



TOWN OF DURHAM

Francis E. Korn School

144 Pickett Lane

FINAL REPORT

ADAPTIVE REUSE FEASIBILITY REPORT:

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SECTION I – ASSESSMENT OF BUILDING/PROPERTY

Architectural

Existing Conditions Analysis

Francis E. Korn Elementary School was originally constructed in 1963. An addition was constructed to the rear of the building, in 2002. The school building is approximately 31,274 net square feet. A two-classroom portable structure added approximately 1,848 net square feet. The portable is physically connected to the main school building by a covered walkway.



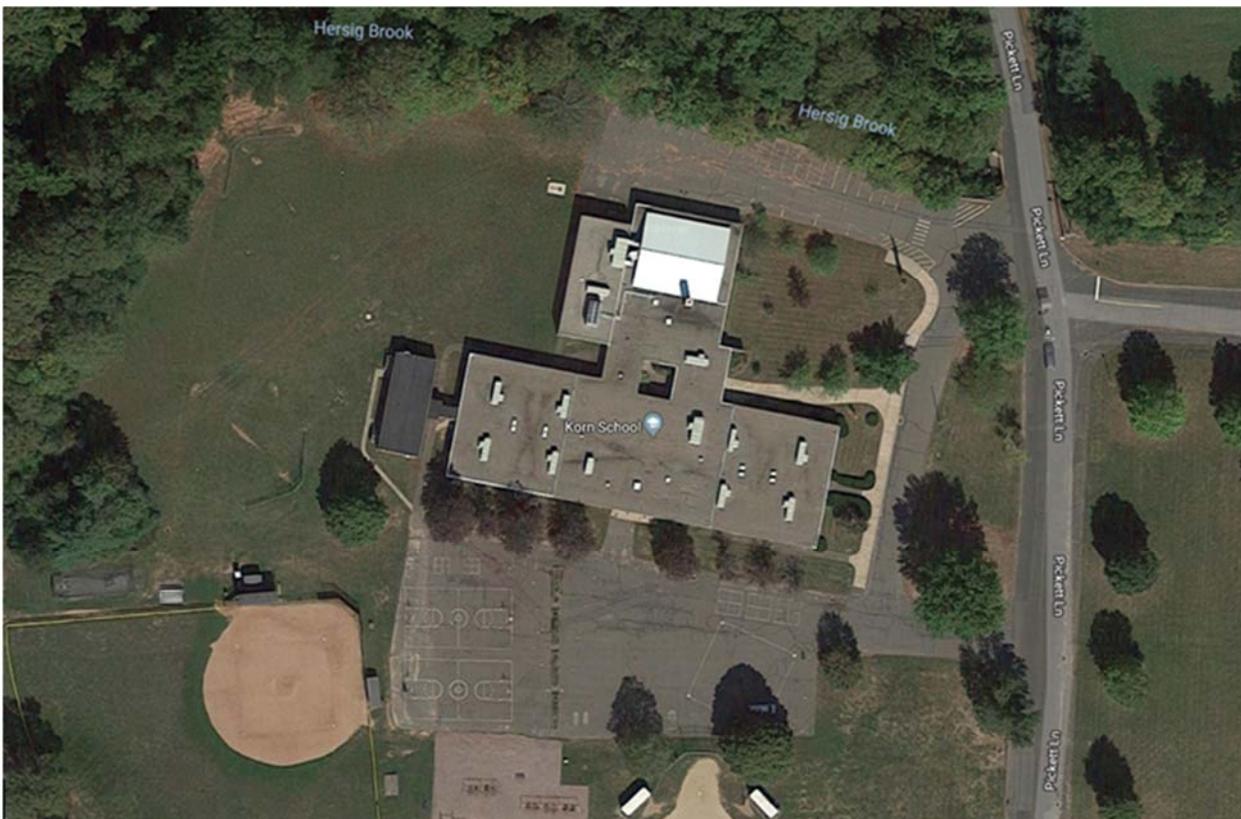
Site

Korn School is located at 144 Pickett Lane on a parcel approximately 12 acres in size. Two driveways enter the site leading to parking to the north and south sides of the building. The lots are connected by a main entrance drop off to the east of the building. The new lot effectively separates vehicular circulation and drop offs. Pavement and curbs around the site are in fair condition and will need minor patching and eventual repaving. There were some areas observed where the concrete curbing and door aprons have cracked or spalled, which freeze and thaw temperature cycles will deteriorate further and may be considered to be

tripping hazards. Signage and accessible path requirements will need minor upgrades. Accessible paths to the playgrounds and ball fields will need to be confirmed for compliance. Some accessible elements are present, however accessibility upgrades to site sidewalks and parking will be required. In general, there appears to be sufficient parking around the building for most reuse functions, including overflow parking for special events.

The landscaping of the site is welcoming, with several existing varieties of trees and shrubs. There is an opportunity in the front and rear of the building to develop outdoor meeting areas or gardens.

A basic existing condition of the property that should be noted is the proximity of the Hersig Brook bordering the site to the north. The flood hazard area, zone AE, has been maintained almost entirely within the banks of the brook by recent culvert work. Further historical data and information is needed on the effects of the Hersig Brook flooding to determine how the watercourse may affect future reuse of the building and site.



Architecture

Overall, Korn Elementary School is in good to fair condition. The building has been well maintained throughout its lifetime. The original building is organized in a “T” shaped floor plan. The main entry faces east and the front corridor runs in the north south direction. The office and utility areas are located in the center of the building with natural light being provided by a small center courtyard. The bar of the “T” configuration, the south side of the building, is a double loaded corridor with eleven former classrooms, media center, resource room, kitchen and cafeteria. On the north side of the building is the gymnasium and the most recent addition of art and music rooms facing the rear field. Two portable classrooms added in 2000 are located behind the building accessed by sidewalks and an open air, wood framed roof enclosure. The portables are in fair to poor condition and would require significant renovation for reuse.



Floor Plan

Exterior

On the exterior, the brick walls and metal fascia panels of the school are generally in good condition, with minor areas of settling and spalling. The building is constructed with a brick “veneer” and painted concrete masonry unit interior. Overall, the mortar is in fair condition with wall areas of roughly 25% in need of repointing. Certain areas are in need of more attention. For instance, at drainage downspouts and wing walls some joints have failed with moss is growing with in them. Mildew is a minor concern; however areas of the brick veneer should be power washed, repointed and sealed to prevent any further damage. There are a few small areas of brick damage which should be addressed with removal and replacement as needed. Cleaning and resealing should be a high priority. In general, the exterior sealant is older and should be removed and replaced.

Door and window framing, glazing and panels appear original to the building. These systems are functional, but are nearing the end of their useful life and are not energy efficient. They should be considered for replacement in the short term. The energy efficiency of original construction in the 1960’s is typically very low. When evaluating the energy efficiency of a building, nearly 25-40% of all heat energy is lost through windows. Most exterior doors do not meet accessibility requirements due to steps at doors, deteriorated paving or lack of operable clearances. Many of these conditions can be rectified with new grading and paving. The greenhouse addition to the former media center is in good condition with no signs of leaking, glazing fog or deterioration.

The roofs are low sloped modified bituminous membranes with pea gravel ballast, except for the gymnasium which is metal. They appear to be in good to fair condition, however the last roof replacement was about 20 years ago. The fascia, flashing and roof curbs are also in good to fair condition. Minor damage from apparent roof leaks were observed in one of the classrooms. Ponding was observed on the low sloped roof south of the gymnasium. Leaks are likely to become more common over the next few years. Roof leaks increase the potential for mold growth and unhealthy indoor air quality. No mold or mildew was observed, due to roof leaks or otherwise. Insulation values for new roofs are significantly higher than those constructed 10 or 20 years ago and will help with overall building energy conservation. Full roof replacement should be planned in the short term.

The existing loading dock requires repair and reconstruction due to deteriorated concrete. The railing is not code compliant and requires replacement.

The addition classrooms, art and music, were designed and constructed to match or approximate the original building. The exterior masonry, metal fascia, soffits and window systems are in good condition for this part of the building.

Interior

The interior of the building is well maintained based on the existing conditions and systems. The interior walls are a variety of painted block, glazed block and some limited plaster and/or sheetrock at the original structure. Most walls appear to be in reasonable condition. In a non-sprinklered, masonry (type 2B) school, the corridor walls and doors are required to have a 1-hour fire rating. Over the years piping and other utility work has, little by little, compromised the wall ratings. The existing corridor walls will require patching, primarily above ceiling to bring them into code compliance. Sealing top of wall and around piping with fire safing and putty will be required for all corridor wall along means of egress pathways. An upgrade to interior doors, frames and hardware is equally important to meet fire rating requirements. Most of the corridor doors and frames are not labeled, and therefore are not properly rated. Door frames mortared into masonry walls can be reviewed and labeled or found acceptable retroactively if they are proper gage and construction. Doors and hardware that do not meet the required ratings will need to be upgraded or replaced. Hardware upgrades, to both interior and exterior doors, would include accessible door handles and closers. Most doors are wood in hollow metal frames and are in good condition. Those not requiring rating upgrades can remain with minor repainting of frames. Some hardware has been upgraded for accessibility, specifically door levers in order to meet code. However, some doors still have knobs that require grasping and twisting.

Ceramic tile and block at the toilet rooms are in generally good condition. Single hole toilets located in the rear of the building are newer and appear to meet accessibility requirements minus a missing grab bar. It was noted that the toilet count appears to be minimal and depending on the future uses additional toilet rooms may need to be added, by the gymnasium for example.

The majority of the ceilings are acoustical tile ceilings within the classrooms and corridors. Minor sagging of ceiling tiles was observed but overall the ceilings are in good condition. The flooring throughout the facility is in fair to good condition. Some of the casework in the former classrooms is original and does not meet accessible heights or have the required knee spaces. Sinks in the original casework are also not accessible and should be upgraded for future use.

The gym has a fold out stage which will require modifications and add-on accessibility features.

The kitchen prep area does not meet accessibility requirements for work areas and appears to lack the required sinks. Mechanical upgrades are also needed in the kitchen, which are included in this report.

From the AHERA reports, it is reported that asbestos tile flooring is present in several areas of the building, often beneath carpeted areas. Asbestos was also noted in the solid panels beneath the windows. Other areas to be confirmed are window caulking and pipe insulation outside of the boiler room.

There was no sign of damp or wet floor slabs throughout the building, including in the depressed boiler room slab. A high ground water table was not observed despite the proximity to the Hersig Brook which borders the property to the north.

Several ADA accessibility issues were noted at this facility. This is a common occurrence given the age of the building and its renovations. These items should be included in the short-term reuse planning. The gang toilet rooms require additional grab bars and power door operators at the doors. Some of the door hardware meets ADA with limited doors in need of an upgrade. While some doors have the required hardware, many do not have the required push pull clearances or the wall depth exceeds the maximum thickness at these frame openings. Where possible, minor wall adjustments at doors should be made to meet accessible clearances. For locations where this is not possible, automatic doors openers should be added to non-accessible doors. Accessible signage is missing throughout most of the building and needs to be added with any reuse.

Structural

No destructive testing or exploratory work was performed as part of this investigation. Due to the presence of in place finishes, some areas we were unable to view the structure.

In general, the facility was observed to be well maintained and in sound condition. The structural system of the original building consists of a masonry bearing walls between classrooms, structural steel roof framing with a flat metal roof decking. The gymnasium is exposed metal frame and roof deck. The floor construction is a concrete slab on grade with various finishes in place. The floors were not checked for levelness or flatness as part of this investigation. However, there were no areas of distress or differential movement observed. The boiler room has a lowered slab, about three feet below finish floor.

An addition was constructed on the west, rear of the original building. The roof structure of this addition consists of a metal roof deck supported on steel bar joists. The exterior and interior masonry walls were all predominantly exposed painted masonry.

The exterior walls consist of a masonry veneer with a masonry backup. The masonry veneer appears to be in sound condition, with only minor areas where repointing or repairs are recommended. The masonry backup is exposed and painted on the interior face. Very minor cracking at some of the mortared joints was observed. The corridor walls and classroom demising walls are exposed painted masonry.

Mechanical

The existing building, from a heating, ventilating and air conditioning standpoint, underwent a full renovation in 2002. The vast majority of the equipment serving the building was replaced at this time. All of the equipment with the exception of the underground fuel oil storage tank system and the boilers is approaching the end of its useful life expectancy or has outlived it.

The building and its equipment has been well maintained over the years however, the owner should be aware that, given the age of the equipment, extensive replacement of existing systems will likely need to occur beginning in the next five years.

Boiler Plant

Heating for the building is generated by two oil-fired, Burnham hot water boilers. Each boiler has a capacity of 1342 mbh. One of the boilers was installed in 1999 and the other was installed in 2002. Hot water cast iron boilers have a useful life expectancy of approximately 30 yrs.

Two base mounted hot water recirculating pumps, located in the mechanical room, are used to circulate a glycol/water mixture through the building's hot water distribution piping system to various air handling units, perimeter radiators and terminal heating equipment. The hot water pumps function using variable frequency drives which modulate the pump speed based on the demand for heating in the system.

Both hot water pumps were installed as part of a building wide renovation in 2002. Base mounted pumps have a useful life expectancy of 20 years.

Fuel oil is stored in a 4000-gallon, fiberglass, underground storage tank which was installed in 2010. Fuel oil is recirculated between the tank and the boilers via a Phillips fuel oil pumping system. The tank also has a leak detection and monitoring system which was installed when the tank was replaced. The tank has a useful life expectancy of 30 yrs.

Chiller Plant

Cooling for the building is provided by a 100-ton, air cooled chiller, located on the roof of the building. Two base mounted pumps, located in the mechanical room, circulate a

glycol/chilled water mixture through the piping's chilled water distribution system to the various air handling units which serve the building.

The chiller was installed as part of the building wide renovation of 2002. An air cooled, packaged chiller has a useful life expectancy of 20 years.

It was noted during the site inspection that the chilled water piping located on the roof is currently insulated however the insulation is deteriorating due to exposure to the elements. It is recommended that the piping should be reinsulated and a new all weather jacket be provided for protection.

Air Handling Units

There are 12 roof mounted air handling units which provide heating, cooling and ventilation throughout the building. Each unit has an internal hot water coil and chilled water coil. Ventilation is provided through the introduction of fresh air through a weather hood and damper system into the return airstream of the unit. These air handling systems were installed as part of the 2002 renovation. Air handling units have a useful life expectancy of approximately 15 yrs.

The classroom air handling units are constant volume systems which provided conditioned air to two classrooms per system. These systems air include a relief air hood which is mounted above the corridors and ducted to the classrooms. The relief air hoods allow for the removal of excess air which is introduced to the spaces in the form of ventilation air in order to prevent any air pressurization issues within the building. Each classroom also has a ceiling mounted perimeter radiant hot water heater which 'washes' the exterior glass to provide additional comfort heating.

Economizer is method of providing free cooling air to a space when the outside air is cool, relative to the indoor conditions, and there is a demand for cooling. With roof mounted air handling equipment this is often achieved through the use of integral dampers. Current code mandates that any equipment with a cooling capacity greater than 2.5 tons include economizer operation as part of its functionality. It is not clear whether the larger units serving spaces such as the Gym and Cafeteria have economizer operation included. The

classroom units do not appear to have economizer included as part of their operation. The following is a list of the air handling units serving the building, with associated capacities:

UNIT	AREA	AIRFLOW (cfm)	APPROX. COOLING CAPACITY (tons)
RTU-1	Classrooms	2600	9
RTU-2	Classrooms	2400	8.5
RTU-3	Classrooms	1775	6.25
RTU-4	Classrooms	2300	7.5
RTU-6	Café	7500	27.5
RTU-7	Classrooms	2650	9.5
RTU-8	Classrooms	1575	5.5
RTU-9	Classrooms	2200	8
RTU-10	Classrooms	2600	9
RTU-11	Admin	2150	7.5
RTU-12	Gym	14000	50
RTU-13	Music/Art	2500	9.25

Kitchen Ventilation Systems

A 2800 cfm, propane fired, 100% outside air makeup air unit provides tempered fresh air to the kitchen for heating and as a means of making up exhaust air when the kitchen hood's exhaust fan is running. This unit does not have provisions for cooling. This unit was installed as part of the 2002 building wide renovation. The makeup air unit has a useful life expectancy of approximate 20 years.

Propane is delivered to the unit from a pad mounted tank which is mounted adjacent to the building on grade.

A roof mounted exhaust fan serves the grease exhaust hood in the kitchen below. The capacity and age of the fan were unable to be determined since the nameplate information has weathered over time. Based on a visual inspection the exhaust fan may not meet UL 762, the code which provides the requirements for exhaust fans which remove grease laden vapors. Additionally, based on visual inspection, this fan has long outlived its useful life expectancy.

Building Management System

The building utilizes a Siemens Apogee building management system for automating the operation of the heating, ventilating and air conditioning systems. This system was installed as part of the 2002 renovation. The useful life expectancy of building management systems is 15 years. Though the system's functionality may be good the technology of BMS's changes drastically over time that the next time the building undergoes a major renovation the BMS will need to be replaced.

Typical Air Handling Unit with Chiller in Background



Classroom Air Handling Unit with Relief Ventilators



Fuel Oil Transfer System Base Mounted Hot Water Pump



Typical Classroom with Sidewall Return Grilles (Note radiant heating panel in upper left corner of phot just above window)



Ceiling Mounted Hot Water Convactor



Kitchen, Propane Fired Makeup Air Unit



Kitchen Hood Grease Exhaust Fan (Likely not code compliant)



Propane Tank Installation for Kitchen Makeup Air Unit



Plumbing

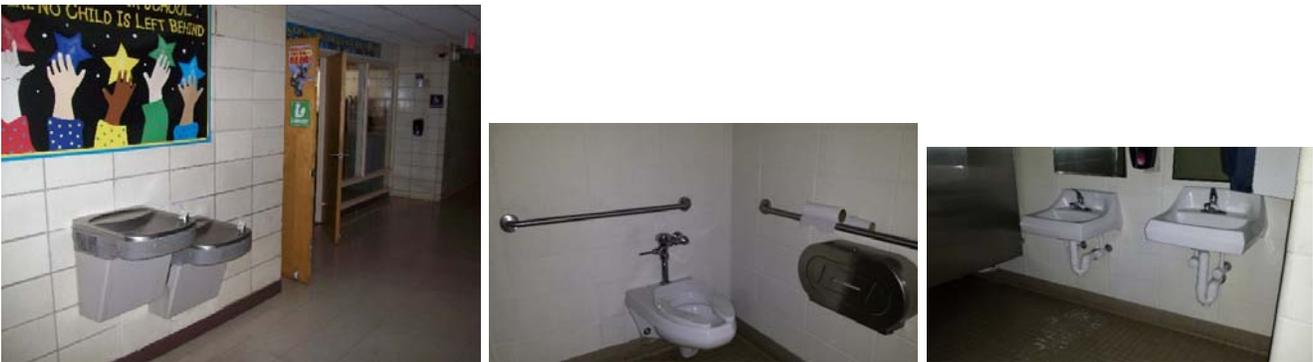
Plumbing systems are in generally good repair and code compliance, and most fixtures are fairly new.

Furthermore, special areas, fixtures and equipment already are in place, which could be used in various proposed new building uses/programs. Examples include:

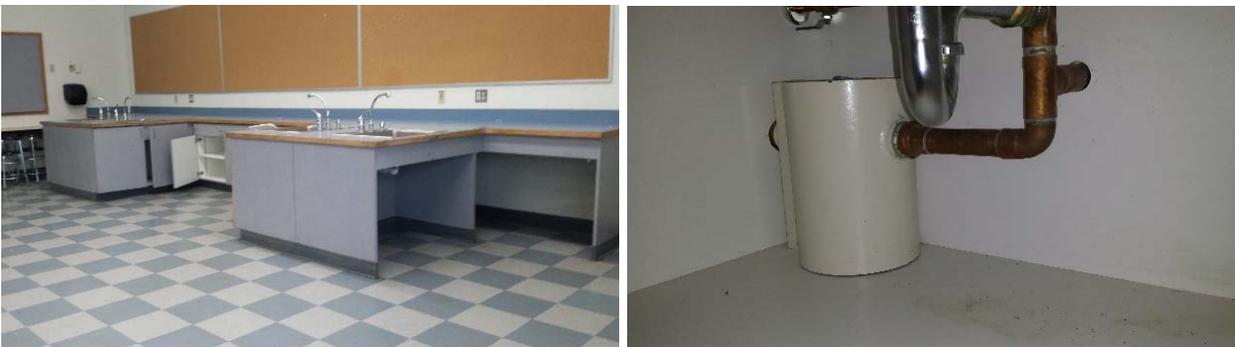
Commercial Kitchen fixtures, equipment and hood with fire suppression:



ADA-compliant water coolers and toilet rooms:



Art Room sinks (including an ADA-compliant sink station) complete with solids traps:



Kiln:



Custodial fixtures:



ADA health suite with exam sink and toilet room:

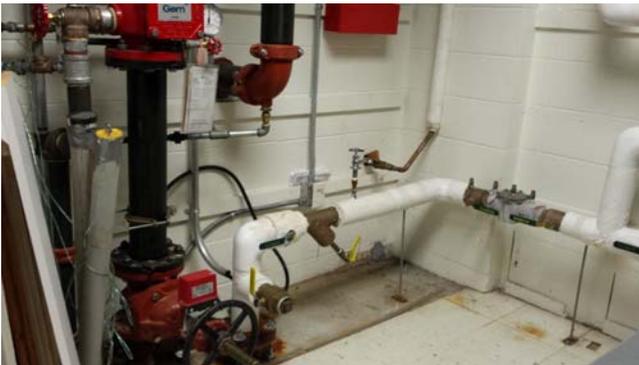


ADA lounge with residential style kitchen equipment/sink; view of/access to interior courtyard:



Domestic Water Service

The building's 4" domestic water service is routed from a Regional School District #13 well water supply system fed from multiple wells, one of which is located just south of Korn School. The well water supply system serves the subject building, Frank W. Strong Middle School, and Cuginchaug Regional High School. The 4" domestic water service enters the building in Storage 117, near Lobby 100. The service entrance transitions immediately to 2", and includes a main service shutoff valve, strainer, water sampling faucet, double check valve backflow preventer assembly, and 2" meter with full sized bypass. The pressure gauge downstream of the meter and bypass branches read 68 psig at the time of the Engineer's visit. A 2" cold water main leaves Storage 117 to supply the building's domestic water demands.



A separate project is underway to connect the domestic water services of these buildings to a new municipal utility water supply main being extended south from Middletown. Once the service changeover is complete, the existing "campus" well water system, complete with wells, vaults, pumps and storage tanks, is expected to be abandoned and possibly demolished. The water utility is expected to provide a new meter vault outside the building,

at which time the existing indoor meter could be retained if certified Lead-Free per NSF 372; otherwise, the meter should be removed. It is likely that the existing double check valve backflow preventer will be acceptable to the utility, but it will require regular testing per the water utility's regulations. The static pressure in the new water main in the vicinity of this building is projected by the designers to be 65 psig.

- **Charges: Possible domestic water service connection fee (Durham Central Water/CT Water).**

Domestic Water Heating Systems

The existing domestic water heater was an oil-fired storage heater (input rating of 199,000 BTUH, storage volume of 86 gallons). However, this heater failed just before the building ceased school operations, and was disconnected from water, fuel and flue gas venting systems. A small electric water heater (4500W/3380 upper/lower elements-simultaneous use, storage volume of 20 to 30 gallons) was connected adjacent to the defunct heater and served a handful of RSD 13 staff for a year or two.



Domestic hot water distribution consists of a lower temperature system for general building use (tempered through a thermostatic mixing valve), and a higher temperature system presumably routed to the kitchen. The general building use system has a 1/40 Hp circulating pump. Since most of the repurposing options entail a significant occupant load, the electric heater will not be sufficient, and the oil-fired water heater must be replaced. Other options include a new LP gas fired water heater, or a natural gas fired water heater, should natural gas become locally available. If the selected repurposing options do not require commercial kitchen operations, it's probable that the fuel-fired replacement heater's input and storage capacity can be reduced from the existing heater's characteristics. Whether existing equipment is retained or replaced, to maximize service life, the functioning water heater

should be regularly serviced per the manufacturer's maintenance recommendations including, but not limited to, draining and flushing, testing relief valve, and inspecting/replacing anode.

- **Work required:**
 Replace oil-fired water heater (new Bock 71E), reconnect: \$5000
 Replace general use system circulating pump (new Taco, 1/25 hp): \$500
 Inspect/clean or replace thermostatic mixing valve: \$500
- **Charges: Post-installation State-required boiler/storage vessel inspection: Estimated \$250**

Plumbing Fixtures

Plumbing fixtures are in good repair. The only fixtures not in very good to excellent condition are sinks in classrooms which did not receive ADA modifications in 2002. These sinks are the original counter-mounted enameled cast iron sinks with stainless steel rims. Cabinets in these rooms are also original and worn, but useable.



The rest of the general classrooms, art and music classrooms, staff lounge, nurse's suite and all toilet rooms have up-to-date ADA-compliant fixture installations requiring very minor (if any) corrections.



Single basin water coolers and one basin of each bilevel water cooler are also ADA-compliant.



Water closets and urinals are wall-mounted and have manual flush valves.



Lavatories are wall-mounted and have single lever faucets.



ADA-compliant classroom, nurse's suite and break room sinks are stainless steel with single lever faucets or wrist blade handles depending on the location. Some of the ADA classroom sinks are missing the required exposed piping insulation below the fixture. The sinks in the Art Classroom have solids interceptors on their drainage piping. The interceptors should be checked periodically and cleared of any solids that have been collected in them.

- **Work required:**
None, unless additional classroom sink ADA upgrades are desired.

Backflow Prevention

Items requiring backflow prevention are equipped: janitor's sink faucets have integral vacuum breakers; the domestic water makeup to the hydronic space heating system has a reduced pressure principle backflow preventer.

- **Charges: Annual Durham Central Water/CT Water Co. backflow preventer inspection fees.**

Liquid Propane Supply System

An above-ground 120-gallon propane tank is located on the concrete loading dock pad outside the kitchen on the south side of the building.



The condition of this tank is unknown, but there is no visual evidence of significant corrosion. The propane tank presently serves kitchen gas-fired equipment, a rooftop makeup air unit (which according to RSD personnel was rarely operated) and a 15 KW emergency generator.

- **Work required:**
 - No additions to LP-gas fired equipment: None**
 - Change oil-fired water heater to LP-gas fired heater: Additional distribution piping, and possible additional tank storage capacity.**

Kitchen Plumbing Systems

The kitchen equipment and fixtures appear to be in good condition. Equipment includes a commercial dishwasher, cooking line with hood, and a serving line. The commercial hood has an Ansul fire suppression system with automatic and manual activation capability; the fire suppression system is linked to shut down fuel supply shutdown upon fire suppression system activation. The kitchen is equipped with a restaurant-grade fire extinguisher capable of extinguishing oil, fats and grease fires.



A recessed grease trap was observed under the soiled dish table adjacent to the dishwasher:



A grease trap was not found for the 3-bay pot sink (farthest sink in photo below); if this sink is used for pot washing, a grease trap would be required per DEEP regulations:



There are no dedicated hand sinks in the kitchen, as required by the State Health Code. The kitchen does not have accessible provisions, which would include ADA access clearances, ADA-compliant hand sink and ADA-compliant food prep station (table/sink).

- Work required:
 - Add grease trap to 3-bay sink
 - Add dedicated hand sink
 - Add ADA hand sink
 - Add ADA prep table/sink

Building Drainage Systems

The sanitary for the school is sent to leaching fields via a septic tank and pumping chamber located south of the building:



Separate primary and overflow roof drainage systems have been installed:



A discharge point from the overflow system is pictured below:



Some east wing classrooms and the Boiler Room area appear to have experienced storm water leakage due either to roof or storm pipe leaks, or clogged roof drains. In coordination with inspection of the roof itself, the roof drains and pipes in areas with historical drainage issues should be scoped with a camera to determine the cause of the issues.

- **Work required:**
 - Clean out (unclog) roof drains.**
 - Inspect drains/pipes for leaks and repair.**
 - TV Scoping if necessary:**

Building Water, Sanitary and Storm Drainage Capacities

For consideration during repurposing planning, unless the total usage of water and sanitary services does not exceed that of the school use population for which these systems were designed, major upgrades may be required. Although an almost infinite number of population scenarios can be imagined, the following attempts to provide general occupancy/usage limits for the new use(s), based on existing systems.

Domestic Water Service and Building Distribution Capacity

Note: While the service is still connected to the well system, the daily water demand must not exceed that of the former school operation, and additional fixtures are not recommended. When the service is connected to municipal utility water supply, the following analysis applies:

The domestic water service is 4" through the building service entrance floor flange, and 2" downstream of that point.

The pressure drop in the 4" service pipe, for conservatively estimated water demands of the repurposing uses named so far, is negligible. For the single 2" cold water distribution main in the building, the peak instantaneous domestic water flow allowed, using a flow velocity limit of 8 ft/sec., is about 80 GPM/160 fixture units. The current Korn fixture count is 165 fixture units, plus Kitchen water demands of about 10 GPM for a total of about 91 GPM.

Summary: The 4" domestic service has plenty of spare capacity. However, if additional fixtures (particularly flush valve urinals and water closets) are required, a second new cold-water main should be routed from the 4" building entrance to serve the added fixtures.

Site Sanitary Sewage Disposal System Capacity

The 2002 Moser-Pilon-Nelson Architects/Macchi Engineers, LLC project drawings state that the design sewage flow for the building is 1450 gallons per day (GPD); 50% safety factor was added for a total of 2175 GPD. The State's Technical Standards assigns 11 GPD daily sewage flow (which includes 3 GPD of kitchen operations) per pupil. The following list is based on State Technical Standards 'per occupant' GPD allowances for various building operations/uses, assuming showers are not added. An attempt has been made to adjust for undetermined but long daily occupancy duration by dividing total daily allowance (based on 6-10 hours of occupancy) into hourly increments.

Kitchen allowance is not included.

Community Rec Facility, Public Gym Use; Fitness:	1.0 GPD/Occupant
Youth/Teen Services	1.25 GPD/Occupant/Hour of Occupancy
After School Care/Programs	1.25 GPD/Occupant/Hour of Occupancy
Community Meeting Space	1.0 GPD/Occupant
Senior Citizen Center	2.0 GPD/Occupant/Hour of Occupancy
Visiting Nurse-Health Care, Food Pantry	2.0 GPD/Occupant/Hour of Occupancy
Town/Sport Group Offices:	2.5 GPD/Occupant/Hour of Occupancy
Coffee Shop (informal, at existing Staff Lounge/Courtyard):	1.0 GPD/Occupant

Rough Sample Calculation:

Gym/Rec/Fitness Use: 150 persons/day x 1.0 GPD	150 GPD
Youth/Teen/After School Care: 50 persons x 3 Hrs x 1.25/Hr	188 GPD
Community Meeting: 150 persons x 1GPD/person	150 GPD
Senior Citizens Center: 50 persons x 3 Hours x 2.0/Hr	300 GPD
Nurse-Health Care, Food Pantry: 30 persons x .25 hr x 2/Hr	15 GPD
Offices: 25 persons x 6 Hrs average x 2.5/Hr	375 GPD
Coffee Shop: 50 persons x 1/person	50 GPD
Total:	1,228 GPD

Summary: As evidenced by the Sample Calculation above, the septic system can accommodate multiple building uses involving a significant number of occupants. However, multi-use planning should consider the effect on GPD totals of Kitchen use (add 3 GPD per person served), and a large number of long-term, multiple toilet room visits/day users such as full-time office staff and full-day senior center occupants.

Storm Drainage System Capacity

The 2002 Moser-Pilon-Nelson Architects/Macchi Engineers, LLC project drawings indicate a 12" storm serving the original 28,600 SF building leaves just east of the Kitchen loading dock, and a 6" storm serving only the 2516 SF 2002 addition leaves through the east wall of the addition. The 160 square foot greenhouse installed after 2002 sheds rainwater directly onto grade. Per IPC, the building is located in a zone where the 100 year-1 hour rainfall rate is 2.75 inches. Base IPC sizing requirements for 2.75 inches per hour and pipe pitch of 1/8"/foot, the existing storm piping is adequately sized to accommodate the roof area served.

Summary: Base IPC sizing requirements for 2.75 inches per hour and pipe pitch of 1/8"/foot, the existing storm piping is adequately but marginally sized to accommodate the roof areas served. Consequently, future building additions will require separate storm piping to the site storm systems.

Fire Protection

The building sprinkler systems are in good repair and code compliance.

The limited area sprinkler system can be used to sprinkle the entire building if desired, without increasing the fire service size or service entrance installation, except a backflow preventer will be required when the service changes to municipal/utility water supply from the present local well-fed system.

Fire Service

The building's 8" fire service is routed from a Regional School District #13 well water supply system fed from multiple wells, one of which is located just south of Korn School. The well water supply system serves this building, Frank W. Strong Middle School, and Coginchaug Regional High School. The 8" fire service enters the building in Storage 117, near the main entrance and Lobby 100. The service entrance transitions immediately to 4", and includes a main service shutoff valve, alarm check valve, 2" main test/drain, 4" fire department connection, and 4" wet pipe sprinkler feed main to building sprinkler systems. The pressure gauge at the discharge of the alarm check valve read 140 psig at the time of the Engineer's visit:



A separate project is underway to connect the fire services of these buildings to a new municipal utility water supply main being extended south from Middletown. The static pressure in the new water main in the vicinity of this building is projected by the designers to be 65 psig. Once the service changeover is complete, the existing "campus" well water system, complete with wells, vaults, pumps and storage tanks, is expected to be abandoned and possibly demolished. The water utility is expected to connect to the existing Korn fire service outside the building. A backflow preventer installation (likely double check valve type) will be required on the utility-supplied fire service, located between the main shutoff valve and the alarm check valve. It will be necessary to disconnect and relocate the alarm check valve upward on the riser to achieve the lay length necessary for backflow preventer installation.

- **Work required:**
Modify service entrance; install backflow preventer of type required by water utility:
\$8500
- **Charges:**
Possible fire service connection fee (Durham Central Water/CT Water).
Durham Central Water/CT Water Co. annual backflow preventer inspection fee.

Building Sprinkler Systems

The building is not fully sprinklered. Areas such as storage rooms, janitor's closets, boiler and other mechanical rooms, electrical rooms and kiln room have been sprinklered to achieve code compliance for fire protection/ separation. The sprinkler systems appear to be in good condition. Kiln Room pictured below:



- **Work required:**
Add sprinkler systems per code requirements for implemented building uses.
A/E design; Contractor's site verifications, shop drawings and hydraulic calculations

Building Sprinkler System Testing and Maintenance

Per State Code, "the Owner is required to maintain and test sprinkler systems per NFPA 25".

- **Charges:** Sprinkler system service contractor's quarterly testing/maintenance.

Building Fire Service and Building Sprinkler Distribution Capacity

Most repurposing options will not require a fully sprinklered building; fire separations and or provision of sprinkler systems in higher hazard areas such as storage rooms should be sufficient to achieve code compliance. However, with projected 12" utility water main static

pressure of 65 psig and a 4" sprinkler main routed to the vicinity of all the presently sprinklered areas, capacity exists to provide full sprinkler protection for this one-story building with no increase in fire service or sprinkler feed main size.

Electrical

Main Service

It appears to be vintage 2001 - installed during the renovation at that time. Visual - all appeared to be in good shape and functioning.

Switchboard: GE AV-Line 208Y/120 3P 1200-amp service. GE



MSB-1 HPC - 1200-amp high pressure FUSABLE contact switch.



MDP - (2) 500A, (4) 225A, (1) 200 A, (3) 100 A, (2) 60 A.



TVSS - 300 K surge.

*Francis E. Korn School
Adaptive Reuse Feasibility Report*

Silver Petrucelli & Associates, Inc. ©

- **Recommended:**

There should be a failure risk assessment on all the electrical equipment.

The HPC switch should be serviced to insure there are no lubrication issues with the pressure switch (conditioned-based maintenance program).

Infrared Thermal Scan the main switch, MDP and all sub panels.

Lighting - Interior

2001 vintage; visual many are showing ware and are not energy efficient in today's standards. All current codes appear to be met with occupancy sensors where required; most appeared to be functional.



1X's & 2X's 4 foot - two and three lamp T8 fluorescent 4 foot lamps; 3.5K / 32 watt.

2X's 2 foot - two and three lamp T8 fluorescent U-tube; 3.5K / 32 watt. (gym was upgraded with T5 Fluorescent Fixtures.

Downlights

Single and twin 26-watt CFL lamps.

- **Recommended:**

All lighting & associated controls should be evaluated against current and upcoming code requirements; power density, daylight controls, occupancy sensor functionality. Although there appears to be no code violations the energy efficiencies are far less than current product offerings.

Energy costs and rebate / incentives / ROI should be evaluated. This includes fixture / lamp maintenance (spot vs group re-lamping / environmental disposal).



Emergency Lighting & Exits

Visually they look OK although a few were randomly tested and did not function.

- **Recommendations:**

Exit and emergency lighting throughout the building needs to be inspected and run through a 90-minute test to ensure proper function.



Lighting - Exterior

2001 vintage; not energy efficient in today's standards. Building mounted. 150-watt HPS wall pack's.

- Recommendations:**
 All exterior lighting & associated controls should be evaluated against current & upcoming code requirements; power density, daylight controls, occupancy sensor functionality. Most of the lighting is outdated, LED exterior lighting replacements should be considered.



Emergency Egress

Low voltage aluminum / chrome par heads mounted. Many were in rough shape, a few were broken.

Function capability: unknown

- **Recommendations:**

All exterior emergency lighting should be evaluated against current & upcoming code requirements; power density, daylight controls, occupancy sensor functionality. Most of the lighting is outdated, LED exterior lighting replacements should be considered.



Power / Data / IT / Clock

Functions unknown / untested.

- **Recommendations:**

Owner needs to evaluate IT requirements for all occupied spaces within the building structure for fit and functionality.



Fire Alarm System

Edwards EST2 - 2001 vintage. Function unknown / untested. Appeared to be functional - no alarm indications were seen.

- **Recommendations:**
FA system and associated devices should be tested and certified on proper function.



Emergency Generator

Function and visual - appears to be functional.

- **Recommendations:**
The generator system should be tested and certified on proper function.

Environmental

Langan CT, Inc. (Langan) prepared this limited Hazardous Building Materials (HBM) Visual Survey Report on behalf of the Silver Petrucelli & Associates Architects and Regional School District #13 to visually identify possible asbestos containing materials that may exist in Francis E. Korn Elementary School in Durham, Connecticut. The survey was limited to reviewing existing AHERA recordkeeping and a building walkthrough with visual survey for suspect asbestos containing materials. Langan was not authorized to obtain any bulk samples for asbestos, lead, PCB's and/or other possible hazardous building materials. The budgetary estimates below are only estimates and assumptions have been made. Bulk sampling of building materials is required to confirm which building materials are asbestos containing and which are not.

Budgetary Estimates for Assumed Asbestos Containing Materials Abatement

ACM/Presumed ACM and Location	Quantity of ACM, Presumed ACM	Unit Price	Budgetary Estimate
<p>Older Floor Tiles and Black Mastic (most covered by carpeting), Older Black Mastic under "newer 12"x12" Floor Tiles or Carpeting</p> <p>Classrooms 1-5, 9-13, Resource Room, Tiled Kitchen Areas, Partial Library, Cafeteria, Corridors Throughout, Lobby, Lounge, Offices, Storage Room by Lobby, Room 13 by Gymnasium, Gymnasium</p> <p>Older flooring materials may also exist under existing millwork, cabinets, sinks, walls, etc.</p>	<p>Estimate 23,500 SF</p>	<p>\$7/SF</p>	<p>\$164,500</p>

Interior Transite Cement Board - Kitchen Exhaust			
Exterior Transite Cement Board - Window System Panels Throughout (Classroom Wing and Courtyard) - Assumes Window Caulking and Glazing Compounds, Transite Cement Board, Window Systems are all Removed as Asbestos Containing	Estimate 750 SF and all Window Systems/Sealants	\$30/SF	\$22,500
Roof Flashing (Please note this assumes the roof flashing materials would test positive for asbestos and the roofing fields would be negative for asbestos and the gym roof has no asbestos containing materials)	Estimate 3,200 SF	\$12/SF	\$38,400

Pipe Fitting Insulation (Please note that the majority of the accessible pipe insulation appears to be fiberglass and newer mudded fitting insulation but some older pipe fitting insulation was found in the corridors and boiler room. Assumed to be in inaccessible locations (toilet room pipe chases, etc.).	Assumes 7 containments - Unknown	7 Containments @ \$2,500/containment	\$17,500
Wall Adhesives behind Cork Type Classroom Walls, Bulletin/Chalk/White Boards and Mirrors - Throughout Building Assumes Wall Adhesives are Removed with Asbestos Containing Flooring Materials - same Containments			\$20,000

Please note this cost estimate could significantly increase or decrease depending upon survey bulk sampling results.

- A CTDPH required NESHAP pre-renovation survey has not been completed.
- PCB caulking/glazing compound source and adjacent surface sampling has not been completed as well as ground and wall surfaces, interior surfaces, paints, roofing, tars, mastics, etc.
- We are assuming lead based paint will not be an issue for renovation and/or disposal as

well as lead in soil, water, dust issues/abatement or radon mitigation will be required.

- Langan noted possible moisture issues in limited areas (couple of bulletin boards are warped, kitchen room).
- Additional asbestos containing transite/cement board may be present on the soffits/behind wood. May also be present in other locations.
- We are assuming or know some materials will/do contain hazardous materials and others will not, but until surveys have been completed, it is not known. For this preliminary abatement estimate, Langan is assuming the following do not contain asbestos:
 - Plaster (including the boiler room ceiling)
 - Sheetrock/taping compound
 - No vermiculite is present inside walls or other locations
 - Ceilings tiles - multiple 2'x2' types
 - Cove base and adhesives
 - Duct Adhesives and insulation
 - Fire stop materials and caulking
 - Boiler room materials (boilers, duct exhaust breeching and most pipe insulation reported to be newer (duct possibly calcium silicate)
 - Drinking water fountain damp proofing
 - Sink undercoating
 - Carpet adhesives and newer 12'x12' floor tiles (some contaminated with asbestos flooring however)
 - Roofing deck/main roofing field/core
 - Toilet rooms and kitchen ceramic floor tile damp-proofing, tars, mastics
 - Foundation and exterior wall (buried) damp-proofing, tars, mastics
 - Fiberglass Pipe Insulation (contamination and/or covering)
 - Door Insulation
 - Door Caulking Compounds
 - Wall Expansion Caulking Compounds
 - Column Caulking Compounds
 - Tars/Adhesives behind kitchen walk in coolers/freezers
 - All building materials associated with the art/music room addition and portable classrooms

LIMITATIONS

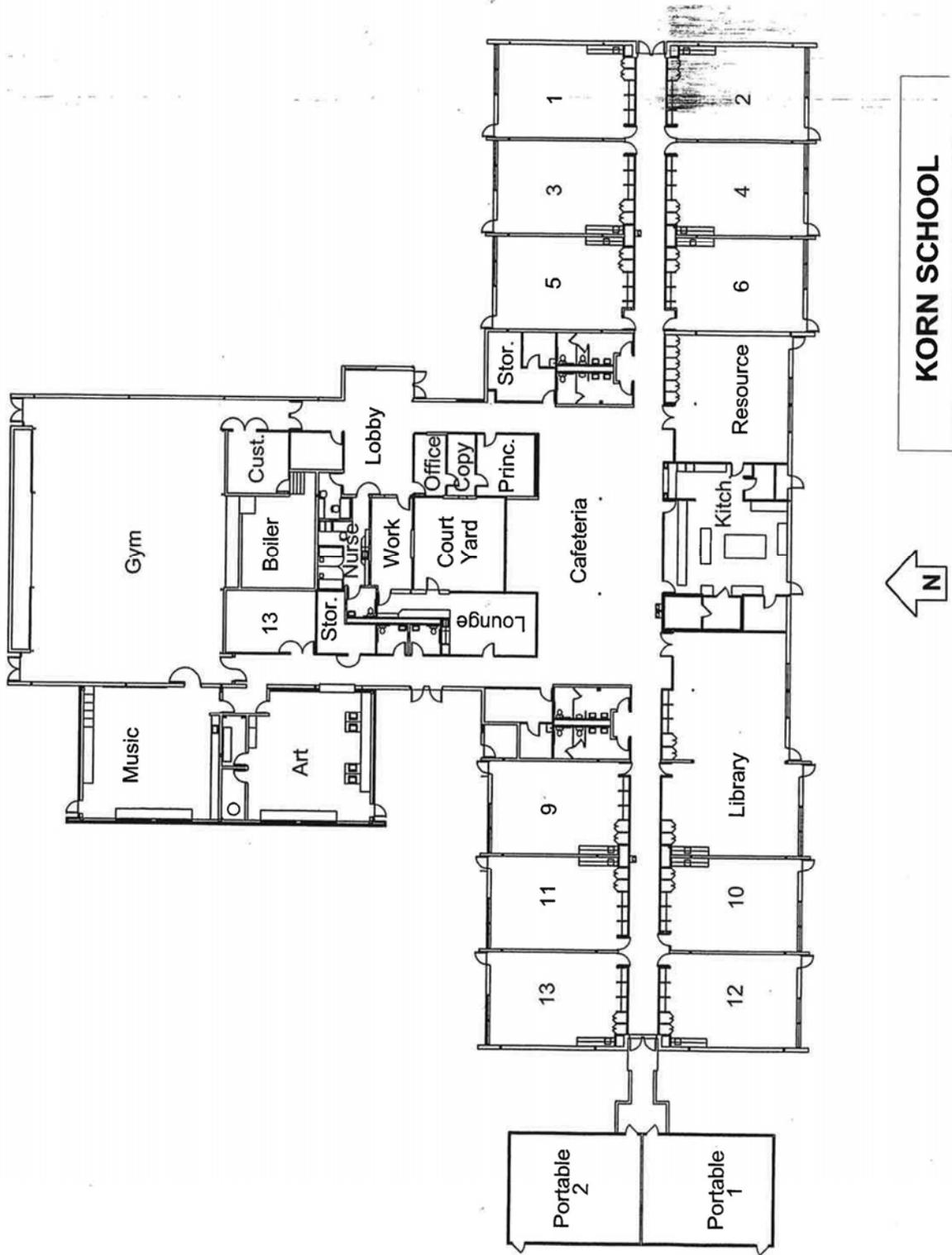
The conclusions and recommendations presented in this report are professional opinions based solely upon Langan's visual observations and current regulatory requirements. These conclusions and recommendations are intended exclusively for the purpose stated herein, at the site indicated, and for the project indicated.

It is important to recognize that even the most comprehensive scope of services may fail to detect all hazmat that may be associated with the property. Therefore, Langan cannot act as insurers and cannot "certify" that all hazmat associated with the property have been identified, and no expressed or implied representation or warranty is included or intended in our report, except that our services were performed, within the limits prescribed by our client, with the customary thoroughness and competence of our profession.

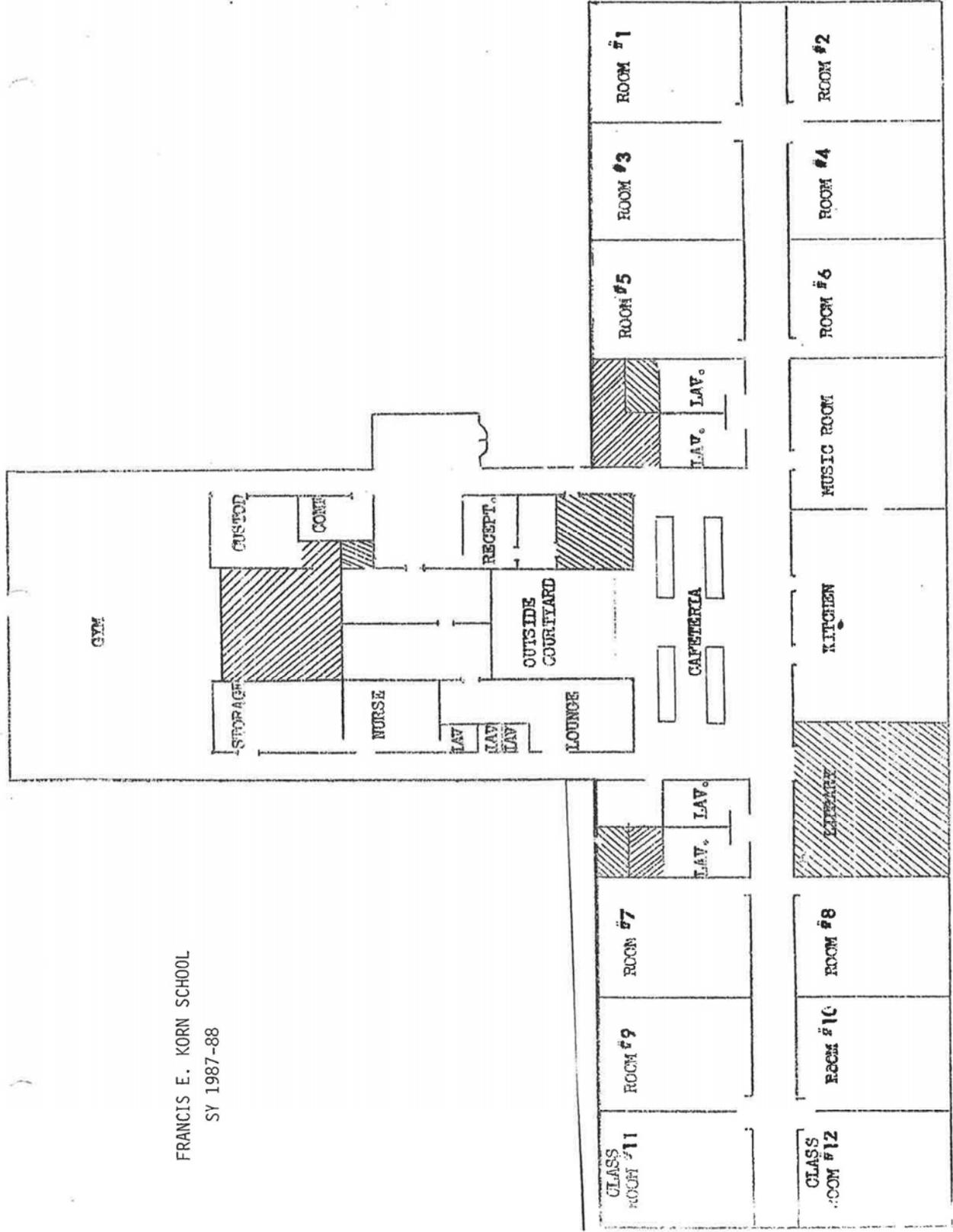
○

Any building material that has not been sampled for asbestos content must be assumed as ACM until confirmed otherwise via laboratory testing. Langan was not authorized to obtain building material samples for asbestos analysis.

This visual survey did not include testing or analyzing any caulking, glazing or sealant compounds or other materials (paints, tars, roofing, glues, mastics, etc.) for the presence of PCBs. The consultant was also not requested to test for lead based paint, dust, soil or water or for other possible environmental and hazardous building materials.



FRANCIS E. KORN SCHOOL
SY 1987-88



EXISTING ACBM
Asbestos Management Plan

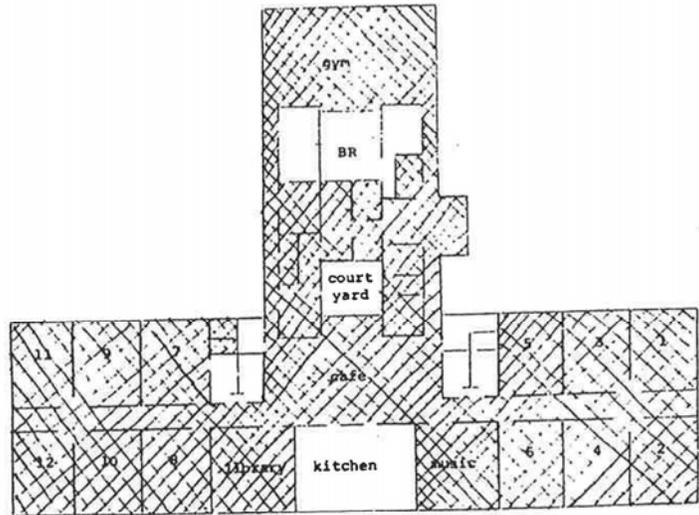
DATE
11-14-90

BUILDING NUMBER AND NAME
5 Francis Korn Elementary School

AREA NUMBER MATERIAL NAME AND LOCATION
501 floor tile and mastic throughout building

ASSUMED
 SAMPLED

The diagram or written description below indicates the known locations of the asbestos-containing building material listed above.



EXISTING ACBM
Asbestos Management Plan

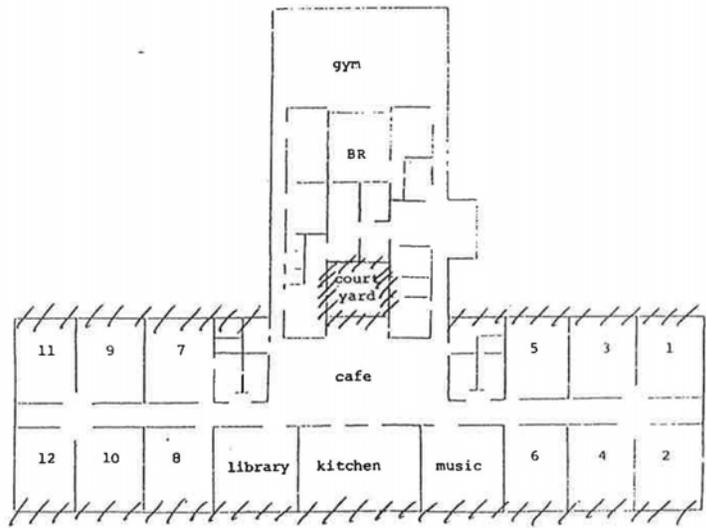
DATE
10-22-93

BUILDING NUMBER AND NAME
5 Francis Korn Elementary School

AREA NUMBER MATERIAL NAME AND LOCATION
504 cement board exterior walls

ASSUMED
 SAMPLED

The diagram or written description below indicates the known locations of the asbestos-containing building material listed above.



LIMITED HAZARDOUS BUILDING MATERIALS VISUAL SURVEY REPORT

for

**Regional School District #13
Francis E. Korn Elementary School
144 Pickett Lane
Durham, Connecticut 06422**

Prepared For:

**Silver/Petrucelli & Associates
3190 Whitney Avenue
Building 2
Hamden, Connecticut 06518**

Prepared By:

**Langan CT, Inc.
555 Long Wharf Drive
New Haven, CT 06511**



**Matthew A. Myers
Senior Hazmat Specialist**

**9 July 2018
140188701**

LANGAN

TABLE OF CONTENTS

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2.0 BUDGETARY ESTIMATES FOR ASSUMED ASBESTOS CONTAINING MATERIALS ABATEMENT	2
3.0 LIMITATIONS	4

LIST OF APPENDICES

Appendix A	Drawings
Appendix B	Langan Certifications and Accreditations

ACRONYMS

US EPA	United States Environmental Protection Agency
ASHERA	Asbestos Hazard Emergency Response Act
OSHA	Occupational Safety and Health Administration
PPE	Personal Protective Equipment
CFR	Code of Federal Regulation
NESHAPS	National Standards for Hazardous Air Pollutants
HUD	Housing and Urban Development
CT DPH	Connecticut Department of Public Health
RCRA	Resource Conservation and Recovery Act
PLM	Polarized Light Microscopy
TEM	Transmission Electron Microscopy
ACM	Asbestos-Containing Materials
LBP	Lead-Based Paint
PCB	Polychlorinated Biphenyls (PCB)
SF	Square Feet
LF	Linear Feet
TCLP	Toxicity Characteristic Leaching Procedure
mg/cm ²	Milligrams per square centimeter
XRF	X-ray Fluorescence
AAS	Atomic Absorption Spectrometry

1.0 INTRODUCTION

Langan CT, Inc. (Langan) prepared this limited Hazardous Building Materials (HBM) Visual Survey Report on behalf of the Silver Petrucelli & Associates Architects and Regional School District #13 to visually identify possible asbestos containing materials that may exist in Francis E. Korn Elementary School in Durham, Connecticut. The survey was limited to reviewing existing AHERA recordkeeping and a building walkthrough with visual survey for suspect asbestos containing materials. Langan was not authorized to obtain any bulk samples for asbestos, lead, PCB's and/or other possible hazardous building materials. The budgetary estimates below are only estimates and assumptions have been made. Bulk sampling of building materials is required to confirm which building materials are asbestos containing and which are not.

PROJECT INFORMATION

Client Name:	Silver/Petrucelli & Associates 3190 Whitney Avenue Building 2 Hamden, Connecticut	Property Visit Date:	6 July 2018
Professional's project #:	140188701	Construction Dates:	Original Building – 1963, Music/Art Addition – 2003, Portables – 2001
Consultant's Project Manager:	Matthew A. Myers	No. Buildings:	One
Phone No.:	203-562-5571	No. of Stories:	One Story
Email:	mmyers@langan.com	Bldgs. Gross Footage:	32,000 Square Feet
Property Address:	144 Pickett Lane		
Property Town, State:	Durham, Connecticut	Property Use:	Public Elementary School

2.0 BUDGETARY ESTIMATES FOR ASSUMED ASBESTOS CONTAINING MATERIALS ABATEMENT

FRANCIS E. KORN ELEMETARY SCHOOL 144 Pickett Lane Durham, CT

ACM/Presumed ACM and Location	Quantity of ACM, Presumed ACM	Unit Price	Budgetary Estimate
<p>Older Floor Tiles and Black Mastic (most covered by carpeting), Older Black Mastic under "newer 12"x12" Floor Tiles or Carpeting</p> <p>Classrooms 1-5, 9-13, Resource Room, Tiled Kitchen Areas, Partial Library, Cafeteria, Corridors Throughout, Lobby, Lounge, Offices, Storage Room by Lobby, Room 13 by Gymnasium, Gymnasium</p> <p>Older flooring materials may also exist under existing millwork, cabinets, sinks, walls, etc.</p>	Estimate 23,500 SF	\$7/SF	\$164,500
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 - Duct Adhesives and insulation
 - Fire stop materials and caulking
 - Boiler room materials (boilers, duct exhaust breeching and most pipe insulation reported to be newer (duct possibly calcium silicate))

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- Sink undercoating
- Carpet adhesives and newer 12'x12' floor tiles (some contaminated with asbestos flooring however)
- Roofing deck/main roofing field/core
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- Fiberglass Pipe Insulation (contamination and/or covering)
- Door Insulation
- Door Caulking Compounds
- Wall Expansion Caulking Compounds
- Column Caulking Compounds
- Tars/Adhesives behind kitchen walk in coolers/freezers
- All building materials associated with the art/music room addition and portable classrooms

3.0 LIMITATIONS

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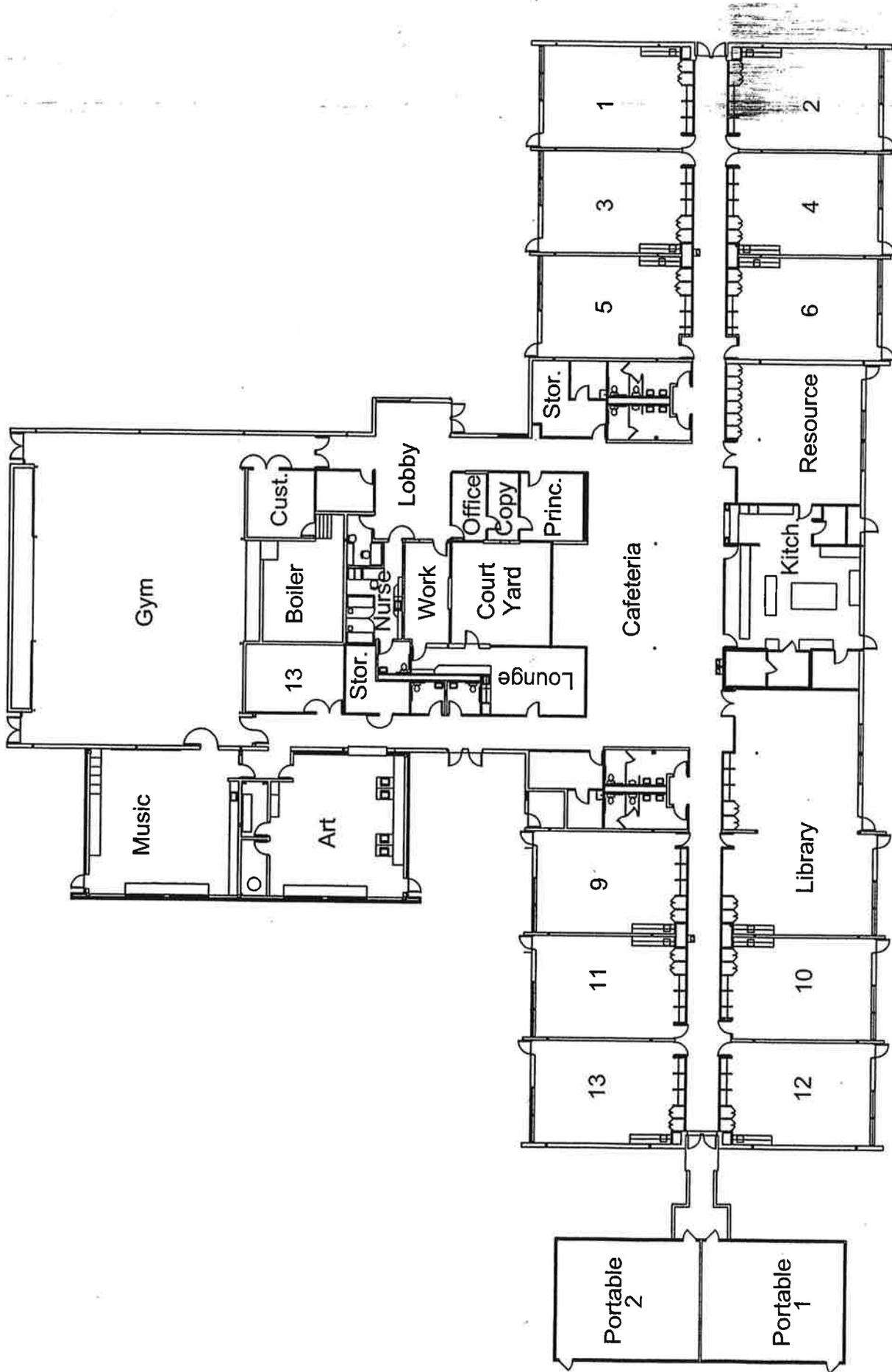
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Appendix A

Drawings

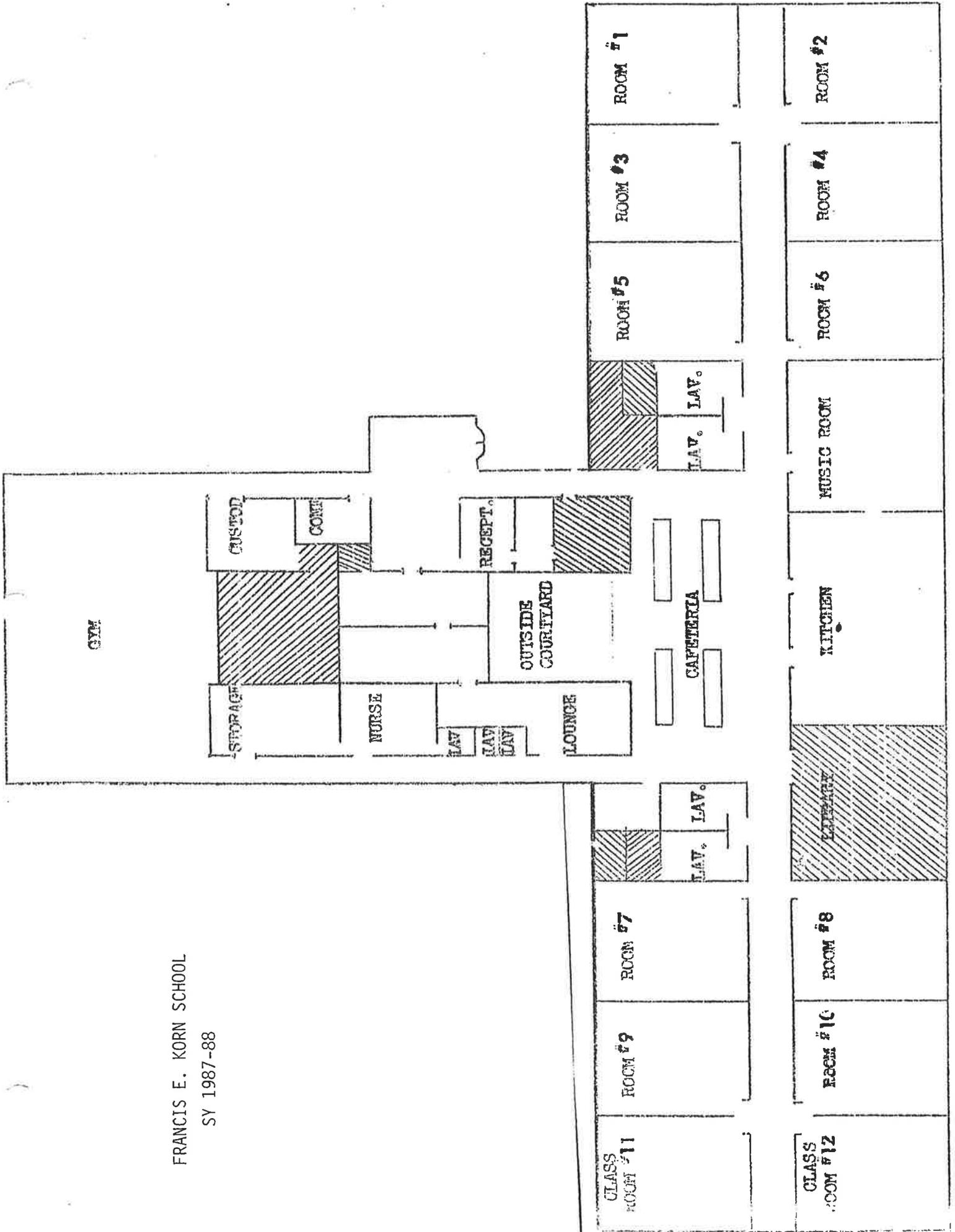


KORN SCHOOL



FRANCIS E. KORN SCHOOL

SY 1987-88



EXISTING ACBM

Asbestos Management Plan

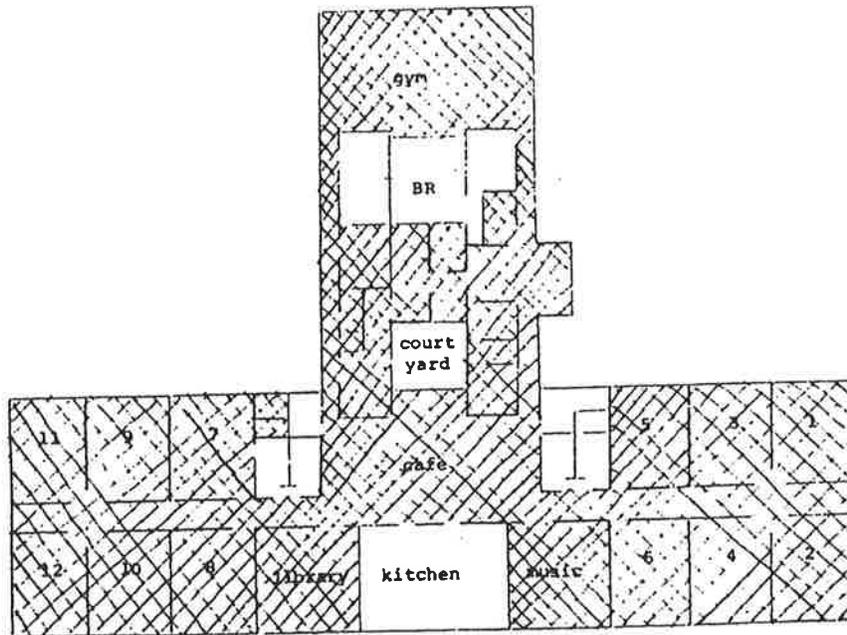
DATE
11-14-90

BUILDING NUMBER AND NAME	
5	Francis Korn Elementary School

AREA NUMBER	MATERIAL NAME AND LOCATION
501	floor tile and mastic throughout building

ASSUMED
 SAMPLED

The diagram or written description below indicates the known locations of the asbestos-containing building material listed above.



EXISTING ACBM

Asbestos Management Plan

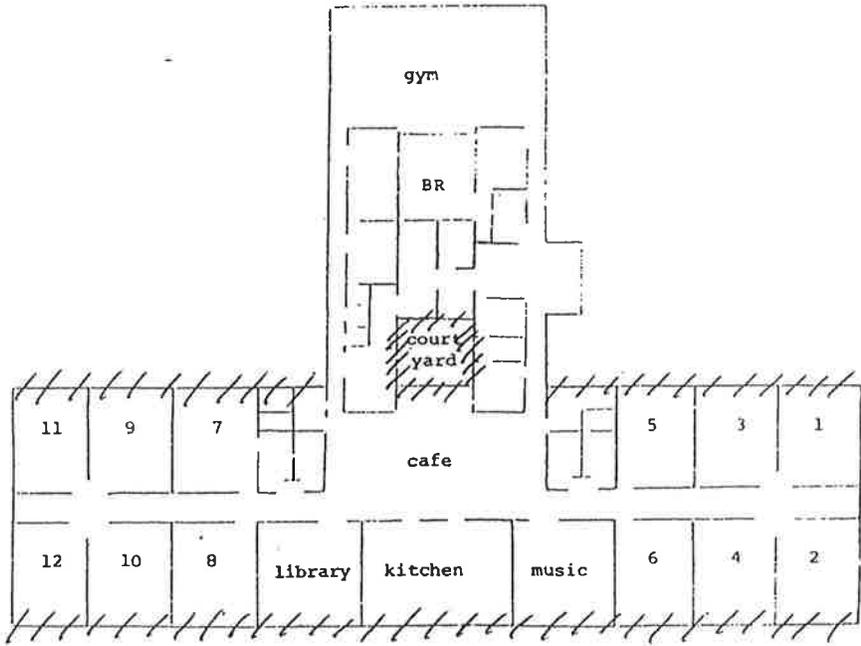
DATE
10-22-93

BUILDING NUMBER AND NAME	
5	Francis Korn Elementary School

AREA NUMBER	MATERIAL NAME AND LOCATION
504	cement board exterior walls

ASSUMED
 SAMPLED

The diagram or written description below indicates the known locations of the asbestos-containing building material listed above.



Appendix B

Langan Certifications and Accreditations

STATE OF CONNECTICUT

DEPARTMENT OF PUBLIC HEALTH

PURSUANT TO THE PROVISIONS OF THE GENERAL STATUTES OF CONNECTICUT

THE INDIVIDUAL NAMED BELOW IS CERTIFIED
BY THIS DEPARTMENT AS A

ASBESTOS CONSULTANT-PROJECT DESIGNER

MATTHEW A. MYERS

CERTIFICATE NO.

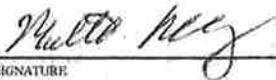
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CURRENT THROUGH

04/30/19

VALIDATION NO.

03-661926


SIGNATURE


COMMISSIONER

STATE OF CONNECTICUT

DEPARTMENT OF PUBLIC HEALTH

PURSUANT TO THE PROVISIONS OF THE GENERAL STATUTES OF CONNECTICUT

THE INDIVIDUAL NAMED BELOW IS CERTIFIED
BY THIS DEPARTMENT AS A

ASBESTOS CONSULTANT-INSP/MGMT PLANNER

MATTHEW A. MYERS

CERTIFICATE NO.

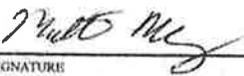
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CURRENT THROUGH

04/30/19

VALIDATION NO.

03-661925


SIGNATURE


COMMISSIONER

STATE OF CONNECTICUT

DEPARTMENT OF PUBLIC HEALTH

PURSUANT TO THE PROVISIONS OF THE GENERAL STATUTES OF CONNECTICUT

THE INDIVIDUAL NAMED BELOW IS CERTIFIED
BY THIS DEPARTMENT AS A

ASBESTOS CONSULTANT-PROJECT MONITOR

MATTHEW A. MYERS

CERTIFICATE NO.

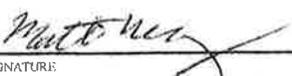
000077

CURRENT THROUGH

04/30/19

VALIDATION NO.

03-661927


SIGNATURE


COMMISSIONER

ATC GROUP SERVICES LLC

104 East 25th Street, New York, NY 10010
(212) 353-8280

certifies that

Matthew Myers

XX-XX-XXXX

(Social Security Number)

Has Successfully Completed the Accredited 4 Hour EPA-AHERA/ASHARA under 40 CFR 763 and the
New York State Department of Health Approved Course for

Asbestos Inspector Refresher

on

August 30, 2017

** Please note that the official record of successful completion is the DOH 2832 Certificate of Asbestos Safety
Training.**

This course meets the requirements of TSCA Title II

Certificate#: NYS -RHHIR-21407 Exam date: 08-30-17 Expiration Date: 08-30-18

Course Location 21 West 38th Street, NYC



Signed:

Steve Winograd, Director of Training

1001100 01 AB 0.400 **AUTO** T5 0 1464 0644Z 1118Z / C01 P02104 1



JAMES T. RAFFIN
27 ISLEIB ROAD
MARLBOROUGH CT 06447-1118

Dear JAMES T. RAFFIN,

Attached you will find your validated certificate for the coming year. Should you have any questions about your certificate renewal, please do not hesitate to write or call:

Department of Public Health
P.O. Box 340308
M.S.#12MQA
Hartford, CT 06134-0308

(860) 509-7603
oplcdph@ct.gov
www.ct.gov/dph/license

Sincerely,

RAUL PINO, MD, MPH, COMMISSIONER
DEPARTMENT OF PUBLIC HEALTH

EMPLOYER'S COPY

STATE OF CONNECTICUT
DEPARTMENT OF PUBLIC HEALTH

NAME
JAMES T. RAFFIN

VALIDATION NO. 03-633303	CERTIFICATE NO. 000373	CURRENT THROUGH 09/30/18
-----------------------------	---------------------------	-----------------------------

PROFESSION
ASBESTOS CONSULTANT-INSPECTOR

SIGNATURE COMMISSIONER

INSTRUCTIONS:

1. Detach and sign each of the cards on this form.
2. Display the large card in a prominent place in your office or place of business.
3. The wallet card is for you to carry on your person. If you do not wish to carry the wallet card, place it in a secure place.
4. The employer's copy is for persons who must demonstrate current licensure/certification in order to retain employment or privileges. The employer's card is to be presented to the employer and kept by them as a part of your personnel file. Only one copy of this card can be supplied to you.

STATE OF CONNECTICUT
DEPARTMENT OF PUBLIC HEALTH

PURSUANT TO THE PROVISIONS OF THE GENERAL STATUTES OF CONNECTICUT

THE INDIVIDUAL NAMED BELOW IS CERTIFIED
BY THIS DEPARTMENT AS A
ASBESTOS CONSULTANT-INSPECTOR

JAMES T. RAFFIN

CERTIFICATE NO. 000373
CURRENT THROUGH 09/30/18
VALIDATION NO. 03-633303

SIGNATURE COMMISSIONER

WALLET CARD

STATE OF CONNECTICUT
DEPARTMENT OF PUBLIC HEALTH

NAME
JAMES T. RAFFIN

VALIDATION NO. 03-633303	CERTIFICATE NO. 000373	CURRENT THROUGH 09/30/18
-----------------------------	---------------------------	-----------------------------

PROFESSION
ASBESTOS CONSULTANT-INSPECTOR

SIGNATURE COMMISSIONER

1002100-0002108-0000001 of 00000001-C01-a1d00101-1464-02104

Certificate of Training

Awarded to

JAMES RAFFIN

*For successful completion of a 4 Hour, 1/2 Day
Asbestos Building Inspector
Annual Refresher Training*

JANUARY 9, 2018

This training was approved and given in accordance with the
Regulations for Connecticut State Agencies
RCSA 20 - 440 - 1-9 and RCSA 20 - 441 and meets the
requirements of the EPA Revised MAP under TSCA Title II of 4/4/94.

Presented by

Mystic Air Quality Consultants, Inc.

1204 North Road, Groton, CT 06340 (800) 247-7746

Certificate Number: ABIRF26385

Exam Grade: 100

Exam Date: 01/09/2018

Expiration Date: 01/09/2019



Christopher J. Eident, CIH, CSP, RS



George Williamson, Training Director

Richard Haffey, Training Director

Facility Conditions Analysis Spreadsheet

KORN SCHOOL ADAPTIVE REUSE FEASIBILITY STUDY										
FACILITY CONDITIONS ANALYSIS										
TAG NO.	ASSESSMENT	SYSTEM/ CODE REFERENCE	RANKING				CORRECTIVE ACTION	ITEMIZED ESIMATED COST	REMARKS	
			4	3	2	1	n/a			
SITE CONDITIONS										
S1	Bituminous paving around the building has numerous cracks and requires repairs.	Civil		3				Repave areas.	\$ 250,000	
S2	Accessible parking and site paths to parking and playfields, required improvements	ADA				1		Replace portion of sidewalks and redo transitions as needed. Reconfigure parking as needed.	\$ 40,000	
S3	The wood frame portable classrooms are in poor condition and past their useful life.				2			Remove and restore field. Input required from Environmental.	\$ 60,000	
SITE SUBTOTAL								\$	350,000	
EXTERIOR CONDITIONS										
A1	Minor brick spalling or mortar is in need of repointing. Minor cleaning of mildew on brick/masonry surfaces.	General		3				Patch, repair, or replace brick and repoint. Power wash as necessary. Minor concrete repair as needed. Prime and paint steel lintels.	\$ 30,000	
A2	Door thresholds or concrete pads have a greater than 1/2" transition to grade. Steps at many doors.	ANSI 117 (ADA)				1		Provide ramp or re-grade asphalt/concrete to allow for 1/2" maximum vertical transition.	\$ 25,000	
A3	Window frames and glazing are original to the building. Replace windows with thermally broken, energy efficient systems.				2			Window and glazing system lifespan is generally considered 30-40 years. Energy savings benefit.	\$ 325,000	
A4	Roofs are nearing the end of their useful life				2			The roof is approximately 20 years old	\$ 775,000	
A5	Loading dock at kitchen is in need of repairs and improvements			3				Concrete work and railings	\$ 20,000	
EXTERIOR SUBTOTAL								\$	1,175,000	

FACILITY CONDITIONS ANALYSIS									
TAG NO.	ASSESSMENT	SYSTEM/ CODE REFERENCE	RANKING			CORRECTIVE ACTION	ITEMIZED ESIMATED COST	REMARKS	
INTERIOR CONDITIONS									
A6	Many door push and/or pull maneuvering clearances do not meet code. Includes conditions where the jamb thickness is larger than 8" beyond face of door.	413.6 (ADA) 1101.2 (IBC) ANSI 117.1			2		Where obstruction is not furniture related, modify door swing and/or location to comply. Where the previous is not easily achieved, supply push button door operator where required.	\$ 30,000	
A7	The required toilet grab bars are not installed	(B)1108.0 (ANSI A117.1) 603-606			2		Install code required grab bars	\$ 7,500	
A8	Existing sinks do not meet accessibility requirements				3		Provide at least one accessible sink in toilet rooms	in plumbing	
A9	The required knee spaces do not exist at original cabinetry or is located at the wrong height. This affects former classrooms.				3		Original cabinetry is not accessible and is very dated.	\$ 35,000	
A10	Some door hardware is not accessible. Knob handles require grasping and twisting.	4.13.9 (ADA) 404.2.6 (ANSI 117.1)			2		Remove door locksets and install new accessible lever handle locksets where designated.	\$ 15,000	
A11	Handicap signage at doors is missing and does not comply with current code.				3		Provide new signage around building.	\$ 7,500	
A12	Means of egress corridors do not meet fire rating requirements. Doors and frames require labels, top of walls must be extended to roof deck, patched and fire safed.				1		Patch corridor walls above ceiling. Rate doors and frames. Reuse will trigger additional fire rating requirements at assembly spaces: gym and cafeteria.	\$ 80,000	
A13	Kitchen prep area does not meet accessibility requirements and clearances				2		Renovate kitchen area for accessibility	\$ 25,000	
A14	Replace most finish flooring				2		Refresh spaces	\$ 200,000	
A15	Replace most ceilings				2		Refresh spaces	\$ 175,000	
A16	Add gypsum board finishes and casework in select areas. Paint interior.				2		Redesign and upgrade of limited areas	\$ 125,000	
INTERIOR SUBTOTAL								\$	700,000

9/17/2018

FACILITY CONDITIONS ANALYSIS								
TAG NO.	ASSESSMENT	SYSTEM/ CODE REFERENCE	RANKING			CORRECTIVE ACTION	ITEMIZED ESIMATED COST	REMARKS
HAZARDOUS MATERIAL ABATEMENT								
H1	Abate old floor tiles				1		\$ 165,000	
H2	Abate pipe fittings & wall adhesives				1		\$ 38,000	
H3	Abate transite board and roof flashings				1		\$ 61,000	
ABATEMENT SUBTOTAL								\$ 264,000
PLUMBING/FIRE PROTECTION								
P1	A Janitors Sink was observed with hoses connected to faucet without a visible means to prevent backflow.	General		3		Replace faulty equipment as required.	\$ 10,000	Cost over next 10 years.
P2	Replace non-ADA classroom sinks.	ADA		3		Need based on re-purposed use.	\$ 5,000	Based on 8 sinks at \$5,000 per sink.
P3	Provide new domestic water heater.	IPC & Public Hlth Code			1	Install new oil-fired, storage domestic water heater, and circulating pump.	\$ 8,000	
P4	Kitchen does not have hand sinks.	IPC & Public Hlth Code			1	Provide hand sinks in Kitchen if that service will be required.	\$ 10,000	Based on 2 sinks at \$5,000 per sink.
P5	Kitchen 3-compartment sink waste not served by grease interceptor.	IPC		3		Install insulation on piping missing insulation	\$ 15,000	
P6	Kitchen not provided with accessible prep table.	ADA		3		Install ADA prep table.	\$ 5,000	
FP1	Building is not currently fully protected with a sprinkler system	NFPA 25	4			Provide sprinkler system for entire building, not code required	\$ 256,000	Based on \$8/sf at approximately 32,000 SF
FP2	Modify service entrance.	General	4			Provide new backflow preventer and re-work alarm check valve.	\$ 10,000	
PLUMBING/FIRE PROTECTION SUBTOTAL								\$ 319,000

FACILITY CONDITIONS ANALYSIS									
TAG NO.	ASSESSMENT	SYSTEM/ CODE REFERENCE	RANKING			CORRECTIVE ACTION	ITEMIZED ESIMATED COST	REMARKS	
MECHANICAL SYSTEMS									
M1	Existing kitchen hood, ventilation system has outlived its useful life expectancy. The existing exhaust fan is not compliant with UL762.	UL762			1		If the building is repurposed and the intent is to keep the kitchen operational we strongly recommend replacing the entire ventilation system. Provide new exhaust hood, makeup air unit and UL762 compliant fan.	\$ 55,000	
M2	Insulation on roof mounted piping is deteriorating due to exposure to the elements.		3				Reinsulate and provide an all weather service jacket.	\$ 2,500	
M3	Existing chiller has outlived its useful life expectancy. Chiller does not meet current energy code requirements for efficiency.	IECC			1		Replace chiller with new.	\$ 106,000	
M4	Hot water and chilled water pumps have outlived their useful life expectancy.		3				Replace pumps in kind.	\$ 40,000	
M5	Building exhaust fans have outlived their useful life expectancy.		3				Replace fans in kind.	\$ 18,000	
M6	Building management system has outlived its useful life expectancy.		3				Replace system if a major project is undertaken to replace the building's HVAC systems.	\$ 200,000	
M7	Existing air handling units do not have economizer function. Gym and Café units require energy wheels.	IECC			1		Provide new code compliant mechanical systems	\$ 535,000	
M8	Provide new boiler and chiller plant for adaptive reuse/leasing option	IECC	4				Provide new boilers, pumps, fuel oil tank and chiller. Provide controls for new systems	\$ 750,000	Line M8 is for a separated utility, leasing option
MECHANICAL SUBTOTAL									\$ 1,706,500

FACILITY CONDITIONS ANALYSIS									
TAG NO.	ASSESSMENT	SYSTEM/ CODE REFERENCE	RANKING				CORRECTIVE ACTION	ITEMIZED ESIMATED COST	REMARKS
ELECTRICAL SYSTEMS									
E1	The existing Fire Alarm System does meet the current code requirements.					1	Testing & certification is required before opening the building.	\$1,120	allowance (Testing & certification)
E2	Currently the emergency lighting is provided by single point products; Some were tested in 2016 and some were last tested in 2014.					1	Testing & certification is required before opening the building. There will be some units that will need repair.	\$2,500	allowance (testing, certification & repair and replacement)
E3	Existing fluorescent lighting will not meet current codes (30% reduction (by level lighting = 50% plug load control					1	Replace all existing fluorescent and incandescent fixtures and controls with new energy efficient LED fixtures. Add control panels to convenient power receptacles in all classrooms	\$450,000	allowance, approximately \$14 a square foot
E4	Exterior Building lighting - will not meet current codes					1	replace all exterior building lighting with LED products.	\$9,000	allowance, approximately \$500 per location
E5	Exterior emergency lighting - path of egress illumination					1	Remoted heads were not tested, a few were missing or damaged.	\$1,200	allowance
E6	Emergency generator - reached end of life - replace					1	Testing & certification is required before opening the building.	\$20,000	allowance (testing)
E7	Main electrical service will need to be tested & serviced as required. Facilities has stated that the main service switch has not been maintained or tested since installation					2	Testing & certification is required before opening the building. There will be some units that will need repair. Infrared all existing electrical panels	\$10,000	allowance
E8	Fire Alarm System					1	Upgrade and adds per architectural changes	\$4,000	
ELECTRICAL SUBTOTAL									\$497,820
ESTIMATED CONSTRUCTION COSTS BY DISCIPLINE									
Site								\$350,000	
Architecture - Building Exterior								\$1,175,000	
Architecture - Building Interior								\$700,000	
Abatement								\$264,000	
Plumbing & Fire Protection								\$319,000	
Mechanical								\$1,706,500	
Electrical								\$497,820	
TOTAL ESTIMATED CONSTRUCTION COSTS								\$	5,012,320
CONSTRUCTION CONTINGENCY (12%)								\$	601,478
ESTIMATED SOFT COSTS								\$	1,386,202
GRAND TOTAL								\$	7,000,000

Code Standards

Current Building Codes for State of Connecticut

Effective December 29, 2016

2016 State of Connecticut Building Code

2005 State of Connecticut Fire Safety Code/2005 Connecticut Supplement

2012 International Building Code (Including CT Amendments)

2012 International Existing Building Code (Including CT Amendments)

2012 International Mechanical Code (Including CT Amendments)

2012 International Plumbing Code (Including CT Amendments)

2012 International Energy Conservation Code (Including CT Amendments)

2009 ICC/ANSI A117.1 Accessible and Usable Buildings and Facilities

2010 Americans with Disabilities Act

- Title I Employment

- Title III Public Accommodations

SMACNA - IAQ Guidelines for Occupied Buildings Under Construction

PA 07-242 & PA 07-249 (Portions of these Public Acts that deal with sustainable design) Title 29, Chapter 538 - Elevators, Escalators and Lifts

Title 29, Chapter 540 - Boilers and Water Heaters

Title 29, Chapter 541 - Building, Fire and Demolition Codes. Fire Marshals and Fire Hazards.
Safety of Public and Other Structures.

Committee Minutes from May 9, 2018 and June 7, 2018

Korn School Adaptive Reuse Feasibility Committee
Minutes
May 9th, 2018
Durham Activity Center
6:00 p.m.

Meeting called to order by Chairman, David Heer at 6:10 p.m.

Members present were: David Heer, Henry Coe, Phil Muzio, Carl Stoup and Lainy Melvin.
Members Absent: Karen Cheyney

Motion made by Carl Stoup to accept the agenda posted for this meeting, seconded by Henry Coe, all were in favor

Motion made by Carl Stoup to accept the meeting minutes for the April 21st meeting, seconded by Henry Coe, all were in favor

The committee discussed the programmatic spaces that would be explored and open for discussion with the design team to use during its feasibility study of the project.

- Community Recreation Facility
- Youth Services
- Teen Services & Center for after school
- Community Meeting Space
- Senior Citizen Center
- Fitness Spaces
- Visiting Nurse / Health Care
- Providing space for various Town office use:
 - Administrative offices, Recreation office
 - Expanded parks and recreation opportunities
- Maintaining the existing gymnasium for public use
- Meeting rooms for local groups and organizations
- Utilization of kitchen facilities for meals for varying events or programs
- Sheltering during emergencies
- Human services and food pantry
- After school programs
- Office space being made available for local sporting groups / clubs, for example (Football, Basketball, Soccer Club, Cheerleading, Baseball, etc)
- Storage spaces for a Yankee Swap program
- Coffee Shop

The committee reviewed programmatic space requirements that have been used in other towns to become informed in the pros and cons of each space prior to going forward with the design team

Means of keeping the community informed; it was suggested that letters to the Town Times, scheduling of committee meetings with the public

Funding for this project will be on the agenda at the Town meeting to be held on May 14, 2018.

Next meeting of the Korn School Adaptive Reuse Feasibility Committee is TBD when the public will be invited for open discussion. The group discussed using Korn School for meetings and will inquire if this is possible.

Lainy Melvin made a motion to adjourn.

Motion seconded by Carl Stoup.

Meeting adjourned at 7:50 p.m.

Respectfully submitted,
David Heer, Chairman

Korn School Adaptive Reuse Feasibility Committee
Minutes
June 7th, 2018
Korn School
6:00 p.m.

Meeting called to order by Chairman, David Heer at 6:00 p.m.

Members present were: David Heer, Karen Cheyney, Phil Muzio, Carl Stoup and Lainy Melvin.

Members Absent: Henry Coe

Design Team: Silver / Petrucelli (SP), Paul Jorgensen

Public Attendance: Sherry Hill,

Motion made by Lainy Melvin to accept the agenda as amended for this meeting, seconded by Carl Stoup, all were in favor,

Motion made by Carl Stoup to accept the meeting minutes for the May 24th meeting, seconded by Lainy Melvin, all were in favor

The committee began the evening with an update from SP of their review of the existing conditions of the building. The existing conditions survey included Mech. & Elec. Engineers from their office. The survey included both interior and exterior conditions to provide a general opinion of probable repairs that may be required for future use. The general assessment will use the information gathered and consider the possible alignment of existing spaces with future programmatic requirements. General description included the exterior envelope, MEP systems, Bathrooms, and finishes that may be recommended to be upgraded.

The committee discussed possible programmatic spaces with the designer and will divide the program spaces into different categories for forecasting an opinion of probable cost based on the programmatic requirements, and be able to discuss how to evaluate the viability of a program within the project during public presentations. The designer suggested the committee have the ability to discuss the cost impact certain programs will have in its considerations for the project.

The design team has asked the committee to consider removing the portable classrooms due to the age and cost to upgrade. The committee will consider this option.

The public presentation goals were discussed and will include blocked diagrams indicating program spaces, a narrative of MEP systems, and recommendations to be considered for the exterior envelope and site development. The study will include the rough order of magnitude of cost and funding resources.

The following program spaces were provided, and the members of the committee expressed the need to provide a cost effective minimalistic approach that can be adjusted as the cost estimates

are developed. The approach is to determine the best value of the project that can service several programs cost effectively utilizing the existing building.

- Art Center
- Civic Groups (ZBA, P&Z, Etc.)
- Community Recreation Facility
- Youth Services
- Teen Services & Center for after school
- Community Meeting Space
- Senior Citizen Center
- Fitness Spaces
- Visiting Nurse / Health Care
- Providing space for various Town office use:
 - Administrative offices, Recreation office
 - Expanded parks and recreation opportunities
- Maintaining the existing gymnasium for public use
- Meeting rooms for local groups and organizations
- Utilization of kitchen facilities for meals for varying events or programs
- Sheltering during emergencies
- Human services and food pantry
- After school programs
- Office space being made available for local sporting groups / clubs, for example (Football, Basketball, Soccer Club, Cheerleading, Baseball, etc)
- Storage spaces for a Yankee Swap program
- Coffee Shop
- Termed Leasing of spaces

The committee reviewed a proposed time line to maintain having the public vote on the project's feasibility during the November Referendum. The possibility of holding a public meeting at Korn School on July 19th will be investigated to allow open access to the public and encourage participation while in the spaces being suggested.

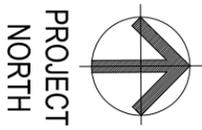
Discussed reaching out to various local sports groups, cheerleading's, and others as examples.

Next meeting of the Korn School Adaptive Reuse Feasibility Committee is June 27th the public is invited for open discussion. The committee is using Korn School for this meeting and will inquire if this is possible to continue.

Lainy Melvin Made a motion to adjourn.
 Motion seconded by Carl Stoup
 Meeting adjourned at 7:30 p.m.

Respectfully submitted,
 David Heer, Chairman

Existing Floor Plan



EXISTING FLOOR PLAN



SECTION II – ADAPTIVE REUSE ASSESSMENT



Site Constraints

The property is a flat parcel with convenient proximity to adjacent recreation and sports fields, Strong Middle School, Coginchaug High School and nearby Main Street. A broad mix of activities and groups currently use the fields and pass through the area, making the location a community hub. It has ample street access from Pickett Lane. Commercially, the building does not have a strong street front, retail presence however the central location may make office space and other activities possible uses. Land use is discussed further in the local regulation section.

The site is served by town water supply and has an onsite septic system. It is currently served by two electrical services, a second added for the portable classrooms.

The most significant site concern may be the proximity of the Hersig Brook, the identified floodway and possibility of flood events.

Building Configuration and Structure

Physical constraints of the building structural system, heights and room configurations will naturally allow for some reuse functions more easily than others. The former classrooms and offices are built with masonry bearing walls which can be modified and/or removed, however this will require new openings and significant steel structural modifications and additions. The best fit for reuse of the school, with the least amount of renovation cost, will be functions that need the size and volume of spaces that exist. Of course, spaces can be combined and

expanded as needed at a price. Many of the proposed and possible uses for the building appear to be a good fit for the existing building spaces and structure. Youth and teen services, community meeting rooms, fitness areas not requiring high ceilings, senior citizen center functions, offices, etc. all fit the existing spaces.

As a recreation facility the gymnasium is undersized for all but the youngest age groups, elementary school as it was originally designed for. With proper storage, the gym could be used as a multi-purpose space for several groups, such as a polling place and a youth recreational facility.

The building is large enough to support several diverse use groups, either by shared scheduling or dedicated zones within the building often using separate entrances and exits. Dedicated, separate uses will cost more to establish in construction, renovation and reconfiguration, but may provide better quality, customized spaces for each use group.

One use that is not an easy fit for the building is an emergency shelter. This would require major upgrades to the existing building structural system and additional functions at a significant cost. This is besides the fact that part of the site itself is within a flood zone.

Several proposed uses can also be combined in each area, or wing of the building. Compatible uses include Senior Citizen center spaces with visiting nurses, or Human services with teen, youth and after school programs. Recreation and fitness spaces could be adjacent to each other just as Town offices and accessory storage areas could. A long term commercial lease area with an adjacent coffee shop are other compatible uses. The center of the building, at the existing main entrance, could be fit out with offices for clubs and sports groups with multi-use meeting rooms shared by the entire facility. The existing kitchen and cafeteria are already positioned to reuse for special events. The entire list of programmatic uses discussed will not likely fit within the building, requiring some prioritization.

Related to creating separate use group areas, the building lacks clear, well defined entrances for the general public. The property and building will require new, fresh perspective, beyond the previous school and limited public use, to create user-friendly, public site approaches and entrances. The renovated or new entrances should include architectural forms, materials and imagery compatible with the building while announcing a new start for the building. Entrances

are one avenue of creating a new image for the building in the public eye, a way to re-brand the building. Another way is with landscape, signage and the name of the facility itself. The goal is to re-introduce the facility to welcome and attract different use groups.

Considerations for Repurposing - Interior

The town has identified several program spaces as potential options for the reuse of the Korn School facility. We have taken those options and grouped them by similarity into four (4) categories: Community Spaces, Office Spaces, Senior Center Spaces and Kitchen/ Pantry Spaces. Below is a quick synopsis of each of those spatial types and our recommendations regarding finishes, planning considerations and furnishings.

Community Spaces

Recreation Facility, Youth Services, Teen Services, After School Programs, Meeting rooms, Gymnasium, Fitness

Recreation facilities could encompass both indoor and outdoor activities. Indoor activities; like crafting rooms, gaming centers or maker spaces, should provide finishes and furnishings that allow the space to serve a multitude of functions, giving you more flexibility in the types of programs you offer. Resilient flooring is recommended; i.e. sheet vinyl or vinyl plank for ease of maintenance. Existing walls can be painted and special materials applied; like FRP (fiberglass reinforced panels), where additional abuse or sanitary needs are present. Standard acoustical ceilings tiles are an appropriate application. Where possible, existing grids can remain and be painted. New ceiling pads can be installed to provide a fresh, update appearance. Depending on the function and occupancy of the room, a higher NRC (Noise Reduction Coefficient) tile can be specified to improve the acoustics in the room and reduce reverberation.

Outdoor recreation facilities to consider, would be bocce courts, courtyards or pavilions, fields, walking paths, tennis courts and basketball courts.

Youth/ Teen Services and After School Program spaces can take on different forms depending on the services being offered. Large group spaces where kids can interact with each other should be considered along with smaller study or tutor rooms for those kids that require a quiet space for focus. Similar finishes to the recreation facilities would be recommended here as well. Smaller study rooms could introduce carpet for better acoustic

control. If space is limited and separate rooms are not achievable, consider quiet zones with lower ceilings, area rugs and furniture partitions for a visual break from more lively activities. Meeting rooms should consider the desired capacity, technology and provide as much flexibility as possible to suit any user group. Finishes typically recommended for meeting spaces are carpet tile for ease of installation/ replacement and acoustics. Walls are typically painted and can include upgrades like whiteboard paint or wallcovering and/or wainscot. Ceilings can be as simple as acoustical ceiling tile and grid but can include upgrades like sheetrock soffits and cove lighting if desired.

Often, meeting spaces will be divided using movable partitions. This allows for every day, small conference room use with the ability to convert to one large conference or training room when needed. If a folding partition is considered, the furniture provided should allow for easy reconfiguration. This can be achieved with flip-nest tables that gang together to form one large table or rows of tables when the partition is open, but also group to form two smaller tables when the partition is closed.

In terms of technology, each meeting space should consider the need for simple tackboards or whiteboards vs more complex Smart technology, interactive monitors, projection screens and audio video controls.

Gymnasiums and Fitness areas are becoming more popular in community centers. If the existing gymnasium is maintained, there are some very simple refurbishments to be considered. Existing wall pads can be replaced with a lighter, neutral color pad to brighten the room and eliminate the feel of an elementary school gym. Walls should be repainted and accent colors could be added to the existing steel structure and exposed ductwork. New lighting would also improve the quality of the space.

Fitness centers would typically have a rubber floor installed. The thickness of which would be determined by the equipment. Simple aerobics rooms would have a lighter gauge floor where free weights would have a heavier gauge to absorb more impact. Walls are generally painted, but could also include upgrades like mirrors, balance bars or wall pads. Some fitness areas include wall mounted or mobile screens to allow for group fitness videos. Ample storage for small equipment should be provided.

Senior Center Spaces:

Visiting Nurse/ Health care, Community Spaces

Senior Center spaces don't vary much from community spaces in terms of their requirements except for finish considerations. Color variations in materials can have a negative effect on individuals with failing eyesight. Floor patterns should have minimal contrast in color to mitigate the appearance of voids in the floor or highly active patterns to eliminate the onset of vertigo.

While slip resistance is a concern throughout the facility, it is most important within the function of a senior center. No or low gloss floors are recommended in food areas or wet locations and carpet tile in smaller, casual meeting areas. Transitions in floor levels should be kept to a minimum to prevent trip and fall hazards.

These areas should be designed with more hospitality or residential finishes; i.e. carpet, neutral paints, wallcovering, wood trim, window treatments and soft seating areas that are durable and cleanable.

Office Spaces:

Administrative offices, Parks and Recreation, Human Services, Visiting Nurse

Office spaces can be designed for individual or shared occupancy. In either scenario, carpet tile is recommended for the flooring. Different zones or departments can be defined by changing the color of the carpet, adding accents or changing the tile direction. Walls would be painted and ceiling would be standard ceiling grid with acoustical ceiling tile. Depending the need for acoustical control, higher NRC tiles can be specified. Acoustical sound batt insulation can be added to new walls and walls can extend to the underside of the ceiling deck as required.

The visiting nurse office; depending on the level of care provided, may want to consider a resilient floor. Typically, a sheet vinyl product with welded seams and flash cove base for sanitary purposes.

Kitchen/ Pantry Spaces:

Food pantry, Coffee Shop, Kitchen (catering)

Along with the code upgrades noted in the architectural section of this report, there are many finish upgrades recommended for the existing kitchen, food prep areas and cafeteria. If the existing cafeteria were to remain as either a dining room or multi-function space it is recommend the existing tile floor be removed and replaced with a new resilient floor. This could be either a welded sheet product or vinyl plank floor. The walls should be repainted and potentially some areas identified for wood paneling to add some warmth to the space. The existing ceiling grid could remain and be painted and new acoustical ceiling pads installed.

The kitchen and servery tile floor should be removed and replaced with a food service grade resilient sheet product with welded seams and flash cove base. Walls could remain painted block with certain areas to receive either FRP or stainless-steel wall protection. New cleanable ceiling tiles should be installed.

The addition of a small coffee should would receive more retail type finishes with resilient floors, laminate counters and a variety of different seating options from standard tables and chairs, to small intimate lounge areas.

A food pantry will want to provide ample surface area to sort donations and durable metal shelving for categorizing and storage. Resilient flooring or polished concrete is recommended in this area for ease of maintenance.

Conceptual Costs:

(based on refreshing most finishes)

New Floors	\$200,000
New ceilings, or re-padding	\$175,000
Limited casework	\$50,000
Limited gypsum board added	\$50,000
Painting	\$25,000
Interior finishes upgrade	\$500,00

32,000 SF approx.

Considerations for Repurposing - Mechanical

The existing heating, ventilating and air conditioning systems currently serving the building were designed and sized for the occupant load of a school. Given schools have a high occupant density it is highly likely that if the building is repurposed for a different use the existing equipment will meet or exceed the heating, cooling and ventilation demands of the new spaces.

Consideration is being given to portioning off part of the building in order to lease it to a separate tenant. In order to separate the building into two spaces from a utility standpoint the leased space would require its own mechanical room. The mechanical room would contain a boiler plant and associated pumps, air separators, expansion tanks and controls. A separate underground fuel oil storage tank and fuel oil transfer pump set would be required. A separate air-cooled chiller with associated pumps, expansion tanks, air separators and controls would be required for cooling the leased spaces. In lieu of a chilled water system packaged rooftop units with integral refrigeration could be considered as an alternative cost savings measure.

The addition of a boiler plant, chiller plant and associated equipment for a separate building occupancy would be approximately \$700,000.

Code Requirements

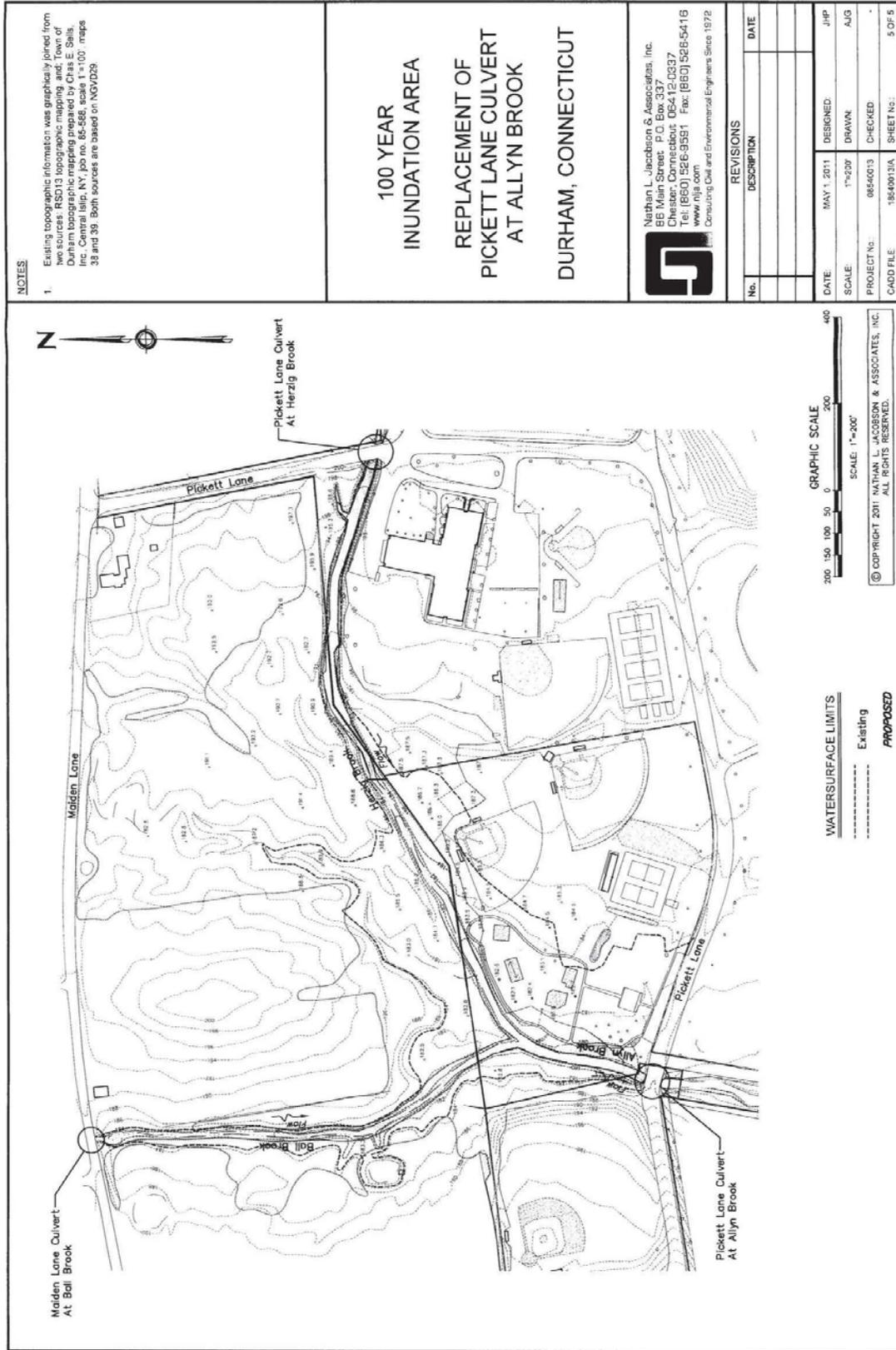
Reuse of the building will require a change of use group, according to the International Building Code (IBC). Under the former school use the building was classified as “E Educational” with the gym classified as “A-3 Assembly”. Under most of the proposed uses the building will likely change to either “B Business” or “M Mercantile” uses. Town uses generally fall under the business use group of the code, while commercial retail uses are categorized as mercantile. The immediate impact will be the requirement of a 2-hour fire separation from assembly uses, the gymnasium and cafeteria, to the remainder of the building. This would entail a review, and possible upgrade, of the existing masonry partitions and addition of fire doors as needed. There is no required fire rating between business and mercantile uses, although these uses would still likely trigger security and egress separations. From a code perspective, some of the uses that would not be compatible, or a good fit for the building are manufacturing, storage of high hazard materials, residential or institutional 24-hour medical care. A full code analysis of the building, including incidental uses within each group would be performed once specific uses and a plan is determined.

Local Regulations

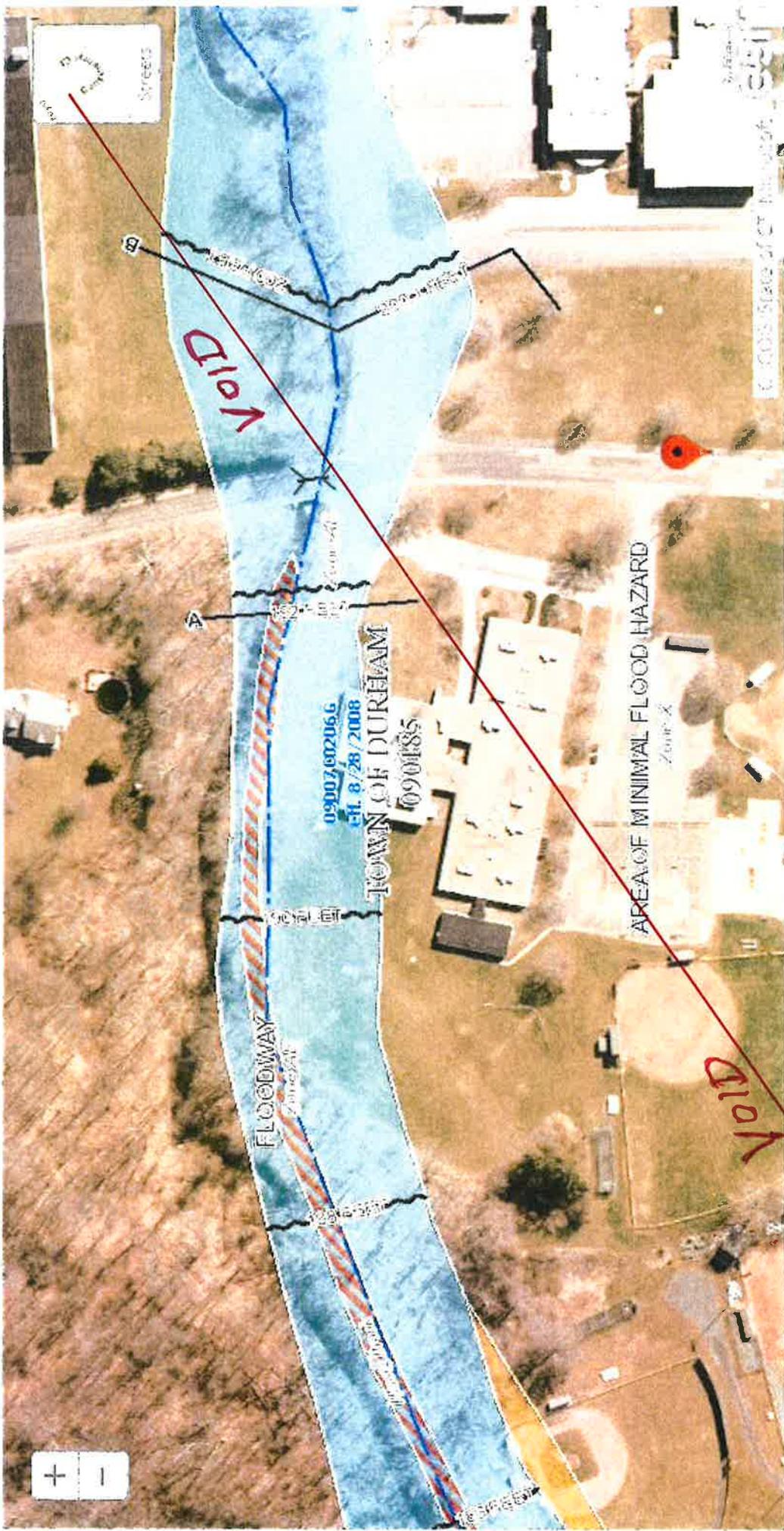
The Inland Wetland Commission will review the reuse application due to the proximity of the Hersig Brook and the applicable flood zone. Site changes near to or within the flood zone in the north part of the site will require careful planning and approval by the Inland Wetland Commission. Building additions are not permitted within flood zones and setbacks must be followed, limiting future addition possibilities.

Any reuse of the building will also go to Planning and Zoning for review. The property is within the FR-Farm Residential zone. Town uses, such as a school, community or senior center, recreation facility or offices typically require filing and approval of a special permit, but are allowed within this zone. Commercial uses, such as retail or lease space, would require a more intensive change of zone through a zoning variance. Commercial uses often trigger traffic studies over concerns about traffic volume and road safety.

Flood Zone Map



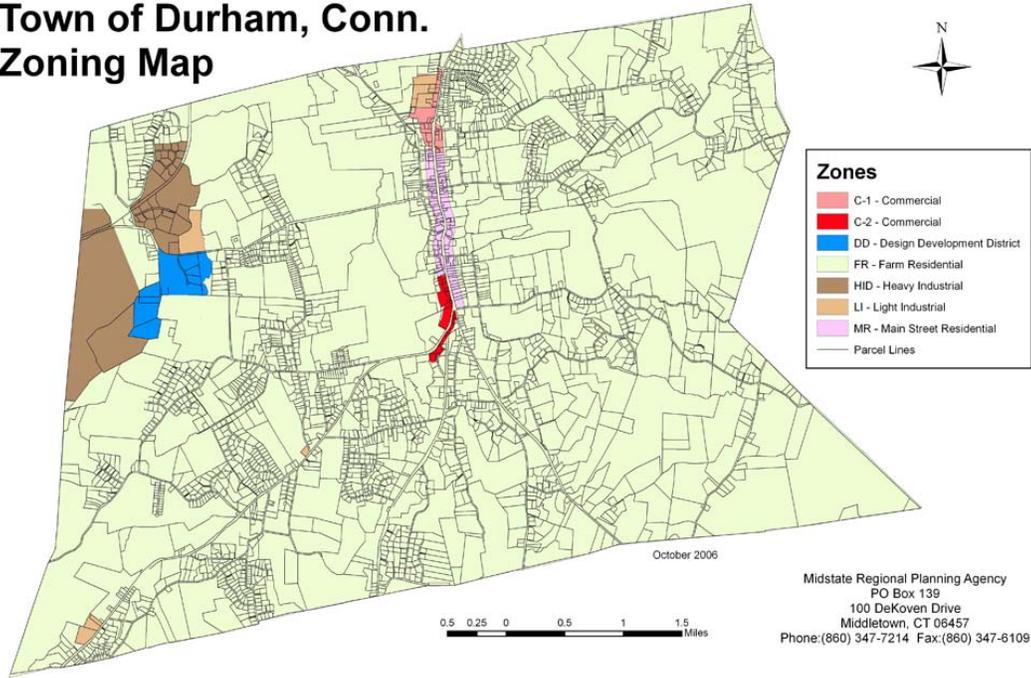
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MAP PANELS	OTHER AREAS	SPECIAL FLOOD HAZARD AREAS	OTHER FEATURES
<ul style="list-style-type: none"> Digital Data Available No Digital Data Available Unmapped 	<ul style="list-style-type: none"> Area of Minimal Flood Hazard (Zone X) Effective LOMRs Area of Undetermined Flood Hazard (Zone D) Channel, Culvert, or Storm Sewer Levee, Dike, or Floodwall 	<ul style="list-style-type: none"> Without Base Flood Elevation (BFE), Zone A, V, VE With BFE or Depth Regulatory Floodway (Zone AF, AO, AE, AH) 	<ul style="list-style-type: none"> 20.2 17.5 Cross Sections with 1% Annual Chance Water Surface Elevation Coastal Ingress Base Flood Elevation Line (BFE) Limit of Study Jurisdiction Boundary Coastal Ingress Baseline Profile Baseline Hydrographic Feature
<ul style="list-style-type: none"> Area of Minimal Flood Hazard (Zone X) 	<ul style="list-style-type: none"> Area with Reduced Flood Risk due to Levee, See Notes, Table 2 Area with Flood Risk due to Levee, See Notes, Table 2 	<ul style="list-style-type: none"> 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depths less than one foot or with drainage areas of less than one square mile, Zone X Future Conditions, 1% Annual Chance Flood Hazard, Zone X Area with Reduced Flood Risk due to Levee, See Notes, Table 2 Area with Flood Risk due to Levee, See Notes, Table 2 	

Zoning Map

Town of Durham, Conn. Zoning Map



Municipal Development Grant Opportunities

Public Presentation

MUNICIPAL DEVELOPMENT GRANT OPPORTUNITIES

6/2018

FORM / GRANT	APPLICATION INFORMATION		GRANT/FUNDING INFORMATION			NOTES & APPLICATION DETAILS
	FREQUENCY	APPLICATION DEADLINE	ELIGIBLE PROJECT TYPES	FUNDING LEVELS	MATCHING FUNDS	
STEAP - Small Town Economic Assistance Program Contact: Meg Green Meg.Green@ct.gov 860-418-6222	Rolling	n/a	Can only be used for capital projects: <ul style="list-style-type: none"> • New construction, expansion, renovation or replacement for an existing facility or facilities. • Can include the cost of land, engineering, architectural planning, and contract services needed to complete the project. • Pilot historic preservation and redevelopment programs that leverage private funds 	up to \$500,000	YES	Durham is eligible.
USDA Community Facilities Technical Assistance and Training Grant Nathan Chitwood Regional Coordinator, RHS Phone 573 876-0965 Nathan.Chitwood@wdc.usda.gov	Annual	July 2, 2018	The Agency will make grants to public bodies and private nonprofit corporations, to provide associations Technical Assistance and/or training with respect to essential community facilities programs. The Technical Assistance and/or training will assist communities, Indian Tribes, and Nonprofit Corporations to identify and plan for community facility needs that exist in their area. Once those needs have been identified, the Grantee can assist in identifying public and private resources to finance those identified community facility needs.	Up to \$150,000	N/A	
Liberty Bank Foundation Sue Murphy Executive Director 860-638-2959 smurpny@liberty-bank.com			Funding priorities: <ul style="list-style-type: none"> • Preventive education programs that lead to economic success for children and families • Affordable and supportive housing • Building the capacity of nonprofits engaged in the first two priority areas • Food and shelter for people in crisis The following types of organizations are eligible for grants from the foundation: <ul style="list-style-type: none"> • Nonprofit organizations with IRS 501(c)(3) status • Government agencies (Certain conditions apply—please contact the foundation staff for details.) 	\$2,000 - \$5,000	N/A	The foundation also makes grants to collaborative groups working on issues relating to our funding priorities. Collaboratives may include nonprofits, government agencies, businesses, faith communities, and other organizations. If a collaborative is not a separately incorporated entity, an eligible nonprofit or government agency must serve as fiduciary agent for the collaborative. Grant funds would then be paid to the fiduciary agent for the benefit of the collaborative. For the most part, we prefer to fund specific programs. For previous grantees whose activities all align with our funding priorities, we will consider grants for general operating expenses. On rare occasions, we may consider requests for capital projects or equipment from agencies that have received grants from us in the past.

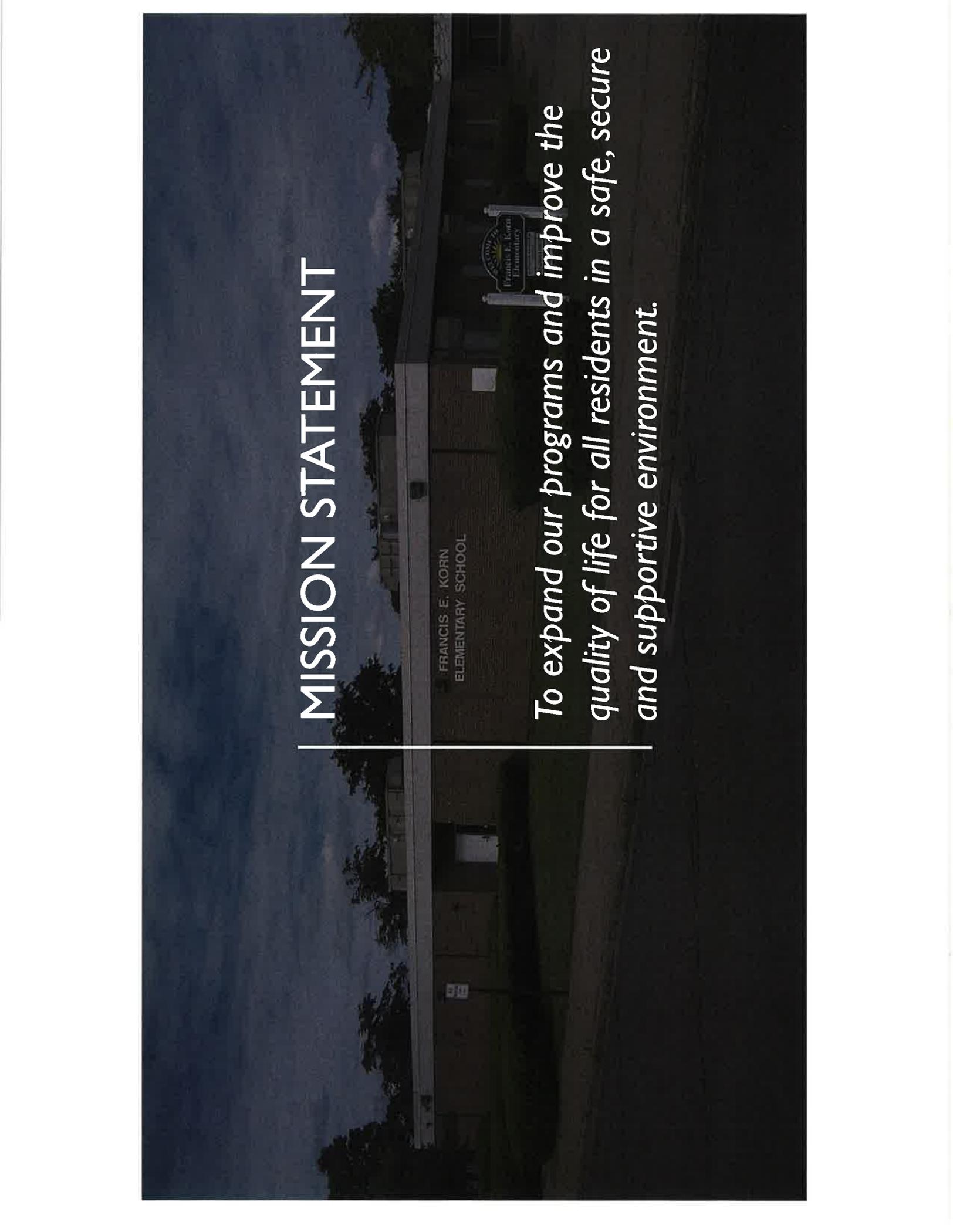
Public Presentation

Two informational, public presentation workshops were conducted at the Korn School on July 31st and September 6th, 2018. The purpose was to inform residents of the existing condition analysis, preliminary costs to upgrade the site and building and what types of reuse were being considered for the building. These workshops were intended to gather feedback from questions and questionnaires about the reuse priorities of the residents. This report section contains the slides and additional information from those public sessions, which provide a more comprehensive view of the Korn School reuse study in the context of Town-wide capital improvement planning.

Questions and feedback from the first workshop allowed the committee and design team to incorporate additional information into the second one. Of particular interest were details of funding and the financial impact of this proposed reuse along with other potential funding commitments, such as the culvert projects and public safety facility. Financial information for this part of the workshop was provided by IBIC LLC working with the Town Finance Department. The second workshop included substantial information regarding bonding, mill rate projections and calculated tax changes based on one or all of the upcoming projects moving forward. There were questions regarding the timing of the proposed referendum questions and why they were staggered a month or so apart from each other. The individual project schedules did not align for a common referendum date. Questions of annual operating costs and staffing were also addressed as well as what the potential costs would be whether the Korn School referendum passed or failed.

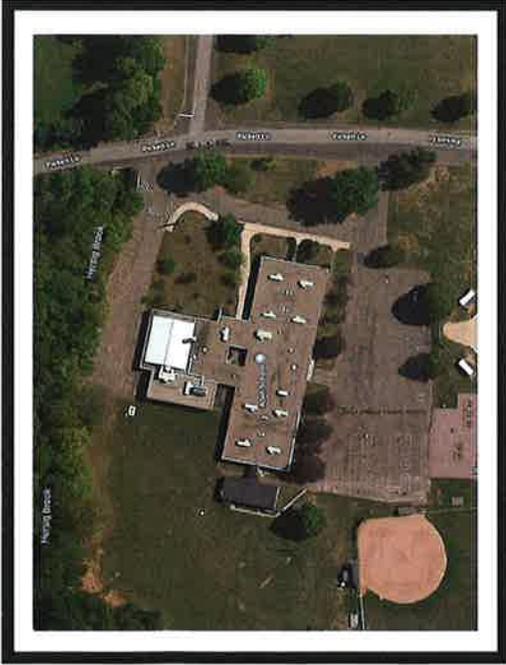
RSD13 negotiations and obligations were addressed by Laura Francis. On a related topic the committee and design team reviewed site and site utility issues to better understand the needed and appropriate lot size that should accompany the transfer of Korn School to Durham should a referendum pass. This included a confirmation of the on-site septic system which was redone in 2002.

Lastly, the building committee provided a mission statement and vision statement for the Korn School reuse in order to communicate how this facility could serve to meet the needs of the community as a safe and secure gathering place for all residents.



MISSION STATEMENT

To expand our programs and improve the quality of life for all residents in a safe, secure and supportive environment.



EXISTING SITE CONDITIONS

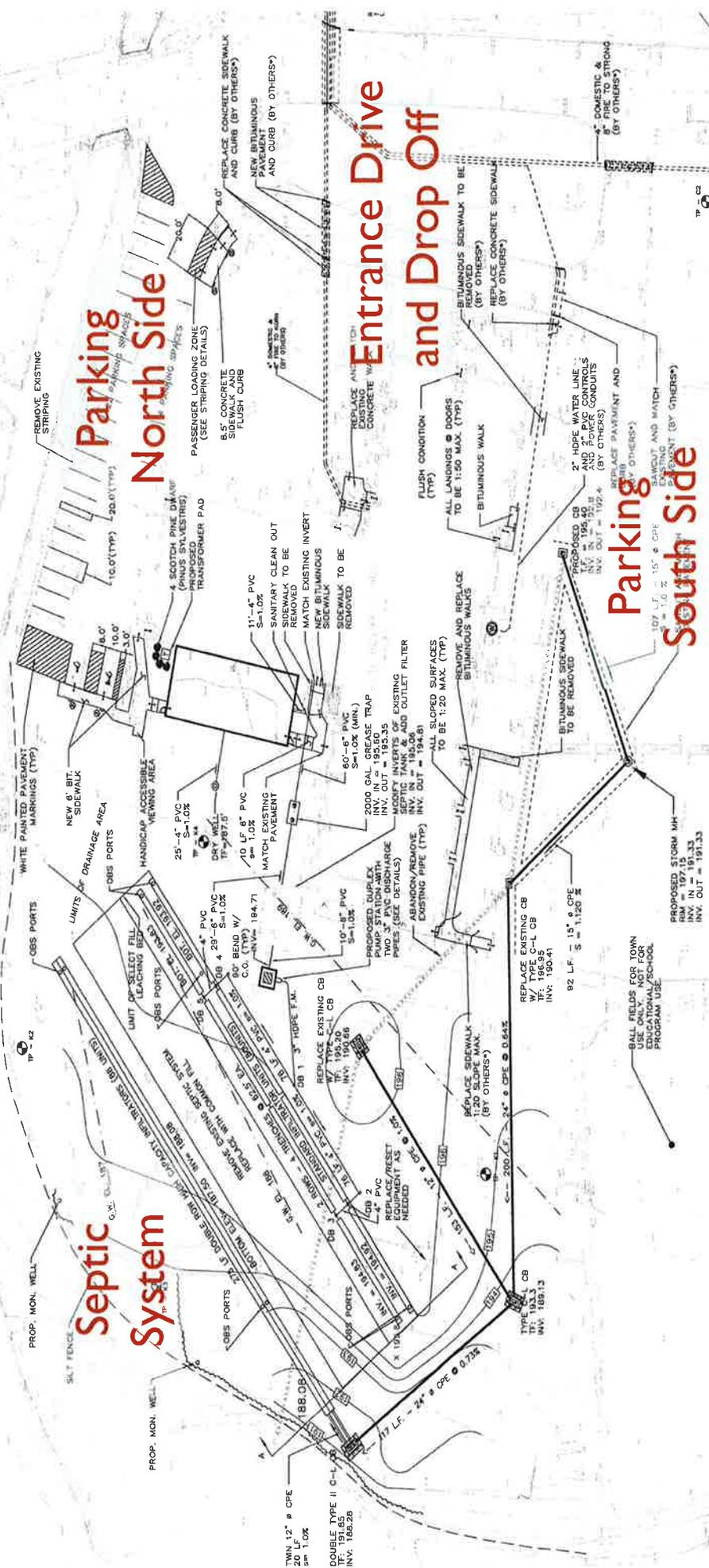
- Site accessibility
- Paving conditions
- Building entrances
- Removal of portable classrooms

Septic System

Parking North Side

Entrance Drive and Drop Off

Parking South Side

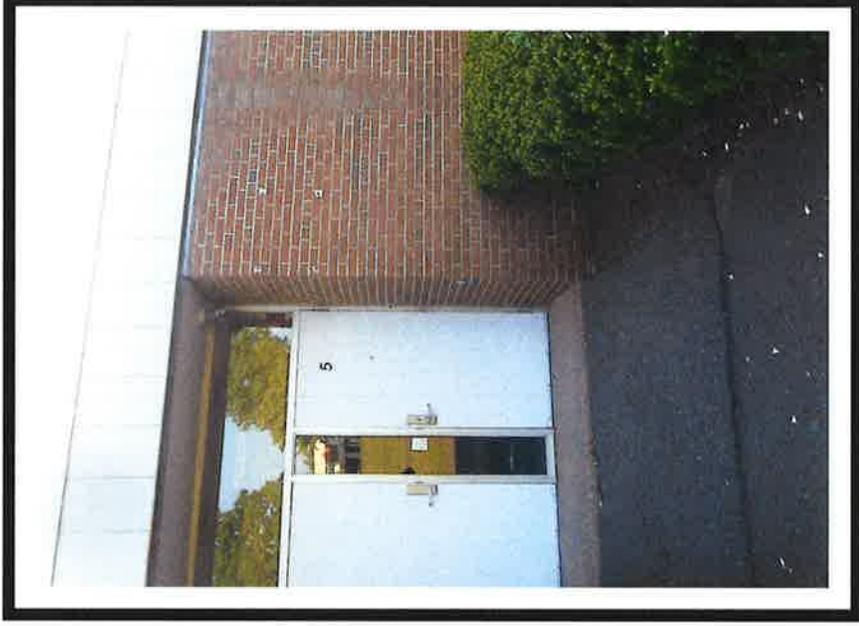


INCLUDED IN CONNCHUG HIGH SCHOOL PROJECT.
STATE OF CT PROJECT NO. 213-034EA.

SITE AND UTILITY PLAN
SCALE 1"=30'

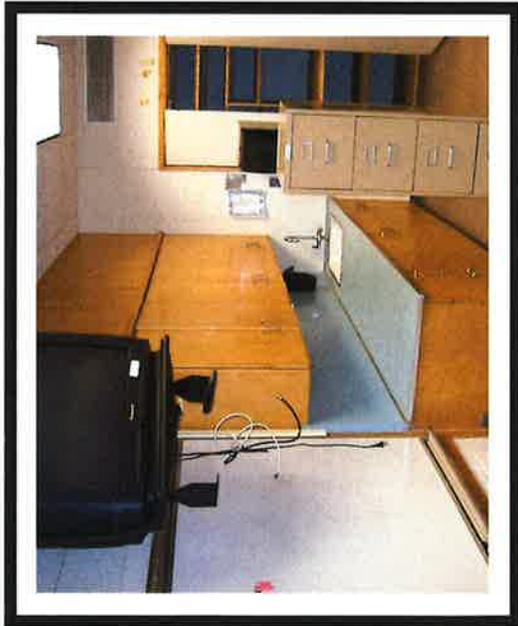
EXISTING EXTERIOR CONDITIONS

- Window & Door conditions
- Roof condition
- Masonry repairs



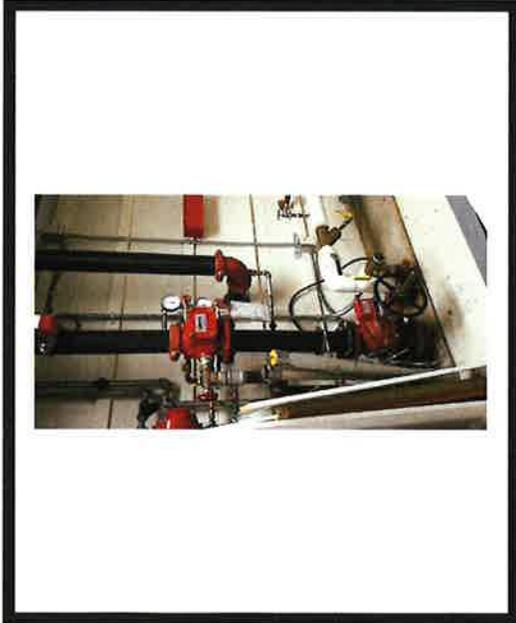
EXISTING INTERIOR CONDITIONS

- Kitchen upgrades
- Casework accessibility
- Door & Hardware upgrades
- Abatement



EXISTING PLUMBING/ FIRE PROTECTION CONDITIONS

- Modify sink for ADA compliance
- Add fire service backflow preventer
- Replace fuel-fired domestic water heater
- Provide grease interceptor on 3-Bay pot sink



EXISTING MECHANICAL CONDITIONS

- Wear and tear of rooftop equipment & chiller
- Deteriorated insulation of rooftop piping
- Incorrect kitchen fan



EXISTING ELECTRICAL CONDITIONS

- Emergency egress lighting
- Main service panel
- Emergency lights
- Emergency generator



EXISTING CONDITIONS - CONCLUSIONS

SITE

- Paving Work
- Accessibility
- Removal of portable classrooms

BUILDING EXTERIOR

- Roof Replacement
- Door & Window replacement

BUILDING INTERIOR

- Kitchen upgrades
- Casework accessibility
- Door & Hardware upgrades
- Abatement

PLUMBING/FP

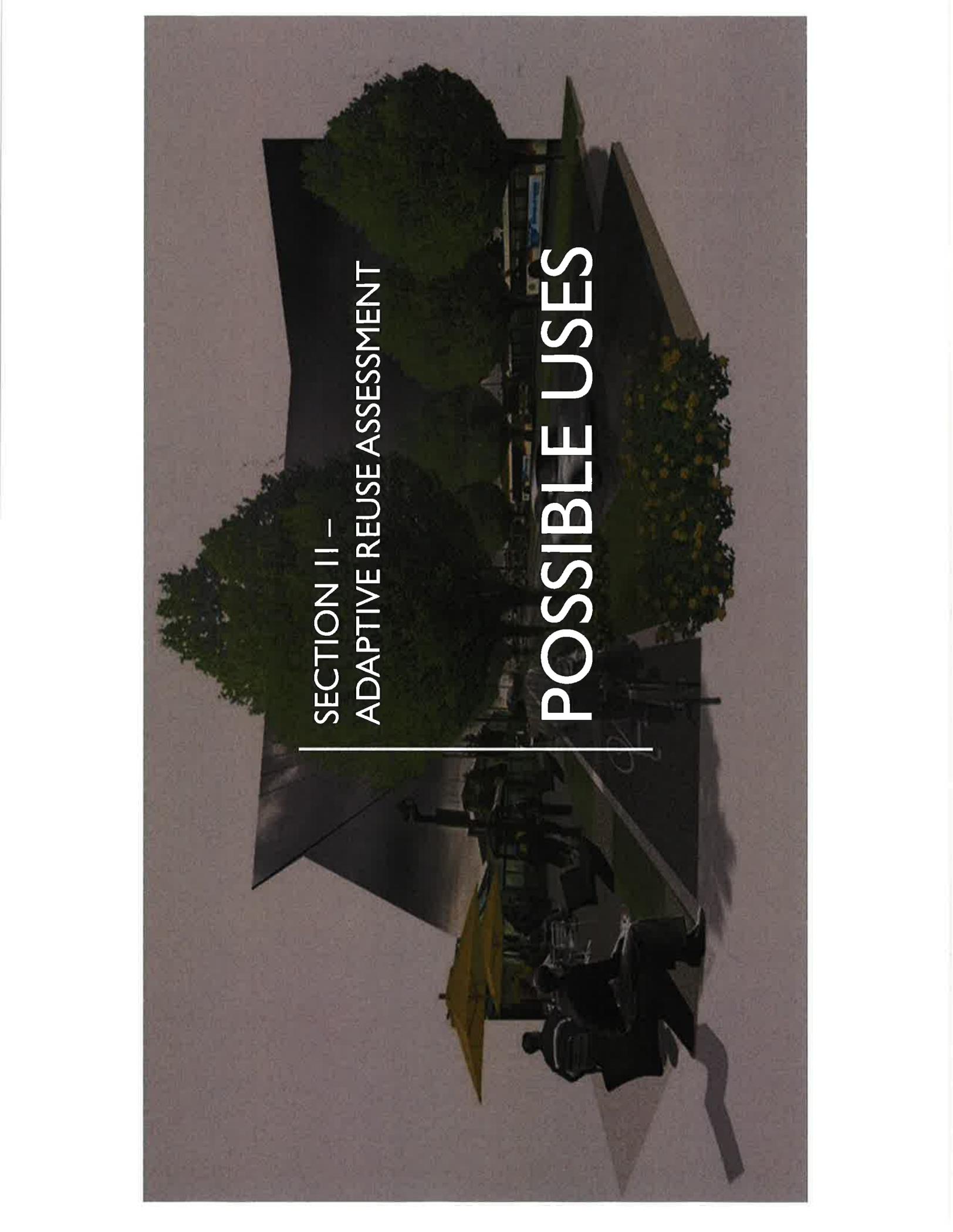
- Add fire service backflow preventer
- Replace water heater
- New sinks & kitchen grease interceptor

MECHANICAL

- Replace rooftop equipment & chiller
- Kitchen grease exhaust fan

ELECTRICAL

- Emergency lights & egress lighting
- Main service panel
- Emergency generator



SECTION II –
ADAPTIVE REUSE ASSESSMENT

POSSIBLE USES

POSSIBLE ADAPTIVE REUSE PROGRAMS

- Art Center
- Civic Groups (ZBA, P&Z, etc.)
- Community Recreation Facility
- Youth Services
- Teen Services & Center for after school
- Community Meeting Space
- Senior Citizen Center
- Fitness Spaces
- Visiting Nurse/Health Care
- Space for Town office use:
 - Administration Offices, Recreation Office
 - Expanded Parks and Recreation opportunities
- Maintaining existing Gymnasium for Public Use
- Meeting Rooms for local Groups & Organizations
- Utilization of Kitchen Facilities for Meals and Events or Programs
- Sheltering during emergencies
- Human Services and Food Pantry
- After School Programs
- Office space available for:
 - Local sporting groups
 - Clubs
 - Football, Basketball, Soccer Club, Cheerleading, Baseball, etc.
- Storage spaces for Yankee Swap Program
- Coffee Shop
- Termed leasing of Spaces



Korn School Re Use Programs

Please fill in the box with 1,2,3,0 based on the priority

	Community Meeting Space
	Community Recreation Facility
	Senior Citizen Center
	Maintaining the existing gym for public use
	Termed Leasing of Space
	Fitness Spaces
	Utilization of kitchen facilities for events and programs
	Meeting rooms for local groups and organizations
	Civic Groups (municipal committee etc.)
	Coffee Shop
	Art Center
	Human Services and Food Pantry
	Visiting Nurse/Health Care
	Office space for local sporting groups and clubs
	Visiting Nurse/Health Care
	Sheltering during emergencies
	Teen Services and Center for after school
	Town Office Use
	Youth Services
	After School Programs
	Storage for Yankee Swap
P1-	Program Use First Priority
P2-	Program Use Second Priority
P3-	Program Use Third Priority

Zero is to be used if the program should not be considered

PUBLIC QUESTIONNAIRE

Your feedback counts

KORN SCHOOL COMMUNITY USAGE OUTLOOK

PROGRAM	REVENUE	HOUSED
CHILDREN'S PLAYGROUND	YES	ALLYN BROOK
LITTLE PEOPLE PROGRAM	YES	ALLYN BROOK
JUNIOR COUNSELOR PROGRAM	NO	ALLYN BROOK
YOUTH NIGHT	YES	STRONG SCHOOL
YOUTH NIGHT	YES	CAMP FARNAM
YOUTH BASKETBALL PROGRAM	YES	DISTRICT 13
WOMEN'S SOFTBALL LEAGUE	YES	DISTRICT 13
MEN'S BASKETBALL LEAGUE	YES	DISTRICT 13/STRONG
OPEN WOMEN'S BASKETBALL	NO	DISTRICT 13
OPEN MEN'S BASKETBALL	NO	STRONG SCHOOL
ADULT YOGA	YES	DURHAM ACTIVITY CENTER
SENIOR YOGA	NO	DURHAM ACTIVITY CENTER
ADULT EXERCISE CLASSES	YES	DURHAM ACTIVITY CENTER
SENIOR EXERCISE CLASSES	NO	DURHAM ACTIVITY CENTER
YOUTH SELF-DEFENSE CLASS	YES	BREWSTER/DAC
ADULT SELF-DEFENSE CLASS	YES	BREWSTER/DAC
EVERYONE OUTSIDE PROGRAM	NO	CT TRAILS
SUMMER FUN RUNS	NO	CRHS TRACK
YOUTH TRACK CLINIC	YES	CRHS TRACK
YOUTH CHEERLEADING CLINIC	YES	STRONG SCHOOL
YOUTH VOLLEYBALL CLINIC	YES	COGINCHAUG HIGH
HOLIDAY TREE LIGHTING	NO	TOWN GREEN
EASTER EGG HUNT	NO	ALLYN BROOK
CONCERT SERIES ON DURHAM FAIR GROUNDS	NO	ALLYN BROOK
YOUTH HALLOWEEN PARTY	NO	DURHAM ACTIVITY CENTER
MUSIC PROGRAM	YES	DISTRICT 13
COOKING YOUTH PROGRAM	YES	STRONG SCHOOL
WARM UP AMERICA	NO	DURHAM ACTIVITY CENTER
SEWING YOUTH PROGRAM	NO	DURHAM ACTIVITY CENTER
FREE MUSIC PROGRAM/SUSAN PEAK CONCERTS	NO	DURHAM ACTIVITY CENTER
60 PLUS CLUB MEETS MONDAYS	NO	DURHAM ACTIVITY CENTER
SENIOR LUNCH	DONATION	DURHAM ACTIVITY CENTER



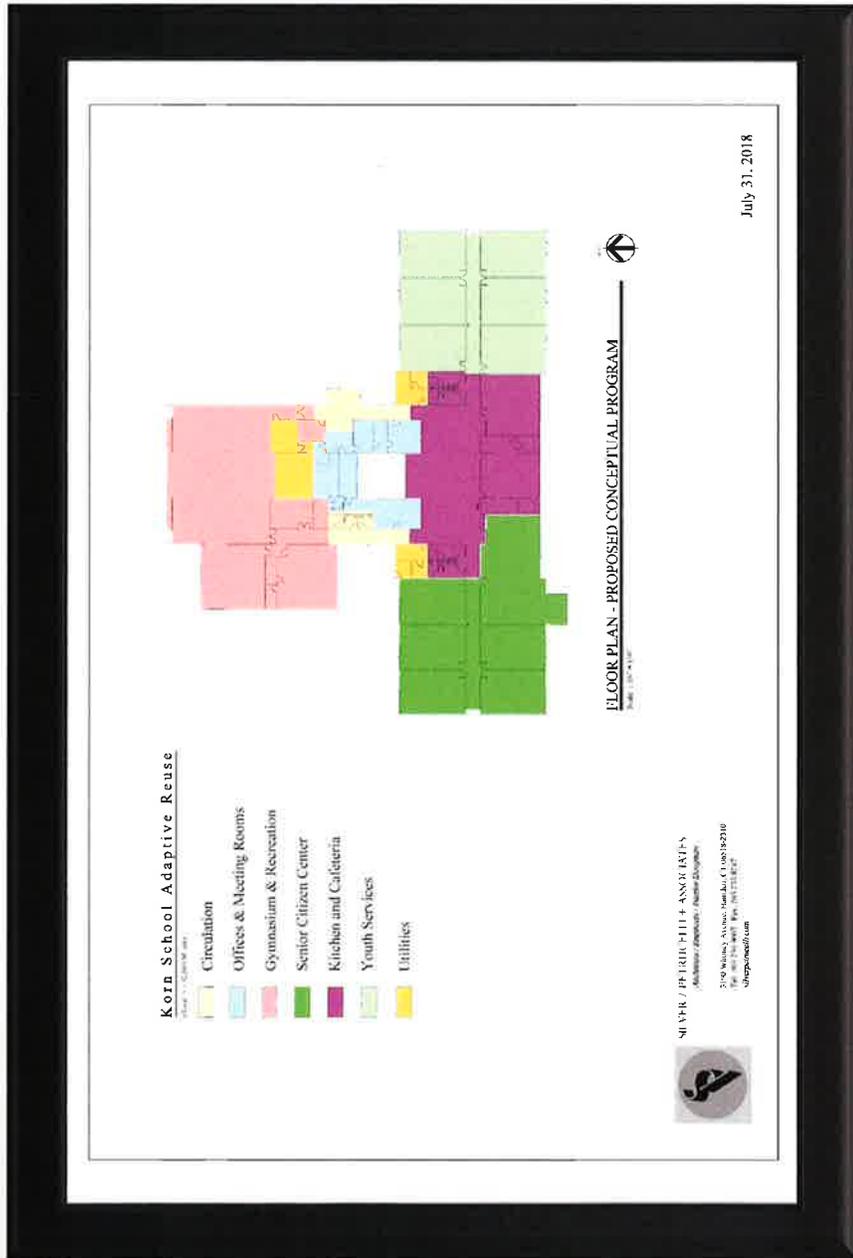
KORN SCHOOL COMMUNITY USAGE OUTLOOK

PROGRAM	REVENUE	HOUSED
BLOOD PRESSURE CHECKS	NO	DURHAM ACTIVITY CENTER
FLU CLINIC	NO	DURHAM ACTIVITY CENTER
HOLIDAY SENIOR LUNCH	NO	DURHAM ACTIVITY CENTER
FOOD BANK	NO	FAIR BUILDING
SENIOR SOUP AND SALAD	DONATION	LIBRARY/DAC
SENIOR ART CLASS	YES	DURHAM ACTIVITY CENTER
TOWN COMMISSION/BOARD MEETINGS	NO	DURHAM ACTIVITY CENTER
COACH MEETINGS	NO	DURHAM ACTIVITY CENTER
TAI CHI CLASS/ADULTS SENIORS	YES	DURHAM ACTIVITY CENTER
FRIDAY NIGHT BRIDGE WITH JIM	NO	DURHAM ACTIVITY CENTER
ADULT VOLLEYBALL	NO	STRONG SCHOOL
HOLIDAY GINGER BREAD CHILDRENS PROGRAM	YES	DURHAM ACTIVITY CENTER
HOLIDAY CUP CAKE CONTEST ADULT AND CHILDREN	NO	DURHAM ACTIVITY CENTER
VISIT SANTA	NO	DURHAM ACTIVITY CENTER
SENIOR BINGO	NO	DURHAM ACTIVITY CENTER
PICKEL BALL	YES	DURHAM TENNIS COURTS
MUSIC DANCE CHILDREN	YES	DURHAM ACTIVITY CENTER
CHILDRENS CHOURS	YES	DURHAM ACTIVITY CENTER
HOLIDAY GIFT GIVING TREE	NO	RECREATION OFFICE
HOLIDAY GIVING THANKSGIVING AND CHRISTMAS	NO	DURHAM ACTIVITY CENTER
SENIOR GUEST SPEAKER EVENT	NO	DURHAM ACTIVITY CENTER
CHILDREN'S HIP HOP CLASS	YES	DURHAM ACTIVITY CENTER

POSSIBLE FUTURE PROGRAM'S AT KORN

BEFORE AND AFTER SCHOOL CARE	YES	KORN
TOWN MEETINGS	NO	KORN
INDOOR CONCERTS	NO	KORN
ADULT DANCE	YES	KORN
CREATIVE WORK SHOPS	YES	KORN
BIRTHDAY PARTIES/BABY SHOWERS	YES	KORN
GAME ROOM	NO	KORN
RED SOCIETY CLUB	NO	KORN
MEN'S BREAKFAST	YES	KORN
COOKING DEMONSTRATIONS	Y/NO	KORN
STUDENT PLAYS/ADULT PLAYS	YES	KORN
CRAFTS LESSONS	YES	KORN
NUTRITION PROGRAM	NO	KORN
HEALTH/WEELLNESS SERVICES	NO	KORN
INFORMATION AND ASSISTANCE PROGRAMS	NO	KORN
EDUCATION CLASSES	Y/NO	KORN
MEDICAL EQUIPMENT CLOSET	YES	KORN
FOOD BANK	NO	KORN
VOLUNTEER OPPORTUNITIES/YOUNG AND OLD	NO	KORN
BREAKFAST ONCE OR TWICE A WEEK	YES	KORN
ADVENTURES IN CARDBOARD	DMYFS	KORN/POSSIBILITY
CANVAS AND CUPCAKES	DMYFS	KORN/POSSIBILITY
SITTER SAFETY	DMYFS	KORN/POSSIBILITY
FUN FRIDAY NIGHTS FOR 5-6 GRADE STUDENTS	DMYFS	KORN/POSSIBILITY
JUVENILE REVIEW BOARD	DMYFS	KORN/POSSIBILITY
EDGE	DMYFS	KORN/POSSIBILITY

CONCEPTUAL PROGRAM PLAN



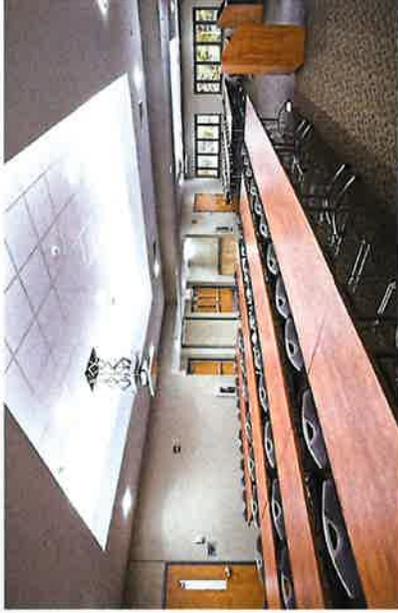
BUILDING ENTRANCES



BUILDING ENTRANCES



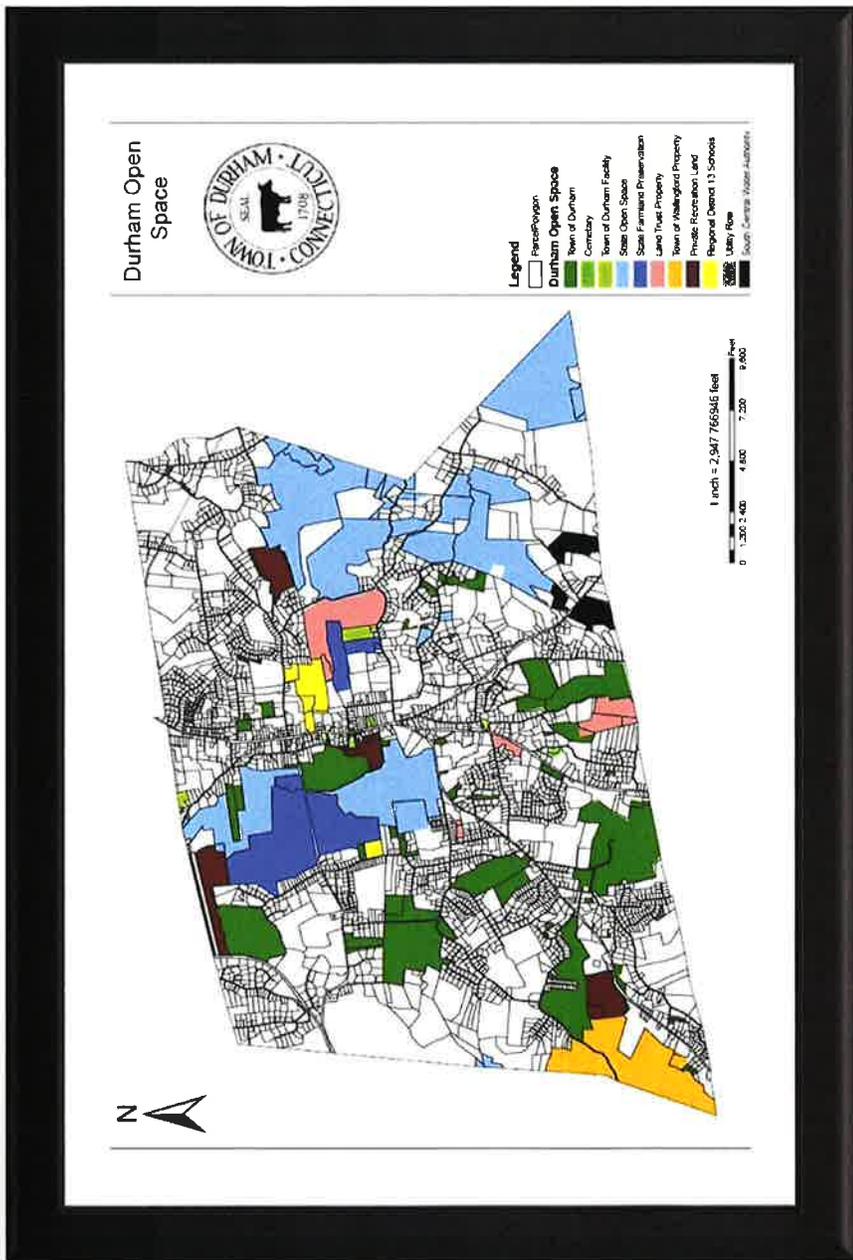
INTERIOR UPGRADES



INTERIOR UPGRADES



OPEN SPACE MAP



ESTIMATED CONSTRUCTION COSTS BY DISCIPLINE

• Site	\$350,000
• Architecture – Building Exterior	\$1,175,000
• Architecture - Building Interior	\$700,000
• Abatement	\$264,000
• Plumbing & Fire Protection	\$319,000
• Mechanical	\$1,706,500
• Electrical	\$497,000
TOTAL ESTIMATED COSTS	\$5,012,320
CONSTRUCTION CONTINGENCY (12%)	\$601,478
ESTIMATED SOFT COSTS	\$1,386,202
GRAND TOTAL	\$7,000,000

KORN SCHOOL ADAPTIVE REUSE FEASIBILITY STUDY

RENOVATION VS. NEW CONSTRUCTION

TOTAL ESTIMATED CONSTRUCTION COSTS - BUILDING RENOVATION	\$5,012,320
CONSTRUCTION CONTINGENCY	\$601,478
ESTIMATED SOFT COSTS	\$1,386,202
GRAND TOTAL	\$7,000,000
TOTAL ESTIMATED CONSTRUCTION COSTS - NEW BUILDING	\$12,800,000
DEMOLITION OF EXISTING BUILDING	\$750,000
CONSTRUCTION CONTINGENCY (10%)	\$1,355,000
ESTIMATED SOFT COSTS (25%)	\$3,387,500
GRAND TOTAL	\$18,292,500

PHOTO	PROJECT	SCOPE	INVOLVED AREA	BUDGET/BID SUMMARY		
				CLIENT'S BUDGET	A/E PREBID ESTIMATE	WINNING BID
	ECKERSLEY-HALL SENIOR CENTER Middletown, CT (2013)	Adaptive reuse of the former St. Sebastian School	13,000 s.f.	\$5,000,000	\$5,000,000	\$4,680,000
	EAST SIDE YOUTH & COMMUNITY CENTER Manchester, CT (2010)	Adaptive reuse of former firehouse	7,140 s.f.	\$900,000	828,398	\$859,450
	BOROUGH HALL COMMUNITY BUILDING Milford, CT (2014)	Adaptive reuse of a former firehouse	5,410 s.f.	\$600,000	\$536,294	\$512,000
	TOWN MUNICIPAL OFFICES East Haddam, CT (2018)	Adaptive reuse and conversion of the former Nathan Hale Ray Middle School	46,853 s.f.	\$10,500,000	\$10,500,000	\$13,082,494
	TOWN HALL OFFICES Watertown, CT (2019)	Conversion of the former Hentniway Park School	47,840 s.f.	\$11,900,000	\$10,487,422	\$9,399,044

WHAT ARE DURHAM'S COSTS FOR THE REFERENDUM? YES or NO

Costs affected by Referendum*	TOTAL	Durham's Share YES	Durham's Share NO
Existing RSD13 Loan on Korn School	\$379,899 ¹	\$251,721	\$251,721
Payment to Middlefield for RSD13 Korn School Loan	\$0	\$128,178 ³	\$0
Demolition of Korn School	\$941,000 ²	\$0	\$618,802
Construction & Soft Costs	\$7,000,000	\$7,000,000	\$0
Total Reuse Cost: YES vs. NO		\$7,379,899	\$870,523

1. Bond balance as of March 15, 2017. Interest not included.

2. RSD13 Estimate as of June 2017

3. To be paid over 5 years. Interest not included.

*The State has retired the Cost Sharing debt on Korn School - \$600k

DURHAM'S ANNUAL OPERATING COST: REFERENDUM: YES or NO

Annual Operating Cost Estimate	YES	NO
Debt Service for Construction – Average Annual*	\$551,201	\$0
Durham Activity Center – Annual	\$0	\$223,489
Korn/Durham Community Center – Annual	\$529,114 ¹	\$0
Total Annual Cost: YES vs. NO	\$1,080,315	\$223,489

1. Fully loaded. Personnel efficiency plan could reduce by 10%

* Example: 20 yr., \$7M bond



THE PROCESS

- **Feasibility Study**
 - ✓ Used to determine funding amount for the project
 - ✓ Method of researching the viability of project
 - ✓ Develop a programmatic study to determine a proposed use
 - ✓ Referendum requesting funding



THE PROCESS STEPS AFTER FUNDING

- RFP for selection of design and construction firms
- Design process to meet the budget
 - Schematic Design & Estimate
 - Design Development & Estimate
 - 50% Construction Documents
 - Bid Documents
- Construction / Renovation of facility
- Moving and Furniture, Fixtures & Equipment

KORN SCHOOL RENOVATIONS

Prepared by IBIC LLC



ASSUMPTIONS

BOND STRUCTURE - PUBLIC BOND SALE

- ❖ Amortization term for bonds (public sale) is 20 years.
- ❖ Principal repayment structure for bonds issues is low to high in accordance with CGS § 7-371
- ❖ First principal payment at 24 months; first interest payment at 6 months

INTEREST RATES

- ❖ Interest rates based an assumed public bond rating of AA- from S&P
- ❖ Interest rates are based on market as of 7/30/18 plus the following spreads:
 - Bonds 2021 = Current market (3.40%) + 188 basis points (bps)
 - Bonds 2022 = Current market (3.40%) + 238 bps

GRAND LIST

- ❖ Value of 1 mill based on October 1, 2017 Grand List for FY 2018-19 (1 mill = \$702,838)

Prepared by IBIC LLC



IBIC ASSUMPTIONS FOR PROJECT TIMELINE

Projects	Design	Bid	Construction
Korn School	12 months	3 months	18-24 months
Referendum Date - December 2018	December 2019	March 2020	March 2022

Prepared by IBIC LLC



MILL RATE IMPACT – KORN SCHOOL

Korn School	Fiscal Year
0.00	2019
0.00	2020
0.11	2021
0.45	2022
0.71	2023
0.99	2024
0.97	2025
0.94	2026
0.93	2027
0.93	2028
0.92	2029
0.90	2030
0.89	2031
0.87	2032
0.87	2033
0.84	2034
0.81	2035
0.81	2036
0.79	2037
0.76	2038
0.76	2039
0.74	2040
0.71	2041
0.45	2042



MILL RATE IMPACT – CULVERTS

Culverts	Fiscal Year
0.00	2019
0.00	2020
0.09	2021
0.15	2022
0.28	2023
0.27	2024
0.26	2025
0.27	2026
0.26	2027
0.25	2028
0.24	2029
0.24	2030
0.25	2031
0.26	2032
0.25	2033
0.24	2034
0.24	2035
0.23	2036
0.22	2037
0.21	2038
0.21	2039
0.20	2040
0.19	2041
0.00	2042



MILL RATE IMPACT – PUBLIC SAFETY FACILITY

Public Safety Facility	Fiscal Year
0.00	2019
0.00	2020
0.11	2021
0.45	2022
0.71	2023
0.99	2024
0.97	2025
0.94	2026
0.93	2027
0.93	2028
0.92	2029
0.90	2030
0.89	2031
0.87	2032
0.87	2033
0.84	2034
0.81	2035
0.81	2036
0.79	2037
0.76	2038
0.76	2039
0.74	2040
0.71	2041
0.45	2042

MILL RATE IMPACT – ALL PROJECTS

Culverts	Public Safety Facility	Kom School	Combined for all Proposed Debt	If Reserves used to keep mill rate change < 0.5 mills	Fiscal Year
0.00	0.00	0.00	0.00	0.00	2019
0.00	0.00	0.00	0.00	0.00	2020
0.09	0.11	0.11	0.31	0.31	2021
0.15	0.45	0.45	1.04	0.81	2022
0.28	0.71	0.71	1.70	1.31	2023
0.27	0.99	0.99	2.25	1.81	2024
0.26	0.97	0.97	2.20	2.20	2025
0.27	0.94	0.94	2.15	2.15	2026
0.26	0.93	0.93	2.13	2.13	2027
0.25	0.93	0.93	2.11	2.11	2028
0.24	0.92	0.92	2.09	2.09	2029
0.24	0.90	0.90	2.05	2.05	2030
0.25	0.89	0.89	2.03	2.03	2031
0.26	0.87	0.87	2.00	2.00	2032
0.25	0.87	0.87	1.99	1.99	2033
0.24	0.84	0.84	1.92	1.92	2034
0.24	0.81	0.81	1.86	1.86	2035
0.23	0.81	0.81	1.86	1.86	2036
0.22	0.79	0.79	1.81	1.81	2037
0.21	0.76	0.76	1.73	1.73	2038
0.21	0.76	0.76	1.74	1.74	2039
0.20	0.74	0.74	1.68	1.68	2040
0.19	0.71	0.71	1.60	1.60	2041
0.00	0.45	0.45	0.91	0.91	2042

-Requires use of reserves to keep year/year increase in mill rate below threshold stated



TAX IMPACT – ALL PROJECTS

Tax Impact if No Reserves Used to off-set Debt

Fiscal Year	Tax Impact per \$100,000 AV	
	Additional Taxes/Yr	Additional Taxes/mth
2019	\$0.00	\$0.00
2020	\$0.00	\$0.00
2021	\$30.87	\$2.57
2022	\$104.44	\$8.70
2023	\$170.19	\$14.18
2024	\$225.35	\$18.78
2025	\$220.00	\$18.33
2026	\$215.22	\$17.93
2027	\$212.53	\$17.71
2028	\$211.10	\$17.59
2029	\$209.44	\$17.45
2030	\$204.69	\$17.06
2031	\$202.72	\$16.89
2032	\$199.79	\$16.65
2033	\$198.80	\$16.57
2034	\$191.81	\$15.98
2035	\$185.53	\$15.46
2036	\$185.61	\$15.47
2037	\$181.01	\$15.08
2038	\$173.42	\$14.45
2039	\$173.66	\$14.47
2040	\$168.46	\$14.04
2041	\$160.27	\$13.36
2042	\$90.90	\$7.58
Average	\$177.99	\$14.83

Tax if Reserves Used to Limit YOY increase to < 0.5 mils

Tax Impact per \$100,000 AV	
Additional Taxes/Yr	Additional Taxes/mth
\$0.00	\$0.00
\$0.00	\$0.00
\$30.87	\$2.57
\$81.44	\$6.79
\$131.19	\$10.93
\$181.35	\$15.11
\$220.00	\$18.33
\$215.22	\$17.93
\$212.53	\$17.71
\$211.10	\$17.59
\$209.44	\$17.45
\$204.69	\$17.06
\$202.72	\$16.89
\$199.79	\$16.65
\$198.80	\$16.57
\$191.81	\$15.98
\$185.53	\$15.46
\$185.61	\$15.47
\$181.01	\$15.08
\$173.42	\$14.45
\$173.66	\$14.47
\$168.46	\$14.04
\$160.27	\$13.36
\$90.90	\$7.58
\$173.17	\$14.43

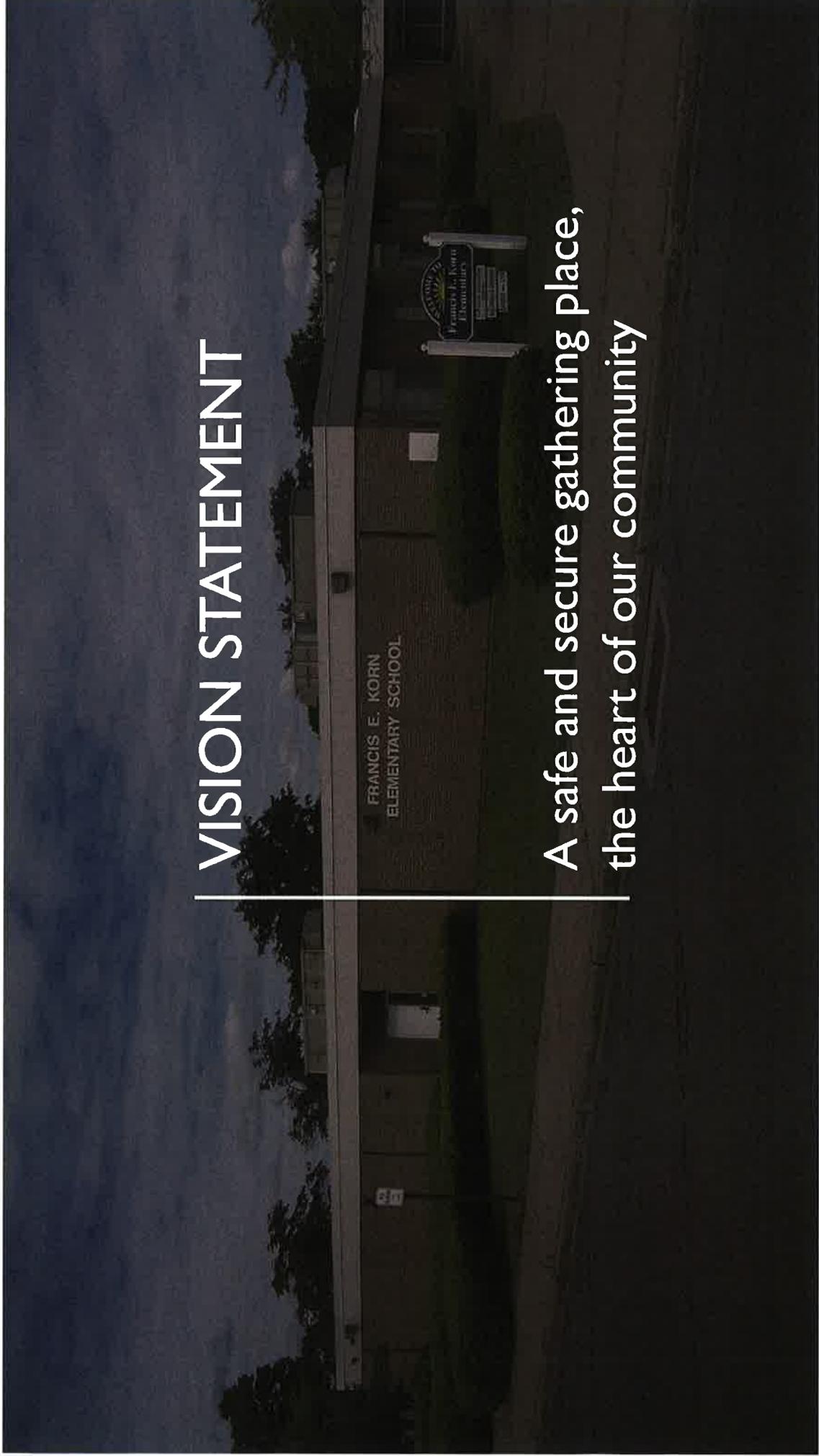
AV=Assessed Value

Go to www.townofdurhamct.org Assessment Data to find your assessed value.



VISION STATEMENT

A safe and secure gathering place,
the heart of our community





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