

# 3.3.4 Preferred Solution

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**A. PREFERRED SOLUTION SUMMARY - OPTION 4B**

The Stoneham High School Building Committee decided that Option 4B, a newly constructed High School with associated programs, was the best and most inclusive solution to achieve their educational vision, solve the traffic challenges in and around the site, reduce disturbance of educational activities during construction, and meet their sustainable goals through Zero Net Energy performance.

**SITE STRATEGY**

The preferred solution transforms the site into a park-like campus in a simple but thoughtful way. The re-configured Franklin Place entryway connects pedestrians and cyclists from Franklin Street to a dynamic landscape loop, a buffer that separates most vehicular activities in the north of the site from the main campus. The meandering landscape loop acts as the organizing element that connects various informal paths coming into the site, while threads outdoor programs, such as outdoor classrooms, amphitheater, play space, community garden, etc., together for both community and academic use. Inside the loop, the site is divided into three natural tiers: baseball and soccer/lax fields on the western and lowest tier with ideal orientation; the Spartan Stadium on the middle tier, away from abutting neighbors to minimize light and noise, with home team bleachers and concession to the west and away team seating embedded along the slope of the site to the east; and the civic green, Spartan Plaza, embraced by the new High School building at the eastern and highest tier. Along the entry axis, the new High School building's civic presence is highly visible from Franklin Street - it situates as the gateway to the Spartan Plaza, which is enriched by the three A's: Athletics (fields) to the west, Arts (auditorium and music programs) to the north, and Academics (academic neighborhoods) to the east.

The preferred solution locates the New Stoneham High School to the northeast in front of the existing High School footprint. This location allows the existing High School to be in full operation with minimum site utility rerouting, while the new building is being constructed. It reduces the construction time and eliminates the need of temporary modular classrooms during construction. The compactness of the building footprint makes it energy-efficient and

allows the field organization to be more flexible and parking spaces to be more efficient.

The western parking lot is for students, and the eastern parking lot is designated for staff and Pre-K parking and drop-off. A gated service drive circles along the southeast corner of the site connecting the south side of the building where building service is located, creating a safe and welcoming environment on the front side of the building.

**BUILDING STRATEGY**

The heart of the building, the Spartan Place, is a bridge-like double-height open public space that houses the entry lobby, dining, media, and shared pre-function spaces. The Spartan Place opens out to the south facing Spartan Plaza and the civic green, creating an indoor-outdoor space where various activities can take place. The Spartan Place is flanked by the arts wing with auditorium and music programs on display to the east, and the academic wing with the gymnasium in the center to the east.

To support Stoneham High School's educational mission, the program that serves the entire school community and the more public building functions are co-located on the ground level. The auditorium and gymnasium that share the pre-function space are highly visible from the building entry and can both be easily accessed by the community. The gymnasium and associated wellness center with PE spaces and locker rooms have a dedicated access to the fields. The entire ground floor can be securely separated from the upper academic spaces when public events are taking place during or beyond school hours.

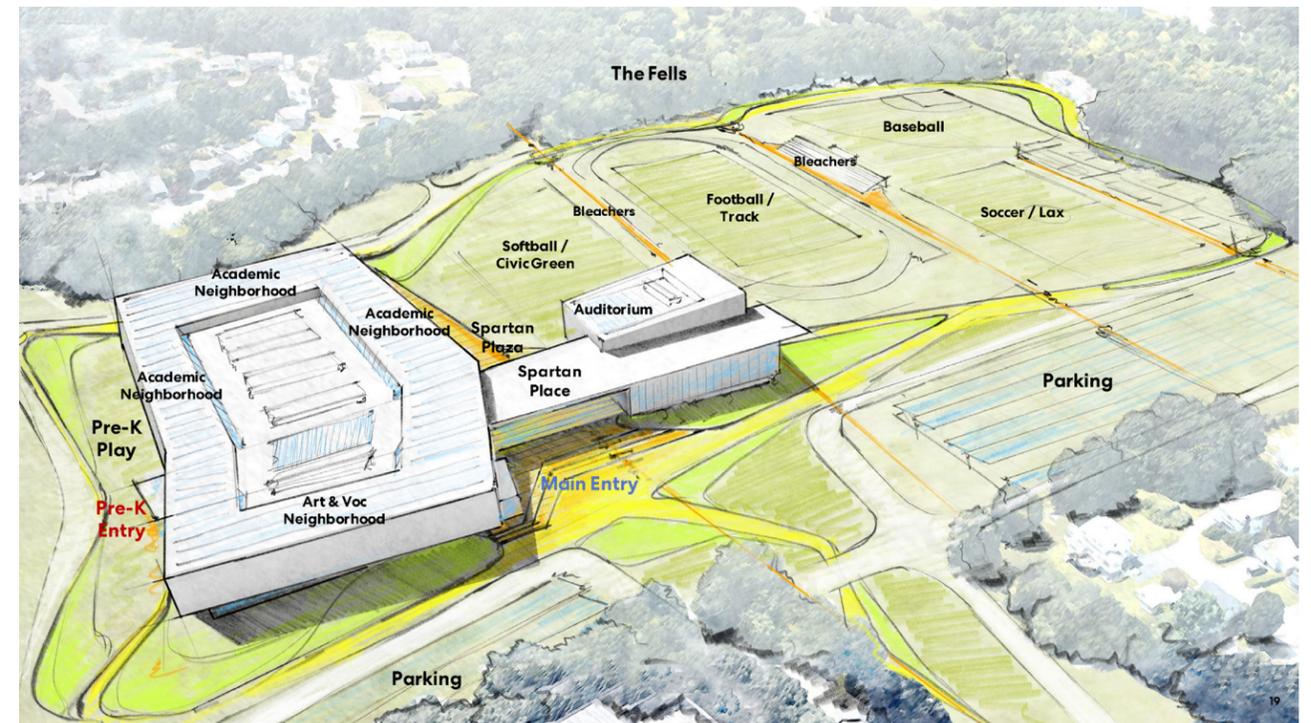
Smaller program spaces such as band, practice and drama are located on the north side of the auditorium to shield the larger scale of the auditorium and allow the building façade facing Franklin Street to be more transparent and welcoming. Administration, guidance and counselling offices and medical suite are located on the north side of the gymnasium in the academic wing, immediately next to the building entry. The district office and pre-kindergarten share an entry vestibule away from the main building entry and are located on the east side

**A. PREFERRED SOLUTION SUMMARY - OPTION 4B**

of the gymnasium. Pre-kindergarten play area is safely located on the southwest side of the building, away from High School activities.

The upper levels of the academic wing house the learning neighborhoods surrounding all four sides of the gymnasium. The art classrooms, performance room and vocational labs form the multi-story art neighborhood in the north of the gymnasium. The media hub is in the center of the art neighborhood, across from the gymnasium. There are three academic neighborhoods on the sides and the south of the gymnasium on each level. The classrooms, SPED classrooms and science labs are evenly distributed in each neighborhood to promote equity and diversity. Each neighborhood also has an interdisciplinary breakout space for flexible use outside of classrooms. The maker hub with double height makerspace is located between the southern academic neighborhood and the gymnasium.

A looped corridor wraps around the outer boundary of the gymnasium and connects the neighborhoods, media hub, maker hub and breakout spaces within each neighborhood, forming an analog to the landscape loop on the site. The proximity between the academic spaces and the gymnasium creates a visually intimate yet dynamic connection between academics and athletics, without actual disturbance of either.



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**Site/Landscape Scope Narrative**

This narrative provides an analysis of the options including natural site limitations, building footprint(s), athletic fields, parking areas and drives, bus and parent drop-off areas, site access and surrounding site features. This narrative excludes temporary site facilities, phasing implications, site drainage, utilities and permitting requirements addressed separately.

**Paving and Curbing**

All building/site options include new asphalt pavement and granite curbing for driveways and parking areas (350 spaces). Fire lanes shall be asphalt paving without curbing. Walkways around the building and site will be accessible.

**Athletic Facilities**

Since the existing fields are undersized, fields will be reconstructed to meet regulation size in all options. Scope includes replacing the two natural grass soccer/lacrosse fields and the natural grass field inside the track with synthetic turf including a concrete curb edger, shock pad and polyethylene fiber with sand and plant-based infill. The track will have new paving and ½” urethane resilient surface for track and field events (high jump, long and triple jump lanes & pits with covers, pole vault, discus and shot put). The stadium will also include new home and visitor bleachers. All options will include an athletic building for concessions and restrooms. Locker rooms and team rooms are planned in a building below the home bleachers.

Baseball/field hockey and softball fields will be natural grass with seeded, irrigated lawn. Softball and baseball will include classic skinned infield, plates, and bases, aluminum team benches on concrete pads, dugout shelters, backstops and fences with safety caps. Tennis courts will include new paving, color surfacing, nets, fences and gates.

**Site Lighting**

All options will meet LEED requirements and IESNA standards with site lighting provided at parking, driveways and walkways. LED sports lighting will be provided at the stadium and one of the synthetic turf soccer/lacrosse fields.

**Site Amenities**

All options will include site furnishings, signage, electrical charging stations and the potential for photovoltaics over parking. Site furnishings will include benches, bicycle racks, vehicular bollards, tables, trash receptacles. Site signage will include traffic/regulatory, wayfinding and monumental school identity signage. Existing memorials will be salvaged and reset. The main entrance will include planter curbs, bollards and seat walls for pedestrian safety. Outdoor classrooms will include supporting amenities such as raised garden beds, storage/tool sheds, water source, fencing, tables and benches. There will be a separate play area for Pre-K with play equipment and poured in place rubber surfacing with a perimeter fence.

**Fences and Gates**

All options will include black vinyl coated chain link fencing and gates at the reconstructed softball and baseball/field hockey fields (6-foot high and 24-foot backstop), 6-foot high at reconstructed track, 10’ high at tennis courts. Sports netting will be included as needed. The service drive will include a vehicular barrier gate. There will be an 8’ high perforated or louvered powder coated metal screen fence and gates at service area.

**Planting**

Planting shall include 3.5-4” caliper trees for shade and ornamental character at parking, driveways, walks plazas and courtyards, approximate spacing 40’ O.C. Limited ornamental landscaping at plazas and outdoor learning, and seeded lawn and landscape restoration areas. Green infrastructure for stormwater management will include vegetated swales, rain gardens and bioretention areas.

**A. PREFERRED SOLUTION SUMMARY / SITE & LANDSCAPE**

**Option 4B – New Construction**

The new construction is located north and east of the existing school, over the existing parking and practice field locations. There will be less impacts to the existing school and field usage during construction and there will be an associated reduction in construction logistics cost. The site circulation will include upgrades to the main entry on Franklin Place, which will become a two-way drive and a separate dedicated multi-modal path for emergency & maintenance vehicles, bicycles and pedestrians. At the main entrance, there will be more green space with parking out of the view of the entry experience. Parking will be located over the existing softball and tennis locations, allowing for a greater quantity of parking spaces in close proximity to the stadium. Service will be located at the rear of the school and does not require a retaining wall. The service drive length is reduced compared to the other design options and less complex without a retaining wall.

Pre-K drop-off and play will be located along the eastern side of the building. This area is adjacent to the Pre-K classrooms inside the building and is also located away from the parking area. The service drive will be separated from the fenced-in Pre-K play with an elevational change and guardrail and will be limited to service vehicles, emergency and maintenance access; all of which will be infrequent and can be scheduled around the school hours. The Pre-K space will be determined based on the number of Pre-K students attending the program and will include age-appropriate play structures and unstructured free-play, all of which will include accessibility options and will be fenced-in for safety.

Outdoor classrooms will be located on the south and southeastern corner of the building. The outdoor classrooms will include a variety of structured areas for different types of learning and will include learning tools, such as a whiteboard or chalkboard and seating. The outdoor classrooms are separated from the active playing field areas to allow for a quieter learning atmosphere and provide access to the surrounding natural areas in the southeastern corner of the property.

Spartan Plaza will be located outside the building bridge connecting the two building wings, which houses the cafeteria inside the building. This allows for an outdoor cafeteria and study space closer to the building with views to the surrounding campus. This area directly connects to the generous open lawn of the civic green. Further connections include the stadium, softball field, and outdoor classrooms and a larger landscape loop. The accessible landscape loop will provide a walking and exercise trail, which rings the campus and connects the site improvements and athletic fields, creating a balance of Stoneham’s values of arts, academics and athletics. The campus feel also provides visual openness for safety and wayfinding. An amphitheater will be located north of the stadium to provide a flexible space for outdoor drama and theater productions and civic programming, such as outdoor concerts and events.

The baseball/field hockey will be relocated over the existing track, adjacent to the exposed ledge and wetlands, allowing for a full-sized outfield and will have optimal solar orientation. The track/stadium complex will be reoriented N/S for optimal solar orientation and will be located in the center of the site. The interior field will be synthetic turf, allowing for three times more athletic programming usage and extended seasonal usage. The softball field will be located between the stadium and the new construction. The soccer/lacrosse fields will be located north of the baseball/field hockey and the other will be reconstructed in place with an adjacent practice field approximately 140’x80’. Both fields will be synthetic turf. The tennis courts will be located on the western edge of the property adjacent to the soccer field and above the baseball field.

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## B. EDUCATIONAL PROGRAM

### INTRODUCTION AND GRADE AND SCHOOL CONFIGURATION POLICIES

Stoneham High School is located in the Town of Stoneham, Massachusetts, with a total area of 6.7 square miles. The Town of Stoneham is an inner-core suburb, located 10 miles north of Boston at the junction of Interstates 95 and 93. The community is home to many small businesses and is a short distance from many colleges and universities in the Boston area. Stoneham commercial property consists primarily of businesses, professional and semi-professional, and according to 2010 U.S Census, the Town's population was 21,437. According to the 2014 Stoneham Town Center Strategic Action Plan, the median household income of \$72, 938 and 5.5% of families have earned income below poverty line. The ethnic demographics of the school mirror those of the community where 92% of the students identify as predominantly white; the remaining 8% of the student body identifies as 3% Hispanic, 2% African American, and 3% Asian. 14.6% of the school's population is low income. For most of the students at Stoneham High School, English is their first language with 1.2% of students enrolled in the ELL program.

The Stoneham Public School district comprises three elementary schools, one middle school, and one high school educating a total of 2,204 students. Two of the elementary schools, Robin Hood and Colonial Park, educate students from pre-K to fourth grade. South Elementary School holds grades kindergarten to four, the Central Middle School grades five through eight, and the High School grades nine through twelve. Stoneham High School serves a student body of 640 students in grades 9 through 12.

#### Core Values

All members of the school community:

- Support a safe, inclusive educational environment
- Foster and hold high expectations for student learning
- Share responsibility for the success of our students

#### Mission Statement

Anticipating the challenges and opportunities of a 21st century world, the Stoneham Public Schools develop

students who:

- Are creative, critical, and independent thinkers
- Demonstrate respect for and acceptance of self and others
- Know and apply communication and information literacy skills
- Are responsible contributors to the local society

Stoneham High School offers all core subject areas (English, math, science, and social studies) at 5 different instructional levels: Advanced Placement (AP), Honors, Intensive, Comprehensive, and Transitional. 45.3% of 12th grade students take at least 1 of the 10 AP courses offered. Stoneham High School follows an inclusion model for students with IEPs. In order to graduate from Stoneham High School, there are several requirements that must be met. Students must pass four sequential English courses. In social studies, students must pass a minimum of fifteen credits including one year-long class in World History and two sequential year-long courses in U.S. History. In mathematics, students must pass four courses that involve four full years or eight semesters of study, including Algebra I and Geometry. In the science department, students need a minimum of 15 credits, including biology. Students are required to take health education class in tenth grade and one physical education class each year; these classes are heterogeneously grouped. Students must also earn 5 credits in art and/or music and 2.5 credits in an approved technology course.

Stoneham High School also offers three foreign languages: Spanish, Italian, and French. A variety of electives in Fine and Performing Arts, Business & Technology, and Family & Consumer Science disciplines are also available to students in all grade levels. Students are also able to take additional elective courses in the core subject areas. Stoneham High School also offers a Peer Leadership Class for juniors and seniors. There are several local educational opportunities available to students and the community which include online learning for credit recovery and supplementation of course offerings, dual enrollment with community colleges, and a special grant given to the AP Spanish class that encourages service

## B. EDUCATIONAL PROGRAM

learning outside of the school.

Stoneham High School has a wide variety of programs and initiatives in place to support student success and engage students. The high school has two programs, Reaching Independence through Structured Environments (RISE) and Students Taking Responsibility in Developing Excellence (STRIDE) to address students with differing educational needs. The Stoneham High School Special Education Department provides the STRIDE program for students who require a structured, self-contained classroom with therapeutic support. The program supports students with emotional disabilities while providing curricula taught by teachers in a small-group setting. The RISE program is for students who require a highly modified academic curriculum with a focus on daily living skills, vocational skills and job skills. Services are provided as indicated on each student's Individualized Educational Plan (IEP). Additional resource courses are available to students with disabilities and an academic support course is available to first- and second-year ELL students.

Stoneham High School also offers both in-school and out-of-school internships and encourages students to become immersed in an occupation or career pathway of their interest. Students explore career interests and find a suitable internship with a local community employer. In addition, there is a work-study program offered to students who are seeking a credit to help in balancing school course loads and part-time work positions outside of school. This program supports students in successfully navigating the working world, managing the responsibilities of holding a job and improving upon transferable skills while strengthening their work-readiness.

Stoneham has a variety of co-curricular clubs including: Math Team, Science Club, Gay Straight Alliance, Substance Abuse Coalition, Foreign Language Club, Model United Nations, Drama Club, school newspaper, and Stoneham Peers Achieving Real Connections (SPARC). The athletic department at the high school has 26 sports including soccer, field hockey, track, cheerleading, swimming, volleyball, golf, lacrosse, ice hockey, tennis, and gymnastics.

There are a number of student recognition programs at Stoneham High School. Academically, students can be selected for the National Honor Society, Student of the Month, High and Regular Honor roll. As seniors, students are awarded academic medals for high achievement in respective departments. Seniors who have been recognized as varsity scholars all four years are awarded a Lamp of Knowledge. At graduation, a male and female receive the Horton and Nadeau Awards for service to the school community. Stoneham High School also offers the Seal of Biliteracy, an award recognition of students who have studied and obtained proficiency in two or more languages by high school graduation. In its first year of implementation, 23 students were awarded the Seal of Biliteracy.

Annually, two juniors are awarded the Scholarship, Integrity, Leadership, Spirit (SILS) Award, as well as junior book awards for outstanding success in the subject areas. The English Department awards prizes for the Shakespeare Festival and for the Phil Riley Poetry Contest, while the Social Studies Department acknowledges students for National History Day Achievements. The school also recognizes its athletes by giving Varsity Scholar Awards, Freshman Athletic Awards, and Senior Athletic Awards. The school recognizes its musicians and actors with the Tri-M National Music Honor Society and Drama Awards.

Here is a summary of the makeup of the staff at Stoneham High School. The administration includes one principal, one assistant principal, one athletic director, and program supervisors of mathematics, science/health, social studies, and English. The number of full-time teachers in each department is as follows:

- English 7.8 (.2 is the supervisor)
- Mathematics 8.0 (.2 is the supervisor)
- Science/Health 10.6 (.2 is the supervisor)
- Social Studies 7.2 (.2 is the supervisor)
- Foreign Language 6.8
- Physical Education 3.0
- Business Education 1.0

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- Art 3.0
- Music/Theater Arts 1.0
- Instructional Technology 1.0
- Instructional Technology Coach 1.0
- Guidance 4.0
- Adjustment Counselor 1.0
- Library Media Specialist 1.0
- Psychologist 1.0
- Special Education 12.0
- ELL 1.0
- Nurse 1.0
- Education Support Professionals (ESP's) 7.6

**CLASS SIZE POLICIES**

There are currently no policies pertaining to class size at the high school. For most classes at Stoneham High School, class size ranges from 15-32 students, depending upon factors related to homogeneous grouping and content specialization. Some classes exceed this range such as physical education if it is co-taught that may have up to 40 students each. Other classes that service substantially separate special education programs are below this range, such as the RISE and STRIDE programs, which also house therapeutic spaces. Average class size in the core academic areas is approximately 22- 26 students. Classes that require the student to have their own station, such as the applied arts, are limited to the number of stations in their room/lab, which average 18 spaces.

**SCHOOL SCHEDULING**

The school day begins at 8:15 am and ends at 2:50 pm, with the exception of Day 2 when students are released 35 minutes early at 2:16 pm to allow for common planning time among faculty. The schedule consists of 7 periods plus a FLEX that rotate on an 8-day schedule with each period

meeting 5 days per cycle. Within the school day, 5 periods meet. Since we moved from a 6-period day to a 5-period day, students have expressed that the new schedule feels less hectic and allows them more time to focus on the classes that meet within the school day.

Each period is 69-minutes long, allowing more time for students to apply practice of new skills, explore topics and discussions more in-depth, and increase time with peers and teachers to work on project-based activities which in turn build stronger student-teacher connections. There is one exception on Day 2, where the FLEX block meets for 35 minutes before students are released from school at 2:16 pm. This shortened FLEX on Day 2 acts as an advisory where students can check in with their advisors about their progress throughout the school year. The goal of this 35-minute advisory is to foster relationships between students and faculty and to enhance connections to the school community.

In addition to this advisory, 4 69-minute FLEX blocks are scheduled throughout the 8-day rotation to address the needs of our students and faculty. Prior to the implementation of FLEX, we were faced with conflicts regarding science labs, enrichment opportunities, work-study and internship programs, counseling services, academic interventions and support, as well as overall stress and fatigue. The FLEX block provides opportunities for students to learn to be independent and interdependent, self-initiating learners who strive for excellence and who continue to pursue learning as a lifelong endeavor. This can be achieved when students are given the responsibility and freedom to choose what, how, and why they will learn and the time to practice these skills with the guidance of an advisor. When sufficient time is given, students go beyond initial relationships to create novel relationships, find patterns, and generate ideas for themselves. From the student perspective, "curriculum is almost more 'student-centered' - students are put at the center of their own learning and learn how to better prioritize their time. They may even pursue something new, allowing students to step outside of their comfort zone." A variety of educational enrichments offered during FLEX include extra help with a teacher or study group, explorations of different hobbies and interests, invitations

**B. EDUCATIONAL PROGRAM**

DAY			1	2	3	4	5	6	7	8
PERIOD 1	START	8:15	A	C	B	A	B	A	B	A
	END	9:24								
PERIOD 2	START	9:28	B	A	C	B	C	C	G	C
	END	10:37								
FIRST LUNCH	START	10:41								
	END	11:11								
PERIOD 3	START	10:41	D	G	D	D	G	D	D	G
	END	12:24								
SECOND LUNCH	START	11:54								
	END	12:24								
PERIOD 4	START	12:28	FLEX	E	E	FLEX	E	FLEX	FLEX	E
	END	1:37								
PERIOD 5	START	1:41	F	FLEX	F	G	F	E	F	F
	END	2:50								

for guest speakers, enhanced opportunities for clubs to meet and plan events, and physical activities such as yoga, table tennis, and walking clubs.

The lunch period is 103 minutes long, during which students attend class for 69 minutes and lunch for 30 minutes. Lunches have historically been organized by room location (first floor, second floor, gym, etc.).

Common planning is built into the schedule on Day 2 when students are dismissed at 2:16, allowing faculty 45 minutes of common planning time. This time is mostly teacher-directed to work with grade-alike colleagues, departmental planning, and cross-curricular collaboration.

The master schedule is developed mainly by administration with collaboration from school counseling. Counselors organize the course selection process, advise students about their choices, then "clean up" any holes created in the master schedule when classes run concurrently, do not have enough seats to meet demand, or do not run at all. Course offerings include full-year and semester classes. Students request courses for September

beginning the preceding March. Course sections are based on the number of student requests in the course request phase.

The advantage of our current scheduling methodology is the involvement and leadership of the process by the guidance counselors. Our counselors have a very good understanding of the individual students and their unique needs, goals and aspirations. A disadvantage to the current scheduling methodology is the way in which classes are determined by the number of students who select a class or have interest in the specific class selection. Students have been faced with not being able to take their top selected course because there may not be enough students who select the class in order for the class to run. Other conflicts arise when classes run concurrently, do not run at all, or there are not enough seats to accommodate all student requests. In addition, the scheduling is managed solely by administration and the counseling department with limited opportunities for teacher input. In the future, it would be advantageous for us to develop class scheduling teams that are integrated and inclusive of a cross section of departments who share students.

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## B. EDUCATIONAL PROGRAM

The vision for future collaboration includes opportunities for teachers in all disciplines (including unified arts, PE/ wellness) to continue common planning time and increased time and space for cross-disciplinary engagement and interaction.

### TEACHING METHODOLOGY AND STRUCTURE

#### Administrative and Academic Organization/Structure

Stoneham High School is a traditional college-preparatory school that is organized by department. Building layout, available classrooms and classroom assignments allow for all teachers to have their own classroom within proximity to their identified department.

As a result of a two year, grades 5 - 12, 1:1 ChromeBook Initiative Plan all students entering for the 2019-2020 school year were provided an individual device. The 1:1 program assigns a Chromebook to each student allowing them to take home to support the learning process. Hotspots are provided for students with internet access difficulties and loaner Chromebooks are available if a student needs a short term replacement for repair or if left home for the day. While the first year of all students having a chromebook resulted in a wide and inconsistent range of use within classrooms the ongoing pandemic has thrust teachers forward. Technology integration with instruction, student work production and assessment as well as classroom management and communication has vastly improved amongst teachers and faculty with raised levels of consistent practices and increasing use of advanced technological applications. We value responsible technology use and integration and view technology as an essential tool in meeting 21st Century College and Career Readiness Goals.

As we continue to provide students and teachers with innovative learning technologies and opportunities to best prepare students for these modern goals, we have initiated resources to expand our curricular offerings with a goal to allow students to explore various careers and build their 21st century skills with hands on engagement, problem based learning and community partnerships.

Through teacher creativity, innovation and commitment

we have been able to continue our strong performance and provide rich learning opportunities. Students are provided a wide and diverse course selection supporting individual learning needs and student interests and passions that support their acceptance into postsecondary plans of education or career. However our current facility significantly inhibits our capacity to broaden our courses of study to include courses and programs that allow for project-based learning and career exploration.

Stoneham is currently involved in Project Lead The Way (PLTW) grants in attempt to provide continuity with the Stoneham Central Middle School PLTW and to enhance and support development of educational and career pathways. Though we have added and are in the first stages of establishing PLTW Computer Science, Engineering and Bio-Engineering pathways, our current facility, classroom use and structure inhibits the students learning experience and the full potential of these programs. Classrooms are limited in size for hands on and problem based learning. Building and classroom layout do not allow cohesion as a program or integration with other disciplines.

Teachers seek to provide students opportunities to engage in authentic learning experiences and student collaboration. Our history department has developed a history lab that provides students with hands-on and first person historical artifacts to assist with historical research. The department also engages in National History Day which promotes historical investigation, student collaboration and culminates with a final project. Our current facilities do not provide activities such as these with adequate space that utilizes technology as a means of presentation, space for collaboration and sharing of ideas and to effectively present and showcase work through a variety of mediums. Large interdisciplinary project-based learning rooms would provide the flexible spaces needed for students to develop and present their projects.

Stoneham students have a wide array of strengths and interests they are able to pursue and explore through our curriculum and courses with an emphasis on Humanities

## B. EDUCATIONAL PROGRAM

and the Arts, Science, Technology, Engineering and Mathematics. We provide a wide variety of offerings from our career elective programs such as culinary arts and child development to artistic pursuits in Music, drama and our general art, photography and ceramics programs. Students are provided many opportunities for rigorous college preparatory work through our thirteen distinct Advanced Preparatory and nineteen Honors level courses. The current facility and school structure do not foster the opportunity for interdisciplinary and collaborative teaching therefore most of our learning experiences and academic engagement occur within silos neglecting students the opportunity to connect the learning in a synergy as experienced in real world applications

In 2019 Stoneham High School introduced a new academic schedule to support students with opportunities for enrichment as well as foster teacher collaboration through common planning time. Currently, there are no specific areas specified for teacher planning and collaboration. This is often done in a classroom and is limited due to size and locations. Therefore, it limits the depth of opportunity to collaborate and plan across departments.

The goal of a new Stoneham High school would be to plan a newly reorganized school that fosters innovation, collaboration and integration of academics and the arts and opportunities to support successful entry for post secondary education and / or career pursuits.

We envision a new school would provide:

- Flexible classroom space
- Spaces for student collaboration, group and independent study and the ability to showcase their work through variety of mediums
- Project rooms to support project-based learning
- Teacher planning rooms for the faculty and staff to collaborate with and across disciplines
- Quiet and private rooms to support the academic and social emotional needs of our students
- Flexible conference rooms to support both individual and small group meetings with students / parents / guardians as well as Team Meetings of various sizes.

- Interdisciplinary Project and Performance Room to support student performance, guest speakers, seminars, interdisciplinary collaborative activities and presentation and showcasing of student work
- Outdoor spaces for educational delivery and learning opportunities. With an inviting outdoor space, teachers of all academic areas could have the opportunity to enhance their delivery of the curriculum in a unique way. As teachers during the pandemic, we have spent a lot of time teaching outdoors and it has opened a whole new way of teaching and this is done without an inviting outdoor space currently. We envision outdoor seating with trees for shade and tents for use in rainy weather. As a math teacher, this presents an opportunity for more hands-on learning in an open environment where, for example, students could use trigonometry to measure their shadow to estimate the height of the flagpole. Theater, chorus, and band students could practice performing outdoors and even offer performances outdoors if we had seating and possibly a stage area. English teachers could use a dedicated outdoor space for Shakespeare read-alouds. Engineering students could use an inviting, outdoor space for lab work that is more conducive to a larger space. The possibilities of having a flexible space outdoors with natural seating areas could enhance what we do in the classroom.

The new facility would need to support the district's mission statement as well as being reflective and adaptable to our core values:

#### MISSION STATEMENT

- Are creative, critical and independent thinkers
- Demonstrate respect for and acceptance of self and others
- Know and apply communication and information literacy skills
- Are responsible contributors to the local community

#### CORE VALUES

- Support a safe, inclusive educational environment

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## B. EDUCATIONAL PROGRAM

- Foster and hold high expectations for student learning
- Share responsibility for the success of our students

### English Language Arts/Literacy

The English Department follows the Massachusetts Curriculum Frameworks in teaching Reading, Writing, and Language which includes Speaking and Listening Standards. Thinking critically, communicating effectively, and working both independently and collaboratively are essential skills students require to be successful after high school. Understanding how texts are structured in conjunction with multiple learning strategies prepares students for standardized tests as well as accessing challenging work. Class reading lists include relevant and multicultural selections to build engagement and offer global perspectives. Our writing program has students craft a variety of writing for different purposes, including analytical responses to texts, creative narrative, and persuasive arguments. Students also enhance their speaking and listening skills through Socratic discussion, persuasive speeches and debates, and dramatic performances/read alouds of plays and poetry.

We offer full-year ELA courses in grade 9-12 at the college-prep, advanced college-prep, honors, and AP level. Our 12th grade students who opt not to take AP may choose from a variety of multi-level courses defined by theme and genre. These multi-level courses run the length of one semester and seniors are required to take two courses of their choice. In addition to full-year ELA classes we also offer semester long electives such as Film Study and Creative Writing.

We are in the process of revising our curriculum for more enhanced implementation of UDL practices. In the future, we would like to have more project-based learning, self-directed learning, and collaborative learning experiences in order to develop twenty-first century skills. In our current building we are limited with how we can collaborate and utilize technology and classes often have to spill out into hallways and other makeshift spaces. We need more open spaces that include flexible furniture and technology as well as spaces that support interdisciplinary learning opportunities. We also need to continue our independent reading program by providing shelves to display and store

classroom libraries in addition to curriculum texts.

Last school year, we had 8 ELA teachers utilizing 7 ELA classrooms. The utilization rate of these classes was 81% over blocks A, B, C, D, E, F, G, and the flex block. We need to maintain these 7 classrooms in the new building. As we prepare for the future in education at Stoneham High School, we envision these 7 ELA classrooms to be inclusive, flexible, and collaborative. These ELA classrooms would include the following elements:

- Open shelving to display classroom libraries within each classroom to foster student engagement with our independent reading program, known as self-sustained reading (SSR)
- Adequate whiteboard space and bulletin board space to display student work and student-created resources such as anchor charts, graphics organizers, and word walls that are relevant to curriculum and learning standards
- Flexible technology that is seamlessly integrated and meaningful to the instruction in the form of interactive whiteboards and technology hubs for teacher- and student-directed instruction
- Open spaces that can be used as workspaces with possible moveable walls which supports creative and collaborative learning
- Furniture that is flexible and can be easily moved for project-based learning, collaboration, and discussion

Additionally, our classrooms should include spaces that are reflective of the variety of courses within our department to increase student engagement and create a positive learning environment. We currently have classrooms with bulletin boards to display student created academic resources to enhance engagement and enduring understandings.

- Design response (TBD based on school design)
  - Access to library for extension activities such as research, access to technology, and space for interdisciplinary learning
  - Possible access to black box/theater space for

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speaking and performance activities

- Adjacent to other ELA teachers for department collaboration

### Mathematics

The Mathematics Department aims to provide students with a solid foundation consistent with the principles and practices outlined in the Massachusetts Curriculum Framework for Mathematics. Through collaborative and independent learning, students will develop and use analytic thinking, critical reasoning skills, and technology to solve problems. Students will be prepared to address complex and challenging real-world problems and succeed in postsecondary education, careers, and everyday life.

In order to graduate from Stoneham High School, there is a requirement to pass four (4) mathematics courses that meet the following conditions: the courses involve four (4) full years or eight (8) semesters of study, including Algebra I and Geometry.

The department offers math classes at various levels including Advanced Placement, Honors, Advanced College Preparatory, and College Preparatory. Math teachers use various methods of instruction including whole group instruction, collaborative groups, and project-based learning. Math instructors use technology such as graphing calculators, document cameras, and SMART boards while presenting lessons.

When planning a new space for math instruction, classrooms should include flexible, large write-on walls where students and/or teachers could work simultaneously at multiple places in the room. In order to provide collaborative space for projects or small group discussion of math problems, the new space needs flexible, comfortable seating which can be moved if needed. Also, a breakout space for students to be able to use for small groups so as to not distract learning in the main classroom should be part of the new space. Classrooms should have storage closets for manipulatives and student supplies that are needed throughout the school year including graphing calculators, protractors, compasses, ruler, Cuisenaire rods, 3d figures used in

Geometry class, etc.

Last school year, we had 8.2 math teachers utilizing 8 math classrooms. The utilization rate of these classes was 81.25% over blocks A, B, C, D, E, F, G, and the flex block. We need to maintain these 8 classrooms in the new building. Also, math classrooms that are adjacent/connecting with other math classrooms is most desirable as agreed upon by all of the math teachers to help with collaboration.

Other needs in the classrooms:

- Windows
- Phones that can call other classes, the office, the nurse, guidance, with an outside line, etc.
- Multiple electrical outlets for students' Chromebook chargers
- Adjustable temperature controls
- Clocks that are synced throughout the whole school building
- High quality white boards
- Lights that are NOT motion sensed
- Storage for all of the math textbooks that can handle the weight of the heavy textbooks

Below is a picture of a classroom that has large write-on whiteboards.



### Science

SCIENCE DEPARTMENT: CURRENT OFFERINGS AND EXISTING SPACE

The Science Department offers a comprehensive program designed to prepare all students for success as scientists

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and life-long global citizens. Our science curriculum is designed around relevant, real-world issues to increase student motivation, intellectual engagement and critical thinking. As students progress in their science education at SHS, they will build a solid foundation of scientific and technological knowledge. Students will develop the ability to apply their knowledge to analyze and explain the world around them.

Our science courses will help to prepare students for civic life, postsecondary education and career success. Connections are made throughout a student’s journey in their science education, starting with our ninth grade Earth and Space Science courses where students will learn about the Earth’s place in the universe, Earth’s Systems and the relationships between the Earth and human activity. Sophomore year, as students prepare for the Biology MCAS, they will continue their focus on the environment while adding the interrelationship between organisms and how they function. The standards expect students to understand the four core ideas of biology including ecosystems, structure and function of organisms, heredity and biological evolution.

Junior year, students have a choice to continue the traditional science pathway to Chemistry, (where they will apply their scientific and mathematical skills and knowledge to focus on matter and its interactions, motion and stability as well as energy), and/or branch off to explore our diverse selection of electives, including AP and Project Lead the Way (PLTW) offerings. Senior year students can choose to continue with elective courses, or Physics. Our senior Physics course engages students with science and engineering practices of developing and using models, analyzing and interpreting data, using mathematics to solve problems and make predictions of a variety of phenomena such as motion, energy and waves.

The SHS Science curriculum is designed so that students develop an understanding of the science and engineering practices as outlined in the Massachusetts Science and Technology/Engineering Curriculum Framework.

Those practices include:

- Asking questions and defining problems

- Developing and using models
- Planning and carrying out investigations
- Analyzing and interpreting data
- Using mathematics and computational thinking
- Constructing explanations and designing solutions
- Engaging in argument from evidence
- Obtaining, evaluating and communicating information

SCIENCE DEPARTMENT: EMERGING PROGRAMS

Stoneham High School is planning to offer a number of Project Lead the Way (PLTW) STEM courses to provide hands on, project-based learning in three primary pathways, Biomedical Science, Engineering, and Computer Science. The PLTW courses follow the same curriculum philosophy and methodology as our middle school PLTW STEM courses.

Biomedical Science - The Biomedical Pathway includes 4 courses. Stoneham High School began providing courses in this pathway in the 2017-2018 school year.

Principles of Biomedical Science, introduced in 2017, is the introductory course for our Biomedical Pathway. Plans to expand offerings in subsequent years are underway.

Engineering -The Pathway to Engineering curriculum includes 8 courses. Stoneham High School has begun by offering the following: Introduction to Engineering Principles, in 2019. This is the first course in the engineering pathway. This course is opened to all students in grades 9-12. Plans to expand offerings in subsequent years are underway.

We expect that our current science program will continue to evolve and be a place where students will voluntarily invest their time. In addition to expanding the STEM offerings from PLTW, we would like to include access to college courses, vocational training through collaboration, career exploration (internships/shadow days), along with the support and space for student-driven extracurricular activities such as robotics club and Science Olympiad. By reaching a larger audience of interested students through new opportunities, we hope to increase student

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engagement with the program.

SCIENCE PROGRAM: CURRENT SECTIONS FOR 2020-2021

As described above, the current science program at SHS offers both fundamental science courses and applied science/technology electives. Our core foundational courses are: Earth Science (8 sections no lab space), Biology and Ecology (11 sections with lab space), Chemistry (6 sections with lab space), and Physics (4 sections with workspace). These courses are offered at multiple levels (CP, ACP and Honors) along with AP Biology (1 section every other year with lab space), AP Chemistry (1 section with lab space) and AP Physics (1 section with workspace).

The scope of our elective courses is purposefully broad and includes: Earth and Planetary Science - Astronomy (1 section with work space), Planetary Exploration (.5 sections with work space), Cartography + Geographic Information Systems (.5 sections each, totaling 1 section with work space and computer extras), Meteorology (1 section with classroom space), Oceanography (2 sections with classroom space), Geoscience (.5 section with workspace), AP Environmental Science (1 section every other year with lab space), Life Science - Anatomy and Physiology (2 sections with lab space), Genetics (.5 section with lab space) and Forensics (1 section with lab space), BioMedical Science - PLTW:Principles of Biomedical Science (1 section with lab space), In addition, Health (4 sections with classroom space), Health Careers (1 section with classroom space) and Current Health Issues (1 section with classroom space) courses are offered to students at SHS. Engineering - PLTW Introduction to Engineering Design (1 section with workspace).

The numbers of course sections being offered and the types of space required are summarized below. To accommodate the emerging programs at SHS, including Project Lead the Way, we would like to add an additional room into the design plan. Based on the projected student population, the new building should include eleven dedicated science and technology classrooms for the core and applied sciences. Please see the summary in the table below.

The current science program at SHS is accommodated in nine classrooms. Although the classrooms have

Science and Engineering Space Request			
	Sections	Room-Type	Total
Life & PLTW Biomedical Sciences	17.5	Laboratory	4
Chemistry	7	Laboratory	2
Physics	5	Workspace	1
Earth and Planetary Science	13.5	Classroom and Workspace with computer add-ons	2
Health	6	Classroom	1
PLTW Engineering	1	Workspace	1

been outfitted with the requisite equipment; the antiquated spaces provide varying levels of functionality. Improvements addressing safety, flexibility and student-usage will be requested in the new building.

On a daily basis, SHS science educators offer skill-building activities through their course curriculum. Technology is widely utilized in the science classroom for teaching fundamentals. Laboratory experiments with equipment are designed to complement and illustrate learning goals throughout the course with an emphasis placed on critical thinking and data analysis. Collaborative learning activities, including project-based assignments, are utilized to foster teamwork and provide a holistic view of a problem. Teachers model good laboratory practices for their students daily. Best practices are shared among our teaching community and innovative, new approaches are being discussed and employed regularly. Looking to the future, new instructional spaces that can be programmed to be flexible and better suit the needs of educators and students will benefit the school community as our science program continues to evolve.

SCIENCE DEPARTMENT: SPECIFICS ON SPACE REQUIREMENTS

In an effort to grow our program to meet current and future applications, the science department is requesting a total of eleven classrooms in the new building. Accessory spaces such as prep rooms, storage areas and educator collaboration areas should be programmed into the design as well. Each of the classroom’s requirements will

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depend upon the type of science that is happening in that space and we have broken it down below:

Life Sciences and Chemistry: The six life science classrooms will need to be fitted with the following laboratory utilities: a dedicated laboratory space around the perimeter of each classroom complete with laboratory grade benches, sinks, plumbed for gas and electricity. Each bench will need to seat at least four students and should have its own local equipment storage area. To support the laboratory activities, the building will need associated prep rooms with fume hoods, a dishwasher for glassware as well as space for a specimen/reagent refrigerator and microwave. Prep space can be shared between 2 or more classrooms. All requisite safety equipment (shower, eye wash, fire blanket, proper ventilation, goggle UV cabinet, etc.) should be in each individual classroom/laboratory space. Note that the Chemistry laboratories may require additional design features.

Storage: flammable storage cabinet and chemical storage area. Glass disposal area,

The classroom portion of the room will have flexible seating - tables and chairs that can be moved and full technology set-ups including charging stations. The separation of laboratory benches from classroom activities is a safety and efficiency design feature that does not currently exist.

Physics and Engineering: These two classrooms work spaces should be designed with ample bench and storage space to accommodate large pieces of equipment. In addition, the layout should be flexible and allow for wide access to technology and electricity throughout the room.

Earth Sciences and Health: The remaining three classrooms will be designed with flexibility in mind. Movable tables for reconfiguration and full technology access are necessary.

A teacher space that can be dedicated or shared with other departments will be useful for common planning.

The science/technology spaces will conform to the MSBA science facility guidelines, with a minimal amount of built-in structures that are specific to a program

The Engineering/Physics laboratory space would be outfitted with the materials and equipment necessary for all classes. Laboratory use would be determined by the master schedule and at the discretion of the program supervisor.

Classes would be scheduled to occur in that space and the teacher is responsible for the maintenance of that space and supervision of students while in that space. Materials will be ordered collectively at the end of the year for the following school year.

If an effort is made to use this as a makerspace or for other extracurricular activities (such as a robotics or engineering club), a teacher would be available to supervise the laboratory.

**Social Studies**

The core of the history department is the NHD day program which all sophomores and juniors complete. Around 300 sophomores and juniors participate in the project from the beginning of the year to January and in some cases into June. Stoneham is also working to incorporate state mandated civic action projects in Grade 10. Economic students develop business plans and work with local entrepreneurs. As a result, the typical classroom space creates limitations for the project-based learning already built into the social studies curriculum.

On a typical day in the social studies hallway students are spilling out into the hallways to record videos, work on projects, and do research. Social studies teachers also utilize the library consistently, though the distance between the classrooms and the library takes up class time. Locations close to the library would facilitate the in-depth research that is required to complete NHD and other projects.

Social studies is about teaching democracy but currently the classroom set ups are undemocratic, without flexible space and focused on the teachers at the front of the room. Students need the ability to present from all areas of the classroom using technology and whiteboard.

As a result of the above curriculum needs the following spaces are needed.

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- History Lab
- Storage space for the history lab and ability to bring at least a full class into the room to have space to bring two full classes to work on traveling parts of the exhibits - for all purpose room. House community panel for civic action projects.
- Classrooms need breakout space for NHD projects
- All purpose room for presentation of History Day work including about 100 annual exhibits and the view of many student documentaries and performances.

**World Languages**

The World Language Program at Stoneham High School offers three languages: Spanish, Italian and French. All three languages are offered at the Advanced Placement (AP), Honors, Advanced College Preparatory and College Preparatory levels. Although not currently a graduation requirement, the majority of students take World Language and the courses are considered core academic subjects. Additionally, Stoneham High School offers students the opportunity to earn the Seal of Biliteracy.

The World Language Department at SHS focuses on language acquisition through the specific skills of Speaking, Writing, Reading and Listening. The cultivation and advancement of those skills is promoted through various teaching methods, however, active learning is paramount in our curriculum. Active learning in a typical World Language classroom at SHS includes project-based learning, collaborative group work, student centered activities, independent/self-directed skill building, utilization of numerous technologies, and daily partner/group work, to name a few. While delivering curriculum, it is imperative that our students have a safe, flexible and inclusive environment.

Our ability to deliver our interactive, dynamic lessons to students is impeded by our space (or lack thereof). Break-out, flexible, collaborative space is essential to advancing our curriculum and successful language acquisition for all our students. Our World Language classrooms and student-centered approach fosters many other skills for students in both academic and real world spaces. Currently, our students use the hallways, floors, tops of

stairwells and corners of classrooms for space.

Advancement in technology has allowed teachers and students to mirror the activities that occur in a traditional language laboratory. Virtual Language Lab software is available and students can speak, listen and record directly on their Chromebooks. Although newer labs are state of the art facilities, for our building, the square footage designated for a potential language lab would better serve the community in common areas. For example, space in a Media Center (where WL students record skits with green screens) or small conference areas (where WL students can practice AP and Seal of Biliteracy exams with authentic conversations). These types of spaces will be used by all students, across all disciplines.

**School Counseling, Current Services and Programs**

Four school counselors provide academic advising, social emotional support, career exploration, and post-secondary planning services to all students at Stoneham High School. One of these counselors also serves as the school counseling department head. Because the department head is responsible for numerous administrative responsibilities and is also an active member of the high school leadership team, her student caseload is reduced. Counselors current caseloads range from 128 students to 183 students.

Upon entering grade nine, students are assigned to a counselor based alphabetically on their last name. This counselor assignment remains consistent from grade nine through grade twelve, to allow counselors and students to develop meaningful relationships, to assist in advising students through the annual course selection process, to counsel them through any academic or personal challenges which arise throughout their years in high school, and to facilitate the post-secondary planning process. The alphabetical split also enables counselors to build stronger relationships with parents and families, as counselors are likely to have siblings from the same families over the years.

In addition to individual support, school counselors provide services for students through the implementation of a developmental counseling program which is in alignment with MASCA (Massachusetts School Counselors

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Association) and ASCA (American School Counselor Association) standards. Guidance counselors implement this curriculum with all students through structured classroom lessons and individual 1:1 meetings, beginning with the eighth grade course selection process and continuing through students' high school graduation.

Classroom lesson topics include: mindfulness and stress reduction, goal setting, time management, study skills, annual course selection, understanding grade point average and the high school transcript, career exploration, and the post-secondary planning process (including standardized testing, the college application process, postsecondary alternatives to college, accessing financial aid and applying for scholarships). Because there are currently not adequate large group meeting spaces available, counselors frequently take time out of academic periods in order to meet with students in classroom settings. Counselors have attempted to utilize the cafeteria and the auditorium for these lessons; however, the acoustics and seating arrangements are not conducive to implementation. Counselors have also attempted to offer some of this curriculum to students during flex blocks; however, with various enrichment programs and academic support offerings also offered during flex blocks, it has been a challenge to procure necessary meeting spaces.

To better support our students through the delivery of this developmental counseling curriculum, the department would benefit from a moderate to large sized multipurpose meeting space that contains flexible seating and allows for movement and discussion. It should be wired and equipped with presentation (and amplification?) equipment. Counselors could utilize this space for the implementation of curriculum, rather than taking away from students' academic instruction time, by scheduling these lessons in advance throughout the flex blocks. This would resolve the two current challenges of interfering with academic instructional time and not having sufficient time or space during flex blocks.

The counseling office also hosts approximately 80 college and university admission representatives each year. Representatives meet with as many as forty students at

a time, or as few as two or three, depending on students' interest and their availability to participate). Currently, smaller meetings take place in the work/waiting area of the school counseling suite, and larger meetings take place in the lecture hall. The same multipurpose space that would be used for school counseling curriculum could also be used for these meetings.

**TEACHER PLANNING AND ROOM ASSIGNMENT POLICIES**

Teachers teach 5 of 7 periods in a rotating schedule with at least one 69-minute planning period per day in our current schedule. Common planning time is also built into our schedule for all teachers once a cycle as an early release day to provide ample time for both department and interdisciplinary planning and collaboration.

The purpose of our current schedule is to support ongoing collaboration both departmental and interdisciplinary. The addition of teacher planning rooms and workspaces will enhance planning periods and common planning time for all teachers. We would like to implement more project-based learning and cross-curricular planning with spaces that are flexible and functional for both professional development and quiet planning time. These planning rooms should provide space for teacher materials and tools and be equipped with technology such as charging stations and copiers. These spaces should be located close to instructional classrooms to help facilitate the implementation of this planning within each department.

There are 4 program supervisors who serve grades 5-12 in the following departments: Math, English, Science, and Social Studies. Each program supervisor has an office at the high school building which is used to meet with small groups of teachers, store textbooks and relevant materials, and have confidential conversations and phone calls. These offices are essential for each program supervisor to have a space that supports their work such as planning and reviewing teacher evaluations.

Classrooms are assigned by a program supervisor. Rooms are assigned based upon the idea that rooms serve as the base for instruction and planning periods. Currently almost all teachers have their own classroom with the

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exception of a few shared spaces. When a teacher's room is being used during their planning period, workspaces are limited and are often not supportive to colleague collaboration or productive planning. Ideally we will continue with 1 teacher assigned to 1 room; however, in the event that a room must be shared, no more than 2 teachers will be assigned to a room and they will be within the same department. This is to foster a more student-centered, student-driven, student-created classroom environment specific to the course that takes place in that particular classroom and specific to nurturing the social and emotional needs of those students.

Space needed:

- 7 supervisor/lead teacher office space: Math, English, Science, Social Studies, Fine Arts/music, World Language, and CTE. This space should include square footage for book storage (i.e. the ELA department currently has over 6200 books)
- Teacher Planning/Lunch space

While there are common teacher planning areas that may serve to meet some of the needs of teachers, these 23 smaller teacher planning areas will be necessary to accommodate a variety of needs not met in the common teacher planning spaces. Ideally, these 23 teacher planning spaces will be adjacent to the 23 classrooms planned for on the Space Summary. These spaces may be used for confidential virtual and telephone conferencing with parents and other specialists, since a more common teacher planning area would not allow for this level of privacy. Furthermore, a more quiet and private space would foster collaboration among co-teachers and grade-like teachers in the same subject without the disruptions and distractions that naturally occur in a common teacher planning area. Additionally, another benefit to these spaces if adjacent to classrooms would be to allow for quiet, small group instruction or testing to meet the needs of students on 504s and IEPs.

There are 6 collaboration spaces of 500 nsf being allocated. If there were 6 neighborhoods each with a collaboration space of 500 nsf, we do not envision one entire space in the middle. We want the 500 nsf to be spread out to multiple collaboration spots next to

multiple classrooms of different sizes and shapes, like an extension of the classrooms. Therefore, they would get the maximum use because multiple teachers and classes could use each at once with different amounts of privacy. We do not envision a Google form sign-out for each of these spaces. We anticipate these spaces to be saved and only used for current classes that might need them in that particular neighborhood at any teaching moment. This will foster organic extension of learning beyond the confines of classroom walls, promote collaboration among students and teachers, provide students space for self-directed learning (SDL), and enhance opportunities for universally designed learning (UDL). These collaboration spaces would be like real-world breakout rooms, allowing opportunities for diverse learning experiences all within the same "class."

**PRE-KINDERGARTEN**

Currently, the district provides special education services to our Preschool students in programs located in Colonial Park, Robin Hood and South Elementary Schools. Our integrated preschool classrooms are designed to educate children with a variety of disabilities as well as typically developing children. Within the integrated setting, students with disabilities are full participants in all program activities with supports and accommodations. Typically developing children are role models for language, fine and gross motor skills, and social and play activities. Together all children form a community whereby we learn from each other's strengths and differences. Diversity in our classrooms is appreciated, encouraged, and is an ongoing part of our everyday classroom life. Our preschool classrooms are multi-aged. Tuition students must be three or four years old on the first day of school.

Our preschool classrooms provide individualized programming designed from a developmental point of view and based upon the Massachusetts Curriculum Frameworks for Prekindergarten. The staff seeks to nurture the whole child by giving attention to all areas of development; physical, cognitive, language, social, and emotional. The curriculum emphasizes "hands-on" exploration and concrete experiences. Activities are

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often open-ended so each child can experience success at his or her own level of development. Play is considered an important aspect of our programming, and learning through play is encouraged through materials such as paint, blocks, sand, water, dramatic play, books, and manipulatives.

The average enrollment for our preschool program is 100 students per year and has been expanding over time. The district is seeking to relocate to the high school campus and provide additional space for its growing preschool program. Preschool services are mandated through state and federal law and are becoming a growing service that most schools provide. These spaces must also include room for role model peers as we seek to provide inclusionary options for our preschool population. These role model students are a vital function of our inclusionary vision for preschool that is currently restricted by our lack of space district-wide. Having all our preschool programs together will allow for shared resources (therapies, materials, curriculum, staff, etc.), as well as greater opportunities for collaboration as we expand and enrich our programs. We also envision greater curriculum development and alignment amongst the preschool team.

A component we envision adding to the preschool program is before and after school childcare. There is high demand for childcare and our current lack of childcare is a barrier to many families in Stoneham who would otherwise attend preschool. Along with offering childcare, a consolidated preschool space would allow for more programming options for preschool families.

Another important part of our vision for the new preschool space is a merging with the existing FACS Child Development Program at the high school. This program promotes early childhood education to students wishing to go into the vocation. An essential component of the program is an opportunity for third-year students to co-op in the SPS preschool program. Having both programs in the same building will greatly enhance the experience of students in the FACS Child Development Program.

The ideal space for the preschool classrooms would be located on the outer edge of the building's footprint with an adjacent playground.

This space would include:

- 8 to 10 classrooms spaces designed to be age appropriate for preschool students with BATHROOMS
- Administrative office
- Reception area/ secretary space
- Teacher's collaborative space
- Teacher lunchroom
- Student lunchroom
- Outdoor Playscape
- Indoor Play area
- Speech and language office
- OT/PT Suite
- Social worker space
- BCBA space
- Nurse space with space for students
- Conference room
- Sensory Room
- Space for the high school child development class nearby.

When designing the space, access for diverse student populations should be considered. This would also include ensuring any playground equipment is inclusive of different abilities, skills and needs. Access to the preschool space for parents/guardians along with convenient drop-off and pick-up spaces should be considered.

Pre-K Space requests:

1. Preschool Program (13,975 nsf):
2. (8) 1,200 nsf Pre-School Classrooms with toilets/ changing (15 students)
3. (2) 175 nsf (totaling 350 nsf) Observation Areas: Childcare Development
4. Pathway
5. (1) 400 nsf Pre-School OT/PT

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6. (1) 150 nsf Pre-School Director Office
7. (2) 250 nsf (totaling 500 nsf) Pre-School Speech/Language
8. (1) 350 nsf Pre-School Conference Room
9. (1) 275 nsf Reception Area with Secretary
10. (1) 300 nsf Teacher Work Room/ Collaboration
11. (1) 600 nsf Student Lunch Room
12. (1) 150 nsf Social Worker Office
13. (1) 150 nsf BCBA Office
14. (1) 350 nsf Nurse
15. (1) 350 nsf Conference Room
16. (1) 450 nsf Sensory Room

The first Pre-School Conference Room is for holding the IEP and Progress meetings for the students in the preschool. The second Conference Room is for use by the staff to complete the required evaluations for incoming preschool students to determine eligibility for special education students.

We currently have 7 preschool classrooms (3 integrated half day classrooms each running a morning and afternoon program, 2 integrated full day classrooms, 1 hybrid full day classroom that is integrated for half the day, and 1 substantially separate full day classroom) across all three elementary schools in Stoneham.

Last year these classrooms serviced over 105 total students, including 57 students with special needs. In addition, we have a significant number of additional students who come to the preschools for specific services including speech and language and occupational therapy.

The preschool program in Stoneham has grown and changed over the years as a response to an increase in the number and needs of the students it serves. The preschool has grown from five classrooms across two school buildings during the 2015/2016 school year to seven classrooms across three school buildings by the end of the 2019/2020 school year. Given the increasing complexity of the needs of the preschool special education students in the district we have eliminated the 2-3 day a week

School 20-21	Schedule
Colonial Park AM/PM Remote	5 Day/Week AM (M, T, W, TH, F 8:40-11:10) and 4 Day/Week PM (M, T, TH, F 12:10- 2:40)
Colonial Park Full Day	5 Days a Week (M,T,TH,F 8:40-2:10 and W 8:40 - 11:40)
Colonial Park AM/PM	5 Day/Week AM (M, T, W, TH, F 8:40-11:10) and 4 Day/Week PM (M, T, TH, F 12:10- 2:40)
South Full Day	5 Days a Week (M,T,TH,F 8:40-2:10 and W 8:30 - 11:40)
South Substantially Separate Full Day RISE	5 Days a Week (M,T,TH,F 8:40-2:10 and W 8:40 - 11:40)
Robin Hood AM/PM	5 Day/Week AM (M, T, W, TH, F 8:40-11:10) and 4 Day/Week PM (M, T, TH, F 12:10- 2:40)
Robin Hood Hybrid Full Day (½ Integrated, ½ Sub. Separate)	5 Days a Week (M,T,TH,F 8:40-2:10 and W 8:40 - 11:40)

programs and all programs now are 4-5 days a week. In addition, more special education students now require full day instead of half day programming. These changes required us to create more preschool classrooms to provide the services required by students' IEPs. Even with the current configuration of 7 classrooms, there are often times when we do not have enough space in a particular classroom during the year. Last year the district had to open a new integrated preschool classroom midyear. In addition, the growing number of students that require a preschool substantially separate classroom will likely require the district to add an additional classroom later this year or next year. We anticipate an enrollment next year of over 55 special education students and over 60 typical peers in the integrated preschools and 10 substantially separate students in the substantially separate program. Given guidelines from the department

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of education this enrollment would require at least 8 preschool classrooms.

Currently all of the town's three elementary schools house preschool classrooms. Moving the preschool classrooms out of the elementary schools will free up much needed space. Over the last five years, kindergarten to grade 4 enrollment has increased by 5% in schools which were already close to capacity. This has necessitated adding sections to some grades. Also, additional required special education programs and interventionists were added to the elementary schools. Moving the preschool program classrooms to a unified location at the High School helps to avoid overcrowding and the need for having to approach MSBA for funding for an additional construction project at the elementary level.

### LUNCH PROGRAMS

Stoneham High School has a full lunch program that serves the high school population during two to three lunch periods depending on capacity and scheduling serving over 200 plus students each lunch period. The district runs a contracted nutrition services program (currently managed by Aramark Corporation), and students have multiple options each day for lunch. There are hot lunch lines, pre-packaged salads and sandwiches, and an additional short option line for a la carte options. Breakfast is also available for students in the morning.

The high school cafeteria kitchen also works additionally with the elementary schools to provide lunches for those students. The high cafeteria kitchen serves 394 students at Robin Hood Elementary School, 355 students at South Elementary School, and 264 students at Colonial Park Elementary School.

Currently the high school has a 30 x 10 foot freezer adjacent to the building that allows for frozen storage for all 5 schools when large quantities are purchased, as in the other schools there is not enough frozen food storage. This freezer storage needs to be accessible for van loading to be delivered to the other schools on a daily basis. THIS IS A MUST!

The school's cafeteria is in the main level, and is not

surrounded by classrooms, it is on one of the far sides of the building. The proximity to the classrooms/lockers can have a negative effect on those students during lunch periods as it has students rushing too much, although it would also not be conducive to be too close to classes as to disrupt. The cafeteria's location also causes it to be underutilized during the remainder of the day, including before and after school. A more central location to the entrance would be more applicable.

Needs for Cafeteria:

- Space for large freezer
- Space for two walk-ins
- Locker and changing room with bathroom
- Laundry area
- Dry Storage area
- Director's office space
- Dishwashing station
- Current line and preparation space is adequate

### TECHNOLOGY INSTRUCTION POLICIES AND PROGRAM REQUIREMENTS

At Stoneham High School we believe that all students, regardless of their future goals, will need a working knowledge of technology application and use in the world around them. With the implementation of the 1:1 program at the high school, technology is a tool that is embedded into much of the daily work of our students and staff. The district technology goals focus on the following areas:

- Classroom – Digital Citizenship, Creativity, Collaboration, Communication, Instruction, Assessment, Assistive Technology
- Access - Staff and students have access to current technology tools 24/7. Building based technical and instructional supports are available.
- Skills - We provide resources to staff and students in support of their use of technology. A variety of professional development opportunities are offered

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that are timely, focused, and on-going. Teachers are proficient in supporting student use of technology

- Environment - Policies, Culture, Finances, Security and Data Management

Our goal in how technology is used at SHS is consistent with the goals stated above, that technology is a necessity that holds the potential to enhance teaching and learning in profound ways.

Technology is managed through the Information Technology Department, which consists of one district network administrator, a Data Manager, one Data Specialist, a technical support staff of five, an Instructional Technology Coach at the Middle and High School, and technology teachers at each level. The Assistant Superintendent of Curriculum and Instruction oversees the Information Technology Department. We are a 1:1 district for K-12 students. Currently, Stoneham High School is in its second year of its implementation of 1:1 access of mobile devices for all students and staff. All students in grades 9 through 12 have been issued Chromebooks. All teachers are issued a Windows desktop, laptop or Chromebook device. Students and teachers have limited access to loaner Chromebooks through the library and there are also a few Chromebook carts available for sharing within academic departments. (iPad availability, mac lab). District-wide we have an upgraded infrastructure to handle up to 4000 wireless devices. The Technology Department has also installed UPS units at all schools and in all tech closets to minimize downtime during power outages and protect equipment. They have repurposed an old video server to host images for all models currently in use in the district and replaced the out-of-date server at HS with a newer version. Other items also need attention to bring our technology up to speed such as new servers and switches to replace older units and older desktops used by teachers need replacing.

Instructionally, the integration of technology and the promotion of best practices are supported by a 1.0 technology coach and the library teacher who are part of the district's Information Technology Department. Teachers use technology in a variety of ways throughout the high school. The 1:1 program has

brought with it professional development, new software and apps, and resources to promote a more hands-on, differentiated, innovative environment in the classroom. The use of Google Suite for Education allows teachers to organize, store, and present class materials and assignments electronically, making best use of student access. Additionally, the promotion of digital forms of presentation, assessment, research, communication, and writing have all been emphasized with the 1:1 program. Although a new school schedule was adapted last year to include additional common planning time, more time for teachers to collaborate, share, and explore technologically is always needed.

Teachers participate in technology related professional development at the start of each school year as well as one PD day being set aside mid-year to further explore and practice both new and current technology. Additionally, teachers are encouraged to attend technology classes that are offered in-house or through outside agencies such as the Salem Collaborative Project.

Our proposed education objective in regard to technology is to expand course availability and to offer new and exciting courses and experiences for students. Currently, computer applications, computer science, film editing and photoshop courses are taught in various classrooms throughout the building without any cohesiveness and little collaboration. This layout was not created by design and intention but more by the constraints of our current structure. At this point in time, we are not able to expand these courses and programs due to our limited space capacity and limited technological capacity. Our vision for the future is one of connected technology spaces that can be used for multiple purposes that allow us to create various technology pathways for students and be able to support teachers in their need for Professional Development that is technology-centered. We envision a robust environment where teachers and students work collaboratively and have access to state-of-the-art technology that includes topics such as AR/VR, gamification, and data security/analytics.

A cybercafe/student-run help desk area that students staff would integrate their CTE/computer science

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coursework with hands-on, real-world experience. This cyber cafe/help desk would best be suited to be near the library/commons area as well as in close proximity to the technology area where students can interact with the technology staff for support and continued help. Having updated equipment and classrooms to serve our special populations that offer them the newest assistive technologies are key to providing the highest level of access to the Rise, Stride and EL student populations. Our vision is to have a multipurpose technology area that can support various pathways to create an innovative, sustainable technology program.

Creating a Professional Development Lab/Technology Area for teachers to collaborate or create and test technology for use in the classroom would improve their access to technology training. Having an area to create videos, use green screens, have access to better video and audio recording would help to promote remote readiness and online learning for them.

The current high school structure, with limitations on connectivity, power, storage, collaborative spaces, and open classrooms inhibits teacher creativity and student learning using technology. For technology to be more fully and effectively integrated, teachers need to have more reliable access in spaces that promote collaboration, creativity, and communication. Increased support through more robust professional development is also key. A new high school with a strong, scalable, and advanced infrastructure, would be beneficial for classroom instruction and teacher training and collaboration.

**ART PROGRAMS**

Stoneham High School recognizes that the arts are a vital component of 21st century learning. The arts prepare our students with the skill set they will need to become successful, well-rounded thinkers. Our philosophy is aligned with the Massachusetts state standards which center around the principles of Creating, Presenting, Responding and Connecting. We offer a program of rigorous, relevant courses that support social and emotional growth, promote family and community engagement, are inclusive, make connections across

disciplines, represent diverse cultures, and foster artistic literacy. Strong Arts = Strong Schools = Strong Towns. Our vision for the Visual Arts Department in the new building is one of an expansive space with room to grow. We are lucky to have so many class offerings in our field, but the types of classes are limited by the physical space. We would like to see a Fine and Performing Arts wing that also includes media and audio/visual spaces. We are fans of the CTE model for the arts, as it enables all stakeholders to see the value of a strong arts program.

Current classrooms in size and number are adequate for our current program enrollment. Our worry, as we visit these newer schools, is that we are going to lose this important space. Art rooms are not like other classrooms - there is constant movement and activity, with students working on large pieces both in groups and independently - we need space to spread out. Our square footage requirements are more akin to a gym class as opposed to an academic classroom. We're not really happy with what we've seen at other schools so far.

**Basic Needs for Art Rooms:**

- Designated Ceramics room with proper ventilation (see notes on ceramics below)
- Designated Darkroom (see notes on darkroom below)
- At least 3 art rooms
- North light would be lovely. But simply adding windows would be a major improvement
- Adequate storage space for large materials and large works - i.e. 24"x36" flat files and multiple shelving units
- Adequate space for 28 students, unless our union negotiates smaller class sizes
- Space for SmartBoards or whatever the current technology will be
- Adequate storage space for supplies - ie a wall of shelving units
- Storage closets
- Adequate outlets and in logical places - maybe even in furniture

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- At least 3 sinks per room
- Adequate counter space for things like paper cutters and power tools and such
- Kiln not in the basement

**Ceramics Room:**

Right now, our ceramics room is also used for Art 1 classes. This is tricky because clay dust gets everywhere, including on projects from other classes. Clay rooms are wet environments, and using them for other purposes is not ideal. Our ceramics program is hugely popular and growing every year, so a designated space just for these classes will allow us to expand appropriately. For example, right now we have 2 throwing wheels in class sizes where 8 wheels should be the norm. We would ideally like one wall of the classroom to be a designated throwing space, as it can get messy. We would like the sinks to have clay traps and we'd like enough floor space to house our large equipment, such as our slab roller, pug mill, clay cages, and glaze buckets. A connecting outdoor space for raku / barrel firing would be great. The kiln should be in its own closet with plenty of shelving for stilts and cones and clay carts. A closet for storing clay and molds is also necessary.

**MUSIC AND PERFORMING ARTS PROGRAMS**

Stoneham students are confident, creative, and balanced. The arts in our school are central to that developmental goal. The school has a sizable theater arts program and a thriving music program. Presently the performing arts program serves 23% of our student population, but each year that number continues to rise as interest in these programs and classroom numbers grow. Stoneham recognizes that the arts are a vital component of 21st century learning. The arts prepare our students with the skill set they need to become successful, well-rounded thinkers.

Stoneham High School students can currently take courses in art, music and theatre. After school, the students have multiple opportunities for artistic clubs and organizations. The most populated of these organizations is the drama club program. The club currently consists of 70 students

annually between our technical theater and acting program. The Stoneham High School theater department consists of an acting ensemble and technical crew. The technical crew includes departments that specialize in theatrical lighting, hair and make-up, sound, construction, stage management, props, and house management. Some students have also assistant directed performances and written short pieces to be performed by students. Students involved in crews work collaboratively with their adult instructors to design and construct multiple uniform theatrical pieces throughout the year. These students plan, build, and take part in three productions a year under the supervision of a technical director, director, assistant director, music director, as well as countless adult volunteers. Productions include a fall play, a winter festival, and a Spring musical. During the winter festival the Stoneham High School Theater Department participates in a state-wide festival hosted by the Massachusetts Educational Theater Guilds (METG). Over the years the club has been very successful in this competition and has won multiple awards at the Semi-Final and State levels. Most recently in 2017 the Theater Department made it to the State Finals with their performance of Kindertransport. The METG presently considers us to be a "tier 2" school (scale is from 1-4). Many of our students who participate in the theater arts program go on to pursue the arts in colleges throughout the country.

Currently the school offers an introduction to theater arts course. This course enables students to develop acting skills through the study of improvisation, stage movement and character development. Students work on voice production, diction, script analysis and directing, using monologues and short scripted and unscripted scenes. The course may be repeated for more in-depth study and development. The Theater Department works closely with the visual art and music programs to collaborate on performances. During this past year's METG festival, students from the concert band program created and won an award for their original score for the drama club's production of The Veldt. Once a year the theater department and music department collaborate to offer students a musical theater cabaret.

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The Stoneham High school Music department consists of three performing arts classes. Classes include jazz band, concert band, and the Spartan Chorale. All classes are offered at the College Prep, Advanced College Prep, and Honors Levels. The Music Department has been steadily growing in the past three years. Since 2018, the program has grown 231%. Individual music students have been accepted to the northeast district music ensemble for band and chorus. The jazz band, concert band, and Spartan Chorale were preparing to perform in their first competition since 2008 this past year, 2019-2020 school year. In the past, the program has performed at Disney, the Trills and Thrills music festival, MICCA, and the UNH Jazz Festival. Jazz band, concert band and chorus perform at the high school football games, Veterans Day Ceremony, Martin Luther King Jr. Celebration, Memorial Day Parade, Carnival Ball, May Arts festival, winter and spring concerts, as well as various school and town community events. All three performing arts groups are always looking for ways to become more involved in community events.

In addition to these performing arts classes there are two general music courses. These courses are music appreciation and 20th century pop. Music appreciation is a course that studies music from its first known creation by the Ancient Greeks to the music of the 1900's. This class focuses on a more "Classical" tradition of music as well as music from other areas of the world. 20th Century Pop is a course designed to continue instruction from the Music Appreciation course. 20th Century Pop starts with blues and jazz music of the early 1900's. The course discusses music's transformation throughout the decades as a result of historical, social, and cultural reforms.

The physical space inhabited by both the music and theater departments is severely outdated and in dire need of attention. These areas simply do not support the needs of either program adequately. Both programs continue to grow in numbers and enthusiasm, but are capable of much more than the physical space allows for. Currently the theater arts courses are held in the band room, which due to the tiered nature of the room offers no ability for movement, scene work, or performances. The auditorium is an important part of the work that is done

by the theater department, but the space and technology are highly outdated. Lighting and sound equipment are extremely outdated and need to be improved in order to function for a 2020 space safety. The stages lighting electric lines and lighting fixtures are all stage pin extensions, which is outdated and does not offer the appropriate amount of yield or performance necessary for an impressive production. The present stage offers only three electric lines, however none of them work properly and lighting is often spotty and lacks color and form. Our current sound system is currently analog and is outdated compared to most digital systems. Currently anyone who needs to focus or work on lights would need to climb a 20-foot completely vertical metal ladder to access the lighting loft. The other option is to access a cherry picker from another part of the building that is shared with the janitorial staff. The sound and light board is currently located in one singular space, rather than two separate areas of the auditorium. This booth includes little room for the massive amount of technology necessary for both departments. The lighting/sound boards placement at the far back of the auditorium and its open construction often makes for some distraction during performances. Acoustics within the auditorium and band room are not conducive to quality performances/rehearsals and the current heating system (when it functions) drowns out the performers. Due to the current placement of the Theater Departments construction workshop in the mostly inaccessible basement, production crews must take place on the stage which could become a safety and cleanliness concern. The current workshop space is only for heavy construction and therefore there is no adequate space for other crew departments such as the costumes department or hair and make-up to conduct their work effectively. An increase in space is necessary for the lights, sound, and hair and make-up departments to succeed and thrive. A further struggle felt by the theater department is that there is not adequate storage space for technical theater technology and building materials. The program seeks to conduct its technical work in a safe environment. Presently not having a separate space to build sets and run rehearsals makes it impossible to hold both at the same time. Performers run the risk of stepping on a left behind nail or bumping into a partially built set piece. Currently

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students have no safe or secure place to change their costumes before, during, and after performances. Make-shift dressing rooms have been made available and this space is often difficult to come by. The current space does not offer students a restroom that is within close proximity. In order to move from stage right to stage left (which is often necessary during a performance) students must pass behind a crowded, dark, one-foot channel between the cyc curtain and the auditorium wall. Despite glow tape this is unsafe. Many of the seats in the auditorium are broken and unable to be used for the public. The incline of the seating does not allow for adequate views of the stage, there is also a lack of handicap seating as well as an area for our pit band to play during performances without completely blocking the view of the audience and drowning out much of the action onstage.

The present auditorium and band room accommodates not only for music and theater rehearsals and performances, but also for classes and school/community events. It is a busy and tired space. The addition of a Black Box performance space would drastically improve future performing arts programs by offering more room for alternate courses and more space for community and school usage. This space could also serve as a part time drama classroom during the school day. The theater arts and music departments hope that an alternate black box space will help both programs continue to grow successfully with the option for new more intensive courses, new clubs focusing in music, theater, technical theater, improv, and dance. As the school grows it is important that the Performing Arts and the needs of its students also grows and is not only seen as a club but an actual professional area of study that can be pursued after high school. Not only could performing arts departments benefit from such a space, but it could be used by any department. For example, the English department could use it during Shakespeare units and social studies during large group projects or guest speakers. It would be wonderful for debates, assemblies, school organization meetings, public speaking or presentations of any kind [see list below]. Theatre classes would have a more appropriate rehearsal space making their performances more professional. Community

organizations could benefit from holding events in both the black box as well as the auditorium. Having an improved auditorium space would no doubt improve the safety of students when using the provided technology.

The new auditorium should have 3 to 4 dmx theater electric lines with a total of 30 channels. It is important that these electric lines be able to be manually dropped down to the floor using a fly system, allowing for students to work on lights rather than using a ladder or cherry picker. A set construction and storage room that is close to the auditorium as well as a loading dock for easy transportation of sets and materials. All theater riggings (curtains legs, Cyc, etc.) should be able to fly in and out using a fly system accessible from both backstage and in the back of house lighting board. Auditorium theater should be raised seating with entrances and exits on the first and second floor. Separate sound and lighting booths with up to date board technology should be located at the back of the house in a boxed in setting. The Band should have a lowered pit at the very front of the house in front of the stage for musical performances. The black box, band room, hair and make-up rooms, and dressing rooms should be located close to one another so that they can be used as green rooms for performances. Stage should include two stage right and stage left leg curtains as well as a mid-stage full traveler and front proscenium curtain with a proper cyc curtain. A projector at the back of the auditorium should cover the whole cyc for visual effects.

The physical space inhabited by the music and theater department is severely outdated and in dire need of attention. The current band/chorus room does not have a heating system, mounted projector or smart board, limited Wi-Fi connection, no safe or functioning office space (the ceiling is missing and there is no ventilation or windows), lack of storage for large brass instruments (Tubas and Sousaphones), marching percussion (Marching Bass Drums, Snare Drums, Quad Drums), and percussion instruments (ex. Timpani, mallet percussion, etc.), lack of usable piano's as well as appropriate piano storage. In its current form the 1,936 square foot band/chorus room holds all the music equipment, sheet music, and is used for five different curricular classes. If our current growth of 231% over the past 3 years continues, the performing music

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program would have 117 students annually in five years' time assuming that this trend continues. Currently there are 67 students in the Middle School Concert Band and 50 students in the Middle School Chorus. In the upcoming 2021-2022 school year there is potential for the both the band and choral programs to double in size (26 students in Band and 20 students in Chorus). When designing rehearsal rooms, remember that music is a physical activity. Instrumentalists need space for their instrument and the elbow room to play it. Choir members need space for vocal exercises and choreography. The space must also accommodate equipment and traffic flow.

In addition to performing arts classes, the music room will also be utilized as a classroom. In order to maximize instruction times, the music room must be set up for Band, Jazz Band, Chorus, and elective activities (Theater Arts, Music Appreciation, and/or 20th Century Pop) at all times. General music class sizes range from 10-25 students per class. There are currently 50 students enrolled in these classes in the 2020-2021 school year. More space and appropriate storage would be needed to accommodate the needs of the music program.

Improvements need for music

- No adequate space for band growth
- Band room not appropriate for choral rehearsals
- Too many nonfunctioning and outdated equipment pianos etc.
- Acoustics
- Placement of band room
- No risers or safe risers
- Band uniforms
- Storage

This multi-use and multi-purpose room will be a vital component for interdisciplinary activities within a multimedia space. This space will support learning activities from core academics to music and theatre based courses currently offered at Stoneham High School. We see this space an essential component of our educational delivery to allow for midsize group activities, speakers and presentations as well as an enhancement of our English, Social Studies and Theatre Programs. Such programs

Community Involvement in new spaces				
Greater Boston Stage Company events and performances	Collaboration with Stoneham T.V.	Martin Luther King Jr. Celebration	School Assemblies	Band/ Chorus Concerts
Open Mics	May Arts Festivals	METG Festival	Guest performers and speakers	Dance and Cheerleading competitions
Performance arts Summer camps	Middle school/ elementary school engagements	Town Meetings	Town movie showings	Elections
New Clubs	Dances/shows/events for Senior Citizens	Adult Workshops	College technical theater internships	Carnival Ball
Sports Banquets	Honor Society Banquets	Senior Tea	Music and Chorus Competitions	Rained out Town Concerts
Fundraisers/ Charity Events	Pageants "Ms. Stoneham, Mass."	Auctions	Senior All-Night Party	Magic Shows/Hypnotist
Poetry Slams	Cabarets	Comedy Shows	Dance classes added to curriculum	

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include, Shakespeare presentations, National History Day and Science Fair.

In closing this space will also enhance opportunities for students involved in the tech theatre to develop their skills in the area of set design, lighting, costume, etc. The Interdisciplinary and Performance room would be supervised and maintained by members of performing arts educators. The technical theater students under the direct supervision of educators will be responsible for maintaining lighting and sound equipment. House management students will be responsible for preparing the space for different groups. SHS envisions the space to be a collaborative space for teachers and students across all grades and disciplines. Afterschool community members will also have the opportunity to reserve the space for functions and activities.

**ATHLETIC PROGRAM**

The Physical Education program is an integral part of the total educational experience at Stoneham High School. The curriculum is designed around the concept of fitness education. Healthy bodies are essential to healthy minds; in order to be ready to learn, students must have proper health, nutrition, and exercise. The learning experiences are developed to fulfill the growth, development, and behavior needs of each student, teach students the elements of physical fitness and how they can maintain physical fitness throughout their adult lives. The Physical Education department provides 45 classes over two semesters and are designed to meet the needs of all students.

The gymnasium is utilized year round through school and community use; All PE classes, large school gatherings such as the pep rally, call orientations and rain date graduation, varsity/sub varsity athletics as well as community youth sports' programs. The current gymnasium is very outdated and does not have air conditioning or good ventilation. There are four heaters, but only one works, with repairs being a consistent and temporary remedy. The space is outdated with regard to technology and sound and does not support integration of educational technology or appropriate acoustics.

It is very important to provide SHS students with adequate locker rooms to change into proper athletic wear for their Physical Education classes. Currently there is one large boys locker room that has a large open shower area in the middle splitting the locker room into two spaces. The women's physical education locker room is a large confusing maze. It is made up of lockers on the outside walls, while in the middle of the room is designed with multiple changing rooms attached to showers connecting to the next changing stall which connects to the next shower. Most of these spaces no longer have curtains or have a makeshift curtain to provide privacy. We currently have one office for staff in both locker rooms for teachers to share. This space is important as well. Teachers not only need a home base, but need an opportunity to monitor behaviors in the locker room without awkwardly standing in there making people uncomfortable.

As mentioned above our gymnasium is used for multiple sports programs. In the fall season it is the home to three levels of volleyball. We currently are able to have our varsity court align within the varsity basketball court, providing a great varsity court with bleachers for spectators. We set up two side courts, one for JV and the other for freshman. During inclement weather the gym will then host every fall teams practice from football to soccer, field hockey and cross country.

Winter is when our gymnasium is at its peak use and capacity. The current space is utilized to provide safe and adequate training and practice space as well as that for competition and spectators. The gym hosts practices for all of our boys and girls winter sports teams excluding boys and girls hockey, however, including our Indoor track teams, which run between both teams approximately one hundred and twenty athletes, and you have many athletes running and training up and down our hallways in the main building, doing whatever they can to find space.

Gymnastics is an essential component for a gymnasium beyond twelve thousand square feet. Our Gymnastics Team is an established program of over fifty years. Though a specific gymnasium room could be considered, our concern would be that it would be underutilized in times other than Gymnastics season. Therefore a setup

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similar to our current gymnasium where the gymnastics space is part of the overall space is recommended. It has a 42' x 42' spring floor that goes down and it becomes strictly the gymnastics space and area for all related gymnastic equipment. This arrangement allows us to safely run Gymnastics as well as support our other winter athletic programs. When the season is over we now have much needed extra space in our gymnasium for the other school and community programs, teams and entities that utilize this space for the remaining eight to nine months of the year.

Currently the one issue we have in our gym is that our gymnastics floor, once set up for the season, extends very close to our varsity basketball court. It lies about four - five feet from our out of bounds, and is a possible trip hazard for our athletes or game officials. Consideration for additional footage is required to remedy this concern.

In the spring the gym becomes an indoor practice facility for boys and girls lacrosse, outdoor track, baseball, softball and boys and girls tennis. Depending on the weather, this use of the gym is typically one to two weeks. We set up an indoor batting cage for basketball and softball in the gymnasium where gymnastics used to be. This cage is hung on cables that are attached from one end wall to the other. And slides in and out when used

A big concern with current and future space is making sure there is appropriate storage for both PE equipment and our athletic programs. Making sure there are locker rooms separate for physical education and athletics. We currently have beyond the boys and girls physical education locker rooms, 2 boys athletic locker rooms and 2 girls athletic locker rooms. These locker rooms function much differently than a physical education locker room as it houses many more students at one time and is utilized to hold individual athletic equipment for extended periods. We currently have 2 team meeting rooms where teams can hold large meetings, watch game film and review game plans, as well as 3 coaches offices shared amongst all of our coaches from one season to the next. Thoughtful placement of Athletic Team Locker Rooms, Team Meetings spaces, Trainers office and Coaches Offices to gymnasium and athletic fields while also eliminating or significantly

decreasing access to the Main building and academic classrooms is critical.

Our weight room is a great space, unfortunately, it is not user friendly. As it is now, it is a great strength and conditioning space. Which we need and do not want to lose, but we do think it is important for our PE classes as well as our school community to have a fitness center combined with strength and conditioning. A space that can have a circuit of machines along with cardio options such as treadmill, ellipticals and bikes. The foundation to what we teach in P.E. is the fitness component and having a user friendly room would be tremendously helpful.

In our new gym we hope to see not only these issues addressed, but other improvements as well. The new facility should include separate teaching areas for yoga/mobility exercises. With education leaning towards a universally designed approach as well as a push for social emotional needs, having separate spaces for students to access and exercise will be vital to their education and well being.

**PHYSICAL EDUCATION WISH LIST**

Gymnasium - main basketball court for varsity games. Bleachers to pull out for spectators fitting approx. 600-700 spectators or student body for large events such as Pep rally. Would like to have 3 side courts. If we build a 4th side court it would provide enough space for Gymnastics.

Suspended track - This is a great thing to have for many reasons. PE classes that have many students choose to walk for their activity or have a medical and cannot participate in the class activity choose to walk (today they walk around the gym and are constantly benign careful not to interfere with the class. There are many PE activities with fitness as our foundation that would utilize this space. It provides space for many athletic teams to warm up or train while another group might be in the gymnasium, especially our indoor track team that has runners looking for space to safely run and are in our hallways now.

Gymnastics room - if the gymnasium is not big enough to add gymnastics space (which is our first preference) then this room would need to happen. large enough to fit a 42'

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X 42' spring floor as well as other gymnastics equipment, such as beams and uneven bars, along with a vault (with a runway approx. 70 feet long) and a small area for spectators 50-60 people.

Extra-large storage area for all this gymnastics equipment. We would like to use this room as something else for the remaining 9 months, so we need a very large storage space for gymnastics.

Fitness/strength and conditioning room - user friendly for all - large enough to service a team of about 60 kids at once

1 male PE locker room with Bathrooms - accommodate approx. 50-60 boys

1 female PE locker room with Bathrooms - accommodate approx 50-60 girls. Small lockers as it is just to change for the class. Would like to have changing stalls in both locker rooms. Do not need showers unless it is mandatory. Kids do not shower in P.E.

1 male PE instructor office with bathroom - shared with 2 teachers

1 female PE instructor office with bathroom - share with 2 teachers

1 large PE storage

2 extra-large athletic storage (above and beyond what was mentioned above for gymnastics) for all indoor track equipment (hurdles, high jump mats, shot put, etc. basketball scorer's table along with team chairs approx. 40 chairs. Basketball equipment, volleyball nets and poles as well as referee stand etc.)

Male Athletic locker room - enough to accommodate large lockers for individual sports equipment like shoulder pads and helmets. Large enough for during 1 season we have about 170 male athletes participating and needing a locker. Maybe we have 2 rooms. With showers, athletes tend to shower after practice

Female Athletic locker room - enough to accommodate avg size lockers, not very big equipment mostly sticks such as lax and or field hockey. Large enough for approx. 180 female athletes during 1 season needing a locker again

maybe 2 locker rooms to accommodate this large number. Need showers as well

2 male athletic coaches offices -with bathroom and shower. 1 office needs to accommodate 3 coaches at once, and the other needs to accommodate 8 at one time

2 female athletic coaches offices - with bathroom and shower - both offices need to accommodate 3 coaches at once

1 officials' room - with bathroom and shower - large enough to accommodate 5-6 refs at once

2 team meeting rooms - large enough to accommodate, teams of 60 kids at once to meet as a team or watch films (this is a very important part for some sports)

1 Athletic Training room with storage

1 Athletic Directors office, shared with a secretary (2 rooms or 1) would like to have a conference table as I do now.

1 equipment room with Laundry service - Need to store all sports equipment during their off season which is ¼ of a year.

Outdoor storage

Outside Facilities

An assessment of our current athletic programs, student-athlete enrollment and community use indicate that three to four turf fields would be recommended. A minimum of three would allow SHS to provide equal opportunities for all teams and genders. Scheduling among the many sports teams we have including all sub varsity teams can force teams to have practices that go well into the evening, especially when you don't have the ability to practice on multiple fields. It would allow us to for the first time ever to bring many of our youth programs up to use our facilities. It also allows some revenue opportunities from outside organizations.

The three turf fields should be in as close proximity to each other as possible. Allowing them to be accessed by all and easily supervised. Current observations and public feedback indicate that the community as well as our students would take full advantage of a walking track around the perimeter of our athletic fields and overall

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school campus. This would allow people to use the facilities even during our HS events.

### Outdoor Building

A field house to provide essential supports and needs for our student-athletes, spectators and other vital athletic program supports is necessary. This building would provide the following: 1) bathrooms 2) concessions 3) storage 4) Two team locker rooms/ meeting room 5) small officials space. This building will enhance the ability to do many things to make the athletic experience much greater for all of our athletes male and female, Fall, spring and summer sports. It provides the ability to keep our school building safer with security by not needing to enter the school whether it is during school hours or outside of school hours.

### **LIBRARY / MEDIA CENTER**

The Stoneham High School's library media center's physical space is currently located in one location close to the main entrance of the building and with thoughtful consideration given to layout, allows for maximum flexibility and is a hub of a variety of activities. The library is laid out to accommodate up to 3 individual classes or 80 or more students at a time for academic instruction by the librarian (via a large mobile screen) or for teacher instruction. Teachers can sign up in advance to use the library and can come in last minute if there is room. The library print book collection had been weeded so that books shelves are located only along the outer walls of the room, allowing for the maximum flexibility in the use of the space. EVERYTHING is currently movable with exception of 2 low bookcases that are used as room dividers. The library is also a space for students and teachers to relax with comfy seats, couches, and relaxing music when not being used for academic purposes. Up to 80 or more students can have lunch in the library and also come to the library in the AM for breakfast, to print, do homework, and socialize with their friends. We also have puzzles, chess boards, Legos, coloring books, and board games.

The library is the space where the majority of National History Day work and exhibits are displayed for the

week, Shakespeare day takes place in the library, the art department uses the library for displaying students' work and for art night. Once a month we hold "open mike in the morning" and students can come in in the AM and perform under the direction of the music department. We also have "Teacher Tuesday" once a month and the library is closed at lunch to students so teachers can gather and enjoy the space.

We have created a "history learning lab" in one of the rooms off of the library that is an artifact museum filled with objects that are relevant to the curriculum. These objects are on display and are used in classes and by students in independent study projects

There is one classroom and 4 small meeting rooms off of the library.

Unfortunately, the library is closed for several days a year in order to accommodate large testing groups for MCAS and for AP. This has been an ongoing issue as no one else is allowed to use the space on these days.

The small rooms off the library were used many years ago for storage but have been cleaned out and are now constantly in use for a variety of activities. These are NOT STORAGE ROOMS.

There is one full time licensed library media specialist and until this year a part time paraprofessional.

Until this year the technology coach was also located in a room off the library and held classes there.

The speech pathologist sees students in one of the small rooms off the library.

Guidance holds individual student counseling sessions in one of the rooms off of the library.

Teachers hold professional development meetings in one of the rooms off the library.

VHS students use the rooms off of the library for quiet study.

The rooms off of the library are also frequently used for "green screen" filming by multiple groups of students as part of classroom assignments.

The Library is a constant hub of activity from 7:15AM

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until 4:00PM on school days and on some evenings for special events.

### **SPECIAL EDUCATION PROGRAMS**

Special Education services at Stoneham High School are delivered in a multitude of ways through various programs designed to meet the needs of our diverse student population. These programs include Resource, STRIDE, RISE, Language Based, and ESL services (ESL is not special education). In addition to these programs, the areas of speech and language pathology, transition planning, counseling, occupational therapy, physical therapy, and adaptive P.E. all fall within this discipline. The district is committed to ensuring that students with disabilities receive a quality education in the least restrictive environment. The spaces designated for special education programs in the new building should maintain the current space allocations for all classrooms currently in existence at a minimum. The spaces, while located amongst the school and academic areas, should also consider the students' auditory, visual, and other related sensitivities. The spaces for future special education students should also ensure easy access to service providers and instructional areas.

### **Resource Program:**

The inclusion / partnerships program at Stoneham High School offers academic support and instruction in reading, written language, mathematics, study and organizational skills for students with a variety of disabilities. In addition, special education teachers co-teach in a number of general education classes. The inclusion program is for disabled students who require academic remediation through specially designed instruction and classroom accommodations. Classroom materials are used as the context to develop skills of reading comprehension, written expression, and mathematics, as well as study skills such as organizational skills, note taking, outlining, report writing and test preparation. Each student has a liaison who communicates with parents, teachers and counselors in order to meet specific student needs as described in the IEP, including, home-school communication and collaboration with general education

teachers and related service providers. The majority of high school students receiving special education services are part of the inclusion program. All disability categories are served in the inclusion program including learning disabilities, physical impairments, emotional disabilities, health-related disabilities, autism spectrum disorders, physical and sensory disabilities. The students in the inclusion program receive most of their instruction in their general education classroom. They may also receive some academic explicit instruction in a small group setting or a related service outside their classroom to address underdeveloped skills. Specialized small group academic instruction occurs as frequently as other content classes. Given the needs and increased demands of high school students, if needed, instruction is also provided to improve executive functioning skills. Executive functioning instruction will target a student's needs to manage belongings, short- and long-term assignments, and organizational skills. In this educational model, the needs of all students are being met by educating learners with disabilities alongside their non-disabled peers. A critical component of inclusion is to provide students with disabilities access to the curriculum, regardless of the level. Curriculum may be modified as specified in the student's Individualized Education Plan. The mission of the program is to teach learning strategies to students to help them compensate for their area(s) of learning disability. Understanding their own strengths and weaknesses as learners and self-advocacy are components of this teaching model as well. Co-taught classrooms are an effective model of inclusive education. These classrooms are led by a certified content area high school teacher and a special education teacher. Students receiving support through the co-taught classrooms can have a variety of learning and social needs including language-based disabilities. Given direct instruction and with strategies embedded throughout the day, students are working towards meeting grade level benchmarks. Small group instruction outside the general education classroom is available for academic remediation or for related services.

### UTILIZATION OF CURRENT SPACE; RESOURCE:

At the present time, students enrolled in a full-inclusion program who receive specialized, direct instruction

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outside of the general education classroom are serviced through Resource. At the present time, there are 3 classrooms designated for Resource services. These rooms vary in size, location, and proximity to primary academic areas of the school and other service providers. The 3 classroom spaces are shared between 4 educators who provide learning strategies as well as additional services for students with reading or hearing based disabilities. Students with widely varying levels of ability, age, and need are supported within the same space. 2 of these classrooms have, historically, been adjoining rooms for seamless communication/collaboration between educators in the short moments between classes.

Resource spaces have historically been very small, and unable to accommodate more than 8 students at a time. This proves challenging during periods when simultaneous resource blocks are held within shared spaces, as it is not conducive to providing services in a distraction-free environment. Academic testing for 3-year reevaluation meetings also takes place in these classrooms, which leads to overcrowding in the adjoining classrooms. This overcrowding also becomes a factor when students utilize a separate setting for assessments in their general education classrooms. Teachers then become responsible for not only monitoring their students scheduled for class but also monitoring students who are taking assessments. Teachers are also unable to utilize their prep times without distraction due to resource classes being utilized for separate setting accommodations. Students who take frequent breaks and are benefited by flexible seating are unable to utilize these accommodations in our classrooms effectively due to size constraints. Our space is also unsuitable for displaying the necessary resources/anchor charts for all subject levels/necessary supports across the four grades we support simultaneously. It is very challenging, in our current spaces, for students to de-escalate without distracting their peers. It is also noteworthy that 2 of the 3 classrooms do not have windows, all do not have adequate storage space for materials/manipulatives, and all do not have adequate storage space for general classroom materials. We are unable to effectively communicate with the teacher in the non-adjoining room due to our proximity to each

other. We are also unable to effectively communicate with general educators due to our classrooms' locations. Our technology is inconsistent, which means collaboration is more difficult due to an inability to share presentations/materials. Our space is not conducive to effectively supporting these needs at the present time.

FUTURE SUGGESTIONS FOR RESOURCE:

- Windows to the outside.
- Adequate wall space to display anchor charts/resources for all courses and all grade levels
- Availability of an adjoining, common mutual space in order to facilitate large group direct instruction.
- Multiple, small designated quiet spaces for students receiving small-group instruction or students utilizing their separate setting accommodation for assessments.
- Break spaces in proximity to our rooms so not to distract from lessons currently going on would benefit us greatly.
- Designated places for testing, outside of our classrooms, would provide a sufficient environment for students to focus and perform at the best of their ability.
- Technology that provides seamless access to lessons as well as meets the needs of students with visual/motor disabilities is essential to future Resource classes.
- Proximity to gym/weight room/track for quick movement breaks, a green room/garden for calming effects, bathrooms, and guidance/social emotional supports
- Design and creation of a sensory wall/hallway would benefit resource students and the general population.
- Flexible seating (e.g., hammocks/benches that can provide sensory support for dysregulated students) would provide students with an environment with which to attend to their work without discomfort.
- A Learning Center suite in a central location, with general education classes surrounding it, is ultimately

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our ideal design.

- A designated meeting room for IEP meetings and testing

**STRIDE program: Students Taking Responsibility in Developing Excellence**

Students with social-emotional disabilities are serviced through the STRIDE program at Stoneham High School. In the STRIDE program, educators create an academically engaging, safe, and nurturing environment for their students. The 2 stride teachers and 2 clinicians who provide substantially separate services (e.g., academic and counseling services) collaborate with general educators in order to provide meaningful experiences that enhance a student's life skills and direction for their future goals (e.g., community engagement, core academics, volunteer work, etc.). These educators and clinicians communicate effectively with other service providers such as physical therapy, occupational therapy, reading specialists, and others.

STRIDE is a therapeutic program that teaches and supports students in grades 9-12 in a myriad of ways. The STRIDE program consists of ten students, (two general education students and eight special education students) two special education teachers and two clinicians. Capacity would be limited to 20 students if there was a need. Students in this program are housed in a suite model with counseling offices and a large classroom for the academics. General education teachers work with the staff to co-teach their content classes. A core course in "skill building" is required of all students and is led by clinicians to build a sense of community, engage students to own actions and behavior, and plan for the future. Additionally, important transition work guides their courses of study and may include work study elements to support experience and employability.

Numbers have been anywhere from 10-18 students in the past.

All members of the program are part of a community grounded by four "cornerstones": respect (for yourself, others, and your environment), responsibility (for your actions), self-control (of your behavior), and repair (the

ability to fix things when needed). It is the belief that these cornerstones and a sense of belonging to a caring smaller learning community will help each student build healthy relationships, communicate effectively and develop respect for differences in other people in order to be successful in school. The goal of the STRIDE program is to provide students with the support to build academic competencies, positive relationships, communication skills and a sense of responsibility and community that will foster their success in school. Understanding that learning disabilities often are present along with social/emotional challenges, there is a strong specialized academic component to the program. Most core subjects are co-taught by a content certified high school teacher and a special education teacher. Remedial strategies and instruction are provided in the same manner as students with specific learning disabilities and language-based learning disabilities. Specialized elective classes for the program are available and are supported by program staff. Students have inclusion opportunities to participate in mainstream classes and are supported by a program paraprofessional. In addition to a strong academic component, there is a high degree of therapeutic support. A positive behavior management system is part of the classroom structure. Individual positive behavioral supports are put in place for students who require additional incentives. A weekly group counseling session conducted by the school psychologist is an important component to the program. Individual counseling is provided to students as needed to assist them in meeting their behavioral, social and emotional needs. Vocational instruction is provided weekly in the program by EMARC.

UTILIZATION OF CURRENT SPACE; STRIDE:

There is one classroom shared between teachers. This space has community access and office spaces for clinicians/teachers to separate grade levels and provide direct instruction in an individualized way. The classroom is on the first floor in close proximity to the musical arts, the auditorium, the guidance office, and has its own entrance/exit for emergency purposes. This set-up is ideal as it allows seamless transition to clinicians/service providers in the case of escalation and further support in the general education setting. While there are

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bathrooms near the STRIDE classroom presently, they are inoperable. However, in the future it would benefit students to be near a bathroom in order to assuage any anxieties or social concerns. The staff in STRIDE are met with challenges when faced with a student in crisis or a student who requires testing, due to a lack of private space that ensures confidentiality of the student. Many of the challenges in Resource are mirrored within STRIDE as they pertain to testing, separate setting accommodations, flexible seating, and other aforementioned struggles.

**FUTURE SUGGESTIONS FOR STRIDE:**

- Maintaining the proximity to service providers
- Proximity to private bathrooms
- Proximity to a room designed for movement breaks - treadmill/punching bag
- Proximity to sensory hallway/room/lounge
- Clinicians with private offices for confidentiality
- Location to kitchen-like space/cafeteria
- Private space for quiet lunch
- Multiple classrooms for providing services to students with widely varying needs/levels
- Proximity to gym/weight room/track for quick movement breaks
- Proximity to a green room/garden/aquarium for calming effects and also to allow for career exploration
- Proximity to a therapeutic/social/emotional support space
- Location to hands on opportunities (garden, RISE, pre-K, shop, cosmetology, ATM, chef, etc.) to evoke and foster a sense of purpose and independence
- A designated meeting room for IEP meetings and testing

**RISE program: Reaching Independence through Structured Environments**

Currently, a substantially separate program exists for students with autism spectrum disorder (ASD),

social- emotional disabilities, cognitive and/or neurological impairments, and students in transition (18-22). They are served in the RISE program.

The RISE Program offers a substantially separate program for students with more severe disabilities requiring a higher level of support and specialized instruction than in the integrated program. All the students in the RISE program require special education services. As developmentally appropriate, opportunities for inclusion with the integrated preschool are available for all students in the program. The program is staffed with a teacher certified in early childhood special education, a full time ABA specialist, and several paraprofessionals. In addition, a speech/language pathologist, occupational therapist, physical therapist, school psychologist, and Board Certified Behavior Analyst (BCBA) are part of the classroom interdisciplinary team. The BCBA consults with all program staff and provides ongoing training on ABA methodologies. The curriculum is child-centered and offers developmentally appropriate activity-based learning for preschool children. The range of direct services varies widely depending on a student's individualized needs. The type and frequency of service are decided at the child's IEP Team meeting. The school adjustment counselor and psychologist are available to families to provide support and community outreach.

The RISE program is delineated to two groups based on the severity of their disability.

RISE I teaches and supports students that will likely graduate from high school within 4-5 years, may earn a traditional high school diploma and acquire a job and or attend a community college. Many of the classes taught in this program are inclusion with a co-teacher and aide. The primary classroom has space for core academics as well as a kitchen and living area to practice with skills. Currently this program houses nine students with a primary teacher and three assistants.

RISE II teaches and supports students that will require schooling up until the age of 22 when adult agencies including DDS and MRC become involved and take over with care. The class is self-contained with inclusion elective courses. This classroom has seven students, has a

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dedicated lead teacher, and four ABA techs to support.

For both of these programs, a large focus is placed on building life skills and having vocational opportunities to thrive and grow in addition to general core academics. Students and staff regularly utilize the school van for outings, work, trips, shopping and meals.

Numbers for these programs have been consistent over the last few years.

**UTILIZATION OF CURRENT SPACE; RISE:**

This program was developed in order to service students who would historically have been placed out of district due to the intensity of service needs. Currently, this program is located in an inclusive placement in close proximity to the nurse, general use restrooms, and main office. The two classrooms and their respective teachers are designed in order to accommodate students with a high level of need, which includes flexible seating. One of the classrooms has a number of appliances that allow students to practice lifelong skills such as cooking, cleaning, and organization of materials. The classrooms do not have adequate built-in storage for the innumerable materials utilized by their students and staff. The classrooms also do not allow for appropriate spacing, given the high number of staff and practitioners who push-in in order to support students in the program.

**FUTURE SUGGESTIONS FOR RISE:**

Due to the skills that students in this program are working on, they require a designated space to work on vocational skills and activities of daily living. A designated space for vocational purposes - including a copier, scanner, computer, printer, and materials to complete clerical tasks, etc. would further improve the RISE program. This space could be used by both teachers and students.

A designated space that is set up similar to an apartment, including a kitchen area, bedroom area, and a dining area is essential for the success of the substantially separate population. Appliances would include a refrigerator, microwave, oven, sink dishwasher, washer and dryer. Within this space, all students can practice daily living skills such as cooking, making a bed, vacuuming, washing clothes, folding clothes, ironing, washing dishes, loading a

dishwasher, etc. This multipurpose room should be linked to the RISE classroom although perhaps not necessarily adjoining. This space would foster inclusion and could be located near cooking/"restaurant"/design/fashion class.

This area would also be improved by the addition of an instructional bathroom used to teach RISE students hygiene and grooming skills (e.g. brushing teeth, washing face, wiping after bowel movements, showering, etc.). In an ideal situation, this would be a "Jack & Jill" bathroom (in the middle of the classes), which would be less accessible to outside students to ensure privacy and reduce anxiety, educational and instructional bathroom. The bathroom should have 2 stalls, a shower, and a grooming area/dressing nook. The bathroom should seamlessly work with the apartment set up the RISE classrooms need.

- Close to exit for fire drills/emergencies
- First floor ideal: physical/mental needs of students
- Wheelchair accessible room
- Space that allows for an entrance/exit to the outdoors
- Location near track/own outdoor space
- Access to a gardening space in order to teach valuable life skills
- Location near other support staff
- Proximity away from gym/cafeteria/music space
- Proximity to sensory room/hallway/quiet spaces
- A sensory lounge or suite
- Location that provides seamless transition to service providers/partnerships in the building (chef)
- Preservation of inclusivity while still providing access to additional spaces
- Resources/rooms that allow students to practice the skills/have valuable experiences in the community
- Vocational opportunities; coffee shop, medical related, inventory tracking, hair salon, pre-K support, etc.
- Sensory resources such as bungee chairs, swing,

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- weighted blankets
- Room/space for de-escalation that allows for confidentiality and safety of students
- In order to continue to ensure an inclusive learning community for all students regardless of need and ability, the sub-separate program classrooms should be located within the primary academic areas of the school
- A designated meeting room for IEP meetings and testing

### Language Based Program

The language based program at Stoneham High School serves students within our population who require specially designed instruction pertaining to language based skills. This includes, but is not limited to, students with reading, listening, and writing based disabilities such as dyslexia and decoding challenges. Language based teachers provide specific, developmentally appropriate support and instruction which pertains to each student's need in a substantially separate setting. The program supports students in all grade levels, often simultaneously, which provides a challenge to educators when supporting students of widely varying ability. The current program is held within one classroom that supports a varying number of students where multiple teachers and paraprofessionals are giving instruction at once. There is no privacy, which creates challenges for confidentiality purposes. The language based program walks the line between special education and substantially separate.

### FUTURE SUGGESTIONS FOR LANGUAGE BASED:

- Space's ability to allow educators to differentiate instruction seamlessly
- Current space challenging for testing students in an environment that provides confidentiality/student ability to not be distracted
- Proximity to reading services/speech/suite
- Proximity away from loud places (gym/music/etc.)
- Space placement that reduces stigma
- One large room or two adjoining rooms

- Technology; phone, headphones, projector, etc.
- Designated space for testing and confidential phone calls
- Flexible seating arrangements/potential
- Frequent break space - sensory room/hallway (maybe near the gym?)
- A designated meeting room for IEP meetings and testing

### english language learner (ell) program

The English Language Learner (ELL) Program is designed to meet the linguistic, academic and social needs of English Language Learners who attend Stoneham High School. ELs are students who are learning English as a second or additional language and who are not yet proficient in English at their grade level. The ELL Program creates a welcoming and challenging learning community where students acquire proficiency in both conversational and academic English. Students are enrolled in rigorous ESL courses taught by certified ESL teachers, and learn English in the areas of listening, speaking, reading, and writing. Students are also enrolled in academic courses taught by educators with sheltered English immersion (SEI) endorsement, with methods of teaching that are responsive to the learning needs of students developing English language proficiency. Students are assessed annually using the WIDA-ACCESS test of English language proficiency. This assessment tool is used in many states nationwide which are members of the WIDA consortium. This program's enrollment has grown 100% since its initial class and continues to grow. Its location has been moved as the students' enrollment exceeds the space capacity of the room. It is safe to assume that this program will continue to grow, with a minimum of 20 students by the 2021-2022 SY, as we foster an inclusive environment at Stoneham High School. While there is one teacher currently in the program, it is anticipated that there could be as many as three teachers required to fit the student need.

### FUTURE SUGGESTIONS FOR ESL SERVICES:

- Inclusive, central room placement that allows ESL

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- students to be part of the fabric of the school ideally in close proximity to the library
- Proximity to general education classes and reading specialists
- Flexible seating options (standing desks, yoga balls, couch, beanbags, etc.)
- Flexible walls for grouping/cloth dividers if possible to allow students to speak/listen without bothering classmates (cloth or cork covered for sound absorption) which will allow for a multi-functional space
- Acoustics to allow for clear, concise language/ instruction to be heard (e.g., carpet, wall tiles, etc.)
- Language lab-like tech or proximity if one exists; green screen, listening tools, speaking tools, recording tools, smartboard etc.
- Adequate wall space/bulletin boards/white boards to display necessary anchor charts/resource materials in both English and other languages
- Non-negotiable proximity AWAY from high noise areas: gym/cafeteria/auditorium/musical arts

### Speech and Language Services

Speech and Language services are provided through district speech and language pathologists. At the present time, these individuals travel with the hopes of finding open space as it is available. In the past, they have used a shared office in the library at Stoneham High School. The speech and language pathologist provides instruction in regard to articulation, pragmatics, social skills, and other remedial skills for improving an individuals' expressive/ receptive language. The speech/language pathologists should have a designated office in the school, preferably close to the RISE and LB programs.

### Reading Services

Reading services are provided through the district of Stoneham's reading specialist. The current space at the high school is a windowless room suited for a maximum of three people. It is located in proximity to general education classes, a high-traffic stairwell, and lacks the

acoustics needed for students to attend to their work and reading skills effectively. The reading teacher should have an office or designated classroom space, preferably near the LB program.

### Occupational Therapy Services

Occupational therapists push-in to designated classrooms or spaces that are unoccupied to provide services for students with OT needs. The lack of designated space proves challenging for maintaining confidentiality.

### Physical Therapy Services

Very few students require this service and if needed, can utilize appropriate gymnasium equipment or work in a sub separate classroom space.

### Adapted P.E. Services

Stoneham High School does not have an adaptive physical education/wellness program. All students participate in a general physical education/wellness class. Accommodations and modifications are provided in the general education class for students who require this service. If required, instructional assistants or outside service providers assist students in their physical education class.

### Transition Specialist

IDEA 1997: 300.29 defines Transition Services as: "a coordinated set of activities for a student with a disability that (a) is designed within an outcome-oriented process, that promotes movement from school to post-school activities, including postsecondary education, vocational training, integrated employment (including supported employment), continuing and adult education, adult services, independent living, and/or community participation, (b) is based on the individual student's needs, taking into account student's preferences and interests, and (c) includes instruction, related services, community experiences, the development of employment and other post-school adult living objectives, and if appropriate the acquisition of daily living skills and functional vocational evaluations."

All students, including students with disabilities,

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“deserve a world-class education that prepares them for postsecondary opportunities, career training options, economically viable careers, and healthy productive lives.”<sup>1</sup> As the Board of Elementary and Secondary Education’s Taskforce on Integrating College and Career Readiness recognized, “every child deserves an education that nurtures their dreams and lays out a navigable pathway to accomplish them. It is no longer viable for our businesses or our educators to under invest in career readiness education; we have a responsibility to provide our children with a well-rounded education that prepares them not just to begin post-secondary education, but access to viable, living-wage, family supporting careers, and lifelong prosperity.”<sup>2</sup>

As the transition specialist, the roles and responsibilities are ever changing based upon student population and need. Much of the work completed is highly individualized for each student. The transition specialist plays an important role in the education of youth with disabilities and is the person that helps create a bridge to life after high school through assessing, planning and delivering individualized services and supports that prepare youth for their future. Transition specialists coordinate services with adult agencies and community providers to ensure students transition effectively to life after high school.

The transition specialist has a range of knowledge including, but not limited to: conducting individualized transition assessments, creating measurable post-secondary goals, fostering self-determination and self-advocacy skills, and creating and delivering appropriate transition systems/services including employment, community and post-secondary education opportunities, paid employment based on the student’s identified interests, learning independent living skills such as utilizing public transit, or attending college classes or continuing/ adult education.

**CURRENT SPACE UTILIZATION AND FUTURE SUGGESTIONS:**

At the present time, our transition specialist is located within the guidance suite in a room identified as a closet in the building plans. It does not include windows or adequate space in order to effectively provide

assessments for more than one student at a time. A future space should have ample space in order to accommodate for testing, a large amount of materials/resources, and in order to involve small group sessions.

**Social Emotional Supports, Current Services and Programs:**

In addition to the four school counselors, the high school currently offers social emotional support and counseling via one school adjustment counselor and one school psychologist. Both conduct individual and group counseling, including social skills groups which are held during lunch blocks and during flex blocks. In addition, they provide services to students enrolled in our RISE special education program and work closely with the teachers and staff of that program. For students who require more intensive counseling support in order to access their education or remain engaged in school, these counseling supports are available upon referral from their school counselor.

Both the school adjustment counselor and school psychologist are also important members of the special education process, and their direct services are frequently outlined as a required component of students’ Individual Education Plans or 504 Plans. The school psychologist also spends a significant amount of time conducting confidential testing and assessments to determine students’ eligibility for special education services. During the 2019-20 school year, the school adjustment counselor provided services to approximately 25 IEP and 10 non-IEP/504 students, and the school psychologist had a caseload of 23 students for counseling and 40 students for assessment.

Both of these school support professionals currently have offices in the school counseling suite. These office locations are ideal for facilitating collaboration with the four school counselors, as well as providing the necessary discretion and confidentiality for engaging with students, families, and collateral supports such as therapists and social workers from the community. The proximity of these offices is also essential during crisis situations to facilitate clinical collaboration.

Given the frequency of meetings involving parent/

**B. EDUCATIONAL PROGRAM**

guardian visitors that are facilitated by all members of the counseling suite, the current location of the counseling suite near the front of the building is ideal from a safety and security perspective. In addition to hosting parents, the school adjustment counselor and school psychologist will often invite community providers in the building (ex. outside therapists, MassRehab counselors, Department of Children & Families social workers, mentors, etc.) for collaboration and wrap around student care. Minimizing the travel of these guests throughout the building is a crucial component of student safety.

**PROPOSED CHANGES AND WHY, OR STATEMENT THAT NO CHANGES ARE PROPOSED:**

Small group counseling sessions facilitated by the school adjustment counselor and school psychologist are currently held in a conference room or small meeting space in the library. Frequently the location of these groups has to be changed at the last minute due to competing needs for the available spaces, such as other meetings in progress, which takes away from the group counseling time. The proposed multipurpose meeting space for the school counseling suite would be ideal for housing these group counseling sessions, in addition to providing a space for the implementation of counseling curriculum and college representative meetings.

A multipurpose space would also allow more flexibility in times of crisis (for crisis evaluations and de-escalation spaces). Additionally, this space could be used when peer social issues arise to conduct mediations (to separate students and then to bring them together in a neutral space/larger space for the actual mediation).

**Design Response:**

**RESOURCE PROGRAM:**

- A learning suite (1 large common mutual space for large-group lessons with adjoining offices)
- (4) Offices for educators; utilized for prep, testing students, utilization by other practitioners as needed
- (4) Classrooms for educational instruction, location TBD
- (8) Small designated quiet spaces for students

receiving small-group instruction or utilizing their separate setting accommodation for assessments that does not take away from students receiving Resource instruction/teachers utilizing their prep time

**STRIDE PROGRAM:**

- (2) Classrooms in close proximity to support staff/ guidance/practitioners
- Private Bathroom
- (4) Offices for clinicians/educators to provide services with confidentiality

- (1) Large meeting room/mutual space/suite

**RISE PROGRAM:**

- (2) Classrooms for educational instruction; students with severe needs
- Private Jack & Jill bathroom/changing area/grooming station shared between the severe classrooms
- Studio apartment to include kitchenette (stove, sink, dishwasher, refrigerator), bed, dining, storage, stackable washer & dryer
- Vocational space; shared with others such as culinary cafe
- Therapeutic de-escalation room similar to sensory room

**LANGUAGE BASED PROGRAM:**

- (2) Classrooms for educational instruction, ideally connected/adjoining; equipped with features that benefit students acoustically
- (2) Offices for educators; utilized for prep, testing students, utilization by other practitioners as needed

**ESL PROGRAM:**

- (1) Classroom for educational instruction; equipped with features that benefit students acoustically
- (1) Office for educators; utilized for prep, testing students, utilization by other practitioners as needed
- Language lab with technology (e.g., green screen, projector, etc.) that allows for seamless integration of

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lessons to student activity

**SPEECH AND LANGUAGE:**

- (1) Half-sized classroom for educational instruction; equipped with features that benefit students acoustically
- (1) Office for educators; utilized for prep, testing students, utilization by other practitioners as needed

**READING SERVICES:**

- (1) Half-sized classroom for educational instruction; equipped with features that benefit students acoustically
- (1) Office for educators; utilized for prep, testing students, utilization by other practitioners as needed

**OT/PT:**

- (1) Room specifically designed for OT/PT needs to maintain confidentiality and instruction without distracting peers

**CAREER AND TECHNICAL EDUCATION PROGRAMS**

A current national trend and one that will continue for many years, is career and technical education, or CTE, which exposes students to real-life experiences more directly. These elective courses are where academics are applied. In order to enable students to become “well rounded” individuals, careful attention must be made to the design of the physical environment of these programs. The emergence of CTE is a recognition on the part of school districts that A.) not every high school student is going to college, and B.) students need earlier exposure to different professions so they can determine what they might like to do as an adult and get training for that job while in high school.

CTE is a pathway to success for high school students and offers each student opportunities to personalize his or her education based on their career interests and unique learning needs. CTE refers to courses and programs designed to prepare students for careers in current or emerging professions. At the high school level, CTE provides students with opportunities to explore a career

theme of interest while learning a set of technical and employability skills that integrate into or complement their academic studies. High school CTE is meant to connect with and lead to postsecondary programs of study or additional training after high school, which may include more specialized technical instruction. These pathways can culminate in postsecondary degrees or certificates, apprenticeships, or employment. Currently the high school has a robust FACS program and has recently begun a Project Lead the Way program, that began at the Middle school.

During the previous comprehensive facilities study, one of the identified goals of design was to increase the quantity and quality of hands-on opportunities available to students at Stoneham High School. Although Stoneham High School does not currently offer any Chapter 74 vocational programs, an area of opportunity exists to create a Chapter 74 program in Early Education and Care, by creating greater coordination between our high school and the two elementary school preschool programs and merge them with the Child Development and Internship program already at the high school level.

**Culinary/FACS**

Family and consumer sciences, like other elective departments, allow students to apply academic skills, use creative thinking, practice problem solving, increase fine motor skills by working with their hands and develop communication tools which could lead to a future career, personal achievement and home and family enrichment. Currently in the program we offer to 9th thru 12th graders: Food and Nutrition, Sports Nutrition, International Foods, Fundamentals of Baking, Culinary 1 &2, Adult skills, Fashion/Sewing 1,2,3 and Child Development 1 and 2. Class size in the Food and Fashion Labs are capped at 18 due to Safety and OSHA guidelines. The food lab individual kitchens are equipped for 3 people. We have a waitlist consistently for all food classes, with as many as 350 students signing up for Food and Nutrition alone. The kitchen labs are available for all seven periods of the day and can easily be filled to the maxim for both semesters. Locating the food lab part of the FACS department near the Cafeteria would assist with a possible “Sparty’s

**B. EDUCATIONAL PROGRAM**

Cafe” (that we currently run out of our classroom space) that is accessible to teachers during the day and events during the evening/weekends. It is the vision that the cafeteria kitchen be on one side of the open designed cafeteria and the Sparty’s Cafe be on the other side with not only an open space to the cafeteria but a small teacher/administration dining area adjacent, so that students can have more real world experience in the restaurant industry.

The FACS/Culinary foods lab must have easy access to a door to the outside of the building and parking space for the delivery of groceries and supplies. Storage Area with laundry centrally located with shelving for larger items and equipment being used in rotation, along with larger food product items. Laundry will also need a (short) vent to the outside.

Currently, there are 7 home kitchens within the lab space, 6 for students and one for teacher/student demonstrations. The ideal program would have commercial restaurant equipment in the 7th kitchen space as not only a part of the demonstration area but as part of the culinary students workspace for the dining room/cafe, with room for a commercial dishwasher. The 6th student kitchen space should be handicap accessible and adaptable to those with special needs.

The kitchen space lacks storage as current storage is located in another classroom down the hall with the washer and dryer. The ideal plan would be that they are both located within the Food lab space in some capacity, especially the laundry area which is used several times within the day. This food lab space going forward could be used for Community Adult Education in the evening when possible for cooking classes. Going forward the space would need to be bigger than the 1400 sq ft suggested, as we need storage space, laundry, cafe, and special needs accommodations.

- Large kitchen space with 6 residential style kitchens
- One commercial demonstration kitchen towards the front of the room that has access to the cafe
- Laundry and storage area (add 150 sq ft)

- Student storage space for uniforms/bags
- Faculty Sparty’s Cafe (add 800 sq ft) Ideally this space would be very similar to the project room space on the 2nd floor of the SPS middle school, a space that has room to accommodate guest for lunch, a copy room area, and be utilized for smaller district events
- Close proximity to the cafe and access to outside door or elevator

**Child Development**

Currently both Child development classes, 1 and 2, are located in the FCS department right next to the food labs. They run 3 periods during a semester as it is a shared space with fashion/sewing and adult skills. The classroom has adequate space for supplies, and it would be ideal if that continues. The classes themselves are maxed out at 24, with most classes being filled each semester.

The ideal location would be closer to the new Pre-K space being suggested as it would be nice for high school students to have an observational lab within their room, and to bring back the Child Development 3 Internship program, which had an average number of ten students going out to the Pre-K classes throughout the district for work experience. Having work experience within the building would be ideal because of transportation issues in the past, getting students to their “job” if they did not drive and their classroom teacher being able to easily observe them without leaving the building. Many students throughout the years have shown an interest in post-secondary education, majoring in early childhood or elementary education and child psychology. This would give them a great opportunity to experience real-life scenarios. Having the classroom intermingled within the several early childhood classrooms planned would be a benefit, along with those teachers being used as mentors in the 3rd year program.

- Large classroom space adjacent to to the Pre-K Program
- Ability to split the classroom into different areas
- Sink area for project production
- Storage space

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- 2-way glass mirror for observation of students

**School Store / entrepreneurship**

In the past, our school store was a vibrant opportunity for the DECA program’s entrepreneurial class, when curriculum and funding changed it left a hole which was filled recently with our RISE program within our special education department, using it as a vocational job training space. Now that the business department has merged with the economics classes there is a need for a robust store that can not only help to train those in the RISE program but also help students wishing to go into some type of business. It will act as an opportunity to learn more about product sales, accounting, purchasing, and marketing, along with a great collaboration with the special education students.

The store is currently open 2 to 3 days a week and staffed by the RISE students only with very selective hours. In the past it was a store run by at least 30 or more students rotating in, consecutively each day before school and during lunch. The space allotment it has now is adequate for what is being taught, however it does not have storage space for items such as overflow merchandise. Preferably it would be adjacent to the Economic/business classroom which could be near the library or some other populated area giving access to all students throughout the day. However there needs to be added space allocated to storage for merchandise/products, as there is currently no storage at all and housed throughout our current building in various locations.

- 600 sq ft store
- Storage area needs to be added (150 sq ft)
- Near library or cafe for student access

**Scene/wood shop**

Currently there is no woodworking class of this kind, however, there was once a woodworking shop in the basement of our current building, where if classes were run, were easily filled. The need for a real life skill such as woodworking is not only evident now with homeowners doing their own DIY, but it is an opportune time for students to show their creative thinking, problem solving,

and fine motor skills by working with their hands and also using engineering skills. Not only would there need to be room for actual equipment, there would need to be a designated space for CAD and printer to print plans.

The ideal location would be between the engineering program for project based learning, and the auditorium as the class could be used for set design for the award winning drama department which used to use the woodworking space that was once located in the current basement of the building and has since been disassembled. The drama department now uses the parking lot, hallways, and student homes to build the items needed for their productions.

The recommended class size for students would be to use OSHA guidelines for safety. This space could also be utilized for Adult education because so many people are DIYers now and looking for opportunities to learn within the community.

- Large space that allows for dual access
- Access to the auditorium
- Access to the outside with garage door for deliveries/project pick-up
- Dust machine will need a higher ceiling

**Film Editing / Production**

The film editing classroom currently utilizes a computer lab which is a shared space with art. This lab is actually only utilized 2 to 3 periods a day but in the past was used 4 to 5 times throughout the day. Stoneham has seen in the past decade many students go into film/video production along with electronic music production. The ideal opportunity would be to combine the classroom theory into the lab space in computer science and use the space allocated in the plan to a small soundproof studio that could be used for video production, tv/news studio, or recording studio for the music department. With the excellent opportunities in the Boston area to further their education in film, video, or music production it would be a great training opportunity. We would also like to expand our existing partnership with the local television station that was once housed in our building, to include more

**B. EDUCATIONAL PROGRAM**

student produced material, such as sporting events and productions. Again, this would be utilizing the student’s creativity, management, and business skills.

- Large space divided into film editing, green room area
- Small lockable storage area
- Part of this large area should have space for small studio for filming Stoneham TV

**Maker Space / Robotics**

This space better known as an Innovation Lab would be an open space wired for technology around the room so that it could serve multiple uses and be accessed by all departments for groups and large projects. This lab could also house robotics courses in the future as the school does not currently offer robotics but would like to add it into the PLTW program. We currently do not have an innovation lab but looking to the future and wanting to expand the Project Lead the Way (PLTW) program this would create a great opportunity and best use of shared space. PLTW is currently a very robust class within the 7th and 8th grade curriculum in the Middle School, and as a feeder school to the high school it is important to keep the momentum going in such a sought after career field. This space could also house the tech leader program that has in their curriculum computer repair services. We see this as being utilized all periods of the day with the space having a sign-up sheet for open use areas with a possible waiting list to get in. The space will also be available for the open periods the students will have such as the FLEX period. Students will have the opportunity to sign up for a spot in the lab during the FLEX period. We

**Engineering Lab**

Currently our district is in the second year of implementing the PLTW program of Engineering, by offering 2 periods per semester. The space is located in a computer lab without adequate ventilation and no space for collaboration or possible assembly of project ideas. To accommodate our future expansion goals, a proposed CAD/engineering lab would be wired for various technologies including laptops with ethernet access points throughout the room and possibly a bank of 3D printers. The CAD lab would also have space with open counters

and floor space so that students can assemble products and test design solutions. This space would be ideally located between the computer labs and the woodworking area, so that engineering students would be able to make some of their designs come to life in wood or 3-D. With many students going on to further their education in many different engineering programs, this opportunity has been long awaited. We need to advance ourselves into the 21st century and give students opportunities to participate in STEAM programs more. CAD lends itself to future landscape/home architects, innovators, product engineers, and urban planning.

- Expand one 1440 sq ft space to allow for all 3 labs to be merged together (possible 2000+)
- Divide the space into:
  - Computer CAD space (Engineering PLTW)
  - Work table space
  - Robotic space w/storage
  - Maker Space with access from hall area

**Computer Science**

Through the courses offered in our Technology Department, students have an opportunity to discover the vast career opportunities in the technology field, advance their knowledge of general productivity tools and how these tools may be used for collaboration, creativity, communication and problem solving. The current graduation requirements for all SHS students is one semester of Computer Applications.

For those students who are interested in a deeper understanding of how coding is used in the world around them, our Cybersecurity and Computer Science Essentials will provide them with hands-on development opportunities. Other vocation opportunities include the student Tech Leaders program for those students who want to explore help desk and support roles.

The rooms are adequate, but the technology is aging, and the ventilation is a problem because of the heat the computers give off with only one window air conditioner. It is not currently conducive to simulating a software

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programmer’s project-based work environment, as there is a need for collaboration space. In planning for space for computer science, there needs to be a large, flexible space that can function as a computer lab but can also accommodate collaborative work among students. This would require large/multiscreen workstations throughout the room. As the computer science program continues to evolve in time it would be nice to have it adjacent to the Innovation Lab and Bio-medical rooms as part of Project Lead the Way.

**TRANSPORTATION**

The district’s transportation policy provides bus transportation for those special needs students who fall within the guidelines of needing private transportation to their school. The district does not charge a transportation fee for these students. The district contracts the transportation out each year by putting out a bid for the best possible service and price. Approximately 335 student parking spots are available on site, and currently there is now assigned parking for students. It is a first come first serve basis. The teacher’s parking lot is closer to the entrance and students are barred from using that area.

The district also owns two of their own small (14 person) busses, which they use for the SPED program during the day and other small group field trips. These busses also allow smaller groups of athletes to be transported to their sporting events. Two or three larger spaces in a well-lit area would be needed to accommodate them in the parking lot.

Needs:

- Ample parking for faculty and staff, currently not enough
- 2 or 3 large bus spaces
- Handicap accessible parking spaces
- Loading Docks

**FUNCTION AND SPATIAL RELATIONSHIPS**

The school’s cafeteria is in the main level, and is not

surrounded by classrooms, it is on one of the far sides of the school. The proximity to the classrooms/lockers can have a negative effect on those students during lunch periods as it has students rushing too much. The cafeteria’s location also causes it to be underutilized during the remainder of the day, including before and after school. A more central location to the entrance would be more applicable for the use of public gatherings and rental space for use of those organizations outside of the school district. Our current cafeteria because of age and location is not being used to its best possible ability, there is opportunity for so much more especially if easy accessibility to the theatre and gymnasium.

**SECURITY AND ACCESS**

It is important that the Stoneham School’s integrates in the design a balanced and layered approach to safety that begins at the perimeter of the site and integrates Crime Prevention through Environmental Design (CPTED) principals. The idea is that the design overall would seek to deter, detect and delay a threat by looking at three areas related to the built environment: site perimeter, building perimeter and classroom or academic perimeter. These approaches found in the CPTED concepts- natural surveillance, natural access control, territorial reinforcement and maintenance-have proven effective in decreasing incidents of crime while improving the quality of space. Since, we know people follow people we must always make accessible egress available with well-marked pathways.

Despite the limits of the aging building, the Stoneham High School administration has made efforts to establish practices that ensure the highest level of safety and security for students and staff during the school day and for the community use of the facility after school hours. During the school day, all doors, except one main lobby door, are manually locked at 8:15AM. Visitors must sign in at the greeter’s desk in the main lobby. Guests must wear a name badge while in the building and must verbally identify themselves and state their business when questioned. In cooperation with the Stoneham Police Department, emergency response plans and lockdown

**B. EDUCATIONAL PROGRAM**

procedures have been established and practiced.

In the past few years, the district has made efforts to upgrade by installing a small number of cameras in various places in the high school and installing a card reader system for high school employees. However still each classroom or labs lack some type of phone system to communicate with other parts of the building and administrators. Teachers are told to use their own cell phones when most of the time the wireless-provider does not work in the building. The current PA system is not installed in every classroom which is unacceptable in case there is an emergency or lock down.

In a newly renovated Stoneham High School, security cameras inside and outside the building would be installed. Proper lighting to ensure safety for evening events would be installed in all parking and public areas. A PA system would be upgraded so all students and faculty and staff are informed during the event of an emergency. All doors would have the capability to be electronically locked and unlocked and visitors would be required to gain access to the school by the use of a buzzer and enter through a security vestibule. A new school will have clearly defined traffic patterns, entry/egress systems, lines of sight, cameras, and other features. Push button wall phones would be installed in each classroom or lab allowing teachers to communicate with administration/supervisor in case of an emergency.

**CENTRAL OFFICE ADMINISTRATION**

Stoneham Public Schools Administration offices of the Superintendent, Pupil Personnel Director and Business office have been a fixture of the current High School since 1980. The Building Committee has reviewed alternate areas in our current schools or Town Hall to house these offices but due to enrollment and other Town offices there is no room.

The Administrations offices requested are the Superintendent’s Office which will house a Superintendent, Assistant Superintendent of Curriculum and Instruction and an administrator assistant. The Pupil Personnel Office which will house our Assistant

Superintendent of Student Services, two administrator assistants, and all special education student files. The last office would be our Business Office which will house our Budget Director, Human Resources, Payroll and Accounts Payable employees. We are asking for two conference rooms one in the Superintendent’s suite and one for Pupil Personnel.

See appendix for redlined copy of stoneham high school educational program

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D. SUSTAINABILITY DOCUMENTS / BUILDING SYSTEM MEETING

# Stoneham High School Zero Net Energy Strategy

PDP 12/07/2020

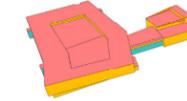


### Zero Net Energy Modeling Process

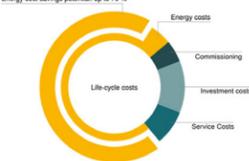
**Design Options**



**Energy models**



**Life Cycle Cost Models**





## Agenda

- **Zero Net Energy Modeling Process**
- **Recommended Building Systems Comparison**
- **Power Purchase Agreement (PPA) Process and Energy Rate Assumptions**
- **Stoneham Project Energy Modeling**
  - Scheme Comparison
  - System Comparison
- **First Cost Vs Operating Cost Overview**
- **Committee Discussion and Next Steps**

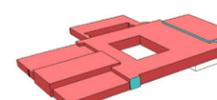


### Zero Net Energy Modeling Process

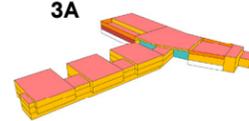
**How do we estimate building energy use?**

- Building Geometry
- Roof and Wall Performance
- Building Mechanical System
- Energy Mix (all electric vs fossil fuels)
- Historical Climate Data

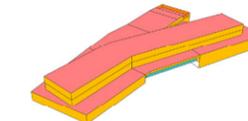
**2A**



**3A**



**4A**



**4B**

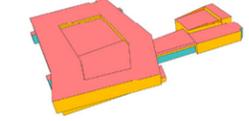




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### Zero Net Energy Modeling Process

**How do we estimate life cycle costs?**

- First Costs
- Replacement Costs
- Maintenance Costs
- Energy Costs

Perkins&Will Thornton Tomasetti BALA | SMMA Project Management

### Life Cycle Cost Model

Perkins&Will Thornton Tomasetti BALA | SMMA Project Management

### Life Cycle Cost Model

ZNE Premiums	Life-Cycle Savings
<ul style="list-style-type: none"> <li>• Bond Payments associated with geothermal minus: MassSave grant (EUI 25)</li> <li>• Bond payments of rooftop solar (if no PPA)</li> <li>• Bond payments associated with envelope upgrades</li> </ul>	<ul style="list-style-type: none"> <li>• Utility Cost (energy, water and sewer) and maintenance associated with geothermal system (net savings vs premiums)</li> <li>• The utility cost savings and Class I REC revenue generated by the rooftop solar (if no PPA)</li> <li>• The Alternative Energy Credit (AEC) revenue generated by the geothermal system</li> </ul>

Construction After Construction

Perkins&Will Thornton Tomasetti BALA | SMMA Project Management

### Power Purchase Agreement (PPA) Life Cycle Cost Model

Perkins&Will Thornton Tomasetti BALA | SMMA Project Management

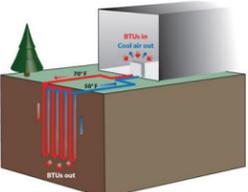
### Building Systems Comparison



**Central Plant**  
(MSBA Minimum Requirement)



**Air Cooled**



**Geo Exchange**

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### Power Purchase Agreement (PPA) Process

- What is a PPA?**
  - A PPA is a financial agreement where a vendor arranges the design, permitting (including utility incentives), financing and installation of a solar energy system on an identified property at little to no cost.
  - PILOT (payment in lieu of taxes)
  - Approval Process
- Why is it the right choice for Stoneham?**
  - A PPA is possible while in MSBA
  - Can be part a reimbursable expense
  - Can reimburse the project at the end of construction or lower the electricity rate
  - A/B projected that they would have spent an additional \$120,000 on purchasing electricity without solar



Perkins&Will Thornton Tomasetti BALA SMMA Project Management

### Building Systems Comparison

System Type	Baseline	GeoExchange	Air Cooled
Description	Baseline system for MSBA compliance. The system performance exceeds the energy code by 10% when combined with the high performance building envelope.	High performance geothermal heating/cooling system, rejects heat and draws heat from the earth as opposed to the atmosphere.	High performance heating/cooling system, rejects heat and draws heat from the atmosphere.
Main Components	<ul style="list-style-type: none"> <li>Central chiller and condensing boiler systems.</li> <li>Chilled Water/Hot Water Air handling Units.</li> <li>VAV Terminal Units.</li> </ul>	<ul style="list-style-type: none"> <li>Central geothermal heat recovery chiller/heater systems.</li> <li>Chilled Water/Hot Water Air handling Units.</li> <li>Sensible Fan Powered Terminal Units.</li> </ul>	<ul style="list-style-type: none"> <li>Rooftop air cooled heat recovery chiller/heater systems.</li> <li>Chilled Water/Hot Water Air handling Units.</li> <li>Sensible Fan Powered Terminal Units.</li> </ul>
Pros	<ul style="list-style-type: none"> <li>Lower capital cost</li> </ul>	<ul style="list-style-type: none"> <li>Highest efficiency, lowest operating cost. Best system for meeting target EUI.</li> <li>No mechanical equipment on the roof.</li> </ul>	<ul style="list-style-type: none"> <li>Energy efficient, lower operating cost.</li> </ul>
Cons	<ul style="list-style-type: none"> <li>Less energy efficient, higher operating cost.</li> <li>Mechanical equipment on the roof.</li> <li>Increased maintenance for cooling tower.</li> <li>Additional domestic water consumption for cooling tower make up.</li> </ul>	<ul style="list-style-type: none"> <li>Highest Capital Cost</li> </ul>	<ul style="list-style-type: none"> <li>Moderate capital cost.</li> <li>Mechanical equipment on the roof.</li> </ul>
EUI	42	Target 25	Target 25

Perkins&Will Thornton Tomasetti BALA SMMA Project Management

### Power Purchase Agreement (PPA) Process

- Who is Stoneham learning from and what is the process for contract procurement?**
  - Acton-Boxborough Regional School District
  - Town of Arlington
  - Paul Lyons, Solar Consultant (Zapotec Energy)
- What electricity rate can we comfortably assume for modeling?**
  - We're close to **20** cents all in for electricity consumption (same as A/B)
  - A/B used **12** cents in its modeling and that's a fair, conservative savings
- How does this relate to our EUI goal of 25**
  - A low EUI can put a building with renewables within reach of net zero energy performance.




Perkins&Will Thornton Tomasetti BALA SMMA Project Management

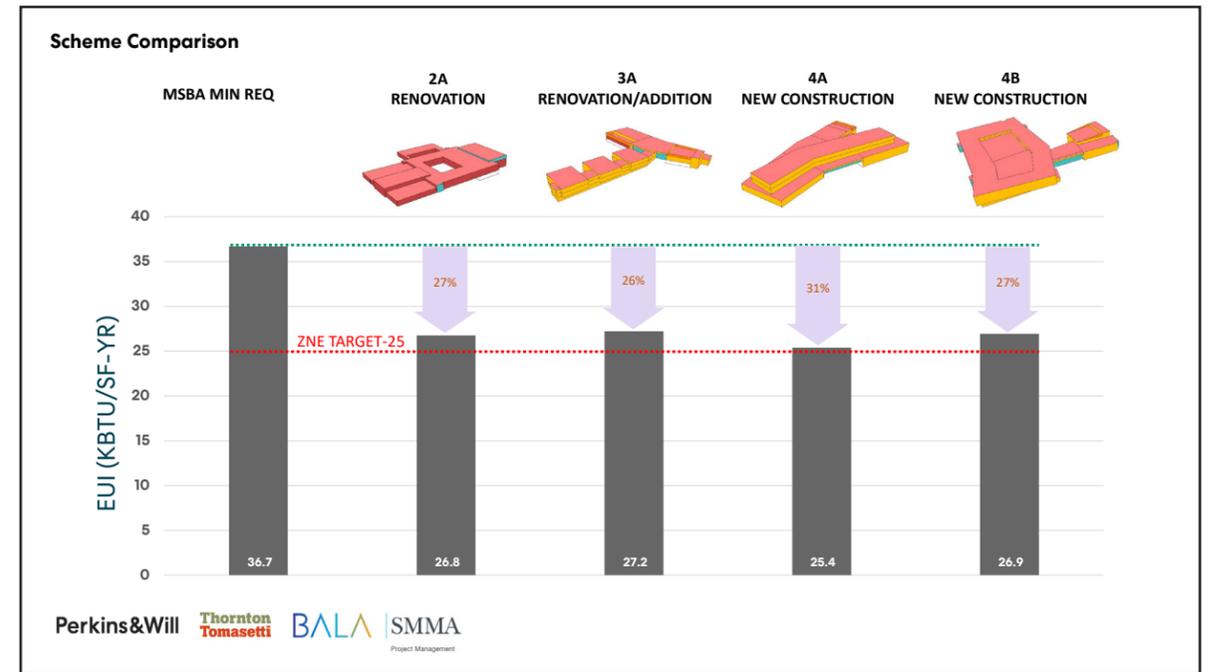
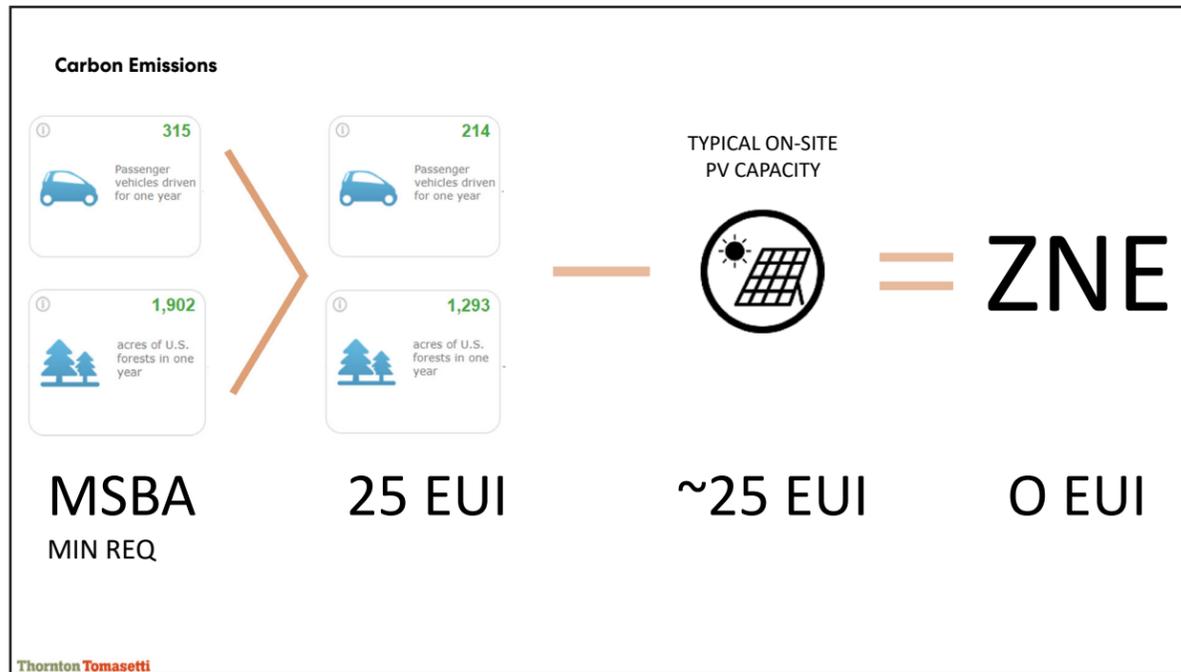
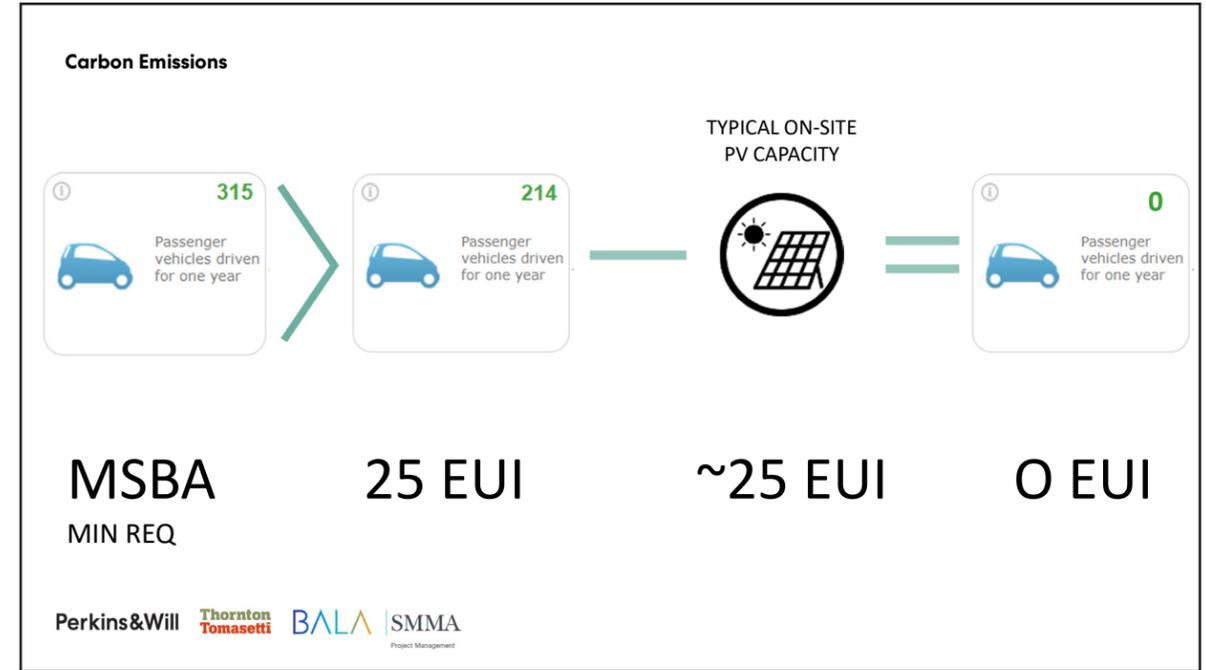
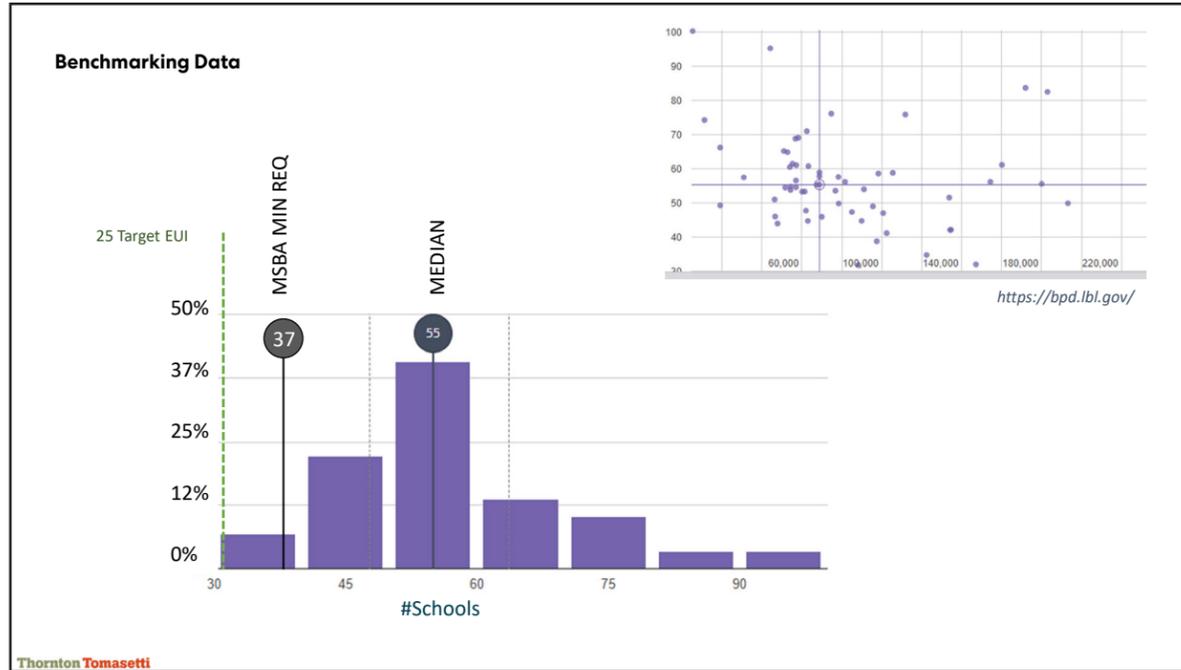


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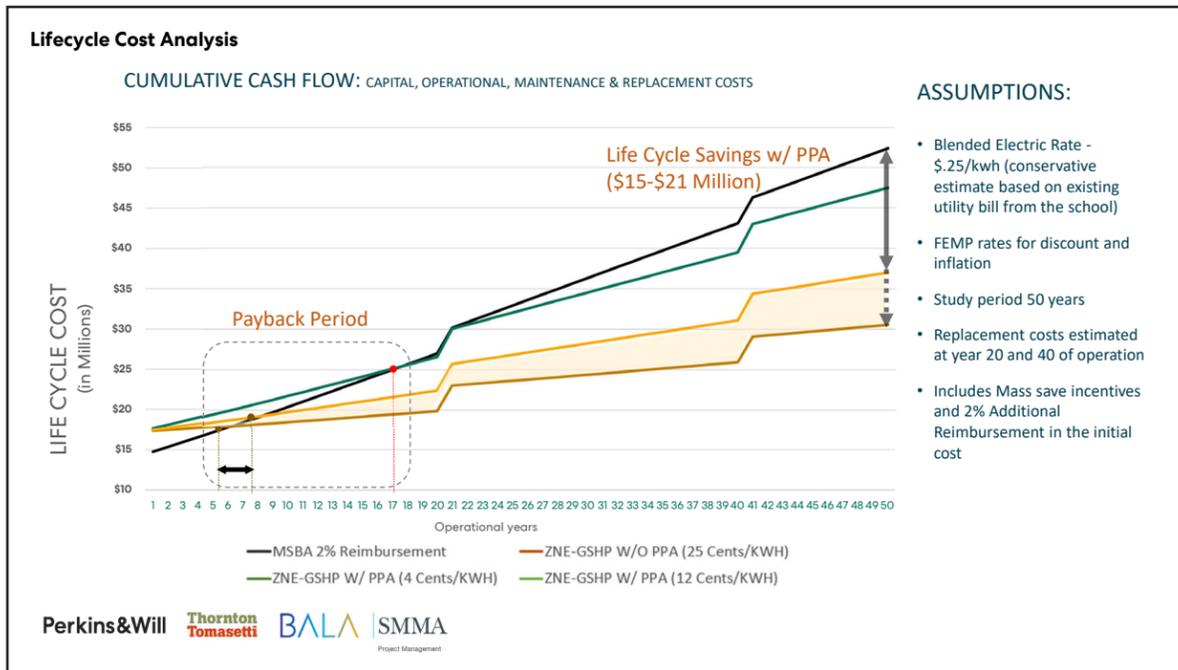
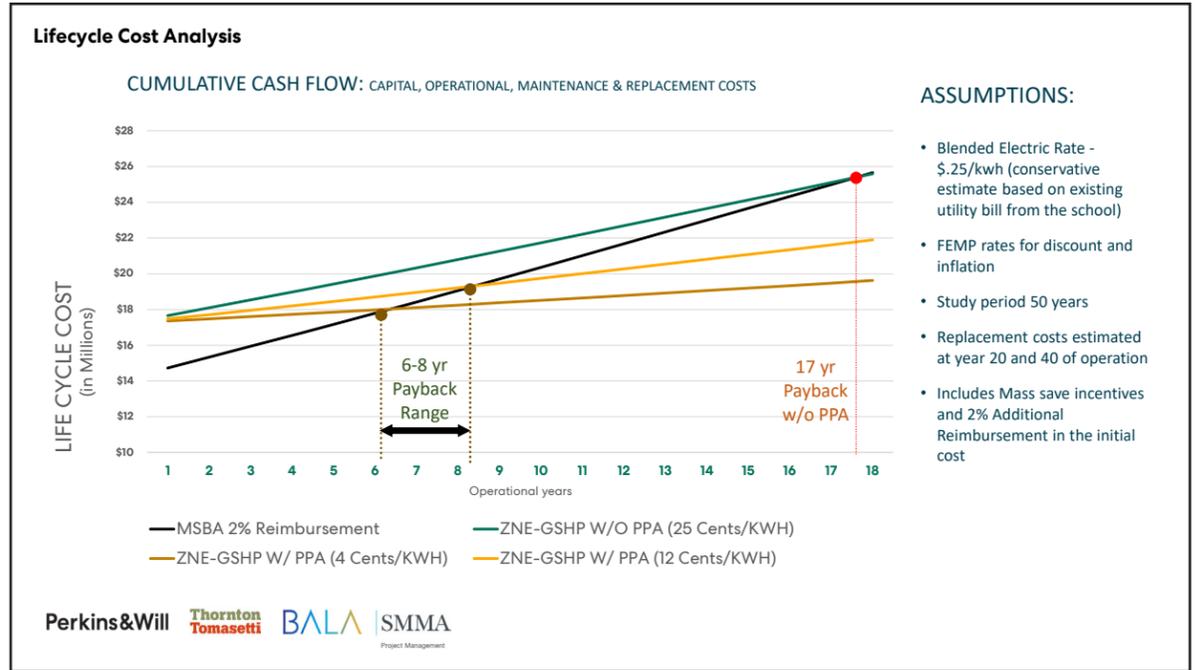
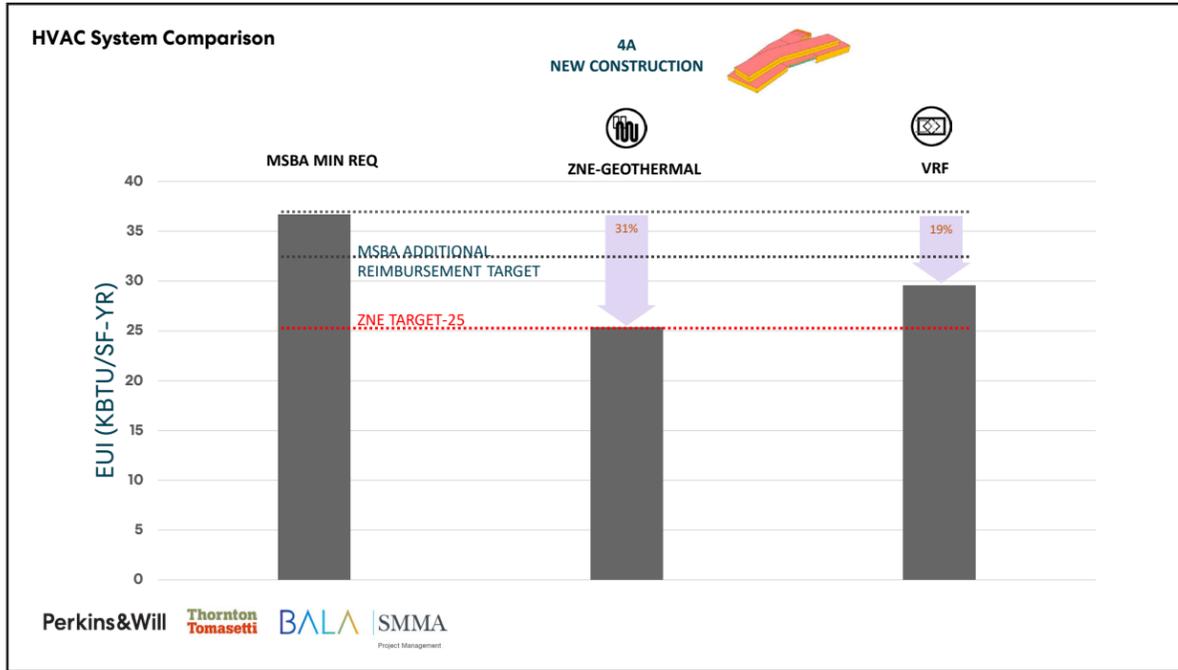
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LOCAL ACTIONS & APPROVALS 3.3.5

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### Capital Cost and Annual Energy Operating Cost Overview

ZNE PROJECT CAPITAL COSTS	
Building Envelope Cost above Baseline	\$959,987
Geo Exch. HVAC System Cost above Baseline	\$6,561,671
<b>Total</b>	<b>\$7,521,658</b>

ANNUAL ENERGY OPERATING COST SAVINGS	
Annual Cost Savings	\$158,645
50 Year Cost Savings (includes capital costs)	\$14m-20m

Perkins&Will Thornton Tomasetti BALA SMMA Project Management

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D. SUSTAINABILITY DOCUMENTS / LEED CHECKLIST

D. SUSTAINABILITY DOCUMENTS / LEED CHECKLIST

Y	?	N	c#	Credit Name	points	
 <b>LEED v4.1 for BD+C: Schools</b> PSR Project Checklist: Stoneham High School						
<b>Integrative Process</b> Possible Points: 1						
1	0	0	Credit 1	Integrative Process	1	
<b>Location and Transportation</b> Possible Points: 15						
			15	Credit 1	LEED for Neighborhood Development Location	15
1			Credit 2	Sensitive Land Protection	1	
			2	Credit 3	High Priority Site	2
			5	Credit 4	Surrounding Density and Diverse Uses	5
			4	Credit 5	Access to Quality Transit	4
1	1		Credit 6	Bicycle Facilities	1	
1			Credit 7	Reduced Parking Footprint	1	
4			Credit 8	Green Vehicles	1	
<b>Sustainable Sites</b> Possible Points: 12						
Y			Prereq 1	Construction Activity Pollution Prevention	Required	
Y			Prereq 2	Environmental Site Assessment	Required	
1			Credit 1	Site Assessment	1	
			2	Credit 2	Site Development--Protect or Restore Habitat	2
1			Credit 3	Open Space	1	
2	1		Credit 4	Rainwater Management	3	
			2	Credit 5	Heat Island Reduction	2
1			Credit 6	Light Pollution Reduction	1	
			1	Credit 7	Site Master Plan	1
1			Credit 8	Joint Use of Facilities	1	
<b>Water Efficiency</b> Possible Points: 12						
Y			Prereq 1	Outdoor Water Use Reduction	Required	
Y			Prereq 2	Indoor Water Use Reduction	Required	
Y			Prereq 3	Building-Level Water Metering	Required	

Y	?	N	c#	Credit Name	points	
 <b>LEED v4.1 for BD+C: Schools</b> PSR Project Checklist: Stoneham High School						
1			1	Credit 1	Outdoor Water Use Reduction	2
3			4	Credit 2	Indoor Water Use Reduction	7
2			Credit 3	Cooling Tower Water Use	2	
1			Credit 4	Water Metering	1	
<b>Energy and Atmosphere</b> Possible Points: 31						
Y			Prereq 1	Fundamental Commissioning and Verification	Required	
Y			Prereq 2	Minimum Energy Performance	Required	
Y			Prereq 3	Building-Level Energy Metering	Required	
Y			Prereq 4	Fundamental Refrigerant Management	Required	
6			Credit 1	Enhanced Commissioning	6	
13	3		Credit 2	Optimize Energy Performance	16	
1			Credit 3	Advanced Energy Metering	1	
2			Credit 4	Grid Harmonization	2	
5			Credit 5	Renewable Energy Production	5	
1			Credit 6	Enhanced Refrigerant Management	1	
<b>Materials and Resources</b> Possible Points: 13						
Y			Prereq 1	Storage and Collection of Recyclables	Required	
Y			Prereq 2	Construction and Demolition Waste Management Planning	Required	
1	4		Credit 1	Building Life-Cycle Impact Reduction	5	
1			1	Credit 2	Building Product Disclosure and Optimization - Environmental Product Declarations	2
			2	Credit 3	Building Product Disclosure and Optimization - Sourcing of Raw Materials	2
1	1		Credit 4	Building Product Disclosure and Optimization - Material Ingredients	2	

D. SUSTAINABILITY DOCUMENTS / LEED CHECKLIST

D. SUSTAINABILITY DOCUMENTS / ACKNOWLEDGEMENT

 <b>LEED v4.1 for BD+C: Schools</b> PSR Project Checklist: Stoneham High School				
2		Credit 5	Construction and Demolition Waste Management	2
<b>Indoor Environmental Quality</b>				Possible Points: <b>16</b>
Y		Prereq 1	Minimum Indoor Air Quality Performance	Required
Y		Prereq 2	Environmental Tobacco Smoke Control	Required
Y		Prereq 3	Minimum Acoustic Performance	Required
2		Credit 1	Enhanced Indoor Air Quality Strategies	2
2	1	Credit 2	Low-Emitting Materials	3
1		Credit 3	Construction Indoor Air Quality Management Plan	1
2		Credit 4	Indoor Air Quality Assessment	2
1		Credit 5	Thermal Comfort	1
2		Credit 6	Interior Lighting	2
	3	Credit 7	Daylight	3
1		Credit 8	Quality Views	1
	1	Credit 9	Acoustic Performance	1
<b>Innovation</b>				Possible Points: <b>6</b>
1		Credit 1	Innovation	1
1		Credit 2	Innovation	1
1		Credit 3	Innovation	1
1		Credit 4	Innovation	1
1		Credit 5	Innovation	1
	1	Option	Innovation	1
	1	Option	Innovation	1
1		Credit 6	LEED Accredited Professional	1
<b>Regional Priority</b>				Possible Points: <b>4</b>
1		Credit 1	Regional Priority: Specific Credits Optimized Energy (8 points)	1
	1	Credit 2	Regional Priority: Specific Credits Building Life-cycle Impact (2 points)	1
	1	Credit 3	Regional Priority: Specific Credits Site Development-protect and restore (2 points)	1
	1	Credit 4	Regional Priority: Specific Credits Access to Quality Transit	1
1		Credit 5	Regional Priority: Specific Credits Renewable Energy Production	1
1		Credit 6	Regional Priority: Specific Credits Cooling Tower Water Use	1
44	30	40	<b>Total</b>	Possible Points: <b>110</b>
<small>Certified 40 to 49 points Silver 50 to 59 points Gold 60 to 79 points Platinum 80 to 110</small>				

# Perkins&Will

Date: 12.17.2020

Massachusetts School Building Authority  
 40 Board Street, Suite 500  
 Boston, MA 02109

**Re: MSBA High Efficiency Green School Program**

Dear MSBA reviewers,

This is an acknowledgement that the Stoneham High School has identified a goal of 2% additional reimbursement from the MSBA High Efficiency Green School Program. As their Designer, I have submitted a completed LEED scorecard showing all prerequisites and a minimum of 40 points which, along with, exceeding the level of energy efficiency required in the current Massachusetts (base) energy code by 20%, will meet that goal.

The scope of work for this project will include the construction elements and performance tasks to achieve that goal, and all subsequent documents, including but not limited to, specifications, drawings, and cost estimates will match the scope of work indicated in the submitted scorecard.

Sincerely,



**Brooke Trivas**  
 Practice Leader, Principal  
 Perkins&Will

225 Franklin Street  
 Boston, Massachusetts 02110  
 www.perkinswill.com

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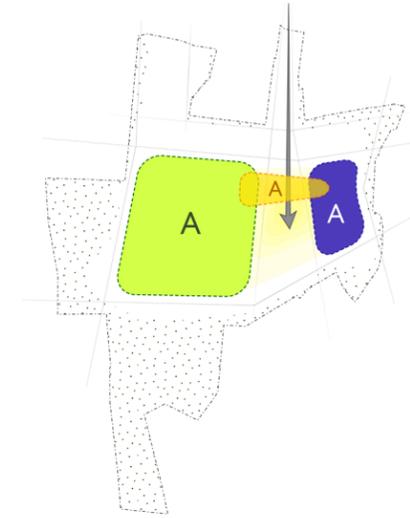
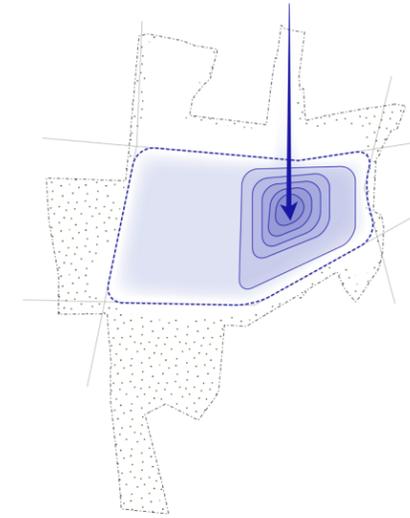
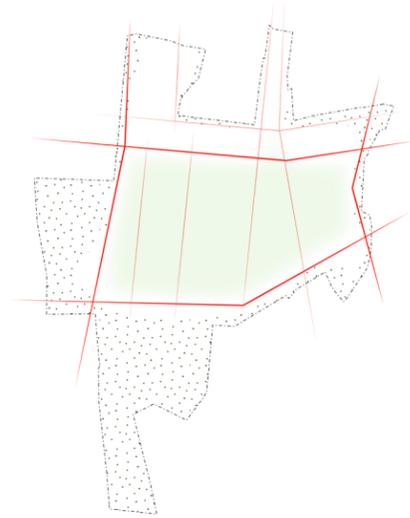
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F. SITE PLANS / SITE CONCEPT DIAGRAMS

F. SITE PLANS / SITE CONCEPT DIAGRAMS



**STRUCTURE**

The site's irregular geometry is informed by the escarpments and kettles of volcanic stone that define Stoneham's unique landscape. Between the fells and wetlands the governing geometry of the site solution makes use of orthogonal bands of landscape space to efficiently organize the site

**ARRIVE / EXPLORE**

The Stoneham community arrives both formally and informally from many paths at the site's edge. Some of these paths from surrounding neighborhoods are poorly lit and unsafe. A new landscape loop at the site's edge, doubling as a recreational path serves the community by collecting and organizing these disparate arrival points and encouraging non-vehicular travel.

**FOCUS**

Within the expanse of the site it is critical that there is a place where the school and the town's energy is concentrated. The topographical high point of the site and coinciding position of prominence within the entry view-shed of Franklin Place make for a powerful position for the school building to activate.

**ENRICH**

At the site's new heart the three 'A's of the schools culture: Athletics, Arts and Academics overlap and activate a new civic plaza. This plaza becomes the central interior and exterior mixer for Stoneham high school and the town.

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F. SITE PLANS / SITE CONCEPT DIAGRAMS



**INTEGRATE / BLEND**

In a conscious effort to diversify the high school site's ecological monoculture, both the edges and interior of the site will be blended with the existing forested. The site's new diversity of programmatic uses and habitat work towards a broader and more inclusive definition of community for Stoneham.



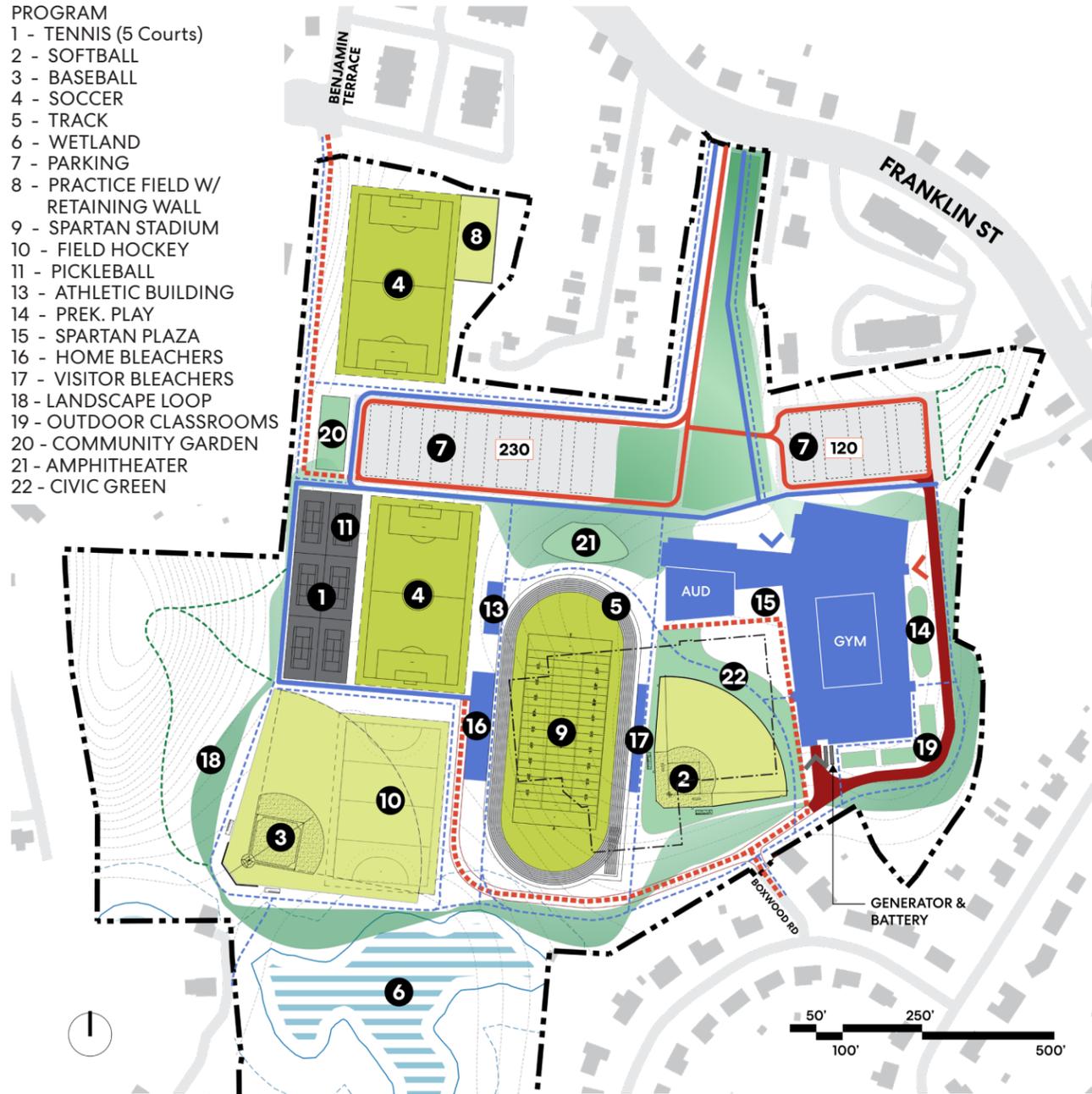
**SYNTHESIZE**

The resulting site idea combines and integrates ideas of community access, safety and security, habitat restoration, hydrology and place making to form a campus like educational environment that invites the town of Stoneham to engage in the education of its high school students in a unique environment.

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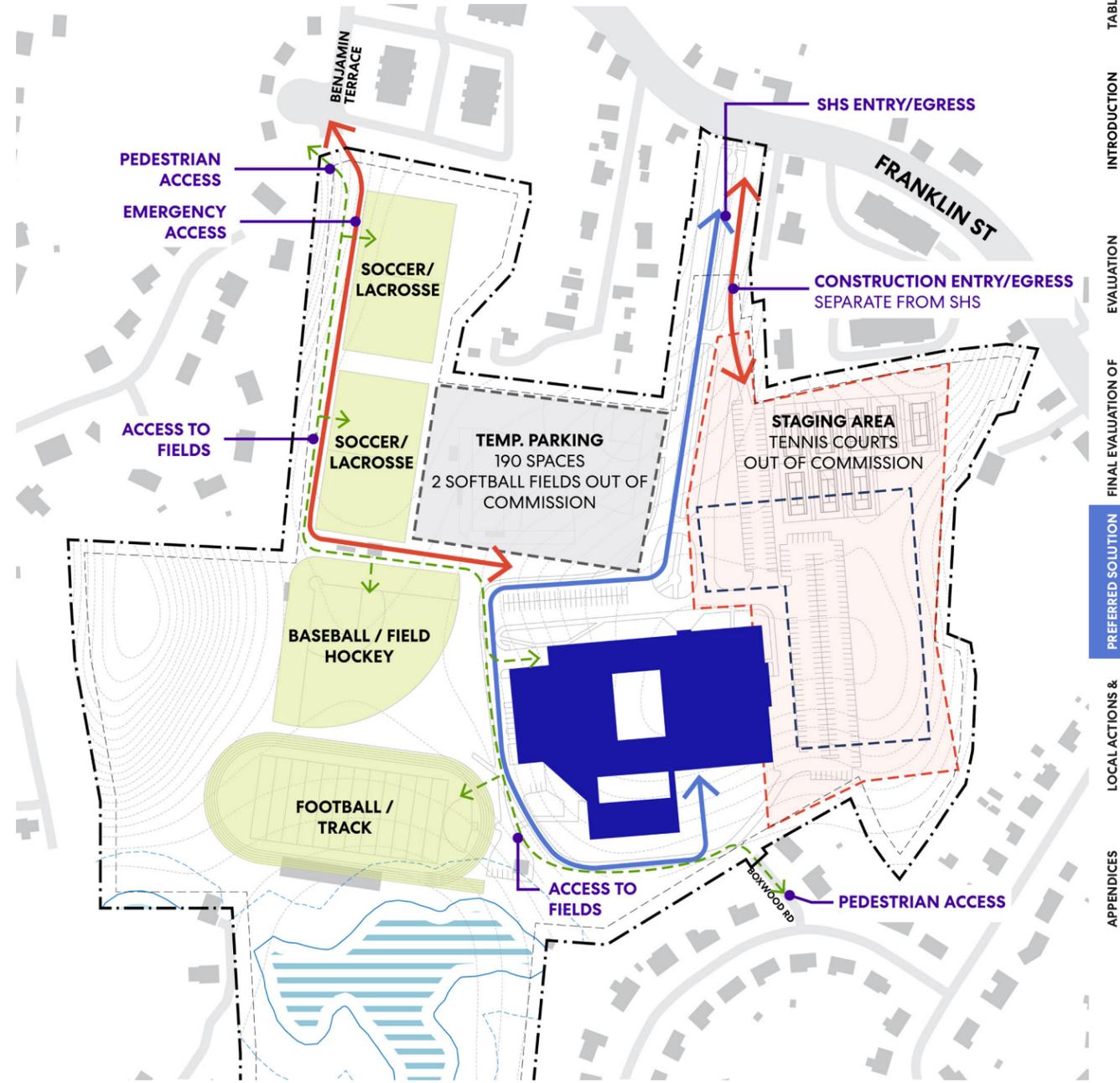
F. SITE PLANS / SITE PLAN

- PROGRAM
- 1 - TENNIS (5 Courts)
  - 2 - SOFTBALL
  - 3 - BASEBALL
  - 4 - SOCCER
  - 5 - TRACK
  - 6 - WETLAND
  - 7 - PARKING
  - 8 - PRACTICE FIELD W/ RETAINING WALL
  - 9 - SPARTAN STADIUM
  - 10 - FIELD HOCKEY
  - 11 - PICKLEBALL
  - 13 - ATHLETIC BUILDING
  - 14 - PREK. PLAY
  - 15 - SPARTAN PLAZA
  - 16 - HOME BLEACHERS
  - 17 - VISITOR BLEACHERS
  - 18 - LANDSCAPE LOOP
  - 19 - OUTDOOR CLASSROOMS
  - 20 - COMMUNITY GARDEN
  - 21 - AMPHITHEATER
  - 22 - CIVIC GREEN



- |  |  |  |                                   |  |                  |  |                        |
|--|--|--|-----------------------------------|--|------------------|--|------------------------|
|  | VEHICULAR DRIVE                                  |  | BIKE LANE                         |  | HS MAIN ENTRY    |  | GRASS                  |
|  | LIMITED ACCESS: EMERGENCY, MAINTENANCE, BICYCLES |  | ADA PEDESTRIAN PATH               |  | PRE-K MAIN ENTRY |  | SYNTHETIC TURF         |
|  | SERVICE DRIVE                                    |  | HIKING TRAIL (NOT ADA ACCESSIBLE) |  | LOADING          |  | EDUCATION / RECREATION |

F. SITE PLANS / CONSTRUCTION PHASING



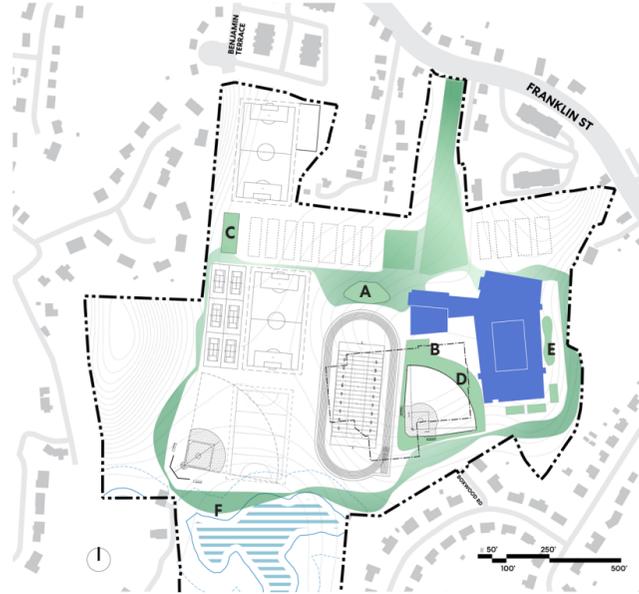
- FIELDS OUT OF COMMISSION:
- (8) TENNIS COURTS
  - (2) SOFTBALL FIELDS

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F. SITE PLANS / CIRCULATION AND SITE DIAGRAMS

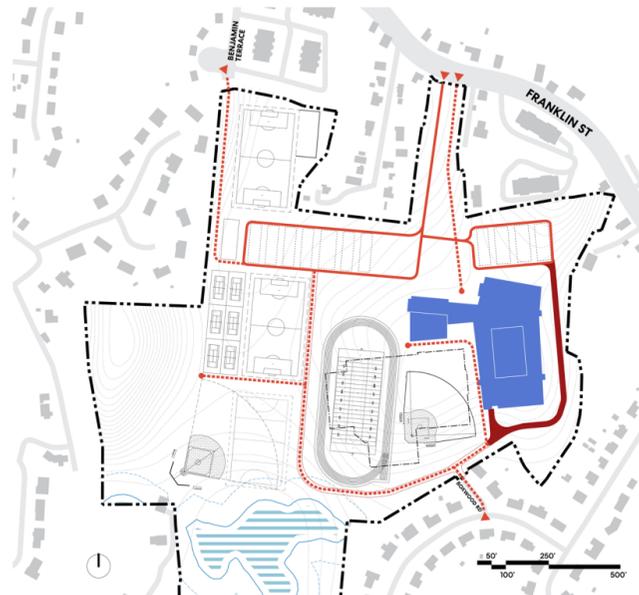
EDUCATIONAL & RECREATIONAL GREEN SPACE

- A. AMPHITHEATER
- B. CIVIC GREEN
- C. COMMUNITY GARDEN
- D. OUTDOOR CLASSROOMS
- E. PRE-K PLAY
- F. LANDSCAPE LOOP



VEHICULAR CIRCULATION

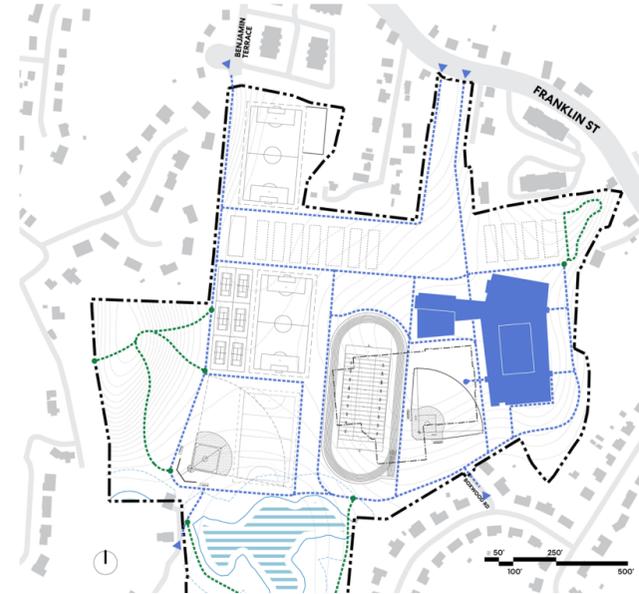
- VEHICULAR DRIVE
- LIMITED ACCESS: EMERGENCY, MAINTENANCE, BICYCLES
- SERVICE DRIVE



F. SITE PLANS / CIRCULATION AND SITE DIAGRAMS

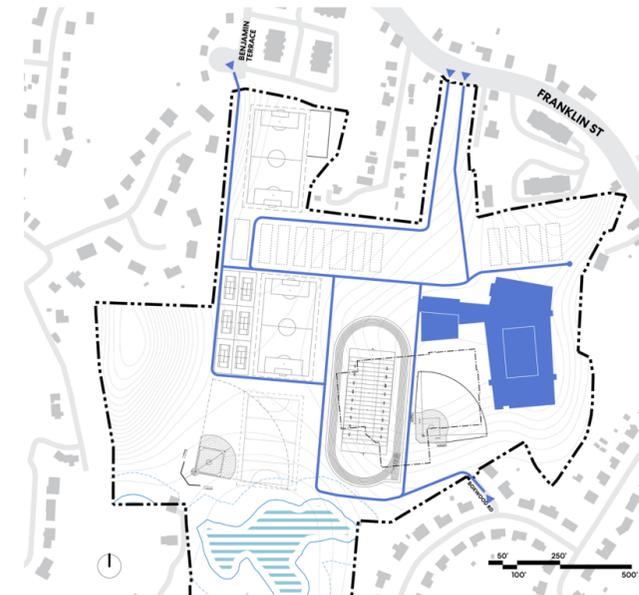
PEDESTRIAN CIRCULATION

- ACCESSIBLE PEDESTRIAN PATH
- HIKING TRAIL (NOT ADA ACCESSIBLE)



BICYCLE CIRCULATION

- BICYCLES



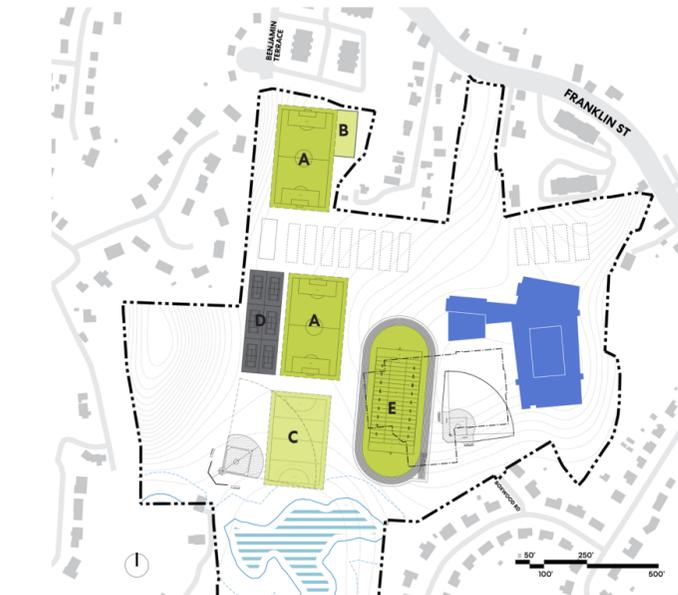
SPRING ATHLETICS

- A. SOCCER / LAX
- B. PRACTICE FIELD
- C. FIELD HOCKEY
- D. TENNIS
- E. STADIUM
- F. FOOTBALL & MULTIPURPOSE
- G. BASEBALL
- H. SOFTBALL



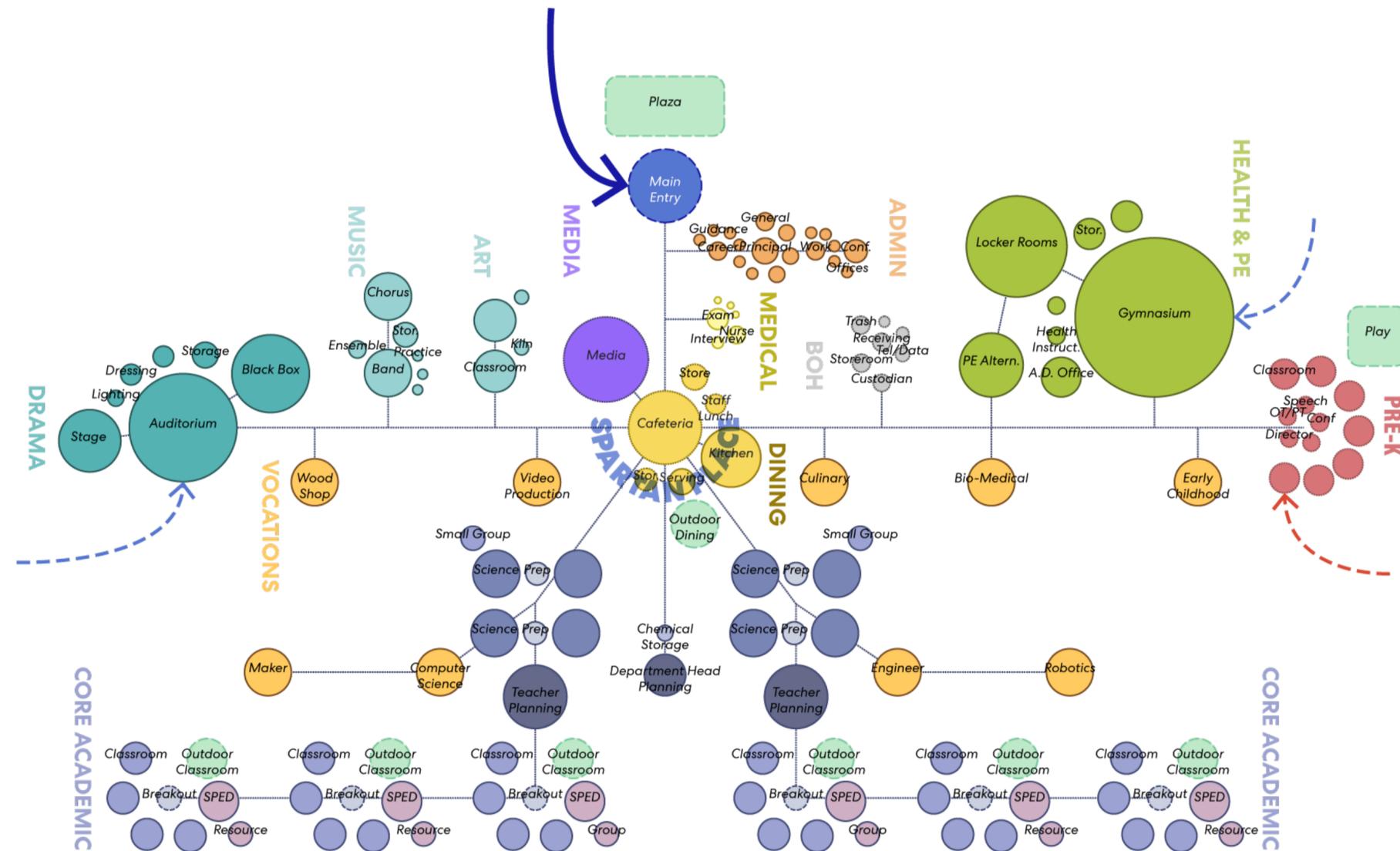
FALL ATHLETICS

- A. SOCCER / LAX
- B. PRACTICE FIELD
- C. FIELD HOCKEY
- D. TENNIS
- E. STADIUM

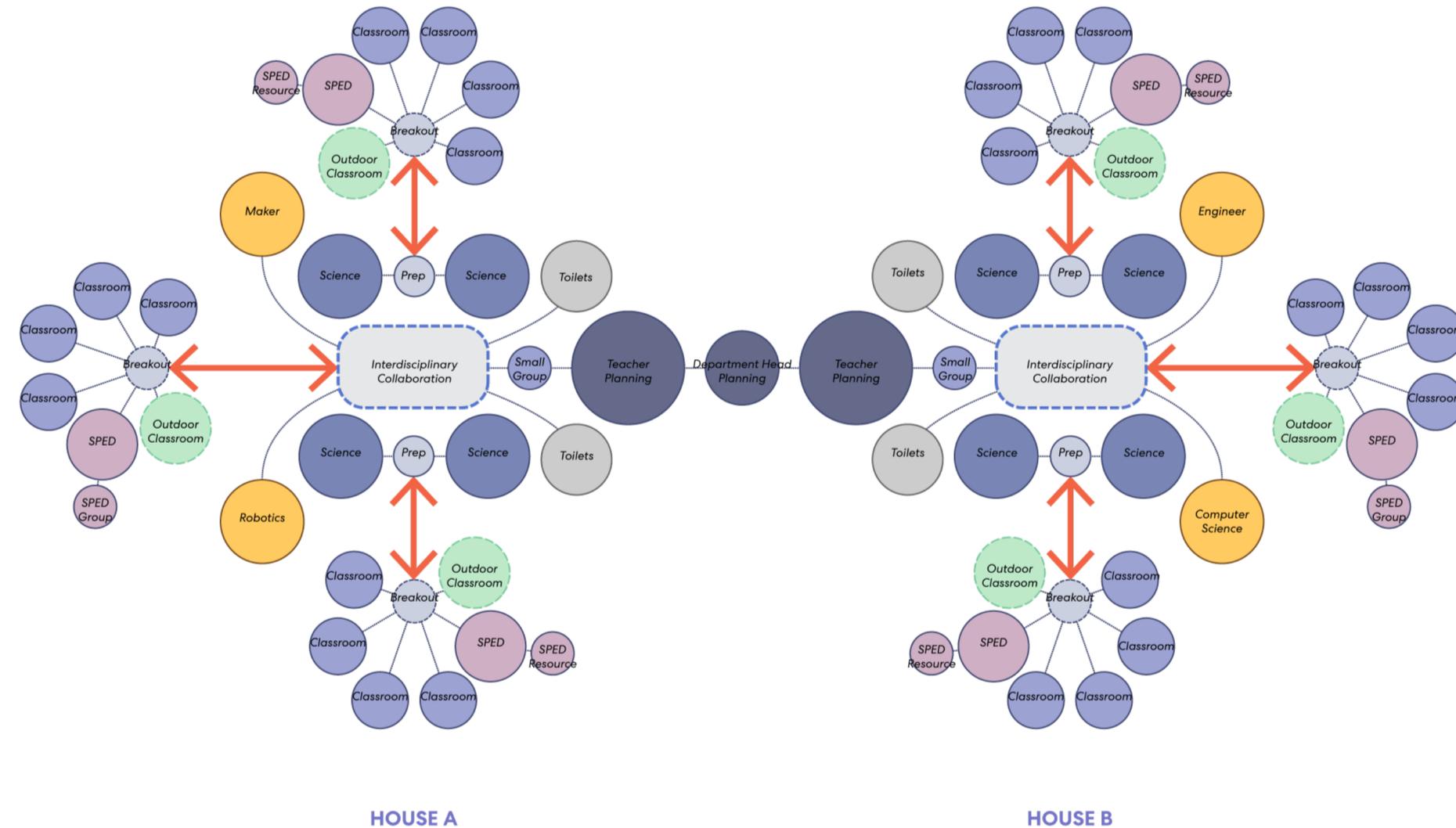


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G. BUILDING PLANS / PROGRAM TREE



G. BUILDING PLANS / PROGRAM ADJACENCIES



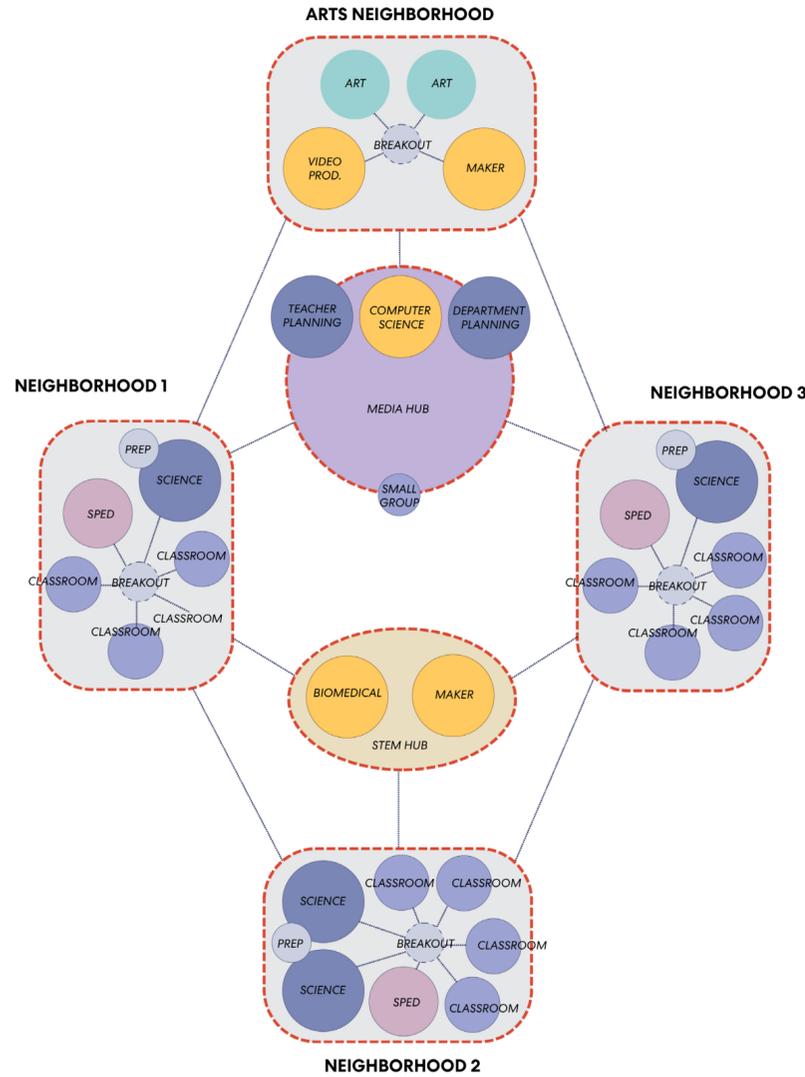
HOUSE A

HOUSE B

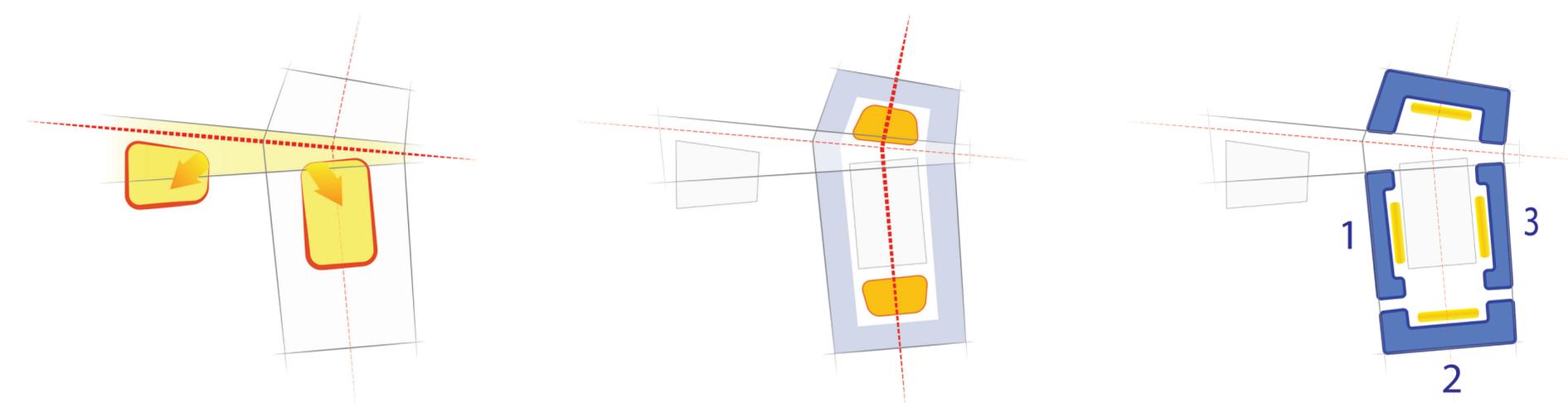
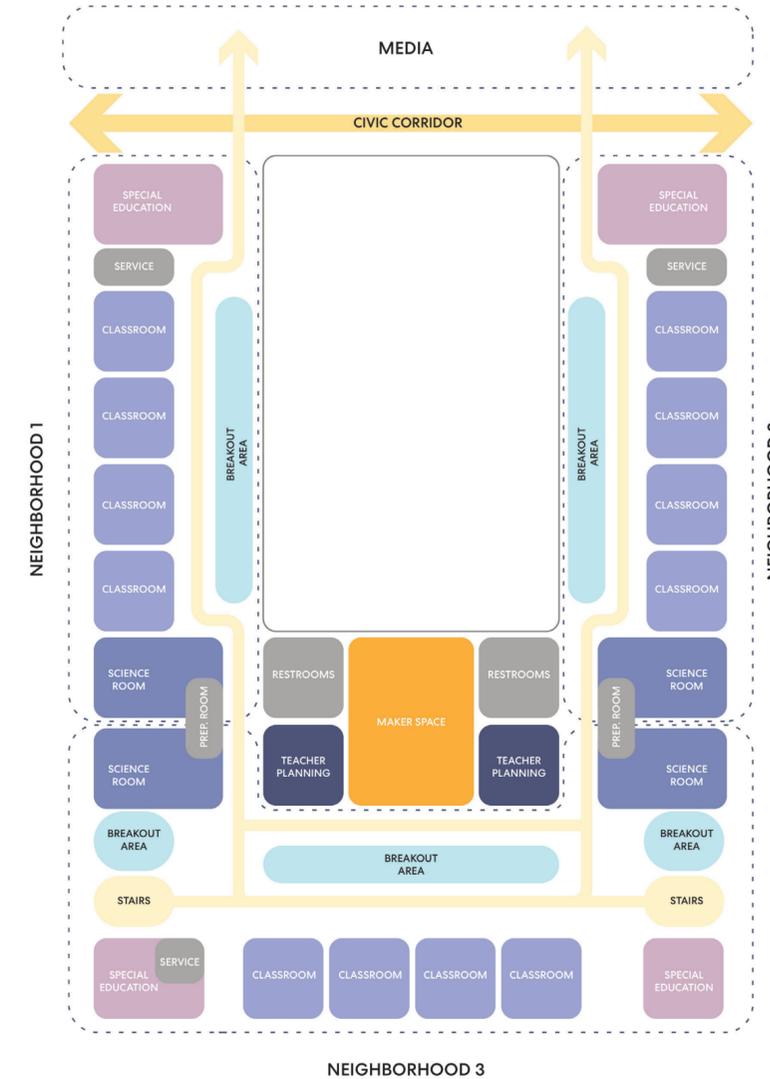
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G. BUILDING PLANS / ACADEMIC NEIGHBORHOOD DIAGRAMS



G. BUILDING PLANS / CONCEPT DIAGRAMS



**COMMUNITY**

Each side of the plan is anchored by a large community use space, the gymnasium to the east and the auditorium to the west. Stitching these two community use spaces together is a single multi-story street acting as a public conduit both to additional Programming and to the products of Stoneham's creative learning process.

**INNOVATION HUBS**

Anchoring the north and south poles of the academic neighborhoods are two innovation hubs. The north hub provides a mix of engineering, art and media and sits just off the school's interior public street. The southern hub provides interdisciplinary maker and collaboration spaces within easy reach of the classroom neighborhoods facilitating hands-on project based learning.

**NEIGHBORHOODS**

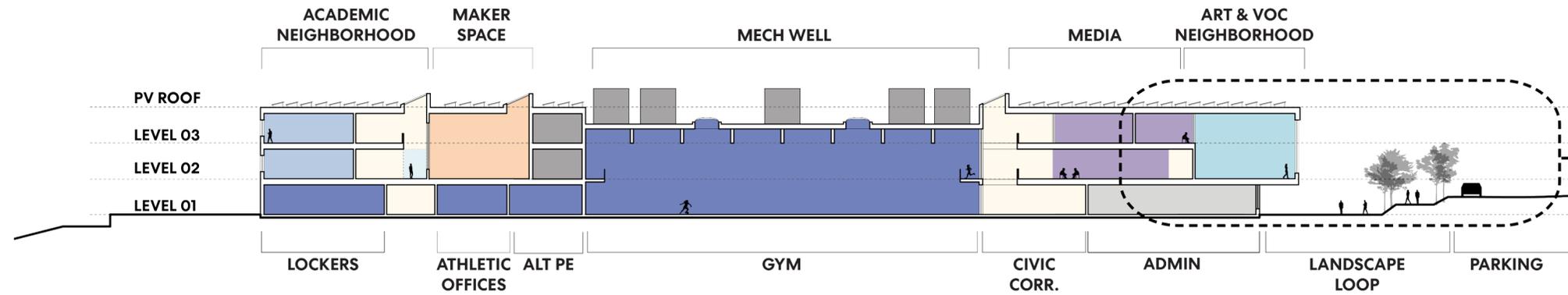
Three universal classroom neighborhoods per floor, with integrated science and special education classrooms, are grouped around smaller common breakout spaces. A fourth grouping of art and engineering spaces completes the ring of spaces. These spaces, partnered with the innovation hubs, provide the variety of space types, scales and levels of frenetic energy to create a rich and versatile learning environment.

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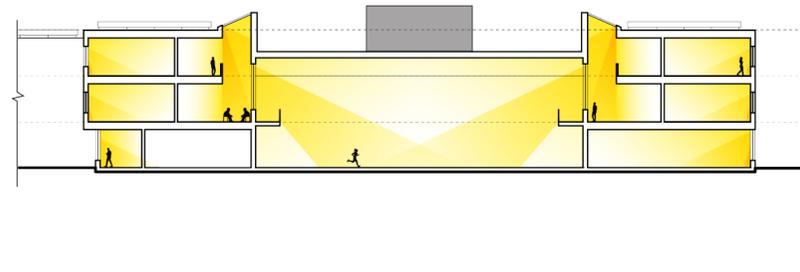
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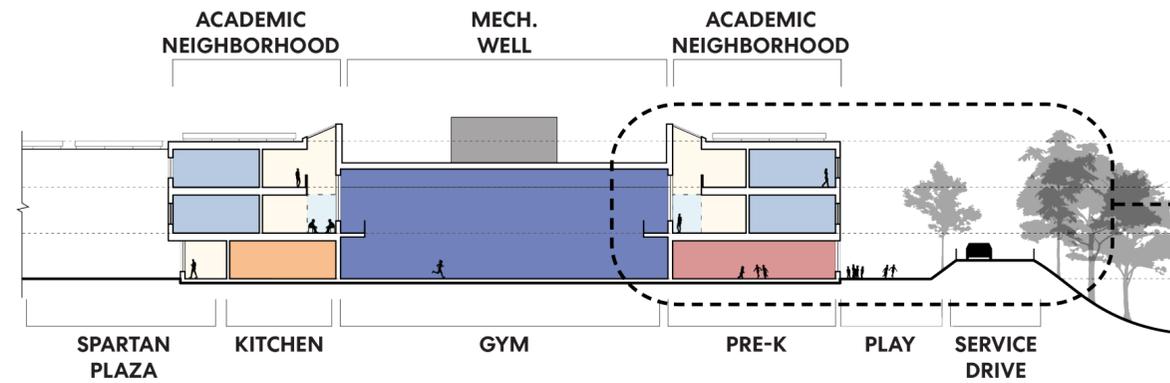
G. BUILDING PLANS / BUILDING SECTIONS



SECTION A : NORTH-SOUTH

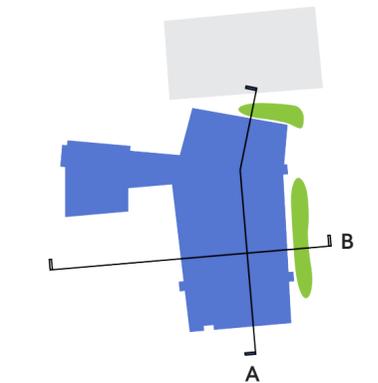
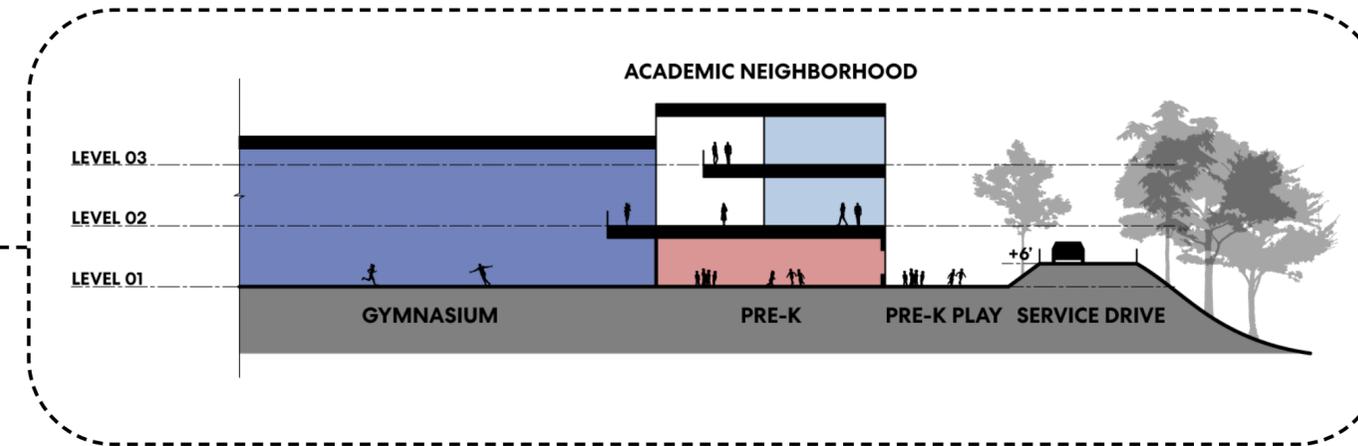
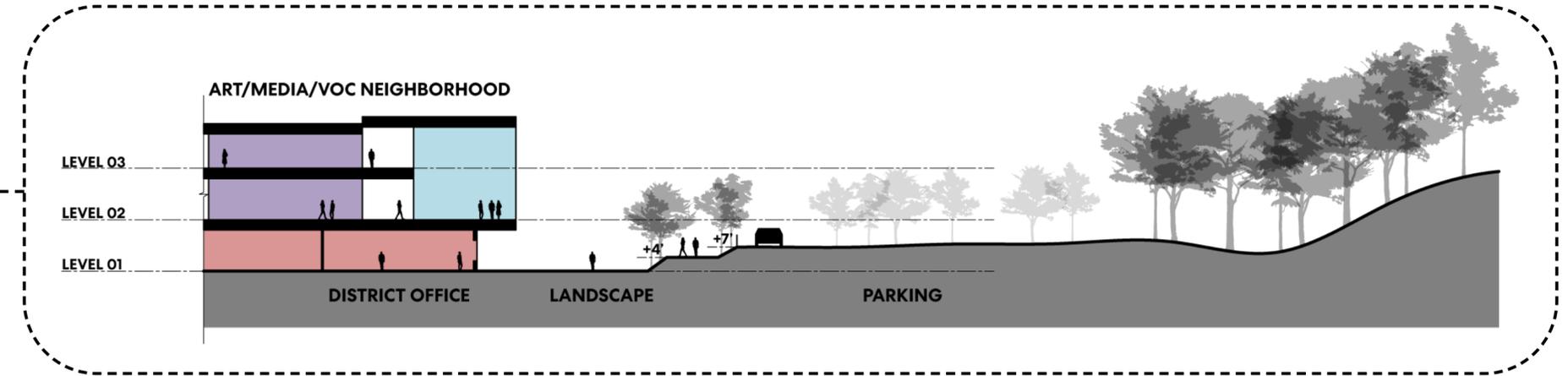


SECTION B: DAYLIGHTING STRATEGY



SECTION B: EAST-WEST

G. BUILDING PLANS / BUILDING SECTIONS



KEY PLAN

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H. TRAFFIC REPORT

MEMORANDUM

**TO:** Ms. Brooke Trivas  
Practice Leader, Principal  
Perkins & Will  
225 Franklin Street, Suite 1100  
Boston, MA 02110

**FROM:** Mr. Jeffrey S. Dirk, P.E., PTOE, FITE   
Managing Partner  
Vanasse & Associates, Inc.  
35 New England Business Center Drive  
Suite 140  
Andover, MA 01810-1066  
(978) 269-6830  
[jdirk@rdva.com](mailto:jdirk@rdva.com)  
*Professional Engineer in CT, MA, ME, NH, RI and VA*

**DATE:** December 17, 2020      **RE:** 8793

**SUBJECT:** Schematic Design (SD) – Traffic (Module 4), Functional Design Report  
New Stoneham High School – 149 Franklin Street  
Stoneham, Massachusetts

Vanasse & Associates, Inc. (VAI) has completed an initial assessment of the transportation infrastructure needs to accommodate access to the new Stoneham High School that is to be located at 149 Franklin Street (the current location of Stoneham High School) in Stoneham, Massachusetts (hereafter referred to as the “Project”). This assessment has been completed in support of the Schematic Design (SD) phase for the Project, and includes an evaluation of design alternatives to facilitate access to the campus for pedestrians, bicycles and motor vehicles at the Franklin Street/Franklin Place intersection, as well as related improvements at the intersection of Franklin Street at Stevens Street and Benjamin Terrace.

This study was prepared in consultation with the Massachusetts Department of Transportation (MassDOT) and the Town of Stoneham, and was performed in general accordance with MassDOT’s *Transportation Impact Assessment (TIA) Guidelines* and the standards of the Traffic Engineering and Transportation Planning professions.

Based on this assessment, we have identified a preferred alignment for Franklin Place that would entail reducing the width of the center median and increasing the landscaped buffer to the residential properties that front along the east side of Franklin Place in order to allow for the construction of a shared-use path. This configuration would reduce the width of the Franklin Street/Franklin Place intersection, increase (slightly) the vehicle queue storage in the Franklin Street westbound left-turn lane and limit the interaction of motor vehicles and pedestrians/bicycles within the school campus during student drop-off/pick-up periods. In addition, the installation of a traffic control signal has been recommended at the Franklin Street/Stevens Street/Benjamin Terrace intersection in order to facilitate pedestrian and bicycle access to the school campus and access to Franklin Street for motorists on both Stevens Street and Benjamin Terrace. The estimated cost to complete these improvements is \$1.17 million.

The following details our initial assessment of the access improvements for the Project.



**PROJECT DESCRIPTION**

The Project will entail the construction of a new Stoneham High School that will accommodate an enrollment of approximately 695 students to be supported by 115 staff. The new school building will be constructed within the existing Stoneham High School campus at 149 Franklin Street, which is access from Franklin Place and bounded by Franklin Street to the north and residential properties to the south, east and west. Figure 1 depicts the locus of the Stoneham High School campus in relation to the existing roadway network, as well as the intersections that have been assessed as a part of this evaluation.

**EXISTING CONDITIONS CONTEXT**

In order to establish the existing conditions context of the Project with respect to the transportation infrastructure, a comprehensive field inventory of existing conditions was conducted in December 2020. The field investigation consisted of an inventory of existing roadway geometrics; traffic volumes; and pedestrian and bicycle facilities; as well as posted speed limits and land use information within the study area. The study area that was assessed for the Project consisted of Franklin Street and the intersections of Franklin Street at Franklin Place (the access to the Stoneham High School campus) and Franklin Street at Stevens Street and Benjamin Terrace.

**Existing Traffic Volumes**

In order to determine existing traffic-volume demands and flow patterns within the study area, manual turning movement counts (TMCs) and vehicle classification counts were completed at the intersection of Franklin Street at Stevens Street and Benjamin Terrace during the weekday morning (6:00 to 9:00 AM) and evening (2:00 to 6:00 PM) peak periods on Tuesday, December 1, 2020, and were supplemented by traffic volumes obtained from a prior study<sup>1</sup> that included traffic volumes along Franklin Street and at the Franklin Street/Franklin Place intersection. The time periods that were selected for analysis purposes are representative of the peak-traffic-volume hours for both the Project and the adjacent roadway network.

**Traffic-Volume Adjustments**

In order to evaluate the potential for seasonal fluctuation of traffic volumes within the study area, traffic-volume data from MassDOT Continuous Count Station No. 407 located on Route 28 south of the Reading town line in Stoneham were reviewed.<sup>2</sup> Based on a review of this data, it was determined that traffic volumes for the month of December are approximately 1.8 percent below average-month conditions and, therefore, the raw traffic count data was adjusted upward (by 1.8 percent) to average-month conditions.

In order to account for the impact on traffic volumes and trip patterns resulting from the “Safer-at-Home” order and the phased “Reopening Massachusetts” plan that was issued by the Governor on May 18, 2020, in response to the COVID-19 pandemic, traffic-volume data collected along Franklin Street at the Franklin Street/Stevens Street/Benjamin Terrace intersection in December 2020 was compared to traffic-volume data collected in September 2013 at the adjacent intersection of Franklin Street at the Dunkin’ Donuts driveway in conjunction with a prior study.<sup>3</sup> Both traffic counts were adjusted to average-month conditions and the 2013 traffic volumes were expanded to 2020 by applying a background traffic growth rate of 1.0 percent per year (discussion follows) in order to allow for a comparison of the data. Based on this pre- and post-COVID-19 traffic count data comparison, the 2020 traffic-volume data that was

<sup>1</sup>Traffic Impact and Access Study; Proposed Residential Development, Stoneham, Massachusetts: GPI; June 2014.

<sup>2</sup>MassDOT Traffic Volumes for the Commonwealth of Massachusetts; 2020.

<sup>3</sup>Ibid 1.



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Figure 1  
Site Location Map



collected at the Franklin Street/Stevens Street/Benjamin Terrace intersection was adjusted upward by an additional 93 percent during the weekday morning peak-hour and 46 percent during the weekday evening peak-hour in order to account for the reduced traffic volumes resulting from the “stay-at-home order”. In addition, the 2013 traffic-volume data was adjusted to approximate 2020 traffic volume conditions by applying the aforementioned 1.0 percent per year compounded annual background traffic growth.

The 2020 Existing weekday morning and evening peak-hour traffic volumes are graphically depicted on Figure 2.

**FUTURE CONDITIONS**

Traffic volumes in the study area were projected to the year 2027, which reflects a seven-year planning horizon consistent with MassDOT’s *Transportation Impact Assessment (TIA) Guidelines*. Independent of the Project, traffic volumes on the roadway network in the year 2027 under No-Build conditions include all existing traffic and new traffic resulting from background traffic growth. Anticipated Project-generated traffic volumes superimposed upon the 2027 No-Build traffic volumes reflect 2027 Build traffic volume conditions with the Project.

**Future Traffic Growth**

Future traffic growth is a function of the expected land development in the immediate area and the surrounding region. Several methods can be used to estimate this growth. A procedure frequently employed estimates an annual percentage increase in traffic growth and applies that percentage to all traffic volumes under study. The drawback to such a procedure is that some turning volumes may actually grow at either a higher or a lower rate at particular intersections.

An alternative procedure identifies the location and type of planned development, estimates the traffic to be generated, and assigns it to the area roadway network. This procedure produces a more realistic estimate of growth for local traffic; however, potential population growth and development external to the study area would not be accounted for in the resulting traffic projections.

To provide a conservative analysis framework, both procedures were used, the salient components of which are described below.

**Specific Development by Others**

The Town of Stoneham Department of Planning and Community Development was contacted in order to determine if there were any projects planned within the study area that would have an impact on future traffic volumes at the study intersections. Based on this discussion, the following project was identified for inclusion in this assessment:

- **Weiss Farm, 175 Franklin Street, Stoneham, Massachusetts.** This project entails the construction of a 264-unit multifamily residential community.

Traffic volumes associated with the aforementioned specific development project by others were obtained from the traffic study prepared in support of the project<sup>4</sup> and were assigned onto the study area roadway network based on the trip-distribution pattern presented therein. No other developments were identified at

<sup>4</sup>Ibid 1.



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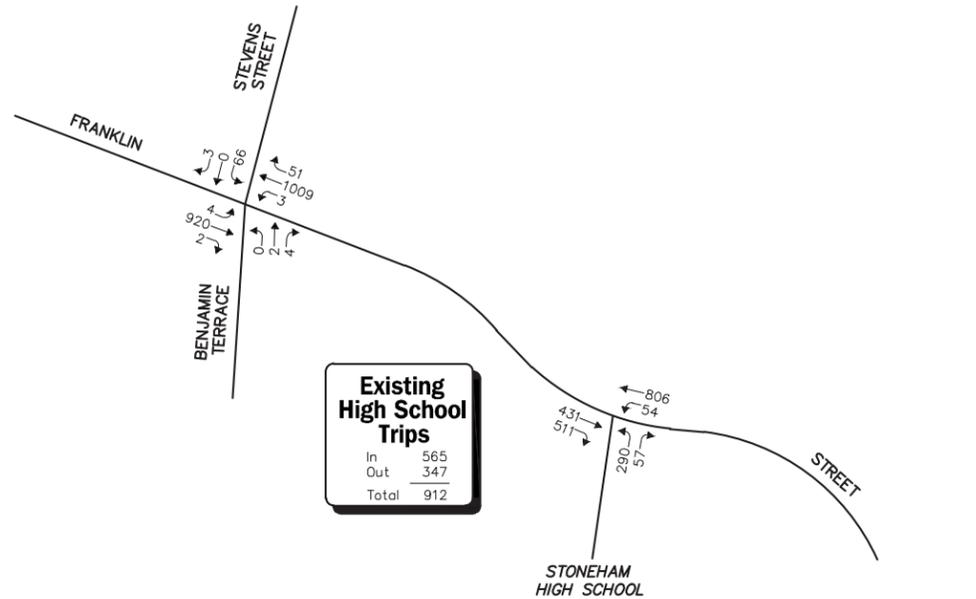
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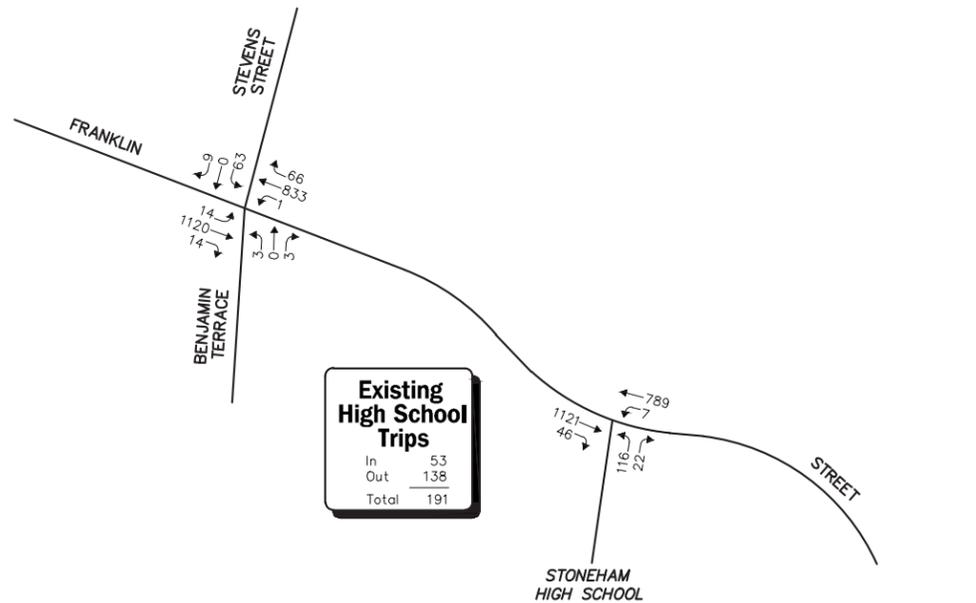
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WEEKDAY MORNING PEAK HOUR (7:00 - 8:00 AM)



WEEKDAY EVENING PEAK HOUR (3:30 - 4:30 PM)



Notes: 1. Imbalances exist due to numerous curb cuts and side streets that are not shown.  
Not To Scale



Figure 2  
2020 Existing Peak Hour Traffic Volumes

this time that are expected to result in an increase in traffic within the study area beyond the general background traffic growth rate.

**General Background Traffic Growth**

Traffic-volume data compiled by MassDOT from Continuous Count Station No. 407 located on Route 28 south of the Reading town line in Stoneham were reviewed in order to determine general traffic growth trends in the area. Based on a review of this data, it was determined that traffic volumes within the study area have increased by approximately 0.64 percent per year over the past several years. In order to provide a conservative (high) analysis scenario and a prudent planning condition for the Project, a slightly higher 1.0 percent per year compounded annual background traffic growth rate was used in order to account for future traffic growth and presently unforeseen development within the study area.

**Roadway Improvement Projects**

MassDOT and the Town of Stoneham were consulted in order to determine if there were any planned future roadway improvement projects expected to be complete by 2027 within the study area. Based on these consultations, no roadway improvement projects aside from routine maintenance activities were identified to be planned within the study area at this time.

To the extent that the Weiss Farm project is advanced in the future, specific roadway, intersection and traffic control improvements are expected to be completed along Franklin Street that would include advancement of an optimal traffic signal timing, phasing and coordination plan for the traffic signals along the corridor. These potential future improvements are not reflected in this assessment.

**No-Build Traffic Volumes**

The 2027 No-Build condition peak-hour traffic-volumes were developed by applying the 1.0 percent per year compounded annual background traffic growth rate to the 2020 Existing peak-hour traffic volumes and then adding the additional traffic associated with the identified specific development project by others. The resulting 2027 No-Build weekday morning and evening peak-hour traffic volumes are shown on Figure 3.

**PROJECT-GENERATED TRAFFIC**

As proposed, the Project will entail the construction of a new Stoneham High School that will accommodate a population of approximately 695 students and approximately 115 staff. In order to develop the traffic characteristics of the new school, trip rates were derived from traffic counts conducted at the existing high school driveway during the weekday peak hours. The observed peak-hour traffic volumes were normalized to trips per student using the student population of the school at the time that the traffic counts were performed (2013). The resulting trip rates were then applied to the student population that will be accommodated by the new high school (695 students), the results of which are summarized in Table 1.



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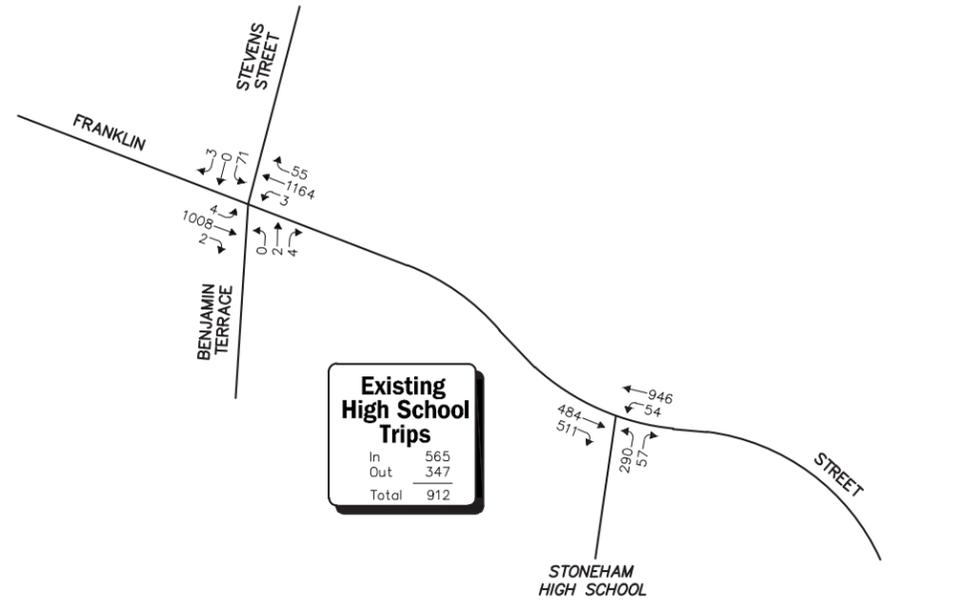
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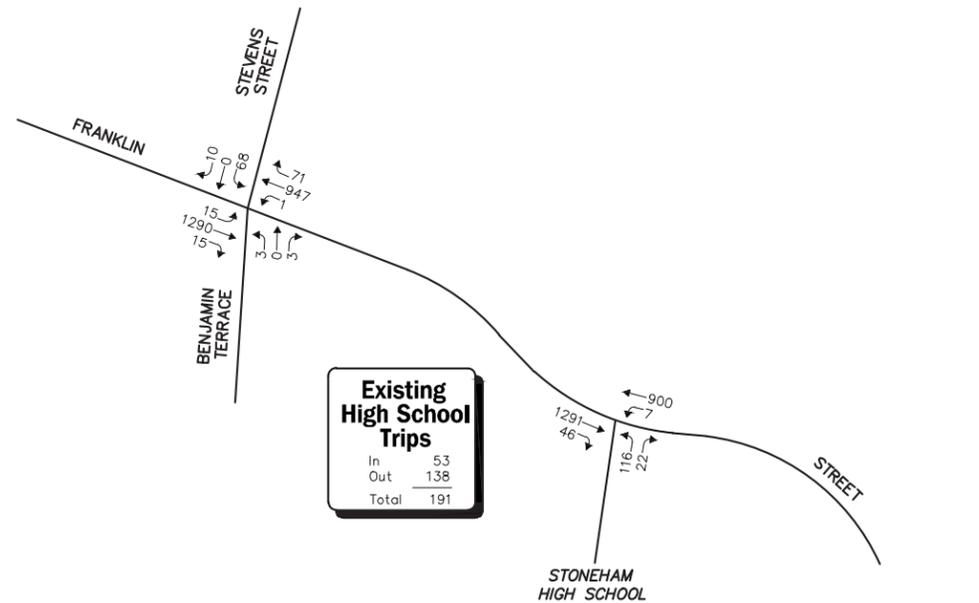
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WEEKDAY EVENING PEAK HOUR (3:30 - 4:30 PM)



Notes: 1. Imbalances exist due to numerous curb cuts and side streets that are not shown.  
Not To Scale

**Figure 3**  
**2027 No-Build Peak Hour Traffic Volumes**

Vanasse & Associates inc

**Table 1**  
**TRIP GENERATION SUMMARY**

Time Period/Direction	(A) 2013 Stoneham High School Traffic Volumes (669 Students) <sup>a</sup>	(B) Predicted Traffic Volume Increase (26 Students) <sup>b</sup>	(C = A - B) Traffic Volumes Associated with the New High School (695 Students)
<i>Weekday Morning Peak Hour:</i>			
Entering	565	22	587
Exiting	347	14	361
Total	912	36	948
<i>Weekday Evening Peak Hour:</i>			
Entering	53	2	55
Exiting	138	6	144
Total	191	8	199

<sup>a</sup>Based on the manual turning movements obtained at the Stoneham High School driveway in September 2013.  
<sup>b</sup>Based on the projected number of students for the new high school.

**Project-Generated Traffic Volume Summary**

As can be seen in Table 1, the expansion of the student population that will be accommodated at the new high school (26 additional students) is expected to result in an additional 36 vehicle trips (22 vehicles entering and 14 exiting) during the weekday morning peak-hour and eight (8) additional vehicle trips (2 vehicle entering and 6 exiting) expected during the weekday evening peak-hour.

**Trip Distribution and Assignment**

The directional distribution of generated trips to and from the Project site was determined based on a review of the traffic patterns that were observed at the Stoneham High School driveway (Franklin Place) during the peak periods in 2013. The general trip distribution for the Project is graphically depicted on Figure 4, with the additional traffic that is expected to be generated by the Project assigned on the study area roadway network as shown on Figure 5.

**Build Traffic Volumes**

The 2027 Build condition traffic volumes were developed by adding the traffic expected to be generated by the Project to the 2027 No-Build condition traffic volumes. The 2027 Build (with the construction of the new high school) weekday morning and evening peak-hour traffic-volumes are graphically depicted on Figure 6.



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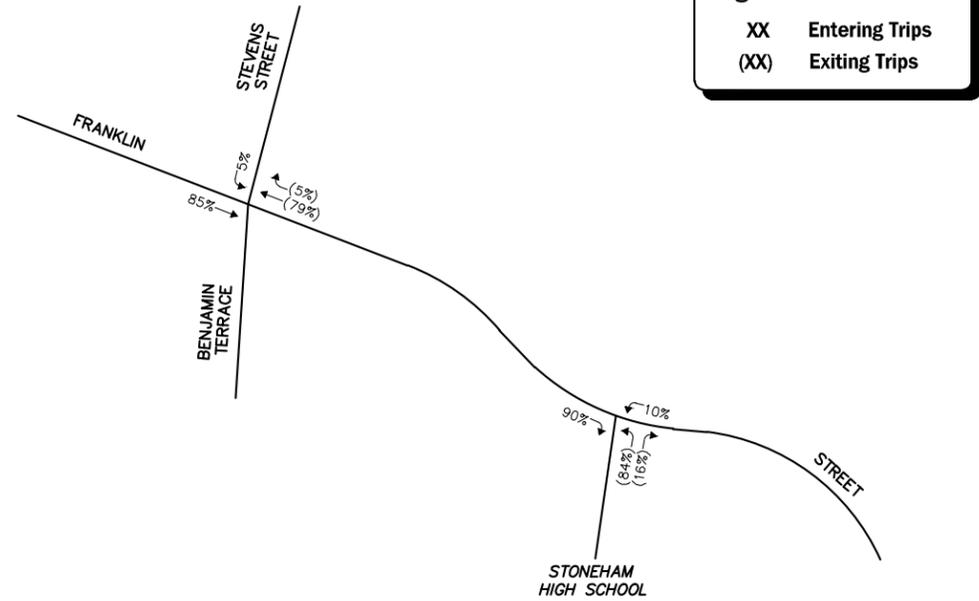
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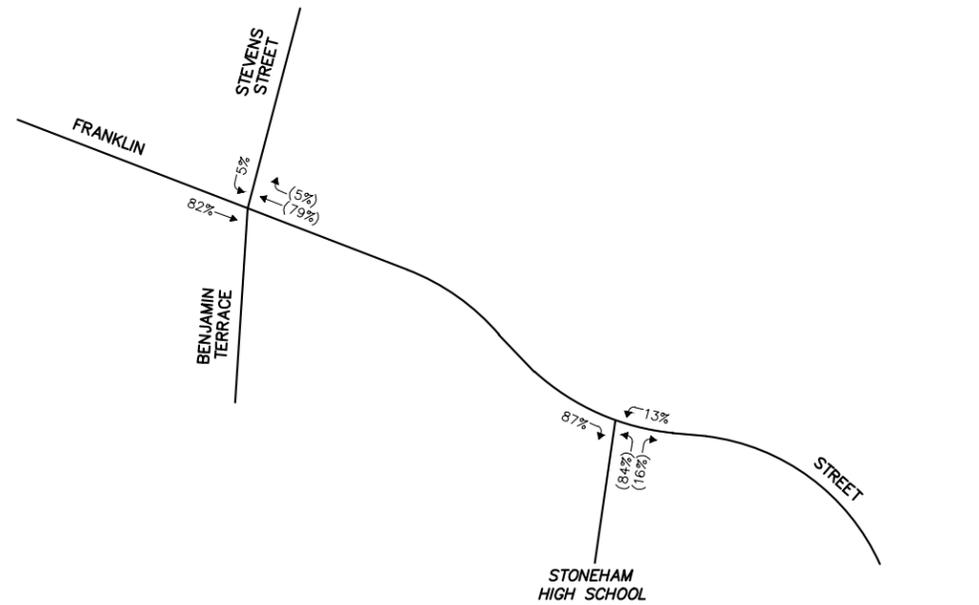
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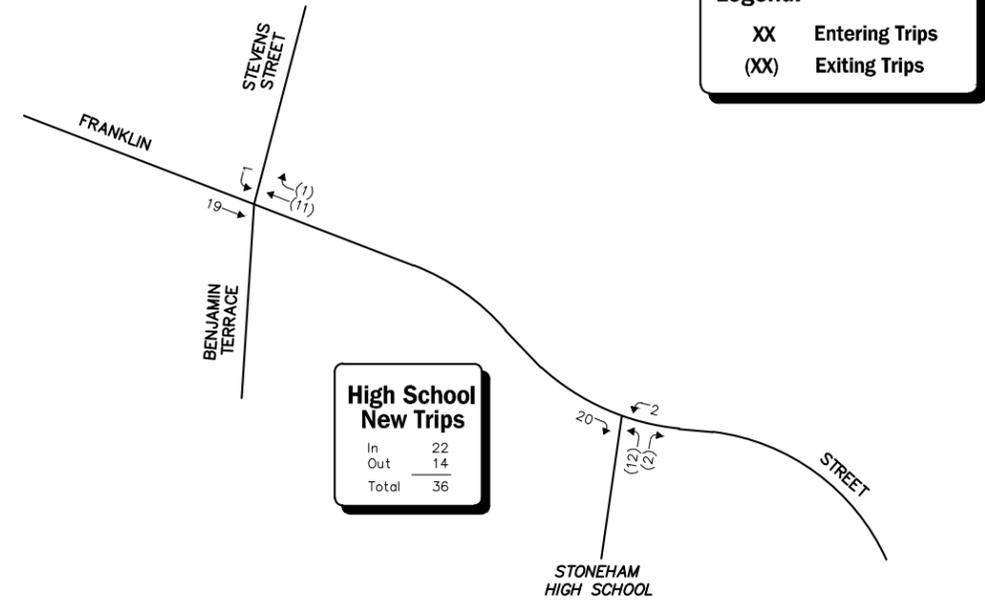


Not To Scale  
**Figure 4**  
 Trip Distribution Map  
 Vanasse & Associates inc

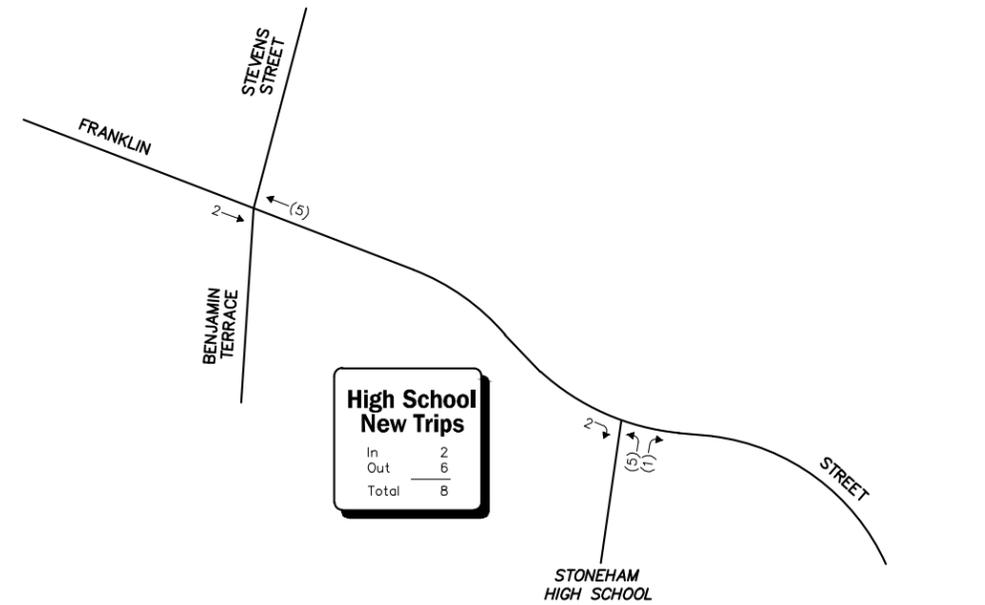
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Functional Design Report - New Stoneham High School - Stoneham, Massachusetts

WEEKDAY MORNING PEAK HOUR (7:00 - 8:00 AM)



WEEKDAY EVENING PEAK HOUR (3:30 - 4:30 PM)



Not To Scale  
**Figure 5**  
 Project-Generated Peak Hour Traffic Volumes  
 Vanasse & Associates inc

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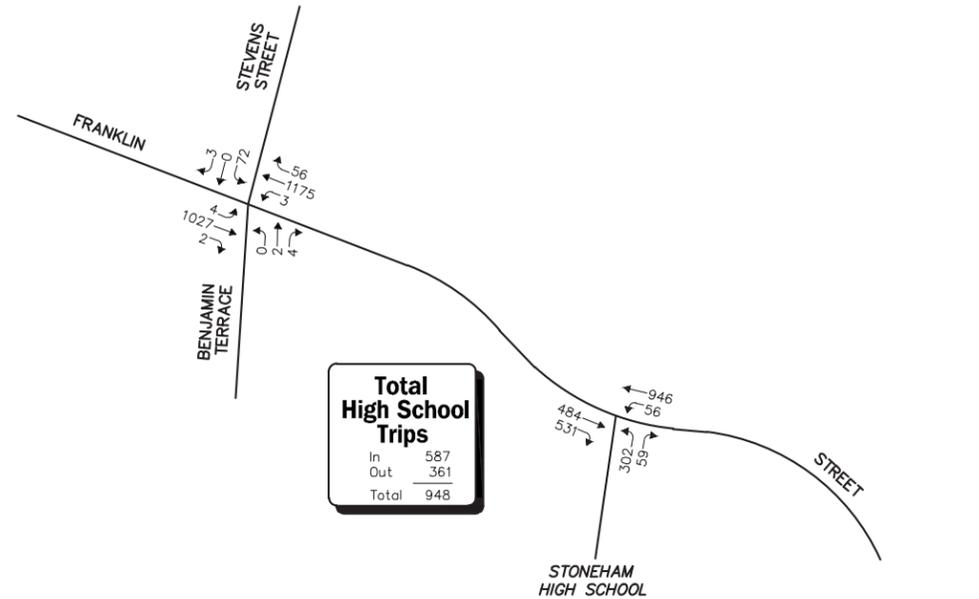
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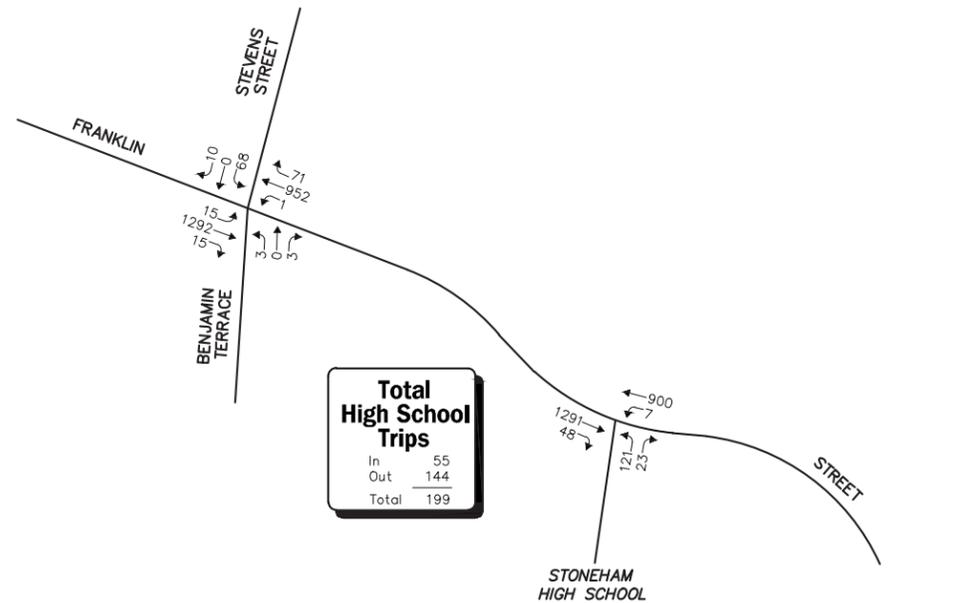
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Functional Design Report - New Stoneham High School - Stoneham, Massachusetts

WEEKDAY MORNING PEAK HOUR (7:00 - 8:00 AM)



WEEKDAY EVENING PEAK HOUR (3:30 - 4:30 PM)



Notes: 1. Imbalances exist due to numerous curb cuts and side streets that are not shown. Not To Scale **Figure 6**



**2027 Build Peak Hour Traffic Volumes**

**TRAFFIC OPERATIONS ANALYSIS**

In order to assess the potential impact of the Project on the roadway network, a detailed traffic operations analysis (motorist delays, vehicle queuing and level-of-service (LOS)) was performed at the study area intersections. Capacity analyses provide an indication of how well transportation facilities serve the traffic demands placed upon them, with vehicle queue analyses providing a secondary measure of the operational characteristics of an intersection or section of roadway under study.

In brief, six levels of service are defined for each type of facility. They are given letter designations ranging from “A” to “F”, with a level-of-service (LOS) “A” representing the best operating conditions and LOS “F” representing congested or constrained operations. An LOS of “E” is representative of a transportation facility that is operating at its design capacity, with an LOS of “D” generally defined as the limit of “acceptable” traffic operations. Since the level-of-service of a traffic facility is a function of the flows placed upon it, such a facility may operate at a wide range of levels of service depending on the time of day, day of week, or period of the year. The Synchro® intersection capacity analysis software, which is based on the analysis methodologies and procedures presented in the 2010 *Highway Capacity Manual* (HCM)<sup>5</sup> for signalized and unsignalized intersections, was used to complete the level-of-service and vehicle queue analyses.

**Analysis Results**

Level-of-service and vehicle queue analyses were conducted for 2027 No-Build, 2027 Build (with the new high school) and 2027 Build with Improvements conditions for the intersections within the study area. The results of the traffic operations and vehicle queue analyses are summarized in Tables 2 and 3, with the detailed analysis results presented in the Appendix. The following is a summary of operating conditions for the two study intersections.

**Franklin Street/Stoneham High School Driveway (Franklin Place)** – Under 2027 No-Build and 2027 Build conditions, this signalized intersection was shown to operate at an overall LOS C during the weekday morning peak-hour and at LOS F during the weekday evening peak-hour, with vehicle queues ranging from 1 to 34 vehicles. Under 2027 Build with Improvements conditions (discussion follows), the intersection is expected to continue to operate at an overall LOS C during the weekday morning peak-hour and to improve to LOS D during the weekday evening peak-hour with reduced vehicle queuing (1 to 27 vehicles).

**Franklin Street/Steven Street/Benjamin Terrace** – Under 2027 No-Build and 2027 Build conditions, all movements from Stevens Street and Benjamin Terrace at this unsignalized intersection were shown to operate at LOS F during both the weekday morning and evening peak hours, with vehicle queues ranging from 1 to 11 vehicles. Under 2027 Build with Improvements conditions (installation of a traffic control signal (discussion follows)), operating conditions at the intersection are expected to improve to an overall LOS C during the weekday morning peak-hour and to LOS B during the weekday evening peak-hour, with no movement operating below LOS D. Vehicle queues at the intersection were shown to range from 1 to 11 vehicles as an unsignalized intersection and from 1 to 34 vehicles with the installation of a traffic control signal.

<sup>5</sup>Highway Capacity Manual, Transportation Research Board; Washington, DC; 2010.



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**Table 2**  
**FRANKLIN STREET AT THE STONEHAM HIGH SCHOOL DRIVEWAY**  
**INTERSECTION LEVEL-OF-SERVICE AND VEHICLE QUEUE SUMMARY**

Intersection/Peak-hour/Movement	2027 No-Build			2027 Build			2027 Build with Improvements					
	V/C <sup>a</sup>	Delay <sup>b</sup>	LOS <sup>c</sup>	Queue <sup>d</sup> 50 <sup>th</sup> /95 <sup>th</sup>	V/C	Delay	LOS	Queue 50 <sup>th</sup> /95 <sup>th</sup>	V/C	Delay	LOS	Queue 50 <sup>th</sup> /95 <sup>th</sup>
<b>Franklin Street at the Stoneham High School Driveway:</b>												
<i>Weekday Morning:</i>												
Franklin Street EB TH	0.57	18.0	B	10/22	0.57	18.3	B	10/22	0.67	19.3	B	5/10
Franklin Street EB RT	0.36	4.9	A	4/8	0.38	5.0	A	4/8	0.38	5.8	A	3/8
Franklin Street WB LT	0.14	9.9	A	1/3	0.14	10.1	B	1/3	0.17	9.9	A	1/3
Franklin Street WB TH	0.88	24.5	C	22/26	0.89	25.0	C	22/27	0.97	36.8	D	24/27
Stoneham High School Driveway NB LT	0.76	45.5	D	8/11	0.78	46.9	D	8/16	0.78	36.5	D	5/7
Stoneham High School Driveway NB RT	0.03	25.8	C	1/3	0.03	25.8	C	2/3	0.03	18.6	B	1/2
<b>Overall</b>	--	<b>21.2</b>	<b>C</b>	--	--	<b>21.6</b>	<b>C</b>	--	--	<b>25.2</b>	<b>C</b>	--
<i>Weekday Evening:</i>												
Franklin Street EB TH	1.33	>80.0	F	27/34	1.34	>80.0	F	32/34	1.11	63.5	E	8/20
Franklin Street EB RT	0.04	3.3	A	3/10	0.04	3.3	A	3/10	0.04	0.6	A	1/4
Franklin Street WB LT	0.04	20.2	C	2/5	0.04	20.3	C	2/5	0.05	29.9	C	1/1
Franklin Street WB TH	0.77	12.3	B	12/19	0.77	12.6	B	12/19	0.67	7.6	A	6/12
Stoneham High School Driveway NB LT	0.46	36.6	D	5/7	0.47	36.6	D	5/7	0.52	45.7	D	4/7
Stoneham High School Driveway NB RT	0.01	28.8	C	1/1	0.01	28.8	C	1/1	0.01	36.3	D	1/2
<b>Overall</b>	--	<b>&gt;80.0</b>	<b>F</b>	--	--	<b>&gt;80.0</b>	<b>F</b>	--	--	<b>40.0</b>	<b>D</b>	--

<sup>a</sup>Volume-to-capacity ratio.  
<sup>b</sup>Control (signal) delay per vehicle in seconds.  
<sup>c</sup>Level of service.  
<sup>d</sup>Queue length in vehicles.  
 NB = northbound; SB = southbound; EB = eastbound; WB = westbound; LT = left-turning movements; TH = through movements; RT = right-turning movements.



**Table 3**  
**FRANKLIN STREET AT STEVENS STREET AND BENJAMIN TERRACE**  
**INTERSECTION LEVEL-OF-SERVICE AND VEHICLE QUEUE SUMMARY**

Intersection/Peak Hour/Movement	2027 No-Build			2027 Build			2027 Build with Improvements					
	Demand <sup>a</sup>	Delay <sup>b</sup>	LOS <sup>c</sup>	Queue <sup>d</sup> 95 <sup>th</sup>	Demand	Delay	LOS	Queue 95 <sup>th</sup>	V/C <sup>e</sup>	Delay <sup>f</sup>	LOS	Queue 50 <sup>th</sup> /95 <sup>th</sup>
<b>Franklin Street at Stevens Street and Benjamin Terrace:</b>												
<i>Weekday Morning:</i>												
Franklin Street EB LT/TH/RT	1,014	0.0	A	0	1,033	0.0	A	0	0.85	13.9	B	12/20
Franklin Street WB LT/TH/RT	1,222	0.0	A	0	1,234	0.0	A	0	0.99	32.7	C	18/34
Benjamin Terrace NB LT/TH/RT	6	>50.0	F	1	6	>50.0	F	1	0.01	29.1	C	1/2
Stevens Street SB LT/TH/RT	74	>50.0	F	10	75	>50.0	F	11	0.06	29.3	C	2/4
<b>Overall</b>	--	--	--	--	--	--	--	--	--	<b>24.3</b>	<b>C</b>	--
<i>Weekday Evening:</i>												
Franklin Street EB LT/TH/RT	1,320	0.1	A	0	1,322	0.1	A	0	0.96	26.7	C	16/27
Franklin Street WB LT/TH/RT	1,019	0.0	A	0	1,024	0.0	A	0	0.72	6.7	A	6/13
Benjamin Terrace NB LT/TH/RT	6	>50.0	F	1	6	>50.0	F	1	0.00	46.9	D	1/1
Stevens Street SB LT/TH/RT	78	>50.0	F	11	68	>50.0	F	11	0.15	48.1	D	3/7
<b>Overall</b>	--	--	--	--	--	--	--	--	--	<b>19.0</b>	<b>B</b>	--

<sup>a</sup>Demand in vehicles per hour.  
<sup>b</sup>Average control delay per vehicle (in seconds).  
<sup>c</sup>Level of service.  
<sup>d</sup>Queue length in vehicles.  
<sup>e</sup>Volume-to-capacity ratio.  
<sup>f</sup>Control (signal) delay per vehicle in seconds.  
 NB = northbound; SB = southbound; EB = eastbound; WB = westbound; LT = left-turning movements; TH = through movements; RT = right-turning movements.



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**RECOMMENDED IMPROVEMENTS**

Potential improvements were evaluated for the two study intersections with respect to their ability to: i) enhance safety; ii) facilitate the efficient flow of vehicles, pedestrians and bicyclists; and iii) accommodate the projected future traffic volumes at the intersections as the results of the Project. The following summarizes the proposed intersection improvements.

**Franklin Street at Franklin Place (Stoneham High School Driveway)**

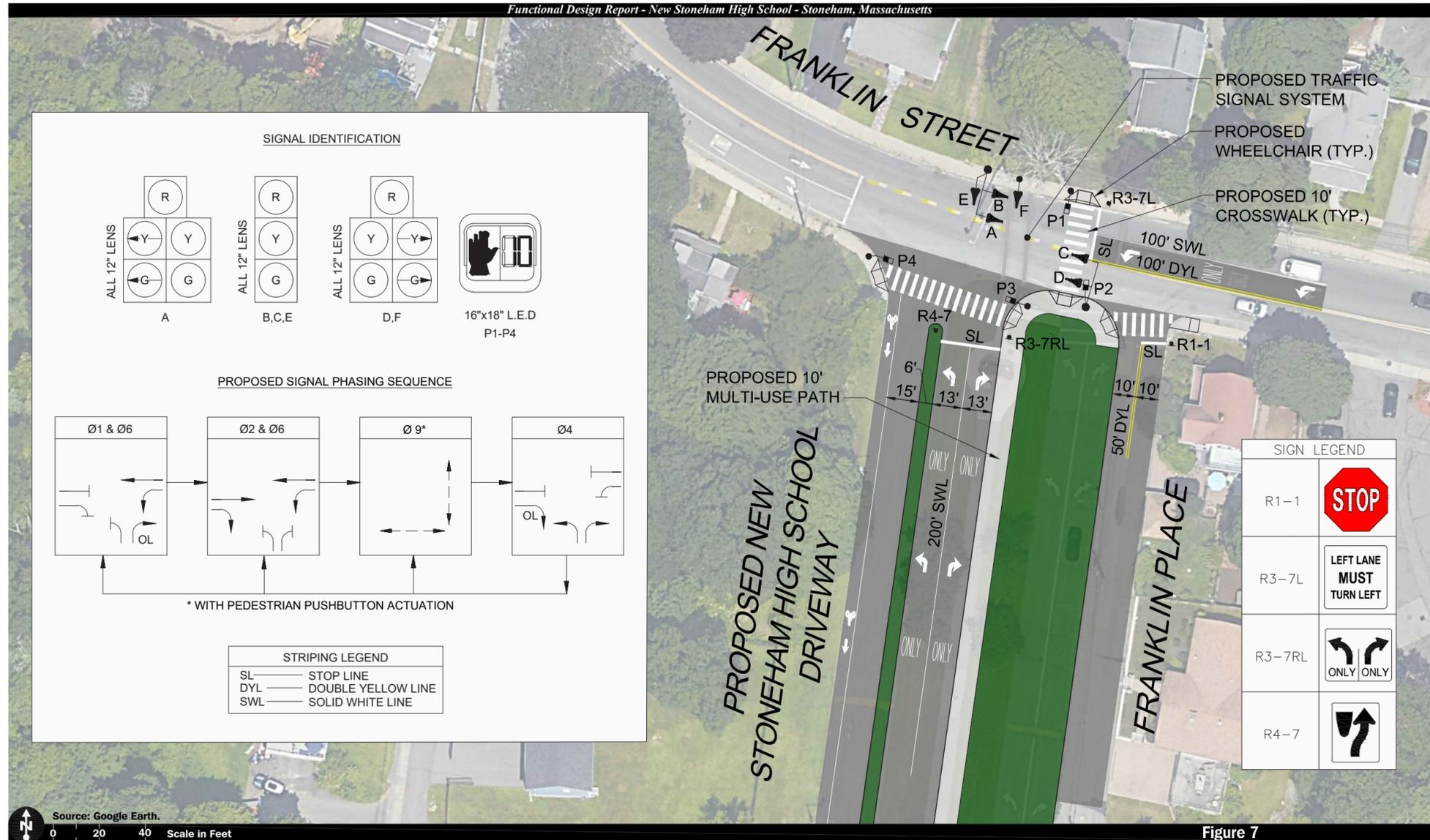
The intersection of Franklin Street at Franklin Place currently consists of a 'T'-Type intersection that includes a wide median along the center of Franklin Place that separates traffic entering and exiting the Stoneham High School campus and includes a sidewalk in the center that conveys pedestrians to and from the high school. The intersection operates under traffic signal control with a police detail or crossing guard present during student drop-off/pick-up.

In order to improve the operation of the intersection, accommodate the additional traffic associated with the predicted increase in the student population at the high school campus and facilitate safe pedestrian and bicycle access, the following improvements are recommended for advancement at this intersection and are depicted on Figure 7:

- Reduce the width (or eliminate) the center median along Franklin Place and expand the buffer along the east side to include the addition of a 10-foot wide multiuse path. The location of the multiuse path within the buffer area can be adjusted to accommodate landscaping and other features, including the potential addition of a bus stop for future service by the Massachusetts Bay Transportation Authority (MBTA);
- Maintain one (1) entering travel lane and two (2) exiting travel lanes along Franklin Place;
- Widen Franklin Place east of the school driveway (access to the residential properties to the east of the school campus) from a 10-feet to 20-feet to accommodate emergency vehicle response;
- Provide a 5-foot wide bike lane along the west side of the school driveway (the bike lane would be one-way toward the school);
- Install Americans with Disabilities Act (ADA) compliant wheelchair ramps;
- Install new high visibility crosswalks;
- Replace the existing traffic control signal system; and
- Provide an optimal traffic signal timing and phasing plan to include pedestrian and bicycle detection and exclusive pedestrian phasing.

The current intersection configuration creates an extended passage area along Franklin Street due to the center median which increases pedestrian and bicycle exposure to conflicts with vehicles and results in inefficient operating conditions due to the timing required for vehicles to clear the intersection prior to the initiation of a "green" indication for Franklin Place. In addition, the pedestrian crossing of Franklin Place is not currently included as a part of the traffic signal system (i.e., pedestrian traffic signal equipment and phasing are not provided for the crossing) and would need to be incorporated into the traffic signal in conjunction with the new high school. Elimination of the median and replacement of the traffic signal system as depicted on Figure 7 would eliminate the identified operational and safety concerns at the intersection.

The estimates cost to complete these improvements is \$800,000.



**Figure 7**  
 Conceptual Improvement Plan  
 Franklin Street at Stoneham High School Driveway and Franklin Place

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**Franklin Street at Stevens Street and Benjamin Terrace**

The intersection of Franklin Street at Stevens Street and Benjamin Terrace currently consists of four-way intersection that includes a single travel lane on each approach with the Stevens Street and Benjamin Terrace approaches operating under stop control. Marked crosswalks are provided across Stevens Street and Benjamin Terrace, and across the Franklin Street east leg. Both the Stevens Street and Benjamin Terrace approaches were identified to experience significant delays during the peak hours with extended vehicle queuing.

In order to improve operating conditions at the intersection and facilitate pedestrian and bicycle access to the high school campus, a preliminary review of the criteria for the installation of a traffic control signal at the intersection was undertaken in accordance with the methodology and procedures outlined in the Manual on Uniform Traffic Control Devices (MUTCD).<sup>6</sup>

In brief, The MUTCD establishes nine warrants or criteria to evaluate a location for the installation (or retention) of a traffic signal. At least one of the nine warrants must be satisfied in order to justify the installation or retention of a traffic signal; however, satisfaction of a warrant in and of itself does not necessarily indicate that the installation of a traffic signal is the best traffic control solution. An engineering evaluation of the location in question should indicate that the establishment of traffic signal control will improve the overall safety and/or operation of the intersection. Table 4 lists the nine warrants used to evaluate an intersection for traffic signal control as presented in the MUTCD.

**Table 4  
TRAFFIC SIGNAL WARRANTS**

Warrant No.	Description
1	Eight-Hour Vehicular Volume
2	Four-Hour Vehicular Volume
3	Peak-Hour
4	Pedestrian Volume
5	School Crossing
6	Coordinated Signal System
7	Crash Experience
8	Roadway Network
9	Intersection Near a Grade Crossing

Each of the nine traffic signal warrants listed in Table 4 were evaluated for the intersection of Franklin Street at Stevens Street and Benjamin Terrace based on the current intersection geometry and under 2027 Build average-month traffic volume conditions. Table 5 summarizes the results of the preliminary TSWA for the intersection, with the detailed TSWA worksheets and supporting materials attached.

<sup>6</sup>Manual on Uniform Traffic Control Devices (MUTCD); Federal Highway Administration; Washington, DC; 2009.



**Table 5  
TRAFFIC SIGNAL WARRANTS ANALYSIS –  
FRANKLIN STREET AT STEVENS STREET AND  
BENJAMIN TERRACE**

Warrant No.	Description	2027 Build Satisfied?
1	Eight-Hour Vehicular Volume	**
2	Four-Hour Vehicular Volume	Yes
3	Peak Hour	Yes
4	Pedestrian Volume	No
5	School Crossing	No
6	Coordinated Signal System	No
7	Crash Experience	No
8	Roadway Network	No
9	Intersection Near a Grade Crossing	No

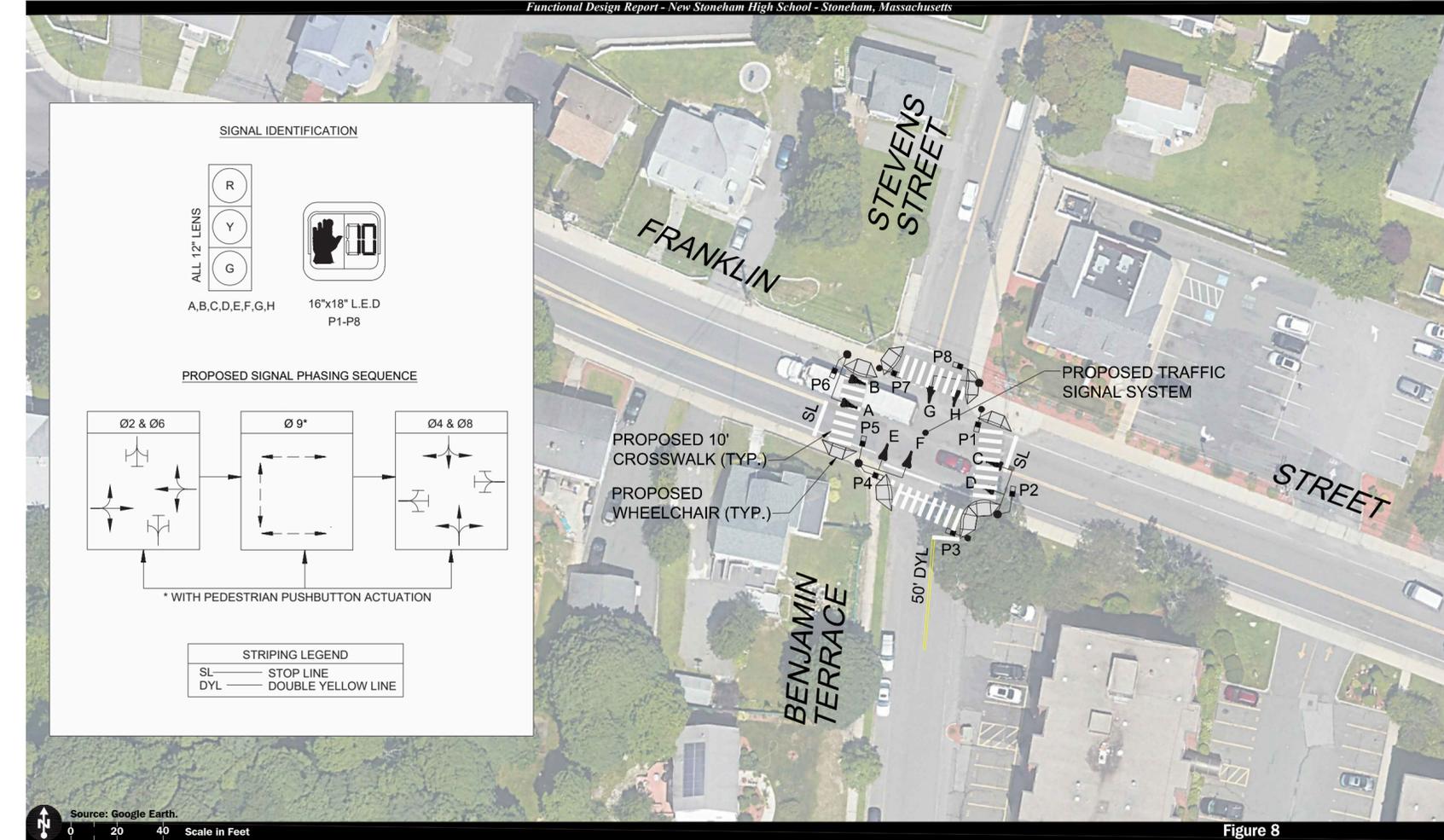
\*\*Additional traffic count data (12-hour turning movement count) is required to evaluate Warrant 1.

As can be seen in Table 5, the intersection of Franklin Street at Stevens Street and Benjamin Terrace was found to satisfy Warrant 2, *Four-Hour Vehicular Volume*, and Warrant 3, *Peak Hour*, under 2027 Build traffic-volume conditions. Warrant 1, *Eight-Hour Vehicular Volume*, may be also be warranted; however, additional traffic count data would need to be obtained. Based on the preliminary TSWA, the installation of a traffic control signal is warranted at the intersection of Franklin Street at Stevens Street and Benjamin Terrace and has been recommended for consideration of advancement as a part of the Project. Figure 8 depicts the recommended improvements to the intersection to accompany the installation of a traffic control signal.

The estimated cost to complete these improvements is \$370,000.



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**Figure 8**

**Conceptual Improvement Plan  
Franklin Street at Stevens Street  
and Benjamin Terrace**



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**SUMMARY**

VAI has completed an initial assessment of the transportation infrastructure needs to accommodate access to the new Stoneham High School that is to be located at 149 Franklin Street (the current location of Stoneham High School) in Stoneham, Massachusetts. This assessment has been completed in support of the SD phase for the Project, and includes an evaluation of design alternatives to facilitate access to the campus for pedestrians, bicycles and motor vehicles at the Franklin Street/Franklin Place intersection, as well as related improvements at the intersection of Franklin Street at Stevens Street and Benjamin Terrace.

Based on this assessment, we have identified a preferred alignment for Franklin Place that will improve traffic operations and enhance safety at the intersection. In addition, the installation of a traffic control signal has been recommended at the Franklin Street/Stevens Street/Benjamin Terrace intersection in order to facilitate pedestrian and bicycle access to the school campus and access to Franklin Street for motorists on both Stevens Street and Benjamin Terrace. These improvements will accommodate access to the new high school and enhance connections to the school campus for the community, particularly as it relates to alternative modes of transportation, such as pedestrians and bicycles.

cc: File

**APPENDIX**

- MANUAL TURNING MOVEMENT COUNTS
- WEISS FARM EXISTING TRAFFIC-VOLUME NETWORKS
- SEASONAL ADJUSTMENT FACTORS
- BACKGROUND TRAFFIC GROWTH RATE
- TRIP-GENERATION CALCULATIONS
- CAPACITY ANALYSIS WORKSHEETS
- TRAFFIC SIGNAL WARRANT ANALYSIS

MANUAL TURNING MOVEMENT COUNTS



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Accurate Counts  
978-664-2565

N/S Street : Stevens St / Benjamin Terr  
E/W Street : Franklin Street  
City/State : Stoneham, MA  
Weather : Clear

File Name : 87930001  
Site Code : 87930001  
Start Date : 12/1/2020  
Page No : 1

Groups Printed- Cars - Trucks

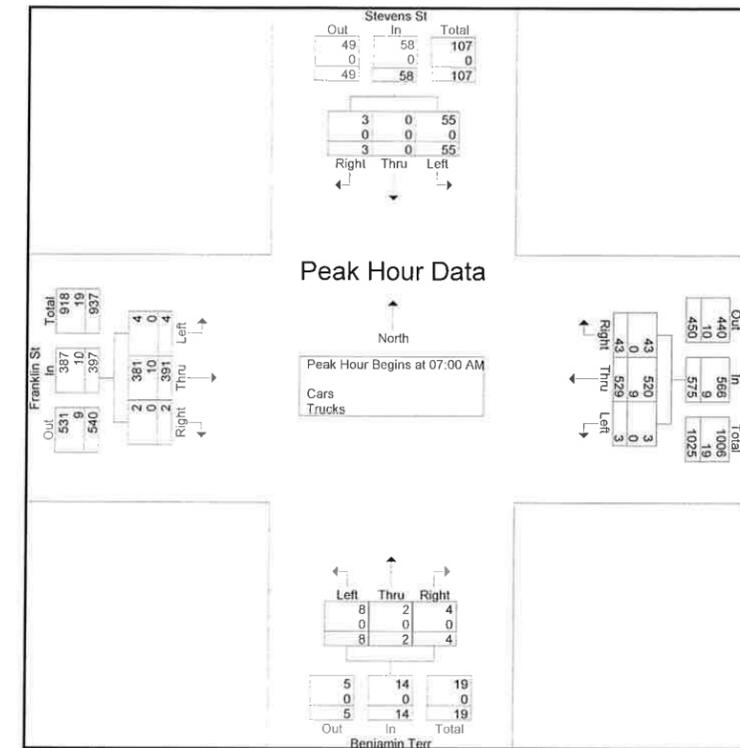
Start Time	Stevens St From North			Franklin St From East			Benjamin Terr From South			Franklin St From West			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
06:00 AM	1	0	4	0	53	2	3	0	0	1	30	0	94
06:15 AM	3	0	4	0	87	1	0	0	0	2	49	1	147
06:30 AM	1	0	1	0	85	2	2	0	0	0	44	0	135
06:45 AM	13	0	5	0	99	3	1	0	0	3	69	0	193
<b>Total</b>	<b>18</b>	<b>0</b>	<b>14</b>	<b>0</b>	<b>324</b>	<b>8</b>	<b>6</b>	<b>0</b>	<b>0</b>	<b>6</b>	<b>192</b>	<b>1</b>	<b>569</b>
07:00 AM	7	0	1	0	107	9	1	1	0	0	68	0	194
07:15 AM	12	0	0	0	116	13	1	0	0	0	86	0	228
07:30 AM	14	0	2	2	129	9	2	0	2	2	119	2	283
07:45 AM	22	0	0	1	177	12	4	1	2	2	118	0	339
<b>Total</b>	<b>55</b>	<b>0</b>	<b>3</b>	<b>3</b>	<b>529</b>	<b>43</b>	<b>8</b>	<b>2</b>	<b>4</b>	<b>4</b>	<b>391</b>	<b>2</b>	<b>1044</b>
08:00 AM	15	0	3	0	138	7	1	1	0	0	103	1	269
08:15 AM	9	0	0	1	158	10	1	0	0	2	104	0	285
08:30 AM	10	0	2	0	100	10	0	0	1	4	99	3	229
08:45 AM	16	2	1	0	135	9	0	1	1	4	96	0	265
<b>Total</b>	<b>50</b>	<b>2</b>	<b>6</b>	<b>1</b>	<b>531</b>	<b>36</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>10</b>	<b>402</b>	<b>4</b>	<b>1048</b>
<b>Grand Total</b>	<b>123</b>	<b>2</b>	<b>23</b>	<b>4</b>	<b>1384</b>	<b>87</b>	<b>16</b>	<b>4</b>	<b>6</b>	<b>20</b>	<b>985</b>	<b>7</b>	<b>2661</b>
Apprch %	83.1	1.4	15.5	0.3	93.8	5.9	61.5	15.4	23.1	2	97.3	0.7	
Total %	4.6	0.1	0.9	0.2	52	3.3	0.6	0.2	0.2	0.8	37	0.3	
Cars	122	2	23	4	1365	87	16	4	6	20	960	7	2616
% Cars	99.2	100	100	100	98.6	100	100	100	100	100	97.5	100	98.3
Trucks	1	0	0	0	19	0	0	0	0	0	25	0	45
% Trucks	0.8	0	0	0	1.4	0	0	0	0	0	2.5	0	1.7

Start Time	Stevens St From North				Franklin St From East				Benjamin Terr From South				Franklin St From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 06:00 AM to 07:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	7	0	1	8	0	107	9	116	1	1	0	2	0	68	0	68	194
07:15 AM	12	0	0	12	0	116	13	129	1	0	0	1	0	86	0	86	228
07:30 AM	14	0	2	16	2	129	9	140	2	0	2	4	2	119	2	123	283
07:45 AM	22	0	0	22	1	177	12	190	4	1	2	7	2	118	0	120	339
<b>Total Volume</b>	<b>55</b>	<b>0</b>	<b>3</b>	<b>58</b>	<b>3</b>	<b>529</b>	<b>43</b>	<b>575</b>	<b>8</b>	<b>2</b>	<b>4</b>	<b>14</b>	<b>4</b>	<b>391</b>	<b>2</b>	<b>397</b>	<b>1044</b>
% App. Total	94.8	0	5.2	0.5	92	7.5	57.1	14.3	28.6	1	98.5	0.5					
PHF	.625	.000	.375	.659	.375	.747	.827	.757	.500	.500	.500	.500	.500	.821	.250	.807	.770
Cars	55	0	3	58	3	520	43	566	8	2	4	14	4	381	2	387	1025
% Cars	100	0	100	100	100	98.3	100	98.4	100	100	100	100	100	97.4	100	97.5	98.2
Trucks	0	0	0	0	0	9	0	9	0	0	0	0	0	10	0	10	19
% Trucks	0	0	0	0	0	1.7	0	1.6	0	0	0	0	0	2.6	0	2.5	1.8

Accurate Counts  
978-664-2565

N/S Street : Stevens St / Benjamin Terr  
E/W Street : Franklin Street  
City/State : Stoneham, MA  
Weather : Clear

File Name : 87930001  
Site Code : 87930001  
Start Date : 12/1/2020  
Page No : 2



Peak Hour Analysis From 06:00 AM to 07:45 AM - Peak 1 of 1  
Peak Hour for Each Approach Begins at:

	07:00 AM				07:00 AM				07:00 AM				07:00 AM				
+0 mins.	7	0	1	8	0	107	9	116	1	1	0	2	0	68	0	68	194
+15 mins.	12	0	0	12	0	116	13	129	1	0	0	1	0	86	0	86	228
+30 mins.	14	0	2	16	2	129	9	140	2	0	2	4	2	119	2	123	283
+45 mins.	22	0	0	22	1	177	12	190	4	1	2	7	2	118	0	120	339
<b>Total Volume</b>	<b>55</b>	<b>0</b>	<b>3</b>	<b>58</b>	<b>3</b>	<b>529</b>	<b>43</b>	<b>575</b>	<b>8</b>	<b>2</b>	<b>4</b>	<b>14</b>	<b>4</b>	<b>391</b>	<b>2</b>	<b>397</b>	<b>1044</b>
% App. Total	94.8	0	5.2	0.5	92	7.5	57.1	14.3	28.6	1	98.5	0.5					
PHF	.625	.000	.375	.659	.375	.747	.827	.757	.500	.500	.500	.500	.500	.821	.250	.807	.770
Cars	55	0	3	58	3	520	43	566	8	2	4	14	4	381	2	387	1025
% Cars	100	0	100	100	100	98.3	100	98.4	100	100	100	100	100	97.4	100	97.5	98.2
Trucks	0	0	0	0	0	9	0	9	0	0	0	0	0	10	0	10	19
% Trucks	0	0	0	0	0	1.7	0	1.6	0	0	0	0	0	2.6	0	2.5	1.8

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Accurate Counts  
978-664-2565

N/S Street : Stevens St / Benjamin Terr  
E/W Street : Franklin Street  
City/State : Stoneham, MA  
Weather : Clear

File Name : 87930001  
Site Code : 87930001  
Start Date : 12/1/2020  
Page No : 4

Groups Printed- Cars

Start Time	Stevens St From North			Franklin St From East			Benjamin Terr From South			Franklin St From West			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
06:00 AM	1	0	4	0	53	2	3	0	0	1	27	0	91
06:15 AM	3	0	4	0	87	1	0	0	0	2	49	1	147
06:30 AM	1	0	1	0	84	2	2	0	0	0	44	0	134
06:45 AM	13	0	5	0	98	3	1	0	0	3	67	0	190
Total	18	0	14	0	322	8	6	0	0	6	187	1	562
07:00 AM	7	0	1	0	103	9	1	1	0	0	65	0	187
07:15 AM	12	0	0	0	113	13	1	0	0	0	84	0	223
07:30 AM	14	0	2	2	129	9	2	0	2	2	116	2	280
07:45 AM	22	0	0	1	175	12	4	1	2	2	116	0	335
Total	55	0	3	3	520	43	8	2	4	4	381	2	1025
08:00 AM	15	0	3	0	136	7	1	1	0	0	100	1	264
08:15 AM	9	0	0	1	155	10	1	0	0	2	100	0	278
08:30 AM	10	0	2	0	97	10	0	0	1	4	98	3	225
08:45 AM	15	2	1	0	135	9	0	1	1	4	94	0	262
Total	49	2	6	1	523	36	2	2	2	10	392	4	1029
Grand Total	122	2	23	4	1365	87	16	4	6	20	960	7	2616
Apprch %	83	1.4	15.6	0.3	93.8	6	61.5	15.4	23.1	2	97.3	0.7	
Total %	4.7	0.1	0.9	0.2	52.2	3.3	0.6	0.2	0.2	0.8	36.7	0.3	

Start Time	Stevens St From North				Franklin St From East				Benjamin Terr From South				Franklin St From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 06:00 AM to 07:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	7	0	1	8	0	103	9	112	1	1	0	2	0	65	0	65	187
07:15 AM	12	0	0	12	0	113	13	126	1	0	0	1	0	84	0	84	223
07:30 AM	14	0	2	16	2	129	9	140	2	0	2	4	2	116	2	120	280
07:45 AM	22	0	0	22	1	175	12	188	4	1	2	7	2	116	0	118	335
Total Volume	55	0	3	58	3	520	43	566	8	2	4	14	4	381	2	387	1025
% App. Total	94.8	0	5.2	0.5	91.9	7.6	57.1	14.3	28.6	1	98.4	0.5					
PHF	.625	.000	.375	.659	.375	.743	.827	.753	.500	.500	.500	.500	.500	.821	.250	.806	.765

Accurate Counts  
978-664-2565

N/S Street : Stevens St / Benjamin Terr  
E/W Street : Franklin Street  
City/State : Stoneham, MA  
Weather : Clear

File Name : 87930001  
Site Code : 87930001  
Start Date : 12/1/2020  
Page No : 7

Groups Printed- Trucks

Start Time	Stevens St From North			Franklin St From East			Benjamin Terr From South			Franklin St From West			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
06:00 AM	0	0	0	0	0	0	0	0	0	0	3	0	3
06:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
06:30 AM	0	0	0	0	1	0	0	0	0	0	0	0	1
06:45 AM	0	0	0	0	1	0	0	0	0	0	2	0	3
Total	0	0	0	0	2	0	0	0	0	0	5	0	7
07:00 AM	0	0	0	0	4	0	0	0	0	0	3	0	7
07:15 AM	0	0	0	0	3	0	0	0	0	0	2	0	5
07:30 AM	0	0	0	0	0	0	0	0	0	0	3	0	3
07:45 AM	0	0	0	0	2	0	0	0	0	0	2	0	4
Total	0	0	0	0	9	0	0	0	0	0	10	0	19
08:00 AM	0	0	0	0	2	0	0	0	0	0	3	0	5
08:15 AM	0	0	0	0	3	0	0	0	0	0	4	0	7
08:30 AM	0	0	0	0	3	0	0	0	0	0	1	0	4
08:45 AM	1	0	0	0	0	0	0	0	0	0	2	0	3
Total	1	0	0	0	8	0	0	0	0	0	10	0	19
Grand Total	1	0	0	0	19	0	0	0	0	0	25	0	45
Apprch %	100	0	0	0	100	0	0	0	0	0	100	0	
Total %	2.2	0	0	0	42.2	0	0	0	0	0	55.6	0	

Start Time	Stevens St From North				Franklin St From East				Benjamin Terr From South				Franklin St From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 06:00 AM to 07:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	0	0	0	0	0	4	0	4	0	0	0	0	0	3	0	3	7
07:15 AM	0	0	0	0	0	3	0	3	0	0	0	0	0	2	0	2	5
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	3	3
07:45 AM	0	0	0	0	0	2	0	2	0	0	0	0	0	2	0	2	4
Total Volume	0	0	0	0	0	9	0	9	0	0	0	0	0	10	0	10	19
% App. Total	0	0	0	0	0	100	0	0	0	0	0	0	0	100	0		
PHF	.000	.000	.000	.000	.000	.563	.000	.563	.000	.000	.000	.000	.000	.833	.000	.833	.679

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PREFERRED SOLUTION  
FINAL EVALUATION OF ALTERNATIVES  
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Accurate Counts  
978-664-2565

N/S Street : Stevens St / Benjamin Terr  
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City/State : Stoneham, MA  
Weather : Clear

File Name : 87930001  
Site Code : 87930001  
Start Date : 12/1/2020  
Page No : 10

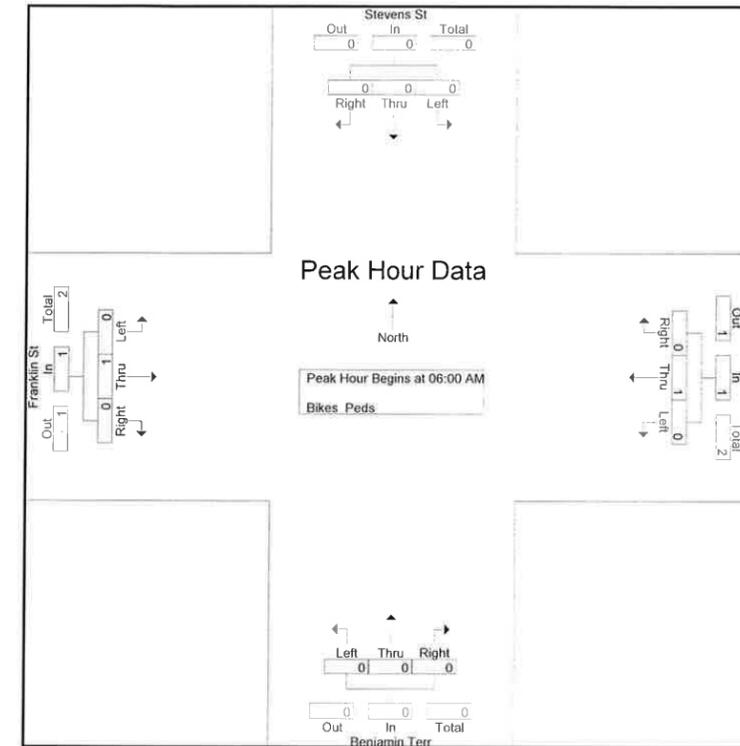
Start Time	Stevens St From North				Franklin St From East				Benjamin Terr From South				Franklin St From West				Exclu. Total	Inclu. Total	Int. Total
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds			
06:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:15 AM	0	0	0	0	0	0	0	1	0	0	0	2	0	0	0	0	3	0	3
06:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
06:45 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>2</b>	<b>5</b>
07:00 AM	0	0	0	4	0	0	0	0	0	0	0	1	0	0	0	0	5	0	5
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	1
07:30 AM	0	0	0	0	0	0	0	2	0	0	0	3	0	0	0	0	5	0	5
07:45 AM	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	2	0	2
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>6</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>13</b>	<b>0</b>	<b>13</b>
08:00 AM	0	0	0	1	0	0	0	1	0	0	0	3	0	0	0	0	5	0	5
08:15 AM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	1
08:30 AM	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	2	0	2
08:45 AM	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	2	0	2
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>5</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>10</b>	<b>0</b>	<b>10</b>
<b>Grand Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>6</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>9</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>11</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>26</b>	<b>2</b>	<b>28</b>
Apprch %	0	0	0		0	100	0		0	0	0		0	100	0				
Total %	0	0	0		0	50	0		0	0	0		0	50	0		92.9	7.1	

Start Time	Stevens St From North				Franklin St From East				Benjamin Terr From South				Franklin St From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 06:00 AM to 07:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 06:00 AM																	
06:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:45 AM	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	1	1
<b>Total Volume</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>2</b>
<b>% App. Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>100</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>100</b>	<b>0</b>	<b>0</b>	<b>0</b>
PHF	.000	.000	.000	.000	.000	.250	.000	.250	.000	.000	.000	.000	.000	.250	.000	.250	.500

Accurate Counts  
978-664-2565

N/S Street : Stevens St / Benjamin Terr  
E/W Street : Franklin Street  
City/State : Stoneham, MA  
Weather : Clear

File Name : 87930001  
Site Code : 87930001  
Start Date : 12/1/2020  
Page No : 11



Peak Hour Analysis From 06:00 AM to 07:45 AM - Peak 1 of 1  
Peak Hour for Each Approach Begins at:

	06:00 AM				06:00 AM				06:00 AM				06:00 AM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
+45 mins.	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0
<b>Total Volume</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>
<b>% App. Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>100</b>	<b>0</b>	<b>100</b>	<b>0</b>							
PHF	.000	.000	.000	.000	.000	.250	.000	.250	.000	.000	.000	.000	.000	.000	.250	.000

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E/W Street : Franklin Street  
City/State : Stoneham, MA  
Weather : Clear

File Name : 87930001  
Site Code : 87930001  
Start Date : 12/1/2020  
Page No : 1

Groups Printed- Cars - Trucks

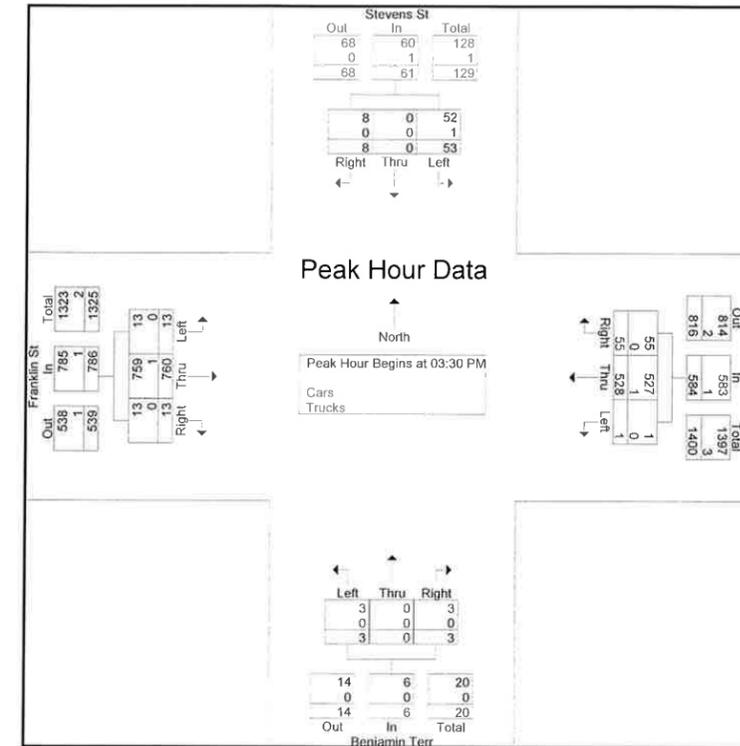
Start Time	Stevens St From North			Franklin St From East			Benjamin Terr From South			Franklin St From West			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
02:00 PM	13	0	2	0	120	7	2	1	0	2	125	1	273
02:15 PM	14	0	3	0	165	18	0	0	0	3	128	1	332
02:30 PM	13	0	3	0	139	16	2	0	1	6	142	3	325
02:45 PM	13	0	2	0	143	6	0	0	1	4	150	1	320
<b>Total</b>	<b>53</b>	<b>0</b>	<b>10</b>	<b>0</b>	<b>567</b>	<b>47</b>	<b>4</b>	<b>1</b>	<b>2</b>	<b>15</b>	<b>545</b>	<b>6</b>	<b>1250</b>
03:00 PM	17	1	0	0	129	13	0	0	0	8	150	5	323
03:15 PM	15	0	3	0	141	17	3	1	0	2	160	0	342
03:30 PM	16	0	1	0	137	16	1	0	0	5	178	3	357
03:45 PM	12	0	2	0	132	15	0	0	2	2	187	3	355
<b>Total</b>	<b>60</b>	<b>1</b>	<b>6</b>	<b>0</b>	<b>539</b>	<b>61</b>	<b>4</b>	<b>1</b>	<b>2</b>	<b>17</b>	<b>675</b>	<b>11</b>	<b>1377</b>
04:00 PM	11	0	2	0	133	11	2	0	1	2	178	5	345
04:15 PM	14	0	3	1	126	13	0	0	0	4	217	2	380
04:30 PM	18	0	1	0	127	18	1	1	0	3	184	1	354
04:45 PM	20	0	6	0	124	17	1	0	1	4	172	1	346
<b>Total</b>	<b>63</b>	<b>0</b>	<b>12</b>	<b>1</b>	<b>510</b>	<b>59</b>	<b>4</b>	<b>1</b>	<b>2</b>	<b>13</b>	<b>751</b>	<b>9</b>	<b>1425</b>
05:00 PM	15	0	2	0	146	13	0	0	0	5	194	2	377
05:15 PM	17	0	1	0	125	11	1	1	0	6	169	3	334
05:30 PM	17	0	0	1	122	11	3	0	1	5	167	2	329
05:45 PM	18	0	1	1	96	5	1	0	1	3	142	3	271
<b>Total</b>	<b>67</b>	<b>0</b>	<b>4</b>	<b>2</b>	<b>489</b>	<b>40</b>	<b>5</b>	<b>1</b>	<b>2</b>	<b>19</b>	<b>672</b>	<b>10</b>	<b>1311</b>
<b>Grand Total</b>	<b>243</b>	<b>1</b>	<b>32</b>	<b>3</b>	<b>2105</b>	<b>207</b>	<b>17</b>	<b>4</b>	<b>8</b>	<b>64</b>	<b>2643</b>	<b>36</b>	<b>5363</b>
Apprch %	88	0.4	11.6	0.1	90.9	8.9	58.6	13.8	27.6	2.3	96.4	1.3	
Total %	4.5	0	0.6	0.1	39.3	3.9	0.3	0.1	0.1	1.2	49.3	0.7	
Cars	241	1	31	3	2092	207	17	4	8	63	2638	36	5341
% Cars	99.2	100	96.9	100	99.4	100	100	100	100	98.4	99.8	100	99.6
Trucks	2	0	1	0	13	0	0	0	0	1	5	0	22
% Trucks	0.8	0	3.1	0	0.6	0	0	0	0	1.6	0.2	0	0.4

Start Time	Stevens St From North				Franklin St From East				Benjamin Terr From South				Franklin St From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 01:00 PM to 04:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 03:30 PM																	
03:30 PM	16	0	1	17	0	137	16	153	1	0	0	1	5	178	3	186	357
03:45 PM	12	0	2	14	0	132	15	147	0	0	2	2	2	187	3	192	355
04:00 PM	11	0	2	13	0	133	11	144	2	0	1	3	2	178	5	185	345
04:15 PM	14	0	3	17	1	126	13	140	0	0	0	0	4	217	2	223	380
<b>Total Volume</b>	<b>53</b>	<b>0</b>	<b>8</b>	<b>61</b>	<b>1</b>	<b>528</b>	<b>55</b>	<b>584</b>	<b>3</b>	<b>0</b>	<b>3</b>	<b>6</b>	<b>13</b>	<b>760</b>	<b>13</b>	<b>786</b>	<b>1437</b>
% App. Total	86.9	0	13.1		0.2	90.4	9.4		50	0	50		1.7	96.7	1.7		
PHF	.828	.000	.667	.897	.250	.964	.859	.954	.375	.000	.375	.500	.650	.876	.650	.881	.945
Cars	52	0	8	60	1	527	55	583	3	0	3	6	13	759	13	785	1434
% Cars	98.1	0	100	98.4	100	99.8	100	99.9	100	100	99.9	100	100	99.9	100	99.9	99.8
Trucks	1	0	0	1	0	1	0	1	0	0	0	0	0	1	0	1	3
% Trucks	1.9	0	0	1.6	0	0.2	0	0.2	0	0	0	0	0	0.1	0	0.1	0.2

Accurate Counts  
978-664-2565

N/S Street : Stevens St / Benjamin Terr  
E/W Street : Franklin Street  
City/State : Stoneham, MA  
Weather : Clear

File Name : 87930001  
Site Code : 87930001  
Start Date : 12/1/2020  
Page No : 2



Peak Hour Analysis From 01:00 PM to 04:45 PM - Peak 1 of 1  
Peak Hour for Each Approach Begins at:

	04:00 PM				02:15 PM				03:15 PM				03:45 PM			
+0 mins.	11	0	2	13	0	165	18	183	3	1	0	4	2	187	3	192
+15 mins.	14	0	3	17	0	139	16	155	1	0	0	1	2	178	5	185
+30 mins.	18	0	1	19	0	143	6	149	0	0	2	2	4	217	2	223
+45 mins.	20	0	6	26	0	129	13	142	2	0	1	3	3	184	1	188
<b>Total Volume</b>	<b>63</b>	<b>0</b>	<b>12</b>	<b>75</b>	<b>0</b>	<b>576</b>	<b>53</b>	<b>629</b>	<b>6</b>	<b>1</b>	<b>3</b>	<b>10</b>	<b>11</b>	<b>766</b>	<b>11</b>	<b>788</b>
% App. Total	84	0	16		0	91.6	8.4		60	10	30		1.4	97.2	1.4	
PHF	.788	.000	.500	.721	.000	.873	.736	.859	.500	.250	.375	.625	.688	.882	.550	.883
Cars	62	0	12	74	0	573	53	626	6	1	3	10	11	765	11	787
% Cars	98.4	0	100	98.7	0	99.5	100	99.5	100	100	100	100	100	99.9	100	99.9
Trucks	1	0	0	1	0	3	0	3	0	0	0	0	0	1	0	1
% Trucks	1.6	0	0	1.3	0	0.5	0	0.5	0	0	0	0	0	0.1	0	0.1

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Accurate Counts  
978-664-2565

N/S Street : Stevens St / Benjamin Terr  
E/W Street : Franklin Street  
City/State : Stoneham, MA  
Weather : Clear

File Name : 87930001  
Site Code : 87930001  
Start Date : 12/1/2020  
Page No : 4

Groups Printed- Cars

Start Time	Stevens St From North			Franklin St From East			Benjamin Terr From South			Franklin St From West			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
02:00 PM	13	0	2	0	116	7	2	1	0	2	123	1	267
02:15 PM	14	0	3	0	163	18	0	0	0	3	128	1	330
02:30 PM	13	0	3	0	139	16	2	0	1	5	142	3	324
02:45 PM	13	0	1	0	142	6	0	0	1	4	149	1	317
Total	53	0	9	0	560	47	4	1	2	14	542	6	1238
03:00 PM	17	1	0	0	129	13	0	0	0	8	150	5	323
03:15 PM	14	0	3	0	139	17	3	1	0	2	159	0	338
03:30 PM	16	0	1	0	137	16	1	0	0	5	178	3	357
03:45 PM	12	0	2	0	131	15	0	0	2	2	187	3	354
Total	59	1	6	0	536	61	4	1	2	17	674	11	1372
04:00 PM	11	0	2	0	133	11	2	0	1	2	178	5	345
04:15 PM	13	0	3	1	126	13	0	0	0	4	216	2	378
04:30 PM	18	0	1	0	126	18	1	1	0	3	184	1	353
04:45 PM	20	0	6	0	123	17	1	0	1	4	172	1	345
Total	62	0	12	1	508	59	4	1	2	13	750	9	1421
05:00 PM	15	0	2	0	146	13	0	0	0	5	194	2	377
05:15 PM	17	0	1	0	124	11	1	1	0	6	169	3	333
05:30 PM	17	0	0	1	122	11	3	0	1	5	167	2	329
05:45 PM	18	0	1	1	96	5	1	0	1	3	142	3	271
Total	67	0	4	2	488	40	5	1	2	19	672	10	1310
Grand Total	241	1	31	3	2092	207	17	4	8	63	2638	36	5341
Apprch %	88.3	0.4	11.4	0.1	90.9	9	58.6	13.8	27.6	2.3	96.4	1.3	
Total %	4.5	0	0.6	0.1	39.2	3.9	0.3	0.1	0.1	1.2	49.4	0.7	

Start Time	Stevens St From North				Franklin St From East				Benjamin Terr From South				Franklin St From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 01:00 PM to 04:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 03:30 PM																	
03:30 PM	16	0	1	17	0	137	16	153	1	0	0	1	5	178	3	186	357
03:45 PM	12	0	2	14	0	131	15	146	0	0	2	2	2	187	3	192	354
04:00 PM	11	0	2	13	0	133	11	144	2	0	1	3	2	178	5	185	345
04:15 PM	13	0	3	16	1	126	13	140	0	0	0	0	4	216	2	222	378
Total Volume	52	0	8	60	1	527	55	583	3	0	3	6	13	759	13	785	1434
% App. Total	86.7	0	13.3	60	0.2	90.4	9.4	50	0	50	6	1.7	96.7	1.7			
PHF	.813	.000	.667	.882	.250	.962	.859	.953	.375	.000	.375	.500	.650	.878	.650	.884	.948

Accurate Counts  
978-664-2565

N/S Street : Stevens St / Benjamin Terr  
E/W Street : Franklin Street  
City/State : Stoneham, MA  
Weather : Clear

File Name : 87930001  
Site Code : 87930001  
Start Date : 12/1/2020  
Page No : 7

Groups Printed- Trucks

Start Time	Stevens St From North			Franklin St From East			Benjamin Terr From South			Franklin St From West			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
02:00 PM	0	0	0	0	4	0	0	0	0	0	2	0	6
02:15 PM	0	0	0	0	2	0	0	0	0	0	0	0	2
02:30 PM	0	0	0	0	0	0	0	0	0	1	0	0	1
02:45 PM	0	0	1	0	1	0	0	0	0	0	1	0	3
Total	0	0	1	0	7	0	0	0	0	1	3	0	12
03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
03:15 PM	1	0	0	0	2	0	0	0	0	0	1	0	4
03:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
03:45 PM	0	0	0	0	1	0	0	0	0	0	0	0	1
Total	1	0	0	0	3	0	0	0	0	0	1	0	5
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	1	0	0	0	0	0	0	0	0	0	1	0	2
04:30 PM	0	0	0	0	1	0	0	0	0	0	0	0	1
04:45 PM	0	0	0	0	1	0	0	0	0	0	0	0	1
Total	1	0	0	0	2	0	0	0	0	0	1	0	4
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	1	0	0	0	0	0	0	0	1
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	1	0	0	0	0	0	0	0	1
Grand Total	2	0	1	0	13	0	0	0	0	0	1	5	22
Apprch %	66.7	0	33.3	0	100	0	0	0	0	16.7	83.3	0	
Total %	9.1	0	4.5	0	59.1	0	0	0	0	4.5	22.7	0	

Start Time	Stevens St From North				Franklin St From East				Benjamin Terr From South				Franklin St From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 01:00 PM to 04:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 02:00 PM																	
02:00 PM	0	0	0	0	0	4	0	4	0	0	0	0	0	2	0	2	6
02:15 PM	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	2
02:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
02:45 PM	0	0	1	1	0	1	0	1	0	0	0	0	0	1	0	1	3
Total Volume	0	0	1	1	0	7	0	7	0	0	0	0	1	3	0	4	12
% App. Total	0	0	100	100	0	100	0	100	0	0	0	0	25	75	0		
PHF	.000	.000	.250	.250	.000	.438	.000	.438	.000	.000	.000	.000	.250	.375	.000	.500	.500

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Accurate Counts  
978-664-2565

N/S Street : Stevens St / Benjamin Terr  
E/W Street : Franklin Street  
City/State : Stoneham, MA  
Weather : Clear

File Name : 87930001  
Site Code : 87930001  
Start Date : 12/1/2020  
Page No : 10

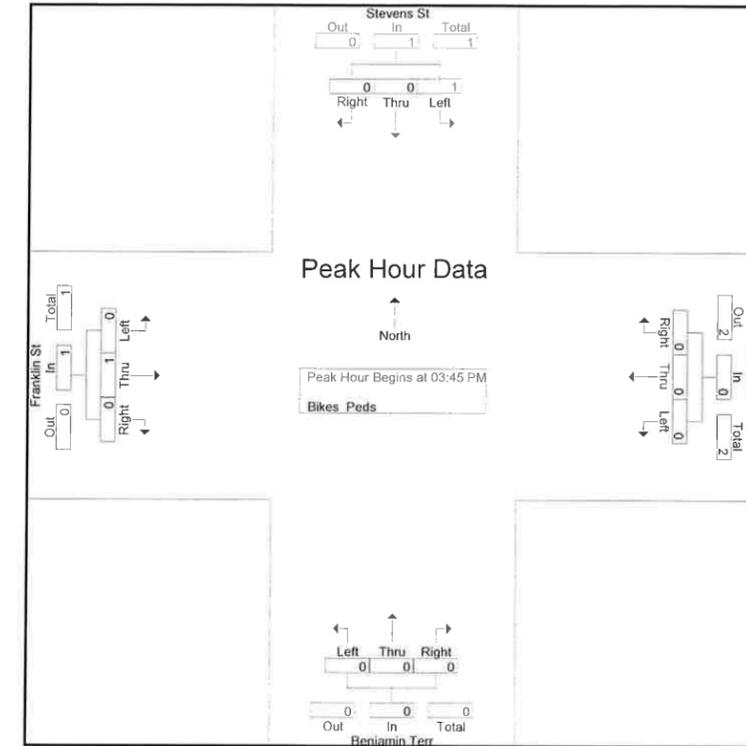
Start Time	Stevens St From North				Franklin St From East				Benjamin Terr From South				Franklin St From West				Exclu. Total	Inclu. Total	Int. Total	
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds				
02:00 PM	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	1	3	0	3
02:15 PM	0	0	0	2	0	0	0	0	0	0	0	4	0	0	0	0	0	6	0	6
02:30 PM	0	0	0	2	0	0	0	0	0	0	0	1	0	0	0	0	0	3	0	3
02:45 PM	0	0	0	6	0	0	0	1	0	0	0	0	0	0	0	0	0	7	0	7
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>11</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>6</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>19</b>	<b>0</b>	<b>19</b>
03:00 PM	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	2	0	2
03:15 PM	0	0	0	0	0	0	0	4	0	0	0	2	0	0	0	0	0	6	0	6
03:30 PM	0	0	0	2	0	0	0	1	0	0	0	2	0	0	0	0	0	5	0	5
03:45 PM	0	0	0	0	0	0	0	2	0	0	0	1	0	0	0	0	0	3	0	3
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>7</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>7</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>16</b>	<b>0</b>	<b>16</b>
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	3	0	3
04:15 PM	1	0	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0	3	1	4
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2	0	2	1	3
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Total</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>5</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>8</b>	<b>2</b>	<b>10</b>
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	1
05:30 PM	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>3</b>
<b>Grand Total</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>15</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>8</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>19</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>4</b>	<b>0</b>	<b>46</b>	<b>2</b>	<b>48</b>
Apprch %	100	0	0		0	0	0		0	0	0		0	100	0					
Total %	50	0	0		0	0	0		0	0	0		0	50	0		95.8	4.2		

Start Time	Stevens St From North				Franklin St From East				Benjamin Terr From South				Franklin St From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 01:00 PM to 04:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 03:45 PM																	
03:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Total Volume</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>2</b>
% App. Total	100	0	0		0	0	0		0	0	0		0	100	0		
PHF	.250	.000	.000	.250	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250	.000	.250	.500

Accurate Counts  
978-664-2565

N/S Street : Stevens St / Benjamin Terr  
E/W Street : Franklin Street  
City/State : Stoneham, MA  
Weather : Clear

File Name : 87930001  
Site Code : 87930001  
Start Date : 12/1/2020  
Page No : 11



Peak Hour Analysis From 01:00 PM to 04:45 PM - Peak 1 of 1  
Peak Hour for Each Approach Begins at:

	03:30 PM				01:00 PM				01:00 PM				03:45 PM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1	1
<b>Total Volume</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>1</b>									
% App. Total	100	0	0		0	0	0		0	0	0		0	0	100	
PHF	.250	.000	.000	.250	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250	.000	.250

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WEISS FARM EXISTING TRAFFIC-VOLUME NETWORKS

TRAFFIC IMPACT AND ACCESS STUDY

Proposed Residential Development - Stoneham, Massachusetts

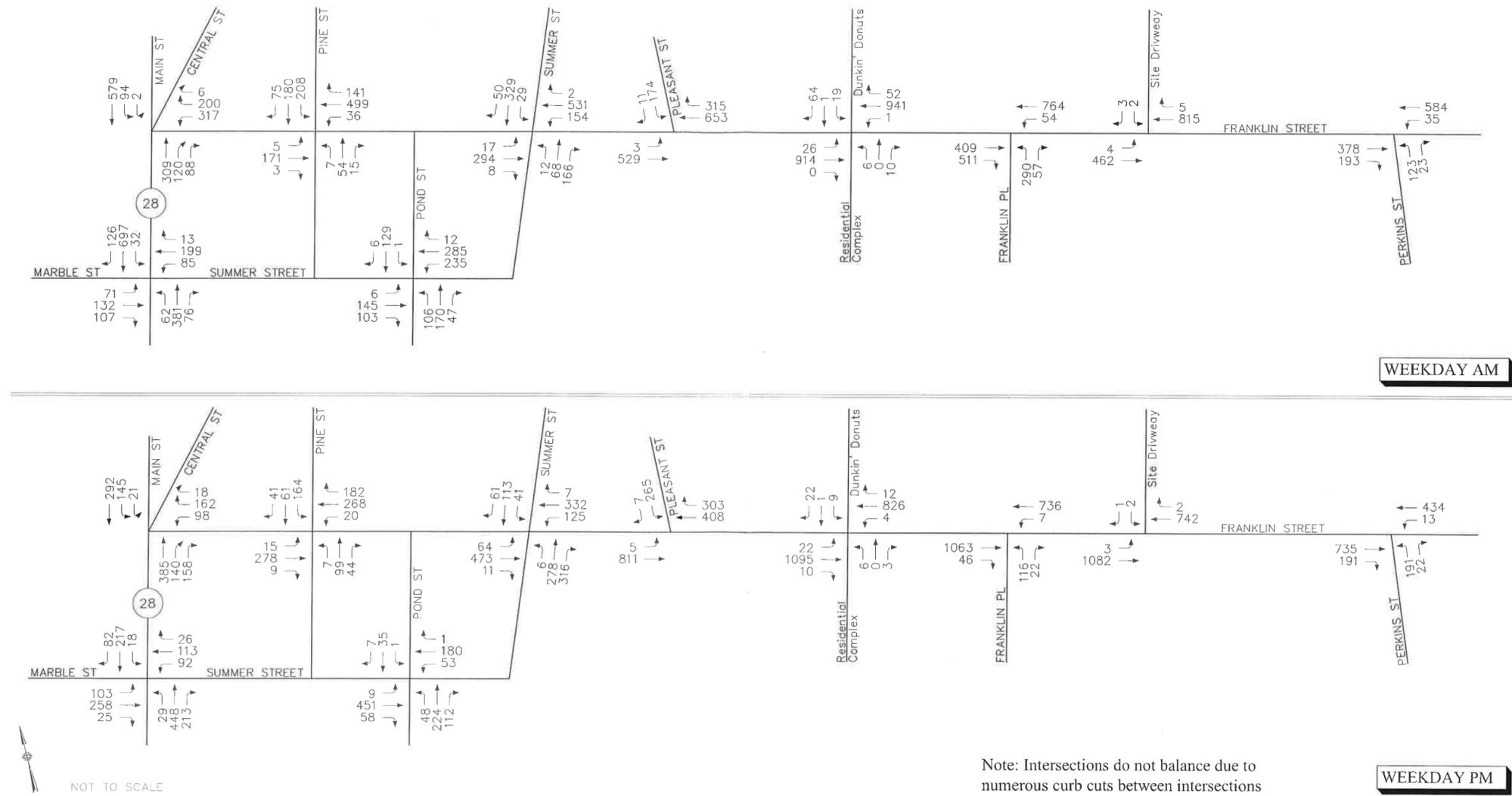


Figure 2  
2013 Existing  
Peak Hour Traffic Volumes

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CAPACITY ANALYSIS WORKSHEETS

2027 No-Build Wkdy AM Peak  
1: Stoneham High School Drive & Franklin Street

12/09/2020

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↘	↑	↗	↘
Traffic Volume (vph)	484	511	54	946	290	57
Future Volume (vph)	484	511	54	946	290	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	11	11	12	12	13	13
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Fit Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1801	1531	1770	1863	1829	1636
Fit Permitted	1.00	1.00	0.30	1.00	0.95	1.00
Satd. Flow (perm)	1801	1531	557	1863	1829	1636
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	526	555	59	1028	315	62
RTOR Reduction (vph)	0	144	0	0	0	44
Lane Group Flow (vph)	526	411	59	1028	315	18
Turn Type	NA	pt+ov	pm+pt	NA	Prot	pm+ov
Protected Phases	4	4.2	3	8	2	3
Permitted Phases			8			2
Actuated Green, G (s)	51.2	72.6	62.6	62.6	21.4	26.8
Effective Green, g (s)	53.2	76.6	64.6	64.6	23.4	30.8
Actuated g/C Ratio	0.51	0.74	0.62	0.62	0.23	0.30
Clearance Time (s)	6.0		6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	926	1134	434	1163	413	550
v/s Ratio Prot	0.29	0.27	0.01	c0.55	c0.17	0.00
v/s Ratio Perm			0.08			0.01
v/c Ratio	0.57	0.36	0.14	0.88	0.76	0.03
Uniform Delay, d1	17.2	4.7	9.8	16.3	37.4	25.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.8	0.2	0.1	8.2	8.1	0.0
Delay (s)	18.0	4.9	9.9	24.5	45.5	25.8
Level of Service	B	A	A	C	D	C
Approach Delay (s)	11.3			23.7	42.3	
Approach LOS	B			C	D	
<b>Intersection Summary</b>						
HCM 2000 Control Delay			21.2		HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.86			
Actuated Cycle Length (s)			103.4		Sum of lost time (s)	16.5
Intersection Capacity Utilization			72.5%		ICU Level of Service	C
Analysis Period (min)			15			
c Critical Lane Group						

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2027 No-Build Wkdy AM Peak  
1: Stoneham High School Drive & Franklin Street

12/09/2020

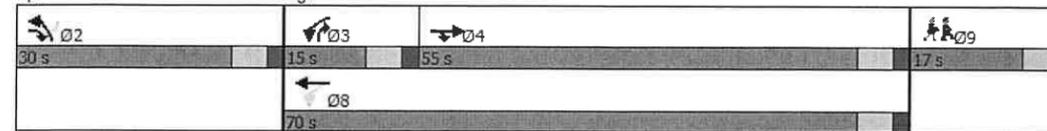
Natural Cycle: 100

Control Type: Actuated-Uncoordinated

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 1: Stoneham High School Drive & Franklin Street



2027 No-Build Wkdy AM Peak  
2: Benjamin Terrace/Stevens Street & Franklin Street

12/09/2020

Intersection												
Int Delay, s/veh	49.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔			↔			↔			↔		
Traffic Vol, veh/h	4	1008	2	3	1164	55	0	2	4	71	0	3
Future Vol, veh/h	4	1008	2	3	1164	55	0	2	4	71	0	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	1096	2	3	1265	60	0	2	4	77	0	3

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	1325	0	0	1098
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	4.12	-	-	4.12
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	2.218	-	-	2.218
Pot Cap-1 Maneuver	521	-	-	636
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	521	-	-	636
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	57.5	\$ 1557.7
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	75	521	-	-	636	-	-	22
HCM Lane V/C Ratio	0.087	0.008	-	-	0.005	-	-	3.656
HCM Control Delay (s)	57.5	12	0	-	10.7	0	-	\$ 1557.7
HCM Lane LOS	F	B	A	-	B	A	-	F
HCM 95th %tile Q(veh)	0.3	0	-	-	0	-	-	10.2

Notes

-: Volume exceeds capacity    \$: Delay exceeds 300s    +: Computation Not Defined    \*: All major volume in platoon

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Queuing and Blocking Report  
2027 No-Build Wkdy AM Peak

12/09/2020

Intersection: 1: Stoneham High School Drive & Franklin Street

Movement	EB	EB	WB	WB	NB	NB
Directions Served	T	R	L	T	L	R
Maximum Queue (ft)	536	200	53	642	277	76
Average Queue (ft)	244	83	27	452	187	26
95th Queue (ft)	544	205	66	650	275	72
Link Distance (ft)	816			616	273	273
Upstream Blk Time (%)				4	1	
Queuing Penalty (veh)				0	0	
Storage Bay Dist (ft)		175	125			
Storage Blk Time (%)	4	0		30		
Queuing Penalty (veh)	22	0		16		

Intersection: 2: Benjamin Terrace/Stevens Street & Franklin Street

Movement	WB	SB
Directions Served	LTR	LTR
Maximum Queue (ft)	96	137
Average Queue (ft)	19	99
95th Queue (ft)	82	140
Link Distance (ft)	816	298
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 38

2027 No-Build Wkdy PM Peak

1: Stoneham High School Drive & Franklin Street

12/09/2020



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Traffic Volume (vph)	1291	46	7	900	116	22
Future Volume (vph)	1291	46	7	900	116	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	11	11	12	12	13	13
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1801	1531	1770	1863	1829	1636
Flt Permitted	1.00	1.00	0.07	1.00	0.95	1.00
Satd. Flow (perm)	1801	1531	130	1863	1829	1636
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1403	50	8	978	126	24
RTOR Reduction (vph)	0	7	0	0	0	19
Lane Group Flow (vph)	1403	43	8	978	126	5
Turn Type	NA	pt+ov	pm+pt	NA	Prot	pm+ov
Protected Phases	4	4 2	3	8	2	3
Permitted Phases			8			2
Actuated Green, G (s)	51.2	62.8	60.4	60.4	11.6	14.8
Effective Green, g (s)	53.2	66.8	62.4	62.4	13.6	18.8
Actuated g/C Ratio	0.58	0.73	0.68	0.68	0.15	0.21
Clearance Time (s)	6.0		6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1051	1122	182	1276	273	409
v/s Ratio Prot	c0.78	0.03	0.00	c0.53	c0.07	0.00
v/s Ratio Perm			0.03			0.00
v/c Ratio	1.33	0.04	0.04	0.77	0.46	0.01
Uniform Delay, d1	18.9	3.3	20.1	9.5	35.4	28.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	157.3	0.0	0.1	2.8	1.2	0.0
Delay (s)	176.2	3.3	20.2	12.3	36.6	28.8
Level of Service	F	A	C	B	D	C
Approach Delay (s)	170.3			12.4	35.4	
Approach LOS	F			B	D	

Intersection Summary

HCM 2000 Control Delay	102.3	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.10		
Actuated Cycle Length (s)	91.1	Sum of lost time (s)	16.5
Intersection Capacity Utilization	81.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

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2027 No-Build Wkdy PM Peak  
1: Stoneham High School Drive & Franklin Street

12/09/2020

Natural Cycle: 150

Control Type: Actuated-Uncoordinated

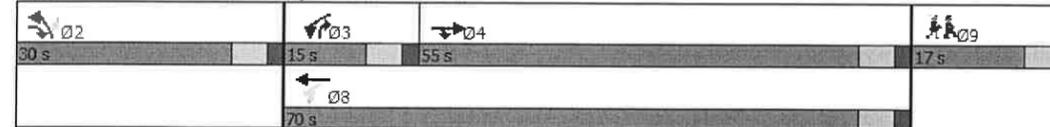
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 1: Stoneham High School Drive & Franklin Street



2027 No-Build Wkdy PM Peak  
2: Benjamin Terrace/Stevens Street & Franklin Street

12/09/2020

Intersection												
Int Delay, s/veh												
63.8												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔			↔			↔			↔		
Traffic Vol, veh/h	15	1290	15	1	947	71	3	0	3	68	0	10
Future Vol, veh/h	15	1290	15	1	947	71	3	0	3	68	0	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	16	1402	16	1	1029	77	3	0	3	74	0	11

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	1106	0	0	1418
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	4.12	-	-	4.12
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	2.218	-	-	2.218
Pot Cap-1 Maneuver	631	-	-	480
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	631	-	-	480
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0	162	\$ 1967.1
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	29	631	-	-	480	-	-	19
HCM Lane V/C Ratio	0.225	0.026	-	-	0.002	-	-	4.462
HCM Control Delay (s)	162	10.9	0	-	12.5	0	\$ 1967.1	
HCM Lane LOS	F	B	A	-	B	A	-	F
HCM 95th %tile Q(veh)	0.7	0.1	-	-	0	-	-	11.1

Notes

~: Volume exceeds capacity    \$: Delay exceeds 300s    +: Computation Not Defined    \*: All major volume in platoon

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Queuing and Blocking Report  
2027 No-Build Wkdy PM Peak

12/09/2020

Intersection: 1: Stoneham High School Drive & Franklin Street

Movement	EB	EB	WB	WB	NB	NB
Directions Served	T	R	L	T	L	R
Maximum Queue (ft)	826	200	150	482	131	28
Average Queue (ft)	670	80	33	283	107	8
95th Queue (ft)	1094	241	130	465	130	27
Link Distance (ft)	816			616	273	273
Upstream Blk Time (%)	6					
Queuing Penalty (veh)	80					
Storage Bay Dist (ft)		175	125			
Storage Blk Time (%)	32		0	22		
Queuing Penalty (veh)	15		0	2		

Intersection: 2: Benjamin Terrace/Stevens Street & Franklin Street

Movement	EB	NB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	547	30	291
Average Queue (ft)	396	9	205
95th Queue (ft)	636	29	315
Link Distance (ft)	532	463	298
Upstream Blk Time (%)	23		0
Queuing Penalty (veh)	0		0
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Network Summary

Network wide Queuing Penalty: 96

2027 Build Wkdy AM Peak  
1: Stoneham High School Drive & Franklin Street

12/09/2020



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Traffic Volume (vph)	484	531	56	946	302	59
Future Volume (vph)	484	531	56	946	302	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	11	11	12	12	13	13
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1801	1531	1770	1863	1829	1636
Flt Permitted	1.00	1.00	0.30	1.00	0.95	1.00
Satd. Flow (perm)	1801	1531	555	1863	1829	1636
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	526	577	61	1028	328	64
RTOR Reduction (vph)	0	149	0	0	0	45
Lane Group Flow (vph)	526	428	61	1028	328	19
Turn Type	NA	pt+ov	pm+pt	NA	Prot	pm+ov
Protected Phases	4	4	2	8	2	3
Permitted Phases				8		2
Actuated Green, G (s)	51.4	73.3	62.8	62.8	21.9	27.3
Effective Green, g (s)	53.4	77.3	64.8	64.8	23.9	31.3
Actuated g/C Ratio	0.51	0.74	0.62	0.62	0.23	0.30
Clearance Time (s)	6.0		6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	923	1136	431	1159	419	554
v/s Ratio Prot	0.29	0.28	0.01	c0.55	c0.18	0.00
v/s Ratio Perm			0.08			0.01
v/c Ratio	0.57	0.38	0.14	0.89	0.78	0.03
Uniform Delay, d1	17.4	4.8	9.9	16.6	37.7	25.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.8	0.2	0.2	8.4	9.2	0.0
Delay (s)	18.3	5.0	10.1	25.0	46.9	25.7
Level of Service	B	A	B	C	D	C
Approach Delay (s)	11.3			24.2	43.4	
Approach LOS	B			C	D	

Intersection Summary			
HCM 2000 Control Delay	21.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	104.1	Sum of lost time (s)	16.5
Intersection Capacity Utilization	73.2%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

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2027 Build Wkdy AM Peak  
1: Stoneham High School Drive & Franklin Street

12/09/2020

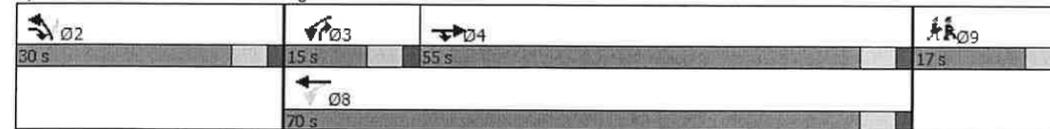
Natural Cycle: 100

Control Type: Actuated-Uncoordinated

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 1: Stoneham High School Drive & Franklin Street



2027 Build Wkdy AM Peak  
2: Benjamin Terrace/Stevens Street & Franklin Street

12/09/2020

Intersection												
Int Delay, s/veh	56.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↕			↕			↕			↕		
Traffic Vol, veh/h	4	1027	2	3	1175	56	0	2	4	72	0	3
Future Vol, veh/h	4	1027	2	3	1175	56	0	2	4	72	0	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	1116	2	3	1277	61	0	2	4	78	0	3

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	1338	0	1118	0
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	4.12	-	4.12	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	2.218	-	2.218	-
Pot Cap-1 Maneuver	515	-	625	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	515	-	625	-
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	60.8	\$ 1776.7
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	71	515	-	-	625	-	-	20
HCM Lane V/C Ratio	0.092	0.008	-	-	0.005	-	-	4.076
HCM Control Delay (s)	60.8	12.1	0	-	10.8	0	-	\$ 1776.7
HCM Lane LOS	F	B	A	-	B	A	-	F
HCM 95th %tile Q(veh)	0.3	0	-	-	0	-	-	10.6

Notes

~: Volume exceeds capacity    \$: Delay exceeds 300s    +: Computation Not Defined    \*: All major volume in platoon

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Queuing and Blocking Report  
2027 Build Wkdy AM Peak

12/09/2020

Intersection: 1: Stoneham High School Drive & Franklin Street

Movement	EB	EB	WB	WB	NB	NB
Directions Served	T	R	L	T	L	R
Maximum Queue (ft)	571	200	53	631	288	76
Average Queue (ft)	242	84	23	414	171	32
95th Queue (ft)	552	205	56	660	295	73
Link Distance (ft)	816			616	273	273
Upstream Blk Time (%)				2	3	
Queuing Penalty (veh)				0	0	
Storage Bay Dist (ft)		175	125			
Storage Blk Time (%)	6	0		28		
Queuing Penalty (veh)	31	0		16		

Intersection: 2: Benjamin Terrace/Stevens Street & Franklin Street

Movement	WB	SB
Directions Served	LTR	LTR
Maximum Queue (ft)	96	159
Average Queue (ft)	19	98
95th Queue (ft)	82	151
Link Distance (ft)	816	298
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 47

2027 Build Wkdy PM Peak  
1: Stoneham High School Drive & Franklin Street

12/09/2020



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↘	↑	↗	↘
Traffic Volume (vph)	1291	48	7	900	121	23
Future Volume (vph)	1291	48	7	900	121	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	11	11	12	12	13	13
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1801	1531	1770	1863	1829	1636
Flt Permitted	1.00	1.00	0.07	1.00	0.95	1.00
Satd. Flow (perm)	1801	1531	130	1863	1829	1636
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1403	52	8	978	132	25
RTOR Reduction (vph)	0	7	0	0	0	20
Lane Group Flow (vph)	1403	45	8	978	132	5
Turn Type	NA	pt+ov	pm+pt	NA	Prot	pm+ov
Protected Phases	4	4.2	3	8	2	3
Permitted Phases			8			2
Actuated Green, G (s)	51.2	63.1	60.3	60.3	11.9	15.0
Effective Green, g (s)	53.2	67.1	62.3	62.3	13.9	19.0
Actuated g/C Ratio	0.58	0.73	0.68	0.68	0.15	0.21
Clearance Time (s)	6.0		6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1049	1125	180	1271	278	412
v/s Ratio Prot	c0.78	0.03	0.00	c0.53	c0.07	0.00
v/s Ratio Perm			0.03			0.00
v/c Ratio	1.34	0.04	0.04	0.77	0.47	0.01
Uniform Delay, d1	19.0	3.3	20.2	9.7	35.4	28.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	158.4	0.0	0.1	2.9	1.3	0.0
Delay (s)	177.4	3.3	20.3	12.6	36.6	28.7
Level of Service	F	A	C	B	D	C
Approach Delay (s)	171.2			12.6	35.4	
Approach LOS	F			B	D	

Intersection Summary

HCM 2000 Control Delay	102.8	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.11		
Actuated Cycle Length (s)	91.3	Sum of lost time (s)	16.5
Intersection Capacity Utilization	81.3%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

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2027 Build Wkdy PM Peak  
1: Stoneham High School Drive & Franklin Street

12/09/2020

Natural Cycle: 150

Control Type: Actuated-Uncoordinated

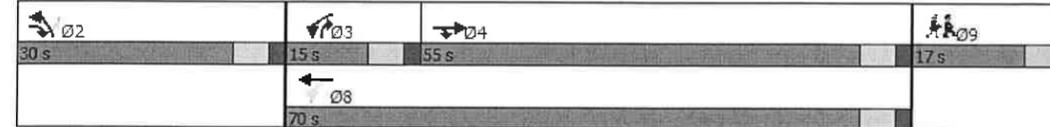
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 1: Stoneham High School Drive & Franklin Street



2027 Build Wkdy PM Peak  
2: Benjamin Terrace/Stevens Street & Franklin Street

12/09/2020

Intersection												
Int Delay, s/veh	45.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔			↔			↔			↔		
Traffic Vol, veh/h	15	1292	15	1	951	72	3	0	3	58	0	10
Future Vol, veh/h	15	1292	15	1	951	72	3	0	3	58	0	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	16	1404	16	1	1034	78	3	0	3	63	0	11

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	1112	0	0	1420
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	4.12	-	-	4.12
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	2.218	-	-	2.218
Pot Cap-1 Maneuver	628	-	-	479
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	628	-	-	479
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0	162	\$ 1608.4
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	29	628	-	-	479	-	-	20
HCM Lane V/C Ratio	0.225	0.026	-	-	0.002	-	-	3.696
HCM Control Delay (s)	162	10.9	0	-	12.5	0	-	\$ 1608.4
HCM Lane LOS	F	B	A	-	B	A	-	F
HCM 95th %tile Q(veh)	0.7	0.1	-	-	0	-	-	9.6

Notes

--: Volume exceeds capacity    \$: Delay exceeds 300s    +: Computation Not Defined    \*: All major volume in platoon

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Queuing and Blocking Report  
2027 Build Wkdy PM Peak

12/09/2020

Intersection: 1: Stoneham High School Drive & Franklin Street

Movement	EB	EB	WB	WB	NB	NB
Directions Served	T	R	L	T	L	R
Maximum Queue (ft)	825	200	150	355	142	28
Average Queue (ft)	799	40	33	208	114	8
95th Queue (ft)	854	172	130	356	150	27
Link Distance (ft)	816			616	273	273
Upstream Blk Time (%)	9					
Queuing Penalty (veh)	127					
Storage Bay Dist (ft)		175	125			
Storage Blk Time (%)	38		0	16		
Queuing Penalty (veh)	18		0	1		

Intersection: 2: Benjamin Terrace/Stevens Street & Franklin Street

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	566	21	30	227
Average Queue (ft)	457	4	16	122
95th Queue (ft)	768	18	31	226
Link Distance (ft)	532	816	463	298
Upstream Blk Time (%)	38			
Queuing Penalty (veh)	0			
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 146

2027 Build Wkdy AM Peak w/Mitigation

1: Stoneham High School Drive & Franklin Street

12/09/2020

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Traffic Volume (vph)	484	531	56	946	302	59
Future Volume (vph)	484	531	56	946	302	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	11	11	12	12	13	13
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Fit Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1801	1531	1770	1863	1829	1636
Fit Permitted	1.00	1.00	0.25	1.00	0.95	1.00
Satd. Flow (perm)	1801	1531	461	1863	1829	1636
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	526	577	61	1028	328	64
RTOR Reduction (vph)	0	190	0	0	0	44
Lane Group Flow (vph)	526	387	61	1028	328	20
Turn Type	NA	pt+ov	pm+pt	NA	Prot	pm+ov
Protected Phases	4	4.2	3	8	2	3
Permitted Phases			8			2
Actuated Green, G (s)	31.8	47.6	41.8	41.8	15.8	19.8
Effective Green, g (s)	33.8	51.6	43.8	43.8	17.8	23.8
Actuated g/C Ratio	0.44	0.67	0.57	0.57	0.23	0.31
Clearance Time (s)	6.0		6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	790	1025	364	1059	422	590
v/s Ratio Prot	0.29	0.25	0.01	c0.55	c0.18	0.00
v/s Ratio Perm			0.08			0.01
v/c Ratio	0.67	0.38	0.17	0.97	0.78	0.03
Uniform Delay, d1	17.1	5.6	9.6	16.0	27.7	18.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.1	0.2	0.2	20.8	8.7	0.0
Delay (s)	19.3	5.8	9.9	36.8	36.5	18.6
Level of Service	B	A	A	D	D	B
Approach Delay (s)	12.2			35.3	33.6	
Approach LOS	B			D	C	

Intersection Summary

HCM 2000 Control Delay	25.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	77.0	Sum of lost time (s)	16.5
Intersection Capacity Utilization	73.2%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

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1: Stoneham High School Drive & Franklin Street

12/09/2020

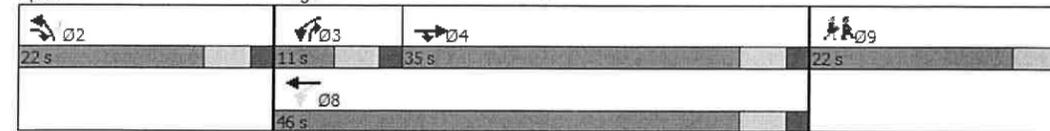
Natural Cycle: 100

Control Type: Actuated-Uncoordinated

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 1: Stoneham High School Drive & Franklin Street



2027 Build Wkdy AM Peak w/Mitigation  
2: Benjamin Terrace/Stevens Street & Franklin Street

12/09/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	4	1027	2	3	1175	56	0	2	4	72	0	3
Future Volume (vph)	4	1027	2	3	1175	56	0	2	4	72	0	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	13	12	12	14	12	12	12	12	12	13	12
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		1.00			0.99			0.91			0.99	
Flt Protected		1.00			1.00			1.00			0.95	
Satd. Flow (prot)		1924			1975			1695			1827	
Flt Permitted		1.00			1.00			1.00			0.73	
Satd. Flow (perm)		1917			1971			1695			1398	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	4	1116	2	3	1277	61	0	2	4	78	0	3
RTOR Reduction (vph)	0	0	0	0	2	0	0	4	0	0	73	0
Lane Group Flow (vph)	0	1122	0	0	1339	0	0	2	0	0	8	0
Turn Type	Perm	NA		Perm	NA			NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		46.9			46.9			4.9			4.9	
Effective Green, g (s)		48.9			48.9			6.9			6.9	
Actuated g/C Ratio		0.69			0.69			0.10			0.10	
Clearance Time (s)		6.0			6.0			6.0			6.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		1318			1355			164			135	
v/s Ratio Prot								0.00				
v/s Ratio Perm		0.59			0.68						0.01	
v/c Ratio		0.85			0.99			0.01			0.06	
Uniform Delay, d1		8.4			10.8			29.0			29.1	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		5.5			21.9			0.0			0.2	
Delay (s)		13.9			32.7			29.1			29.3	
Level of Service		B			C			C			C	
Approach Delay (s)		13.9			32.7			29.1			29.3	
Approach LOS		B			C			C			C	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			24.3					HCM 2000 Level of Service			C	
HCM 2000 Volume to Capacity ratio			0.83									
Actuated Cycle Length (s)			71.1					Sum of lost time (s)			12.5	
Intersection Capacity Utilization			84.9%					ICU Level of Service			E	
Analysis Period (min)			15									
c Critical Lane Group												

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2027 Build Wkdy AM Peak w/Mitigation  
2: Benjamin Terrace/Stevens Street & Franklin Street

12/09/2020

Queue shown is maximum after two cycles.

Splits and Phases: 2: Benjamin Terrace/Stevens Street & Franklin Street

↑ Ø2 14 s	→ Ø4 49 s	 Ø9 17 s
↓ Ø6 14 s	← Ø8 49 s	

Queuing and Blocking Report  
2027 Build Wkdy AM Peak w/Mitigation

12/09/2020

Intersection: 1: Stoneham High School Drive & Franklin Street

Movement	EB	EB	WB	WB	NB	NB
Directions Served	T	R	L	T	L	R
Maximum Queue (ft)	174	196	72	650	183	28
Average Queue (ft)	125	68	20	600	119	11
95th Queue (ft)	234	188	67	668	174	32
Link Distance (ft)	816			616	273	273
Upstream Blk Time (%)				13		
Queuing Penalty (veh)				0		
Storage Bay Dist (ft)		175	125			
Storage Blk Time (%)	4	0		45		
Queuing Penalty (veh)	19	0		25		

Intersection: 2: Benjamin Terrace/Stevens Street & Franklin Street

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	541	767	28	76
Average Queue (ft)	290	452	11	51
95th Queue (ft)	505	841	33	86
Link Distance (ft)	532	816	463	298
Upstream Blk Time (%)	12			
Queuing Penalty (veh)	0			
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 45

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2027 Build Wkdy PM Peak w/Mitigation  
1: Stoneham High School Drive & Franklin Street

12/09/2020

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑	↘	↑	↘	↑
Traffic Volume (vph)	1291	48	7	900	121	23
Future Volume (vph)	1291	48	7	900	121	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	11	11	12	12	13	13
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1801	1531	1770	1863	1829	1636
Flt Permitted	1.00	1.00	0.05	1.00	0.95	1.00
Satd. Flow (perm)	1801	1531	92	1863	1829	1636
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1403	52	8	978	132	25
RTOR Reduction (vph)	0	3	0	0	0	20
Lane Group Flow (vph)	1403	49	8	978	132	5
Turn Type	NA	pt+ov	pm+pt	NA	Prot	pm+ov
Protected Phases	4	4 2	3	8	2	3
Permitted Phases			8			2
Actuated Green, G (s)	75.3	94.6	84.7	84.7	13.3	16.7
Effective Green, g (s)	77.3	96.6	86.7	86.7	15.3	20.7
Actuated g/C Ratio	0.70	0.88	0.79	0.79	0.14	0.19
Clearance Time (s)	6.0		6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1265	1344	154	1468	254	367
v/s Ratio Prot	c0.78	0.03	0.00	c0.53	c0.07	0.00
v/s Ratio Perm			0.04			0.00
v/c Ratio	1.11	0.04	0.05	0.67	0.52	0.01
Uniform Delay, d1	16.4	0.8	29.8	5.2	43.9	36.3
Progression Factor	0.52	0.68	1.00	1.00	1.00	1.00
Incremental Delay, d2	55.0	0.0	0.1	2.4	1.8	0.0
Delay (s)	63.5	0.6	29.9	7.6	45.7	36.3
Level of Service	E	A	C	A	D	D
Approach Delay (s)	61.3			7.8	44.2	
Approach LOS	E			A	D	

Intersection Summary			
HCM 2000 Control Delay	40.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.05		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	16.5
Intersection Capacity Utilization	81.3%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

2027 Build Wkdy PM Peak w/Mitigation  
1: Stoneham High School Drive & Franklin Street

12/09/2020

Offset: 0 (0%), Referenced to phase 4:EBT and 8:WBT, Start of Green, Master Intersection

Natural Cycle: 150

Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: Stoneham High School Drive & Franklin Street

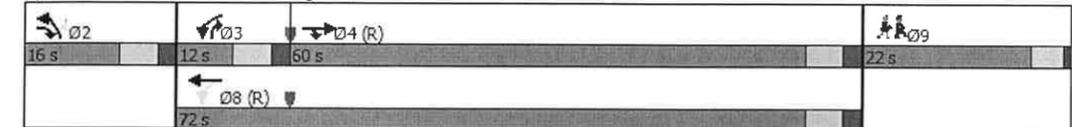


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2027 Build Wkdy PM Peak w/Mitigation  
2: Benjamin Terrace/Stevens Street & Franklin Street

12/09/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↕		↕		↕		↕		↕		↕	
Traffic Volume (vph)	15	1292	15	1	951	72	3	0	3	68	0	10
Future Volume (vph)	15	1292	15	1	951	72	3	0	3	68	0	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	13	12	12	14	12	12	12	12	12	13	12
Total Lost time (s)	4.0		4.0		4.0		4.0		4.0		4.0	
Lane Util. Factor	1.00		1.00		1.00		1.00		1.00		1.00	
Frt	1.00		0.99		0.93		0.98		0.98		0.96	
Fit Protected	1.00		1.00		0.98		0.96		0.96		0.75	
Satd. Flow (prot)	1921		1968		1695		1812		1812		1417	
Fit Permitted	0.98		1.00		0.90		0.75		0.75		0.75	
Satd. Flow (perm)	1891		1967		1559		1417		1417		1417	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	16	1404	16	1	1034	78	3	0	3	74	0	11
RTOR Reduction (vph)	0	0	0	0	1	0	0	6	0	0	68	0
Lane Group Flow (vph)	0	1436	0	0	1112	0	0	0	0	0	17	0
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases	4		8		8		2		6		6	
Permitted Phases	4		8		8		2		6		6	
Actuated Green, G (s)	84.6		84.6		84.6		6.4		6.4		6.4	
Effective Green, g (s)	86.6		86.6		86.6		8.4		8.4		8.4	
Actuated g/C Ratio	0.79		0.79		0.79		0.08		0.08		0.08	
Clearance Time (s)	6.0		6.0		6.0		6.0		6.0		6.0	
Vehicle Extension (s)	3.0		3.0		3.0		3.0		3.0		3.0	
Lane Grp Cap (vph)	1488		1548		1548		119		119		108	
v/s Ratio Prot	c0.76		0.57		0.00		c0.01		c0.01		c0.01	
v/c Ratio	0.96		0.72		0.00		0.15		0.15		0.15	
Uniform Delay, d1	10.4		5.7		46.9		47.5		47.5		47.5	
Progression Factor	1.00		0.78		1.00		1.00		1.00		1.00	
Incremental Delay, d2	16.3		2.2		0.0		0.7		0.7		0.7	
Delay (s)	26.7		6.7		46.9		48.1		48.1		48.1	
Level of Service	C		A		D		D		D		D	
Approach Delay (s)	26.7		6.7		46.9		48.1		48.1		48.1	
Approach LOS	C		A		D		D		D		D	
<b>Intersection Summary</b>												
HCM 2000 Control Delay	19.0		HCM 2000 Level of Service		B							
HCM 2000 Volume to Capacity ratio	0.87											
Actuated Cycle Length (s)	110.0		Sum of lost time (s)		12.5							
Intersection Capacity Utilization	94.4%		ICU Level of Service		F							
Analysis Period (min)	15											
c Critical Lane Group												

2027 Build Wkdy PM Peak w/Mitigation  
2: Benjamin Terrace/Stevens Street & Franklin Street

12/09/2020

# 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.

Splits and Phases: 2: Benjamin Terrace/Stevens Street & Franklin Street

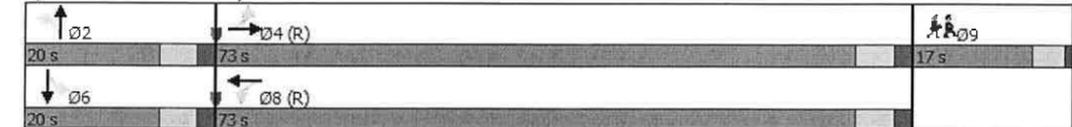


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Queuing and Blocking Report  
2027 Build Wkdy PM Peak w/Mitigation

12/09/2020

Intersection: 1: Stoneham High School Drive & Franklin Street

Movement	EB	EB	WB	WB	NB	NB
Directions Served	T	R	L	T	L	R
Maximum Queue (ft)	456	50	23	259	146	33
Average Queue (ft)	191	10	8	139	99	13
95th Queue (ft)	496	82	30	289	162	38
Link Distance (ft)	816			616	273	273
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		175	125			
Storage Blk Time (%)	7			7		
Queuing Penalty (veh)	3			1		

Intersection: 2: Benjamin Terrace/Stevens Street & Franklin Street

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	551	288	23	131
Average Queue (ft)	389	149	7	73
95th Queue (ft)	670	328	27	157
Link Distance (ft)	532	816	463	298
Upstream Blk Time (%)	10			
Queuing Penalty (veh)	0			
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 4

TRAFFIC SIGNAL WARRANT ANALYSIS

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Traffic Signal Warrant Analysis Summary - Franklin Street/Stevens Street/Benjamin Terrace  
2027 Build Conditions - Average Month Conditions

Time	Franklin Street Volume (Major Street) <sup>a</sup>	Steven Street Volume (Minor Street) <sup>b</sup>	Warrant 1 Condition A <sup>c</sup>	Warrant 1 Condition B <sup>d</sup>	Warrant 2 <sup>e</sup>	Warrant 3 <sup>f</sup>
6:00	736	46	No	No	No	No
7:00	1350	81	No	Yes	Yes	No
8:00	1370	81	No	Yes	Yes	No
2:00	1644	88	No	Yes	Yes	No
3:00	1815	94	No	Yes	Yes	No
4:00	1870	104	No	Yes	Yes	Yes
5:00	1714	98	No	Yes	Yes	No
<b>Warrant Satisfied?</b>						
			N/A	N/A	Yes	Yes

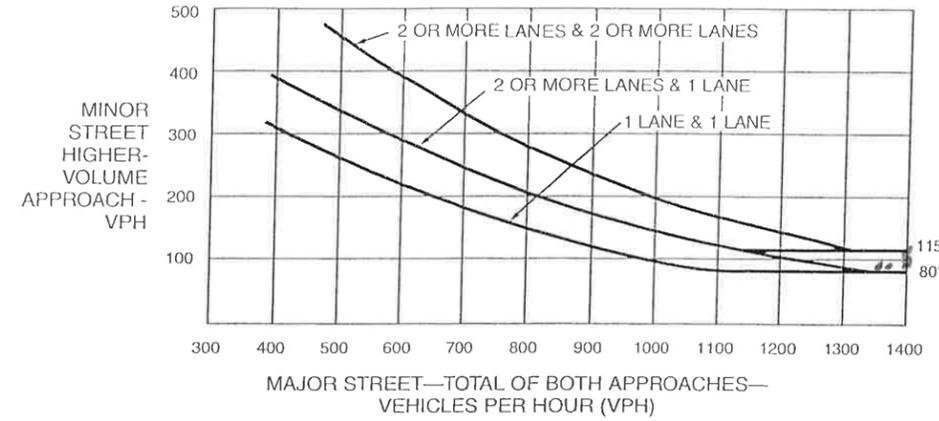
<sup>a</sup>Based on 7-hour manual turning movement counts conducted on Wednesday, December 1, 2020 and adjusted for COVID-19. Volume includes total of both approaches.  
<sup>b</sup>Based on 7-hour manual turning movement counts on Wednesday, December 1, 2020 and adjusted for COVID-19.  
<sup>c</sup>Warrant 1 Condition A - Eight Hour Vehicular Volume, Minimum Vehicular Volume - satisfied when major street volume > 500 and minor street volume > 150.  
<sup>d</sup>Warrant 1 Condition B - Eight Hour Vehicular Volume, Interruption of Continuous Traffic - satisfied when major street volume > 750 and minor street volume > 75.  
<sup>e</sup>Warrant 2 - Four Hour Vehicular Volume - see Figure 4C-1.  
<sup>f</sup>Warrant 3 - Peak Hour Vehicular Volume - see Figure 4C-3.

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12/11/2020

2027 Build - Average Month Conditions  
Franklin Street/Stevens Street/Benjamin Terrace

Figure 4C-1. Warrant 2, Four-Hour Vehicular Volume



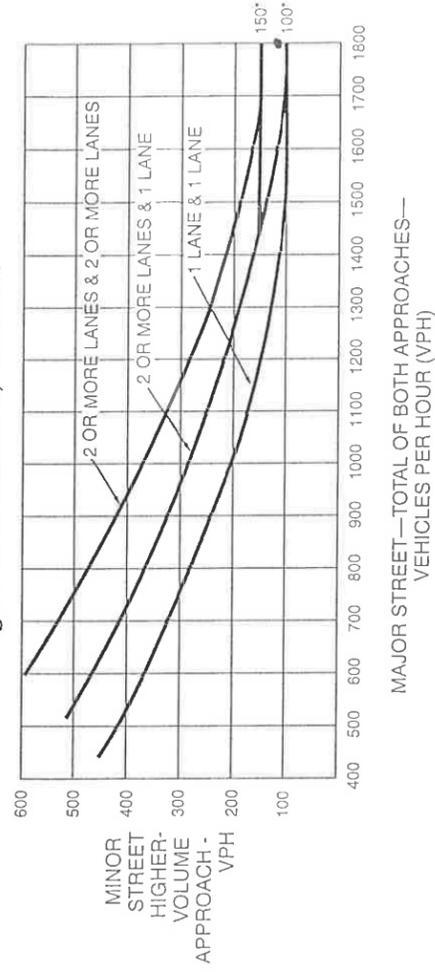
\*Note: 115 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 80 vph applies as the lower threshold volume for a minor-street approach with one lane.

Meets Warrant 2

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*2027 Build - Average - North Conditions  
Franklin Street/Stearns Street/Benjamin Terrace*

Figure 4C-3. Warrant 3, Peak Hour



\*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

*Matts Warrant 3*



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**I. LOCAL FUNDING PROCESS**

Following approval at the MSBA August 25, 2021 Board of Directors meeting, the District would present the Project at a Special Town Meeting to vote to appropriate the project funding. A debt exclusion ballot vote would follow within the 120 day timeline.

A successful vote would appropriate the funds and authorize the borrowing of Stoneham’s share of the project.

**J. ESTIMATED FUNDING CAPACITY, CURRENT OTHER PROJECTS AND IMPACT ON TAXES**

Over the past decade, the Town of Stoneham has appropriated funding for the Central Middle School project and for water and sewer infrastructure projects and has outstanding debt of \$29,412,808.

The current median home value in Stoneham is \$577,700 and the current tax rate (FY’21) per \$1,000 is \$10.82.

Many factors are presently unknown, which makes projecting the property tax impact quite speculative. Undetermined variables include:

- Project Cost
- Town Bond Rating
- Interest Rates
- Debt Structure (level principal or level payment)
- Debt Duration

The property tax impact has been roughly estimated, based on the following assumptions:

- \$125.3 million debt
- Twenty-year term
- 3% interest rate

Based upon this scenario, the impact to the tax rate is an increase of \$1.69 per \$1,000 of valuation for the median home value.

The Town is also reviewing the impact of a thirty-year term. Assuming the same scenario above, however with a 30-year term, the impact to the tax rate is an increase of \$1.37 per \$1,000 of valuation for the median home value.

The Town’s Debt Statement, Borrowing Capacity and Five-Year Capital Improvement Plan are attached at the end of this section.

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STONEHAM DEBT STATEMENT

STONEHAM DEBT STATEMENT

**DEBT STATEMENT**  
of the  
Town of Stoneham, Massachusetts

(A)	Equalized valuation under G.L. c.58, s. 10C as of January 1, 2018	\$ 4,037,834,200
(B)	Debt limit (5%)	\$ 201,891,710
	Total outstanding debt*	\$ 24,047,251
	Debt authorized but not yet incurred, <u>including this issue</u>	\$ 5,365,557
(C)	Gross debt	\$ 29,412,808
(D)	Amount of outstanding debt which is outside the debt limit (itemized on the back of this sheet)	\$ 17,032,202
(E)	Amount of authorized but not yet incurred debt which is outside the debt limit (itemized on the back of this sheet)	\$ 3,096,232
(F)	Outstanding debt outside the debt limit plus authorized but not yet incurred debt outside the debt limit (D plus E)	\$ 20,128,434
(G)	Net debt subject to the debt limit including this issue (C minus F)	\$ 9,284,374
	Remaining borrowing capacity under debt limit (B minus G)	\$ 192,607,336

I certify that the foregoing financial statement is true as of June 29, 2020.

\_\_\_\_\_  
Title:

\*MCWT subsidies are not reflected.  
Requested in requirements letter dated November 5 2020.

Itemized list of the amount of the outstanding debt which is outside the debt limit, with reference to statute providing that such debt is outside the debt limit:

Dated Date	Purpose	Statute	
1/15/2010	School Project	C. 645 of the Acts of 1948	\$ 480,000
1/15/2010	School Project	C. 645 of the Acts of 1948	\$ 625,000
8/15/2011	Water	C.44 s.8 (3)	\$ 148,927
5/30/2012	School Project	C. 645 of the Acts of 1948	\$ 193,600
5/30/2012	School Project	C. 645 of the Acts of 1948	\$ 840,500
5/30/2012	School Project	C. 645 of the Acts of 1948	\$ 674,000
2/21/2013	School Project	C. 645 of the Acts of 1948	\$ 12,590,000
5/13/2013	Water	C.44 s.8 (3)	\$ 118,975
11/16/2015	Water	C.44 s.8 (3)	\$ 803,400
3/4/2019	Sewer	C. 44 s. 8 (15)	\$ 218,250
12/19/2019	School Project	C. 70B	\$ 339,550
(D) Total outstanding debt which is outside the debt limit (Enter on page 1 of form)			<u>\$ 17,032,202</u>

Itemized list of the amount of authorized but not incurred debt which is outside the debt limit, with reference to statute providing that such debt is outside the debt limit:

Date of Authorization	Purpose	Statute	
2/7/2012 & 4/3/2012	Middle School Construction	C. 70B	\$ 1,096,232
6//29/2020	Water	C. 44 s. 8	\$ 2,000,000
(E) Total authorized but not yet incurred debt which is outside the debt limit (Enter on page 1 of form)			<u>\$ 3,096,232</u>

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STONEHAM FOR 12-20 BORROWING

BLANKET PREMIUM AUTHORIZATION APPROVED 5/7/18 (doc #203790) DATED: June 29, 2020

DATE OF AUTHOR. & ARTICLE NO.	AMOUNT ORIGINALLY AUTHORIZED	DATE BONDED/ RESCINDED/ PAID DOWN	AMOUNT BONDED/ RESCINDED/ PAID DOWN	AMOUNT REMAINING	PURPOSE	LAW CITE	MAXIMUM TERM	NOTES OUTSTANDING	MATURITY DATE	ROLLOVER DATE
5/3/2010 (5)	438,500	MSBA G - 2/22/13 MSBA G	97,986 313,169	28,325	School Feasibility Study					
2/7/12 & 4/3/12 (1 & Q1)	39,982,390	B-2/21/13 G - MSBA G - MSBA B-4/22/17	18,195,000 16,888,158 3,250,000 853,000	1,096,232	Middle School Construction - EXEMPT	Ch. 70B	30			
5/4/2015 (19)	814,000	MWRA B - 12/7/15	203,500	610,500	Sewer (Phase 10)	Ch. 44 s. 7(1)	30		12/18/2020	12/21/2018, 12/20/2019
5/1/17 (19)	585,500	B-6/22/17 PD-12/27/18 PD-12/27/18 B-12/18/19	75,000 100,000 10,000 75,450	285,050	Golf Course Irrigation Replacement	Ch. 44 s. 7(1)	30	284,550		
10/15/2018 (9)	1,455,000	MWRA B - 3/4/19 MWRA G - 3/4/19	242,500 727,500	485,000	Sewer (Phase 11, 12, & 13) High School Feasibility Study	Ch. 44 s. 7(1) or 8(14) Ch. 44 s. 7(7) or 7(8)	30 5			
5/6/2019	750,000		339,550 20,000	390,450	Sewer/Drain Line Video Inspection Camera Public Works Pump/Vac. Truck	Ch. 44 s. 7(1) Ch. 44 s. 7(1)	5-20 5-20			
6/29/2020 (9)	45,000		45,000	45,000						
6/29/2020 (9)	425,000		425,000	425,000						
6/29/2020 (16)	2,000,000		2,000,000	2,000,000	Water	Ch. 44, s. 8	TBD			
<b>TOTALS:</b>										284,550

**Massachusetts Department of Revenue** **Division of Local Services**  
**Bureau of Accounts** **Statement of Indebtedness**  
**Stoneham, Massachusetts** **FY20**

Long Term Debt Inside the Debt Limit*	Outstanding July 1, 2019	+ Issued	- Retired	= Outstanding June 30, 2020	Interest Paid in FY20
Building	1,500,650	-	88,950	1,411,700	54,533
Departmental Equipment	2,285,089	215,450	279,089	2,221,450	72,275
School Buildings	1,207,600	-	186,150	1,021,450	36,009
School Other	146,361	375,000	28,711	492,650	14,375
Sewer	408,949	-	106,150	302,799	4,731
Solid Waste Landfill	-	-	-	-	-
Other Inside	1,170,000	505,000	110,000	1,565,000	57,443
<b>SUB-TOTAL Inside</b>	<b>6,718,649</b>	<b>1,095,450</b>	<b>799,050</b>	<b>7,015,049</b>	<b>239,366</b>
Long Term Debt Outside the Debt Limit*					
Airport	-	-	-	-	-
Gas/Electric Utility	-	-	-	-	-
Hospital	-	-	-	-	-
School Buildings	17,894,500	339,550	2,491,400	15,742,650	637,637
Sewer	242,500	-	24,250	218,250	-
Solid Waste Landfill	-	-	-	-	-
Water	1,382,488	-	311,186	1,071,302	-
Other Outside	-	-	-	-	-
<b>SUB-TOTAL Outside</b>	<b>19,519,488</b>	<b>339,550</b>	<b>2,826,836</b>	<b>17,032,202</b>	<b>637,637</b>
<b>GRAND TOTAL</b>	<b>26,238,137</b>	<b>1,435,000</b>	<b>3,625,886</b>	<b>24,047,251</b>	<b>877,003</b>

Please complete both sides of this report and return it to the Division of Local Services no later than September 30th.

I certify to the best of my knowledge that this information is complete and accurate as of this date.

Treasurer: \_\_\_\_\_ Date: \_\_\_\_\_

I certify that long and short term debt as identified in this Statement of Indebtedness is in agreement with the general ledger controls in my department and are also reflected on the balance sheet.

Accounting Officer: \_\_\_\_\_ Date: \_\_\_\_\_

\*MCWT subsidies are not reflected.

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STONEHAM FOR 12-20 BORROWING

STONEHAM FOR 12-20 BORROWING

<b>Massachusetts Department of Revenue</b>		<b>Division of Local Services</b>			
<b>Bureau of Accounts</b>		<b>Part Two</b>			
<b>Stoneham, Massachusetts</b>		<b>FY20</b>			
Short Term Debt *	Outstanding July 1, 2019	+ Issued	- Retired	= Outstanding June 30, 2020	Interest Paid in FY20
RANs - Revenue Anticipation	-	-	-	-	-
BANs - Bond Anticipation	-	-	-	-	-
Buildings	-	-	-	-	-
School	-	-	-	-	-
Water	-	-	-	-	-
Other BANs	1,080,000	284,550	1,080,000	284,550	30,530
SAANs - State Grant Anticipation	-	-	-	-	-
FAANs - Federal Grant Anticipation	-	-	-	-	-
Other Short Term Debt	-	-	-	-	-
<b>TOTAL SHORT TERM DEBT</b>	<b>1,080,000</b>	<b>284,550</b>	<b>1,080,000</b>	<b>284,550</b>	<b>30,530</b>
<b>GRAND TOTAL ALL DEBT</b>	<b>27,318,137</b>	<b>1,719,550</b>	<b>4,705,886</b>	<b>24,331,801</b>	<b>907,532</b>

\*See Attached\*

Authorized and Unissued Debt					
Purpose	Date of Vote	Article No.	Amount Authorized	Less New Bond Issues, Retirements and/or Rescissions	=Balance Unissued 6/30/2020
<b>TOTAL</b>					

\*Does not reflect Interim Loan Notes issued through the Massachusetts Clean Water Trust.

DATE OF AUTHOR. & AUTHORIZED	AMOUNT ORIGINALLY AUTHORIZED	AMOUNT BONDED/REBONDED	DATE BONDED/REBONDED	AMOUNT REFERENCED	PURPOSE	LAW CIT.	MAXIMUM TERM - OUTSTANDING	NOTES	MATURITY DATE	ROLLOVER DATE	RESIDUAL INTEREST	STATUS OF LEGAL OPINIONS	ORIGINAL ISSUE DATE
5/30/01 (6)	438,500	438,500	5/30/01	438,500	School Feasibility Study	Ch. 44 s. 71B	30				28,326	RL 47/11	
2/7/12 & 4/30/12 (1 & 01)	3,082,300	16,152,000	8/25/12	1,086,232	Middle School Construction - EXEMPT	Ch. 44 s. 7(2)	30				1,086,232	RL 5/31/12	
10/30/14 (25)	100,000	100,000	10/30/14	100,000	Drainage Study	Ch. 44 s. 7(2)	5				100,000	RL 12/1/14	
5/4/2015 (19)	814,000	814,000	5/4/2015	814,000	Sewer (Phase 10)	Ch. 44 s. 7(1)	30				610,500	RL 11/9/15	
9/17/19	585,000	70,000	8/4/2017	410,500	Gas Crossover Installation Replacement	Ch. 44 s. 7(1)	30	410,000	12/20/2019		500	RL 9/11/17	02/12/2017
10/16/17 (16)	1,600,000	1,510,000	8-12/21/17		Avenue Repairs	Ch. 44 s. 7(1)	30					RL 11/21/17	
10/15/2019 (9)	1,455,000	242,500	8/12/2017	485,000	Sewer (Phases 1, 12, & 13)	Ch. 44 s. 7(1) or 8(4)	30	140,000	12/20/2019		485,000	RL 11/8/18	
10/15/2018 (12)	140,000	77,500	MWRA B - 3/4/19	140,000	2 Police Chaises	Ch. 44 s. 7(1)	5-30	75,000	12/20/2019			RL 11/8/18	02/12/2018
10/15/2018 (12)	75,000	75,000	8-12/19/19	75,000	Fire Department Feasibility Study	Ch. 44 s. 7(1)	5	375,000	12/20/2019			RL 11/8/18	02/12/2018
10/15/2018 (12)	375,000	375,000	8-12/19/19	375,000	School Security Camera Upgrade	Ch. 44 s. 7(1)	5-30	80,000	12/20/2019			RL 11/8/18	02/12/2018
10/15/2018 (12)	80,000	80,000	8-12/19/19	80,000	Maint. S. Watermain (Main Station & Subways)	Ch. 44 s. 7(1)	5-20					RL 11/8/18	02/12/2018
5/8/19	210,000	210,000	8-12/19/19	210,000	Clear Street (Paved)	Ch. 44 s. 7(1)	15				210,000	RL 6/21/19	
5/8/19	140,000	140,000	8-12/19/19	140,000	Clear Street (Paved)	Ch. 44 s. 7(1)	15				140,000	RL 6/21/19	
5/8/19	750,000	750,000	8-12/19/19	750,000	HQP School Feasibility Study	Ch. 44 s. 7(1) or 7(8)	5				750,000	RL 6/21/19	
<b>TOTALS</b>		<b>4,500,557</b>		<b>4,500,557</b>				<b>1,950,000</b>			<b>2,425,557</b>		



BLANKET PREMIUM AUTHORIZATION APPROVED 6/7/18 (see #20796)

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STONEHAM FOR 12-20 BORROWING

STONEHAM FOR 12-20 BORROWING

**Town of Stoneham, Massachusetts**  
 Long-Term Debt Outstanding as of July 1, 2019  
 Inside the Debt Limit

**Town of Stoneham, Massachusetts**  
 Long-Term Debt Outstanding as of July 1, 2019  
 Outside the Debt Limit

June 1 2010 -Drainage 1 (I).....	220,000.00
June 1 2010 -Drainage 2 (I).....	220,000.00
June 1 2010 -Arena Roof (I).....	90,000.00
June 28 2011 -Drainage (I).....	180,000.00
June 28 2011 -Street Sweeper (I).....	70,000.00
June 28 2011 -Fire Pump Truck (I).....	360,000.00
June 28 2011 -Sidewalk Plow (I).....	60,000.00
June 28 2011 -South School AC (I).....	35,000.00
June 28 2011 -School Oil Tanks (I).....	125,000.00
June 28 2011 -Communications (I).....	315,000.00
May 30 2012 -Cur Ref Jan 15 2003 Surface Drain 1 (I).....	81,000.00
May 30 2012 -Cur Ref Jan 15 2003 Surface Drain II (I).....	21,000.00
May 30 2012 -Cur Ref Jan 15 2003 Surface Drain III (I).....	35,400.00
May 30 2012 -Adv Ref Sept 1 2003 Surface Drain (I).....	3,400.00
May 30 2012 -Adv Ref Sept 1 2003 Building Rem-Public Works (I).....	24,000.00
May 30 2012 -Adv Ref Sept 1 2003 Building Remodel - School (I).....	5,700.00
December 8 2014 MWRA Sewer (I).....	125,699.00
December 7 2015 MWRA Sewer (I).....	142,450.00
December 17 2015 -Cur Ref May 15 2007 Building Remodel - Fire (I).....	11,650.00
December 17 2015 -Cur Ref May 15 2007 Building Remodel - School 1(I).....	110,450.00
December 17 2015 -Cur Ref May 15 2007 Building Remodel - School 2(I).....	38,650.00
December 17 2015 -Cur Ref May 15 2007 Building Remodel - School 3(I).....	75,600.00
December 17 2015 -Cur Ref May 15 2007 Building Remodel - School 4(I).....	46,500.00
December 17 2015 -Cur Ref May 15 2007 Building Remodel - School 5(I).....	40,700.00
December 17 2015 -Cur Ref May 15 2007 Athletic Facility- School 1(I).....	11,600.00
December 17 2015 -Cur Ref May 15 2007 Athletic Facility- School 2(I).....	3,850.00
December 17 2015 -Dept Equipment - Police Vehicles (I).....	26,008.00
December 17 2015 -Dept Equipment - Police Shooting Range Rifles (I).....	6,975.00
December 17 2015 -Dept Equipment - Police Bullet Proof Vests (I).....	4,335.00
December 17 2015 -Dept Equipment - Fire Gear (I).....	2,956.00
December 17 2015 -Dept Equipment - DPW Sander & Roller (I).....	6,896.00
December 17 2015 -Dept Equipment - Unicorn Irrigation System (I).....	2,956.00
December 17 2015 -Dept Equipment - Unicorn Mowers & Spray Unit (I).....	15,762.00
December 17 2015 -Dept Equipment - Arena (I).....	13,201.00
December 17 2015 -Dept Equipment - School Phones (I).....	5,911.00
December 17 2015 -School HVAC & Roof Repair (I).....	45,000.00
December 17 2015 -Computer Hardware & Software (I).....	10,000.00
December 17 2015 -Paving (I).....	5,000.00
December 17 2015 -Fire Ladder Truck (I).....	756,000.00
December 17 2015 -Fire Pumper Truck (I).....	525,000.00
June 22 2017 -Middle School (IE).....	810,000.00
June 22 2017 -Golf Course Irrigation Replacement (I).....	65,000.00
June 22 2017 -Police Station HVAC Upgrade (I).....	270,000.00
June 22 2017 -DPW (Sidewalk Plow) (I).....	120,000.00
June 22 2017 -Sidewalk Program (I).....	110,000.00
December 21 2017 Arena Repairs (I).....	1,465,000.00
<b>TOTAL.....</b>	<b>6,718,649.00</b>

Hilltop Securities Inc.  
 Public Finance

January 15 2010 -Adv Ref June 15 2001 South School (OE).....	960,000.00
January 15 2010 -Adv Ref Oct 15 2001 Central Elem School (OE).....	1,250,000.00
August 15 2011 MWRA Water (O).....	278,970.00
May 30 2012 -Cur Ref Jan 15 2003 Robin Hood Elem School (OE).....	318,600.00
May 30 2012 -Adv Ref Sept 1 2003 Colonial Park School (OE).....	1,130,500.00
May 30 2012 -Adv Ref Sept 1 2003 Colonial Park School 2 (OE).....	905,400.00
February 21 2013 School (OE).....	13,330,000.00
May 13 2013 MWRA Water (O).....	166,218.00
November 16 2015 MWRA Water (O).....	937,300.00
March 4 2019 MWRA Sewer (O).....	242,500.00
<b>TOTAL.....</b>	<b>19,519,488.00</b>

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STONEHAM FOR 12-20 BORROWING

<b>Town of Stoneham, Massachusetts</b>	
Long-Term Debt Issued During FY 2020	
Inside the Debt Limit	
December 19 2019 -FY2019 Capital - Police Cruisers (I).....	140,000.00
December 19 2019 -FY2019 Capital - Fire Station Design (I).....	75,000.00
December 19 2019 -FY2019 Capital - School Security Upgrades (I).....	375,000.00
December 19 2019 -FY2019 Capital - Munis Upgrade (I).....	80,000.00
December 19 2019 -Clara Steele Playground (I).....	210,000.00
December 19 2019 -Streets & Sidewalks (I).....	140,000.00
December 19 2019 -Golf Course Irrigation Replacement (I).....	75,450.00
<b>TOTAL.....</b>	<b>1,095,450.00</b>

Hilltop Securities Inc.  
Public Finance

STONEHAM FOR 12-20 BORROWING

<b>Town of Stoneham, Massachusetts</b>	
Long-Term Debt Issued During FY 2020	
Outside the Debt Limit	
December 19 2019 -High School Feasibility Study (O).....	339,550.00
<b>TOTAL.....</b>	<b>339,550.00</b>

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STONEHAM FOR 12-20 BORROWING

**Town of Stoneham, Massachusetts**  
 Long-Term Debt Retired During FY 2020  
 Inside the Debt Limit

**Town of Stoneham, Massachusetts**  
 Long-Term Debt Retired During FY 2020  
 Outside the Debt Limit

June 1 2010 -Drainage 1 (I).....	20,000.00
June 1 2010 -Drainage 2 (I).....	20,000.00
June 1 2010 -Arena Roof (I).....	10,000.00
June 28 2011 -Drainage (I).....	15,000.00
June 28 2011 -Street Sweeper (I).....	10,000.00
June 28 2011 -Fire Pump Truck (I).....	30,000.00
June 28 2011 -Sidewalk Plow (I).....	5,000.00
June 28 2011 -South School AC (I).....	5,000.00
June 28 2011 -School Oil Tanks (I).....	15,000.00
June 28 2011 -Communications (I).....	45,000.00
May 30 2012 -Cur Ref Jan 15 2003 Surface Drain 1 (I).....	30,000.00
May 30 2012 -Cur Ref Jan 15 2003 Surface Drain II (I).....	7,000.00
May 30 2012 -Cur Ref Jan 15 2003 Surface Drain III (I).....	12,000.00
May 30 2012 -Adv Ref Sept 1 2003 Surface Drain (I).....	1,700.00
May 30 2012 -Adv Ref Sept 1 2003 Building Rem-Public Works (I).....	10,000.00
May 30 2012 -Adv Ref Sept 1 2003 Building Remodel - School (I).....	2,900.00
December 8 2014 MWRA Sewer (I).....	35,100.00
December 7 2015 MWRA Sewer (I).....	20,350.00
December 17 2015 -Cur Ref May 15 2007 Building Remodel - Fire (I).....	3,950.00
December 17 2015 -Cur Ref May 15 2007 Building Remodel - School 1(I).....	39,250.00
December 17 2015 -Cur Ref May 15 2007 Building Remodel - School 2(I).....	13,800.00
December 17 2015 -Cur Ref May 15 2007 Building Remodel - School 3(I).....	25,650.00
December 17 2015 -Cur Ref May 15 2007 Building Remodel - School 4(I).....	15,750.00
December 17 2015 -Cur Ref May 15 2007 Building Remodel - School 5(I).....	13,800.00
December 17 2015 -Cur Ref May 15 2007 Athletic Facility- School 1(I).....	5,850.00
December 17 2015 -Cur Ref May 15 2007 Athletic Facility- School 2(I).....	1,950.00
December 17 2015 -Dept Equipment - Police Vehicles (I).....	26,008.00
December 17 2015 -Dept Equipment - Police Shooting Range Rifles (I).....	6,975.00
December 17 2015 -Dept Equipment - Police Bullet Proof Vests (I).....	4,335.00
December 17 2015 -Dept Equipment - Fire Gear (I).....	2,956.00
December 17 2015 -Dept Equipment - DPW Sander & Roller (I).....	6,896.00
December 17 2015 -Dept Equipment - Unicorn Irrigation System (I).....	2,956.00
December 17 2015 -Dept Equipment - Unicorn Mowers & Spray Unit (I).....	15,762.00
December 17 2015 -Dept Equipment - Arena (I).....	13,201.00
December 17 2015 -Dept Equipment - School Phones (I).....	5,911.00
December 17 2015 -School HVAC & Roof Repair (I).....	45,000.00
December 17 2015 -Computer Hardware & Software (I).....	10,000.00
December 17 2015 -Paving (I).....	5,000.00
December 17 2015 -Fire Ladder Truck (I).....	55,000.00
December 17 2015 -Fire Pumper Truck (I).....	40,000.00
June 22 2017 -Middle School (IE).....	25,000.00
June 22 2017 -Golf Course Irrigation Replacement (I).....	5,000.00
June 22 2017 -Police Station HVAC Upgrade (I).....	15,000.00
June 22 2017 -DPW (Sidewalk Plow) (I).....	15,000.00
June 22 2017 -Sidewalk Program (I).....	10,000.00
December 21 2017 (I).....	75,000.00
<b>TOTAL.....</b>	<b>799,050.00</b>

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 Public Finance

January 15 2010 -Adv Ref June 15 2001 South School (OE).....	480,000.00
January 15 2010 -Adv Ref Oct 15 2001 Central Elem School (OE).....	625,000.00
August 15 2011 MWRA Water (O).....	130,043.00
May 30 2012 -Cur Ref Jan 15 2003 Robin Hood Elem School (OE).....	125,000.00
May 30 2012 -Adv Ref Sept 1 2003 Colonial Park School (OE).....	290,000.00
May 30 2012 -Adv Ref Sept 1 2003 Colonial Park School 2 (OE).....	231,400.00
February 21 2013 School (OE).....	740,000.00
May 13 2013 MWRA Water (O).....	47,243.00
November 16 2015 MWRA Water (O).....	133,900.00
March 4 2019 MWRA Sewer (O).....	24,250.00
<b>TOTAL.....</b>	<b>2,826,836.00</b>

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STONEHAM FOR 12-20 BORROWING

STONEHAM FOR 12-20 BORROWING

**Town of Stoneham, Massachusetts**  
 Long-Term Debt Outstanding as of June 30, 2020  
 Inside the Debt Limit

**Town of Stoneham, Massachusetts**  
 Long-Term Debt Outstanding as of June 30, 2020  
 Outside the Debt Limit

June 1 2010 -Drainage 1 (I).....	200,000.00
June 1 2010 -Drainage 2 (I).....	200,000.00
June 1 2010 -Arena Roof (I).....	80,000.00
June 28 2011 -Drainage (I).....	165,000.00
June 28 2011 -Street Sweeper (I).....	60,000.00
June 28 2011 -Fire Pump Truck (I).....	330,000.00
June 28 2011 -Sidewalk Plow (I).....	55,000.00
June 28 2011 -South School AC (I).....	30,000.00
June 28 2011 -School Oil Tanks (I).....	110,000.00
June 28 2011 -Communications (I).....	270,000.00
May 30 2012 -Cur Ref Jan 15 2003 Surface Drain 1 (I).....	51,000.00
May 30 2012 -Cur Ref Jan 15 2003 Surface Drain II (I).....	14,000.00
May 30 2012 -Cur Ref Jan 15 2003 Surface Drain III (I).....	23,400.00
May 30 2012 -Adv Ref Sept 1 2003 Surface Drain (I).....	1,700.00
May 30 2012 -Adv Ref Sept 1 2003 Building Rem-Public Works (I).....	14,000.00
May 30 2012 -Adv Ref Sept 1 2003 Building Remodel - School (I).....	2,800.00
December 8 2014 MWRA Sewer (I).....	90,599.00
December 7 2015 MWRA Sewer (I).....	122,100.00
December 17 2015 -Cur Ref May 15 2007 Building Remodel - Fire (I).....	7,700.00
December 17 2015 -Cur Ref May 15 2007 Building Remodel - School 1(I).....	71,200.00
December 17 2015 -Cur Ref May 15 2007 Building Remodel - School 2(I).....	24,850.00
December 17 2015 -Cur Ref May 15 2007 Building Remodel - School 3(I).....	49,950.00
December 17 2015 -Cur Ref May 15 2007 Building Remodel - School 4(I).....	30,750.00
December 17 2015 -Cur Ref May 15 2007 Building Remodel - School 5(I).....	26,900.00
December 17 2015 -Cur Ref May 15 2007 Athletic Facility- School 1(I).....	5,750.00
December 17 2015 -Cur Ref May 15 2007 Athletic Facility- School 2(I).....	1,900.00
December 17 2015 -Fire Ladder Truck (I).....	701,000.00
December 17 2015 -Fire Pumper Truck (I).....	485,000.00
June 22 2017 -Middle School (IE).....	785,000.00
June 22 2017 -Golf Course Irrigation Replacement (I).....	60,000.00
June 22 2017 -Police Station HVAC Upgrade (I).....	255,000.00
June 22 2017 -DPW (Sidewalk Plow) (I).....	105,000.00
June 22 2017 -Sidewalk Program (I).....	100,000.00
December 21 2017 Arena Repairs (I).....	1,390,000.00
December 19 2019 -FY2019 Capital - Police Cruisers (I).....	140,000.00
December 19 2019 -FY2019 Capital - Fire Station Design (I).....	75,000.00
December 19 2019 -FY2019 Capital - School Security Upgrades (I).....	375,000.00
December 19 2019 -FY2019 Capital - Munis Upgrade (I).....	80,000.00
December 19 2019 -Clara Steele Playground (I).....	210,000.00
December 19 2019 -Streets & Sidewalks (I).....	140,000.00
December 19 2019 -Golf Course Irrigation Replacement (I).....	75,450.00
<b>TOTAL.....</b>	<b>7,015,049.00</b>

Hilltop Securities Inc.  
 Public Finance

January 15 2010 -Adv Ref June 15 2001 South School (OE).....	480,000.00
January 15 2010 -Adv Ref Oct 15 2001 Central Elem School (OE).....	625,000.00
August 15 2011 MWRA Water (O).....	148,927.00
May 30 2012 -Cur Ref Jan 15 2003 Robin Hood Elem School (OE).....	193,600.00
May 30 2012 -Adv Ref Sept 1 2003 Colonial Park School (OE).....	840,500.00
May 30 2012 -Adv Ref Sept 1 2003 Colonial Park School 2 (OE).....	674,000.00
February 21 2013 School (OE).....	12,590,000.00
May 13 2013 MWRA Water (O).....	118,975.00
November 16 2015 MWRA Water (O).....	803,400.00
March 4 2019 MWRA Sewer (O).....	218,250.00
December 19 2019 -High School Feasibility Study (O).....	339,550.00
<b>TOTAL.....</b>	<b>17,032,202.00</b>

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STONEHAM FOR 12-20 BORROWING

STONEHAM FOR 12-20 BORROWING

**Town of Stoneham, Massachusetts**  
Interest Paid on Long-Term Debt During FY 2020  
Inside the Debt Limit

**Town of Stoneham, Massachusetts**  
Interest Paid on Long-Term Debt During FY 2020  
Outside the Debt Limit

June 1 2010 -Drainage 1 (I).....	9,000.00
June 1 2010 -Drainage 2 (I).....	9,000.00
June 1 2010 -Arena Roof (I).....	3,700.00
June 28 2011 -Drainage (I).....	7,050.00
June 28 2011 -Street Sweeper (I).....	2,700.00
June 28 2011 -Fire Pump Truck (I).....	14,100.00
June 28 2011 -Sidewalk Plow (I).....	2,350.00
June 28 2011 -South School AC (I).....	1,350.00
June 28 2011 -School Oil Tanks (I).....	4,850.00
June 28 2011 -Communications (I).....	12,150.00
May 30 2012 -Cur Ref Jan 15 2003 Surface Drain 1 (I).....	2,730.00
May 30 2012 -Cur Ref Jan 15 2003 Surface Drain II (I).....	700.00
May 30 2012 -Cur Ref Jan 15 2003 Surface Drain III (I).....	1,182.00
May 30 2012 -Adv Ref Sept 1 2003 Surface Drain (I).....	119.00
May 30 2012 -Adv Ref Sept 1 2003 Building Rem-Public Works (I).....	820.00
May 30 2012 -Adv Ref Sept 1 2003 Building Remodel - School (I).....	200.00
December 17 2015 -Cur Ref May 15 2007 Building Remodel - Fire (I).....	213.25
December 17 2015 -Cur Ref May 15 2007 Building Remodel - School 1(I).....	2,012.75
December 17 2015 -Cur Ref May 15 2007 Building Remodel - School 2(I).....	704.00
December 17 2015 -Cur Ref May 15 2007 Building Remodel - School 3(I).....	1,383.75
December 17 2015 -Cur Ref May 15 2007 Building Remodel - School 4(I).....	851.25
December 17 2015 -Cur Ref May 15 2007 Building Remodel - School 5(I).....	745.00
December 17 2015 -Cur Ref May 15 2007 Athletic Facility- School 1(I).....	202.75
December 17 2015 -Cur Ref May 15 2007 Athletic Facility- School 2(I).....	67.25
December 17 2015 -Dept Equipment - Police Vehicles (I).....	390.12
December 17 2015 -Dept Equipment - Police Shooting Range Rifles (I).....	104.63
December 17 2015 -Dept Equipment - Police Bullet Proof Vests (I).....	65.03
December 17 2015 -Dept Equipment - Fire Gear (I).....	44.34
December 17 2015 -Dept Equipment - DPW Sander & Roller (I).....	103.44
December 17 2015 -Dept Equipment - Unicorn Irrigation System (I).....	44.34
December 17 2015 -Dept Equipment - Unicorn Mowers & Spray Unit (I).....	236.43
December 17 2015 -Dept Equipment - Arena (I).....	198.02
December 17 2015 -Dept Equipment - School Phones (I).....	88.67
December 17 2015 -School HVAC & Roof Repair (I).....	675.00
December 17 2015 -Computer Hardware & Software (I).....	150.00
December 17 2015 -Paving (I).....	75.00
December 17 2015 -Fire Ladder Truck (I).....	17,595.00
December 17 2015 -Fire Pumper Truck (I).....	12,200.00
June 22 2017 -Middle School (IE).....	28,087.50
June 22 2017 -Golf Course Irrigation Replacement (I).....	2,500.00
June 22 2017 -Police Station HVAC Upgrade (I).....	9,787.50
June 22 2017 -DPW (Sidewalk Plow) (I).....	4,800.00
June 22 2017 -Sidewalk Program (I).....	4,300.00
December 21 2017 Arena Repairs (I).....	53,500.00
December 19 2019 -FY2019 Capital - Police Cruisers (I).....	3,422.22
December 19 2019 -FY2019 Capital - Fire Station Design (I).....	1,833.33
December 19 2019 -FY2019 Capital - School Security Upgrades (I).....	9,166.67
December 19 2019 -FY2019 Capital - Munis Upgrade (I).....	1,955.56
December 19 2019 -Clara Steele Playground (I).....	4,840.00
December 19 2019 -Streets & Sidewalks (I).....	3,251.11
December 19 2019 -Golf Course Irrigation Replacement (I).....	1,771.00
<b>TOTAL.....</b>	<b>239,365.91</b>

Hilltop Securities Inc.  
Public Finance

January 15 2010 -Adv Ref June 15 2001 South School (OE).....	36,000.00
January 15 2010 -Adv Ref Oct 15 2001 Central Elem School (OE).....	46,875.00
May 30 2012 -Cur Ref Jan 15 2003 Robin Hood Elem School (OE).....	10,808.00
May 30 2012 -Adv Ref Sept 1 2003 Colonial Park School (OE).....	36,815.00
May 30 2012 -Adv Ref Sept 1 2003 Colonial Park School 2 (OE).....	29,476.00
February 21 2013 School (OE).....	469,362.50
December 19 2019 -High School Feasibility Study (O).....	8,300.11
<b>TOTAL.....</b>	<b>637,636.61</b>

Hilltop Securities Inc.  
Public Finance

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STONEHAM FOR 12-20 BORROWING

<i>Massachusetts Department of Revenue</i>		<i>Division of Local Services</i>			
<i>Bureau of Accounts</i>		<i>Part Four</i>			
Stoneham, Massachusetts		FY20			
Short Term Debt Report by Issuance	Outstanding July 1, 2019	+ Issued	- Retired	= Outstanding June 30, 2020	Interest Paid in FY20
December 21 2018 BAN - Police Cruisers	140,000	-	140,000	-	3,560
December 21 2018 BAN - Fire Department Feasibility Study	75,000	-	75,000	-	1,907
December 21 2018 BAN - School Security Camera Upgrade	375,000	-	375,000	-	9,536
December 21 2018 BAN - Munis System Upgrade	80,000	-	80,000	-	2,034
December 21 2018 BAN - Golf Course Irrigation System	410,000	-	410,000	-	13,492
December 20 2019 BAN - Golf Course Irrigation System	-	284,550	-	284,550	-
<b>TOTAL SHORT TERM DEBT</b>	1,080,000	284,550	1,080,000	284,550	30,530

\*Does not reflect Interim Loan Notes issued through the Massachusetts Clean Water Trust.



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5 YEAR CAPITAL SUMMARY

Capital Improvement Program, Departmental Project Summary

† Equipment purchase proposed on a standard replacement cycle. Vehicle condition will be reassessed each year.  
 †† Item requires a policy discussion before expenditure

Department	Department #	Title	FY2021	FY2022	FY2023	FY2024	FY2025	Five Year Total
<b>GENERAL FUND</b>								
<b>Information Technology</b>								
GIS/MIS/Assessing	141/155	AssessPro 5.0 Software Upgrade	40,500	-	-	-	-	40,500
GIS/MIS	155	Town wide security & software upgrades	-	50,000	50,000	50,000	50,000	200,000
<b>Total Information Technology</b>			<b>40,500</b>	<b>50,000</b>	<b>50,000</b>	<b>50,000</b>	<b>50,000</b>	<b>240,500</b>
<b>Town Clerk</b>								
Town Clerk	161	Voting Equipment Replacement/ Voting Booths	-	-	-	75,000	-	75,000
<b>Total Elections &amp; Registration</b>			<b>-</b>	<b>-</b>	<b>-</b>	<b>75,000</b>	<b>-</b>	<b>75,000</b>
<b>Planning &amp; Community Development</b>								
Community Development	185	Green Communities Energy Updates	-	20,000	20,000	20,000	-	60,000
Community Development	185	Downtown Stoneham Configuration Complete Streets Improvement Program, Design Study	-	-	100,000	-	-	100,000
<b>Total Community Development</b>			<b>-</b>	<b>120,000</b>	<b>20,000</b>	<b>20,000</b>	<b>-</b>	<b>160,000</b>
<b>Public Property/Facilities</b>								
Public Property Maintenance	192	ADA Building Compliance Town Wide	-	-	-	5,000,000	-	5,000,000
Public Property Maintenance	192	Town Hall Exterior Painting	-	200,000	-	-	-	200,000
Public Property Maintenance	192	New Roof for Auditorium & Town Hall	-	-	40,000	-	-	40,000
Public Property Maintenance	192	Town Hall Boiler Redundancy	-	-	-	30,000	-	30,000
Public Property Maintenance	192	Auditorium A/C Installation (Heating & Cooling)	-	-	-	-	-	-
Fire	192	Fire Station Kitchen	-	-	-	-	-	-
Fire	192	Fire Station Brick Repointing	-	-	1,100,000	-	-	1,100,000
Fire	192	Fire Station Windows	-	-	100,000	-	-	100,000
Fire	192	Garage Roof Repair	-	-	20,000	-	-	20,000
Fire	192	Emergency Back Up Generator	-	-	-	50,000	-	50,000
Fire	192	Cascade Air System	-	-	-	45,000	-	45,000
Police	192	Window Upgrades	-	-	50,000	-	-	50,000
Library	192	Security Gate Replacement	-	-	-	-	-	-
Library	192	Interior Painting	-	-	-	-	-	-
Arena	192	Little Roof & Ventilation Replacement	-	-	-	-	-	-
Public Property Maintenance	192	Town Wide Improvements	200,000	-	-	-	-	200,000
Arena	192	Generator	-	-	-	-	-	-
Arena	192	ADA Accessible Inside and Out	-	-	-	-	-	-
Arena	192	Updating Security Cameras	-	-	-	-	-	-
Arena	192	Upper Level Bathroom Storage	-	-	-	-	-	-
<b>Subtotal Town</b>			<b>200,000</b>	<b>200,000</b>	<b>1,310,000</b>	<b>5,125,000</b>	<b>-</b>	<b>6,635,000</b>
Schools	192	South School Site Study (Playground, Parking Lot, Traffic Pattern)	-	-	-	-	-	-
Schools	192	South School Site Rehab - Playground, Park Lot	-	500,000	-	-	-	500,000
Schools	192	Roof Repair/Replacement - Colonial Park	-	-	-	350,000	-	350,000
Schools	192	Roof Repair/Replacement - South School	-	-	-	-	350,000	350,000
Schools	192	Roof Repair/Replacement - Robin Hood	-	-	350,000	-	-	350,000
Schools	192	Roof Repair/Replacement for D Building CMS	-	-	-	-	350,000	350,000
Schools	192	Transit Van/Facilities Vehicle	-	-	-	-	-	-
Schools	192	Motorized Shades for Central Gym	-	-	90,000	-	-	90,000
Schools	192	Truck Vehicle w/plow	-	-	-	-	-	-
<b>Subtotal School</b>			<b>-</b>	<b>500,000</b>	<b>440,000</b>	<b>350,000</b>	<b>700,000</b>	<b>1,990,000</b>
<b>Total Public Property/Facilities</b>			<b>200,000</b>	<b>700,000</b>	<b>1,750,000</b>	<b>5,475,000</b>	<b>700,000</b>	<b>8,625,000</b>
<b>Police Department</b>								
Police	210	Marked Police Vehicles	-	147,000	150,000	75,000	154,000	526,000
Police	210	Unmarked Police Vehicles	35,000	50,000	-	38,000	-	123,000
<b>Total Police Department</b>			<b>35,000</b>	<b>197,000</b>	<b>150,000</b>	<b>113,000</b>	<b>154,000</b>	<b>649,000</b>
<b>Dispatch Department</b>								
Dispatch	212	Public Safety Dispatch Console	-	-	896,000	-	-	896,000
<b>Total Police Department</b>			<b>-</b>	<b>-</b>	<b>896,000</b>	<b>-</b>	<b>-</b>	<b>896,000</b>
<b>Fire Department</b>								
Fire	220	Portable Radios	-	40,000	-	-	-	40,000
Fire	220	Fire Engine	-	730,000	-	-	-	730,000
Fire	220	Fire Facility	-	-	8,000,000	-	-	8,000,000
Fire	220	Pick-up Brush Truck	-	50,000	-	-	-	50,000
Fire	220	Vehicle Replacement	-	50,000	-	-	-	50,000
<b>Total Fire Department</b>			<b>-</b>	<b>870,000</b>	<b>8,000,000</b>	<b>-</b>	<b>-</b>	<b>8,870,000</b>
<b>School Department</b>								
Schools	300	School Technology Capital Replacement Program	-	-	100,000	100,000	-	200,000
Schools	300	Ford Transit Van (Food Deliveries etc.)	36,000	-	-	-	-	36,000
Schools	300	Elementary Furniture Upgrade - All Schools	-	-	-	100,000	-	100,000
Schools	300	Robin Hood School Playground Upgrade	-	-	-	-	-	-
Schools	300	High School Marching Band Uniforms	-	-	50,000	-	-	50,000
Schools	300	Colonial Park School Playground Upgrade	-	200,000	-	-	-	200,000
<b>Total School Department</b>			<b>36,000</b>	<b>200,000</b>	<b>150,000</b>	<b>200,000</b>	<b>-</b>	<b>586,000</b>
<b>Department of Public Works</b>								
Public Works	400	Front End Loader	225,000	-	-	-	-	225,000
Public Works	400	Fueling Station Placeholder	-	95,000	-	-	-	95,000
Public Works	400/491	#53 Excavator	-	-	-	-	-	-
Public Works	400	Drainage	-	-	100,000	-	-	100,000
Public Works	400	#12 6 Wheel Dump Truck VW Grant Match	80,000	-	-	-	-	80,000
Public Works	400	Snow Blower Attachment for Front End Loader	-	-	-	-	-	-
Public Works	400	Compressor	-	-	-	-	-	-
Public Works	400	Ford Explorer SUV	-	-	-	-	-	-
Public Works	400	One Ton Dump Truck	-	-	55,000	-	-	55,000
Public Works	400	Utility Truck w/plow	-	-	55,000	-	-	55,000

Public Works	400	Mower	-	20,000	-	-	-	20,000
Public Works	400	Sweeper	-	240,000	-	-	-	240,000
Public Works	400	One Ton Dump Truck	-	-	55,000	-	-	55,000
Public Works	400	3/4 Ton Pickup w/plow	-	-	40,000	-	-	40,000
Public Works	400	Sidewalk Plow	-	-	150,000	-	-	150,000
Public Works	400	Mower	-	20,000	-	-	-	20,000
Public Works	400	3/4 Ton Pickup w/plow	-	-	-	45,000	-	45,000
Public Works	400	One Ton Dump Truck w/plow	-	-	-	55,000	-	55,000
Public Works	400	Loader	-	-	-	-	260,000	260,000
Public Works	400	Bobcat	-	-	-	-	45,000	45,000
Public Works	400	Streets & Sidewalks Capital Plan	-	200,000	1,200,000	1,200,000	1,200,000	5,000,000
<b>Total Department of Public Works</b>			<b>-</b>	<b>505,000</b>	<b>1,765,000</b>	<b>1,465,000</b>	<b>1,300,000</b>	<b>1,505,000</b>
<b>Total Non-Departmental</b>								
<b>Council on Aging</b>								
COA	541	CDA Van Request	-	68,000	-	-	-	68,000
<b>Total Recreation Department</b>			<b>-</b>	<b>68,000</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>68,000</b>
<b>Recreation Department</b>								
Recreation	542	Playground Improvements	-	-	176,000	(98,500)	-	77,500
<b>Total Recreation Department</b>			<b>-</b>	<b>-</b>	<b>176,000</b>	<b>(98,500)</b>	<b>-</b>	<b>77,500</b>
<b>Library</b>								
<b>Total Library</b>			<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>Golf Course</b>								
Golf	630	Rebuild Hole 4	-	26,950	-	18,700	-	45,650
Golf	630	Rebuild Hole 9	-	-	-	-	-	-
Golf	630	Install Net at 3rd hole	-	-	10,000	10,000	10,000	40,000
Golf	630	Tree Work	-	-	23,700	-	-	23,700
Golf	630	Rebuild Hole 2	-	-	-	23,650	-	23,650
Golf	630	Rebuild Hole 6	-	-	-	23,650	20,900	44,550
Golf	630	Rebuild Hole 1	-	-	-	18,700	-	18,700
Golf	630	Rebuild Hole 7	-	-	-	9,350	-	9,350
Golf	630	Rebuild Hole 5	-	-	-	9,350	-	9,350
Golf	630	Install Drainage on 7th Fairway	-	33,000	-	-	-	33,000
Golf	630	Install Drainage on 5th Fairway	-	-	-	28,600	-	28,600
Golf	630	Install 2-Bay Hitting Cage	-	-	-	-	-	-
Golf	630	Install kitchen, exhaust hood, grill, fryer in Clubhouse	-	-	-	-	42,000	42,000
Golf	630	Renovation of maintenance building staff lunch/break room	-	-	-	-	-	-
Golf	630	New Carpet in Clubhouse	-	-	-	-	-	-
Golf	630	Replacement and Upgrade of Clubhouse Exterior	-	-	-	-	40,000	40,000
Golf	630	Renovate Clubhouse Basement	-	16,500	-	-	-	16,500
Golf	630	Golf Course Improvements	-	-	-	-	-	-
<b>Total Golf Course</b>			<b>-</b>	<b>86,450</b>	<b>81,000</b>	<b>94,700</b>	<b>112,900</b>	<b>375,050</b>
<b>Arena</b>								
Arena	631	Ice Resurfacer	-	-	-	-	-	-
Arena	631	Skate Sharpening Machine	-	-	-	-	15,000	15,000
<b>Total Arena</b>			<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>15,000</b>	<b>15,000</b>
<b>Non-Departmental</b>								
ND	920	Old Burying Ground Master Preservation Plan	-	15,000	-	34,000	145,000	294,000
<b>Total Non-Departmental</b>			<b>-</b>	<b>15,000</b>	<b>-</b>	<b>34,000</b>	<b>145,000</b>	<b>294,000</b>
<b>GENERAL FUND TOTAL</b>			<b>-</b>	<b>884,500</b>	<b>4,179,450</b>	<b>12,497,500</b>	<b>7,472,700</b>	<b>2,636,900</b>
<b>ENTERPRISE FUNDS</b>								
<b>Sewer Enterprise</b>								
Sewer	440	Sewer/Drain line Video Inspection Camera	-	45,000	-	-	-	45,000
Sewer	440	MWRA Projects (Town Portion)	-	-	-	-	-	-
Sewer	440	#7 Pump/Vac Truck	-	425,000	-	-	-	425,000
<b>Total Sewer Enterprise</b>			<b>-</b>	<b>470,000</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>470,000</b>
<b>Water Enterprise</b>								
Water	450	Gate Replacement on Main Street	-	-	-	-	-	-
Water	450	Cleaning & Lining of 20" water main on Main Street.	-	-	-	-	-	-
Water	450	LWSAP (0% Loan)	-	2,000,000	-	-	-	2,000,000
Water	450	Water Main Replacement (Downtown)	-	-	-	2,000,000	-	2,000,000
<b>Total Water Enterprise</b>			<b>-</b>	<b>2,000,000</b>	<b>-</b>	<b>2,000,000</b>	<b>-</b>	<b>4,000,000</b>
<b>ENTERPRISE FUNDS TOTAL</b>			<b>-</b>	<b>2,470,000</b>	<b>2,000,000</b>	<b>-</b>	<b>-</b>	<b>4,470,000</b>
<b>GRAND TOTAL: 5-YEAR CAPITAL PLAN</b>			<b>-</b>	<b>3,354,500</b>	<b>6,179,450</b>	<b>12,497,500</b>	<b>7,472,700</b>	<b>2,636,900</b>
<b>FUNDING SUMMARY</b>								
			FY2021	FY2022	FY2023	FY2024	FY2025	Five Year Total
Free Cash (FR)			-	-	-	-	-	-
Operating Budget (OB)			-	-	-	-	-	-
Debt (D)			844,000	-	-	-	-	844,000
Enterprise Receipts (ER)			2,470,000	-	-	-	-	2,470,000
Capital Stabilization (CS)			-	-	-	-	-	-
Overlay (O)			40,500	-	-	-	-	40,500
Budget Surplus (BS)			-	-	-	-	-	-
Revolving Fund (RF)			-	-	-	-	-	-
Chapter 90 (C90)			-	-	-	-	-	-
<b>TOTAL</b>			<b>3,354,500</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
Unfunded			-					

**K. TOTAL PROJECT BUDGET AND DISTRICT'S NOT TO EXCEED BUDGET**

**PROJECT BUDGET**

The Total Project Budget for Option 4B – New Construction is \$176,208,977.

**DISTRICT'S NOT TO EXCEED BUDGET**

The Total Project Budget for Option 4B – New Construction is \$125,289,311, defined in the completed 3011 Project Budget Form, dated December 23, 2020 is the District's not to exceed Total Project Budget.

**K. TOTAL PROJECT BUDGET AND DISTRICTS NOT TO EXCEED BUDGET**

Stoneham Public School District  
Stoneham High School  
PSR Submission  
12/23/20

New Construction  
Option 4B  
PM&C Estimate 12/3/20

Total Project Budget: All costs associated with the project are subject to 963 CMR 2.16(5)	Estimated Budget	Scope Items Excluded from the Estimated Basis of Maximum Facilities Grant or Otherwise Ineligible	Estimated Basis of Maximum Total Facilities Grant <sup>1</sup>	Estimated Maximum Total Facilities Grant <sup>1</sup>
<b>Feasibility Study Agreement</b>				
OPM Feasibility Study	\$130,000	\$0	\$130,000	
A&E Feasibility Study	\$420,000	\$0	\$420,000	
Environmental & Site	\$160,000	\$0	\$160,000	
Other	\$40,000	\$0	\$40,000	
<b>Feasibility Study Agreement Subtotal</b>	<b>\$750,000</b>	<b>\$0</b>	<b>\$750,000</b>	<b>\$412,950</b>
<b>Administration</b>				
Legal Fees	\$120,000	\$120,000	\$0	\$0
<b>Owner's Project Manager</b>				
Design Development	\$4,792,277	\$0	\$4,792,277	
Construction Contract Documents	\$0	-\$345,348	-\$345,348	
Bidding	\$0	\$0	\$0	
Construction Contract Administration	\$0	\$0	\$0	
Closeout	\$0	\$0	\$0	
Extra Services	\$100,000	\$0	\$100,000	
Reimbursable & Other Services	\$80,000	\$0	\$80,000	
Cost Estimates	\$120,000	\$0	\$120,000	
Advertising	\$20,000	\$0	\$20,000	
Permitting	\$80,000	\$0	\$80,000	
Owner's Insurance	\$200,000	\$0	\$200,000	
Other Administrative Costs	\$300,000	\$0	\$300,000	
<b>Administration Subtotal</b>	<b>\$5,812,277</b>	<b>\$465,348</b>	<b>\$5,346,929</b>	<b>\$2,944,019</b>
<b>Architecture and Engineering</b>				
<b>Basic Services</b>				
Design Development	\$13,643,650	\$0	\$13,643,650	
Construction Contract Documents	\$0	\$986,709	-\$986,709	
Bidding	\$0	\$0	\$0	
Construction Contract Administration	\$0	\$0	\$0	
Closeout	\$0	\$0	\$0	
Other Basic Services	\$0	\$0	\$0	
<b>Basic Services Subtotal</b>	<b>\$13,643,650</b>	<b>\$986,709</b>	<b>\$12,656,940</b>	
<b>Reimbursable Services</b>				
Construction Testing	\$60,000	\$0	\$60,000	
Printing (over minimum)	\$40,000	\$0	\$40,000	
Other Reimbursable Costs	\$500,000	\$0	\$500,000	
Hazardous Materials	\$300,000	\$0	\$300,000	
Geotechnical & Geo-Environmental	\$400,000	\$0	\$400,000	
Site Survey	\$80,000	\$0	\$80,000	
Wetlands	\$40,000	\$0	\$40,000	
Traffic Studies	\$200,000	\$0	\$200,000	
<b>Architectural/Engineering Subtotal</b>	<b>\$15,263,650</b>	<b>\$986,709</b>	<b>\$14,276,940</b>	<b>\$7,860,883</b>
<b>CM at Risk Preconstruction Services</b>				
Pre-Construction Services	\$400,000	\$0	\$400,000	\$220,240
Site Acquisition				
Land / Building Purchase	\$0	\$0	\$0	
Appraisal Fees	\$0	\$0	\$0	
Recording fees	\$0	\$0	\$0	
<b>Site Acquisition Subtotal</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
<b>Construction Costs</b>				
<b>SUBSTRUCTURE</b>				
Foundations	\$74,513,582			
Basement Construction	\$0			
<b>SHELL</b>				
Super Structure	\$0			
Exterior Closure	\$0			
Exterior Walls	\$0			
Exterior Windows	\$0			
Exterior Doors	\$0			
Roofing	\$0			
<b>INTERIORS</b>				
Interior Construction	\$0			
Staircases	\$0			
Interior Finishes	\$0			
<b>SERVICES</b>				
Conveying Systems	\$0			
Plumbing	\$0			
HVAC	\$0			
Fire Protection	\$0			
Electrical	\$0			
<b>EQUIPMENT &amp; FURNISHINGS</b>				

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L. BUDGET STATEMENT

L. BUDGET STATEMENT / EXPENDITURES

The completed Budget Statement for the Preferred Alternative is attached to the end of the section.

January 2014

Budget Statement for Preferred Schematic - Expenditures

Equipment	\$0			
Furnishings	\$0			
<b>SPECIAL CONSTRUCTION &amp; DEMOLITION</b>				
Special Construction	\$0			
Existing Building Demolition	\$1,248,678	\$0		
In-Building Hazardous Material Abatement	\$3,088,000	\$0		
Asbestos Containing Floor Material Abatement	\$412,000	\$412,000		
Other Hazardous Material Abatement	\$0	\$0		
<b>BUILDING SITEWORK</b>				
Site Preparation	\$20,372,983	\$0		
Site Improvements	\$0	\$0		
Site Civil / Mechanical Utilities	\$0	\$0		
Site Electrical Utilities	\$0	\$0		
Concession/Locker Room Building	\$2,050,000	\$2,050,000		
Site Cost over Allowance		\$14,411,896		
<b>Construction Trades Subtotal</b>	<b>\$101,685,243</b>	<b>\$16,873,896</b>		
Contingencies (Design and Pricing)	\$12,202,229	\$2,024,867		
GMP Bonds	\$1,209,620	\$200,727		
D/B/B Insurance	\$0	\$0		
General Conditions	\$5,280,000	\$876,178		
General Requirements	\$4,838,481	\$802,909		
GMP Insurance	\$1,893,468	\$281,018		
GMP Fee	\$3,024,050	\$501,818		
GMP Contingency	\$3,628,860	\$602,182		
Escalation to Mid-Point of Construction	\$7,074,544	\$1,173,967		
Construction Cost over Funding Cap		\$52,179,578		
<b>Construction Budget</b>	<b>\$140,636,495</b>	<b>\$75,517,136</b>	<b>\$65,119,359</b>	<b>\$35,854,719</b>
Alternates				
Ineligible Work Included in the Base Project	\$0	\$0	\$0	\$0
Alternates Included in the Total Project Budget	\$0	\$0	\$0	\$0
Alternates Excluded from the Total Project Budget	\$0	\$0	\$0	\$0
<b>Subtotal to be Included in Total Project Budget</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
Miscellaneous Project Costs				
Utility Company Fees	\$300,000	\$0	\$300,000	
Testing Services	\$400,000	\$0	\$400,000	
Swing Space / Modulars	\$0	\$0	\$0	
Other Project Costs (Mailing & Moving)	\$300,000	\$300,000	\$0	
<b>Misc. Project Costs Subtotal</b>	<b>\$1,000,000</b>	<b>\$300,000</b>	<b>\$700,000</b>	<b>\$385,420</b>
Furnishings and Equipment				
Furniture, Fixtures, and Equipment	\$1,251,000	\$417,000	\$834,000	
Technology	\$1,251,000	\$417,000	\$834,000	
<b>FF&amp;E Subtotal</b>	<b>\$2,502,000</b>	<b>\$834,000</b>	<b>\$1,668,000</b>	<b>\$918,401</b>
Soft Costs that exceed 20% of Construction Cost			\$0	
<b>Project Budget</b>	<b>\$166,364,422</b>	<b>\$78,103,194</b>	<b>\$88,261,228</b>	<b>\$48,596,632</b>

<b>Board Authorization</b>		52.06 Reimbursement Rate Before Incentive Points
Design Enrollment	695	3.00 Total Incentive Points <sup>3,4</sup>
Total Building Gross Floor Area (GSF)	207,827	55.06% MSBA Reimbursement Rate
Total Project Budget (excluding Contingencies)	\$166,364,422	
Scope Items Excluded or Otherwise Ineligible	-\$78,103,194	
Third Party Funding (Ineligible)	-\$0	
Estimated Basis of Maximum Total Facilities Grant <sup>1</sup>	\$88,261,228	
Reimbursement Rate <sup>3,4</sup>	55.06%	
Est. Max. Total Facilities Grant (before recovery) <sup>1</sup>	\$48,596,632	
Cost Recovery <sup>5</sup>	-\$0	
Estimated Maximum Total Facilities Grant <sup>1</sup>	\$48,596,632	

Construction Contingency <sup>2</sup>	\$7,031,825	
Ineligible Construction Contingency <sup>2</sup>	\$5,625,460	
"Potentially Eligible" Construction Contingency <sup>2</sup>	\$1,406,365	
Owner's Contingency <sup>2</sup>	\$2,812,730	
Ineligible Owner's Contingency <sup>2</sup>	\$0	
"Potentially Eligible" Owner's Contingency <sup>2</sup>	\$2,812,730	
Total Potentially Eligible Contingency <sup>2</sup>	\$4,219,095	
Reimbursement Rate <sup>3,4</sup>	55.06%	
Potential Additional Contingency Grant Funds <sup>2</sup>	\$2,323,034	
Maximum Total Facilities Grant	\$50,919,666	
Total Project Budget	\$176,208,977	

As reported on the school district's most recent three end of year information, please updated to the 3 latest fiscal year periods and complete the fields below.												
Category	2017-2018 FY2018		2018-2019 FY2019		2019-2020 FY2020		Change from Previous Year		Post-Construction Budget		New Facility vs. Current	
	Staff (FTE)	Budget	Staff (FTE)	Budget	Staff	Budget	Staff (FTE)	Budget	Staff	Budget	Staff (FTE)	Budget
<b>Salaries</b>												
<b>Administration</b>												
Admin. Secretary	2.00	84,109	2.50	114,494	2.00	89,237	-0.50	(25,257)	2.00	94,591	0.00	5,354
Assistant Principal	1.00	-	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-
Business Office	2.00	175,341	2.00	179,956	2.00	190,091	0.00	10,135	2.00	201,496	0.00	11,405
Curriculum Director/Coord.	1.00	113,473	1.00	134,488	1.00	137,177	0.00	2,689	1.00	145,408	0.00	8,231
Custodians/Maintenance Staff	5.00	290,810	5.00	297,050	5.00	296,912	0.00	(139)	5.00	314,726	0.00	17,815
Executive Secretary	1.00	67,713	1.00	72,172	1.00	74,351	0.00	2,179	1.00	78,812	0.00	4,461
Facilities Manager	1.00	92,820	1.00	83,595	1.00	54,618	0.00	(28,977)	1.00	57,895	0.00	3,277
Guidance	1.00	410,341	0.00	432,875	0.00	423,685	0.00	(9,190)	0.00	449,106	0.00	25,421
Adjustment Counselor	1.00	-	1.00	-	1.00	-	0.00	-	1.00	-	0.00	-
Guidance Counselors	3.00	-	3.00	-	3.00	-	0.00	-	3.00	-	0.00	-
Guidance Director	1.00	-	1.00	-	1.00	-	0.00	-	1.00	-	0.00	-
Legal	0.00	58,739	0.00	74,440	0.00	19,875	0.00	(54,565)	0.00	21,068	0.00	1,193
Nurse	1.00	103,300	1.00	110,090	1.00	117,156	0.00	7,066	1.00	124,185	0.00	7,029
Other	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-
Principal	3.00	336,997	3.00	324,907	2.00	273,298	-1.00	(51,609)	2.00	289,696	0.00	16,398
Special Education Admin	2.00	164,351	2.00	188,810	2.00	193,504	0.00	4,694	2.00	205,114	0.00	11,610
Superintendent/Asst. Superintendent	1.00	178,000	3.00	179,977	3.00	185,373	0.00	5,396	3.00	196,495	0.00	11,122
Transportation	0.00	950,500	0.00	944,280	0.00	705,584	0.00	(238,696)	0.00	747,919	0.00	42,335
Treasurer	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-
<b>Total Administration</b>	<b>25.00</b>	<b>3,026,493</b>	<b>26.50</b>	<b>3,137,135</b>	<b>25.00</b>	<b>2,760,861</b>	<b>-1.50</b>	<b>(376,273)</b>	<b>25.00</b>	<b>2,926,513</b>	<b>0.00</b>	<b>165,652</b>
<b>Instruction - Teaching Services</b>												
Arts	3.00	212,184	3.00	217,445	3.00	229,126	0.00	11,682	3.00	242,874	0.00	13,748
Business	1.00	195,277	1.00	242,077	1.00	269,637	0.00	27,560	1.00	285,815	0.00	16,178
Communications	2.00	-	2.00	-	1.00	-	-1.00	-	1.00	-	0.00	-
Coping Instructor	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-
Culinary Arts	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-
ELL	1.00	79,638	1.00	81,308	1.00	85,071	0.00	3,763	1.00	90,175	0.00	5,104
English Language	9.00	688,248	8.00	707,636	8.00	721,560	0.00	13,924	8.00	764,853	0.00	43,294
Family Consumer Services	2.00	141,058	2.00	132,810	2.00	137,916	0.00	5,106	2.00	146,191	0.00	8,275
Foreign Language	7.00	472,340	7.00	486,473	6.00	487,045	-1.00	572	6.00	516,268	0.00	29,223
Health Services	1.00	-	1.00	-	1.00	-	0.00	-	1.00	-	0.00	-
History & Social Science	8.00	651,679	8.00	646,815	8.00	673,370	0.00	26,555	8.00	713,772	0.00	40,402
Instructional Assistant/Paraprofessionals	11.00	134,649	11.00	203,298	8.00	178,160	-3.00	(25,138)	8.00	188,849	0.00	10,690
Library/Media	3.00	87,168	3.00	89,118	3.00	89,753	0.00	635	3.00	95,139	0.00	5,385
Mathematics	7.00	597,241	7.00	619,040	9.00	634,432	2.00	15,392	9.00	672,497	0.00	38,066
MCAS	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-
Music	1.00	40,680	1.00	66,027	1.00	49,377	0.00	(16,650)	1.00	52,340	0.00	2,963
Other	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-
Physical Education	3.00	237,273	3.00	211,582	2.00	166,476	-1.00	(45,106)	2.00	176,465	0.00	9,989
Reading	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-
School Adjustment Counselor	1.00	-	1.00	-	1.00	-	0.00	-	1.00	-	0.00	-
Science												
Biology	4.00	774,157	4.00	795,595	4.00	866,573	0.00	70,978	4.00	918,567	0.00	51,994
Botany	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-
Chemistry	2.00	-	2.00	-	2.00	-	0.00	-	2.00	-	0.00	-
Geology	2.00	-	2.00	-	2.00	-	0.00	-	2.00	-	0.00	-
Physics	1.00	-	1.00	-	1.00	-	0.00	-	1.00	-	0.00	-
Special Education	12.00	914,041	12.00	1,040,566	12.00	1,079,500	0.00	38,935	12.00	1,144,270	0.00	64,770
Substitute Teachers	0.00	39,215	0.00	62,408	0.00	50,147	0.00	(12,261)	0.00	53,155	0.00	3,009
Technology	9.00	363,307	9.00	383,609	9.00	456,860	0.00	73,251	9.00	484,272	0.00	27,412
Vocational Tech.	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-
<b>Total Instruction - Teaching Services</b>	<b>90.00</b>	<b>5,628,156</b>	<b>89.00</b>	<b>5,985,805</b>	<b>85.00</b>	<b>6,175,003</b>	<b>-4.00</b>	<b>189,198</b>	<b>85.00</b>	<b>6,545,503</b>	<b>0.00</b>	<b>370,500</b>
<b>Total Salaries Administration &amp; Instruction</b>	<b>115.00</b>	<b>8,654,649</b>	<b>115.50</b>	<b>9,122,940</b>	<b>110.00</b>	<b>8,935,865</b>	<b>-5.50</b>	<b>(187,075)</b>	<b>110.00</b>	<b>9,472,016</b>	<b>0.00</b>	<b>536,152</b>
<b>Employee Benefits</b>												
All employee-related fringe (health insurance, retirement etc)		8,355,931		8,178,203		8,798,706		620,503		9,238,641		439,935
<b>Materials &amp; Services</b>												
Materials												
Audio-Visual Materials												

L. BUDGET STATEMENT / EXPENDITURES

January 2014 Budget Statement for Preferred Schematic - Expenditures

Category	2017-2018 FY2018		2018-2019 FY2019		2019-2020 FY2020		Change from Previous Year		Post-Construction Budget		New Facility vs. Current	
	Staff (FTE)	Budget	Staff (FTE)	Budget	Staff (FTE)	Budget	Staff (FTE)	Budget	Staff	Budget	Staff (FTE)	Budget
Culinary Arts Materials												
General Office Supplies		19,380		19,380				(19,380)				
Information technology		19,177		20,127		57,482		37,355		60,356		2,874
Hardware		47,272		50,547		31,250		(19,297)		32,812		1,562
Software		63,974		48,947		90,397		41,450		94,917		4,520
Library Materials		7,440										
Non info-tech equipment		121,435		137,043		105,376		(31,668)		110,644		5,269
Testing Materials & Supplies		\$ 21,308.54		10,535		20,898		10,363		21,943		1,045
Textbooks		28,551		41,706		18,154		(23,553)		19,061		908
Vocational Program Materials												
<b>Total Materials</b>		<b>328,537</b>		<b>328,285</b>		<b>323,556</b>		<b>(4,729)</b>		<b>339,734</b>		<b>16,178</b>
<b>Services</b>												
Athletics		560,587		573,189		382,217		(190,972)		401,328		19,111
Attendance		135										
Food Service		361,404		20,699		27,197		6,498		28,557		1,360
Health Services												
Other Student Activities												
Psychological Services		339,969		371,549		350,717		(20,832)		368,253		17,536
School Security						1,129		1,129		1,185		56
Student Transportation		266,592		277,086		203,978		(73,108)		214,177		10,199
<b>Total Services</b>		<b>1,628,687</b>		<b>1,242,523</b>		<b>965,238</b>		<b>(13,205)</b>		<b>1,013,800</b>		<b>48,262</b>
<b>Total Material &amp; Services</b>		<b>1,857,225</b>		<b>1,570,808</b>		<b>1,288,794</b>		<b>(17,934)</b>		<b>1,353,234</b>		<b>64,440</b>
<b>Facility Costs &amp; Capital Improvements</b>												
<b>Facility Costs</b>												
Custodial Supplies												
Electricity		101,721		61,010		100,022		39,012		170,000		69,978
Heating Oil												(104,177)
Maintenance												
Building Security Maintenance												
Elevator												
Equipment Maintenance		45,068		38,468		77,037		38,569		80,889		3,852
Exterminating												
Facility Maintenance		28,439		31,894		20,078		(11,816)		21,082		1,004
Fire Alarm												
Fire Extinguisher Inspection												
Generator												
HVAC Maintenance												
Other												
Site Maintenance (Grounds)		137,615		179,972		97,459		(82,514)		102,331		4,873
Technology												
Trash Removal												
Natural Gas		105,569		109,422		104,177		(5,244)		10,000		(94,177)
Snow Removal		14,776		10,606		12,300		1,699		12,915		615
Telephone												
Water/Sewer												
<b>Total Facility Costs</b>		<b>433,187</b>		<b>431,371</b>		<b>411,072</b>		<b>(20,299)</b>		<b>397,217</b>		<b>(13,855)</b>
<b>Capital Improvements</b>												
Capital Improvements		202,000		480,615		182,595		(298,020)		400,000		217,405
<b>Total Facility Costs &amp; Capital Improvements</b>		<b>635,187</b>		<b>911,986</b>		<b>593,667</b>		<b>(318,319)</b>		<b>797,217</b>		<b>203,550</b>
<b>Debt Service</b>												
Short-term												
Long-term												
<b>Total Debt Service</b>												
<b>Total Budget &amp; Staff</b>	<b>115.00</b>	<b>19,502,992</b>	<b>115.50</b>	<b>19,783,937</b>	<b>110.00</b>	<b>19,617,032</b>	<b>-6</b>	<b>97,174</b>	<b>110</b>	<b>20,861,108</b>	<b>0</b>	<b>1,244,076</b>

L. BUDGET STATEMENT / REVENUES

January 2014 Budget Statement for Preferred Schematic - Revenue

As reported on the school district's most recent three End of Year Pupil and Financial Reports schedule 1, please update to the 3 latest fiscal year periods and report sources of revenue in the fields below.

	FY18 End of Year Financial Report C74							FY19 End of Year Financial Report C74							FY20 End of Year Financial Report C74								
	Regular Day	Special Education	Occupational Day	Adult Education	Other Programs	Un-distributed	Total	Regular Day	Special Education	Occupational Day	Adult Education	Other Programs	Un-distributed	Total	Regular Day	Special Education	Occupational Day	Adult Education	Other Programs	Un-distributed	Total		
<b>A. Revenue from Local Sources</b>																							
Assessments received by Regional Schools	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
E&D Fund Appropriations	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Tuition from Individuals	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Tuition from Other Districts in Comm.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Tuition from Districts in Other States	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Previous Year Unexpended Encumbrances (Carry Forward)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Transportation Fees	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Earnings on Investments	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Rental of School Facilities	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Other Revenue	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Medical Care and Assistance	-	142,011	-	-	-	-	142,011	-	191,436	-	-	-	-	191,436	-	83,822	-	-	-	-	-	83,822	
Non Revenue Receipts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
<b>Total Revenue From Local Sources</b>	<b>-</b>	<b>142,011</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>142,011</b>	<b>-</b>	<b>191,436</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>191,436</b>	<b>-</b>	<b>83,822</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>83,822</b>		
<b>B. Revenue from State Aid</b>																							
School Aid (Chapter 70)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Mass School Building Authority - Construction Aid	-	-	-	-	-	-	4,269,807	-	-	-	-	-	4,421,709	-	-	-	-	-	-	-	5,266,351	5,266,351	
Pupil Transportation (Ch. 71, 71A, 71B, 74)	-	-	-	-	-	-	15,931	-	-	-	-	15,931	-	-	-	-	-	-	-	32,732	32,732		
Charter Tuition Reimbursements & Charter Facilities Aid	-	41,426	-	-	-	-	64,778	-	196,210	-	-	74,659	-	395,832	-	-	-	-	-	103,520	499,352		
Circuit Breaker	-	-	-	-	-	-	1,058,479	-	-	-	-	1,082,656	-	-	-	-	-	-	995,074	995,074			
Foundation Reserve	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
<b>Total Revenue From State Aid</b>	<b>-</b>	<b>41,426</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>5,408,995</b>	<b>-</b>	<b>196,210</b>	<b>-</b>	<b>-</b>	<b>5,584,788</b>	<b>-</b>	<b>395,832</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>7,506,769</b>	<b>7,902,601</b>			
<b>C. Revenue from Federal Grants</b>																							
ESE Administered Grants	120,314	590,125	-	-	-	-	54,057	764,496	175,430	656,172	-	-	-	57,084	888,686	242,110	572,903	-	-	-	34,360	849,373	
Direct Federal Grants	-	17,965	-	-	-	-	17,965	-	-	-	-	-	-	-	-	-	-	-	-	-	8,310	8,310	
<b>Total Revenue Federal Grants</b>	<b>120,314</b>	<b>608,090</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>54,057</b>	<b>782,461</b>	<b>175,430</b>	<b>656,172</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>57,084</b>	<b>888,686</b>	<b>242,110</b>	<b>572,903</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>42,670</b>	<b>857,683</b>	
<b>D. Revenue from State Grants</b>																							
ESE Administered Grants	-	-	-	-	-	-	3,500	3,500	-	-	-	-	12,528	12,528	-	-	-	-	-	-	-	-	-
Other State Grants	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
<b>Total Revenue From State Grants</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>3,500</b>	<b>3,500</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>12,528</b>	<b>12,528</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	
<b>E. Revenue - Revolving &amp; Special Funds</b>																							
School Lunch Receipts	-	-	-	-	-	-	587,128	587,128	-	-	-	-	614,424	614,424	-	-	-	-	500,762	500,762	-	-	
Athletic Receipts	-	-	-	-	-	-	303,045	303,045	-	-	-	-	320,814	320,814	-	-	-	-	267,282	267,282	-	-	
Tuition Receipts - School Choice	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Tuition Receipts - Other	-	-	-	-	-	-	195,845	195,845	-	-	-	-	275,142	275,142	-	-	-	-	775	200,433	-	201,208	
Other Local Receipts	-	-	-	-	-	-	885,107	885,107	-	-	-	-	1,007,884	1,007,884	-	-	-	-	752,652	752,652	-	-	
Private Grants	-	-	-	-	-	-	81,852	81,852	-	-	-	-	78,981	78,981	-	-	-						

M. PROJECT SCHEDULE

The project schedule anticipates MSBA Board of Director's approval to proceed into Schematic Design at their February 11, 2021 meeting and MSBA Board of Director's approval of the Project Scope and Budget Agreement at their August 25, 2021 meeting. Local appropriation voting will occur within 120 days thereafter.

Following local appropriation voting, the Design Documents will be developed, leading to construction commencement in the summer of 2022, with a move-in date of summer 2024. The existing school building will then be demolished and final site work will be completed by late fall 2024/spring 2025.

The project will be utilizing the Construction Management at Risk (CM-R) delivery procurement method and early packages will be released in advance of the final construction documents in accordance with the overall project schedule.

M. PROJECT SCHEDULE

