Office of the City Clerk
City Hall • 375 Merrimack Street • Lowell, MA 01852
P: 978.674.4161 • F: 978.970.4007
www.LowellMA.gov

Lowell City Council
Regular Meeting Agenda

Michael Q. Geary
City Clerk

SPECIAL MEETING (M. KENNEDY)

Date: **June 6, 2017**
Time: **6:30 PM**
Location: **City Council Chamber, 375 Merrimack Street, 2nd Floor, Lowell, MA**

1. **ROLL CALL**

2. **COMMUNICATIONS FROM CITY MANAGER**

2.1. Motion Responses

(A) Request of MSBA for Repayment of Past Projects
(B) Transportation
(C) Busing Costs
(D) Article 97 Update
(E) Anticipated Costs Due to Infrastructure Improvements for Cawley Site
(F) Conservation Preservation Issues for Downtown LHS Site
(G) Economic Potential for the Lowell High School Site
(H) Asbestos Remediation
(I) Drainage and Sewerage Infrastructure
(J) LHS Project Impact on Property Values
(K) Conservation Commission Votes Regarding Wetlands and Endangered Species
(L) Tewksbury Article 97 and Conservation Issues
(M) LHS Field Replication
(N) Schematic Design for LHS Options 3 and 4
(O) Parking Solutions at Cawley
(P) Questionnaire Downtown Survey
(Q) Additional Cost Outside of Scope
(R) Cost Summary

Documents:

(A) MOTION RESPONSE - ATTACHMENT.PDF
(B) MOTION RESPONSE - ATTACHMENT.PDF
(C) MOTION RESPONSE - ATTACHMENT.PDF
(D) MOTION RESPONSE - ATTACHMENT.PDF
(E) MOTION RESPONSE - ATTACHMENT.PDF
(F) MOTION RESPONSE - ATTACHMENT.PDF
(G) MOTION RESPONSE - ATTACHMENT.PDF
(H) MOTION RESPONSE - ATTACHMENT.PDF
(I) MOTION RESPONSE - ATTACHMENT.PDF
(J) MOTION RESPONSE - ATTACHMENT.PDF
(K) MOTION RESPONSE - ATTACHMENT.PDF
(L) MOTION RESPONSE - ATTACHMENT.PDF
(M) MOTION RESPONSE - ATTACHMENT.PDF
(N) MOTION RESPONSE - ATTACHMENT.PDF
(O) MOTION RESPONSE - ATTACHMENT.PDF
(P) MOTION RESPONSE - ATTACHMENT.PDF
(Q) MOTION RESPONSE - ATTACHMENT.PDF
(R) MOTION RESPONSE - ATTACHMENT.PDF

2.2. Informational

(S) Geoenvironmental Feasibility
(T) HazMat Feasibility
(U) Traffic Feasibility
(V) Energy Feasibility
(W) Security Feasibility

Documents:

(S) INFORMATIONAL - ATTACHMENT.PDF
(T) INFORMATIONAL - ATTACHMENT.PDF
(U) INFORMATIONAL - ATTACHMENT.PDF
(V) INFORMATIONAL - ATTACHMENT.PDF

2.3. Presentation
(X) PSR Presentation

Documents:

(X) PRESENTATION - ATTACHMENT.PDF

2.4. Questions And Answers

3. **ADJOURNMENT**

Office of the City Manager
City Hall ● 375 Merrimack Street ● Lowell, MA 01852
P: 978.674.4000 ● F: 978.970.4007
www.LowellMA.gov

Kevin J. Murphy
City Manager
Michael McGovern
Assistant City Manager

June 1, 2017

Mayor Edward J. Kennedy, Jr.
and
Members of the City Council

REFERENCE: **8.11. 4/11/17 M. Kennedy** - Req. City Mgr. provide City Council and the LHS Building Committee with clarification regarding the apparent conflict between 963 CMR 2.21 and the recent Skanska response to the inquiry regarding Section 3.1.8 (Regarding Past Projects) of the MSBA Preliminary Design Program Review, report to include an estimate of the financial impact of this provision should the high school leave the downtown area.

Dear Mayor Kennedy and Members of the City Council:

Attached, please find a copy of a letter from the Massachusetts School Building Authority General Counsel Dennis Ryan addressing the above motion request.

Please feel free to contact me if you have further questions regarding this matter.

Sincerely,

Kevin J. Murphy
City Manager

Massachusetts School Building Authority

May 9, 2017

Honorable Edward Kennedy
City of Lowell
Lowell City Hall
375 Merrimack Street, Second Floor, Room 43
Lowell, MA 01852

Re: Your email of April 12, 2017/Lowell High School

Dear Mr. Mayor,

This is in response to your email of April 12, 2017. In my April 11, 2017 letter, I advised that the MSBA does not intend to recoup any pro-rated portion of the financial assistance that Lowell previously received for the Lowell High School Reconstruction Project. That financial assistance was approved by the Department of Education ("DOE") under the former School Building Assistance Program ("SBA") and the project was completed in 1998. You are asking that I reconsider that opinion based upon a 2006 MSBA Regulation which provides that the MSBA "*may recapture a portion of the financial assistance that [an] Assisted Facility has received*" if the Assisted Facility is "*removed from service prior to the end of a 50 year anticipated useful life*". (963 CMR 2.21). You further reference a repealed DOE Regulation which applied to projects that were approved and funded by the SBA. The Regulation contained a similar recoupment provision which could be waived for a variety of reasons, including, when a "*facility [was] being removed from service pursuant to [an approved] school construction plan ... for the replacement of the school building*". (603 CMR 38.16).

The MSBA was established in 2004 to remedy grant administration problems that eventually overwhelmed the 1948 SBA Program. (Chapter 210 of the Acts of 2004). Under the SBA Program, some municipalities funded and constructed school facilities prior to funds being available at the state level to provide the reimbursement. The DOE did not have a dedicated revenue source nor was there any limitation placed upon the number of Projects that could be constructed and/or entitled to state reimbursement. As a consequence, demand quickly out-paced the ability of the DOE to fund and the DOE was forced to establish an ever growing "Waiting List" of municipalities who were entitled to future reimbursement. Ultimately, the SBA ad-hoc system had to be replaced with a more structured sustainable program through which proposed projects could be approved for funding, prospectively. In addition, all outstanding SBA funding obligations had to be paid down. Under its enabling act, the MSBA is given the authority to review, approve and award funding for new school projects and the direction to reimburse municipalities for the cost of projects that have been previously approved under the SBA. Those projects included projects that had received grant reimbursements from the DOE prior to the formation of the MSBA ("Prior Grant Projects") and projects that were then on the DOE Waiting List for future reimbursement when the MSBA was established ("Waiting List Projects"). (MGL Chapter 70B: Section 45).

The Lowell High School Renovation was a $28,407,855 SBA Grant Project that was completed in 1998. The SBA began making Grant payments in 1997 and the obligation to pay the balance of that Grant was transferred to the MSBA in 2004 when the SBA was discontinued. At the time of transfer, $16,492,179 in accumulated costs remained to be reimbursed and the MSBA paid that amount to Lowell in equal

installments. The final installment was paid in 2016. Lowell is currently considering multiple options including the construction of a new High School that would replace the current school facility.

My opinion remains unchanged for the following reasons:

(1) The amount that the MSBA is authorized to recoup from a Prior SBA Grant is limited. Chapter 70B: Section 15 (a) of the MSBA enabling statute provides: "*In the event that an eligible applicant sells or leases [a] facility ... [for] which it is receiving grant payments, ... the proceeds from the sale or lease shall be divided between the authority and the general funds of the applicable eligible applicant in proportion to the ... prior investments in the assisted structure or facility [provided], in the case of [a] school project approved before July 1, 2004, the authority's share of the proceeds shall reduce the balance of outstanding grant payments ... and shall not exceed that amount.*" Lowell is not "*receiving grant payments*" for the SBA Project nor is there any remaining "*balance of outstanding grant payments*".

(2) In conformance with the intent of Chapter 70B and established practice, the MSBA has not previously sought to recoup any portion of an SBA Prior Grant once twenty (20) years have passed from the date of the first SBA Grant payment. The Lowell High School Reconstruction Project was funded with an SBA Approved Grant and completed in 1998. Lowell received its first SBA Grant payment from the DOE in 1997 and the final SBA Grant payment was made by the MSBA in 2016.

(3) Given the age of the existing High School Campus Facility, the date of last renovation and Lowell's stated intention to replace the Campus with a new Facility, had the Project been funded by an MSBA Approved Grant the opinion would be no different. The decision to recapture any portion of a school construction grant is a factually dependent exercise of discretion. Thus, each decision to waive recoupment rests entirely upon the reason that a District takes a facility out of service prior to the end of the facility's anticipated useful life. Lowell's intention to replace a facility which includes structures that were constructed in the 1890s, 1920s and 1980s and were last renovated in the 1990s, would certainly justify a decision to waive recoupment of any portion of the $28,407,855 SBA Project Grant that was used to fund the last renovation. Moreover, although the DOE has repealed the SBA Program Regulations to which you refer, those Regulations explicitly provide that the DOE could waive any right to recoup in the event that an SBA funded facility was removed from service if the "*[removal] from service [was done] pursuant to a school construction plan approved by the [DOE] for the replacement of the school building*". (See former 603 CMR 38.16). Similarly, if Lowell removes the current facility from service as part of an approved plan to construct a new High School, the MSBA will not seek to recoup any portion of the Prior SBA Grant.

Please contact me if you have further questions.

Best regards,

Dennis M. Ryan
General Counsel

The City of Lowell • Department of Planning and Development
JFK Civic Center • 50 Arcand Drive • Lowell, MA 01852
P: 978.674-4252 • F: 978.970.4262
www.LowellMA.gov

Diane Nichols Tradd
Assistant City Manager/DPD Director

Kevin E. Coughlin
Deputy Director

MEMORANDUM

TO: Kevin J. Murphy, City Manager

FROM: Nicolas Bosonetto, Transportation Engineer

SUBJECT: **COUNCIL MOTIONS OF 3/21/17 BY MAYOR KENNEDY**
REQUEST CITY MANAGER HAVE TRAFFIC ENGINEER CONDUCT A TRAFFIC STUDY THAT WOULD CONSIDER THE IMPACT ON THE PROJECTED INCREASE IN TRAFFIC IN THE BELVIDERE NEIGHBORHOOD AND ON ROUTE 133 AND ROUTE 38 IF THE HIGH SCHOOL WERE TO RELOCATE OUT OF THE DOWNTOWN

CITY MANAGER REPORT TO THE CITY COUNCIL REGARDING ANTICIPATED COSTS DUE TO INFRASTRUCTURE AND TRAFFIC IMPROVEMENTS NECESSARY IF THE HIGH SCHOOL WERE TO MOVE OUT OF DOWNTOWN INCLUDING ANY SIDEWALKS, ROAD IMPROVEMENTS AND TRAFFIC LIGHTS THAT WERE NEEDED

REQUEST CITY MANAGER REPORT ON PARKING SOLUTION REGARDING THE CAWLEY SITE

A comprehensive transportation impact study for the High School project has been completed by Bryant Associates under contract with Skanska/Perkins Eastman. The scope of the traffic study was to analyze the downtown and Cawley High School alternatives as presented – no alterations to the proposed site plans were made.

The Transportation Engineer has analyzed the results of the traffic study based on three factors:

1) Traffic Impacts to Neighborhood
2) Transportation Infrastructure and Service Costs
3) Transportation Equity

Ultimately, the City Council will weigh these three factors along with many others to reach a decision on the location for the new LHS building. From a transportation perspective, the downtown site would have minimal traffic impacts because the City has already built the transportation infrastructure to support it and the downtown location allows the majority of students to access it via transit and walking. The Cawley site on the other hand would create new traffic impacts to the residential neighborhood, would require construction of new transportation infrastructure, and due to its peripheral location does not lend itself to equitable access.

I. Traffic Impacts to Neighborhood

The Downtown LHS is located in the urban core of the City. It is accessible by various modes of transportation including public transit buses operated by the LRTA, bicycle facilities, pedestrian facilities, and vehicular infrastructure including traffic signals. Downtown also offers various parking garages and on-street parking.

Access to the Downtown LHS location is achieved via a system of arterial roadways with signalized intersections. In this type of urban environment, the level of service (LOS) at intersections is the factor which determines how long drivers are delayed in seconds. Rebuilding the LHS downtown would have minimal effects on traffic. (see Table 16)

Table No. 16
School P.M. Peak Hour - Level of Service Summary
Downtown Signalized Intersections

Intersection/ Critical	Level of Service (Delay-Second/Vehicle)	
	2024 No-Build	2024 Build
Father Morissette Boulevard/Arcand Drive		
Overall Intersection	C (22.3)	C (24.0)
Eastbound Approach	B (12.8)	B (13.2)
Westbound Approach	B (19.5)	B (19.5)
Northbound Approach	C (32.6)	D (37.0)
Southbound Approach	C (22.7)	C (23.3)
French Street/Bridge Street		
Overall Intersection	B (19.0)	B (19.3)
Eastbound Approach	A (9.0)	A (9.2)
Northbound Approach	C (27.0)	C (28.0)
Southbound Approach	B (14.8)	B (14.8)
Merrimack Street/Dutton Street/Arcand Drive		
Overall Intersection Eastbound	C (29.9)	C (30.5)
Approach Westbound Approach	B (15.2)	B (15.9)
Northbound Approach	C (22.7)	C (23.6)
Southbound Approach (Arcand)	D (40.5)	D (40.6)
Southbound Approach (Dutton)	D (35.3)	D (35.6)
	D (40.0)	D (41.0)
Merrimack Street/Central Street		
Overall Intersection	C (23.6)	C (23.8)
Eastbound Approach	C (29.6)	C (29.8)
Westbound Approach	B (17.5)	B (17.8)
Northbound Approach	C (32.7)	C (32.8)
Merrimack Street/Kearney Square/Prescott Street		
Overall Intersection	C (21.9)	C (22.0)
Eastbound Approach	B (16.1)	B (16.0)
Westbound Approach	C (31.4)	C (31.7)
Northbound Approach	B (19.4)	B (19.6)
Southbound Left Turn Lane	D (40.0)	D (40.0)
Southbound Right Turn Lane	A (9.7)	A (9.8)

Under build conditions, the signalized capacity analysis shows that the study intersections will continue to operate at equivalent levels of services with similar delays as experienced under no-build conditions during both the school A.M. and school P.M. peak hours.

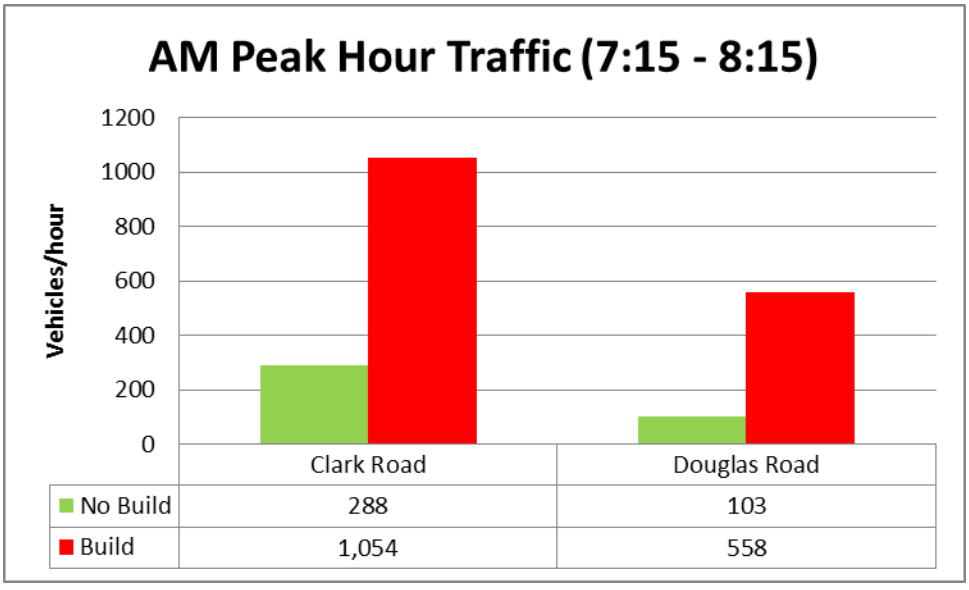
Traffic Impact Analysis – Bryant Associates Pg. 44

The Cawley site is located in the residential Belvidere neighborhood. This neighborhood is suburban in character and served by local streets with two minor collector roads (Clark Road and Douglas Road) running through it in a north-south direction between Andover Street (Route 133) and Rogers Street (Route 38). This road system has a residential function and for the most part lacks sidewalks, a drainage system, signalized intersections, adequate geometrics or street lighting. Furthermore this neighborhood has limited public transit service.

The Cawley LHS site is designed with access points from Douglas Road, Clark Road, and Village Street. While the site does not abut Route 38, all three previously mentioned streets intersect with this primary arterial roadway. The internal circulation plan calls for all buses to enter and exit to Route 38 via Village Street, while staff parking is accessed via Clark Road and student parking via Douglas Road.

The Cawley site would generate approximately 2,381 trips during the morning peak and 1,652 during afternoon peak.[1] More than half the traffic (52%) would access Cawley from Andover Street (Route 133). About 33% of the generated traffic would use the Andover Street/Clark Road intersection and about 19% would use the Andover Street/Douglas Road intersection to access the site.[2] Traffic volumes on Clark and Douglas Road during peak hours would increase anywhere from to 222% to 542% over existing volumes as shown in Figures 1 and 2 below.

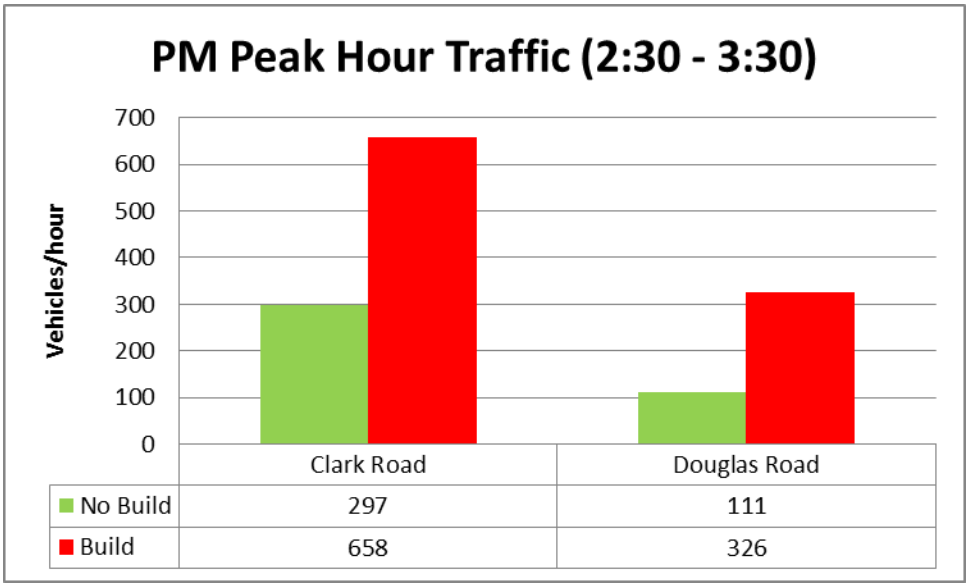
Figure 1 – AM Cawley Traffic Generation From/To Andover Street (Route 133)



[1] Traffic Impact Analysis, Bryant Associates May 2017, Pg. 39

[2] Ibid, Pages C-86 through C-102

Figure 2 - PM Cawley Traffic Generation From/To Andover Street (Route 133)



The remaining 48% of morning traffic generated would access the Cawley site from Route 38 (Rogers Street/Main Street) at the following intersections:[3]

- 12% from the Douglas Road/Phoenix Avenue intersection (signalized),
- 22% from the Clark Relocation Road intersection (signalized), and
- 14% from the Village Street intersection (unsignalized).

This additional traffic would have impacts upon both the residential neighborhood and upon the roadway capacity on Route 38. It should be noted that 86% of all traffic will be on Douglas and Clark Roads, while mainly the buses will be accessing the site from Village Street.

A speed study conducted as part of the traffic study shows traffic on Clark Road averaging 37 MPH in both directions and 33 MPH for Douglas Road northbound and 36 MPH southbound. The combined volume and speed of traffic will cause fragmentation of the neighborhood by making Clark Road and Douglas Road less permeable to pedestrian traffic. The traffic will also cause noise and air pollution that would impact the approximately 150 residences with frontage on these collector roads. Finally, the necessary sidewalk improvements would necessitate the cutting down of trees and loss of front lawn space.

From a highway capacity perspective the traffic generated by the Cawley site would deteriorate the eastbound traffic level of service (LOS) on Route 38 intersections from A (8.2 second delay) to E and F (90.1 second delay) during the AM peak hour (see Table 19). Delays of 1,220 seconds/vehicle (20 minutes/vehicle) would also be realized at the Route 38 entrance on Village Street (see Table 17). Since Route 38 is a MassDOT owned highway, they will be the ultimate arbiters of whether a new signalized intersection and/or exclusive left turn lanes would be allowed at the Village Street entrance to the Cawley site.

[3] Ibid, Pages C-130, C-149, C-161

Table No. 19
School A.M. Peak Hour - Level of Service Summary
Cawley Signalized Intersections

Intersection/Critical Movement	Level of Service (Delay-Second/Vehicle)	
	2022 No-Build	2022 Build
Rogers Street/Douglas Road/Phoenix Avenue		
Overall Intersection	B (12.8)	F (61.3)
Eastbound Approach	A (8.2)	F (90.1)
Westbound Approach	A (7.1)	A (9.6)
Northbound Approach	B (16.7)	B (15.7)
Southbound Approach	D (45.1)	D (44.5)
Main Street/ Clark Road		
Overall Intersection	C (20.7)	D (42.0)
Eastbound Approach	A (8.2)	E (60.9)
Westbound Approach	C (26.8)	C (24.4)
Southbound Approach	D (38.1)	C (33.5)

Traffic Impact Analysis – Bryant Associates Pg. 47

Table No. 17
School A.M. Peak Hour - Level of Service Summary
Cawley Unsignalized Intersections

Intersection/Critical Movement	Level of Service (Delay-Second/Vehicle)	
	2022 No-Build	2022 Build
Andover Street/Douglas Road		
Westbound Approach	A (0.6)	A (2.7)
Northbound Approach	F (97.4)	F (11,525)
Andover Street/Clark Road/Raven Road		
Eastbound Approach	A (0.2)	A (0.1)
Westbound Approach	A (1.7)	A (6.0)
Northbound Approach	F (*)	F (*)
Southbound Approach	F (*)	F (*)
Clark Road/Proposed Clark Road Driveway		
Eastbound Approach	N/A	A (0.0)
Northbound Approach	N/A	F (85.9)
Clark Road/ Village Street		
Eastbound Approach	B (10.4)	F(650)
Northbound Approach	A (0.2)	A (0.3)
Village Street/Proposed Village Street Eastern Driveway		
Southbound Approach	N/A	F (224.3)
Village Street/Proposed Village Street Middle Driveway		
Eastbound Approach	N/A	A (2.6)
Village Street/Proposed Village Street Western Driveway		
Eastbound Approach	N/A	E (39.4)
Rogers Street/Village Street		
Eastbound Approach	A (0.2)	A (4.9)
Southbound Approach	C (15.0)	F (1,220)
Douglas Road/Proposed Douglas Road Middle Driveway		
Southbound Approach	N/A	A (4.7)
Douglas Road/Proposed Douglas Road Northern Driveway		
Westbound Approach	N/A	B (13.5)

* Delay exceeds 300 seconds

Traffic Impact Analysis – Bryant Associates Pg. 45

The traffic analysis conducted by Bryant Associates shows traffic delays at the intersections of Douglas Road and Clark road would be a 11,525 seconds/vehicle (3.2 hours) and 3,221 sec/veh (54 minutes) respectively. It should be noted that these delays are beyond the normal limits of the traffic analysis software. In reality, traffic would likely divert onto Hovey Street and travel to Wentworth Avenue and other relief points.

In summary, the Downtown LHS site would generate no traffic impacts since the transportation infrastructure is already built to accommodate it. In contrast, the Cawley site would create impacts on the residential neighborhood by quintupling traffic on Douglas Road and tripling traffic on Clark Road during the AM peak and more than doubling the traffic during the PM peak on these neighborhood roads. This increase in traffic will negatively affect traffic congestion and require mitigation.

II. Transportation Infrastructure and Service Costs

As previously mentioned the Downtown LHS site has no negative impacts on traffic due to the existing transportation infrastructure and services. The City has already invested over a million dollars upgrading traffic signals in the downtown area. Recently, video detection and advanced controllers were installed at the Merrimack Street/Dutton Street intersection. Also, design has commenced on a full replacement of the traffic signals at French Street and Bridge Street intersection. In addition to traffic improvements, the City has also invested in sidewalk and bike lane infrastructure around downtown. Other services available include parking garages near the high school and LRTA busing service.

Reconstruction of the Bridge Street/French Street intersection and upgrades to the French Street/John Street and French Street/Arcand Drive intersections would be beneficial upgrades that would cost approximately $400,000, and are necessary regardless of whether the high school remains downtown or not.

	Transportation Infrastructure Costs	Busing Costs
Downtown LHS	$400,000	TBD
LHS at Cawley	$3.85 Million + ROW Costs	$3.2 Million/Year

The Cawley site currently lacks the transportation infrastructure and services to support the projected high school traffic demands. In order to accommodate the proposed Cawley site, the following improvements should to be made:

a. Busing - $3.2 Million/year:

Per the presentation to the Lowell High School Finance Subcommittee on March 29 – approximately 2,000 students will be bused using 46 buses (arriving at 7:40 AM) at a cost of $3.2 Million dollars. These buses will be using Village Street at Route 38 as the exclusive access point. Also, busing will be limited to students living further than 1 mile from the school. Figure 3 shows a 1 mile radius (blue circle) covering most of the Belvidere and South Lowell neighborhoods. Since Route 38 and 133 (Rogers Street and Andover Street) are dangerous pedestrian crossing points, busing would be provided to anyone living on the other side of these busy roads. The remaining walking zone is therefore shown bounded by a red boundary. The roads highlighted in green are those sections of roadway that would require a sidewalk analysis to assure the safety of children walking to the high school.

Figure 3 - 1 mile radius walking map

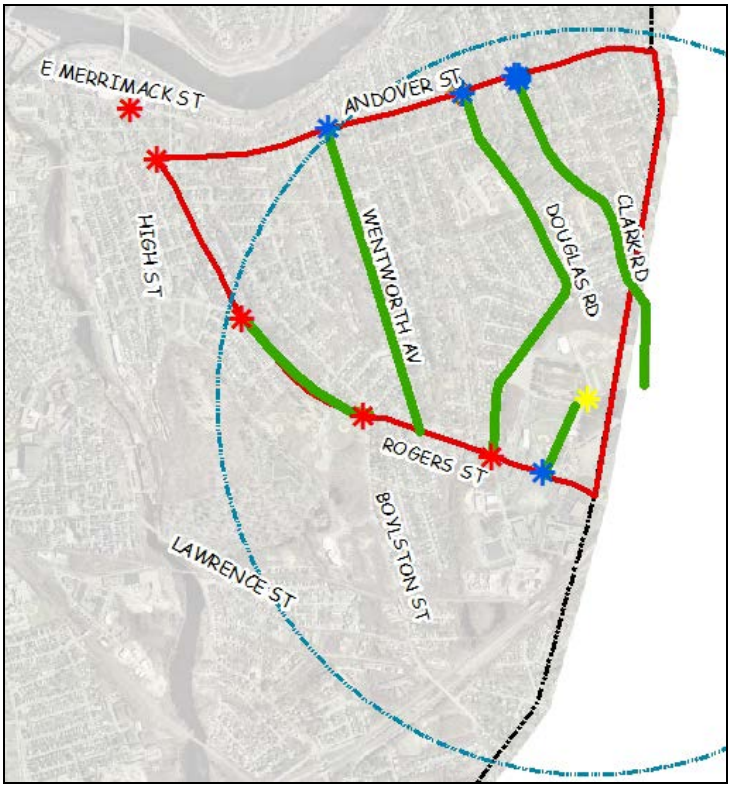
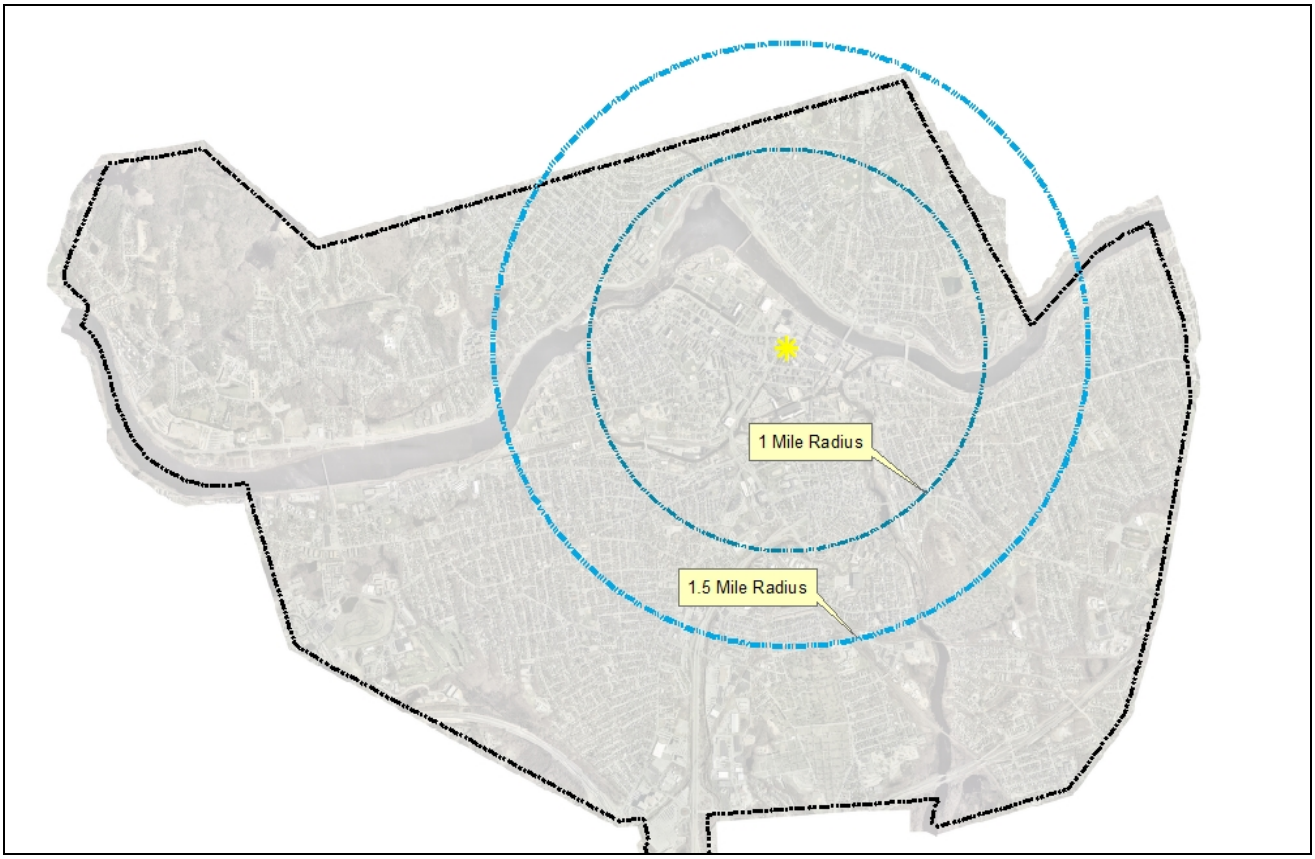


Figure 4- LHS Downtown Walking Radii



The Downtown LHS site is more centrally located and therefore a 1 mile radius covers more area of the City which is also more densely populated. This area also offers more transportation infrastructure and services and could therefore be expanded to a 1.5 mile radius as shown in Figure 4. Busing could still be offered to the far parts of Pawtucketville, Upper Highlands, and South Lowell at a significant cost savings as compared to the 46 buses required for the Cawley Site.

b. Sidewalks - $1.1 Million:

As previously shown in Figures 1 and 2 above traffic volumes are expected to quadruple in the morning peak hours and triple in the afternoon peak hours along Clark Road and Douglas Road. It is anticipated that about 7-10% of students would walk - amounting to 245 to 350 walkers.[4] Due to this volume of pedestrian traffic combined with vehicle volumes and speeds averaging 36 MPH, it is recommended that sidewalks be constructed along the length of Clark Road and Douglas Road to assure the safety of children walking to school.

Based on the sidewalk analysis provided in the traffic study, it is estimated that 12,000 feet of sidewalk would need to be constructed which would necessitate the taking down of trees, rock walls, and lawns and some private property may need to be acquired. Additional costs would include relocations of fire hydrants and utility poles as well as addition of drainage systems to adequately handle the stormwater runoff being collected along the newly formed gutter line. Please refer to the City Engineer's motion response for a complete sidewalk construction estimate.

c. Traffic - $2.75 Million + right-of-way acquisition:

Road widenings and signalized intersections should be considered in order to mitigate the negative effects of generated traffic as shown in Table 19 and Table 17. The following traffic mitigation projects are suggested for further investigation:

- Addition of left turn lane for east bound Route 38 at Douglas Road intersection
  - $1,000,000 – includes engineering, utility relocation and new signal
  - Does not include right-of-way acquisition costs
- Addition of left turn lane for east bound Route 38 at Village Street intersection
  - $700,000 – includes engineering and utility relocation
  - Does not include right-of-way acquisition costs
- Addition of traffic signal at Route 38 and Village Street intersection
  - $300,000 – Includes engineering costs
- Addition of traffic signal at Route 133 and Clark Road intersection
  - $350,000 – Includes engineering and cement costs
- Addition of traffic signal at Route 133 and Douglas Road intersection
  - $350,000 – Includes engineering and cement costs
- Improvement to traffic signal at Route 38 and Clark Road intersection
  - $50,000 – Includes signalization upgrades only

These costs are based on conceptual plans only, and based on similar projects. Route 38 is a MassDOT highway and ultimately the type of improvements will have to be approved by the state.

[4] Ibid, pg. 37.

Figure 5 - Possible Takings - Douglas at Rogers

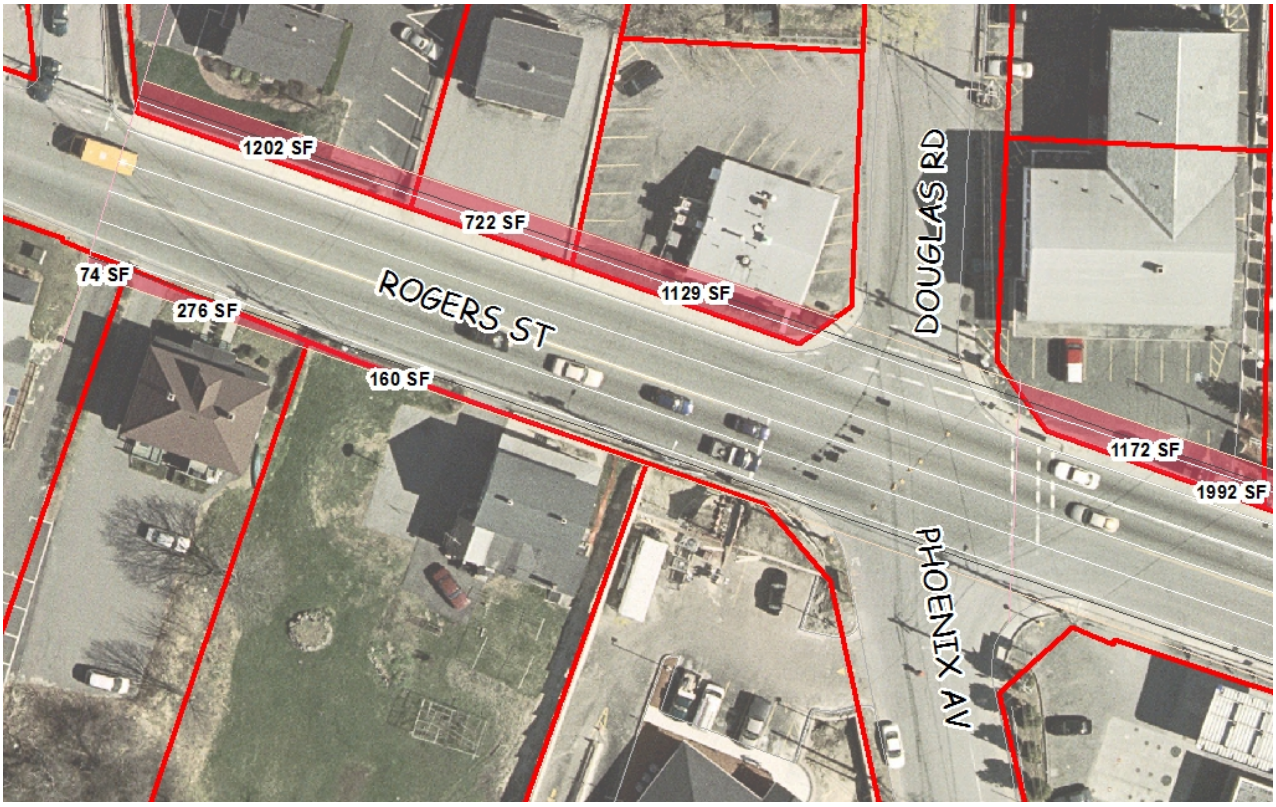


Figure 6 - Possible Takings - Village at Rogers

Adding an 11' turn lane would result in a 70' cross-section (including 2' shoulders, 5.5' sidewalks, and 11' travel lanes). The right-of-way along Route 38 is only 58' wide, and therefore approximately 12' of property will need to be taken to install left turn lanes at the Rogers Street intersections. Figures 5 and 6 above show the possible impacts on right-of-way. Widening to the north would avoid utility relocations and the gas station.

d. Parking:

Downtown LHS parking is currently provided at the Ayotte Garage where approximately 605 parking passes are reserved for about 360 faculty and 245 students. Another 120 vehicles park throughout downtown at other parking facilities according to an April 2017 survey.[5] Currently only 8% of students and 89% of staff drive to school in the downtown location. Were the high school to remain downtown only 18 additional parking spaces would be required based on existing mode splits.

Studies typically show retail customers are willing to walk 300-600 feet from parking to their destination and employees are willing to walk 1,200-1,500 feet from parking to their work place. The Ayotte Garage therefore is not close enough to MCC (2,200') or the Merrimack Street corridor (1,900') to adequately satisfy parking demand for downtown needs. A shuttle service would be necessary to make it a viable parking alternative to serve MCC and the HCID. Vacating LHS from downtown would not free up enough parking supply where it is needed and the city would still need to build parking garages near the HCID and East Merrimack Street to satisfy demand.

Table 1 - Parking Demand

	Anticipated Parking Demand			
	Downtown*		Cawley**	
	% Vehicle Trips	Total Spaces	% Vehicle Trips	Total Spaces
500 Staff	89%	445	97%	485
20 Visitors	89%	18	100%	20
3,500 Students	8%	280	10%	350
	TOTAL	**743**		**855**

*Based on April 2017 Survey of modes
**Traffic Study, Page 37

Due to the Cawley site's location and lack of transit service, it is anticipated a larger percentage of staff, visitors and students will drive compared to the downtown site. Table 1 above shows how a shift to vehicle trips could increase parking demand by as much as 16%. Note that the downtown mode distribution is based on actual surveys from April 2017, and the Cawley site mode distribution is based on anticipated mode shifts. The traffic study conducted by Bryant Associates included only 10% of students as driving to Cawley, however, this is an optimistic figure considering 8% are already driving to downtown.

It should also be noted that the downtown location offers overflow parking via on-street parking along Father Morissette. The Cawley site does not offer overflow parking and miscalculating the parking needs would cause spill-over onto neighboring streets.

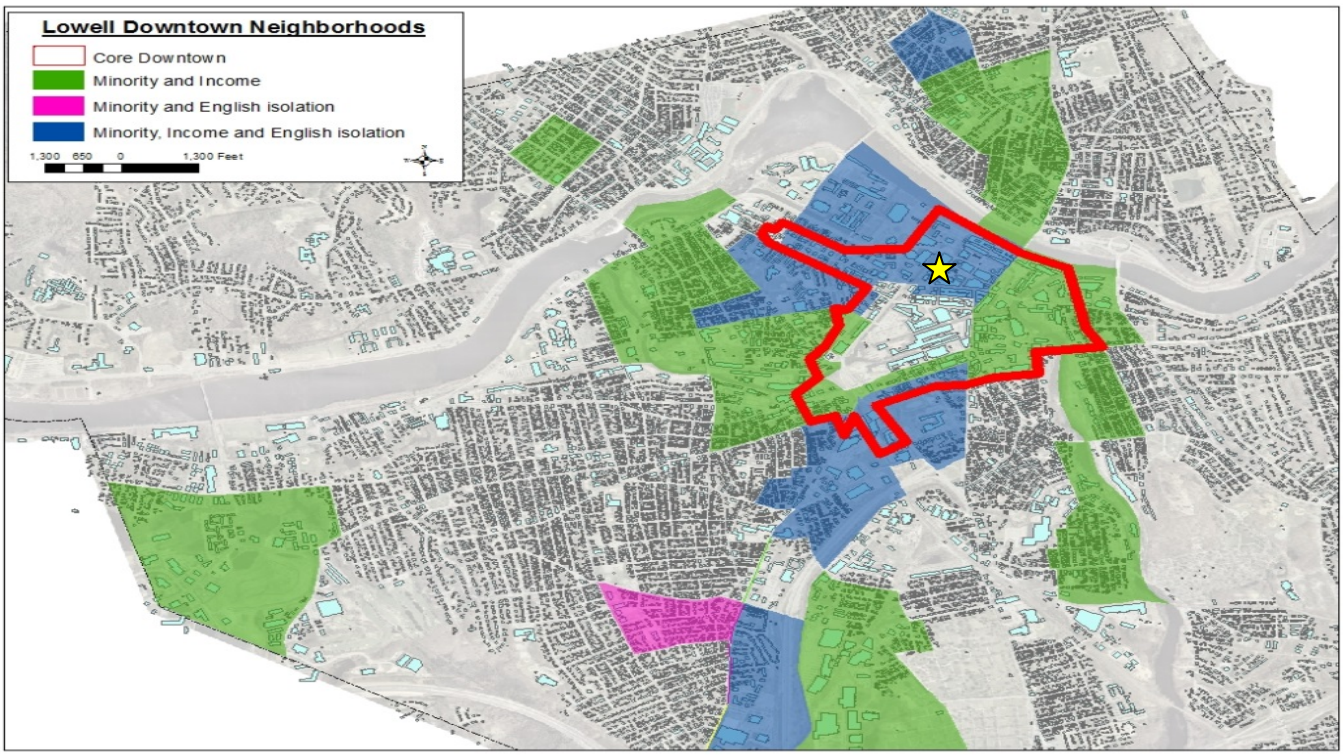
[5] Ibid, pg. 11

III. Transportation Equity

The City of Lowell has passed a Complete Streets Policy which identifies transportation equity in terms of providing affordable and reliable transportation options that provide equal opportunity for low income individuals, minorities, immigrants, and the disabled to access economic opportunities, social services, and educational institutions. The City's policy applies to all City projects, including the high school project.

The neighborhoods located around the downtown have high concentrations of low income, minority, and low-English proficiency populations residing in the Acre, Lower Belvidere, Centralville, Lower Highlands, Back Central and Downtown neighborhoods as shown in Figure 7. Over 17% of households in the City of Lowell do not have access to a vehicle, and depend on biking, walking and transit for transportation. These households are concentrated within the highlighted areas.

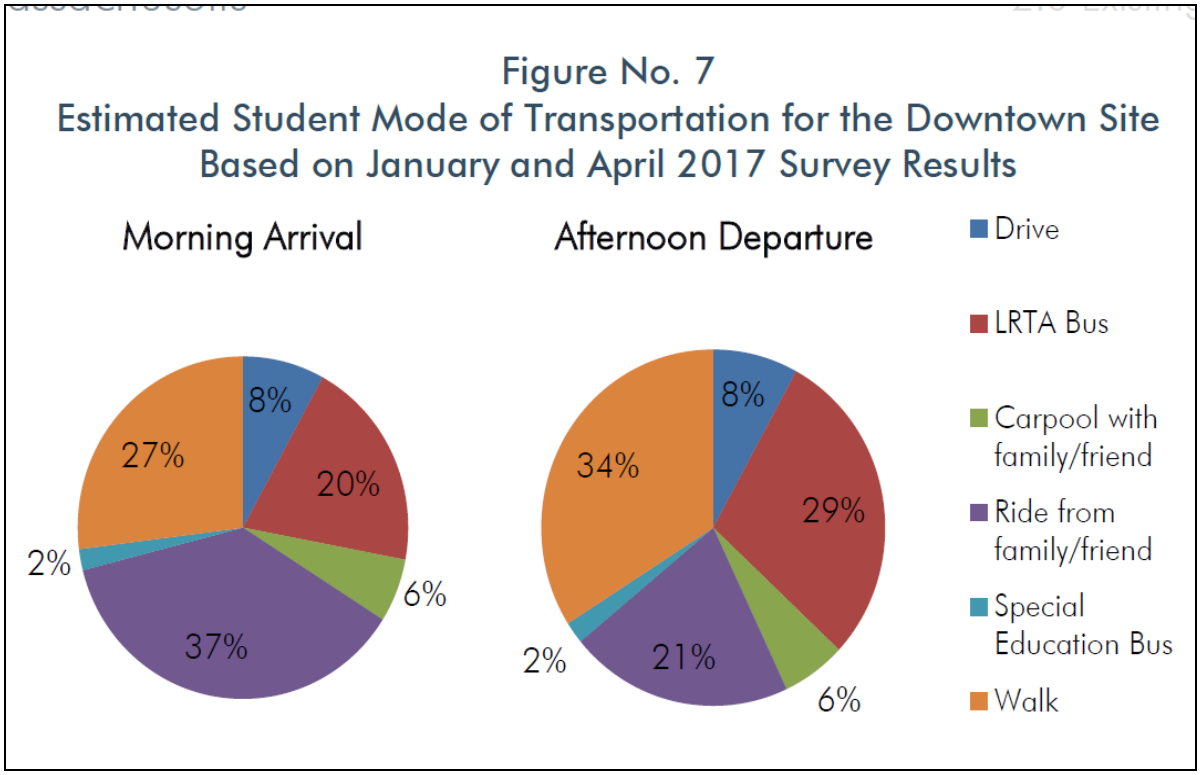
Figure 7- Environmental Justice Populations



The Complete Streets program has focused on providing transportation infrastructure and services to connect these neighborhoods to the economic opportunities, social services, and educational institutions located within downtown. Regardless of age, language, ethnicity, income or ability residents from these neighborhoods have equitable access to everything the city of Lowell has to offer because they can easily walk, bike, or ride a bus to the downtown core. These efforts are evident by the existing mode share of the downtown high school as shown in Figure 8 which shows two third (63%) of high school students walk or ride LRTA home from the high school.

It should also be noted that students' parents and relatives also need access to the high school.

Figure 8 - Mode Share Downtown LHS



NB/ns
6/1/17

Office of the City Manager
City Hall ● 375 Merrimack Street ● Lowell, MA 01852
P: 978.674.4000 ● F: 978.970.4007
www.LowellMA.gov

Kevin J. Murphy
City Manager
Michael McGovern
Assistant City Manager

June 1, 2017

Mayor Edward J. Kennedy, Jr.
and
Members of the City Council

REFERENCE: **11.8. 3/21/17 C. Leary -** Req. City Mgr. work with the Lowell Public Schools Superintendent in order to determine the potential busing costs for all Lowell High School students; report to include busing costs if school redistricting is implemented.

Dear Mayor Kennedy and Members of the City Council:

Attached, please find a copy of the presentation made by Lowell Public School administrators at Joint Subcommittee meeting of Finance and Student Support Services March 29, 2017. Items discussed at the subcommittee are below.

- Student Population by Zip Codes
- Projected Transportation Costs to Cawley
- Factors Impacting Rezoning Schools
- Current Zones and Draft Rezoning Proposal.

Please feel free to contact me if you have further questions regarding this matter.

Sincerely,

Kevin J. Murphy
City Manager

JOINT SUBCOMMITTEE MEETING

FINANCE AND STUDENT SUPPORT SERVICES
MARCH 29, 2017

- Student Population by Zip Codes
- Projected Transportation Costs to Cawley
- Factors Impacting Rezoning Schools
- Current Zones and Draft Rezoning Proposal

STUDENT POPULATION BY ZIP CODE

Bailey	01850	01851	01852	01854	Total
K	1	70	9	18	98
1	2	69	6	14	91
2	2	68	14	14	98
3	3	78	5	13	99
4	1	71	5	16	93
	9	356	39	75	479

Bartlett	01850	01851	01852	01854	Total
K	2	24	12	12	50
1	8	15	8	14	45
2	7	23	9	12	51
3	5	26	10	8	49
4	9	20	9	13	51
5	12	21	13	10	56
6	4	18	12	18	52
7	9	16	4	14	43
8	8	18	16	14	56
	64	181	93	115	453

Butler	01850	01851	01852	01854	Total
5	25	23	63	6	117
6	21	31	76	2	130
7	28	26	70	1	125
8	12	23	84	2	121
	86	103	293	11	493

Daley	01850	01851	01852	01854	Total
5	5	139	11	22	177
6	6	125	15	9	155
7	5	121	13	27	166
8	4	122	17	17	160
	20	507	56	75	658

Zip	01850	01851	01852	01854	
Grade K	189	382	363	282	1216
1	212	356	395	240	1203
2	210	419	367	274	1270
3	226	410	367	261	1264
4	207	360	383	266	1216
K-4	1044	1927	1875	1323	6169
5	214	392	309	256	1171
6	160	325	283	192	960
7	177	340	267	249	1033
8	157	343	303	199	1002
5-8	708	1400	1162	896	4166
Total	1752	3327	3037	2219	10335

Greenhalge	01850	01851	01852	01854	Total
K	58	2	19	9	88
1	61	6	17	3	87
2	60	5	18	10	93
3	56	8	21	7	92
4	49	7	21	10	87
	284	28	96	39	447

Lincoln	01850	01851	01852	01854	Total
K	4	60	16	16	96
1	9	43	26	9	87
2	5	58	17	12	92
3	6	52	25	14	97
4	5	50	20	14	89
	29	263	104	65	461

McAuliffe	01850	01851	01852	01854	Total
K	59	5	22	3	89
1	55	3	18	3	79
2	53	7	28	4	92
3	61	7	22	1	91
4	56	6	28	3	93
	284	28	118	14	444

McAvinnue	01850	01851	01852	01854	Total
K	4	34	8	47	93
1	5	22	3	52	82
2	5	40	8	46	99
3	2	28	7	56	93
4	2	21	6	60	89
	18	145	32	261	456

Lowell High		01850	01851	01852	01854	
Zip						
Grade	9	170	270	240	174	854
	10	116	261	241	151	769
	11	103	265	214	184	766
	12	106	235	218	134	693
9-12		495	1031	913	643	3082
K-8		1752	3327	3037	2219	10335
GT		2247	4358	3950	2862	13417

Moody	01850	01851	01852	01854	Total
K	7	2	36	4	49
1	7	5	27	0	39
2	11	13	21	4	49
3	5	8	29	5	47
4	7	9	26	3	45
	37	37	139	16	229

Morey	01850	01851	01852	01854	Total
K	1	78	5	11	95
1	0	71	6	13	90
2	2	70	10	16	98
3	2	66	7	17	92
4	1	66	12	8	87
	6	351	40	65	462

Murkland	01850	01851	01852	01854	Total
K	5	24	8	60	97
1	0	35	8	46	89
2	1	39	9	48	97
3	4	36	8	45	93
4	2	37	12	50	101
	12	171	45	249	477

Pawtucket	01850	01851	01852	01854	Total
K	2	15	2	74	93
1	4	23	6	63	96
2	6	23	4	66	99
3	6	24	4	65	99
4	3	15	6	69	93
	21	100	22	337	480

Pyne	01850	01851	01852	01854	Total
K	5	4	37	5	51
1	15	6	26	3	50
2	10	5	29	6	50
3	8	6	29	8	51
4	6	1	38	2	47
5	17	4	35	4	60
6	8	8	32	6	54
7	9	8	15	5	37
8	10	8	24	6	48
	88	50	265	45	448

Reilly	01850	01851	01852	01854	Total
K	16	2	82	1	101
1	19	0	118	3	140
2	20	4	79	1	104
3	30	4	82	5	121
4	27	2	83	1	113
	112	12	444	11	579

Robinson	01850	01851	01852	01854	Total
5	79	22	42	17	160
6	68	17	29	19	133
7	74	24	47	10	155
8	62	20	41	10	133
	283	83	159	56	581

Rogers	01850	01851	01852	01854	Total
K	8	27	42	13	90
1	17	27	39	13	96
2	12	33	33	27	105
3	18	29	37	12	96
4	17	23	40	12	92
5	13	16	17	8	54
	85	155	208	85	533

Shaughnessy	01850	01851	01852	01854	Total
K	13	11	55	3	82
1	6	7	73	3	89
2	10	7	72	6	95
3	14	9	66	3	92
4	14	7	66	2	89
	57	41	332	17	447

Stoklosa	01850	01851	01852	01854	Total
5	2	92	9	62	165
6	2	80	12	45	139
7	3	88	6	83	180
8	1	97	15	48	161
	8	357	42	238	645

Sullivan	01850	01851	01852	01854	Total
5	55	11	107	4	177
6	43	9	97	2	151
7	46	10	101	7	164
8	50	8	99	6	163
	194	38	404	19	655

Wang	01850	01851	01852	01854	Total
5	6	64	12	123	205
6	8	37	10	91	146
7	3	47	11	102	163
8	10	47	7	96	160
	27	195	40	412	674

Washington	01850	01851	01852	01854	Total
K	4	24	10	6	44
1	4	24	14	1	43
2	6	24	16	2	48
3	6	29	15	2	52
4	8	25	11	3	47
	28	126	66	14	234

PROJECTED TRANSPORTATION COSTS TO CAWLEY

- Examination of data: City of Lowell Parking Department, Lowell Regional Transit Authority, LPS student population numbers, and LHS data including survey results.
- Projected 46 additional buses needed to transport approximately 2,000 students to LHS.
- In 2021, the cost of 46 buses would be $3.2 million dollars in year one.
- Factoring incremental contractual steps, that figure is projected to increase to $3.8 million dollars by year 12 if there are no additional factors considered to defray costs.
- The Lowell Regional Transit Authority is non-committal in assuming a significant role with the Cawley proposal due to federal guidelines and time constraints at this time, but remains open to ongoing discussion over the course of the next five years.

REZONING LOWELL PUBLIC SCHOOLS

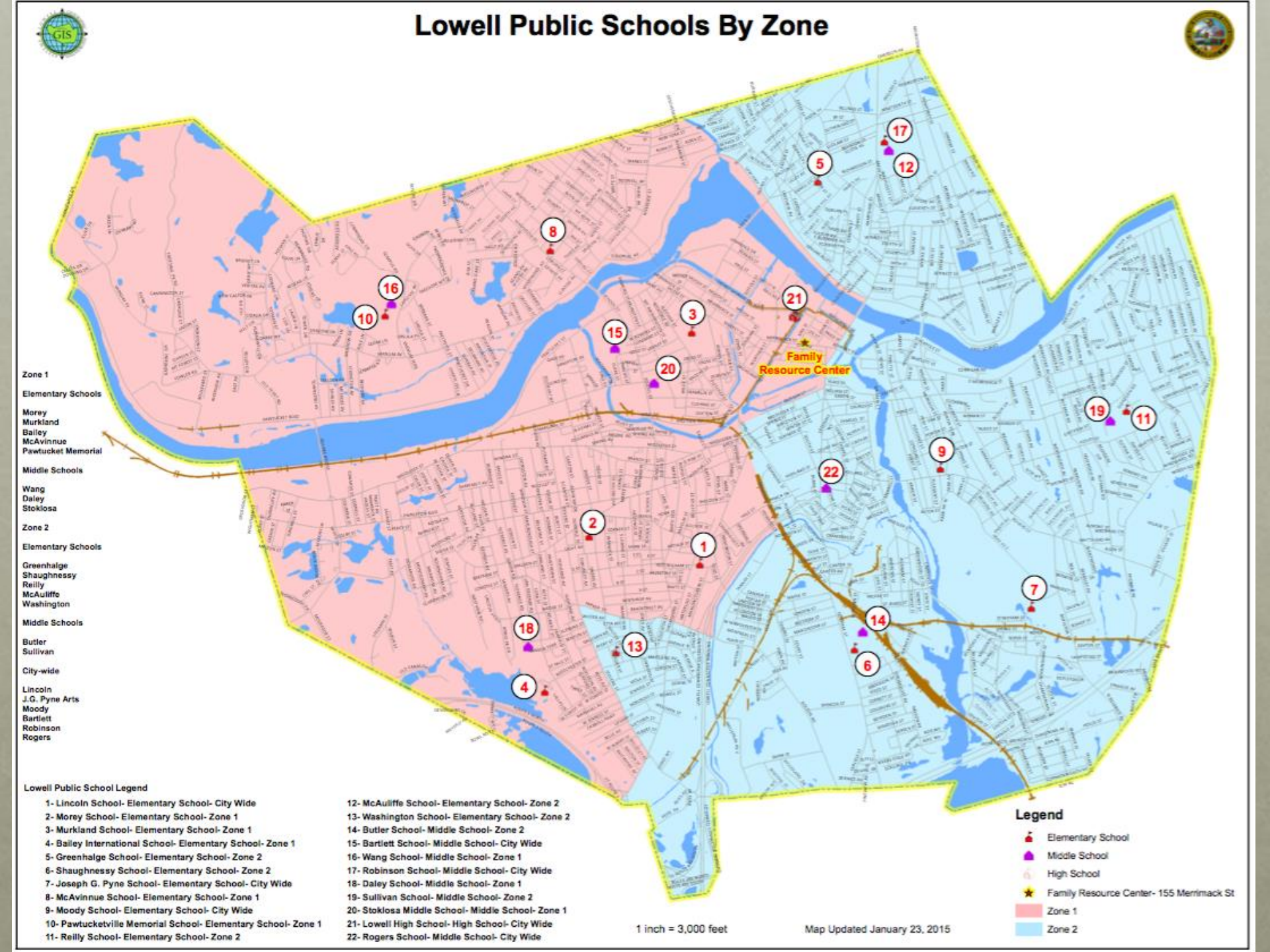
Factors Impacting Rezoning:

- **Maintaining Desegregation Compliancy**
- **Maintaining Parity in Zones**
  - ✓ **Designing Consistent Grade Configurations**
  - ✓ **Planning for Neighborhood Considerations**

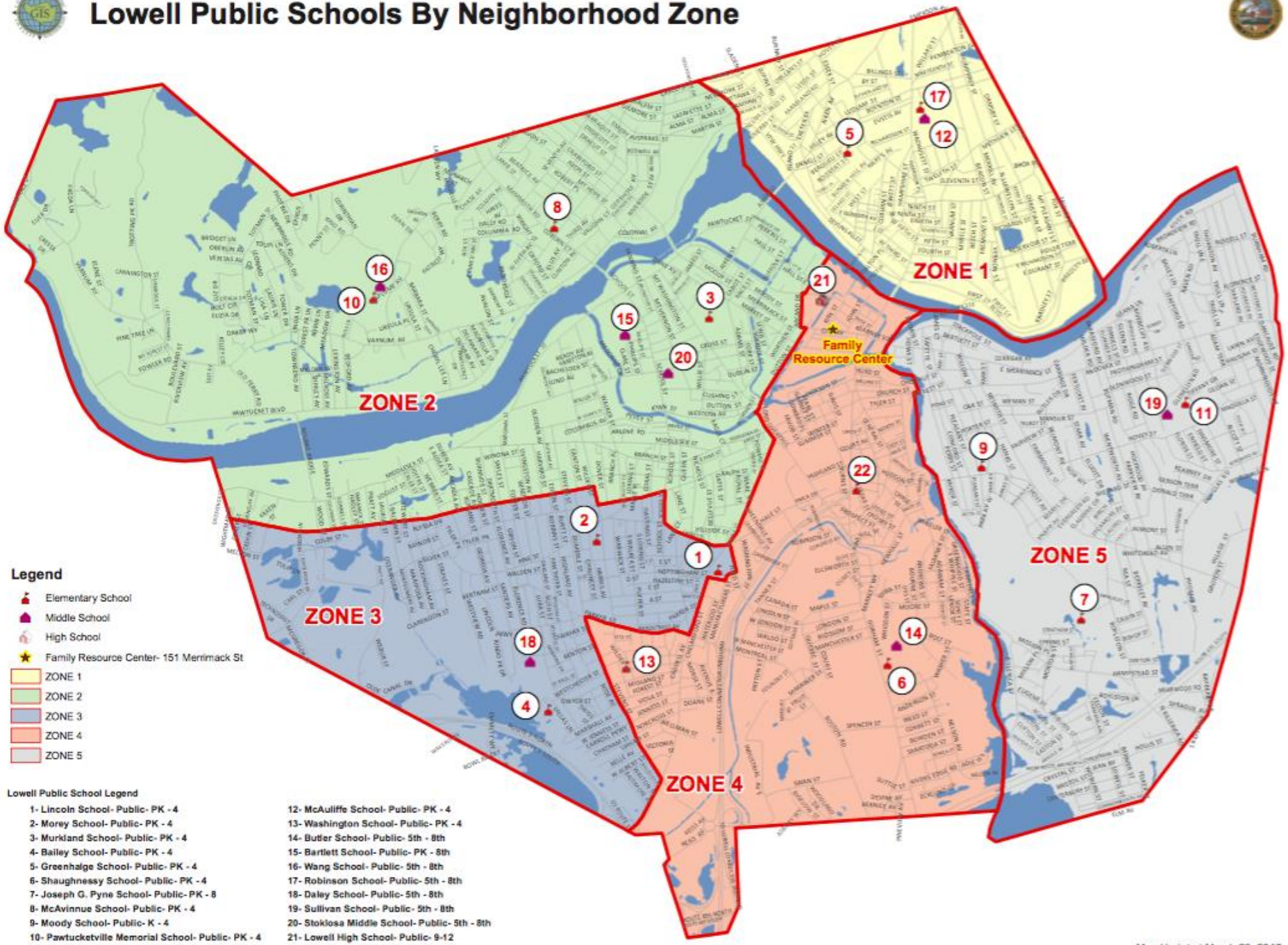
Draft Preliminary Plan Includes:

- **Eliminating Citywide Schools**
- **Reconfiguring School Bell Times**

Lowell Public Schools By Zone



Lowell Public Schools By Neighborhood Zone



Legend

- Elementary School
- Middle School
- High School
- Family Resource Center- 151 Merrimack St
- ZONE 1
- ZONE 2
- ZONE 3
- ZONE 4
- ZONE 5

Lowell Public School Legend

1- Lincoln School- Public- PK - 4
2- Morey School- Public- PK - 4
3- Murkland School- Public- PK - 4
4- Bailey School- Public- PK - 4
5- Greenhalge School- Public- PK - 4
6- Shaughnessy School- Public- PK - 4
7- Joseph G. Pyne School- Public- PK - 8
8- McAvinnue School- Public- PK - 4
9- Moody School- Public- K - 4
10- Pawtucketville Memorial School- Public- PK - 4
11- Reilly School- Public- K - 4
12- McAuliffe School- Public- PK - 4
13- Washington School- Public- PK - 4
14- Butler School- Public- 5th - 8th
15- Bartlett School- Public- PK - 8th
16- Wang School- Public- 5th - 8th
17- Robinson School- Public- 5th - 8th
18- Daley School- Public- 5th - 8th
19- Sullivan School- Public- 5th - 8th
20- Stoklosa Middle School- Public- 5th - 8th
21- Lowell High School- Public- 9-12
22- Rogers STEM Academyl- Public- PK-4

1 inch = 3,000 feet

Map Updated March 20, 2017

ZONE 1	CURRENT TIME	PROPOSED TIME
ROBINSON 5-8	7:20-2:10	8:00-2:50
MCAULIFFE 5-8		8:00-2:50
MCAULIFFE K-4	9:10-3:30	8:30-2:50
GREENHALGE K-4	7:40-2:00	9:10-3:30

ZONE 2	CURRENT TIME	PROPOSED TIME
STOKLOSA 5-8	7:20-2:10	8:00-2:50
WANG 5-8	8:00-2:50	8:00-2:50
BARTLETT 5-8	7:20-2:10	8:00-2:50
MCAVINNUE 5-8		8:00-2:50
BARTLETT K-4	7:50-2:10	8:30-2:50
MCAVINNUE K-4	9:10-3:30	8:30-2:50
MURKLAND K-4	8:30-2:50	9:10-3:30
PAWTUCKET K-4	9:10-3:30	9:10-3:30

ZONE 3	CURRENT TIME	PROPOSED TIME
DALEY 5-8	7:20-2:10	8:00-2:50
MOREY 5-8		8:00-2:50
MOREY K-4	7:30-1:50	8:30-2:50
BAILEY K-4	8:30-2:50	9:10-3:30
LINCOLN K-4	8:30-2:50	9:10-3:30

ZONE 4	CURRENT TIME	PROPOSED TIME
BUTLER 5-8	8:00-2:50	8:00-2:50
ROGERS 5-8		8:00-2:50
ROGERS K-4	9:10-3:30	8:30-2:50
SHAUGHNESSY K-4	9:10-3:30	9:10-3:30
WASHINGTON K-4	8:30-2:50	9:10-3:30

ZONE 5	CURRENT TIME	PROPOSED TIME
SULLIVAN 5-8	7:20-2:10	8:00-2:50
PYNE 5-8	8:40-3:30	8:00-2:50
PYNE K-4	9:10-3:30	8:30-2:50
MOODY K-4	8:30-2:50	9:10-3:30
REILLY K-4	8:30-2:50	9:10-3:30

ADDITIONAL CONSIDERATIONS DRAFT PLAN

Benefits of Draft Plan:

- Maintains the integrity of the Desegregation Order.
- Guarantees that students attend a school close to their home/neighborhood.
- Changing bell times provides an added potential benefit for busing LHS students. No matter where the high school is located, an additional bus run can be added to accommodate LHS students without incurring additional transportation costs.

IMPORTANT NOTE: This is a preliminary plan and there are a number of additional factors that must be taken into consideration to ascertain if the plan remains one of the viable options for the Lowell Public Schools moving forward (i.e. middle school STEM expansion, building capacity/additional facilities, population growth, etc.).

City of Lowell - Law Department

375 Merrimack Street, 3rd Floor • Lowell MA 01852-5909
Tel: 978.674.4050 • Fax: 978.453.1510 • www.lowellma.gov

Christine P. O'Connor
City Solicitor

Rachel M. Brown
1st Assistant City Solicitor

C. Michael Carlson
Hannah Pappenheim
Elliott J. Veloso
James F. Wellock
Assistant City Solicitors

May 31, 2017

City Manager Kevin J. Murphy
Office of the City Manager
Lowell City Hall
375 Merrimack Street, 2nd Floor
Lowell MA 01852

Re: Lowell High School - Article 97 Update

Dear City Manager Murphy:

I write to update you regarding the current status of the divestment and replication of certain athletic fields at the Cawley Memorial Stadium Complex pursuant to Article 97 of the Massachusetts Constitution ("Article 97"). Under Option 4, the proposed new Lowell High School would be constructed on certain land adjacent to Cawley Memorial Stadium. This land includes certain athletic fields which constitute protected parkland under Article 97 due to the City receiving state funding to perform certain renovations at the fields. In order to lift these restrictions, the City requires the approval by two-thirds of both chambers of the Massachusetts Legislature, as well as approval of a replication plan by Executive Office of Energy and Environmental Affairs ("EEA"). Such a plan must replace the land lost with alternative conservation and/or recreational space.

On May 19, 2017, the City met with representatives of the EEA, the City's state legislative delegation, and the Governor's office in order to review the City's proposed replication plan. A copy of this replication plan is enclosed with this overview. Under the City's replication plan, the field hockey filed that currently exists at the complex would be renovated and remain in its current location.[1] A new softball filed would replace the current parking lot abutting the stadium at 438 Douglas Road. Land currently owned by the Cemetery Department at 363 Boston Road in Lowell and Chelmsford would be transferred to the parks department, upon which would be constructed a new 100-yard athletic field, as well the refurbishment of two existing baseball fields and new parking facilities. The plan also calls for the transfer of land at 197 Beacon Street from the Lowell Regional Water Utility to the Parks Department. This land would be preserved as open space and as potential future park space when resources permit.

[1] The field hockey field is located over the border in Tewksbury but owned by the City. Tewksbury maintains no standing to contest the proposed replication plan, as the City owns all the property at issue and Tewksbury never received state funding for field improvements.

At the meeting, the EEA reviewed and approved the City's proposed replication plan should Option 4 be chosen for the new high school. As such, it was agreed that the City and EEA would draft language articulating the proposed replication plan for insertion into the required legislation to be approved by the Massachusetts Legislature. On May 31, 2017, the City's Law Department circulated proposed draft language for the required legislation to the EEA and the City's state legislative delegation. A copy of this proposed language is also enclosed with this overview. EEA is currently in the process of reviewing the City's proposed language. It is anticipated that, once the language is approved, the legislation will be finalized and submitted for consideration and approval in the State Senate.

I hope this overview is of help and assistance to you. Please contact the Law Department should you have any additional questions regarding this matter.

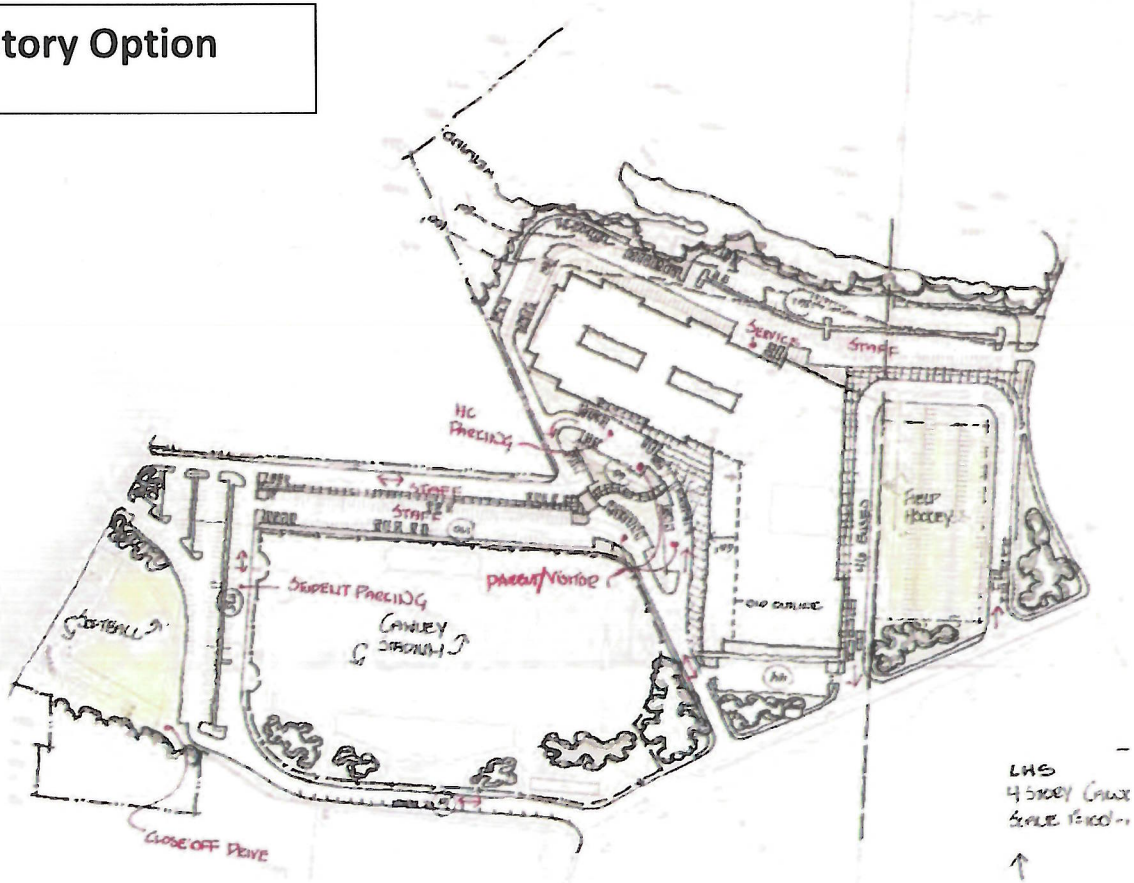
Very truly yours,

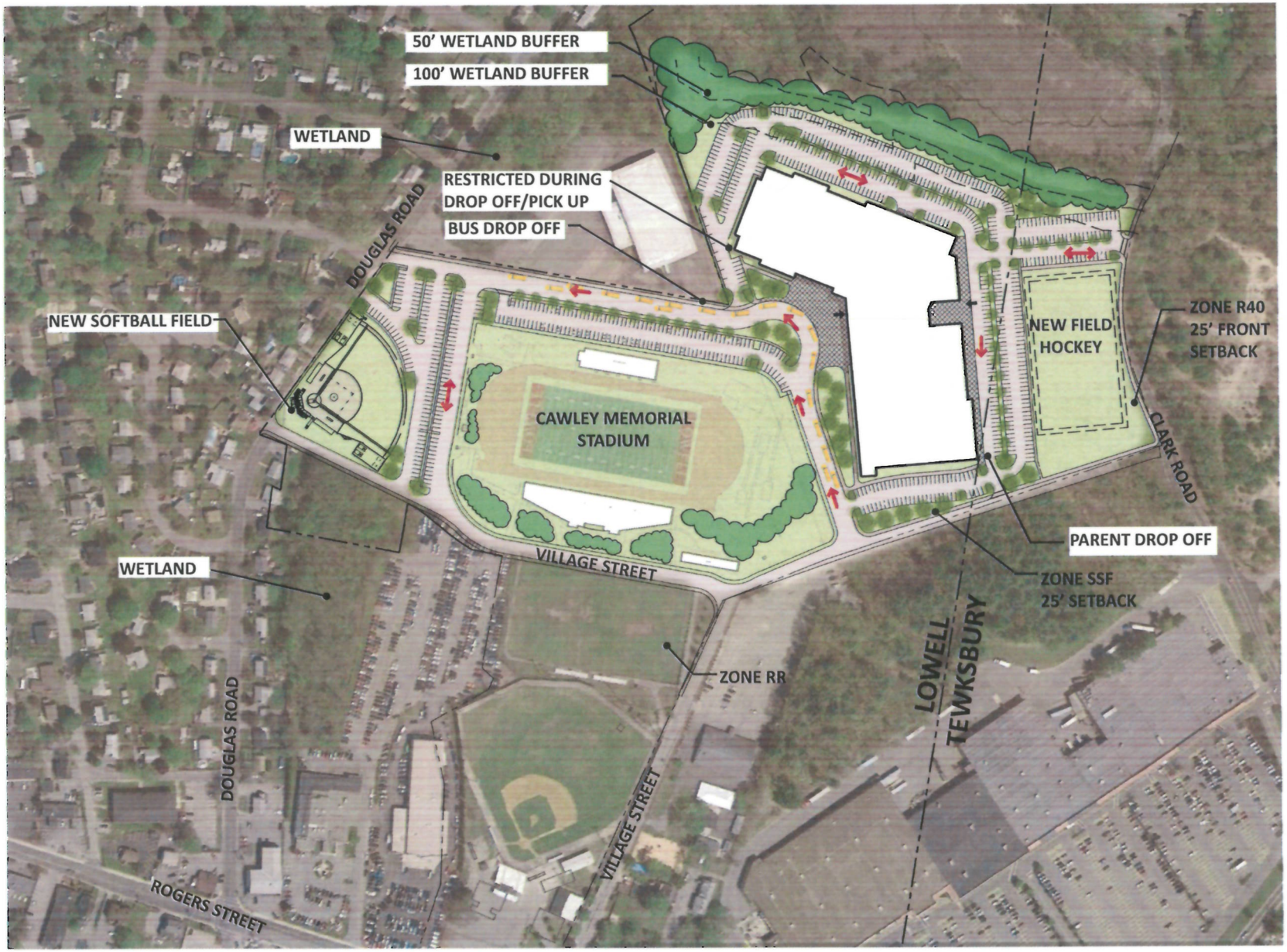
Elliott J. Veloso
Assistant City Solicitor

cc: Christine P. O'Connor, City Solicitor

Total Acreage - Cawley Site	**22.35**		
Replication Proposal	**Acres**		
Reservoir Site	14.96		
Carlisle St./ Boston Rd. Site	14.28		
Total Proposed Replication Acreage	29.24		
Field	**Acres**	**Comment**	**Replication Site**
Martin Softball Field	5.40	Replicate on Existing Douglas Road Parking Lot	Douglas Road/ Cawley
Field Hockey	3.60	Remain at Existing Site	Clark Road/ Cawley
Practice Softball Infield	*	Improve Existing 2 Fields	Carlisle St/ Boston Road
Freshman 50 yard Practice Football Field	5.00	Construction of Multi-Purpose Field (Fresh & JV)	Carlisle St/ Boston Road
JV 50 yard Practice Football Field	**	Construction of Multi-Purpose Field (Fresh & JV)	Carlisle St/ Boston Road
Douglas Road Parking Lot	3.30		
Other Acreage	5.05		
Total Acreage	**22.35**		
		**Included with Martin Softball Acreage*	
		***Included with Adjacent Practice Field*	

Cawley Site – 4 Story Option





PARKING SPACES = 850+-
CAR QUE= 38+
BUS DROP OFF= 46 DOUBLE STACKED
FIELDS TO BE REPLACED

- (MARTIN) SOFTBALL FIELD
- SOFTBALL PRACTICE (INFIELD)
- 1 FIELD HOCKEY & LAX PRACTICE
- (DESMOND) FR FOOTBALL PRACTICE
- (MACHADO) JV FOOTBALL PRACTICE

NOTES:
1. THERE IS A 3' SETBACK FOR ALL PARKING AND ROADWAYS IN LOWELL AND A 0' SETBACK IN TEWKSBURY.
2. TEWKSBURY HAS A 50' NO BUILD ZONE AND A 25' NO DISTURB ZONE FROM ALL WETLANDS.

NEW SCHOOL AT CAWLEY SITE 5 STORY OPTION

MAY 10TH, 2017

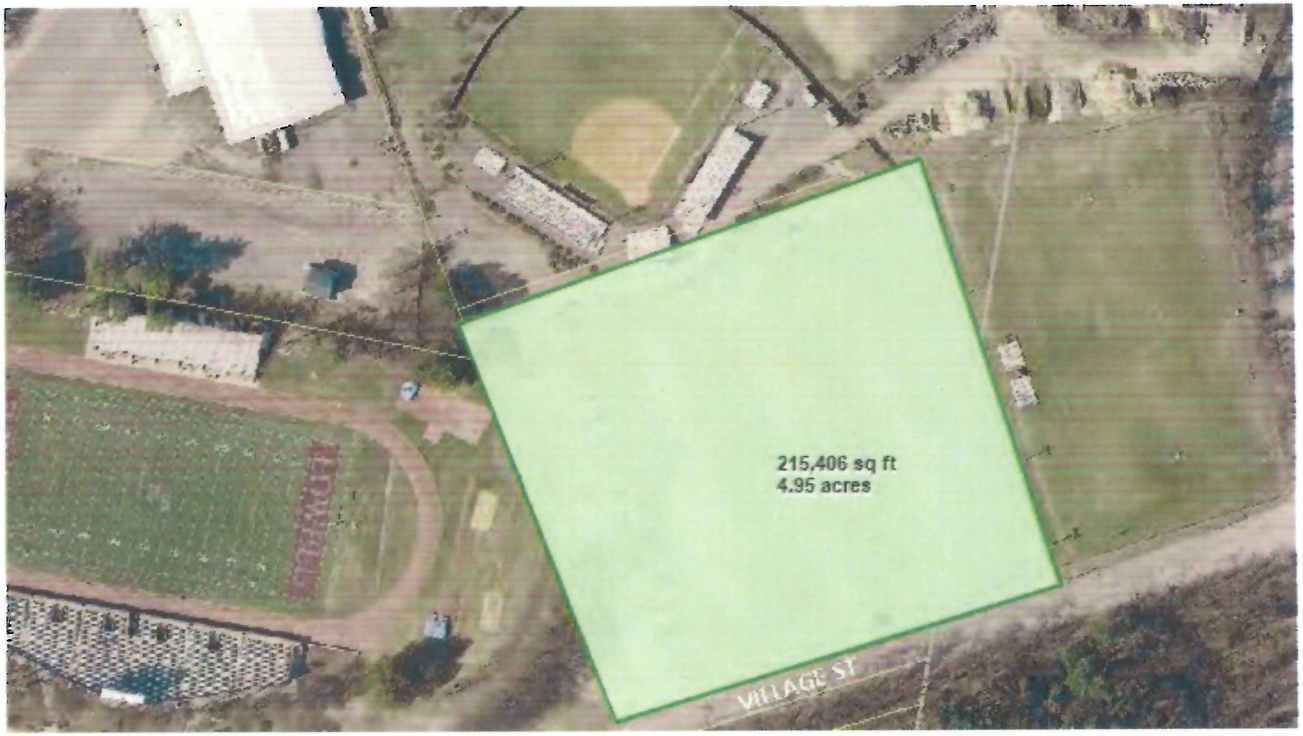
SCALE IN FEET

0 50 100 200 400


WET
LANDS
EXPANDED
PARKING
EXISTING
BALL
FIELDS
NATURE
TRAIL
WET
LANDS
WET
LANDS
NEW
ATHLETIC
FIELD
DROP OFF,
PARKING

Martin Softball Field and Practice Softball Infield

5.4 Acres



Freshmen/JV 50-yard Practice Fields

Approximately 5 Acres

Douglas Road Parking Lot and Roads

Approximately 3.3 Acres

Field Hockey

Approximately 3.6 Acres

Boston Road – Replication Proposal

Approximately 14 Acres

Reservoir – Replication Proposal

Approximately 15 Acres

Lowell High School Cawley Site Article 97 Dispensation Legislative Draft Language

AN ACT AUTHORIZING THE CITY OF LOWELL TO TRANSFER CERTAIN PARCELS OF PARK LAND

Be it enacted by the Senate and House of Representatives in General Court assembled, and by the authority of the same, as follows:

SECTION 1. Notwithstanding any general or special law to the contrary, the Lowell City Council may convey from the Board of Parks the following parcels of land currently used for park, open space, or recreation purposes under Article 97 of the amendments to the Constitution of the Commonwealth, to the School Department for the construction of a new high school. The parcels of land are:

A. A portion of a parcel at 512.1 Clark Road, located in Lowell's Assessor's Parcel Map Index at Sheet Index Numbers 267 and 268, consisting of approximately 6.3 acres, and as delineated from deeds recorded at the Middlesex North Registry of Deeds in Book 776, Page 282, dated May 10, 1929 and Book 28537, Page 243, dated September 29, 2014.

B. A portion of a parcel west of Clark Road in Tewksbury owned by the City of Lowell, located in Tewksbury's Assessor's Parcel Map Index at Number 12-2 and Lowell's Assessor's Parcel Map Index at Sheet Index Number 268, consisting of approximately 3.8 acres, and as delineated from deeds recorded at the Middlesex North Registry of Deeds in Book 776, Page 282, dated May 10, 1929 and Book 28537, Page 243, dated September 29, 2014.

C. The entirety of a parcel at 512 Clark Road, located in Lowell's Assessor's Parcel Map Index at Sheet Index Number 268, consisting of approximately 3.8 acres, and as delineated from deeds recorded at the Middlesex North Registry of Deeds in Book 776, Page 282, dated May 10, 1929 and Book 1661, Page 343, dated August 21, 1964.

D. The entirety of a parcel at 438 Douglas Road, located in Lowell's Assessor's Parcel Map Index at Sheet Index Number 252, consisting of approximately 2.8 acres, and as delineated from deeds recorded at the Middlesex North Registry of Deeds in Book 943, Page 425, dated March 22, 1940, Book 7471, Page 347, dated April 5, 1995, and Plan Book 188, Page 70.

E. A portion of 392 Douglas Road, located in Lowell's Assessor's Parcel Map Index at Sheet Index Number 252, consisting of approximately 0.5 acres immediately abutting north of the aforementioned parcel at 438 Douglas Road, and as delineated from deeds recorded at the Middlesex North Registry of Deeds in Book 955, Page 395, dated December 30, 1940 and Book 2091, Page 58, dated January 31, 1973.

F. A portion of 424 Douglas Road, located in Lowell's Assessor's Parcel Map Index at Sheet Index Number 252, consisting of approximately 0.75 acres immediately abutting east of the aforementioned parcel at 438 Douglas Road, and as delineated from deeds recorded at the Middlesex North Registry of Deeds in Book 859, Page 20, and Book 8268, Page 9, dated October 15, 1996.

SECTION 2. As a condition of the conveyances authorized in Section 1, the City of Lowell shall complete the following parcel transfers and recreation development projects to provide land and facilities for recreational purposes under Article 97 of the amendments to the Constitution of the Commonwealth:

A. Land now under the Lowell Cemetery Department, consisting of portions of 363 Boston Road in Lowell and land west of Carlisle Street in Chelmsford, located in Lowell's Assessor's Parcel Map Index at Sheet Index Numbers 169 and 170 and in Chelmsford's Assessor's Database as Identification No. 55-175-1, consisting of approximately 16.35 acres, and as delineated from a deed recorded at the Middlesex North Registry of Deeds in Book 681, Page 485, dated June 1, 1923. Said land will be transferred to the Board of Parks and thereon a new 100 yard athletic field will be constructed, two existing baseball fields renovated, and adequate parking for these fields provided; and

B. Land now under the Lowell Regional Water Utility Department, located at 197 Beacon Street in Lowell, consisting of approximately 15 acres, and as delineated from deeds recorded at the Middlesex North Registry of Deeds in Book 76, Page 39, dated October 18, 1870, Book 80, Page 426, dated June 23, 1871, and Book 91, Page 10, dated October 3, 1973. Said land will be transferred to the Board of Parks; and

C. A new softball field will be constructed upon the property at 438 Douglas Road and portions of 392 Douglas Road and 424 Douglas Road, land previously described in Section 1, Paragraphs D, E, and F; and

D. The existing field hockey field at the Cawley Memorial Stadium Complex, located west of Clark Road in Tewksbury as part of the land previously described in Section 1, Paragraph B, shall be renovated by the City.

SECTION 3. If the land conveyed pursuant to Section 1 is not developed for school purposes, the land so referenced in Section 1 shall revert to the City of Lowell Board of Parks for recreation purposes.

Office of the City Engineer
City Hall • 375 Merrimack Street • Lowell, MA 01852
P: 978.674.4070 • F: 978.970.3332
www.LowellMA.gov

Lisa E. DeMeo, P.E.
City Engineer

Date: May 31, 2017

TO: Kevin J. Murphy, City Manager

VIA: Tom Bellegarde, Assistant City Manager/DPW Commissioner

FROM: Lisa E. DeMeo, P.E., City Engineer

SUBJECT: 3017-03-21 11.18 M. Kennedy Request City Manager report to City Council regarding anticipated costs due to infrastructure and traffic improvement necessary if the High School were to move out of downtown including any sidewalks, road improvement s and traffic lights that were needed.

Infrastructure improvements that may be necessary if the High School is built at the Cawley Site include new ADA compliant sidewalks and wheelchair ramps, installation of new drainage pipe and structures, and possibility of paving. For this exercise, it was assumed that Clark Road and Douglas Road would get new sidewalks installed on one side only. The side chosen would be determined by various criteria including the location of existing utilities in relation to the sidewalk and the Right of Way (ROW). Be aware that the construction of the new sidewalks will require the removal of trees that are within the sidewalk area and are within the ROW. This would include historic trees, as well.

To estimate the costs of these improvements, we used prices from the most recent city contracts for sidewalk installation. Cost estimates for Clark Road, Douglas Road, Village Street, and Andover Street are listed below. Estimates are based on the best information we have available to us at this time.

- ADA compliant wheelchair ramps: estimate $1,200/ramp;
- Granite curbing: $30/L.F.;
- Concrete Sidewalks: $45/L.F.;
- Paving: $220,000/mile;
- Clark Road sidewalk; some of this sidewalk will be in Tewksbury. Their permission will be needed;
- Tree Removal: several factors will influence the estimate, i.e., number and diameter of the trees as well as the health of the tree;
- Drainage: There is some existing drainage infrastructure. A study will need to be done to determine if the new sidewalks will warrant additional infrastructure to be installed;
- Walls/Fences/Gardens: Several properties have landscaping that extends beyond their property line into the city's ROW. These will need to relocated back on to private property;
- Yards/Driveways: Access to private driveways would be part of construction contract;
- Water main vs. Utility Poles: Issues stated above.

Office of the City Engineer
City Hall • 375 Merrimack Street • Lowell, MA 01852
P: 978.674.4070 • F: 978.970.3332
www.LowellMA.gov

Lisa E. DeMeo, P.E.
City Engineer

	Clark Road	**Douglas Road**	**Village Street**	**Andover Street**
Length (l.f.)	3,400	5,950	1,700	200
Sidewalk & Curb ($)	255,000	450,000	34,000	15,000
Ramps ($)	12,000	16,800	4,800	0
Paving ($)	Done in 2015	247,900	19,000	0
Trees (qty.)	50 +/-	5 +/-	0	0
	$267,000	$714,700	$59,500	$15,000
TOTAL = $1,056,200				

- Douglas Road will require an analysis of drainage impacts of installing the sidewalks. This area already has surface water issues.
- Clark Road was recently paved. Any sidewalk work could be done with care so as to not disturb the existing pavement. Therefore, the cost of repaving Clark Road is not included. There is sidewalk installation and tree removal that would be required in Tewksbury. They will need to approve the work.
- Andover Street is included in the Traffic Study because a small section does not have a sidewalk. This small estimate is included here.
- Village Street is approximately 1,700' long and there is already a sidewalk along most of it. The remainder of the sidewalk would be installed along with the building of the school. The portion of Village Street that is in Tewksbury would require that the city fund sidewalks there.

Please let me know if there are any questions regarding this information.

The City of Lowell • Dept. of Planning and Development • Division of Development Services
Lowell City Hall • 375 Merrimack Street • Lowell, MA 01852
P: 978.674.4144 • F: 978.446.7103
www.LowellMA.gov

Diane N. Tradd
Assistant City Manager/DPD Director

R. Eric Slagle
Director of Development Services

Shaun Shanahan
Building Commissioner

MEMORANDUM

TO: Kevin Murphy, City Manager
Diane Tradd, DPD Director

FROM: R. Eric Slagle, Director of Development Services

RE: MOTION BY COUNCILOR ELLIOTT - REQ. CITY MGR. /LAW DEPARTMENT IDENTIFY ANY POTENTIAL PRESERVATION/CONSERVATION RESTRICTIONS RELATIVE TO DOWNTOWN OPTIONS FOR LOWELL HIGH SCHOOL CONSTRUCTION PROJECT.

The Department of Planning and Development has researched prohibitions, limitations, and restrictions on parcels currently occupied or potentially impacted by any renovation or reconstruction of Lowell High School if the downtown alternative were chosen. Such restrictions are the property's inclusion in the Lowell Downtown Historic district, deed restrictions on particular parcels, state statutory protections on certain parcels, agreements entered into when accepting state or federal grants, and exclusive easements owned by third parties impacting the parcels, or other restrictions.

The parcels Lowell High currently occupies include the following:

- 38 Kirk Street, which contains the 1892 Coburn Hall and the 1922 expansion;
- 50 Father Morissette, which contains the 1980 Lord Building and Field House;
- 35 French Street, which contains the Boiler Building;
- 55 French Street, which contains the 1920 Freshman Academy;
- 68 John Street, which contains the 1938 expansion of the Freshman Academy.

Additional parcels of interest include the following:

- The former Anne Street right of way (ROW), which now contains the concrete path of Lucy Larcom Park;
- 255 Merrimack Street, which contains the asphalt path of Lucy Larcom Park;
- The Merrimack Canal between the 1800s and 1980 buildings;
- 275 Merrimack Street, between the trolley railroad and Merrimack Canal;
- 9 Dutton Street, the trolley railroad right-of-way owned by the National Park Service;
- 75 Arcand Drive, owned by Lowell Doctors Park Trust and considered as an expansion site in one of the alternatives.

The Department of Planning and Development has currently identified the following potential restrictions, special licenses needed, or other concerns:

Historic Registration

All Lowell High School is listed on the National and State Registers of Historic Places through its inclusion within both the Lowell National Historical Park & Preservation District and the City Hall Historic District. This applies to the two buildings on Kirk Street including Colburn Hall (1892) and an addition built between 1920-1922. The 1981 section of Lowell High School and related tunnels is not within either district, nor would be eligible for listing and is not historically significant.

Three nearby buildings also associated with the high school, the former Lowell Trade School (1900) at 68 John Street, the Lowell High School Annex (1939) at 55 French Street as well as the powerhouse and associated smokestack on French Street are also listed on the National and State Registers of Historic Places through their inclusion within both the Lowell National Historical Park & Preservation District and the City Hall Historic District.

Due to the federal and state historic designations, any proposed work to the buildings utilizing federal or state undertakings including funding, licensing, and permitting would require review by the Massachusetts Historical Commission in consultation with the Lowell Historic Board and the Lowell National Historical Park. If the buildings are proposed to be vacated, the Massachusetts Historical Commission could require a MOA, similar to the existing courthouses MOA, that would focus on maintenance, retention, and if the buildings are eventually disposed of, a preservation plan requirement. Additionally, if disposed to private parties, the buildings would then be under the design review, permitting, and approval jurisdiction of the Lowell Historic Board due to their location within the Downtown Lowell Historic District for any exterior work and interior work (but only if the interior work affects the exterior appearance).

Additionally, if privately disposed of, the historic properties would be eligible for both the federal and state historic rehabilitation tax credit if they were redeveloped for income producing uses. The tax credit program would also review proposed interior work and could require retention of Colburn Hall in the 1892 building and the Irish Auditorium in the 1922 building as they would be viewed as significant interior spaces. Any condominium conversion would eliminate the historic tax credits as an incentive due to NPS and IRS recapture regulations that require a project to remain in the same ownership for five years after taking the credit.

Downtown Lowell Historic District

All parcels of interest are in the Downtown Lowell Historic District. This means that any erection, demolition, or alteration of structures on those parcels require review and approval by the Lowell Historic Board and State Historical Preservation Office pursuant to 36 CFR Part 800, regulations implementing Section 106 of the National Historic Preservation Act (54 U.S.C. 306108); and pursuant to 950 CMR 71.00 et seq, regulations implementing Massachusetts General Laws Chapter 9, Sections 26 through 27C.

Lowell National Historical Park

38 Kirk Street, the Anne Street ROW, 255 Merrimack Street, the Merrimack Canal, 275 Merrimack Street, and 9 Dutton Street are within the Lowell National Historical Park boundaries. Additional research and coordination with Lowell National Historical Park would be required to determine whether this presents additional limitations in use or alteration of the properties.

Chapter 91, The Massachusetts Public Waterfront Act

Activities in, under, or over a publicly-owned waterway are subject to Chapter 91, the Massachusetts Public Waterfront act, and require approval and license from the Massachusetts Department of Environmental Protection (DEP) pursuant to 310CMR 9.00. The Merrimack Canal is considered a publicly-owned waterway for

the purposes of Chapter 91 jurisdiction. Bridges qualify for a license for a water-dependent use, whereas most other structures require a license for a non-water-dependent use.

Massachusetts Wetlands Protection Act and City Wetlands Ordinance

Lands directly within a wetland resource area or within a buffer from a resource area are subject to the Massachusetts Wetlands Protection Act, and certain activities within those resource areas and 100' buffer zones outside those areas require review and approval by the Lowell Conservation Commission. All canals in Lowell, including the Merrimack Canal, are considered resource areas, and most activities within or over them and their 100' buffer zones must be approved by the Conservation Commission and would be subject to any order of conditions they set forth. This includes 38 Kirk Street, 50 Father Morissette, 75 Arcand Drive, and all the parcels between the buildings and the canal, in addition to the canal itself. The site may be the subject of previous orders of condition by the Lowell Conservation Commission as well.

Merrimack Canal

In 1986, the Commonwealth of Massachusetts Department of Environmental Management (now known as Department of Conservation and Recreation or DCR) took from Proprietors of Locks and Canals "all air rights over the canals, including the canal walls and any dams thereon, to the extent not already lawfully obstructed or occupied, for so long as such lawful obstruction or occupation continues uninterrupted in its present form," among other rights related to the canals.

Two pedestrian bridges currently span the Merrimack Canal. The City of Lowell obtained an easement for the older of the bridges 1980 from Proprietors of Locks and Canals. Because this bridge lawfully occupied the air above the canal, it was not included in the 1986 taking. It is assumed the air rights would revert back to the DCR if the bridge were removed, but can be modified if its existing footprint does not change.

The canal walls, the canal bed, and the water and water rights within the canal are owned by Boott Hydropower, a subsidiary of Enel Green Power North America. Any structures within or impacting the canal floor, walls, or flow of water in the canal would not only require permission from the DCR, but also require an easement or other agreement with Enel Green Power North America.

Lucy Larcom Park (255 Merrimack Street)

In 1824, Proprietors of Locks and Canals conveyed 255 Merrimack Street to a newly-created trust. The deed stipulated that the trust was "to keep said lot of land as ornamental ground forever, the same being hereby dedicated and set apart by the grantor for the purpose of beautifying and ventilating the City and in trust that they, their successors and substitutes are not to suffer any building to be erected or to stand thereon and are to devote the same to the cultivation of trees, shrubs, grass, and such other things as may promote and advance the foregoing objects."

The deed allowed an exception for Proprietors of Locks and Canals, their successors, and assigns to use the land to widen the Merrimack Canal or to build bridges for streets, passageway, and railway above the land.

In 1909, the Proprietors of Locks and Canals appointed the mayor of Lowell and the chair of the Board of Parks to be the owners in trust. The trustees now appear to be the City Manager of the City of Lowell and the chair of the Board of Parks, to maintain the park with the restrictions listed within the deed. It is unknown whether this unusual arrangement presents any complications to building over or adjacent to the property.

The City of Lowell granted the National Park Service (NPS) an easement to build, maintain, and operate a pedestrian path in 255 Merrimack Street. This is the asphalt path that runs alongside the canal. Additional research is required to know if that easement precludes any construction through or above the park.

Additional review is required to know what steps were taken to build the existing pedestrian bridges over Lucy Larcom Park and any additional steps would be required if the bridges were moved or modified.

Finally, the park was redesigned by the Olmsted Brothers Company in 1910, and the Lowell Historic Preservation Commission, a unit of the NPS, restored the park to its 1910 layout in 1991, which may afford the park additional protections beyond its deed restriction. However, additional research is needed to determine what protections this may afford.

National Park Service Trolley Right-of-Way (9 Dutton Street and 75 Arcand Drive)

The NPS acquired Boston and Maine's railroad interests in the study area in 2004, which includes a fee simple title in 9 Dutton Street and an exclusive easement for a spur that starts at the right-of-way near the Lowell Masonic Temple and curves through 75 Arcand Drive (the parcel owned by Doctors Park Trust) to Arcand Drive.

Both existing pedestrian bridges cross the right of way at 9 Dutton Street. Boston and Maine granted an easement to the City of Lowell for the 1980 bridge in 1980. In 2004, Boston and Maine granted an easement to the City of Lowell for the 1996. This was delayed because it was not discovered that no such easement existed until the proposed sale to NPS. The easement was granted immediately prior to Boston and Maine conveying their right-of-way to NPS. Both easements are now held by the City against NPS.

Any new use of the air rights over the property would require the City to obtain a new easement from NPS. Additional research and discussion with Lowell National Historical Park is required to determine any restrictions there may or may not be on utilizing the easement area owned by NPS in 75 Arcand Drive.

Next Steps

In addition to completing an initial review of deeds and districts affecting the site, full title exams on all parcels of interest may uncover other easements or deed restrictions the DPD may not be able to find. In addition, further discussion with DCR and Lowell National Historical Park is warranted, due to both parties having multiple interests in and around the site.

ES

03/21/2017

The City of Lowell • Department of Planning and Development
JFK Civic Center • 50 Arcand Drive • Lowell, MA 01852
P: 978.674-4252 • F: 978.970.4262
www.LowellMA.gov

Diane Nichols Tradd
Assistant City Manager/DPD Director

Kevin E. Coughlin
Deputy Director

MEMORANDUM

TO: Kevin J. Murphy, City Manager

FROM: Kevin Coughlin, Deputy Director

SUBJECT: MOTION OF 2/14/17 BY COUNCILOR SAMARAS/COUNCILOR LEARY REQUEST CITY MANAGER HAVE DPD PROVIDE A REPORT REGARDING THE ECONOMIC POTENTIAL FOR THE LOWELL HIGH SCHOOL SITE IN THE EVENT THAT THE SCHOOL WAS TO BE MOVED

In the event that Lowell High School was to be moved from its present site, the Department of Planning and Development (DPD) has explored potential uses for the current Lowell High School site.

The total site area of the current Lowell High School site is 285,043 square feet, or 6.54 acres. The buildable potential of the site, based on the under current zoning is 1,140,172 square feet. The site is located in a Downtown Mixed Use (DMU) zone and this designation allows a wide variety of commercial, retail, hotel, business, laboratory and institutional uses as of right. The lot shape and dimensions do not appear to pose unusual constraints to development and much of the site is relatively level and at grade and would support many types of development. The physical characteristics of the property will allow most types of commercial, retail, or industrial uses.

Potential Site Uses

- Housing/Mixed Use
  FY2017 residential tax rates are $14.92 per $1,000 assessed.
- Commercial
  FY2017 commercial and industrial rates are $30.64 per $1,000 assessed.
- Public Use by the City
  Police and Fire Departments could rehab building(s) and move central offices to the current high school site. This could create new opportunities at JFK Plaza.
- Municipal Agencies
  The City would have the option of utilizing future space for key departments instead of building new structures.

The DPD staff also interviewed five successful local developers actively engaged within the City. In summary, their recommendations for potential uses are as follows:

1. Create a mixed use residential/retail project along the canal adjacent to Lucy Larcom Park. This would include over 100 luxury residential units on the upper floors with restaurants, retail shops, and a theatre on the ground floor to create a destination for people to gather. This will also attract people into the downtown. Do not build offices and do not build apartments. This type of development would create a boost for the tax base for 5-10 years.

2. Open up Moody Street again, and move the Fire and Police Stations out of the downtown. Build some parking at the JFK Plaza to assist the downtown and to open up the Acre Neighborhood. Open up everything that covers the canal waterway from the end of Dutton Street to the Tsongas Arena. Then develop a market rate, mixed use development. The strength of the original high school buildings is much stronger than anything built today. Renovate the buildings instead of demolishing and rebuilding.

3. Create a "village within a village" utilizing the present properties. Renovation and reuse is much better than building new. Copy a similar model used in other communities and other States. Create a mixed use combination of market rate rental and condo units. You will need the income from these market rate units to support the new retail and service environment. The utilities are already at the site so that is a big benefit for any development. Understand and utilize the advantages of the many amenities within the City including the National Park. Create a Live, Work, Play environment utilizing the beauty of the canals and green space.

4. This could be a "perfect bookend" to the efforts of UMass Lowell to build out their campus. As it is already off the tax rolls, the impact would be much less and would bring more students spending into the downtown. This would also better define Lowell as a "college town" in its positioning and branding.

   If more private sector (taxable) ownership was desired, it is perfect as an extension of the work of the University for incubator space, shared business resources, and "hybrid and creative" programs sponsored by large private sector businesses, e.g. Raytheon, Kronos, etc., to utilize the brain power of the University in their technology sector and getting innovative products to the market that benefit the private sector and encourage their reinvestment into the Lowell area.

5. Lowell needs to look at the bigger picture when it comes to this project. Definitely the cornerstone of anything at this site will be market rate housing. This will be the key sustainer for further development of retail and restaurants. A mixed use project is the only sustainable activity that can add value to the entire downtown and Acre Neighborhood. Use the canal frontage and open up new parking and multi-age safe, convenient citizen gathering areas.

   The City should look at this project as a team approach by getting the right mix of qualified people around the table – both public and private. It will take a comprehensive team to be successful at achieving a final goal that benefits the public and private sectors. This should be looked at as one piece of the puzzle for the entire City and the downtown. Other pieces that should be included in the same planning are the Hamilton Canal Innovation District, Lowell Housing Authority improvements, UMass Lowell future expansion, and the Acre Neighborhood. All of these will have different goals but contribute to the successful environment we are trying to create.

Of course, any potential development would need to go through the normal permitting and approval processes. In conclusion, the current Lowell High School site has economic potential for a variety of uses. DPD will continue to provide information for any scenario that is requested.

KC/ns
5/25/17
cc: Diane N. Tradd, Assistant City Manager/DPD Director

The City of Lowell • Department of Planning and Development
JFK Civic Center • 50 Arcand Drive • Lowell, MA 01852
P: 978.674-4252 • F: 978.970.4262
www.LowellMA.gov

Diane Nichols Tradd
Assistant City Manager/DPD Director

Kevin E. Coughlin
Deputy Director

MEMORANDIUM

TO: Kevin J. Murphy, City Manager

FROM: Diane N. Tradd, Assistant City Manager/DPD Director

SUBJECT: COUNCIL MOTION OF 5/23/17 BY COUNCILOR BELANGER
REQUEST CITY MANAGER PROVIDE A REPORT REGARDING ASBESTOS REMEDIATION, INCLUDING COSTS, ON THE 1922 BUILDING AS PART OF THE LOWELL HIGH SCHOOL PROJECT

Universal Environmental Consultants (UEC) was contracted by Perkins Eastman in the fall 2016 to conduct a Hazardous Materials Identification Study (Hazmat Study) at Lowell High School. The Hazmat Study involved inspecting and sampling for the following:

- Asbestos Containing Materials (ACM)
- Polychlorinated Biphenyls (PCBs)
- Lead Based Paint
- Mercury in Rubber Flooring
- Airborne Mold; and,
- Radon

Between September 19, 2016 and October 12, 2016 a total of ninety-eight (98) bulk samples were collected at the 1922 Building from materials suspected of containing asbestos including, but not limited to, lab tables, insulation, fireproofing, caulking, tiles, and wall plaster. Of these samples twelve (12) were determined to contain asbestos and included various types of caulking, glue, mastic, floor tile, and a lab table. In addition to this it was assumed, without testing, that a number of materials contained asbestos including glue holding blackboards, pipe insulation in the basement fan room, the stage fire curtain, transite panels, underground sewer pipes, damproofing, and roofing materials.

Based on these sampling results and the quantities of materials measured during the building survey, UEC estimates that the total cost to remove all hazardous materials is $1,125,000.00. Costs provided by UEC were based on a conceptual feasibility study and it was assumed, for the purposes of their study, that complete demolition of the 1922 Building would take place. In a renovation scenario, it is possible to assume that removal of Transite Sewer Pipe, Thru Wall Flashing, and Damproofing may not be required because exterior demolition at the building foundation is unlikely. As such, the total cost for hazardous materials abatement, based on the Hazmat Study, for the 1922 Building could possibly be reduced to an estimated $825,000.00. This cost includes a contingency of $25,000.00 for any miscellaneous hazardous materials or ACM that is not yet discovered.

However, it is important to note that the total costs provided by UEC represent the current maximum anticipated price for hazardous materials abatement and will require further evaluation as the design process moves forward. The design process will identify the exact limits of renovation so that more accurate quantities and costs for hazardous materials removal can be determined.

DNT/ns
5/25/17
cc: Sarah Brown, Environmental Officer

LOWELL REGIONAL WASTEWATER UTILITY

WASTEWATER COLLECTION AND TREATMENT

MARK A. YOUNG
EXECUTIVE DIRECTOR

SERVING
LOWELL
CHELMSFORD
DRACUT
TEWKSBURY
TYNGSBORO

COUNCIL REQUEST

TO: Kevin J. Murphy, City Manager

FROM: Mark A Young, Executive Director

DATE: June 1, 2017

SUBJ: 3017-03-21 11.18 M. Kennedy Request City Manager report to City Council regarding anticipated costs due to infrastructure and traffic improvement necessary if the High School were to move out of downtown including any sidewalks, road improvement s and traffic lights that were needed.

Historically the Wastewater Utility responded to calls of street flooding in the Douglas/Windward Road area during heavy rain. With the recent improvements to the Clark Road culvert, street flooding issues have been mitigated, resulting in a reduction of calls to the Utility.

The Wastewater Utility has recently been informed that street flooding issues in this area may still occur during times of heavy rain. The Wastewater Utility is installing a level sensor to monitor levels in the local sewer system to determine if further action is necessary.

If a drainage project is necessary, it would need to be addressed regardless of the location of the high school.

Office of the Board of Assessors
City Hall • 375 Merrimack Street • Lowell, MA 01852
P: 978.674.4200 • F: 978.970.4205
www.LowellMA.gov

Susan A. LeMay, MAA
Chief Assessor
Mabel E. Bond
Joel H. Cohen
Assessors

May 30, 2017

Mr. Michael McGovern
Assistant to the City Manager
City Hall – 375 Merrimack Street
Lowell, MA 01852

RE: City Council Motion of 2/14/17 by Councillor C. Belanger – Req. Mgr. have DPD research the impact of property values located near the high school as a result of any renovations of the high school.

Dear Mr. McGovern:

This is in response to motion as stated above relative to Lowell High School Options number 2 and number 3.

Option #2 would result in literally no impact to any of the property values in the immediate area of the high school due to the fact that it is my understanding that no construction vehicles or heavy equipment or machinery would interrupt the daily course of business activity in the area of the high school where it is currently located.

Option #3 would result in a loss of property values if the professional building at 75 Arcand Drive were to be taken by Eminent Domain as previously discussed. The following is the current breakdown of the value of the building and the business (personal property accounts) that would be lost unless relocated within the city limits:

Building Value:	643,600
Total PP Value:	277,693
Total Com. Value:	921,293

Unless heavy equipment is physically located on Kirk Street during the daylight hours, there should be no impact to property values to the businesses due to the potential renovation of the high school. There are seven properties on Kirk St including St. Anne's Church, the Oblate Real Estate Trust, Community Teamwork, Madison Security and the National Park Service.

Please let me know if you need anything further.

Sincerely,

Susan LeMay

Susan A. LeMay, MAA
Chief Assessor/Chair
Lowell Board of Assessors

Office of the Board of Assessors
City Hall • 375 Merrimack Street • Lowell, MA 01852
P: 978.674.4200 • F: 978.970.4205
www.LowellMA.gov

Susan A. LeMay, MAA
Chief Assessor
Mabel E. Bond
Joel H. Cohen
Assessors

May 30, 2017

Mr. Conor Baldwin
Chief Financial Officer
City Hall – 375 Merrimack Street
Lowell, MA 01852

Dear Mr. Baldwin:

This is in response to your request to look into the matter of the possibility of what the impact of value could be to the properties in the vicinity of the area if Lowell High School were to be relocated in the Belvidere section of the city.

I could not find any evidence that relocating the high school anywhere in the city would impact the sale prices or assessed values of the abutting properties. I contacted many other assessing officials from across the state and from those that I spoke with, not one community has seen a negative impact in assessed values from a school being built in a residential area. Billerica, for example, a new elementary school was built about six years ago and I was told the sale prices in that neighborhood increased, so it is believed the school had a positive impact on the sale prices and overall values.

My staff and I have also taken a look at three residential areas in Lowell in Belvidere, Pawtucketville and the Highlands Sections of the city to specifically look at the sales in the vicinity of those schools over the past three years in the immediate area where the properties might be impacted by the traffic as well as sales of properties further away from the schools where there would be no traffic impact. We found no evidence of any difference in the sale prices of properties, just as the other assessing officials across the state found. . I am enclosing the maps showing the three areas in the city where we analyzed the sales located near the schools and/or the direct routes to and from the school buildings.

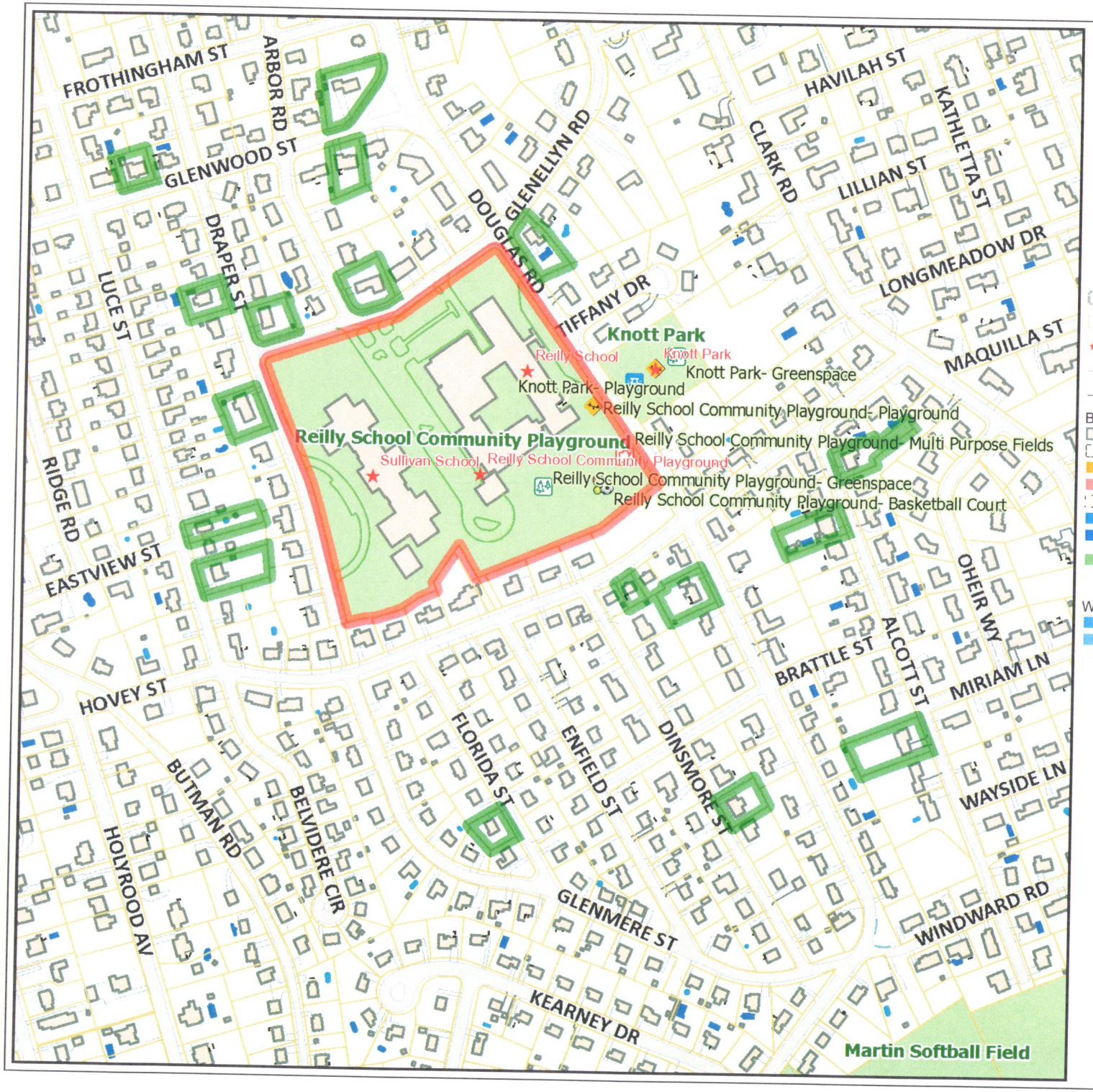
In conclusion, after researching the sales locally and statewide, there doesn't appear to be any impact to sale prices of properties due to the location of a public school building.

Sincerely,

Susan A. LeMay

Susan A. LeMay, MAA
Chief Assessor/Chair
Lowell Board of Assessors

Enc.-3



City of Lowell
Massachusetts

Reilly & Sullivan Schools
(Douglas Rd)

- Lowell Boundary
- Parcels
- Popular Destinations
- Driveways
- Railroads

Buildings
- Building
- Foundation
- Mobile Home
- Tank
- Deck
- Pool - Above Ground
- Pool - In-Ground

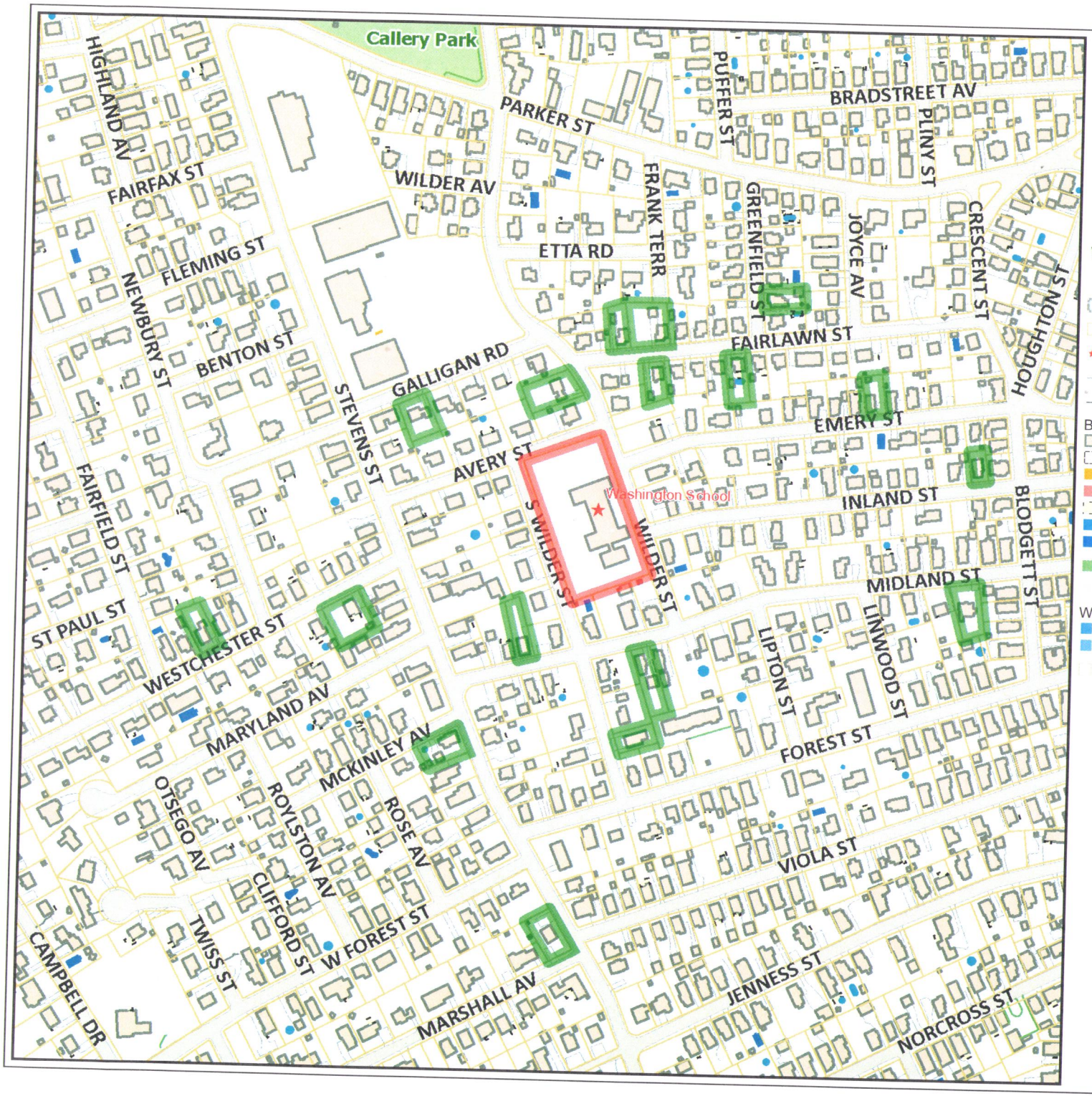
- Parks
- Paved Roads

Water Bodies
- Open Water
- River

- Border Town Parcels

1" = 356 ft

May 30, 2017



City of Lowell
Massachusetts
Washington School (Wilder St)

- Lowell Boundary
- Parcels
- Popular Destinations
- Driveways
- Railroads

Buildings
- Building
- Foundation
- Mobile Home
- Tank
- Deck
- Pool - Above Ground
- Pool - In-Ground

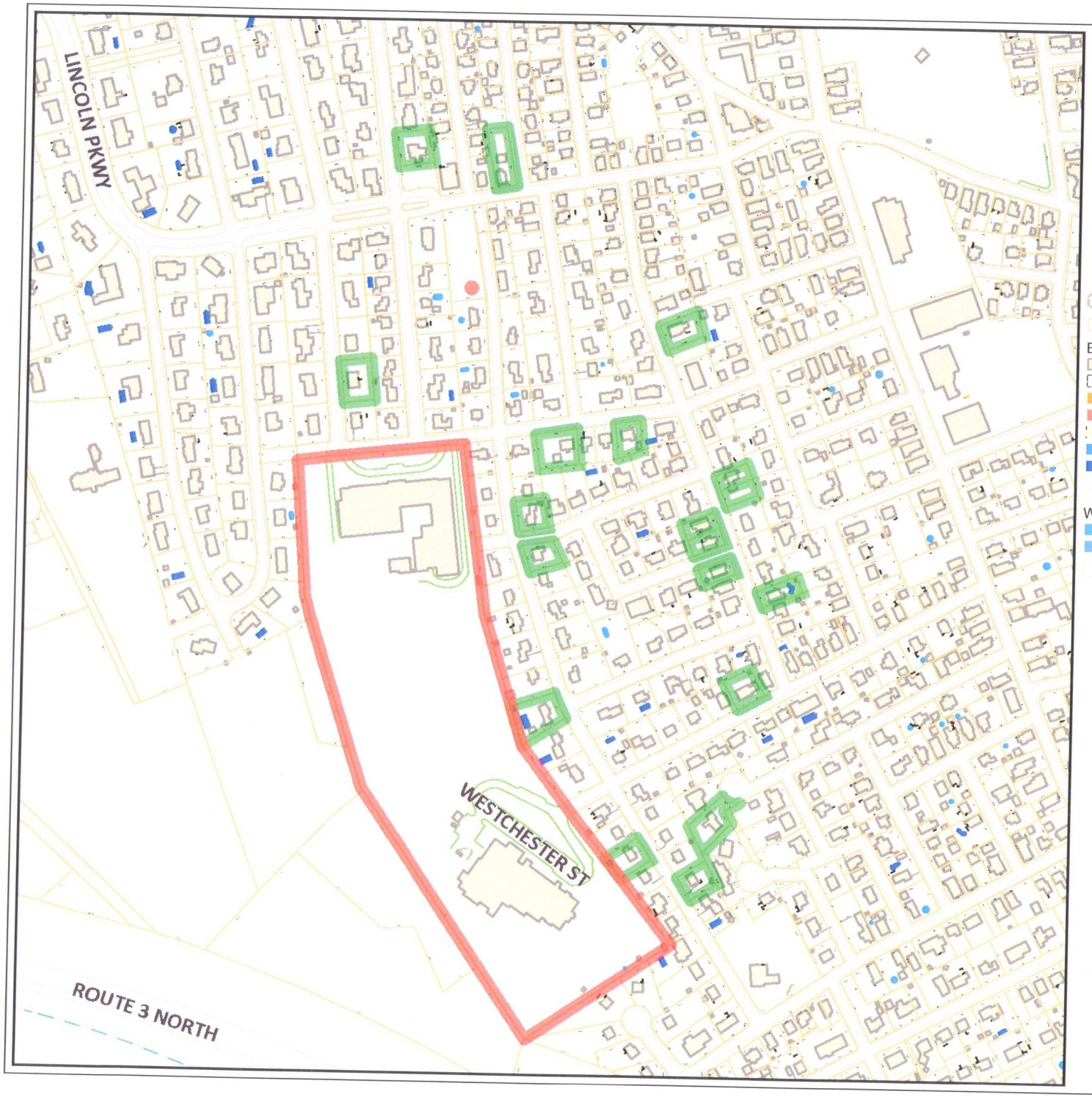
- Parks
- Paved Roads

Water Bodies
- Open Water
- River

- Border Town Parcels

1" = 320 ft

May 30, 2017



City of Lowell
Massachusetts

Bailey & Daley School
(Fleming St)

- Lowell Boundary
- Parcels

Buildings
- Building
- Foundation
- Mobile Home
- Tank
- Deck
- Pool - Above Ground
- Pool - In-Ground

- Paved Roads

Water Bodies
- Open Water
- River

- Border Town Parcels

1" = 386 ft

May 30, 2017

The City of Lowell • Dept. of Planning and Development • Division of Development Services
Lowell City Hall • 375 Merrimack Street • Lowell, MA 01852
P: 978.674.4144 • F: 978.446.7103
www.LowellMA.gov

Diane N. Tradd
Assistant City Manager/DPD Director

R. Eric Slagle
Director of Development Services

Shaun Shanahan
Building Commissioner

MEMORANDUM

TO: Kevin Murphy, City Manager
Diane Tradd, DPD Director

FROM: R. Eric Slagle, Director of Development Services

RE: MOTION BY MAYOR KENNEDY - REQ. CITY MGR. REPORT TO CITY COUNCIL REGARDING VOTES NECESSARY BY THE CONSERVATION COMMISSION REGARDING THE WETLANDS ADJACENT TO THE CAWLEY SITE AND THE NATIONAL HERITAGE ENDANGERED SPECIES AREA THAT IS ADJACENT TO THE CAWLEY SITE.

This memorandum addresses the request from Mayor Kennedy regarding the conservation commission jurisdiction over the Cawley site. Although the process is still in the early stages, and final plans have not been drafted, the initial proposals for a potential high school at the Cawley site indicate the following areas of jurisdiction. First, the wetlands on the north of the parcel would trigger a Notice of Intent (NOI) filing for any work to be done within 100 feet of a resource area, as defined by the Wetlands Protection Act and our local Wetlands Ordinance. Our Conservation Commission allows for a delineation of wetlands to be done concurrently with the NOI for the construction. Second, though the Conservation Commission does not have local jurisdiction over the endangered species area on the site, during the NOI filing, the Commission requires a letter of compliance for the state for endangered species issues.

The NOI process would require an abutter notice and a public hearing, at which time the Commission would need a majority vote to approve an Order of Conditions for the project. Please note, however, that there is an appeal process to the MassDEP should an aggrieved party not be satisfied with the local Commission decision, and the MassDEP would have superseding jurisdiction over Wetlands Protection Act issues.

ES

03/20/2017

MASSWILDLIFE

DIVISION OF
FISHERIES & WILDLIFE

1 Rabbit Hill Road, Westborough, MA 01581
p: (508) 389-6300 | f: (508) 389-7890
MASS.GOV/MASSWILDLIFE

Jack Buckley, *Director*

April 4, 2017

Kevin Murphy
Lowell City Manager
375 Merrimack Street
2nd Floor, Room 43
Lowell MA 01852

RE: Existing Lowell High School- 50 Father Morissette Boulevard, 38 Kirk Street, 55 French Street

Dear Applicant:

Thank you for submitting a MESA Project Review Checklist and other information regarding your project to the Natural Heritage & Endangered Species Program of the Massachusetts Division of Fisheries & Wildlife (the "Division").

Based on a review of the information that was provided and the information that is currently contained in our database, the Division has determined that this project, as currently proposed, **does not occur within Estimated Habitat of Rare Wildlife or Priority Habitat** as indicated in the *Massachusetts Natural Heritage Atlas* (13th Edition). Therefore, the project is not required to be reviewed for compliance with the rare wildlife species section of the Massachusetts Wetlands Protection Act Regulations (310 CMR 10.37, 10.59 & 10.58(4)(b)) or the MA Endangered Species Act Regulations (321 CMR 10.18). Any additional work beyond that shown on the site plans may require a filing with the Division.

Please note that this determination addresses only the matter of **rare** wildlife habitat and does not pertain to other wildlife habitat issues that may be pertinent to the proposed project. If you have any questions regarding this letter please contact Daisy Medeiros, Endangered Species Review Assistant, at (508) 389-6357.

Sincerely,

Thomas W. French

Thomas W. French, Ph.D.
Assistant Director

cc: William R. Maher, PE, Nitsch Engineering

MASSWILDLIFE

DIVISION OF
FISHERIES & WILDLIFE

1 Rabbit Hill Road, Westborough, MA 01581
p: (508) 389-6300 | f: (508) 389-7890
MASS.GOV/MASSWILDLIFE

Jack Buckley, *Director*

April 19, 2017

Kevin Murphy
City of Lowell
City Hall, 375 Merrimack Street
Lowell MA 01852

RE: Project Location: Clark Road/Douglas Road
Project Description: Construction of New High School
NHESP File No.: 17-36597

Dear Applicant:

Thank you for submitting the MESA Project Review Checklist, site plans (dated March 19, 2017) and other required materials to the Natural Heritage and Endangered Species Program of the MA Division of Fisheries & Wildlife (the "Division") for review pursuant to the Massachusetts Endangered Species Act (MESA) (MGL c.131A) and its implementing regulations (321 CMR 10.00).

Based on a review of the information that was provided and the information that is currently contained in our database, the Division has determined that this project, as currently proposed, **will not result in a prohibited Take** of state-listed rare species. This determination is a final decision of the Division of Fisheries & Wildlife pursuant to 321 CMR 10.18. Any changes to the proposed project or any additional work beyond that shown on the site plans may require an additional filing with the Division pursuant to the MESA. This project may be subject to further review if no physical work is commenced within five years from the date of issuance of this determination, or if there is a change to the project.

Please note that this determination addresses only the matter of state-listed species and their habitats. If you have any questions regarding this letter please contact Daisy Medeiros, Endangered Species Review Assistant, at (508) 389-6357.

Sincerely,

Thomas W. French

Thomas W. French, Ph.D.
Assistant Director

cc: William Maher, Nitsch Engineering, Inc

The City of Lowell • Dept. of Planning and Development • Division of Development Services
Lowell City Hall • 375 Merrimack Street • Lowell, MA 01852
P: 978.674.4144 • F: 978.446.7103
www.LowellMA.gov

Diane N. Tradd
Assistant City Manager/DPD Director

R. Eric Slagle
Director of Development Services

Shaun Shanahan
Building Commissioner

MEMORANDUM

TO: Kevin Murphy, City Manager
Diane Tradd, DPD Director

FROM: R. Eric Slagle, Director of Development Services

RE: MOTION BY MAYOR KENNEDY - REQ. CITY MGR. REPORT TO CITY COUNCIL REGARDING ANY STANDING THAT THE TOWN OF TEWKSBURY WOULD HAVE REGARDING ARTICLE 97 AND ON ANY CONSERVATION OR ENVIRONMENTAL ISSUES.

This memorandum addresses the request from Mayor Kennedy regarding any standing that the Town of Tewksbury might have with respect to Article 97, conservation or environmental issues at the Cawley site.

With respect to the Article 97 issue, the Law Department has opined that since Tewksbury never received any grants funds from the state for the property, and was not the owner of the property, then Tewksbury would not have standing under Article 97.

With respect to conservation/environmental issues, on the other hand, Tewksbury does have jurisdiction over at least a portion of the proposed project. The northeastern portion of the site contains a potential wetlands resource area, and is located within the Tewksbury town boundaries. Proposed plans for the site would have a parking area constructed just south of the wetlands area in Tewksbury, and that would grant the Tewksbury Conservation Commission jurisdiction over the project, and would trigger a Notice of Intent (NOI) filing for any work to be done within 100 feet of a resource area, as defined by the Wetlands Protection Act and the local Wetlands Ordinance. In Tewksbury, there appears to be additional jurisdiction extending to 200 ft. form a vernal pool, and there may be such resource areas at the Cawley site. The Tewksbury Con Comm would likely also require some documentation from the state regarding the endangered species issues on the site. The issues before the Con Comm would not only address the immediate impacts of construction on the adjacent resource areas, but could also touch on the overburdening of the Trull Brook watershed as a whole.

Please note, that a filing may also be required before the Tewksbury Planning Board depending on their interpretation of the use on the Tewksbury portion of the Cawley site.

ES

03/20/2017

City of Lowell Department of Public Works
1365 Middlesex Street • Lowell, MA 01852
P: 978.674.4111 • F: 978.970.4071
www.LowellMA.gov

Thomas R. Bellegarde
Assistant City Manager/Public Works Commissioner

To: Kevin Murphy, City Manager
From: Thomas Bellegarde, Assistant City Manager/Public Works Commissioner
Date: June 1, 2017
RE: Field Replication Costs for Carvalho Field and Manning Complex

For your consideration, the Department of Public Works has compiled budget estimates to replicate Carvalho Field at Cawley Stadium and a full renovation/construction at the proposed Manning Field Complex located at 303 Boston Road. The budget estimates are as follows.

Carvalho Field: The scope of work at Carvalho Field is significantly less due to the fact that the subsurface has already been installed. The replacement costs are estimated at $355,000 and are broken down below.

- Replacement of exiting field turf – 60,000 sq. ft. x $5.50/sq. ft. = $330,000
- Repairs to subsurface and track - $25,000

Manning Field Complex: Renovations, repairs, replacement, and construction are all part of the scope at the Manning Field site. The work will involve an expansion of the existing parking lot, construction of a "Drop-Off Parking" area, construction of a new regulation multi-purpose field (soccer dimensions), complete renovations of Manning Field and Ventura Field, landscaping site improvements, and the installation of a nature trail to connect the fields. Budget estimates are listed below.

- Construction of new multi-purpose field - $1,320,000
  - Sub-surface construction $350,000
  - Field Turf (80,000sq. ft.) $750,000
  - Site Improvements including drainage and landscaping $75,000
  - Engineering $25,000
  - Contingency (10%) $120,000
- Renovations to Ventura Field and Manning Field - $60,000
  - Complete renovation to infields including sod, pitcher's mound and home plate, warning track, fencing, dugout improvements, foul poles, grading, fertilizing, and conditioning – 2 fields x $27,500 - $55,000
  - Irrigation repairs - $5,000
- Nature Trail - $110,000
  - Site preparation performed with in-house labor - $7500
  - 5' wide trail x 2,000LF =10,000 sq. ft. of porous concrete - $87,500
  - Landscaping improvements to entire site - $15,000
- Parking Improvements - $125,000
  - New drop off parking area - $75,000
  - Expanded Parking area and repairs to existing parking $50,000

Total Costs: $1,970,000

Please feel welcome to contact me with any questions you may have on this matter.

Office of the City Manager
City Hall ● 375 Merrimack Street ● Lowell, MA 01852
P: 978.674.4000 ● F: 978.970.4007
www.LowellMA.gov

Kevin J. Murphy
City Manager
Michael McGovern
Assistant City Manager

June 1, 2017

Mayor Edward J. Kennedy, Jr.
and
Members of the City Council

REFERENCE: **9.6. 5/23/17 C. Leary -** Req. City Mgr. instruct Skanska/Perkins Eastman create a schematic design for Lowell High School Options 3 and 4 prior to the June 6th City Council meeting.

Dear Mayor Kennedy and Members of the City Council:

Perkins|Eastman's presentation will include floor plans of each option, showing the classroom adjacencies and slides of early stage massing images. Development of architectural renderings is later in the process once a preferred site is selected. Detailed designs will be developed once the one site is selected and more in-depth designing begins. This will be available in early 2018.

Please feel free to contact me if you have further questions regarding this matter.

Sincerely,

Kevin J. Murphy
City Manager

Office of the City Manager
City Hall ● 375 Merrimack Street ● Lowell, MA 01852
P: 978.674.4000 ● F: 978.970.4007
www.LowellMA.gov

Kevin J. Murphy
City Manager
Michael McGovern
Assistant City Manager

June 1, 2017

Mayor Edward J. Kennedy, Jr.
and
Members of the City Council

REFERENCE: **11.21. 3/21/17 M. Kennedy**-Req. City Mgr. report on Parking Solution regarding the Cawley Site.

Dear Mayor Kennedy and Members of the City Council:

Perkins|Eastman's presentation will address the parking concerns at the Cawley site in their presentation to the Council.

Please feel free to contact me if you have further questions regarding this matter.

Sincerely,

Kevin J. Murphy
City Manager

The City of Lowell • Department of Planning and Development
JFK Civic Center • 50 Arcand Drive • Lowell, MA 01852
P: 978.674-4252 • F: 978.970.4262
www.LowellMA.gov

Diane Nichols Tradd
Assistant City Manager/DPD Director

Kevin Coughlin
Deputy DPD Director

MEMORANDUM

TO: Kevin J. Murphy, City Manager

FROM: Diane N. Tradd, Assistant City Manager/DPD Director

SUBJECT: COUNCIL MOTION OF 3/21/17 BY COUNCILOR SAMARAS AND COUNCILOR BELANGER
REQUEST CITY MANAGER HAVE DPD CREATE A QUESTIONNAIRE FOR DOWNTOWN BUSINESSES TO IDENTIFY REACTIONS TO LOCATION OF LOWELL HIGH SCHOOL

COUNCIL MOTION OF 5/23/17 BY COUNCILOR MERCIER
REQUEST CITY MANAGER PROVIDE REPORT REGARDING POLL RESULTS FROM DOWNTOWN BUSINESS SURVEY CONCERNING LOWELL HIGH SCHOOL

The Department of Planning and Development recently completed a survey of downtown business owners to understand how the location of the high school may impact their business. The anonymous survey was administered using the electronic tool: SurveyMonkey. Business owners were notified of the survey via email and follow up calls were made to businesses to ensure that they had received the survey. Of the approximately 150 businesses contacted, 38 completed the survey. A copy of the survey is attached.

Responses were received from a variety of business types. Based on the makeup of downtown businesses it's not surprising that the majority of responses were from retailers (55%) and restaurants (34%). Owners of coffee shops, art galleries, and professional services (including attorneys, financial institutions, and medical offices) also participated.

55% of business owners reported that high school *students* frequent their business at least monthly with 29% reporting daily visits. 40% of business owners reported that *teachers and staff* frequent their business at least monthly with approximately 16% reporting daily visits.

All business owners that responded to the survey noted that less than 50% of their annual sales are generated through students/staff/teachers of the high school with the majority claiming that they earn less than 10%.

The survey included several open-response questions. When asked about the *positive* aspects of the high school's downtown location 27% of responders pointed to the positive environment, energy and vibrancy it brings to downtown. Other responses included:

- People on the streets; increase in foot traffic
- Likelihood that students will engage with the community
- Diversity

When asked about the *negative* aspects of the high school's downtown location, 26% of responders said there are no negative impacts. The majority of responders (37%) noted traffic congestion during mornings and afternoons. Other responses included:

- Jaywalking
- Student behavior

The survey also asked businesses to comment on how moving the high school out of downtown may impact their business. Responses varied from "little to no impact" to "significant loss in business revenue."

DNT/ns
5/31/17
Attachment
cc: Kevin Coughlin, Deputy Director
Allison Lamey, Economic Development Director

City of Lowell Downtown Business Survey 2017

Dear Downtown Business Owner:

As you may be aware, the City is considering locations for a renovated and/or new high school. Please take a few minutes to tell us how Lowell High School currently impacts your business. For each question there is an opportunity for you to expand on your response if you wish to provide more feedback. Thank you.

1. What type of business do you own? Please check all that apply.

- [ ] Restaurant
- [ ] Coffee Shop
- [ ] Retail
- [ ] Art Gallery
- [ ] Salon/Barber Shop

Other (please specify)

2. On average how often do high school <u>students</u> frequent your business?

- ○ Daily
- ○ Weekly
- ○ Monthly
- ○ A few times a year
- ○ Never
- ○ I don't know

Please feel free to comment

3. On average how often do high school <u>teachers/staff</u> frequent your business?

- ○ Daily
- ○ Weekly
- ○ Monthly
- ○ A few times a year
- ○ Never
- ○ I don't know

Please feel free to comment

4. Roughly what portion of your annual sales can be attributable to high school students/teachers/staff?

- ○ Less than 10%
- ○ Between 10 - 25%
- ○ Between 26 - 50%
- ○ More than 50%

Please feel free to comment

5. In your opinion, what are some of the positive aspects of the high school's presence downtown?

6. In your opinion, what are some of the negative aspects of the high school's presence downtown?

7. One of the options before the City Council is moving the high school out of downtown. What impact(s), if any, might this decision have on our business?

8. This survey is intended to be anonymous; however, if you would like to share your contact information you may provide it below.

Business Name

Owner's Name

Phone

Email

Thank you for taking the time to respond to this survey.
Please visit the Lowell High School Project website for more information.

Office of the City Manager
City Hall ● 375 Merrimack Street ● Lowell, MA 01852
P: 978.674.4000 ● F: 978.970.4007
www.LowellMA.gov

Kevin J. Murphy
City Manager
Michael McGovern
Assistant City Manager

MEMORANDUM

TO: Mayor Kennedy and Members of the City Council

FROM: Kevin J. Murphy, City Manager

DATE: June 1, 2017

SUBJECT: Option 4 Cost Summary

Dear Mayor Kennedy and members of the City Council,

Below please find a table summarizing the costs outside of the MSBA project budget. These are all detailed in the motion responses provided as part of the June 6, 2017 City Council special meeting, however I thought it would be helpful to include a summary capturing these costs.

Item	Cost
Student Busing	$3.2 million annually
Sidewalks	$1.1 million
Traffic Improvements	$2.75 million plus ROW costs
Field Replication	$1.97 million
Repayment of MSBA Reimbursement (Existing Roof)	$365,000 - $400,000

For the downtown site, Transportation Engineer Nicolas Bosonetto projects $400,000 in transportation infrastructure costs. A place-holder cost for land acquisition ($2 million) is included in the project budget of Option 3.

Please contact me if you have further questions.

Sincerely,

Kevin J. Murphy
City Manager

Option	Total Project Budget	District Share	Annual Debt Service (30 yr/ 5%)	Tax Increase on $253,908 Home
Full Renovation	$343,585,338	$130,022,882	$8.37 Million	$255
Add/Reno Option #2 Existing	$343,948,823	$135,320,524	$8.71 Million	$266
Add/Reno Option #3 Expanded Site	$352,559,455	$143,232,657	$9.22 Million	$281
New School Cawley Site 4 Story	$339,152,182	$152,160,821	$9.79 Million	$299
New School Cawley Site 5 Story	$336,138,724	$149,439,672	$9.62 Million	$293

DESIGN OPTIONS		**Full Renovation**	2/2/17	**Full Renovation**	5/24/17		**Add/Reno Opt. 2**	2/2/17	**Add/Reno Opt. 2**	5/24/17		**Add/Reno Opt. 3**	2/2/17	**Add/Reno Opt. 3**	5/24/17		**New School**	2/2/17	**New School**	5/24/17		**New School**	5/24/17	
		Existing Site		**Existing Site**			**Existing Site**		**Existing Site**			**Expanded Existing Site**		**Expanded Existing Site**			**Cawley Site**		**Cawley Site**	**4 Story**		**Cawley Site**	**5 Story**	
Gross Floor Area (sf) =		2	641,670	2	650,105	8,435	4	624,138	4	636,740	12,602	5	638,701		632,086	-6,615	11	571,513		590,300	18,787		590,800	NA
		Element ($)	**$/sf**	**Element ($)**	**$/sf**		**Element ($)**	**$/sf**	**Element ($)**	**$/sf**		**Element ($)**	**$/sf**	**Element ($)**	**$/sf**		**Element ($)**	**$/sf**	**Element ($)**			**Element ($)**	**$/sf**	
A10 Foundations		561,754	0.88	1,534,651	2.36	972,897	4,039,209	6.47	4,177,086	6.56	137,877.23	4,137,668	6.48	4,609,724	7.29	472,056	6,035,177	10.56	9,771,260	16.55	3,736,083	8,342,480	14.12	2,307,303
B10 Superstructure		4,337,827	6.76	6,357,826	9.78	2,019,999	8,850,317	14.18	8,897,304	13.97	46,986.96	8,093,974	12.67	8,823,137	13.96	729,163	20,111,542	35.19	21,098,079	35.74	986,537	23,057,422		2,945,880
B20 Exterior Closure		10,473,118	16.32	10,302,979	15.85	-170,139	14,573,055	23.35	14,509,745	22.79	-63,309.84	12,536,748	19.63	15,174,951	24.01	2,638,203	19,980,094	34.96	19,949,172	33.79	-30,922	17,543,595	29.69	-2,436,499
B30 Roofing		7,191,260	11.21	7,576,865	11.65	385,605	5,920,305	9.49	4,920,615	7.73	-999,689.80	3,763,162	5.89	4,910,761	7.77	1,147,599	3,423,363	5.99	3,718,294	6.30	294,931	3,329,428	5.64	-93,935
C10 Interior Construction		16,143,075	25.16	14,919,539	22.95	-1,223,536	17,409,776	27.89	17,521,098	27.52	111,321.85	14,008,472	21.93	17,222,943	27.25	3,214,471	17,053,948	29.84	15,792,535	26.75	-1,261,413	15,777,807	26.71	-1,276,141
C20 Staircases		2,165,269	3.37	2,306,072	3.55	140,803	2,268,558	3.63	2,211,454	3.47	-57,104.12	1,749,412	2.74	2,210,317	3.50	460,905	1,497,364	2.62	1,587,853	2.69	90,489	1,982,412	3.36	485,048
C30 Interior Finishes		13,799,685	21.51	14,338,791	22.06	539,106	15,930,197	25.52	15,308,851	24.04	-621,345.96	12,694,483	19.88	15,031,580	23.78	2,337,097	14,064,935	24.61	17,869,620	30.27	3,804,685	17,887,442	30.28	3,822,507
D Services		68,986,639	107.51	73,261,396	112.69	4,274,757	71,029,916	113.80	72,768,922	114.28	1,739,005.56	72,462,044	113.45	72,234,626	114.28	-227,418	66,278,363	115.97	67,079,879	113.64	801,516	67,214,212	113.77	935,849
D10 Conveying Systems		491,575	0.77	491,575	0.76	0	532,641	0.85	383,534	0.60	-149,106.69	322,297	0.50	382,582	0.61	60,285	474,356	0.83	482,115	0.82	7,759	560,037	0.95	85,681
D20 Plumbing		7,374,728	11.49	7,411,449	11.40	36,721	7,543,104	12.09	7,746,994	12.17	203,890.26	7,762,398	12.15	7,689,219	12.16	-73,179	6,966,743	12.19	7,194,246	12.19	227,503	7,200,340	12.19	233,597
D30 HVAC		30,571,461	47.64	33,341,974	51.29	2,770,513	31,449,323	50.39	32,510,811	51.06	1,061,488.27	32,107,207	50.27	32,273,063	51.06	165,856	30,387,346	53.17	30,181,059	51.13	-206,287	30,206,623	51.13	-180,723
D40 Fire Protection Systems		4,011,264	6.25	4,047,840	6.23	36,576	4,166,760	6.68	4,166,648	6.54	-111.52	4,265,218	6.68	4,136,194	6.54	-129,024	3,829,137	6.70	3,862,758	6.54	33,621	3,866,030	6.54	36,893
D 50 Electrical Systems		26,537,611	41.36	27,968,558	43.02	1,430,947	27,338,090	43.80	27,960,935	43.91	622,845.24	28,004,924	43.85	27,753,568	43.91	-251,356	24,620,780	43.08	25,359,701	42.96	738,921	25,381,182	42.96	760,402
E Equipment and Furnishings		8,144,666	12.69	8,114,157	12.48	-30,509	8,997,477	14.42	8,168,277	12.83	-829,199.73	8,308,265	13.01	8,109,368.00	12.83	-198,897	9,264,226	16.21	9,491,452	16.08	227,226	9,496,731	16.12	232,505
E10 Equipment		4,582,852	7.14	4,573,017	7.03	-9,835	5,757,667	9.22	4,604,162	7.23	-1,153,504.95	4,764,128	7.46	4,573,454	7.24	-190,674	5,772,281	10.10	5,912,007	10.02	139,726	5,914,467	10.01	142,186
E 20 Fixed Furnishings		3,561,814	5.55	3,541,140	5.45	-20,674	3,239,810	5.19	3,564,115	5.60	324,305.22	3,544,137	5.55	3,535,914	5.59	-8,223	3,491,944	6.11	3,579,445	6.06	87,501	3,582,264	6.11	90,320
F10 Special Construction		36,986	0.06	36,986	0.06	0	2,420,764	3.88	2,492,627	3.91	71,863.33	2,482,585	3.89	2,510,726	3.97	28,141	960,142	1.68	968,208	1.64	8,066	968,986	1.64	8,844
F10 Special Construction		36,986	0.06	36,986	0.06	0	2,420,764	3.88	2,492,627	3.91	71,863.33	2,482,585	3.89	2,510,726	3.97	28,141	960,142	1.68	968,208	1.64	8,066	968,986	1.64	8,844
F20 Selective Building Demolition		11,220,341	17.49	10,683,105	16.43	-537,236	8,697,370	13.94	8,249,406	12.96	-447,964.17	6,531,277	10.23	8,914,801	14.10	2,383,524	0	0.00	0	0.00		0	0.00	
F2010 Selective/Building Demolition		7,030,341	10.96	7,121,885	10.95	91,544	4,364,524	6.99	5,042,296	7.92	677,771.83	2,198,431	3.44	5,457,691	8.63	3,259,260	0	0.00	0	0.00		0	0.00	
F2020 Bulk Demo							659,846	1.06	0	0.00	-659,846.00	659,846	1.03	0	0.00	-659,846								
F20 Hazardous Abatement		4,190,000	6.53	3,561,220	5.48	-628,780	3,673,000	5.88	3,207,110	5.04	-465,890.00	3,673,000	5.75	3,457,110	5.47	-215,890	0	0.00	0	0.00		0	0.00	
Sub Total Building Cost		**143,060,620**	**222.95**	**149,432,367**	**229.86**	**6,371,747**	**160,136,944**	**256.57**	**159,225,385**	**250.06**	**-911,559**	**146,768,090**	**229.79**	**159,752,934**	**252.74**	**12,984,844**	**158,669,154**	**277.63**	**167,326,352**	**283.46**	**8,657,198**	**165,600,515**	**280.30**	**6,931,361**
G05 Geoenvironmental Soils Remediation				30,000					150,000		150,000			180,000		180,000			250,000		250,000.00	160,000		160,000
G10 Site Preparation		577,837		560,326		-17,511	796,152		796,152		0	981,921		981,921		0	2,653,840		3,118,262		464,422	3,118,262		464,422
G20 Site Improvements		1,456,514		1,412,378		-44,136	2,366,088		2,366,088		0	2,918,175		2,918,175		0	7,886,960		9,267,178		1,380,218	9,267,178		1,380,218
G30 Site Civil/Mechanical Utilities		628,129		1,827,283		1,199,154	746,694		2,240,838		1,494,144	921,233		2,763,700		1,842,467	2,489,820		3,803,193		1,313,373	3,803,193		1,313,373
G 40 Site Electrical		629,977		610,886		-19,091	563,568		563,568		0	695,067		695,067		0	1,878,560		2,207,308		328,748	2,207,308		328,748
Sub Total Construction		**146,353,077**	**228.08**	**153,873,240**	**236.69**	**7,520,163**	**164,609,446**	**263.74**	**165,342,031**	**259.67**	**732,585**	**152,284,486**	**238.43**	**167,291,797**	**264.67**	**15,007,311**	**173,578,334**	**303.72**	**185,972,293**	**315.05**	**12,393,959**	**184,156,456**	**311.71**	**10,578,122**
Design Contingency 15% reno & 10% new (PSR-13% Reno & 8% New)		21,513,902	33.53	19,580,370	30.12		21,679,064	34.73	19,014,334	29.86		19,675,156	30.80	19,208,444	30.39		17,357,833	30.37	14,877,783	25.20		14,732,516	24.94	
General Conditions $300k/mo. (new) 250k/mo. (reno)	66mo.																							
Includes pre-phase work (PSR)	60mo.	15,000,000		15,750,000																				
	54mo.											13,500,000		14,250,000										
	48 mo.						12,000,000		12,750,000															
	42 mo.																							
	36 mo.																10,800,000	18.90	10,800,000	18.30		10,800,000	18.28	
	30 mo																							
Phasing	3.00%	5,036,009		5,203,608	8.00		5,588,655		5,530,691			5,158,789		5,595,007										
Sub Total		187,902,989	292.83	194,407,218	299.04		203,877,165	326.65	202,637,056	318.24		190,618,430	298.45	206,345,248	326.45		201,736,168	352.99	211,650,076	358.55		209,688,972	354.92	
General Requirements	4.00%	7,516,120	11.71	7,776,289	11.96		8,155,087	13.07	8,105,482	12.73		7,624,737	11.94	8,253,810	13.06		8,069,447	14.12	8,466,003	14.34		8,387,559	14.20	
Sub Total		195,419,108	304.55	202,183,507	311.00		212,032,252	339.72	210,742,538	330.97		198,243,168	310.38	214,599,058	339.51		209,805,614	367.11	220,116,079	372.89		218,076,531	369.12	
Bonds	1.00%	1,954,191	3.05	2,021,835	3.11		2,120,323	3.40	2,107,425	3.31		1,982,432	3.10	2,145,991	3.40		2,098,056	3.67	2,201,161	3.73		2,180,765	3.69	
CDI / Subguard	1.25%	2,467,166	3.84	2,552,567	3.93		2,676,907	4.29	2,660,625	4.18		2,502,820	3.92	2,709,313	4.29		2,648,796	4.63	2,778,966	4.71		2,753,216	4.66	
Insurance - CCIP	2.65%	5,295,772	8.25	5,479,085	8.43		5,745,981	9.21	5,711,031	8.97		5,372,303	8.41	5,815,541	9.20		5,685,640	9.95	5,965,049	10.11		5,909,779	10.00	
Permits (Assumes Limited Fees)	0.00%	0	0.00	0	0.00		0	0.00	0	0.00		0	0.00	0	0.00		0	0.00	0	0.00		0	0.00	
Sub Total		205,136,238	319.69	212,236,993	326.47		222,575,463	356.61	221,221,618	347.43		208,100,722	325.82	225,269,903	356.39		220,238,107	385.36	231,061,255	391.43		228,920,291	387.48	
GMP Contingency	3.00%	6,154,087	9.59	6,367,110	9.79		6,360,968	10.19	6,322,276	9.93		5,947,295	9.31	6,437,972	10.19		6,294,168	11.01	6,603,482	11.19		6,542,296	11.07	
CM Fee & OH	2.50%	5,282,258	8.23	5,465,103	8.41		5,723,411	9.17	5,688,597	8.93		5,351,200	8.38	5,792,697	9.16		5,663,307	9.91	5,941,618	10.07		5,886,565	9.96	
Sub Total		216,572,583	337.51	224,069,206	344.67		234,659,841	375.97	233,232,492	366.29		219,399,218	343.51	237,500,571	375.74		232,195,582	406.28	243,606,356	412.68		241,349,152	408.51	
Escal. 3% per yr. til mid point construction		35,236,359	54.91	39,055,263	60.08		32,805,446	52.56	35,264,753	55.38		33,173,162	51.94	38,641,343	61.13		27,236,542	47.66	28,575,026	48.41		28,310,256	47.92	
Sub Total Construction Cost		**251,808,942**	**392.43**	**263,124,468**	**404.74**	**11,315,526**	**267,465,287**	**428.54**	**268,497,244**	**421.67**	**1,031,958**	**252,572,380**	**395.45**	**276,141,914**	**436.87**	**23,569,535**	**259,432,124**	**453.94**	**272,181,382**	**461.09**	**12,749,258**	**269,659,408**	**456.43**	**10,227,284**

DESIGN OPTIONS			**Full Renovation**	2/2/17	**Full Renovation**	5/24/17		**Add/Reno Opt. 2**	2/2/17	**Add/Reno Opt. 2**	5/24/17		**Add/Reno Opt. 3**	2/2/17	**Add/Reno Opt. 3**	5/24/17		**New School**	2/2/17	**New School**	5/24/17		**New School**	5/24/17	
			Existing Site		**Existing Site**		Delta	**Existing Site**		**Existing Site**		Delta	**Expanded Existing Site**		**Expanded Existing Site**		Delta	**Cawley Site**		**Cawley Site**	**4 Story**	Delta	**Cawley Site**	**5 Story**	Delta
Gross Floor Area (sf) =			2	641,670	2	650,105	8,435	4	624,138	4	636,740	12,602	5	638,701		632,086	-6,615	11	571,513		590,300	18,787		590,800	NA
			Element ($)	**$/sf**	**Element ($)**	**$/sf**		**Element ($)**	**$/sf**	**Element ($)**	**$/sf**		**Element ($)**	**$/sf**	**Element ($)**	**$/sf**		**Element ($)**	**$/sf**	**Element ($)**	**$/sf**		**Element ($)**	**$/sf**	
Temp Facilities 32 Classroom Allowance			6,264,186	60 mo.	6,264,186	60 mo.												0		0			0		
Temp Facilities Gym Allowance			1,884,158	24 mo.	2,616,225	24 mo.		1,884,158	24 mo.	2,616,225	24 mo.														
Temp Facilities Admin - (within renovation build-out)																									
Temp Facilities Cafeteria - (within renovation build-out)																									
Temp Facilities Support - (within renovation build-out)																									
Total Construction Cost			**259,957,287**	**405.13**	**272,004,879**	**418.40**	**12,047,592**	**269,349,445**	**431.55**	**271,113,469**	**425.78**	**1,764,024**	**252,572,380**	**395.45**	**276,141,914**	**436.87**	**23,569,535**	**259,432,124**	**453.94**	**272,181,382**	**461.09**	**12,749,258**	**269,659,408**	**456.43**	**10,227,284**
Project Soft Costs			**52,075,311**	**81.16**	**48,971,480**	**75.33**		**54,228,063**	**86.88**	**49,767,839**	**78.16**	**-4,460,224**	**62,062,946**	**97.17**	**52,695,772**	**83.37**	**-9,367,174**	**53,123,498**	**92.95**	**49,065,188**	**83.12**	**-4,058,310**	**48,738,642**	**82.50**	**-4,384,856**
Reimbursable soft cost allowance per (15% PSR)	20%	(PDP)	42,526,841	66.28	38,942,884	59.90		44,679,593	71.59	39,755,281	62.44		50,514,476	79.09	40,688,799	64.37		43,575,028	76.25	39,462,538	66.85		39,135,692	66.24	
A/E Fee included above																									
OPM Fee included above																									
Owner / Architect Consultants included above																									
Legal included above																									
Utility Allowance included above																									
FF&E Allowance $1200 per Student	$1,200	3520	4,224,000		4,224,000			4,224,000		4,224,000			4,224,000		4,224,000			4,224,000		4,224,000			4,224,000		
IT Allowance $1200 per Student	$1,200	3520	4,224,000		4,224,000			4,224,000		4,224,000			4,224,000		4,224,000			4,224,000		4,224,000			4,224,000		
FF&E Allowance over MSBA			443,520		443,520			443,520		443,520			443,520		443,520			443,520		443,520			443,520		
IT Allowance over MSBA			356,950		356,950			356,950		356,950			356,950		356,950			356,950		356,950			356,950		
Moving Allowance			300,000		780,126			300,000		764,088			300,000		758,503			300,000		354,180			354,480		
Land Acquisition			0		0			0		0			2,000,000		2,000,000			0		0			0		
Total Project Cost			**312,032,598**	**486.28**	**320,976,359**	**493.73**	**8,943,761**	**323,577,508**	**518.44**	**320,881,308**	**503.94**	**-2,696,200**	**314,635,326**	**492.62**	**328,837,686**	**520.24**	**14,202,361**	**312,555,622**	**546.89**	**321,246,570**	**544.21**	**8,690,948**	**318,398,050**	**538.93**	**5,842,428**
Const. Contingency (6% new, 8% reno - PSR)	7%		17,626,626		21,049,957			18,722,570		21,479,780			17,680,067		22,091,353			18,160,249		16,330,883			16,179,564		
Owner Soft Cost Contingency	4%		1,701,074		1,559,022			1,787,184		1,587,735			2,020,579		1,630,416			1,743,001		1,574,729			1,561,110		
Total Project Budget			**331,360,298**	**516.40**	**343,585,338**	**528.51**	**12,225,040**	**344,087,262**	**551.30**	**343,948,823**	**540.17**	**-138,439**	**334,335,971**	**523.46**	**352,559,455**	**557.77**	**18,223,484**	**332,458,871**	**581.72**	**339,152,182**	**574.54**	**6,693,310**	**336,138,724**	**568.96**	**3,679,853**

Notes

1. Add / Reno schemes excludes the cost of decommissioning the steam plant.
2. New schemes exclude the cost of decommissioning the existing high school and steam plant.
3. New schemes do not include off site improvements.
4. Site acquisition cost of $2,000,000 recommended by city.

MEMORANDUM

To:	Michael McGovern, City of Lowell
From:	Stephen Vetere, PE, LSP, Nobis Engineering
Subject:	Summary of Geoenvironmental Findings, Existing Lowell HS and Cawley Site
Date:	May 30, 2017

The following is a brief summary of the findings of subsurface environmental investigations conducted during the MSBA Feasibility Study for the Lowell High School.

Existing Lowell High School

- The focus of Phase II site assessment activities was on the portion of the campus located to the west of the canal, since this is where the vast majority of demolition and construction (and therefore direct contact with soil) would occur under the proposed Addition/Renovation Options included in the February 2017 Preliminary Design Program.
- The portion of the existing high school west of the canal is built on the former location of the Merrimack Manufacturing Company. Most of the area was formerly occupied by tenement homes for mill workers, but the extreme northwest corner of the campus was formerly part of the mill complex.
- The existing high school is underlain by 5 to 8 feet of historical fill material consisting of sand and gravel with traces of brick, concrete, coal, and ash. In one soil boring, the remnants of what is believed to be an old concrete foundation were encountered.
- The presence of historical fill does not, in and of itself, represent a hazard to site users. Fill materials are currently inaccessible to site occupants because they are either beneath the building foundations or covered by vegetated topsoil material.
- However, historical fill materials do tend to contain anthropogenic contaminants such as polycyclic aromatic hydrocarbons (PAHs) and heavy metals. These contaminants are ubiquitous in urban areas as a consequence of the combustion of wood or coal (i.e. wood ash or coal ash), as a component of asphalt pavement, or from the burning of fossil fuels.
- Ten soil samples were collected from the existing high school site to evaluate soil conditions in areas where potential future construction activities would result in exposure to soils by construction workers and generation of excess soils requiring off-site reuse or disposal.
- Review of soil sampling results suggests that historical fill materials present throughout the existing high school site contain levels of PAHs and lead that would not permit unrestricted use of any excess soils that must be taken off site during construction. Therefore, there will likely be additional costs associated with the reuse or disposal of excess soils generated

Nobis Engineering, Inc.
585 Middlesex Street
Lowell, MA 01851
T (978) 683-0891

during construction activities at the existing high school site. These costs could be mitigated through the on-site reuse of fill material beneath new buildings, to the extent feasible based on the space available and the structural suitability of the material.

- Review of soil sampling results indicates that arsenic concentrations in shallow soils located adjacent to the railroad tracks are above levels that are suitable for a school campus, and therefore require removal and off-site disposal. MassDEP has been notified of this condition, and plans are underway to have these soils removed from the site.
- Budgeting for a school addition/renovation project on the existing high school site should include provisions for the handling and management of contaminated soils, since it is likely that fill materials in the upper 5 to 8 feet contain PAHs and metals typical of urban fill. Estimated cost ranges: Full Renovation: $30K; Addition/Renovation 2: $75K-$150K; Addition/Renovation 3: $90K-$180K.

Cawley Site

- The Cawley Site has been used for recreational purposes since at least 1938.
- Nobis completed a Phase I site assessment for the Cawley Site. Based on the review of historical records, as well as subsurface investigation records from explorations completed by other consultants during the Feasibility Study, the primary environmental concern for this site is the presence of historical fill material in the northern portion of the site, beyond the outfield fence of the Martin Softball Field. Soil borings and test pits excavated in this area identified fill materials including soil with traces of metal, brick, glass, and concrete.
- A Phase II assessment completed in May 2017 indicated that the extent of fill material is limited to the area north of the softball field. Review of soil sampling results suggests that historical fill materials present to the north of the softball field contain levels of PAHs that would not permit unrestricted use of any excess soils that must be taken off site during construction. Therefore, there will likely be additional costs associated with the reuse or disposal of excess soils generated during construction activities at the Cawley Site. These costs could be mitigated through the on-site reuse of fill material beneath new buildings or parking areas, to the extent feasible based on the space available and the structural suitability of the material.
- A second minor environmental concern was identified through the review of environmental records for the Cawley Site. A former gasoline filling station located at 780 Rogers Street remains open from a MassDEP regulatory perspective. This former retail gasoline facility contains both soil and groundwater contamination associated with a historical release from a gasoline underground storage tank. The inferred groundwater flow direction is from this site toward the extreme southern portion of the Cawley Site, toward the parking area south of the Alumni Baseball Field. The extent of groundwater contamination does not currently extend beneath the Cawley Site, however if extensive withdrawal of groundwater were to occur during construction of a new school, it is possible that contamination could be drawn toward the site. Considering the proposed school plan for the Cawley Site, this scenario is considered unlikely and therefore does not warrant consideration for additional project cost.
- Budgeting for a school project on the Cawley Site should include provisions for the handling and management of contaminated soils, since it is likely that fill materials to the north of the

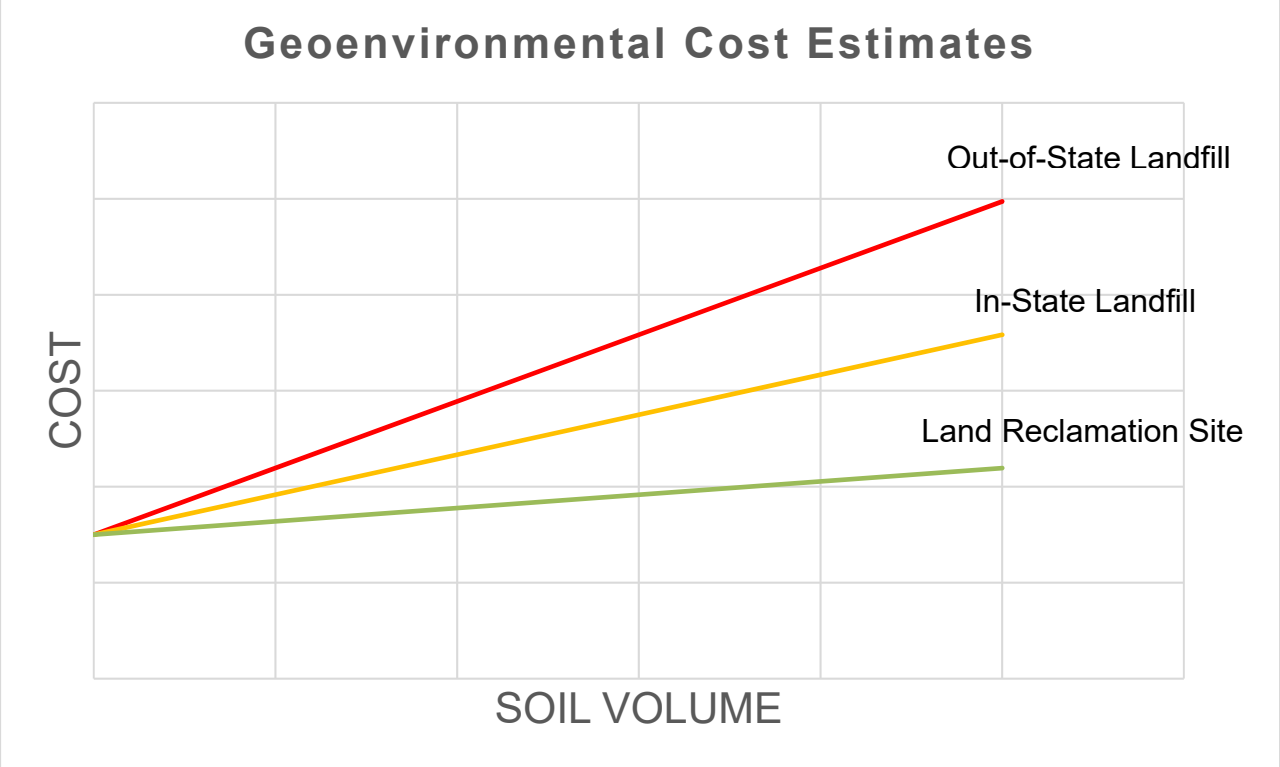
softball field contain PAHs and metals typical of urban fill. Estimated cost ranges: 4-story option: $125K-$250K, 5-story option: $80K-$160K.

All cost estimates should be considered order-of-magnitude budgetary estimates based on the information available to the project team at this early point in the design process. Estimates will be refined as the design progresses and a preferred option is selected.

These budgetary estimates are based on a preliminary estimate of the potential volume of soil that might be removed from each site in order to facilitate construction of new buildings under each scenario. This volume of soil is converted to a tonnage, then multiplied by a range of potential off-site reuse/disposal costs (per ton) that are likely based on the laboratory data from soil samples collected during the Phase II investigations.

The volume of soil removed from the site during construction is dependent upon the design of the new buildings and the extent to which the existing soil is suitable to support new construction. The price per ton to reuse or dispose of excess soils generated during the project is dependent upon the types and concentrations of contaminants present in the soil.

The following graphic provides a general illustration of the sensitivity of these cost estimates to changes in volume or reuse/disposal costs.



June 1, 2017

Mayor Edward J. Kennedy, Jr.
and
Members of the City Council

Councilors, below is a more detailed analysis of the geoenvironmental issues at each site and the following refined cost ranges. These estimates are based on the information available at the present time, and will be refined further in subsequent phases of the project, once we've moved on to a selected option, as additional information relative to the design of that option becomes available. The ranges reflect the uncertainty associated with projecting specific design details at the feasibility stage of the project.

Full Renovation

- Assume very limited disturbance of soil such that very small volume of soil requires off-site reuse or disposal.
- Budget includes preparation of Soil Management Plan and Health and Safety Plan to prepare for potential exposure to soils containing urban fill.
- Some construction-phase oversight of work activities included to monitor site conditions and oversee implementation of project plans.
- Arsenic remediation costs not included.
- Cost estimate $30,000

Addition/Renovation Option 2

- Assume soil characterization similar to current knowledge, therefore 75% of soil <RCS-1 ($25/ton) and 25% soil COMM-97 ($75/ton).
- Assume 2 to 4 foot depth of excavation in new foundation areas, with all soil required to leave the site to achieve designed grades.
- Total estimated area of new foundations = 18,000 SF (this does not include new buildings constructed on the current footprint of the Field House)
- Assume existing material below 2 to 4 feet is suitable structurally to support construction of new building(s).
- Estimate assumes no hazardous waste and no PCBs detected in soil at time of characterization.
- Estimate assumes transportation and disposal costs only, assume earthwork already included in base construction price and no backfill material needed.
- Arsenic remediation costs not included.
- Order-of-magnitude cost estimate for off-site transportation and disposal of soil = $75,000 to $150,000.

Addition/Renovation Option 3

- Assume soil characterization similar to current knowledge, therefore 75% of soil <RCS-1 ($25/ton) and 25% soil COMM-97 ($75/ton).
- Assume soil conditions on 75 Arcand Drive are similar to those on the high school site.

- Assume 2 to 4 foot depth of excavation in new foundation areas.
- Assume limited on-site reuse of soil to bring up the grade in Field House footprint areas not to be occupied by new buildings.
- Total estimated area of new foundations = 34,000 SF (this does not include new buildings constructed on the current footprint of the Field House)
- Assume existing material below 2 to 4 feet is suitable structurally to support construction of new building(s).
- Estimate assumes no hazardous waste and no PCBs detected in soil at time of characterization.
- Estimate assumes transportation and disposal costs only, assume earthwork already included in base construction price and no backfill material needed.
- Order-of-magnitude cost estimate for off-site transportation and disposal of soil = $90,000 to $180,000.

Cawley 4 Story Option

- Assume only soils displaced from area north of Martin Softball Field will require additional cost due to environmental contamination, all other soil suitable for unrestricted use.
- Assume current size and configuration of 4-story building footprint.
- Rough estimate of fill area = 120,000 SF.
- Characterization of historical fill similar to current knowledge, therefore 75% of soil <RCS-1 ($25/ton) and 25% soil COMM-97 ($75/ton).
- Assume 2 to 4 foot depth of excavation in new foundation areas within historical fill areas (estimated area = 30,000 SF).
- Assume no removal of soil required to construct new parking areas, therefore historical fill will remain below parking areas.
- Assume existing material below excavation depth is suitable structurally to support construction of new building or parking lot.
- Estimate assumes no hazardous waste and no PCBs detected in soil at time of characterization.
- Estimate assumes transportation and disposal costs only, assume earthwork already included in base construction price and no backfill material needed.
- Order-of-magnitude cost estimate for off-site transportation and disposal of soil = $125,000 to $250,000.

Cawley 5 Story Option

- Assume only soils displaced from area north of Martin Softball Field will require additional cost due to environmental contamination, all other soil suitable for unrestricted use.
- Assume current size and configuration of 5-story building footprint.
- Rough estimate of fill area = 120,000 SF.
- Characterization of historical fill similar to current knowledge, therefore 75% of soil <RCS-1 ($25/ton) and 25% soil COMM-97 ($75/ton).
- Assume 2 to 4 foot depth of excavation in new foundation areas within historical fill areas (estimated area = 15,000 SF).

- Assume no removal of soil required to construct new parking areas, therefore historical fill will remain below parking areas.
- Assume existing material below excavation depth is suitable structurally to support construction of new building or parking lot.
- Estimate assumes no hazardous waste and no PCBs detected in soil at time of characterization.
- Estimate assumes transportation and disposal costs only, assume earthwork already included in base construction price and no backfill material needed.
- Order-of-magnitude cost estimate for off-site transportation and disposal of soil = $80,000 to $160,000.

Stephen Vetere, PE, LSP, LEP
Director of Environmental Services
svetere@nobiseng.com

Nobis Engineering, Inc.
585 Middlesex Street
Lowell, MA 01851

Main: (978) 683-0891
Direct: (978) 703-6029
Cell: (617) 285-0640

Client-Focused, Employee-Owned
www.nobiseng.com

Follow Nobis:

UEC universal environmental consultants

Lowell High School Hazardous Materials Report Summary **May 11, 2017**

INTRODUCTION:
UEC was contracted by Perkins Eastman to conduct the following services at the Lowell High School, Lowell, MA. Inspections and sampling were performed September-October 2016 and April 2017.

- Asbestos Containing Materials (ACM) determination inspection and sampling;
- Polychlorinated Biphenyls (PCB's)-Electrical Equipment and Light Fixtures inspection;
- PCB's Caulking Inspection;
- Lead Based Paint (LBP) inspection;
- Mercury in Rubber Flooring inspection and sampling;
- Airborne Mold inspection and sampling;
- Radon sampling;

FINDINGS:
Asbestos Containing Materials (ACM)
The majority of ACM found during the survey are considered non-friable and were found to be in good condition.

1. Lab table was found to contain asbestos.
2. Glazing caulking for borrowed lite was found to contain asbestos.
3. Light grey/white vinyl floor tile was found to contain asbestos.
4. Vinyl floor tile and mastic were found to contain asbestos.
5. Sink damproofing was found to contain asbestos.
6. Glue daub for ceiling plaster was found to contain asbestos.
7. Glazing caulking for vision lite in metal door was found to contain asbestos.
8. Vertical white caulking in CMU wall was found to contain asbestos.
9. Exterior transite panel was found to contain asbestos.
10. Exterior door framing caulking was found to contain asbestos.
11. Exterior residue door framing caulking on brick was found to contain asbestos.
12. Glue holding blackboard was assumed to contain asbestos.
13. Pipe insulation was assumed to contain asbestos.
14. Stage fire curtain was assumed to contain asbestos.
15. Glue holding tectum deck at the pool building was assumed to contain asbestos.
16. Exterior flashing protruding from foundation was found to contain asbestos.
17. Underground sewer pipes were assumed to contain asbestos.
18. Roofing materials were assumed to contain asbestos.
19. Damproofing on exterior and foundation walls was assumed to contain asbestos.

Polychlorinated Biphenyls (PCB's)-Electrical Equipment and Light Fixtures
Ballasts in light fixtures were assumed not to contain PCB's. Tubes in light fixtures, thermostats, signs and switches were assumed to contain mercury.

PCB's in Caulking:
Building materials and caulking were assumed to contain PCB's in all areas constructed prior to 1978.

Lead Based Paint (LBP):
LBP was assumed to exist on painted surfaces in all areas constructed prior to 1978.

Mercury in Rubber Flooring:
Rubber flooring indicated the presence of mercury.

Airborne Mold:
Based on comparisons with historical data from projects of similar type, building utilization, geographic location and season, indoor airborne levels are considered acceptable.

Radon:
The measured radon concentrations of most of the samples were found to be lower than the EPA guideline of 4 picoCuris of radon per liter of air (pCi/L).

Traffic Operations Summary

Quick References

Current School Hours
7:50 AM to 2:30 PM

School AM Peak Hour
7:15 AM to 8:15 AM

School PM Peak Hour
2:30 PM to 3:30 PM

Existing Populations
Students 3,225±
Staff 440±

Projected Populations
Students 3,520
Staff 500

Downtown Analyzed Build Year
2024

Cawley Analyzed Build Year
2022

Cawley School Busing Program
46 buses (per City)
Anticipated Capacity 2,000±
Maximum Capacity 2,300

General Traffic Operations

In general, a school generates traffic congestion twice a day (during the morning arrival and the afternoon dismissal) for about 15 to 30 minutes each school day during the entire school year.

Overall Traffic Operations

Downtown Site

The existing Lowell High School is congested during the morning school peak hour and especially during the afternoon school peak hour. The intersections in the study area are operating at fair to poor levels of services during both peaks.

It is anticipated that the proposed school in the Downtown area will be slightly more congested than the current traffic operations found at the school due to the projected increase of the student and staff populations.

Cawley Site

For any alternate site in the City, the existing school traffic (plus the projected new traffic) that is currently being generated at the Downtown site will be moved from the Downtown area to the new site location.

At the Cawley site specifically, the intersections surrounding the proposed school are anticipated to operate at poor levels of service during the school peaks (twice a day, during the school year).

Cawley Site Mitigation

Due to the increase in traffic and the projected poor levels of service, intersection improvements (retiming/rephasing of the existing traffic signals along Rogers Street (Route 38), signing, striping, potential roadway widening to accommodate turn lanes, etc.) can be investigated to improve operations.

The following intersections do not meet traffic signal warrants:

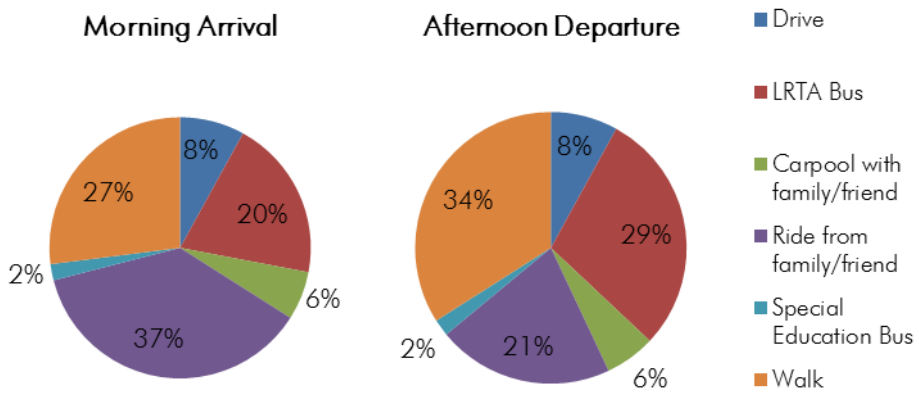
- Rogers Street (Route 38) and Village Street
- Andover Street (Route 133) and Douglas Road

Although a traffic signal warrant analysis was not requested for the intersection of Andover Street and Clark Road, preliminary findings suggest that this intersection may meet warrants for signalization. Additional traffic data (that was not collected) is required for a complete analysis.

Other Traffic Impact Information

Existing Mode of Transportation

Estimated Student Mode of Transportation for the Downtown Site Based on January and April 2017 Survey Results



Anticipated Trip Generation

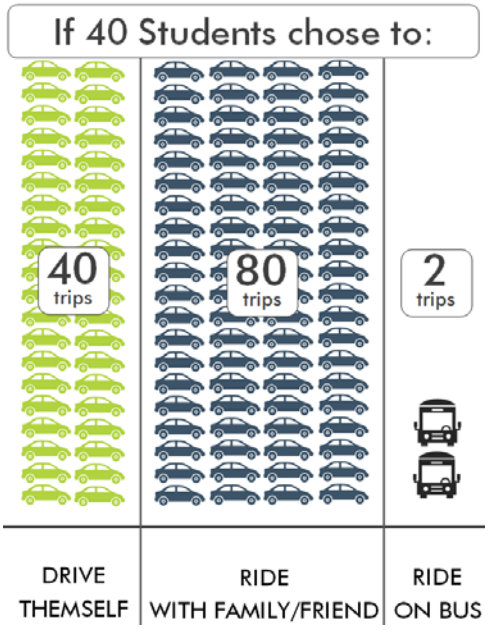
How the Modes translate to Anticipated Vehicle Trips

The mode of transportation surveys identified three basic vehicular modes that a student uses to travel to and from the high school:

1. driving and parking,
2. riding with family and friends, or
3. riding the bus.

The largest generator of vehicle trips of these three modes is a student that is dropped-off/ picked-up by rides from family and friends (see figure), since they require an entering and an exiting trip.

Number of Vehicle Trips Generated During a School Peak Hour
Based on Vehicle Mode



If fewer parking spaces are provided, there would be fewer students driving themselves, which would result in an increased number of students being dropped-off and picked-up.

Downtown Site Trip Generation

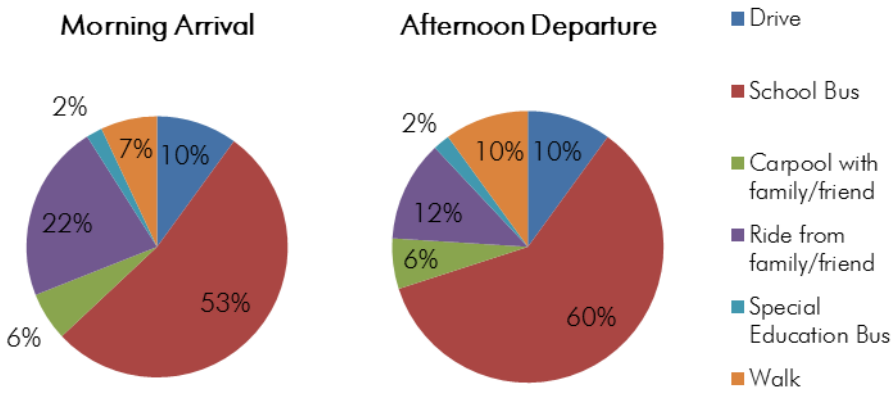
The additional trips anticipated for the additional high school population were based on the existing modes of transportation that students and staff are currently traveling to and from the high school.

Anticipated Generated New Vehicle Trips Summary
Downtown Site

Time Period	Direction	New Vehicle Trips
School A.M. Peak Hour	Enter	159
	Exit	91
School P.M. Peak Hour	Enter	35
	Exit	100

Cawley Site Trip Generation

Anticipated Student Mode of Transportation for the Cawley Site



Anticipated Number of Students Using Each Mode under Build Conditions
Cawley Site

Mode	Morning Arrival	Afternoon Departure
Drive	352	352
School Bus	1,866	2,112
Ride - Carpool	211	211
Ride - Drop-off/Pick-up	775	423
Special Education Bus	70	70
Walk	246	352
TOTAL	3,520	3,520

Anticipated Vehicle Trips Generated under Build Conditions
During School A.M. Peak
Cawley Site

Mode	School A.M. Peak				
	Students	Staff	Total	Entering	Exiting
Drive	352	357	709	709	0
LRTA Bus	N/A	8	0	0	0
School Bus	46	N/A	92	46	46
Ride - Carpool	N/A	8	8	8	0
Ride - Drop-off	775	N/A	1,550	775	775
Special Education Bus	11	N/A	22	11	11
		TOTAL	2,381	1,549	832

Anticipated Vehicle Trips Generated under Build Conditions
During School P.M. Peak
Cawley Site

Mode	School P.M. Peak				
	Students	Staff	Total	Entering	Exiting
Drive	352	333	685	0	685
LRTA Bus	N/A	7	0	0	0
School Bus	46	N/A	92	46	46
Ride - Carpool	N/A	7	7	0	7
Ride - Pick-up	423	N/A	846	423	423
Special Education Bus	11	N/A	22	11	11
		TOTAL	1,652	480	1,172

Cawley Site Parking

New High School Parking Requirement

City of Lowell's *Zoning Book* (with amendments through 10.22.2013)

High School 6 parking spaces per instructional room

Depending on the City's interruption of an 'instructional' room, the minimum number of on-site parking spaces is 840 parking spaces.

The final Cawley site design may require on-site parking variance.

Anticipated parking demand for the Cawley site

An anticipated parking demand can be developed based on the amount of estimated vehicles that are currently parking around the existing Downtown high school site by students and staff.

Anticipated Parking Demand for Staff/Visitors	500 parking spaces
Anticipated that 10% of Students will Drive and Park	350 parking spaces
TOTAL Anticipated On-site Parking Demand	**850 parking spaces**

Cawley Sidewalk/ Pedestrian Improvements

All possible improvements outlined here should be further investigated by the City for feasibility (e.g. available right-of-way, grades, utilities, vegetation, etc.).

Existing Sidewalk Areas

In general, the existing sidewalks on the study roadways require:

- Installation/reconstruction of curb ramps (aka wheelchair ramps) at all side streets and marked crosswalks;
- Spot reconstruction of existing sidewalks due to poor condition or inadequate sidewalk width;
- Installation of pedestrian improvements to the existing Andover Street/Douglas Road crosswalk previously investigated by the City; and
- Upgrade existing/ install additional pedestrian signal heads and pushbuttons at signalized intersections on Rogers Street/Main Street (Route 38).

No Sidewalk Areas

Douglas Road and Clark Road do not provide a connection for pedestrians between Andover Street (Route 133) and Rogers Street (Route 33) and the proposed school site. Sidewalks are not necessarily needed on both sides of these two roadways. The City can propose to install a sidewalk on only one side of a road, rather than both sides, due to physical and/or budget constraints. However, if the City decides to install sidewalk on the west side, for instance, then a crosswalk with curb ramps will need to be marked and signed to allow pedestrians to cross and continue on the sidewalk on the east side of the road.

The City of Lowell • Department of Planning and Development
JFK Civic Center • 50 Arcand Drive • Lowell, MA 01852
P: 978.674-4252 • F: 978.970.4262
www.LowellMA.gov

Diane Nichols Tradd
Assistant City Manager/DPD Director

Kevin E. Coughlin
Deputy Director

MEMORANDUM

TO: Kevin J. Murphy, City Manager

FROM: Katherine Moses, Energy Manager

SUBJECT: INFORMATIONAL COMMUNICATION LOWELL HIGH SCHOOL FEASIBILITY PHASE ENERGY ANALYSIS

I have reviewed the Energy Analysis for the different design options for Lowell High School. Because energy-related issues can be complex and because they can impact ongoing operational costs in the built environment, I thought it would be helpful to summarize the major findings in the study and highlight points to consider in weighing this component of the design options.

A whole building analysis was performed by Thornton Tomesetti, Inc. to evaluate the relative energy performance of the different proposed design options. The firm utilized a sophisticated energy modeling software (eQUEST ® v3.65) to compare building performance for the different site options. This software allows users to simulate energy usage for a building and integrate energy conservation measures into the design. Existing building energy use intensity and cost measures were calculated from current LHS utility bills provided by the Department of Planning and Development.

The consultant's primary comparative tool utilized is a metric known as Energy Use Intensity (EUI). EUI is a metric that is used to express a building's energy use as a function of its size. It is typically used when benchmarking buildings to compare them to buildings with similar functions (e.g. different schools). EUI is measured in energy use per square foot annually (kBtu/sf-yr).

Results:
The results of energy modeling demonstrate:

- Each design option can significantly reduce the overall EUI and energy cost per square foot over the existing building.
- EUI reduction by design option:
  - 28.3% EUI reduction for Full Renovation
  - 32.2% EUI reduction for Addition/Renovation Option 2
  - 32.7% EUI reduction for Addition/Renovation Option 3
  - 36.8% EUI reduction for Cawley – 4 Story Option
  - 37.0% EUI reduction for Cawley – 5 Story Option
- Energy cost reduction per area by design option:
  - 21.5% reduction for Full Renovation
  - 26.2% reduction for Addition/Renovation Option 2
  - 26.2% reduction for Addition/Renovation Option 3
  - 27.5% reduction for Cawley – 4 Story Option
  - 28.2% reduction for Cawley – 5 Story Option
- The Cawley site with the 5 Story Option is projected to produce the greatest reduction in EUI and cost due to the more efficient space layout and higher performance envelope.

Considerations:

- The report states that the limited scope for envelope upgrades does not allow for significant reduction in energy use in any of the downtown options. However, even the full renovation option would likely result in a 28.3% reduction in EUI, which is significant. As a point of reference, since 2008, energy efficiency upgrades have resulted in a 24.4% EUI reduction in the high school complex.
- It should be noted that the numbers are for comparison purposes only, and are not predictive of actual energy use/building performance.
- Other sustainability issues were beyond the scope of the energy study, including the issue of embedded carbon (the carbon/emissions involved in material creation, delivery, and operation of a building) and renewable resource energy potential.

The feasibility study shows that any site chosen will have positive impacts on energy use intensity and cost. Once a site is selected, City representatives will work with the sustainability design team to connect them with resources to implement cost-effective sustainable solutions for the benefit of the students, community, and City.

KAM/ns
06/1/17
cc: Diane Tradd, Assistant City Manager/DPD Director
Philip Ferreira, Housing and Energy Programs Manager

LOWELL HIGH SCHOOL

FEASIBILITY PHASE ENERGY ANALYSIS

Prepared for
Perkins Eastman
20 Ashburton Place
Boston, MA 02108

Prepared by
Elsa Mullin

Reviewed by
Vamshi Gooje

Thornton Tomasetti
386 Fore Street, #405
Portland, ME 04101

June 1, 2017

01 ANALYSIS DESCRIPTION & SUMMARY

Thornton Tomasetti, Inc. (TT) has performed whole building energy analysis for Lowell High School. This intent of this report is to provide a baseline analysis of the existing high school and to evaluate only the relative energy performance of the proposed design cases. This information should be used for comparative analysis rather than predicting actual energy use. A more detailed analysis will be developed at subsequent design stages to optimize the building systems to improve the energy performance further. The energy models were created using eQuest v3.65.

The five different design options analyzed in this study are listed below:

DESIGN OPTIONS:
- Full Renovation (Full Reno)
- Addition/Renovation - Option 2 (Add/Reno 2)
- Addition/Renovation - Option 3 (Add/Reno 3)
- New Construction on Cawley Site 4 Story (Cawley 4 Story)
- New Construction on Cawley Site 5 Story (Cawley 5 Story)

The results demonstrate that each design option can reduce the overall EUI of Lowell High School from existing conditions with careful selection of Energy Conservation Measures (ECMs). The savings can be achieved with ECMs such as improved envelope, LED lighting fixtures, and high efficiency HVAC systems. New Construction at Cawley site shows the greatest Energy Use Intensity (EUI) savings from the existing building. This is due to the more efficient space layout, and a higher performance envelope than the renovation design options.

In the design options, it is assumed that cooling will be provided to all regularly occupied spaces, while the existing building has limited cooling and ventilation air (provided by poorly performing and aging systems) which does not meet the requirements for new construction. Thus, the cooling energy use is increased from the existing building to the design option.

Utility bills of the existing high school were provided by the the city of Lowell, Department of Planning & Development. The existing building EUI was determined from the bills. The energy use associated with the pool in the building is included in this study, which has an impact on energy use. No renewable energy system is considered in this exercise but will be considered in future studies once a preffered option is selected.

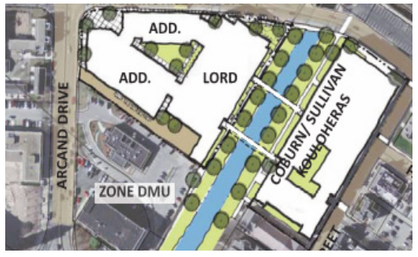
The new construction at Cawley Site 5 stories performs best among all options with an EUI of 39.7 kBtu/sf-yr. The renovation options can achieve better performance than the existing building. However, the limited scope to envelope upgrades does not allow for a significant reduction in energy use. For the renovation options moisture issues must be considered for envelope upgrades in conjunction with energy performance. The goal is to improve these preliminary baseline EUIs as the design evolves and more detailed information is available.

Another metric that is not part of this analysis but should be considered in selection of these options is the embodied carbon of new construction versus renovation and addition.

Figure 01. Lowell High School (Existing)

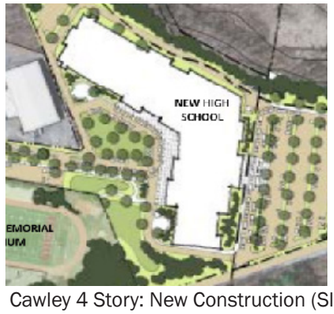
Photo Credit: Panoramo.com

Full Reno



Add/Reno 2

Add/Reno 3



Cawley 4 Story: New Construction (Slightily smaller footprint for 5 Story)

02 ENERGY END USE PROFILES BY SECTOR

Figure 02. shows the annual aggregate energy end-use breakdown for each of the design options. Each color in the pie charts denotes various end-uses. The largest end-use for each options is heating, followed by internal loads and cooling energy use. Although the new option has heating as the predominant load, it is smaller than the renovation options.

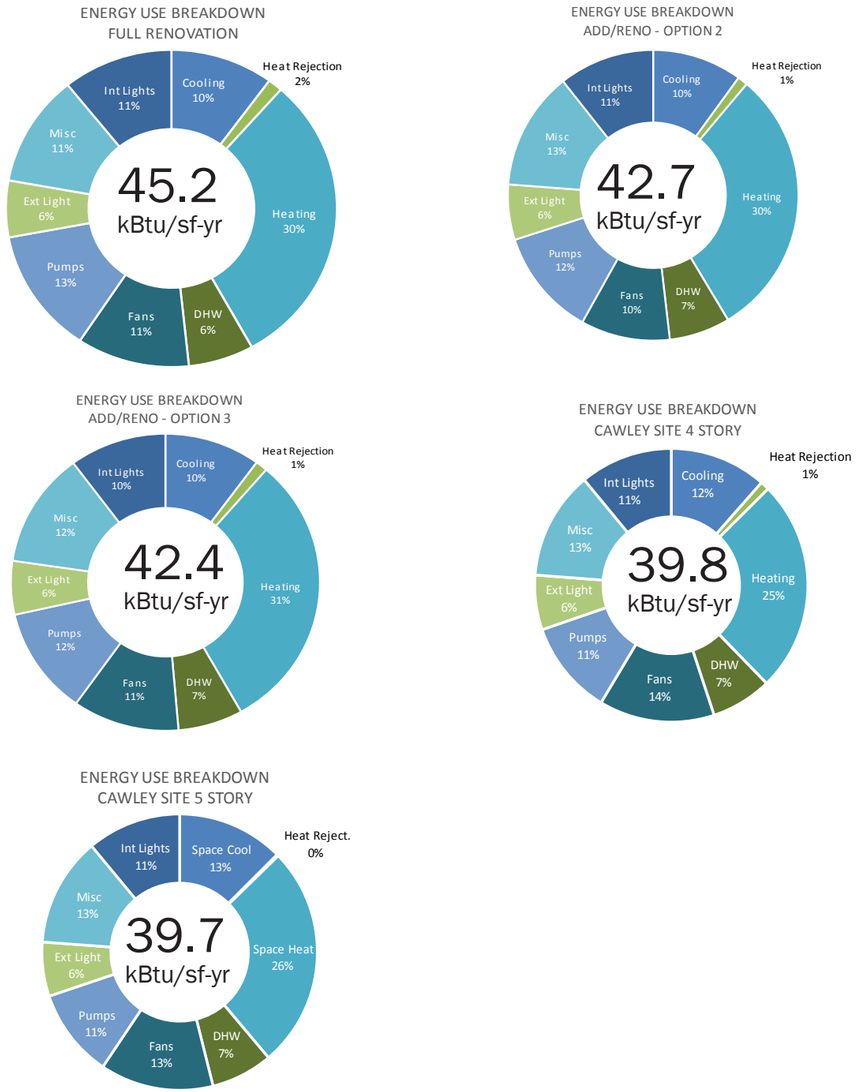


Figure 02. EUI Comparison by Design Options

03 ENERGY END USE PROFILE

Figure 03. shows the annual aggregate energy end-use breakdown for each design case. Each color in the bar chart denotes various end-uses.

The results illustrate that all the design options have a lower EUI than the existing building. The Full Reno has the least total savings, and Cawley Site 5 Story has the most compared to the existing building. The Add/Reno 2 and Add/Reno 3 options have a negligable difference in their EUI. Likewise the Cawley Site 4 and 5 Story options also have a negligable difference.

Note that the energy use associated with the pool is included in each case, causing the total EUI to be larger then comparable buildings. The percent EUI savings shown in Figure 03 do not linearly convert to percent cost savings shown in Figure 04. This is because gas is approximately 4-5 times cheaper than electricity in terms of cost per BTU. More BTUs saved in electricity returns higher cost savings compared to the same BTUs saved in natural gas.

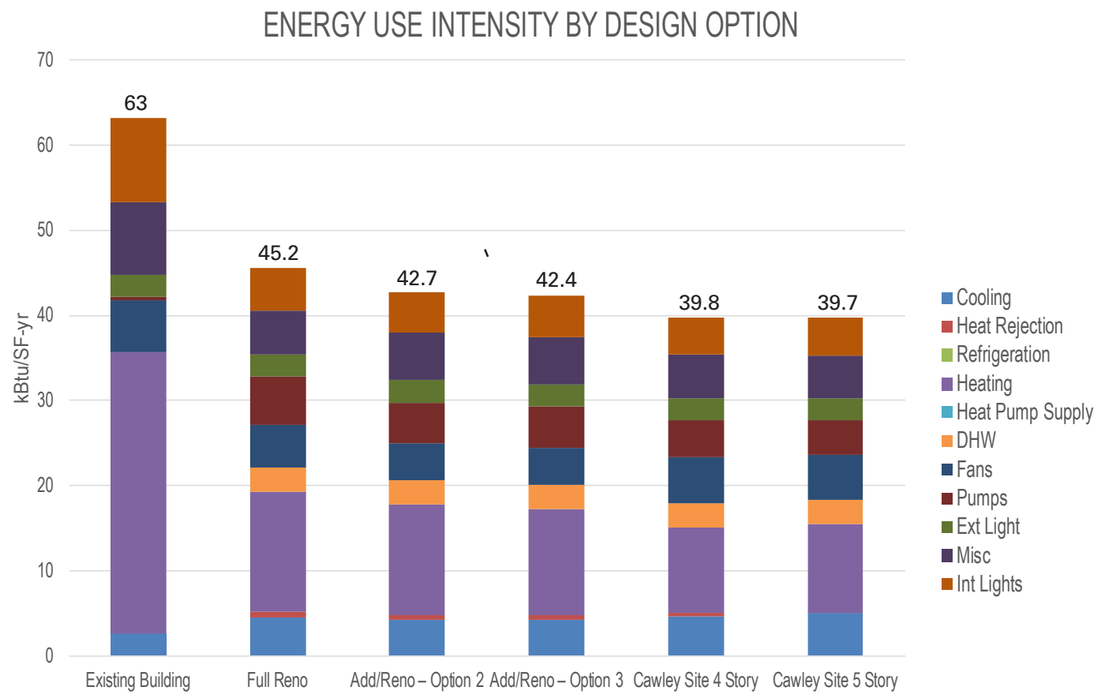


Figure 03. Annual Energy Use Profile by Design Options

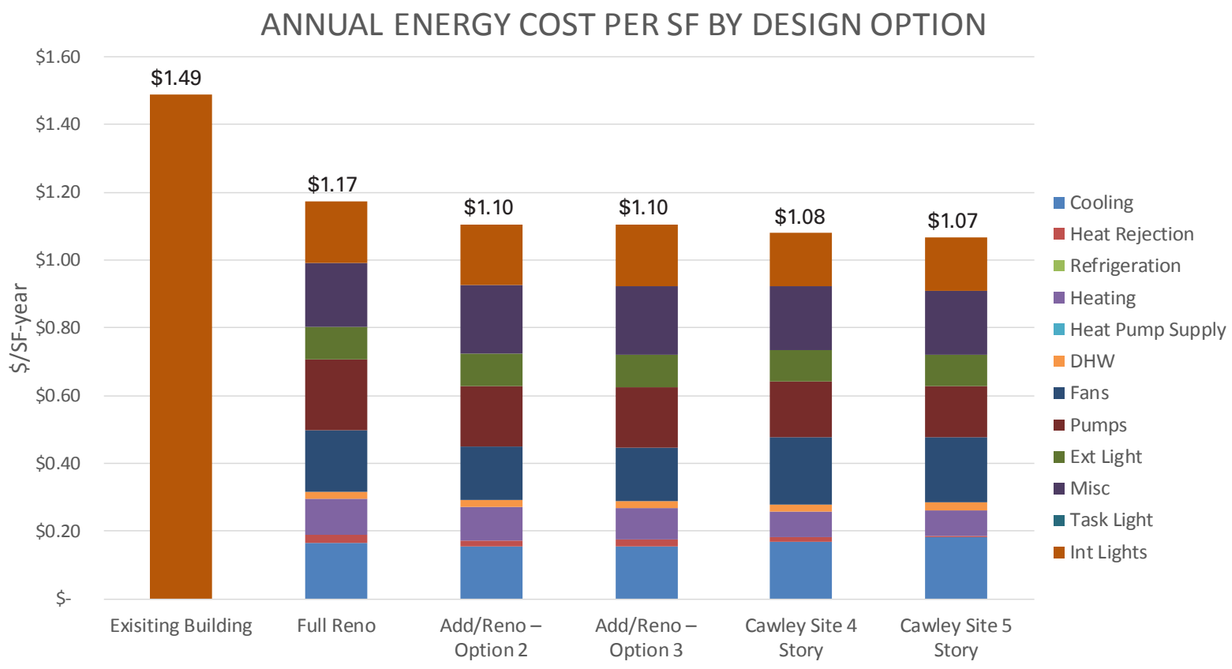


Figure 04. Annual Energy Cost Profile by Design Options

04 ENERGY COST PROFILE BY SYSTEM

The energy cost breakdown demonstrates the relative cost of energy per design option against the existing building. Figure 04. highlights the reduction of energy cost for each design option from the existing building. The Cawely Site 5 story design has the greatest savings, due to the improved envelope and space layout.

Note that the percent difference between the options in energy cost (Figure 03) is smaller than in energy use (Figure 04). This is primarily due to difference in energy cost rates for natural gas vs electricity. Electricity is more expensive per BTU than natural gas. Thus, energy use savings on electricity will return higher cost savings per BTU. Further studies will be conducted in subsequent design phases to further bring down the operating energy costs.

Note: All options include full window & door replacement and new sealant. Final U-values for existing wall components and insulation upgrades are to be determined during further studies.

Model Input Parameter	Full Renovation	Add/ Reno 2	Add/ Reno 3	Cawley Site 4 Story and 5 Story Options
Utility				
Electric Rates	0.125 $/KWH			
Natural Gas Rates	0.75 $/therm			
Number of Floors	1922 Building: 1 below grade Floors+3 above grade floors+attic, Lord: 3 Floors, Freshman Academy 1 below grade + 2 above grade	1922 Building: 1 below grade + 3 above grade Lord: 3 above grade + 2 additional floors of Freshman Academy	1922 Building: 1 below grade + 3 above grade Lord: 3 above grade + 2 additional floors of Freshman Academy	Cawley Option 4 Story: 4 floors Cawley Option 5 Story: 5 floors
Flr to Flr Height	14FT	14FT	14FT	14FT
Climate Zone	5A			
Model Input Parameter	**Full Renovation**	**Add/ Reno 2**	**Add/ Reno 3**	**Cawley Site 4 Story and 5 Story Options**
Building Envelope (Construction Assemblies)				
Roofs Construction/Exterior insulation/Additional insulation	Existing- Assembly: U-0.063	Existing- Assembly: U-0.063 Addition- Assembly: U-0.032 Insulation: R-30	Existing- Assembly: U-0.063 Addition- Assembly: U-0.032 Insulation: R-30	Assembly: U-0.032 Insulation: R-30
Walls (Above Grade) construction/Exterior insulation/Additional Insulation/Interior insulation	Existing- Assembly: U-0.109	Existing- Assembly: U-0.109 Addition- Assembly: U-0.064 Insulation: R-13 + R-7.5 c.i.	Existing- Assembly: U-0.109 Addition- Assembly: U-0.064 Insulation: R-13 + R-7.5 c.i.	Assembly: U-0.064 Insulation: R-13 + R-7.5 c.i.
Ground Floor construction/insulation	Unheated Assembly: F-0.520	Unheated Assembly: F-0.520	Unheated Assembly: F-0.520	Unheated Assembly: F-0.520
Perimeter Zone Infiltration	0.038 CFM/SF of exterior wall	0.038 CFM/SF of exterior wall	0.038 CFM/SF of exterior wall	0.038 CFM/SF of exterior wall
Core Zone Infiltration	0.001 CFM/SF	0.001 CFM/SF	0.001 CFM/SF	0.001 CFM/SF
Vertical fenestration Area (% of Wall area)	1922 Building/Lord/Freshman: 40% Gymnasium: 0%	1922 Building/Lord: 40% Gymnasium: 0%	1922 Building/Lord: 40% Gymnasium: 0%	40% Gymnasium: 0%
Vertical Glazing U-factor (Assembly)	U-0.5	U-0.5	U-0.5	U-0.5
Vertical Glazing SHGC	0.4	0.4	0.4	0.4
Shading Devices	No	No	No	No
Building Operation Schedule				
Occupancy	4,020 Students+ Staff	4,020 Students+ Staff	4,020 Students+ Staff	4,020 Students+ Staff
Schedule	Typical school year: 90% occupancy 8am-4pm Summer & Breaks: 15% occupancy 8am-4pm, 4 days/wk	Typical school year: 90% occupancy 8am-4pm Summer & Breaks: 15% occupancy 8am-4pm, 4 days/wk	Typical school year: 90% occupancy 8am-4pm Summer & Breaks: 15% occupancy 8am-4pm, 4 days/wk	Typical school year: 90% occupancy 8am-4pm Summer & Breaks: 15% occupancy 8am-4pm, 4 days/wk
Annual Days of Operation	365	365	365	365

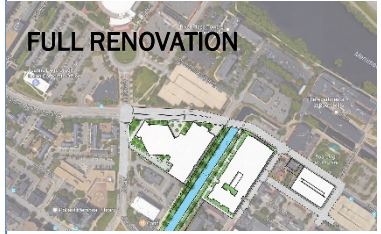
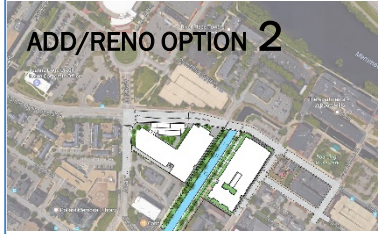
Model Input Parameter				
HVAC (Air-Side)	**Full Renovation**	**Add/ Reno 1**	**Add/ Reno 1**	**Cawley Site 4 Story and 5 Story Options**
Primary HVAC Type[1]	Full Air Conditioning Variable Air Volume Displacement System in classrooms Overhead ventilation system in: • Gym • Locker rooms • Auditorium and stage • Admin and media • Kitchen, Custodial Support, Receiving • Cafeteria • Studios • Pool • Corridors	Full Air Conditioning Variable Air Volume Displacement System in classrooms Overhead ventilation system in: • Gym • Locker rooms • Auditorium and stage • Admin and media • Kitchen, Custodial Support, Receiving • Cafeteria • Studios • Pool • Corridors	Full Air Conditioning Variable Air Volume Displacement System in classrooms Overhead ventilation system in: • Gym • Locker rooms • Auditorium and stage • Admin and media • Kitchen, Custodial Support, Receiving • Cafeteria • Studios • Pool • Corridors	Full Air Conditioning Variable Air Volume Displacement System in classrooms Overhead ventilation system in: • Gym • Locker rooms • Auditorium and stage • Admin and media • Kitchen, Custodial Support, Receiving • Cafeteria • Studios • Pool • Corridors
Cooling Source	1992: (2) 215 ton high efficiency water cooled chillers Lord: (2) 270 ton high efficiency water cooled chillers Freshman: DX cooling	1992: (2) 215 ton high efficiency water cooled chillers Lord: (2) 310 ton high efficiency water cooled chillers	1992: (2) 215 ton high efficiency water cooled chillers Lord: (2) 310 ton high efficiency water cooled chillers	High efficiency central chilled water cooling plant - (3) 310 ton water cooled chillers
Heating Source	1922 Building: High efficiency gas-fired condensing boiler plant (3) 5,000 MBH boiler Lord:(3) 5,000 MBH output boilers Freshman: (2) two gas fired 2,000 MBH boilers	1922 Building - High efficiency gas-fired condensing boiler plant (3) 5400 MBH Lord:(3) 5400 MBH output boilers	1922 Building - High efficiency gas-fired condensing boiler plant (3) 5400 MBH Lord:(3) 5400 MBH output boilers	High efficiency gas-fired condensing boiler plant (5) 4500 MBH
Seasonal Thermostat setpoints				
- Heating (occupied/unoccupied)	70 F ; 60 F	70 F ; 60 F	70 F ; 60 F	70 F ; 60 F
- Cooling (occupied/unoccupied)	75 F ; 85 F	75 F ; 85 F	75 F ; 85 F	75 F ; 85 F
Outside Air System				
Heat Recovery Device Type	Enthalpy Wheel	Enthalpy Wheel	Enthalpy Wheel	Enthalpy Wheel
Effectiveness	74%	74%	74%	74%
Domestic Water Heating	**Full Renovation**	**Add/ Reno 2**	**Add/ Reno 3**	**Cawley Site 4 Story and 5 Story Options**
Heater Fuel	Gas	Gas	Gas	Gas
Tank Volume	5,500 gal	5,500 gal	5,500 gal	5,500 gal
Supply water Temp	135F	135F	135F	135F
Lighting	**Full Renovation**	**Add/ Reno 2**	**Add/ Reno 3**	**Cawley Site 4 Story and 5 Story Options**
Lighting Power Density (LPD) for all activity areas	0.5 W/SF: Classroom 0.6 W/SF: Gymnasium 0.5 W/SF: Office 0.6 W/SF: Library 0.4 W/SF: Corridor 0.6 W/SF: Kitchen 0.65 W/SF: Dining 0.63 W/SF: Auditorium	0.5 W/SF: Classroom 0.6 W/SF: Gymnasium 0.5 W/SF: Office 0.6 W/SF: Library 0.4 W/SF: Corridor 0.6 W/SF: Kitchen 0.65 W/SF: Dining 0.63 W/SF: Auditorium	0.5 W/SF: Classroom 0.6 W/SF: Gymnasium 0.5 W/SF: Office 0.6 W/SF: Library 0.4 W/SF: Corridor 0.6 W/SF: Kitchen 0.65 W/SF: Dining 0.63 W/SF: Auditorium	0.5 W/SF: Classroom 0.6 W/SF: Gymnasium 0.5 W/SF: Office 0.6 W/SF: Library 0.4 W/SF: Corridor 0.6 W/SF: Kitchen 0.65 W/SF: Dining 0.63 W/SF: Auditorium
Daylighting Controls	Continuous dimming in classroom spaces	Continuous dimming in classroom spaces	Continuous dimming in classroom spaces	Continuous dimming in classroom spaces
Miscellaneous	**Full Renovation**	**Add/ Reno 2**	**Add/ Reno 3**	**Cawley Site 4 Story and 5 Story Options**
Miscellaneous equipment	Classrooms - 0.85 W/sf Core/transition spaces - 0.165 - 0.316 W/sf	Classrooms - 0.85 W/sf Core/transition spaces - 0.165 - 0.316 W/sf	Classrooms - 0.85 W/sf Core/transition spaces - 0.165 - 0.316 W/sf	Classrooms - 0.85 W/sf Core/transition spaces - 0.165 - 0.316 W/sf

The City of LOWELL *Alive. Unique. Inspiring.*

LOWELL HIGH SCHOOL PROJECT

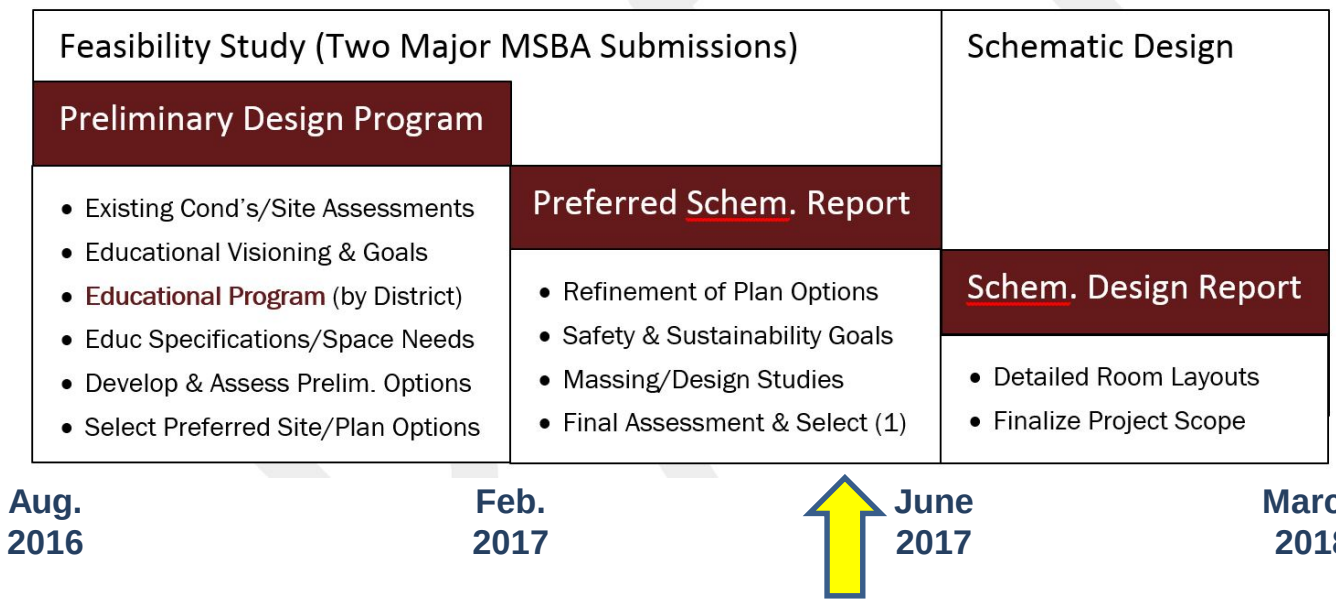
JUNE 6TH 2017

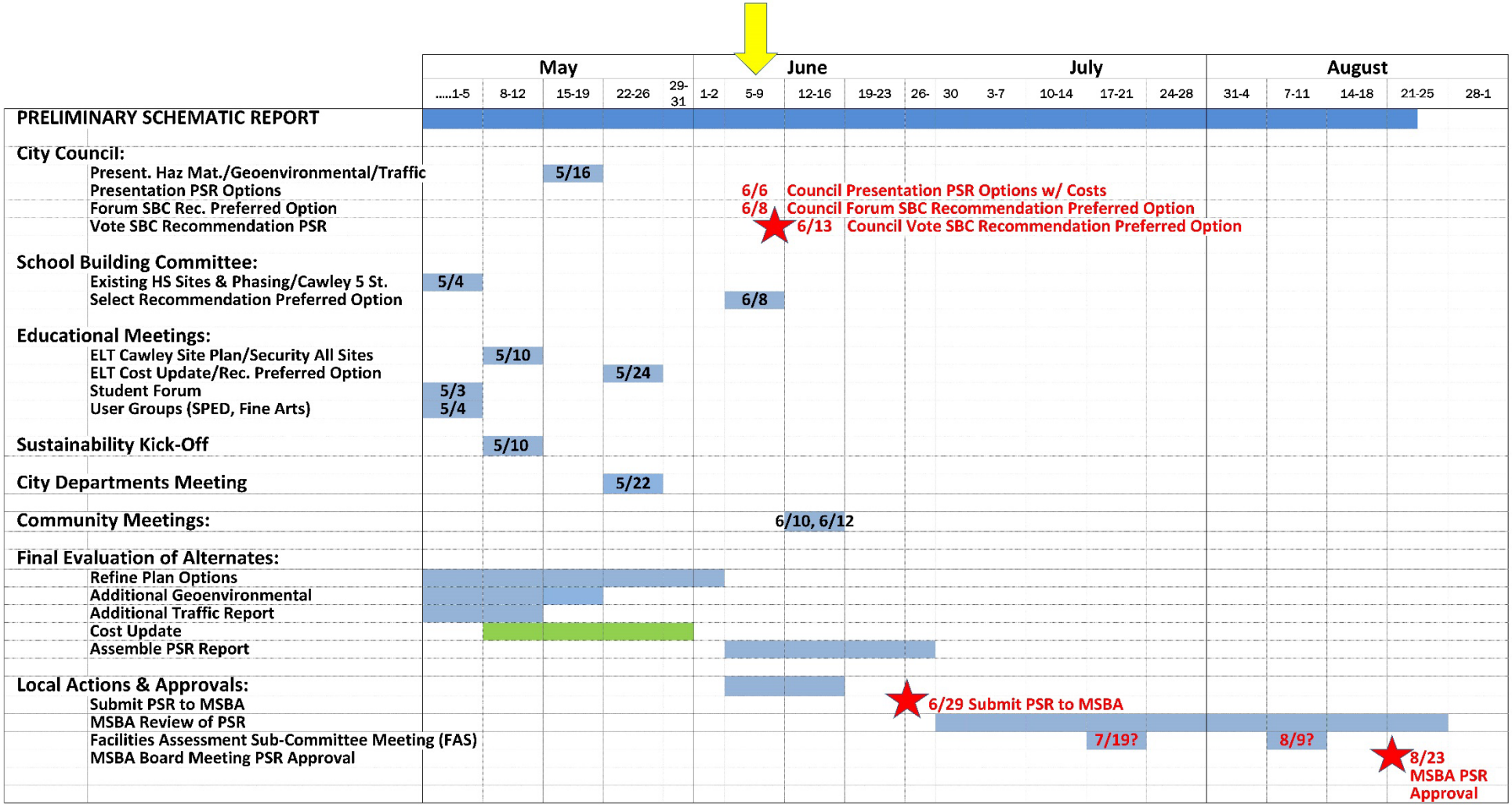
City Council Presentation

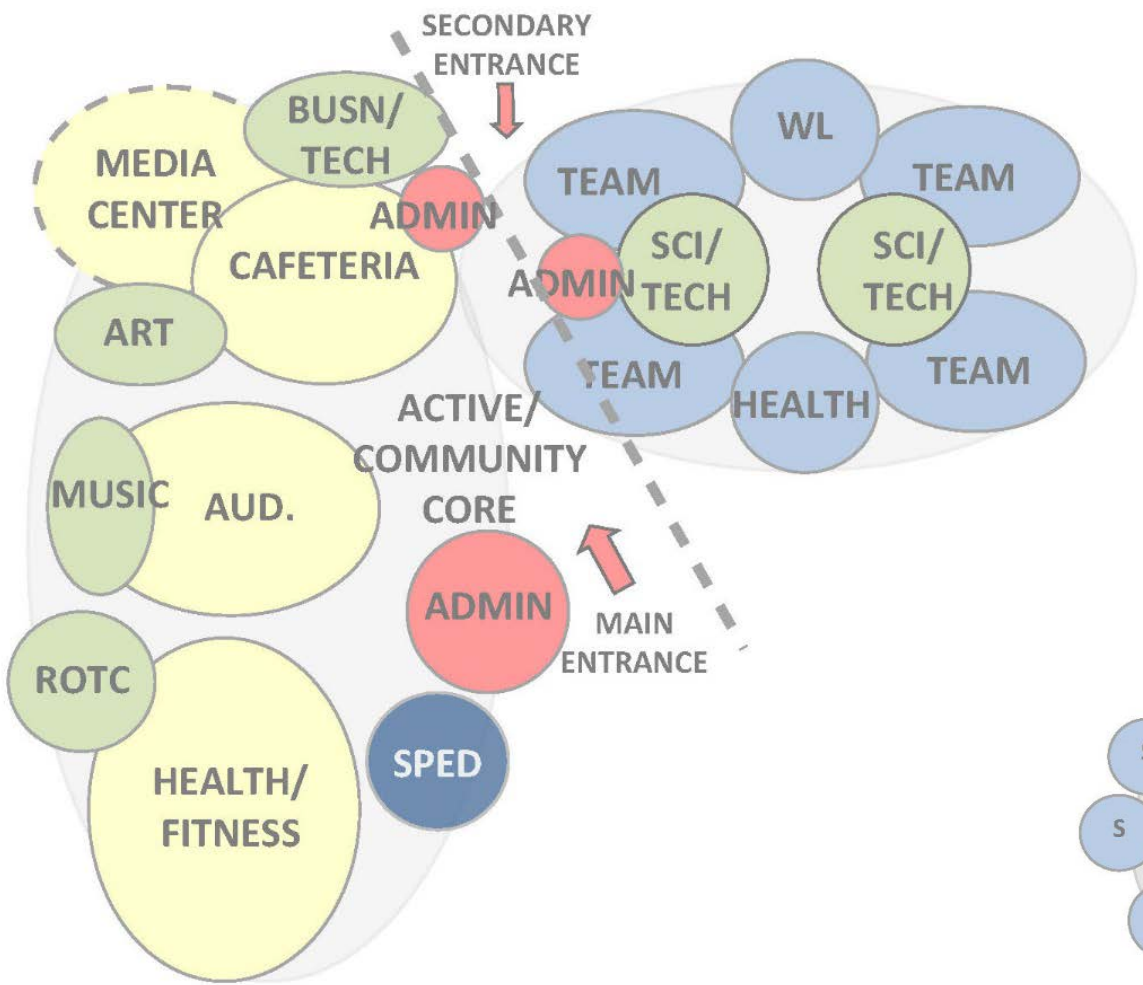
	FULL RENOVATION	ADD/RENO OPTION 2	ADD/RENO OPTION 3 (EXP)	NEW 4-STORY AT CAWLEY	NEW 5-STORY AT CAWLEY
					
Building/Site •Acreage •Gross Size •Stories/Ht	**6.4** of 6.6 acres **650.1**k gsf (614.3k reno +35.8k add) Existing (63'), 1-3 Story (44') Addtn's	**6.0** of 6.6 acres **636.7**k gsf (445.5k reno+191.2k add) Existing (63'), 1-5 Story (68') Addtn's	**7.4** = 6.0 of 6.6 acres +1.4 exp. lot **632.1**k gsf (440.1k reno +192k add) Existing (63'), 1-5 Story (68') Addtn's	**23.5** of 43.24 acres **590.3**k gsf new construction 4-Story (58')	**23.5** of 43.24 acres **590.8**k gsf new construction 5-Story (68')
New Information During This PSR Phase	• Program Adjustments • Geotechnical Investigations • Civil Soils Investigations • Structural Investigations • Building Hazmat Investigations • Geo-environmental Investigations • Traffic Study • Energy Model • Historic Investigations • Endangered Species Investigations	• Program Adjustments • Geotechnical Investigations • Civil Soils Investigations • Structural Investigations • Building Hazmat Investigations • Geo-environmental Investigations • Traffic Study • Energy Model • Historic Investigations • Endangered Species Investigations	• Program Adjustments • Geotechnical Investigations • Civil Soils Investigations • Structural Investigations • Building Hazmat Investigations • Geo-environmental Investigations • Traffic Study • Energy Model • Historic Investigations • Endangered Species Investigations	• Program Adjustments • Geotechnical Investigations • Civil Soils Investigations • Geo-environmental Investigations • Traffic Study • Energy Model • Historic Investigations • Endangered Species Investigations	• Program Adjustments • Geotechnical Investigations • Civil Soils Investigations • Geo-environmental Investigations • Traffic Study • Energy Model • Historic Investigations • Endangered Species Investigations
Differences From PDP to PSR	+ 8,435 sf Foundations & Superstructure MEP/FP Site	+12,602 sf Foundations & Superstructure MEP/FP Site	-6,615 sf Foundations & Superstructure Exterior Closure and Roofing Interior Construction and Finishes Selective Demo and Site Alignment with Option 2	+18,787 sf Foundations & Superstructure Roofing Stairs & Interior Finishes MEP/FP Site	N/A
	PDP 2/2/17 / PSR 6/1/17	PDP 2/2/17 / PSR 6/1/17	PDP 2/2/17 / PSR 6/1/17	PDP 2/2/17 / PSR 6/1/17	PSR 6/1/17
Total Project Budget	$331,360,298 / $343,585,338	$344,087,262 / $343,948,823	$334,335,971 / $352,559,455	$332,458,871 / $339,152,182	$336,138,724
City Share	$116,472,533 / $130,022,882	$135,614,525 / $135,320,524	$126,417,978 / $143,232,657	$148,341,142 / $152,160,821	$149,439,672

Overview / Process

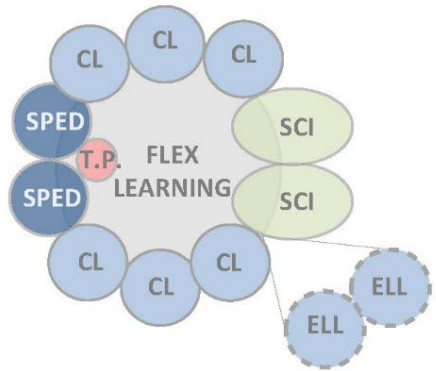
The current phase of work within the MSBA program occurs in 3 major submission over a 18 month period



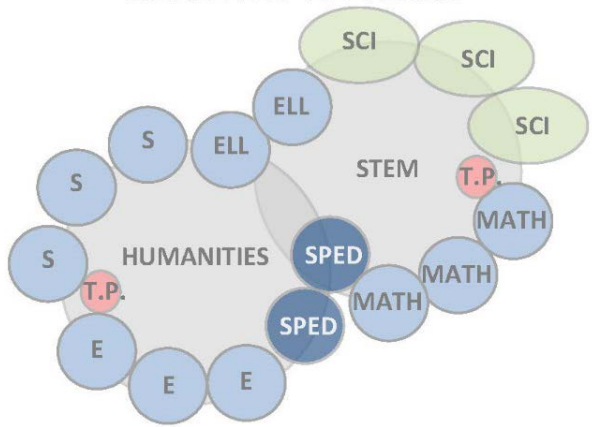

May
June
July
August
.....1-5
8-12
15-19
22-26
29-31
1-2
5-9
12-16
19-23
26-
30
3-7
10-14
17-21
24-28
31-4
7-11
14-18
21-25
28-1
PRELIMINARY SCHEMATIC REPORT
City Council:
Present. Haz Mat./Geoenvironmental/Traffic
5/16
Presentation PSR Options
6/6 Council Presentation PSR Options w/ Costs
Forum SBC Rec. Preferred Option
6/8 Council Forum SBC Recommendation Preferred Option
Vote SBC Recommendation PSR
6/13 Council Vote SBC Recommendation Preferred Option
School Building Committee:
Existing HS Sites & Phasing/Cawley 5 St.
5/4
Select Recommendation Preferred Option
6/8
Educational Meetings:
ELT Cawley Site Plan/Security All Sites
5/10
ELT Cost Update/Rec. Preferred Option
5/24
Student Forum
5/3
User Groups (SPED, Fine Arts)
5/4
Sustainability Kick-Off
5/10
City Departments Meeting
5/22
Community Meetings:
6/10, 6/12
Final Evaluation of Alternates:
Refine Plan Options
Additional Geoenvironmental
Additional Traffic Report
Cost Update
Assemble PSR Report
Local Actions & Approvals:
Submit PSR to MSBA
6/29 Submit PSR to MSBA
MSBA Review of PSR
Facilities Assessment Sub-Committee Meeting (FAS)
7/19?
8/9?
MSBA Board Meeting PSR Approval
8/23
MSBA PSR
Approval

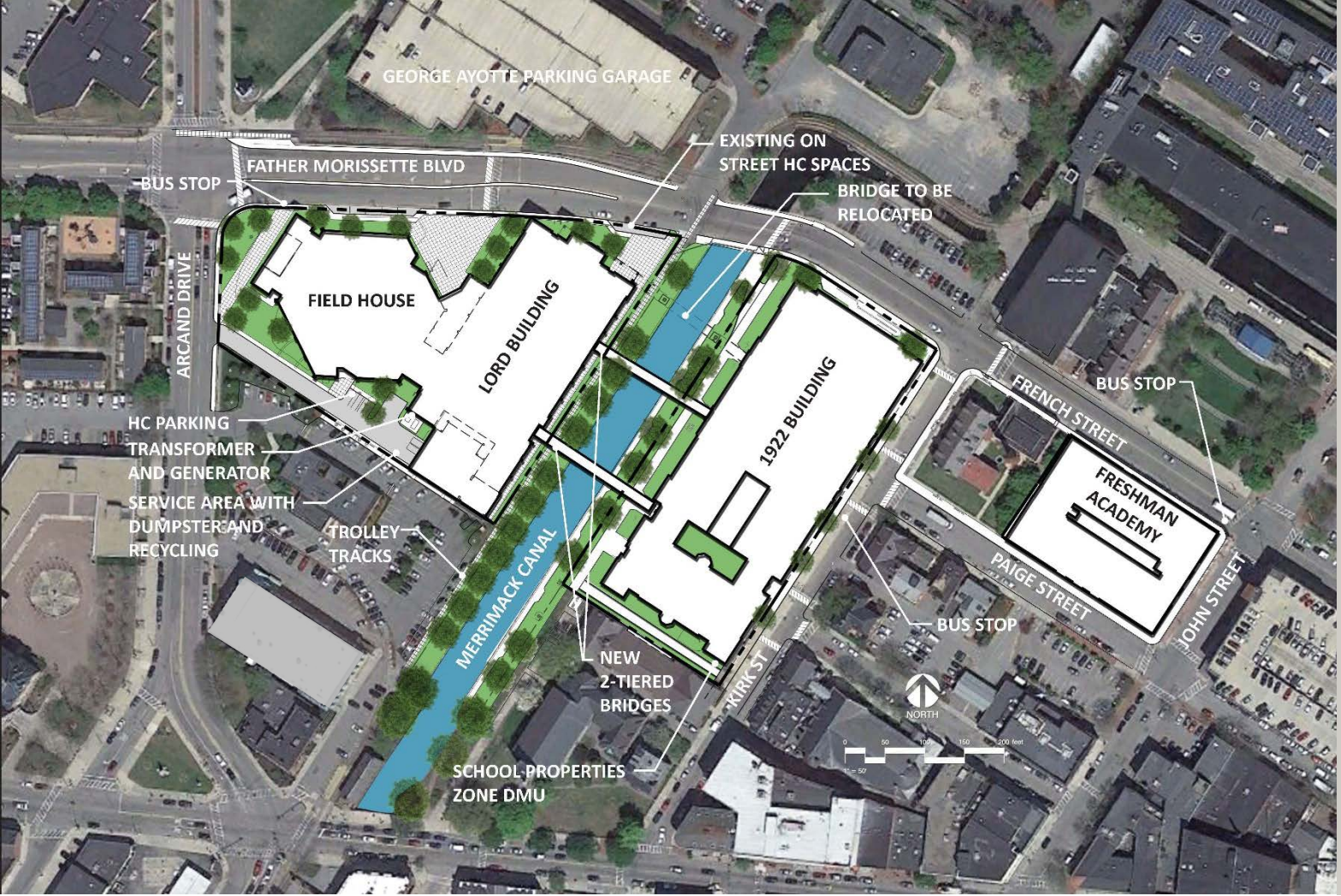


FRESHMAN TEAM



GRADE 10-12 TEAM





6.4 of 6.6 acres
650.1k gsf (614.3k reno +35.8k add)
New **3** Story at 48'(63' Existing)
725 per Survey (629 of Ayotte's 1200)
On Street + Use of City Transit

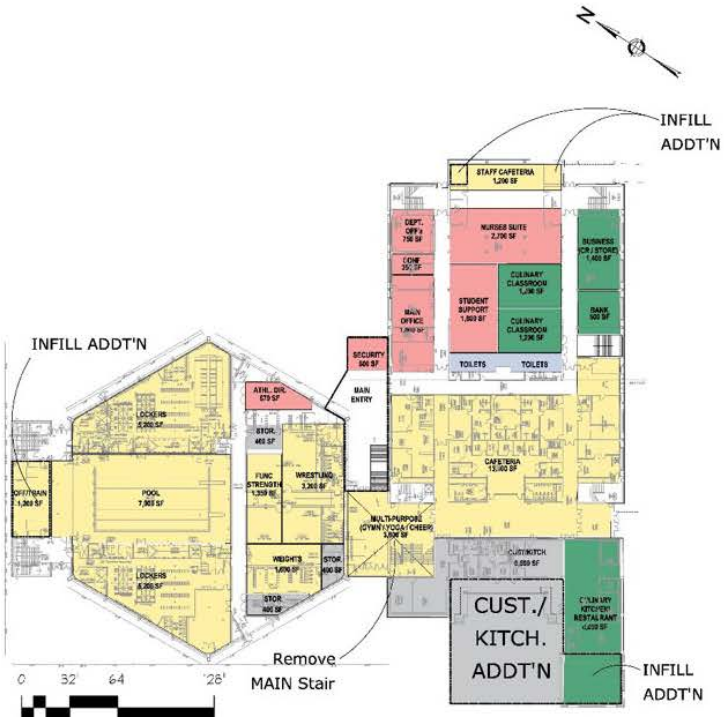
Existing Down-Town Site(s)
+ **Proximity/Frequency of City Buses**
+ **Proximity To City/Social Services**
+ **Adjacent Pkg Garages (Covered)**
± **Existing Service Access Remains**
– Limited Access To Green Space
– Busing Req'd for Some Athletics

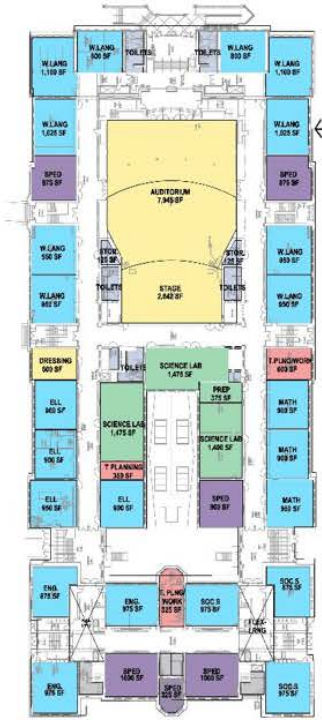
Meets Objectives Except as Noted:
– Freshman Academy Is Remote
± **Public/Activity Areas Spread & Split**
+ **F.A. Teams + STEM/Hum. Clusters**
+ **Meets New Standards (Count/Size)**

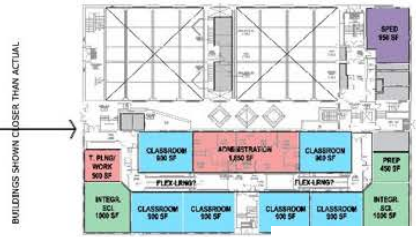
Extent of Exist. Ext. Wall Upgrades -TBD
– Orientation Is Problematic
– Windowless Classrooms/Labs Exist
– Higher Operating Costs (Multi-Bldgs)

5 Year (+ summer) Phased Project
+ **Kitchen/Boiler Built in First Phase**
– Temporary Gym Facilities Required
– Extensive Modular Classrooms

$ 343,585,338 Total Project Budget
$ 130,022,882 City Share

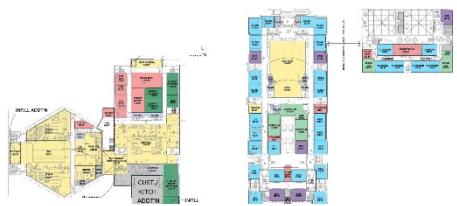






Attic

3rd floor



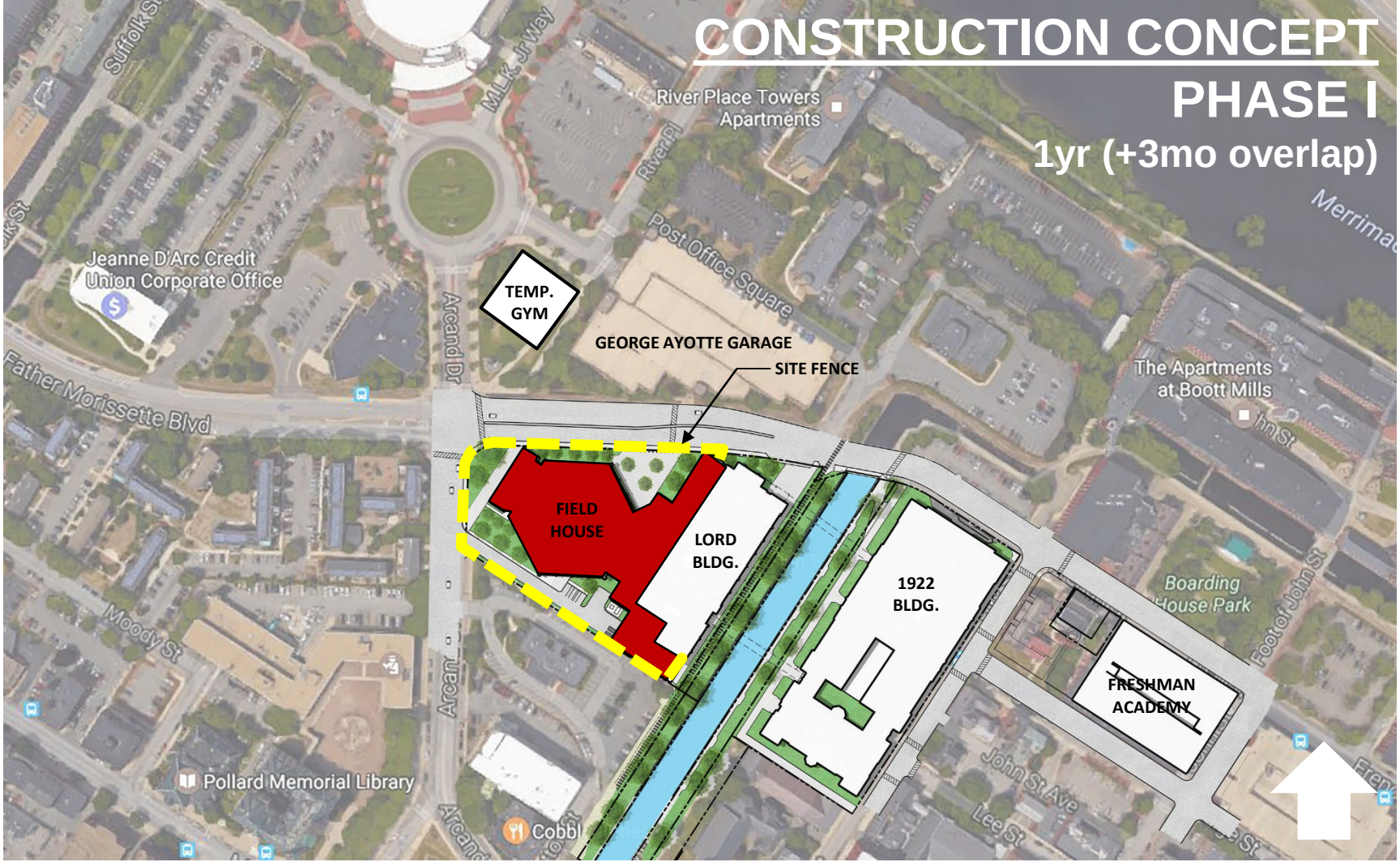
2nd floor

Basement

CONSTRUCTION CONCEPT

PHASE I

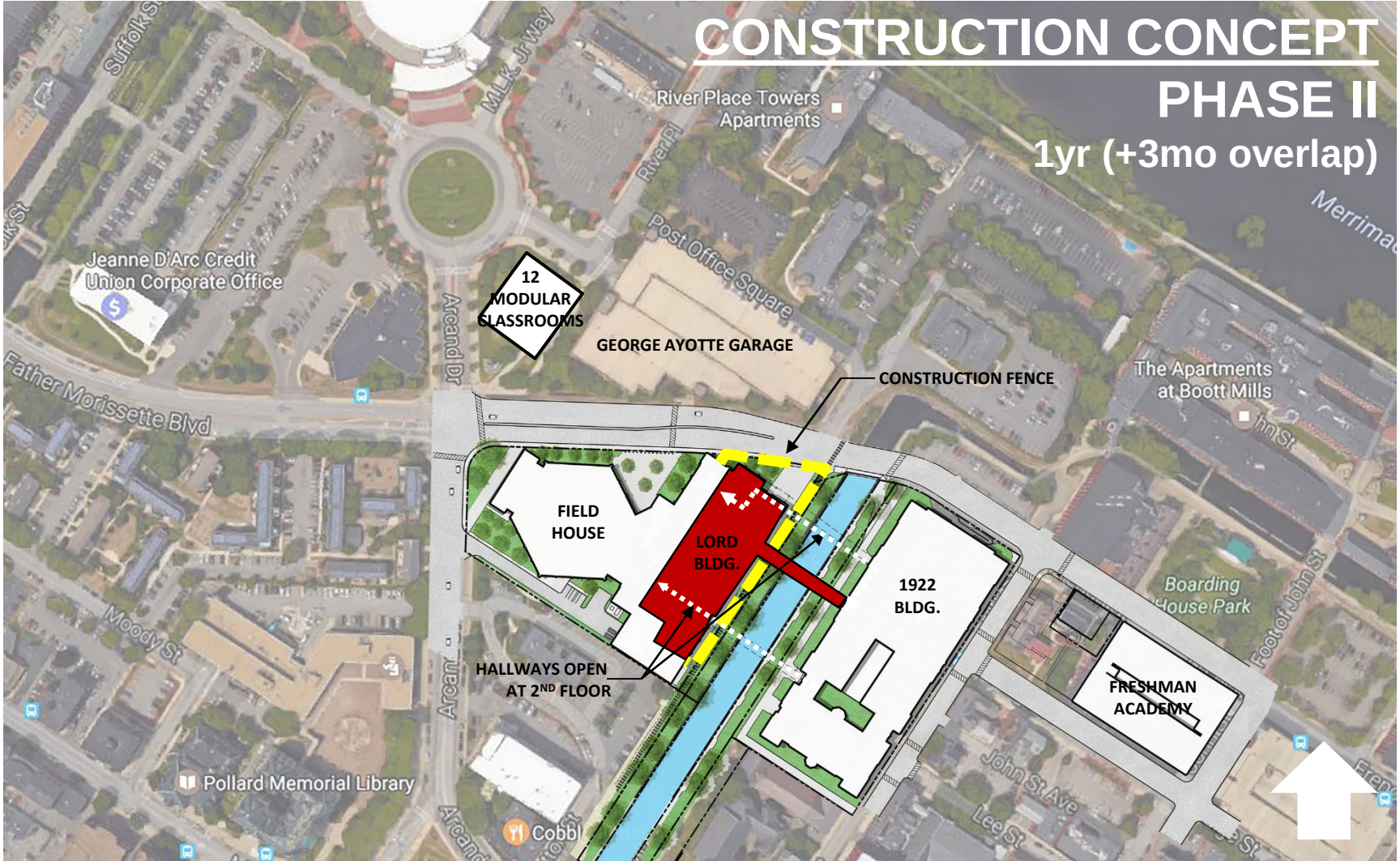
1yr (+3mo overlap)



CONSTRUCTION CONCEPT

PHASE II

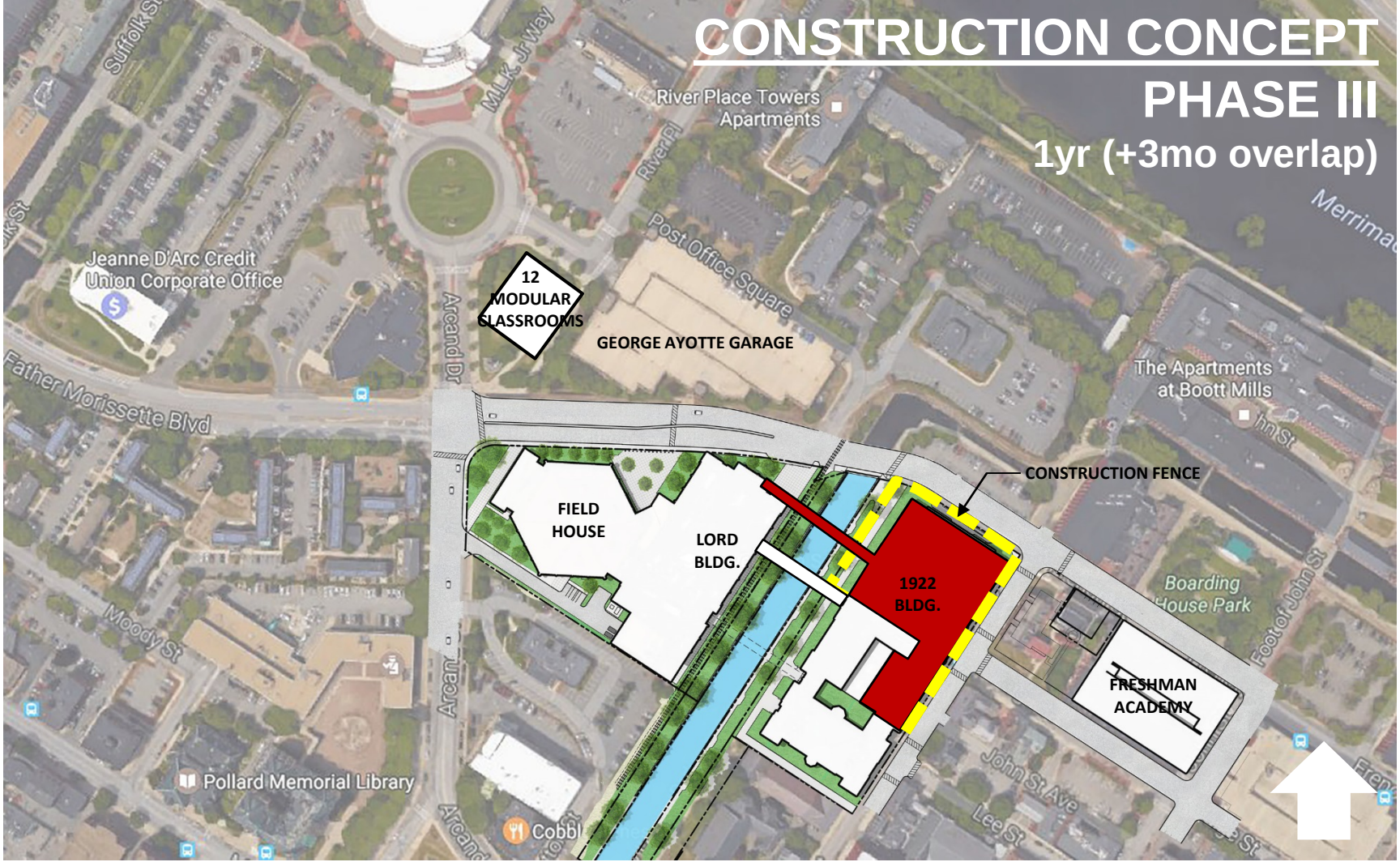
1yr (+3mo overlap)



CONSTRUCTION CONCEPT

PHASE III

1yr (+3mo overlap)



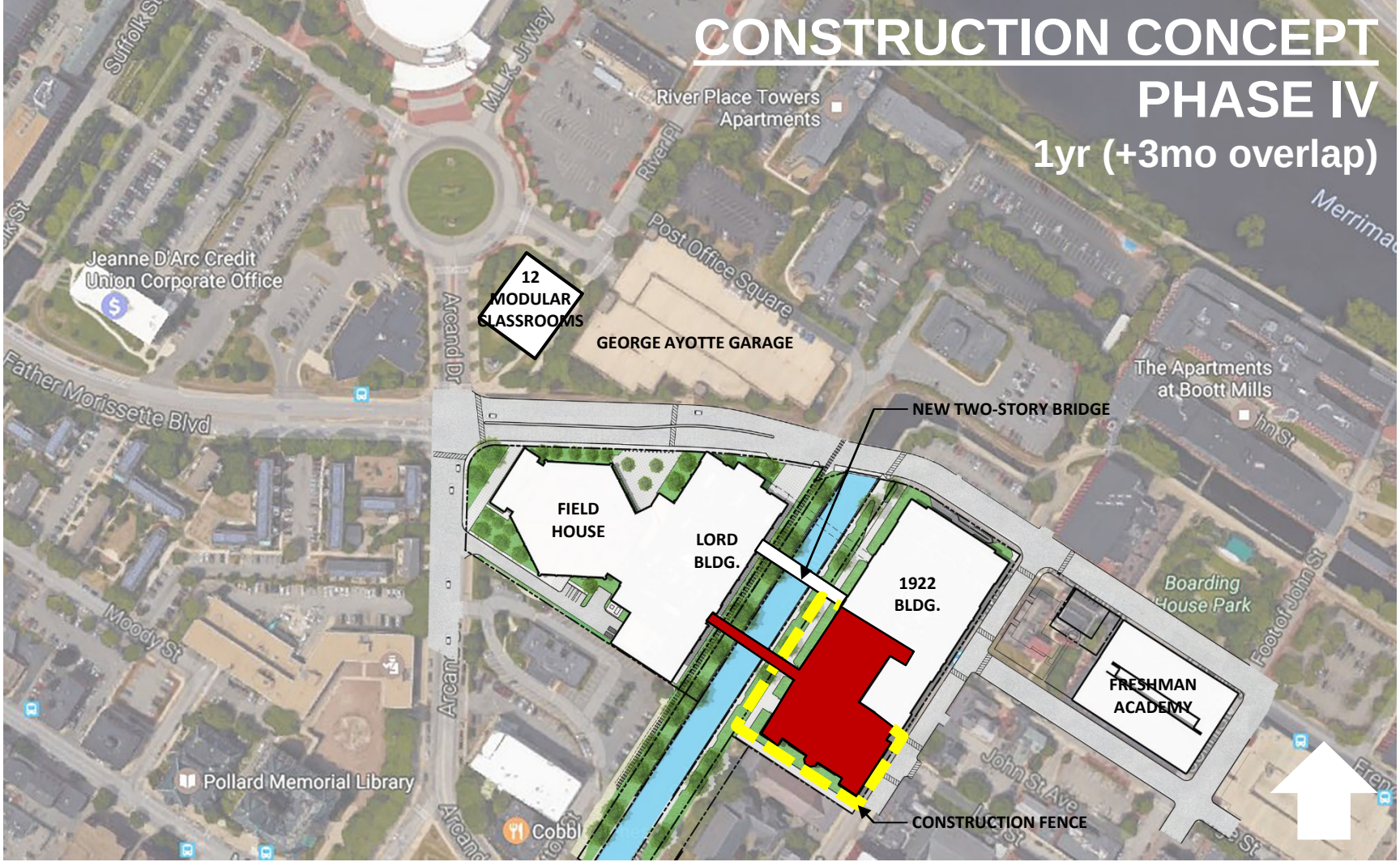
20
MODULAR
CLASSROOMS

LOCATION
(TBD)

CONSTRUCTION CONCEPT

PHASE IV

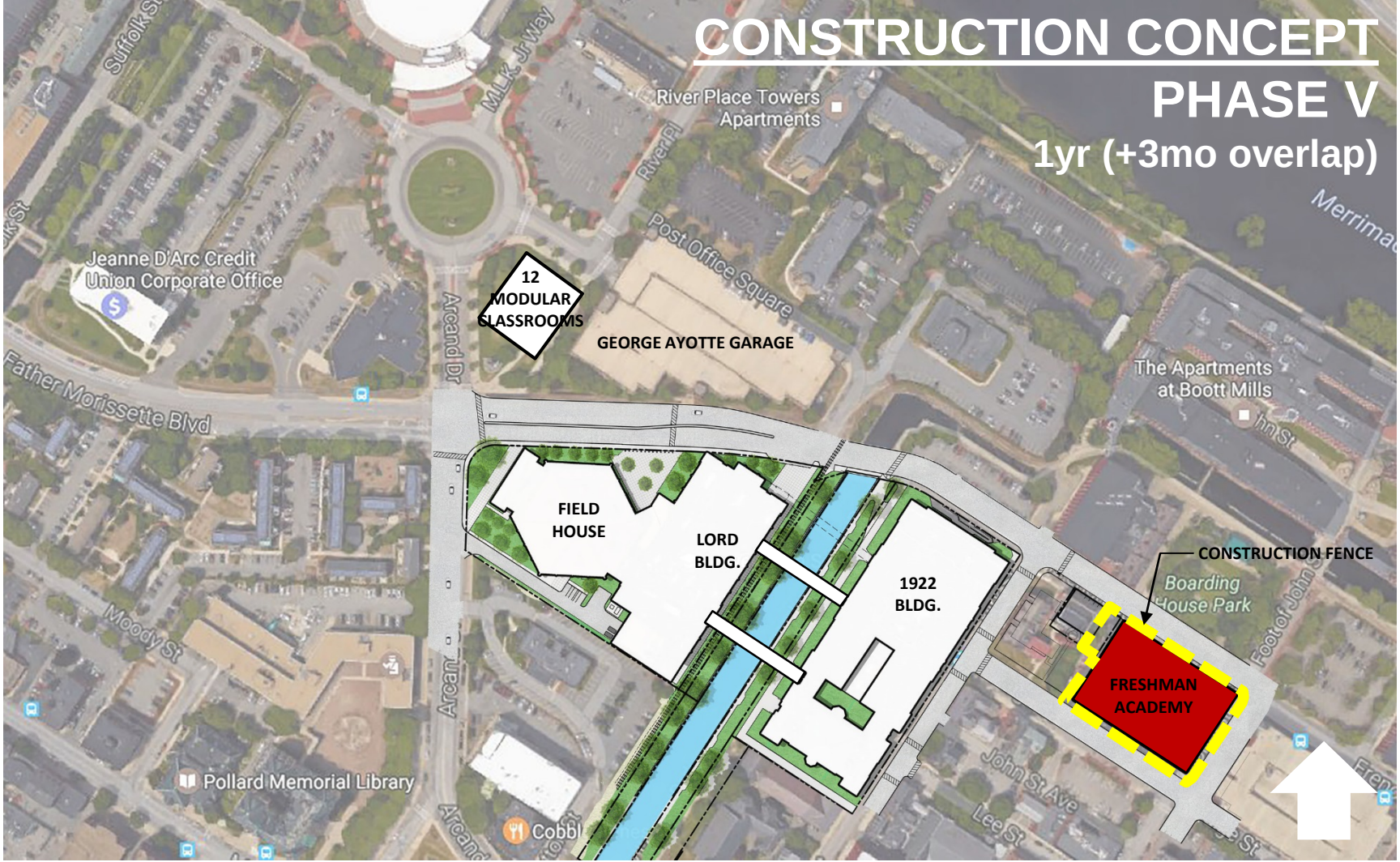
1yr (+3mo overlap)

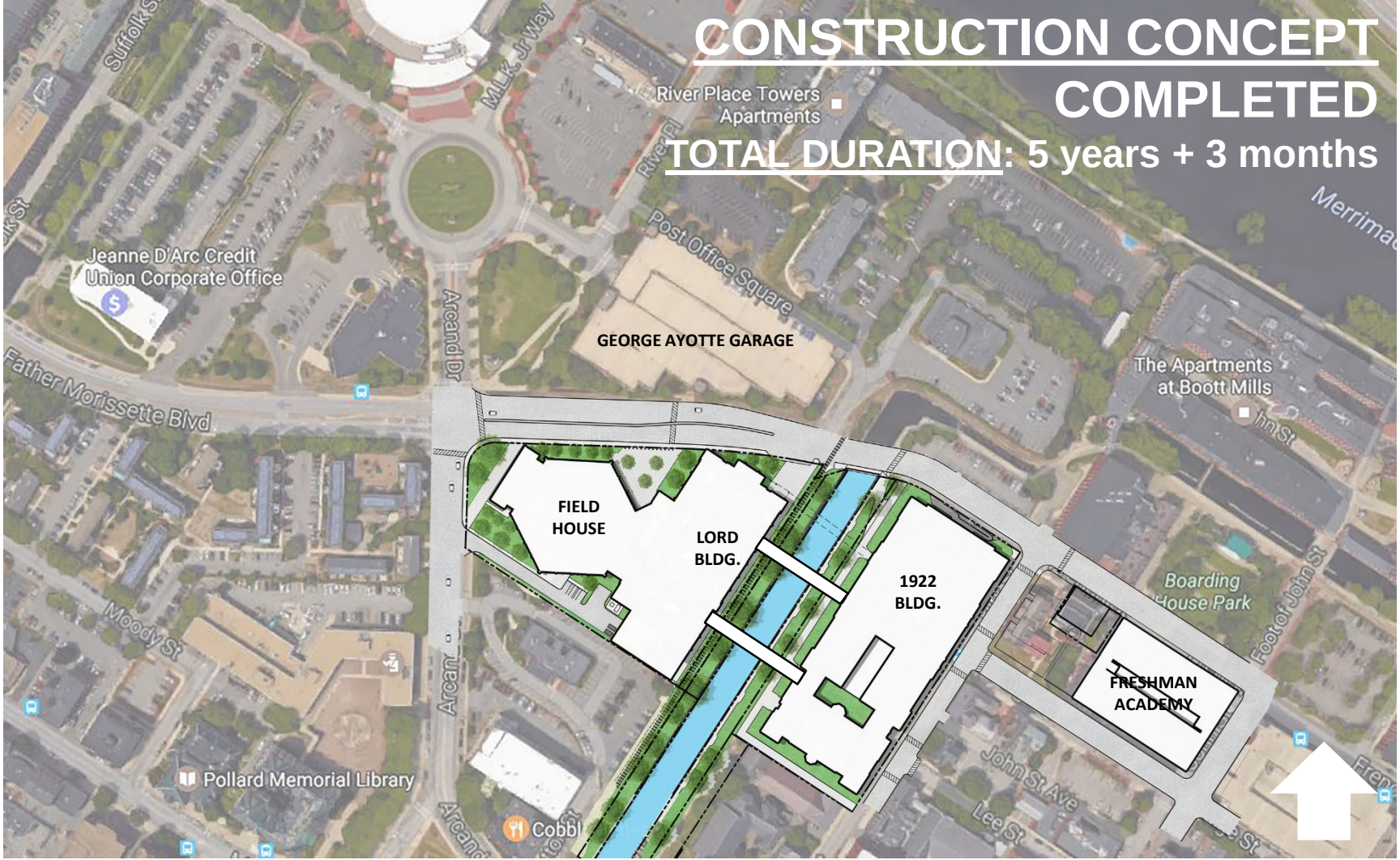


CONSTRUCTION CONCEPT

PHASE V

1yr (+3mo overlap)




CONSTRUCTION CONCEPT
COMPLETED
TOTAL DURATION: 5 years + 3 months
River Place Towers Apartments
Jeanne D'Arc Credit Union Corporate Office
GEORGE AYOTTE GARAGE
Post Office Square
The Apartments at Boott Mills
Father Morissette Blvd
Moody St
Pollard Memorial Library
FIELD HOUSE
LORD BLDG.
1922 BLDG.
FRESHMAN ACADEMY
Boarding House Park
John St Ave
Lee St

6.0 of 6.6 acres
636.7k gsf (445.5k reno+191.2k add)
New **2-3-5**-Story at 48-68'(63' Existing)
725 per Survey (629 of Ayotte's 1200)
On Street + Use of City Transit

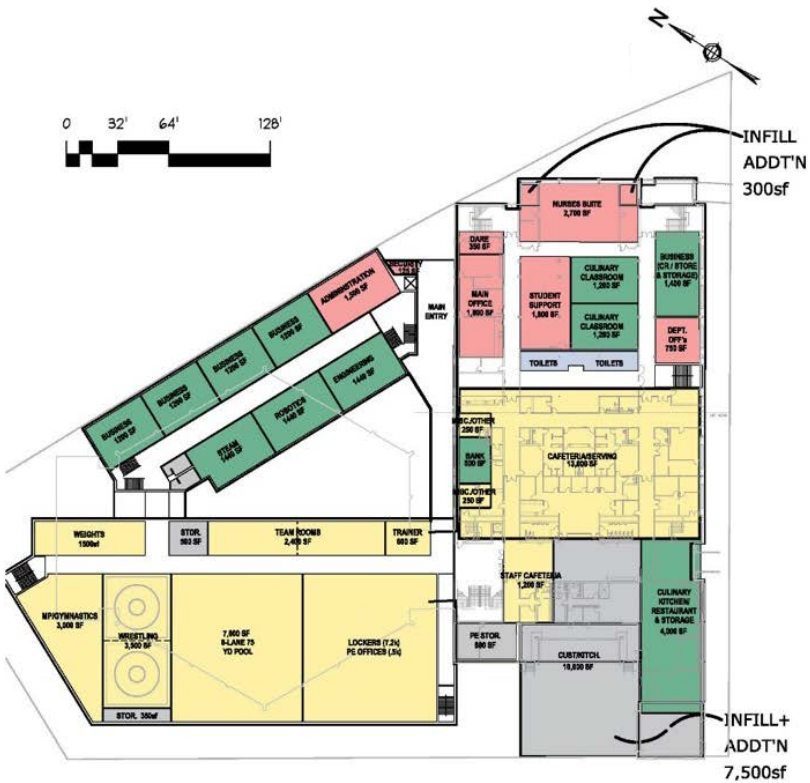
Existing Down-Town Site
+ **Proximity/Frequency of City Buses**
+ **Proximity To City/Social Services**
+ **Adjacent Pkg Garages (Covered)**
± **Existing Service Access Remains**
– Limited Access To Green Space
– Busing Req'd for Some Athletics

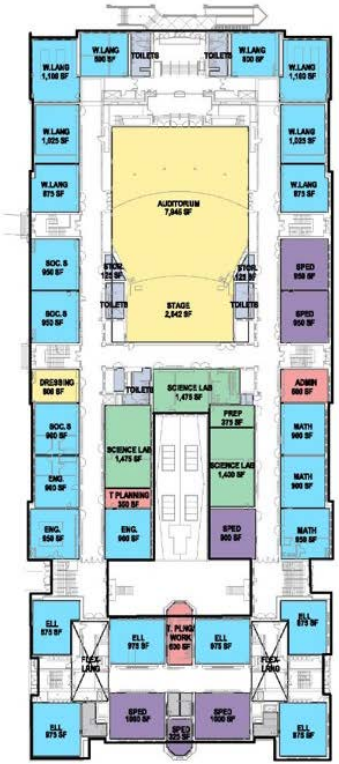
Meets Objectives Except as Noted:
+ **Freshman Academy Connected**
± **Public/Activity Areas Spread & Split**
+ **F.A. Teams + STEM/Hum. Clusters**
+ **Meets New Standards (Count/Size)**
+ **More Efficient/Effective Field House**

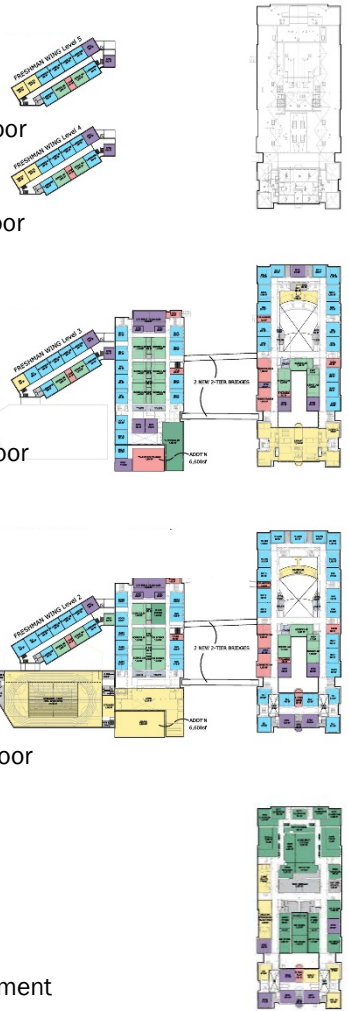
Extent of Exist. Ext. Wall Upgrades -TBD
± Existing Is Problematic/**New FA Ideal**
– Windowless Classrooms/Labs Exist
– Higher Operating Costs (Multi-Bldgs)

4 Year (+ summer) Phased Project
+ **Kitchen/Boiler Built in First Phase**
– Temporary Gym Facilities Required

$ 343,948,823 Total Project Budget
$135,320,524 City Share







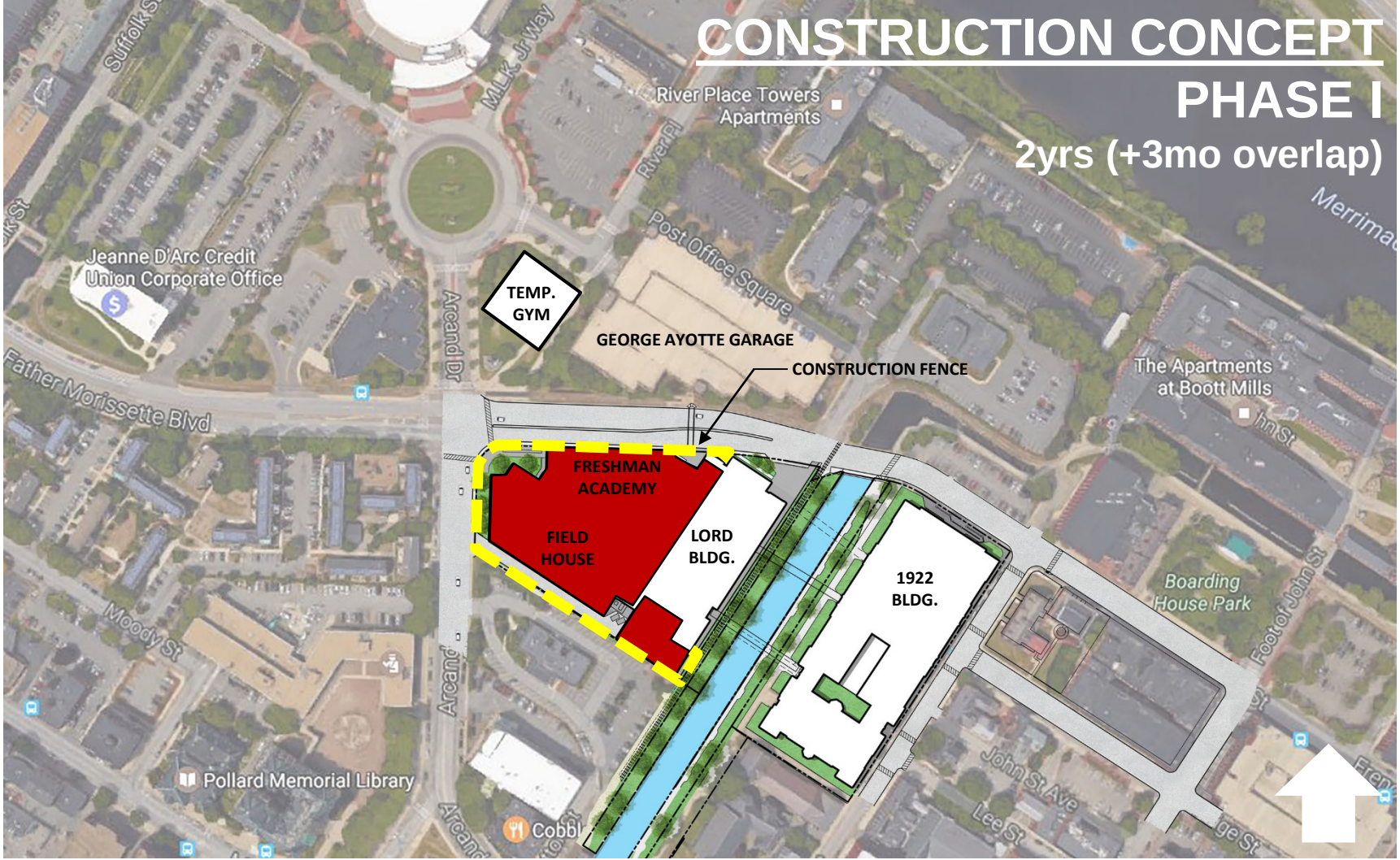
Lowell High School | Add / Reno Option 2 – 1st Floor

Perkins Eastman SKANSKA

CONSTRUCTION CONCEPT

PHASE I

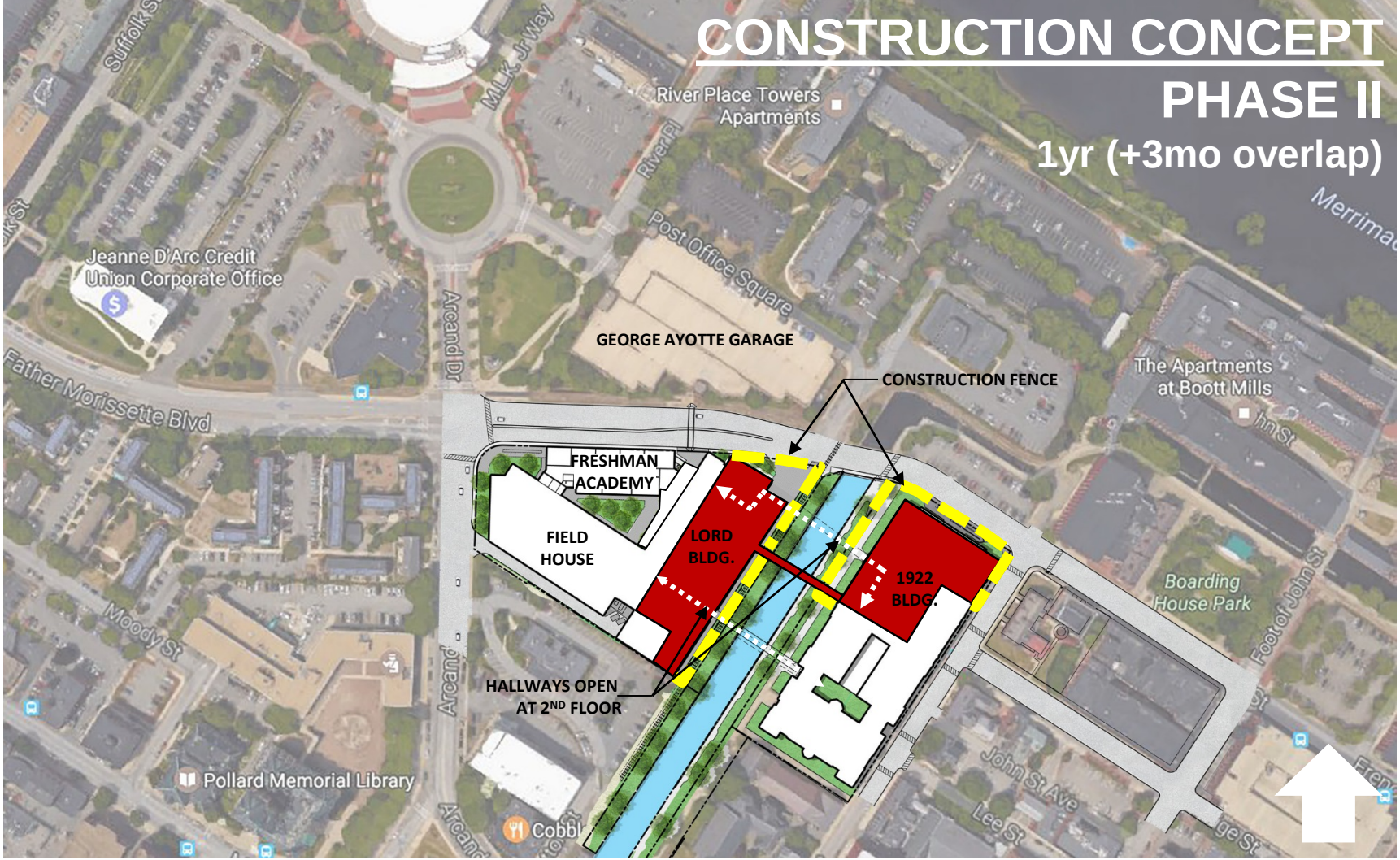
2yrs (+3mo overlap)



CONSTRUCTION CONCEPT

PHASE II

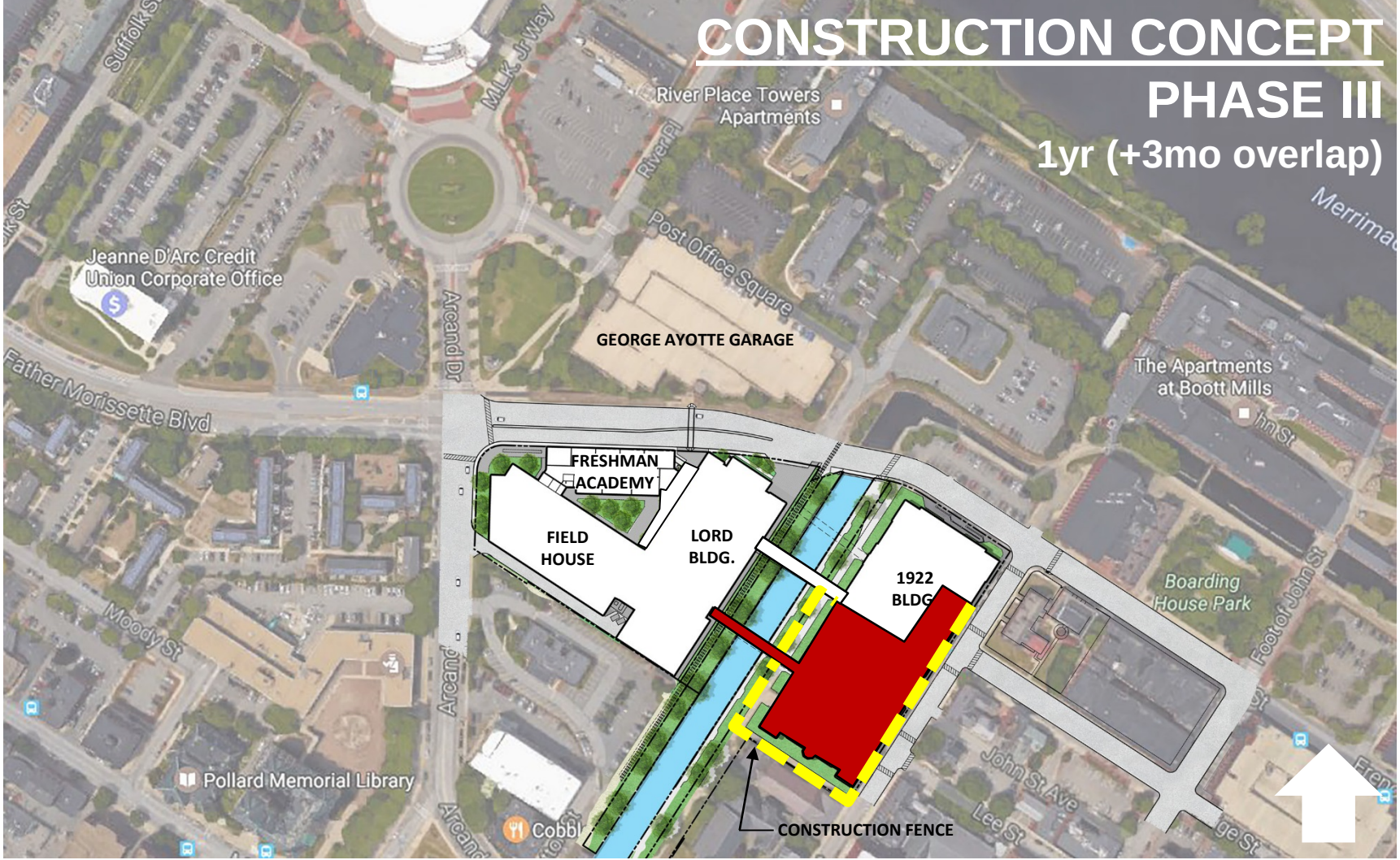
1yr (+3mo overlap)



CONSTRUCTION CONCEPT

PHASE III

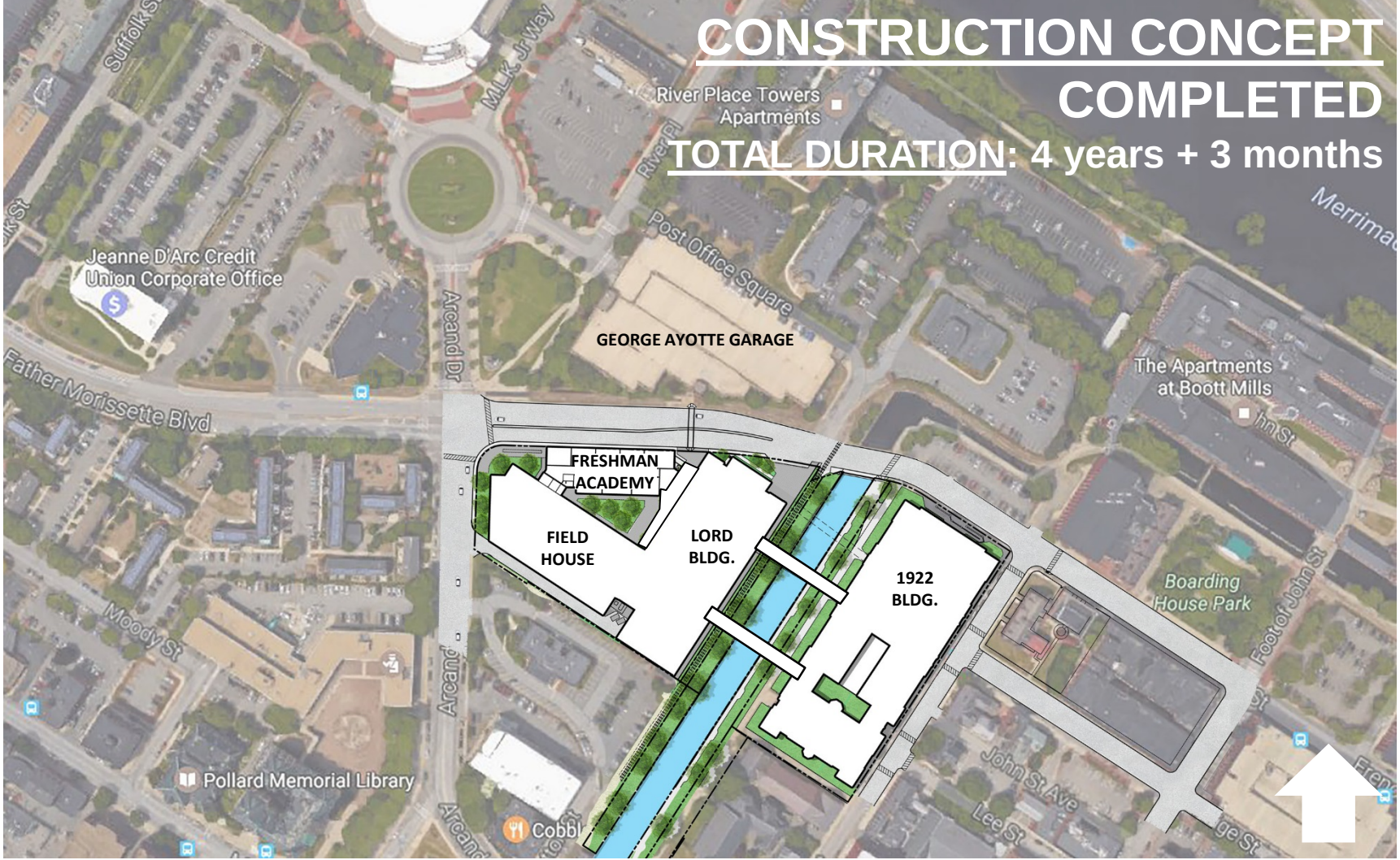
1yr (+3mo overlap)

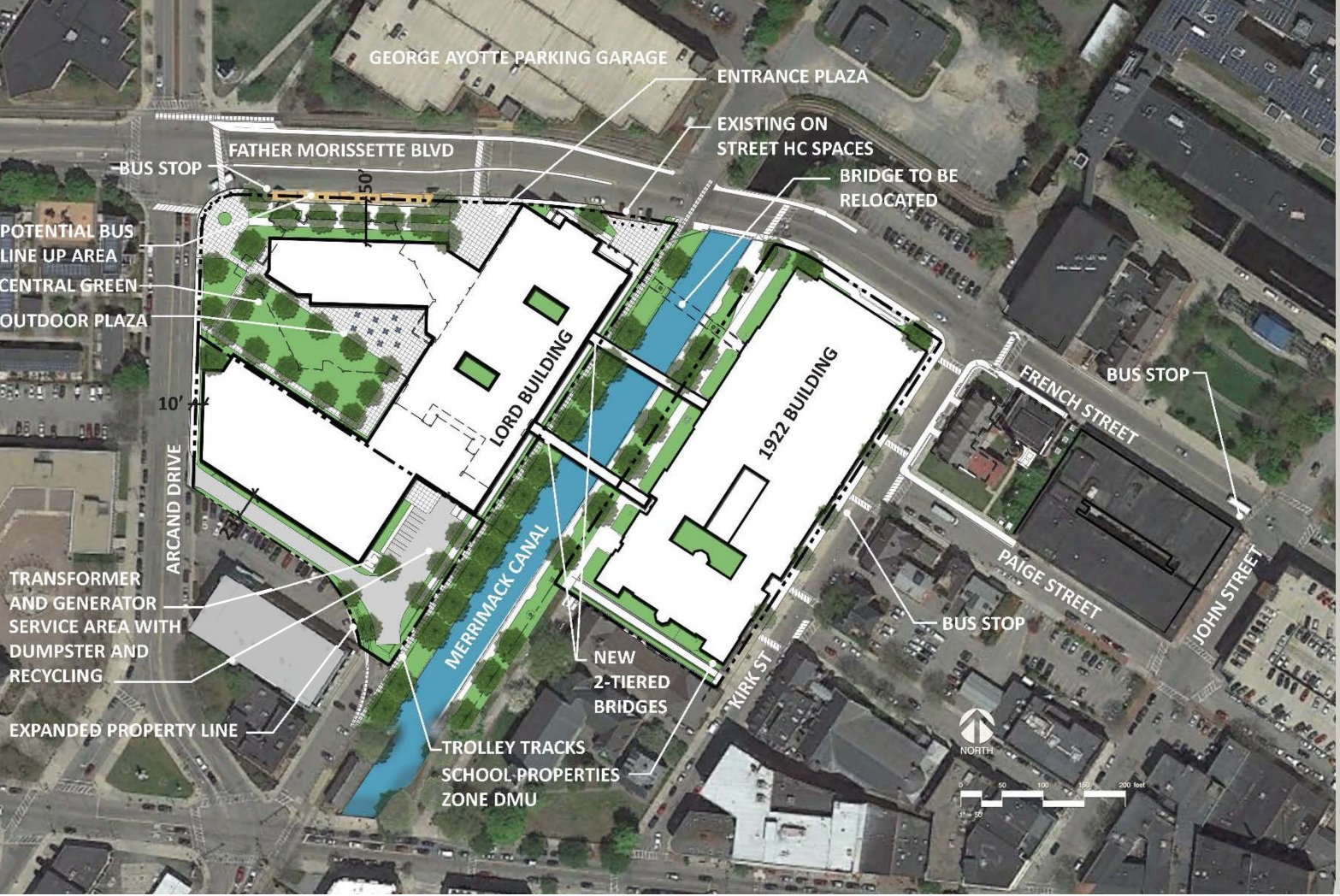


CONSTRUCTION CONCEPT

COMPLETED

TOTAL DURATION: 4 years + 3 months





7.4 = 6.0 of 6.6 acres +1.4 exp. lot
632.1k gsf (440.1k reno +192k add)
New **2-3-5**-Story at 48-68'(63' Existing)
725 per Survey (629 of Ayotte's 1200)
On Street + Use of City Transit

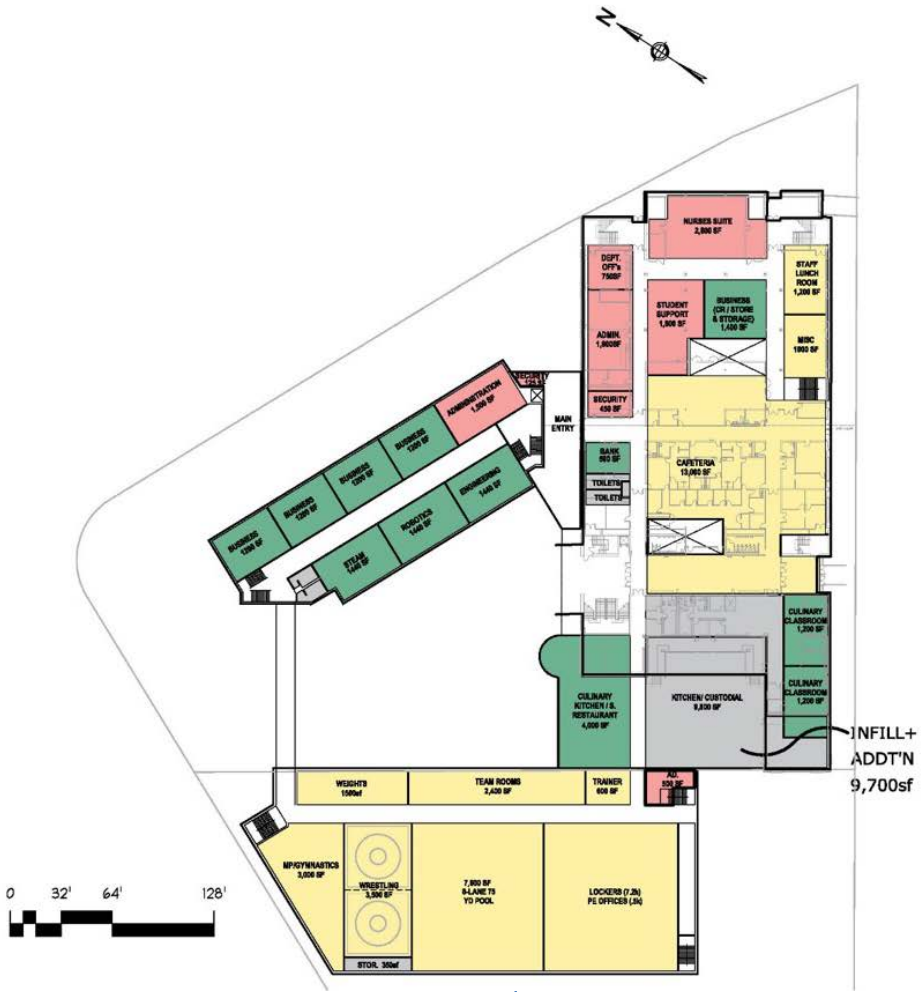
Existing Down-Town Site + Adjacent Lot
+ **Proximity/Frequency of City Buses**
+ **Proximity To City/Social Services**
+ **Adjacent Pkg Garages (Covered)**
+ **Improved Service/Access**
± **Modest Green Space Created**
– **Busing Req'd for Some Athletics**

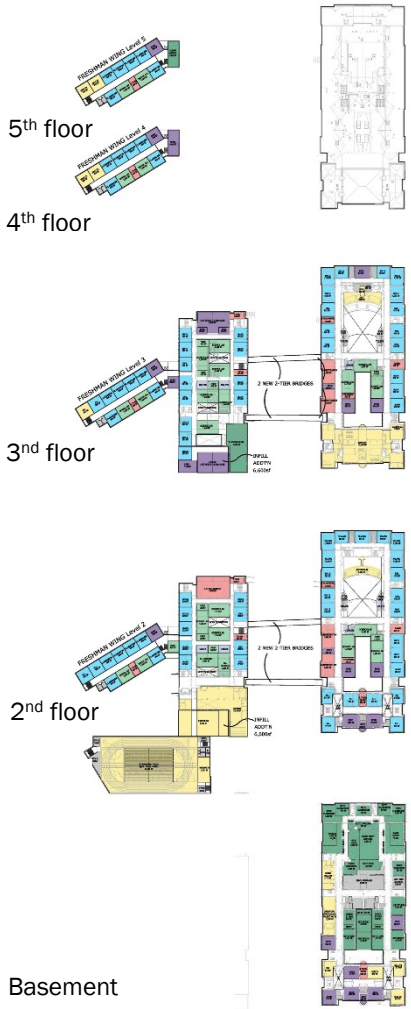
Meets Objectives Except as Noted:
+ **Freshman Academy Connected**
± **Public/Activity Areas Spread & Split**
+ **F.A. Teams + STEM/Hum. Clusters**
+ **Meets New Standards (Count/Size)**
+ **More Efficient/Effective Field House**

Extent of Exist. Ext. Wall Upgrades -TBD
± **Existing Is Problematic/New FA Ideal**
+ **Light Wells = No Windowless Labs**
– **Higher Operating Costs (Multi-Bldgs)**

4.5 Year (+ summer) Phased Project
+ **Kitchen/Boiler Built in First Phase**
+ **No Modulars or Temporary Gym**
± **Only 3 Years of 4.5 On School Site**
– **Land Acquisition/Eminent Domain**

$ 352,599,455 Total Project Cost
$ 143,232,657 City Share





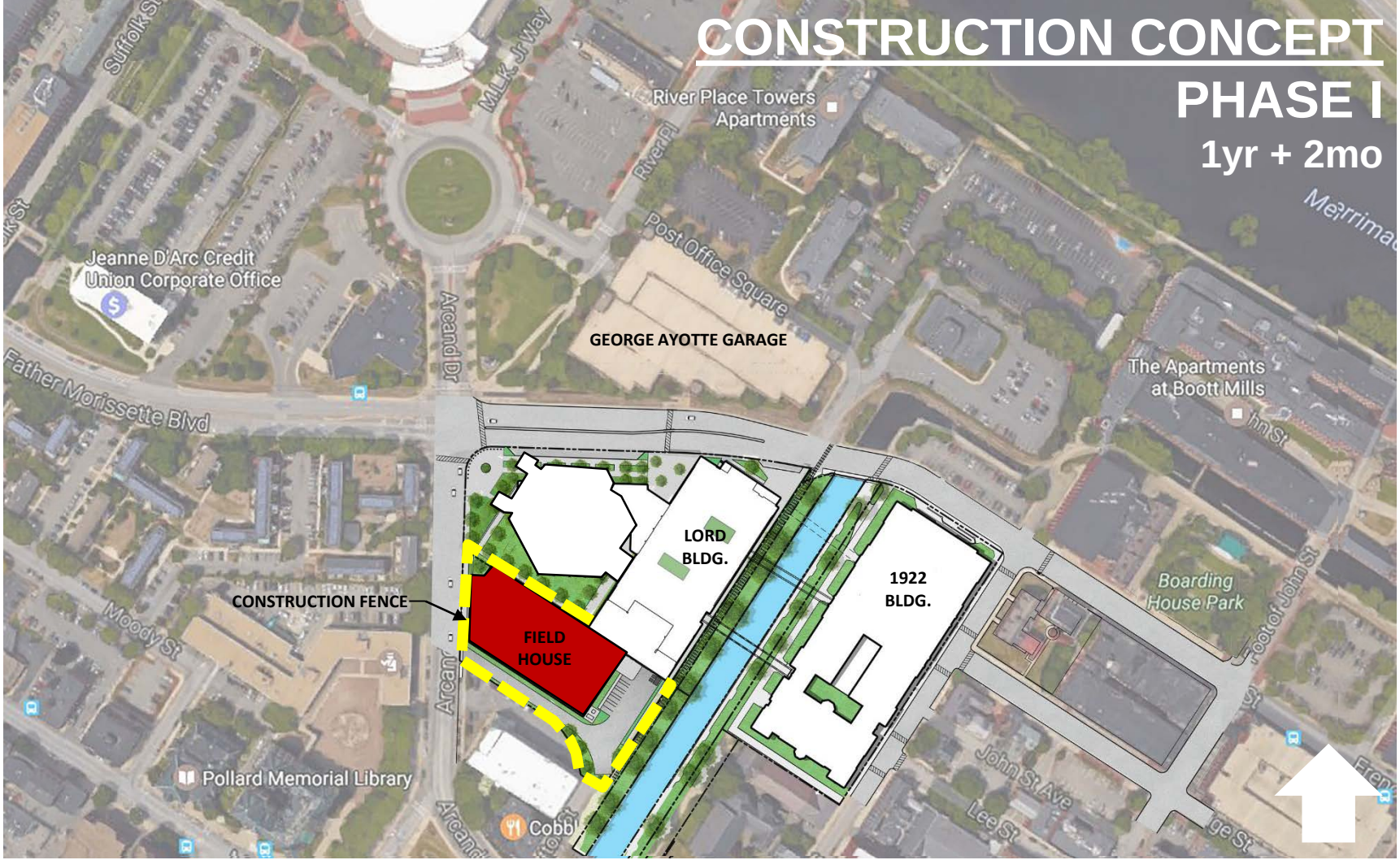
Lowell High School | Add / Reno Option 3 (exp) – 1st Floor

Perkins Eastman SKANSKA

CONSTRUCTION CONCEPT

PHASE I

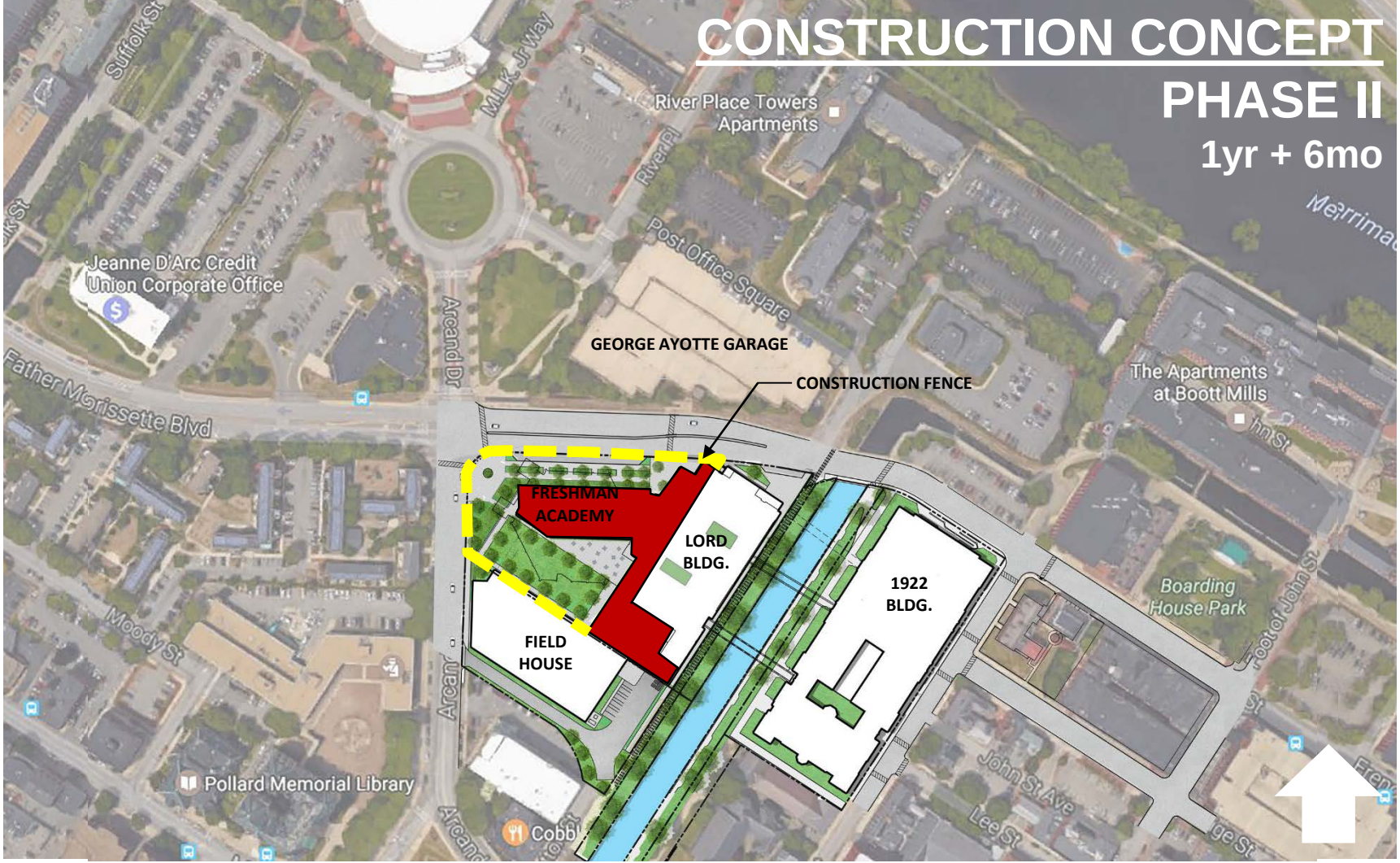
1yr + 2mo



CONSTRUCTION CONCEPT

PHASE II

1yr + 6mo

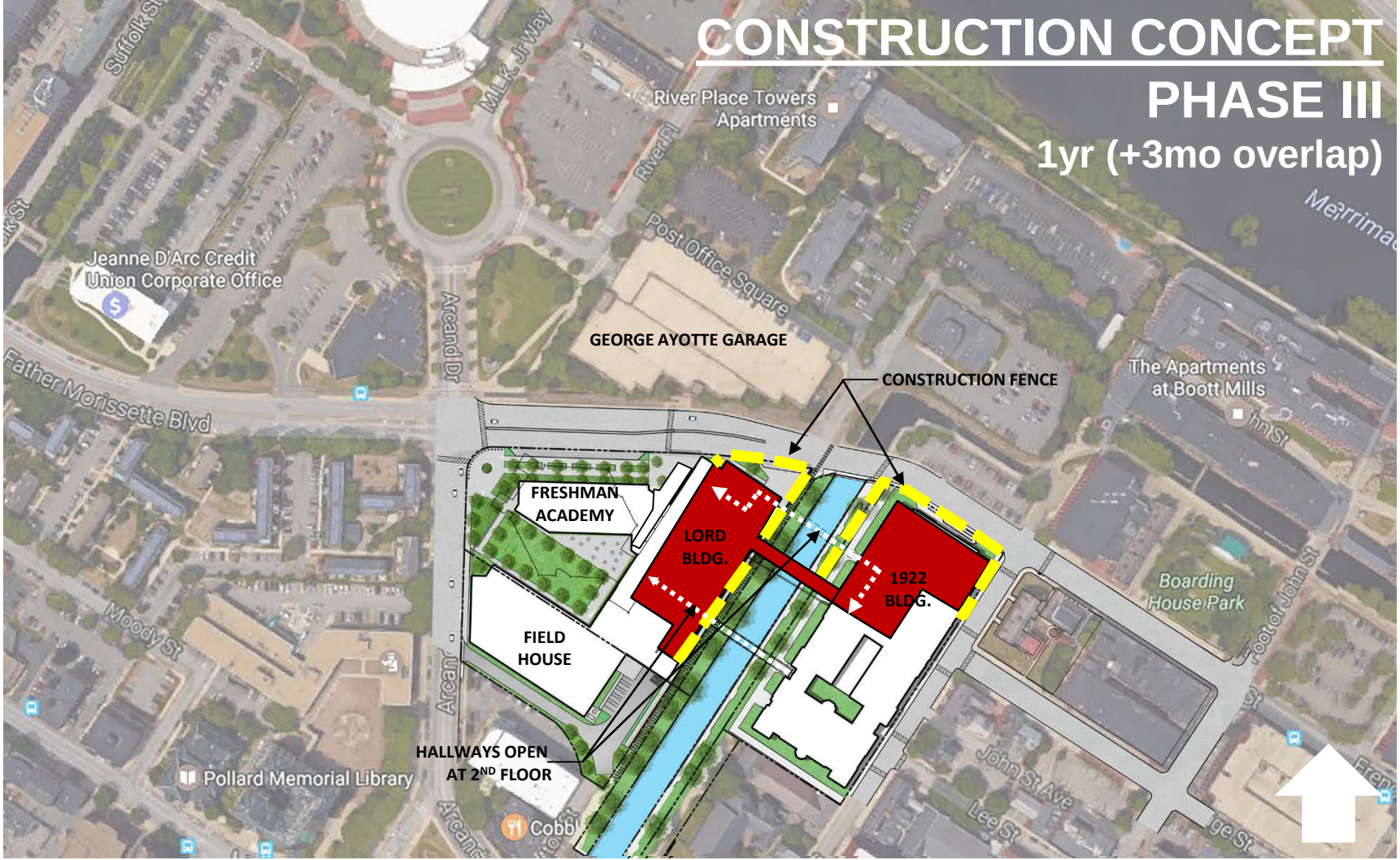


Lowell High School | Addition / Renovation Option 3 (expand) | Perkins Eastman SKANSKA

CONSTRUCTION CONCEPT

PHASE III

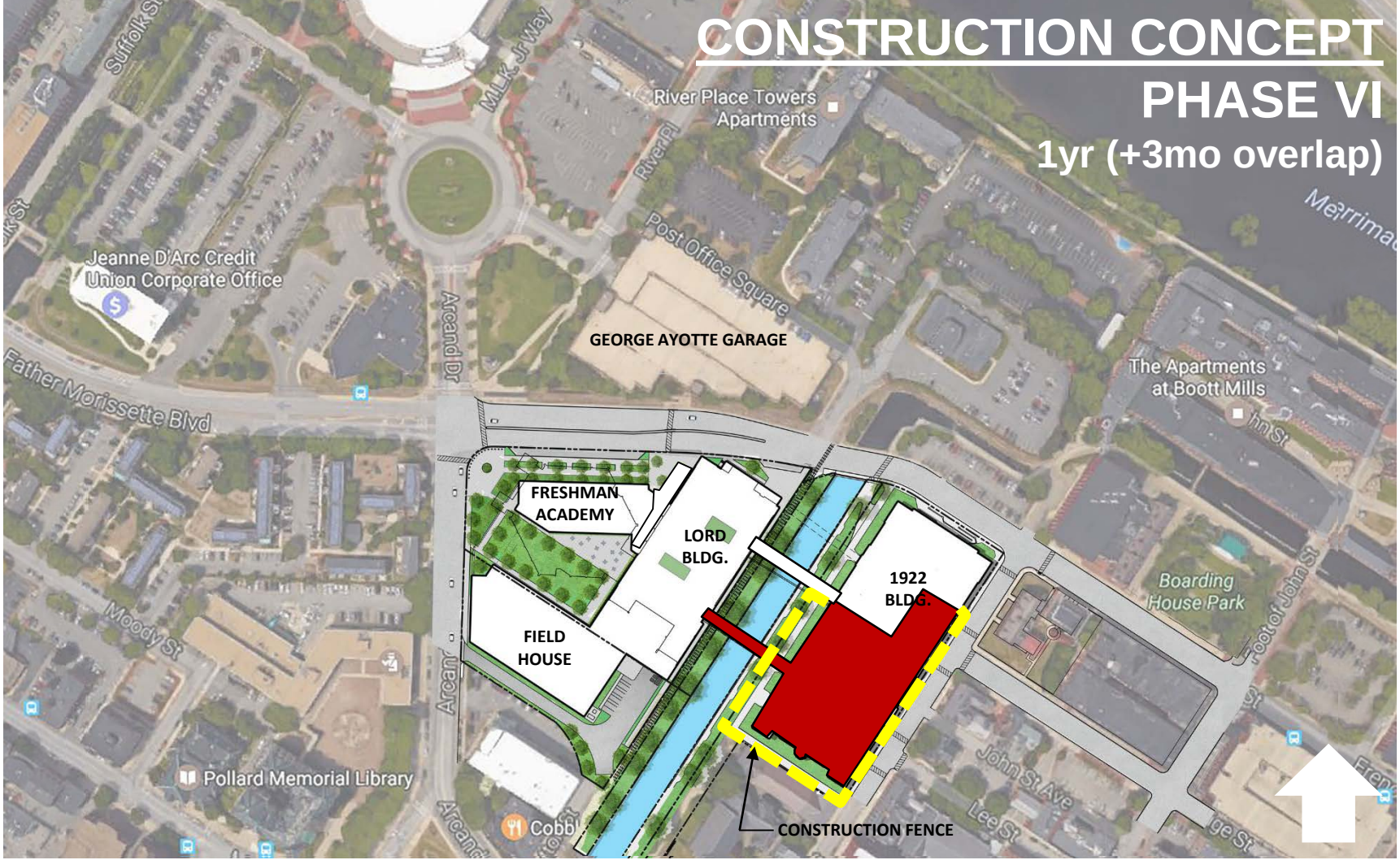
1yr (+3mo overlap)

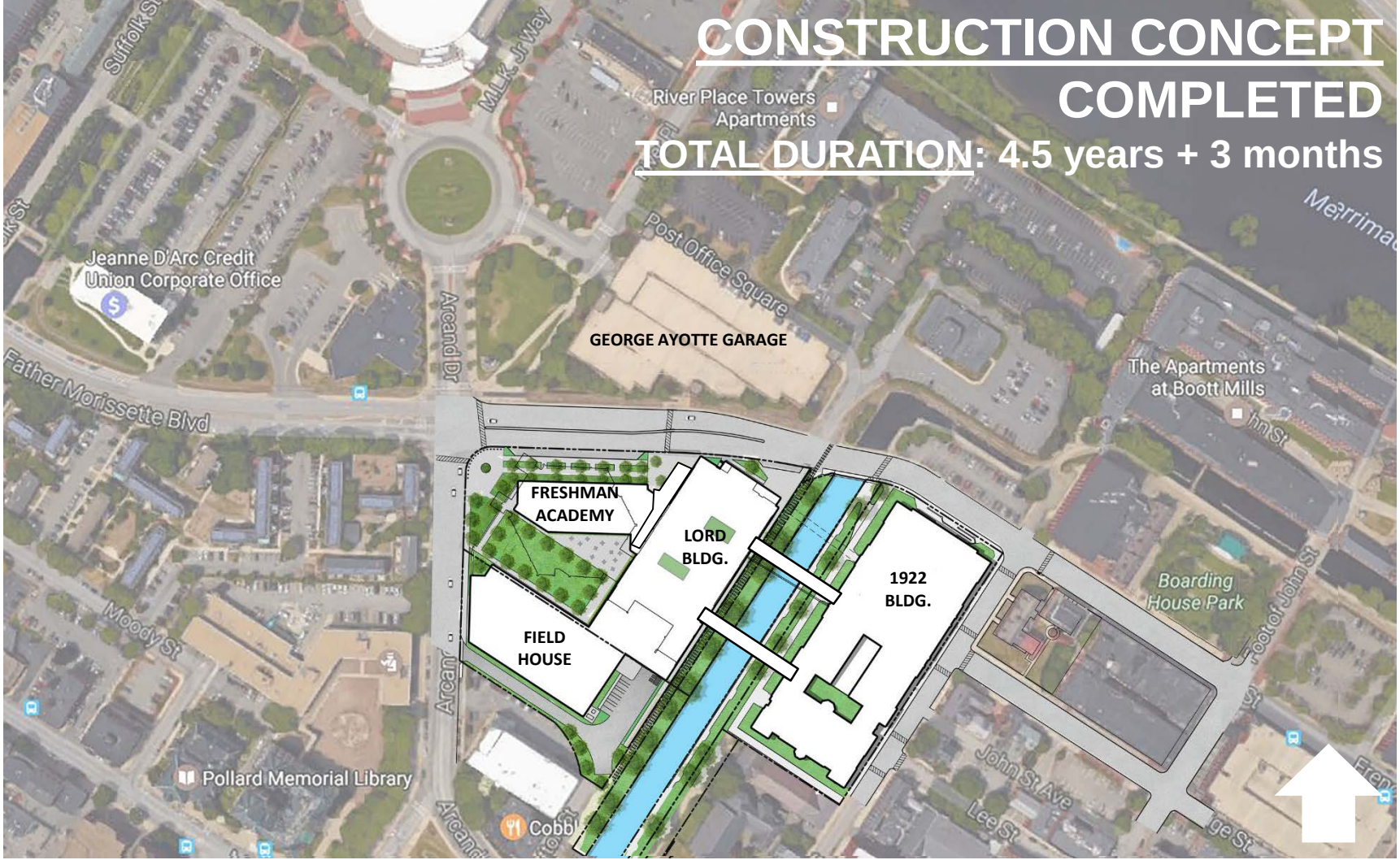


CONSTRUCTION CONCEPT

PHASE VI

1yr (+3mo overlap)




CONSTRUCTION CONCEPT
COMPLETED
TOTAL DURATION: 4.5 years + 3 months
River Place Towers Apartments
Jeanne D'Arc Credit Union Corporate Office
Post Office Square
GEORGE AYOTTE GARAGE
The Apartments at Boott Mills
Father Morissette Blvd
Arcand Dr
FRESHMAN ACADEMY
LORD BLDG.
1922 BLDG.
FIELD HOUSE
Boarding House Park
Moody St
Pollard Memorial Library
John St Ave
Lee St

23.5 of 43.24 acres
590.3k gsf new construction
New **4**-Story at 58'
750 of 850 Estimated Need On-Site
46+ Car Queue/46 Buses Dbl-Stack

Cawley Stadium Site
—Proximity/Frequency To City Buses
—Proximity To City/Social Services
—100 Spaces Estimated Off-Site
+ **Full Service/Perimeter Access**
+ **Ample Access to Green Space**
—Busing Req'd for Arrival/Departure

Meets Objectives Except as Noted:
+ **Freshman Academy Connected**
+ **Public/Activity Areas Clustered**
+ **F.A. Teams + STEM/Hum. Clusters**
+ **Meets New Standards (Count/Size)**
+ **More Efficient/Effective Field House**

New Construction and Exterior Shell
± **Good for Most All Teaching Spaces**
+ **No Windowless CRs + Ideal Daylight**
+ **Lower Operating Costs**

3 Year Project
+ **No School/Services Disruption**
± **Article 97=Field Replication Off-Site**
(Fr+JV Practice F.Ball+S.Ball Infield)

$ 339,152,182 Total Project Budget
$ 152,160,821 City Share

4th floor

3nd floor

2nd floor

23.5 of 43.24 acres
590.8k gsf new construction
New **5**-Story at 68'
850 Estimated Need Fits On-Site
38+ Car Queue/46 Buses Dbl-Stack

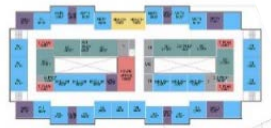
Cawley Stadium Site
—Proximity/Frequency To City Buses
—Proximity To City/Social Services
+ All Parking Provided On-Site
+ Full Service/Perimeter Access
+ Ample Access to Green Space
—Busing Req'd for Arrival/Departure

Meets Objectives Except as Noted:
+ Freshman Academy Connected
+ Public/Activity Areas Clustered
+ F.A. Teams + STEM/Hum. Clusters
+ Meets New Standards (Count/Size)
+ More Efficient/Effective Field House

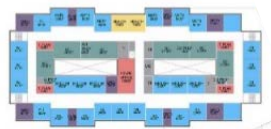
New Construction and Exterior Shell
± Good for Most All Teaching Spaces
+ No Windowless CRs + Ideal Daylight
+ Lower Operating Costs

3 Year Project
+ No School/Services Disruption
± Article 97=Field Replication Off-Site
(Fr+JV Practice F.Ball+S.Ball Infield)

$ 336,138,724 Total Project Budget
$ 149,439,672 City Share



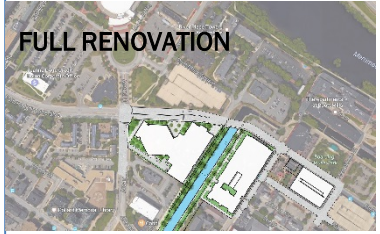
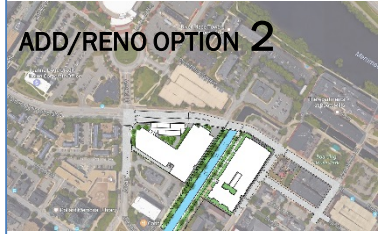
5th floor



4th floor

3nd floor

2nd floor

	FULL RENOVATION	ADD/RENO OPTION 2	ADD/RENO OPTION 3 (EXP)	NEW 4-STORY AT CAWLEY	NEW 5-STORY AT CAWLEY
					
Building/Site •Acreage •Gross Size •Stories/Ht. •Parking •Cars/Buses	**6.4** of 6.6 acres **650.1**k gsf (614.3k reno +35.8k add) New **3** Story at 48'(63' Existing) **725** per Survey (629 of Ayotte's 1200) On Street + Use of City Transit	**6.0** of 6.6 acres **636.7**k gsf (445.5k reno+191.2k add) New **2-3-5**-Story at 48-68'(63' Existing) **725** per Survey (629 of Ayotte's 1200) On Street + Use of City Transit	**7.4** = 6.0 of 6.6 acres +1.4 exp. lot **632.1**k gsf (440.1k reno +192k add) New **2-3-5**-Story at 48-68'(63' Existing) **725** per Survey (629 of Ayotte's 1200) On Street + Use of City Transit	**23.5** of 43.24 acres **590.3**k gsf new construction New **4**-Story at 58' **750** of 850 Estimated Need On-Site **46+** Car Queue/46 Buses Dbl-Stack	**23.5** of 43.24 acres **590.8**k gsf new construction New **5**-Story at 68' **850** Estimated Need Fits On-Site **38+** Car Queue/46 Buses Dbl-Stack
Location •Transportation •City Services •Parking •Deliveries •Outdoor Space •Addtn'l Busing	Existing Down-Town Site(s) + **Proximity/Frequency of City Buses** + **Proximity To City/Social Services** + **Adjacent Pkg Garages (Covered)** ± **Existing Service Access Remains** – **Limited Access To Green Space** – **Busing Req'd for Some Athletics**	Existing Down-Town Site + **Proximity/Frequency of City Buses** + **Proximity To City/Social Services** + **Adjacent Pkg Garages (Covered)** ± **Existing Service Access Remains** – **Limited Access To Green Space** – **Busing Req'd for Some Athletics**	Existing Down-Town Site + Adjacent Lot + **Proximity/Frequency of City Buses** + **Proximity To City/Social Services** + **Adjacent Pkg Garages (Covered)** + **Improved Service/Access** ± **Modest Green Space Created** – **Busing Req'd for Some Athletics**	Cawley Stadium Site – **Proximity/Frequency To City Buses** – **Proximity To City/Social Services** – **100 Spaces Estimated Off-Site** + **Full Service/Perimeter Access** + **Ample Access to Green Space** – **Busing Req'd for Arrival/Departure**	Cawley Stadium Site – **Proximity/Frequency To City Buses** – **Proximity To City/Social Services** + **All Parking Provided On-Site** + **Full Service/Perimeter Access** + **Ample Access to Green Space** – **Busing Req'd for Arrival/Departure**
Educ-Program •Freshman Loc •Heart/Hub •Organization •Space Needs	Meets Objectives Except as Noted: – **Freshman Academy Is Remote** ± **Public/Activity Areas Spread & Split** + **F.A. Teams + STEM/Hum. Clusters** + **Meets New Standards (Count/Size)**	Meets Objectives Except as Noted: + **Freshman Academy Connected** ± **Public/Activity Areas Spread & Split** + **F.A. Teams + STEM/Hum. Clusters** + **Meets New Standards (Count/Size)** + **More Efficient/Effective Field House**	Meets Objectives Except as Noted: + **Freshman Academy Connected** ± **Public/Activity Areas Spread & Split** + **F.A. Teams + STEM/Hum. Clusters** + **Meets New Standards (Count/Size)** + **More Efficient/Effective Field House**	Meets Objectives Except as Noted: + **Freshman Academy Connected** + **Public/Activity Areas Clustered** + **F.A. Teams + STEM/Hum. Clusters** + **Meets New Standards (Count/Size)** + **More Efficient/Effective Field House**	Meets Objectives Except as Noted: + **Freshman Academy Connected** + **Public/Activity Areas Clustered** + **F.A. Teams + STEM/Hum. Clusters** + **Meets New Standards (Count/Size)** + **More Efficient/Effective Field House**
Sustainability •Daylight/Solar •View Windows •Energy Effic.	Extent of Exist. Ext. Wall Upgrades -TBD – **Orientation Is Problematic** – **Windowless Classrooms/Labs Exist** – **Higher Operating Costs (Multi-Bldgs)**	Extent of Exist. Ext. Wall Upgrades -TBD ± **Existing Is Problematic/New FA Ideal** – **Windowless Classrooms/Labs Exist** – **Higher Operating Costs (Multi-Bldgs)**	Extent of Exist. Ext. Wall Upgrades -TBD ± **Existing Is Problematic/New FA Ideal** + **Light Wells = No Windowless Labs** – **Higher Operating Costs (Multi-Bldgs)**	New Construction and Exterior Shell ± **Good for Most All Teaching Spaces** + **No Windowless CRs + Ideal Daylight** + **Lower Operating Costs**	New Construction and Exterior Shell ± **Good for Most All Teaching Spaces** + **No Windowless CRs + Ideal Daylight** + **Lower Operating Costs**
Construction	5 Year (+ summer) Phased Project + **Kitchen/Boiler Built in First Phase** – **Temporary Gym Facilities Required** – **Extensive Modular Classrooms**	4 Year (+ summer) Phased Project + **Kitchen/Boiler Built in First Phase** – **Temporary Gym Facilities Required**	4.5 Year (+ summer) Phased Project + **Kitchen/Boiler Built in First Phase** + **No Modulars or Temporary Gym** ± **Only 3 Years of 4.5 On School Site** – **Land Acquisition/Eminent Domain**	3 Year Project + **No School/Services Disruption** ± **Article 97=Field Replication Off-Site** (Fr+JV Practice F.Ball+S.Ball Infield)	3 Year Project + **No School/Services Disruption** ± **Article 97=Field Replication Off-Site** (Fr+JV Practice F.Ball+S.Ball Infield)
PSR Proj. Cost •City's Share	**$343,585,338** **$130,022,882**	**$343,948,823** **$135,320,524**	**$352,559,455** **$143,232,657**	**$339,152,182** **$152,160,821**	**$336,138,724** **$149,439,672**