6400.00
Rooms C-212, C213, C-214 and C-215 (formerly 336, 337 and 338 and office)	Vinyl Asbestos Floor Tile	3300 sf	Good	6600.00
Second Floor				
Closet Across From Balcony (3)	Vinyl Asbestos Floor Tile	120 sf	Good	240.00
Corner Storage Room Across From Balcony	Vinyl Asbestos Floor Tile	700 sf	Good	1400.00
Air Handling Room Near Balcony	Pipe Insulation Pipe Insulation	25 lf 3 lf	Fair Good	250.00 30.00
Hallway From Rooms A-310 To A-327 (formerly 160-175)	Vinyl Asbestos Floor Tile	3500 sf	Good	7000.00
Room A-310 (formerly 160)	Vinyl Asbestos Floor Tile	600 sf	Good	1200.00
Rooms A-313, A-315 and A-317 (formerly 161, 163 and 165)	Vinyl Asbestos Floor Tile	2250 sf	Good	4500.00
Girls & Boys Bathrooms Near Room A-313 (formerly 161)	Pipe Insulation	120 lf	Good	1200.00

Appendix B

Cost for Recommended Abatement of Asbestos-Containing Materials

Reading High School

August 1996

Location	Description	Amount	Condition	Removal Costs
Second Floor (cont.)				
Room A-312 (formerly 162)	Pipe Insulation	25 lf	Good	250.00
	Vinyl Asbestos Floor Tile	500 sf	Good	1000.00
Room A-314, English Office (inc. bath)	Vinyl Asbestos Floor Tile	1000 sf	Good	2000.00
Room A-316 Inc. Closet (formerly 164)	Vinyl Asbestos Floor Tile	1000 sf	Good	2000.00
Room A-318 Inc. Closet (formerly 166)	Vinyl Asbestos Floor Tile	700 sf	Good	1400.00
Room A-320, A-322 and A-324 (formerly 168, 170 and 172)	Pipe Insulation	90 lf	Good	900.00
	Vinyl Asbestos Floor Tile	2000 sf	Good	4000.00
Rooms A-319, A-321, A-323, A-325 and A-327 (formerly 167, 169 and 171)	Pipe Insulation	120 lf	Good	1200.00
	Vinyl Asbestos Floor Tile	3000 sf	Good	6000.00
Room A-302 (formerly 150)	Vinyl Asbestos Floor Tile	750 sf	Good	1500.00
Room A-304 (formerly 154) and Storage Next To A-304	Pipe Insulation	65 lf	Good	650.00
	Vinyl Asbestos Floor Tile	1200 sf	Good	2400.00
Hallway From Room A-301, Fire Door (formerly 151)	Vinyl Asbestos Floor Tile	2000 sf	Good	4000.00

Appendix B

Cost for Recommended Abatement of Asbestos-Containing Materials

Reading High School

August 1996

Location	Description	Amount	Condition	Removal Costs
Second Floor (cont.)				
Rooms A-301, A-303, A-305, A-307, A-309 and A-311 (formerly 151, 153 155, 157, 159 and 159A)	Pipe Insulation Vinyl Asbestos Floor Tile	300 lf 3000 sf	Good Good	3000.00 6000.00
Rooms 28& 28 (2nd floor of library)	Vinyl Asbestos Floor Tile	1000 sf	Good	2000.00
Rooms C-301, C-302, C-303 and C-304 (formerly 341, 342, 343, 344 345) (342 and 343 were combined and are now C-302)	Vinyl Asbestos Floor Tile	3600 sf	Good	7200.00
Hallway Outside Room C-306, Stairs And Landing (formerly 353 prep)	Vinyl Asbestos Floor Tile	600 sf	Good	1200.00
Rooms C-305, C-307, C-309, C-311, C-306, C-308 and C-310 (formerly 346, 347, 348, 349, 350, and 2 preps)	Vinyl Asbestos Floor Tile	8000 sf	Good	16000.00
Field House First Floor				
Back Stairwells (2)	Vinyl Asbestos Floor Tile	700 sf	Good	1400.00
Field House Second Floor				
Loft Hallway	Vinyl Asbestos Floor Tile	1600 sf	Good	3200.00

Appendix B

Cost for Recommended Abatement of Asbestos-Containing Materials

Reading High School

August 1996

Location	Description	Amount	Condition	Removal Costs
Field House Second Floor (cont.)				
Electrical Room	Vinyl Asbestos Floor Tile	150 sf	Good	300.00
Custodial Storage & Storage Room	Vinyl Asbestos Floor Tile	300 sf	Good	600.00
Science Wing				
Roof	Flashing Material along pereimeter expansion joints and vents	4500 sf	Good	9000.00
Exterior	Window Caulking	TBD	Good	$50.00/window
Fine Arts Wing				
Exterior (rear of bldg.)	Window Caulking	TBD	Good	$50.00/window
Total Cost:				**$485,840.00***

* Not incuding cost for removal of window caulking.