Central Hill Campus Plan

City of Somerville, Somerville, MA
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SMMA

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City of Somerville
Somerville, MA

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TOOLE DESIGN

BCA

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Central Hill Campus Plan

1. Introduction

Acknowledgments

City of Somerville

» Campus Plan Committee

Planning Team

» SMMA
» Toole Design Group
» Building Conservation Associates

Introduction

Master Plan

In 2015, as part of the Somerville High School project design, the School Building Committee asked SMMA to consider a big-picture concept of the entire Central Hill campus. This master plan was to ensure that design concepts for the high school could be expanded to future work planned on the hill, specifically for the Public Library, City Hall, and the future use of the 1895 Building.

Central Hill Campus Plan

In 2018, a committee was formed to address what was left behind on Central Hill from the Somerville High School project. This campus plan determined whether the high school design was the most appropriate design, leading to changes in concept for the site's educational and civic uses such as the high school itself, City Hall, and the other neighboring buildings.

Project Vision and Goals

Project Vision

The City of Somerville engaged with SMMA to develop a comprehensive campus plan for the rest of Central Hill that didn't include the high school. The City envisioned an inviting and accessible civic campus that embodies its values for accessibility, inclusion, environmental stewardship, and respect for local history. The plan was developed through interdisciplinary city review, meetings, and a participatory public process; it resulted in a campus plan that provides a cohesive experience throughout and a roadmap for incrementally implementing the vision.

Goals and Objectives

» To achieve a historically appropriate, unified sense of place
» To achieve a Carbon Net Zero or Net Zero Energy-Ready (NZE) campus
» To provide meaningful public process
» To improve accessibility within campus
» To respectfully incorporate and or relocate numerous (site) war memorials
» To integrate the Central Library into the civic experience of the campus
» To systemically mitigate storm water impacts
» To utilize landscape and urban design elements and wayfinding to enhance user experience

Project Scope

The scope of the Central Hill Campus Plan includes the incorporation of the remainder of the Central Hill campus from the completion of the Somerville High School project in 2021 into a cohesive, accessible, and inviting campus. Major aspects of the plan include site design, multi-modal transit solutions, approach to sustainability and storm water mitigation, and a campus identification and wayfinding system by way of a meaningful public process.

For site design purposes of this planning study, the campus at the completion of the high school project is considered the existing condition.

For energy use purposes of this planning study, the current high school data is considered the existing condition, since the proposed high school will not be online until 2020. We do not have actual utility usage to evaluate.

This study is conducted and presented in three parts: analysis, concepts, and final plan.

Analysis

An analysis of existing conditions was performed and presented to the Campus Plan Committee and the community. Suggestions for open space programming, transit solutions, and approaches to campus sustainability were gathered for consideration in the campus plan concepts.

Concepts

Campus planning concepts were developed with feedback from the analysis portion of the study. These concepts were presented to the Campus Plan Committee and the community. Feedback was gathered on major aspects of the concepts for consideration in the final plan development.

Final Plan

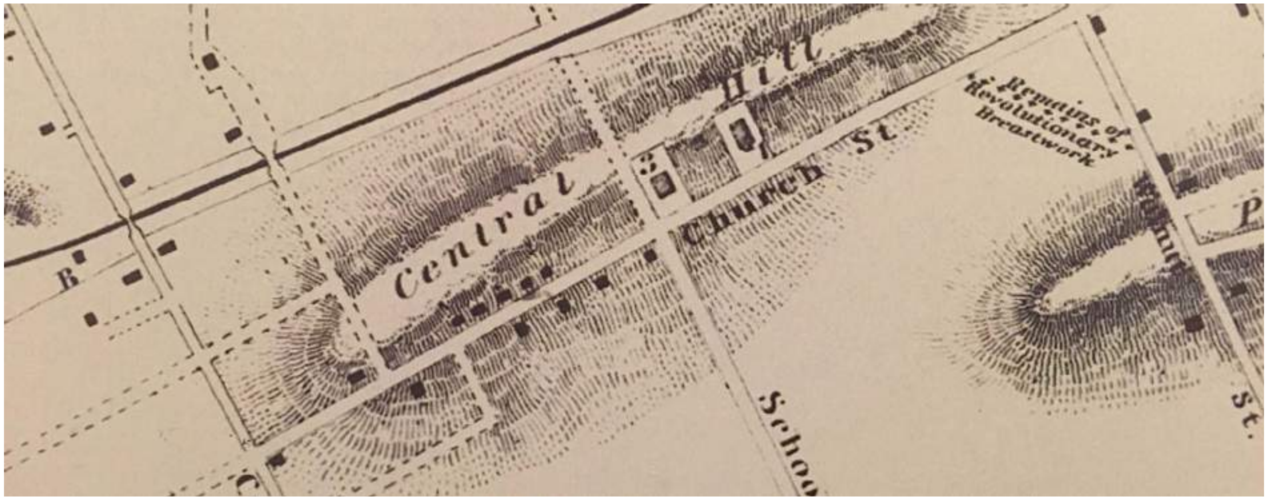
The final campus plan design was developed and presented to the Campus Plan Committee and the community. The final plan includes the phasing of various development projects, a cost estimate, and preparation of a report with community feedback and supporting study information.

Figure 1.1: Existing Conditions with Project Scope highlighted after completion of Somerville High School

Central Hill Campus Plan

2. Site Analysis

Neighborhood Context



Historic map of Central Hill

Aptly named, Central Hill is centrally located in Somerville. The campus is nestled into a densely developed, primarily residential neighborhood with several small businesses; it sits directly adjacent to the south of Gilman Square and approximately a half mile from Union and Magoun Squares.

As its Central Hill name suggests, topography is a primary characteristic of the campus. Sitting atop a glacial drumlin, it presents significant challenges in accessibility both to and throughout the site. One of the primary goals of the plan is to weave together Somerville's revitalizing central squares, which are separated and obstructed in view by the city's distinct hills.

Since its purchase, Central Hill has served as Somerville's ever-evolving educational and civic locus for over two hundred years. Many buildings and structures have come and gone, including multiple evolutions to the oldest structure currently on the campus that once was the original high school: City Hall. The new Somerville High School and Green Line Extension (GLX) transit projects have inspired the city's leadership to address the current ad hoc arrangement of buildings and unintentional open spaces that have resulted from these changes.

The campus is bound by busy streets including Highland Avenue, School Street, Medford Street, and Walnut Street. It is accessible by car, bus, bicycle, and walking, and is soon to be connected to the Green Line and a future expansion of the main community pathway that will provide better access from the north.

Historical Context

Central Hill Park

Excerpts from *Somerville Past & Present*, 1898

The purchase of the present Central Hill park land in 1870, of land formerly belonging to Jacob Sleeper of Boston, cost the town about thirty-eight thousand dollars. It was what was known in 1788 as one of the "church lots," being then the property of the First Church of Charlestown. This purchase did not meet the entire approval of the citizens, many thinking that Prospect Hill, with its extensive views and hallowed memories, was a more appropriate location for public grounds and buildings, and that it could have been bought at a smaller price. Concerning it, the selectmen say: "This purchase definitely settled the question of a recognized center. This question being no longer in dispute, plans for the future development of the town may be made with especial reference to this fact." This was the first of Somerville's parks, and the only one before it became a city.

Historic City Hall postcard

Existing Building Use and Conditions

Old Landmarks

Many mementos of former days still remain. Our hills are yet here, though from most have disappeared all traces of their revolutionary occupation. Until within a few years remains of old forts and breastworks were visible. Those on the Central Hill park were dug away in 1878 regardless of protests: the "Fort" on this park [was] modern and built in 1885. It has no history and is not on the lines of the revolutionary works, although within their enclosure. The cannons in it were used in the defenses of Washington during the Civil War.

On an estate on the opposite side of Highland Avenue, old breastworks were still in existence in 1892 where now is an apartment house. There was also an old redoubt on the top of a ledgy knoll near Mystic avenue, commanding a long reach of Mystic River; a few years earlier, a little higher up Winter Hill stood another redoubt, since dug down in excavating the ledge. On the southerly slope of Prospect Hill revolutionary era traces remain, tradition says they were the old tent-holes of 1775, or perhaps of the Burgoyne prisoners. These are all that are now left in the city.

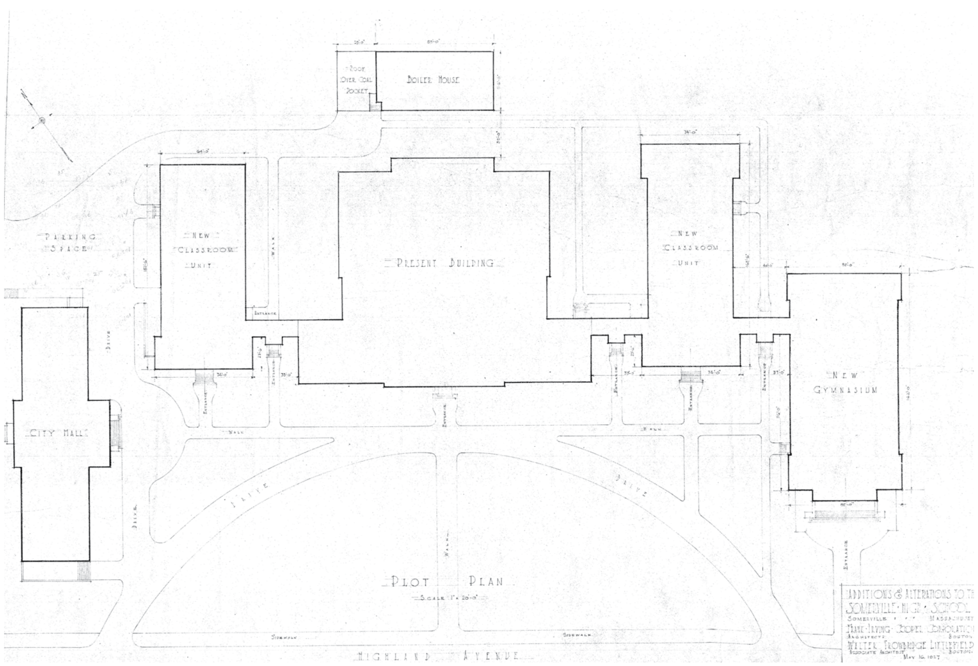


Figure 2.1: Historic site plan of Central Hill

City Hall

City Hall provides visitors daily access to its multiple city agencies and resources. There are currently 133 full and part-time positions in City Hall, not including the 960 employees, interns, or "on-call/fill-in" employees.

The City Council and various boards and commissions hold meetings in City Hall Monday through Thursday. These meetings typically start between 6:00 and 7:00pm and can go as late as midnight.

Staff are asked to vacate the building no later than midnight during the workweek. On weekends, two to four staff members typically occupy the facility.

Events

Annual events that make use of the building include: First Flag raising, holiday lights tour (1,300 persons), Haunted Hall (500), Memorial Day parade staging (500), and Greek Independence Day (*Source: The City of Somerville*).

There have also been dance performances (150) and Revolutionary War Re-enactors (250).

There are periodic protests and rallies, around three or four a year, on the concourse. Available permits estimate attendance between 500 and 1,000 people. There have been gatherings as low as 10 to as high as several thousand for the One Somerville rally.

Outdoor Events Requiring Utilities

- Flag raisings, press conferences, rallies: public address system (20 people)
- Tree and menorah lighting/holiday lights: public address system, strung lights, menorah (1,000 for tree lighting)

(*Source: The City of Somerville*)

Somerville High School

The new high school and its assumed existing conditions will be completed at the end of construction in 2021. Building use includes both technical and vocational high school programs. Those accessible by the community will be the auto shop, the hair salon, the restaurant, the Fabville maker space, the Somerville Child Care facility, and the community cable TV studio. Adult Education will also take place in various parts of the facility after school hours.

1895 Building

At the end of construction for the high school, this building will sit vacant until the renovation of the space allows the historic edifice to be occupied for use by City and school department agencies and staff. The building use for this space prior to the high school project was the former entrance and associated administration and educational spaces of Somerville High School.

Somerville Central Library

The Somerville Central Library functions as the main branch of the Somerville Public Library system.

The Central Library is open outside of its regular hours—on occasion—for special events about three to four times per year.

Examples of Special Events

- Art/gallery Events
- Cultural meetings
- Movie nights
- Illustrators/writers groups
- Children's events
- Language classes
- Teen events
- Craft events
- Yoga/workout events
- Book/historical talks
- Lectures

Outdoor Events Requiring Utilities

- Movies on the lawn requiring a projector and sound system
- Occasional hosting of bands requiring power for amplification (e.g., Porchfest)
- Occasional special events requiring power (e.g., for boom boxes, etc.)

Building Spaces

- Teen Room
- Children's Room
- Circulation desk
- Book storage
- Conference rooms

Central Library entrance

Existing Land Use

Open Space

The location of this site, on one of the seven hills of Somerville, immediately lends itself to a level of prominence in the city. The elevation at the north side of the site and the rail road tracks pose accessibility challenges; much of the northern side of the site is inaccessible to the southern part of the parcel. The space previously had functioned as an urban wild, providing an incidental habitat for urban flora and fauna. As part of the Somerville High School project, this tract of land was reimagined as an open space more accessible to the public in the form of a small, synthetic turf play field. The accessibility to a new type of open space on campus was achieved through the design of several retaining walls, stairs, and ramp systems. The green space adjacent to the new Community Path is to be a naturalized slope as part of the high school project to encourage similar urban wildlife diversity as the previous urban forest had afforded its inhabitants. Running concurrent to the high school project is the Green Line Extension, which also alters the urban forest to allow for a new station at Gilman Square and an extension of the Community Path. At the completion of the high school project, the Central Hill campus will be 63.3% open space, an increase from 57.1% before the high school project (See Figures 2.2 and 2.3).

Open Space Percentages	Post HS
Landscaped *	43.0%
Permeable Pavement	2.6%
Impervious Pedestrian Pavement	20.4%
Impervious Vehicular Pavement	10.8%
Building Footprint	23.3%
TOTAL	**76.7%**
Open Space (Landscape + Ped)	63.3%

Figure 2.2: Open Space percentages post High School construction
**Includes turf field*

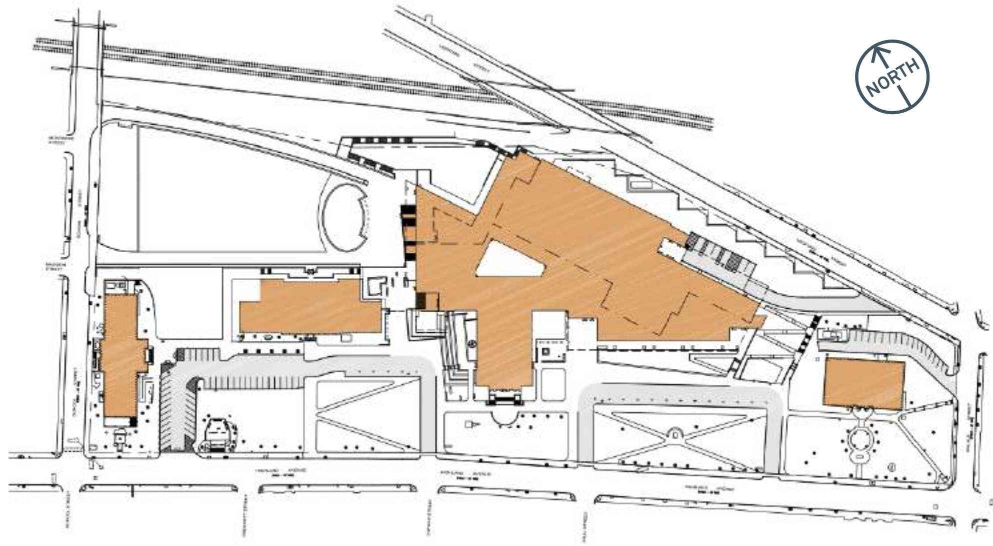


Figure 2.3

Post-Somerville High School Addition/Renovation

The Somerville High School (SHS) campus was forward-thinking as the design of the landscape; open spaces developed conceptual ideas for the full site and not just the scope of the new high school facility. The shift of the SHS building to the eastern side of the site achieved a major goal proposed by the city, which was a visual and pedestrian connectivity through the site from north to south. The separation of the SHS from the 1895 Building allows for visual and pedestrian corridors to form connections through the site. This is achieved with a grand staircase starting from the new Green Line Extension at Gilman Square station and extending along the school to the crown of the site. This is especially important to encourage connection through, instead of around, the hill to allow for a flow of people, views, and an ease in connection for commuters and the community visiting the hill. This design decision allows for the inclusion and activation of the landscape on the northern side of the site, instead of the avoidance and neglect that it receives at present day.

Memorials and Monuments

The memorials and monuments on campus play a large role in the definition of this space as a civically-oriented campus. The current layout of the memorials has been developed ad hoc throughout the years as more memorials and monuments have been designated to Central Hill. The location of the memorials and monuments allows for a centrally located and public open space; it is easily accessible for visitors who either mindfully visit these designated areas of respect and reflection or passively come upon them while attending to other business on the hill. Both types of visitors are important for the continuation of honoring the history of Somerville and our nation.

Numerous annual events take place to celebrate the memorials, monuments, and history. Many citizens make their way to the hill for Flag Day, Memorial Day, Labor Day, and a unique day celebrating George Dilboy. All special gatherings celebrating the events and persons that these monuments and memorials represent are unique and highlight a respect for local history that is an important piece of what makes Central Hill special to Somerville.

Play Spaces

The play spaces on campus serve the younger generations of the Central Hill neighborhood and their care takers. The Central Hill Playground bifurcates into two main play areas consisting of equipment for 2 to 5-year-olds and 5 to 12-year-olds. The metal and rubber equipment are set in an engineered wood fiber base and offer large motor skill development, but provide little flexibility in play style, such as inclusive play or multi-generational play. The spaces also serve numerous day care centers in the area. The playground is slated for removal during the Somerville High School (SHS) project, with the design of the space anticipated to return to the campus through the continuation of the Central Hill Campus Plan.

Other play elements proposed in the SHS plan include a 2 to 5-year-old playground associated with the Somerville Childcare Center and the parkour course along Medford Street. The Somerville Childcare Center play area will be closed to the public during program hours, but open for general use outside of this set time. The parkour course is designed for adult use and ties into the goals of Shape-Up Somerville to create exterior play environments for various generations. Another form of recreation on-site prior to the construction of the high school project is the informal use of the hills for sledding during winter. Many forms of passive and active recreation populate the Central Hill campus and help to activate the open spaces, which encourages safe spaces, healthy lifestyles, and a level of pride and respect for a well-maintained and utilized open space program.

Entrance to playground 2018

Existing Circulation Systems

Getting to Campus

Multimodal Network

As host to Somerville's City Hall, Central Library branch, and high school, Central Hill is a destination for people of all ages and from all neighborhoods of the city. Residents and visitors access the campus by foot, bicycle, motor vehicle, or via four MBTA bus routes: 80, 85, 88, and 90.

The campus is lined by Highland Avenue on the south and Medford Street on the north, with both streets running two-way. School Street borders the campus to the west and runs southbound one-way from Medford Street to Somerville Avenue. On the east side of the Central Hill campus, Walnut Street runs one-way northbound. Several one-way and two-way neighborhood streets intersect these bordering routes as part of a dense network of streets, all lined by sidewalks on both sides. On-street parking is also located on all sides of the campus.

Montrose and Madison Streets terminate on the western edge of the campus and have been identified as neighborways, or quiet streets comfortable for pedestrians and people riding bicycles.

Shared lane markings are located along Highland Avenue, and a 1,100-foot southbound green bike lane is present along Medford Street from Pearl Street to Walnut Street.

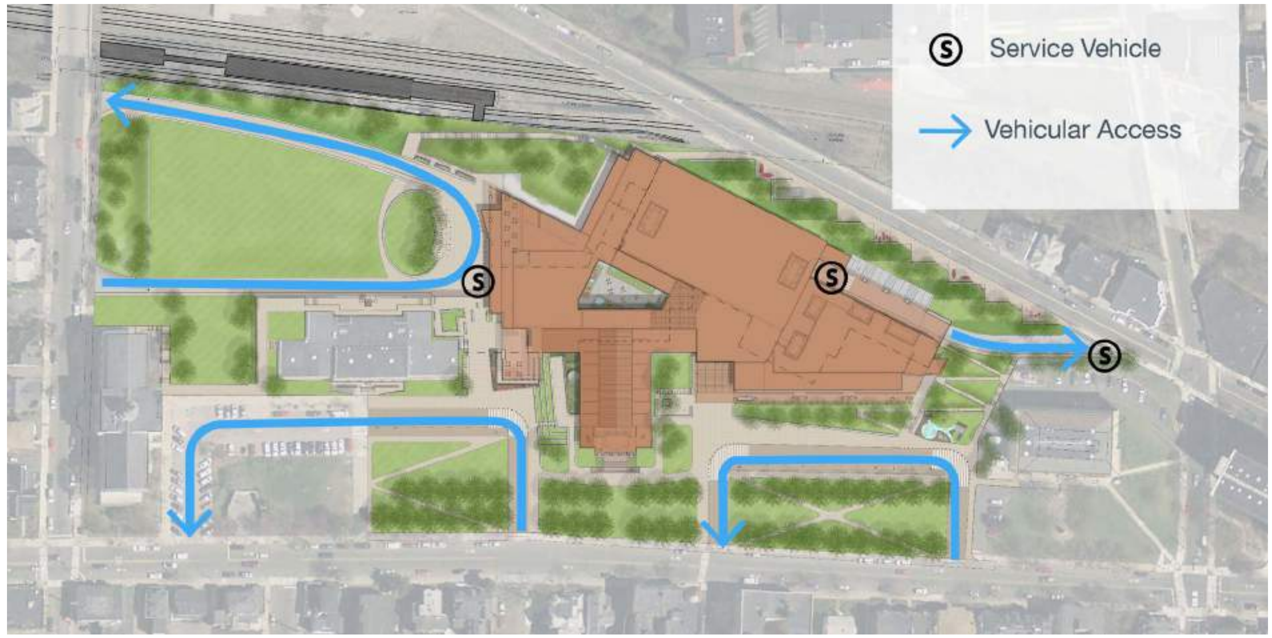


Figure 2.4: Existing vehicular circulation

Network Conditions

The majority of existing parking and sidewalks associated with the campus are located closer to Highland Avenue than Medford Street. The existing MBTA commuter train tracks also run along the northern portion of Central Hill, requiring pedestrians to use School or Medford Streets to reach the campus from the north. Thus, the existing sidewalks, parking, and rail line make accessing the campus from northern neighborhoods feel like a back-door entry to the site.

While road and sidewalk conditions are generally fair to good, the steepness of the site makes travel from Medford Street to Highland Avenue on School Street more challenging for pedestrians and people riding bicycles. In general, site access is easier for motorists and bus transit passengers, as one-way roads and a lack of designated bike lanes limit comfort for people on bikes, and few marked or signalized crossings for pedestrians exist.

Actuated pedestrian signals are located at the intersections of Medford and School Streets, Medford and Walnut Streets, Highland Avenue and Walnut Street, and Highland Avenue and School Street. An additional unsignalized crosswalk is located at Vinal Avenue, but marked crossings are otherwise unavailable.

Forthcoming Site Access Impacts

Green Line Extension

The form and function of Central Hill will be impacted by the proposed Green Line Extension (GLX) rail line. The GLX design will extend MBTA Green Line rail service along the existing rail alignment and will include a new station on the north side of the campus south of Gilman Square. The City of Somerville published the 2014 Gilman Square Station Area Plan to illustrate its vision for modifications to streets, housing, and civic space as part of accompanying redevelopment. More visitors may be expected to use Central Hill amenities or cross the campus from the new station to surrounding neighborhoods.

Community Path

The Somerville Community Path runs from Alewife Linear Park to Lowell Street, a half mile west of Central Hill. The path is proposed to be extended toward Boston in conjunction with the Green Line Extension (GLX) project, with the path to run between the rail line and the Central Hill campus. The path extension will make biking to Central Hill a safer and more comfortable travel option for Somerville residents by providing an off-street alternative. Amenities to be located along the Community Path are discussed in Section 6.

Getting Around Campus

Vehicular Access

Vehicles can access campus from three sides (see Figure 2.4 on page 11).

A vehicular loop from Highland Avenue at City Hall and the 1895 Building provides passenger loading, emergency access and building service, and 49 parking spaces including ADA spaces. A second loop from Highland Avenue at the library and high school provides passenger loading, emergency access, and 12 parking spaces including an ADA space.

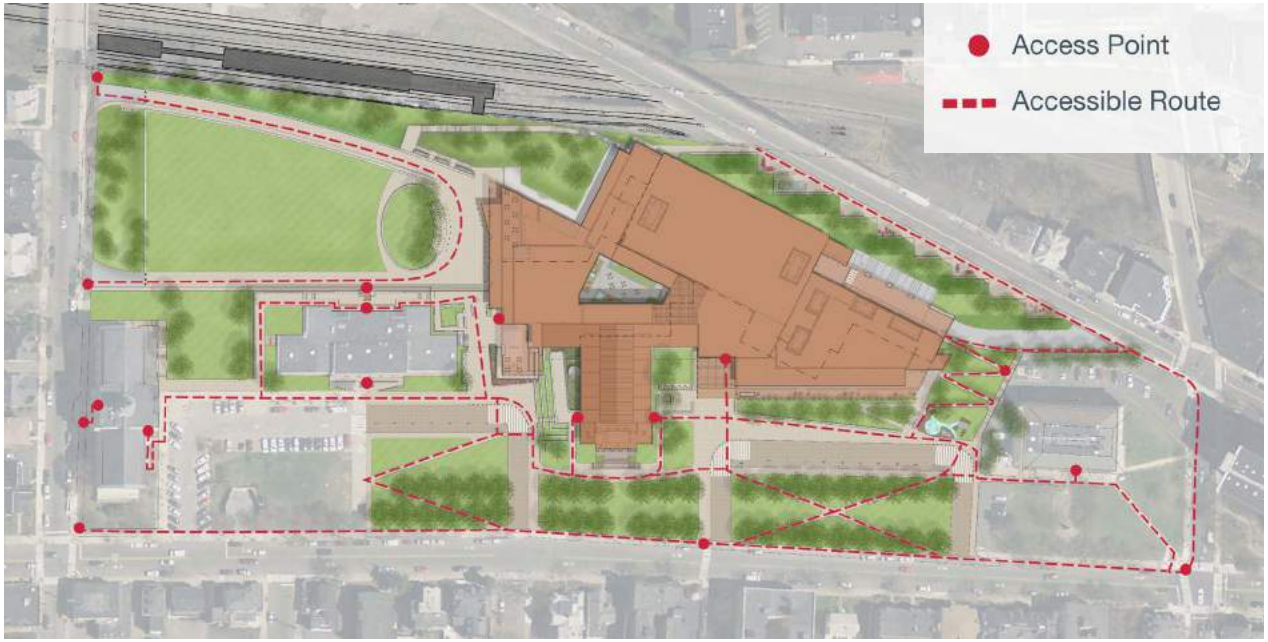


Figure 2.5: Existing accessible routes

Building service and 18 additional parking spaces for the library occur behind the building from Walnut Street near the intersection at Medford Street.

Building service with seven parking spaces including one ADA space for Somerville High School occur from Medford Street near the intersection at Walnut Street.

An emergency and building service loop around the field from School Street provides access to the Next Wave/Full Circle School, which include additional loading areas and auto shops at the high school.

Bicycle Parking

There are several locations for bicycle parking across campus including at the play areas between the library and high school, the high school main entrance, the plaza between the high school and the 1895 Building, at the field, and near City Hall from Highland Avenue. Additionally, a Blue Bikes bike share docking station is located at the corner of City Hall near Highland Avenue. There are currently about 117 total bike parking spots, including 80 with the new high school.

Pedestrian Circulation

The Central Hill campus is characterized by significant topography—extreme in some areas—creating many obstacles and challenges for accessibility. Building

Blue Bike's docking station outside the City Hall

entrance features and interior stairs of historic City Hall and the 1895 Building provide further challenges to campus accessibility.

The high school project will establish several accessible routes across campus (see Figure 2.5), although many parts remain inaccessible due to the existing topography and four variances were sought and approved by the Massachusetts Architectural Access Board (MAAB). The implementation of the campus plan will include providing accessibility for the areas of work outside of limits of the high school project, and will also need to seek numerous variances similar to Somerville High School due to existing topography which cannot be remedied through the work proposed.

Environmental Graphics & Wayfinding

Somerville's Central Hill campus offers an extremely wide array of considerations from a wayfinding design perspective. The hill and existing foliage block sight lines throughout the campus, making navigating across the campus difficult. They also create a challenge for handicapped users, as accessible entrances are throughout the site and need to be easily found. Public transit options drop users off in locations optimal for traffic, but do not provide specific information or aid in wayfinding once users are navigating within the site. With multiple functions between the civic core and the educational core, users will be looking for general spatial differentiation as well as specific information about where functions are located. This diversity in function is compounded by the juxtaposition of historic and modern elements in the architecture and site design.

Existing signage outside the library and City Hall

Existing Utilities

Central Hill Campus Utilities

The site is served by various utilities in the adjacent streets. The sizes and locations of utilities referenced in this section are taken from available record plans unless otherwise noted.

Water

Water mains surround the site including a 10” main in School Street, 12” main in Highland Avenue, 48” main in Walnut Street, and 12” main in Medford Street. The mains are owned by the City of Somerville and operated and maintained by its Water & Sewer Department. Record plans indicate that City Hall is served from School Street. The existing high school building was served from Highland Avenue. The new high school building will be served by a 6” domestic feed and an 8” fire protection feed from a partially re-constructed water loop off Highland Avenue. A second line loops the site, from Highland Avenue to Medford Street. The 1895 Building will have new stubs for domestic and fire protection services from the partially reconstructed loop off Highland Avenue. Record plans indicate the library is served from Walnut Street. Existing hydrants are located throughout the site.

Sewer

Dedicated sewer or combined storm sewers surround the site including a combined 12” line in School Street, combined 10” line in Highland Avenue on the western side, a combined 18” line in Highland Avenue on the eastern side, and combined 12” line in Walnut Street. An 8” line from the high school building discharges to Medford Street and continues north towards a 10” combined line in Pearl Street. The lines are owned by the city and operated and maintained by the city’s Water & Sewer Department. City Hall sanitary service discharges from the west side of the building into the line in School Street. The existing high school building had multiple sanitary services and discharging to the lines in School Street, Highland Avenue, and Medford Street. The new high school building will maintain discharges to these streets. Grease traps will intercept kitchen waste flow as required per Title 5 and are located within the plaza area surrounding the main loading dock accessed from School Street. The 1895 Building will have a stub for sanitary flow approximately 15’ from the building. The library sanitary service discharges from the east side of the building into the line in Walnut Street.

Electrical/Communications

Electric services to the site are provided underground by the utility company Eversource. City Hall, Somerville High School, and the Central Library buildings each have their own service with an associated transformer. The 1895 Building will maintain the underground service but may need to be upgraded in the future to support its renovation.

Lightower is a private utility company that provides fiber for telecommunications around and through the site. Verizon and Comcast are also private utilities that provide telephone, cable television, and communications services to the site.

Gas

Gas service around the site is provided by Eversource and includes a 6" low pressure line in School Street, 6" line in Highland Avenue, 4" line in Walnut Street, and 3" in Medford Street. City Hall is not currently served by gas. The existing high school is served by the line in Highland Avenue. The new high school will be served from a new service in Medford Street. The 1895 Building may utilize gas, but infrastructure has not been proposed to support gas use. The library is served by gas through the line in Highland Avenue.

Stormwater Drainage

Existing storm sewers and dedicated drain lines surround the site and include a combined 12" line in School Street, 10" combined line in Highland Avenue on the western side, an 18" combined line in Highland Avenue on the eastern side, 12" combined line in Walnut Street, and a 12" dedicated drainage on Medford Street. Runoff from the site is either captured in catch basins on-site and piped or flows overland to the city's infrastructure. The high school project includes significant improvements to the stormwater management system, including treatment, total suspended solids removal, and infiltration via porous pavers and subsurface recharge areas. The infrastructure in the streets and on the site is owned and maintained by Somerville's Department of Public Works.

Existing Energy Use

High School

The high school building, prior to the addition/renovation, uses #2 fuel oil as the primary source of heating and domestic hot water. A small amount of natural gas is used primarily for cooking and in science labs. Electricity service provides ventilation, interior and exterior lighting, and some limited cooling.

The oil boiler serves both the existing high school and the City Hall. Energy consumption associated with oil use is attributed in proportion to the high school and City Hall based on their relative floor area.

City Hall

The high school central boiler plant also provides steam to City Hall for heating. Electricity service provides ventilation, lighting, and some limited cooling (a small chiller provides cooling for the Alderman's chambers). Energy use associated with exterior lighting and equipment use for events such as the holiday tree lighting and public gatherings is also accounted for in the electricity consumption for City Hall.

1895 Building

Prior to the completion of the new Somerville High School, the 1895 Building is currently still part of the high school; the high school construction will restore the 1895 Building as a stand-alone structure.

As there is no separate historical energy use data for this building, it is assumed that it will be similar in performance to the City Hall. Existing and proposed energy and emissions values are estimated based on the values for City Hall, extrapolated on a per-square-foot basis.

Central Library

The Central Library uses natural gas for both heating and domestic hot water. Electricity service provides ventilation, lighting, and some cooling.

Central Hill Existing Energy Use and Emissions

The current energy use for the existing buildings on the Central Hill campus was determined based on annual utility consumption data from 2015–2017. The average annual consumption over this time period is summarized in Figure 2.6.

Building	Electricity (kWh/yr)	Oil (gal/yr)	Natural Gas (therms/yr)
City Hall	574,287	11,693	0
1895	1,019,980	20,769	0
Central Library	203,453	0	9,932
High School	1,602,540	111,205	325

Figure 2.6: Average annual existing energy use

The existing greenhouse gas (CO_2) emissions associated with building energy use on the Central Hill campus was determined assuming the following emissions rates for the following energy resources:

- » 730 lb/MWh for electricity[1]
- » 117.1 lb/MMBtu for natural gas
- » 26.0 lb/gal for oil (residual fuel)[2]

Based on these emissions rates, the current annual emissions for the Central Hill campus buildings are illustrated in Figure 2.7.

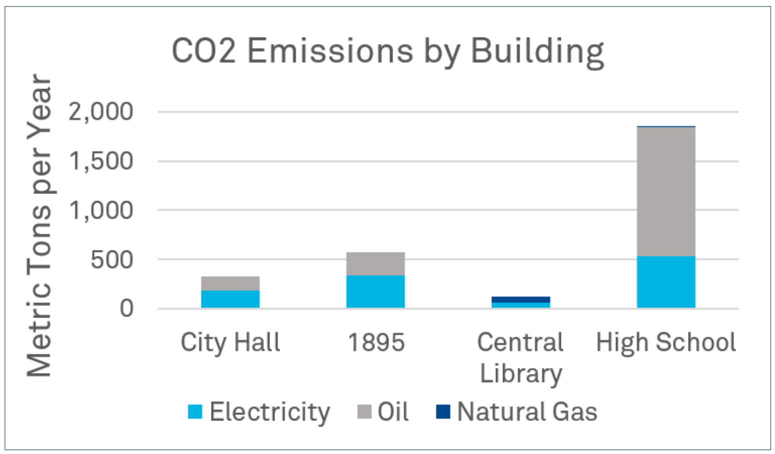


Figure 2.7: Average annual existing emissions

[1] 2016 ISO New England Electric Generator Air Emissions Report
[2] Energy for Sustainability, Randolph and Masters, 2008, Table 5.12.

Energy Use Intensity and Benchmarking

Energy Use Intensity, or EUI (typically measured in kBtu/sf-yr), is a common building energy use metric used to understand and compare building energy performance. The EUI of the existing buildings on site was calculated based on the average annual energy consumption and the estimated gross floor area, as summarized in Figure 2.8.

Benchmarking is a tool to understand a building's relative energy performance. By comparing a building's EUI to a database of similar buildings, we can understand if it is performing well, poorly, or average. Two databases were referenced to compare the existing Central Hill buildings. The first is the Commercial Building Energy Consumption Survey (CBECS), a federal database of existing building energy use that references data from 2003. The second is the Boston Energy Reporting Disclosure Ordinance (BERDO) database. Figure 2.9 compares the EUIs for the existing Central Hill buildings to these databases for buildings of similar size, use and located in a similar climate.

Definitions of Measure:
kWh/yr = Kilowatt Hour per year (unit of electricity use)
gal/yr: Gallons of oil per year
therms/yr: Therms per year (unit of natural gas)
lb/MWh: Pounds per megawatt hour
lb/MMBtu: Pounds per million British thermal unit
lb/Gal= Pounds per gallons of oil

Building	Gross Floor Area (sf)	Total Energy (kBtu/yr)	EUI (kBtu/sf-yr)
City Hall	38,000	3,596,553	95
1895	67,000	6,387,766	95
Central Library	24,000	1,687,382	70
High School	360,000	21,069,041	59

Figure 2.8: Energy Use Intensity by building

Building	Measured EUI (kBtu/sf-yr)	CBECS EUI (kBtu/sf-yr)	BERDO EUI (kBtu/sf-yr)
City Hall	95	105	74
1895	95	105	74
Central Library	70	123	92
High School	59	63	64

Figure 2.9: Energy Use Intensity comparison

Carbon Neutrality Pathway Assessment

In March of 2017, AECOM completed a Carbon Neutrality Pathway Assessment whitepaper for the City of Somerville. This document examined the potential for numerous strategies to reduce emissions from buildings, transportation, and waste, and provided recommendations on possible combinations of strategies that could successfully support the city's carbon neutral goal. Among the possible strategies, the Pathway whitepaper estimated that a reduction of 58,000 Metric Tons (MT) of carbon dioxide equivalent (CO_2e) could be achieved by 2050 through energy efficiency improvements in existing commercial and residential buildings.

Prior to the Pathway Assessment, AECOM had completed a Greenhouse Gas (GHG) Inventory Report for Somerville based on 2014 energy consumption data. According to Table 1 of the GHG Inventory Report, 2014 emissions from existing residential and commercial buildings was 383,527 MT CO_2e per year.

Based on these two documents, on average existing buildings need to achieve a 15% reduction[3] in four years in emissions from energy efficiency for the City to achieve its climate goals.

For the purposes of the carbon neutral goal, all buildings on the site would be considered as commercial, even though their uses include office and educational uses.

The GHG Inventory report also highlighted the importance of municipal building energy use in the context of the city's goal to achieve carbon neutrality. Of the emissions attributable to city operations, 74% come from building operations, a majority of which is from school buildings.

Post Somerville High School Addition/Renovation

The renovation/addition that is currently underway for Somerville High School will transform the existing facility into a high-performance educational facility. The design includes a robust building enclosure with an average R-25 wall and R-47 roof assemblies, high-performance glazing, and exterior shading on the south façade. High efficiency LED lighting and controls will be installed for a 0.55 W/ft^2 lighting power density, which his 41% lower than required by code. Several strategies will be implemented to reduce HVAC energy consumption as well. These include Dedicated Outdoor Air Systems (DOAS) for ventilation, condensing boilers, and high efficiency chillers. Many of the classroom spaces will be served by a "green cooling" system that provides enhanced thermal comfort while reducing cooling energy use by 40% compared to a traditional, fully air-conditioned cooling system.

Based on energy modeling for LEED certification, these energy efficiency measures are projected to significantly reduce energy and emissions from Somerville High School. The projected EUI for the end of construction Somerville High School is 40 kBtu/sf-yr, or 32% lower than the existing high school EUI.

[3] 58,000 MT/383,527 MT = 15% reduction

While the site energy use is projected to be considerably lower, the emissions for the proposed high school are anticipated to be similar to the existing emissions[4]. As illustrated in Figure 2.10, the heating and hot water, which is currently provided by an oil-fired boiler, will be replaced by a natural gas system. The use of on-site combustion for these end uses will be significantly reduced by the improved thermal performance of the enclosure as well as higher efficiency boilers and domestic hot water heaters. As a result, the emissions associated with natural gas consumption for the proposed high school are considerably less than that for the oil use for the pre-construction high school.

Conversely, the emissions associated with electric energy use for the proposed high school are considerably higher than they are for the existing high school. However, the new high school design will feature ventilation systems to provide fresh indoor air as well as cooling. These added energy services increase the overall electric consumption, but also create a much higher air quality and thermally comfortable indoor environment. Both indoor air quality and thermal comfort are important factors in supporting student learning.

This shift in energy use from oil to electricity also supports the carbon neutral goal by moving away from combustion-based systems. Electric systems also have the potential to considerably reduce emissions through the purchase of renewable power. Purchasing renewable energy could reduce the projected high school emissions by approximately 80%.

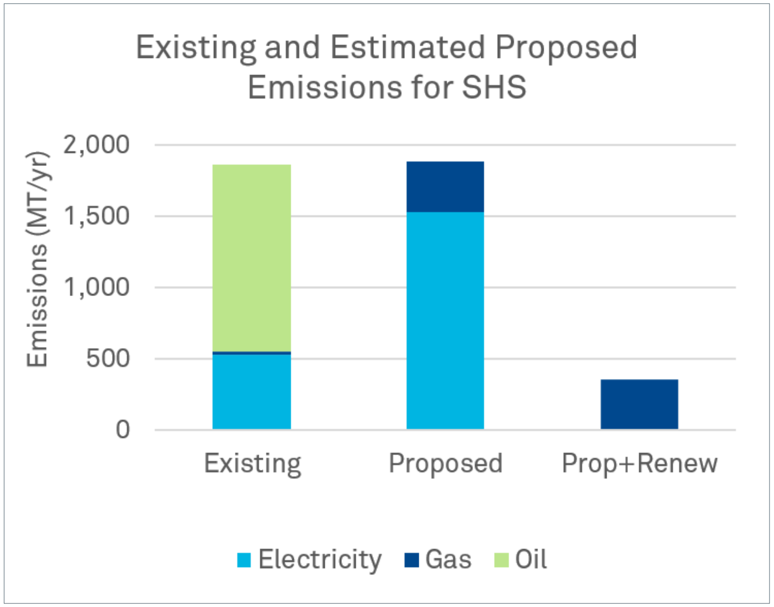


Figure 2.10: Somerville High School emissions

[4] The higher emissions associated with electricity consumption are attributable to the inefficiencies of electricity generation and transmission. Burning of fossil fuels for electricity generation results in approximately 35% of the energy contained in the fuel being delivered to the building as electricity. Burning fossil fuels directly on site results in approximately 80% of the energy contained in the fuel being delivered as heat to the building.

Existing Site Inventory of Monuments and Memorials

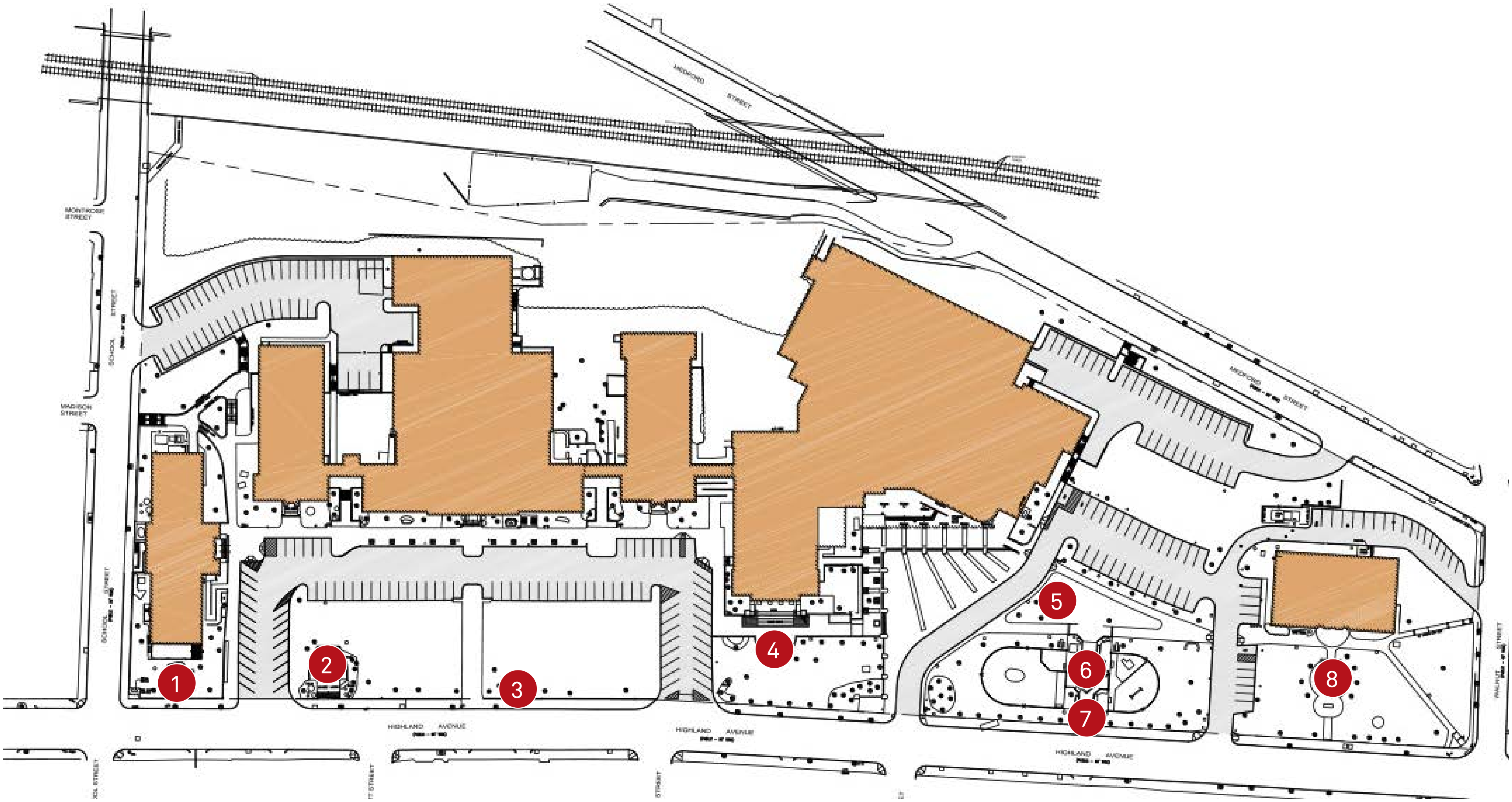


Figure 2.11: Location of memorials prior to High School construction

1. George Dilboy Memorial

Created in 1930 at Boston's Grenier Studio, the Dilboy Monument is comprised of a bronze bust on a granite base. The monument is dedicated to PFC George Dilboy, a recipient of the Congressional Medal of Honor who died in France. The plaque on the face of the granite podium is not original, but a replacement made of composite material. The monument is located in front of City Hall near the corner of Highland Avenue and School Street.

2. Somerville Veterans Honor Roll

The Somerville Honor Roll was installed in 1945. First honoring those who served in World War II, it now serves as a memorial to those who perished in all wars. The monument is constructed of limestone, brick, and glass, and crescent-shaped in plan. In 2004 the memorial was restored, which involved replacing warped glass and general cleaning. The memorial is located on Central Hill on the eastern side of the south lawn, in front of the high school facing Highland Avenue.

3. First Congregational Unitarian Society Memorial

The First Congregational Unitarian Society Memorial is a small headstone-shaped monument marking the former location of the First Congregational Church. It is constructed of granite, with a granite slab base. On the face of the memorial is a bronze plaque. The memorial is located on the south lawn of Central Hill, in front of the high school facing Highland Avenue.

4. Korean War Memorial

Designed by Ted Clausen and dedicated in 2002, the Korean War Memorial consists of two structures. The front structure is made of five vertical granite slabs with the words "THE FORGOTTEN VICTORY" on the front, and on the back of the slabs are facts about the war along with a quote. The tops of the stones are carved to replicate the border between North and South Korea. Located behind the five vertical slabs is a second structure laid out in a 53-foot diameter semicircle. This structure consists of a low concrete wall with granite capstones. Etched into each capstone are quotes from local veterans, the names of local fatalities, and bronze castings of everyday items a soldier would carry such as a shovel, canteen, canned rations, prayer book, and an eating utensil. The monument is located in front of the high school War Memorial building facing Highland Avenue.

5. Vietnam War Memorial

The Vietnam War Memorial is comprised of two polished granite pyramids resting upon two granite slabs, with the top slab engraved with the words "WE CAN'T FORGET." Etched on the east-facing side of one of the polished pyramids is a list with the name, regiment, place, and date of death of a serviceman from Somerville. The west-facing side of the adjoining pyramid lists the servicemen from Cambridge who died. On either end of the pyramids are etched maps of Vietnam: one depicting the country in 1957 and the other the country in 1972. The artist and dates of construction and dedication are unknown. The memorial is located on Central Hill to the east of the Civil War Memorial.

6. Civil War Memorial

Designed by Henry Augustus Lukman, the Civil War Memorial (also known as the Soldier's and Sailor's Monument), was dedicated on Memorial Day in 1909. The memorial is comprised of a large bronze sculpture on top of a 10-foot granite podium, surrounded by a semi-circular granite bench. The podium and the seating area are constructed from the same type of granite. Inscribed on the front (the south face) of the podium are the words "UNION 1861–1865 TO THE MEN OF SOMERVILLE WHO SERVED THE UNION ON LAND AND SEA." The 11-foot-tall bronze statue was cast in 1908 and depicts two figures: a union soldier bearing a rifle in mid-stride and following behind the Angel of Victory bearing a large flag. The memorial is located on Central Hill, behind the Central Hill Playground.

7. Memorial Cannons

Created in 1864, the Memorial Cannons were made in Racine, Wisconsin by the firm H.N.H. & Co. The memorial is constructed of bronze and granite. Facing Highland Avenue, the two 12-pounder bronze "Napoleon" field guns flank the main gateway into the Central Hill Playground. Each cannon is 6-feet-long with a circumference of 10 inches. The large granite blocks the cannons rest upon are approximately 2 x 2.75 x 2 feet. The tops of both blocks have been routed to fit the profile of cannons.

8. Spanish War/ Philippine/ China Memorial

Designed by Raymond Averill Porter, and cast by the firm T. F. McGann & Sons Co., the Spanish War/ Philippine/China Memorial was erected in 1929. The memorial consists of a large central granite block topped with a bronze bust of an eagle. On either side of this center block are two bronze statues, one of an American sailor and the other an American soldier, both on raised granite platforms. On the face of the tall central granite block is a bronze plaque honoring the "VOLUNTEERS FROM SOMERVILLE WHO SERVED ON LAND AND SEA IN THE WAR WITH SPAIN, THE PHILIPPINE INSURRECTION, AND THE CHINA RELIEF EXPEDITION 1898–1902." The monument is located in front of the library facing Highland Avenue.

Somerville World War I Memorial

The Somerville World War I Memorial was dedicated on September 6, 1920. The granite monument is approximately 11 feet tall and square in plan. Towards the top of the memorial are a series of reliefs depicting various patriotic symbols such as an eagle perched on a shield, crossed anchors and ropes, an eagle perched on a laurel branch, crossed rifles, and the city seal with a soldier holding a flag. Currently the monument is located in Union Square near the intersection of Somerville Avenue and Stone Avenue.

Central Hill Campus Plan

3. Working Towards Carbon Neutrality

Pathway to Carbon Neutral Campus

Creating a carbon neutral Central Hill campus will rely on three main strategies:

1. Minimizing building energy needs through passive design measures
2. Providing energy services with a highly efficient building enclosure, building systems, and equipment
3. Utilizing renewable energy resources

The following section discusses the renewable energy technologies that were considered, as well as the benefits and disadvantages for each in supporting Somerville's carbon neutral goal by 2050.

Energy Efficiency and Passive Design Strategies

The Passive House standard provides for a pathway to ultra-low energy facilities. Administered by Passive House International (PHI) and originated in Germany, the Passive House standard has been recognized by building performance professionals around the world and offers a rigorous approach to ensuring measurable energy savings. In addition, Passive House addresses building durability and indoor air quality by incorporating performance requirements for air tightness, mechanical ventilation and filtration, as well as thermal bridging.

The Passive House standard offers a performance-based approach for new construction, as well as a prescriptive approach for retrofit projects (referred to as "EnerPhit"). The EnerPhit standard specifically addresses heating and cooling energy use, as well as thermal comfort.

Additional considerations in achieving very low energy buildings include consideration of the lighting, HVAC, and domestic hot water systems. Toward that end, the renovation of the City Hall and 1895 Building should also incorporate natural daylighting design complemented with LED lighting and advanced lighting controls.

Passive House Standard (PHI)

- Heating demand (energy) ≤ 4.75 kBtu/ft2-yr
- Cooling demand (energy) ≤ 4.75 kBtu/ft2-yr
- Airtightness at 50 Pascals n_{50} ≤ 0.6/h (prescriptive and performance based)
- Energy recovery ventilation effectiveness ≤ 75%
- Air-source heat pump heating/cooling system
- LED lighting and advanced controls
- Electric point source DHW heating
- Equipment/plug load controlsThe EnerPhit Standard (PHI)

Building Enclosure Component	Minimum R-value
Wall insulation	R-40 (U-0.0616 Btu/hrft2F)
Roof insulation	R-60 (U-0.0264 Btu/hrft2F)
Foundation insulation	R-40 continuous below slab/foundation wall
Window	U-0.15 Btu/hrft2F (triple glazed)
Window	to Wall Ratio 30% (floor to floor)

Figure 3.1

The EnerPhit Standard (PHI)

The EnerPhit standard requires existing buildings in a cool-temperate climate to comply with the following:

- Airtightness (prescriptive and performance) n50 (1.0/h
- Energy recovery ventilation effectiveness) 75%
- Heating design temp 68°F
- Cooling design temp 77°F

Wall Insulation (interior)	R-16 (U-0.0616 Btu/hrft2F)
Roof Insulation	R-38 (U-0.0264 Btu/hrft2F)
Foundation Insulation	R-20 [1]
Window	U-0.15 Btu/hrft2F (triple glazed)

Figure 3.2

[1] Specific foundation insulation requirements are determined during design based on the energy model developed using the Passive House Planning Package (PHPP).

Additional Energy Efficiency Strategies

Retro-Commissioning

Retro-commissioning identifies opportunities for low and no-cost energy efficiency improvements to a facility. Retro-commissioning is like a "tune-up" for your building to ensure it is operating as it should. Based on a 2009 study by Lawrence-Berkeley National Labs, retro-commissioning the median whole building energy savings in existing buildings was 16% with a payback of 1.1 years.[2]

Whole Building Air Infiltration Testing

A Whole Building Air Infiltration Test identifies potential opportunities to further enhance the building enclosure air tightness beyond code on existing buildings, while it supports the measurement of air tightness goals for new construction. The Air Infiltration Test should be completed in compliance with the ASTM E-779 standards.

Efficient Lighting Systems and Advanced Lighting Controls

High efficiency LED light fixtures result in electricity savings due to lower fixture power consumption, which also leads to lower heat gain and cooling load. Efficient lighting designs with a lighting power density of 0.6 W/SF or better are recommended for both new construction and retrofit projects as part of the Central Hill campus.

Advanced network lighting control systems, including motion sensors, photosensors, and task-tuning features will contribute to additional energy savings. Fenestration design, alongside light reflective interior wall, ceiling, and work surface, should contribute to supporting daylight harvesting for a minimum of 25% of the net floor area or better. Emerging LED technologies offer light fixtures that are approximately 30–40% more efficient than the current readily available and affordable LED fixtures and may further support Central Hill campus' ultra-low energy facilities goals to carbon neutrality.

High-efficiency Site Lighting

The site lighting retrofit will utilize high-efficiency site lighting, including either DLC listed or Energy Star LED fixtures. Similar to the interior LED fixtures, emerging LED technologies will offer further light power density reduction to future site lighting retrofit projects.

Advanced Plug Load Controls

Advanced plug load controls systems will be programmed off at night and during off hours, allowing energy use reduction associated with miscellaneous office and other process load equipment. These include convenience outlets, building users' computers, smart boards, etc. We recommend that approximately 75% of the plug loads will be turned off during the unoccupied hours, exceeding the code requirements which is 50% for a majority of offices/classroom spaces. The advanced plug load control systems should be installed with tracking and monitoring features to allow measurements that will inform its contribution to the facilities' ultra-low energy goal.

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[2] Building Commissioning: A Golden Opportunity for Reducing Energy Cost and Greenhouse Gas Emissions. http://cx.lbl.gov/documents/2009-assessment/lbnl-cx-cost-benefit.pdf

Heating Setpoint

Facilities with highly-insulated enclosures offer increased thermal comfort through higher radiant surface temperatures on the inside of the window. The mean radiant surface temperature is one of the six components of thermal comfort (the others are air temperature, air speed, humidity, clothing level, and metabolic rate). By increasing the mean radiant surface temperatures, the interior space heating temperature could be reduced from 72 °F to 70°F while achieving an equivalent level of overall thermal comfort.

Electric Commercial Kitchen Equipment and Healthy Nutritional Program

Ultra-low energy facilities may opt for a fully electric kitchen to eliminate the need for natural gas and optimize the goal towards carbon neutrality. Induction cooktops can be used in place of gas-fired cooktops.

Heating energy use is associated with kitchens' Make-Up Air Units (MAU) that provide exhaust for the cooking activities. The size of the hoods, and the resulting volume of airflow, is determined by the type of cooking activities. For example, heavy-duty cooking appliances including broilers, open-burner ranges, and wok ranges require exhaust of 400 to 600 cubic feet per minute (CFM) per linear foot of hood[3]. By comparison, light-duty cooking appliances such as ovens and steamers, only require 200 to 400 CFM per linear foot of hood. By modifying the nutritional program to emphasize meals that require the use of lighter duty cooking equipment, the volume of exhaust and associated heating of make-up air could be significantly reduced.

After reducing the volume of make-up air, natural gas consumption in the kitchens may be eliminated by using MAUs with Variable Refrigerant Flow (VRF) heating systems, which are all electric.

[3] 2015 International Mechanical Code section 507.5

Renewable Energy Technologies

The campus study considered a wide breadth of renewable energy technologies.

Wind

Wind turbines are a rapidly growing renewable energy technology. They offer carbon-free electricity with a limited site footprint. As a highly visible element, they demonstrate clear commitment to a renewable future.

However, effective wind power generation depends on careful consideration of several factors, primarily the availability of wind resources. Figure 3.3 is a national map of wind resources across the United States. It highlights the considerable resources in the central plains as well as along the coasts.

Taking a closer look at the wind resources in Massachusetts, it is clear there are considerable wind resources along the coast.

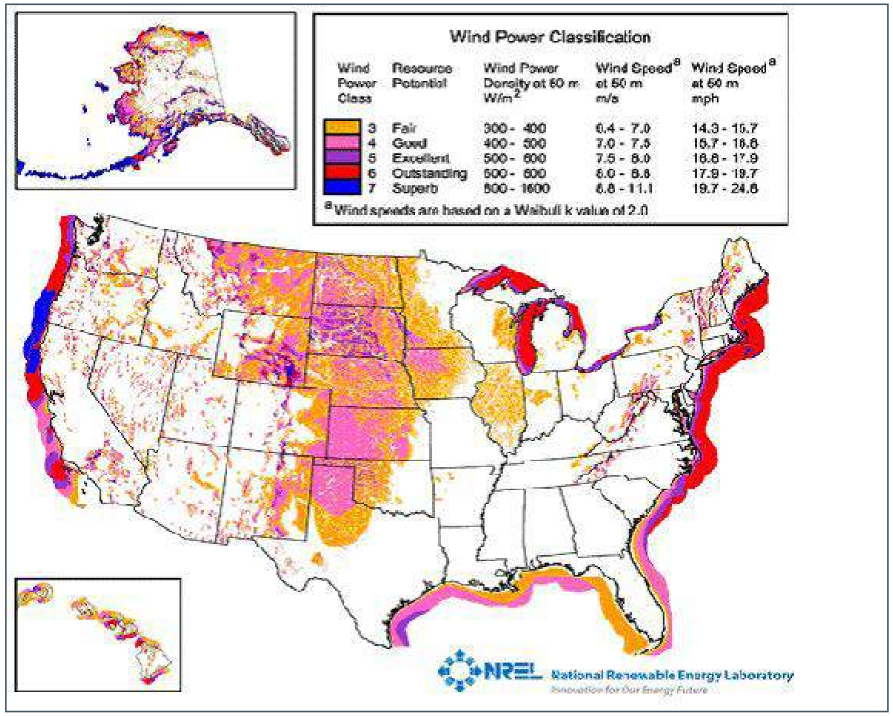


Figure 3.3: US Wind Resources map

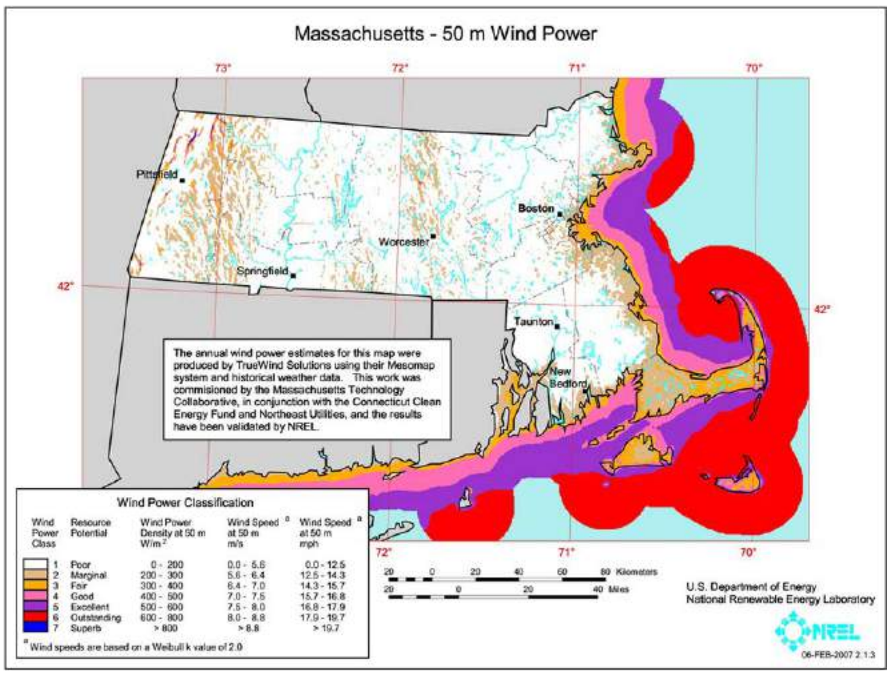


Figure 3.4: Massachusetts Wind map

The cost-effective generation of wind power depends on consistent high-speed winds, as the power generated is proportional to the cube of the wind speed, as defined below:

$$P = \frac{1}{2} \rho Av3$$

- » **P** is power
- » **ρ** is the density of air
- » **A** is the cross-sectional area through which the wind blows
- » **v** is wind speed

Consistent high-speed winds occur in areas where there is very little surface roughness, like the flat, open central plains, and the ocean. In addition, large turbines with long blades can produce considerably more power because they have a much greater cross-sectional area than small turbines.

In areas with more varied topography, trees, and urban development, turbulence is generated that disrupts the development of high-speed winds. Figure 3.5 illustrates the increase in height necessary to achieve similar wind speeds for different surface conditions.

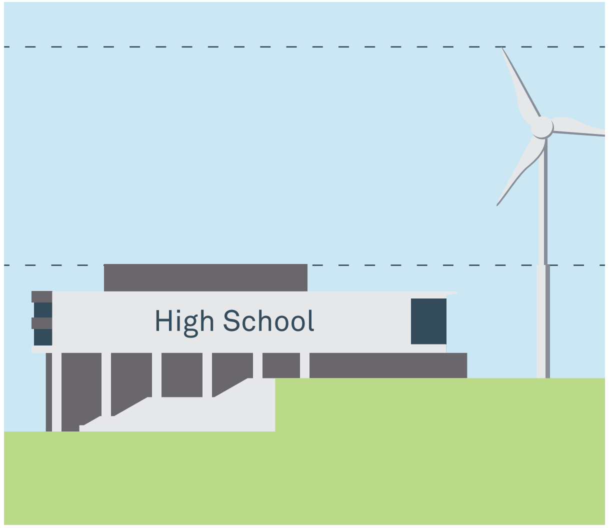
In order to overcome this effect, wind turbines should be elevated at roughly double the height of any surrounding obstructions. The visual impact of a turbine of this magnitude on the Central Hill campus is illustrated in Figure 3.6.

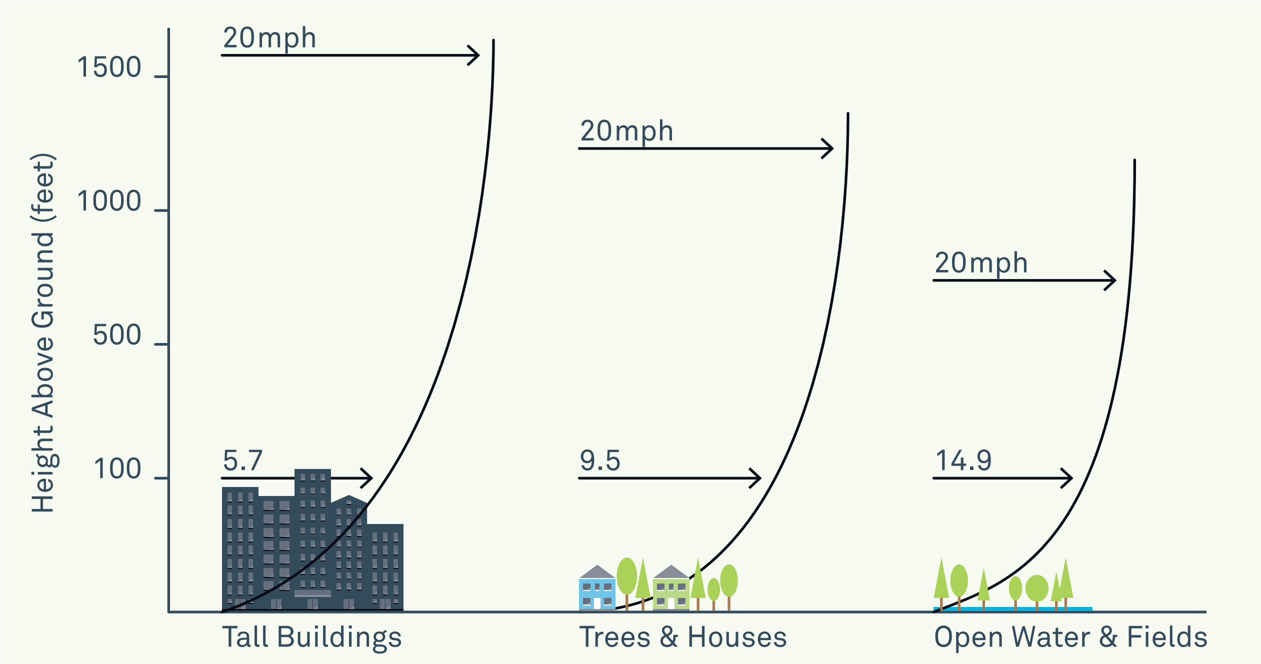
Large wind turbines also require considerable ground clearances as safety measures.

While it is possible to mount small turbines on top of buildings, these systems are typically not as energy performing and cost-effective for building applications as solar photovoltaic panels, largely because they are small and there is significant turbulence around the edges of buildings.

Bottom Figure (3.5): Effect of surface features on wind speed

Top Figure (3.6): Visual impact of a large turbine on Central Hill





Solar Photovoltaic

Solar photovoltaic (PV) systems are a rapidly growing renewable energy resource. These systems are commonly installed on building rooftops and integrate well with other building systems. Through an inverter, the electricity generated by rooftop PV systems can be used directly within a building or sent back out to the electric power grid.

One disadvantage of PV systems is their relatively low energy density (energy production relative to the systems space requirements). A considerable number of panels is necessary to offset even a very efficient building's energy use. Figure 3.7 illustrates the amount of area that would be required to offset the energy consumption of City Hall even after undergoing a retrofit to significantly improve energy efficiency (discussed in Section 6).

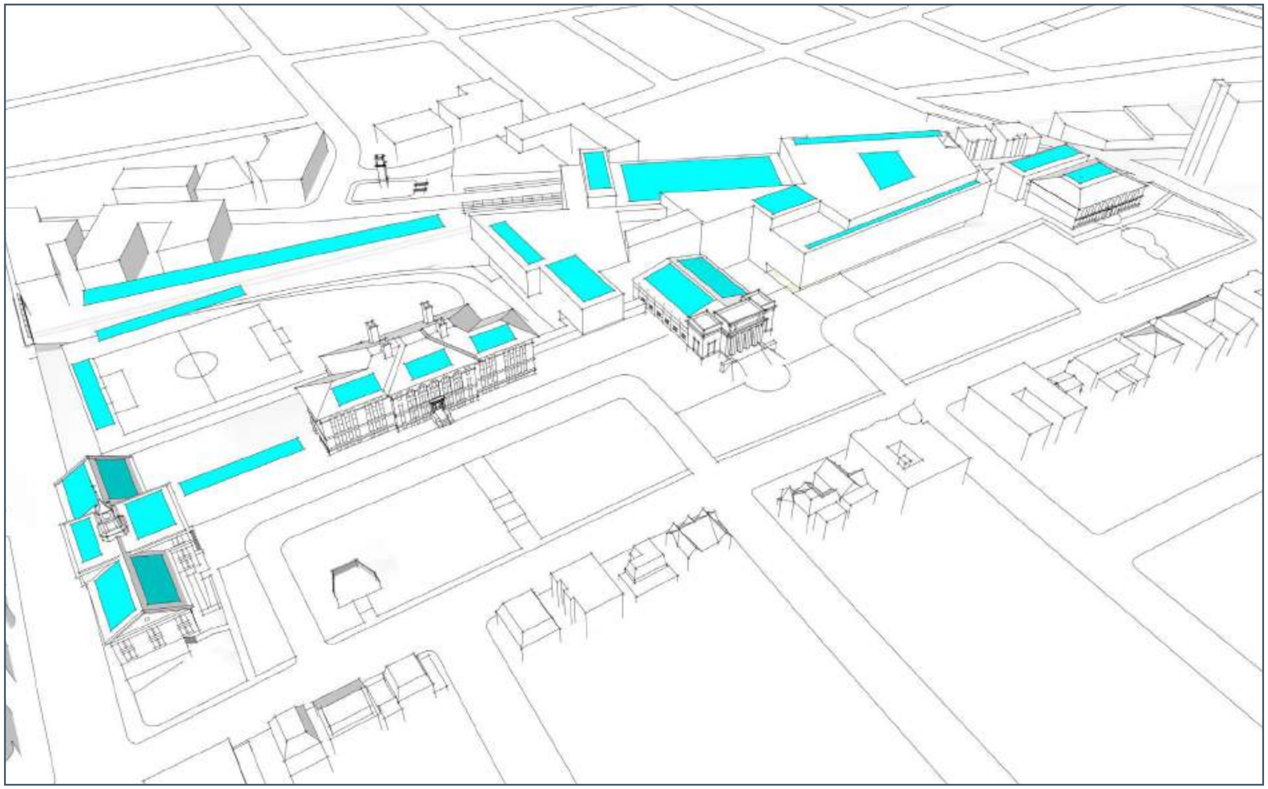


Figure 3.7: Approximate area of PV necessary for a Net Zero City Hall

Solar Thermal

Solar thermal systems have a significant advantage over PV in that they can produce considerably more energy for a given area. For example, a study by BuildingGreen found that when comparing a solar thermal and a PV system, both capable of producing 22 kWh of energy per day, the PV system required 32 panels to generate that amount of energy while the solar thermal system only needed two panels.

This improved efficiency is a result of solar thermal panels effectively capturing more of the sun's radiation. Materials such as silicon, which is commonly used in solar panels, can only capture certain wavelengths of light and convert them into electricity. Solar thermal systems capture a broader range of wavelengths, making them more efficient.

The very characteristic that makes solar thermal systems more efficient also limits their application. Much of the energy captured by solar thermal collectors is longer wavelength infrared energy, whereas the electricity generated by PV panels is a very versatile energy resource and can be used for many things: heating, cooling, ventilation, lighting, cooking, etc. Thermal energy, which is usually generated in the form of hot water and occasionally steam, is more limited in its application to creating heating and domestic hot water (in some instances, high temperature steam can also be used to generate chilled water for cooling).

Solar thermal systems are also more complex than PV systems. In instances where more thermal is generated than is needed by a building, excess heat may need to be rejected to prevent the system from overheating. For buildings with large heat sinks, such as a high school with a swimming pool, solar thermal systems can make use of the excess heating energy. However, if no such heat sink exists, a backup heat rejection system is often installed which adds additional system costs and interior space requirements.

http://www.solargeysers-sa.co.za

Figure 3.8: Examples of flat plate and evacuated tube solar thermal collectors

Anaerobic Digestion

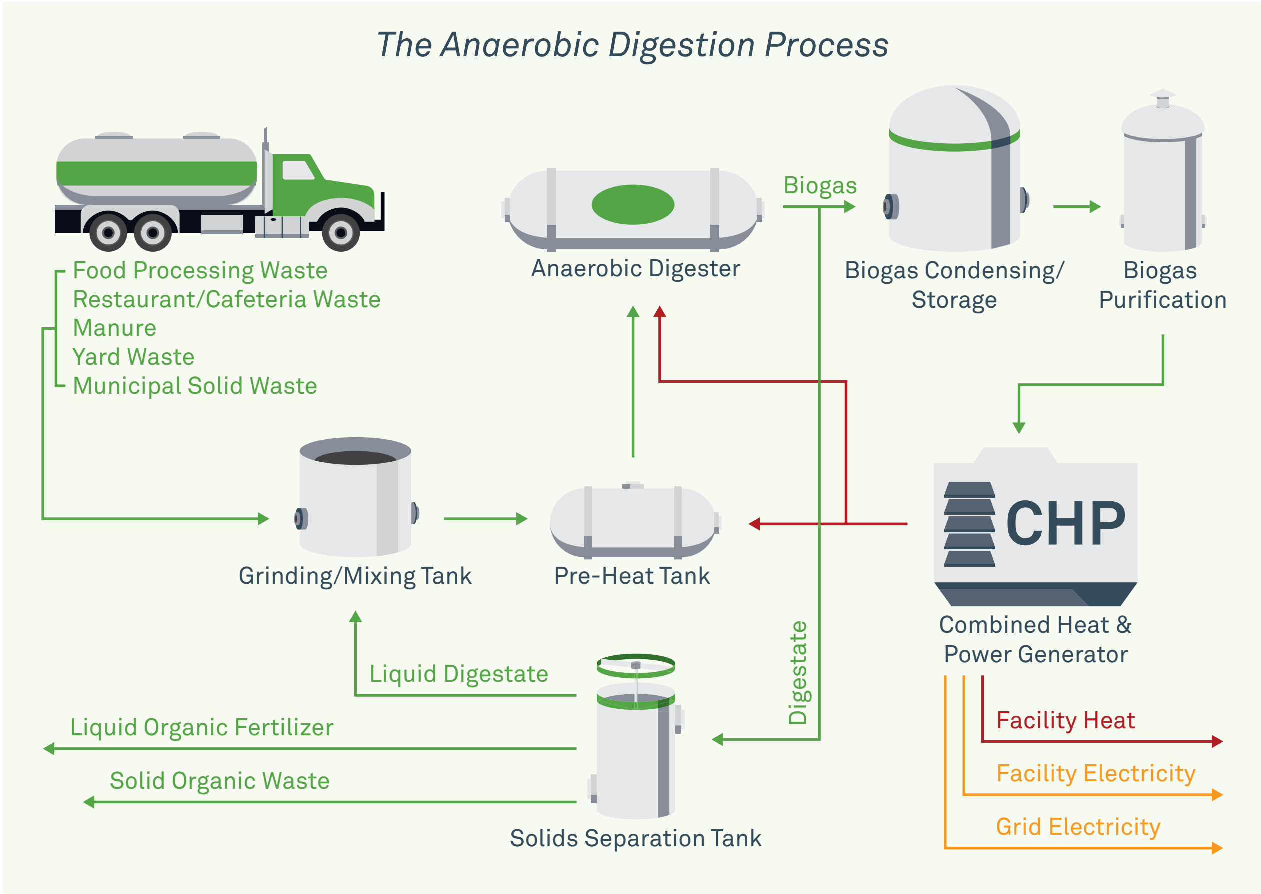
Anaerobic digestion utilizes organic waste as a food source for microorganisms that biologically break down material in the absence of oxygen. A byproduct of this process is biogas that can be combusted to generate electricity and heat. By diverting waste to produce biogas, the carbon contained therein can be used to generate energy.

The waste sources used to fuel anerobic digestion systems can come from food waste, landscaping waste, or municipal solid waste. The biogas is typically used in a Combined Heat and Power (CHP) system to generate electricity and use the byproduct heat to create hot water. This is a highly efficient process in that approximately 80% of the fuel is converted to useful energy. An advantage of this system is combustion for high thermal loads.

An anaerobic digestion system has significant space requirements, especially one large enough to provide power and heat for a campus as large as the Central Hill campus. Components include tanks required for storing the organics, the anaerobic digester, biogas storage tanks, and storage tanks for the solids remaining after digestion. Additional space and equipment are required for a CHP system.

In addition to the limited space available on the Central Hill campus, other drawbacks of an anaerobic digestion system include potential odors and the remaining solids require disposal.

Figure 3.9: Anaerobic digestion



Biomass

Biomass systems offer similar benefits to anaerobic digestion systems in that they can satisfy high thermal loads that are sometimes necessary for buildings of certain size or function (some building energy needs cannot be economically met with electric systems, even for very efficient buildings). A wood-based biomass system could make use of a relatively local, renewable source of fuel. Its main fuel consists of wood pellets made from the wood manufacturing bi-products, such as wood chips and wood dust. Wood is a renewable resource when sourced from FSC managed local and regional forests.

A wood biomass system would require some additional space as well as truck access for fuel delivery. Components include storage for wood-based fuel as well as space for a CHP or boilers system. Below, the photo on left is an image of the wood pellet heating system at the MassMOCA located in North Adams, Massachusetts. The photo on the right is an image of the storage bin for the wood chip boiler system at Narragansett Regional Middle and High School in Baldwinville, Massachusetts.

A wood biomass system would include on-site combustion and associated emissions.

An alternative to wood biomass technology is the bio-fuel (vegetable oil) technology. The equipment is not as readily available, and the fuel procurement may not be as reliable as wood pellets.

https://wteinternational.com/wood-pellet-heating-system-coming-to-mass-moca-2/

Left: Mass MOCA wood pellet heating system

Right: Wood chip storage at Narragansett Regional Middle and High School

Geothermal

Ground source heat pumps that use energy stored in the earth for heating and cooling are a common strategy implemented in very low energy buildings. They have the advantage of being very efficient, in part because they are using water as a heat transfer fluid, and in part because the earth maintains a roughly constant moderate temperature over the year.

Geothermal systems require that a series of wells are drilled deep in the earth through which water is circulated. Wells can be either open or closed loops, depending on the system design. The feasibility of geothermal heating and cooling systems is highly dependent on local geology and groundwater conditions. The feasibility, as well as number and depth of wells, cannot be determined without drilling test wells to understand the thermal conductivity of the subsurface conditions.

Assuming that a single well could provide 1 ½ tons of cooling, and that a very low energy building would have a cooling load of approximately 500 sf of gross floor area per ton, then approximately 170 wells would be required to provide the cooling needs of City Hall, the 1895 Building, and the Central Library (combined). These wells would be spaced approximately 25 to 30 feet apart. Figure 3.10 illustrates the magnitude of this number of wells and their spacing on the project site. In addition, many geothermal wells will have covers for maintenance. A test well is required to verify if the site's soil and ground conditions can support geothermal wells. The test well costs may vary between $40,000–$60,000.

A geothermal installation this extensive could conflict with other objectives of this campus plan, such as other subsurface utilities like rainwater harvesting systems and infiltration systems used to mitigate stormwater runoff and offset potable water use as illustrated in Figure 3.11 on page 38.

Installing geothermal systems can have significant first costs. For example, in 2005 SMMA evaluated the feasibility of installing a geothermal system as part of the Argenziano School design. The estimate cost for installing the system was approximately $600,000–$700,000 (in 2005 dollars).

The Massachusetts Clean Energy Center (MACEC) is currently offering grants to offset the significant first cost of installing geothermal heating and cooling systems. Grants of up to $250,000 are available depending on system eligibility. A total of $30 million dollars in funding is available through 2020. It is unclear if the grant program will be extended at that time. Similar funds (up to $210,000 per project) are also available from the MACEC for qualifying air source heat pump systems.

Test well drilling for the Argenziano School Project

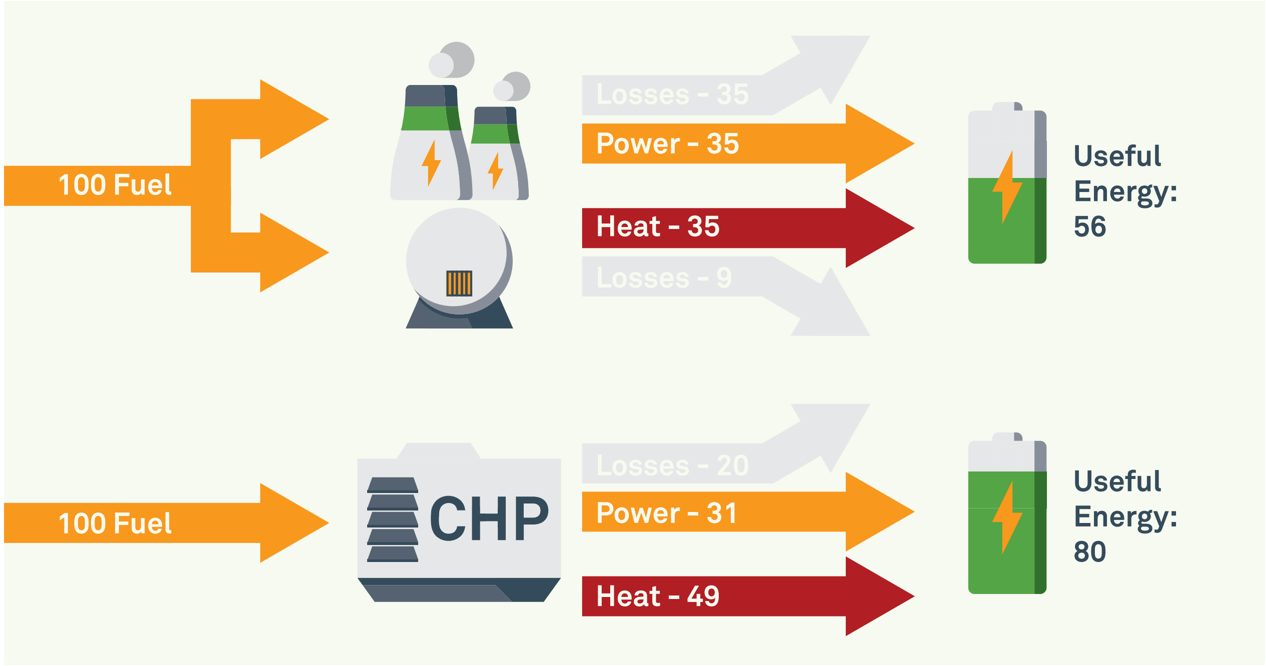
Figure 3.10: Approximate number and location of geothermal wells at 30' spacing

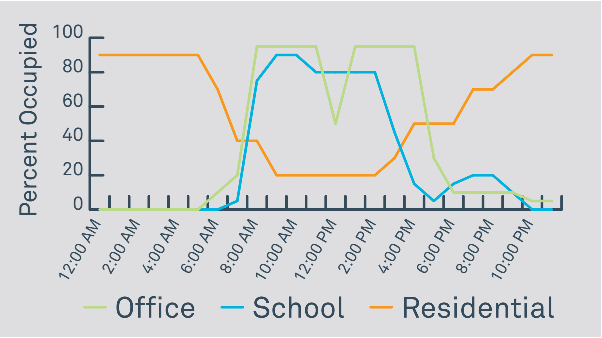
Combined Heat and Power

Combined Heat and Power systems (CHP) for building applications are typically microturbines that operate on natural gas and produce both electricity and hot water. These systems can reduce emissions through increased efficiency as compared to traditional systems where electricity is produced off-site and natural gas is combusted on-site for heating and hot water only.

CHP systems are most cost-effective where there is a 24/7 demand for the excess heat generated by combusting natural gas for electricity generation. For example, hospitals, labs, and hotels are examples of buildings that can have consistent annual demands for hot water. It can also be cost-effective with complementary occupancies: for example, an office which primarily demands power during the day, and residential which requires power in the evening and morning. Figure 3.12 illustrate the similarities in occupancy between typical office and school use, and the complementary occupancy of residential use.

Cost-effective CHP may be a challenge for the Central Hill campus as it has several similar uses on site: office, school, and library. All these use types are predominantly occupied during the day and unoccupied at night. Complementary uses do exist near the site, considering it is surrounded by residential areas. However, executing a CHP system on this scale has other challenges given the multiple owners of the properties affected.





Right Figure (3.12): Office/school/library occupancies

Left Figure (3.11): CHP system efficiency

Permitting a CHP facility greater than 50 kW requires complying with additional emissions regulations compared to other combustion-based equipment such as hot water boilers and emergency generators. For example, emergency generators between 37 kW and 1 MW operated less than 100 hours per year must comply with EPA Tier 2 emissions requirements. Primary generators larger than 50 kW, such as those used in CHP applications, must comply with EPA Tier 4 emissions requirements as described in the MassDEP Engine and Turbine Environmental Certification Workbook.

The emissions associated with engines and turbines include fine particulate matter, sulfur dioxide (SO_2), and oxides of nitrogen (NOx). SO_2 and NOx are respiratory irritants and also contribute to acid rain. Particulate matter can also cause respiratory problems especially for children and the elderly.

Considering the potential extended timeline of successfully designing, permitting, funding, and constructing a CHP system, the useful life of this equipment, once installed, may extend up to or past the 2050 goal. The city should consider whether a significant investment in a fossil fuel (most likely natural gas) combustion-based system that may still be operational in 2050 is consistent with the aspirations of the carbon neutrality goal.

Combined Heat and Power systems

Campus Systems

The study considered two potential campus-based systems, chilled water and hot water, for potential energy efficiency savings over building-based systems.

Campus-Chilled Water

Another possible campus-based system to consider would be a central chilled water plant for cooling. One advantage of this approach could be a lower first cost-per-ton for a campus system as compared to the cost of new cooling systems for each individual building. Depending on the size of the cooling load for the City Hall and Central Library buildings, the type of system that would make the most sense may change. For example, if these buildings were served by individual systems, cooling would likely be provided by DX coils in the air-handling units or with an air-cooled chiller.

Aggregating these systems may have a large enough cooling load to justify a water-cooled chiller, especially if combined with the cooling for the high school. Water-cooled chillers are more energy efficient but are more maintenance intensive and also consume significant amounts of water.

Conversely, there are potential additional losses in energy associated with the long piping runs to provide a campus-chilled water loop to serve all buildings. This energy loss would be associated both with heat loss (although the pipes would be insulated) as well as additional pumping energy needed to move the water across the campus.

While a campus system may have advantages when thinking about the full build out of the Central Hill campus, the timing of the renovation of each of the buildings on campus should also be considered. The renovation of the 1895 Building is planned to commence construction in 2021, the renovation of City Hall is anticipated to commence in 2023, and the Central Library project does not have a specific anticipated timeframe for development but would be thereafter. Updating the high school systems would likely occur around 2040 or 2045 when the systems currently being installed as part of the renovation/addition project are at the end of their useful life.

Given this timeline, a campus system would be a significant investment of effort and infrastructure, the full benefit of which would not be realized for some time.

Campus Hot Water

A campus hot water system for heating would have similar advantages and disadvantages to a campus chilled water system. One major disadvantage of a central hot water plant is that this type of system would need to be combustion based (most likely natural gas) in order to meet the significant total heating demand for all the buildings on the site. When coupled with renovations specifically targeted to dramatically improve the thermal performance of the existing building envelopes, it is likely that the reduced heating demands for the City Hall, 1895 Building, and Central Library can be met with electric-based systems. These buildings will also have relatively small service hot water loads, which could also be met with electric based systems.

The major thermal loads for the high school including the heating and hot water including dishwashers associated with two kitchens, science programs and SPED programs in addition to showers and toilet rooms, are large enough that they will need to be combustion based to meet these demands in a cost-effective manner.

Central Hill Campus Plan

4. Campus Planning and Site Design

Campus Unification Overview

Several design influences and parameters informed the development of the planning concepts. Design parameters included the Somerville High School master plan, the future Gilman Square Green Line Extension (GLX) station and Community Path, ongoing parking and traffic studies, building space use plans for City Hall and the 1895 Building, the re-creation of the Central Hill Playground, and the incorporation of the war memorials. Other influences include historical and neighborhood contexts, and citywide and community goals which are described in the *Universal Program and Design Opportunities* section on page 43.

Zone of Influence

The Central Hill campus is defined by two primary campus cores: the Civic core and the Educational core. The Civic core includes the open space that interfaces with City Hall, the 1895 Building, and the west side of the high school. The Educational core includes the open space that interfaces with the main entrance of the high school and the Central Hill library.

The Civic and Educational cores are united by a continuous open space along Highland Avenue; both visually and physically permeable edges create a more welcoming arrival to the campus. The consistent application of landscape elements and materials create a cohesive identity and the setting for the memorials to remain on campus.

Though the high school project defines the majority of the Central Hill campus, this planning study examines the spaces not defined and reexamines spaces connecting the campus cores. This area is the zone of influence for concept development. Within the zone of influence are several smaller design opportunities.

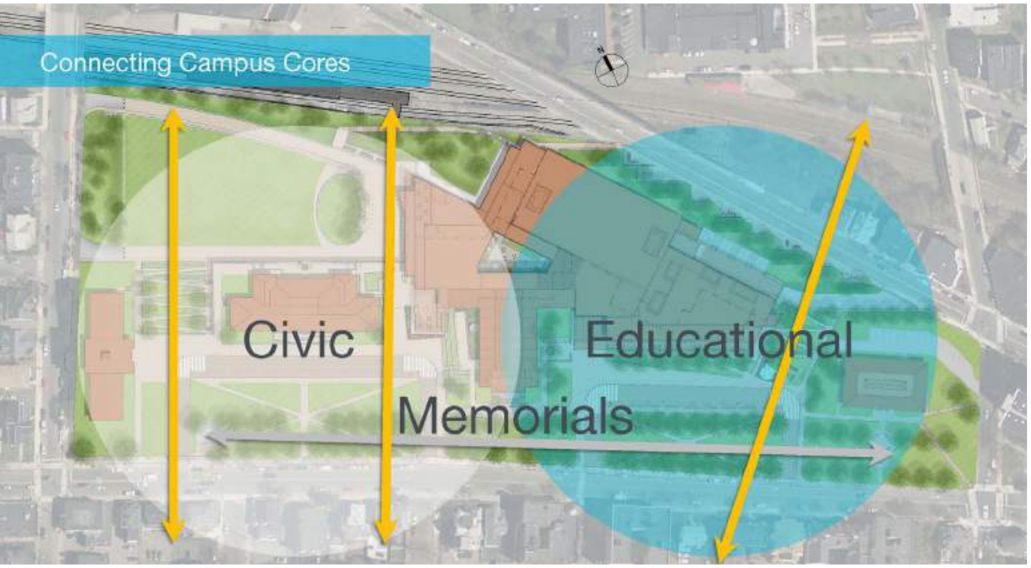


Figure 4.1

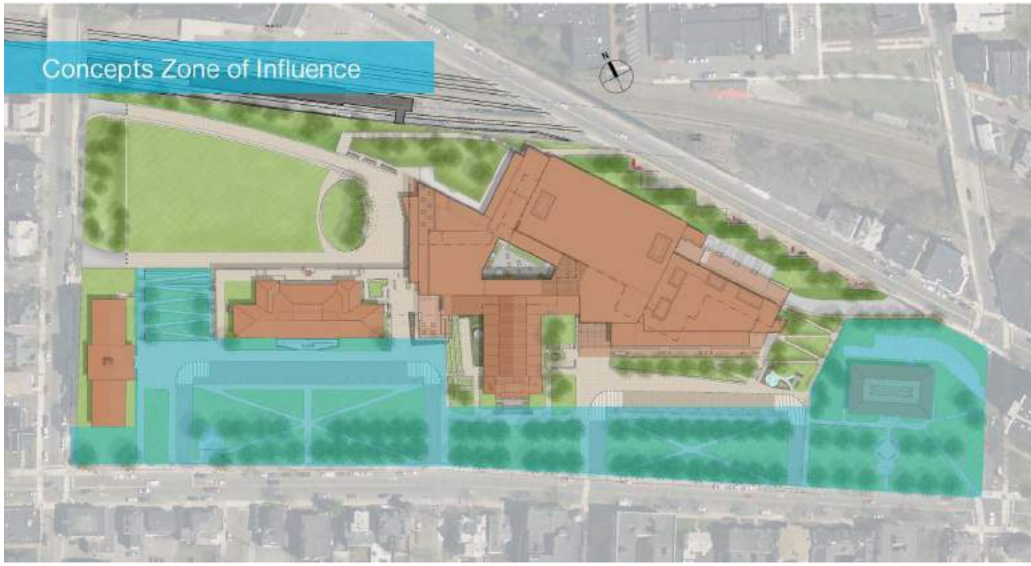


Figure 4.2

Universal Program and Design Opportunities

Three concepts each address specific design opportunities, while universal program elements can be applied to the campus regardless of concept.

Each design opportunity considers several factors: flexibility for a wide variety of programs, consideration of existing mature tree growth, utilization of a palette of landscape materials, and urban design elements established by the high school project.

Design Opportunities

- » Accessibility to City Hall, the 1895 Building, and across campus
- » Presence of City Hall as a dedicated pedestrian plaza and gateway at School Street and Highland Avenue
- » Centralized and chronological placement of the war memorials
- » Central Library: usable green space, sloped edge, and adjacent play space
- » Accessible route to the Gilman Square Green Line Extension station and on the hill west of the 1895 Building
- » Activate space along the Community Path extension

Universal Program Elements

- » Multi-modal transit solutions
- » Sustainability and stormwater mitigation
- » Environmental graphics and campus wayfinding

Concept 1: Allée

Concept 2: Promenade

Concept 3: Concourse

Concept 1: Allée

An allée is a walkway lined with trees or tall shrubs. It is characterized as formal, traditional, stoic, and passive.

Using the Somerville High School master plan as the basis of design, which is referred to in Section 2, the Allée concept builds upon the high school's original proposal.

Allée of trees along Commonwealth Avenue, Boston, MA

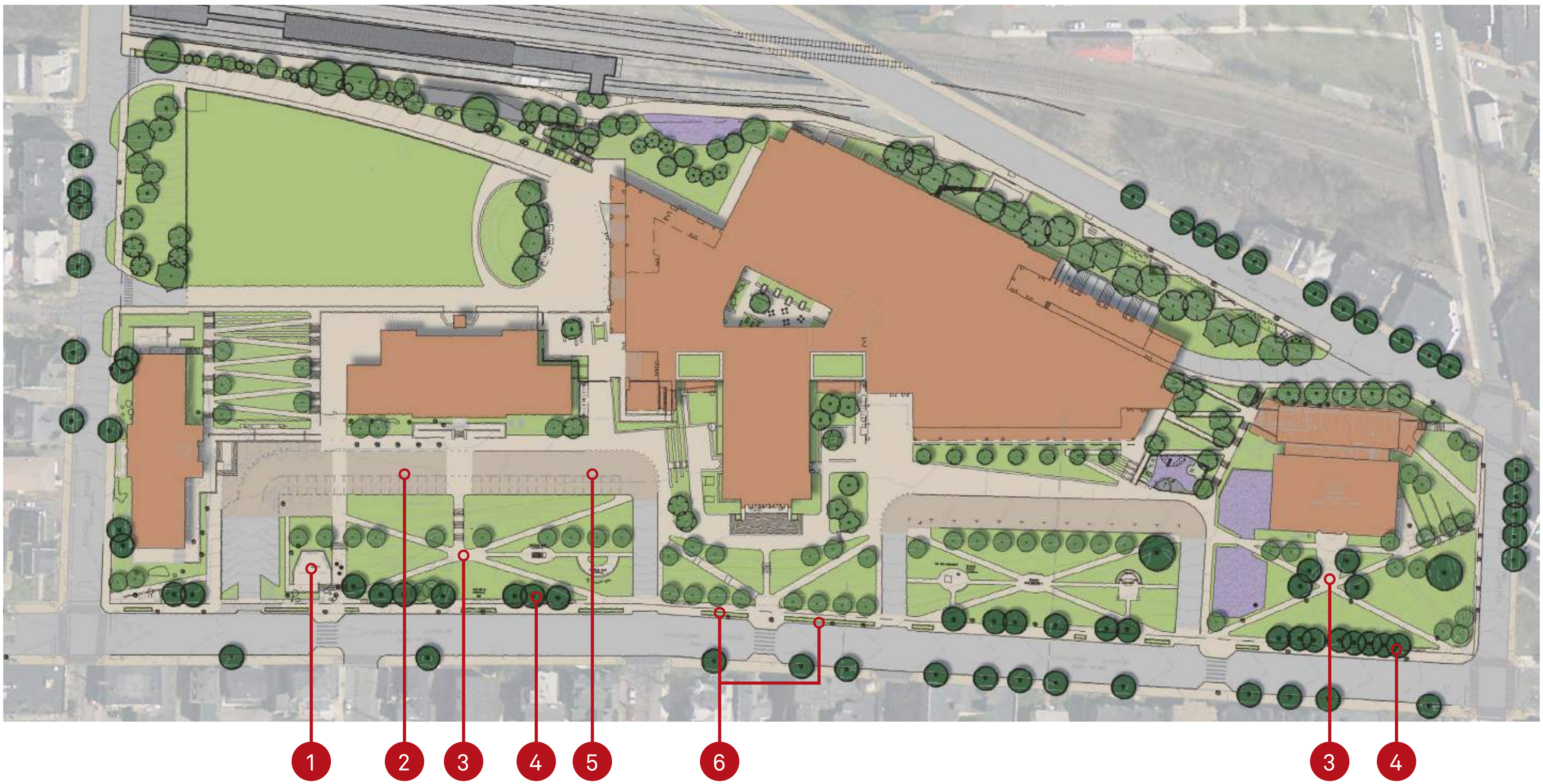
Existing mature tree growth along Highland Avenue

Traditional campus green

Existing Somerville Honor Roll

Plan Features

1. Honor roll stays in place, renovated and made accessible
2. Vehicular access and limited parking remains, no dedicated pedestrian plaza
3. Memorials centrally located in green space of the allée
4. Maintains existing trees along Highland Avenue
5. Parking maintains Somerville High School project numbers
6. Vegetated buffer at curb edge to function as a reinforcement of safe street crossing and stormwater management



Concept 2: Promenade

A promenade is a wide path for walking, a leisurely walk or ride especially in a public place for pleasure or display.

In this concept, the Highland Avenue walkway becomes an enhanced pedestrian and cyclist-oriented zone as a setting for the memorials to engage with the most active and visually prominent space of the campus.

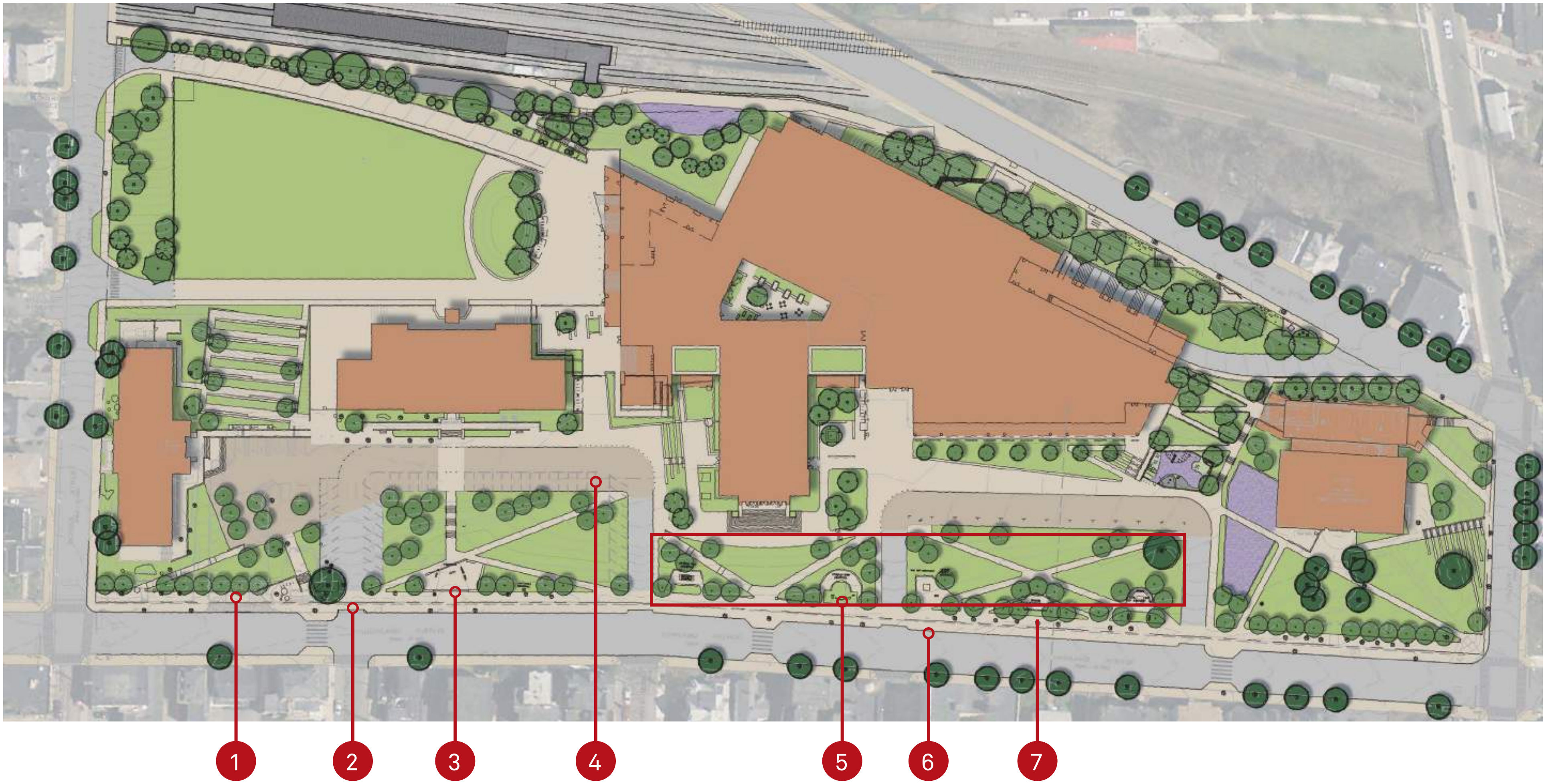
Gubei Pedestrian Promenade, Shanghai China

Dedicated bike lane, Western Avenue, Cambridge, MA

Anzac Centenary Memorial Walk, Adelaide, Australia

Plan Features

1. Strategically replace trees along Highland Avenue to emphasize visual corridors and renew streetscape plantings
2. Vehicular access realigns with Prescott Street
3. Honor Roll moves to align with the 1895 Building as a pedestrian gateway to the Civic core
4. Parking numbers are slightly reduced from the high school project, affording opportunity for dedicated plaza and visual prominence to City Hall
5. Vegetated buffer along walkway to function as aesthetic separation for memorials and storm water management features
6. Doubles the width of existing walkway to 20 ft to accommodate a shared bicycle and pedestrian zone
7. Memorials located directly along Highland Avenue for visual prominence with vegetated buffers for respectful visitation



Concept 3: Concourse

A concourse is a coming together, a gathering, or a large open area or hall where crowds gather.

This concept uses City Hall plaza and the Central Library green to book-end the Central Hill campus as large open spaces. The Highland Avenue streetscape connects the primary open spaces in a coming together of memorials, existing and new landscape elements, and storm water features.

Buffalo Niagara Medical Campus, streetscape

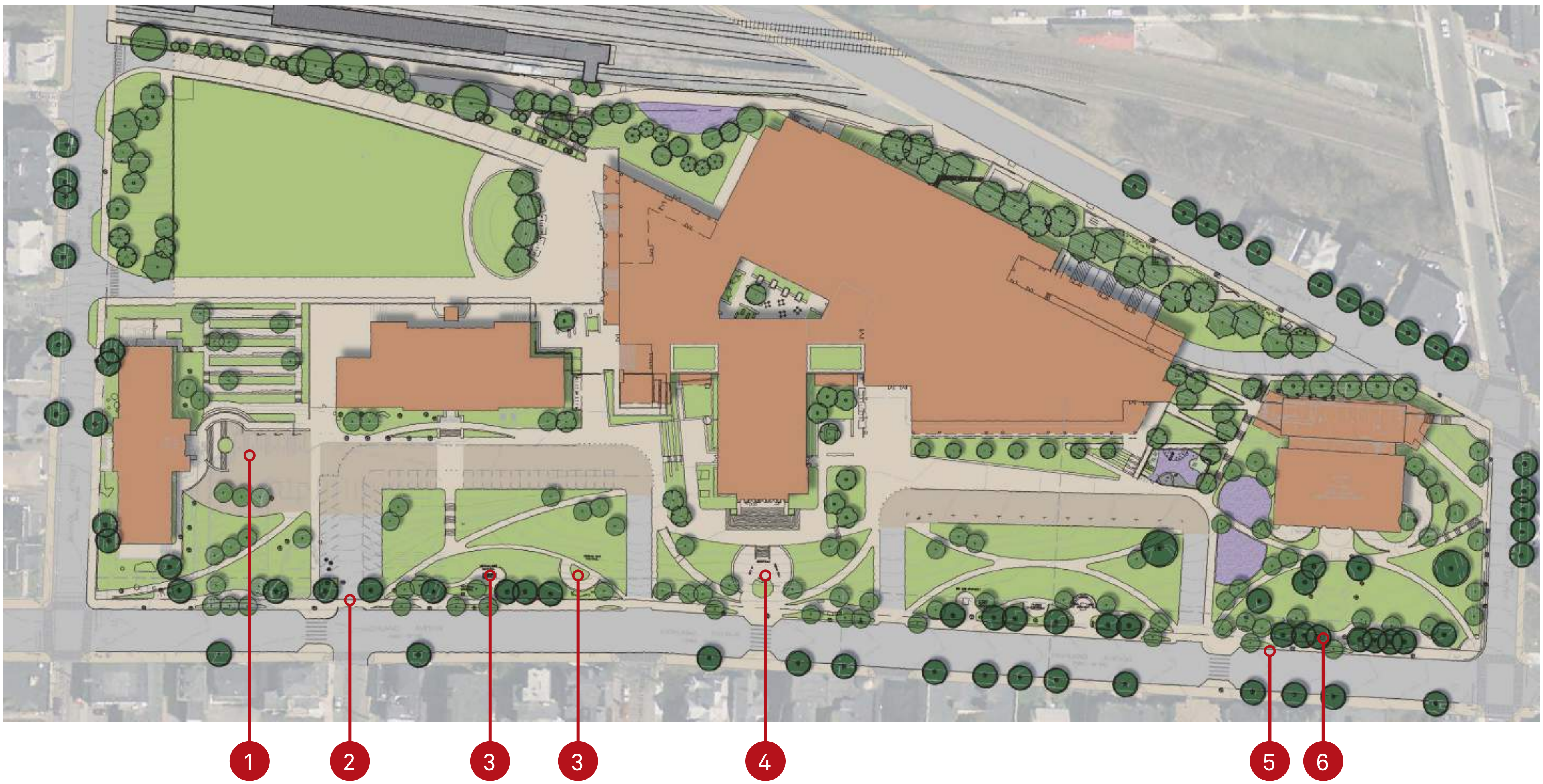
Memorial at James Cronin Park, Cambridge, MA

University Maryland, Baltimore County

Pedestrian Plaza with vehicular drop-off at Bartholomew County Public Library, Columbus, IN

Plan Features

1. Parking numbers slightly reduced from the high school project, affording the opportunity for a dedicated plaza and visual prominence to City Hall
2. Vehicular access realigns with Prescott Street
3. Memorials integrated into Highland Avenue streetscape
4. Honor Roll becomes a landmark and gateway emphasizing the restored War Memorial building of the high school
5. Vegetated buffer along walkway to function as aesthetic separation for memorials and storm water management features
6. Maintains majority of existing trees along Highland Avenue and strategically replaces trees to emphasize visual corridors and renewed streetscape plantings



Central Hill Campus Plan

5. Community Input

Community Engagement Goals

The goals for the community engagement process were similar to the goals set for the Central Hill Campus Plan. The team wanted to create an inclusive, accessible, and respectful process to guide the needs and desires of the community it serves. The consultant team, along with the City, developed workshops, online feedback forms, e-mail updates, and informational website pieces to reach as many constituents as possible. Over the course of several months, the team compiled community members, stakeholders, and city staff responses which informed the initial three design concepts. Additional feedback collected from each community event was incorporated and contributed to refining each design. The final campus design resulted in taking ideas from each of the three design concepts: it wove together multiple building uses, proposed land uses, old and new programs, as well as supported flexibility for future ideas.

The City of Somerville is also underway with a parking study specifically focused around Central Hill; the study is a follow-up to a 2017 study to measure the impacts of the first phase of parking removal and to collect new data that was not collected during the first study. The results of the 2018 study are still being analyzed. A building master planning process is also underway to determine the best use and fit for the 1895 Building which will be vacated by the high school once the new school is complete. This building master plan will review the options for City Hall as well as the 1895 building to determine if more city departments can be consolidated on Central Hill.

Community Engagement Timeline

5/31
Workshop #1

9/25
Workshop #2

11/1
Workshop #3

Veteran's Committee Meeting Timeline

4/26
Veteran's Commission Meeting #1

6/19
Veteran's Commission Meeting #2

Workshop Overviews

Community Workshop #1

The design team and City staff presented the scope of the project and its goals in a public presentation in the Somerville High School cafeteria.

Goal

To solicit feedback that will shape the design concepts and to explain the overall campus geography and solicit feedback to help shape the design concepts.

Overview

» Introduction of project
» Analysis of current site
» Analysis of site at the end of SHS project
» Identified uses/programs
» Identified circulation patterns
» Introduction of sustainability goals
» Introduction of memorials as a connective element on campus
» Discussion and dialogue
» See Appendix B for Meeting #1 Presentation

Community Feedback

» Attendees were primarily interested in the project in general—interest of specific topics presented was relatively even
» 72% of attendees felt it was easy to get to campus
» Mode of transit to the meeting: 39% walked, 20% drove, 16% biked
» Reasons people come to campus (most to least often): Central Library, City business, events, pay bills, the high school, playground, monuments, other

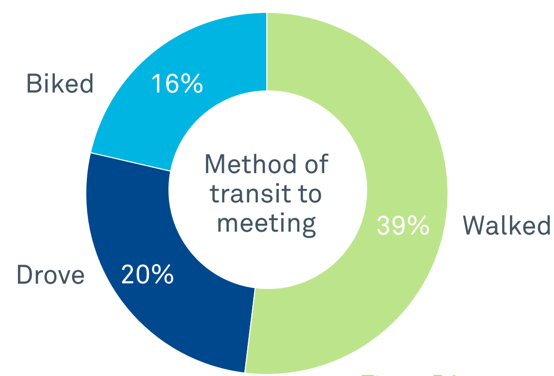


Figure 5.1

Conclusion

» Recorded comments/feedback
» Implemented comments/feedback into design concepts
» See Appendix C for community input

Community Workshop #2

The team updated the community on the progress of the project and further development following the feedback from the initial workshop.

Goal

To present and narrow down three design concepts to a preferred design concept.

Overview

» Re-introduction of project
» Presentation of 3 concepts
  – Allée
  – Promenade
  – Concourse
» Presentation of related design themes and their related design suggestions/direction
  – Transportation/circulation
  – Wikimap results
  – NetZero Ready Campus
  – Stormwater solutions
  – Wayfinding and signage
  – Memorials and monuments on Central Hill
» Break into groups to gather feedback and opinion
» Discussion and dialogue
» See Appendix D for Meeting #2 Presentation

Community Feedback

Allée Concept

» Positive reaction to maintaining existing trees
» Positive reaction to maintaining most amount of parking on campus
» Liked that the walkway through green space gives campus feel

Promenade Concept

» Positive reaction to shared walkway for pedestrians and bicycles
» Positive reaction to memorials directly engaged along shared walkway
» Highlights City Hall with dedicated pedestrian plaza
» Negative feeling about removing existing mature tree growth along Highland Avenue to accommodate shared walkway

Concourse Concept

» Positive reaction to maintaining existing trees
» Positive reaction to highlighting City Hall with dedicated pedestrian plaza
» Positive reaction to memorial locations, Honor Roll as central feature
» Agreed that it was pedestrian-focused, inviting

Conclusion

» Recorded comments
» Administer an exit survey to determine preferred design concept
» Implemented comments into design concepts
» See Appendix E for in-person community input
» See Appendix F for boards presented on the 3 design concepts

Community Workshop #3

Following the same format as the previous two workshops, the team sought the community's continued input moving forward.

Goal

To present the preferred plan, gather feedback on preferred plan and share next steps with the community.

Overview

» Review of planning process
» Review of planning design parameters
» Summary of community feedback
» Preferred plan highlights
» Wayfinding and signage
» Transportation design
» Sustainable design, approach to carbon neutral
» Campus plan project phasing
» Discussion
» See Appendix G for Meeting #3 Presentation

Conclusion

» Next steps

Veteran's Commission Meetings

Veteran's Commission Meeting #1

Goal

To allow the design team to understand the importance, history, and ceremonies associated with each memorial/monument.

Overview

» BCA review of memorials inventoried on the Central Hill campus
» Commission's discussion of potential for future monuments on Central Hill
» Alternative sites identified to study for the idea of memorial/monument park or walk
» Design decision of memorials/monuments important to the overall design of the hill
» See Appendix H for Meeting #1 Handout

Conclusion

» Commission to render a decision regarding the monuments to SMMA by mid-June 2018

Veteran's Commission Meeting #2

Goal

To inform the consultant team what the preferred site will be for the memorial/monuments and if the preference is a walk or a park.

Overview

» Review of memorials on Central Hill campus
» Presentation of precedent ideas for memorial walk or park
» Review of Veterans' Cemetery location option
» Discussion

Conclusion

» Memorials and monuments will stay on Central Hill and be laid out in chronological order
» Subsequent to this event, the order of the monuments was actually reversed; the Vietnam and Korean War memorials will be installed during the first phase of design and construction instead. The team also relocated the WWI Memorial from Union Square to the Central Hill campus. See page 70, Figure 6.12 for final memorial and monument layout

Online Engagement

Wikimap Survey

From May 2018–December 2018, the design team utilized a WikiMap of the Central Hill Campus Plan to determine the community's travel routes and related concerns. Setting the destination as Central Hill, it asked individuals specifically where they came from and the things that impacted them during their journeys.

Goal

To receive input from community in an efficient and easily accessible manner.

Overview

» See Appendix J for Wikimap Community Input
» See Appendix K for Wikimap Destination
» See Appendix L for Wikimap Location Concern

Figure 5.2

Sample of comments received:

Dangerous intersection
Install bike lane
Crosswalk needed
Give Peds priority here
Highland uncomfortable for bikes
Students cross here
Improve crossing
Traffic calming needed
High-speed commuters
Illegal parking blocks access

Online Surveys

The City of Somerville hosted two online surveys through the platform JotForm during the course of the study which were advertised through social media. See Appendix M to see full responses.

Survey #1

The first, published online in August 2018, was to understand how and why people come to Central Hill. It asked the following questions:

1. About how often do you come to the Central Hill Campus (where City Hall, the high school, and the Central Library are located)?

2. How easy is it for you to get to Central Hill?

3. How do you come to the Central Hill campus?

4. Why do you come to the Central Hill campus?

5. (Optional) I am a...

Survey #2

The second was opened in October 2018 and asked residents to select a preferred concept plan and explain why. The two questions posed were:

1. Which Central Hill Campus Plan concept do you like most?

2. Tell us about why you selected your choice?

Central Hill Campus Plan

6. Recommendations

Introduction

Final Campus Design

Over the course of this planning study, with input from the Campus Planning Committee and the community, it was determined that the final plan best represents the community's needs and the City of Somerville's vision to create an inviting, accessible civic campus that embodies its values for accessibility, inclusion, environmental stewardship, and respect for local history.

The Central Hill Campus Plan is the coming together of the city's vision and the community it serves. The selected concept has been developed into a recommended final campus plan that will guide the design process of future projects, establish intended final space uses, set priorities for multi-modal transit solutions, build upon the established high school project's palette of landscape materials, design elements, sustainability and resiliency strategies, and further wayfinding applications.

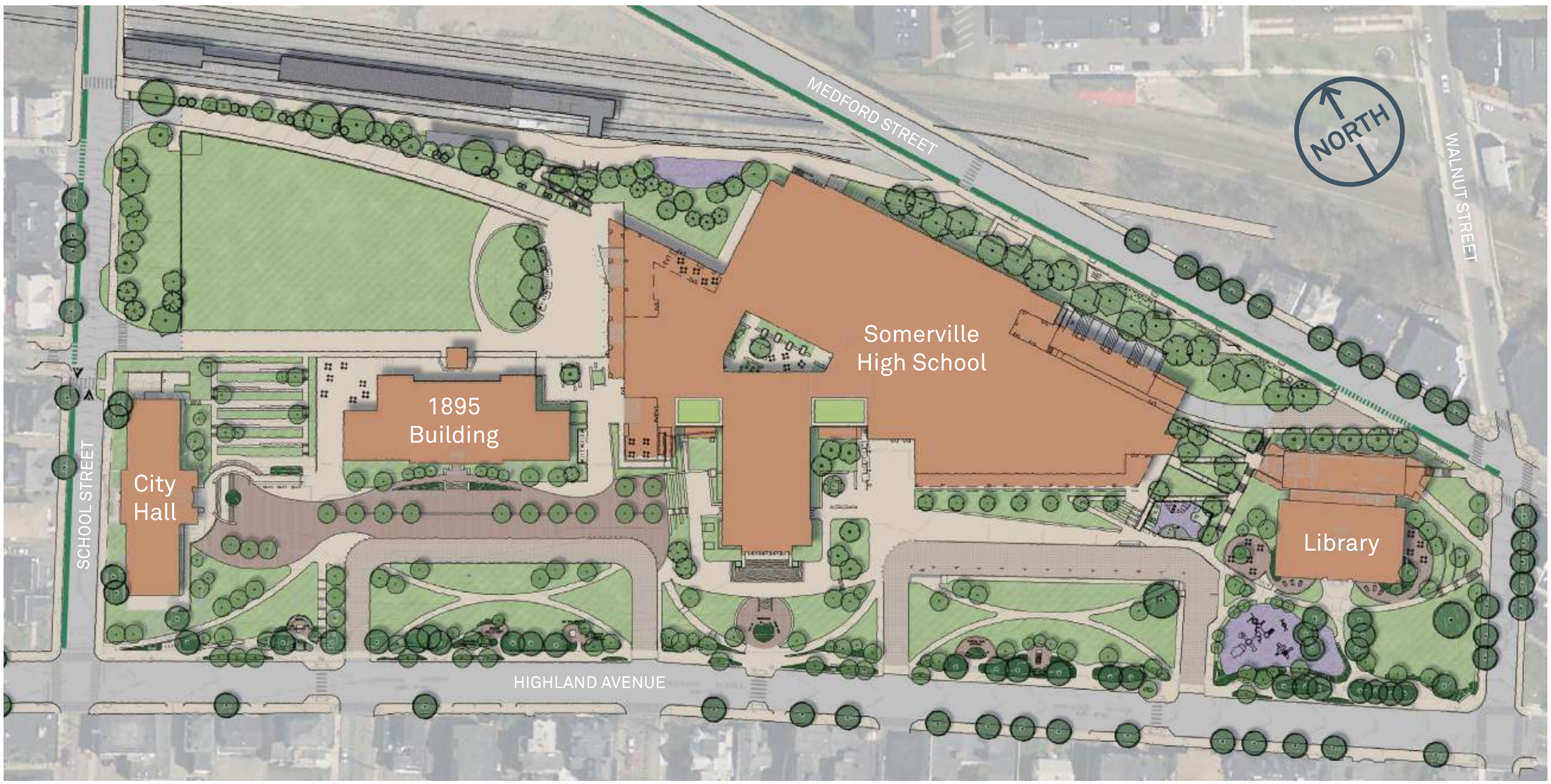


Figure 6.1: Proposed campus plan

Project Approach:

Integration of the Central Hill Campus Plan with the High School Project

The campus plan requires intimate and thoughtful integration with the high school project, which has sought to build new connections through the Central Hill site from Highland Avenue to the new Green Line Extension (GLX) Gilman Square station while overcoming nearly 80 vertical feet of grade change. A number of critical juncture points between the high school site plan and the campus plan effort are yet to be resolved anticipating the need for various stakeholders' input.

The envisioned initial planning effort should focus on the following areas of interest to meet the high school's construction and phasing schedule to insure an integrated and seamless civic environment representative of Somerville's history and aspirations:

1. Decision on the existing war memorials not currently being removed and/or restored by the high school project.
2. Link building accessibility strategies with the public use and programs at the three existing structures – City Hall, 1895 Building, and the Central Library. Grading, stairs, and ramps will impact plazas and final grading across the campus.
3. Highland Avenue retaining wall: currently the stone retaining wall stretches along Highland Avenue between City Hall and the War Memorial and will be impacted by the high school project on its eastern terminus. Much of the wall is in disrepair and currently the design and repair of this wall is not part of the high school project, but its repair may impact the new high school curb cut, final grading, landscape, and sidewalk designs.
4. Site Lighting: the high school project has a high quality modern and efficient site lighting package. Understanding the goals for the many civic gatherings and events that may occur at the plaza(s) will confirm the locations and final design lighting goals for aesthetics, functionality, and safety across the entire campus.
5. Materials: the long-term design, planning, and construction schedule for the three existing campus buildings will potentially impact the availability, purchasing, and coordination of the installation of plaza surface materials, light fixtures, planting materials, etc. Planning for where and how the master plan materials connect to the high school final site plans requires careful coordination.
6. Field access behind the 1895 Building: the landscape and pathways around the 1895 structure are intended to provide public access from Highland Avenue down to the new playfield. The final design for the ramps, stairs and elevator will be part of a renovation of the 1895 structure but the linkage and tie in to the high school project are highly intricate and deserve early analysis and consideration.

Proposed Building Use

A separate study was conducted to determine the proposed building uses and recommended for renovations. City Hall and the preserved 1895 Building are currently under consideration by the City Council.

City Hall

City Hall's interior program will largely remain the same with renovations to the existing structures and system (see Appendix N).

1895 Building

The preserved 1895 Building will be renovated with updates to the structure and systems. The building will transition from an educational facility to a building that hosts city services. Such services may include, but are not limited to, Somerville Public Schools Central Office, Health and Human Services, Veteran's Services, Information Technology, Housing Division, and Office of Strategic Planning and Community Development (see Appendix O).

Somerville High School

Somerville High School's program and design will remain the same through the development of the Central Hill Campus Plan (see Appendix P for basic high school plans).

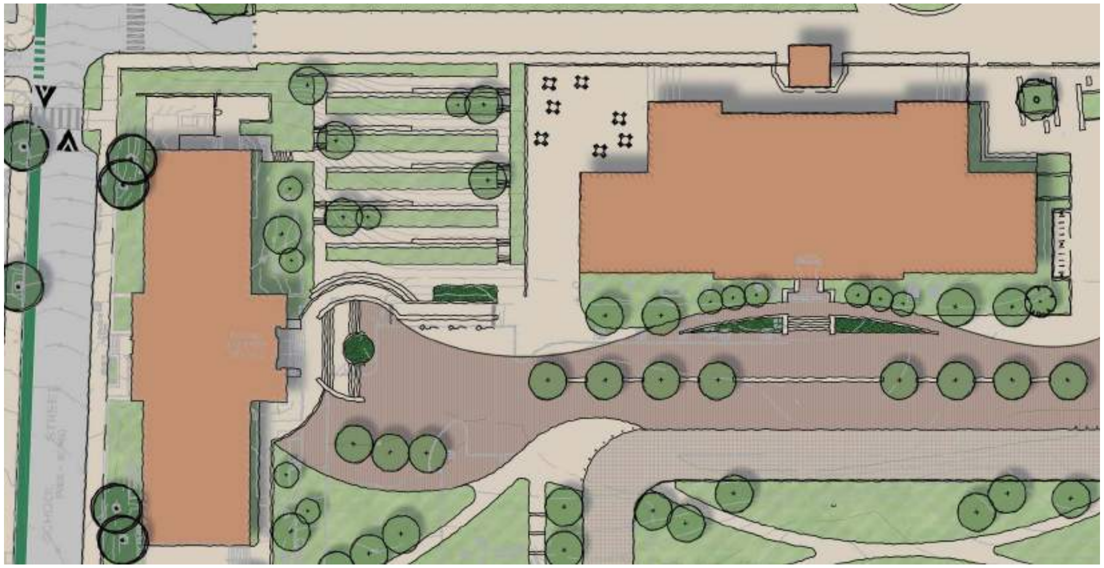


Figure 6.2: City Hall and 1895 Building: Accessible routes from Gilman Station, accessible building entrances, expanded pedestrian plaza

Central Library

The Central Library site will support a future addition to the current program and building that will occur during Phase 4 of the Central Hill Campus Plan (See Figure 6.20 for full phasing diagram). An addition, previously studied in 1996 which expanded the children's room and lobby, and restored the main reading room, served as a basis for locating the addition to the north side of the structure. The further development of an addition and library programming will need to be reevaluated when funding for the design and construction are scheduled (see Appendix Q).

Proposed Land Use

Civic Core

Numerous improvements are proposed for the campus Civic core. City Hall and the 1895 Building will be renovated, including accessible building entrances. The realignment of the vehicular egress with Prescott Street allows City Hall to include a larger pedestrian plaza, which can host a number of civic events. This gives City Hall more prominence on campus and allows the development of a larger pedestrian plaza that can better accommodate existing community events and allow flexibility to host a number of new events. The plaza is designed be a shared space between pedestrians and vehicles, where during larger events vehicles will be prohibited. One person occupies 7 square feet standing or 10 square feet sitting. A typical parking space, 9x18 feet, can accommodate 23 people standing or 10 people sitting.

The combination of pavers and landscape materials give the plaza a pedestrian feel while indicating different zones when shared. An elevator on the north side of the 1895 Building will provide access down to the high school's playfield and accessible route to Gilman Square Green Line Extension station and the Community Path. Between City Hall and the 1895 Building, a series of sloped walks provides a second accessible route and incorporates seating elements providing viewing opportunities for events at the field.

The Central Hill campus acquires a net gain of open space in the plan recommendation. Building footprint increases slightly with a proposed addition to the library. There is a significant increase in pedestrian pavement areas with the addition of the City Hall plaza and completion of accessible routes through the campus. This is the primary contributor to a decrease in landscaped area. Additional permeable pavement reduces impervious vehicular pavement. There is an opportunity to expand permeable pavements into the paved pedestrian areas to further reduce stormwater impacts.

Community Path

A small space adjacent the Community Path, a shared bicycle/pedestrian zone, provides a program opportunity to activate and reinforce the campus gateway from the Community Path and the Gilman Square Green Line Extension station. The space could accommodate amenities such as sculptural displays, seating, interactive elements, and plantings to enrich urban forestry and promote pollinator communities.

During the project's design phase, a public competition is recommended to determine the best program for the space.

Open Space Percentages	Post HS	Post CHCP
Landscaped *	43.0%	36.2%
Permeable Pavement	2.6%	3.4%
Impervious Pedestrian Pavement	20.4%	29.2%
Impervious Vehicular Pavement	10.8%	6.5%
Building Footprint	23.3%	24.7%
TOTAL	**76.7%**	**75.3%**
Open Space (Landscape + Ped)	63.3%	65.4%

**Includes turf field*

Figure 6.3: Open space percentages post High School and post Campus Plan construction

Figure 6.4: Program opportunity adjacent the community path

Memorial Walk

More pedestrian-only zones, through a series of green "blocks" along Highland Avenue, are the foreground setting for the buildings on the Central Hill campus. Pathways through these spaces provide accessible routes across campus. The war memorials will be relocated to this area in a chronological series by conflict. The memorials will be visibly situated along Highland Avenue, but separated by a vegetative buffer that dedicates space separated from the trafficked pedestrian walkways to provide the opportunity for respectful visitation. The Somerville Honor Roll will be centrally relocated within the series in front of the War Memorial Auditorium building, creating a mid-campus gateway.

Library

Book-ending the Educational core of campus, the library has numerous proposed improvements As a result of relocating the Spanish War, Philippine, and China Memorials within the Memorial walk, the front of the library can be reprogrammed for events as well as the new Central Hill Playground. Terracing of the sloped lawn down toward Walnut Street provides an opportunity for enjoying passive lawn seating away from the open lawn where more active play may take place. Additionally, small plazas flanking the library are proposed with café style and lounge seating to round out a variety of open space types for the community to enjoy.

Figure 6.5: Portion of Memorial Walk including relocated Honor Roll

Figure 6.6: Library: expanded green space, renovated play area, terraced edge, plaza spaces

Improved Accessibility

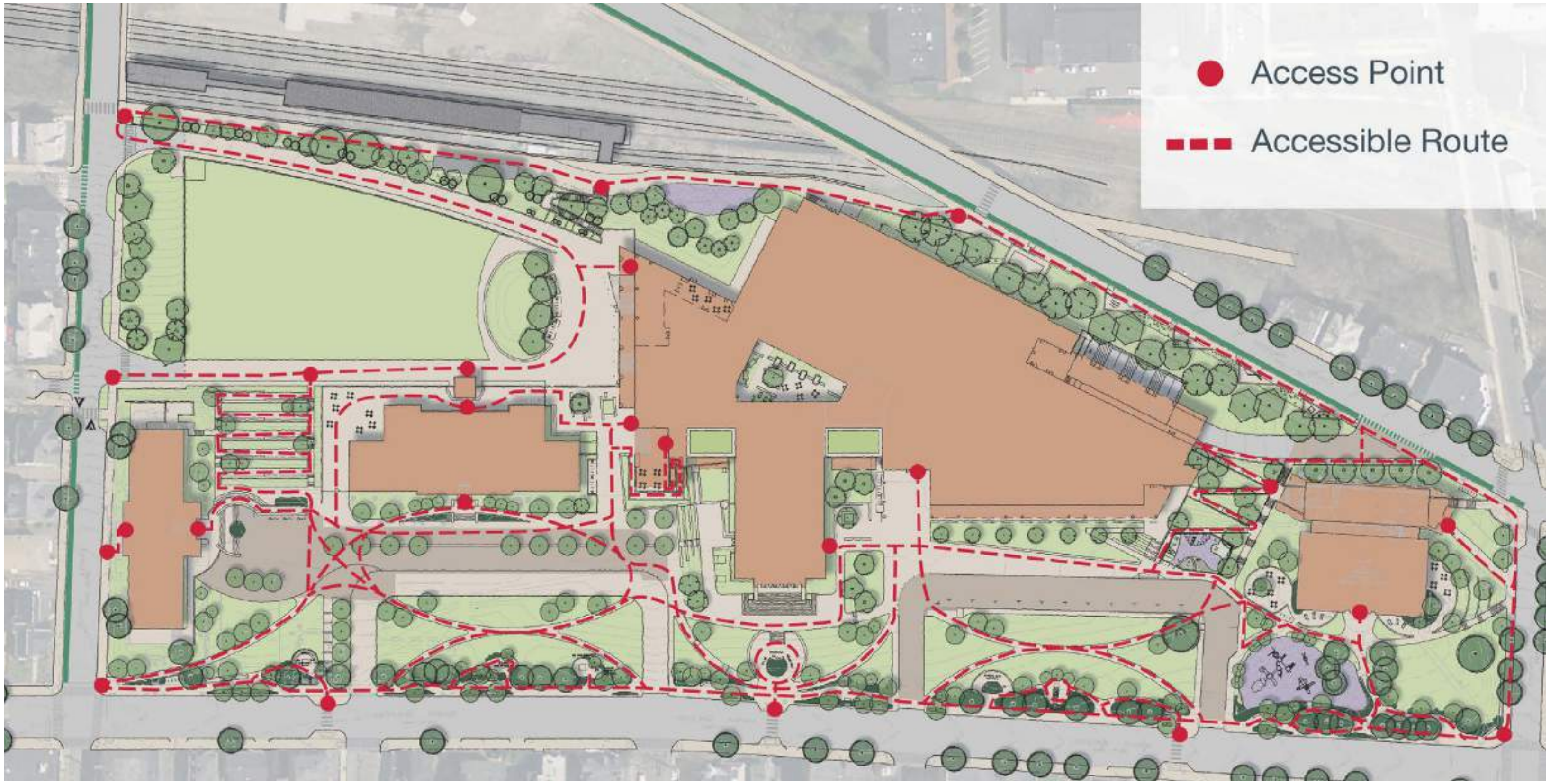


Figure 6.7: Accessibility routes

Walkways

Accessible routes throughout the site will be provided at the completion of the campus plan. The Somerville High School project is providing multiple access points into the building and multiple access routes across the site. The campus plan will complete this network by improving the accessible routes to City Hall, the 1895 building, and the library. Some of these improvements will include sloped walkways and ramps to gain access into the buildings, as well as an elevator at the rear of the 1895 Building to gain access to the field level.

Improved Mobility and Circulation

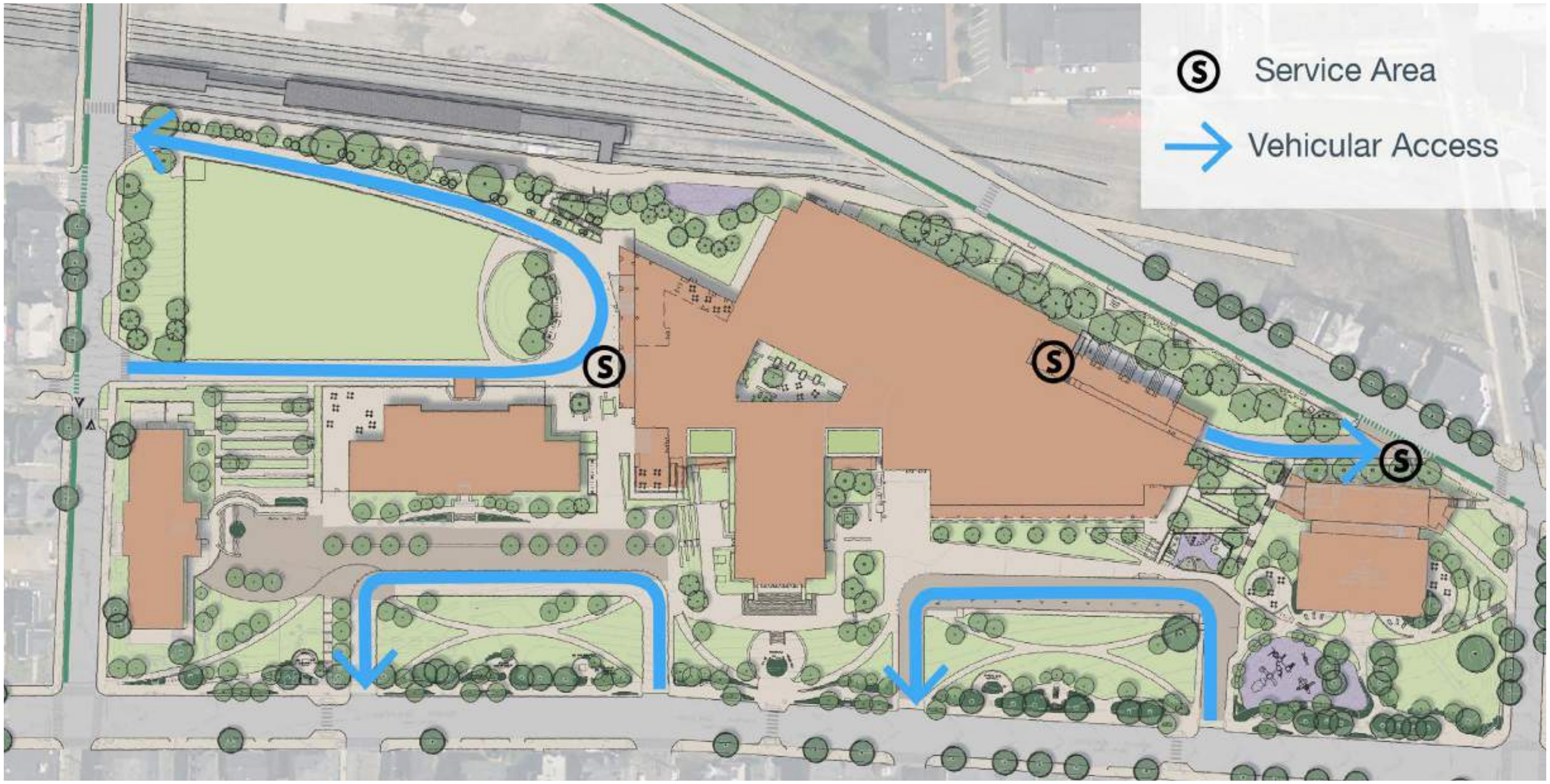


Figure 6.8: Vehicular circulation routes

Getting Around Campus

Vehicular Circulation

Vehicular circulation on campus remains largely unchanged. The exception is the realignment of the vehicular access drive exit near City Hall. The egress now aligns with Prescott Street allowing for more pedestrian plaza and event spaces at City Hall.

Pedestrian Circulation

The network of pathways across campus established by the Somerville High School project will be extended providing accessible routes to the entire campus. A palette of landscape elements and materials will define pedestrian zones within plazas shared by vehicles. Pedestrian access to campus from the north will now be possible by way of the Gilman Square Green Line Extension station and the Community Path. The Community Path connects to the vehicular access around the field at School Street, allowing pedestrian access to the field plaza. From there, pedestrians can access the elevator at the back of the 1895 Building or a series of switchbacks between the 1895 Building and City Hall to the City Hall plaza area.

Connectivity to Campus and Surrounding Neighborhoods

Access to Central Hill's civic and educational institutions can be made safer and more comfortable for all travel modes: walking, biking, driving, and transit use. Traffic calming, increased pedestrian access, and increased bicycle facilities will allow residents from nearby neighborhoods and squares to access the Central Hill campus more comfortably without a car.

Street Network Modifications

Because the one-way streets around Central Hill restrict turning locations and travel routes for motorists and people riding bicycles, consider conducting feasibility analyses and modifying streets from one-way to two-way as appropriate. These changes will be particularly relevant for the Central Hill campus as development changes occur in Union Square to the south and Gilman Square to the north.

A recommendation of this plan is to modify School Street into a two-way from Medford Street southwards to Highland Avenue to increase connectivity to campus. As the longer north-south route adjacent to Central Hill, the conversion of School Street from one-way to two-way could increase flexibility for campus access by motorists and bicyclists on Medford Street, Richdale Avenue, Montrose Street, Madison Street, Highland Avenue, and areas further south of the campus. Parking would need to be reduced to one side of the street, as the street width will not allow for two travel lanes and two parking lanes. To provide easier access to the campus, it is recommended that the parking lane be preserved on the east side of the street.

Biking

Additional bicycle parking will be added to the campus at several areas including Highland Avenue near City Hall, the front of the library, and at Medford Street near the library expansion. An additional bicycle sharing hub is proposed for the east side of campus near the library as well. Additional bicycle parking locations and quantities may be proposed during the design phases of this project as user group needs are determined, with the goal of incorporating as much bike parking capacity as possible.

Adding on-street bicycle facilities will increase the visibility of and help reduce stress for people riding bicycles. Changing School Street to two-way operation and limiting parking to one side will provide adequate pavement width for a climbing bike lane to aid bicyclists traveling up the hill.

Upgrading the existing bike lane on Medford Street to high-friction green pavement will increase visibility and safety for people riding bicycles; bike symbols within the bike lanes and shared lane markings on Highland Avenue will also be refreshed as part of Central Hill modifications and will be regularly maintained.

Finally, improved design crossings on School and Medford Streets at the Community Path will enhance the visibility of people walking and bicycling.

Walking

The safety and comfort of people who walk to Central Hill may be increased through infrastructure modifications that make pedestrians more visible to drivers.

Enhancements will be made to existing pedestrian crossings at all intersections. Modifications may include curb extensions to reduce exposure by shortening the crossing distance as illustrated in Figure 6.9 depicting curb extensions. Curb ramps and crosswalk markings will provide clear directional guidance for those who have visual disabilities.

Existing pedestrian signals will be tested to ensure correct functionality and that signal timing prioritizes pedestrian safety. During school start and end times, signal timing will change so that pedestrian phases are set to recall and do not require actuation. This timing adjustment could benefit pedestrians at other times of the day as well.

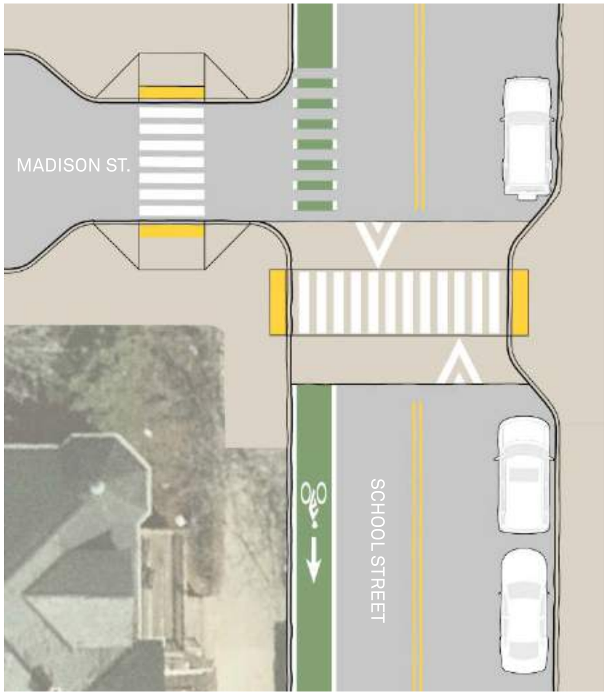
Providing curb extensions on the north and south sides of Madison Street where it abuts School Street will shorten the crossing distance and reduce motorist turning speeds. A raised crossing on School Street with a curb extension on the east side of the street, as illustrated in Figure 6.9, will be implemented. The raised crossing and curb extension will make pedestrians more visible while also reducing motorist speeds on the slope.

To support increased pedestrian traffic to and through the Central Hill campus, crossings with curb extensions at Prescott Street and at the eastern end of the High School driveway will be installed; additionally, a midblock crossing with curb extensions and a Rectangular Rapid Flashing Beacon (RRFB) will be provided on Highland Avenue south of the War Memorial Building steps (see Figure 6.10). When actuated, the RRFB will increase the visibility of pedestrians by flashing lights that alert drivers to the crossing. This will particularly benefit campus visitors after dark.

The Community Path crossing points recommended previously will serve both bicyclists and pedestrians on the Community Path.

Figure 6.9a: Curb extensions, curb ramps, and cross walk markings provide directional guidance.

Figure 6.9b: Curb extensions and raised crossing



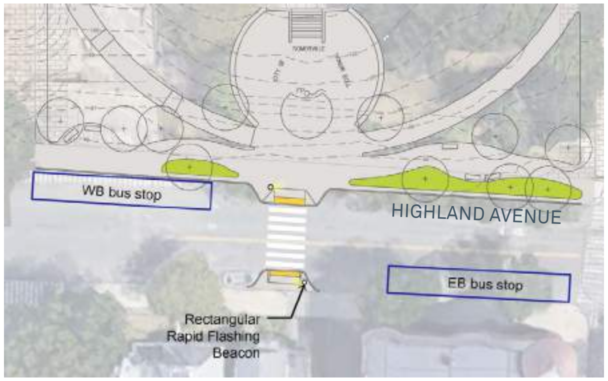


Figure 6.10: Midblock crossing with Rectangular Rapid Flashing Beacon

Impacts to Parking

On-street parking is prevalent along all sides of the Central Hill campus. The design recommendations to introduce more curb extensions will reduce on-street parking capacity by approximately 10 standard parking spaces.

Transit

Bus infrastructure may also be modified to both improve bus operations and help transit users more safely access the campus.

At School Street and Walnut Street along Highland Avenue, there will be coordination with the MBTA to relocate the eastbound bus stops and shelters to the far sides of the intersections. This configuration will help improve operations for buses by allowing buses to move through intersections and service the bus stop, then pull away from the bus stop once service is complete (rather than delaying departure if the signal is red). It also increases the likelihood that the bus can depart the stop more easily, without being blocked by a queue of other vehicles waiting at the signal. At School Street, relocating the eastbound bus stop and constructing a new shelter will also reduce the number of crossings for people bound to Central Hill. Currently these passengers must cross both Highland Avenue and School Street; relocating the stop will necessitate crossing only Highland Avenue.

Work with the MBTA will analyze possibilities for consolidating the westbound two bus stops on the eastern end of Highland Avenue between Walnut and Medford Streets, as they are located only 350 feet apart. This analysis will prioritize the needs of Brady Towers and Burton Faulkner Tower residents.

Figure 6.11: Proposed bus stops

Bus stop on Highland Avenue at School Street

Memorial Approach and Future Expansion

During the planning study, the Veterans Commission on Monuments, Memorials, and Dedications decided to keep the existing war memorials on Central Hill as well as relocate a World War I memorial from Union Square to Central Hill.

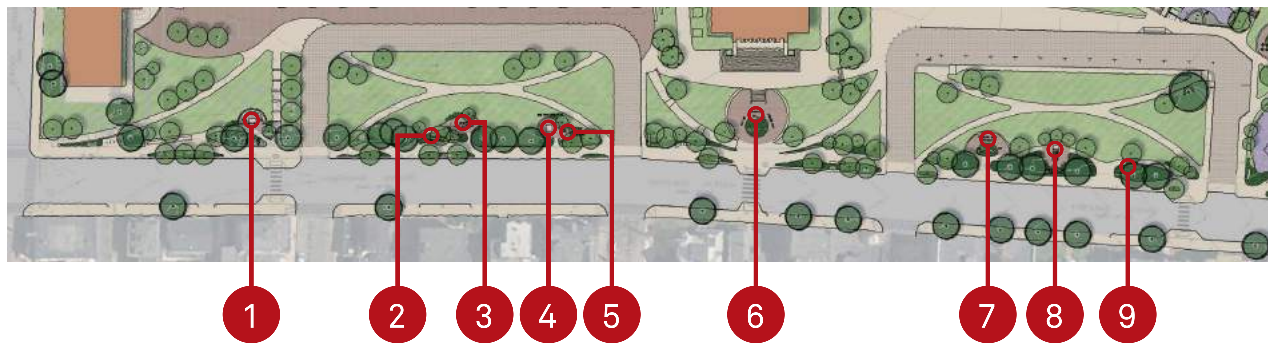
The campus plan locates the memorials in a visually prominent fashion along Highland Avenue, easily accessible to pedestrians. The memorials are set within a vegetative buffer to provide appropriate space for respectful visitation and reflection. The memorials are located in chronological order by conflict, beginning near City Hall with the Civil War Memorial moving east toward the Library. Space is reserved for future memorials beyond the Vietnam War Memorial.

The design of each memorial plaza should consider the amount of space necessary to accommodate the size of the monument, space and seating elements for pedestrians to visit, events held at each monument, a vegetative buffer to provide relief from the busy walkway, educational signage, and lighting for nighttime display.

The Somerville Honor Roll is relocated to the center of the memorial walk directly in front of the War Memorial building and becomes a landmark centerpiece for campus. It will be redesigned from its current configuration to accommodate accessibility, changes in grade, and a digital display.

Central Hill Memorials

1. Civil War Memorial & Memorial Cannons
2. Memorial–First Congregational Unitarian Society
3. Spanish War / Philippine / China
4. WWI Memorial
5. Dilbey Monument
6. Somerville Honor Roll
7. Korean War Memorial
8. Vietnam Memorial
9. Future Memorial



Top Figure (6.12): Memorial Locations

Interactive memorial, Prospect Hill Cemetery, York, PA

Sustainable Environment/ Landscapes

Existing Trees

A primary goal of the proposed plan is to maintain as much as possible of the remaining existing mature tree growth (approximately 80%). Most of the mature trees along Highland Avenue will be incorporated into the Memorial Walk. Several mature trees at the library will also be maintained and incorporated into the reconfigured open space. Tree removal will be determined during the design phase, and every effort will be made to preserve healthy existing tree growth within the design. Trees designated in poor condition or dead will be removed as part of this plan.

Figure 6.13: Proposed section at existing trees along Highland Avenue

Stormwater Management

The goals for the stormwater management system for the proposed Central Hill Campus Plan are to meet Massachusetts DEP regulations and achieve the LEED v4 Sustainable Sites Rainwater Management credit.

To meet DEP stormwater regulations, the site design reduces peak discharge flow rates from existing to proposed conditions, treats all runoff to remove at least 80% total suspended solids (TSS) prior to discharge from the site, and achieves groundwater recharge through infiltration best management practices (BMPs). See Figure 6.15 for reference.

To obtain LEED v4 rainwater credit, the design manages on-site the increase in runoff volume from the natural land cover condition to the post-developed condition for the 95th percentile storm.

The Somerville High School project, which covers 10.5 acres of the 13.4-acre Central Hill site already achieves the LEED rainwater credit; therefore, the primary objective for the proposed design was to extend the BMPs designed and installed for the high school to manage the runoff volume from the remaining 2.5 acres, which includes the City Hall, 1895 Building, and library roofs as well as the portions of the site surrounding these buildings.

The proposed stormwater management system uses a series of BMPs to achieve the goals outlined above. The primary technical BMPs used are:

- » Rainwater harvesting tanks
- » Subsurface infiltration systems
- » Porous concrete pavers
- » Bioretention gardens/swales

Roof runoff from the three remaining buildings is directed to underground harvesting cisterns to be reused. Specific uses are to be determined but could include irrigation supply or toilet flushing. The rainwater harvesting system for the high school roof runoff was designed as part of the high school renovation and includes reuse for irrigation. The Central Hill design proposes adding a 20,000-gallon harvesting tank between City Hall and the 1895 Building to collect runoff from these roof areas as well as a 10,000-gallon tank at the southeast corner of the site to collect runoff from the library roof. These tanks are sized to hold the total volume produced from the 95th percentile rainfall amount of 1.5 inches. The library's harvesting tank is sized for a future building expansion of roughly 5,000 square-foot added to the existing library building.

The Somerville High School project proposed 5 subsurface infiltration systems. Each system is composed of hollow perforated corrugated polyethylene pipe (CPE) pipe embedded in beds of crushed stone with 35% voids. This campus plan proposes adding a sixth system of the same general construction to manage runoff for the southwest portion of the site. The new system will be located under the lawn area between the 1895 Building and Highland Avenue.

The permeable pavers planned for the high school project will be extended to cover the remainder of the drop off loop that extends towards City Hall. Additional permeable pavers are proposed for the monument walkways along Highland Avenue, the plaza areas surrounding the library, and around the new tree plantings in front of the 1895 Building and City Hall.

Bioretention gardens and swales are proposed for the smaller landscaped areas along Highland Avenue, which are interspersed primarily around the monuments. In total, 12 bioretention areas are proposed, with a combined surface area of approximately 2,600 square feet.

Figure 6.14: Section and streetscape; example of curbside bioretention garden along Highland Avenue

Hydrologic Modeling

The hydrology of existing and proposed conditions was modeled using HydroCAD. The proposed design for the Somerville High School project was used as the existing conditions, with the proposed conditions extended to include the areas around City Hall and the library, as well as the sidewalk running along Highland Avenue. The City Hall roof was rerouted to BMPs draining south towards Highland Avenue; however, no additional changes were made to the reaches which drain to the north of the site.

In addition to changes to the total areas, the south-draining subcatchments were adjusted to match the pervious and impervious land cover ratios proposed in the new site layout. The additional subsurface infiltration, porous pavers, and new bioretention areas were modelled as ponds in HydroCAD.

The subcatchments were routed to five drainage design points around the perimeter of the site, and the model was tested for the 2, 10, 25, and 100-year storms. The results, shown in Figure 6.15, confirm that the peak flow rates for the proposed design are less than the existing conditions at each of the five design points, for all four design storms.

To confirm that LEED requirements were met, the entire site was modeled as forested land with hydrologic soil group C. The 95th percentile storm for the site location is 1.5 inches over 24 hours. Based on these conditions, the total volume of runoff produced is 0.234 acre-feet. The proposed design produces 0.173 acre-feet of runoff for the 95th percentile storm. Therefore, the project meets the LEED rainwater credit criteria.

The complete HydroCAD model results are included in Figure 6.15.

Design Point	**2-year (3.26")**		**5-year (5.15")**		**25-year (6.33")**		**100-year (8.15")**	
	Existing	Proposed	Existing	Proposed	Existing	Proposed	Existing	Proposed
DP-1.1	6.19	5.86	12.06	11.37	15.52	14.67	20.88	19.79
DP-1.2	1.98	1.98	4.35	4.35	5.91	5.91	8.37	8.37
DP-2.1	5.05	3.17	9.09	6.52	11.64	9.52	15.58	12.99
DP-1.2	10.76	9.06	19.28	17.86	24.1	22.03	33.56	32.24
DP-1.3	1.71	1.27	3.16	2.47	4.07	3.6	5.47	4.82

Figure 6.15

Carbon Neutral-Ready Campus

The constraints of a dense urban environment will make generating enough renewable energy on the Central Hill campus very challenging. As discussed in Section 3, the carbon neutral goal may be achieved through a combination of on-site and purchase of renewable energy through the grid, while optimizing Net Zero Energy and ultra-low energy strategies for the campus facilities through retrofits and systems' upgrades.

Many Net Zero Energy and ultra-low energy buildings use a common approach to achieve their goals.

» Use a highly-insulated enclosure to minimize building heating and cooling loads, including high performance glazing systems such as triple glazing.
» Design active, highly efficiency, all-electric building energy systems
» Power these systems with renewable energy.

The recommended approach to minimizing building energy use on the Central Hill campus, meeting those reduced energy needs with renewable energy, and the process by which the carbon neutral goal can be realized is discussed in the following sections.

City Hall and 1895 Building

It is recommended that City Hall and 1895 Building are retrofitted to the Passive House (EnerPhit) standard described in Section 3. It is anticipated that the building heating and cooling loads can be significantly reduced utilizing the EnerPhit approach to a highly insulated building enclosure thermal performance. These heating and cooling loads can likely be satisfied with air-source heat pump systems, which are both very efficient and all electric, therefore eliminating the need for on-site fossil fuel combustion.

As the City Hall and the 1895 Building will be office use, they will have relatively low service hot water demands. Service hot water may be retrofitted to an electric point of service hot water system. Service hot water energy use may also be limited by not providing showers in these buildings. In consideration of the potential increase in bicycle commuters to the site following the extension of the Green Line and associated Community Path, City employees could potentially be given access to the showers in the high school to avoid adding showers to the other Central Hill campus buildings.

Additional considerations in achieving ultra-low energy facilities at the City Hall and the 1895 Building include:

» High efficiency LED lighting and advanced lighting controls, combined with fenestration design improvements (as applicable) to optimize natural daylighting
» High Efficiency Site Lighting
» Advanced plug load controls
» Retro-Commissioning
» Interior space heating temperature setpoint optimization.
» All electric conduction kitchen equipment

Roof Mounted Solar Photovoltaic System

We recommend optimizing roof space to allow the installation of a roof mounted PV system as part of the renovation addition project. As mentioned in Section 3, the roof PV system may or may not fully substantiate a Net Zero Facility, however it would contribute to the overall campus carbon neutrality goal.

Please refer to the timeline on page 78 for approximate time of retrofit. A facility assessment should precede engaging in a deep energy retrofit, including retro-commissioning, as applicable.

We recommend approaching the deep energy retrofit as a comprehensive renovation project vs. a phased-systems upgrade approach. For example, an early lighting retrofit may not optimally support ultra-low energy use goals, as the design would respond to the potential fenestration improvements and layout modifications of a deep energy retrofit.

Central Library

It is recommended that the existing Central Library be renovated to the EnerPhit Passive House described in Section 3. The proposed library addition could achieve an ultra-low energy use goal by designing and construction to the Passive House (PHI) standard.

This approach will significantly reduce heating and cooling load/demand. Air source heat pumps or geo-thermal heat pumps (if applicable) may be used as the all-electric HVAC system of choice, in combination with additional energy efficiency strategies such as:

- High efficiency LED lighting and advanced lighting controls, combined with fenestration design improvements (as applicable) to optimize natural daylighting
- High efficiency site lighting
- Advanced plug load controls
- Point of use electric domestic hot water systems
- Retro-Commissioning (existing library)
- Interior space heating temperature setpoint optimization.
- All electric conduction kitchen equipment

Roof Mounted Solar Photovoltaic System

We recommend optimizing roof space to allow the installation of a roof mounted PV system as part of the renovation addition project. As mentioned in Section 3, the roof PV system may or may not fully substantiate a Net Zero Facility, however it would contribute to the overall campus carbon neutrality goal.

While the existing library systems may be upgraded prior to the addition, we recommend approaching the deep energy retrofit as a comprehensive renovation project in combination with the addition. Similar to the Town Hall and 1895 Building, early systems' retrofit may not optimally support ultra-low energy use goals, as the design would respond to the potential overall space design improvements and layout modifications of a deep energy retrofit.

Please refer to the timeline on page 78 for approximate time of retrofit. A facility assessment should precede engaging in a deep energy retrofit, including retro-commissioning, as applicable.

High School

The proposed high school renovation/addition project will significantly decrease the energy consumption associated with fossil fuel combustion and increase the energy consumption from electricity use (vs. the existing facility) because of the additional energy services provided by the new building (primarily ventilation and cooling). The proposed facility already includes many of the energy efficiency strategies proposed in section 3, such as highly efficient LED lighting systems, advanced lighting controls and site lighting, as well as plug load controls, efficient HVAC systems and a building enclosure thermal performance beyond code.

As part of the transition to a carbon neutral campus, the high school will need to specifically address its remaining natural gas consumption. Natural gas is used for heating, hot water, and cooking for the two kitchens. The following is a potential long-term strategy to eliminate natural gas consumption on the site.

The first approach is to minimize the need for combustion through energy efficiency and building system upgrades over the life of the facility. We recommend the following energy use reduction strategies:

Retro-Commissioning

Conduct retro-commissioning to identify opportunities for low and no-cost energy efficiency improvements to the high school.

Whole Building Air Infiltration Testing

The new high school will undergo building enclosure commissioning to support building enclosure air tightness best practices. A Whole Building Air Infiltration Test would identify potential opportunities to further enhance the building enclosure air tightness and further reduce the heating and cooling load demand.

This test may actually be completed in 2023, following the construction completion of the high school.

Triple-Glazing

Upgrade to triple-glazing with a maximum assembly u-factor of 0.15 Btu/hr-ft2°F.

Roof Thermal Performance

Upon roof replacement, upgrade the roof thermal performance to R-60 with up to 10" of insulation.

Heating temperature setpoint optimization

In addition to energy savings, replacing the double-glazed windows with triple glazing will also increase thermal comfort and allow for the interior space heating temperature to be reduced from 72 °F to 70°F while achieving an equivalent level of overall thermal comfort.

Kitchen Equipment Upgrade

At the end of the useful life of the kitchen equipment, gas fired equipment should be replaced with electric. Induction cooktops can be used in place of gas-fired cooktops. In addition, we recommend modifying the nutritional program to emphasize meals that require the use of lighter duty cooking equipment, which will significantly reduce the volume of exhaust and associated heating of make-up air, natural gas consumption in the kitchens could be eliminated by replacing the gas-fired MAUs with MAUs with Variable Refrigerant Flow (VRF) heating systems, which are all electric.

Roof-Mounted Solar Photovoltaic

We recommend installing a roof-mounted PV system with the first 5 years after the facility construction completion. As mentioned in Section 3, the roof PV system would contribute to the overall campus carbon neutrality goal, however parking PV canopies across the campus are required to achieve the campus goal.

Biomass/Bio-fuel Heating System

The final step in eliminating natural gas consumption in the high school is to address the remaining heating and hot water loads. As discussed in Section 3, large facilities energy needs, such as the high school, require the intensity of combustion to be able to provide enough heat to meet the required loads. Space heating and service hot water are two such needs. In the case of the High School, converting to all electric heating may not be feasible without fully upgrading the building enclosure to Passive House thermal performance levels, which would likely impose a space reduction on the interior rooms, be cost prohibitive and disruptive.

A combustion based biomass/biofuel heating system is to be considered to replace the natural gas fired boilers. It is assumed that the fuel source would be wood, as it is a relatively local and renewable resource, but could also be a bio-fuel (vegetable oil) or biogas (anaerobic digestion) system depending on the development of these technology and fuel procurement availability in the future. Bio-fuel system may offer a combined heat & power option, which produces electricity as a secondary system output. The most feasible location for a biomass/bio-fuel boiler would be on the Medford Street side of the building adjacent to the community path and Medford Street bridge as illustrated in Figure 6.16 This location would place it close to the location of the existing boilers to facilitate tying into the high school hot water heating system.

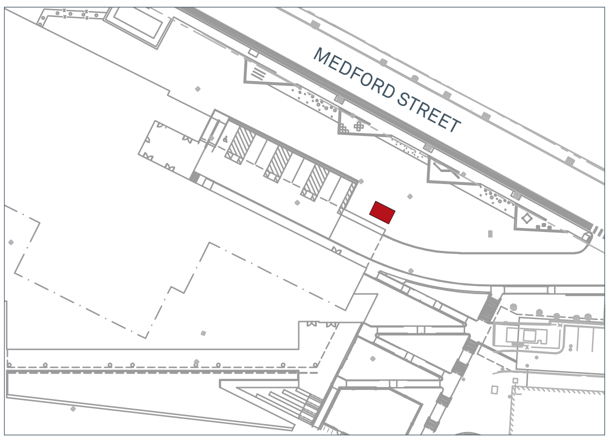


Figure 6.16: Proposed Future Biomass Boiler Location

Rather than creating an enclosure around a future biomass boiler system that creates a "back of the building" feel, there is a significant opportunity to create a facility that is engaging and educational. A similar approach was taken with the recently constructed central plant at Tufts University, where a glass wall proudly displays the equipment within.

Policies

Creating a carbon neutral campus goes beyond designing and constructing energy efficient buildings. The building occupants will play a significant role in the realization of the carbon neutral buildings. The following policies should be considered to support the carbon neutral goal and ongoing low-energy building performance.

Energy Efficient Equipment Purchasing Policy

For many low-energy buildings, equipment energy use associated with computers, copiers, and other plug loads becomes a significant portion of the overall building energy use. The city should consider implementing a purchasing policy for all city agencies to support the selection of the most energy efficient equipment when it times for replacement or upgrades.

Tufts Central Energy Plant

Education and Occupant Engagement

Educating building occupants about their impact on a building's energy use, and providing opportunities for feedback, are often critical to meeting energy performance goals for very low energy buildings.

Retro-Commissioning Policy

Many buildings experience small increases in energy use overtime. To minimize the impact of this "drift" on the carbon neutral goal, the City should consider initiating a policy of retro-commissioning existing buildings every 5 years. Buildings could be initiated into the process on a rolling basis, so a few city buildings would undergo retro-commissioning every year.

Refrigerant Management

One consequence of moving from combustion-based to all-electric heating systems is the increased use of refrigerants. Special consideration must be paid to the managements of refrigerants, many of which have Global Warming Potentials that are thousands of times greater than that of CO_2. If these refrigerants are accidentally released into the atmosphere, they can undermine the energy savings achieved through highly energy efficient electric systems. A training and maintenance protocol should be established to ensure the proper management of refrigerants for responsibly operating, maintaining, and replacing HVAC systems that use them.

Timeline

The timeline to the right provides a progression of how the recommendations described above could be effectively implemented.

2020–2025

- Purchase 100% renewable electricity through community aggregation
- Install rooftop PV on High School
- Install site PV canopies (bus stop, field)
- Conduct a Whole Building Air Infiltration Test at the High School

2021–2025

Renovation of City Hall and 1895 Building to Passive House standard (EnerPhit)

- Implement additional energy efficiency strategies for lighting and plug loads
- Installation of Rooftop PV systems

2030–2035

Renovation/Addition of Library

- Building to Passive House Standard (addition) and EnerPhit (renovation)
- Implement additional energy efficiency strategies for lighting and plug loads
- Installation of Rooftop PV systems

2035–2040

High School

- Window upgrades
- Roof upgrade
- Implement heating set back (following window upgrades)
- Kitchen equipment upgrades
- VRF/DX Make Up Air units

2040–2045

- Convert High School to biomass/bio-fuel heating/DHW

Wayfinding and Signage

Environmental Graphics Study

Environmental graphic design is a critical component of the Central Hill Campus Plan. It consists of wayfinding, informational signage, and placemaking. Wayfinding will help orient visitors on the site and allow them to navigate easily. Information signage will be important in sharing the stories of Campus Hill's monuments and memorials. Placemaking will allow for visitors on site and outside the site to find the Central Hill campus and provide a sense of identity for the site. All these elements will connect and unify the campus—a significant goal of the new campus plan.

In navigating the site, signage and wayfinding will be critical for visitors to efficiently identify and follow traffic routes as well as walking, biking and accessible routes/entrances.

From a user perspective, the focus is more on pedestrian signage than vehicular signage. Limited parking on site ensures that the majority of users will be entering and traversing the campus through pedestrian avenues. In support of a diverse user demographic, the plan will implement wayfinding techniques to provide accessibility around a variety of destinations for various abilities, ages, and languages.

The design of each signage type will be influenced by the proposed landscape architecture, as well as the intended flow of foot traffic through and around the site. Understanding the pedestrian circulation has helped to inform the best locations for each sign type and what kind of information should be provided in these locations (see Figure 6.19 on page 81 for proposed sign locations by sign type).

Sign types

The wayfinding strategy was developed in collaboration with the site team to identify how many levels of sign types would be needed for Central Hill, and where they would be located.

Figure 6.17 illustrates the number of sign types and audience for each:

	Audience	*Sign Type*	*Quantity*
Level 1	Everyone	Gateway or Campus Markers	10
Level 1a	Everyone	Gateway or Campus Markers	5
Level 2	Vehicles	Roadside Pylons	*For reference only. Not in construction*
Level 3	Unfamiliar Pedestrians	Map & Directory	5
Level 4	Regular Pedestrians	Individual Destination Marker	9
Level 5	Monument Patrons	Informational Placard	7
Level 6	Everyone	Building Marker	5

Figure 6.17: Proposed sign level types for wayfinding

Level 1

Level 1 signage is intended to mark the campus. This will be visible to pedestrian and vehicles passing the campus and will provide a sense of the campus location within the context of Somerville and will exist only on the entryways into the site.

Level 2

Level 2 signage is not in Central Hill Campus Plan construction scope, but within the Somerville High School scope. It is listed in the study as reference only and is prominently for vehicular traffic, to inform which destinations are at specific campus drives. See Figure 6.19.

Level 3

Level 3 signage is to provide information on the entire site to pedestrian traffic. This will include a map of the campus with major destinations marked in addition to the "you are here" location of the sign. The map can achieve not only navigational purposes, but helps the visitor understand the categories of spaces it includes: civic buildings, learning buildings, and park areas.

Figure 6.18: Design mockup of a "you are here" map included in level 3 signage

Level 4

Level 4 signage includes destination markers, similar to street signs. These will be located further inside the campus, where decision points need to be made and the destination might not yet be clear to the visitor and provide them with additional guidance.

Level 5

Level 5 signage will be created for each monument and memorial, providing the visitor with information about each. This is an opportunity to educate and inform those on the site of each monument's importance and purpose.

Level 6

Level 6 signage is to mark each destination or building and will include building name and number, if applicable.

Sign locations

From the outside of the campus working inward, the signs will generally exist in order on the signage type chart. The vehicular signage occurs when outside entering the site, with pedestrian signage throughout the site. In areas where two sign types are in close proximity, there is opportunity to create a hybrid sign.

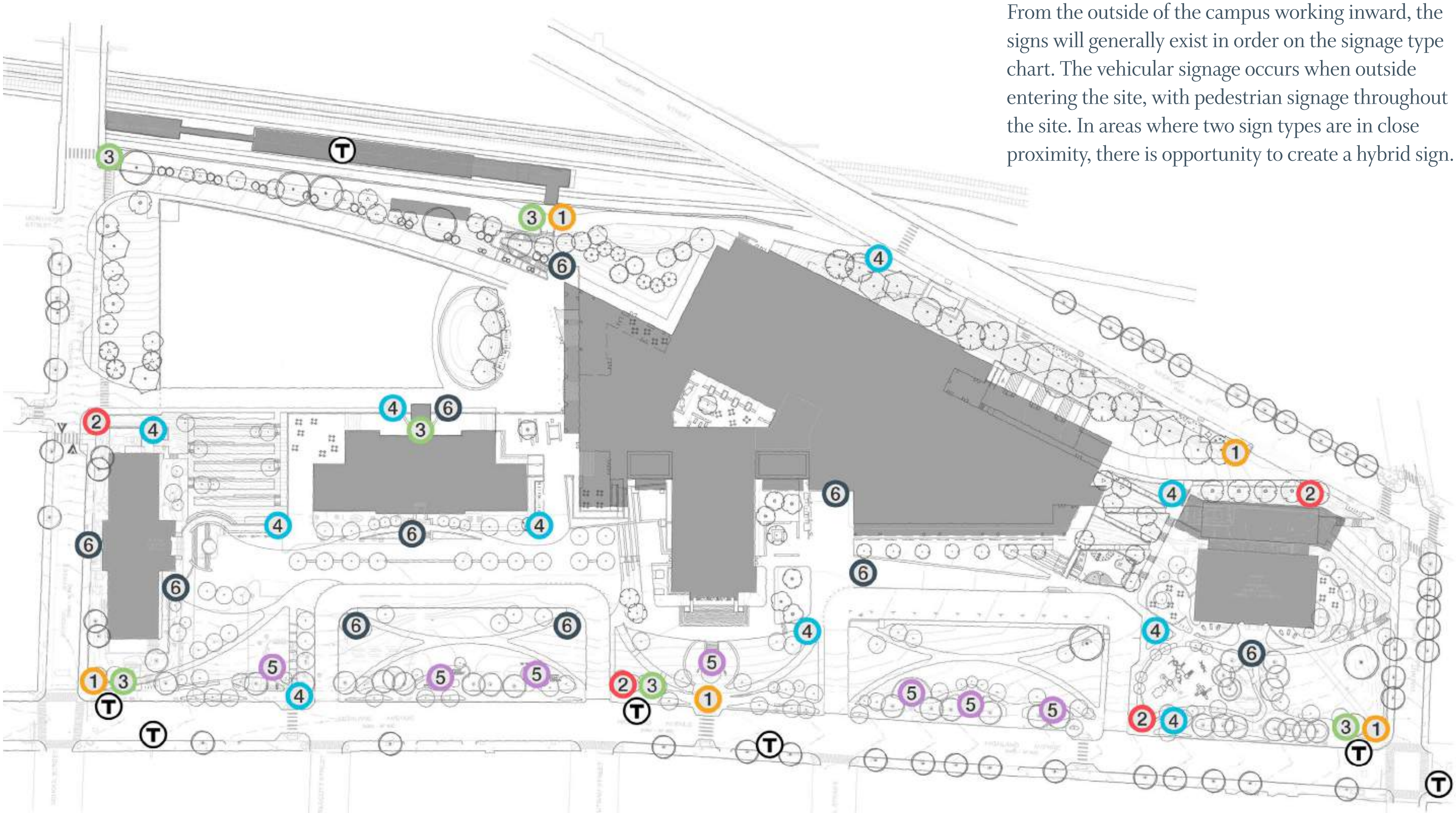


Figure 6.19: Proposed sign locations by sign type

Monument Pathway

There is a unique opportunity on the Central Hill plan to create a graphic identity system for the monument pathway, the section of the campus plan design that will include the memorials and monuments. Each memorial and monument will receive an informational sign to identify and educate visitors of the monument/memorial name, date erected, and purpose. The experience can be further developed by creating a memorial and monument directory, which can be located at one or both ends of the monument route.

Process of Design and Install

The study included research of the site, understanding of the campus plan goals and design concepts, development of possible concepts, sign type and location strategy, and content strategy. The concept design for environmental graphics was started and three options were explored in order to visualize signage strategy and visual connection to campus plan design. The following phases would follow the study:

Design Development

Of the overarching concepts that were started, a single concept would be further developed. This would include modification to design (shape, color, look and feel of each element). The following elements would be fully developed:

- Materials selection
- Hardware system design
- Lighting design
- Font selection and treatment
- Colors
- Symbols or icons
- Directory Map design and content
- Signage drawings for documentation
- A complete inventory and sign message schedule[1] would be developed for each sign location.

Information on each memorial and monument will be collected from the City and Veterans Commission to include in signage type 5.

Collection of building information such as addresses and hours of operation.

Documentation

This phase includes finalization of sign location plan (quantity and location of each sign), messaging schedule (sign type, location, and content on each sign)[1], and design and hardware drawings for fabrication and specifications.

Fabrication and installation

This phase includes prototypes of signage, final fabrication, and overseeing installation.

[1] A sign message schedule contains all essential information about each sign unit, such as sign type, message, plan drawing number, and drawing and layout references. It is submitted to the fabricator as a guide to create each sign.

Phasing

The scope of the work should be phased to correspond to the timeframe when the adjacent buildings are being renovated. This will allow for adequate contractor staging and lay down and avoid damage to previous completed areas.

The recommended campus plan alters the previously issued design for Somerville High School, therefore it is important to notify the high school construction team of the changes before any work commences on the open space parcels in front of the high school. For that reason, we recommend the following phasing schedule (see Figure 6.20).

Phase 1

Complete the open space construction along Highland Avenue from Walnut Street to the driveway west of the Memorial Building concurrent with the high school Phase 2. This area includes the playground and the lawn in front of the Library, adjusting the design of the open space enclosed by the high school access road to match the campus plan design, revising the design of the open space in front of the Memorial Hall building, constructing the memorials within this zone, constructing the traffic calming improvements on Highland Avenue at midblock and adjacent to the high school driveway, at Walnut and Medford, and coordinating with the Green Line Extension at the community path crossing Medford.

Phase 2

Complete the renovation of the 1895 Building and open space in front of the building (note: some of this area will be completed as part of the high school project). This area includes adding an elevator at the rear of the 1895 Building for access to the fields, the construction of the ramped seating between City Hall and the 1895 Building, the remaining open space in front of 1895 Building, the completion of the new access driveway realignment, and incorporation of the remaining memorials.

Phase 3

Complete the renovation of City Hall and the open space in front of and adjacent to the building. This area includes creating a new plaza zone, improvements along School Street including two-way traffic, a bike climbing lane, and pedestrian improvements at Madison Street.

Phase 4

Complete the proposed addition to the Public Library building. This area includes the landscaping design to the west of the library.

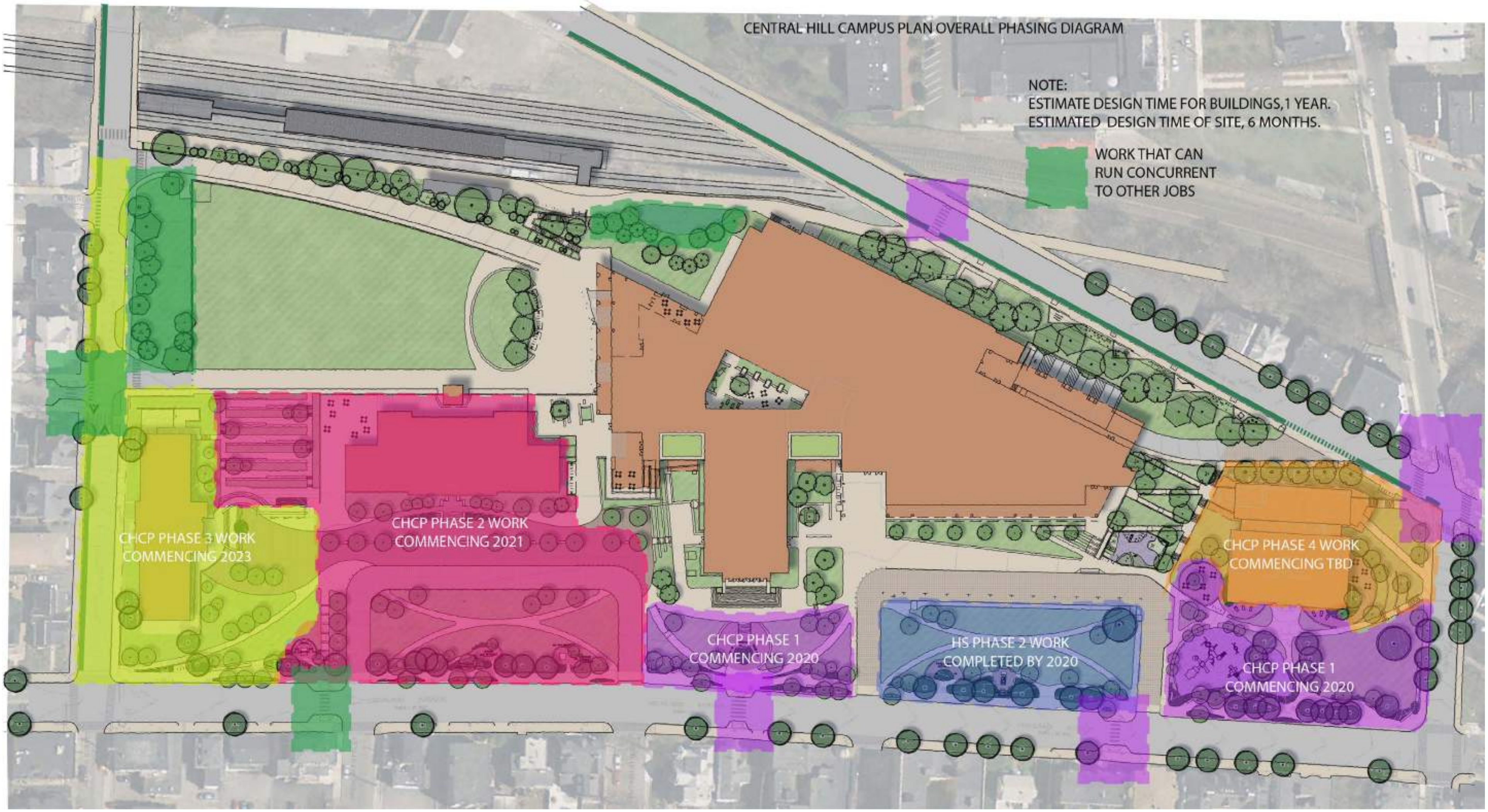
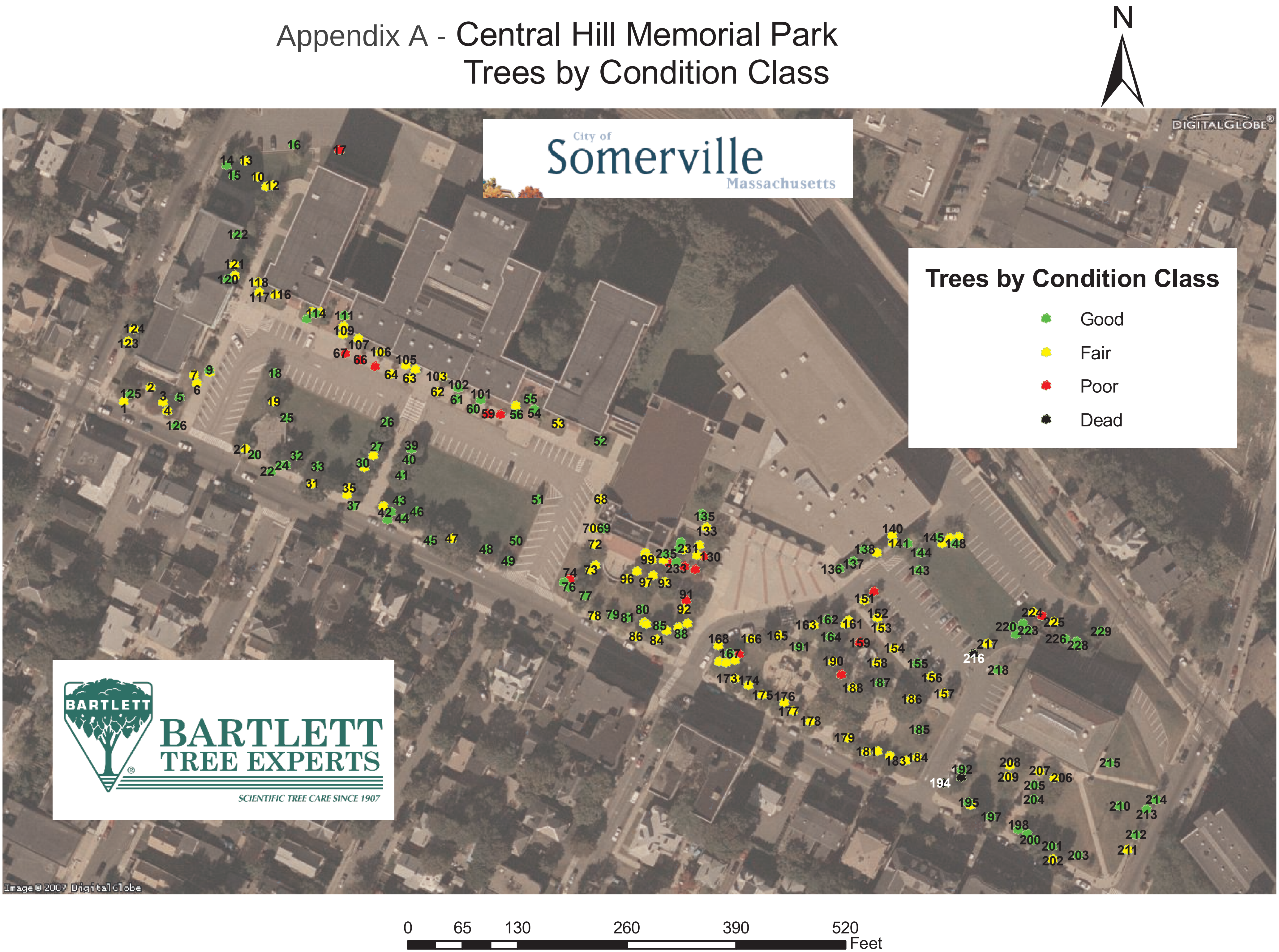


Figure 6.20: Phasing Diagram

Appendix A:

Central Hill Trees by Condition Class

Appendix A - Central Hill Memorial Park Trees by Condition Class

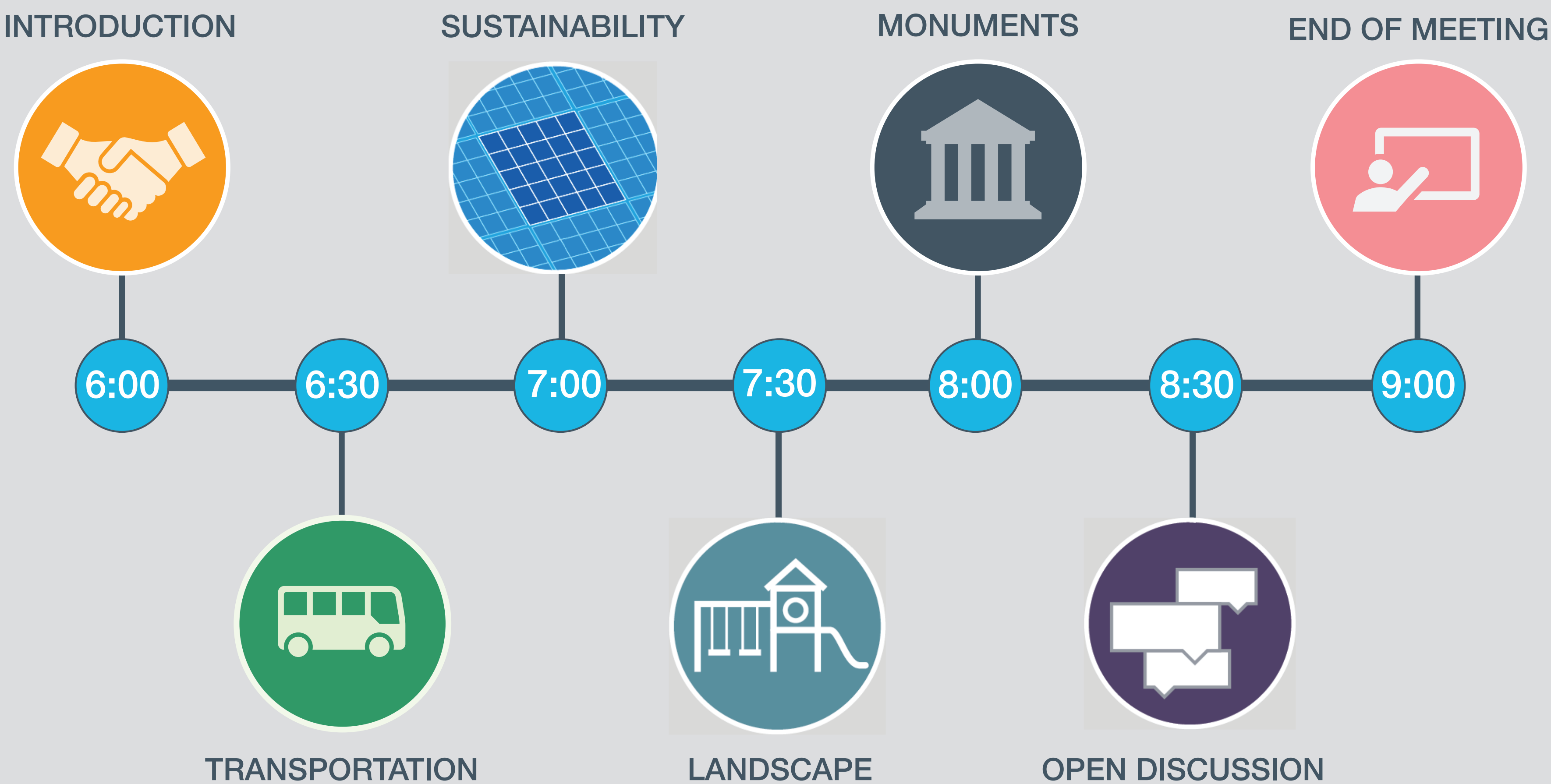


Appendix B:

Community Meeting Presentation 05.31.2018

Appendix B

Central Hill Campus - Community Meeting



SMMA

TooleDesignGroup

BCA

Campus Plan Committee

- Kristen Stelljes, Somerville Community Preservation Act Manager
- Bryan Bishop, Director of Veterans
- Glenn Ferdman, Director, Library
- Robert King, Director of Capital Projects and Planning
- Emily Monea, Director, SomerStat
- George Proakis, Director, Planning and Zoning
- Brad Rawson, Director, Transportation and Infrastructure
- Mike Tremblay, Senior Transportation Planner
- Oliver Sellers-Garcia, Director, Office of Sustainability and Environment
- Melissa Woods, Senior Long Range Planner

Planning Team

SMMA

- Alex Pitkin, Senior Vice President
- Lorraine Finnegan, Principal
- Samantha Farrell, Landscape Architect
- Elizabeth Galloway, Sustainable Designer
- Laura Monies, Landscape Architect | Planner
- Erin Prestileo, Civil Engineer

Building Conservation Associates

- Lisa Howe, Director of BCA New England

Toole Design Group

- Ashley Haire, Project Engineer
- Stephanie Weyer, Landscape Designer
- Heather Georgallas, Project Engineer

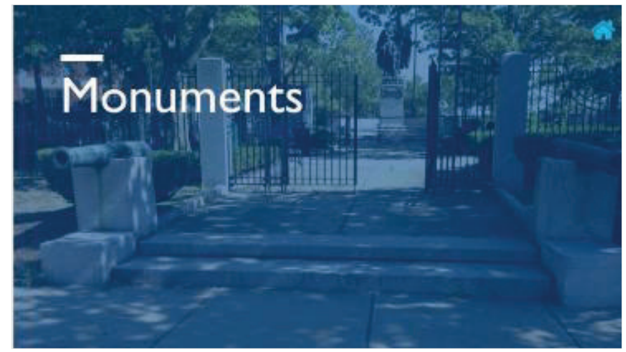
Schedule and Future Meetings

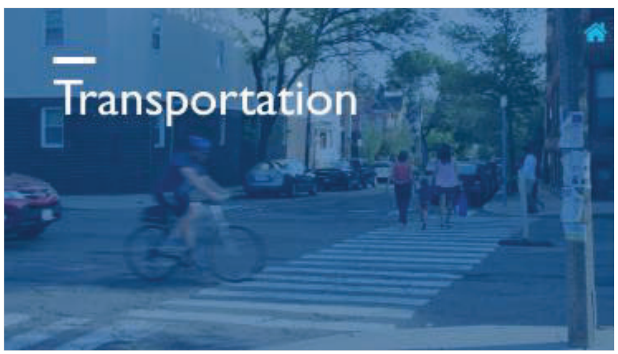
• Campus Planning Study Kick Off	April 02, 2018
• Community Meeting One	May 31, 2018
• Community Meeting Two	Sept 13, 2018
• Community Meeting Three	Oct 18, 2018
• Campus Planning Study Complete	Dec 28, 2018

Agenda


Project Introduction


Sustainability


Monuments


Transportation

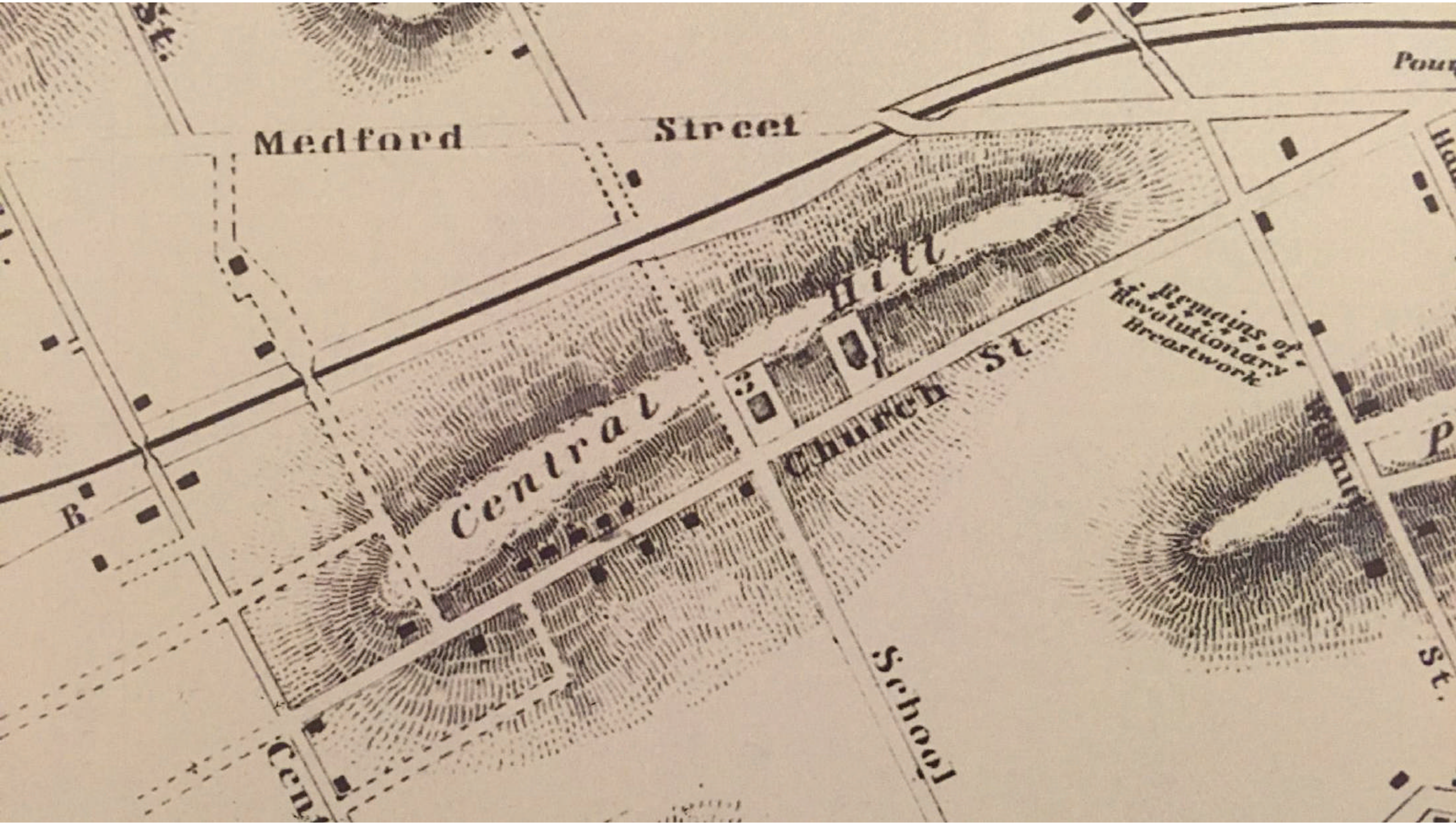

Landscape Design


Open Discussion

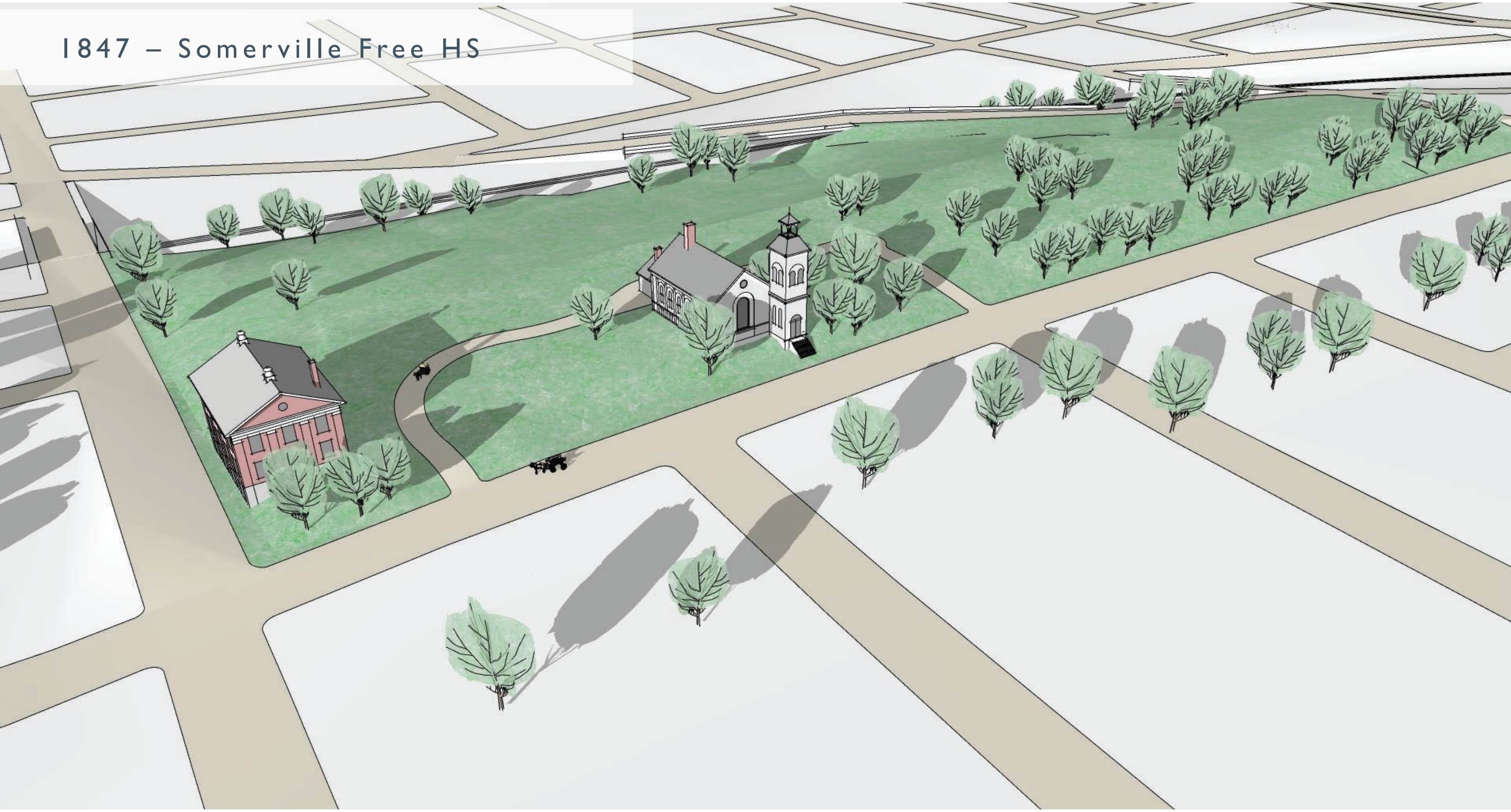
Project Introduction

Building Connections: Linking Gilman Square to Union Square via the Central Hill Civic Campus

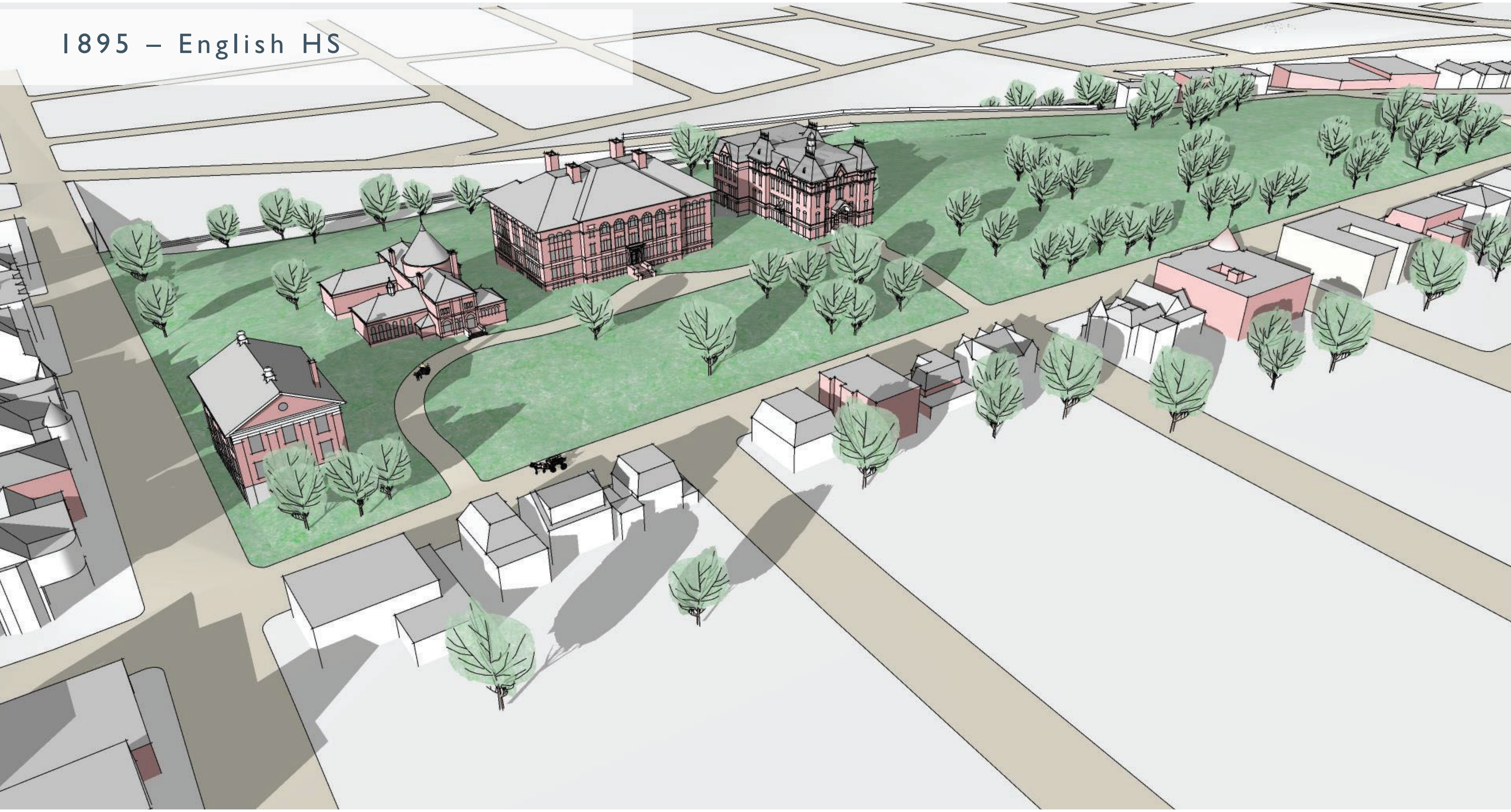
Somerville by DESIGN



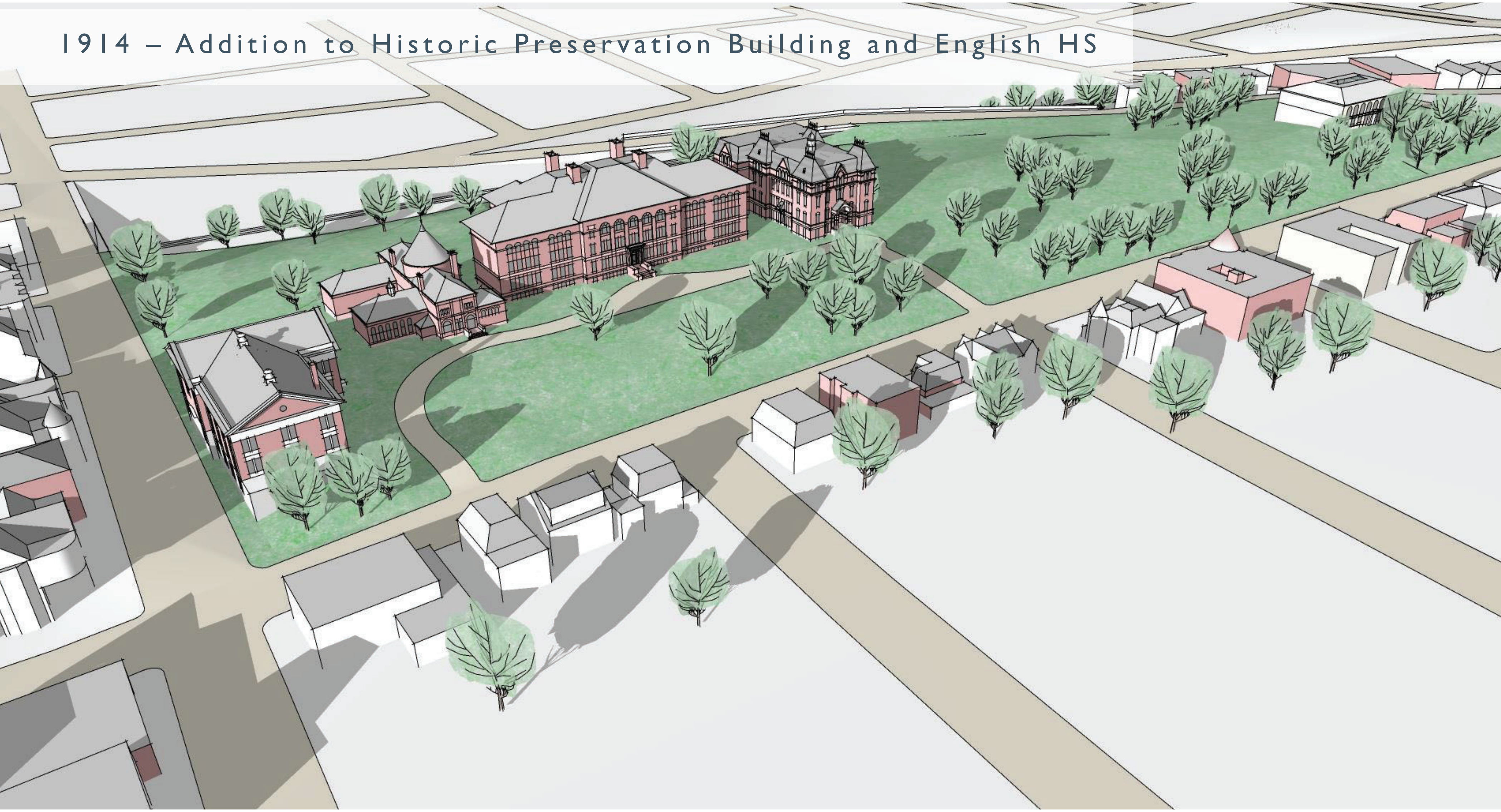
Medford
Street
Central
Hill
Church St
School
Remains of Revolutionary Breastwork
St.


1847 – Somerville Free HS


1852 – Latin HS & Public Library


1895 – English HS

1914 – Addition to Historic Preservation Building and English HS




1927 – Somerville HS


1956 – Fire

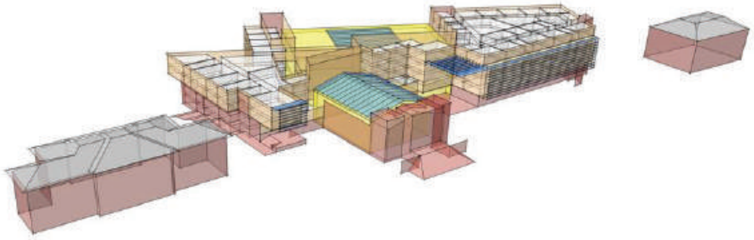

1957 – Somerville HS

Today

2021 – Somerville HS

MOA Salvage Elements

Highland Avenue Perspectives



Forum/Lecture Hall

School Street Perspective

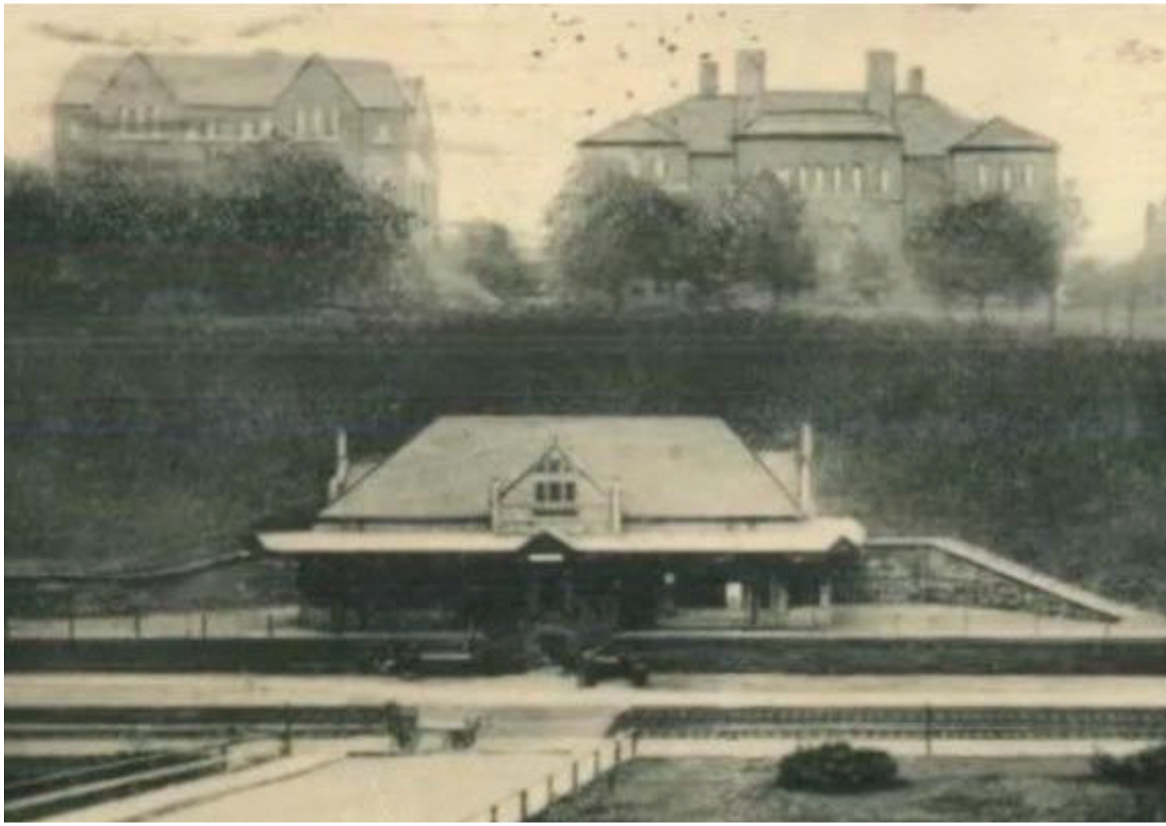
Existing

2021

Medford Street Perspective

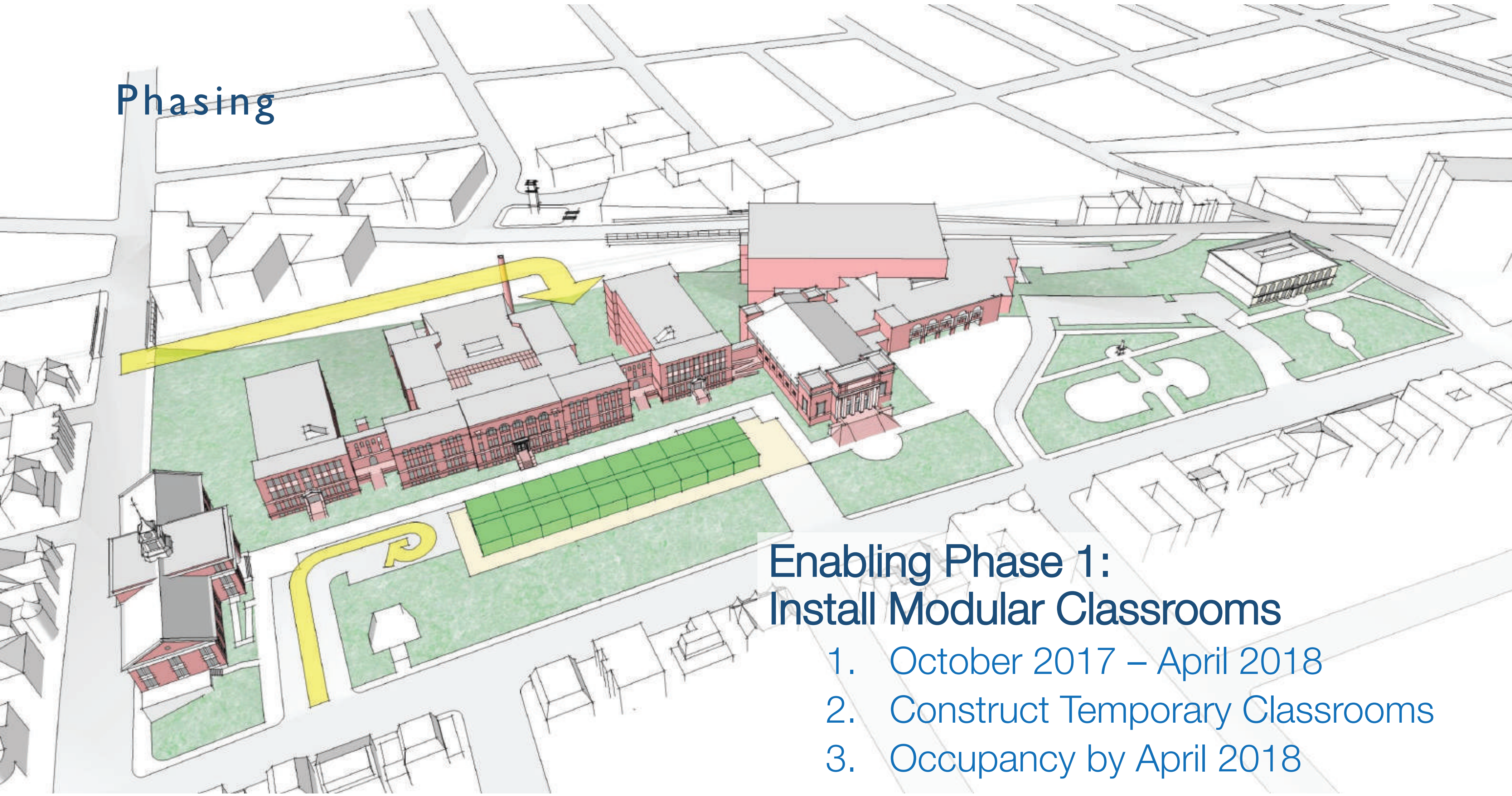
Uniquely Central Hill

- GLX access
- Creation of New Open Space
- Balance of Neighborhood & Civic uses



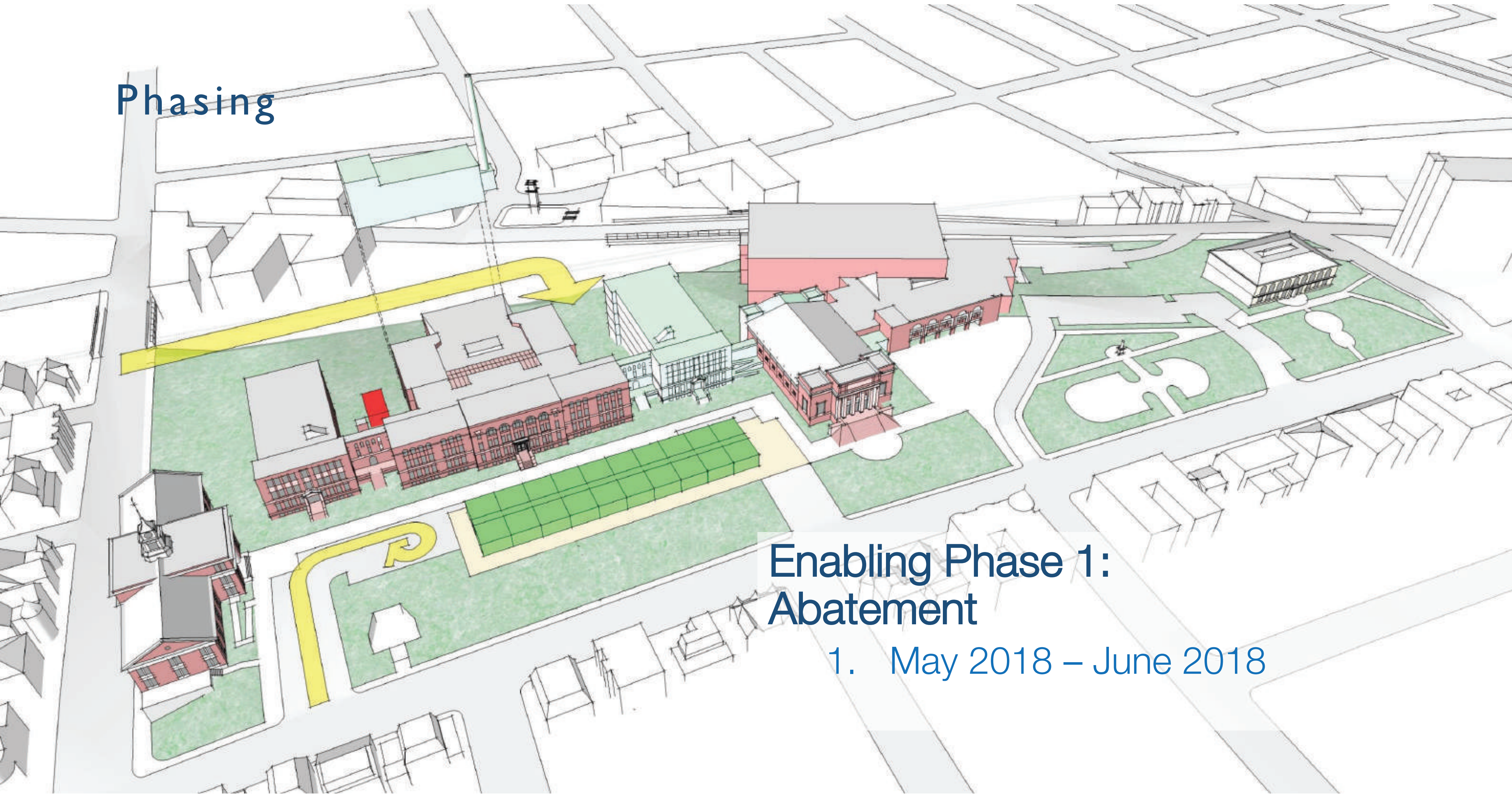
Environmental Graphics: Honor Wall

Phasing

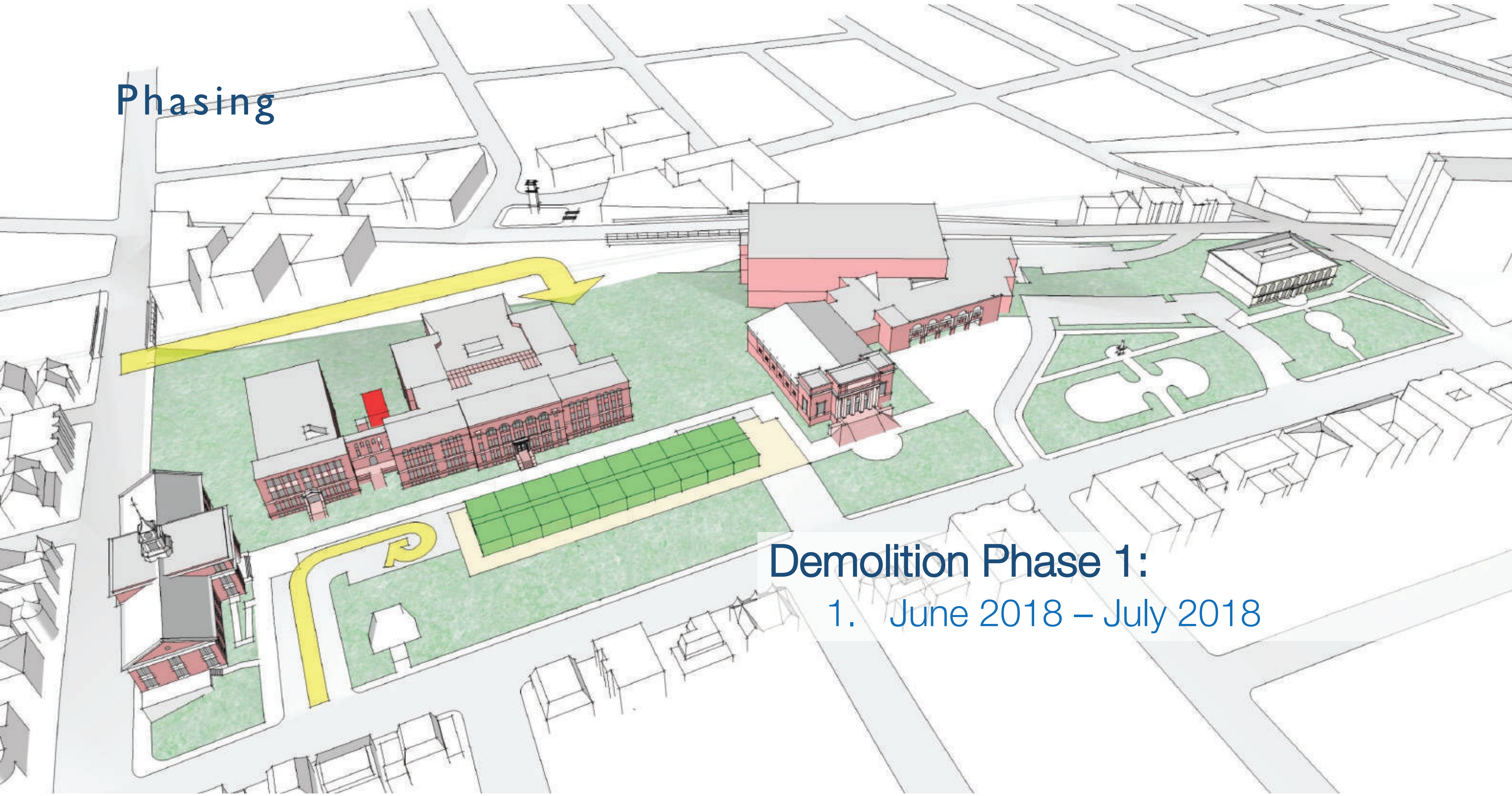


Enabling Phase 1: Install Modular Classrooms

1. October 2017 – April 2018
2. Construct Temporary Classrooms
3. Occupancy by April 2018


Phasing
Enabling Phase 1:
Abatement
1. May 2018 – June 2018

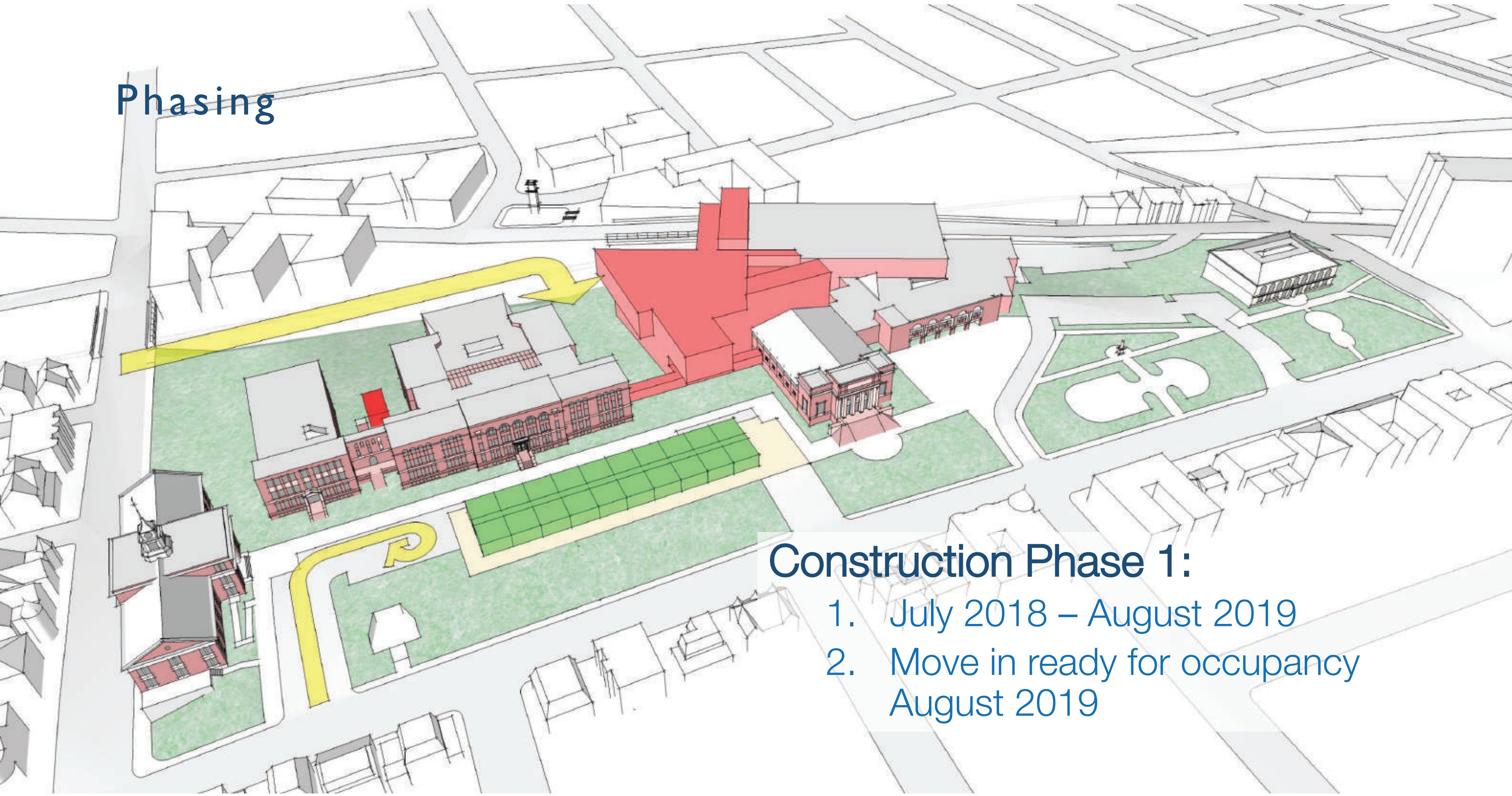
Phasing



Demolition Phase 1:

1. June 2018 – July 2018

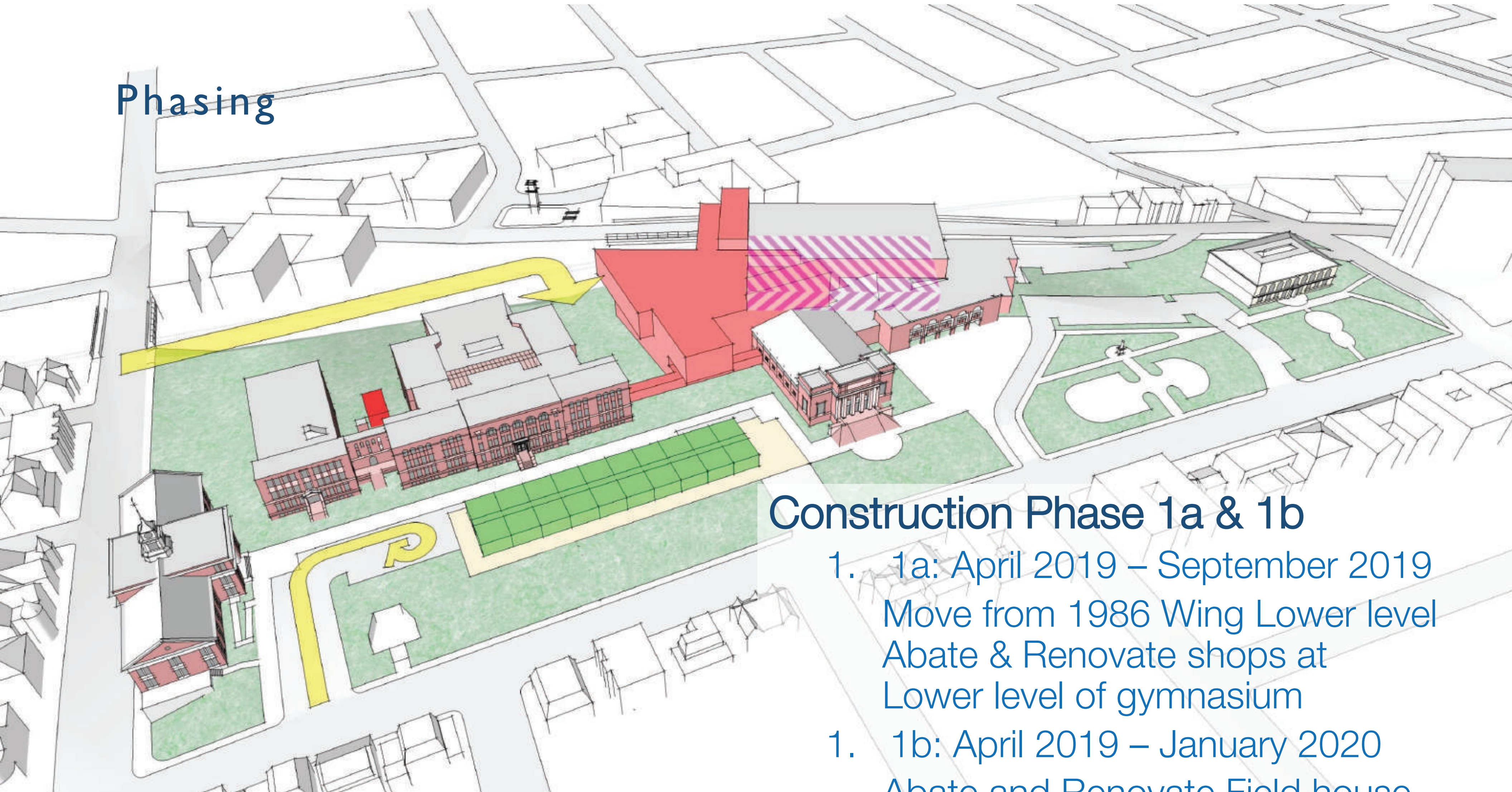
Phasing



Construction Phase 1:

1. July 2018 – August 2019
2. Move in ready for occupancy August 2019

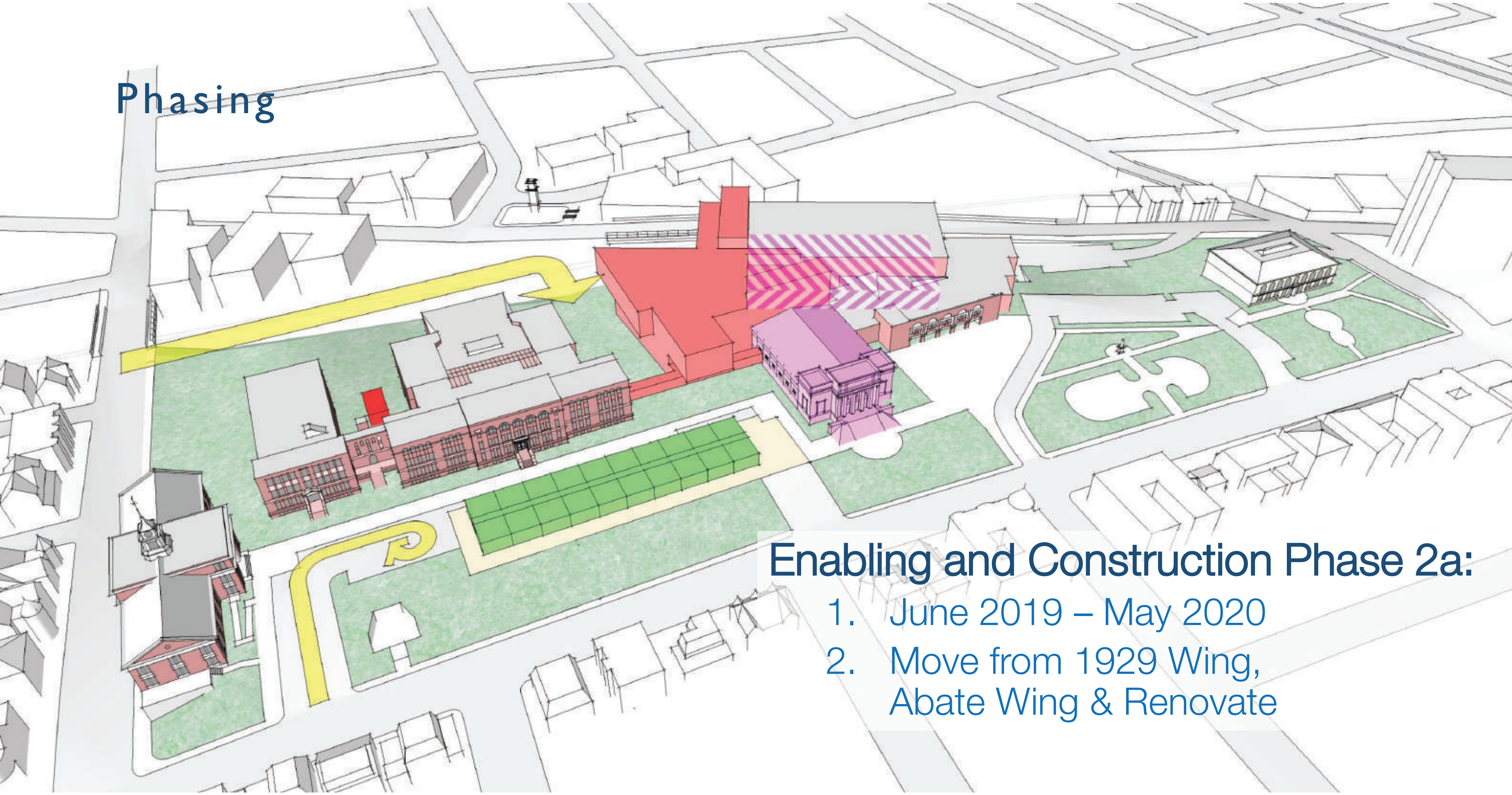
Phasing



Construction Phase 1a & 1b

1. 1a: April 2019 – September 2019
   Move from 1986 Wing Lower level
   Abate & Renovate shops at
   Lower level of gymnasium
1. 1b: April 2019 – January 2020
   Abate and Renovate Field house

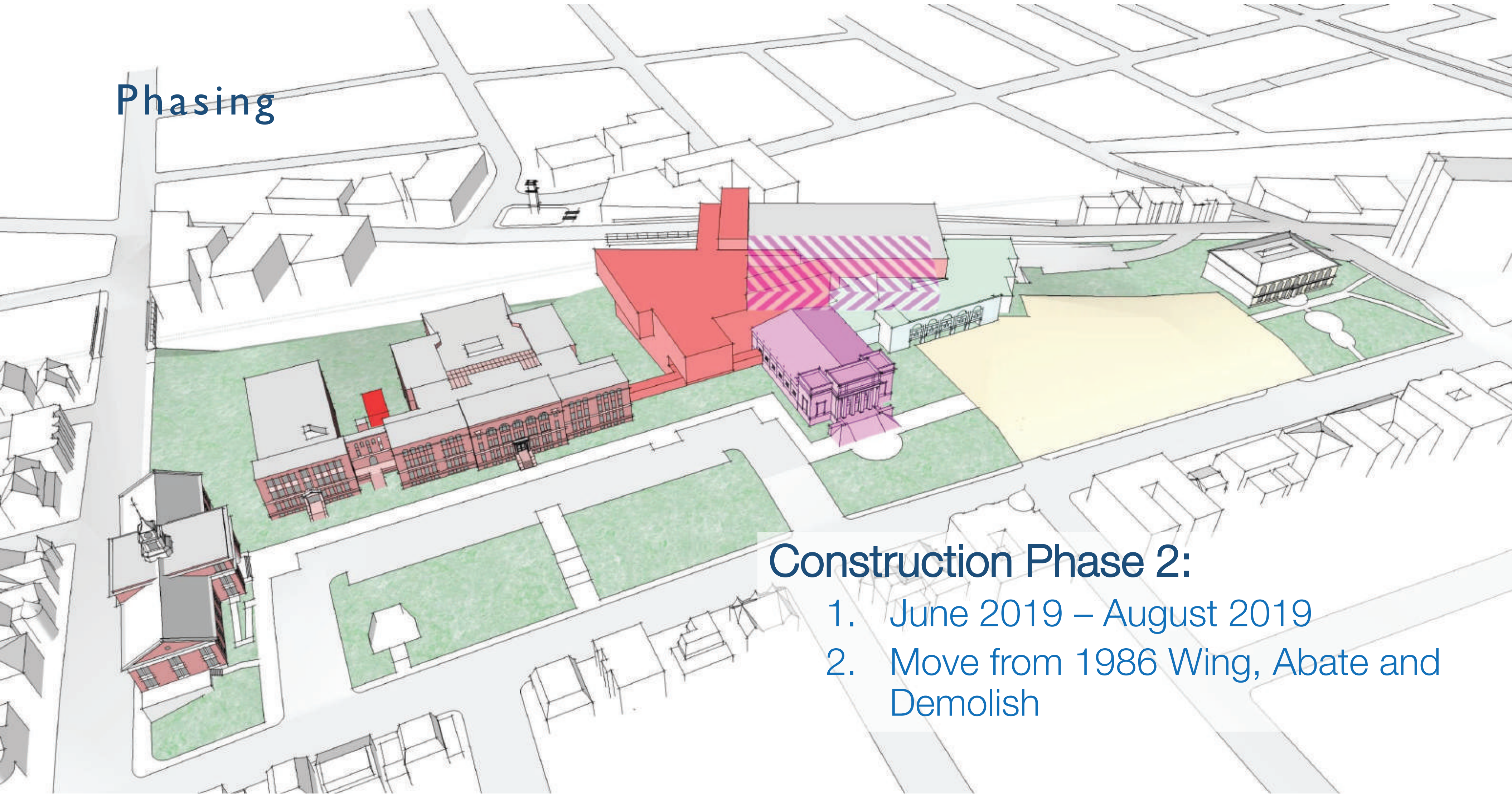
Phasing



Enabling and Construction Phase 2a:

1. June 2019 – May 2020
2. Move from 1929 Wing, Abate Wing & Renovate

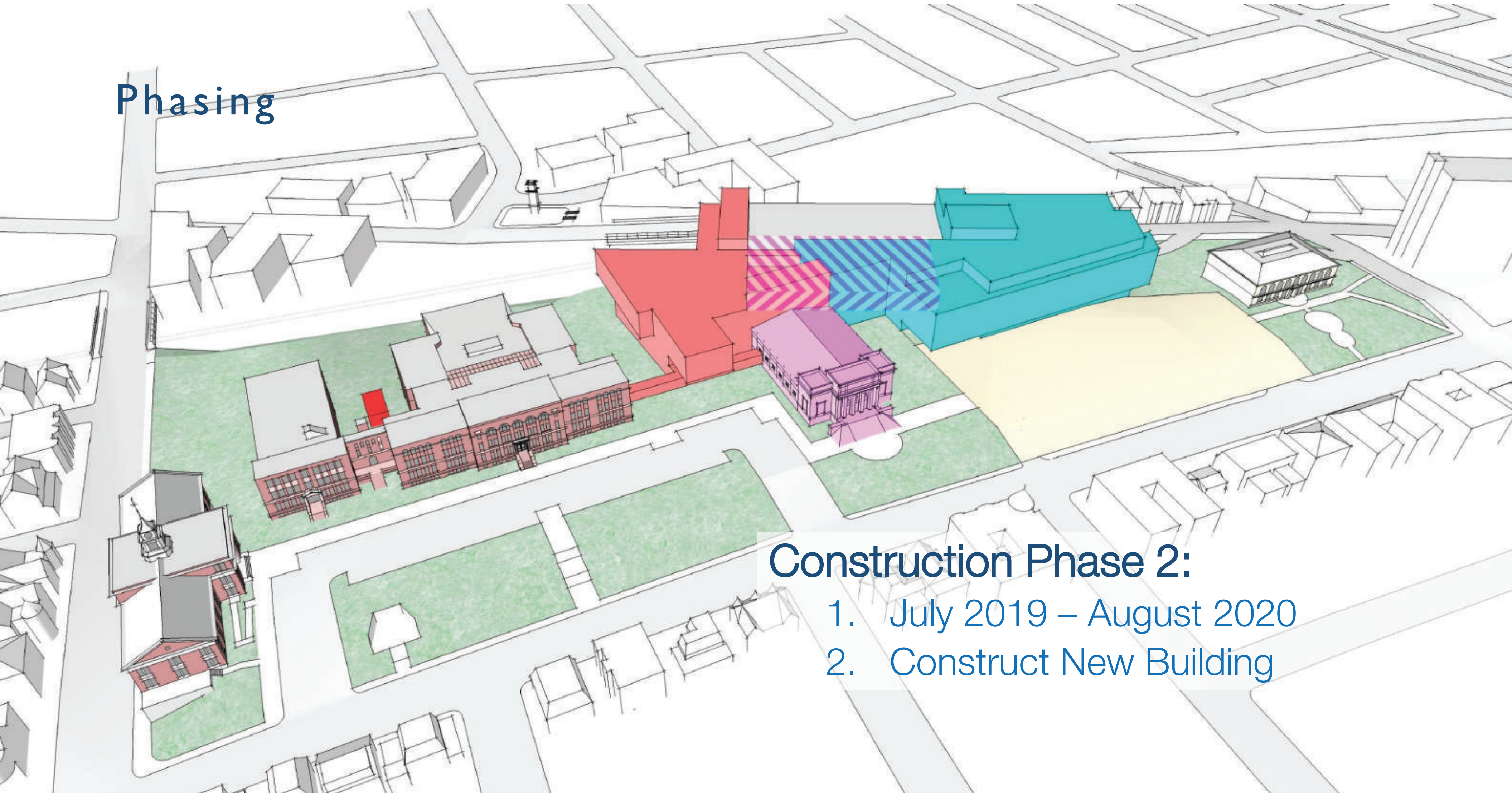
Phasing



Construction Phase 2:

1. June 2019 – August 2019
2. Move from 1986 Wing, Abate and Demolish

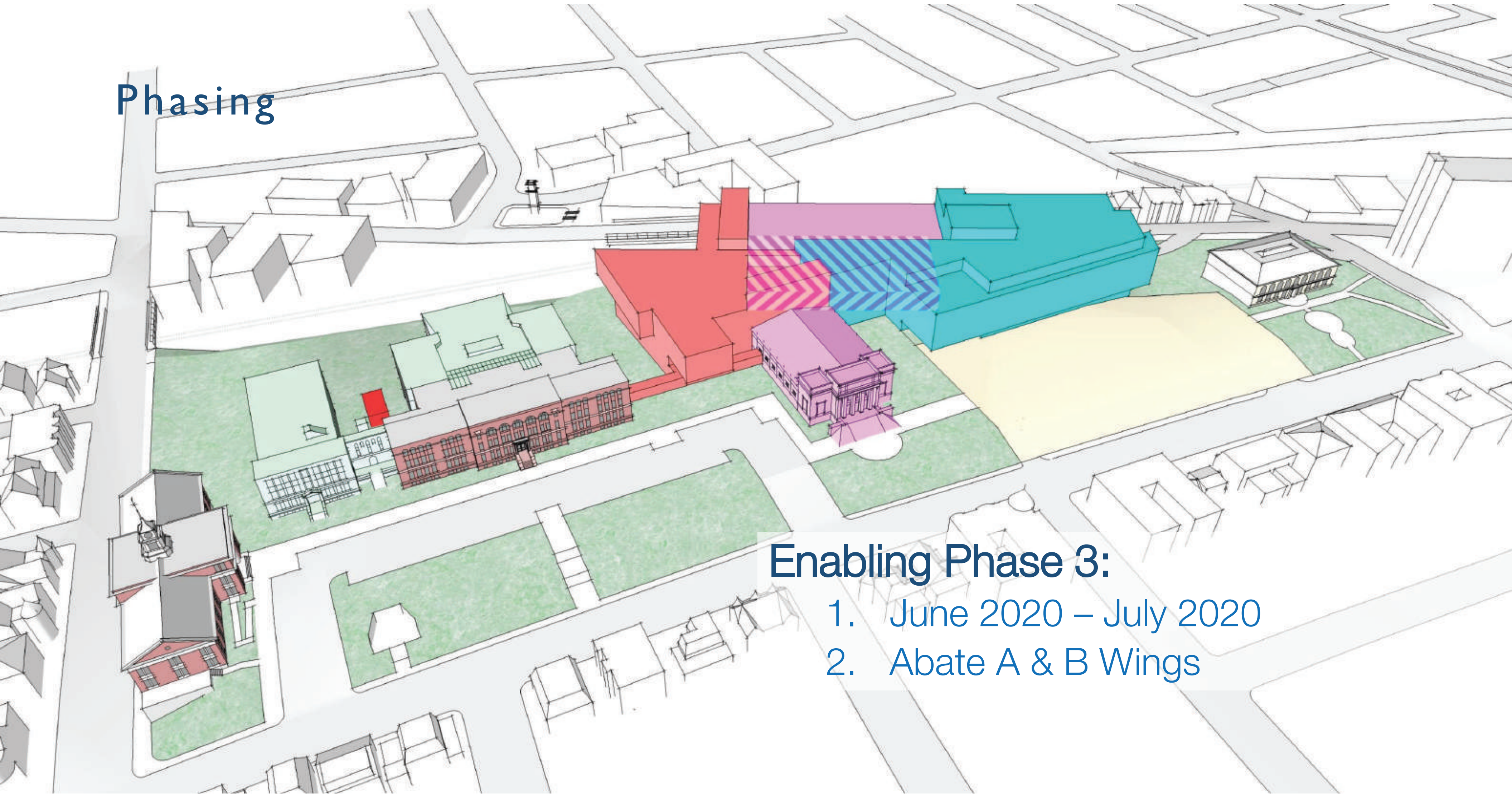
Phasing



Construction Phase 2:

1. July 2019 – August 2020
2. Construct New Building

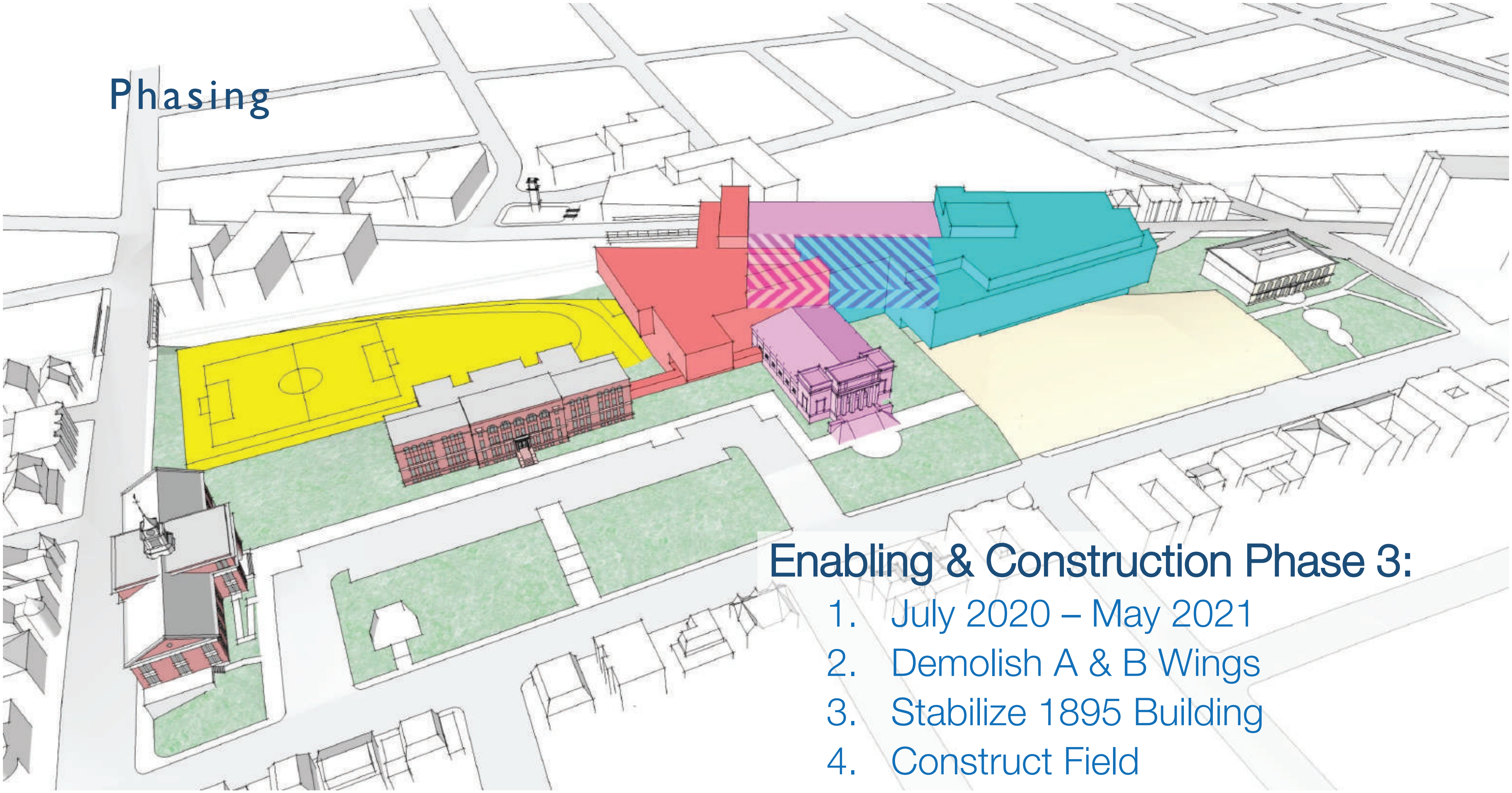
Phasing



Enabling Phase 3:

1. June 2020 – July 2020
2. Abate A & B Wings

Phasing



Enabling & Construction Phase 3:

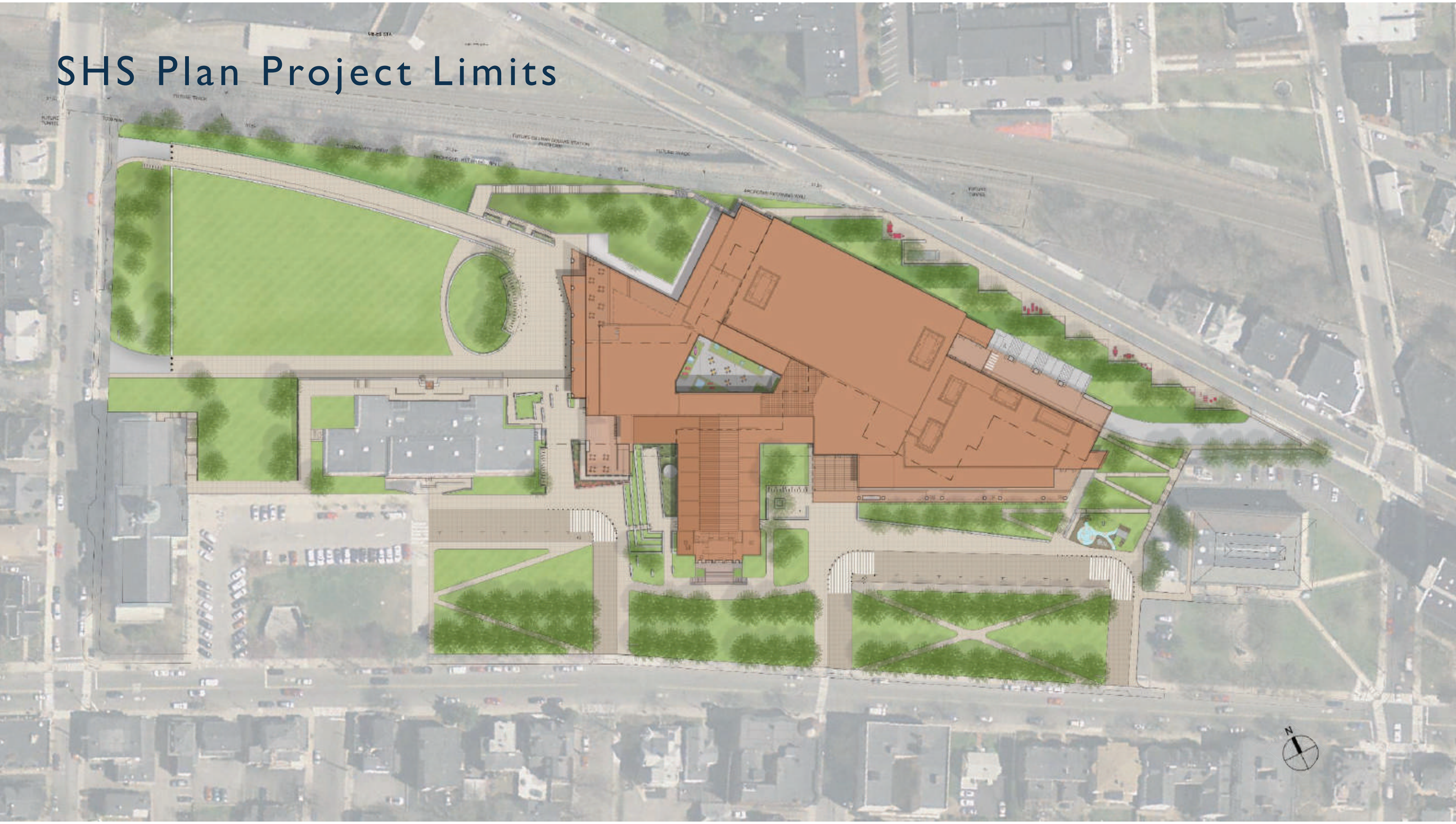
1. July 2020 – May 2021
2. Demolish A & B Wings
3. Stabilize 1895 Building
4. Construct Field


To View Site Construction Activity, go to:
www.somervillema.gov/highschool/

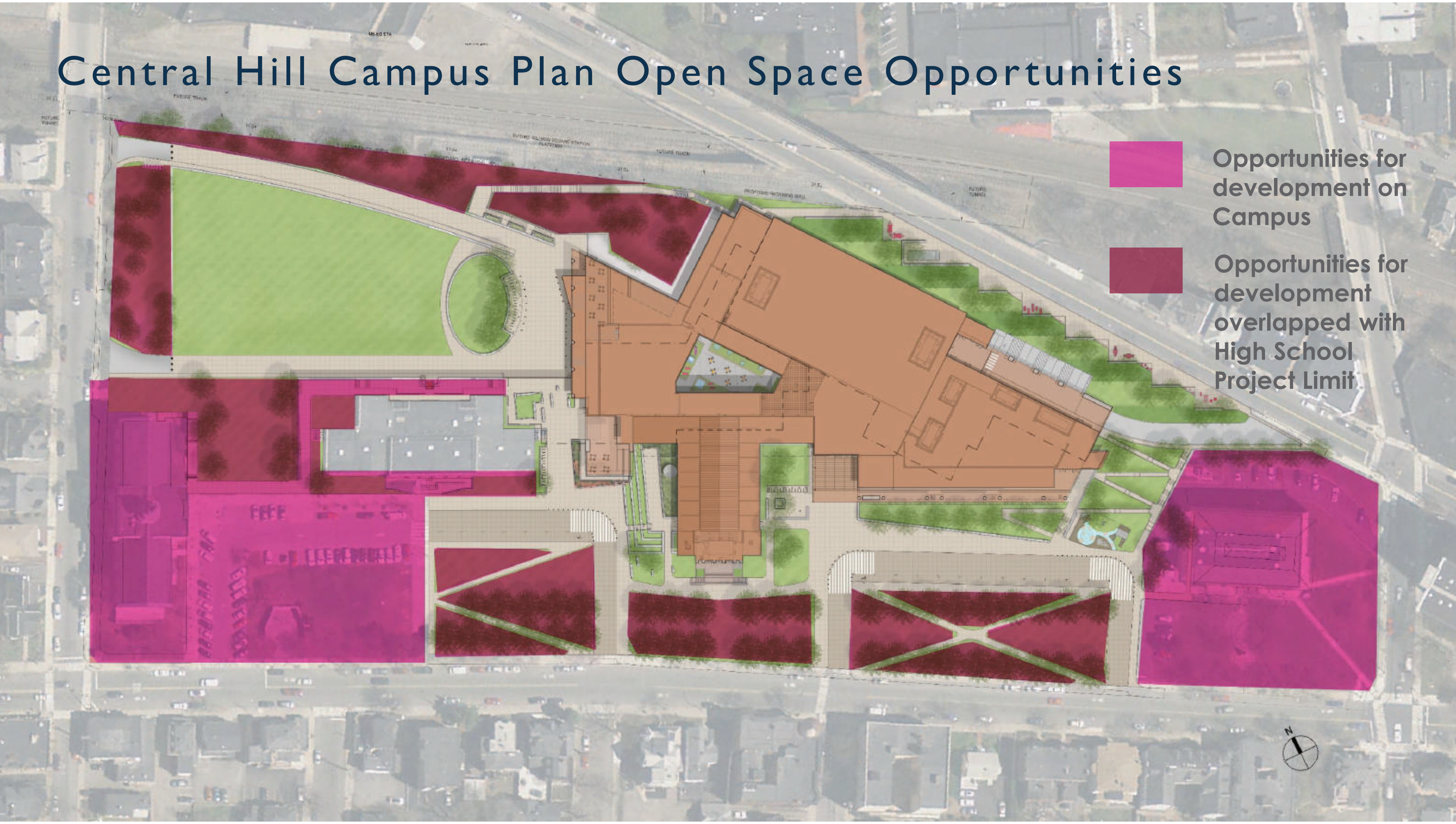
Site Planning

High School Master Plan Study

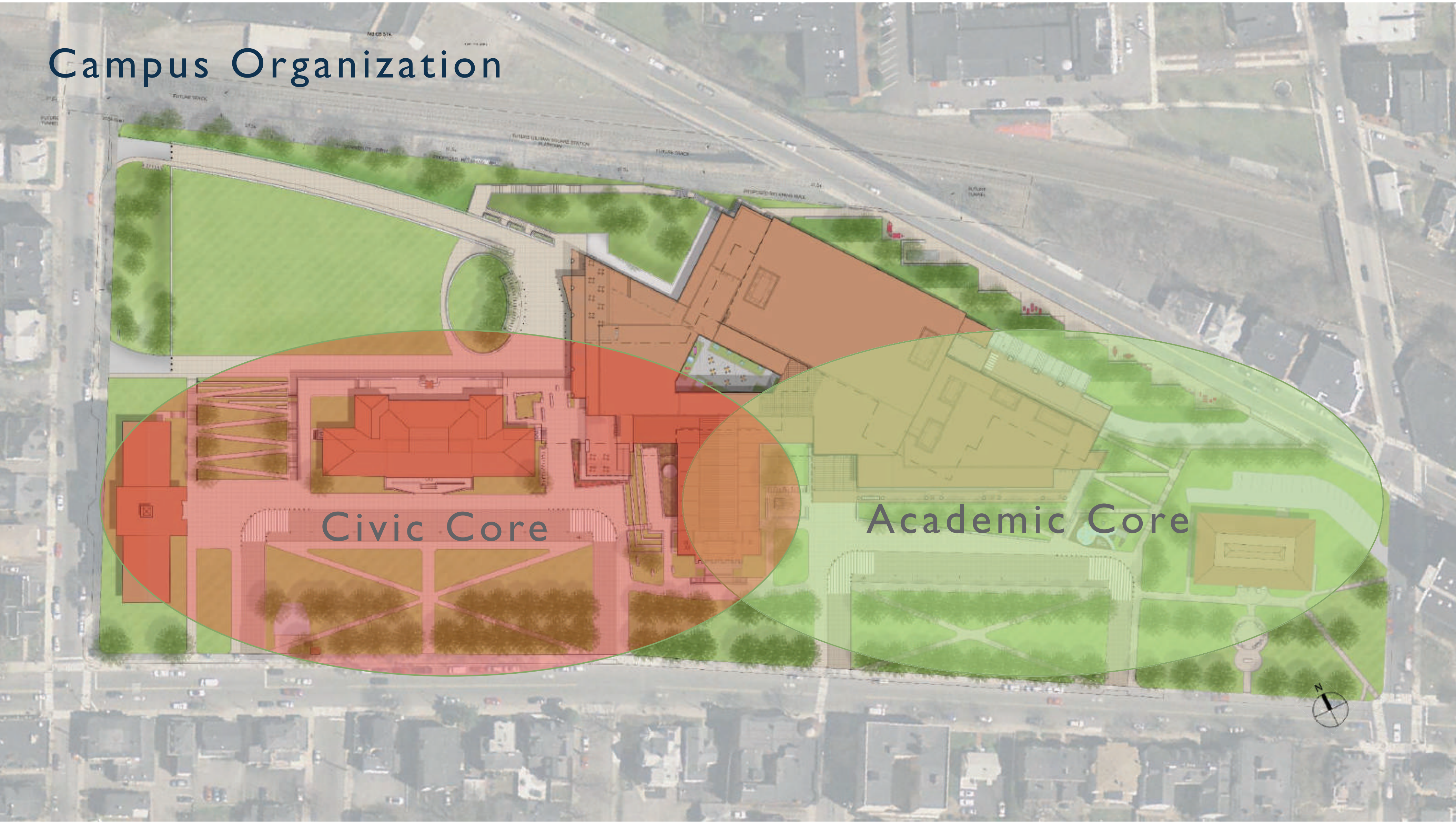
SHS Plan Project Limits



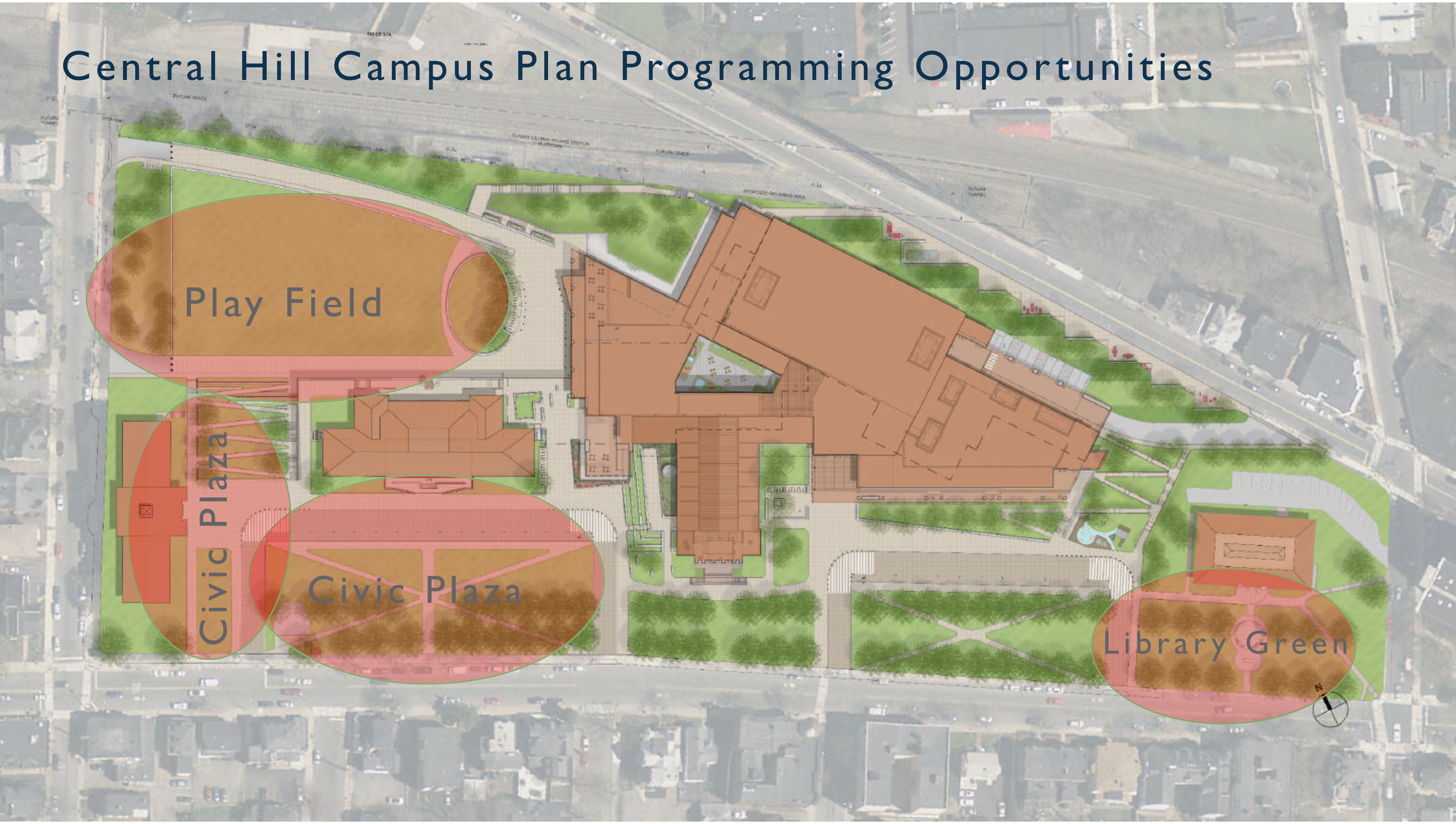
Central Hill Campus Plan Open Space Opportunities



Campus Organization



Central Hill Campus Plan Programming Opportunities



Discussion

For more information:

www.somervillema.gov/**highschool/**

www.somervillema.gov/**centralhillplan**

Somerville High School Construction Camera:

https://app.oxblue.com/open/suffolk/**somervillehighschool**

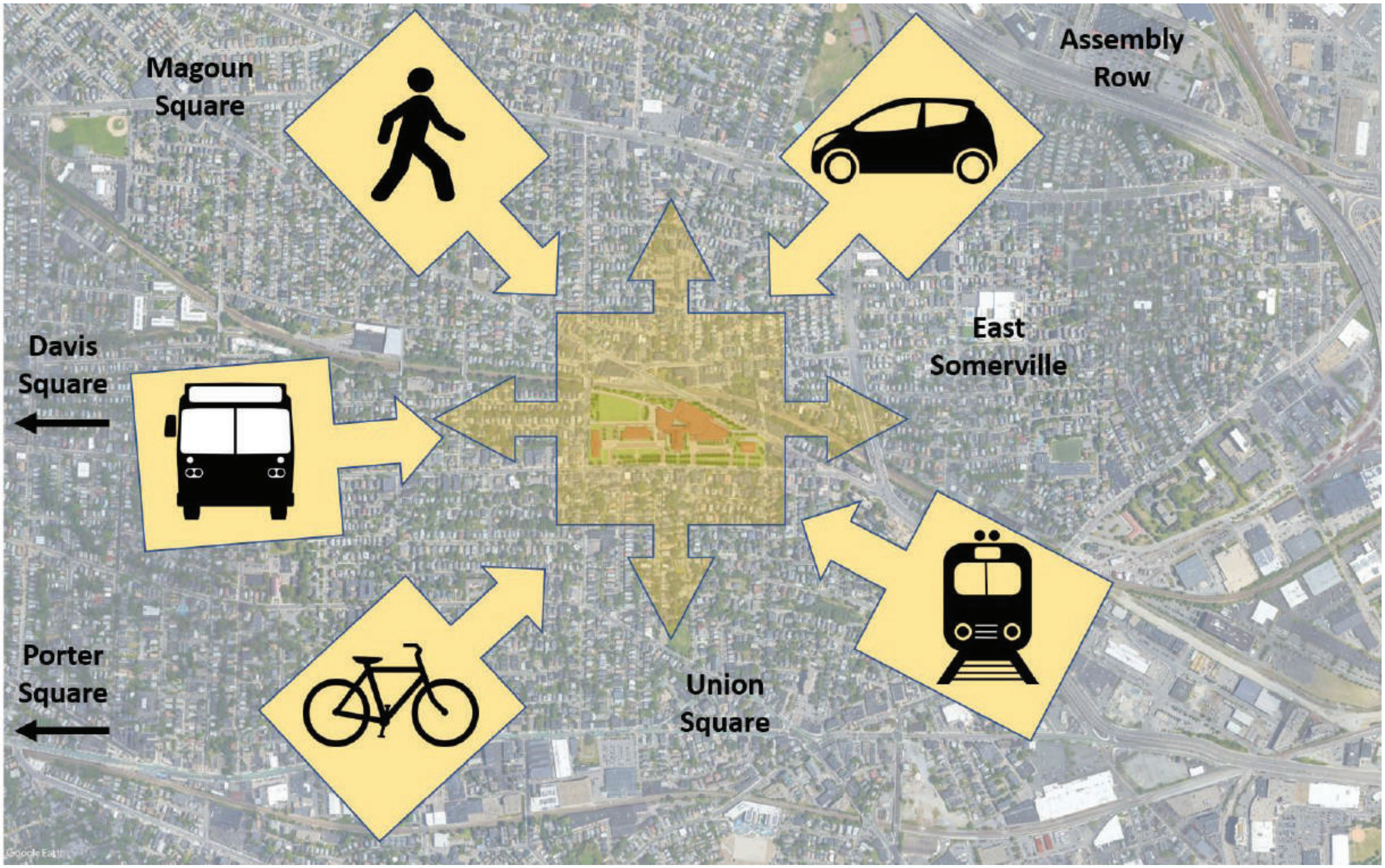
Parking Meeting June 20th

Transportation

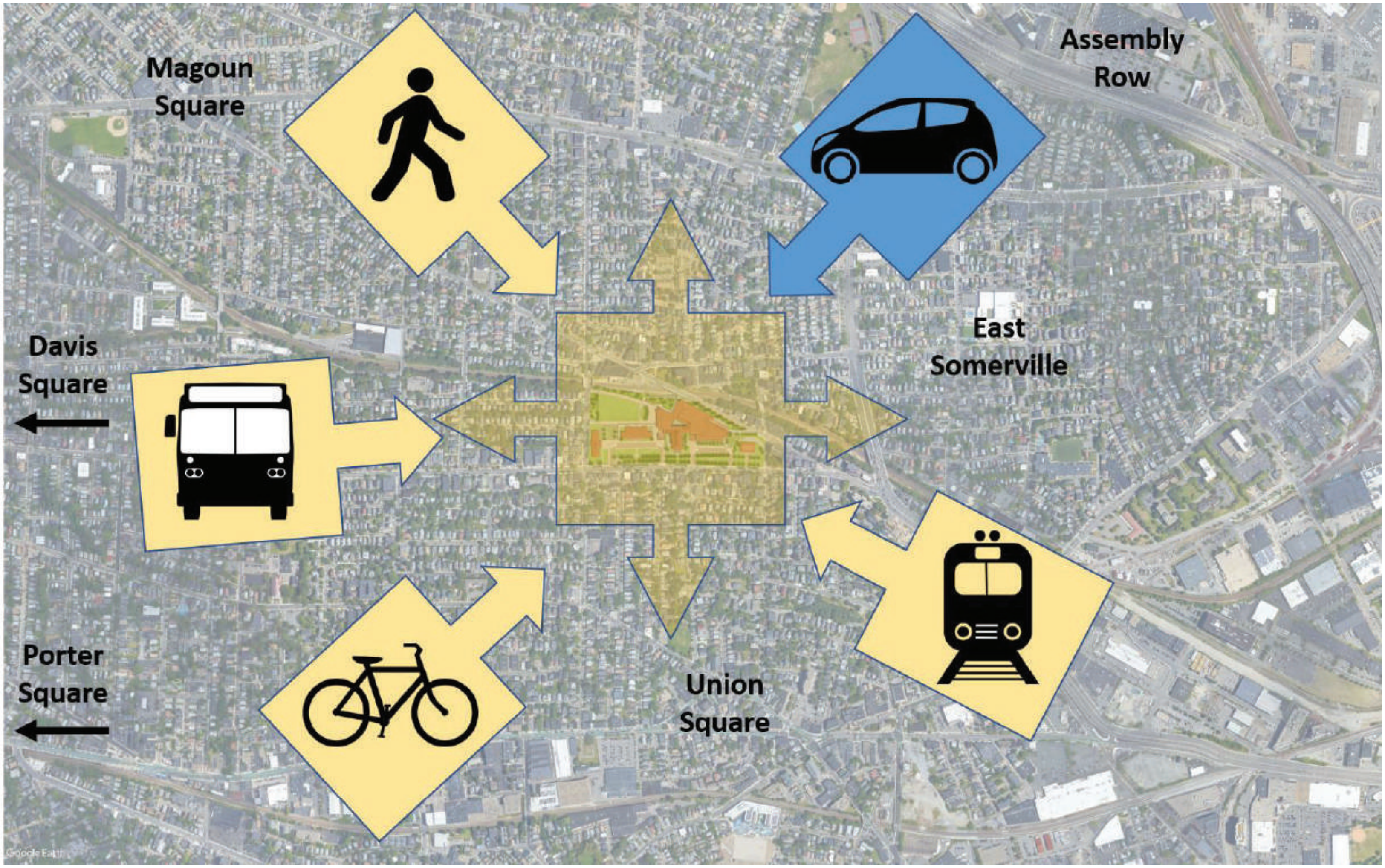
Site Multi-modal Use

Site Multi-Modal Use and Network Connections

Multi-modal Network Connections



Multi-modal Network Connections: Driving



Multi-modal Network Connections: Driving

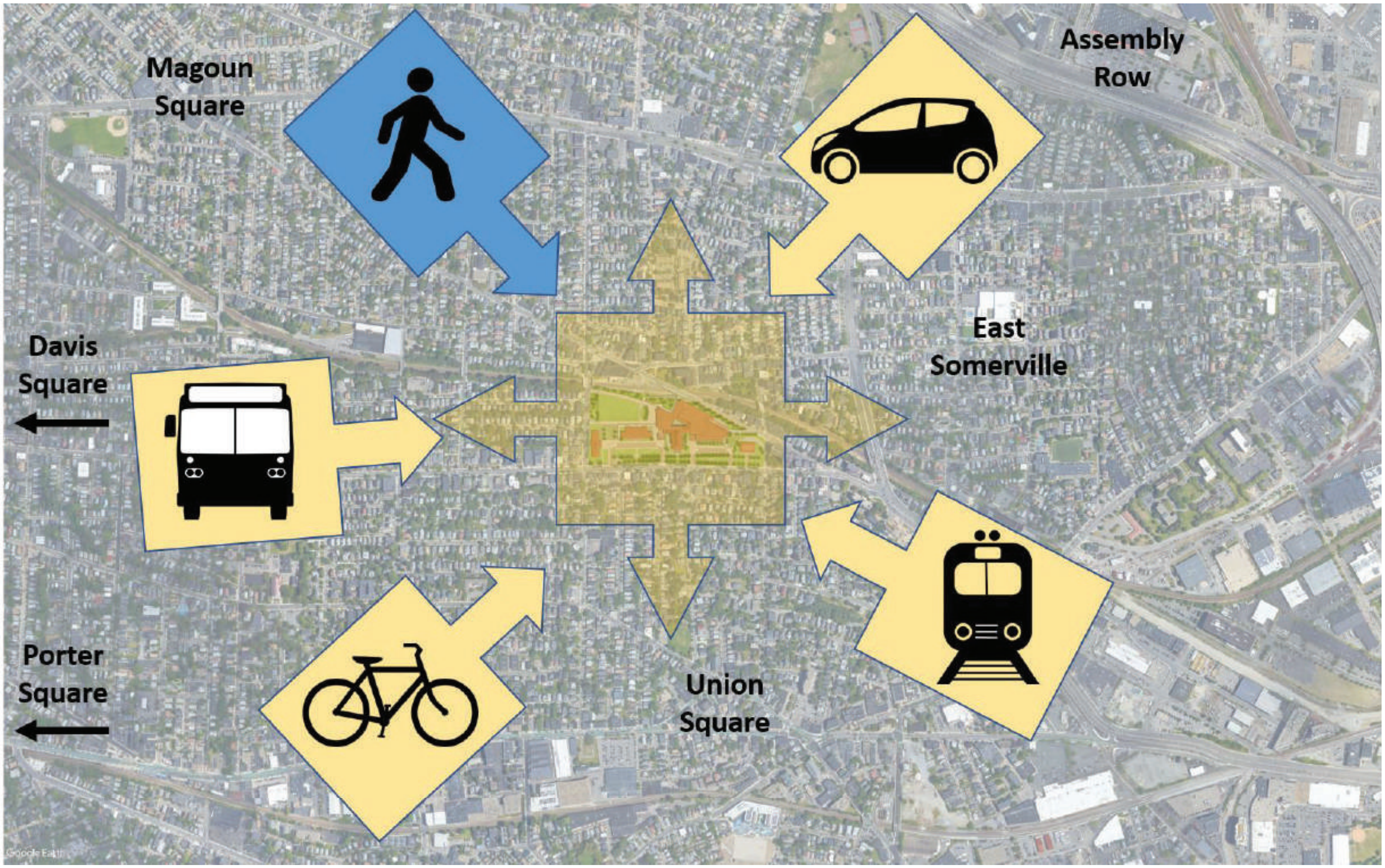
Coming to the Central Hill Campus is easier if you've done it before!

It's easy to get turned around on the street network if you're driving!

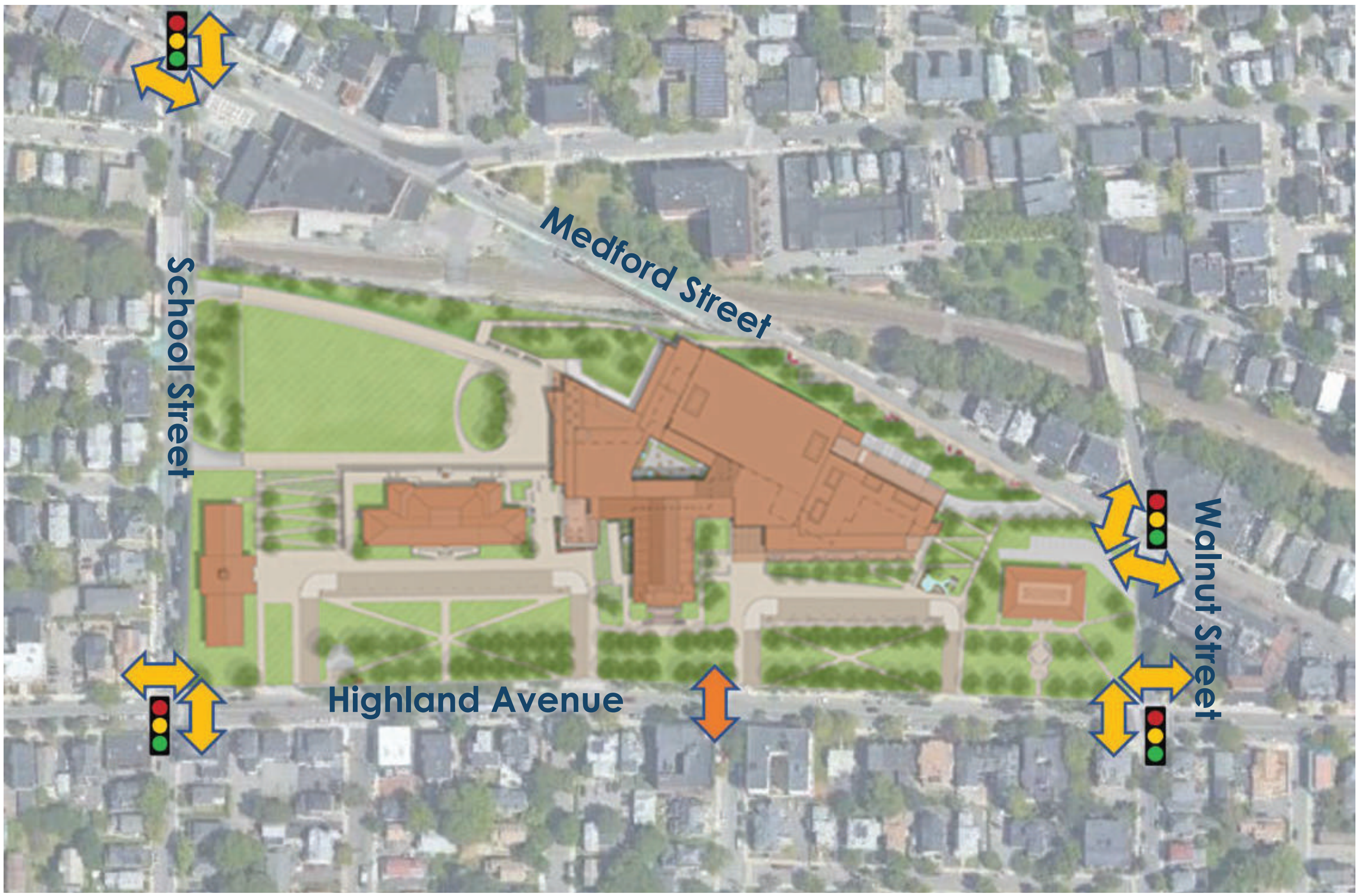
Would wayfinding signage help?

One-way	→
Two-way	↔

Multi-modal Network Connections: Walking



Multi-modal Network Connections: Walking



Access points at signalized intersections on corners of campus

Calling pedestrian WALK signal requires pressing button

One mid-block crossing at Vinal Street

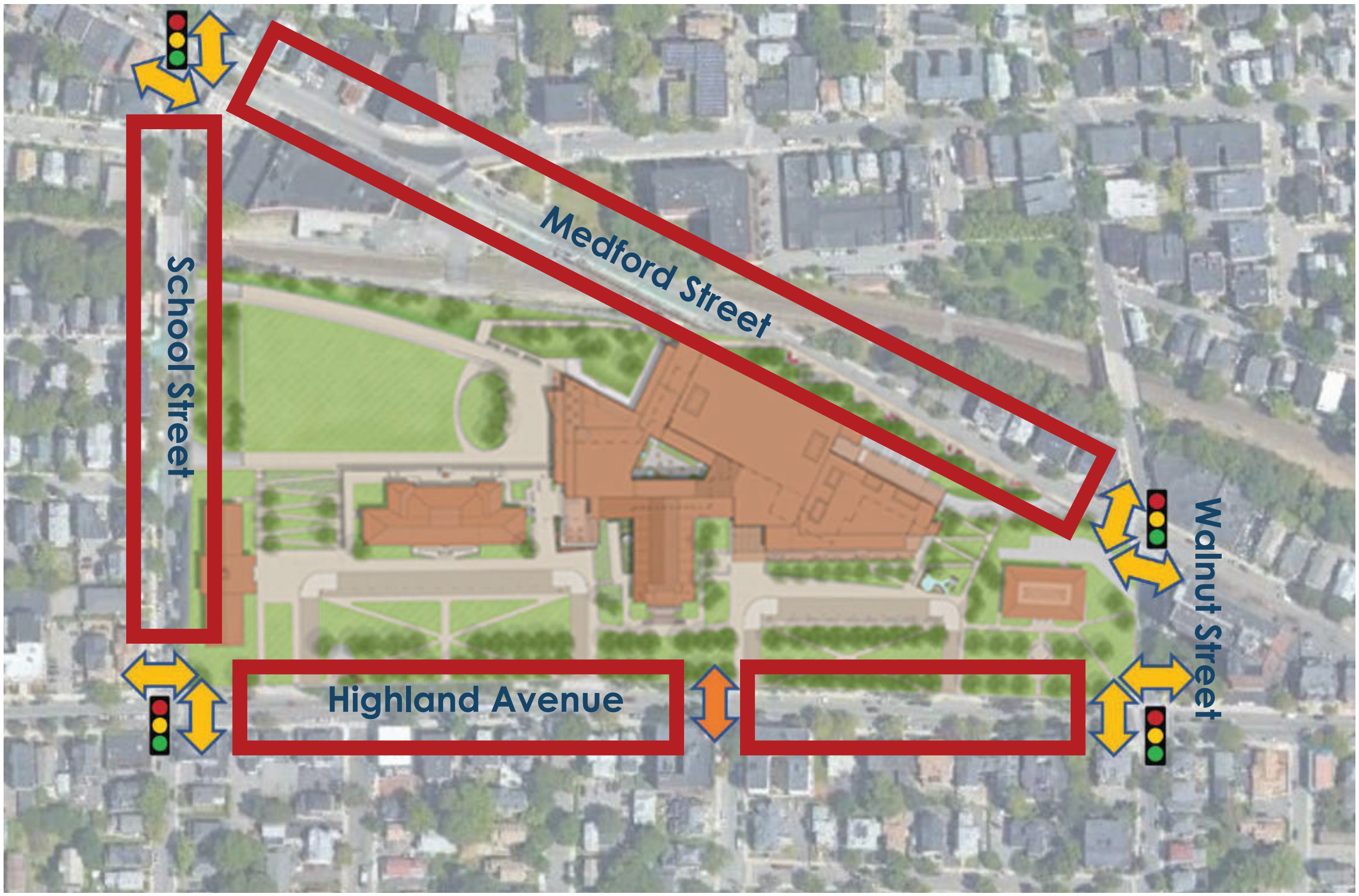
Multi-modal Network Connections: Walking

Access points at signalized intersections on corners of campus

Calling pedestrian WALK signal requires pressing button

One mid-block crossing at Vinal Street

Multi-modal Network Connections: Walking



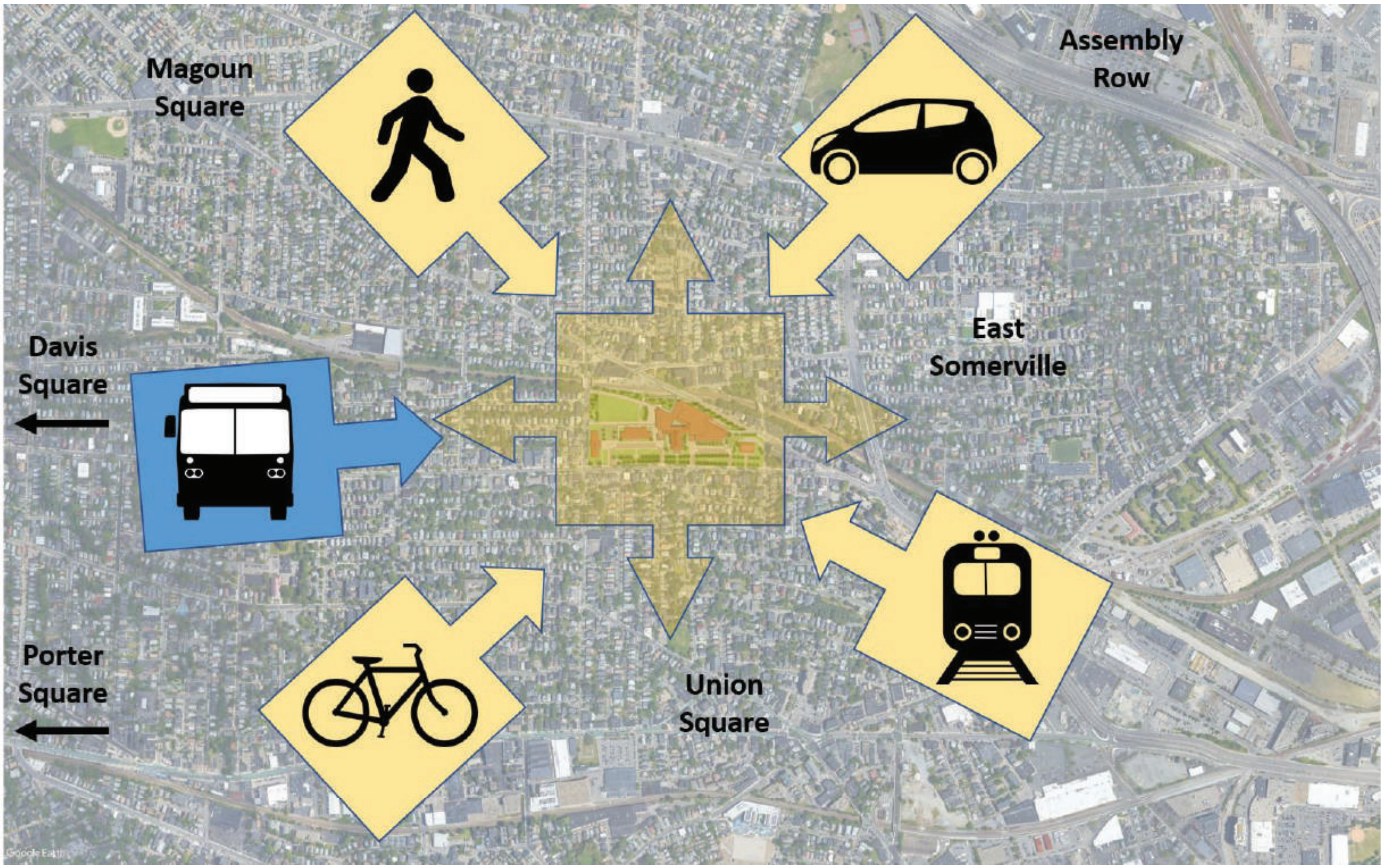
Access points at signalized intersections on corners of campus

Calling pedestrian WALK signal requires pressing button

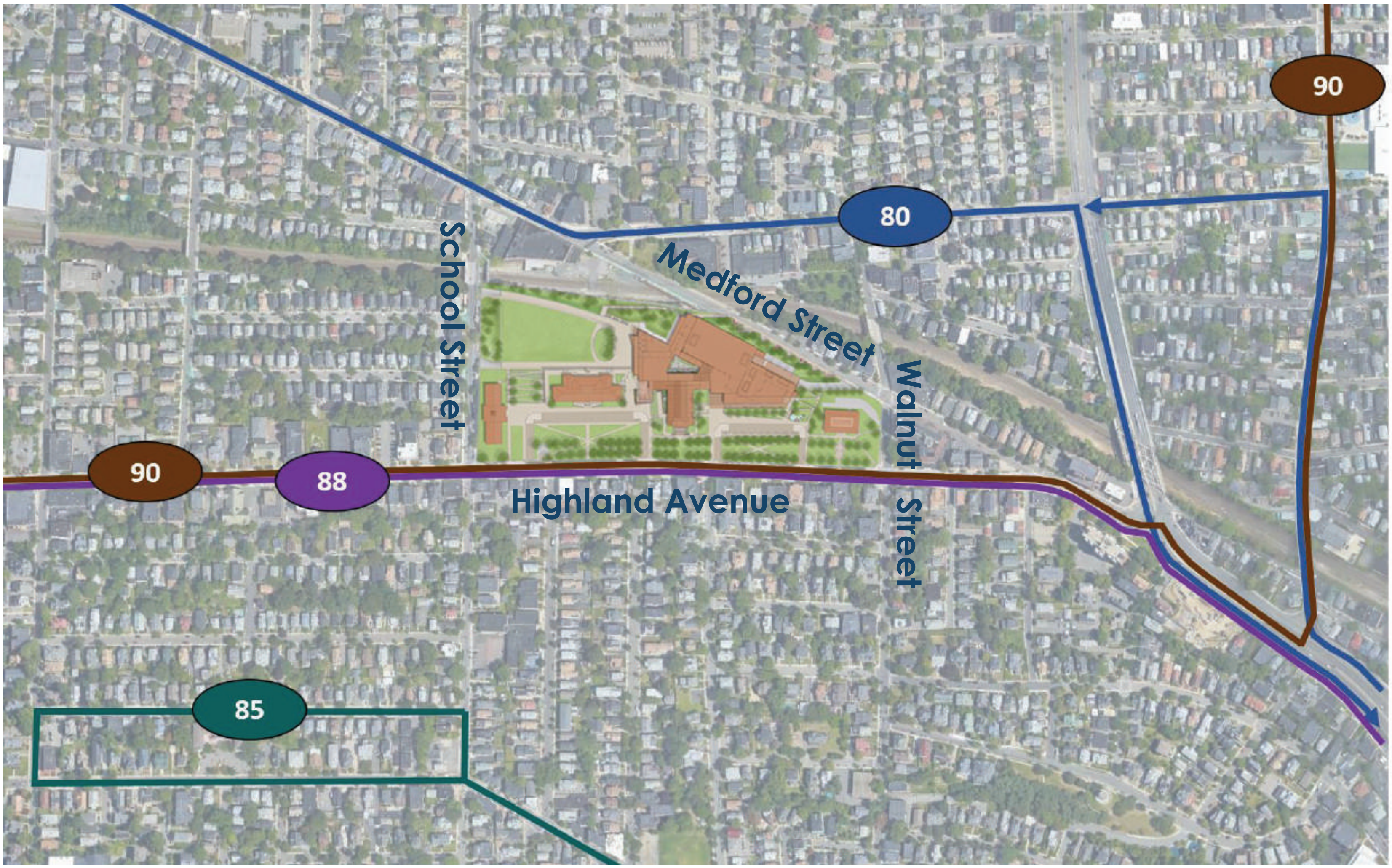
One mid-block crossing at Vinal Street

No crossing opportunities

Multi-modal Network Connections: Bus Transit



Multi-modal Network Connections: Bus Transit

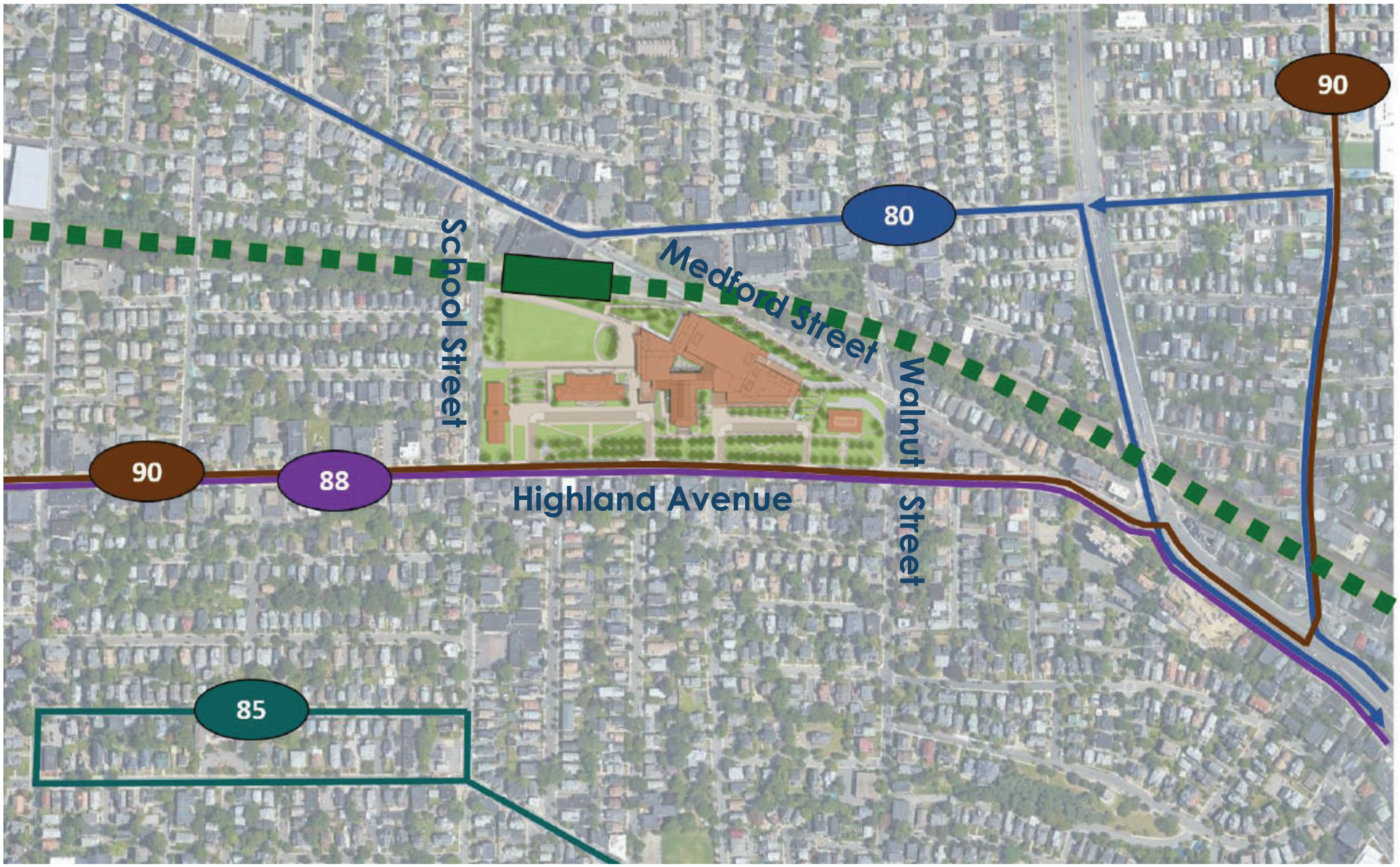


Four MBTA routes serve the Central Hill Campus area:

- Route 80
- Route 85
- Route 88
- Route 90

Route 80 will be replaced by the Green Line Extension

Multi-modal Network Connections: Bus Transit



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Multi-modal Network Connections: Bus Transit

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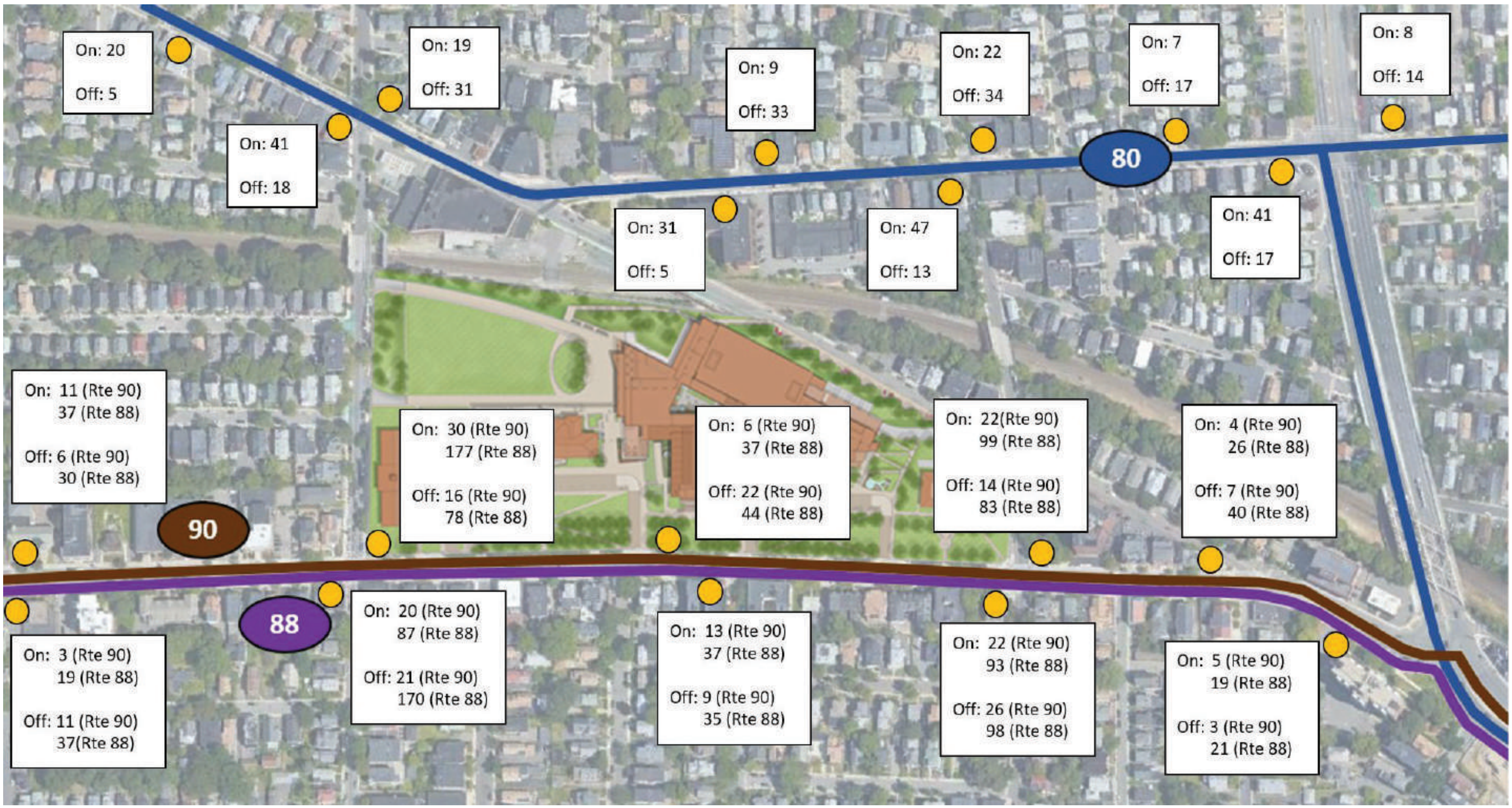
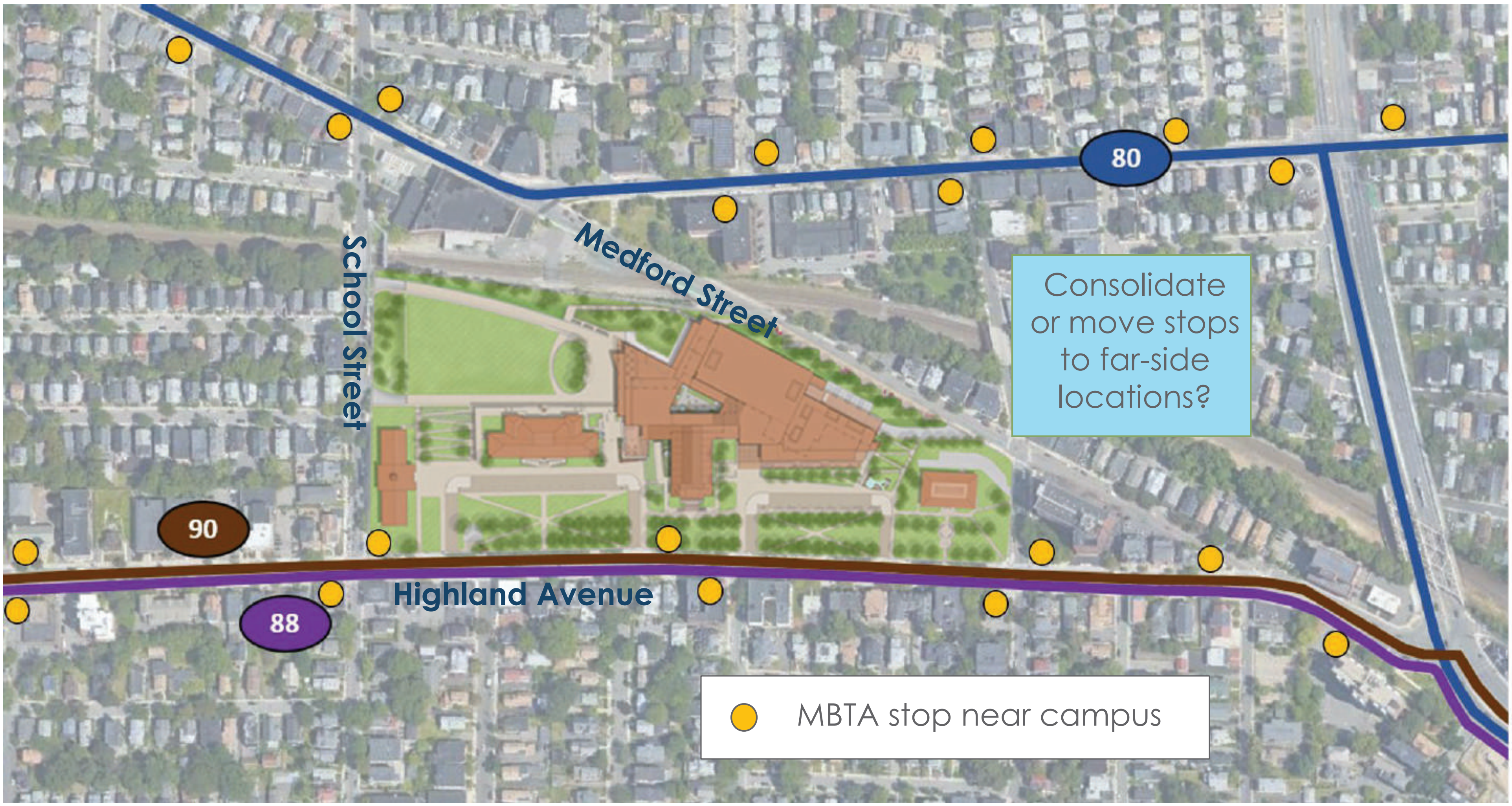
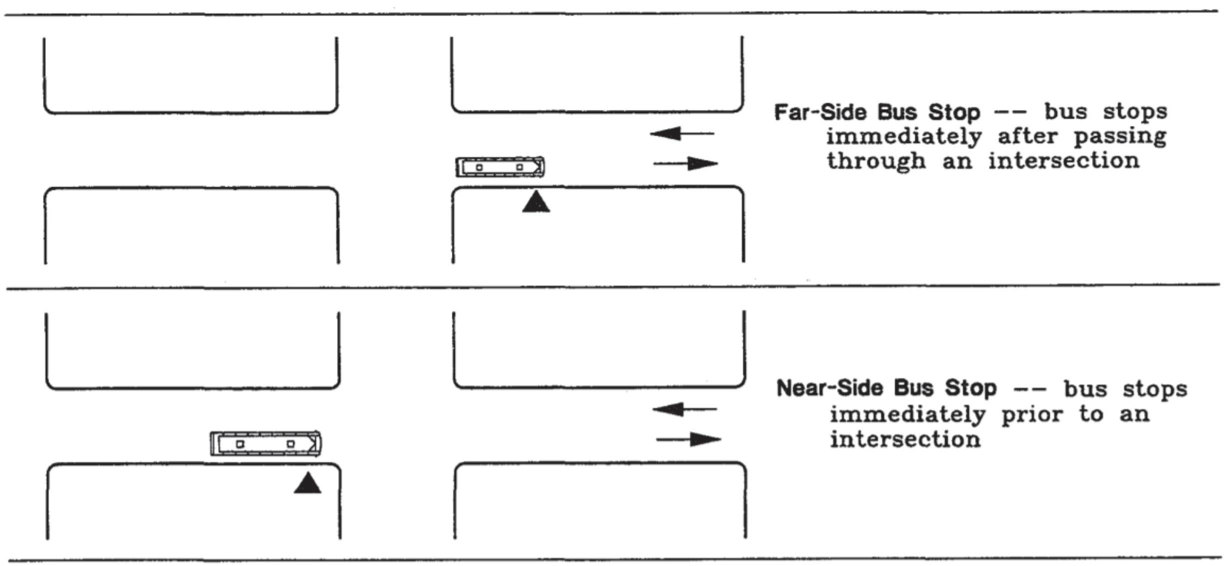


Multi-modal Network Connections: Bus Transit



Multi-modal Network Connections: Bus Transit

What do we mean by a "far-side" bus stop?



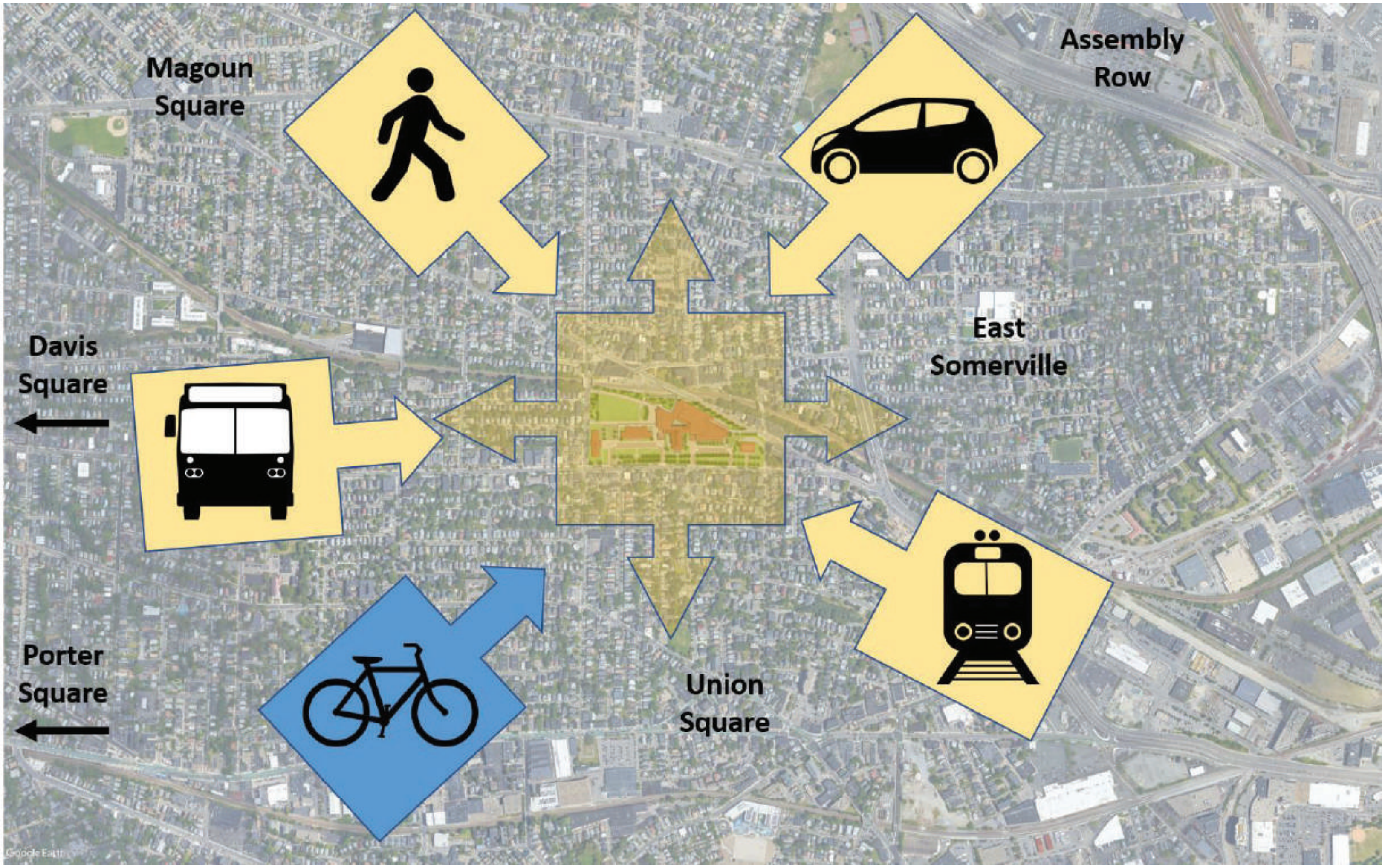
Each location has **pros** and **cons**!

- **Traffic flow through intersection**
- **Right turns by motorists**
- **Pedestrian crossing locations and destinations**
- **Sight lines at intersection**
- **Enough space for bus shelters?**

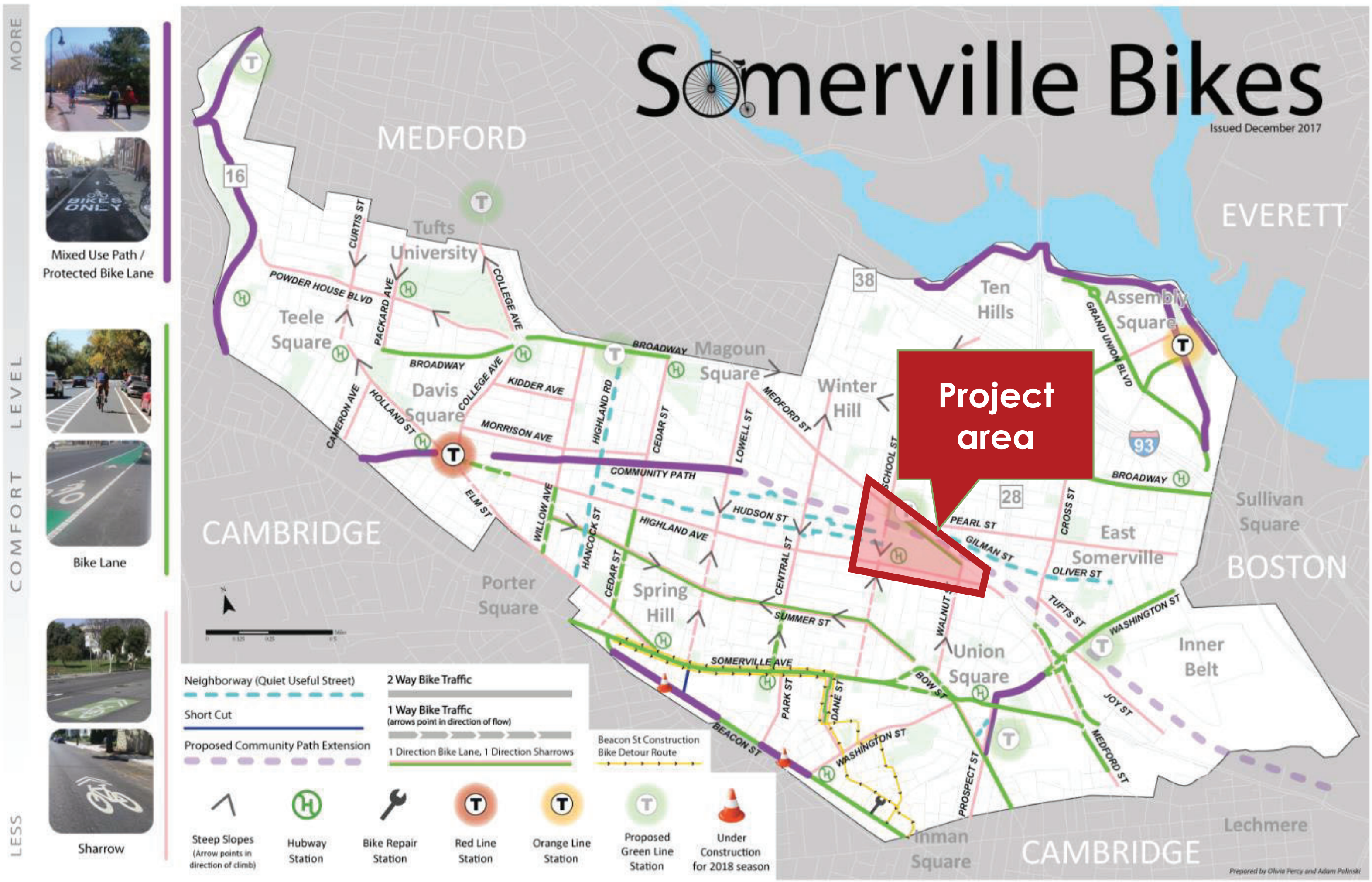
Consolidate or move stops to far-side locations?

Image: Transit Cooperative Research Program, TCRP Report 19
Table adapted from TCRP Report 19

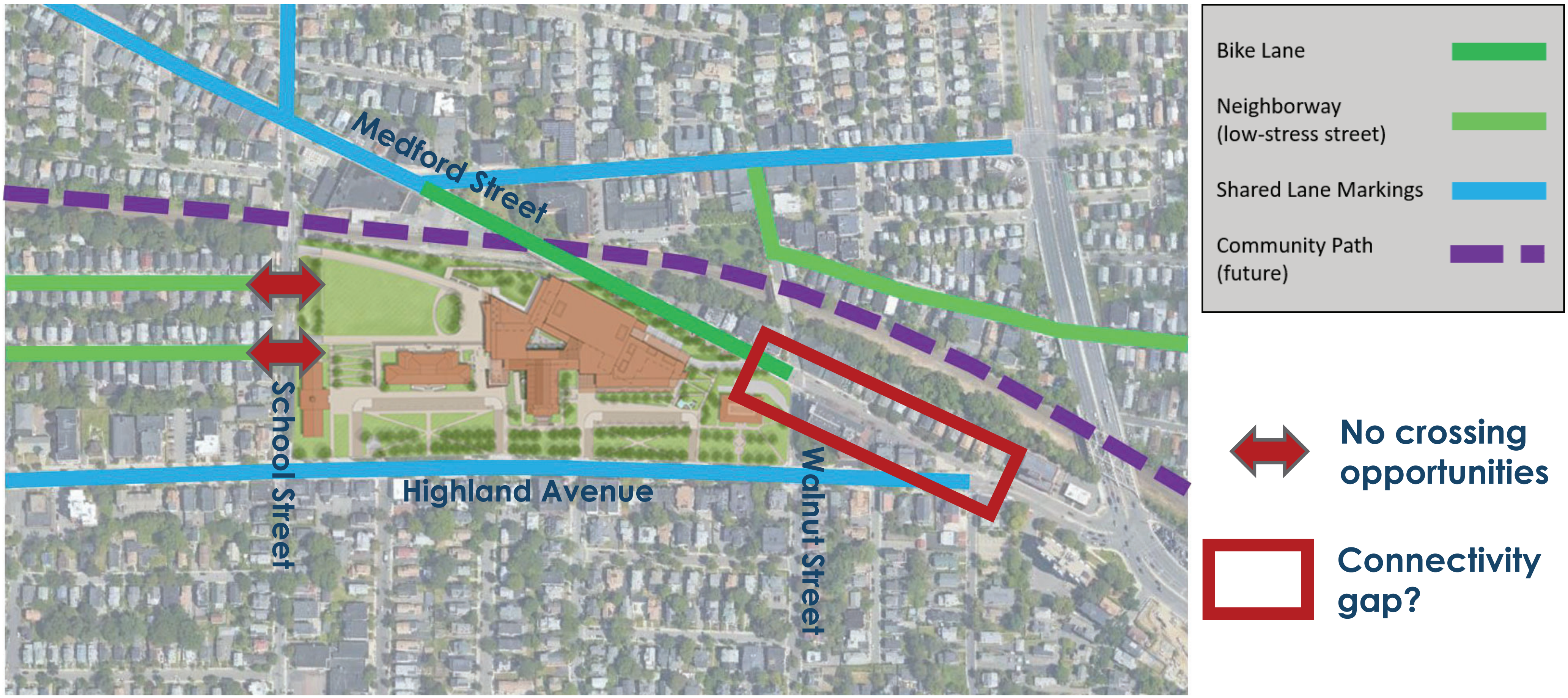
Multi-modal Network Connections: Bicycling



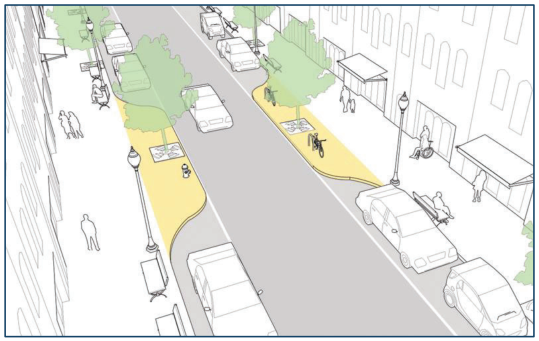
Multi-modal Network Connections: Bicycling

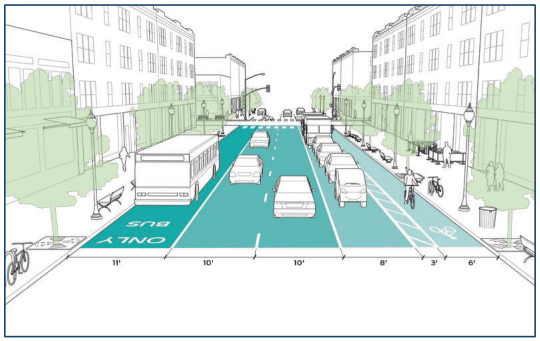


Multi-modal Network Connections: Bicycling



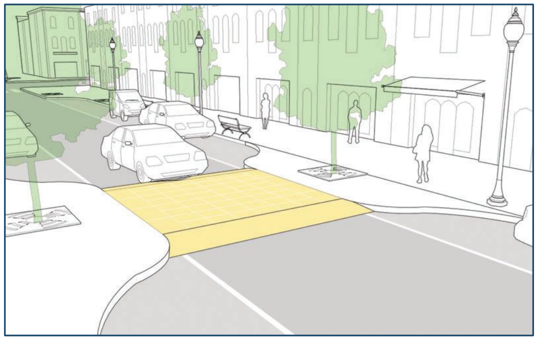
Traffic Calming and Safety Treatments

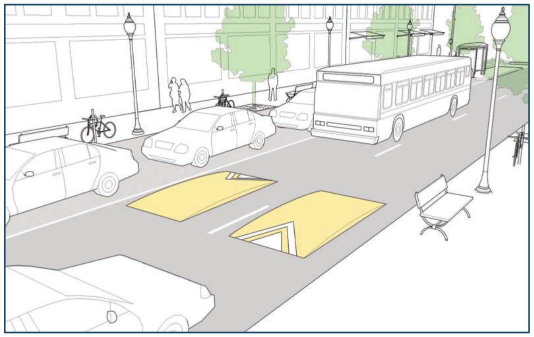

Curb Extensions


Narrow Travel Lanes

How may we be able to solve some of the connectivity and access issues to the Central Hill Campus?


Speed Humps


Speed Tables

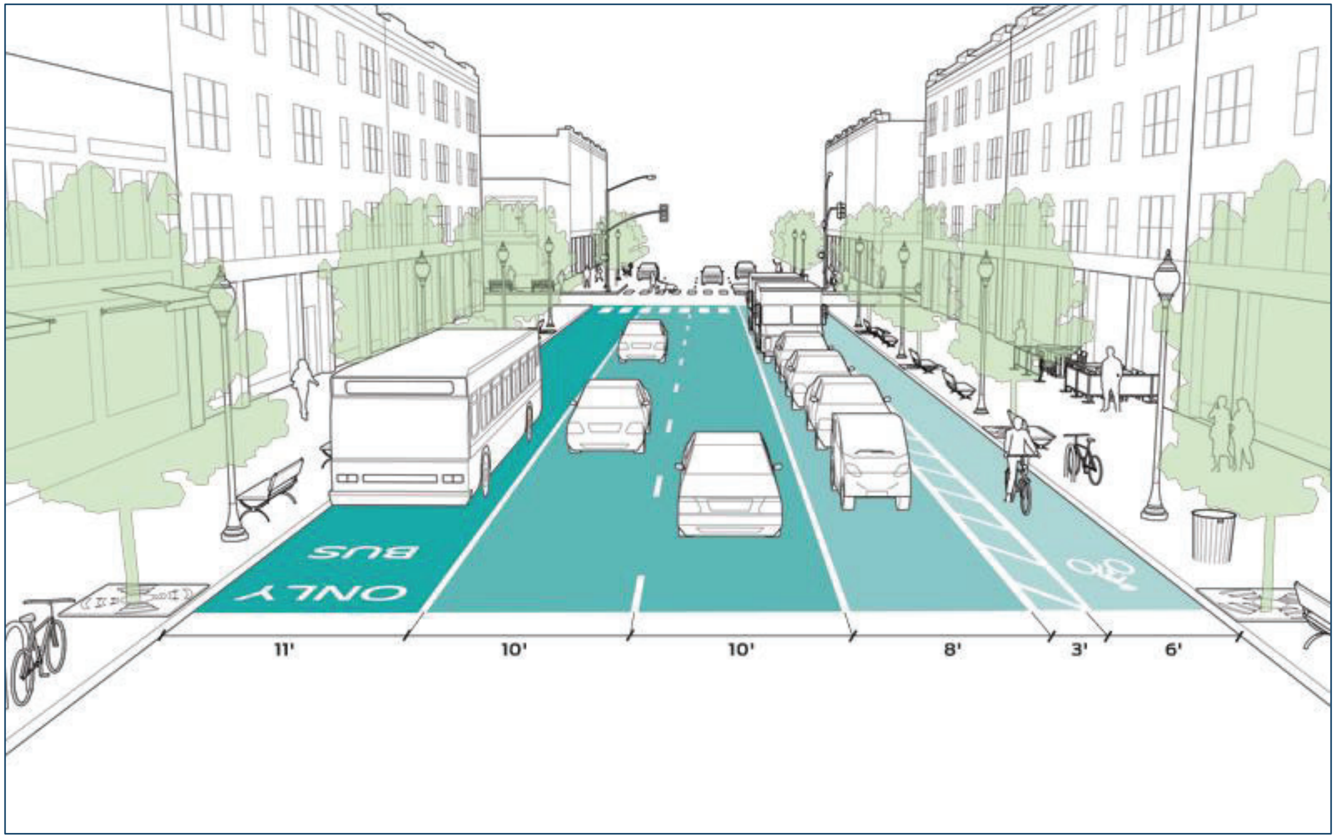

Speed Cushions

Images: NACTO Street Design Guide

Curb Extensions

Image: NACTO Street Design Guide

Traffic Calming and Safety Treatments



Narrow Travel Lanes

Image: NACTO Street Design Guide

Traffic Calming and Safety Treatments

Image: NACTO Street Design Guide

Speed Humps

Speed Tables

Image: NACTO Street Design Guide

Speed Cushions

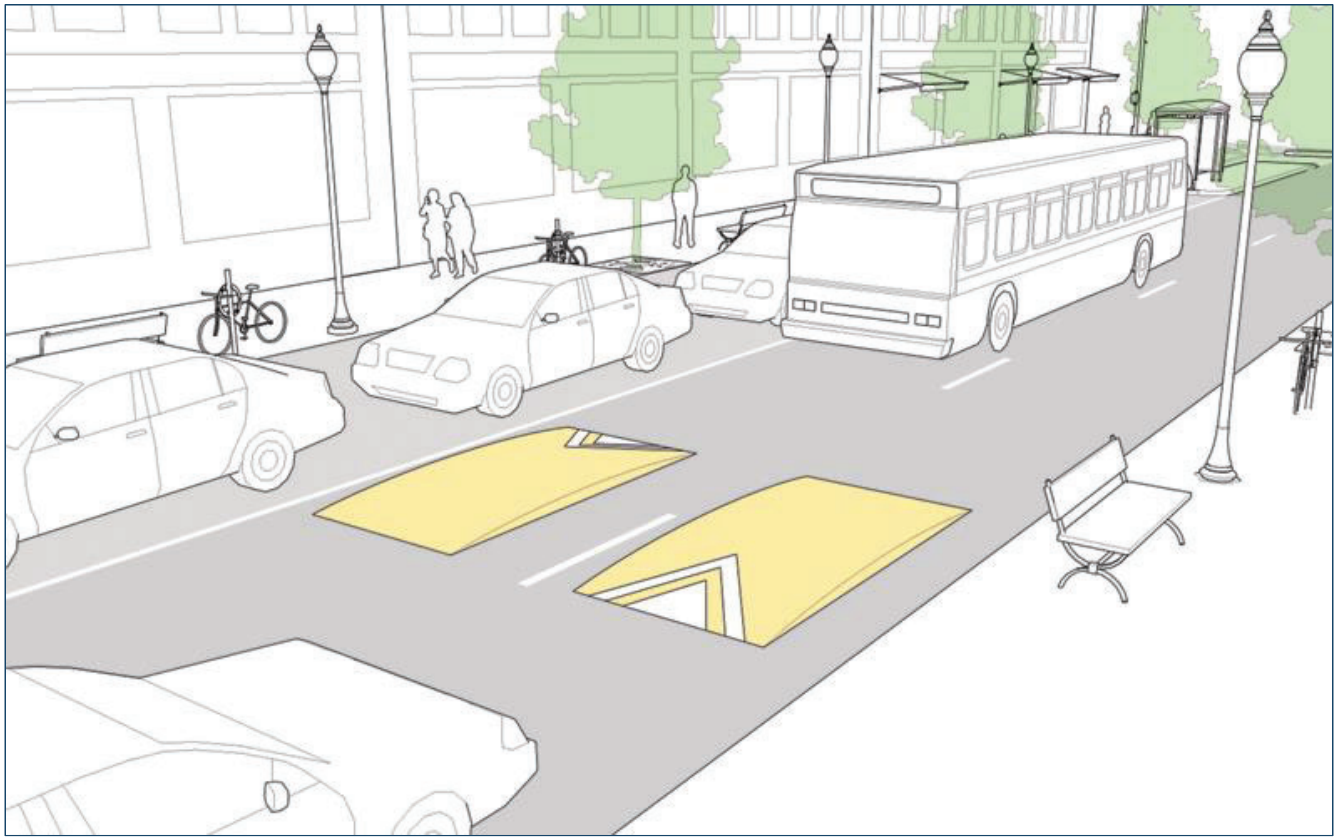


Image: NACTO Street Design Guide

Traffic Calming and Safety Treatments

Speed Cushions

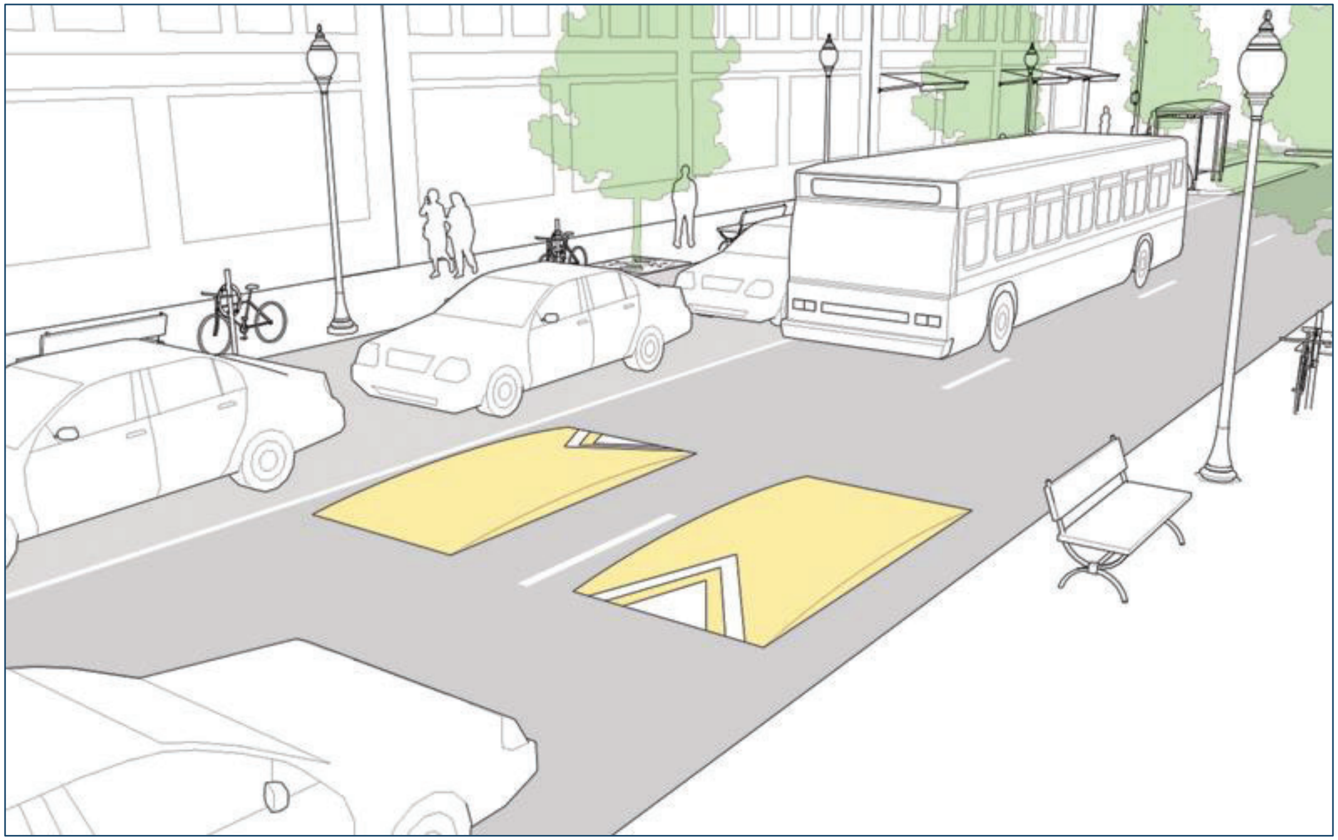


Image: NACTO Street Design Guide

Traffic Calming and Safety Treatments

Signalization Options

Rectangular Rapid Flashing Beacons (RRFB)

Image: Toole Design Group

Traffic Calming and Safety Treatments

Signalization Options

Pedestrian Hybrid Beacon (PHB)

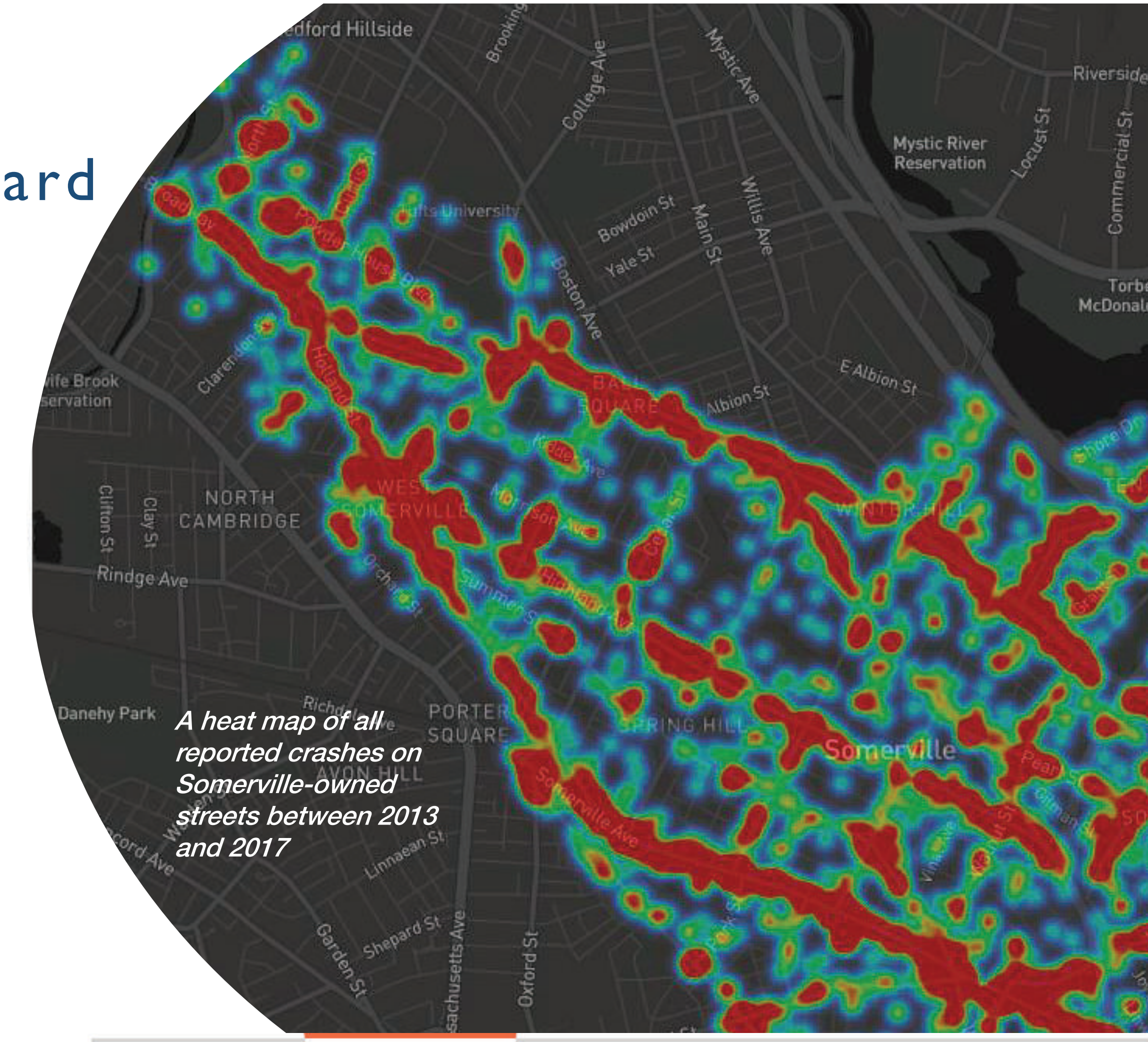
Image: Toole Design Group

Tell us what you think!
Central Hill Campus Plan Wikimap

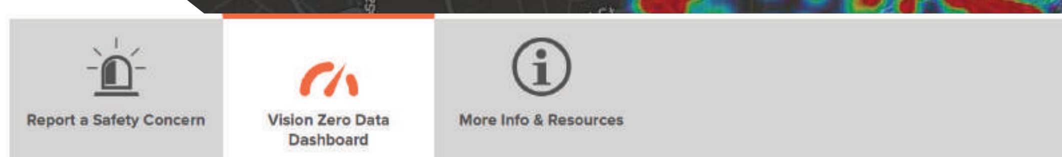
Link to the Wikimap through the project website:
https://www.somervillema.gov/departments/central-hill-plan

Vision Zero Data Dashboard

VISION ZERO
SOMERVILLE



A heat map of all reported crashes on Somerville-owned streets between 2013 and 2017



www.somervillema.gov/visionzero

Better Bus Project TimeLine

Time Period	Phase
Early 2018	Conduct analyses and assessments of the existing bus network, begin public outreach and engagement
Mid-2018	Develop early recommendations for service changes, continue public outreach and engagement with municipalities
Late 2018	Propose bus network and service changes to the FMCB, request additional funds to accomplish goals and fill gaps in service
2019	Begin implementing Better Bus Project action items based on quarterly updates

mbta.com/projects/better-bus-project

Discussion

Sustainability

LEED for Schools – Silver

LEED v4 for BD+C: New Construction and Major Renovation - Schools

Somerville High School Add/Reno Preliminary Scorecard

Energy

- Sub-Metering / Adv. Controls
- EV Charging Stations Ready
- PV Ready Roof
- Green Cooling HVAC
- Energy Recovery
- LED Efficient Lighting
- Daylight Controls
- High Performance Bldg. Enclosure
- Demand Control Ventilation

Water

- Water Sub-metering
- Efficient Appliances
- Kitchen Equipment
- Rainwater Harvesting Irrigation
- Low-flow Fixtures

Site

- Green Roof
- Bioswales
- School Community Garden
- Outdoor Learning Classrooms
- Light Pollution Reduction
- Stormwater Treatment
- Bicycle Facilities
- Access to Transit
- Urban Density

IEQ

- User Friendly Lighting Controls
- Abundent Daylight
- Low Emitting Materials
- Natural Ventilation
- Views
- Thermal Comfort
- Biophilia
- Stair Accessibility / Fitness

Materials

- Health Product Declaration
- Envrion. Product Declaration
- Durability
- Low Maintenance
- Recycled Content
- Construction Waste Management
- Regional Materials
- Certified Wood

Transition to Stormwater
Green roofs
Porous pavement
Infiltration systems
RWH
Planting selection

Transition to Stormwater

Water Efficiency

- Indoor
  - Low flow fixtures
  - Energy star appliances (dishwasher)

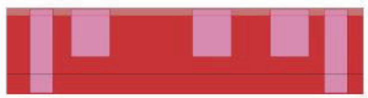
- Outdoor
  - Native/adaptive species selection that are drought tolerant
  - Efficient irrigation systems
  - Rainwater harvesting system for irrigation

Energy Efficiency Measures

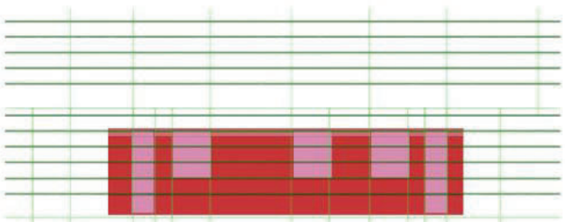
- Highly insulated enclosure
- Cool roof/PV ready
- LED lighting with advanced network controls
- Dedicated Outdoor Air Systems w/Green cooling
- High efficiency air cooled chiller
- High efficiency condensing boiler
- Condensing DHW heaters
- Energy Star kitchen equipment

Daylight and Energy

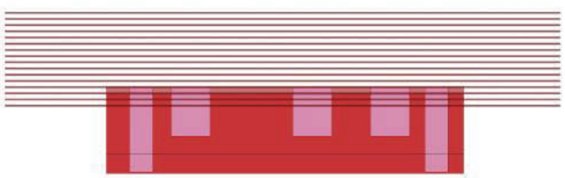
SOUTH FACING CLASSROOM



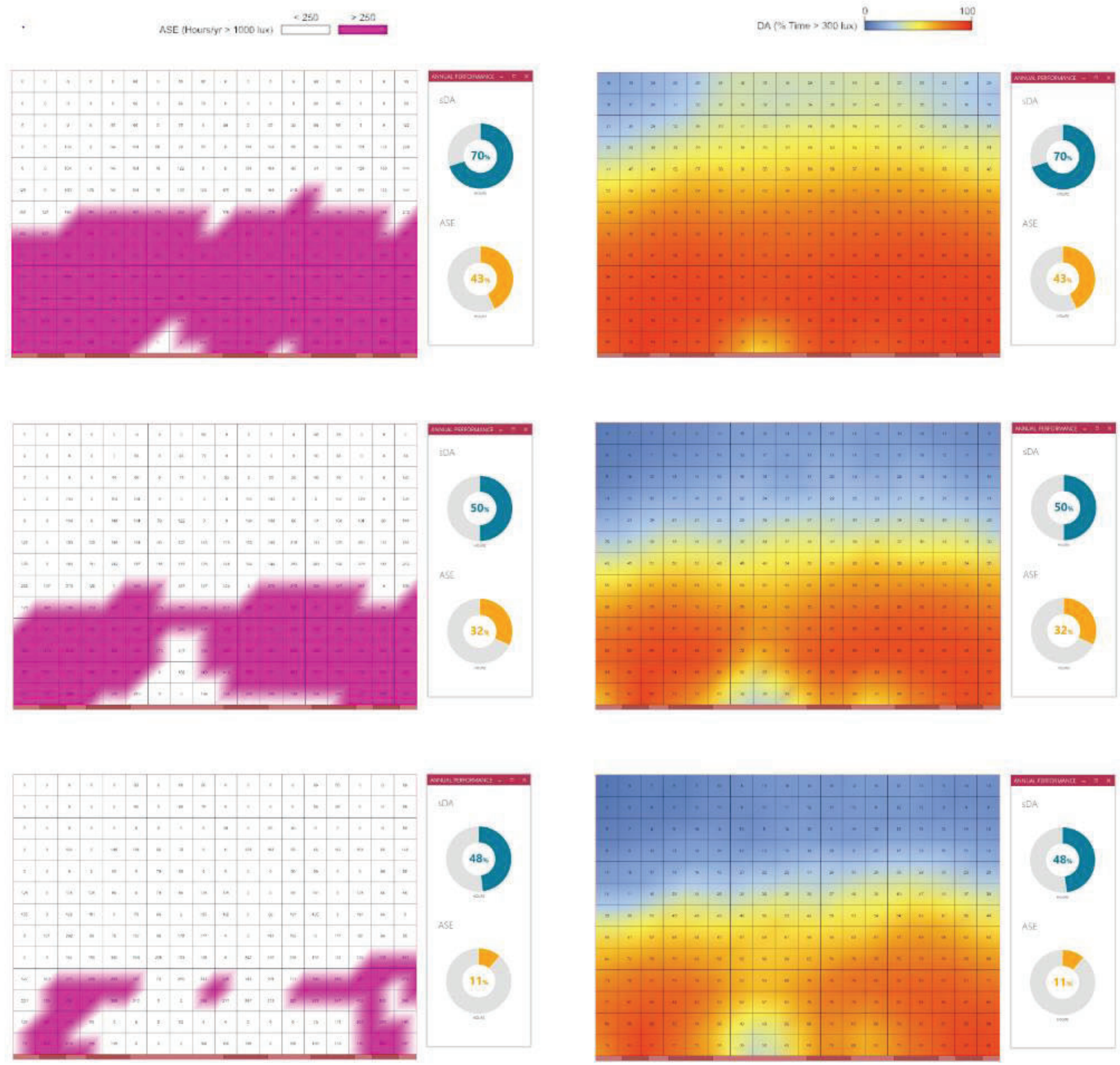
NO SHADE



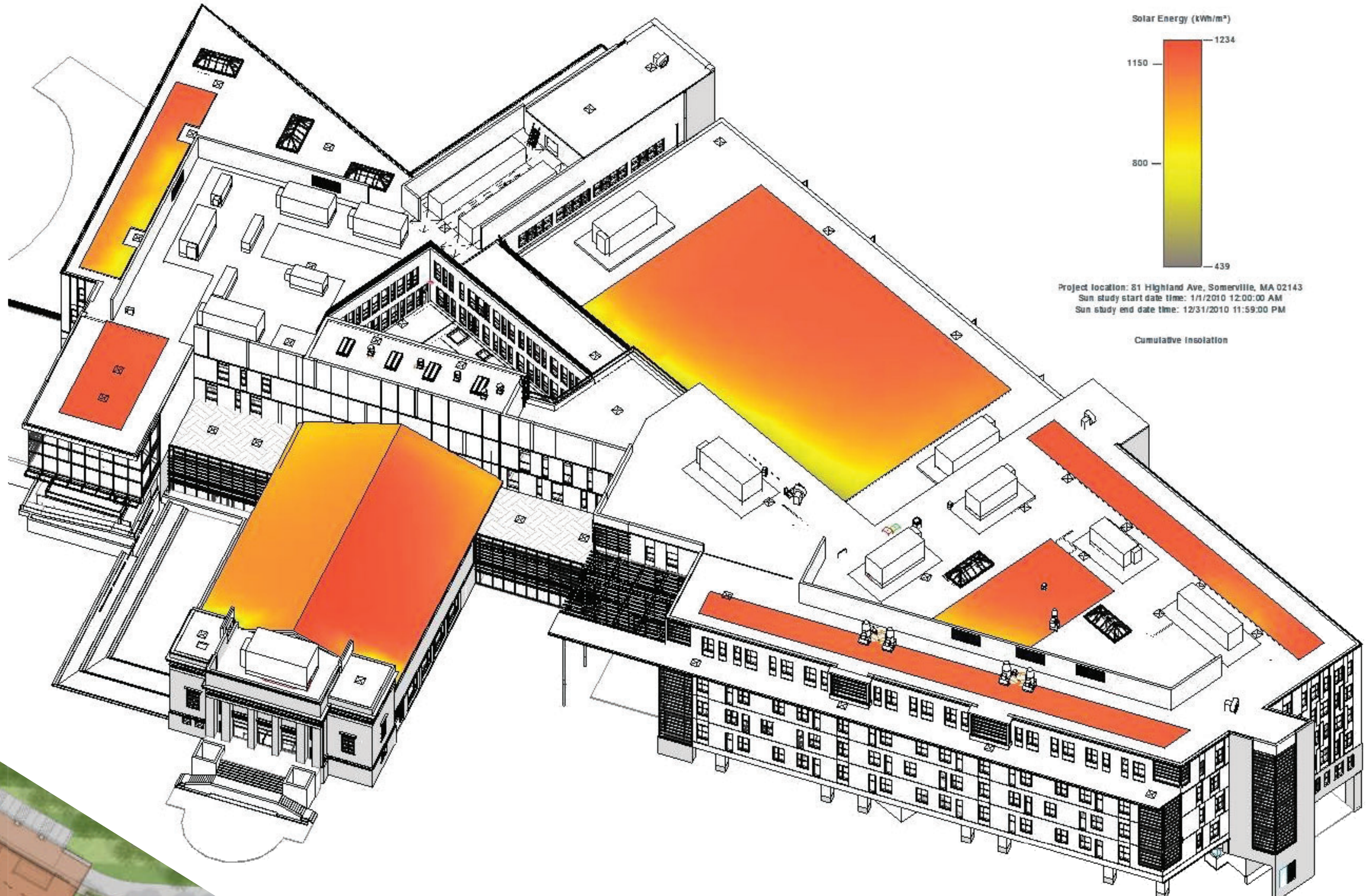
CURRENT LOUVERS

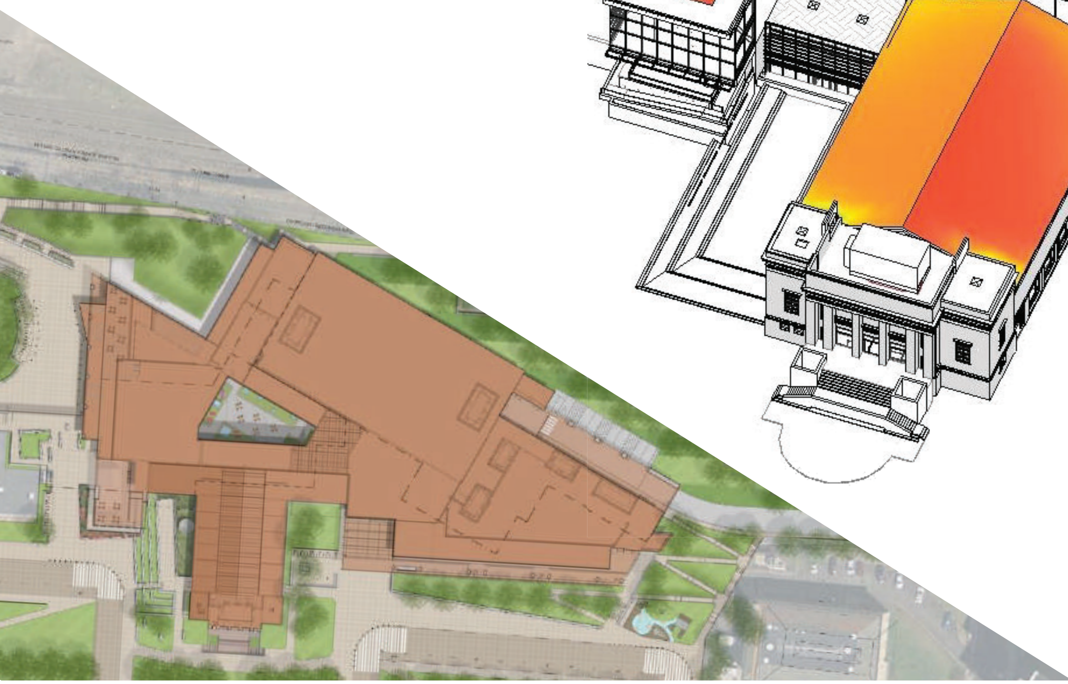


OPTIMIZED LOUVERS

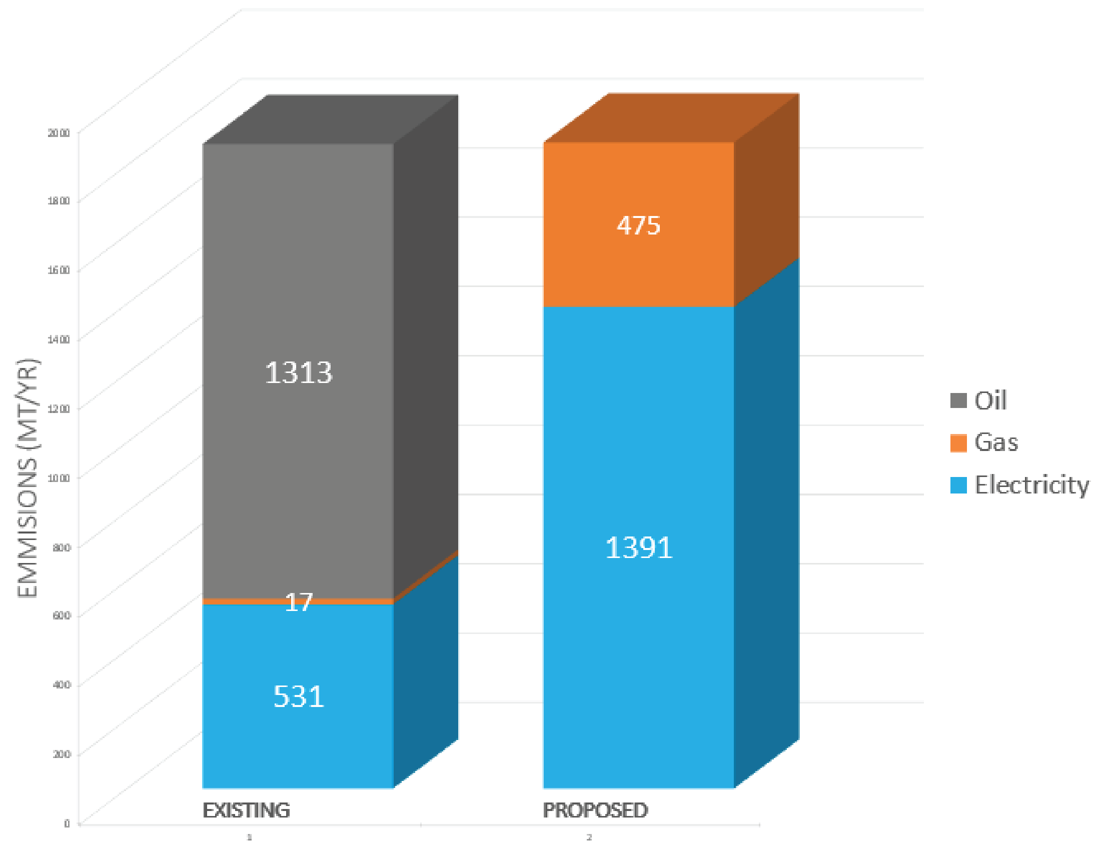


PV Ready Roof



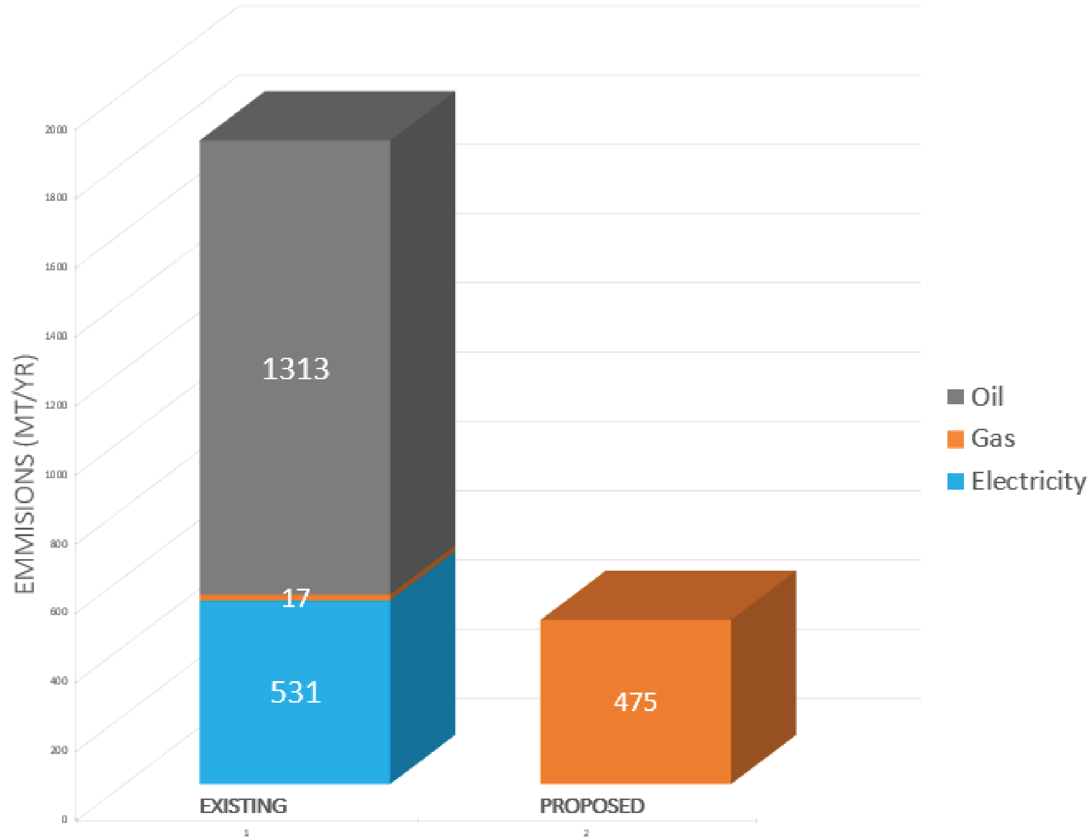


Existing and Estimated Proposed Emissions for SHS

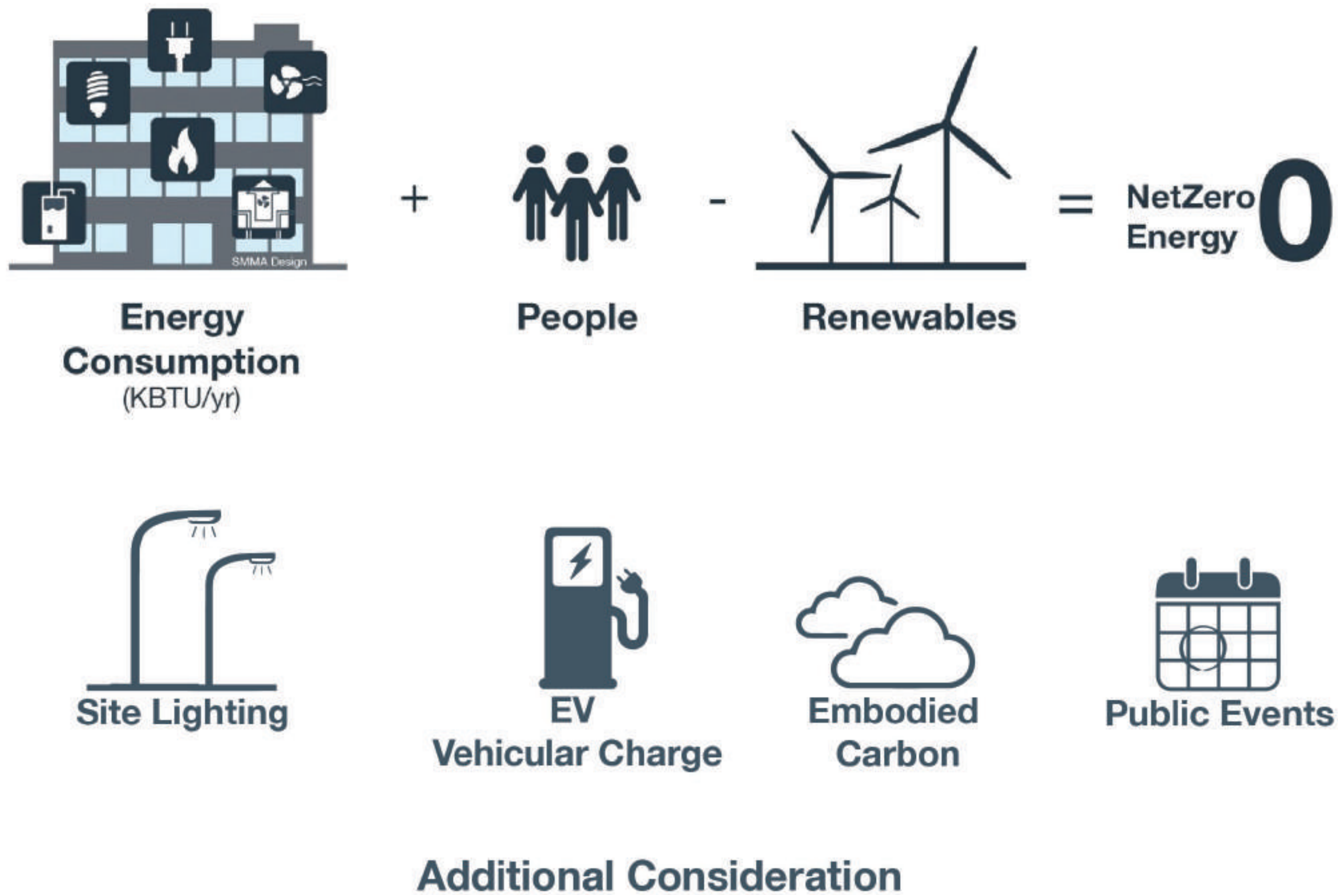


Existing and Estimated Proposed Emissions for SHS

Adding PV to roof and purchase renewable energy to offset electric emissions



Carbon Neutral Campus



Campus Plan Considerations - Sustainability

Water and Stormwater Management

- Porous pavement
- Infiltration systems
- Rainwater Harvesting

Building Enclosure and Systems

- Passive House
- Campus systems vs. Building Systems
- All electric systems vs. Natural gas – biogas

Renewable Energy Systems

- Solar photovoltaic
- Solar thermal
- Wind
- Ground Source Heat Pumps (Geothermal)
- Combined Heat and Power (CHP)

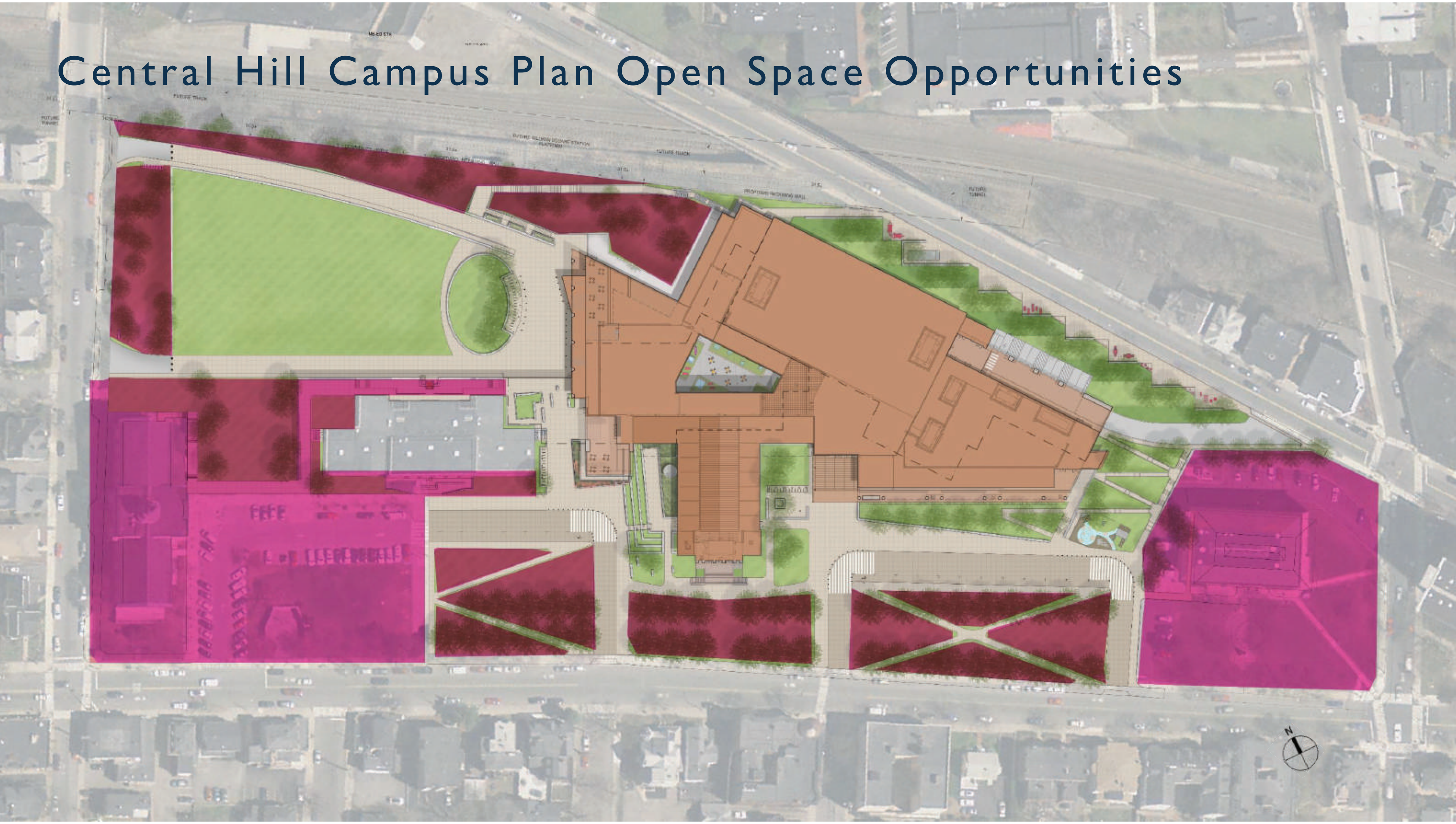




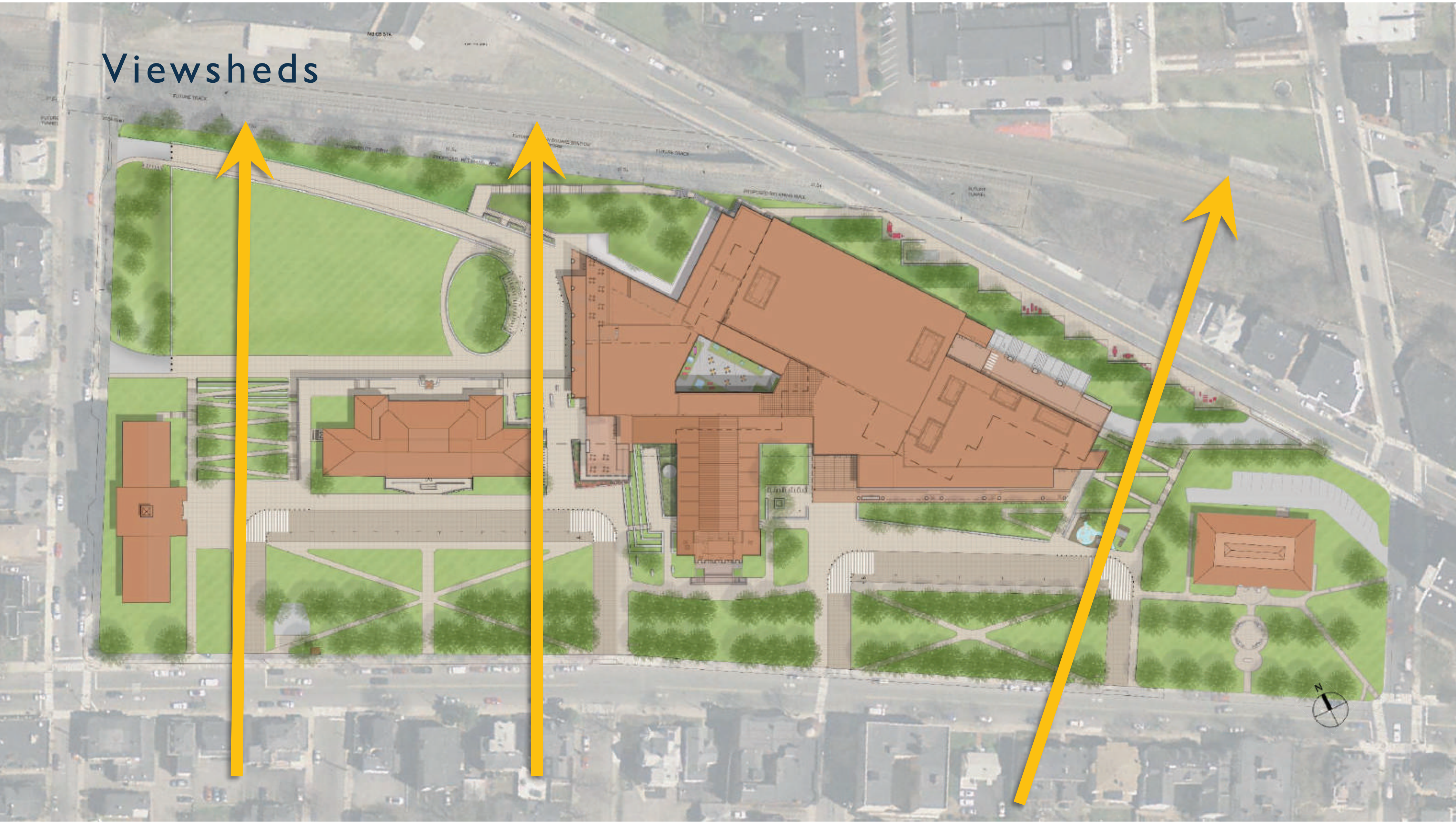
Discussion

Landscape Design

Central Hill Campus Plan Open Space Opportunities



Viewsheds



Campus Organization

Programming Opportunities

Civic Plaza

Civic Plaza

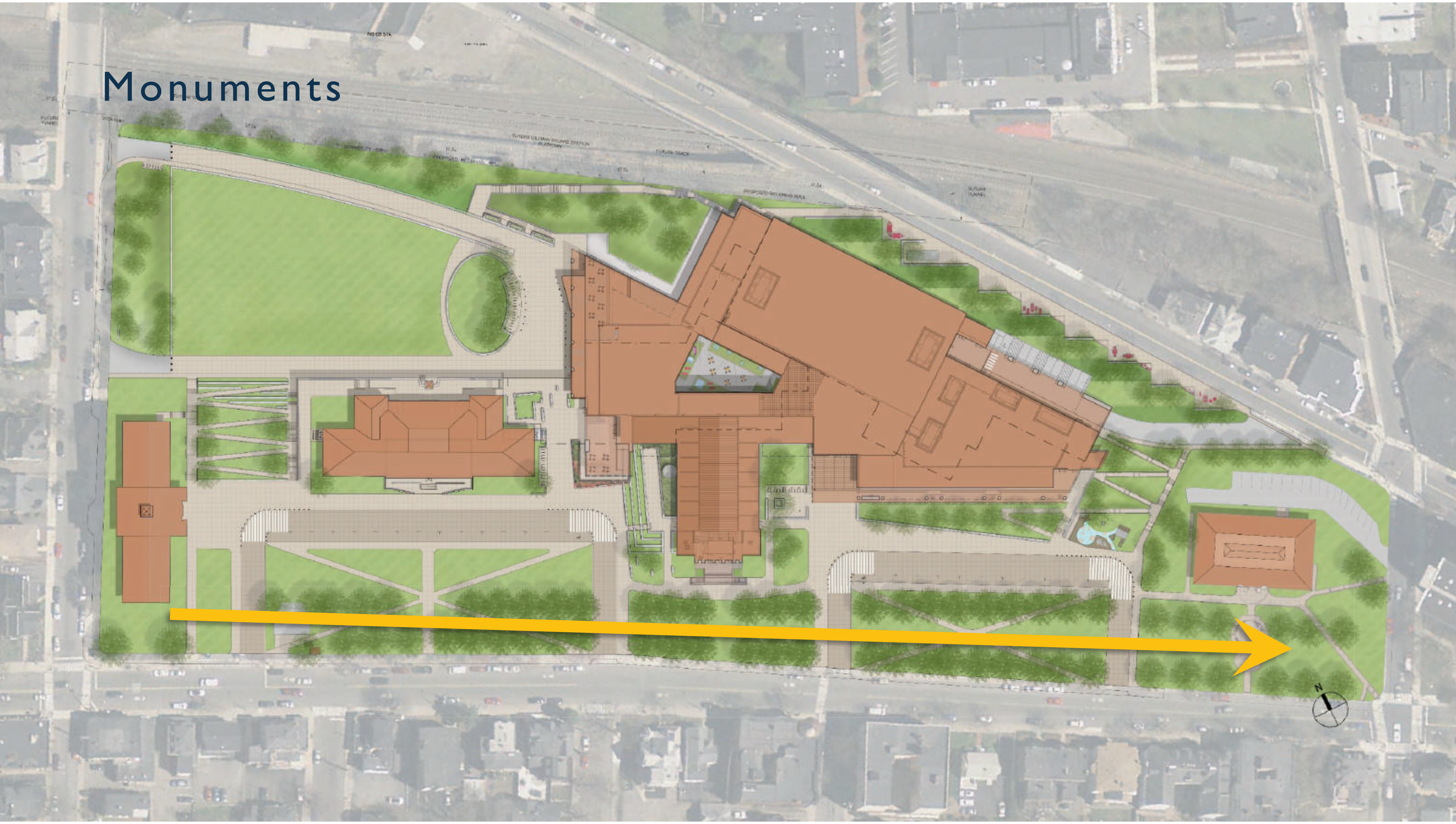

CITY OF SOMERVILLE
CITY HALL HOURS
Welcome To
SOMERVILLE CITY HALL

Civic Plaza

Programming Opportunities

Field Programming, Activities and Events

Monuments



1

Memorial Cannons

2

Korean War Memorial - 2000

3

Class of 2010 Stone

4

Memorial - First Congregational Unitarian Society

5

Anthony V. Fedele Way Sign

6

"Somerville High Honor and Progress" Plaque*

7

Memorial Bench

8

Art Globe

9

Memorial Brick

10

Pay Phone Art Box

11

Vietnam Memorial - 1985

12

Memorial - Women of the Union Square Post Plaque

13

Civil War Memorial - 1908

A

Dilboy Monument

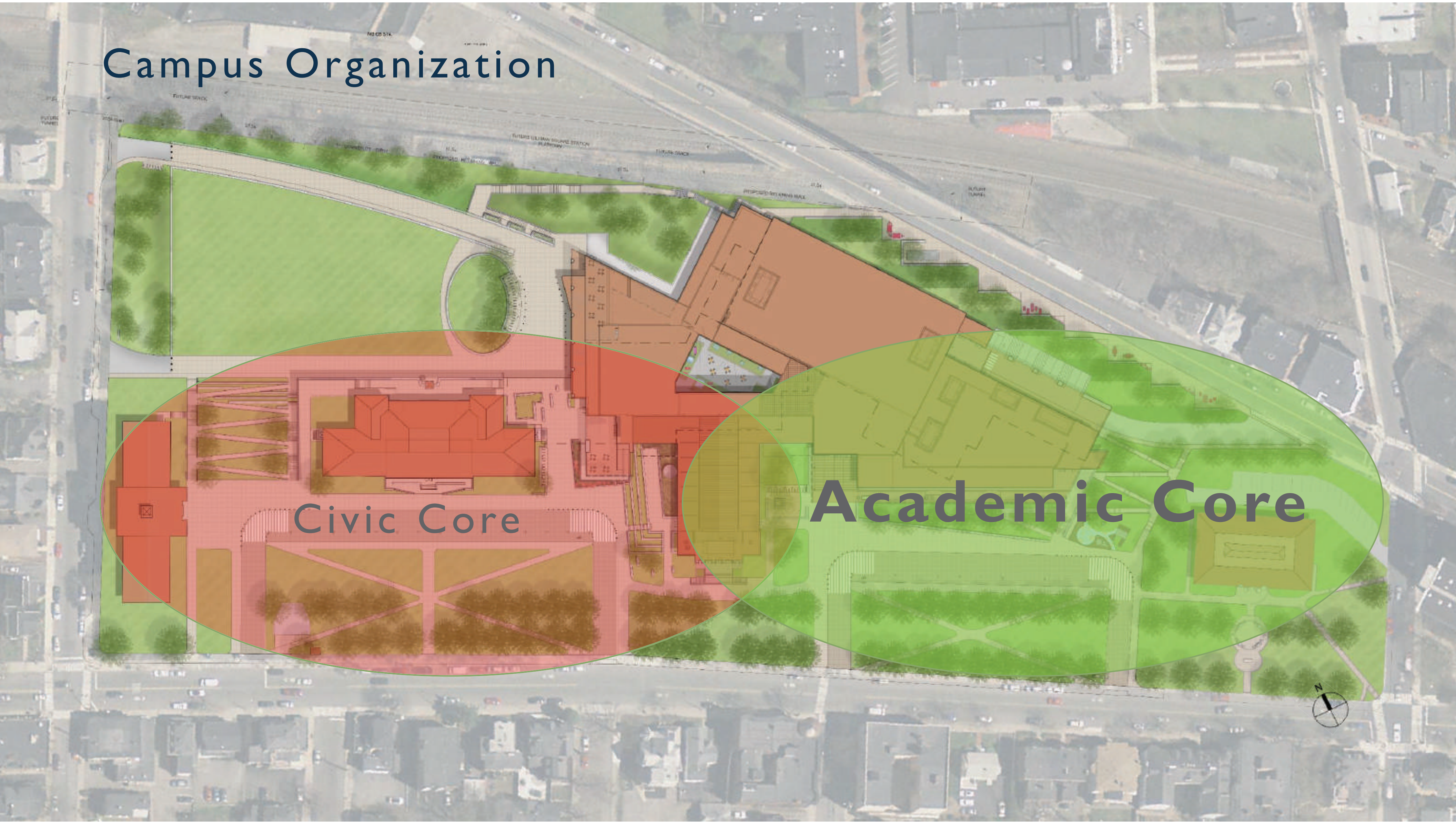
B

Somerville Honor Roll

C

Spanish War/ Philippine/ China

Campus Organization



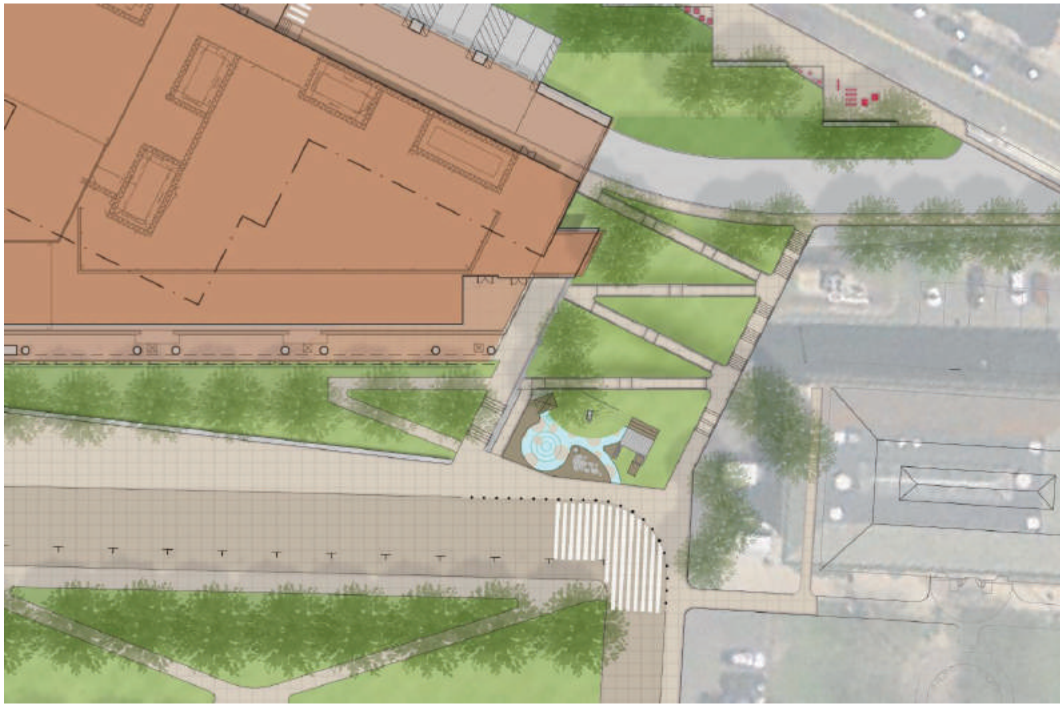
Programming Opportunities

Programming Opportunities

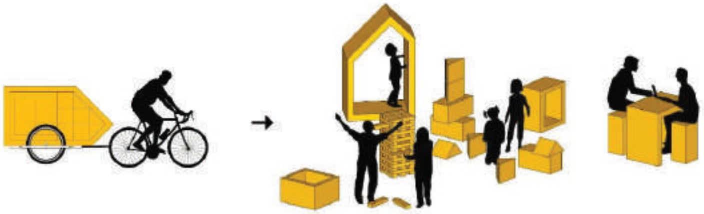
Library Green Programming Opportunities

Programming Opportunities

Child Care Playground (2-5yrs)



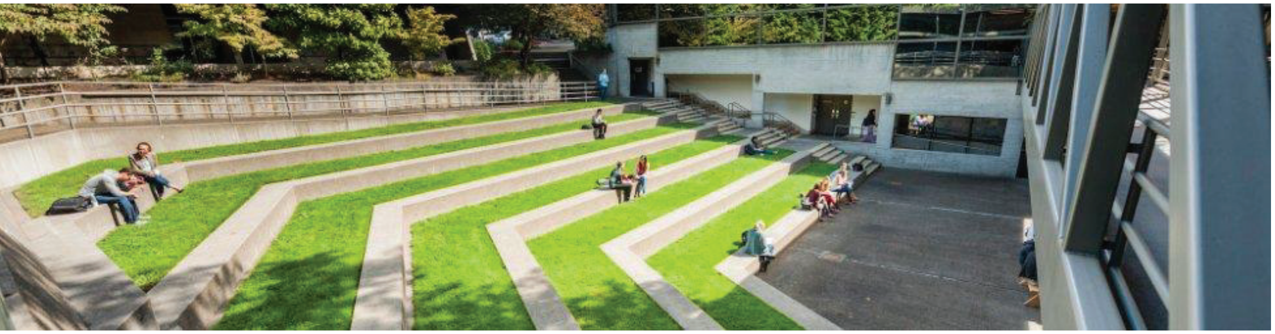
Central Hill Playground Inspiration (2-5yrs and 5-12yrs)

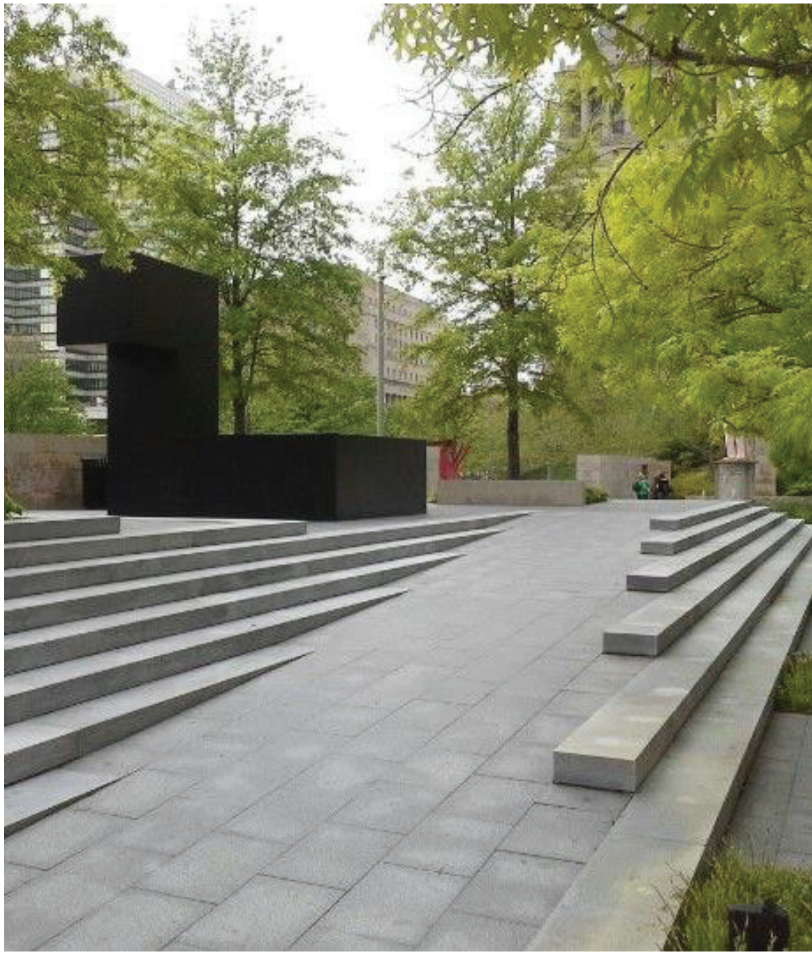


Programming Opportunities

Site: Plazas

Gathering Spaces

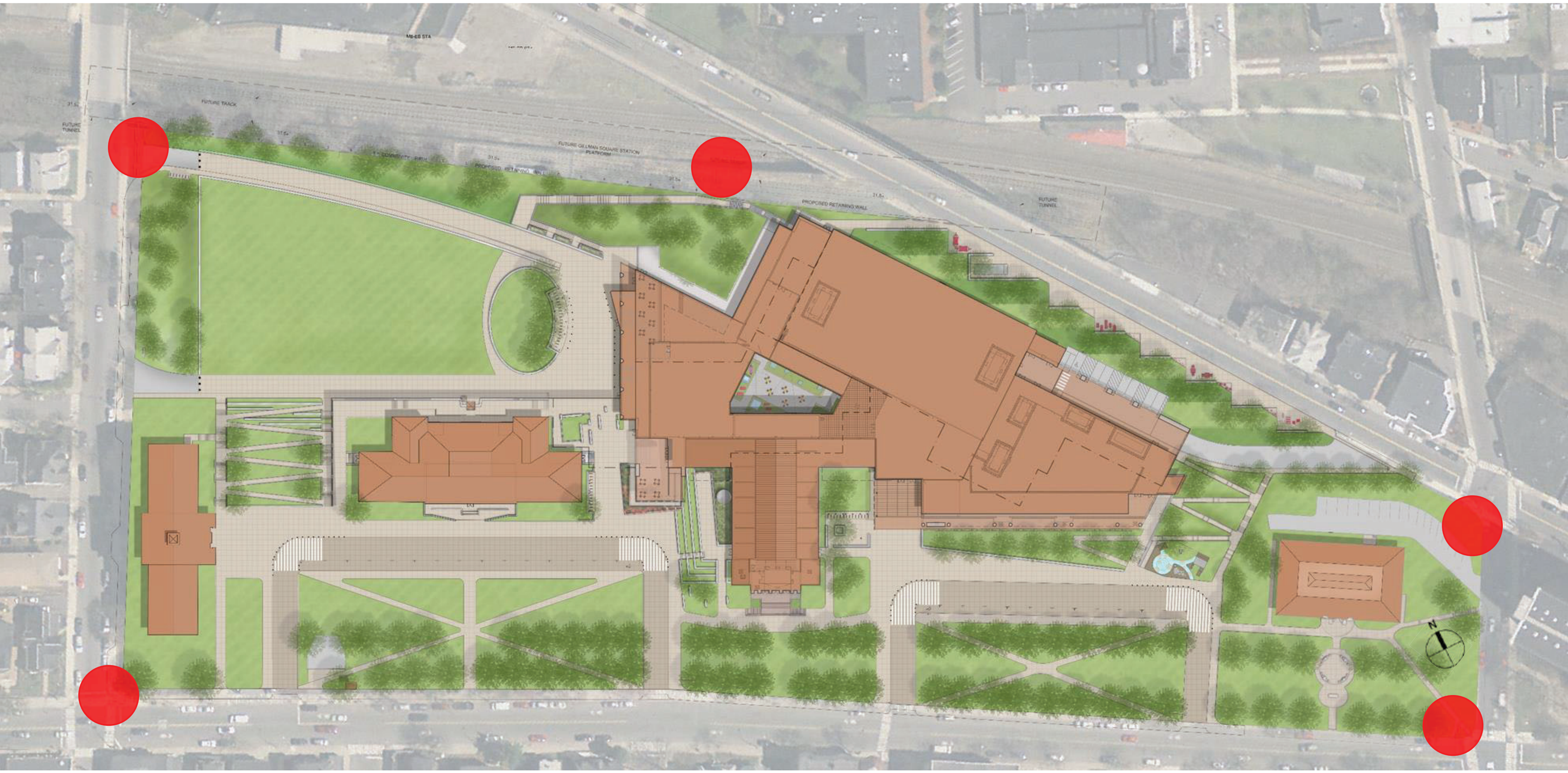




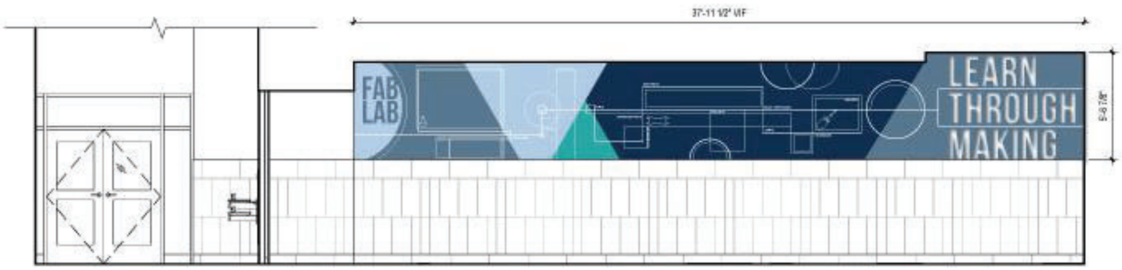
Medford Street

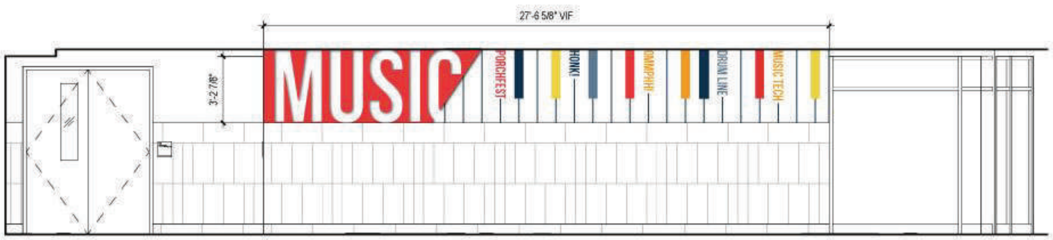
Active Spaces

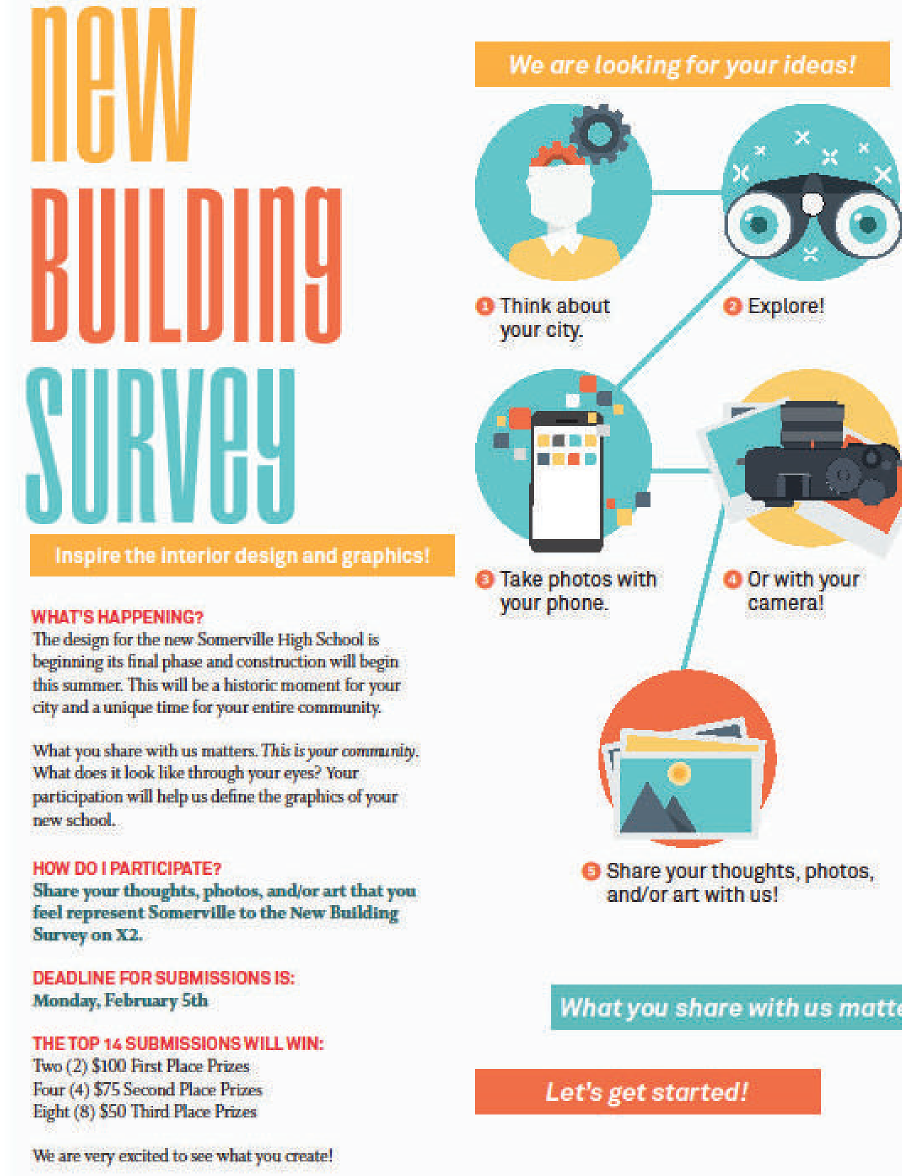
Campus Gateways



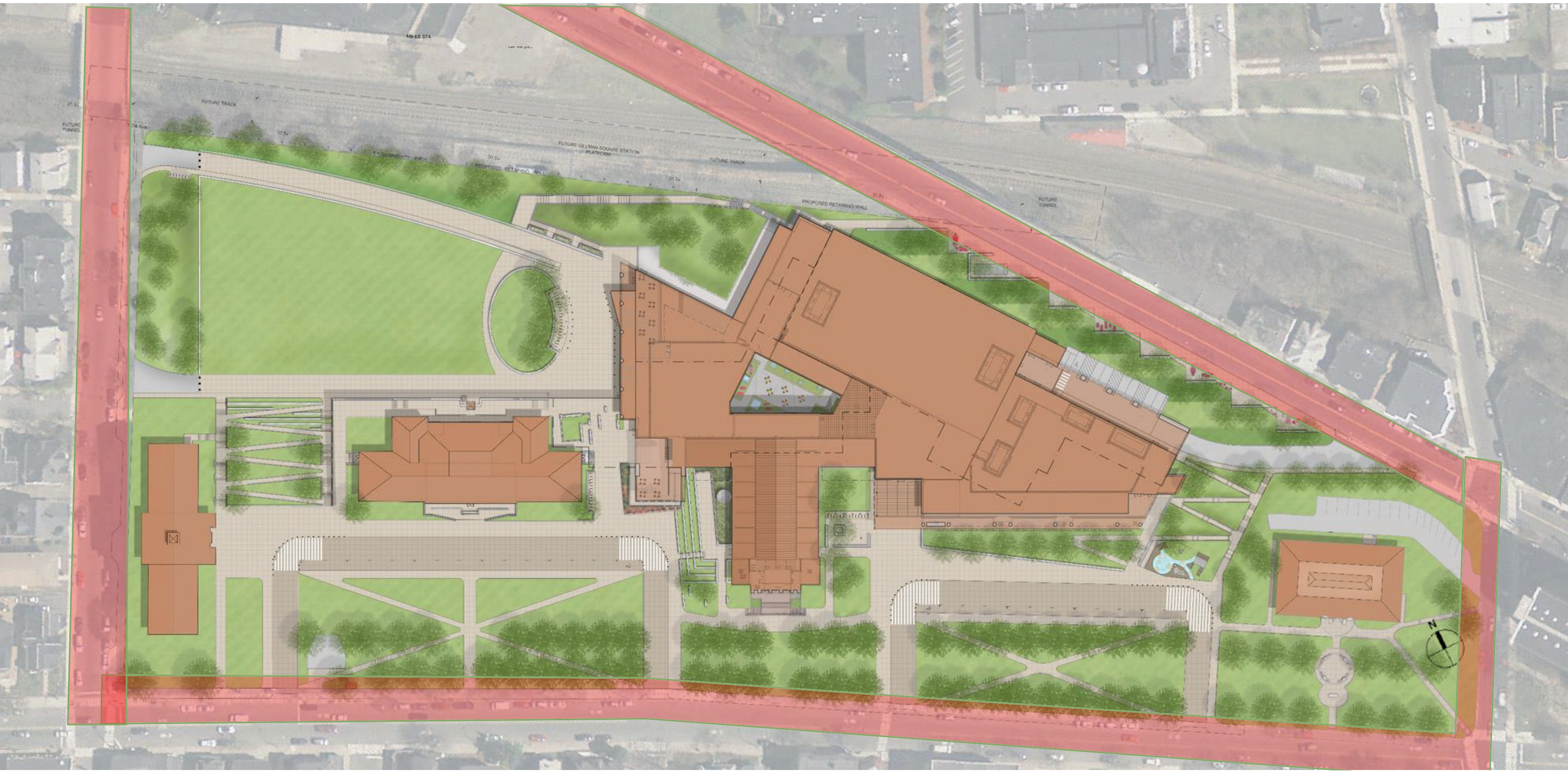
Site Wayfinding and Environmental Graphics







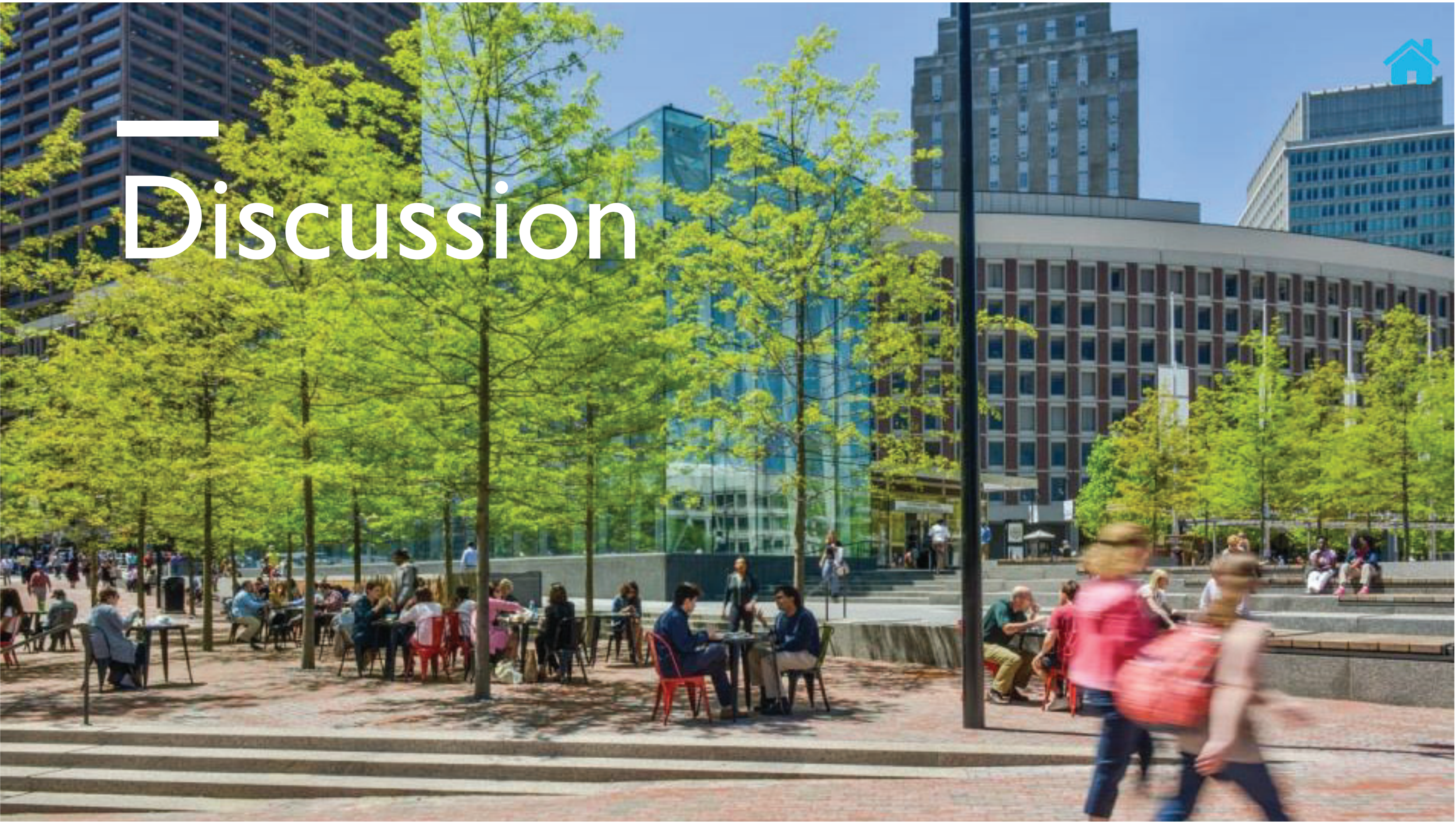
Streetscape Edge

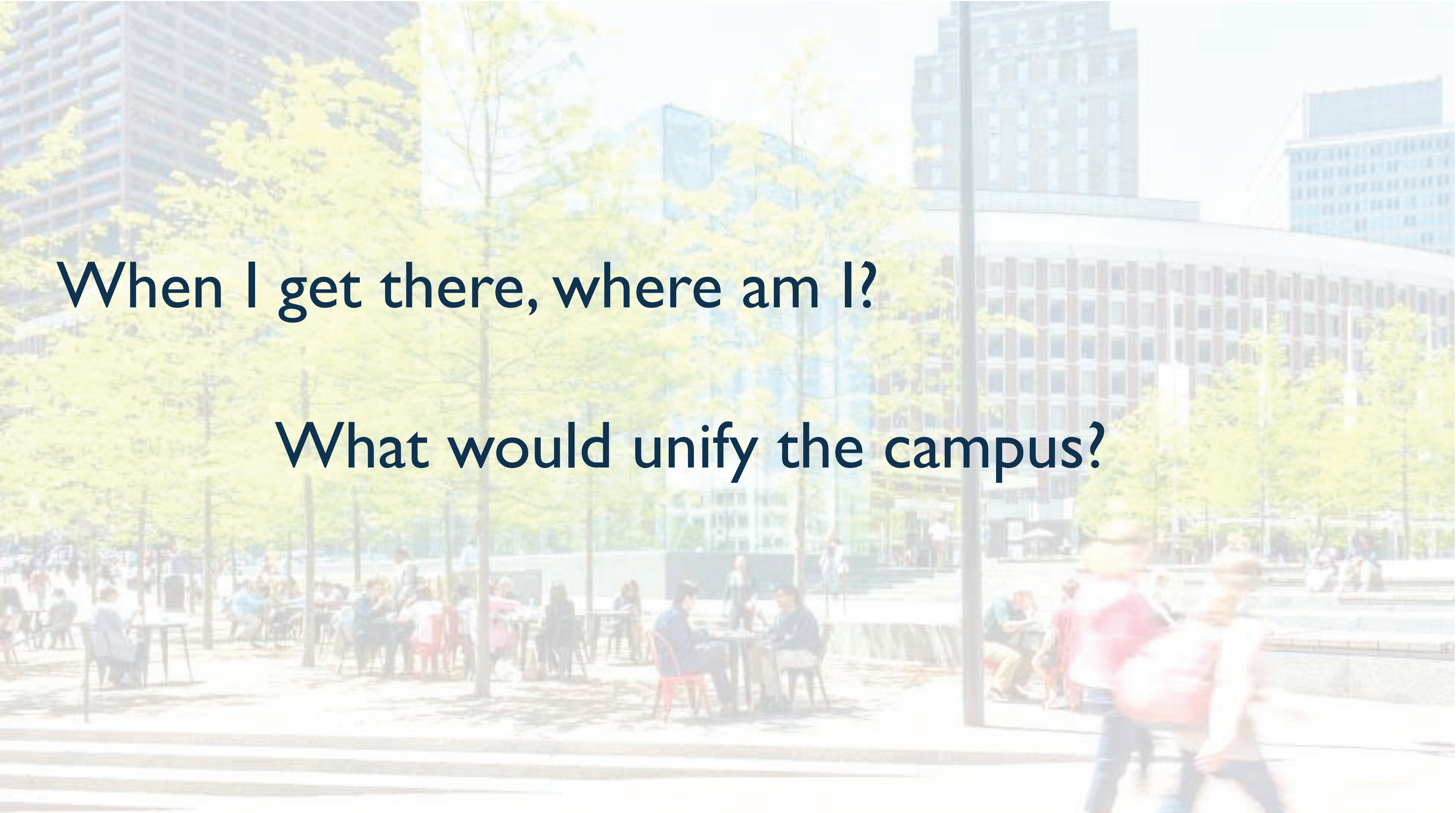


Lighting Design – Pedestrian

Tree Palette

Discussion




When I get there, where am I?
What would unify the campus?

Does campus feel inviting?

Why or why not?

What would create a more inviting/welcoming campus?

What’s missing on campus?

(ex. Cafes, food, retail)

Monuments


KEY NOTES
Removed, restored and stored off site. Part of High School project.
Reinstalled at High School.
No work scheduled as part of High School project.
NORTH SLOPE
WEST COURTYARD
BOILER
CENTRAL COURTYARD
B WING
A WING
C WING
EAST COURTYARD
E WING
D WING
VOCATIONAL TECH LOT
FIELD HOUSE LOT
LIBRARY
SOUTH LAWN
LIBRARY
A
B
C
1
2
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7
8
9
10
11
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13

Memorial Cannons

Korean War Memorial - 2000

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Anthony V. Fedele Way Sign

"Somerville High Honor and Progress" Plaque*

Memorial Bench

Art Globe

Memorial Brick

Pay Phone Art Box

Vietnam Memorial - 1985

Memorial - Women of the Union Square Post Plaque

Civil War Memorial - 1908

Dilboy Monument

Somerville Honor Roll

Spanish War/ Philippine/ China

Memorial Cannons

Korean War Memorial - 2000

Dilboy Monument

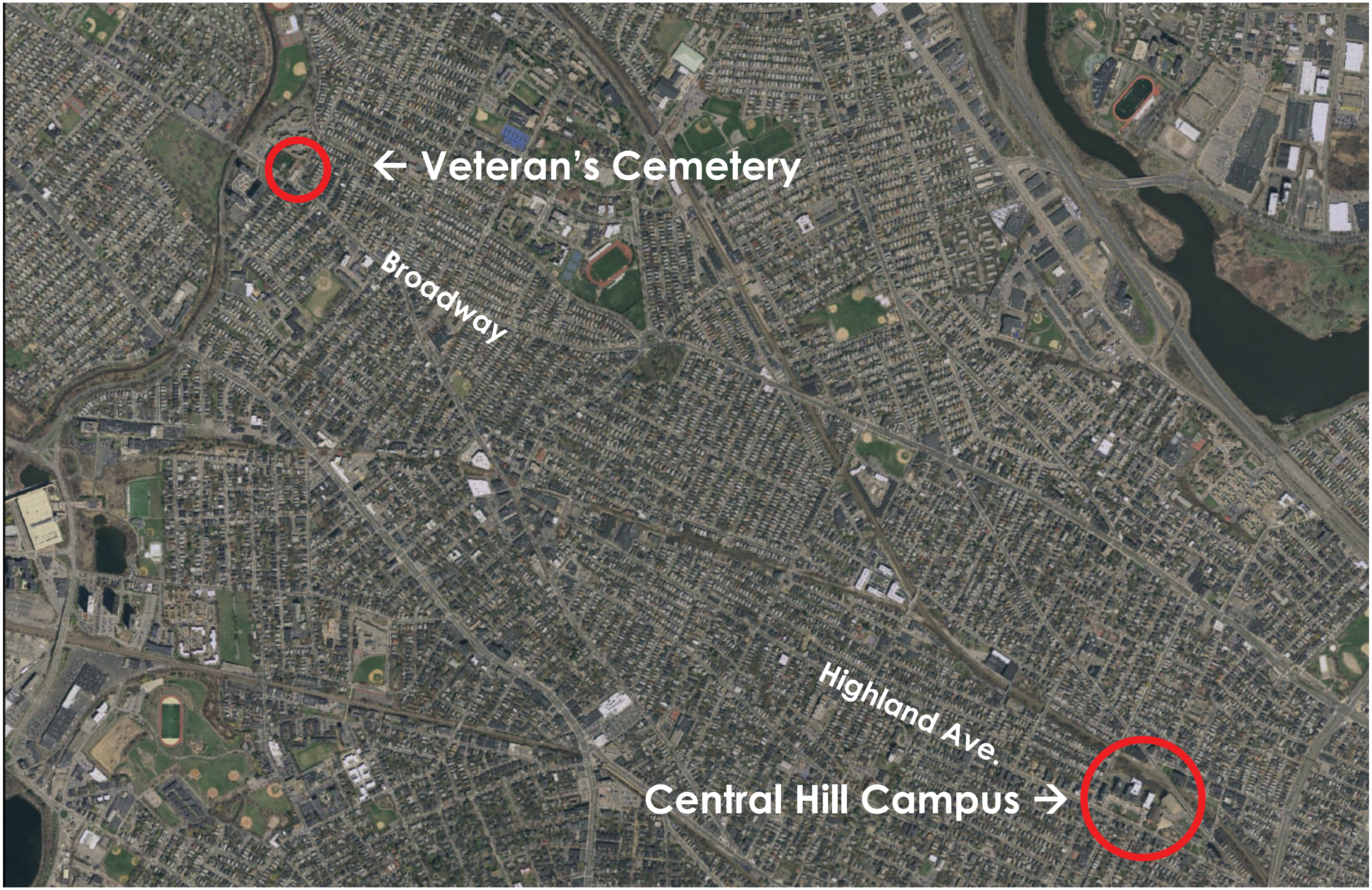
Vietnam Memorial - 1985

Memorial - Women of the Union Square Post Plaque

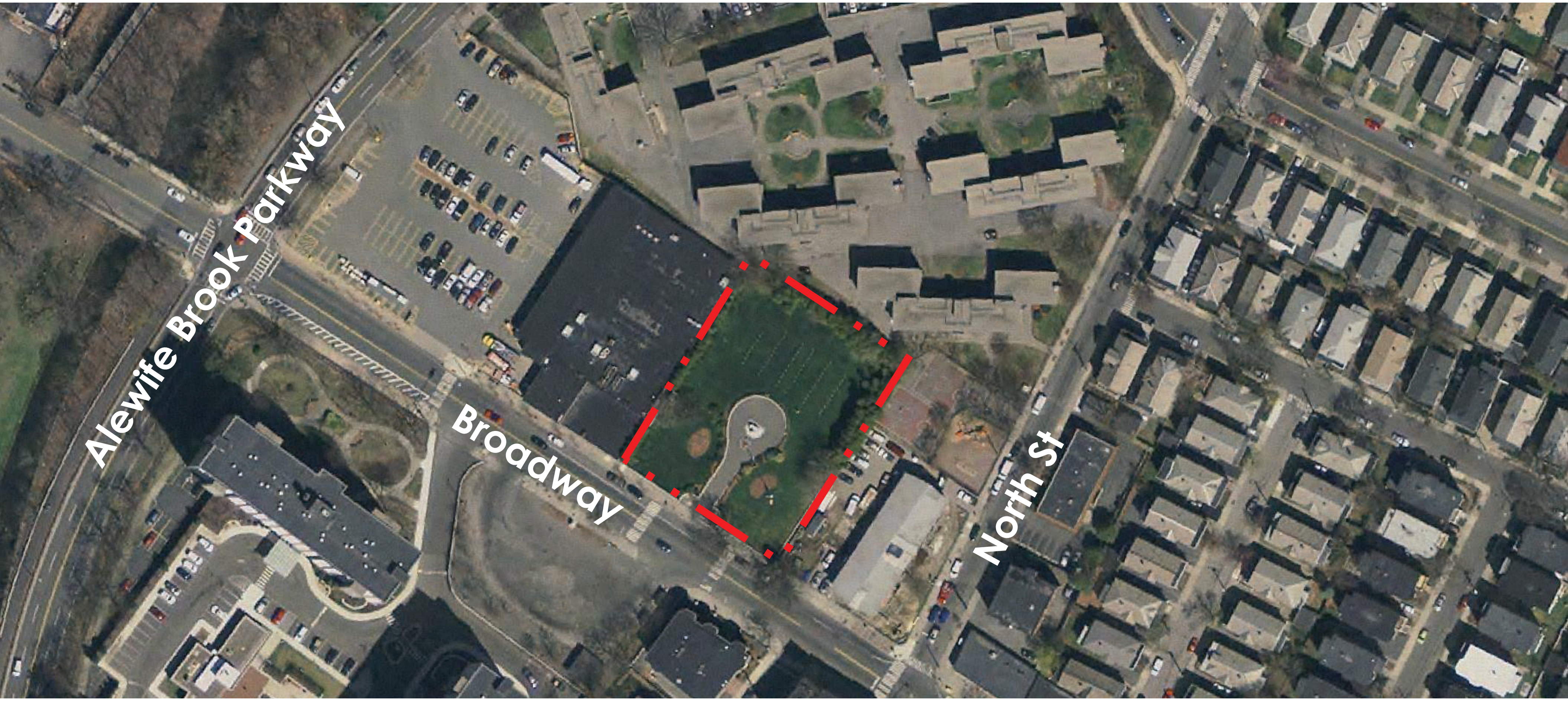
Spanish War/ Philippine/ China

Civil War Memorial - 1908

Somerville Honor Roll


← Veteran's Cemetery
Broadway
Highland Ave.
Central Hill Campus →

Veteran's Cemetery Location



Discussion

**Next Veterans Commission Meeting –
June 20h at 5.30pm at Council on Aging**

Open Discussion


engagement
assistance
attendance
unity
action
aid
partnership
sharing
presence
PARTICIPATION
help
involvement
cooperation
joining
permission
consent
encouragement
unanimity
CONSENSUS
compliance
harmony
approval
endorsement
support

Central Hill Comment Card:

How easy was it for you to get here?

Why do you come to Central Hill Campus?

- Pay Bills?
- Other City Business?
- High School Visit?
- Playground?
- Events?
- Monuments?
- Library?
- Other?

Do you want to be on the mailing list?

Feedback

To offer feedback or thoughts please contact:

centralhill@somervillema.gov

Schedule and Future Meetings

• Campus Planning Study Kick Off	April 02, 2018
• Community Meeting One	May 31, 2018
• Community Meeting Two	Sept 13, 2018
• Community Meeting Three	Oct 18, 2018
• Campus Planning Study Complete	Dec 28, 2018

Thank You

Appendix C:

Community Meeting Input 05.31.2018

Appendix C

Central Hill Campus Plan Meeting, May 31, 2018

Attended: 31

Interest Areas:

Project Info		Transportation		Sustainability		Landscape		Monu
#	%	#	%	#	%	#	%	#
15	48.4	6	19.4	11	35.5	8	25.8	5

Surveys: 25

How easy is it for you to get to Central Hill?

1 = Easy		2		3		4		5 = Di
#	%	#	%	#	%	#	%	#
17	68.0	1	4.0	6	24.0	1	4.0	0

Hard to bike

How did you get to Central Hill tonight?

Drive		Bus		Bike		Walk		Ride S
#	%	#	%	#	%	#	%	#
6	19.4	1	3.2	5	16.1	12	38.7	0

Why do you come to Central Hill Campus?

Pay Bills		City Business		High School		Playground		Eve
#	%	#	%	#	%	#	%	#
9	29.0	17	54.8	7	22.6	5	16.1	10

ments	Other	
%	#	%
16.1	4	12.9

Curiosity ADA
Recycling Find out more

fficult
%
0.0

hare?	Other	
%	#	%
0.0	1	3.2

Longboard

nts	Monuments		Library		Other	
%	#	%	#	%	#	%
32.3	4	12.9	21	67.7	8	25.8

3: Walk my dog
Eventually my son will go to the high school
Meetings in library
Meeting
City Hall
Spend time in the park (not playground)
Voted early
Project info
Child care center
Sledding hill

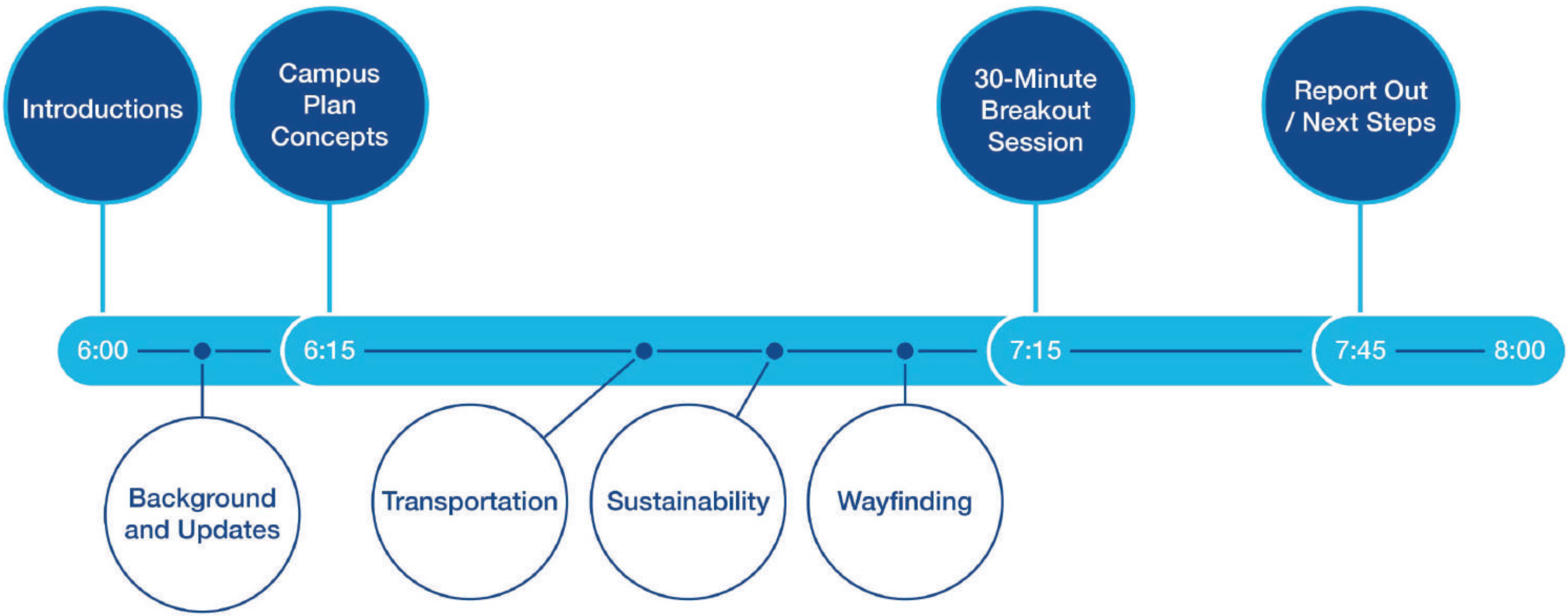
Appendix D:

Community Meeting Presentation 09.25.2018

Appendix D

Central Hill Campus – Community Meeting #2

Tonight's Agenda



Campus Plan Committee

- **Kristen Stelljes,** Somerville Community Preservation Act Manager
- **Bryan Bishop,** Director of Veterans
- **Glenn Ferdman,** Director, Library
- **Robert King,** Director of Capital Projects and Planning
- **Emily Monea,** Director, SomerStat
- **George Proakis,** Director, Planning and Zoning
- **Brad Rawson,** Director, Transportation and Infrastructure
- **Mike Tremblay,** Senior Transportation Planner
- **Oliver Sellers-Garcia,** Director, Office of Sustainability and Environment
- **Melissa Woods,** Senior Long Range Planner

Planning Team

SMMA

- **Alex Pitkin,** Senior Vice President
- **Lorraine Finnegan,** Principal
- **Samantha Farrell,** Landscape Architect
- **Elizabeth Galloway,** Sustainable Designer
- **Laura Monies,** Landscape Architect/Planner
- **Erin Prestileo,** Civil Engineer
- **Ali Ucci,** Graphic Designer
- **Jack Dombrowski,** Graphic Designer
- **Marisa Fryer,** Site Designer

Building Conservation Associates

- **Lisa Howe,** Director of BCA New England

Toole Design Group

- **Ashley Haire,** Project Engineer
- **Stephanie Weyer,** Landscape Designer

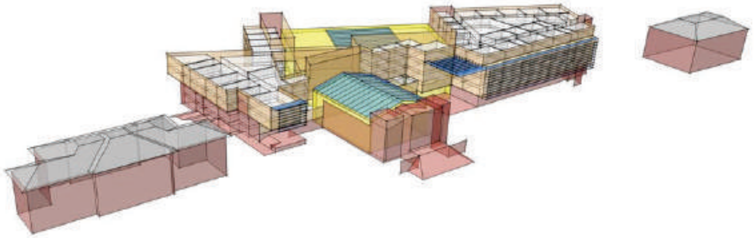
Project Timeline

• Community Meeting #1	May 31, 2018
• Parking Study Meetings 1-3	Summer, 2018
• Memorials Commission Meeting	June 20, 2018
• Community Meeting #2	Sept 25, 2018
• **Parking Study Meeting #4**	**Sept 27, 2018**
• Community Meeting #3	Oct 18, 2018
• Campus Planning Study Complete	Dec 28, 2018

Background and SHS Project Updates

- SHS Project Update
- Brief Site History & Analysis
- Memorials & Monuments

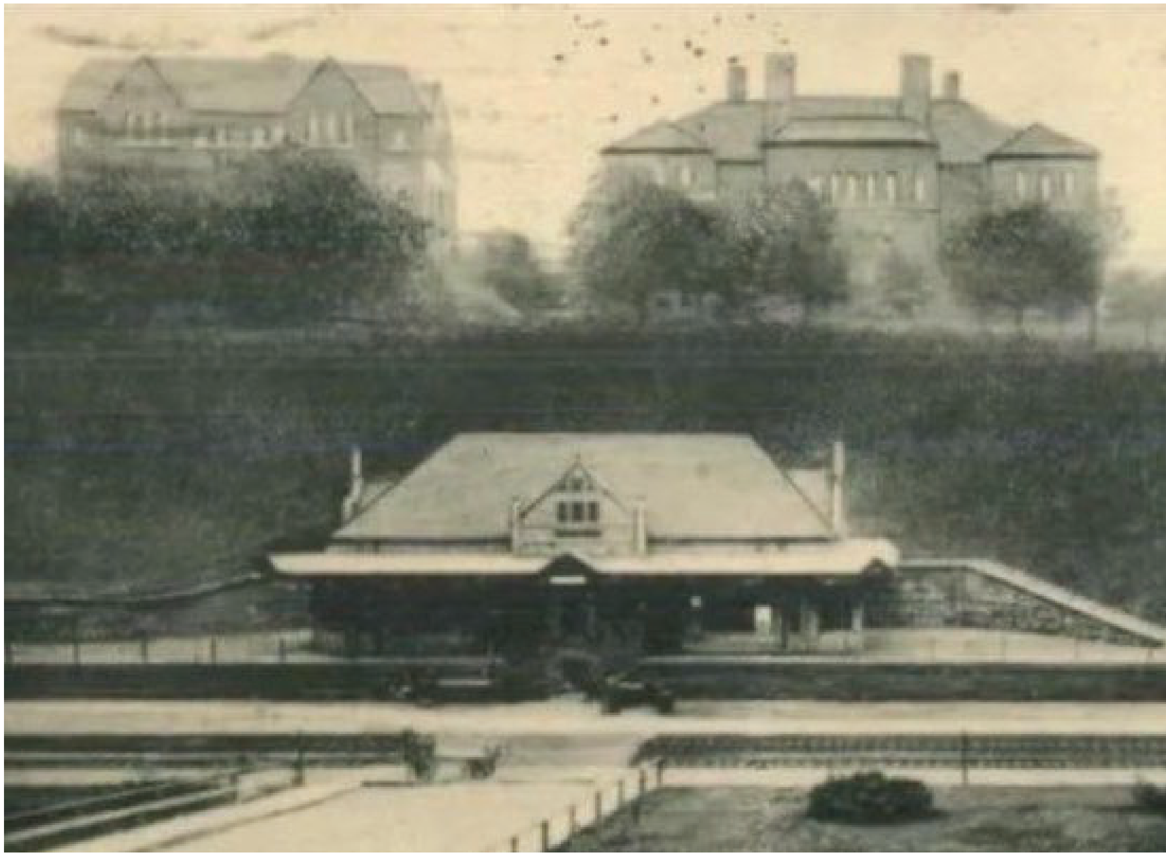
New SHS Highland Avenue Perspectives



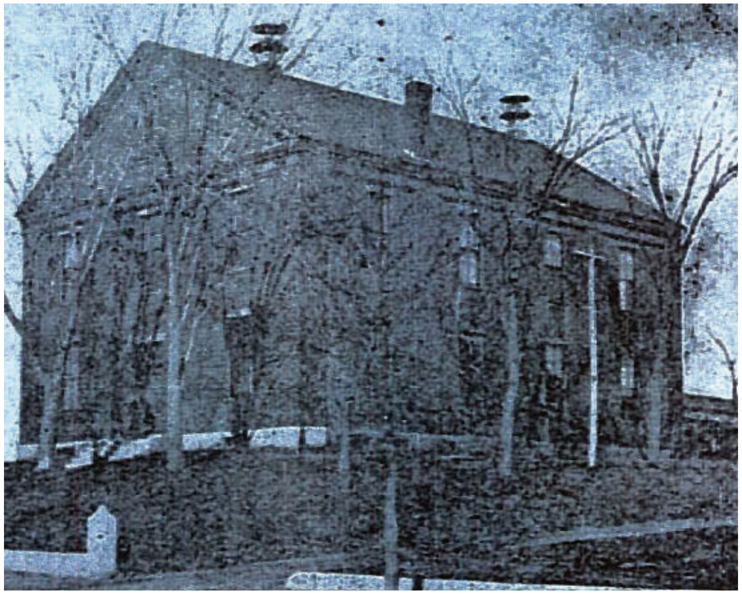
Medford Street Perspective

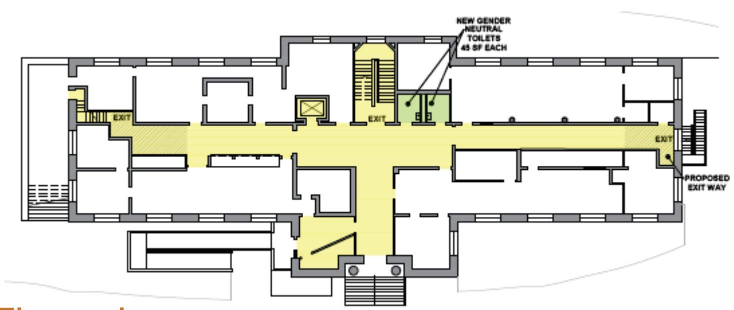
Uniquely Central Hill

- GLX access
- Creation of New Open Space
- Balance of Neighborhood & Civic uses

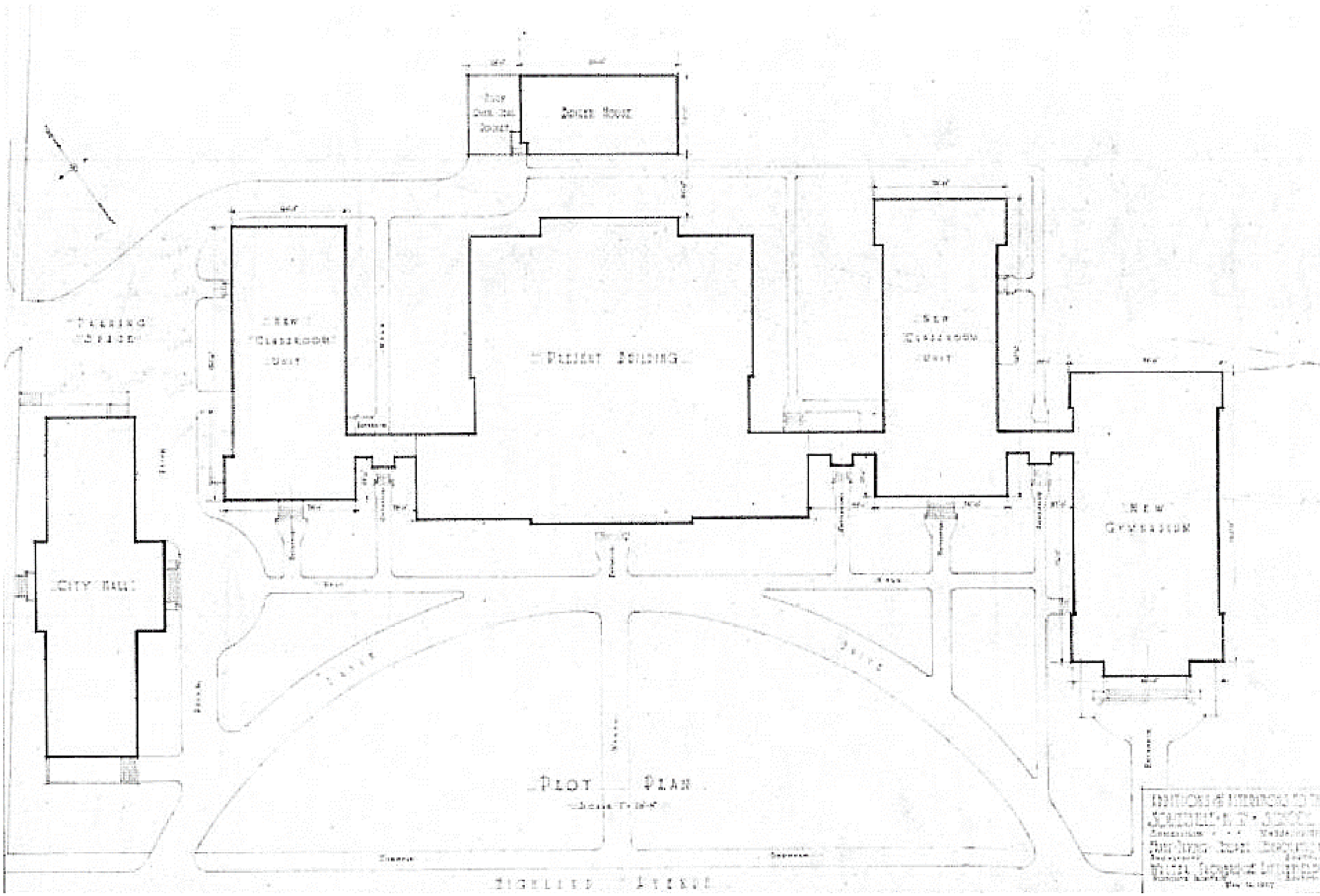


New SHS Medford Street Perspective



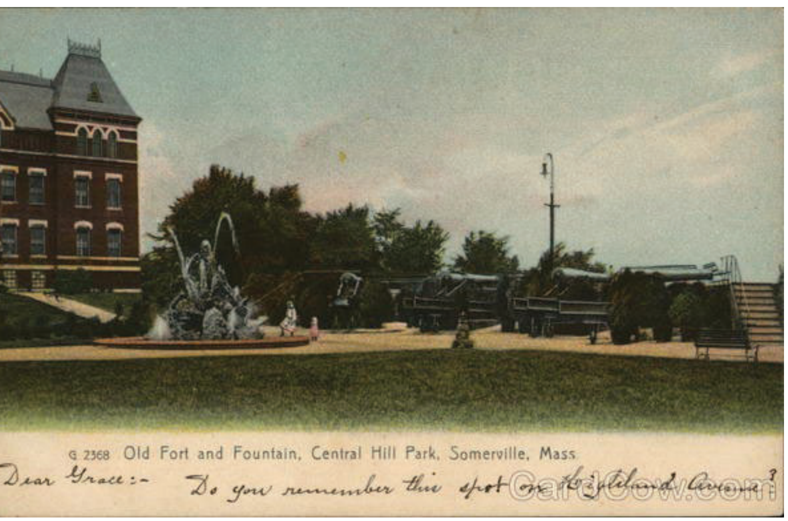


Existing First Floor plan



BOILER HOUSE
PARKING SPACE
NEW CLASSROOM UNIT
PRESENT BUILDING
NEW CLASSROOM UNIT
NEW GYMNASIUM
CITY HALL
DRIVE
DRIVE
PLOT PLAN


Old Fort at Central Hill Park, Somerville, Mass.
No. 708. National Art Views Co. N. Y. City.
CardCow.com


G 2368 Old Fort and Fountain, Central Hill Park, Somerville, Mass.
Dear Grace:- Do you remember this spot
CardCow.com


Wilson Memorial Fountain, Central Hill Park, Somerville, Mass.
CardCow.com


KEY NOTES
Removed, restored and stored off site. Part of High School project.
Reinstalled at High School.
No work scheduled as part of High School project.
NORTH SLOPE
WEST COURTYARD
BOILER
CENTRAL COURTYARD
E WING
VOCATIONAL TECH LOT
A WING
B WING
C WING
EAST COURTYARD
D WING
FIELD HOUSE LOT
LIBRARY
SOUTH LAWN
LIBRARY
A
B
C
1
2
3
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6
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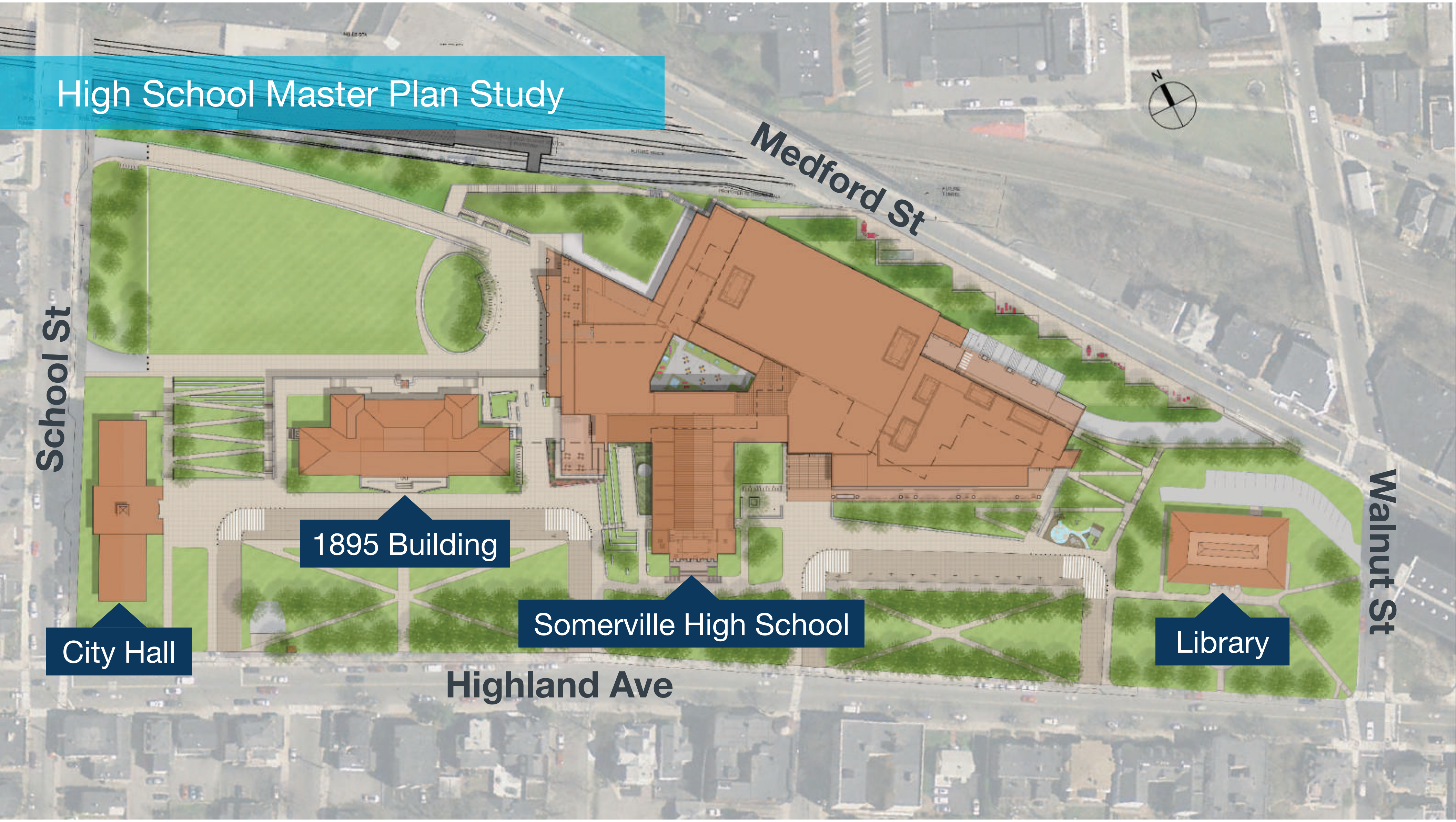
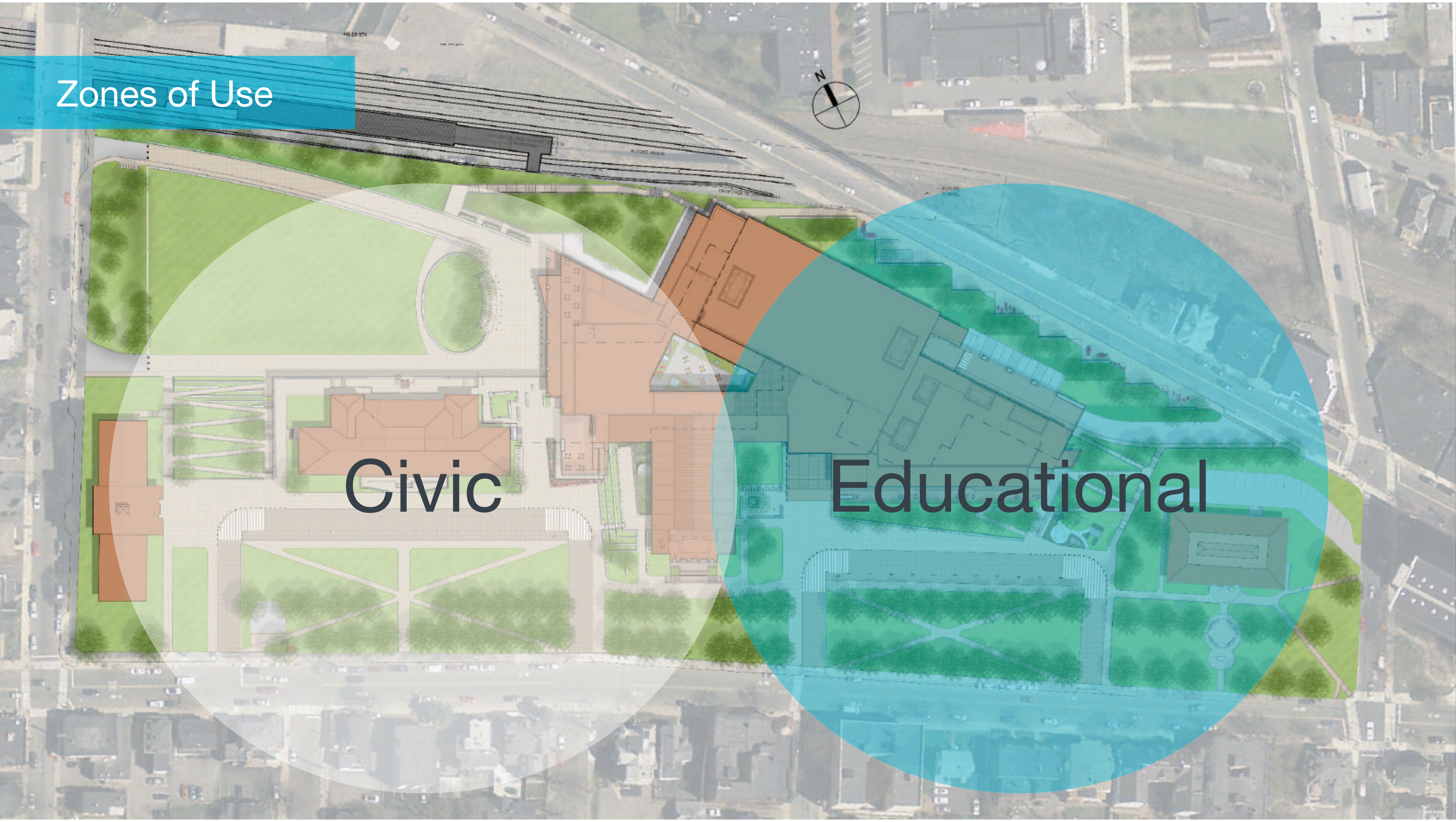
8
9
10
11
12
13

Example Monument Scan

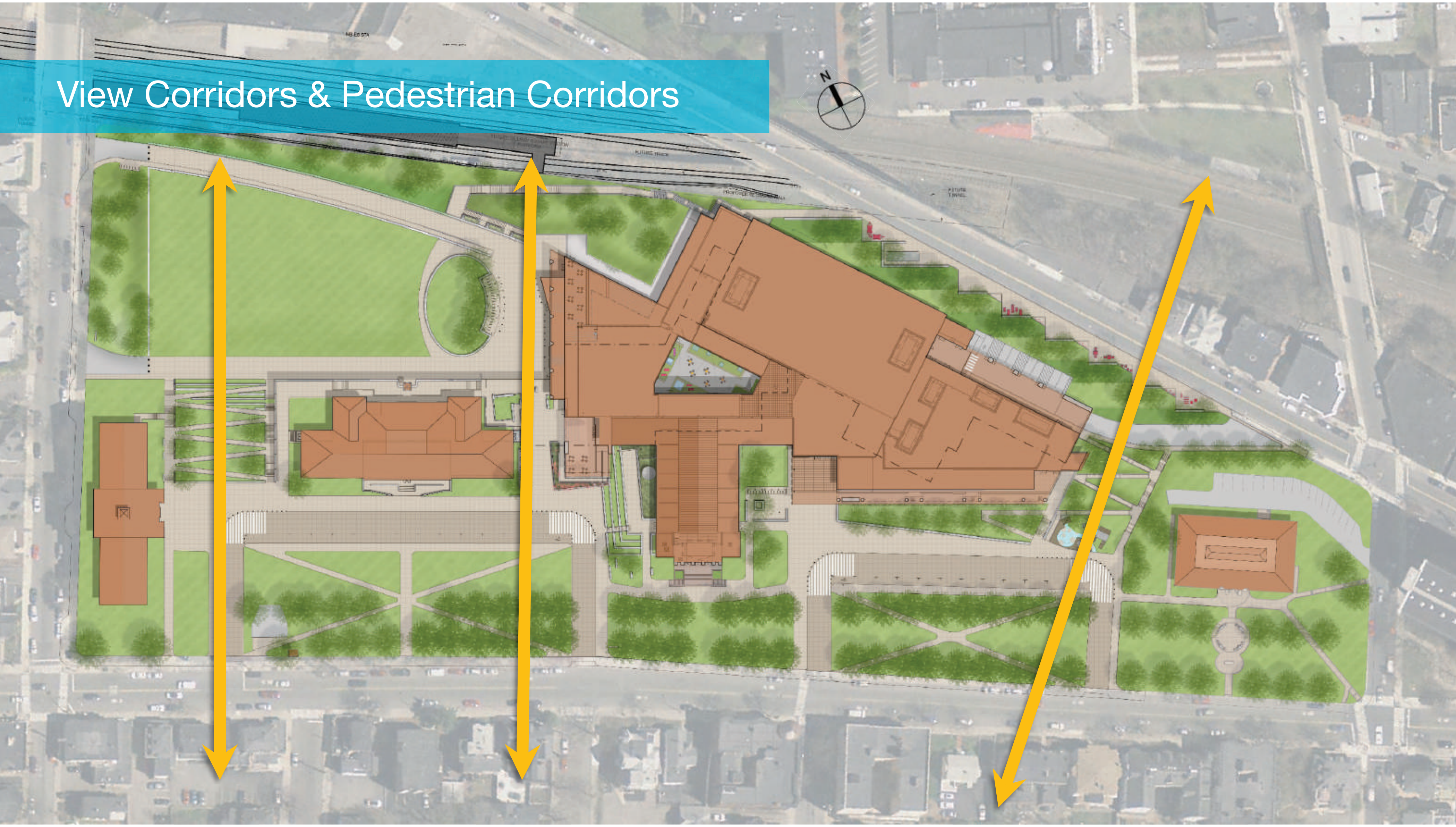
WWI Monument located in Union Square

Existing Campus Gateways

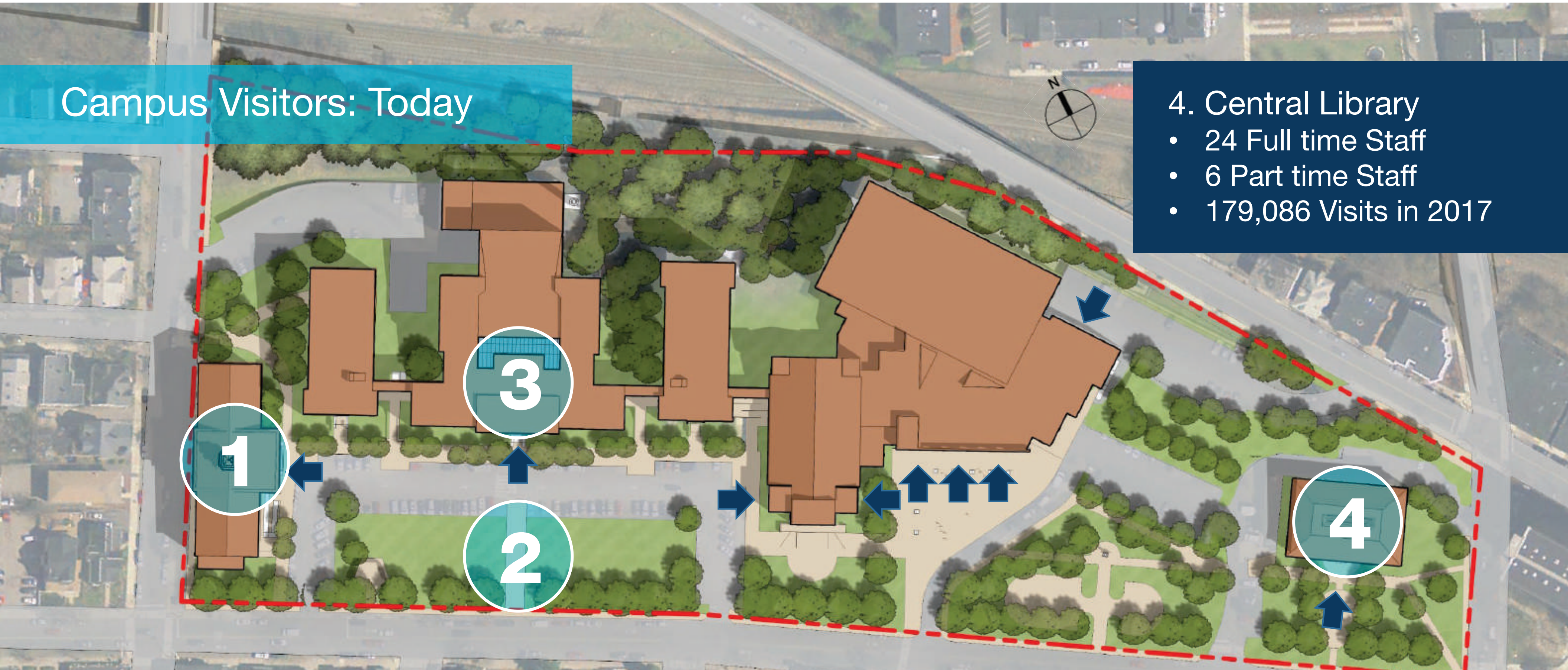

High School Master Plan Study
Medford St
School St
Walnut St
Highland Ave
1895 Building
Somerville High School
City Hall
Library
N


Zones of Use
N
Civic
Educational

View Corridors & Pedestrian Corridors



Campus Visitors: Today



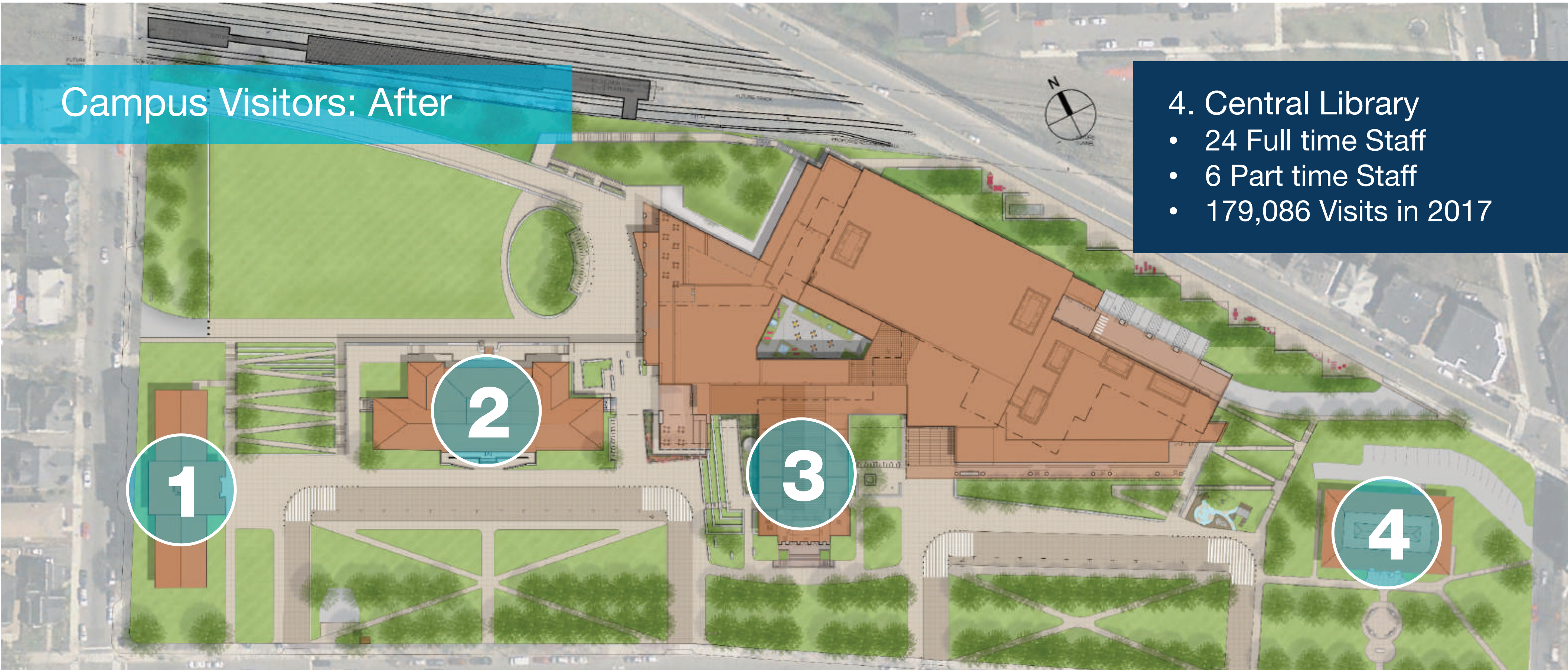
4. Central Library
- 24 Full time Staff
- 6 Part time Staff
- 179,086 Visits in 2017

1. City Hall
- 127 Full time Staff
- 6 Part time Staff
- 14 Offices / Agencies

2. Plaza
- 5+ Annual Events
- 500 to 1,500 attendees
- 3 to 4 Annual Special Rallies
- 100 to 3,000 attendees

3. Somerville High School
- 234 Full time Staff
- 1300 Students
- Open 7am-10pm Weekdays

Campus Visitors: After



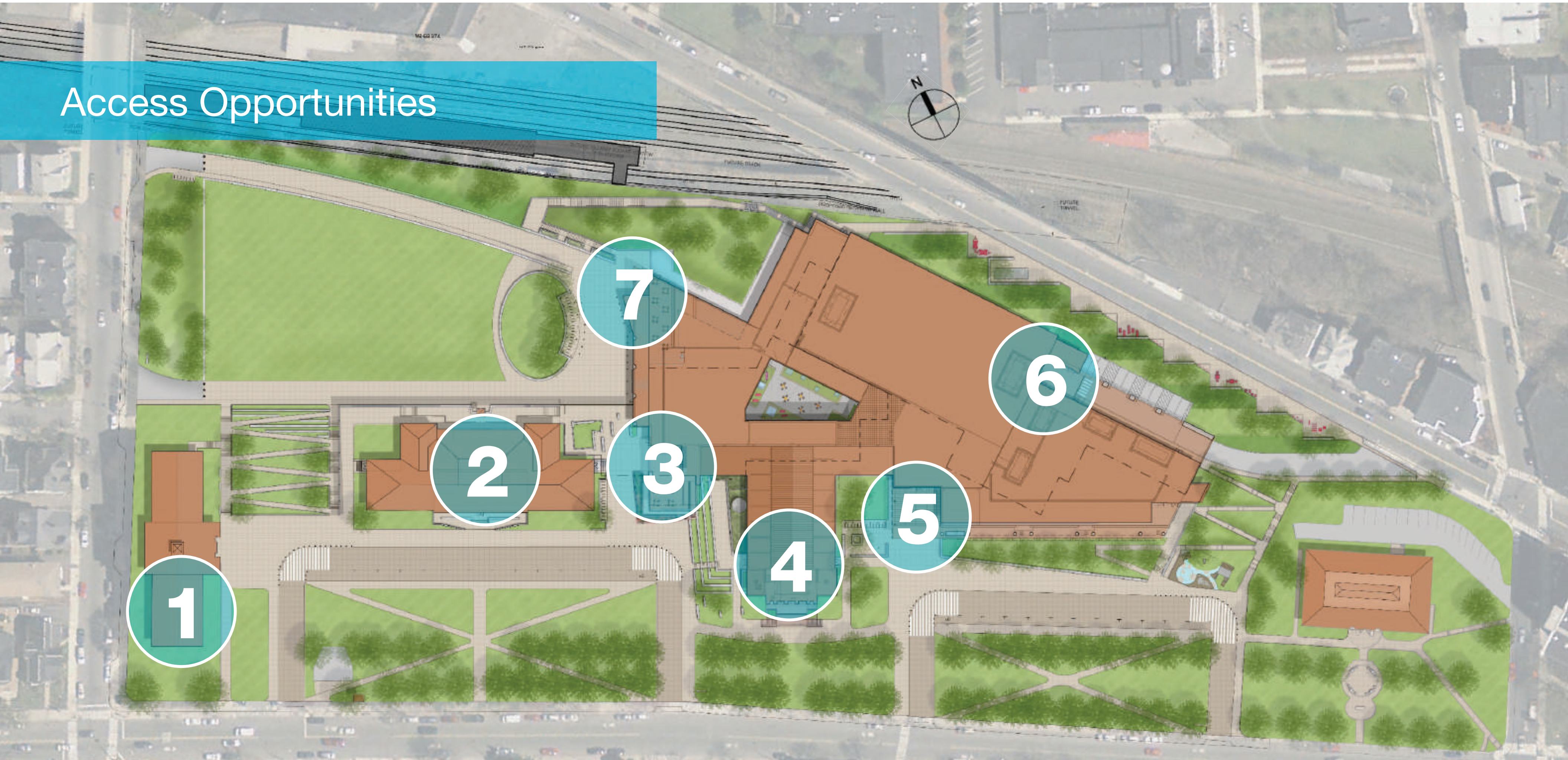
4. Central Library
- 24 Full time Staff
- 6 Part time Staff
- 179,086 Visits in 2017

1. City Hall
- 127 Full time Staff
- 6 Part time Staff
- 14 Offices / Agencies

2. Municipal Offices
- Full time Staff – TBD
- Office's Agencies - TBD

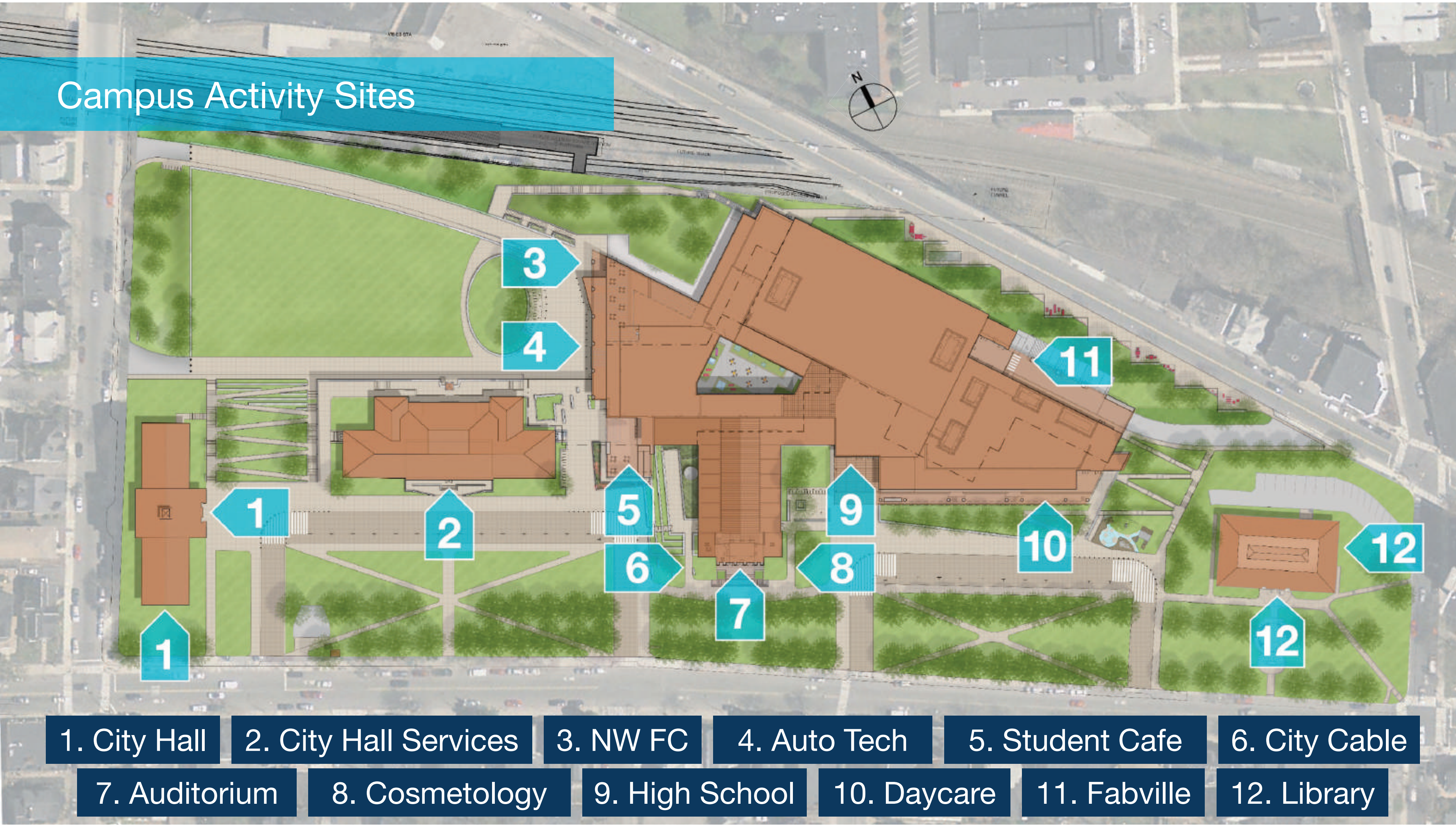
3. Somerville High School
- 285 Full time Staff
- 1600 Students
- Open 24/7/365

Access Opportunities

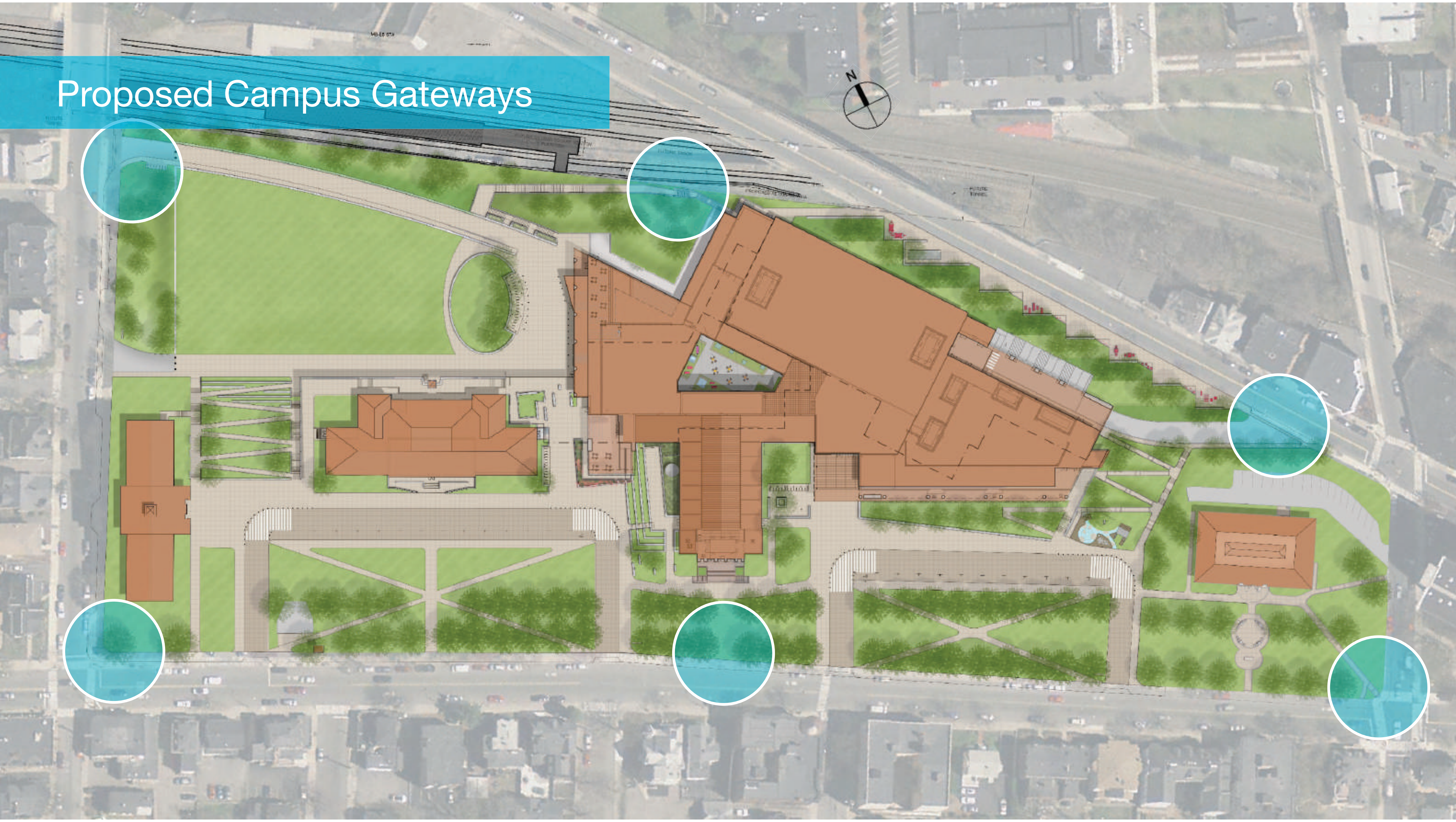


City Hall:	1895 Options:	High School:		
1. Agencies	2. Municipal Agencies	3. Highlander Cafe	4. Auditorium 5. SCTV & CVTE	6. Fabville 7. Vocational Program

Campus Activity Sites



Proposed Campus Gateways



Campus Plan Concepts

- Planning Overview
- Concept 1: Allée
- Concept 2: Promenade
- Concept 3: Central Hill Concourse

Campus Planning Vision

Create an inviting and comprehensive campus plan that embodies the values of the City of Somerville:

- Accessibility
- Inclusion
- Environmental Stewardship
- Respect for Local History

Campus Planning Goals & Objectives

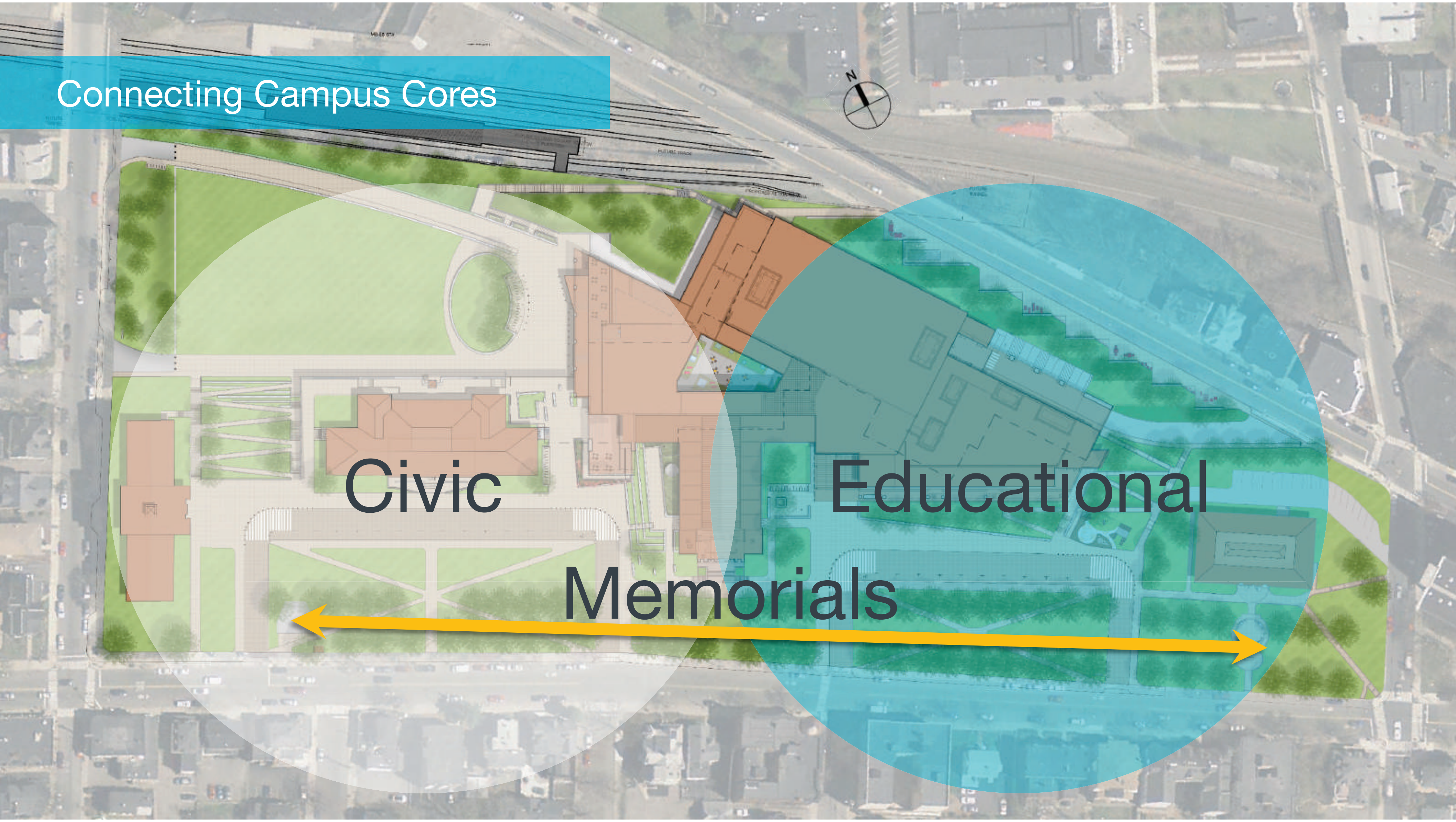
- Achieve historically appropriate, unified sense of place
- Respectfully incorporate war memorials
- Integrate the Central Library into the civic experience of the campus
- Improve accessibility within the campus
- Achieve Carbon Net Zero or Net Zero Energy Ready (NZE) campus
- Systemically mitigate storm water impacts
- Utilize landscape and urban design elements and wayfinding to enhance user experience
- Provide meaningful public process

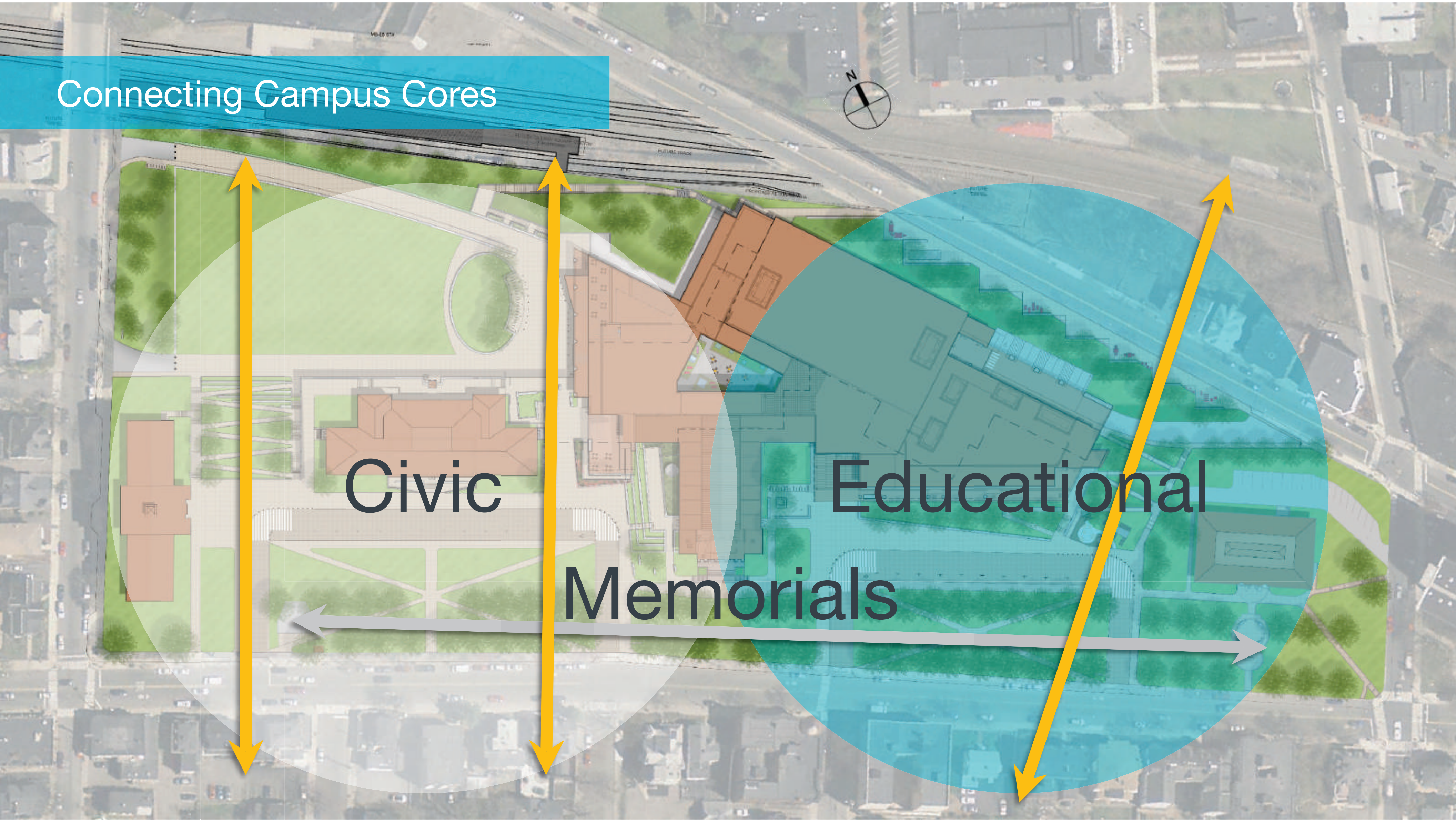
Goal of Public Process

- Share with the public campus plan design concepts
- Gather and incorporate feedback

Planning Design Parameters

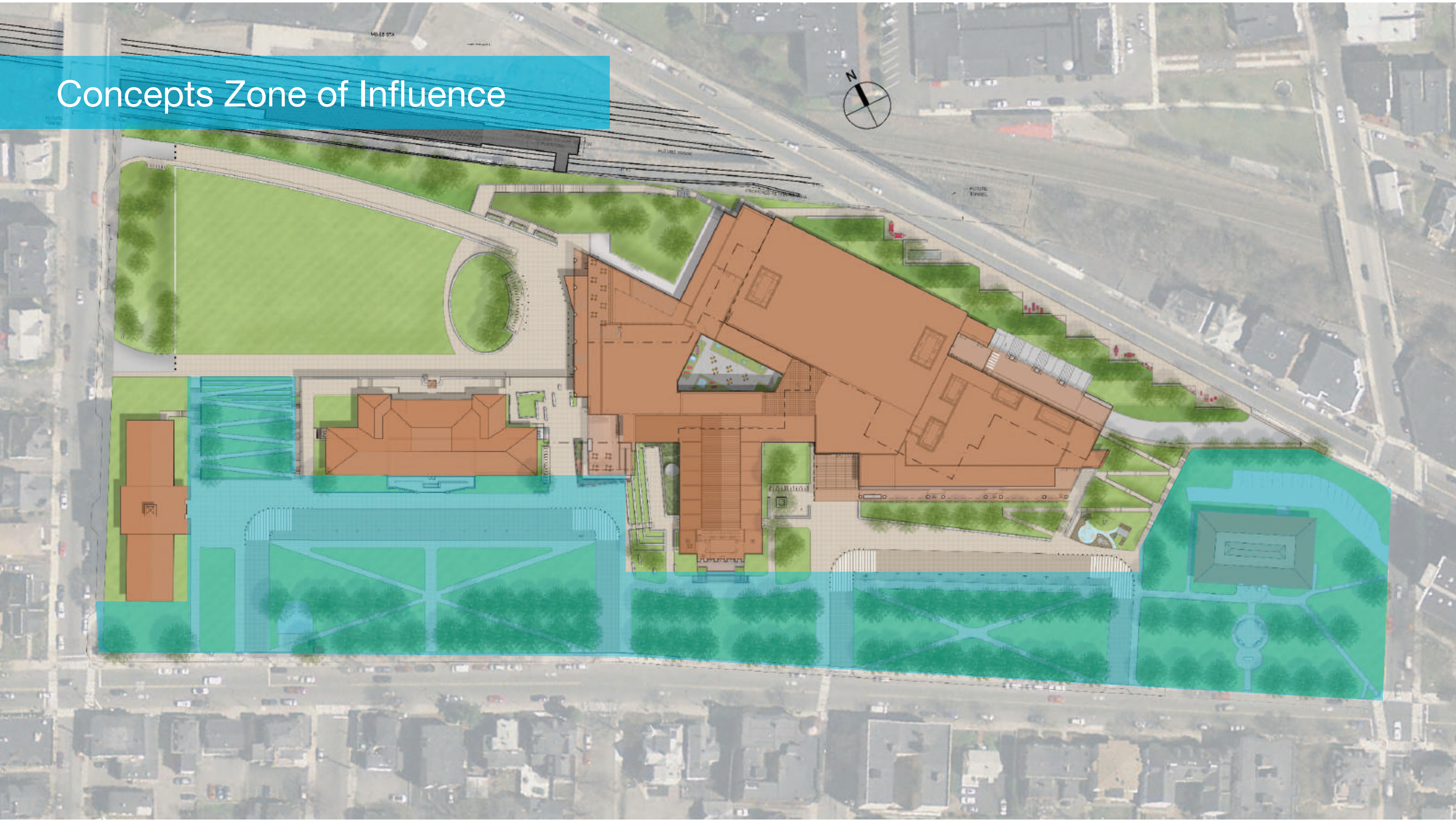
- Somerville High School Master Plan and project scope as a starting point
- GLX Gilman Station and Community Path
- Parking and Traffic Studies
- Building Use Space Plans for City Hall and 1895 Building
- Re-creation of Central Hill playground
- Respectful and chronological incorporation of war memorials


Connecting Campus Cores
Civic
Educational
Memorials

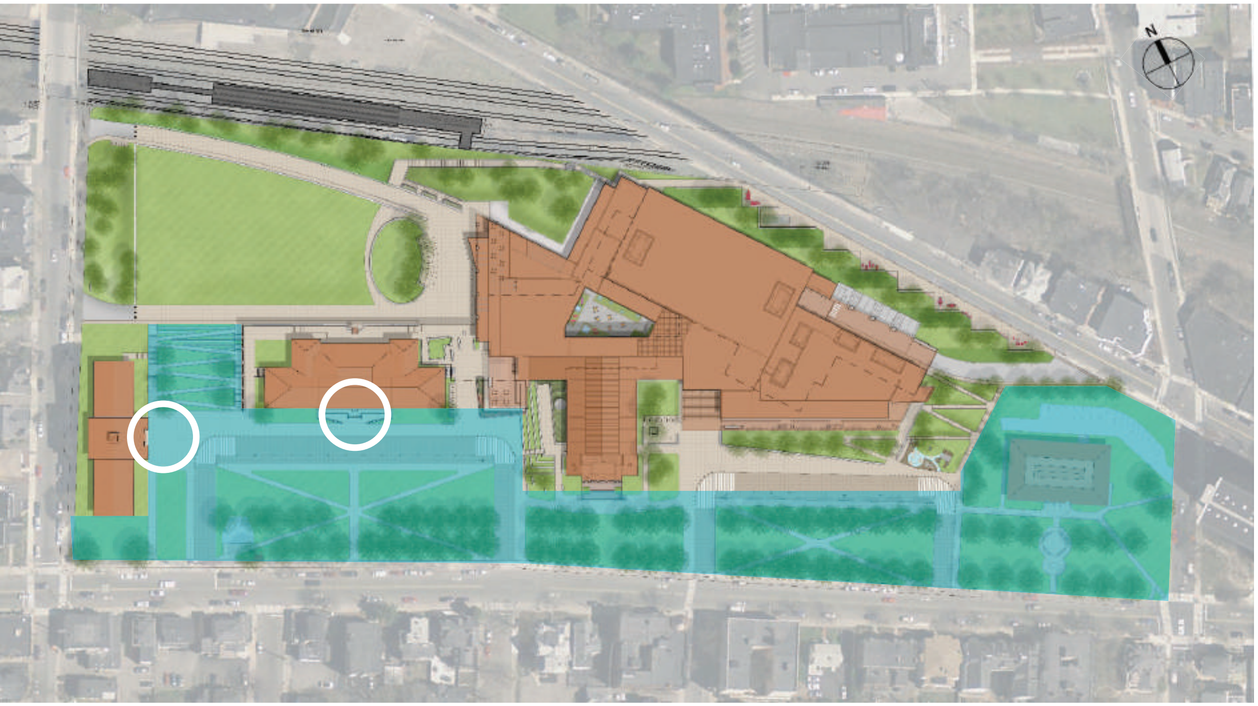


Connecting Campus Cores
Civic
Educational
Memorials
N

Concepts Zone of Influence

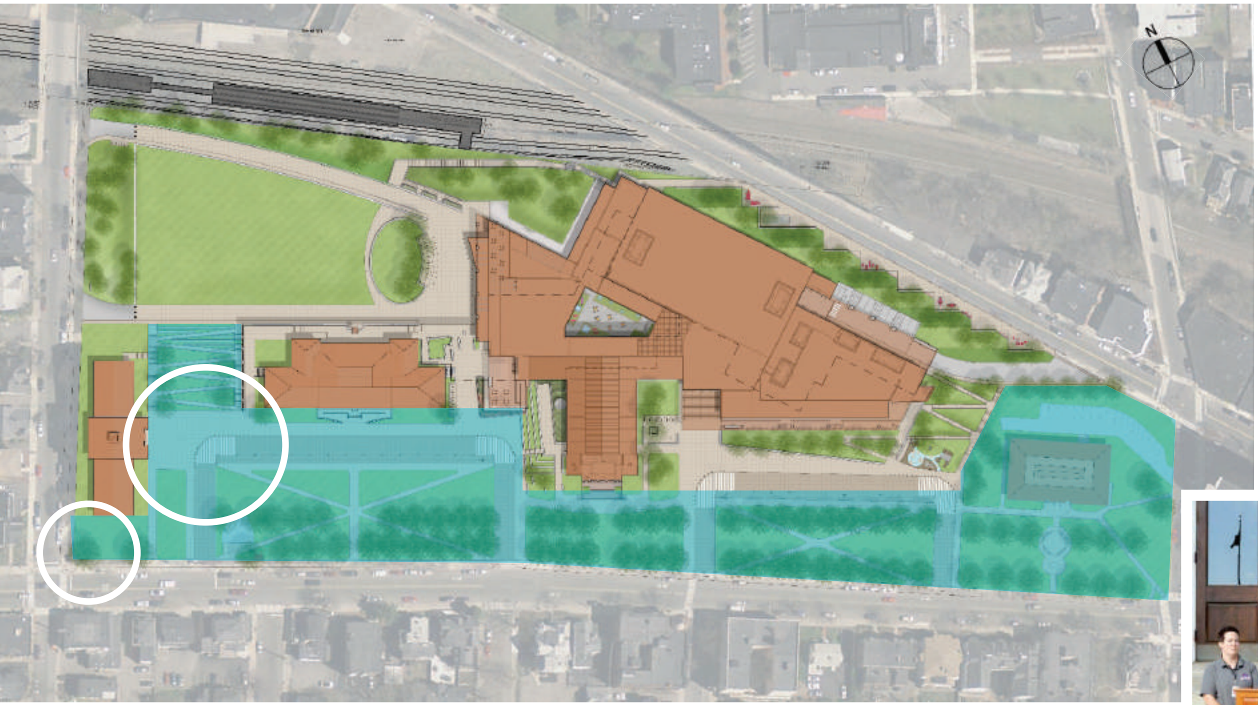


Universal Program & Design Opportunities



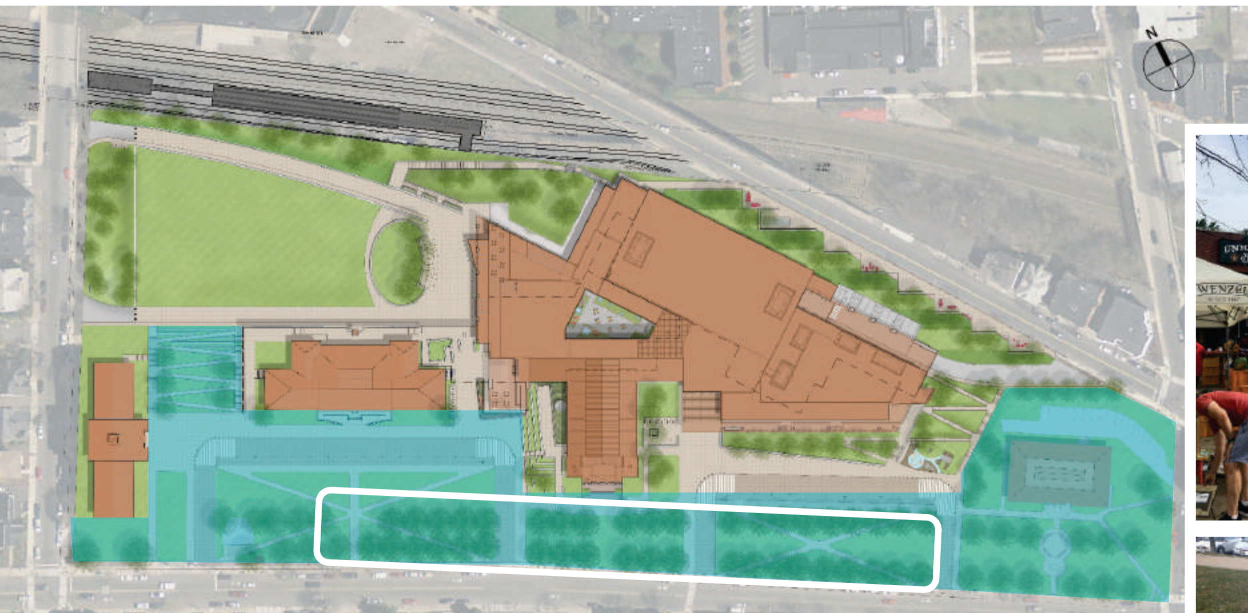
Accessibility to City Hall and 1895 and across campus

Universal Program & Design Opportunities



Presence of City Hall, dedicated pedestrian plaza, gateway at School and Highland

Universal Program & Design Opportunities

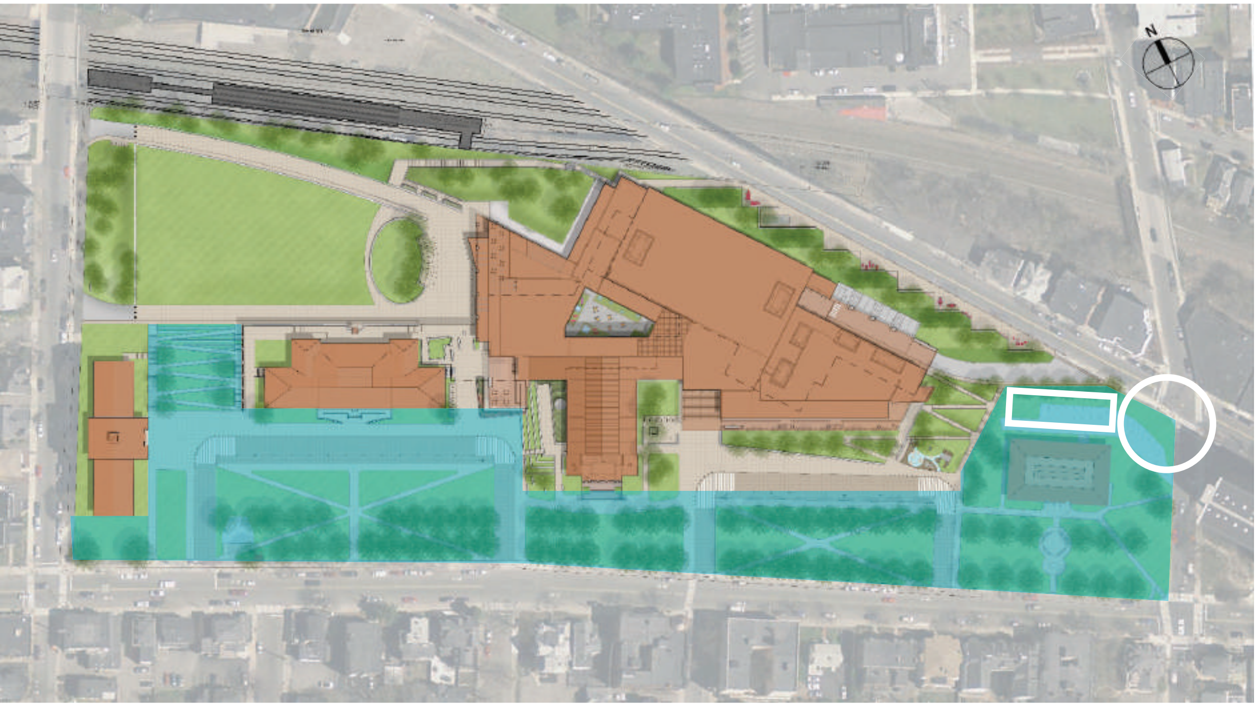


Centralized / chronological placement of memorials

Universal Program & Design Opportunities

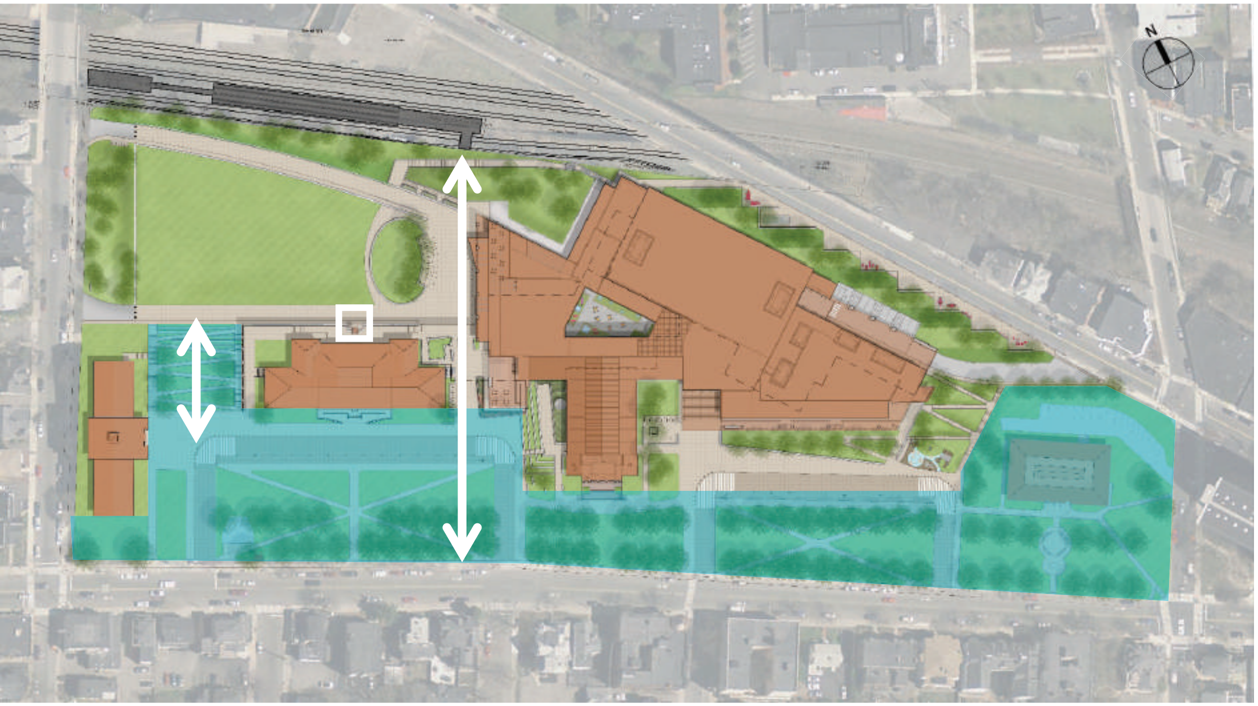
Library: usable green space, sloped edge, adjacent play space

Universal Program & Design Opportunities

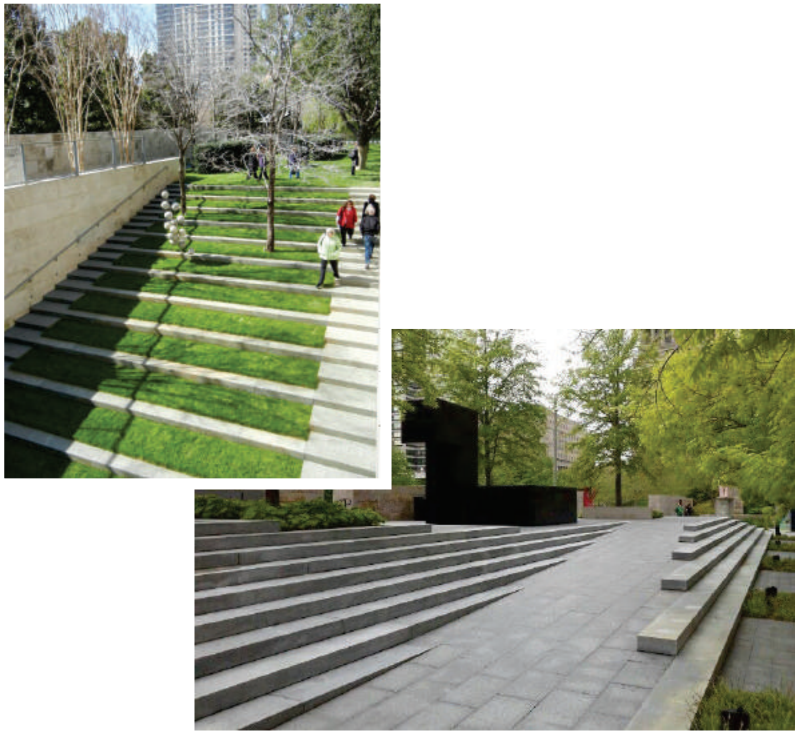


Library: potential expansion, campus gateway at Walnut and Medford

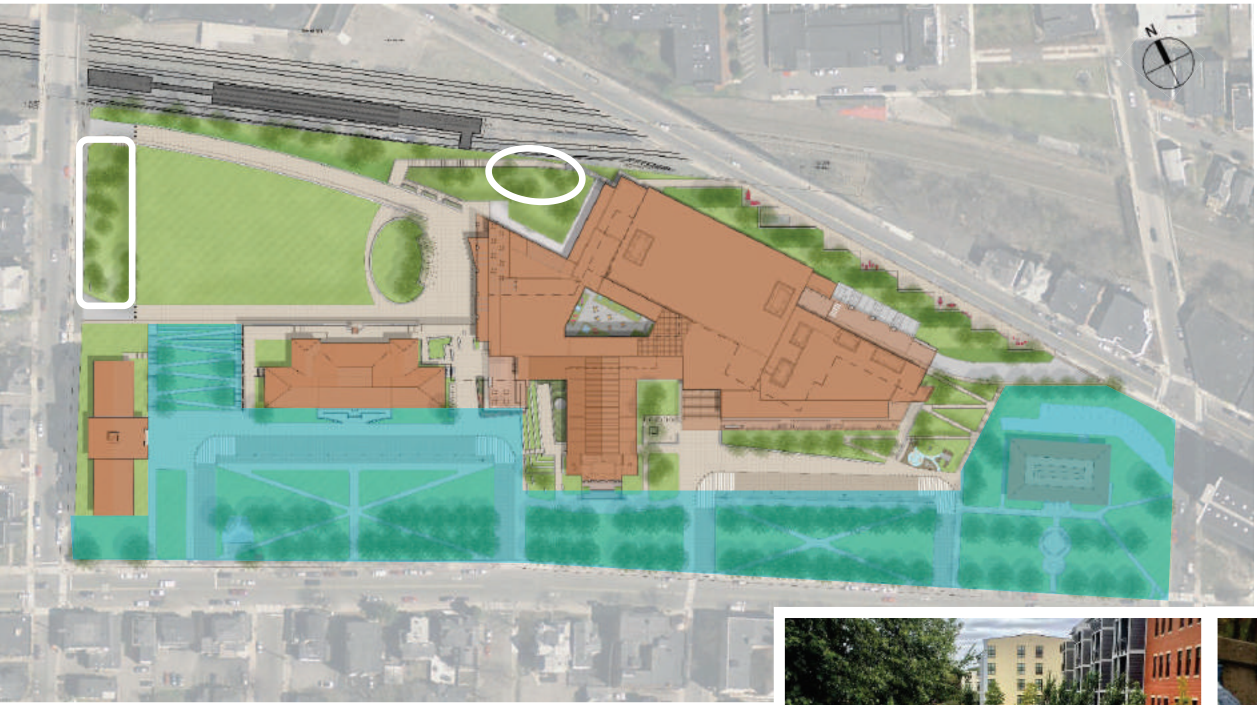
Universal Program & Design Opportunities



Accessible route to Gilman Station and on the hill west of 1895

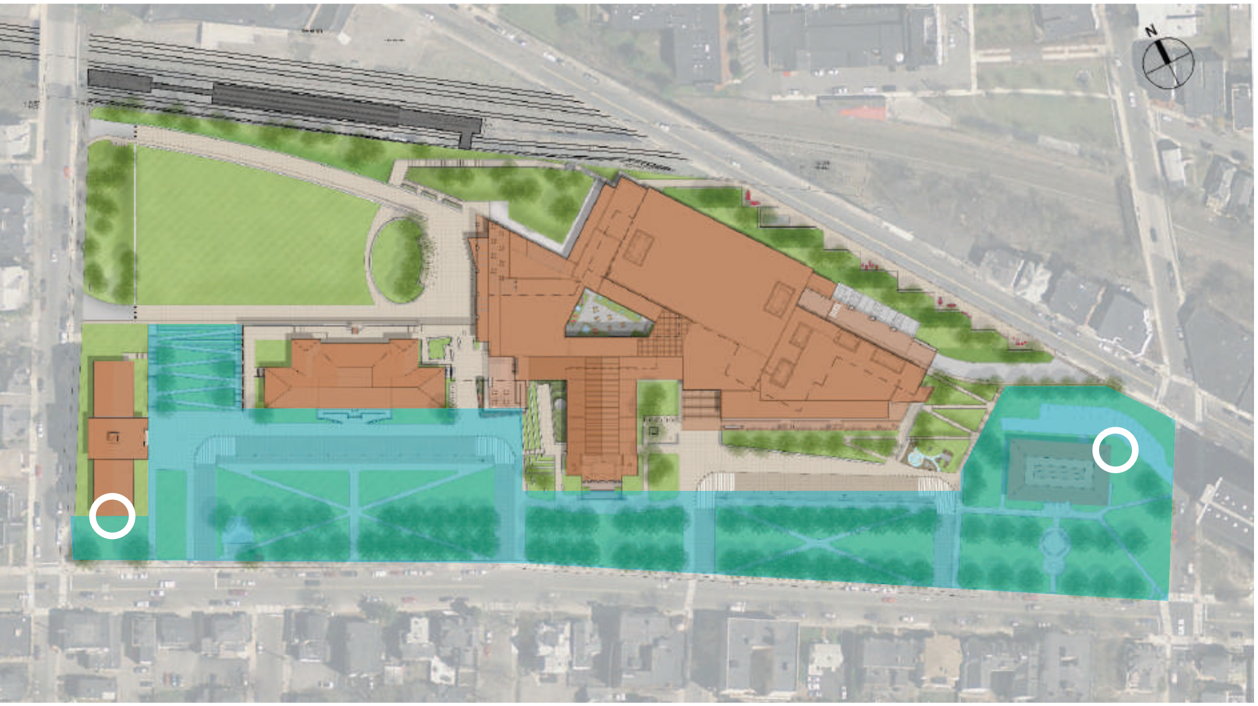


Universal Program & Design Opportunities



Activate adjacent space at community path and re-create a sledding hill

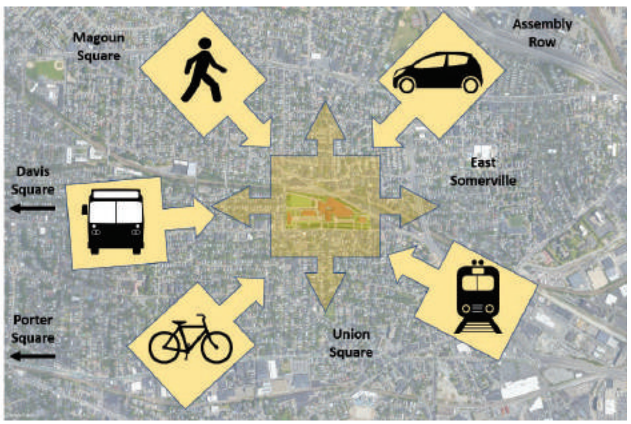
Universal Program & Design Opportunities



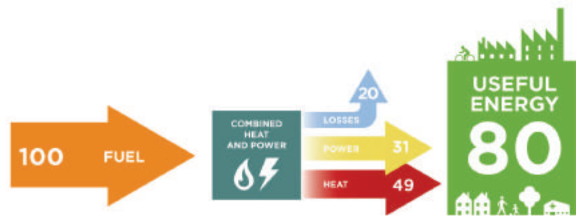
Bookends of services or retail for
Public – Private Partnership

Universal Program & Design Opportunities

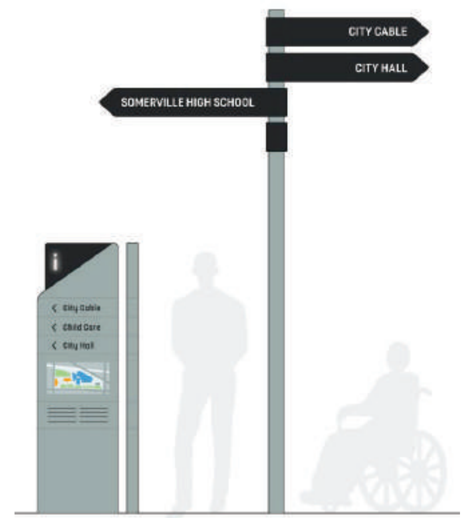
Multi-Modal Transit



Sustainability and
Storm water Mitigation

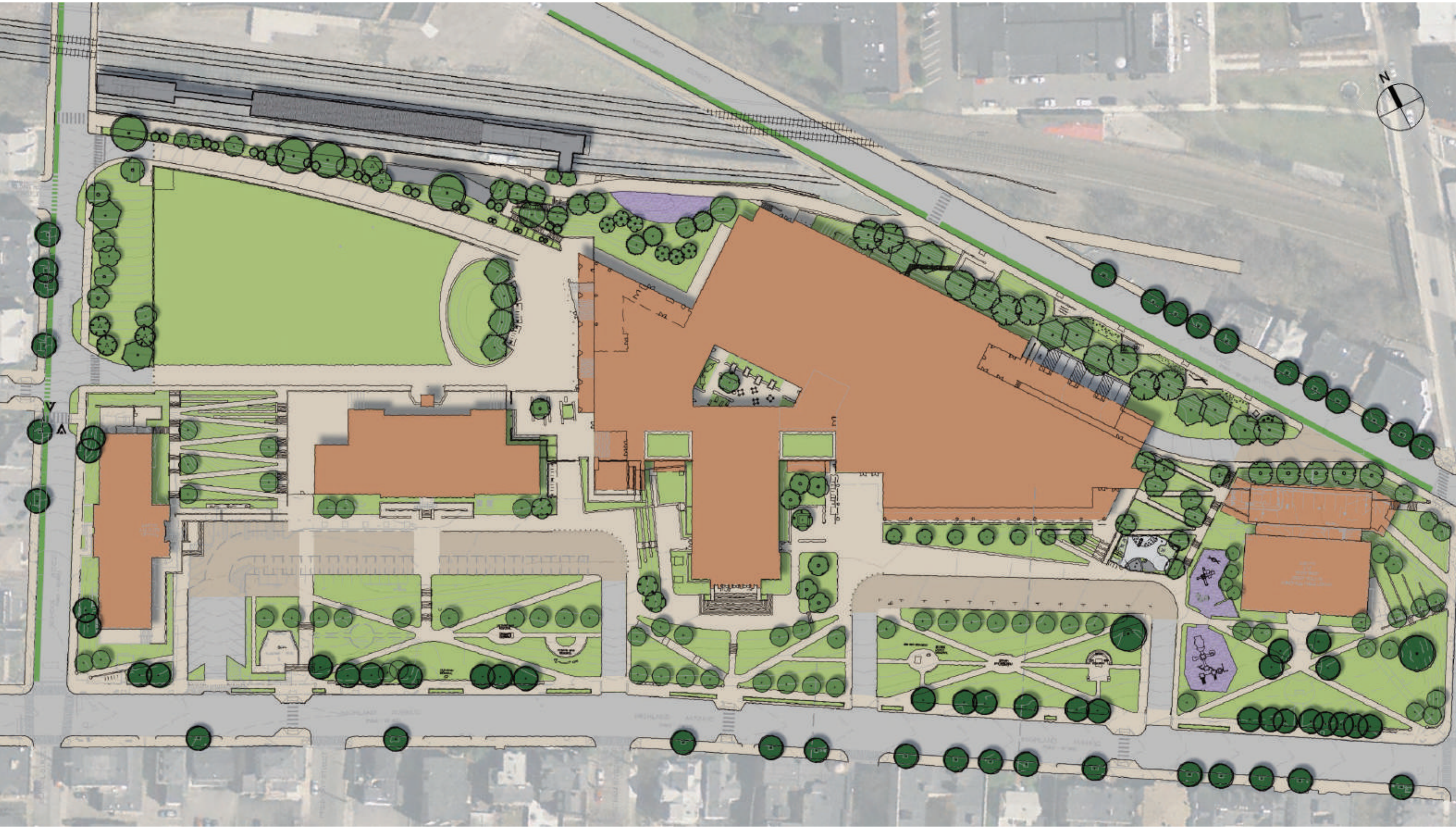


Environmental Graphics
and Campus Wayfinding



Concept 1: Allée

- A walkway lined with trees or tall shrubs
- Characterized as formal, traditional, stoic, and passive
- SHS Master Plan as basis of design



Concept 1: Allée Highlights

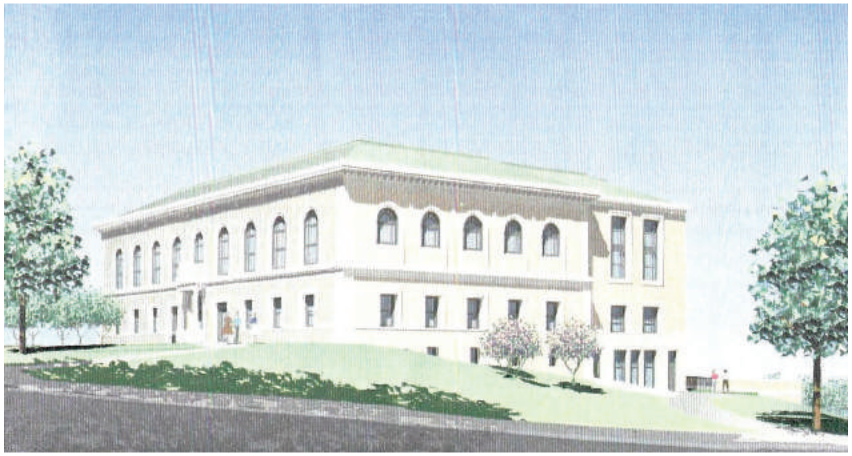
- Memorials centrally located in green space of the allée
- Honor roll stays in place, renovate and incorporate access
- Vehicular access remains, no dedicated pedestrian plaza
- Parking maintains end of SHS project numbers
- Maintains existing trees along Highland
- Vegetated buffer at curb edge to function as a reinforcement of safe crossing and storm water management

Concept 1: Allée

Section view of Highland Ave.

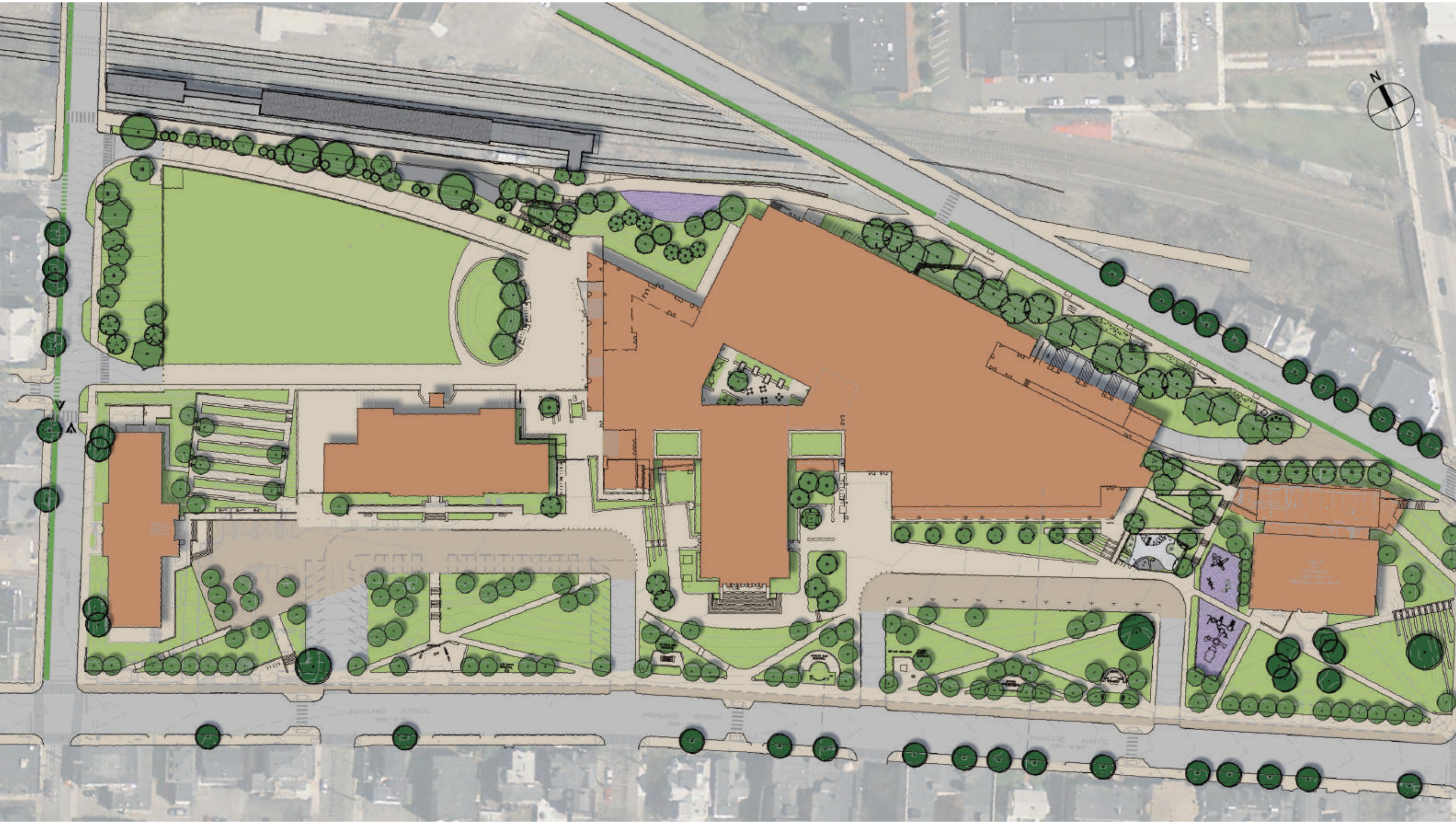
Concept 1: Allée

Central Library



Concept 2: Promenade

- A wide path for walking; a leisurely walk or ride especially in a public place for pleasure or display
- Highland Ave. walkway becomes enhanced pedestrian / cyclist oriented zone as a setting for the memorials to engage with the most active and visually prominent space of the campus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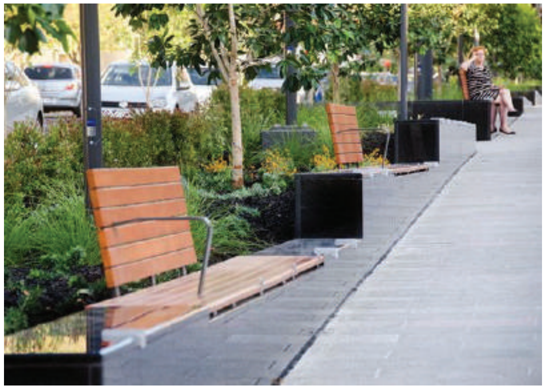
Concept 2: Promenade Highlights

- Doubles width of existing walkway to 20 ft to accommodate shared bicycle / pedestrian zone
- Memorials located directly along Highland for visual prominence with vegetated buffers for respectful visitation
- Honor Roll moves to align with 1895 Building as pedestrian gateway to the civic core
- Vehicular access realigns with Prescott
- Parking numbers slightly reduced from SHS project numbers that affords opportunity for dedicated plaza and visual prominence to City Hall
- Removes existing trees along Highland and strategically replaces trees to emphasize visual corridors and renew streetscape plantings
- Vegetated buffer along walkway to function as aesthetic separation for memorials and storm water management features

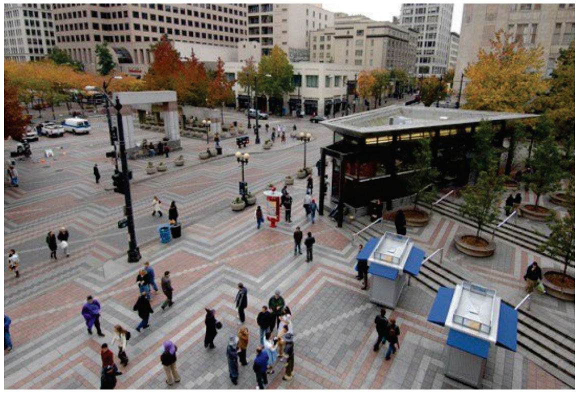
Concept 2: Promenade

Section view of Highland Ave.



Concept 2: Promenade

City Hall Plaza



Concept 3: Central Hill Concourse

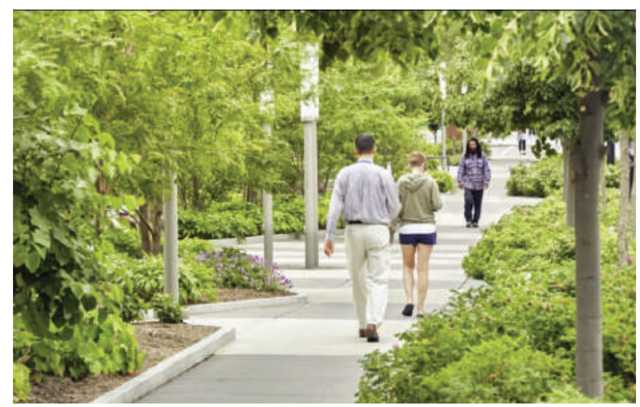
- A coming together; a gathering; a large open area or hall where crowds gather
- City Hall Plaza and Library Green bookend Central Hill campus as large open areas
- Highland Ave streetscape connects the primary open spaces in a coming together of memorials, existing and new landscape elements, and storm water features

Concept 3: Central Hill Concourse Highlights

- Memorials integrated into Highland streetscape
- Honor Roll becomes a landmark / gateway emphasizing the War Memorial Building
- Vehicular access realigns with Prescott
- Parking numbers slightly reduced from SHS project numbers that affords opportunity for dedicated plaza and visual prominence to City Hall
- Maintains majority of existing trees along Highland and strategically replaces trees to emphasize visual corridors and renew streetscape plantings
- Vegetated buffer along walkway to function as aesthetic separation for memorials and storm water management features

Concept 3: Central Hill Concourse

Section view of Highland Ave.



Concept 3: Central Hill Concourse

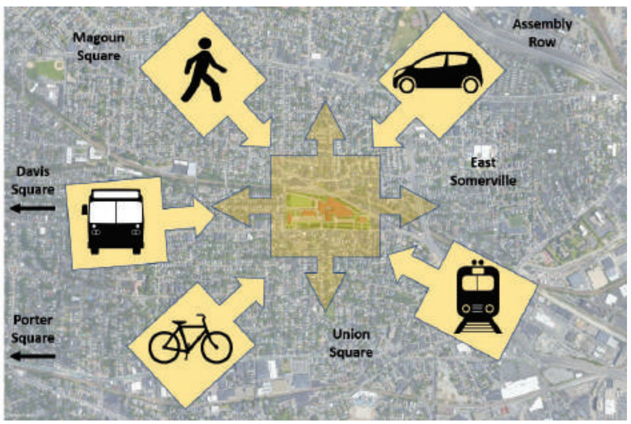
Honor Roll as Campus Gateway at War Memorial Building

Universal Program & Design Opportunities

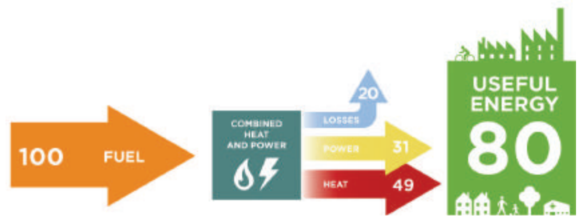
Transportation
Sustainability
Wayfinding

Universal Program & Design Opportunities

Multi-Modal Transit



Sustainability and
Storm water Mitigation



Environmental Graphics
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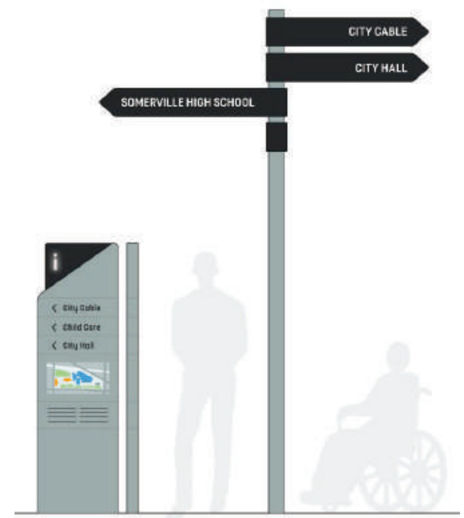


Transportation

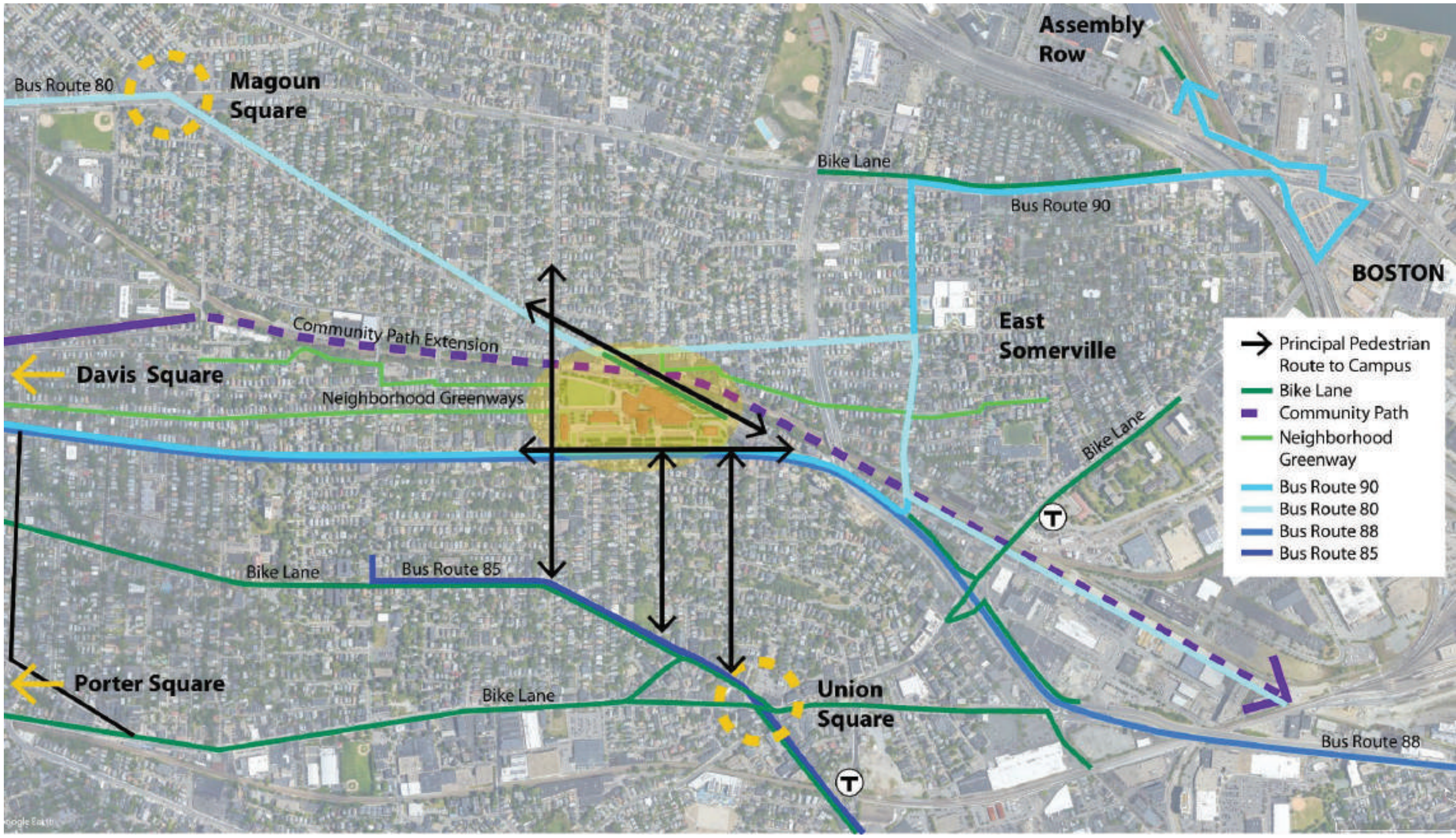
Transportation

Modes

- Walking
- Biking
- Driving
- Transit

Topics

- Site access
- Traffic calming
- Grade challenges
- Community path
- Future street traffic patterns
- MBTA bus stops



Driving

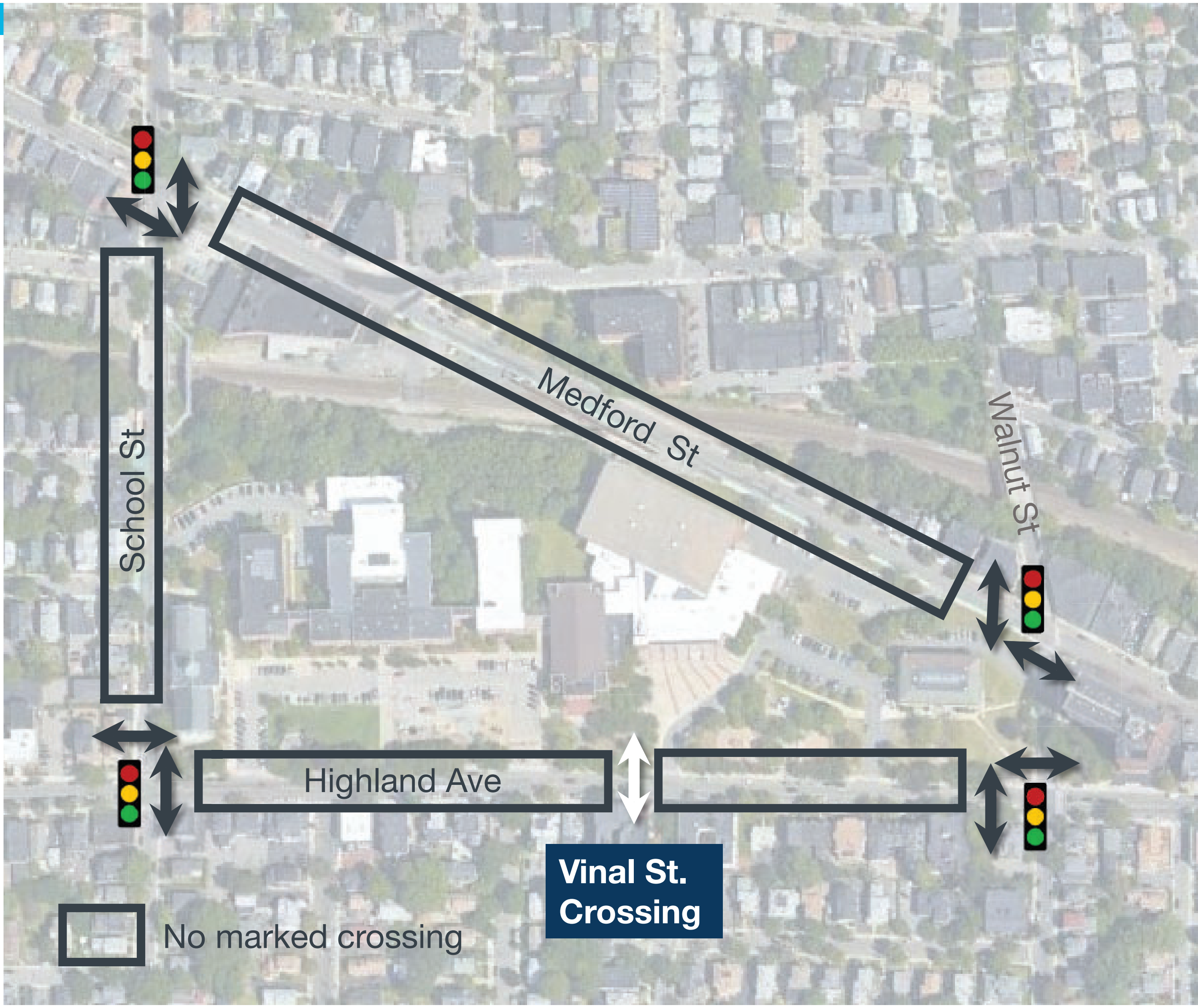
City conducting a parking analysis and has a meeting scheduled to discuss parking

School Street to change from one-way to two-way from Medford St to Somerville Ave

Driving

Considerations

- Where people are coming from and their destinations
- Existing and needed safe crossings
- Signalization



Walking

Proposed New Crossing

Suggested Crossing Improvements

Walking

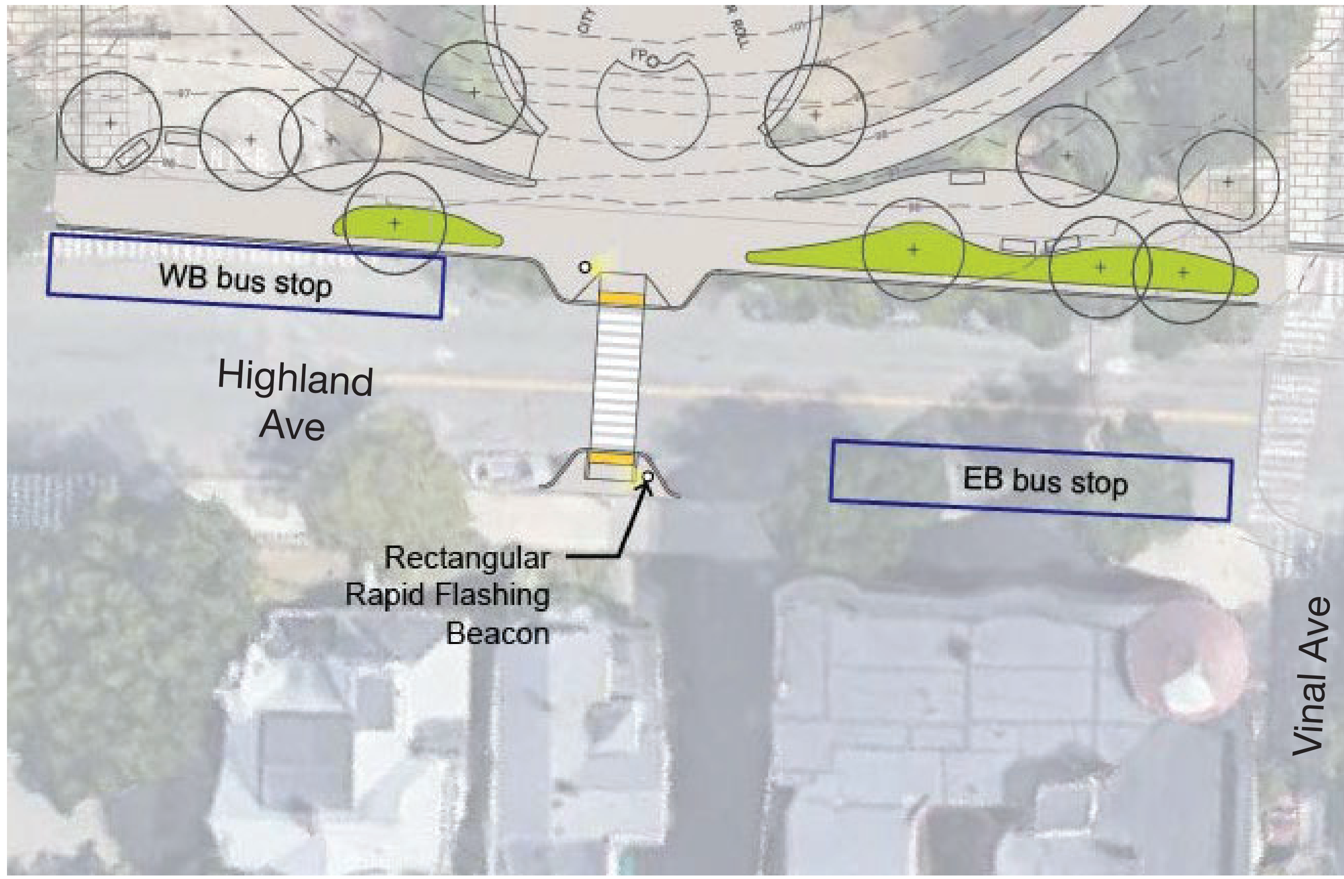
Proposed Madison & School Street Crossing

Raised Crosswalk

Walking

War Memorial Proposed Clearing

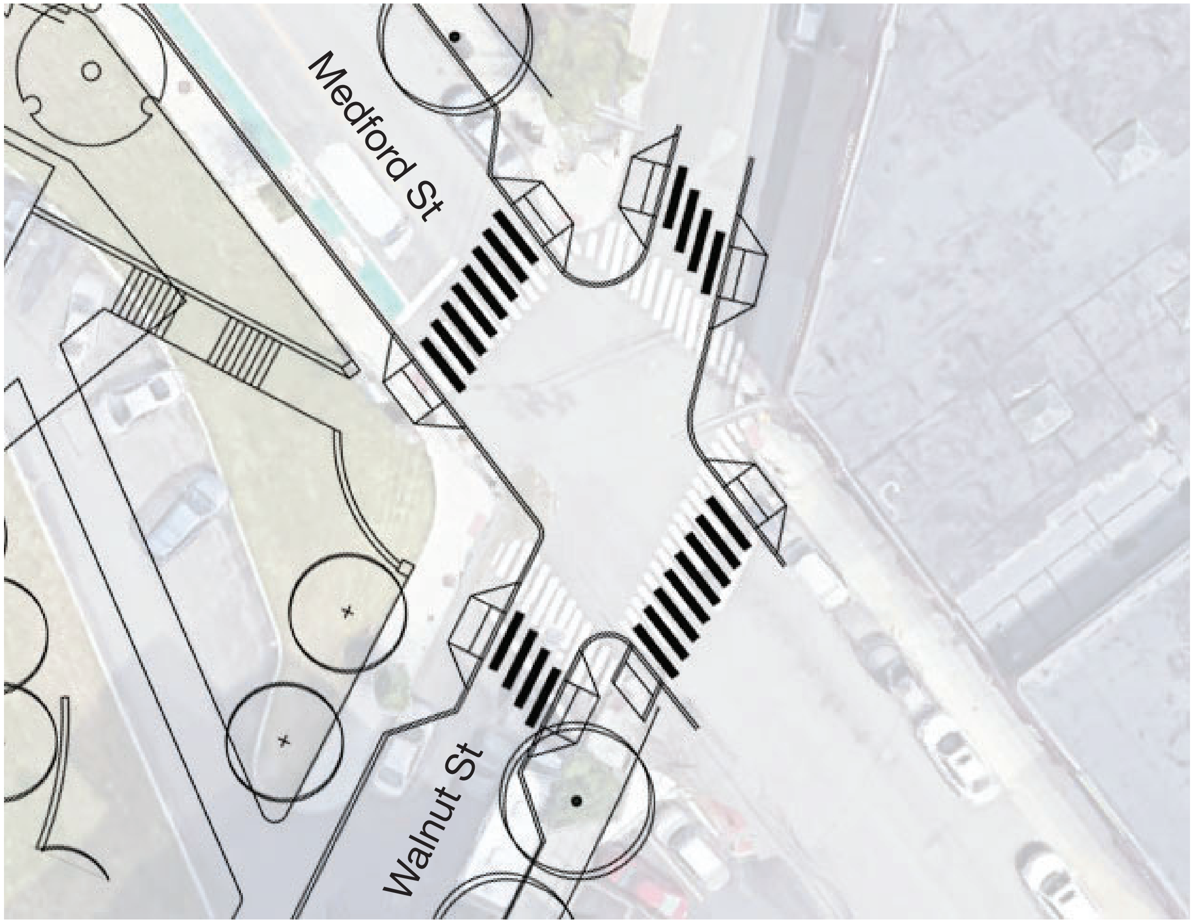
Rectangular Rapid Flashing Beacon



Walking

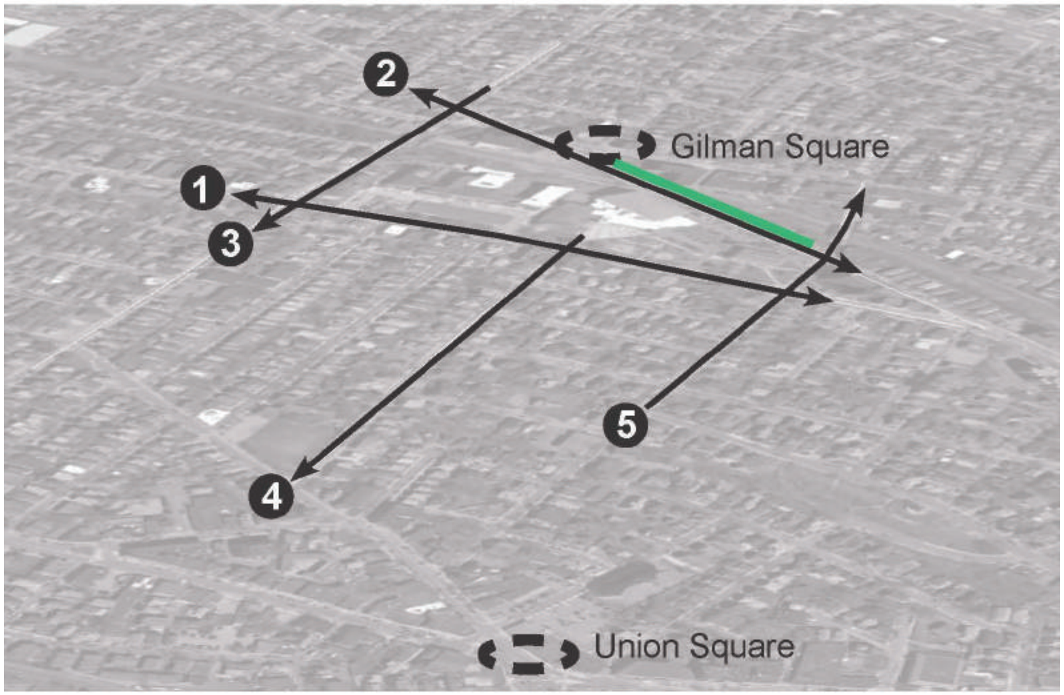
Intersection Improvement: Medford St & Walnut Street

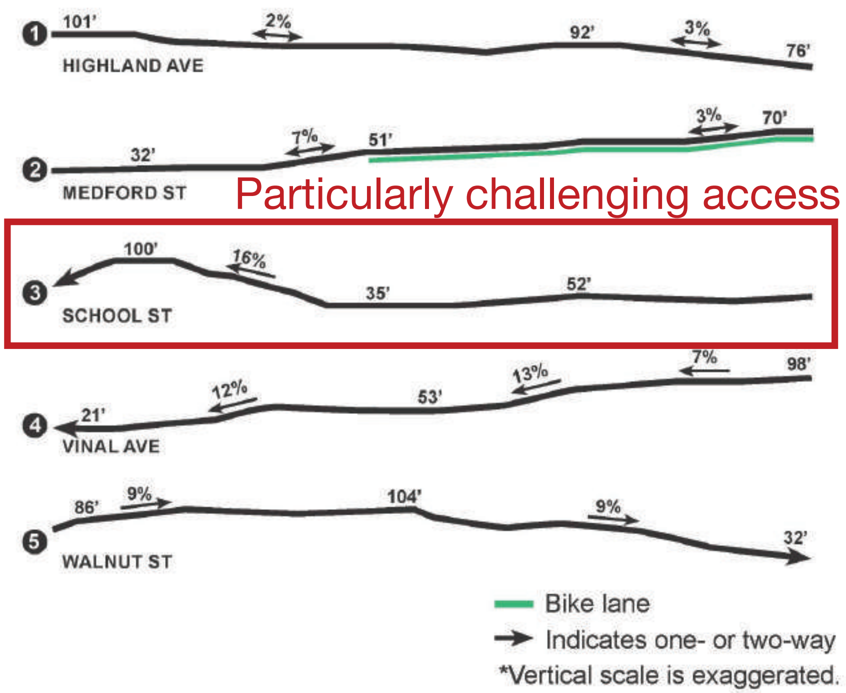
- Extend curb to shorten crossing time for pedestrians and widen sidewalk
- Provide directional crossings rather than existing apex
- Improve crossing signals



Biking

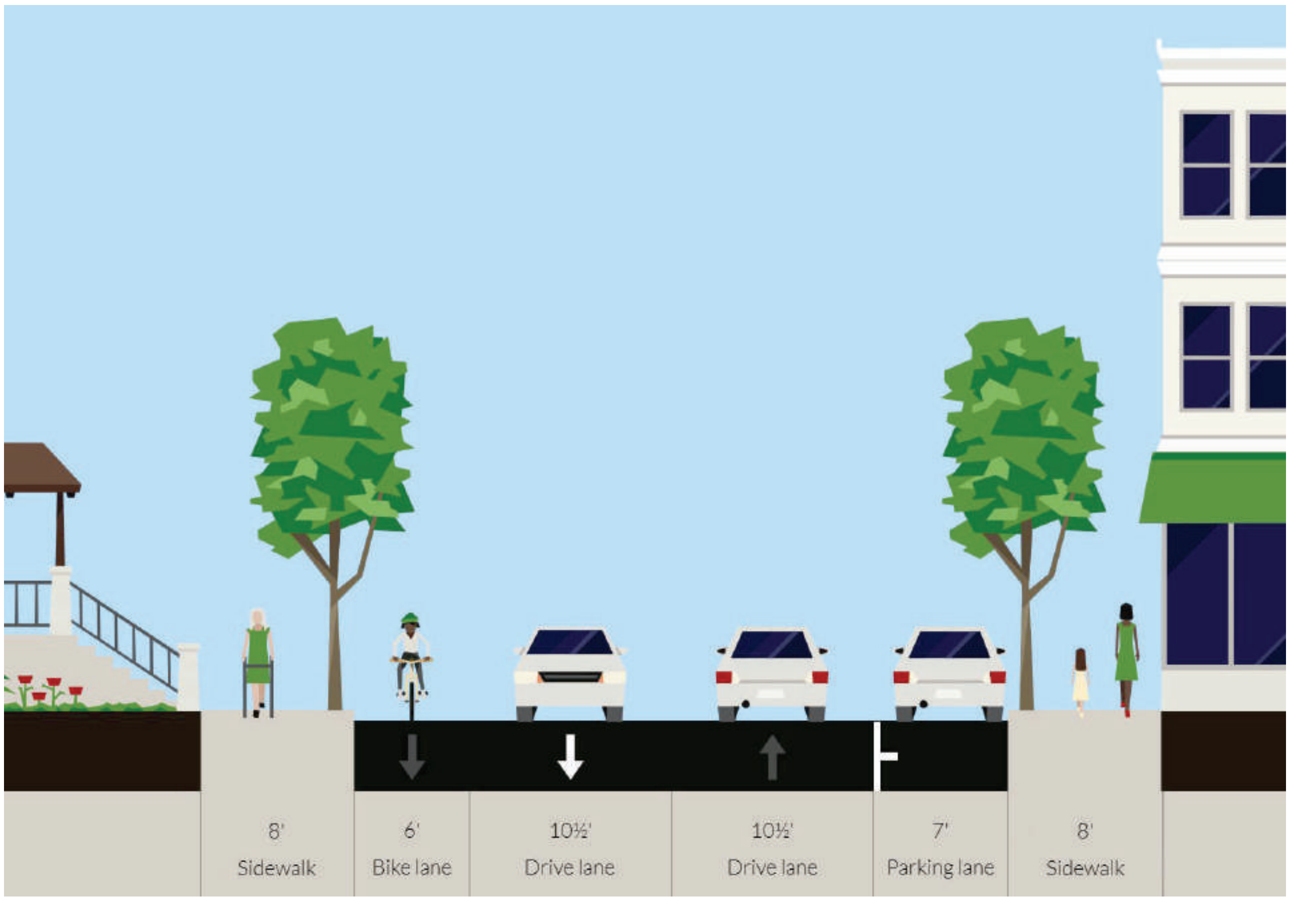
Significant Grade Challenge





Biking

School St Proposed Bike Lane



Bicycle Parking Locations

Transit

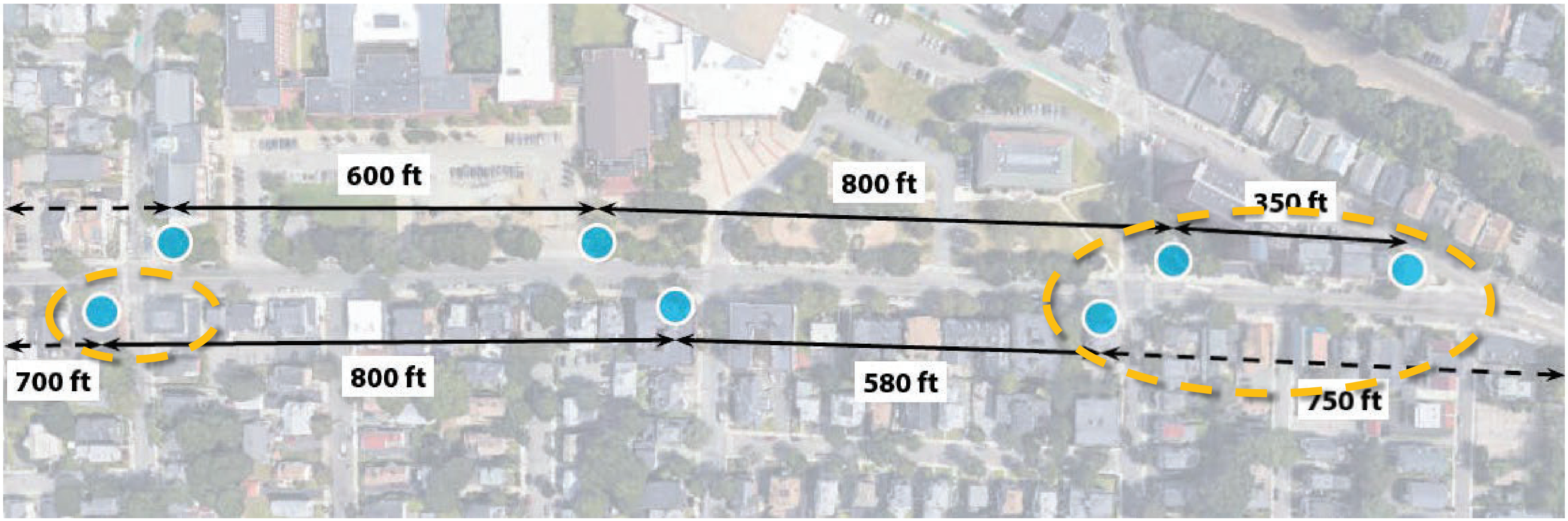
Green Line Extension (GLX)

Gilman Square Station Ground Breaking

- **Pedestrian crossing to be constructed at Gilman Sq**
- **GLX to replace bus route 80**

Transit

Bus Stops



Looking at potential changes to bus stops to reduce intersection crossing for pedestrians and provide operational improvements

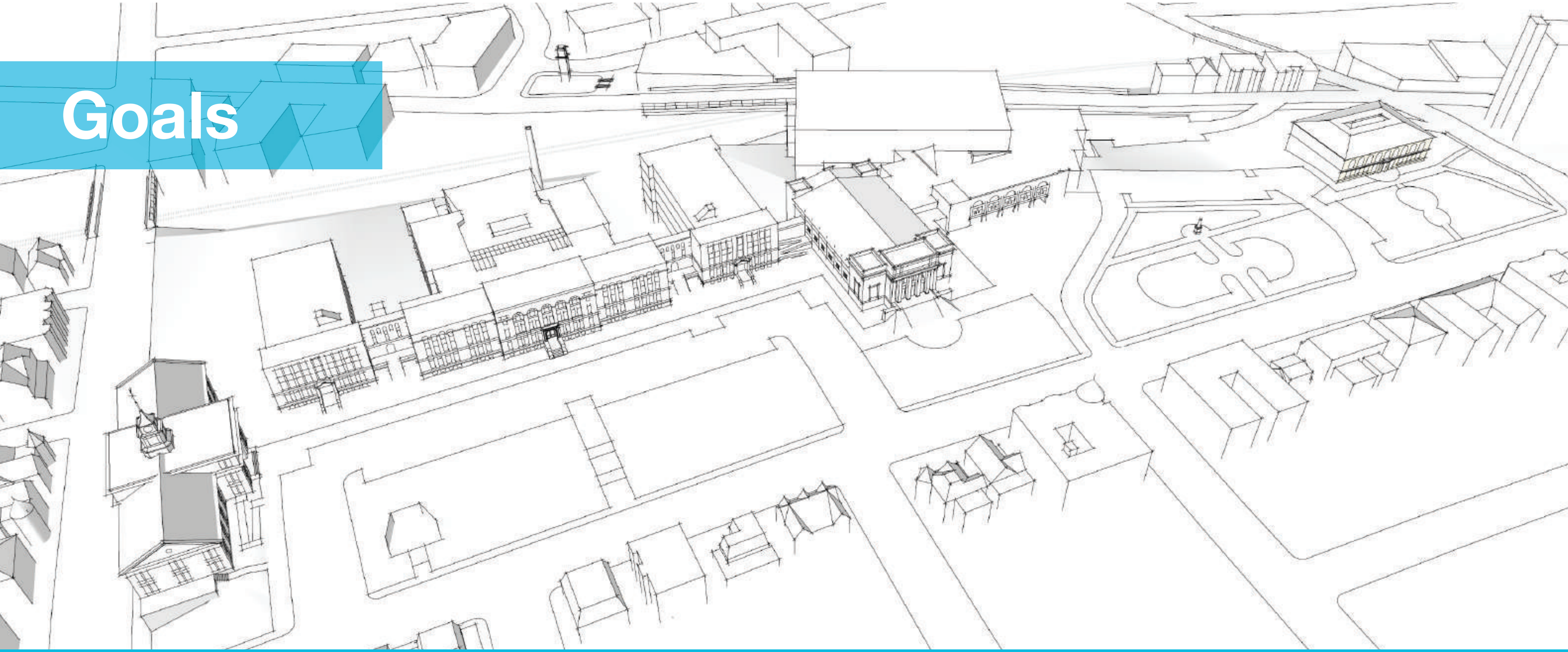
Contribute to the Central Hill Campus Wikimap

https://www.somervillema.gov/departments/central-hill-plan

Sustainability

- Building Energy
- Renewable Energy
- Stormwater Use & Control

Goals



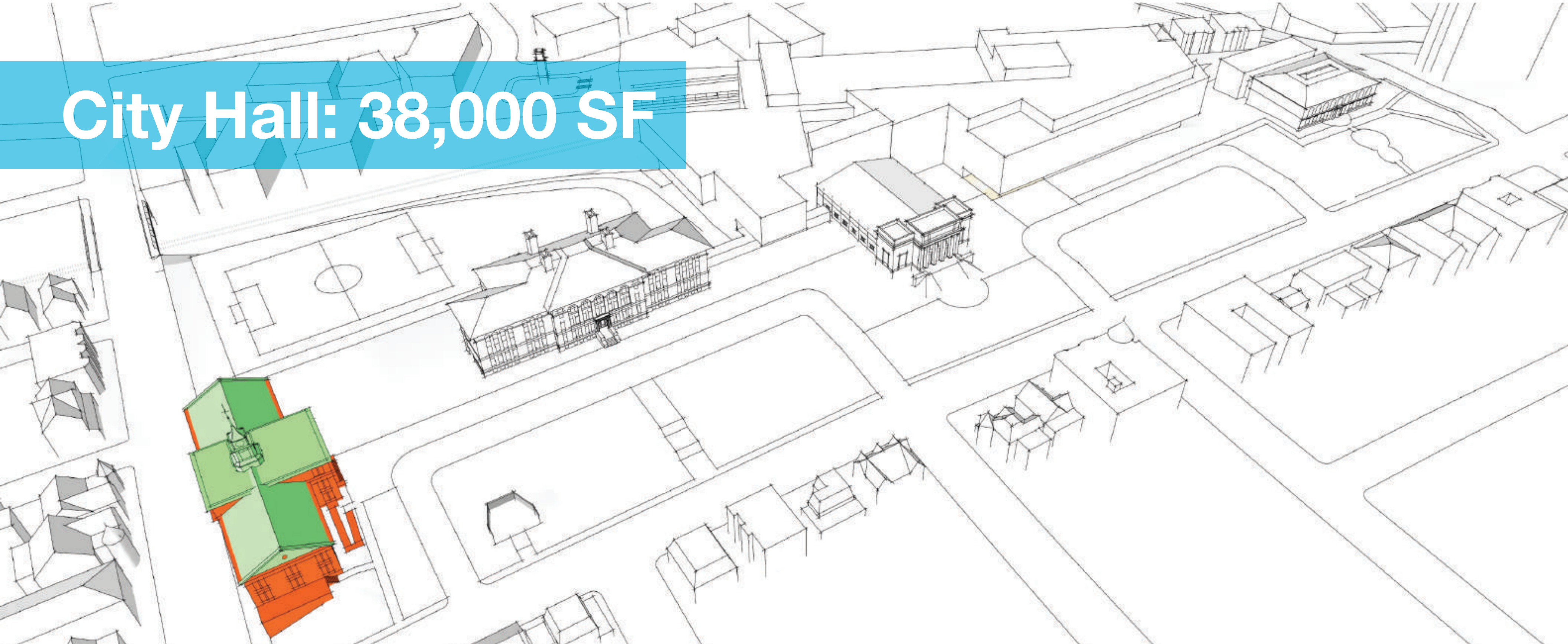
Create a carbon neutral campus

- Minimize energy needs
- Provide energy from renewable sources

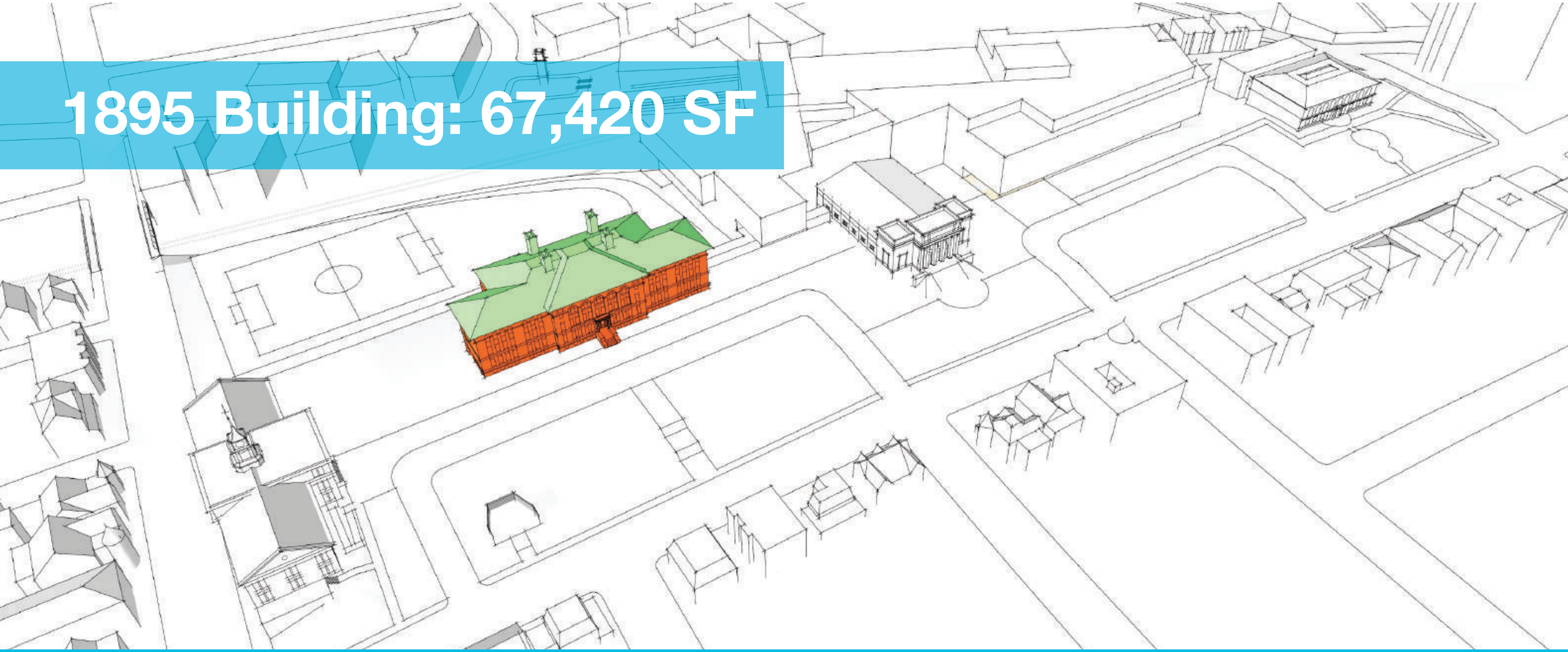
Reduce stormwater runoff

- Reduce impervious cover
- Capture water for reuse on-site
- Promote infiltration

City Hall: 38,000 SF



- **Existing Energy Use Intensity (EUI):** 95 kBtu/sf-yr
- **Average office building energy use:** Boston Energy Reporting Disclosure Ordinance (BERDO) EUI (2016):74 kBtu/sf-yr
- Commercial Building Energy Consumption Survey (CBECS) EUI (2003): 105 kBtu/sf-yr



- **Existing Energy Use Intensity (EUI):** Unknown (Currently part of High School)
- **Average office building energy use:** Boston Energy Reporting Disclosure Ordinance (BERDO) EUI (2016):74 kBtu/sf-yr
- Commercial Building Energy Consumption Survey (CBECS) EUI (2003): 105 kBtu/sf-yr

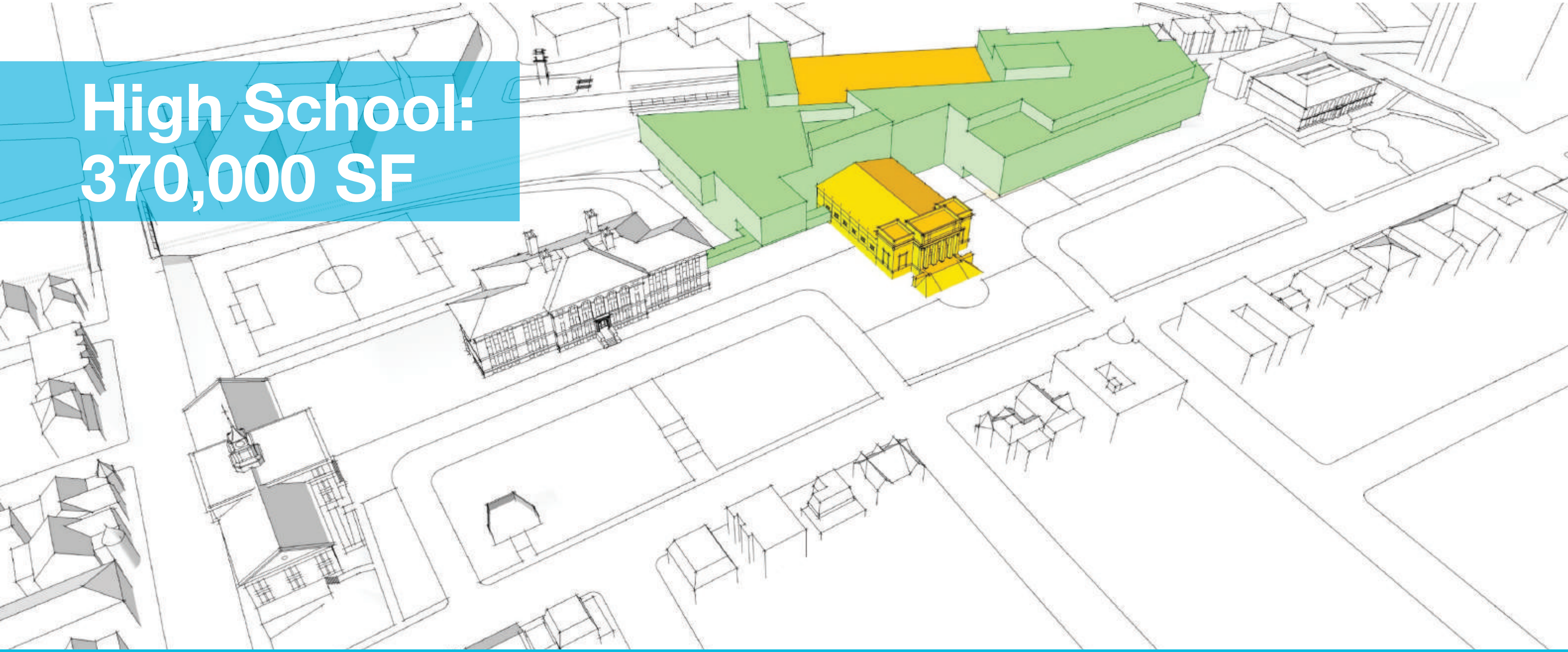
Library: 23,000 SF

Existing EUI: 72 kBtu/sf-yr

Average library energy use

- **CBECS (2003):** 123 kBtu/sf-yr
- **BERDO (2016):** 92 kBtu/sf-yr

High School: 370,000 SF



Existing EUI: 58 kBtu/sf-yr
Modeled EUI: 40 kBtu/sf-yr

- Highly insulated enclosure
- Double glazed windows
- LED lighting and controls
- Decoupled ventilation from heating and cooling

EUI Targets

New Construction: 25 kBtu/sf-yr
Renovation: 35 kBtu/sf-yr

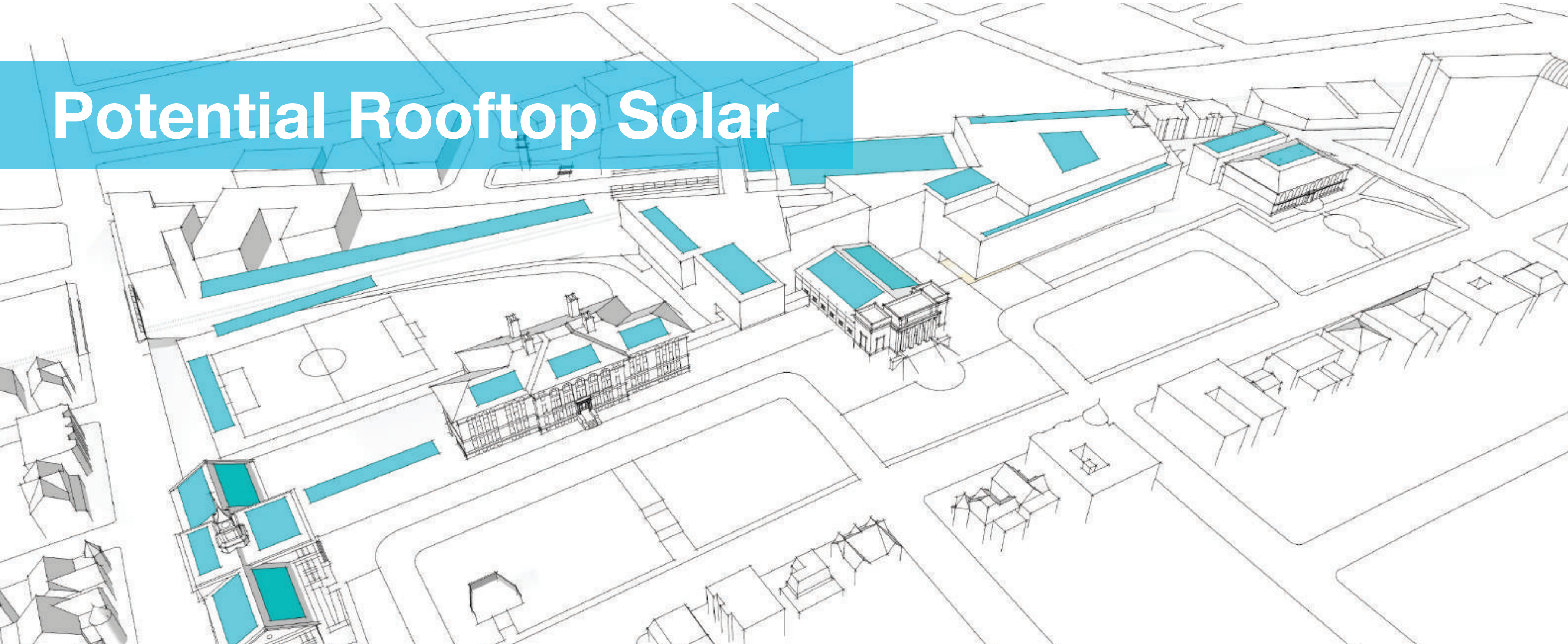
- Insulated walls and roof
- New windows (triple glazed)
- LED lighting and controls (interior and exterior)
- Decoupled ventilation from heating and cooling systems
- All electric HVAC systems

Renewable Energy

Renewable energy options considered during this study:

- Biomass
- Anaerobic Digestion
- Combined Heat and Power
- Ground Source Heat Pumps (geothermal)
- Wind turbine
- Solar Photovoltaic (electricity)
- Solar Thermal (hot water)

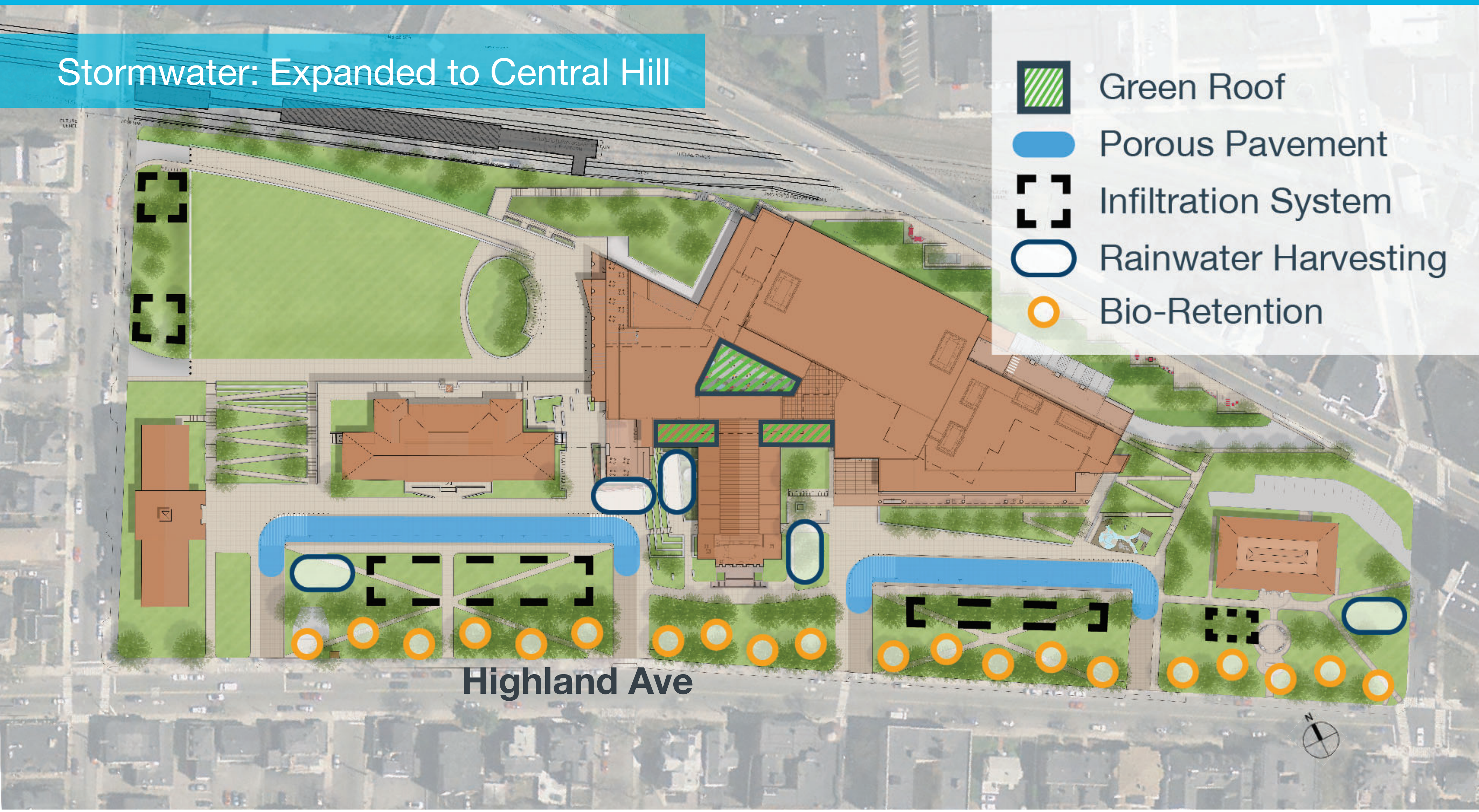
Potential Rooftop Solar



- Rooftop solar is the best viable option
- If all of these areas were covered with photovoltaic panels, it would provide enough energy to make City Hall a net zero energy building.
- Achieving a carbon neutral campus will require purchasing renewable energy from the grid.


Stormwater: High School Scope
Green Roof
Porous Pavement
Infiltration System
Rainwater Harvesting
Highland Ave

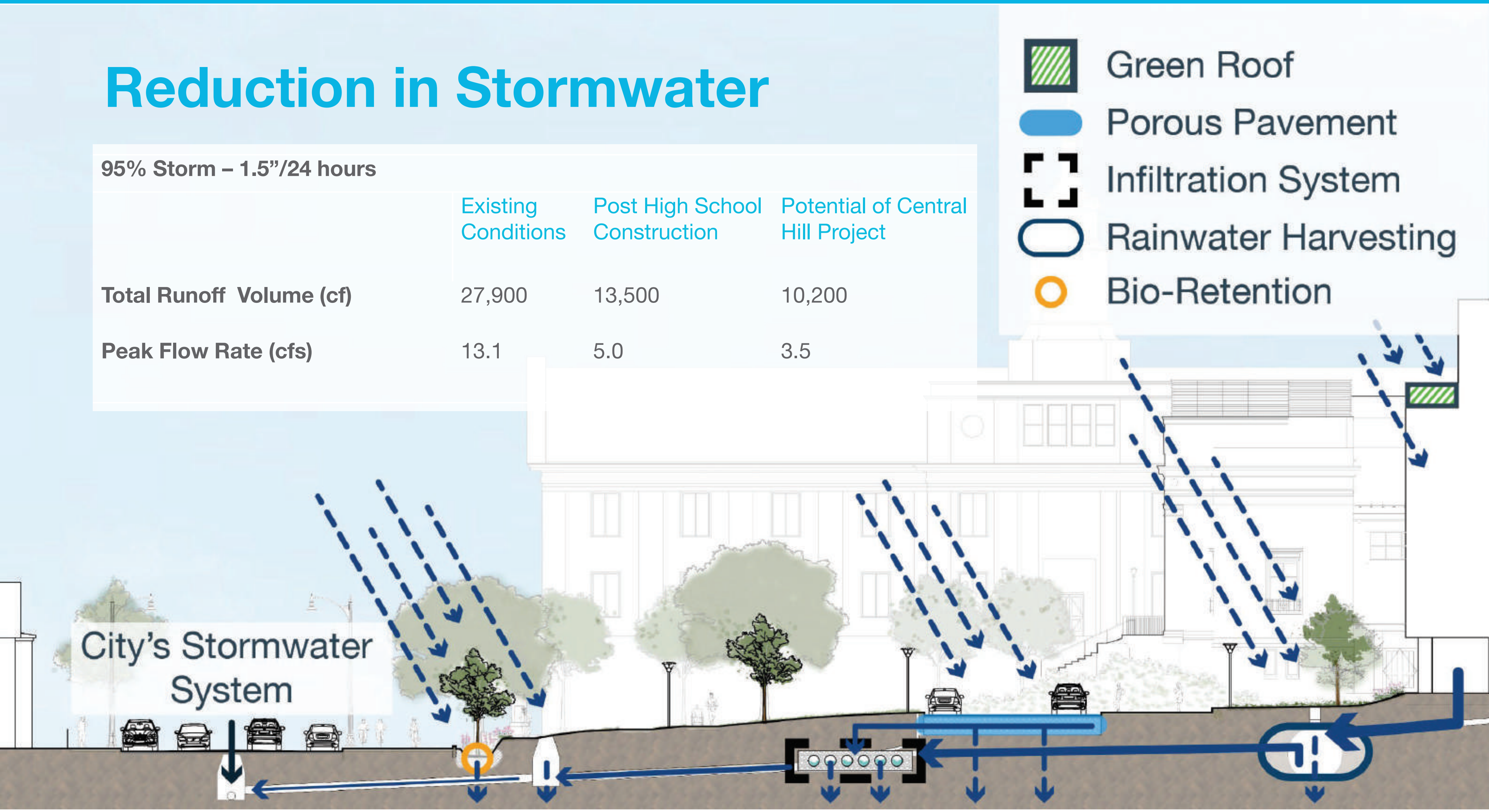
Stormwater: Expanded to Central Hill



Reduction in Stormwater

95% Storm – 1.5"/24 hours

	Existing Conditions	Post High School Construction	Potential of Central Hill Project
Total Runoff Volume (cf)	27,900	13,500	10,200
Peak Flow Rate (cfs)	13.1	5.0	3.5



Wayfinding and Signage

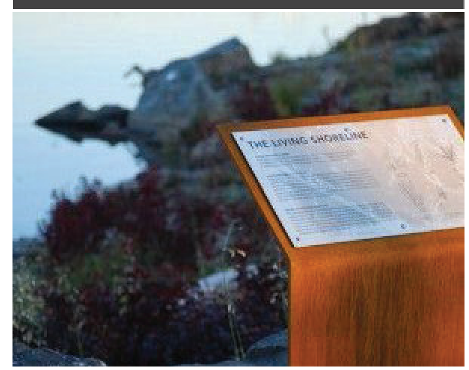
- Unifying Concepts
- Signage Types & Levels
- Location of Signage
- Aligning with Current High School Design

Signage and Wayfinding

Unify the campus, creating sense of place

Graphics inform visitors of the campus.

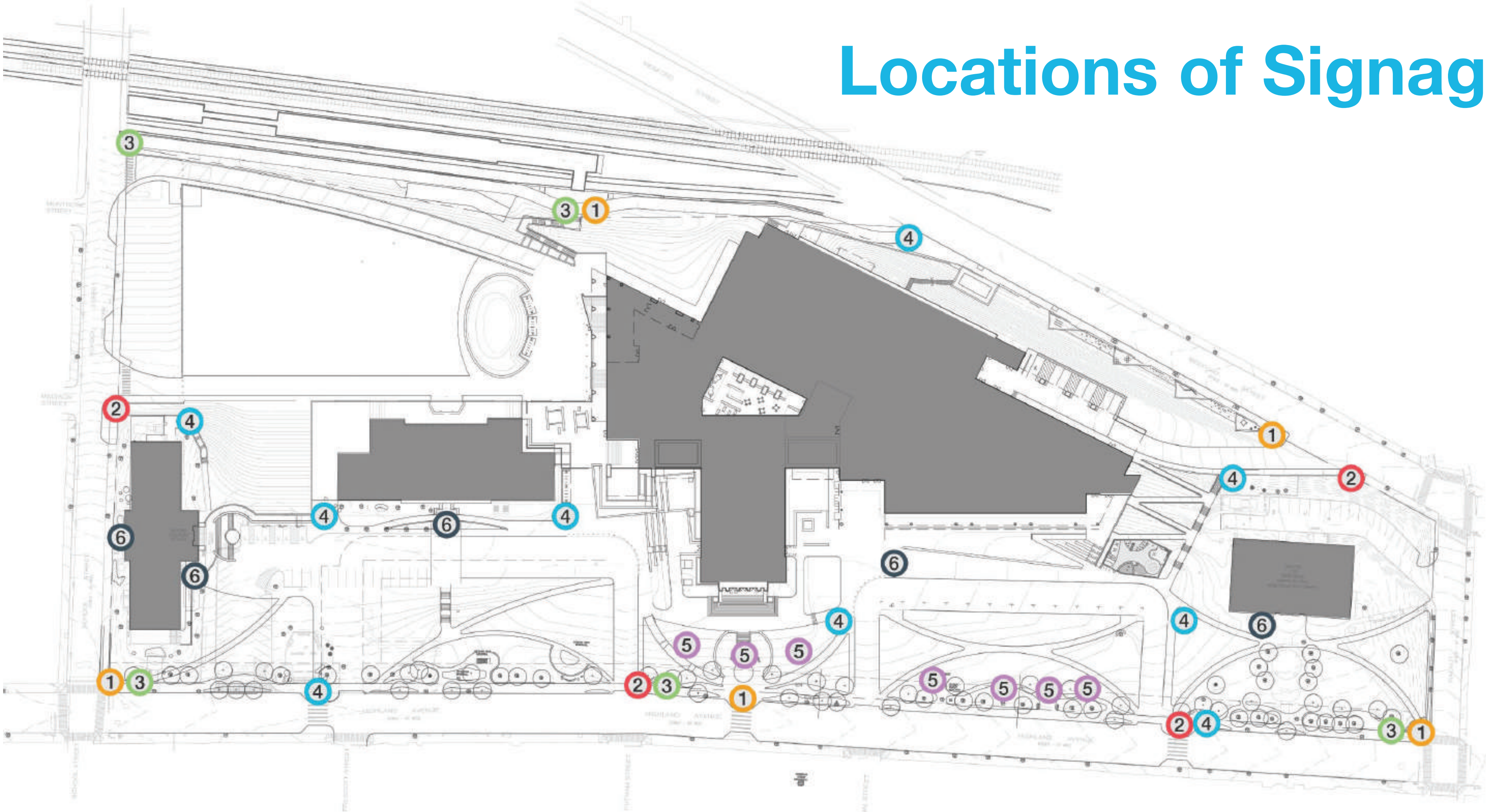
Design and materials take cues from site environment and complement.



Signage Levels

	Audience	Sign Type
Level 1	Everyone	Gateway or Campus Markers
Level 2	Vehicles	Roadside Pylons
Level 3	Unfamiliar Pedestrians	Map & Directory
Level 4	Regular Pedestrians	Individual Destination Marker
Level 5	Monument Patrons	Informational Placard
Level 6	Everyone	Building Marker

Locations of Signage

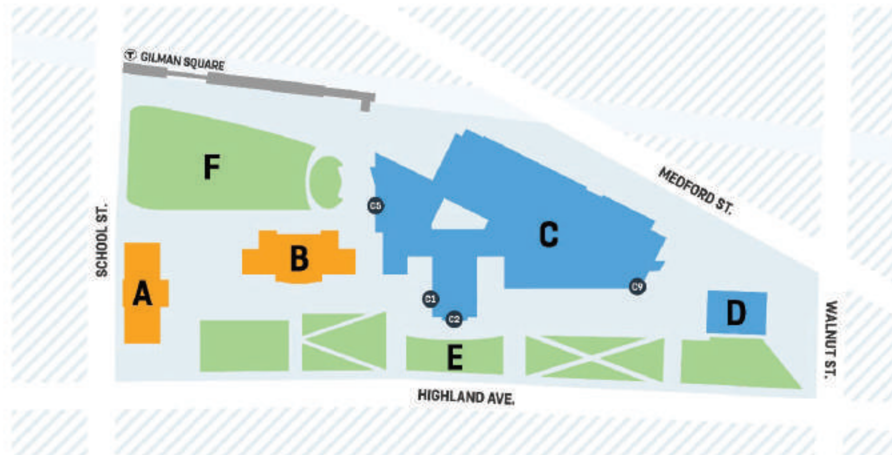


Campus Directory

Providing directions at multiple levels from the civic and educational commons, to individual city & school departments and their respective entrances.

Welcome to

Somerville's Central Hill Campus



Civic Buildings

A - City Hall

- Office of the Mayor
- Communications
- Elections
- Personnel Payroll
- Purchasing
- Grants
- City Clerk
- Assessing
- Treasury
- Auditing

B - City Hall Annex

- Health & Human Services
- Information technology
- SCALE
- Personnel
- OSPCD
- Housing
- School Department - Central

Learning Buildings

C - Somerville High School

- C1. City Cable
- C2. Community Entrance
- C3. Auditorium
- C4. Cosmetology Dept.
- C5. Next Wave Full Circle
- C6. Cambridge Health Alliance
- C7. Somerville Childcare
- C8. Fabrication Lab
- C9. Highlander Cafe
- C10. Automation Dept.

D - Central Library

Park Areas

E - Monument Walk

- World War I Monument
- World War II Monument
- Vietnam War
- Monument 2
- Monument 5

F - Recreational Field

Break-out Session & Discussion

Feedback

To offer feedback or thoughts please contact:
centralhill@somervillema.gov


1. Allée


2. Promenade


3. Concourse

Project Timeline

• Community Meeting #1	May 31, 2018
• Parking Study Meetings 1-3	Summer, 2018
• Memorials Commission Meeting	June 20, 2018
• Community Meeting #2	Sept 25, 2018
• **Parking Study Meeting #4**	**Sept 27, 2018**
• Community Meeting #3	Oct 18, 2018
• Campus Planning Study Complete	Dec 28, 2018

Next Steps

- Document feedback from tonight's session
- Review with Campus Plan Committee
- Committee to select a preferred Option
- Design team to develop potential schedule and costs for implementation (may be phased over several years)
- Complete study by end of year

Thank you

For more information:
www.somervillma.gov/highschool/
www.somervillema.gov/centralhillplan/

Somerville High School Construction Camera:
https://app.oxblue.com/open/Suffolk/somervillehighschool

Appendix E:

Community Meeting Input 09.25.2018

Appendix E - Meeting #2 Community Input

Concept	Category	Comment	Answer
Allee Promenade Concourse	Wayfinding Sustainability Transportation	is bike physically separated or visually separated?	Visually, marking on pavement.
Allee Promenade Concourse	Wayfinding Sustainability Transportation	__________ space ___________ for enlarged walking	
Allee Promenade Concourse	Wayfinding Sustainability Transportation	is parking on street maintained?	yes
Allee Promenade Concourse	Wayfinding Sustainability Transportation	would the bike lane be limited to children?	no, any one can use bike lane on sidewalk section.
Allee Promenade Concourse	Wayfinding Sustainability Transportation	more crosswalks a plus, hard to cross on current campus	
Allee Promenade Concourse	Wayfinding Sustainability Transportation	like the honor roll that is located off the war memorial, gives importance.	
Allee Promenade Concourse	Wayfinding Sustainability Transportation	do not like proximity of memorials to the street	
Allee Promenade Concourse	Wayfinding Sustainability Transportation	anything that is equitable in terms of model of transportation, is a huge benefit to the site - i.e. bike lanes, walking paths.	
Allee Promenade Concourse	Wayfinding Sustainability Transportation	Like that there is less paved ground and more grass	
Allee Promenade Concourse	Wayfinding Sustainability Transportation	don't like memorials too close to Highland Ave.	
Allee Promenade Concourse	Wayfinding Sustainability Transportation	what is the pedestrian traffic up school vs. Medford St	
Allee Promenade Concourse	Wayfinding Sustainability Transportation	like that City Hall doesn’t look like a drive-by, parking spot b/c of plaza relocated road	
Allee Promenade Concourse	Wayfinding Sustainability Transportation	five flag poles for the service branch @ the honor roll (new)	
Allee Promenade Concourse	Wayfinding Sustainability Transportation	current trees are scary, big, dark, move towards young trees and open feeling	
Allee Promenade Concourse	Wayfinding Sustainability Transportation	like that the space by library (amphitheater) is more usable	
Allee Promenade Concourse	Wayfinding Sustainability Transportation	happy bus stops/signage are being studied	
Allee Promenade Concourse	Wayfinding Sustainability Transportation	concern about bus users who live in tower at Walnut	
Allee Promenade Concourse	Wayfinding Sustainability Transportation	opposed to losing more existing trees	
Allee Promenade Concourse	Wayfinding Sustainability Transportation	concern for maintaining "green" open space	
Allee Promenade Concourse	Wayfinding Sustainability Transportation	dog walking on Highland in conflict with memorials directly engaged to walkway	
Allee Promenade Concourse	Wayfinding Sustainability Transportation	prefer memorials slightly offset from walking	
Allee Promenade Concourse	Wayfinding Sustainability Transportation	prefer more dedicated plaza space as opposed to drop-off at City Hall	
Allee Promenade Concourse	Wayfinding Sustainability Transportation	community path: ___________________for seating /children	
Allee	Wayfinding	to what extent implementing PV/other sustainable options	

Promenade Concourse	Sustainability Transportation		
Allee Promenade Concourse	Wayfinding Sustainability Transportation	seating opportunities at field	
Allee Promenade Concourse	Wayfinding Sustainability Transportation	memorials in middle of green could impact events	
Allee Promenade Concourse	Wayfinding Sustainability Transportation		
Allee Promenade Concourse	Wayfinding Sustainability Transportation		

Appendix F:

Community Meeting Presentation Boards 09.25.2018

Concept 1 - Allée

Somerville Central Hill Campus Plan

9.25.18

SMMA TOOLE DESIGN BCA

Concept: Promenade

Concept 2 - Promenade

SMMA TOOLE DESIGN BCA

Concept: Concourse

Concept 3 - Concourse

Somerville Central Hill Campus Plan

9.25.18

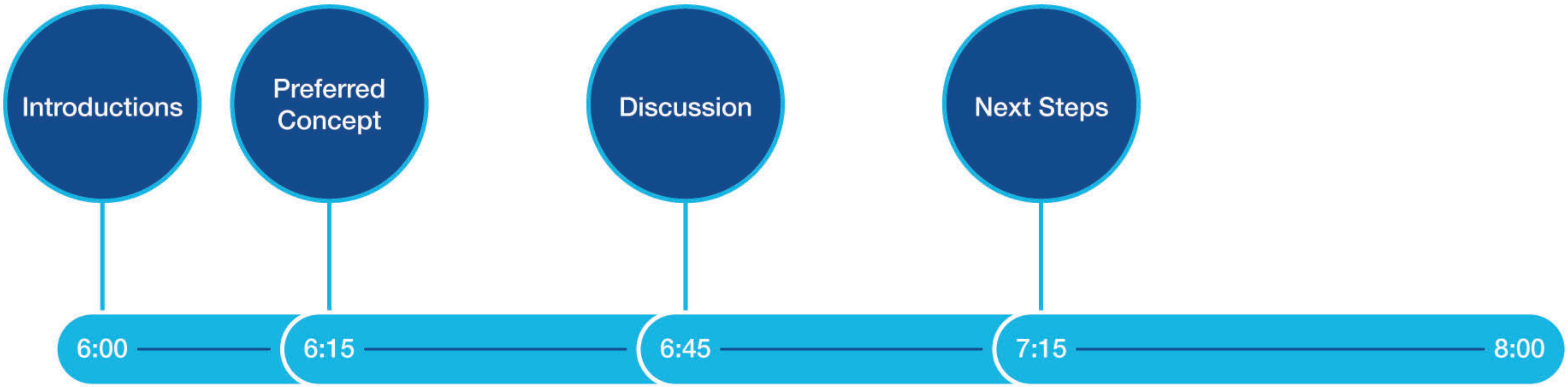
SMMA TOOLE DESIGN BCA

Appendix G:

Community Meeting Presentation Boards 11.01.2018

Central Hill Campus – Community Meeting #3

Tonight's Agenda



Campus Plan Committee

- **Kristen Stelljes,** Somerville Community Preservation Act Manager
- **Bryan Bishop,** Director of Veterans
- **Cathy Piantigini,** Interim Director, Library
- **Robert King,** Director of Capital Projects and Planning
- **Emily Monea,** Director, SomerStat
- **George Proakis,** Director, Planning and Zoning
- **Brad Rawson,** Director, Transportation and Infrastructure
- **Mike Tremblay,** Senior Transportation Planner
- **Oliver Sellers-Garcia,** Director, Office of Sustainability and Environment
- **Melissa Woods,** Senior Long Range Planner

Planning Team

SMMA

- **Alex Pitkin,** Senior Vice President
- **Lorraine Finnegan,** Principal
- **Samantha Farrell,** Landscape Architect
- **Elizabeth Galloway,** Sustainable Designer
- **Laura Monies,** Landscape Architect/Planner
- **Erin Prestileo,** Civil Engineer
- **Ali Ucci,** Graphic Designer
- **Jack Dombrowski,** Graphic Designer
- **Marisa Fryer,** Site Designer

Building Conservation Associates

- **Lisa Howe,** Director of BCA New England

Toole Design Group

- **Ashley Haire,** Project Engineer
- **Stephanie Weyer,** Landscape Designer

Project Timeline

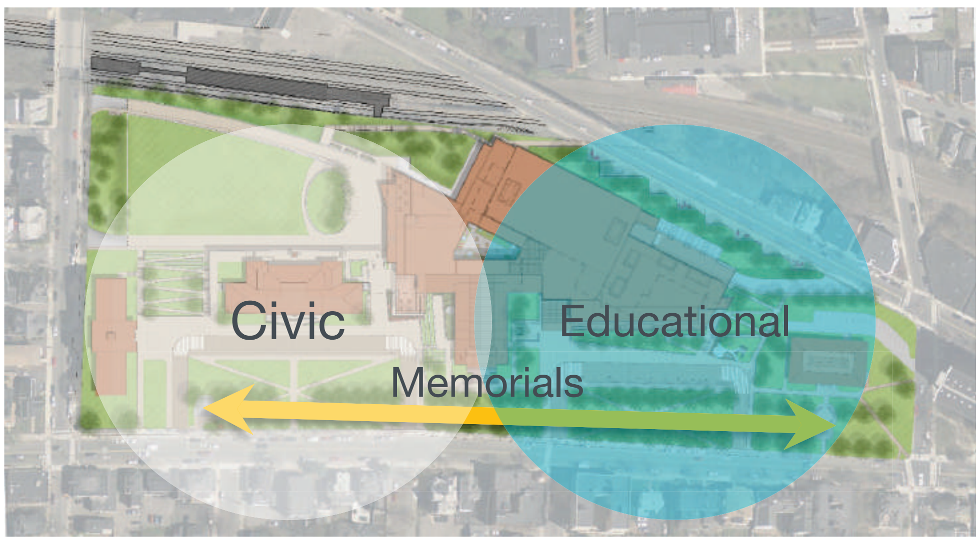
• Community Meeting #1	May 31, 2018
• Parking Study Meetings 1-3	Summer, 2018
• Memorials Commission Meeting	June 20, 2018
• Community Meeting #2	Sept 25, 2018
• Parking Study Meeting #4	Sept 27, 2018
• Community Meeting #3	Nov 1, 2018
• Parking Study Meeting #5	Dec 12, 2018
• Campus Planning Study Complete	Dec 28, 2018

Preferred Campus Plan

- Planning Overview
- Summary of Community Feedback
- Preferred Plan

Overview of Planning Process: How We Got Here

- Existing Conditions and Design Parameters
- Stakeholder Meetings
- Community Feedback – Desired Program



Planning Design Parameters

- Somerville High School Master Plan and project scope as a starting point
- GLX Gilman Station and Community Path
- Parking and Traffic Studies
- Building Use Space Plans for City Hall and 1895 Building
- Re-creation of Central Hill playground
- Respectful and chronological incorporation of war memorials

Overview of Planning Process: How We Got Here

- Concept Development
- Stakeholder Meetings
- Gather and Incorporate Community Feedback

Summary of Community Feedback

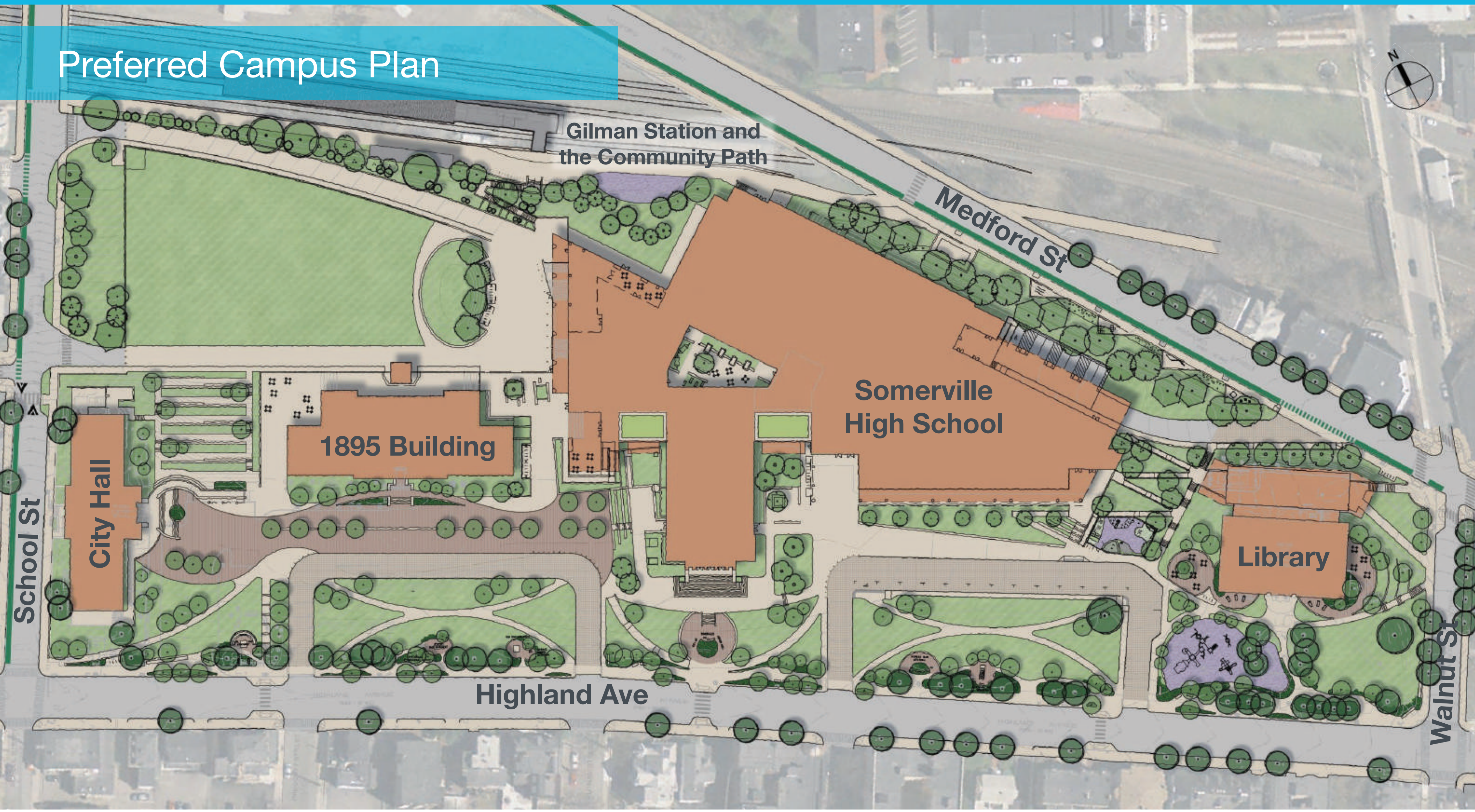
Top Themes:

- Keep Existing Trees
- More Parking
- Respectful Placement of War Memorials

Other Emerging Themes:

- Safe street crossings
- Accessibility
- Bicycle Safety
- More Green Space

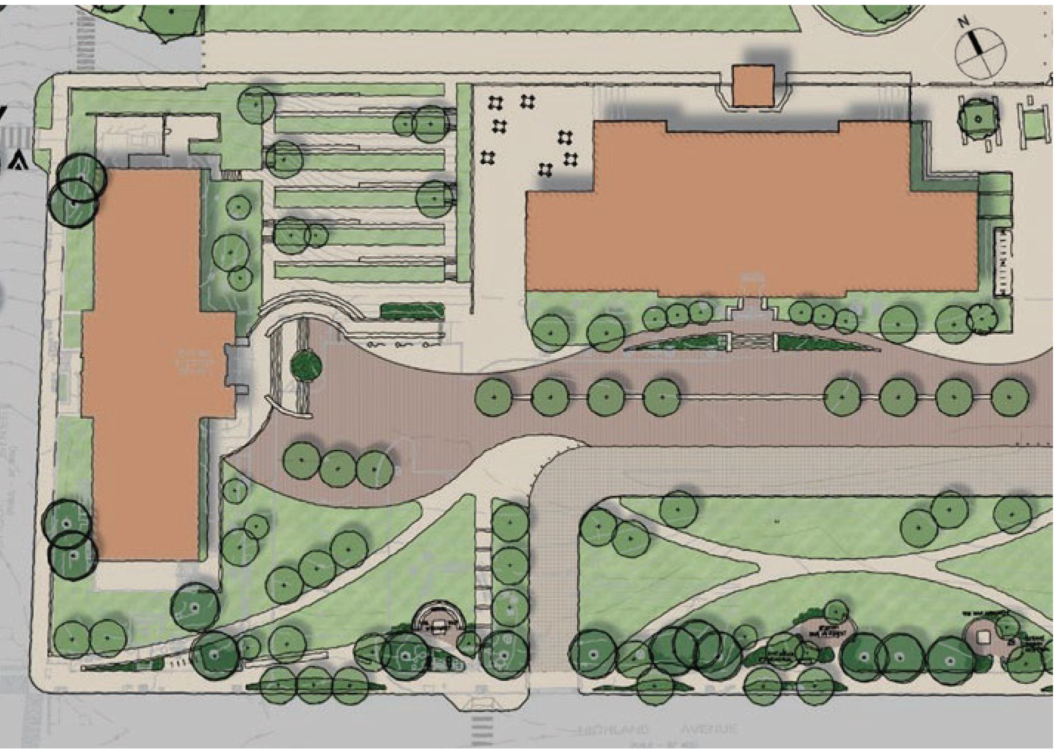
Preferred Campus Plan



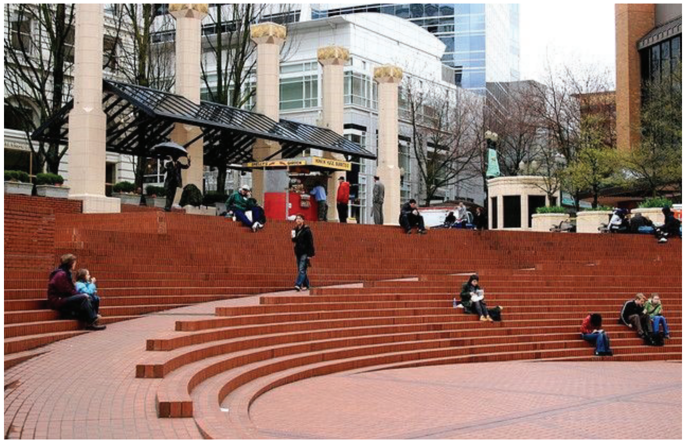
Preferred Plan: Central Hill Concourse Highlights

- Memorials integrated into Highland streetscape
- Honor Roll becomes a landmark / gateway emphasizing the War Memorial Building
- Vehicular access realigns with Prescott
- Public Access Drop-off integrated with dedicated pedestrian plaza giving visual prominence to City Hall and 1895
- Maintains majority of existing trees along Highland and strategically replaces trees to emphasize visual corridors and renew streetscape plantings
- Vegetated buffer along walkway to function as aesthetic separation for memorials and storm water management features
- More usable reorganized Green Space at Library

Plan Highlights

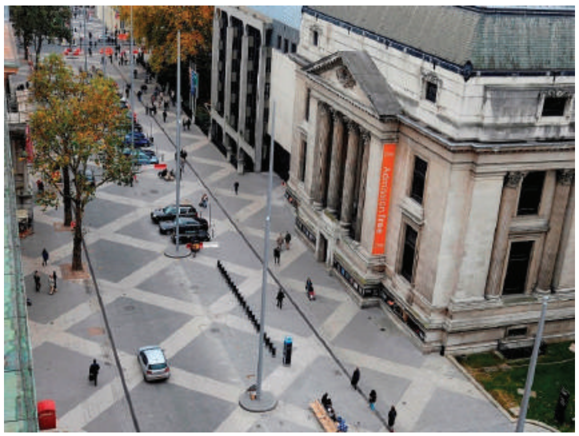


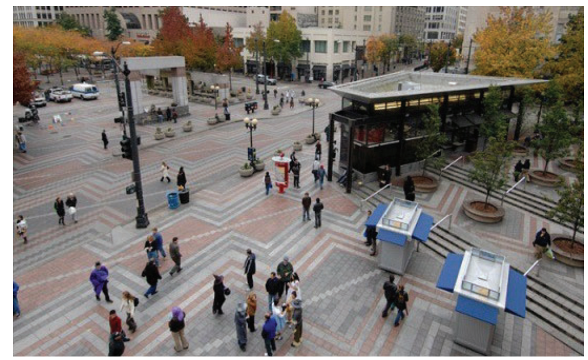
Accessibility to City Hall and 1895 and across campus



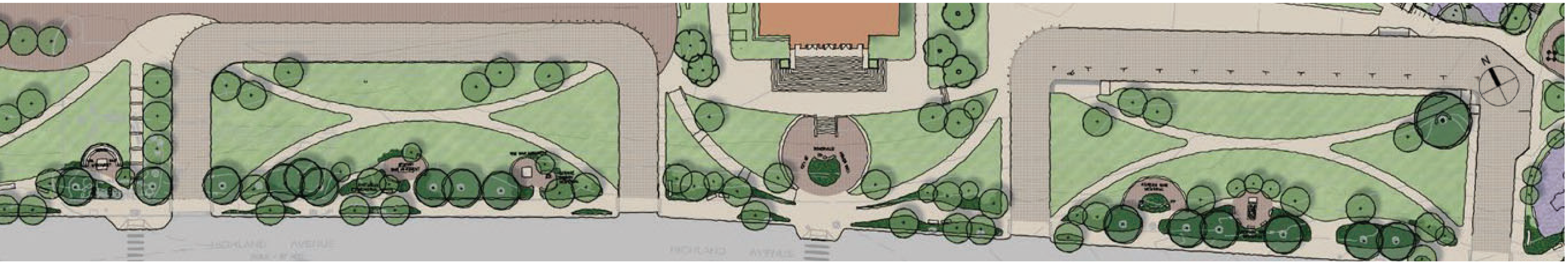
Plan Highlights

Presence of City Hall,
dedicated pedestrian plaza



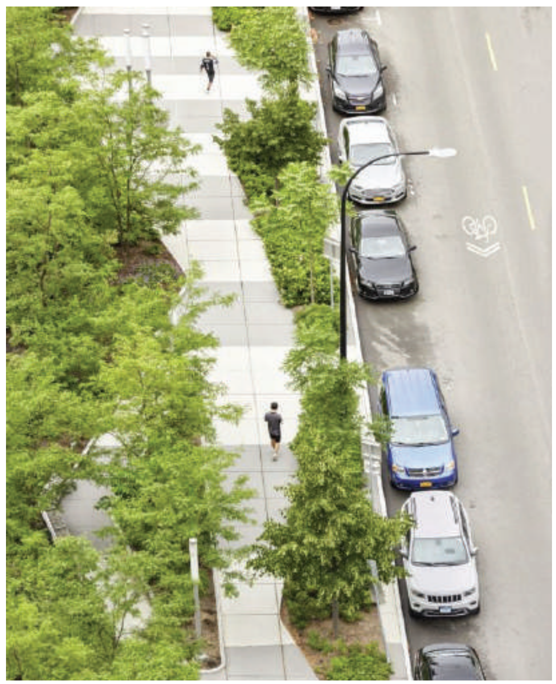


Plan Highlights

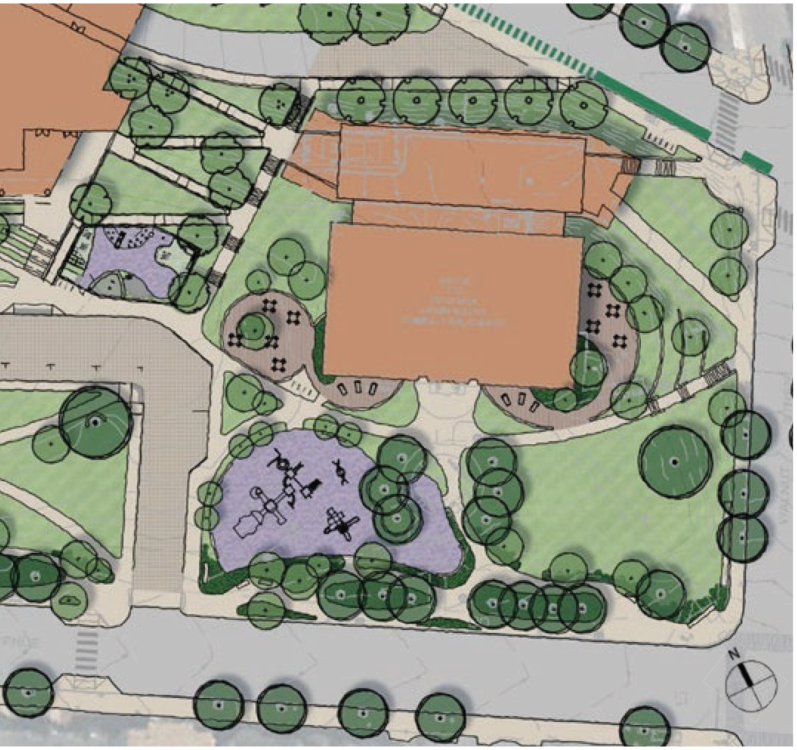


Centralized / chronological placement of memorials

Plan Highlights



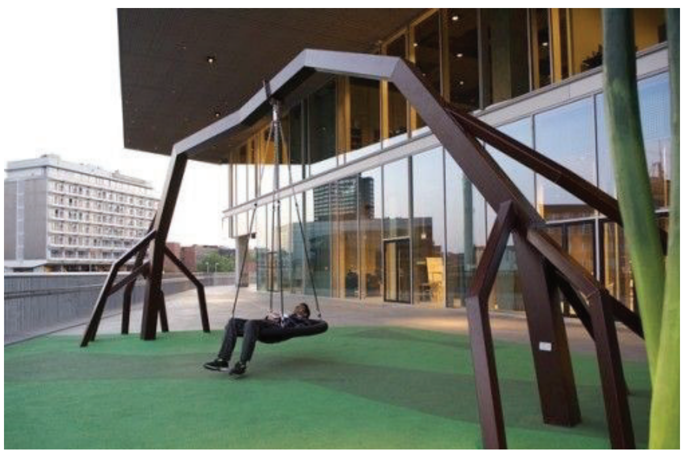
Plan Highlights



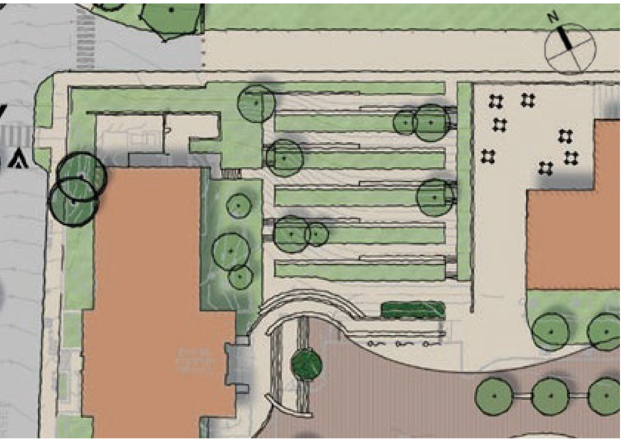
Library: usable green space, terraced edge, adjacent play space

Plan Highlights



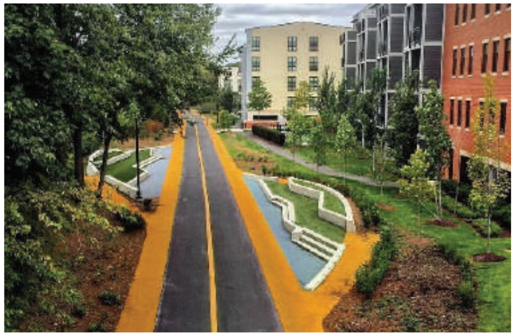
Plan Highlights



Accessible route to Gilman Station and on the hill west of 1895

Plan Highlights

Activate adjacent space at community path

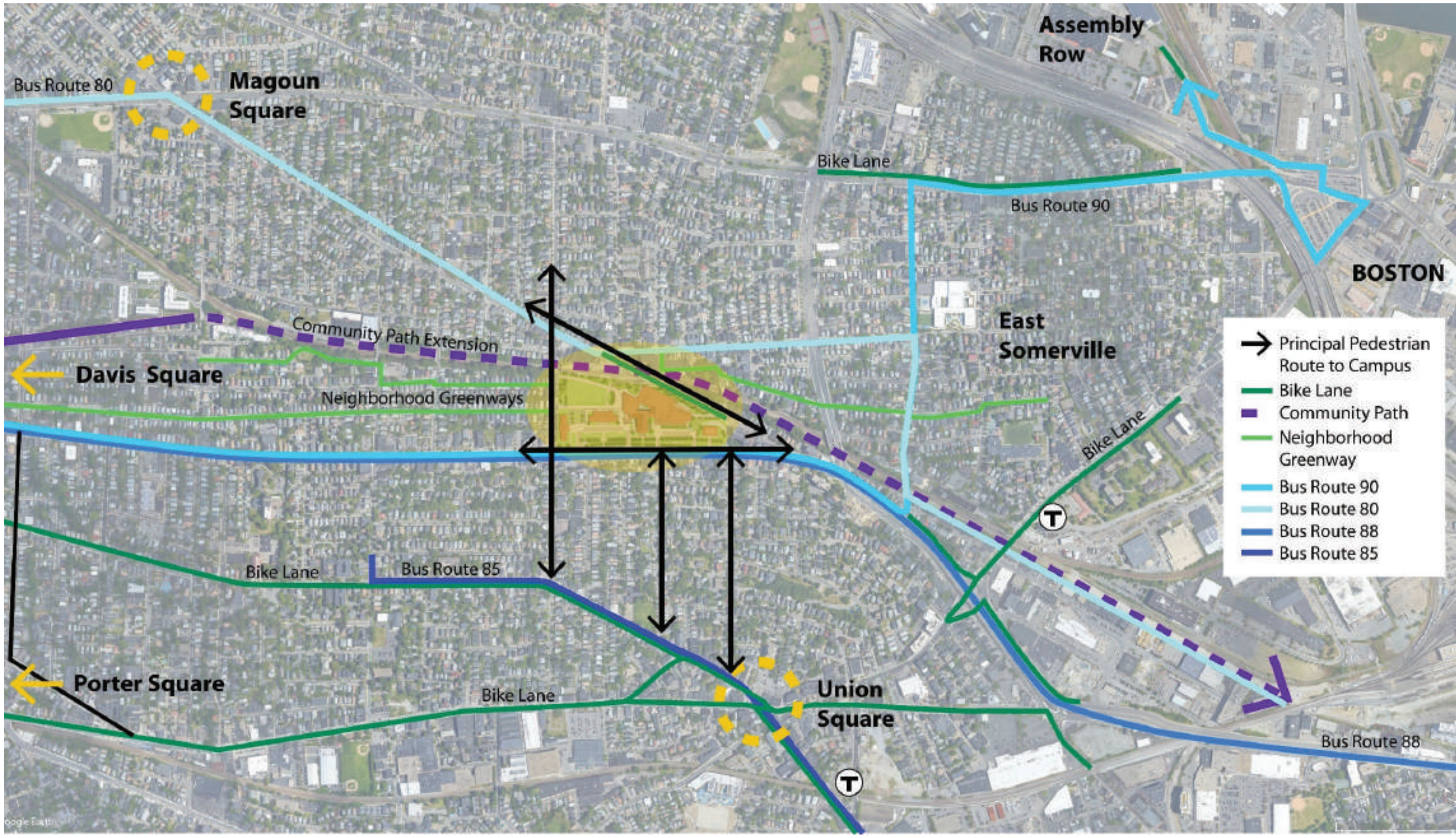


Transportation

Transportation

Modes
- Vehicular Access
- Transit
- Biking
- Pedestrian Access

Topics
- Site access
- Traffic calming
- Grade challenges
- Community path
- Future street traffic patterns
- MBTA bus stops

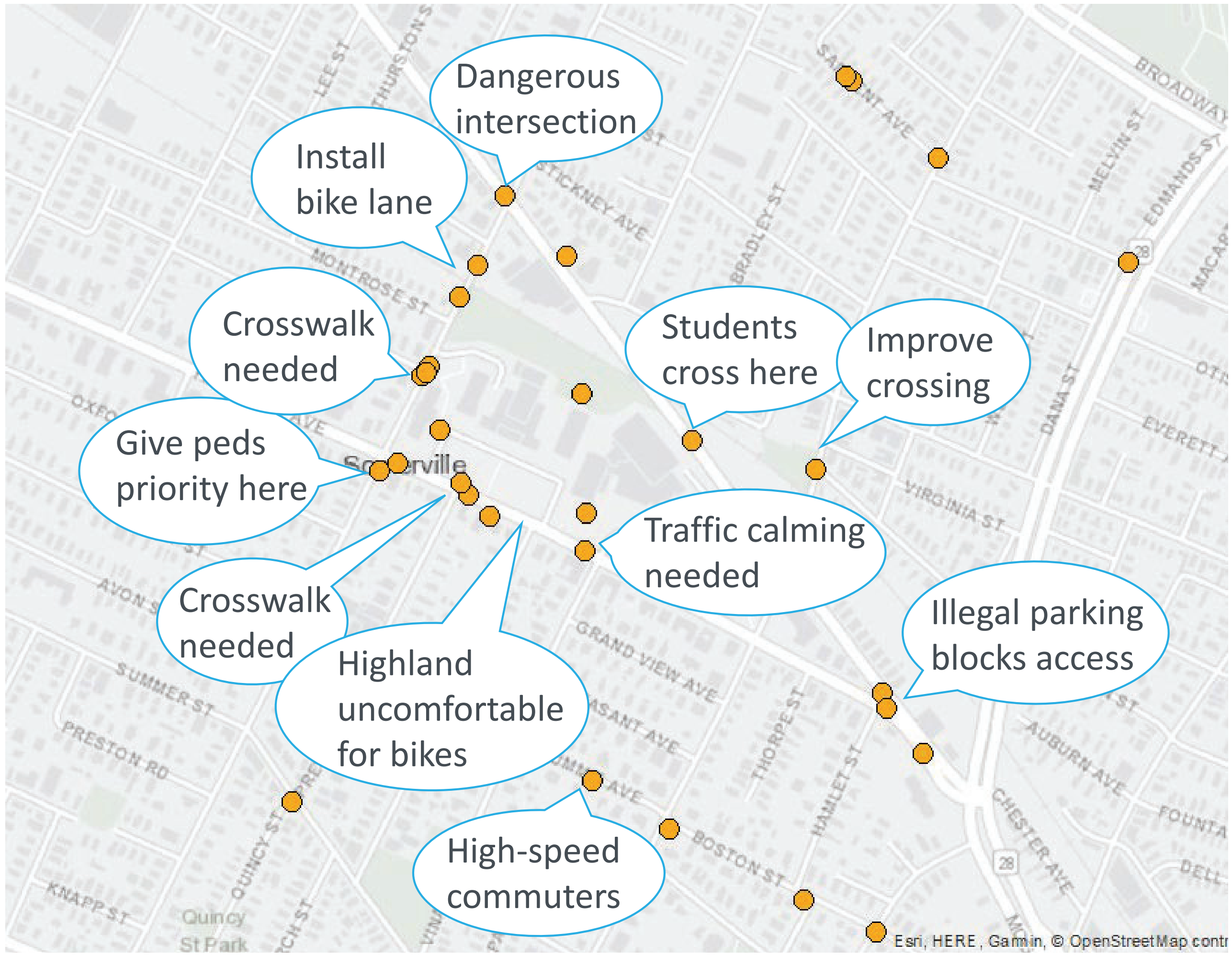


From the Wikimap:
Community Member Identified Areas of Concern

Respondents from Teele Square, Porter Square, Spring Hill, Winter Hill, Union Square, Hillside, East Somerville

Most frequent responses identified:

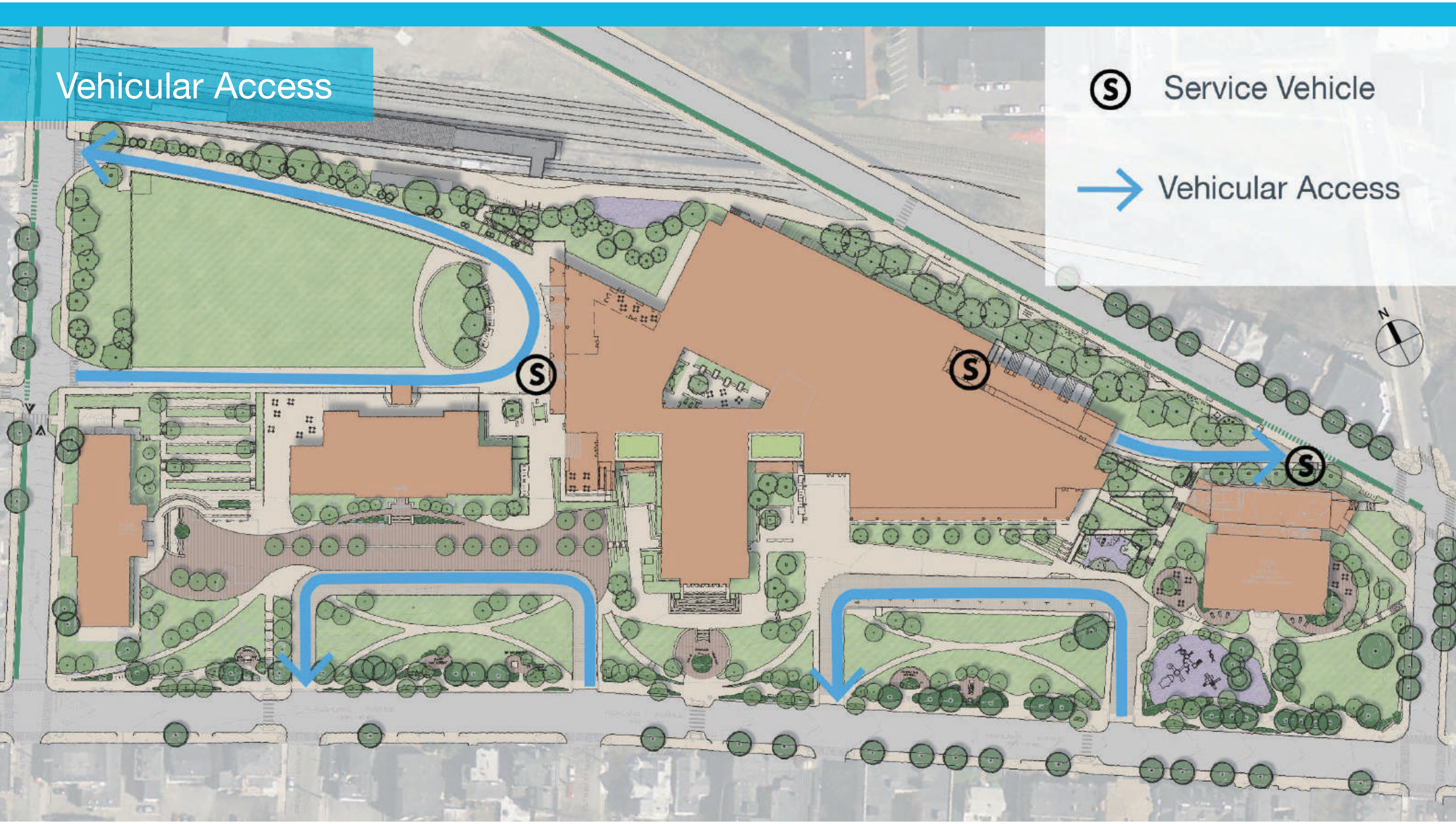
- Locations for crosswalks
- Dangerous/ uncomfortable intersections and ideas for improvement



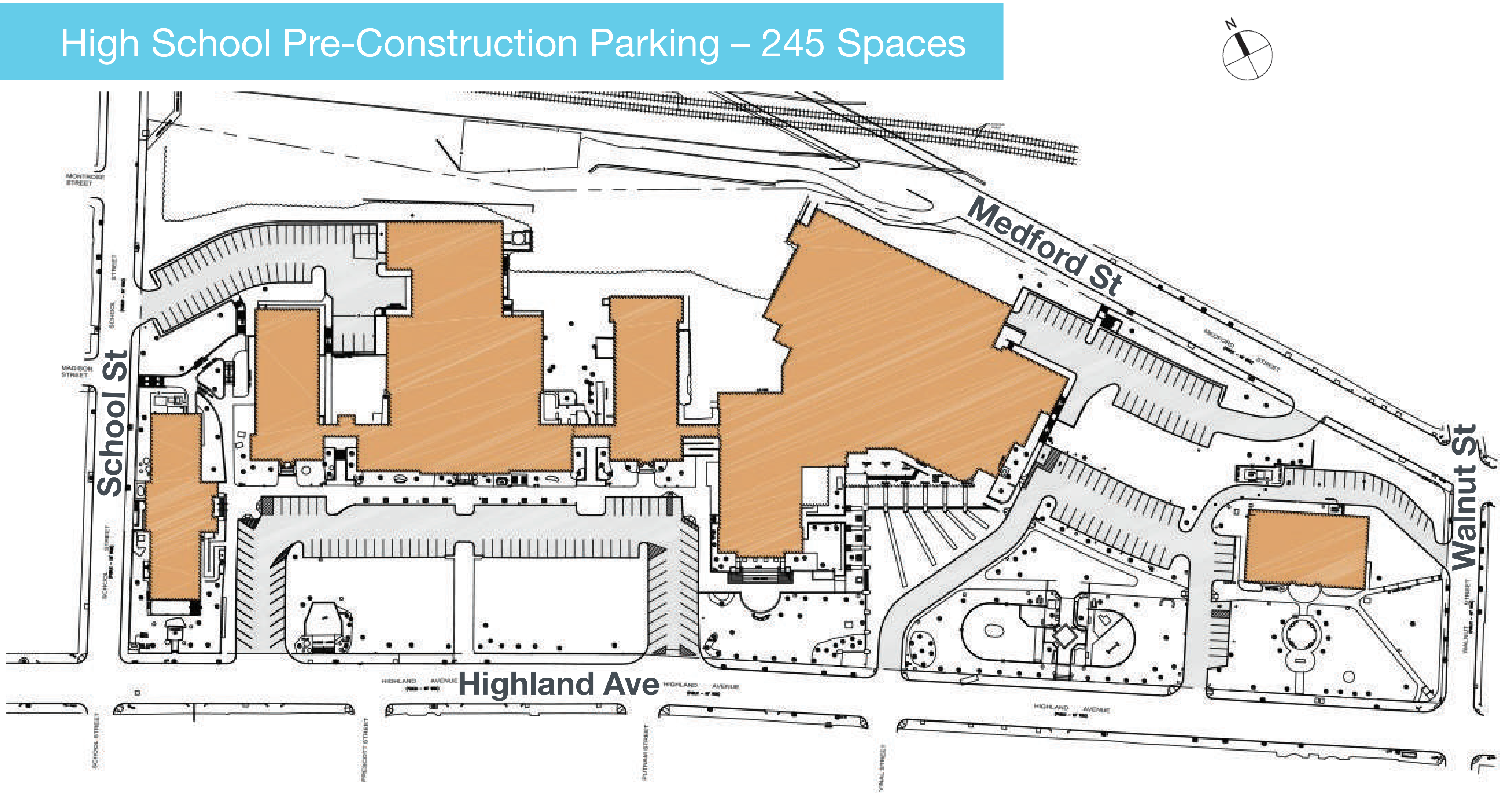
Vehicular Access

City conducting a parking analysis and has a meeting scheduled to discuss parking

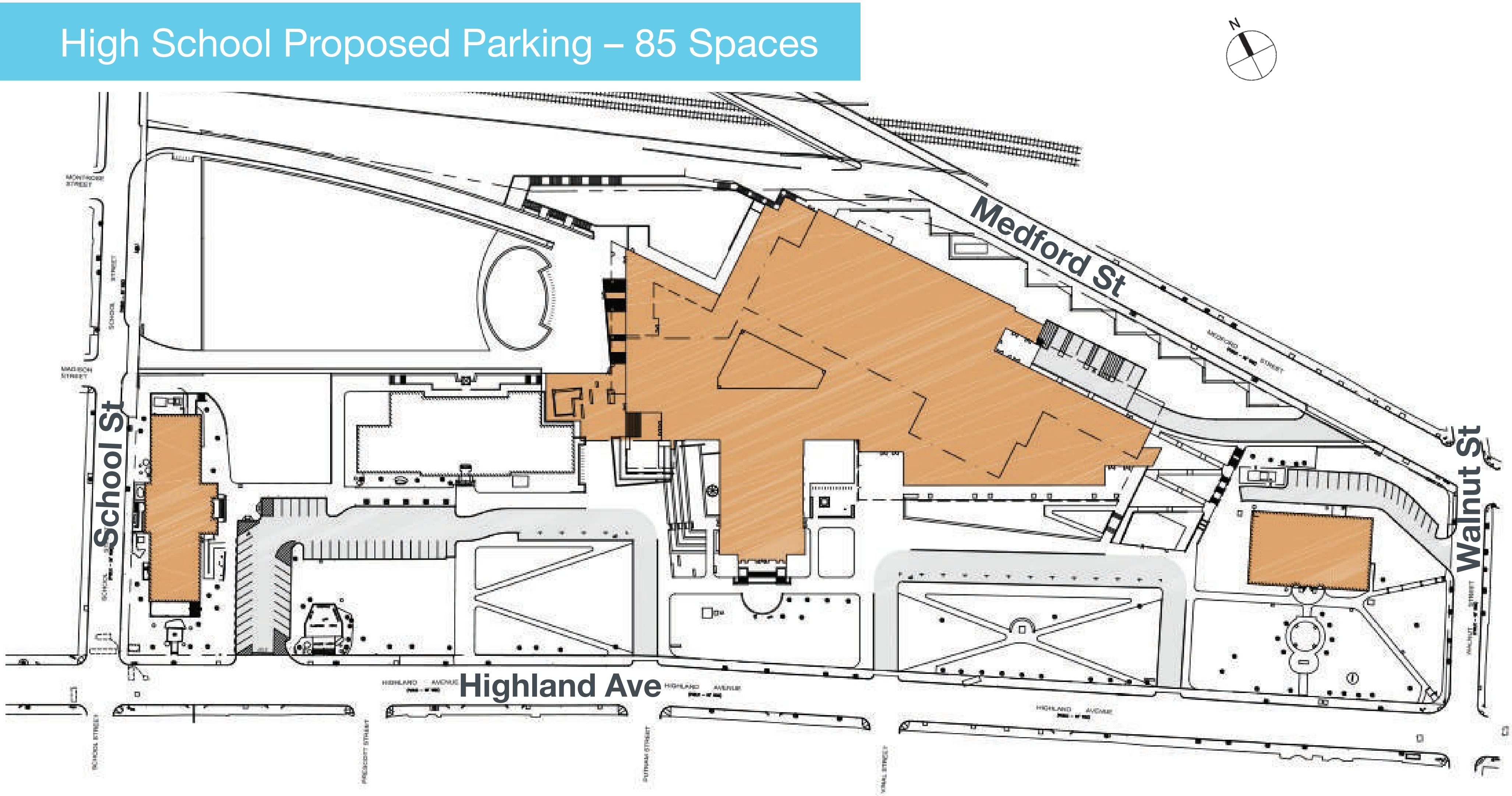
Recommend School Street to change from one-way to two-way from Medford St to Somerville Ave


Vehicular Access
Service Vehicle
Vehicular Access
S
N

High School Pre-Construction Parking – 245 Spaces



High School Proposed Parking – 85 Spaces



Parking Impact Meeting

December 12, 2018 – 6:00 pm

Central Library Auditorium

Feedback

- Link to Neighbor Survey:
- https://www.surveymonkey.com/r/CentralHillParkingSurveyResidents

Transit

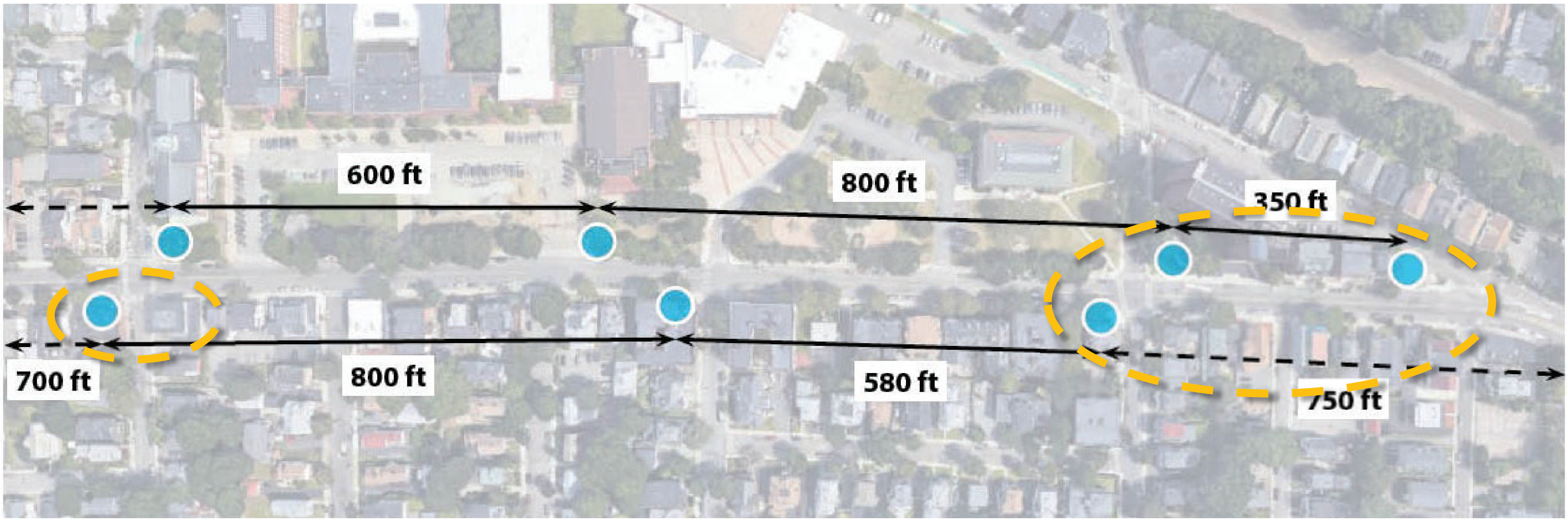
Green Line Extension (GLX)

Gilman Square Station Ground Breaking

- **Pedestrian crossing to be constructed at Gilman Square**
- **Recommend Transportation & Infrastructure Division work with MBTA on bus routes 80 and 85**

Transit

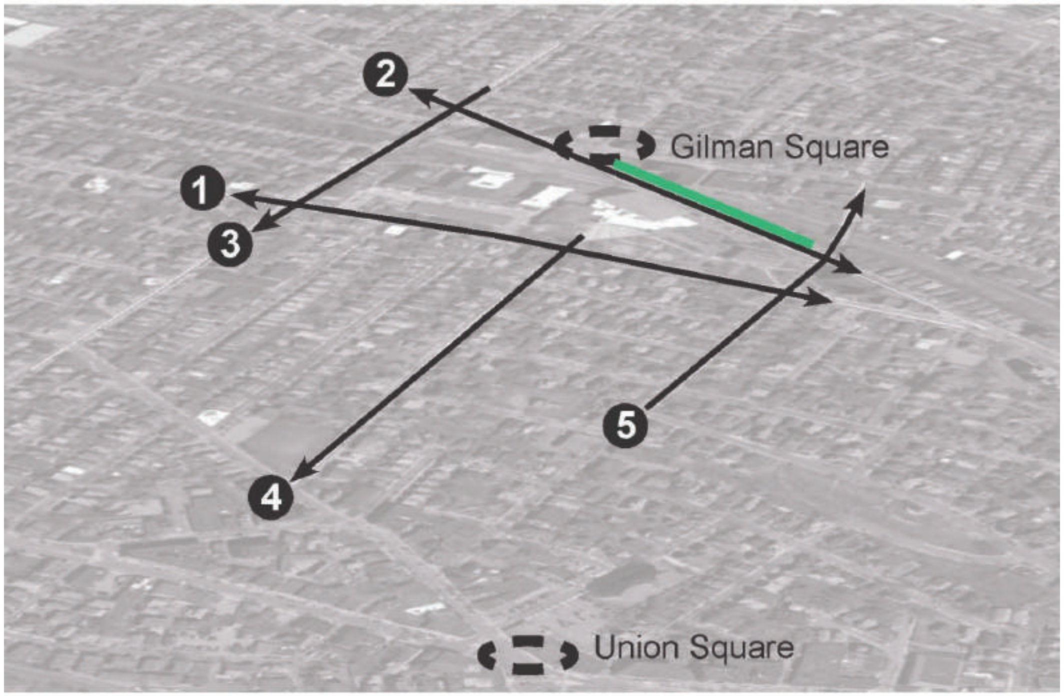
Bus Stops

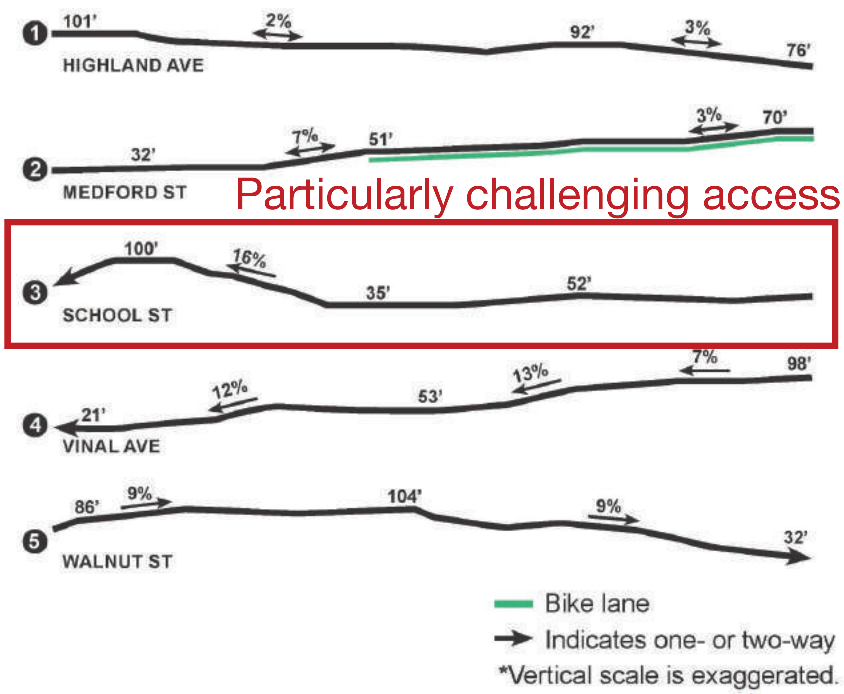


Looking at potential changes to bus stops to reduce intersection crossing for pedestrians and provide operational improvements

Biking

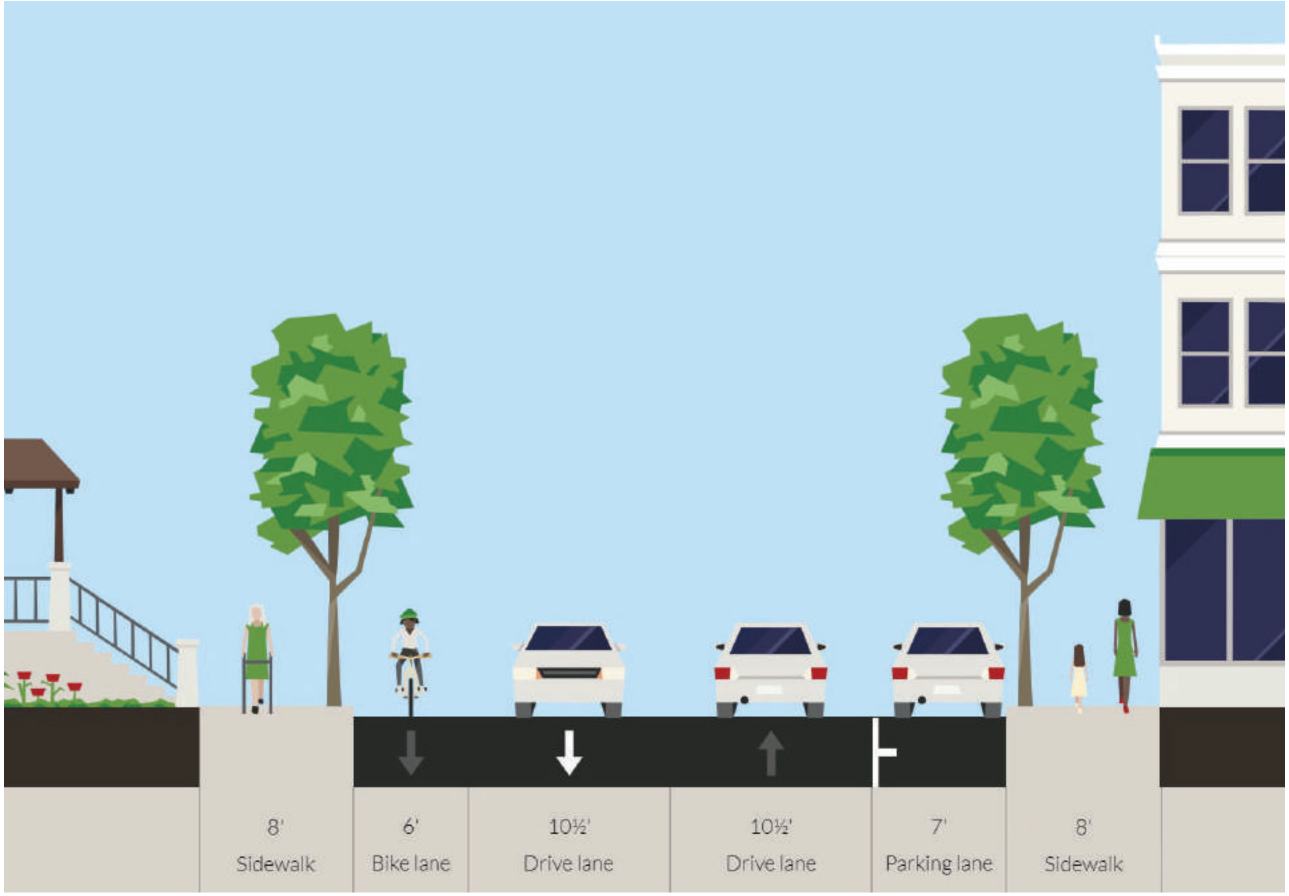
Significant Grade Challenge





Biking

School St Proposed Bike Lane

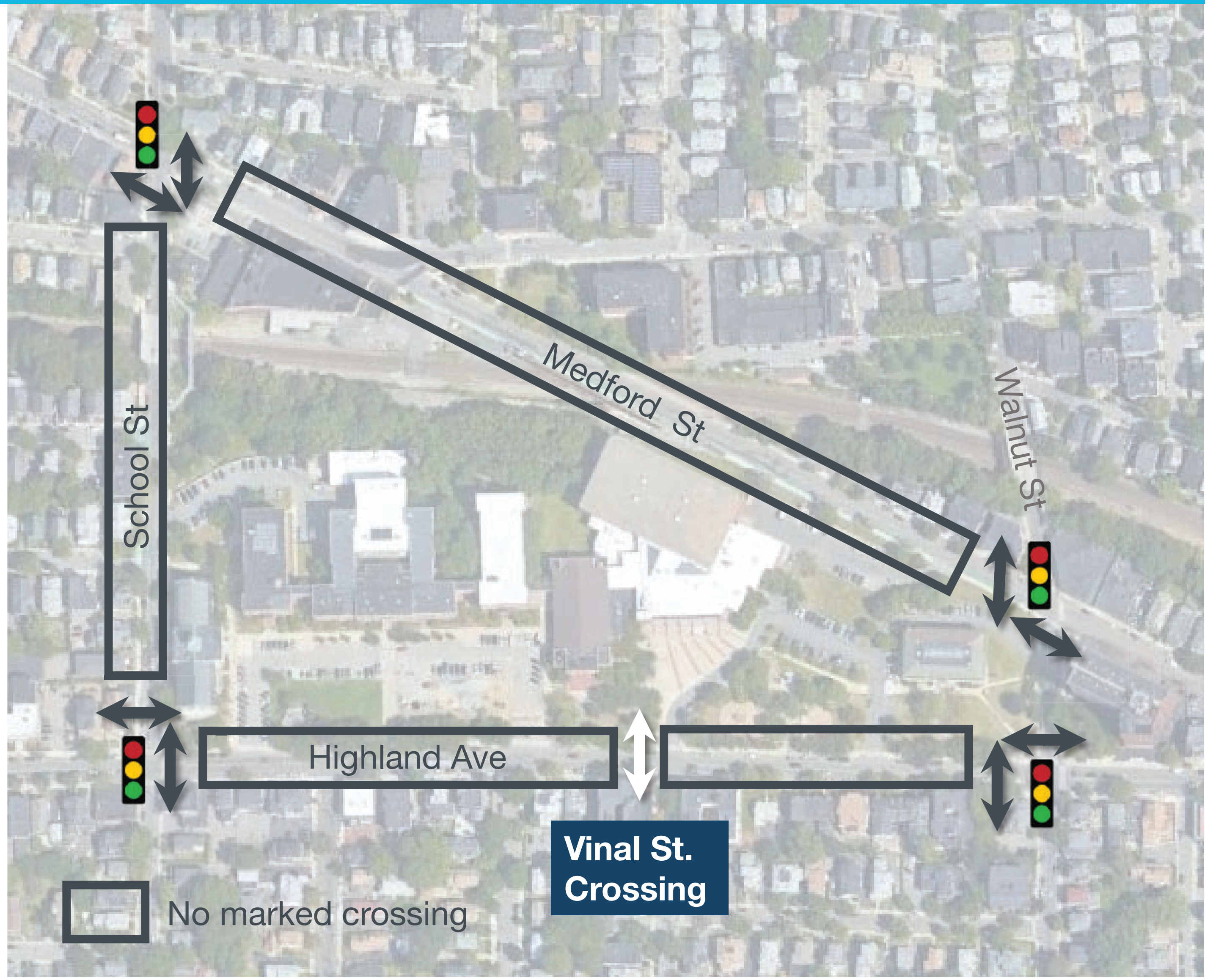


Bicycle Access and Parking Locations

Pedestrian Access - Existing Conditions

Considerations

- Where people are coming from and their destinations
- Existing and needed safe crossings
- Signalization



Pedestrian Access

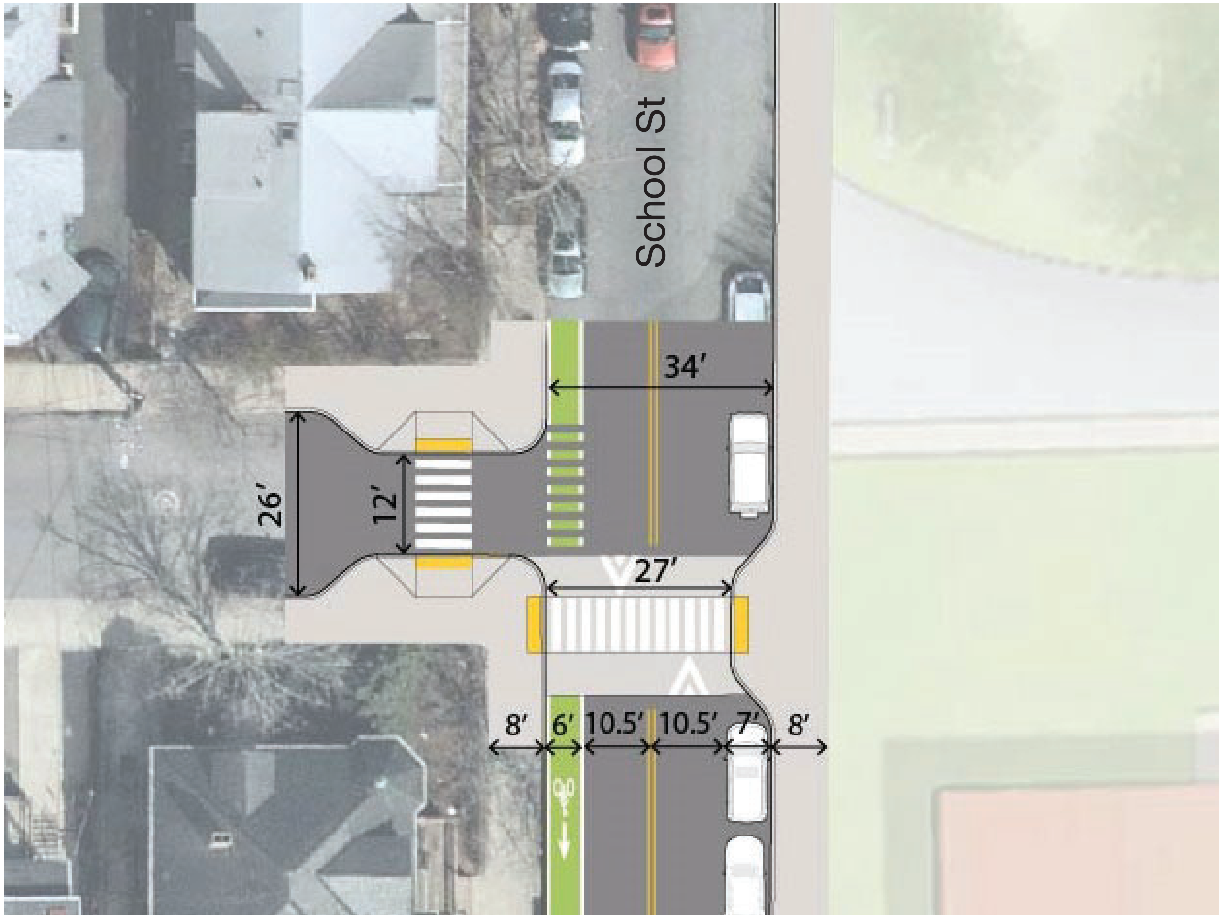
Proposed New Crossing

Suggested Crossing Improvements

Pedestrian Access

Proposed Madison & School Street Crossing

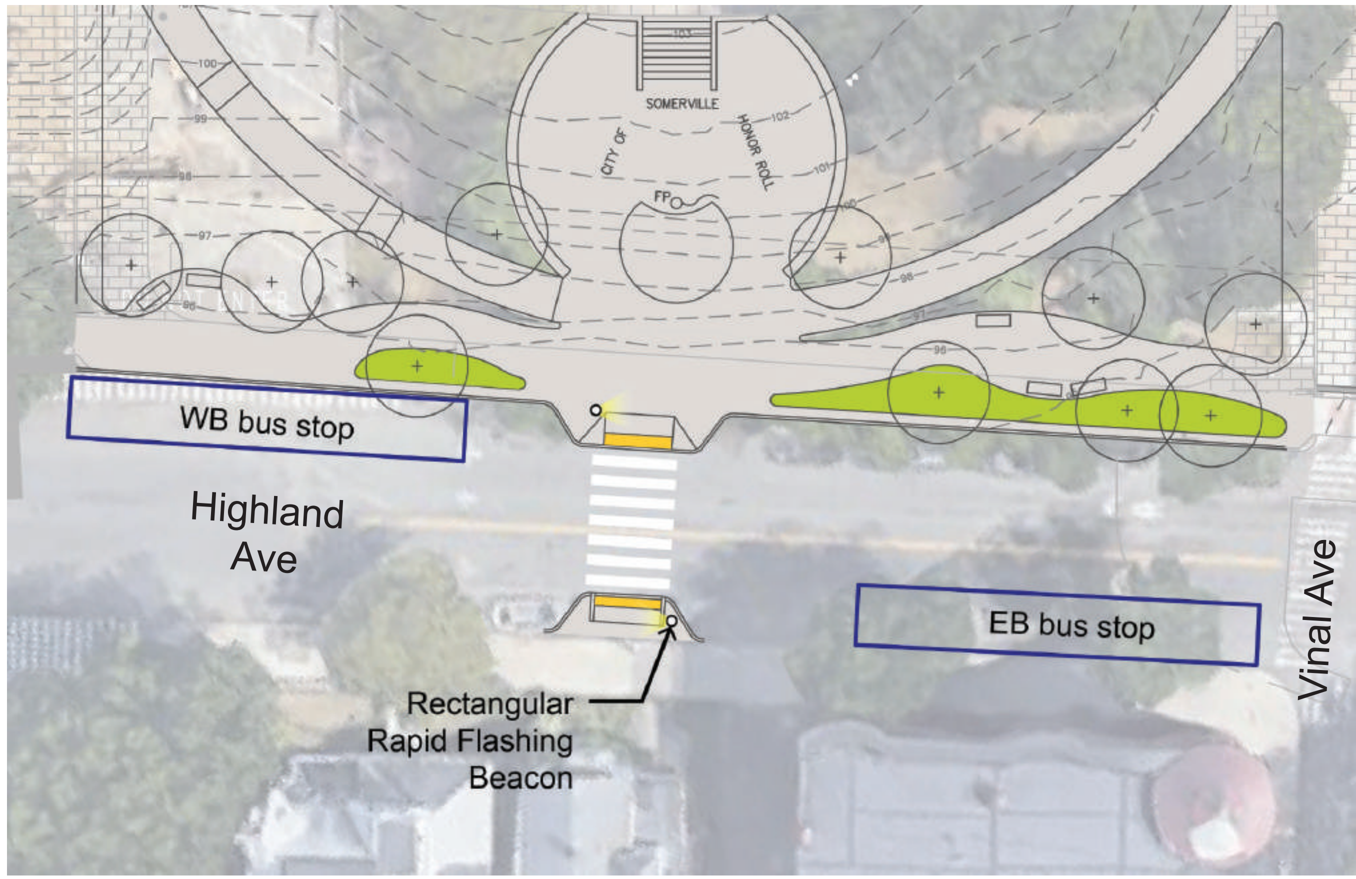
Raised Crosswalk



Pedestrian Access

War Memorial Proposed Crossing

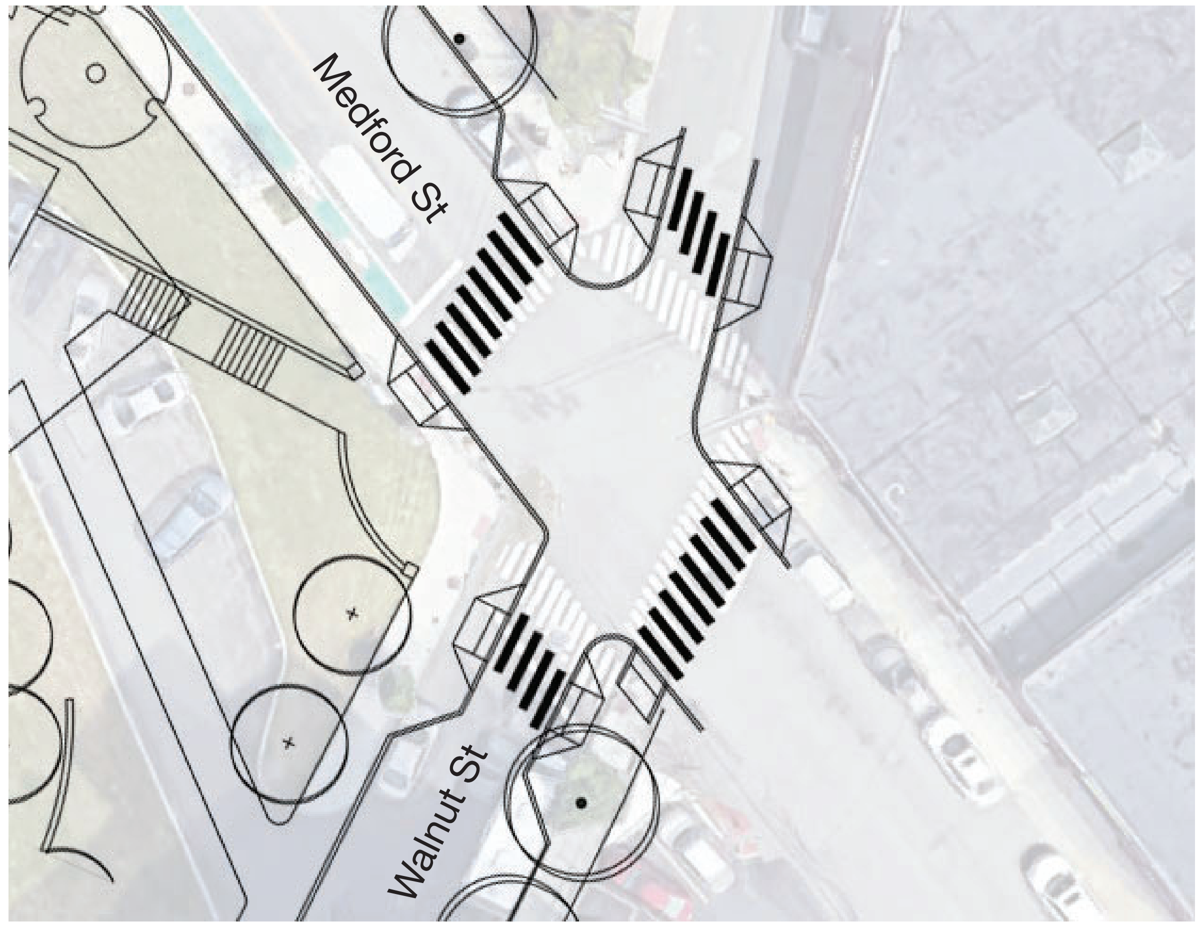
Rectangular Rapid Flashing Beacon



Pedestrian Access

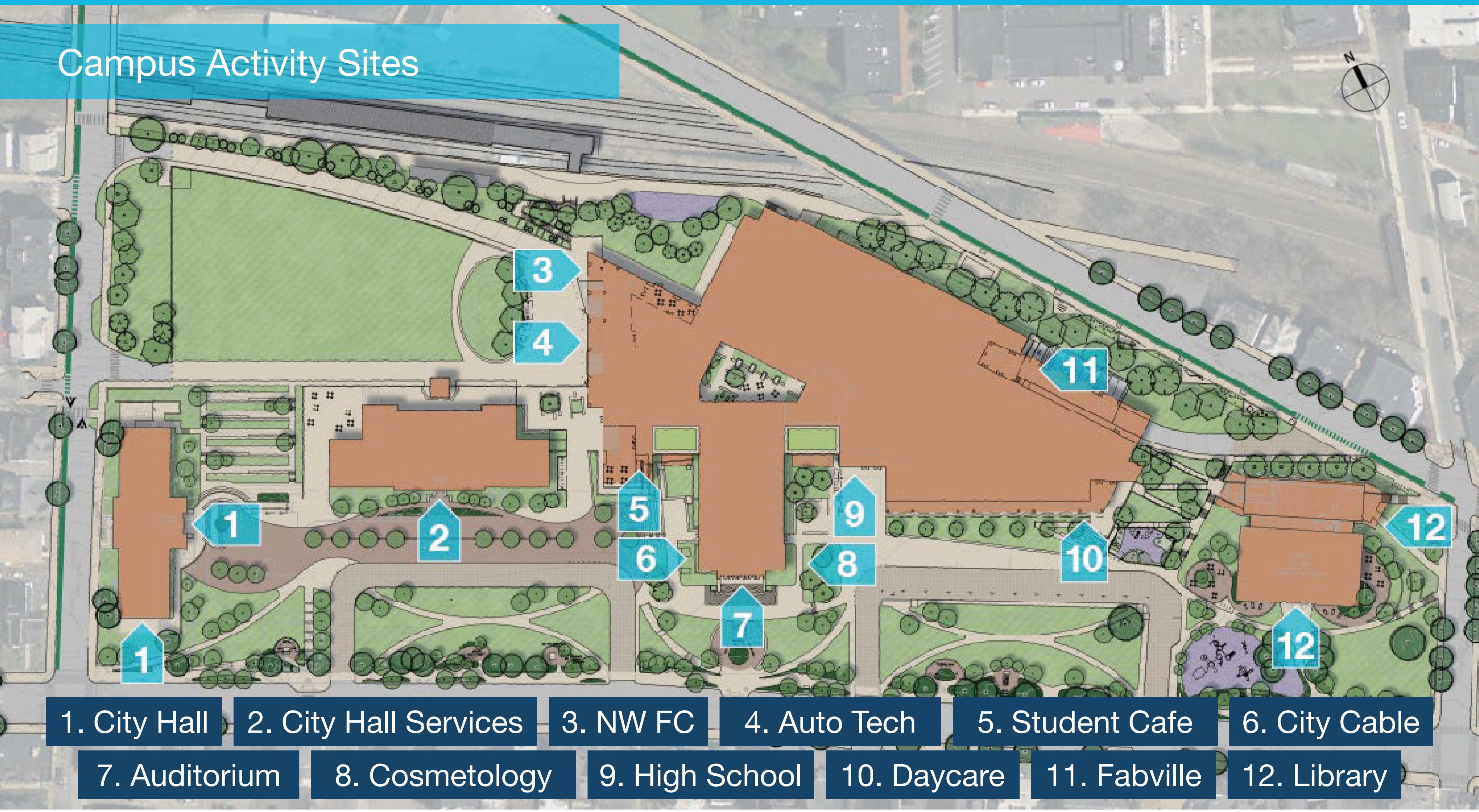
Intersection Improvement: Medford St & Walnut Street

- Extend curb to shorten crossing time for pedestrians and widen sidewalk
- Provide directional crossings rather than existing apex
- Improve crossing signals



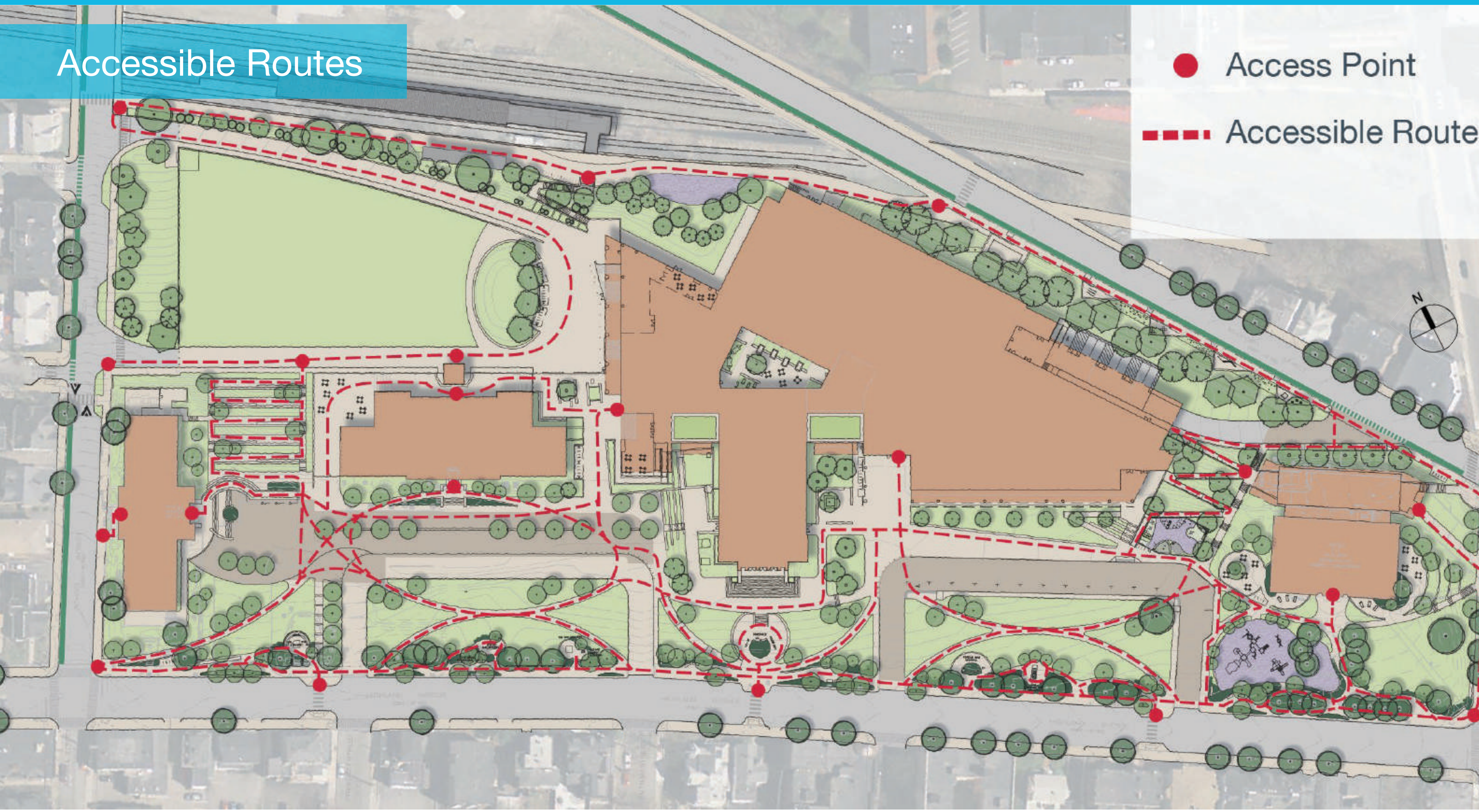
Proposed Campus Gateways

Campus Activity Sites



1. City Hall | 2. City Hall Services | 3. NW FC | 4. Auto Tech | 5. Student Cafe | 6. City Cable
7. Auditorium | 8. Cosmetology | 9. High School | 10. Daycare | 11. Fabville | 12. Library

Accessible Routes



Wayfinding and Signage

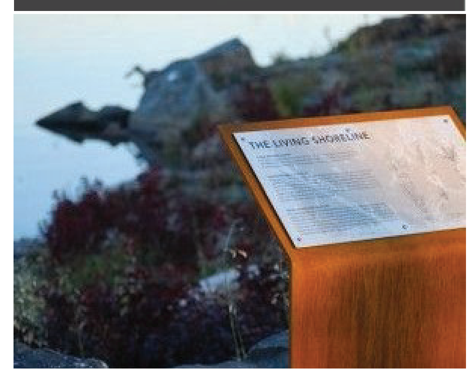
- Unifying Concepts
- Signage Types & Levels
- Location of Signage
- Aligning with Current High School Design

Signage and Wayfinding

Unify the campus, creating sense of place

Graphics inform visitors of the campus.

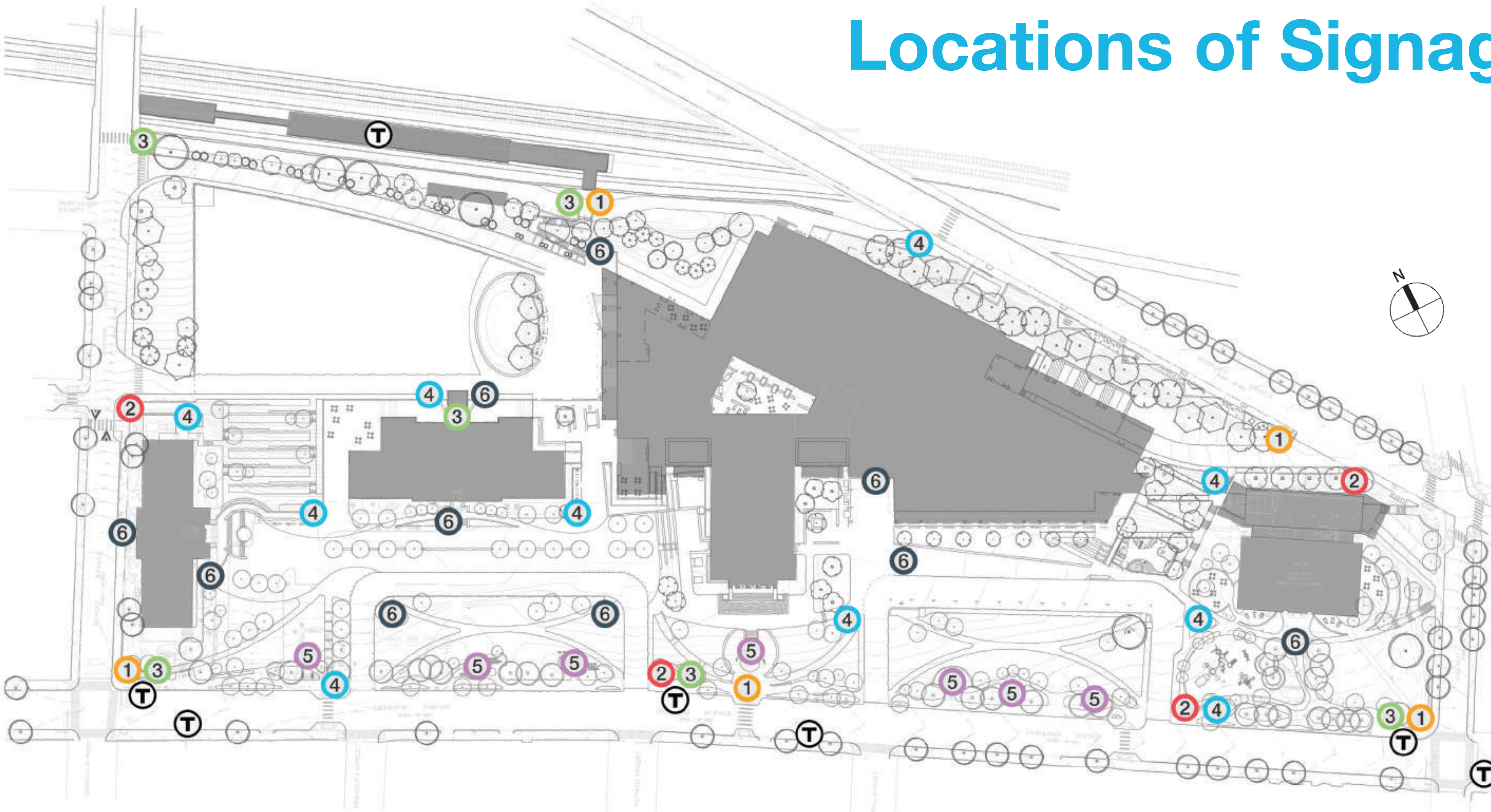
Design and materials take cues from site environment and complement.



Signage Levels

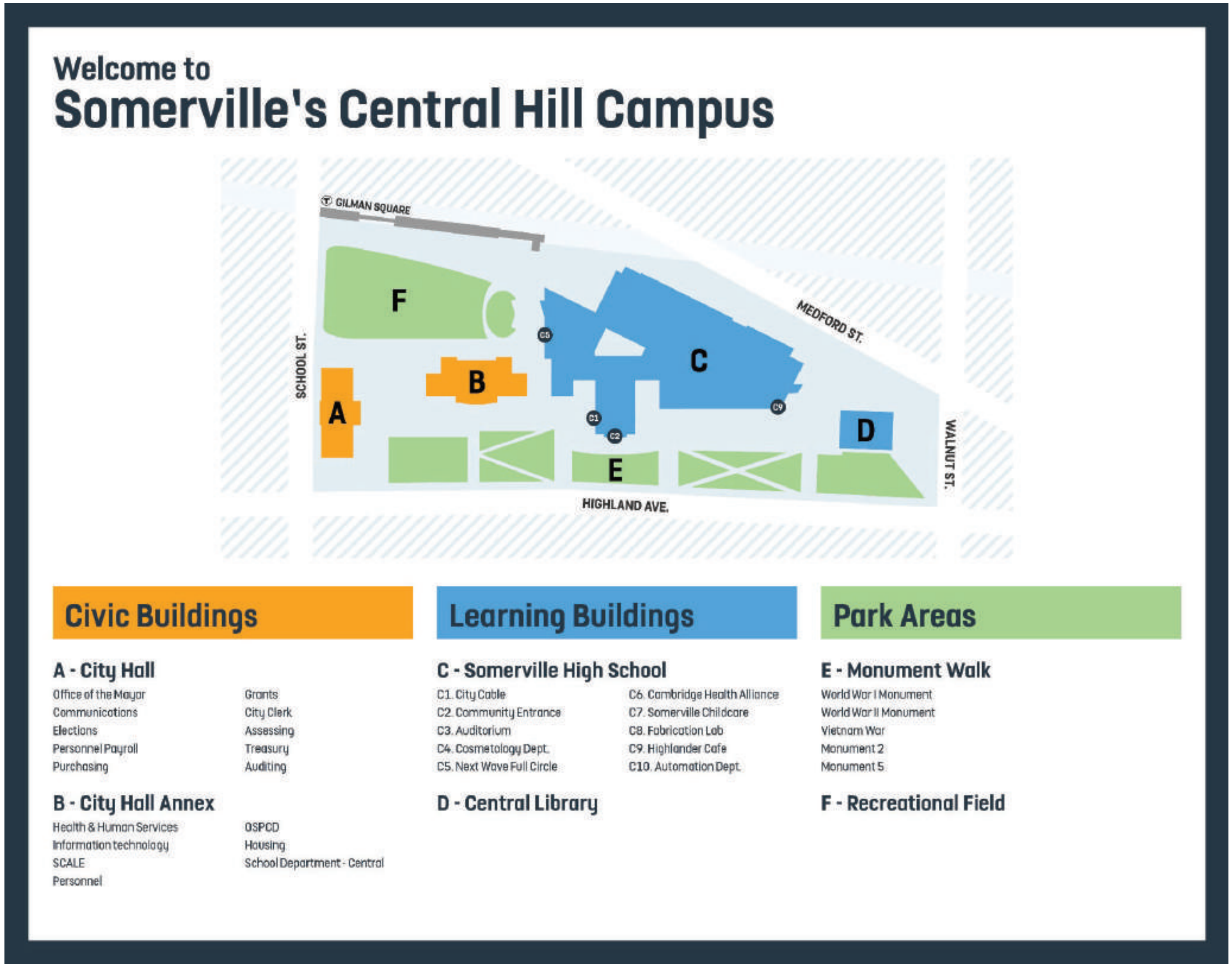
	Audience	Sign Type
Level 1	Everyone	Gateway or Campus Markers
Level 2	Vehicles	Roadside Pylons
Level 3	Unfamiliar Pedestrians	Map & Directory
Level 4	Regular Pedestrians	Individual Destination Marker
Level 5	Monument Patrons	Informational Placard
Level 6	Everyone	Building Marker

Locations of Signage



Campus Directory

Providing directions at multiple levels from the civic and educational commons, to individual city & school departments and their respective entrances.



Sustainability

Approach to Carbon Neutral

1. Renewable Energy Resources

Approach to Carbon Neutral

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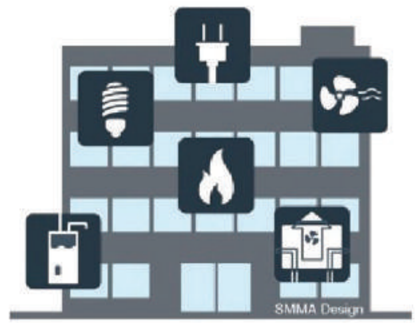
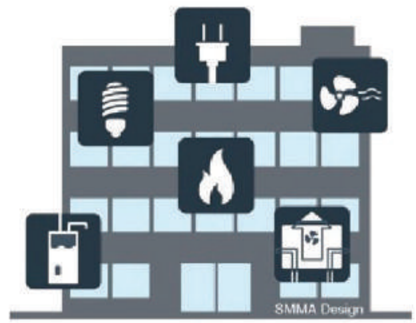


2. Low Energy Use Campus

Approach to Carbon Neutral

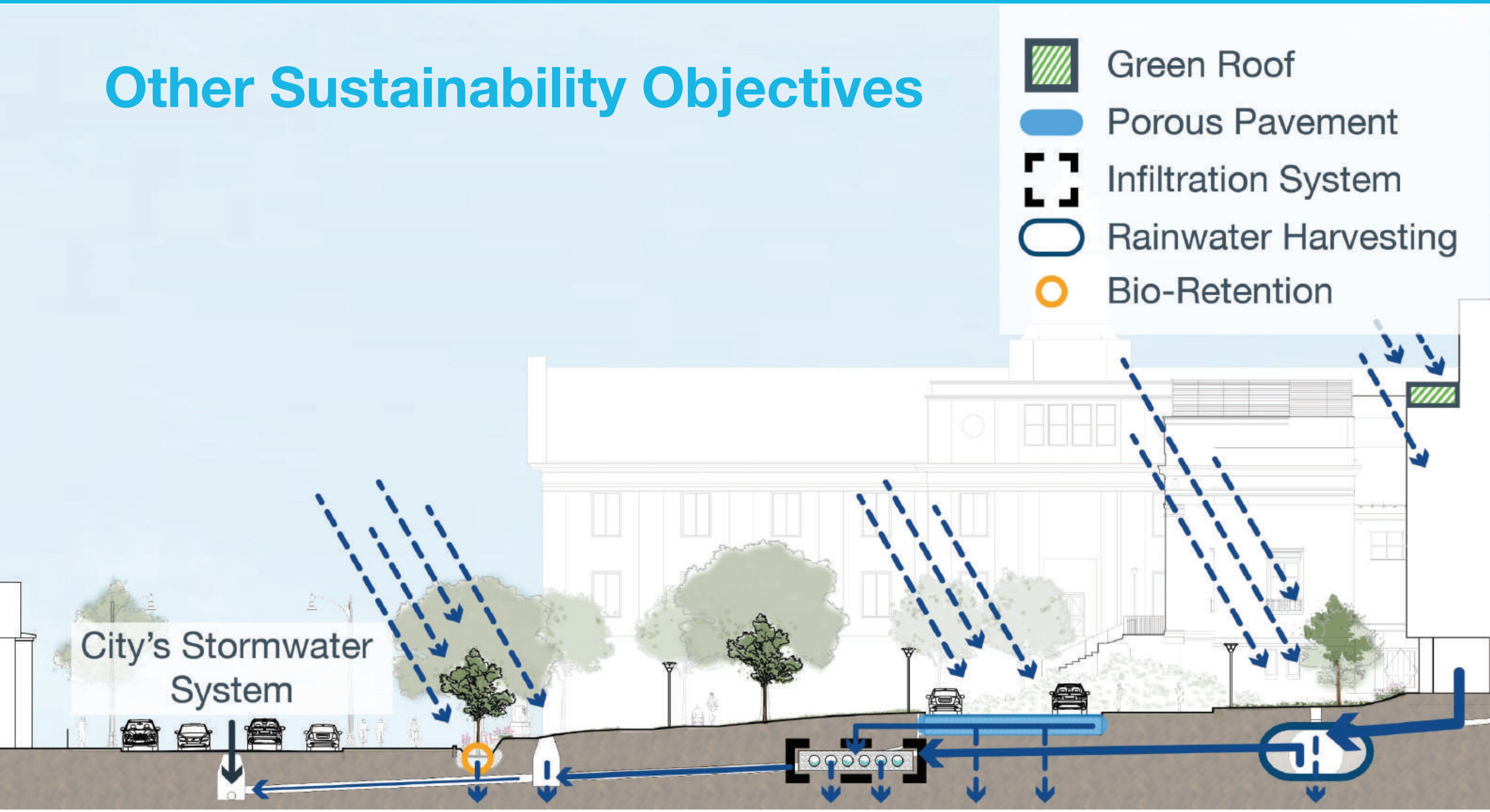
1. Renewable Energy Resources



2. Low Energy Use Campus

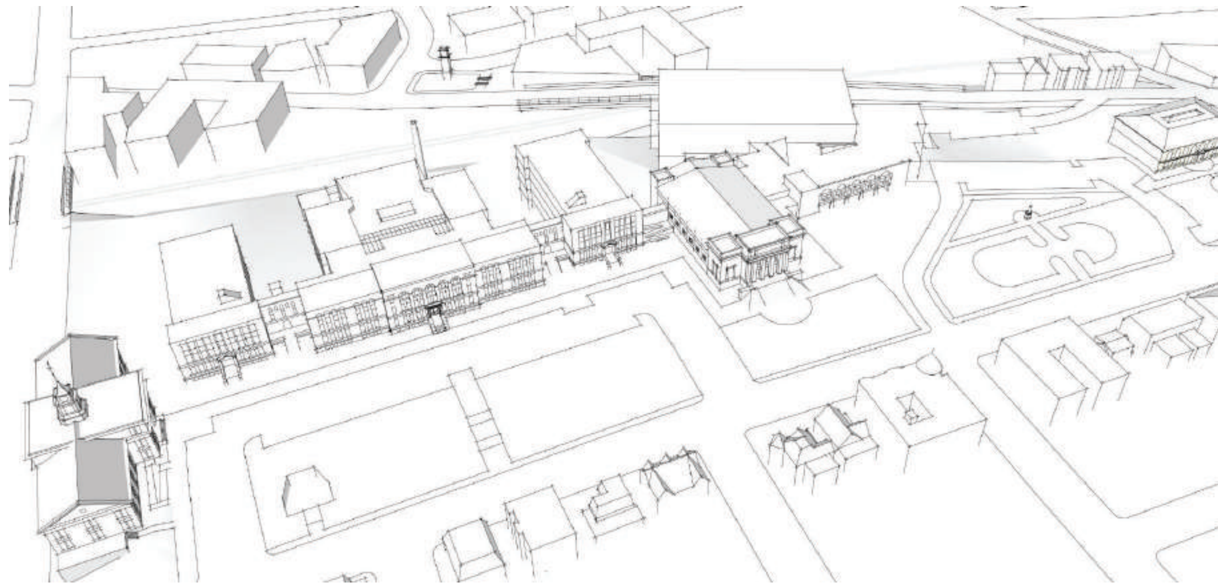
3. Time

Other Sustainability Objectives



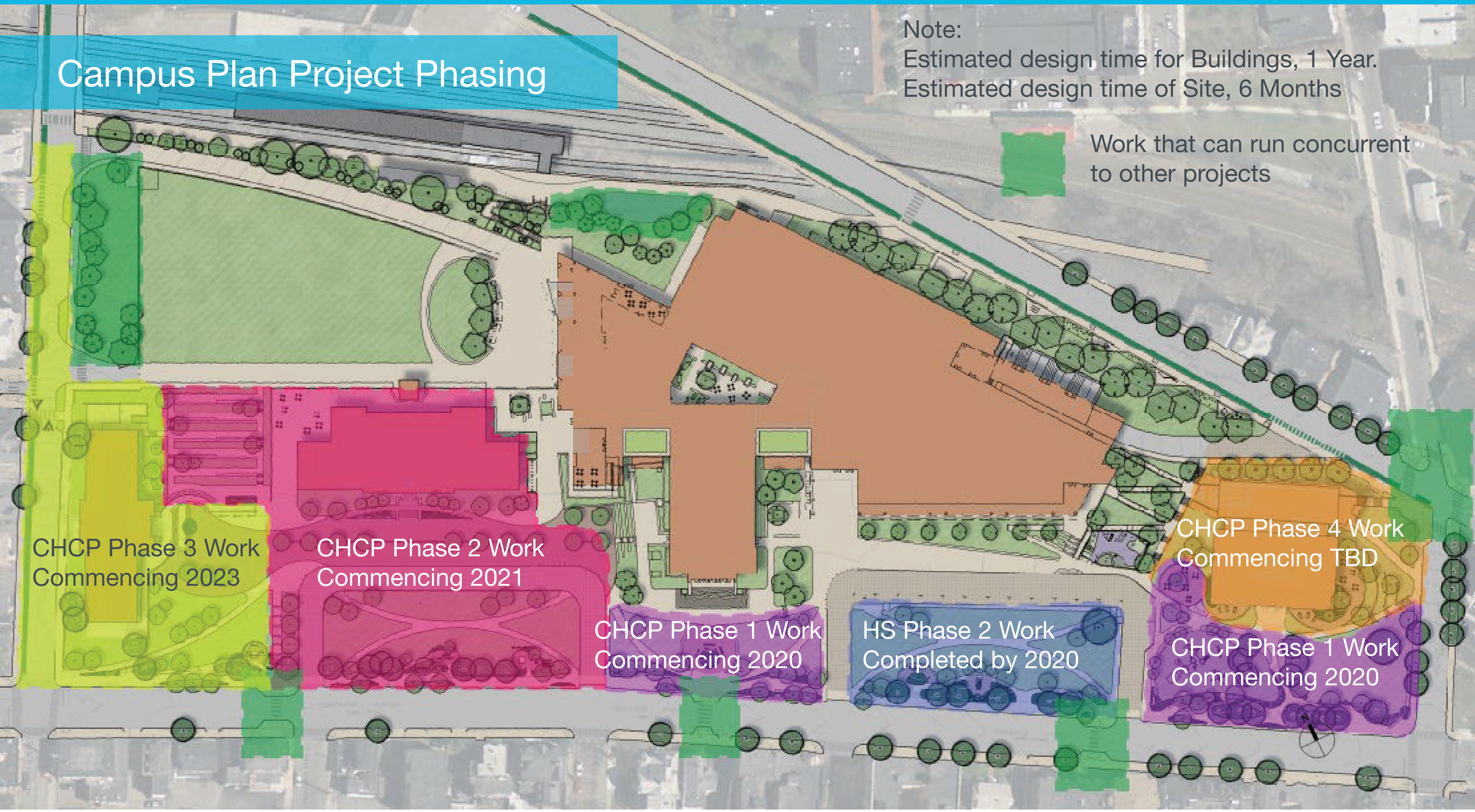
Preliminary Conclusions

- No fossil fuel based combustion
- Building scale systems
- Combination of on-site and purchased renewable power
- All electric systems for renovated/new buildings
- Policies to support low energy consumption



Campus Plan Project Phasing

Campus Plan Project Phasing



Discussion

Feedback

To offer feedback or thoughts please contact:
centralhill@somervillema.gov

Project Timeline

• Community Meeting #1	May 31, 2018
• Parking Study Meetings 1-3	Summer, 2018
• Memorials Commission Meeting	June 20, 2018
• Community Meeting #2	Sept 25, 2018
• Parking Study Meeting #4	Sept 27, 2018
• Community Meeting #3	Nov 1, 2018
• Parking Study Meeting #5	Dec 12, 2018
• Campus Planning Study Complete	Dec 28, 2018

Parking Impact Meeting

December 12, 2018 – 6:00 pm

Central Library Auditorium

Feedback

Link to Neighbor Survey:

https://www.surveymonkey.com/r/CentralHillParkingSurveyResidents

Next Steps

- Document feedback from tonight's session
- Review with Campus Plan Committee
- Committee to refine preferred Option
- Design team to develop potential costs for implementation (will be phased over several years)
- Complete study by end of year
- Commence design in 2019

Thank you

For more information:
www.somervillma.gov/highschool/
www.somervillema.gov/centralhillplan/

Somerville High School Construction Camera:
https://app.oxblue.com/open/Suffolk/somervillehighschool

Appendix H:

Veteran's Commission Meeting 01 Handout 04.26.2018

SITE: Existing Salvage Artifacts

Veteran's Commission on Monuments Meeting - April 26, 2018

BCA SMMA

Memorial Cannons

Anthony V. Fedele Way Sign

Memorial Brick

Civil War Memorial - 1908

Korean War Memorial - 2000

"Somerville High Honor and Progress" Plaque*

Pay Phone Art Box

Dilboy Monument

Class of 2010 Stone

Memorial Bench

Vietnam Memorial - 1985

Somerville Honor Roll

Memorial - First Congregational Unitarian Society

Art Globe

Memorial - Women of the Union Square Post Plaque

Spanish War/ Philippine/ China

SITE: Existing Artifacts

Veteran's Commission on Monuments Meeting - April 26, 2018

BCA | SMMA

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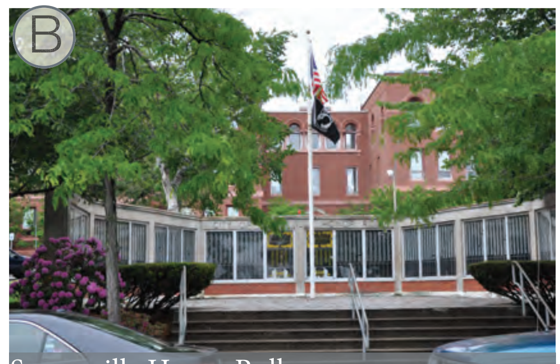


Somerville Honor Roll

SITE: Existing Artifacts For Monument Commission Review

Veteran's Commission on Monuments Meeting - April 26, 2018

BCA | SMMA

Memorial Cannons

- 12 pounder bronze “Naploeon” field guns
- Produced in 1864 by H.N.H. & Co. in Racine WI
- The cannons are original materials, although they are displayed here detached from their original artillery mounts.

Korean War Memorial

- Designed by Ted Clausen
- Dedicated in 2002
- Materials: granite, bronze
- Top of the entrance stone carved with the shape of the border between North Korea and South Korea
- Behind it, a 53 foot diameter semicircle granite displays quotes from local veterans, the names of local fatalities, and bronze casts of soldier's everyday equipment (helmet, shovel, ration cans, web belt)

Vietnam Memorial

- Artist, and date of dedication unknown
- Memorial of etched granite lists those who died in the Vietnam War from Somerville on one side, and those who died from Cambridge on the other.
- One end of a granite pyramid is etched with a map of Vietnam in 1957 and the other, a map of Vietnam in 1972.

Women of the Union Square Post Plaque

- Dedicated on June 9th, 1963
- Bronze plaque set into a granite headstone
- Plaque features the seal of the American Legion, the legion's motto: "For God and Country", and the inscription "In memory of the departed members and women of Union Square Post No. 377 of the American Legion" along with the date of its dedication.

Civil War Memorial

- Also known as the Soldier's and Sailor's Monument
- Designed by Henry Augustus Lukeman
- Cast in 1908, dedicated on Memorial Day 1909
- Bronze sculpture
- The base and the semi-circular seating area surrounding the rear of the monument are granite
- A similar statue by the same artist was cast in 1921 for the World War I Memorial in Prospect Park, Brooklyn, New York City.

Dilboy Monument

- Bronze bust on a granite base dedicated to PFC George Dilboy, recipient of the Congressional Medal of Honor
- The bust was produced at the Grenier Studio in Boston in 1930
- The original plaque on the base was bronze, but the current plaque on the monument is a replacement made of a composite material.

Somerville Veterans Honor Roll

- Installed in 1945, restored in 2004
- Limestone, brick and glass, with lettered panels

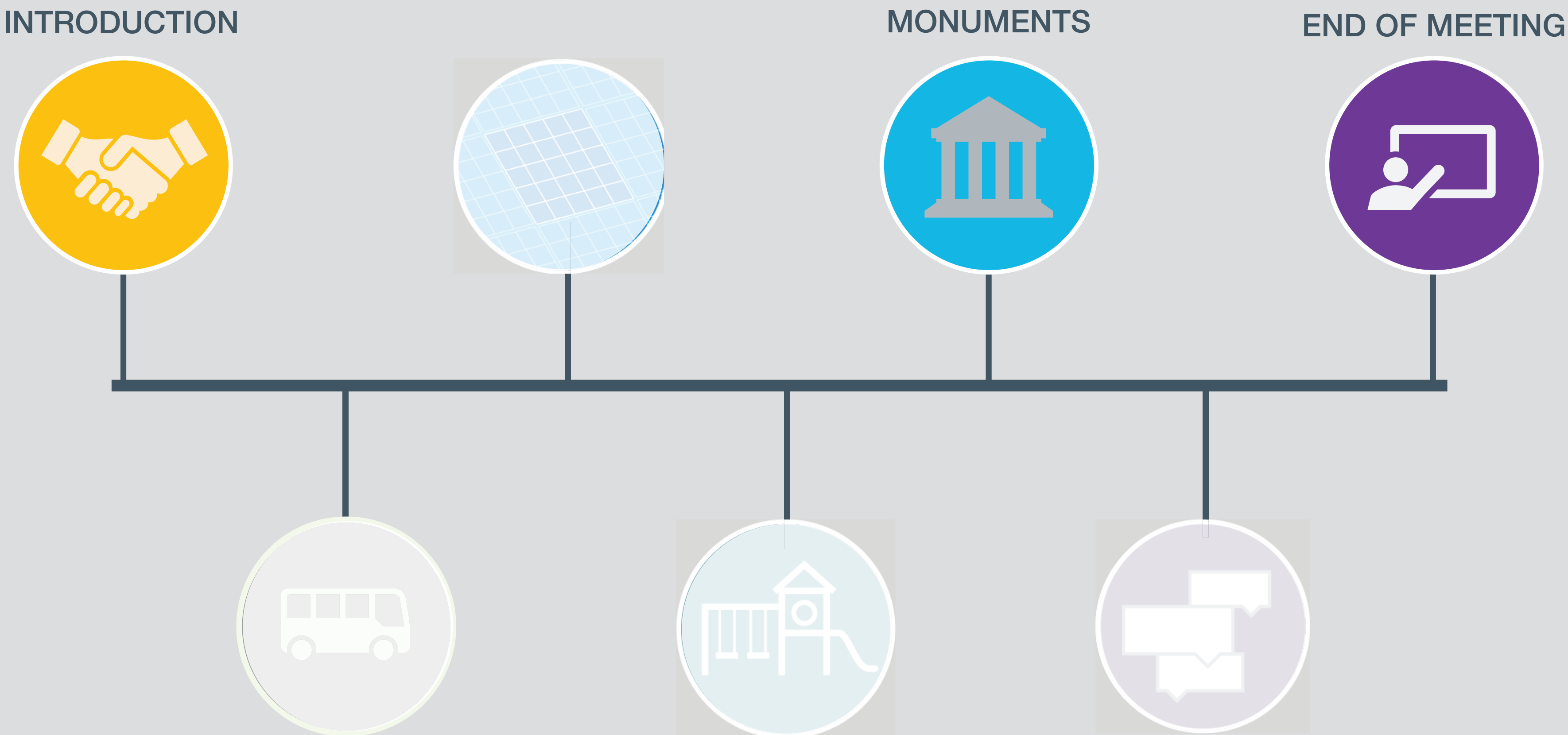
Spanish War/ Philippine Insurrection/ China Relief Expedition

- Two bronze statues, one of an American sailor and one of an American soldier, on raised platforms on either side of a larger granite centerpiece topped by the bronze bust of an eagle.
- Erected in 1929
- Sculpted by Raymond Averill Porter
- Cast by T. F. Mcgann & Sons Co
- One of Raymond Averill Porter's many monuments to fallen American soldiers, the work is also similar to Porter's John Tyler Memorial in Richmond Virginia.

Appendix I:

Veteran's Commission Meeting 02 06.19.2018

Central Hill Campus – Veteran's Commission Meeting



SMMA

TooleDesignGroup

BCA

Monuments


KEY NOTES
Removed, restored and stored off site. Part of High School project.
Reinstalled at High School.
No work scheduled as part of High School project.
NORTH SLOPE
WEST COURTYARD
BOILER
CENTRAL COURTYARD
B WING
A WING
C WING
EAST COURTYARD
E WING
VOCATIONAL TECH LOT
D WING
FIELD HOUSE LOT
LIBRARY
SOUTH LAWN
LIBRARY
A
B
C
1
2
3
4
5
6
7
8
9
10
11
12
13

Memorial Cannons

Korean War Memorial - 2000

Class of 2010 Stone

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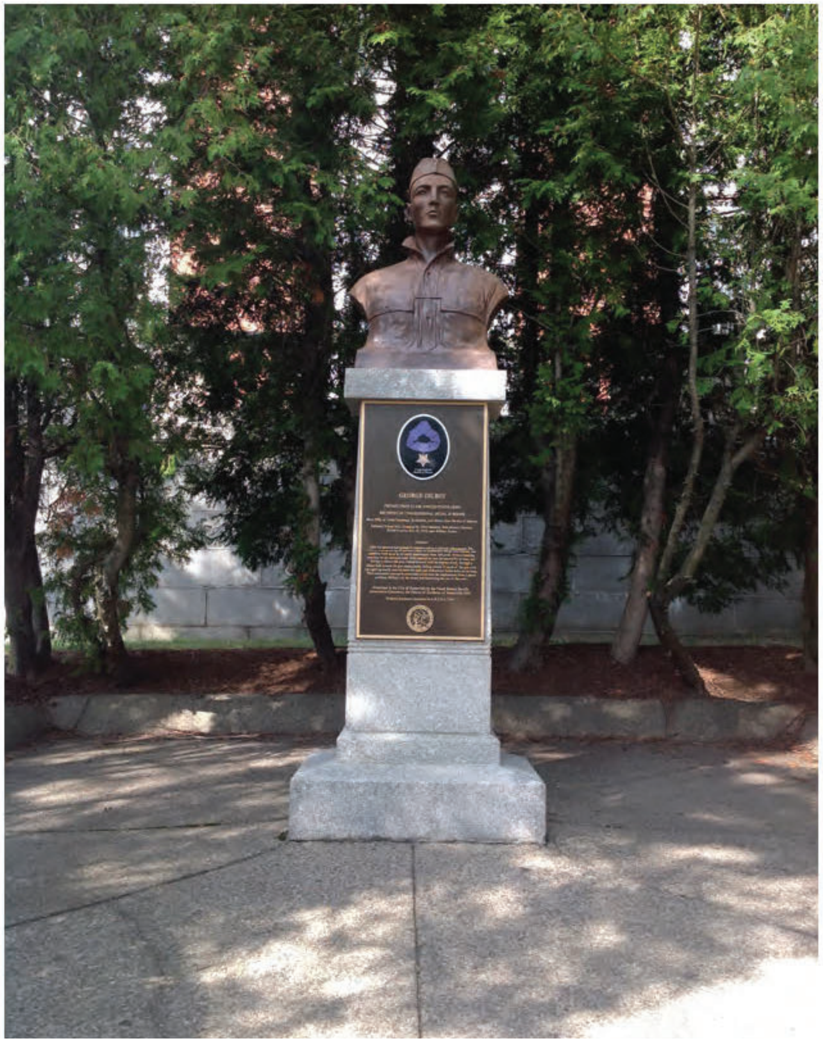

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Elm St @ Beach St

Elm Street at Beach Street
Conceptual Intersection Design
Large Curb Extension option

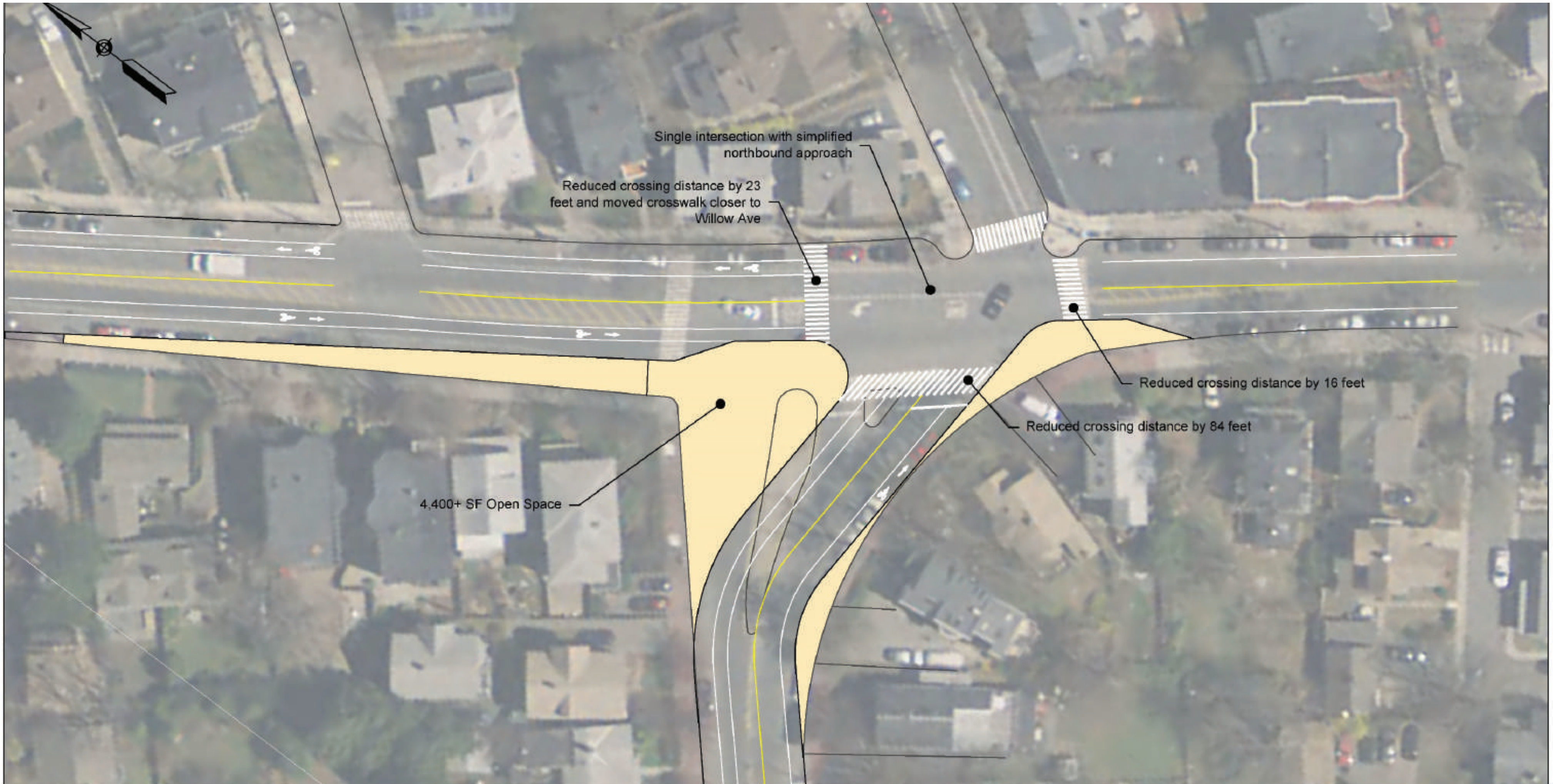
Date: 04/25/2017

Elm Street at Beach Street
Conceptual Intersection Design
Bike Slip Lane Option

Date: 04/25/2017

0 20 40 80 160 FEET

1" = 40'



Elm Street at Beach Street
Conceptual Intersection Design
Single Intersection Option

Date: 04/25/2017

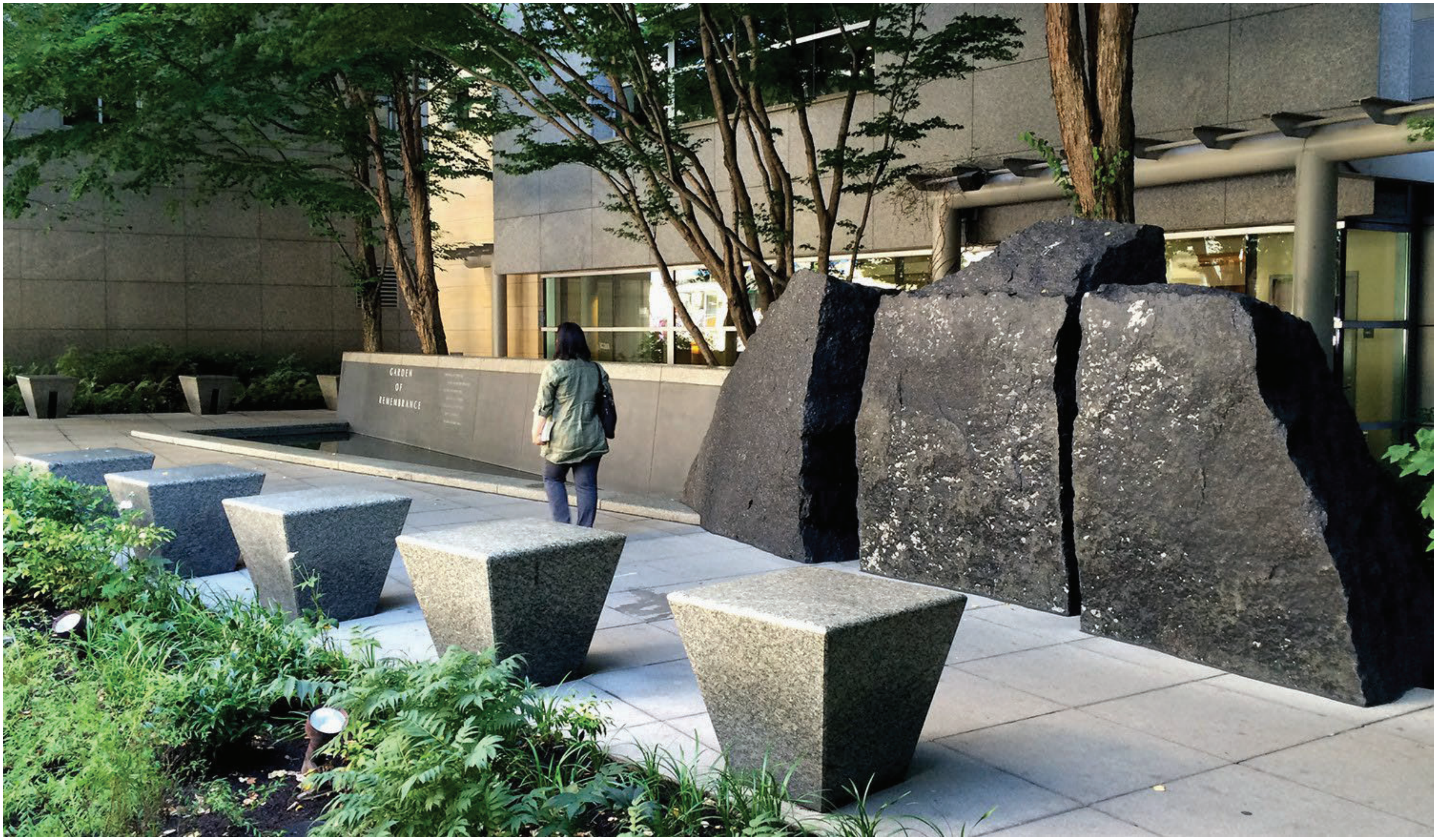
0 20 40 80 160 FEET

1" = 40'

Memorial Walk Precedents

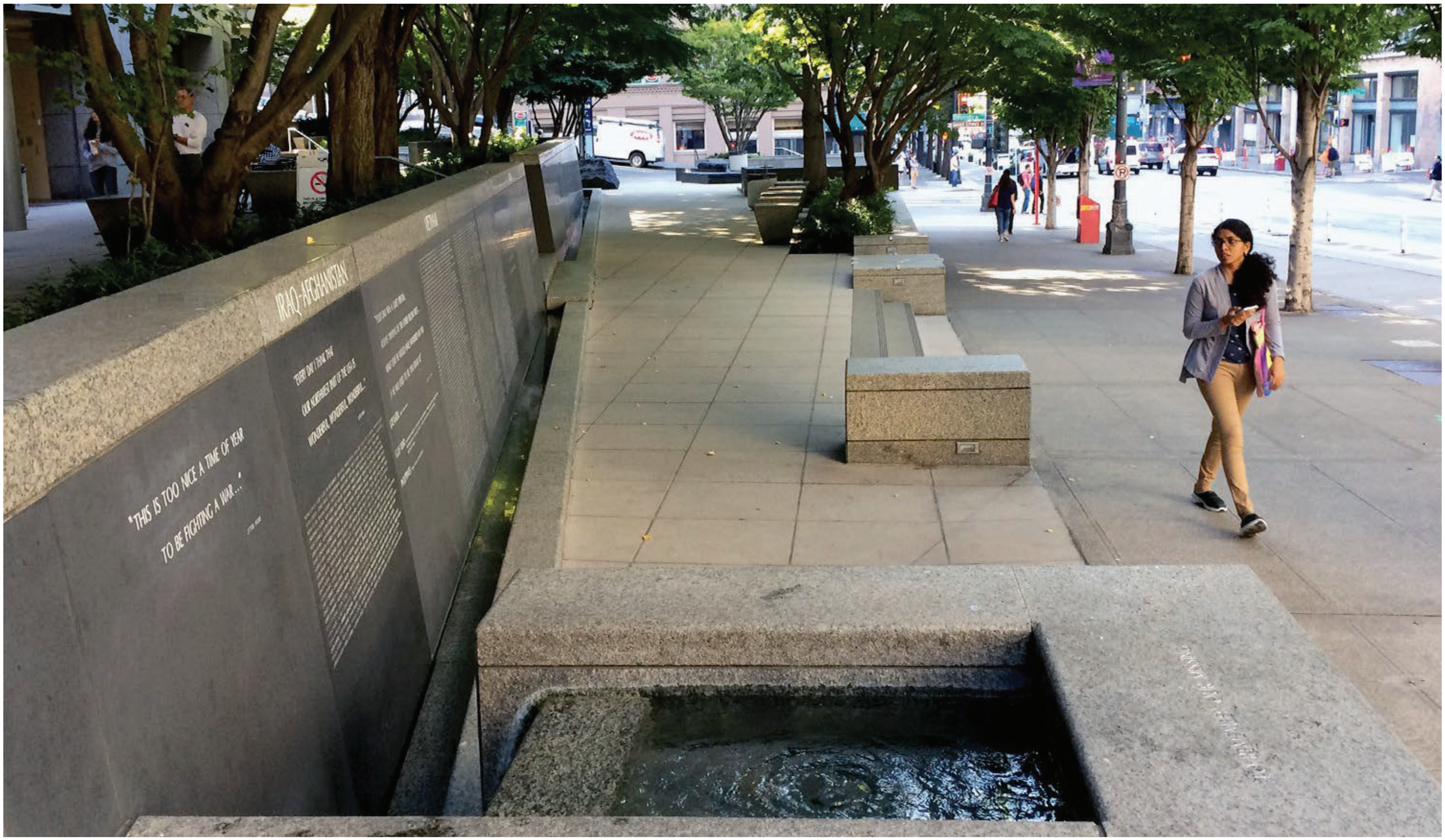
High School Master Plan Study – Walk Engaged w/ Streetscape

Garden of Remembrance



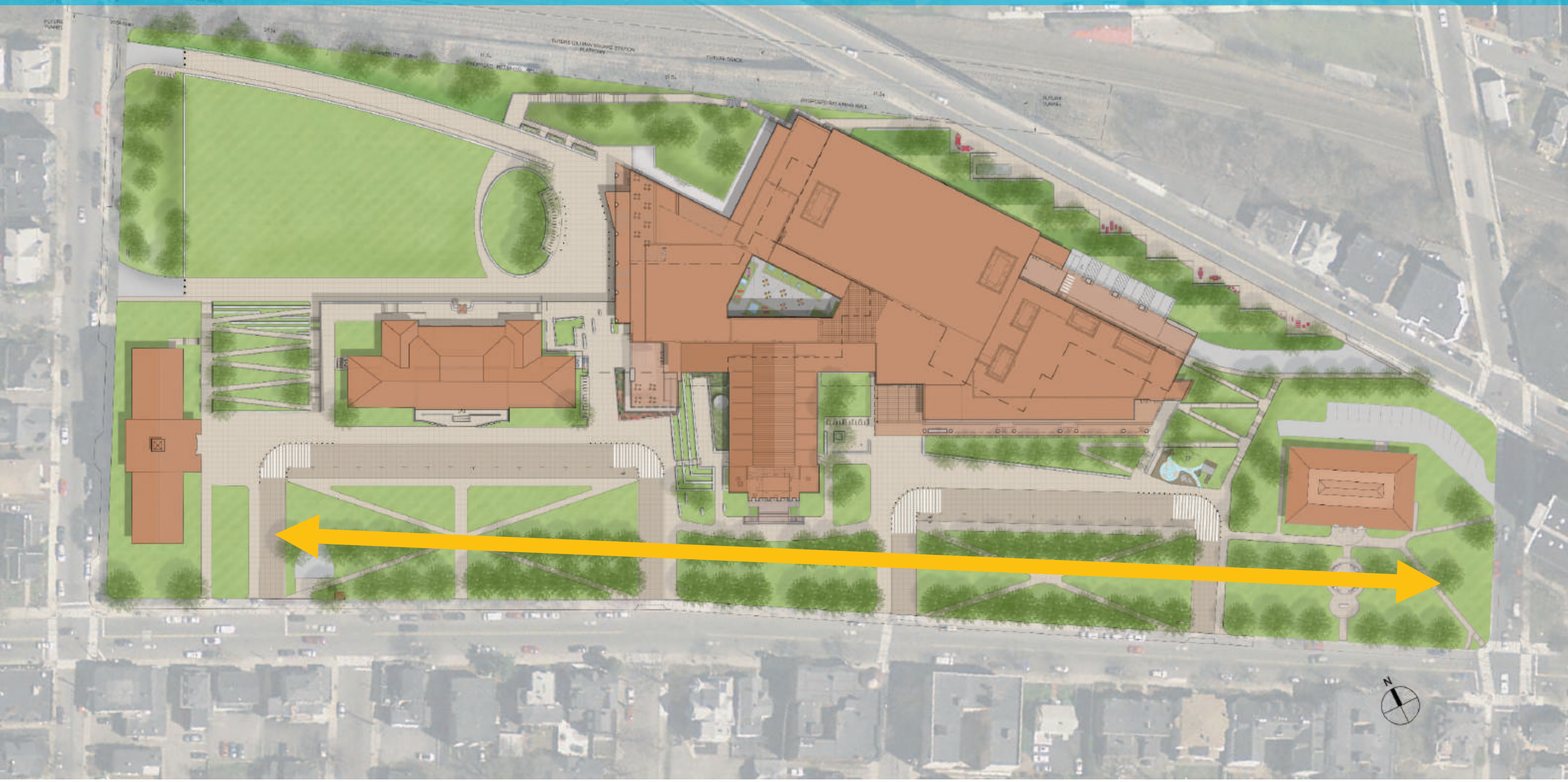
Garden of Remembrance

Garden of Remembrance – Engaged with Street



Garden of Remembrance

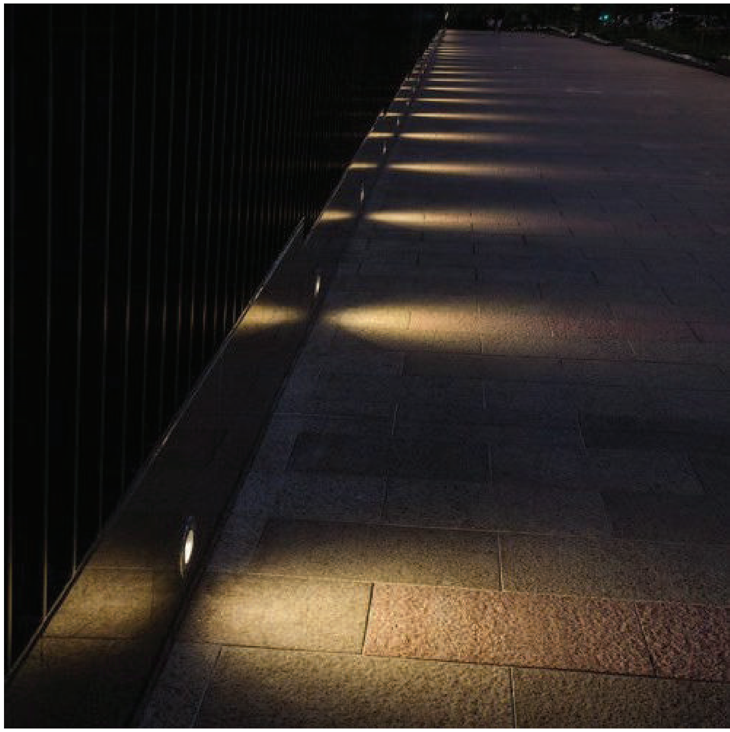
High School Master Plan Study – Walk with Buffer from Street



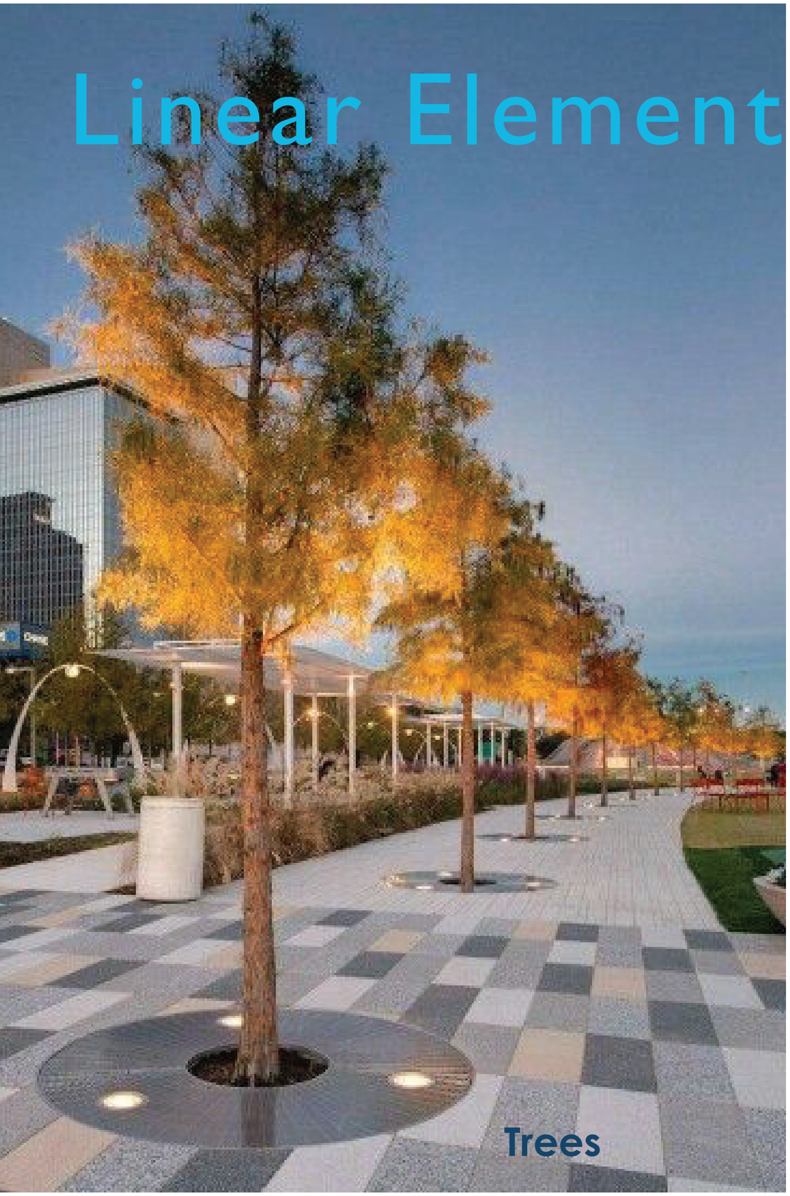
Anzac Memorial Walk

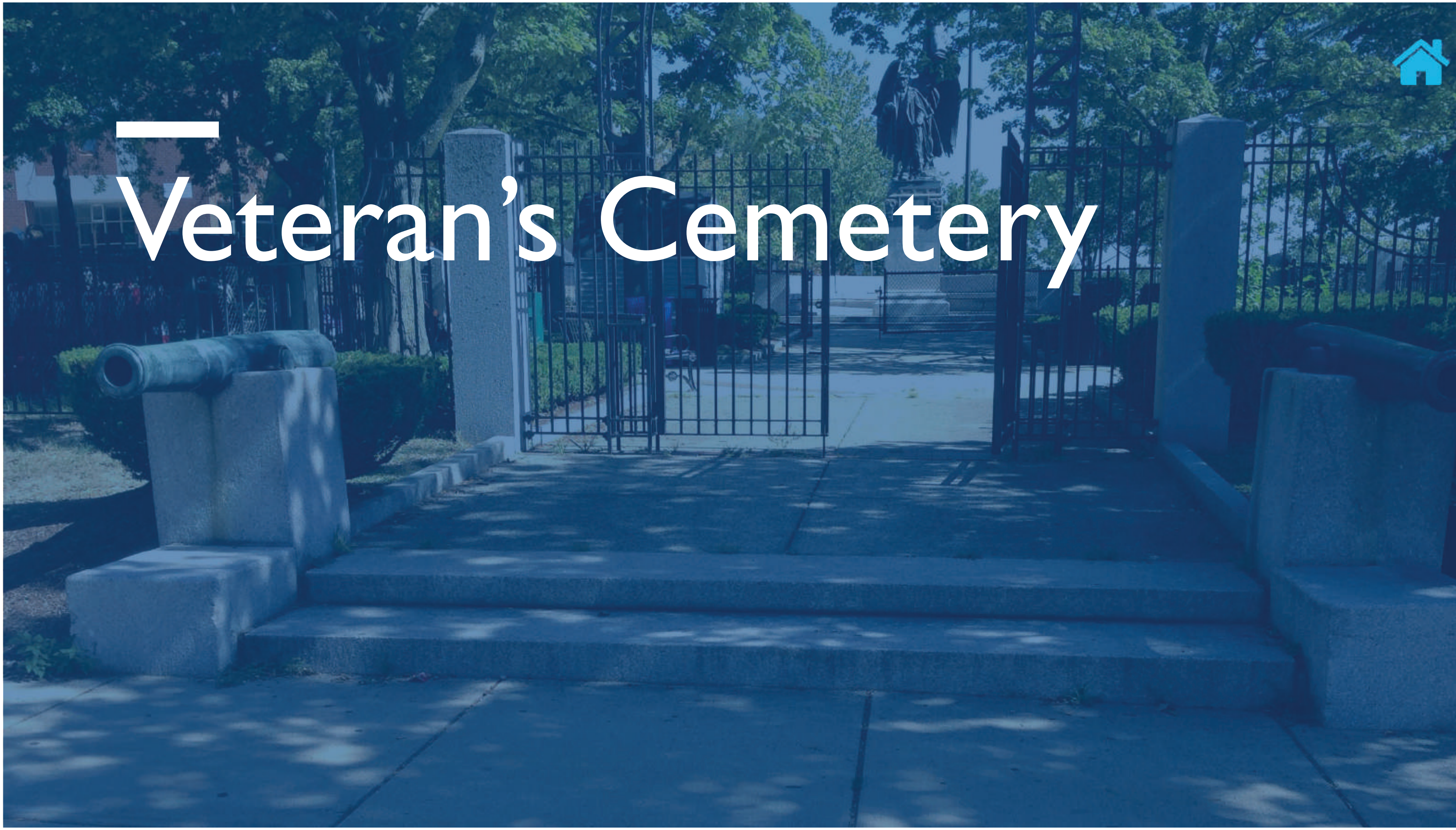
Anzac Memorial Walk

Anzac Memorial Walk

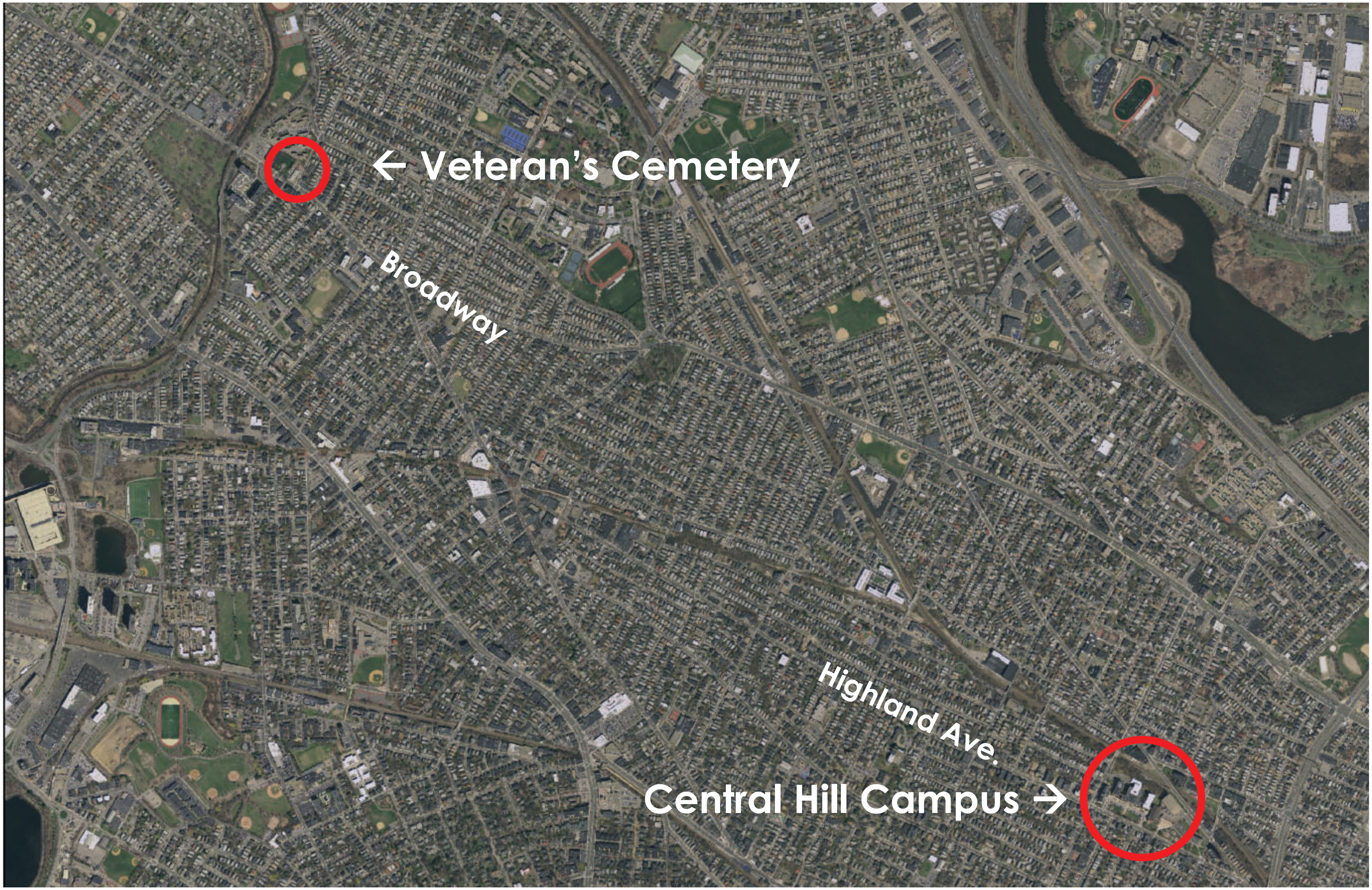


Linear Elements of Connectivity

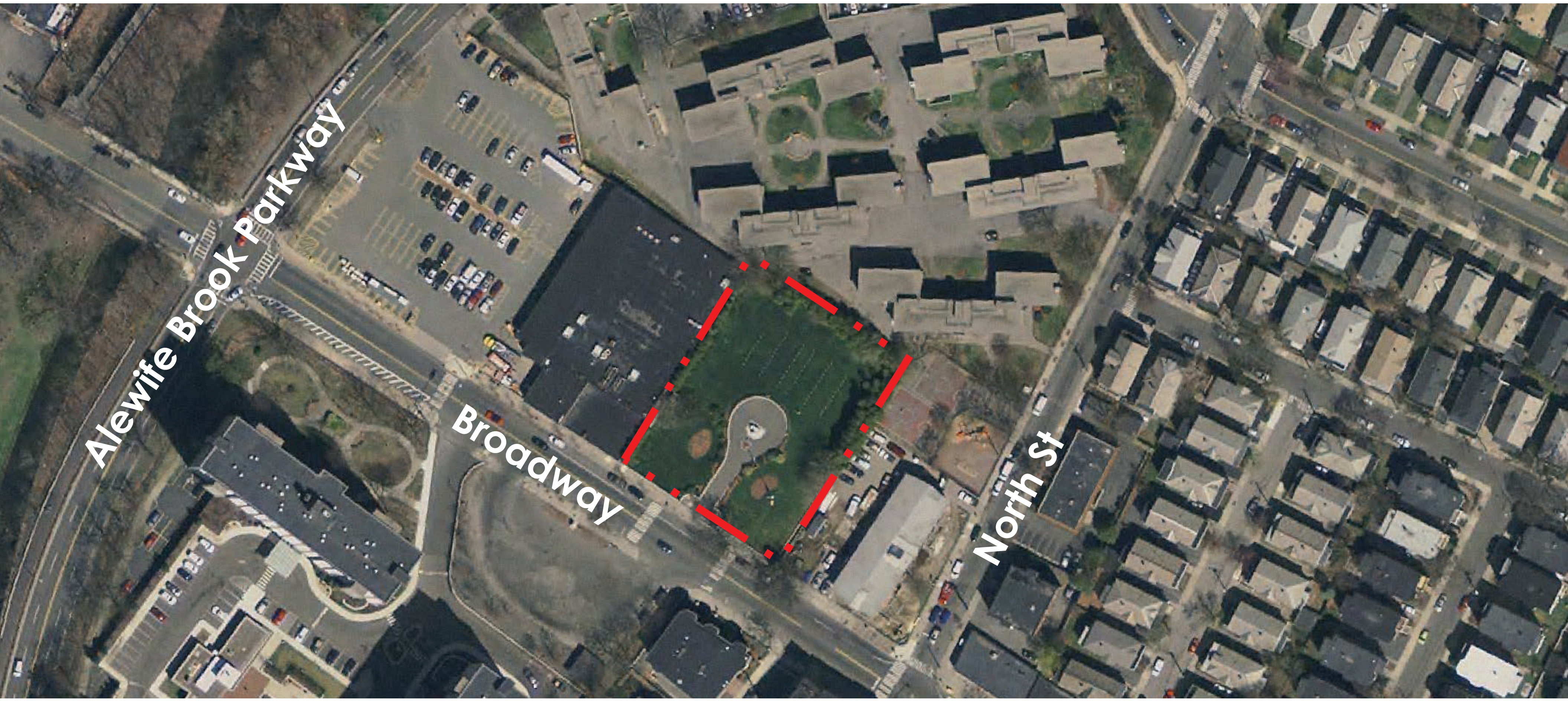




Veteran’s Cemetery


← Veteran's Cemetery
Broadway
Highland Ave.
Central Hill Campus →

Veteran's Cemetery Location



Memorial Park Precedents

Veterans Memorial Park – Zones of Remembrance

Discussion

Thank You

Schedule and Future Meetings

• Campus Planning Study Kick Off	April 02, 2018
• Community Meeting One	May 31, 2018
• Community Meeting Two	Sept 13, 2018
• Community Meeting Three	Oct 18, 2018
• Campus Planning Study Complete	Dec 28, 2018

Appendix J:

Wikimap 11.29.2018

Appendix J

Appendix – Wikimap Survey Data

Location Concerns

Map ID	Inputter ID	Comment
1	208560	Visible crosswalk
2	208560	Raised humps for slowing cars down. And pedestrian lights in front of school
3	96064	Highland Ave is really uncomfortable to bike on. Please add protected bike lanes the whole length of this corridor.
4	96064	School street is very wide and would be great to have a two-way protected bike lane. Right now there is zero space for bikes, and there is no legal way to go down toward Medford Street and the future Community Path/GLX.
5	96064	Crosswalk signal should not require pressing a "beggar" button to get the light. Please make the pedestrian signal automatic.
6	96064	It's hard to ride a bike between the High School and the Library. There are several bottlenecks and pinch points along the way.
7	208682	Students cross here usually even without a sidewalk
8	208682	Maybe review zoning for a little more commercial/retail around central hill
9	208682	Greenspace does not need to be usable to be valuable. Would love to learn more about planting more trees as these trees come down
10	208682	This part of school street is quite dark at night
11	208682	Lack of food/coffee options
12	208682	One of the worst intersections in the city
13	208682	Need another crosswalk here
14	96064	Need a crosswalk across School at Madison.
15	96064	Add a crosswalk at Prescott to get to City Hall and the High School.
16	96064	Need curb cut and new crosswalk from Gilman Street to Leathers Park to connect the Gilman Street Neighborway.
17	96064	Reconfigure this terrible slingshot intersection to calm traffic and make it safer to cross on foot and bike. Make it a right angle.
18	96064	Tighten up this sprawling intersection with bumpouts.
19	96064	Any angled parking should be changed to back-in angle parking for safety.
20	208960	High speed short cutting morning commuters seeking to avoid Highland Ave traffic
21	208960	High speed short cutting morning commuters seeking to avoid Highland Ave traffic
22	208960	High speed short cutting morning commuters seeking to avoid Highland Ave traffic
23	208960	High speed short cutting morning commuters seeking to avoid Highland Ave traffic
24	208960	High speed short cutting morning commuters seeking to avoid Highland Ave traffic
25	208960	Messy traffic intersection. Poorly designed. Highland Creole cuisine contributes to constant illegal parking and street trash. Need trash bins, signs, enforcement and possible rental use of private parking lot on hamlet by highland cuisine - at least on weekends/evenings
26	208960	No pedestrian crossing

27	212541	Drivers often run red lights and/or make dangerous right turns south on school street to beat oncoming traffic, putting pedestrians at risk.
28	224244	There is a bus stop here but no cross walk to the other side of broadway. It would be helpful to have one. East Somerville has very nice crosswalks so ideally we would copy them.
29	224244	There is a large pothole at the end of Sargent Avenue
30	224244	Rat problem
31	224244	Rat problem
32	224244	The cut through from broadway to Bonair is dangerous and unnecessary. Also Bonair should be turned into a one way street.

Appendix K:

Wikimap Destinations 11.29.2018

Wikimap Survey Responses

Destination

0 250 500 1,000 Feet

Source: Data entered by Somerville residents into an online Wikimap between June and October 2018.

TOOLE DESIGN

Appendix L:

Wikimap Location Concerns 11.29.2018

Wikimap Survey Responses

Location Concerns

0 250 500 1,000 Feet

TOOLE DESIGN

Source: Data entered by Somerville residents into an online Wikimap between June and October 2018.

Appendix M:

Online Survey Responses

Submission Date	About how often do you come to the Central Hill Campus (where City Hall, the High School, and the Central Library are located)?	How easy is it for you to get to Central Hill? (Scale 1-5)	How do you come to the Central Hill campus?	Why do you come to the Central Hill campus?	(Optional) I am a...
2018-09-11 10:10:19	A few times per year	4	Bike Walk	Other City business Events Library	Resident
2018-07-25 14:03:41	A few times per year	3	Drive	Library	Resident
2018-08-20 11:15:15	A few times per year		Drive Bus Bike	Events Library	Resident
2018-09-07 09:17:53	A few times per year	5	Drive Ride-share	Events Other	Resident
2018-09-11 15:05:36	A few times per year	1	Drive Walk	Other City business Other	Resident
2018-09-07 00:32:00	A few times per year	3	Drive Walk	Other City business Library	Student
2018-09-22 17:23:39	A few times per year	1	Walk	Other City business	Resident
2018-09-17 15:51:34	A few times per year	1	Walk	Other City business Events Library	Resident
2018-07-25 15:40:14	A few times per year	1	Walk	Events Other	Resident
2018-09-20 13:43:26	Daily	4	Bus Walk Red line - all three at the same time	Other City business High school visit	Teacher
2018-10-15 14:17:28	Daily	4	Drive	Other	City employee
2018-10-04 09:06:37	Daily	3	Drive	Other	City employee
2018-10-04 09:03:49	Daily	2	Drive	Other	City employee
2018-10-01 15:32:52	Daily	3	Drive	Other	Teacher
2018-10-01 12:40:35	Daily	3	Drive	Other	Teacher

2018-09-25 15:37:03	Daily	4	Drive	High school visit Events Library Other	Teacher
2018-06-27 15:37:25	Daily	5	Drive	Other	Resident
2018-09-04 15:35:02	Daily	2	Drive Bike Walk	Other	Resident
2018-09-27 21:12:01	Daily	3	Walk	High school visit Library	Student
2018-09-08 22:34:23	Daily	1	Walk	Other City business Library Other	Resident
2018-09-07 22:23:07	Daily	1	Walk	Other City business Playground Library	Resident
2018-10-05 18:08:47	Monthly	3	Bike Walk	Library	Resident
2018-10-02 22:34:21	Monthly	2	Drive	Other City business Library	Resident
2018-09-06 23:36:26	Monthly	3	Walk	Library	Resident
2018-10-02 16:25:44	Weekly	2	Bike	Other City business Playground Events Library	Resident City employee
2018-09-11 14:42:46	Weekly	1	Bike Walk	Other City business Playground Library	Resident
2018-10-01 15:36:01	Weekly	4	Drive	Pay bills Other City business High school visit Events Library	Resident Teacher

2018-09-25 09:03:25	Weekly	4	Drive	Other City business High school visit Library	Resident
2018-09-08 12:06:13	Weekly	1	Drive	Library	Resident
2018-10-01 14:38:15	Weekly	1	Drive Bike Walk	Other City business High school visit Events Library	Resident City employee
2018-07-05 00:44:21	Weekly	2	Drive Bike Walk	High school visit Playground	Student
2018-07-05 00:44:14	Weekly	2	Drive Bike Walk	High school visit Playground	Student
2018-09-27 08:09:47	Weekly	1	Walk	Pay bills Events Library	Resident
2018-09-21 14:47:04	Weekly	4	Walk	Pay bills Events Monuments	Resident
2018-09-21 14:46:05	Weekly	1	Walk	Pay bills Library	Resident
2018-09-10 12:17:09	Weekly	2	Walk	Other	Resident

Submission Date	Which Central Hill Campus Plan concept do you like the most?	Tell us about why you selected your choice.
2018-10-19 12:12:38	A little bit of each	No one plan combines the elements I think are most important. Those are: - Keep as many trees as possible (plans 1 & 3) - More parking (Plan 1) - Align driveway with Prescott St (Plans 2 & 3) - Wider sidewalk to have space for both bikes and pedestrians (Plan 2) I don't know if all of those could be combined. I personally have no preference for the location of the memorials/ Honor Roll, or whether City Hall needs a Plaza.
2018-10-12 13:05:51	A little bit of each	I really like Promenade except for losing mature trees and I really like Concourse except it doesn't allow for easy bike travel along Highland (currently a busy, tight, stressful bike route). Could an off-street bike path be worked into Concourse?
2018-10-10 21:37:24	A little bit of each	I would like to keep as many trees as possible, and would like to make the area as pedestrian-friendly as possible. Therefore, I like elements of Concepts 1 and 2 in combination.
2018-10-09 17:53:09	A little bit of each	1) There should be as many trees as possible, especially protecting from the traffic on Highland St. 2) The pathways should be big enough for cyclists and pedestrians to both go on them.
2018-10-08 14:39:59	A little bit of each	I like the promenade but I like the monuments more recessed from the street. They should be part of a plan for reflex ion and viewing
2018-10-07 20:16:41	A little bit of each	Which one paid the most to get the job. Lol
2018-10-07 18:14:26	A little bit of each	Top priority for me is to preserve the existing trees - I don't think a bike lane for a few blocks on the otherwise-bike-lane-free Highland Ave. is worth the loss of the mature trees.
2018-10-05 12:08:16	A little bit of each	I prefer concept 2 except for the removal of trees. I especially like the wide pathway for pedestrians and bikes and the alignment with prescott st.
2018-10-04 19:20:10	A little bit of each	
2018-10-03 13:00:40	A little bit of each	Each of these schemes is incredibly disappointing. In a city that has an amazing job in recent years working with landscape architects to create innovative, exciting public spaces I find it beyond confusing that we would accept any of these nothingburgers at the front door of both City Hall and the new High School. I would challenge the City to send the designers back to the drawing board to create a design that is worthy of this incredibly important space. Allee': - First off, there is a no allee'. An allee' would frame a view and use equally-spaced trees of similar species. Reusing the street trees on the street side and planting a parallel row of trees on closer to the school does not create an allee'. Even if it were to, the designer completely gives up on the idea in the middle of said "allee' at the historic building stairs when north row of trees become randomly spaced. - The presentation makes MANY mentions of how view corridors are being cut through the site to make it more open… then proposes a double row of trees that blocks any of the proposed views. That does not make sense. - The formal cues of the plan indicate that historic stairs at the center of the site would be the entry to the school. This is not the case. It's incredibly confusing to figure out how/where to enter the school in the pre-build condition. This plan does NOTHING to clarify that in the post-build condition. - The proposed public space amounts to four quads along Highland Avenue that are ill-defined, uninteresting and generally disconnected. They offer no improvement over the current condition. - The placement of the proposed playgrounds is confounding. The look like a bizarre afterthought that have been crammed against the library for no apparent reason. - The "connection" to Medford Street terminates in a loading dock. - By far the largest landscape space occurs behind the main building. In each of the three proposals, the designers have offered a single idea for this space… and that idea is pretty underwhelming. Promenade: - If you're going to call the thing "Promenade" it should be pretty easy to look at the graphic and see where the promenade is. That is not the case here. - The text refers to a "vegetated buffer" – but only shows trees and grass. If a shrub layer is proposed it is not obvious. - Again, trees are planted directly in front of the view corridors that the plan is professing to celebrate. - The proposed public space along Highland Avenue are completely undefined. What are people supposed to do in these spaces? It's tremendous amount of space (for Somerville) to devote to building framing, monument storage and nothing else. - The placement of the proposed playgrounds actively blocks the library from the rest of the site – contradicting the proposed desire to knit the site together. - The "connection" to Medford Street terminates in a loading dock. - By far the largest landscape space occurs behind the main building. In each of the three proposals, the designers have offered a single idea for this space… and that idea is pretty underwhelming. Concourse: - If you're going to call the thing "Concourse" it should be pretty easy to look at the graphic and see where the concourse is. That is not the case here. - The text refers to a "vegetated buffer" – but only shows trees and grass. If a shrub layer is proposed it is not obvious. - Again, trees are planted directly in front of the view corridors that the plan is professing to celebrate. - The proposed public space along Highland Avenue are completely undefined. What are people supposed to do in these spaces? It's tremendous amount of space (for Somerville) to devote to building framing, monument storage and nothing else. - The placement of the proposed playgrounds actively blocks the library from the rest of the site – contradicting the proposed desire to knit the site together. - The "connection" to Medford Street terminates in a loading dock. - By far the largest landscape space occurs behind the main building. In each of the three proposals, the designers have offered a single idea for this space… and that idea is pretty underwhelming.
2018-10-02 16:49:21	A little bit of each	I have no idea, my children are adults and my daughters childeren are mostly adults except for 1 .my son and I live in Somerville my daughter does not..Im just saying
2018-10-02 13:08:50	A little bit of each	It would be great to have a bike facility integrated into whichever plan that goes forward. For example you have a two way cycle track in the Promenade option. Could this be in the other options too? It seems like you have a lot of space to work with here.
2018-10-01 17:28:08	A little bit of each	

2018-10-01 16:59:05	A little bit of each	I like the location of the honor roll in front of the War Memorial Building (opt. 3) but prefer the angled paths in the landscape of opt. 2. I definitely prefer parking drive and the street to be aligned.
2018-10-01 15:37:23	A little bit of each	Definitely keep all existing trees. Removing established trees sets us back 25 years on the benefits they provide. I like reduced parking and reduced vehicular access.
2018-10-01 14:07:30	A little bit of each	Each concept seemed very similar to each other. Hard to understand what type of activity is in each space. The concepts seem to lack trees, have a lot of lawn and pavement -- how is that sustainable?
2018-10-01 13:56:00	A little bit of each	This seems designed to give us the illusion of choice and input rather than any actual choice or input. None of my input was taken or involved in any of the meaningful decisions. Why should I care where we plant the new trees or if the sidewalk is in X or a cicle? All the actual things that matter (e.g. parking, field space, gym space, classrooms) have already been dictated to me. This was a pretty patronizing and irritating poll.
2018-10-01 13:40:51	A little bit of each	
2018-10-01 13:27:59	A little bit of each	I like the off-street bicycle lanes of 2. I like the sidewalk tree retention of 1 and 3. I like the driveway re-alignment of 2 and 3. As a frequent user of the sidewalk through this stretch (in all seasons) I am very attuned to how the sidewalk edge of the site will feel. I like the east-west walkway in 1 (although it's missing some sections) because walking through lawns is more pleasant than walking along the side of a busy street. The curvier pathways of 3 look prettier from above, but I wonder where the desire lines will end up being for circulation through the campus. The pathways in 2 seem much worse for accessing the library from the Highand Ave toward the West. All of the plans seem to lack adequate bus shelters, and I wonder where bike racks will be located, whether they will be sheltered, and whether pathways will be rideable between the street and the bike racks.
2018-10-01 12:45:10	A little bit of each	There is not enough parking; for people visiting city hall, staff that work at the high school/city hall and residents trying to park!!
2018-10-01 11:34:29	A little bit of each	The subway station is the critical change for this district and is isolated in each of these Plans. It is precisely half way between MIT and Tufts, and immediately adjacent to a new High School designed for 20% more students than now attending. Ignoring this resource is a travesty in both economic, educational, and residential terms.
2018-10-01 11:18:17	A little bit of each	Mostly 1 and 2. Do NOT like the removal of existing trees (even if planting new ones -- which is never as simple as it seems, and takes a long time to look good). Somerville has removed far too many already. Also NOT crazy about realigning the entrance with Prescott Street -- as I live on Prescott Street and it's already VERY difficult to get out of there in the mornings. Also, it's a wide street and people already drive way too fast on it.
2018-09-27 15:23:56	A little bit of each	
2018-10-19 16:36:53	Concept 1: "Allée"	
2018-10-16 07:39:41	Concept 1: "Allée"	less crowded
2018-10-15 14:25:01	Concept 1: "Allée"	
2018-10-11 11:30:31	Concept 1: "Allée"	I like 3 but i don't want any tree removed. Somerville is gutting the city of our trees and it needs to stop.
2018-10-06 19:01:46	Concept 1: "Allée"	
2018-10-05 20:23:09	Concept 1: "Allée"	1 is best because it maintains existing, large trees. 3 would be OK. 2 is poor because a shared pedestrian and bike path is dangerous--I know this because a bicyclist once ran into me from behind as I walked along a shared path.
2018-10-05 13:45:40	Concept 1: "Allée"	This seems to have the most green space and also would seem to have a lower budget (retains trees.) Hardscape is used for parking, rather than a pedestrian plaza of unknown utility. Definitely do not like the idea of a shared pedestrian / bikeway. The ones on MIT's campus do not work - they seem dangerous for both modes.
2018-10-05 12:30:32	Concept 1: "Allée"	I like the "Allee's" memorial locations, and also like the idea of keeping the current trees. It takes so long for trees to grow, and so many of them have been cut down this year for the HS project. It would be a shame to have no old trees along this part of Highland. I am not a huge fan of the lack of parking for library visitors in any of these plans, however. I know that the city wants to promote using the T, biking, and walking, but it is not always a real possibility in this city (even with the GLX). Getting to Storytimes while accounting timing of naps and lunch often means that people who live a little farther from the Central library need to drive. There is very little parking even now available on the street, and sometimes having a parking space is the difference between going to the library and not going to the library (it's a big reason why my family frequents Central, and not the West or East branches). Additionally, if you are expecting people to park on Highland, you need to make sure that there is pedestrian access from Highland to the front door. The paths that you've suggested in these concepts are aesthetically pleasing, but not so functional for a "I'm getting out of my car and walking with a bag of books and two little kids" situation. You will have people walking across the grass and creating their own "path", which is never aesthetically pleasing.
2018-10-05 09:10:09	Concept 1: "Allée"	
2018-10-05 09:07:58	Concept 1: "Allée"	seems to be the most logical. Thank you for letting us have input!
2018-10-05 09:06:58	Concept 1: "Allée"	I would like to have parking back on the concourse. Crossing Highland Ave each day has become a challenge.
2018-10-05 09:04:03	Concept 1: "Allée"	
2018-10-05 09:01:24	Concept 1: "Allée"	
2018-10-04 16:57:51	Concept 1: "Allée"	IF THE CONCORSE WAS OPENED WIDER, PARKING WOULD BE ABLE TO EXTEND ON BOTH SIDES.
2018-10-04 16:54:15	Concept 1: "Allée"	Would be nice if you can increase the parking spaces to both sides of the concourse, since no students will be on our side
2018-10-04 09:12:24	Concept 1: "Allée"	City Hall employees need parking and concept 1 has the most available.
2018-10-04 09:09:02	Concept 1: "Allée"	Because we need parking!!
2018-10-04 09:07:13	Concept 1: "Allée"	Because I would like to have parking.
2018-10-04 09:07:08	Concept 1: "Allée"	WE NEED PARKING!!
2018-10-04 09:05:06	Concept 1: "Allée"	because we desperately need parking for city hall employees.
2018-10-04 08:40:33	Concept 1: "Allée"	We need our parking.
2018-10-03 18:41:40	Concept 1: "Allée"	I think this provides for the most access to all of the various buildings on the campus.

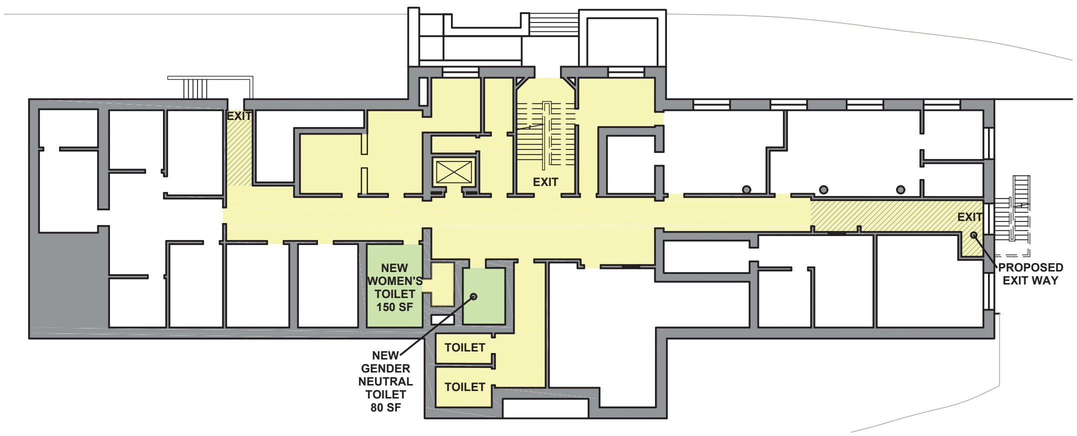
2018-10-03 18:39:26	Concept 1: "Allée"	Don't lose even more existing trees along Highland. Also, a few more parking places.
2018-10-03 14:52:02	Concept 1: "Allée"	Keeps all the trees remaining
2018-10-03 07:40:30	Concept 1: "Allée"	It has the most parking of the three - there still needs to be MORE PARKING!!!!!!
2018-10-02 22:12:13	Concept 1: "Allée"	Plain and simple, this is the only design that keeps all existing trees, or at least that's how I'm understanding it. Our city underestimates the importance of existing tree canopy and often explains away tree loss by saying we'll just replace with new trees. Older trees have deep, existing root systems that, amongst other things, enable the trees to communicate with and support each other. They provide homes to wildlife and important canopy cover that we need to preserve as much as possible right now, not just fifteen to twenty years from now when the new trees might be of sufficient size. This article and a significant amount of other research supports the importance of preserving existing, older trees, such as this one... https://www.americanforests.org/big-trees/the-importance-of-big-old-trees/ Please stop cutting down our trees in the name of development or economic systems (and other systems) whose metrics don't consider or, even worse, devalue things like the importance of maintaining existing individual and communities of trees.
2018-10-02 17:59:56	Concept 1: "Allée"	The high school design has already led to cutting down over 200 trees, no need for further clear cuts
2018-10-02 14:56:06	Concept 1: "Allée"	
2018-10-02 14:15:10	Concept 1: "Allée"	I want to keep the trees!
2018-10-02 13:34:01	Concept 1: "Allée"	Don't think the monuments or trees should be moved/removed
2018-10-02 11:19:40	Concept 1: "Allée"	It's the only plan that retains existing trees. We are losing too many established trees in the city.
2018-10-02 10:41:16	Concept 1: "Allée"	This is the only choice that makes the few remaining matures trees a priority.
2018-10-02 09:55:05	Concept 1: "Allée"	parking
2018-10-02 09:54:51	Concept 1: "Allée"	parking
2018-10-02 09:46:58	Concept 1: "Allée"	Maintaining veheicular access is important to me.
2018-10-02 09:34:20	Concept 1: "Allée"	I WANT SOMERVILLE TO KEEP ITS TREES.
2018-10-02 08:31:10	Concept 1: "Allée"	
2018-10-02 07:38:24	Concept 1: "Allée"	Although I like the style of Concourse, I chose Allée because there appears to be more parking.
2018-10-01 23:28:58	Concept 1: "Allée"	Parking
2018-10-01 23:20:31	Concept 1: "Allée"	more parking
2018-10-01 23:19:08	Concept 1: "Allée"	Parking is at such a premium in Somerville that any reduction in spaces would be ill advised.
2018-10-01 21:13:55	Concept 1: "Allée"	This plan will be a disaster without sufficient parking for city officials, SHS staff (and students), and people working for other entities that are moving to the Central Hill Campus. There will be plenty of green space in any of these plans, especially with the zigzag garden on the west side and the athletic field in the northwest. I really don't think we have to worry about the new school being beautiful--it will be. We should be more concerned with the possibility of people not being able to access the space due to lack of parking.
2018-10-01 20:50:24	Concept 1: "Allée"	I would like the existing trees to remain!
2018-10-01 20:28:16	Concept 1: "Allée"	Keeps large trees on Highland intact. Essential to keep large public shade trees wherever possible! Please and thank you.
2018-10-01 20:08:38	Concept 1: "Allée"	It keeps all the existing trees on Highland Avenue. I appreciate all the work on density and accessibility in Somerville, but also would like to focus on trees and green space. Thanks for giving us options to look at and vote on.
2018-10-01 19:55:16	Concept 1: "Allée"	I think we have lost enough trees on this planet and vote to save all the trees we can.
2018-10-01 19:33:06	Concept 1: "Allée"	
2018-10-01 19:28:54	Concept 1: "Allée"	Option 1 -- Maintains existing trees along Highland •
2018-10-01 18:23:37	Concept 1: "Allée"	This retains the most trees along the street, and it's got the memorials nicely situated in a green space.
2018-10-01 18:03:55	Concept 1: "Allée"	The first Allee plan is by far the best with the smallest impact on the trees along Highland and elsewhere. The new High School has already resulted in the destruction of more than 750 trees. TOO MANY. The obsession with creating straight lines of trees is idiotic. Is this Versailles? Number 1.
2018-10-01 17:39:12	Concept 1: "Allée"	Stop cutting trees
2018-10-01 17:08:24	Concept 1: "Allée"	To avoid losing even more parking spaces.
2018-10-01 16:34:04	Concept 1: "Allée"	it keeps most existing trees
2018-10-01 16:23:43	Concept 1: "Allée"	We should not be cutting down trees if not necessary. There has been a lot of tree cutting in Somerville over the last year on Beacon St and to make way for the Green line extension. We can't afford to lose anymore if avoidable.
2018-10-01 16:16:49	Concept 1: "Allée"	I like the angles of the sidewalks, creating spokes. It gives more of a campus feel to it, like sidewalks through a college quad. I do really enjoy how both of the other two concepts have a dedicated plaza, though.
2018-10-01 16:07:00	Concept 1: "Allée"	Mainly because the existing trees along Highland are maintained. Also it seems to involve the least de/repaving? Hard to tell from the PDFs.
2018-10-01 16:04:20	Concept 1: "Allée"	
2018-10-01 15:55:58	Concept 1: "Allée"	More trees will be saved and the parking will remain.
2018-10-01 15:29:03	Concept 1: "Allée"	it seems to make the traffic move easier around as well as make it faster to get to the school entrances without having to walk all over the grass and ruin it.
2018-10-01 15:10:07	Concept 1: "Allée"	I suggest you increase parking by narrowing the concourse and widening the entire driveway to allow parking on each side.
2018-10-01 15:09:21	Concept 1: "Allée"	I like the possibility of a better front open space area in front of the Library. From the looks of the plan, it looks like an added walkway for patrons in wheelchairs and more ADA friendly.
2018-10-01 15:03:34	Concept 1: "Allée"	no reduction to employee parking
2018-10-01 15:02:46	Concept 1: "Allée"	please do not reduce employee parking
2018-10-01 14:52:36	Concept 1: "Allée"	
2018-10-01 14:36:49	Concept 1: "Allée"	
2018-10-01 14:15:53	Concept 1: "Allée"	concept 1 has more parking
2018-10-01 14:14:10	Concept 1: "Allée"	
2018-10-01 14:09:44	Concept 1: "Allée"	Best addresses parking needs

2018-10-01 14:09:08	Concept 1: "Allée"	Staff/Administration needs adequate Parking--It is already difficult to park and even slightly removing parking will hinder accessibility to SHS--it discriminates against employees who move to other district locations on a daily basis.
2018-10-01 14:03:48	Concept 1: "Allée"	I want the choice that allows for the most parking possible. It is unfair to ask school and city hall staff to park up to one mile away from work. To think that everyone lives on a bus line or can ride a bike to work is ridiculous. Providing parking for school and city hall employees should be of the utmost concern, especially if you want to retain qualified staff members.
2018-10-01 14:01:38	Concept 1: "Allée"	
2018-10-01 13:51:54	Concept 1: "Allée"	
2018-10-01 13:50:31	Concept 1: "Allée"	
2018-10-01 13:46:19	Concept 1: "Allée"	more parking.
2018-10-01 13:40:29	Concept 1: "Allée"	
2018-10-01 12:52:58	Concept 1: "Allée"	It's astonishing to me that two out of three of the plans call for a further reduction of parking spaces, given how meager the proposed number of spaces already is. I sincerely doubt that the "visual prominence" of City Hall will matter much to all the employees who can no longer get there. On another note, the doubling of the sidewalk for increased pedestrian and bicycle access is a good idea. But not at the expense of parking.
2018-10-01 12:44:20	Concept 1: "Allée"	
2018-10-22 11:00:11	Concept 2: "Promenade"	Improving bicycle routes along Highland Ave is super important.
2018-10-21 07:36:28	Concept 2: "Promenade"	Like the bikeway + memorials along the street
2018-10-20 10:46:33	Concept 2: "Promenade"	
2018-10-14 12:07:41	Concept 2: "Promenade"	More bike friendly and reduces preference for cars
2018-10-11 16:43:01	Concept 2: "Promenade"	The lines are the most interesting without being too ordinary and conventional. The walkways at the furthest east and west ends are more direct for accessing the building entrances. The only issue I see is the lack of a direct path from the base of the auditorium's steps to the sidewalk/street. That green space will get trampled if not hardscaped.
2018-10-11 13:37:58	Concept 2: "Promenade"	Personal preference to the aesthetics.
2018-10-10 20:16:18	Concept 2: "Promenade"	Shared pedbike space
2018-10-09 18:55:55	Concept 2: "Promenade"	Wide sidewalks with bikeway, and reduced emphasis on access to cars is very important to me.
2018-10-09 12:56:04	Concept 2: "Promenade"	
2018-10-08 11:12:11	Concept 2: "Promenade"	More space for pedestrians and bicyclists. Makes green space more appealing to visit.
2018-10-08 00:36:47	Concept 2: "Promenade"	I preferred the plans that gave visual prominence to city hall. I then preferred the promenade plan over the concourse plan, due to the expanded sidewalk and how memorials are displayed.
2018-10-07 19:55:35	Concept 2: "Promenade"	There really isn't much difference in them to be honest. The memorials should be throughout the city and not in one area. I am distressed that parking is removed from the Library for a playground. We need more spaces that are open to all ages - we have NO green parks that are not ball fields or playgrounds.And, parking still is needed for the Library, especially for the elderly. This is a chance to make a "public garden" like space and I think the opportunity is being overlooked. Somerville needs more green! :-)
2018-10-06 08:57:16	Concept 2: "Promenade"	extra space for bikes, especially along highland ave
2018-10-06 06:47:47	Concept 2: "Promenade"	Great presentation! I wonder what happens with parking when the lot is turned into a park? I like the separation of walking and biking from busy busy Highland Avenue. I think it will make it feel more like a campus. Thank you.
2018-10-05 14:41:24	Concept 2: "Promenade"	
2018-10-05 14:33:02	Concept 2: "Promenade"	Preference to wider walkways and safer bike access!
2018-10-05 13:22:48	Concept 2: "Promenade"	I like the idea of a dedicated bike lane along Highland, as well as display of memorials towards Highland
2018-10-05 13:06:14	Concept 2: "Promenade"	I access City Hall and the library by foot, and the Promenade concept best mirrors the path I like to take or wish I could take. I also like that this plan thinks about cyclists, adds a gathering place in front of city hall, may probably lead to even more plantings. Pls note that people frequently jaywalk from the bus stop in front of the high school to Putnam. The new designs bring the crosswalk closer to where people jay-walk. You should add a path from crosswalk to high school or people will shortcut through that grass.
2018-10-05 12:14:34	Concept 2: "Promenade"	Allows for safer cyclist and ped access.
2018-10-02 19:58:46	Concept 2: "Promenade"	The tree patterning looks a bit more natural.
2018-10-02 16:24:22	Concept 2: "Promenade"	Provides better cycling connectivity at Highland. Prioritizes memorials for public recognition. Creates a public gathering space in front of City Hall. Paths traverse the pedestrian desire lines more directly.
2018-10-02 14:10:05	Concept 2: "Promenade"	Bike lanes are very important. They should have a curbed divider. More kids will be biking to school in the future, and will spill out into the street otherwise. The bike lane lets them get started and disperse safely. Also I like have the trees more randomly distributed.
2018-10-02 10:30:17	Concept 2: "Promenade"	The raised cycle track would be a big improvement for Highland Ave.
2018-10-02 09:39:10	Concept 2: "Promenade"	Wider sidewalk to accommodate bikes, though I understand why losing trees would be problematic. Like the plaza/parking area in front of City Hall. Prefer the Concourse's placement of the Honor Roll
2018-10-01 21:39:03	Concept 2: "Promenade"	the Promenade is the only one to include a protected bike lane, which is the safest option for people biking. Safety should always be the highest priority.
2018-10-01 19:57:48	Concept 2: "Promenade"	Provides an important step for making biking on Highland Avenue safer and more accessible for everyone.
2018-10-01 16:53:58	Concept 2: "Promenade"	
2018-10-01 16:36:08	Concept 2: "Promenade"	
2018-10-01 16:31:14	Concept 2: "Promenade"	Concept 1 does not address the current landscape problems, 3 is nice but I don't like the curved paths, people are likely to just walk over the grass, 2 is best with the straight paths and overall layout.
2018-10-01 16:25:32	Concept 2: "Promenade"	none of them! - does nothing for bike access! Option 2 indicates a bike lane, but it will be useless unless the bike lane is extended down all of highland. There's no point in having a tiny bit of disconnected bike infrastructure.
2018-10-01 16:19:09	Concept 2: "Promenade"	Provides a separated bike lane on Highland. Also provides more pedestrian engagement with the historical monuments (like the refurbished Fire Dept Monument on Somerville Ave). One downside to all is the lack of bike parking (slide 69) near City Hall and the northern end of School St (so people can park and walk up the hill). Also possibly Medford St by the Library.
2018-10-01 15:21:40	Concept 2: "Promenade"	
2018-10-01 15:13:59	Concept 2: "Promenade"	
2018-10-01 14:06:55	Concept 2: "Promenade"	Wider walkways. The Plaza area.
2018-10-01 13:54:30	Concept 2: "Promenade"	I chose this option because it realigns vehicular access with Prescott Street, allows for ample sidewalk space, and a pleasant experience for memorial viewing.
2018-10-01 13:14:16	Concept 2: "Promenade"	The wider sidewalk and bike lane would be nice, since there's no bike lane on Highland Ave. Also, the location and selection of the existing trees along Highland Ave. doesn't seem very well thought out and blocks views of the high school.
2018-10-01 13:09:11	Concept 2: "Promenade"	
2018-10-19 15:41:43	Concept 3: "Concourse"	alignment with Prescott st to help traffic flow
2018-10-16 14:59:44	Concept 3: "Concourse"	

2018-10-09 21:13:35	Concept 3: "Concourse"	
2018-10-09 12:55:04	Concept 3: "Concourse"	
2018-10-08 22:08:51	Concept 3: "Concourse"	No trees removed, but more space is weighted away from parking to public use. Prescott aligns with drive way.
2018-10-08 14:10:28	Concept 3: "Concourse"	I prefer to maintain the existing trees along Highland. I like the Allée, as well, but the pedestrian dedicated area of Concourse sounds appealing.
2018-10-08 09:43:47	Concept 3: "Concourse"	I like that this one preserves as much greenery as possible. My second choice would be the 2nd concept. However, my one caveat would be that with the realignment of the vehicular access, the city also consider adding a streetlight or some additional traffic control at the Prescott intersection. with school street nearby a full light may not make sense, but getting off Prescott street onto highland during high traffic times is already complicated, and will likely be moreso if competing with another entrance/exit at that intersection.
2018-10-08 08:13:23	Concept 3: "Concourse"	Highlighting City Hall more, and focusing on pedestrian access instead of motorist access, is the kind of emphasis I want for the center of our civic life.
2018-10-07 20:01:29	Concept 3: "Concourse"	The spaces in Concourse seem more inviting, more human, I want to explore them and hang out in them. Promenade is antiseptic, like City Hall downtown, plus I don't think the raised cycle tracks work well for pedestrians or cyclists and just creates a wide concrete/ asphalt path. Allee would be nice inside the walkway, but the perimeter spaces don't integrate well--and please no representational art murals! (For alternative, check out Zone 3 in Allston, or All in One in Fenway.)
2018-10-07 09:51:51	Concept 3: "Concourse"	Keeps most of the trees, widens the walkway along Highland. I like the curving walkways rather than the more formal design in the other two. This, to me, blends the best of the first two designs.
2018-10-06 12:51:32	Concept 3: "Concourse"	keeping trees along Highland Ave, open greenway in middle.
2018-10-06 08:18:13	Concept 3: "Concourse"	I like keeping the trees and adding more. I couldn't really tell the difference between the drawings or what was what. I don't have to park at SHS so I didn't really care how many spots there are so that may be something to check to make sure there are enough
2018-10-05 23:48:15	Concept 3: "Concourse"	The entryway path and the number of trees
2018-10-05 17:20:14	Concept 3: "Concourse"	The Concourse seems to have the best of the promenade plan without removing trees on Highland Ave. Please don't cut down anymore trees!
2018-10-05 16:40:33	Concept 3: "Concourse"	For its balance of open spaces and preservation of mature trees along Highland.
2018-10-05 14:46:14	Concept 3: "Concourse"	It looks more modern/more contemporary and has cleaner lines
2018-10-05 13:04:30	Concept 3: "Concourse"	Seems to be the best approach to keeping most of the beautiful trees on Highland Ave while creating great space for pedestrian access/use.
2018-10-05 12:45:09	Concept 3: "Concourse"	
2018-10-05 12:44:28	Concept 3: "Concourse"	
2018-10-05 12:11:24	Concept 3: "Concourse"	
2018-10-05 06:53:02	Concept 3: "Concourse"	Maintains existing trees, realigns driveway with Prescott.
2018-10-04 16:28:18	Concept 3: "Concourse"	Keep the trees.
2018-10-04 08:20:41	Concept 3: "Concourse"	
2018-10-03 15:30:34	Concept 3: "Concourse"	I like the fact that instead of being straight line paths the monuments have curved varied paths, I also like the war honor roll which is the largest being in the center - I do not like the promenade because it takes away green space the current sidewalk is enough
2018-10-03 15:15:59	Concept 3: "Concourse"	I like that the Concourse plan preserves some existing trees (mature, with beautiful canopies, that would be a shame to raze) and strategically replaces others, and that it integrates memorials into the Highland streetscape. Very happy to see plans for user-friendly outdoor public spaces that will encourage and accomodate socializing/community gatherings. Would particularly like to see social/community space developed around the library, which is a natural gathering/community place.
2018-10-02 16:43:55	Concept 3: "Concourse"	
2018-10-02 15:25:29	Concept 3: "Concourse"	
2018-10-02 14:45:02	Concept 3: "Concourse"	I prefer as much pedestrian space as possible. I think the green space at Central Hill now is hardly ever used, and I think it's party becuase it's next to the parking lot.
2018-10-02 14:04:52	Concept 3: "Concourse"	
2018-10-02 12:22:13	Concept 3: "Concourse"	I would like to maintain the trees on Highland.
2018-10-02 11:24:48	Concept 3: "Concourse"	Appreciated the idea of a 'gateway' or landmark. Most important is that stormwater/drainage is incorporated.
2018-10-02 08:04:27	Concept 3: "Concourse"	Best functionality, for safety, traffic flow, and snow situations.
2018-10-01 22:08:48	Concept 3: "Concourse"	Most of the original trees remain.
2018-10-01 21:48:37	Concept 3: "Concourse"	
2018-10-01 20:30:40	Concept 3: "Concourse"	Less pavement, more trees.
2018-10-01 18:17:44	Concept 3: "Concourse"	Keeping trees along Highland More community space in city hall plaza area.
2018-10-01 17:56:00	Concept 3: "Concourse"	I like that this keeps a good amount of the beautiful, existing mature trees, while add more trees strategically for visual appeal. I also like the curved pathways and the area in front of City Hall.
2018-10-01 17:30:58	Concept 3: "Concourse"	Id like to see the 20 ft pedestrian walkway/bike way but not at the cost of cutting down trees that are 80+ years old.
2018-10-01 15:47:12	Concept 3: "Concourse"	
2018-10-01 15:40:30	Concept 3: "Concourse"	Monuments nearer the sidewalk creates less interrupted green space. Numbers 2 and 3 feel pretty similar, I would prefer less divided green spaces.
2018-10-01 15:01:47	Concept 3: "Concourse"	Honor Roll & War Memorial alignment
2018-10-01 15:00:19	Concept 3: "Concourse"	Concourse looks nice. just pay attention to desire lines in site plans.
2018-10-01 14:36:14	Concept 3: "Concourse"	
2018-10-01 14:25:05	Concept 3: "Concourse"	
2018-10-01 13:52:48	Concept 3: "Concourse"	I like the fact that the Veterans Memorial will be showcased and the others will be seen from Highland Ave. I was also hoping that the Veterans Memorial will be upgraded so that it will contain the names of Veterans of Vietnam, Iraq, Afghanistan as well as any other incidents such as the bombing of the Beirut Embassy where a Somerville Marine was killed (a former Kennedy School Student) . Bruce D.
2018-10-01 13:40:36	Concept 3: "Concourse"	
2018-10-01 12:45:33	Concept 3: "Concourse"	
2018-09-27 21:11:04	Concept 3: "Concourse"	I like this plan the best since the monuments are closer to the street, allowing for more green space on the campus for numerous purposes. I also prefer the way that the walkways are designed in the third concept with more curves and flow.
2018-10-02 09:07:40		None, if it doesn't include additional parking.
2018-10-01 13:36:52		I would like the one that includes the most parking spaces for students, staff and the community for the school day and the many hours that SHS is used after the school hours.

Appendix N:

City Hall Building Concepts



1 **Basement Level - Proposed Egress and Revised Toilet Room Plan**
Scale: 1" = 16'

KEY:

- CIRCULATION SPACE
- PROPOSED EXIT WAY *CODE COMPLIANCE TO BE DETERMINED
- REVISED OR NEW TOILET ROOMS

City of Somerville

Department of Relocation Strategy and Implementation Plan

KLEINFELDER Bright People. Right Solutions.

ARCHITECTS / PLANNERS

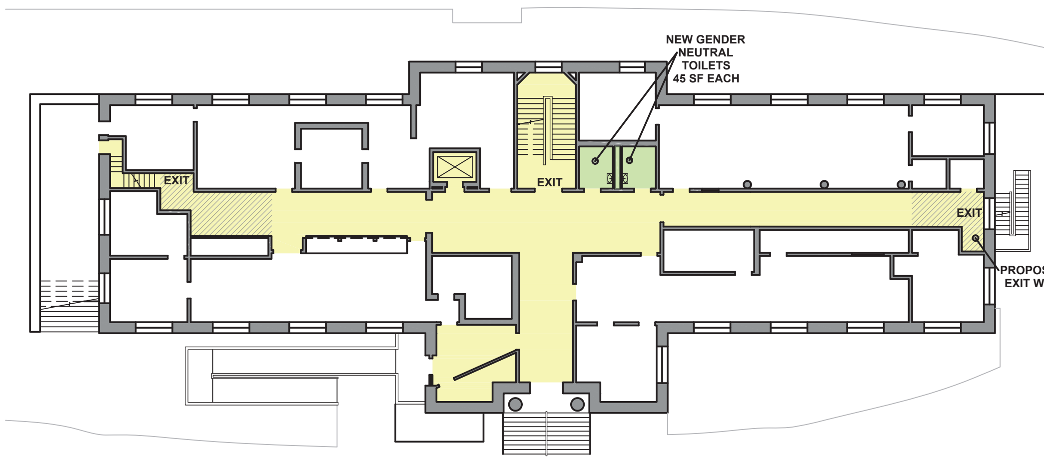
City Hall

Proposed Egress and Revised Toilet Room Plan

Basement Level Plan

EG-1

DATE: 05/04/2018



1 **Level 1 - Proposed Egress and Revised Toilet Room Plan**
Scale: 1" = 16'

KEY:

- CIRCULATION SPACE
- PROPOSED EXIT WAY *CODE COMPLIANCE TO BE DETERMINED
- REVISED OR NEW TOILET ROOMS

City of Somerville
Department of Relocation Strategy and Implementation Plan

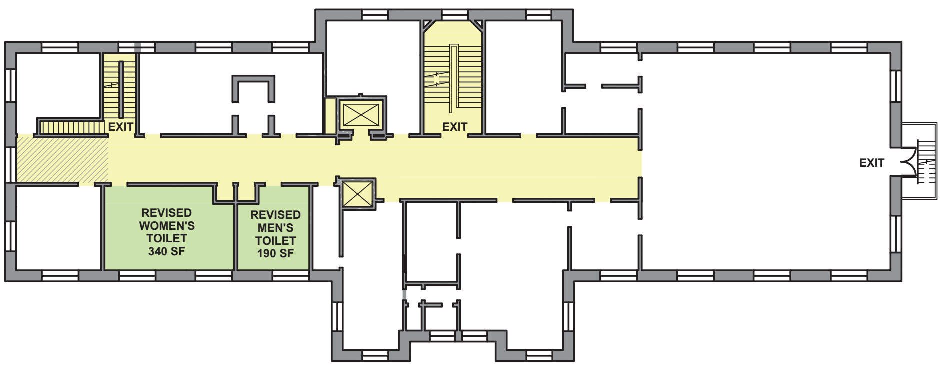
KLEINFELDER
ARCHITECTS / PLANNERS

City Hall
Proposed Egress and Revised Toilet Room Plan

Level 1 Plan

EG-2

DATE: 05/04/2018



1 Level 2 - Proposed Egress and Revised Toilet Room Plan
Scale: 1" = 16'

KEY:

- CIRCULATION SPACE
- PROPOSED EXIT WAY
  *CODE COMPLIANCE TO BE DETERMINED
- REVISED OR NEW TOILET ROOM

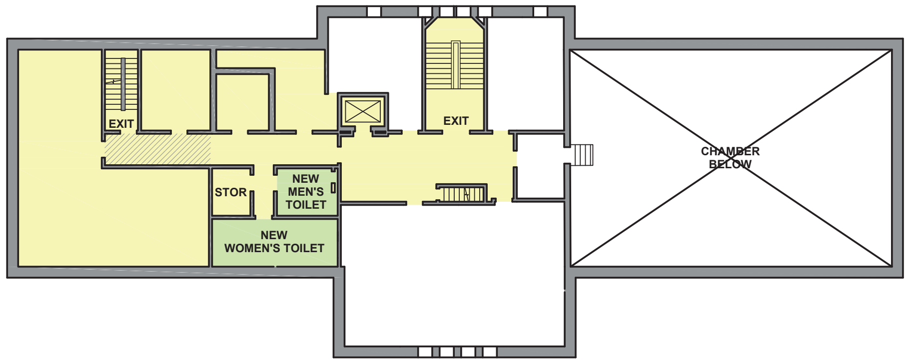
City of Somerville
Department of Relocation Strategy and Implementation Plan

KLEINFELDER
ARCHITECTS / PLANNERS

City Hall
Proposed Egress and Revised Toilet Room Plan
Level 2 Plan

EG-3

DATE: 05/04/2018



(1) **Level 3 - Proposed Egress and Revised Toilet Room Plan**
Scale: 1" = 16'

KEY:

- CIRCULATION SPACE
- PROPOSED EXIT WAY *CODE COMPLIANCE TO BE DETERMINED
- REVISED OR NEW TOILET ROOM

City of Somerville Department of Relocation Strategy and Implementation Plan		City Hall Proposed Egress and Revised Toilet Room Plan	EG-4
KLEINFELDER Bright People. Right Solutions. ARCHITECTS / PLANNERS		Level 3 Plan	DATE: 05/04/2018

GROSS BASEMENT LEVEL AREA = 8477 SF
UTILITY & CIRCULATION AREA = 2200 SF
USABLE AREA = 4363 SF
EFFICIENCY = 52%

DEPARTMENT AREAS:

COMMUNICATIONS TOTALS:
OPTION AREA: 1795 SF
MODULAR SYSTEMS AREA: 1729 SF
KLF RECOMMENDED AREA: 1408 SF
EXISTING AREA: 958 SF
*PROGRAM ON BASEMENT LEVEL AND LEVEL 2

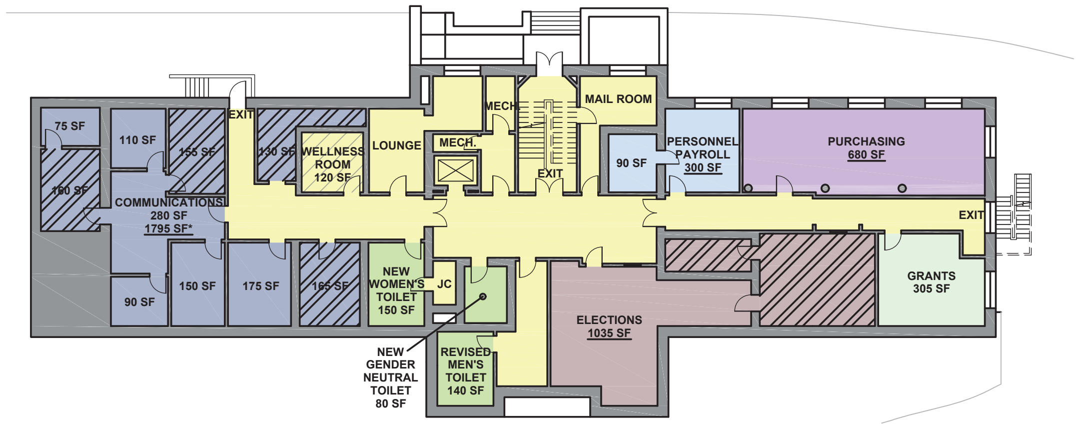
ELECTIONS TOTALS:
OPTION AREA: 1035 SF
MODULAR SYSTEMS AREA: 827 SF
KLF RECOMMENDED AREA: 1237 SF
EXISTING AREA: 887 SF

PERSONNEL PAYROLL TOTALS:
OPTION AREA: 300 SF
MODULAR SYSTEMS AREA: 300 SF
KLF RECOMMENDED AREA: 300 SF
EXISTING AREA: 287 SF

PURCHASING TOTALS:
OPTION AREA: 680 SF
MODULAR SYSTEMS AREA: 841 SF
KLF RECOMMENDED AREA: 633 SF
EXISTING AREA: 633 SF

GRANTS TOTALS:
OPTION AREA: 305 SF
MODULAR SYSTEMS AREA: 210 SF
KLF RECOMMENDED AREA: 300 SF
EXISTING AREA: 300 SF

* = MULTI-FLOOR PROGRAM
= TOTAL SF OF PROGRAM



1 **Basement Level - Proposed Expansion Plan**
Scale: 1" = 16'

KEY:

- COMMUNICATIONS
- ELECTIONS
- PURCHASING
- PERSONNEL PAYROLL
- GRANTS
- PROGRAM EXPANDED AREA
- WELLNESS ROOM
- REVISED OR NEW TOILET ROOMS
- COMMON SPACE

City of Somerville
Department of Relocation Strategy and Implementation Plan

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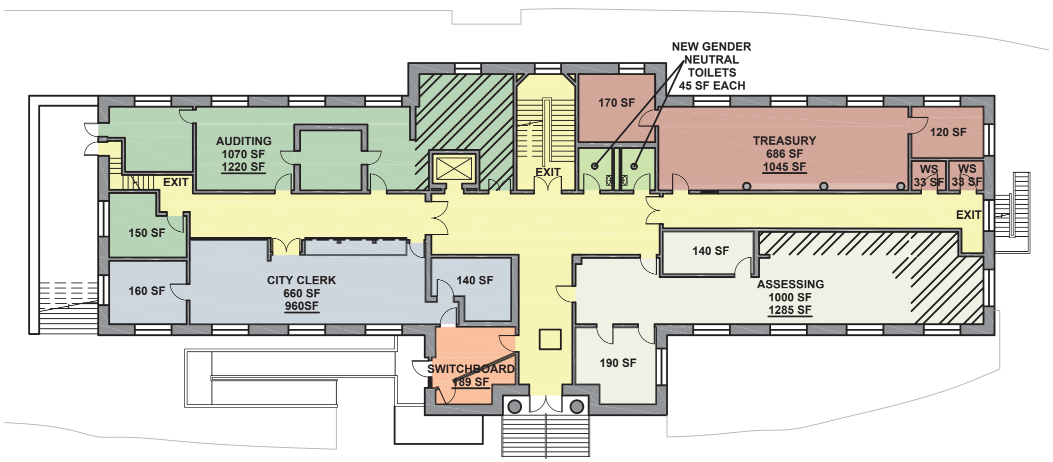
City Hall
Proposed Expansion Plan

Basement Level Plan

CH-1D

Option D
DATE: 05/04/2018



GROSS LEVEL 1 AREA = 7932 SF
UTILITY & CIRCULATION AREA = 1417 SF
USABLE AREA = 5157 SF
EFFICIENCY = 65%

DEPARTMENT AREAS:

CITY CLERK TOTALS:
OPTION AREA: 960 SF
MODULAR SYSTEMS AREA: 904 SF
KLF RECOMMENDED AREA: 913 SF
EXISTING AREA: 913 SF

ASSESSING TOTALS:
OPTION AREA: 1285 SF
MODULAR SYSTEMS AREA: 1481 SF
KLF RECOMMENDED AREA: 1321 SF
EXISTING AREA: 971 SF

TREASURY TOTALS:
OPTION AREA: 1045 SF
MODULAR SYSTEMS AREA: 1325 SF
KLF RECOMMENDED AREA: 1019 SF
EXISTING AREA: 1019 SF

AUDITING TOTALS:
OPTION AREA: 1220 SF
MODULAR SYSTEMS AREA: 1379 SF
KLF RECOMMENDED AREA: 1859 SF
EXISTING AREA: 1109 SF

SWITCHBOARD TOTALS:
EXISTING AREA: 189 SF
PROGRAM TO REMAIN UNCHANGED

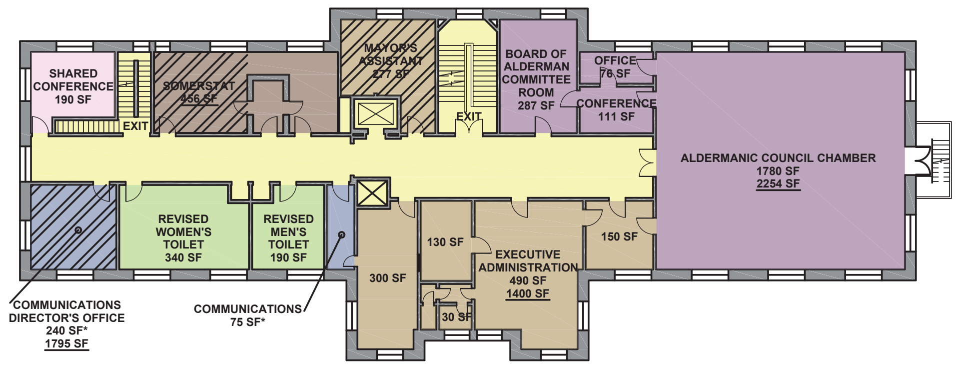
* = MULTI-FLOOR PROGRAM
= TOTAL SF OF PROGRAM
WS = WORKSTATION

KEY:
- CITY CLERK
- SWITCHBOARD
- ASSESSING
- TREASURY
- AUDITING
- PROGRAM EXPANDED AREA
- REVISED OR NEW TOILET ROOMS
- COMMON SPACE

1 **Level 1 - Proposed Expansion Plan**
Scale: 1" = 16'

City of Somerville Department of Relocation Strategy and Implementation Plan	City Hall Proposed Expansion Plan	CH-2D
KLEINFELDER Bright People. Right Solutions. — ARCHITECTS / PLANNERS	Level 1 Plan	Option D DATE: 05/04/2018

GROSS LEVEL 2 AREA = 7932 SF
UTILITY & CIRCULATION AREA = 1575 SF
USABLE AREA = 4967 SF
EFFICIENCY = 63%



DEPARTMENT AREAS:

ALDERMAN TOTALS:
EXISTING AREA : 2254 SF
*PROGRAM TO REMAIN UNCHANGED

EXECUTIVE ADMINISTRATION TOTALS:
OPTION AREA: 1400 SF
MODULAR SYSTEMS AREA: 1235 SF
KLF RECOMMENDED AREA: 1747 SF
EXISTING AREA: 1247 SF

SOMERSTAT TOTALS:
OPTION AREA: 456 SF
MODULAR SYSTEMS AREA: 794 SF
KLF RECOMMENDED AREA: 506 SF
EXISTING AREA: 356 SF

COMMUNICATIONS TOTALS:
OPTION AREA: 1795 SF
MODULAR SYSTEMS AREA: 1729 SF
KLF RECOMMENDED AREA: 1408 SF
EXISTING AREA: 958 SF
*PROGRAM ON BASEMENT LEVEL AND LEVEL 2

* = MULTI-FLOOR PROGRAM
= TOTAL SF OF PROGRAM

1 **Level 2 - Proposed Expansion Plan**
Scale: 1" = 16'

KEY:
- ALDERMAN
- EXECUTIVE ADMINISTRATION
- SOMERSTAT
- COMMUNICATIONS
- CONFERENCE SPACE
- PROGRAM EXPANDED AREA
- REVISED OR NEW TOILET ROOMS
- COMMON SPACE

City of Somerville
Department of Relocation Strategy and Implementation Plan

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ARCHITECTS / PLANNERS

City Hall
Proposed Expansion Plan

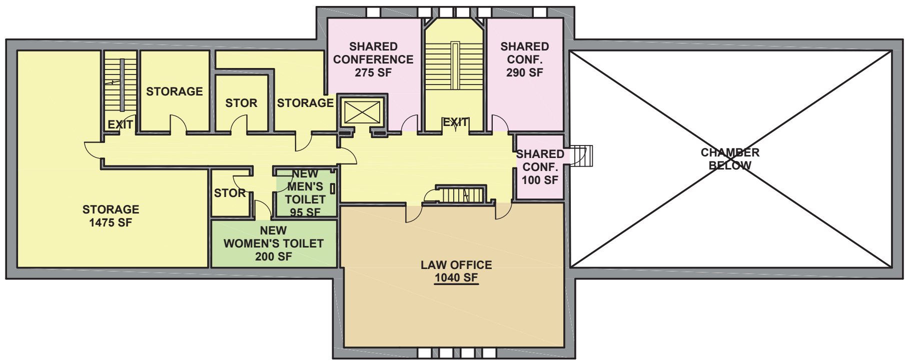
Level 2 Plan

CH-3D

Option D

DATE: 05/04/2018

GROSS LEVEL 3 AREA = 5399 SF
UTILITY & CIRCULATION AREA = 1925 SF
USABLE AREA = 2476 SF
EFFICIENCY = 46%



1 **Level 3 - Proposed Expansion Plan**
Scale: 1" = 16'

DEPARTMENT AREAS:

LAW OFFICE TOTALS:
OPTION AREA: 1040 SF
MODULAR SYSTEMS AREA: 991 SF
KLF RECOMMENDED AREA: 1069 SF
EXISTING AREA: 769 SF

EXISTING STORAGE TOTALS:
EXISTING AREA: 1475 SF

* = MULTI-FLOOR PROGRAM
= TOTAL SF OF PROGRAM

KEY:
- LAW OFFICE
- CONFERENCE SPACE
- REVISED OR NEW TOILET ROOMS
- COMMON SPACE

City of Somerville
Department of Relocation Strategy and Implementation Plan

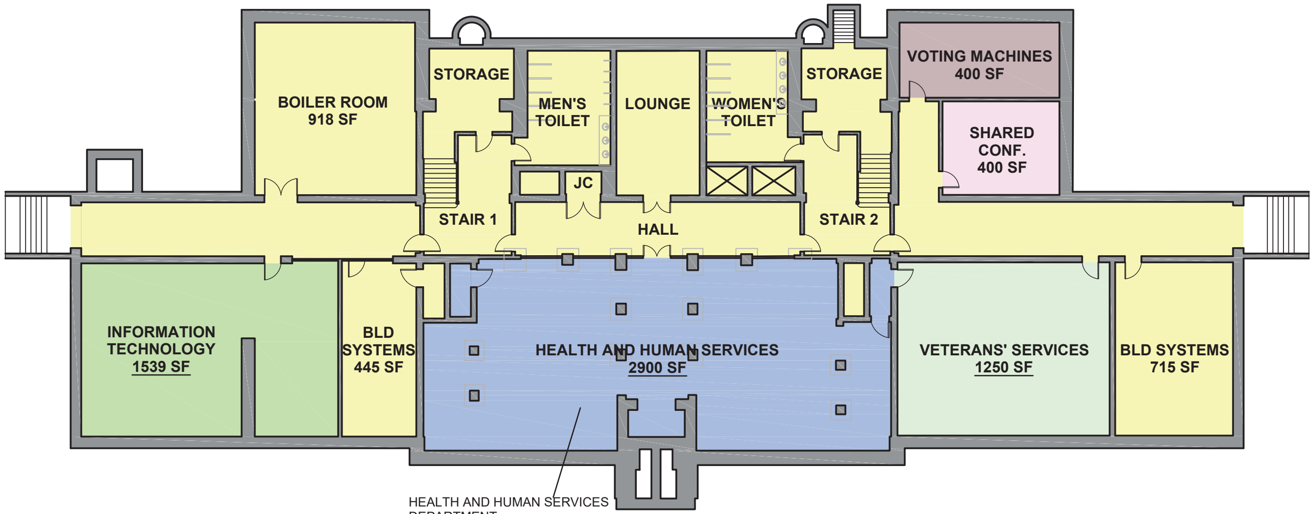
KLEINFELDER — ARCHITECTS / PLANNERS

City Hall
Proposed Expansion Plan
Level 3 Plan

CH-4D
Option D
DATE: 05/04/2018

Appendix O:

1895 Building Concepts



1 **LEVEL 1 PROPOSED DEPARTMENT RELOCATION**
SCALE: 1" = 16'

GROSS LEVEL 1 AREA = 14854 SF

UTILITY & CIRCULATION AREA = 3559 SF

USABLE AREA = 8737 SF

EFFICIENCY = 59%

DEPARTMENT AREAS:

HEALTH AND HUMAN SERVICES TOTALS:
OPTION AREA: 2900 SF
MODULAR SYSTEMS AREA: 4024 SF
KLF RECOMMENDED AREA: 2250 SF
EXISTING AREA: 2250 SF

INFORMATION TECHNOLOGY TOTALS:
OPTION AREA: 1539 SF
MODULAR SYSTEMS AREA: 1539 SF
KLF RECOMMENDED AREA: 1316 SF
EXISTING AREA: 1016 SF

VETERANS' SERVICES TOTALS:
OPTION AREA:1250 SF
MODULAR SYSTEMS AREA: 673 SF
KLF RECOMMENDED AREA: 1752 SF
EXISTING AREA: 1250 SF

VOTING MACHINE STORAGE TOTALS:
OPTION AREA: 400 SF

* = MULTI-FLOOR PROGRAM
= TOTAL SF OF PROGRAM

KEY:
- HEALTH AND HUMAN SERVICES
- INFORMATION TECHNOLOGY
- VETERANS' SERVICES
- VOTING MACHINES
- CONFERENCE SPACE
- COMMON SPACE

City of Somerville Department of Relocation Strategy and Implementation Plan	1895 High School Proposed Relocation Plan	1895-1D
KLEINFELDER Bright People. Right Solutions. ARCHITECTS / PLANNERS	Level 1 Plan	Option D DATE: 05/04/2018

GROSS LEVEL 2 AREA = 14637 SF
UTILITY & CIRCULATION AREA = 4392 SF
USABLE AREA = 8381 SF
EFFICIENCY = 57%

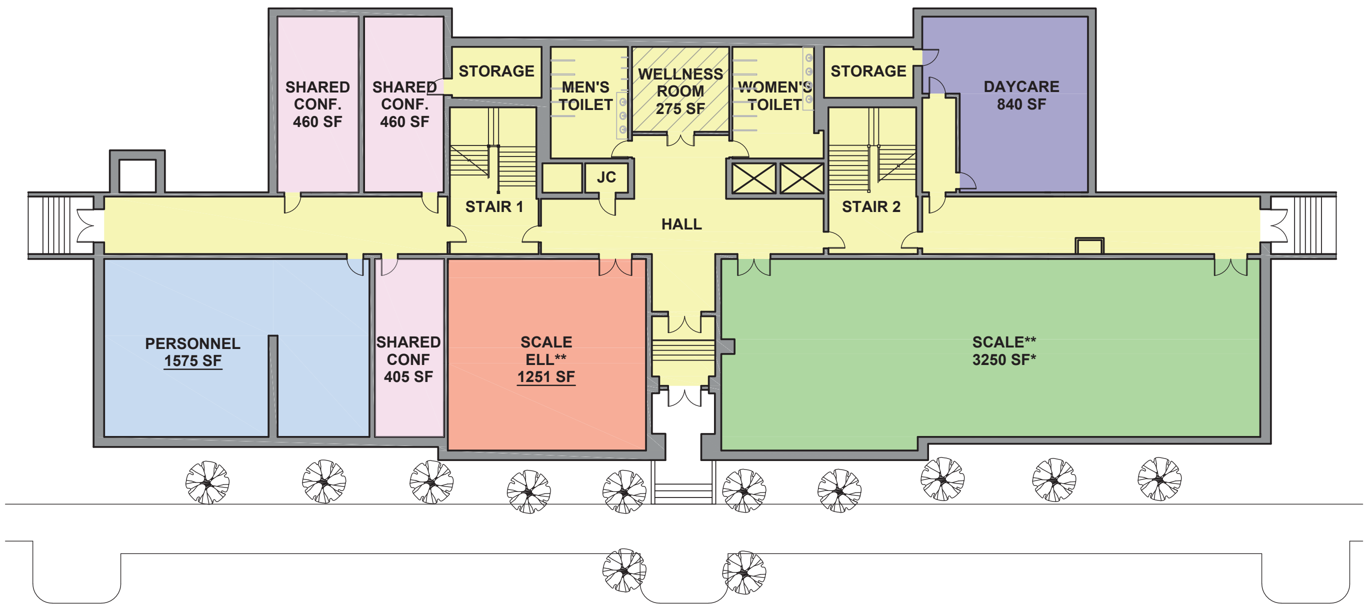
DEPARTMENT AREAS:

PERSONNEL TOTALS:
OPTION AREA: 1575 SF
MODULAR SYSTEMS AREA: 1918 SF
KLF RECOMMENDED AREA: 1640 SF
EXISTING AREA: 1340 SF

SCALE ENGLISH LANGUAGE LEARNING TOTALS:
OPTION AREA: 1251 SF
EXISTING AREA: 985 SF
**CURRENTLY HOUSED AT TUFTS

SCALE TOTALS:
OPTION AREA: 13445 SF
MODULAR SYSTEMS AREA: 13423 SF
KLF RECOMMENDED AREA: 13300 SF
EXISTING AREA: 7506 SF

* = MULTI-FLOOR PROGRAM
** = PROGRAM CURRENTLY HOUSED AT TUFTS
= TOTAL SF OF PROGRAM



(1) **LEVEL 2 PROPOSED DEPARTMENT RELOCATION**
SCALE: 1" = 16'

KEY:
- SCALE
- PERSONNEL
- SCALE ENGLISH LANGUAGE LEARNING (ELL)
- DAYCARE
- WELLNESS ROOM
- CONFERENCE SPACE
- COMMON SPACE

City of Somerville
Department of Relocation Strategy and Implementation Plan

KLEINFELDER ARCHITECTS / PLANNERS

1895 High School
Proposed Relocation Plan
Level 2 Plan

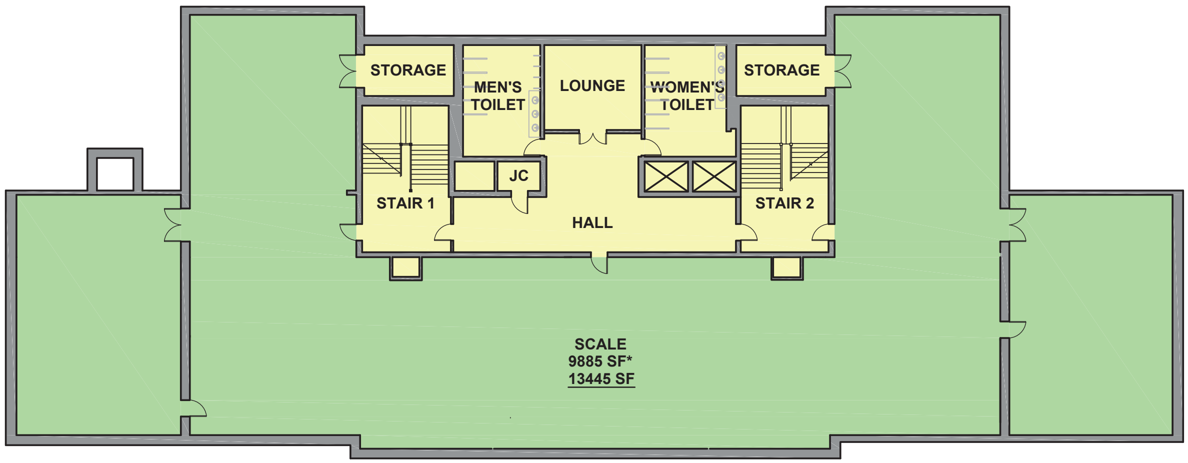
1895-2D
Option D
DATE: 05/04/2018

GROSS LEVEL 3 AREA = 14637 SF

UTILITY & CIRCULATION AREA = 2697 SF

USABLE AREA = 10058 SF

EFFICIENCY = 69%



1 LEVEL 3 PROPOSED DEPARTMENT RELOCATION
SCALE: 1" = 16'

DEPARTMENT AREAS:

SCALE TOTALS:
OPTION AREA: 13445 SF
MODULAR SYSTEMS AREA: 13423 SF
KLF RECOMMENDED AREA: 13300 SF
EXISTING AREA: 7506 SF
*PROGRAM ON LEVEL 2 AND LEVEL 3

* = MULTI-FLOOR PROGRAM
= TOTAL SF OF PROGRAM

KEY:

SCALE

COMMON SPACE

City of Somerville
Department of Relocation Strategy and Implementation Plan

KLEINFELDER — ARCHITECTS / PLANNERS

1895 High School
Proposed Relocation Plan
Level 3 Plan

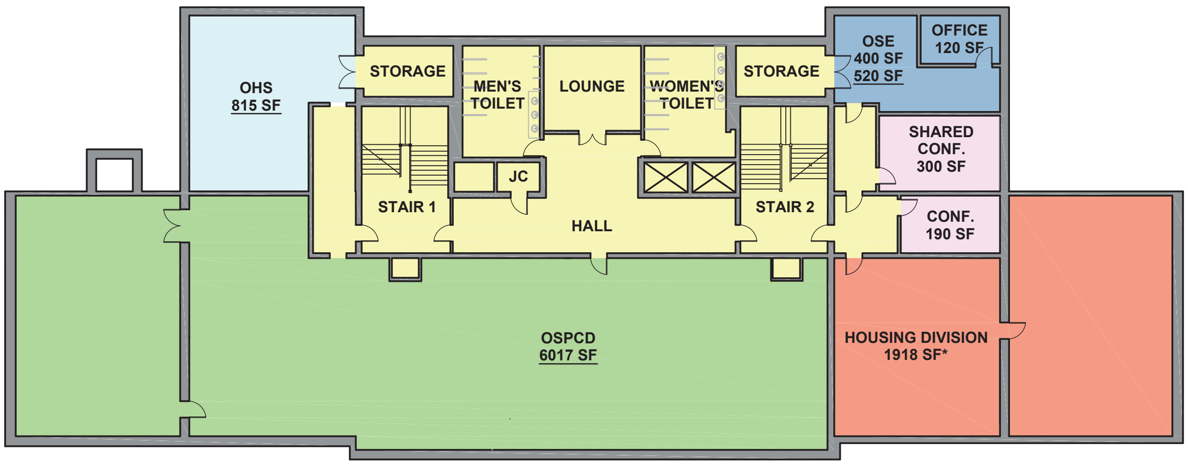
1895-3D
Option D
DATE: 05/04/2018

GROSS LEVEL 4 AREA = 14637 SF

UTILITY & CIRCULATION AREA = 2748 SF

USABLE AREA = 10156 SF

EFFICIENCY = 69%



1 **LEVEL 4 PROPOSED DEPARTMENT RELOCATION**
SCALE: 1" = 16'

DEPARTMENT AREAS:

OSPCD TOTALS:
OPTION AREA: 6017 SF
MODULAR SYSTEMS AREA: 5921 SF
KLF RECOMMENDED AREA: 4545 SF
EXISTING AREA: 7506 SF

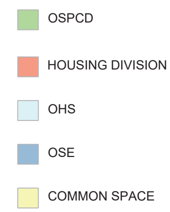
HOUSING DIVISION TOTALS:
OPTION AREA: 1918 SF
MODULAR SYSTEMS AREA: 2127 SF
KLF RECOMMENDED AREA: 2200 SF
EXISTING AREA: 2200 SF

OSE TOTALS:
OPTION AREA:540 SF
MODULAR SYSTEMS AREA: 467 SF
KLF RECOMMENDED AREA: 300 SF
EXISTING AREA: 300 SF

OHS TOTALS:
OPTION AREA: 815 SF

* = MULTI-FLOOR PROGRAM
= TOTAL SF OF PROGRAM

KEY:



City of Somerville
Department of Relocation Strategy and Implementation Plan

KLEINFELDER ARCHITECTS / PLANNERS

1895 High School
Proposed Relocation Plan
Level 4 Plan

1895-4D
Option D
DATE: 05/04/2018

Appendix P:

Somerville High School Basic Floorplans

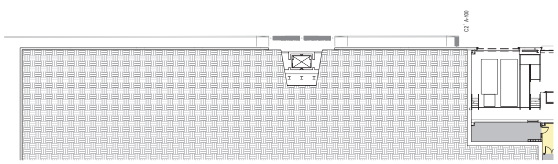
SMMA

SYMMES MAINI & McKEE ASSOCIATES
1000 Massachusetts Avenue
Cambridge, Massachusetts 02138
P:617.547.5400 F:617.648.4920

PROGRAM PLAN LEGEND

- ADMINISTRATION / GUIDANCE / STUDENT SERVICES / NURSE
- CAFETERIA & CIRCULATION
- CHAPTER 74
- CLASSROOM & GENERAL EDUCATION SUPPORT
- CUSTODIAL / MAINTENANCE / STORAGE
- OTHER
- PHYSICAL EDUCATION & SPORT SUPPORT
- SPECIAL EDUCATION
- VERTICAL CIRCULATION
- VOCATIONAL & TECHNOLOGY

C2 FLOOR PLAN - LOWER LEVEL - OVERALL
SCALE: 3/64" = 1'-0"



B2 FLOOR PLAN - LOWER LEVEL - OVERALL BUILDING
SCALE: 3/64" = 1'-0"

SOMERVILLE HIGH SCHOOL
81 HIGHLAND AVENUE
SOMERVILLE, MA 02143

MARK:	DATE:	DESCRIPTION:
	04/27/2018	CONST. DOCUMENTS

ISSUE LOG

= CLOUDED CHANGE

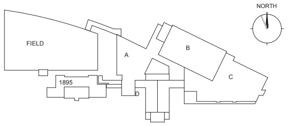
GROSS FLOOR AREA - SUB LEVEL

GROSS AREA TYPE	AREA
ADDITION - PHASE 1	978 SF
MECH AREA	9,945 SF
	10,923 SF

GROSS FLOOR AREA - LOWER LEVEL

GROSS AREA TYPE	AREA
ADDITION - PHASE 1	28,297 SF
ADDITION - PHASE 2	2,766 SF
ADDITION - PHASE 2 - BASEMENT	8,848 SF
RENO - PHASE 1A	30,969 SF
	70,879 SF

SCALE	3/64" = 1'-0"
DRAWN BY	AJV/NAP
CHECK BY	ACP
PROJ. ARCH./ENGR.	MDR/AJI
PROJ. MRG.	LBF
JOB NO.	15070.00



NORTH

FLOOR PLAN - LOWER LEVEL - OVERALL

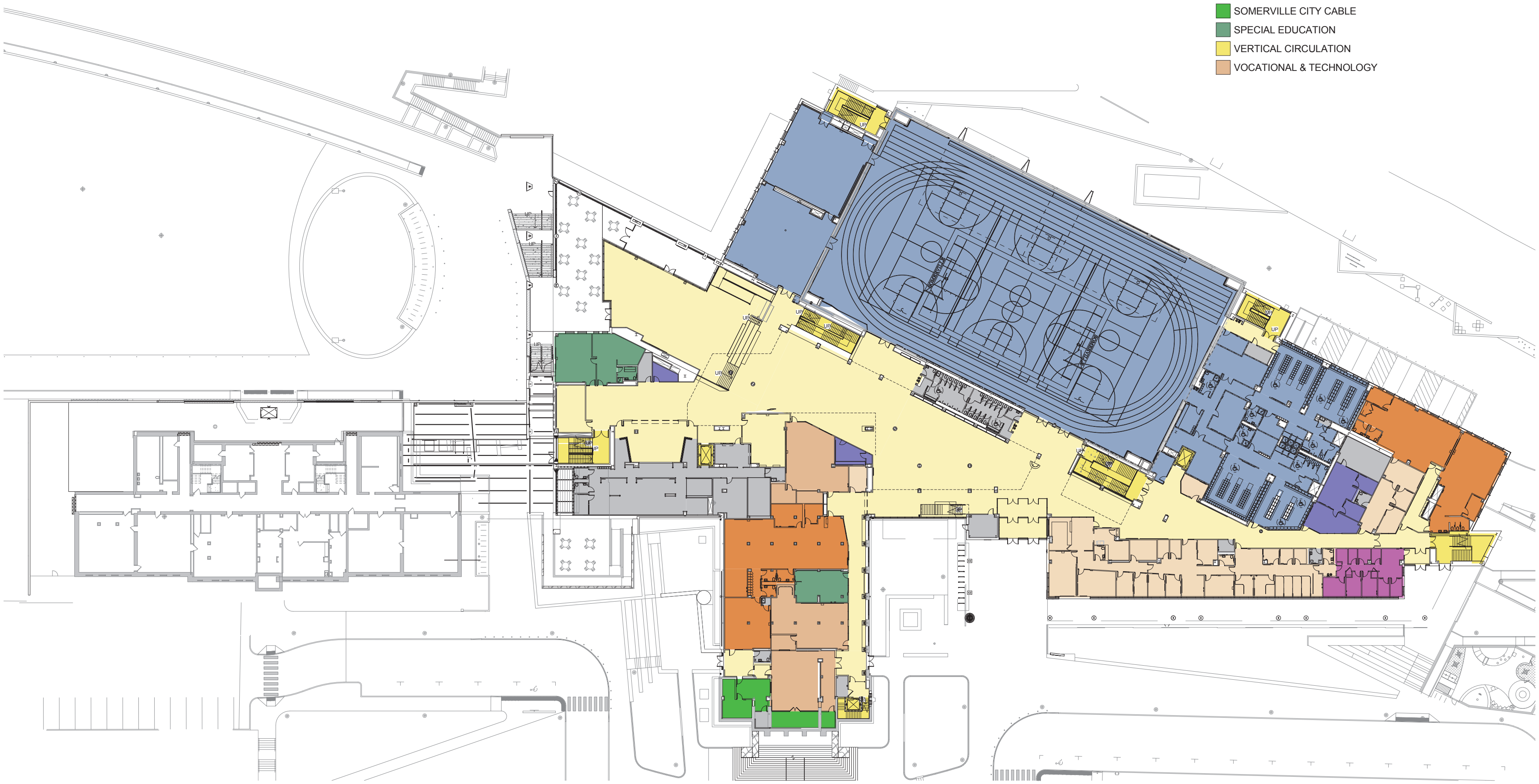
A-100

SMMA

PROGRAM PLAN LEGEND

- ADMINISTRATION / GUIDANCE / STUDENT SERVICES / NURSE
- CAFETERIA & CIRCULATION
- CHAPTER 74
- CUSTODIAL / MAINTENANCE / STORAGE
- HEALTH SUITE
- OTHER
- PHYSICAL EDUCATION & SPORT SUPPORT
- SOMERVILLE CITY CABLE
- SPECIAL EDUCATION
- VERTICAL CIRCULATION
- VOCATIONAL & TECHNOLOGY

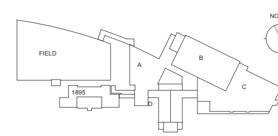
SOMERVILLE HIGH SCHOOL
81 HIGHLAND AVENUE
SOMERVILLE, MA 02143



C1 FLOOR PLAN - LEVEL 1 - OVERALL
SCALE: 3/64" = 1'-0"

04/27/2018 CONST. DOCUMENTS

GROSS FLOOR AREA - LEVEL 1	
GROSS AREA TYPE	AREA
ADDITION - PHASE 1	28,236 SF
ADDITION - PHASE 2	33,130 SF
RENO - PHASE 1B	27,095 SF
RENO - PHASE 2A	11,421 SF
	99,883 SF



KEY PLAN

SCALE	3/64" = 1'-0"
DRAWN BY	AJV/NAP
CHECK BY	ACP
PROJ. ARCH./ENGR.	MDR/AJI
PROJ. MRG.	LBF
JOB NO.	15070.00

NORTH

FLOOR PLAN - LEVEL 1 - OVERALL

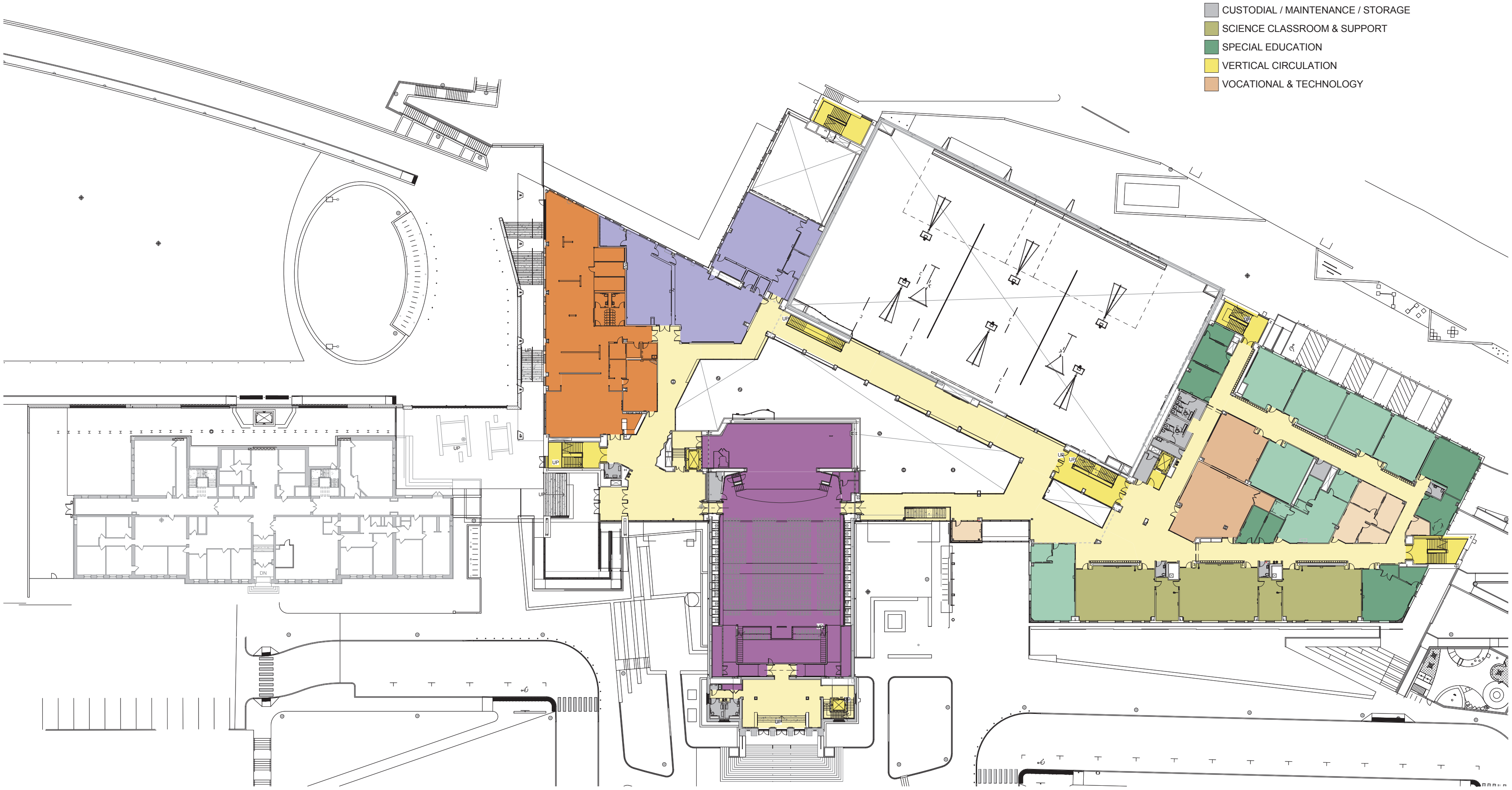
A-101

SMMA

PROGRAM PLAN LEGEND

- ADMINISTRATION / GUIDANCE / STUDENT SERVICES / NURSE
- ART & MUSIC
- AUDITORIUM / PERFORMING ARTS & DRAMA
- CAFETERIA & CIRCULATION
- CHAPTER 74
- CLASSROOM & GENERAL EDUCATION SUPPORT
- CUSTODIAL / MAINTENANCE / STORAGE
- SCIENCE CLASSROOM & SUPPORT
- SPECIAL EDUCATION
- VERTICAL CIRCULATION
- VOCATIONAL & TECHNOLOGY

SOMERVILLE HIGH SCHOOL
81 HIGHLAND AVENUE
SOMERVILLE, MA 02143



C1 FLOOR PLAN - LEVEL 2 - OVERALL
SCALE: 3/64" = 1'-0"

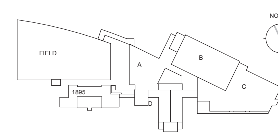
MARK:	DATE:	DESCRIPTION:
	04/27/2018	CONST. DOCUMENTS

ISSUE LOG

= CLOUDED CHANGE

SCALE	3/64" = 1'-0"
DRAWN BY	AJV/NAP
CHECK BY	ACP
PROJ. ARCH./ENGR.	MOR/AJ
PROJ. MRG.	LBF
JOB NO.	15070.00

GROSS FLOOR AREA - LEVEL 2	
VV	AREA
ADDITION - PHASE 1	24,193 SF
ADDITION - PHASE 2	33,165 SF
RENO - PHASE 2A	10,975 SF
	68,332 SF



NORTH

FLOOR PLAN - LEVEL 2 - OVERALL

A-102

SMMA

PROGRAM PLAN LEGEND

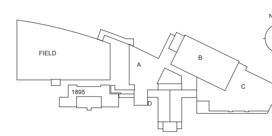
- ADMINISTRATION / GUIDANCE / STUDENT SERVICES / NURSE
- AUDITORIUM / PERFORMING ARTS & DRAMA
- CAFETERIA & CIRCULATION
- CLASSROOM & GENERAL EDUCATION SUPPORT
- CUSTODIAL / MAINTENANCE / STORAGE
- MEDIA CENTER
- SCIENCE CLASSROOM & SUPPORT
- SPECIAL EDUCATION
- VERTICAL CIRCULATION

SOMERVILLE HIGH SCHOOL
81 HIGHLAND AVENUE
SOMERVILLE, MA 02143

C1 FLOOR PLAN - LEVEL 3 - OVERALL
SCALE: 3/64" = 1'-0"

04/27/2018 CONST. DOCUMENTS

GROSS FLOOR AREA - LEVEL 3	
GROSS AREA TYPE	AREA
ADDITION - PHASE 1	24,362 SF
ADDITION - PHASE 2	33,771 SF
RENO - PHASE 2A	1,461 SF
	59,594 SF



NORTH

SCALE 3/64" = 1'-0"
DRAWN BY AJV/NAP
CHECK BY ACP
JOB NO. 15070.00

FLOOR PLAN - LEVEL 3 - OVERALL

A-103

SMMA

PROGRAM PLAN LEGEND

- ADMINISTRATION / GUIDANCE / STUDENT SERVICES / NURSE
- ART & MUSIC
- AUDITORIUM / PERFORMING ARTS & DRAMA
- CAFETERIA & CIRCULATION
- CHAPTER 74
- CLASSROOM & GENERAL EDUCATION SUPPORT
- CUSTODIAL / MAINTENANCE / STORAGE
- MEDIA CENTER
- SCIENCE CLASSROOM & SUPPORT
- SPECIAL EDUCATION
- VERTICAL CIRCULATION

C1 FLOOR PLAN - LEVEL 4 - OVERALL
SCALE: 3/64" = 1'-0"

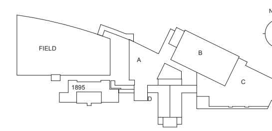
SOMERVILLE HIGH SCHOOL
81 HIGHLAND AVENUE
SOMERVILLE, MA 02143

MARK	DATE	DESCRIPTION
	04/27/2018	CONST. DOCUMENTS

ISSUE LOG

= CLOUDED CHANGE

GROSS FLOOR AREA - LEVEL 4	
GROSS AREA TYPE	AREA
ADDITION - PHASE 1	22,461 SF
ADDITION - PHASE 2	29,881 SF
	52,343 SF



SCALE	3/64" = 1'-0"
DRAWN BY	AJV/NAP
CHECK BY	ACP
PROJ. ARCH./ENGR.	MDR/AJI
PROJ. MRG.	LBF
JOB NO.	15070.00

NORTH

FLOOR PLAN - LEVEL 4 - OVERALL

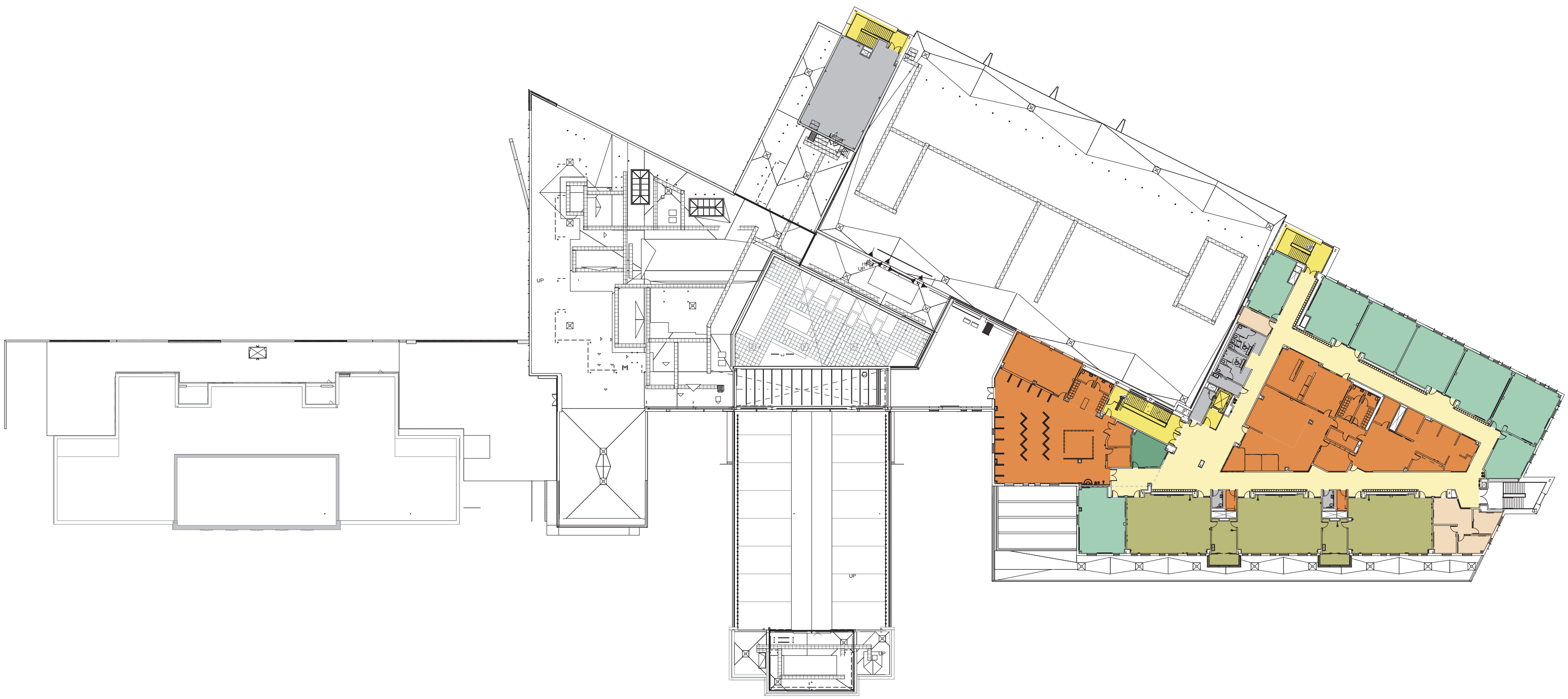
A-104

SMMA

SOMERVILLE HIGH SCHOOL
81 HIGHLAND AVENUE
SOMERVILLE, MA 02143

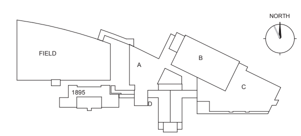
PROGRAM PLAN LEGEND

- ADMINISTRATION / GUIDANCE / STUDENT SERVICES / NURSE
- CAFETERIA & CIRCULATION
- CHAPTER 74
- CLASSROOM & GENERAL EDUCATION SUPPORT
- CUSTODIAL / MAINTENANCE / STORAGE
- SCIENCE CLASSROOM & SUPPORT
- SPECIAL EDUCATION
- VERTICAL CIRCULATION



C1 FLOOR PLAN - LEVEL 5 - OVERALL
SCALE: 3/64" = 1'-0"

GROSS FLOOR AREA - LEVEL 5	
GROSS AREA TYPE	AREA
ADDITION - PHASE 1	2,110 SF
ADDITION - PHASE 2	32,128 SF
	34,238 SF



04/27/2018 CONST. DOCUMENTS

SCALE	3/64" = 1'-0"
DRAWN BY	AJV/NAP
CHECK BY	ACP
JOB NO.	15070.00

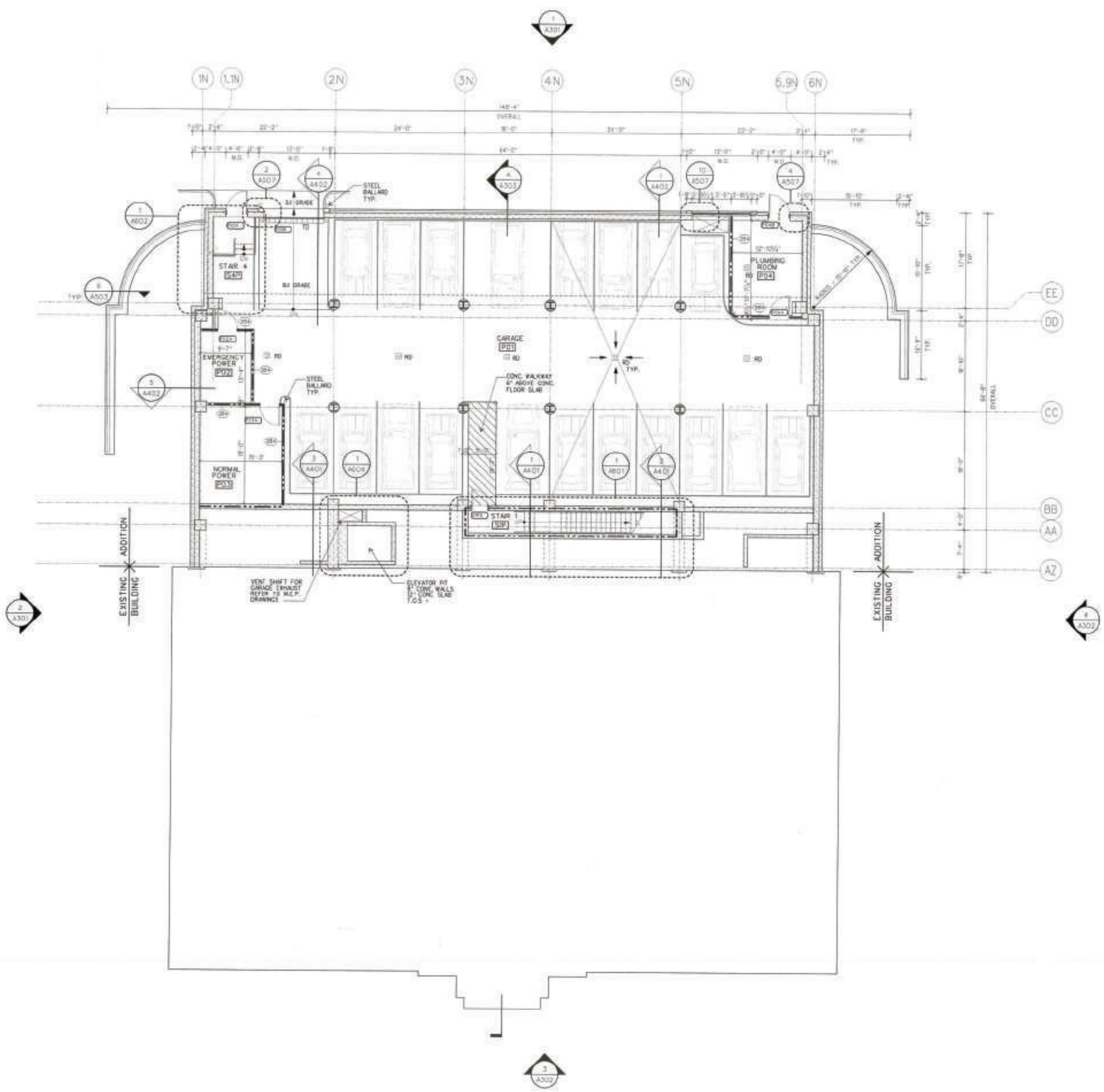
NORTH

FLOOR PLAN - LEVEL 5 - OVERALL

A-105

Appendix Q:

Library 1996 Addition Concepts



NOTES:

1. GENERAL CONTRACTOR SHALL VERIFY ALL EXISTING FLOOR SLAB ELEVATIONS, DIMENSIONS, SPOT GRADES AND ROOF ELEVATIONS BEFORE COMMENCEMENT OF CONSTRUCTION AND REPORT ANY CONFLICTS OR DISCREPANCIES TO THE ARCHITECT FOR CLARIFICATION.
2. CONTRACTOR SHALL USE NOTED DIMENSIONS. DO NOT SCALE DRAWINGS.
3. COORDINATE WALL DIMENSIONS WITH CASEWORK AND MILLWORK.
4. ALL DOOR SHALL BE LOCATED 6" (INCLUDES 2" OF DOOR FRAME) FROM INSIDE CORNER UNLESS NOTED OTHERWISE.
5. SEE MECHANICAL DRAWINGS FOR LOCATIONS OF MECHANICAL EQUIPMENT PADS. CONTRACTOR SHALL PROVIDE EQUIPMENT PADS TO SUPPORT HVAC, PLUMBING, FIRE PROTECTION AND ELECTRICAL EQUIPMENT; SIZED ACCORDINGLY TO MANUFACTURER'S REQUIREMENTS.
6. ALL TELEPHONE CLOSETS AND COMMUNICATIONS HEAD END ROOM (E16) SHALL RECEIVE FIRE TREATED PLYWOOD BLOCKING ON ALL WALLS FOR INSTALLATION OF COMMUNICATION RACKS AND EQUIPMENT.

STANDARD NOTES:

REFER TO DRAWING A001 FOR ABBREVIATIONS, SYMBOLS AND GENERAL NOTES.

CONSTRUCTION IS NEW UNLESS INDICATED AS "EXISTING" OR "RELOCATED".

DIMENSIONS ARE TO THE FACE OF FINISH UNLESS NOTED OTHERWISE.

DIMENSIONS SHOWN ARE NOMINAL FOR MANUFACTURED OR BUILT-IN ELEMENTS. PROVIDE CONSTRUCTION TOLERANCES AS REQUIRED.

DIMENSIONS FOR MASONRY ARE NOMINAL UNLESS OTHERWISE INDICATED. DIMENSIONS FOR STONEWORK ARE TO THE FACE OF STONE.

OVERALL JOINT WORK IS TO CENTERLINE OF JOINT UNLESS NOTED OTHERWISE.

REVISIONS:

SHEPLEY BULFINCH RICHARDSON AND ABBOTT

CITY OF SOMERVILLE

ADDITIONS & ALTERATIONS TO THE SOMERVILLE PUBLIC LIBRARY

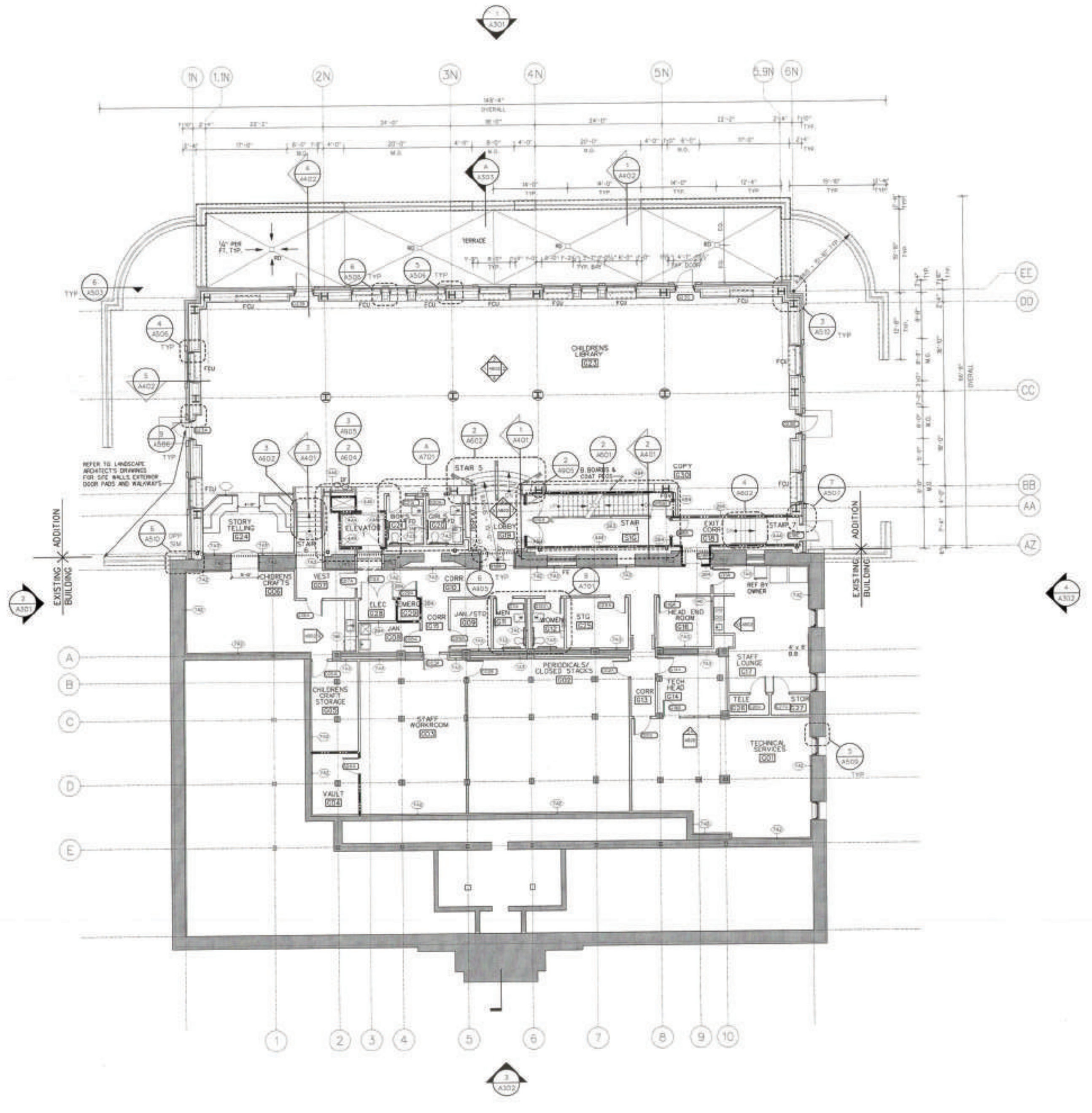
PARKING LEVEL PLAN

3215

28 MAY 1999

CONSTRUCTION DOCUMENTS

A101



NOTES:

1. GENERAL CONTRACTOR SHALL VERIFY ALL EXISTING FLOOR SLAB ELEVATIONS, DIMENSIONS, SPOT GRADES AND ROOF ELEVATIONS BEFORE COMMENCEMENT OF CONSTRUCTION AND REPORT ANY CONFLICTS OR DISCREPANCIES TO THE ARCHITECT FOR CLARIFICATION.
2. CONTRACTOR SHALL USE NOTED DIMENSIONS. DO NOT SCALE DRAWINGS.
3. COORDINATE WALL DIMENSIONS WITH CASEWORK AND MILLWORK.
4. ALL DOOR SHALL BE LOCATED 8" INCLUDES 2" OF DOOR FRAME) FROM INSIDE CORNER UNLESS NOTED OTHERWISE.
5. SEE MECHANICAL DRAWINGS FOR LOCATIONS OF MECHANICAL EQUIPMENT PADS. CONTRACTOR SHALL PROVIDE EQUIPMENT PADS TO SUPPORT HVAC, PLUMBING, FIRE PROTECTION AND ELECTRICAL EQUIPMENT; SIZED ACCORDINGLY TO MANUFACTURER'S REQUIREMENTS.
6. ALL TELEPHONE CLOSETS AND COMMUNICATIONS HEAD END ROOM (016) SHALL RECEIVE FIRE TREATED PLYWOOD BLOCKING ON ALL WALLS FOR INSTALLATION OF COMMUNICATION RACKS AND EQUIPMENT.

STANDARD NOTES:

REFER TO DRAWING A001 FOR ABBREVIATIONS, SYMBOLS AND GENERAL NOTES.

CONSTRUCTION IS NEW UNLESS INDICATED AS "EXISTING" OR "RELOCATED".

DIMENSIONS ARE TO THE FACE OF FINISH UNLESS NOTED OTHERWISE.

DIMENSIONS SHOWN ARE NOMINAL FOR MANUFACTURED OR BUILT-IN ELEMENTS. PROVIDE CONSTRUCTION TOLERANCES AS REQUIRED.

DIMENSIONS FOR MASONRY ARE NOMINAL UNLESS OTHERWISE INDICATED. DIMENSIONS FOR STONEWORK ARE TO THE FACE OF STONE.

OVERALL JOINT WORK IS TO CENTERLINE OF JOINT UNLESS NOTED OTHERWISE.

REVISIONS:

SHEPLEY BULFINCH RICHARDSON AND ABBOTT

CITY OF SOMERVILLE

ADDITIONS & ALTERATIONS
TO THE
SOMERVILLE PUBLIC LIBRARY

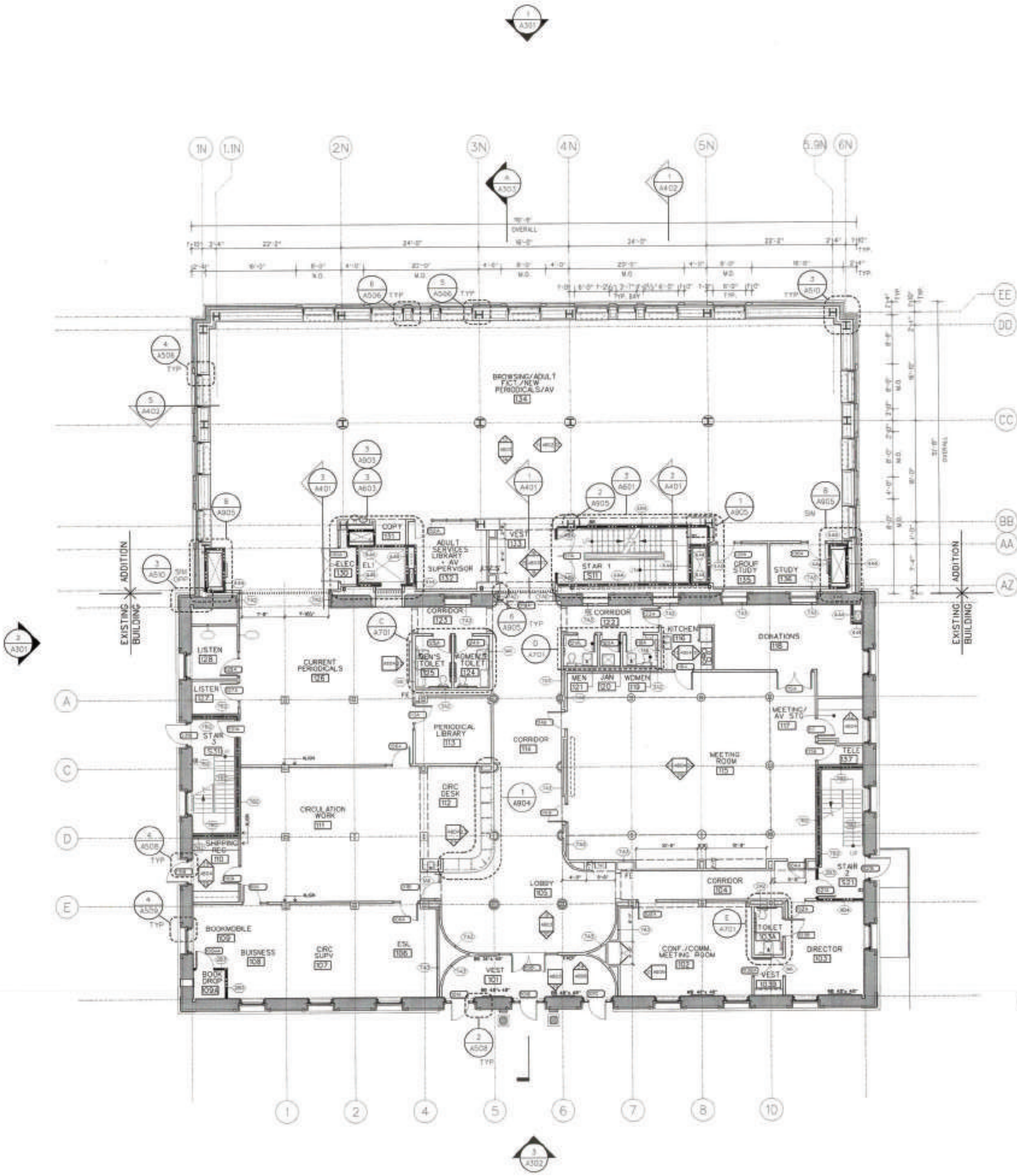
GROUND FLOOR PLAN

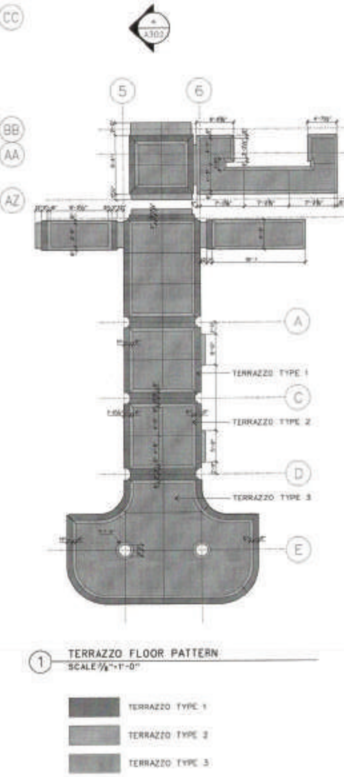
3235

28 MAY 1999

CONSTRUCTION DOCUMENTS

A102





1 TERRAZZO FLOOR PATTERN
SCALE 3/8"=1'-0"

TERRAZZO TYPE 1
TERRAZZO TYPE 2
TERRAZZO TYPE 3

NOTES:

1. GENERAL CONTRACTOR SHALL VERIFY ALL EXISTING FLOOR SLAB ELEVATIONS, DIMENSIONS, SPOT GRADES AND ROOF ELEVATIONS BEFORE COMMENCEMENT OF CONSTRUCTION AND REPORT ANY CONFLICTS OR DISCREPANCIES TO THE ARCHITECT FOR CLARIFICATION.
2. CONTRACTOR SHALL USE NOTED DIMENSIONS. DO NOT SCALE DRAWINGS.
3. COORDINATE WALL DIMENSIONS WITH CASEWORK AND MILLWORK.
4. ALL DOOR SHALL BE LOCATED 6" (INCLUDES 2" OF DOOR FRAME) FROM INSIDE CORNER UNLESS NOTED OTHERWISE.
5. SEE MECHANICAL DRAWINGS FOR LOCATIONS OF MECHANICAL EQUIPMENT PADS. CONTRACTOR SHALL PROVIDE EQUIPMENT PADS TO SUPPORT HVAC, PLUMBING, FIRE PROTECTION AND ELECTRICAL EQUIPMENT; SIZED ACCORDINGLY TO MANUFACTURER'S REQUIREMENTS.
6. ALL TELEPHONE CLOSETS AND COMMUNICATIONS HEAD END ROOM (HER) SHALL RECEIVE FIRE TREATED PLYWOOD BLOCKING ON ALL WALLS FOR INSTALLATION OF COMMUNICATION RACKS AND EQUIPMENT.

STANDARD NOTES:

REFER TO DRAWING A001 FOR ABBREVIATIONS, SYMBOLS AND GENERAL NOTES.

CONSTRUCTION IS NEW UNLESS INDICATED AS "EXISTING" OR "RELOCATED".

DIMENSIONS ARE TO THE FACE OF FINISH UNLESS NOTED OTHERWISE.

DIMENSIONS SHOWN ARE NOMINAL FOR MANUFACTURED OR BUILT-IN ELEMENTS. PROVIDE CONSTRUCTION TOLERANCES AS REQUIRED.

DIMENSIONS FOR MASONRY ARE NOMINAL UNLESS OTHERWISE INDICATED. DIMENSIONS FOR STONEWORK ARE TO THE FACE OF STONE.

OVERALL JOINT WORK IS TO CENTERLINE OF JOINT UNLESS NOTED OTHERWISE.

REVISIONS:

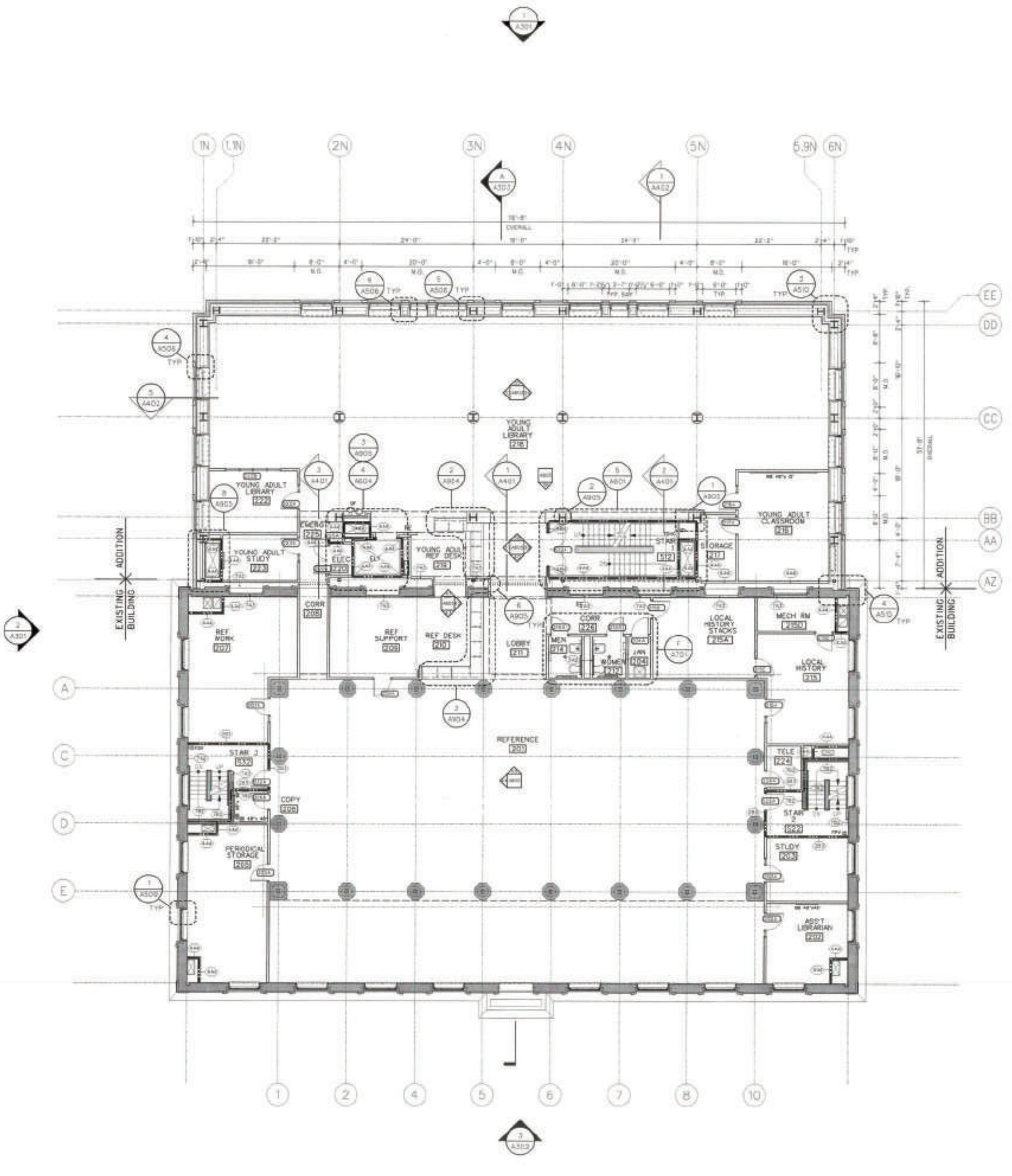
SHEPLEY BULFINCH RICHARDSON AND ABBOTT
INCORPORATED — ARCHITECTS

CITY OF SOMERVILLE
OWNER

ADDITIONS & ALTERATIONS TO THE SOMERVILLE PUBLIC LIBRARY
PROJECT

FIRST FLOOR PLAN
DRAWING TITLE

JOB NO. 3235	CONSTRUCTION DOCUMENTS
DATE 28 MAY 1999	A103
DWN / CKD	
SCALE	DRAWING NUMBER



NOTES:

1. GENERAL CONTRACTOR SHALL VERIFY ALL EXISTING FLOOR SLAB ELEVATIONS, DIMENSIONS, SPOT GRADES AND ROOF ELEVATIONS BEFORE COMMENCEMENT OF CONSTRUCTION AND REPORT ANY CONFLICTS OR DISCREPANCIES TO THE ARCHITECT FOR CLARIFICATION.
2. CONTRACTOR SHALL USE NOTED DIMENSIONS. DO NOT SCALE DRAWINGS.
3. COORDINATE WALL DIMENSIONS WITH CASEWORK AND MILLWORK.
4. ALL DOOR SHALL BE LOCATED 6" (INCLUDES 2" OF DOOR FRAME) FROM INSIDE CORNER UNLESS NOTED OTHERWISE.
5. SEE MECHANICAL DRAWINGS FOR LOCATIONS OF MECHANICAL EQUIPMENT PADS. CONTRACTOR SHALL PROVIDE EQUIPMENT PADS TO SUPPORT HVAC, PLUMBING, FIRE PROTECTION AND ELECTRICAL EQUIPMENT; SIZED ACCORDINGLY TO MANUFACTURER'S REQUIREMENTS.
6. ALL TELEPHONE CLOSETS AND COMMUNICATIONS HEAD END ROOM (SHE) SHALL RECEIVE FIRE TREATED PLYWOOD BLOCKING ON ALL WALLS FOR INSTALLATION OF COMMUNICATION RACKS AND EQUIPMENT.

STANDARD NOTES:

REFER TO DRAWING A001 FOR ABBREVIATIONS, SYMBOLS AND GENERAL NOTES.

CONSTRUCTION IS NEW UNLESS INDICATED AS "EXISTING" OR "RELOCATED".

DIMENSIONS ARE TO THE FACE OF FINISH UNLESS NOTED OTHERWISE.

DIMENSIONS SHOWN ARE NOMINAL FOR MANUFACTURED OR BUILT-IN ELEMENTS. PROVIDE CONSTRUCTION TOLERANCES AS REQUIRED.

DIMENSIONS FOR MASONRY ARE NOMINAL UNLESS OTHERWISE INDICATED. DIMENSIONS FOR STONEWORK ARE TO THE FACE OF STONE.

OVERALL JOINT WORK IS TO CENTERLINE OF JOINT UNLESS NOTED OTHERWISE.

REVISIONS:

SHEPLEY BULFINCH RICHARDSON AND ABBOTT

INCORPORATED — ARCHITECTS

CITY OF SOMERVILLE

ADDITIONS & ALTERATIONS TO THE SOMERVILLE PUBLIC LIBRARY

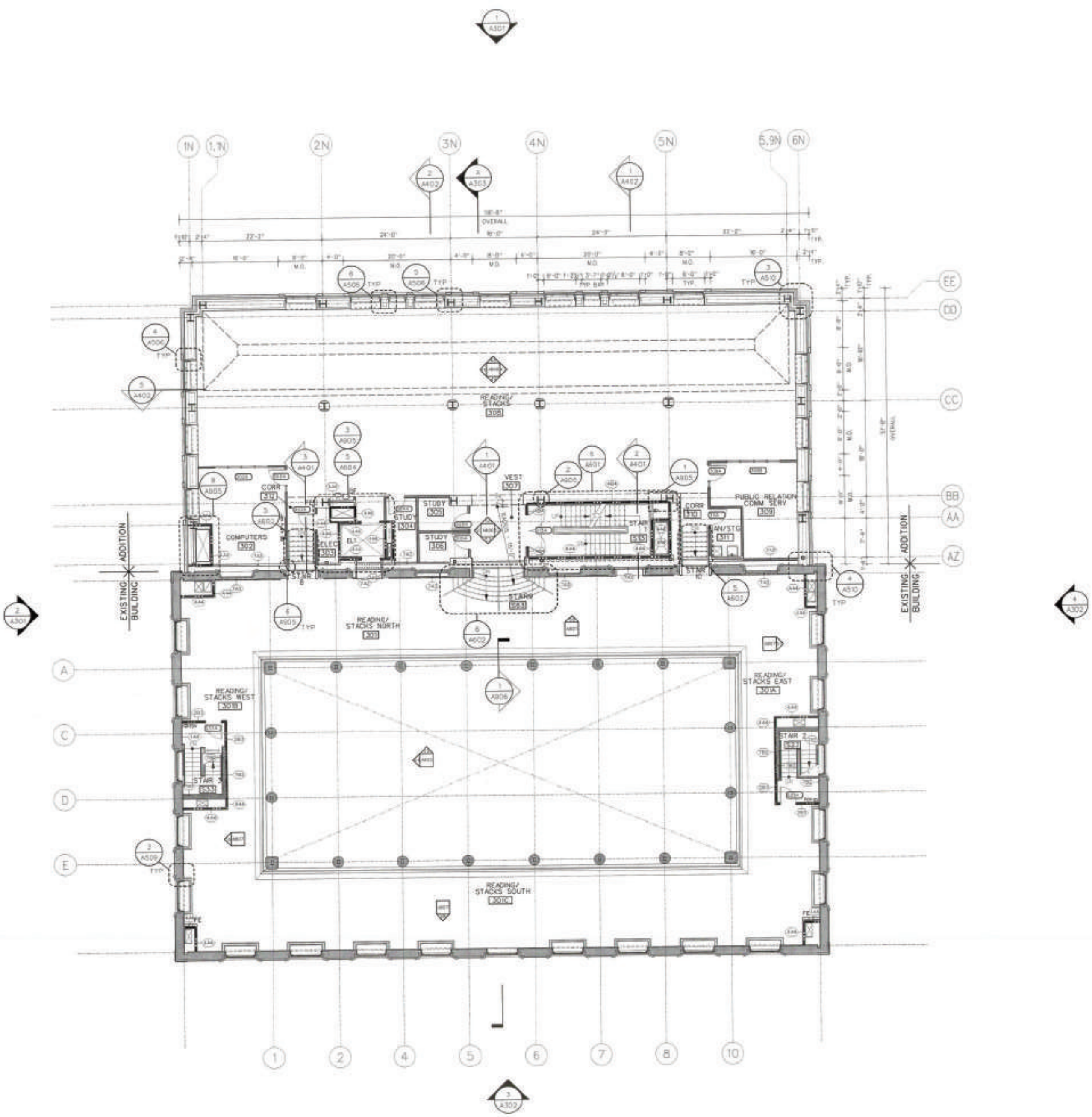
SECOND FLOOR PLAN

CONSTRUCTION DOCUMENTS

JOB NO.: 2231

DATE: 28 MAY 1999

A104



NOTES:

1. GENERAL CONTRACTOR SHALL VERIFY ALL EXISTING FLOOR SLAB ELEVATIONS, DIMENSIONS, SPOT GRADES AND ROOF ELEVATIONS BEFORE COMMENCEMENT OF CONSTRUCTION AND REPORT ANY CONFLICTS OR DISCREPANCIES TO THE ARCHITECT FOR CLARIFICATION.
2. CONTRACTOR SHALL USE NOTED DIMENSIONS. DO NOT SCALE DRAWINGS.
3. COORDINATE WALL DIMENSIONS WITH CASEWORK AND MILLWORK.
4. ALL DOOR SHALL BE LOCATED 6" (INCLUDES 2" OF DOOR FRAME) FROM INSIDE CORNER UNLESS NOTED OTHERWISE.
5. SEE MECHANICAL DRAWINGS FOR LOCATIONS OF MECHANICAL EQUIPMENT PADS. CONTRACTOR SHALL PROVIDE EQUIPMENT PADS TO SUPPORT HVAC, PLUMBING, FIRE PROTECTION AND ELECTRICAL EQUIPMENT; SIZED ACCORDINGLY TO MANUFACTURER'S REQUIREMENTS.
6. ALL TELEPHONE CLOSETS AND COMMUNICATIONS HEAD END ROOM (G16) SHALL RECEIVE FIRE TREATED PLYWOOD BLOCKING ON ALL WALLS FOR INSTALLATION OF COMMUNICATION RACKS AND EQUIPMENT.

STANDARD NOTES:

REFER TO DRAWING A001 FOR ABBREVIATIONS, SYMBOLS AND GENERAL NOTES.

CONSTRUCTION IS NEW UNLESS INDICATED AS "EXISTING" OR "RELOCATED".

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DIMENSIONS FOR MASONRY ARE NOMINAL UNLESS OTHERWISE INDICATED. DIMENSIONS FOR STONEWORK ARE TO THE FACE OF STONE.

OVERALL JOINT WORK IS TO CENTERLINE OF JOINT UNLESS NOTED OTHERWISE.

REVISIONS:

SHEPLEY BULFINCH RICHARDSON AND ABBOTT

CITY OF SOMERVILLE

ADDITIONS & ALTERATIONS TO THE SOMERVILLE PUBLIC LIBRARY

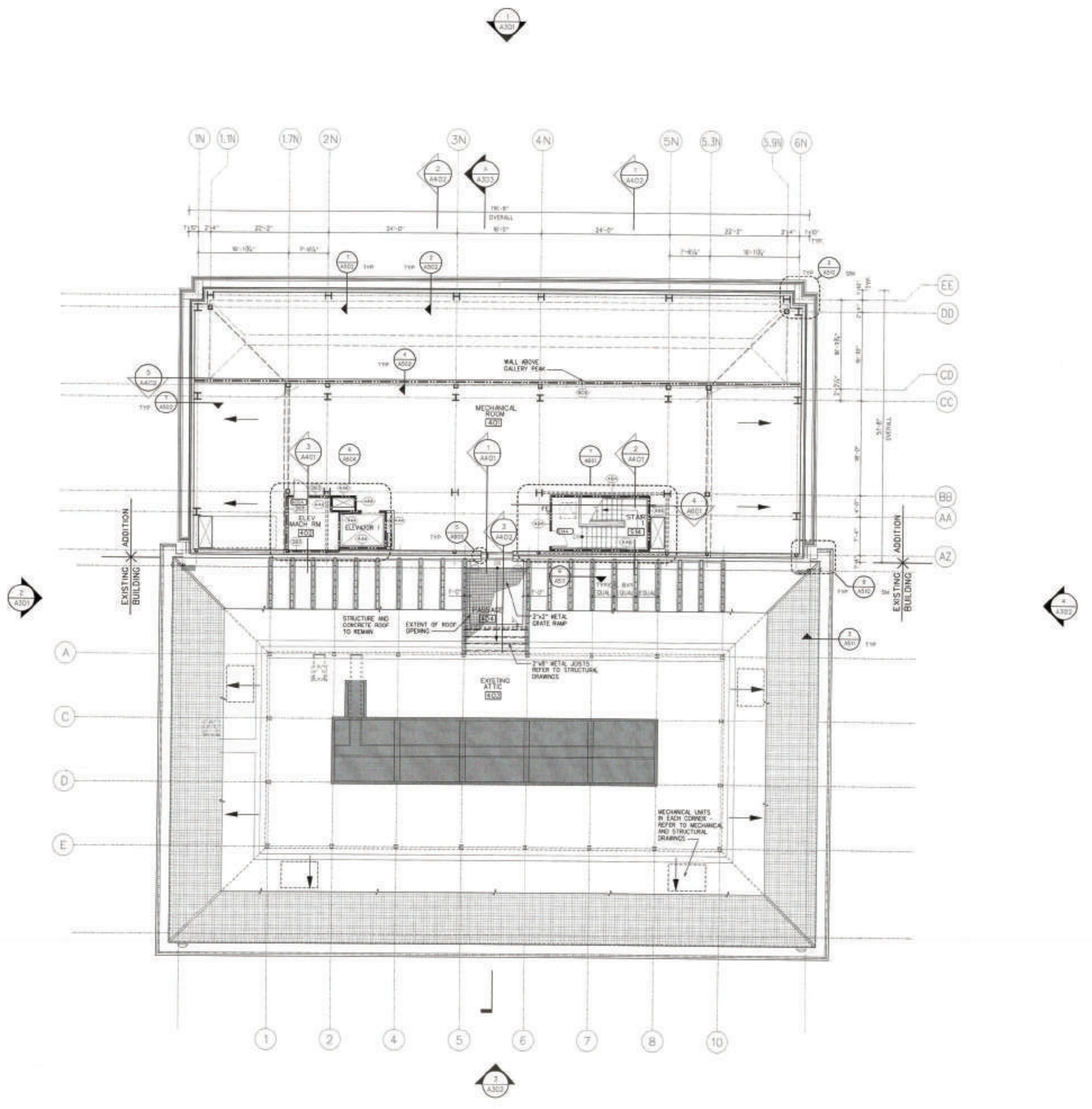
GALLERY FLOOR PLAN

2235

28 MAY 1999

CONSTRUCTION DOCUMENTS

A105



NOTES:

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2. CONTRACTOR SHALL USE NOTED DIMENSIONS. DO NOT SCALE DRAWINGS.
3. COORDINATE WALL DIMENSIONS WITH CASEWORK AND MILLWORK.
4. ALL DOOR SHALL BE LOCATED 8" (INCLUDES 2" OF DOOR FRAME) FROM INSIDE CORNER UNLESS NOTED OTHERWISE.
5. SEE MECHANICAL DRAWINGS FOR LOCATIONS OF MECHANICAL EQUIPMENT PADS. CONTRACTOR SHALL PROVIDE EQUIPMENT PADS TO SUPPORT HVAC, PLUMBING, FIRE PROTECTION AND ELECTRICAL EQUIPMENT, SIZED ACCORDINGLY TO MANUFACTURER'S REQUIREMENTS.
6. ALL TELEPHONE CLOSETS AND COMMUNICATIONS HEAD END ROOM (O4) SHALL RECEIVE FIRE TREATED PLYWOOD BLOCKING ON ALL WALLS FOR INSTALLATION OF COMMUNICATION RACKS AND EQUIPMENT.

STANDARD NOTES:

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OVERALL JOINT WORK IS TO CENTERLINE OF JOINT UNLESS NOTED OTHERWISE.

REVISIONS:

SHEPLEY BULFINCH RICHARDSON AND ABBOTT

INCORPORATED — ARCHITECTS

CITY OF SOMERVILLE

ADDITIONS & ALTERATIONS TO THE SOMERVILLE PUBLIC LIBRARY

MECHANICAL FLOOR PLAN

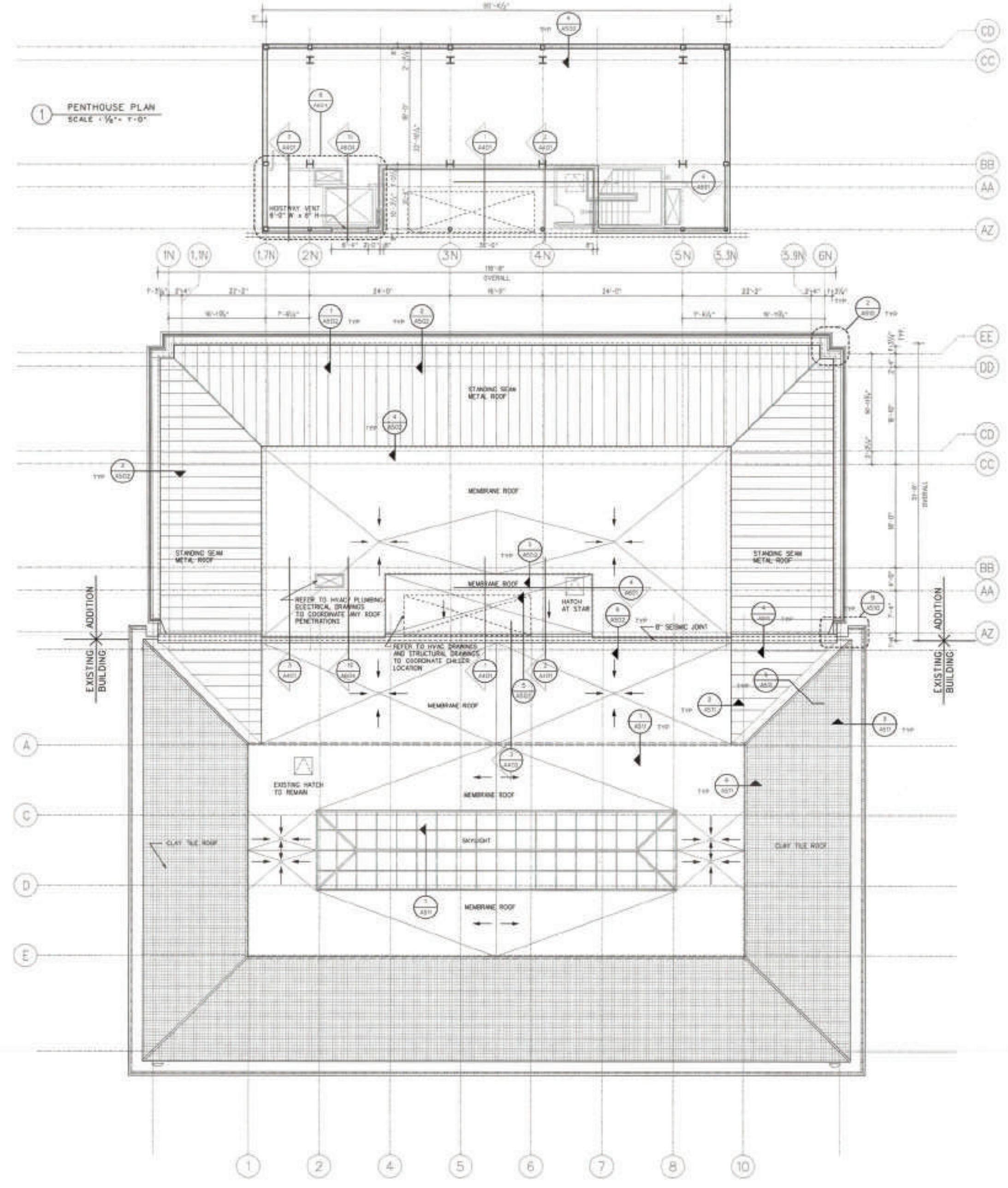
3835

28 MAY 1999

1/8" = 1'-0"

CONSTRUCTION DOCUMENTS

A106



NOTES:

1. GENERAL CONTRACTOR SHALL VERIFY ALL EXISTING FLOOR SLAB ELEVATIONS, DIMENSIONS, SPOT GRADES AND ROOF ELEVATIONS BEFORE COMMENCEMENT OF CONSTRUCTION AND REPORT ANY CONFLICTS OR DISCREPANCIES TO THE ARCHITECT FOR CLARIFICATION.
2. CONTRACTOR SHALL USE NOTED DIMENSIONS. DO NOT SCALE DRAWINGS.
3. COORDINATE WALL DIMENSIONS WITH CASEWORK AND MILLWORK.
4. ALL DOOR SHALL BE LOCATED 6" (INCLUDES 2" OF DOOR FRAME) FROM INSIDE CORNER UNLESS NOTED OTHERWISE.
5. SEE MECHANICAL DRAWINGS FOR LOCATIONS OF MECHANICAL EQUIPMENT PADS. CONTRACTOR SHALL PROVIDE EQUIPMENT PADS TO SUPPORT HVAC, PLUMBING, FIRE PROTECTION AND ELECTRICAL EQUIPMENT; SIZED ACCORDINGLY TO MANUFACTURER'S REQUIREMENTS.
6. ALL TELEPHONE CLOSETS AND COMMUNICATIONS HEAD END ROOM (G18) SHALL RECEIVE FIRE TREATED PLYWOOD BLOCKING ON ALL WALLS FOR INSTALLATION OF COMMUNICATION RACKS AND EQUIPMENT.

STANDARD NOTES:

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OVERALL JOINT WORK IS TO CENTERLINE OF JOINT UNLESS NOTED OTHERWISE.

REVISIONS:

SHEPLEY BULFINCH RICHARDSON AND ABBOTT

CITY OF SOMERVILLE

OWNER

ADDITIONS & ALTERATIONS TO THE SOMERVILLE PUBLIC LIBRARY

PROJECT

ROOF PLAN AND MECHANICAL PENTHOUSE PLAN

DRAWING TITLE

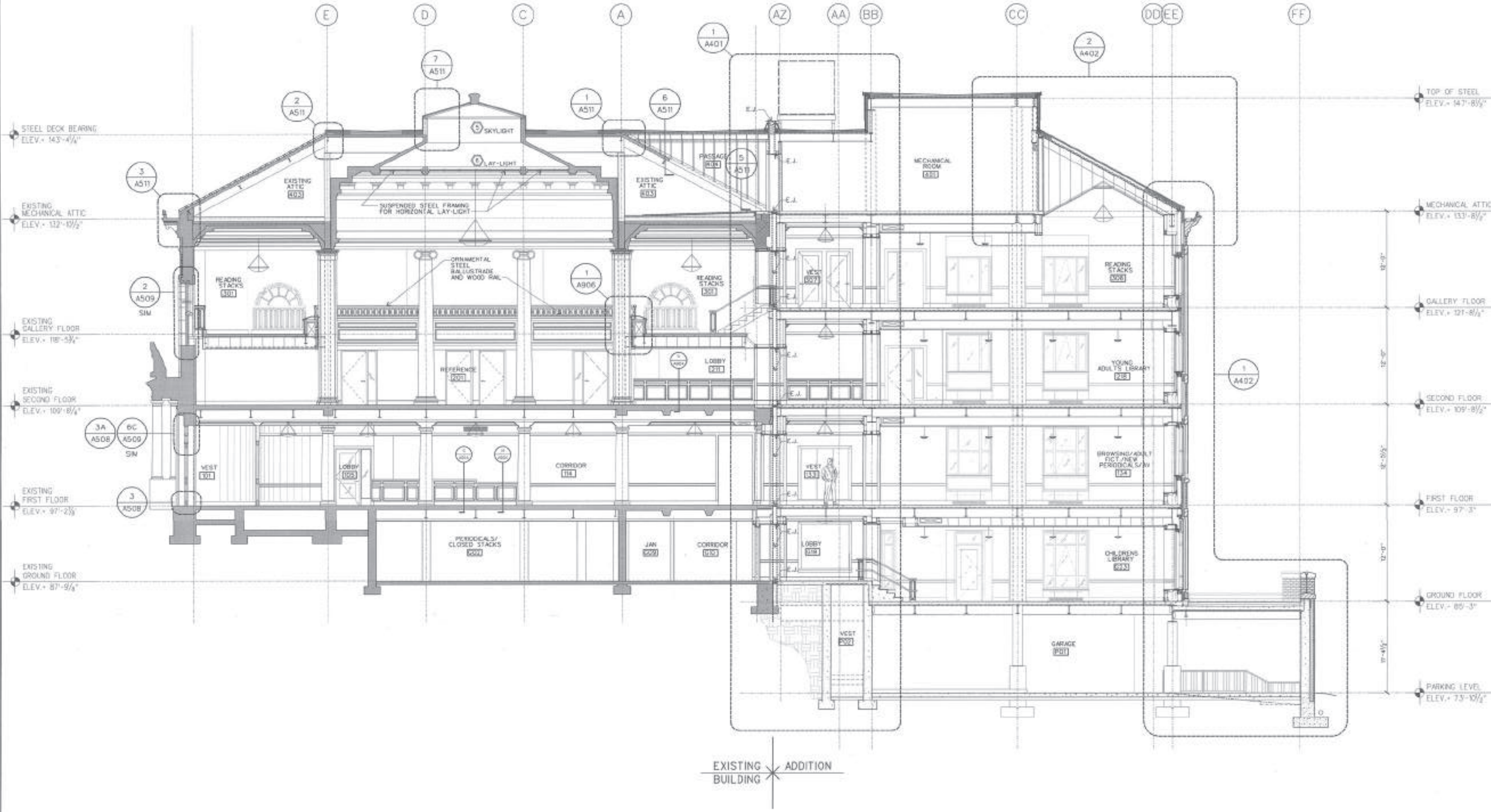
3235

28 MAY 1999

DATE

CONSTRUCTION DOCUMENTS

A107



GENERAL NOTES:

STANDARD NOTES:

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REVISIONS:

SHEPLEY BULFINCH RICHARDSON AND ABBOTT

CITY OF SOMERVILLE

OWNER

ADDITIONS & ALTERATIONS TO THE SOMERVILLE PUBLIC LIBRARY

PROJECT

BUILDING SECTION A

DRAWING TITLE

3135

JOB NO.

28 MAY 1999

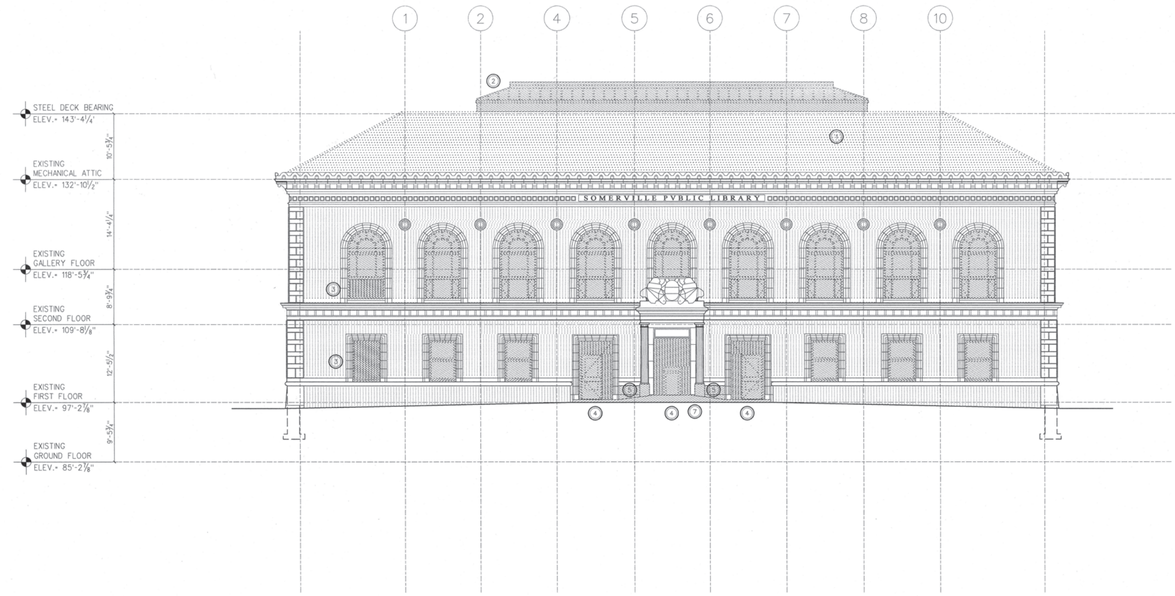
DATE

CONSTRUCTION DOCUMENTS

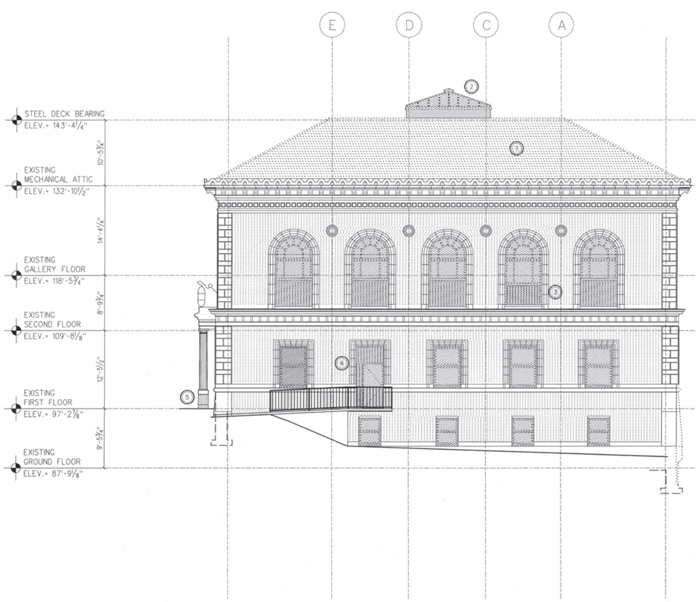
A303

3/16" = 1'-0"

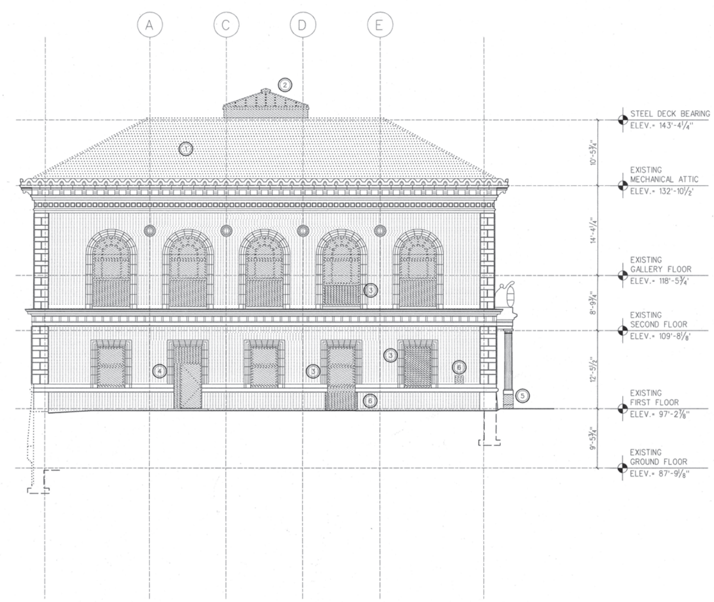
SCALE



SOUTH ELEVATION



EAST ELEVATION



WEST ELEVATION

NOTES:

SELECTIVE DEMOLITION LEGEND	
(hatch)	ITEMS AND AREAS TO BE REMOVED
1	ALL EXISTING CLAY TILES TO BE REMOVED SALVAGE FOR RE-USE.
2	REMOVE ENTIRE SKYLIGHT ASSEMBLY INCLUDING FRAME, GLAZING AND FLASHING
3	REMOVE ENTIRE WINDOW OR LOUVER FRAME & GLAZING (WOOD TRIM TO REMAIN) - CLEAN AND PREPARE AREA FOR CONSTRUCTION
4	REMOVE ENTIRE DOOR AND DOOR FRAME; REMOVE ALL REPLACEMENT BRICK UP TO THE EXISTING LIMESTONE & BRICK SURROUND
5	REMOVE REPLACEMENT BRICK AROUND BASE OF EXTERIOR ENTRY COLUMNS
6	REMOVE PORTION OF EXISTING MASONRY WALL. COORDINATE SIZE OF OPENING WITH CONSTRUCTION
7	REMOVE SLOPED GRADE AT CENTER DOORS TO HEIGHT OF FINISHED FIRST FLOOR SEE LANDSCAPE DRAWINGS

STANDARD NOTES:

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REVISIONS:

SHEPLEY BULFINCH RICHARDSON AND ABBOTT
INCORPORATED ARCHITECTS
40 BROAD STREET BOSTON MASSACHUSETTS 02109 617-423-1700

CITY OF SOMERVILLE
OWNER

ADDITIONS & ALTERATIONS TO THE SOMERVILLE PUBLIC LIBRARY
PROJECT

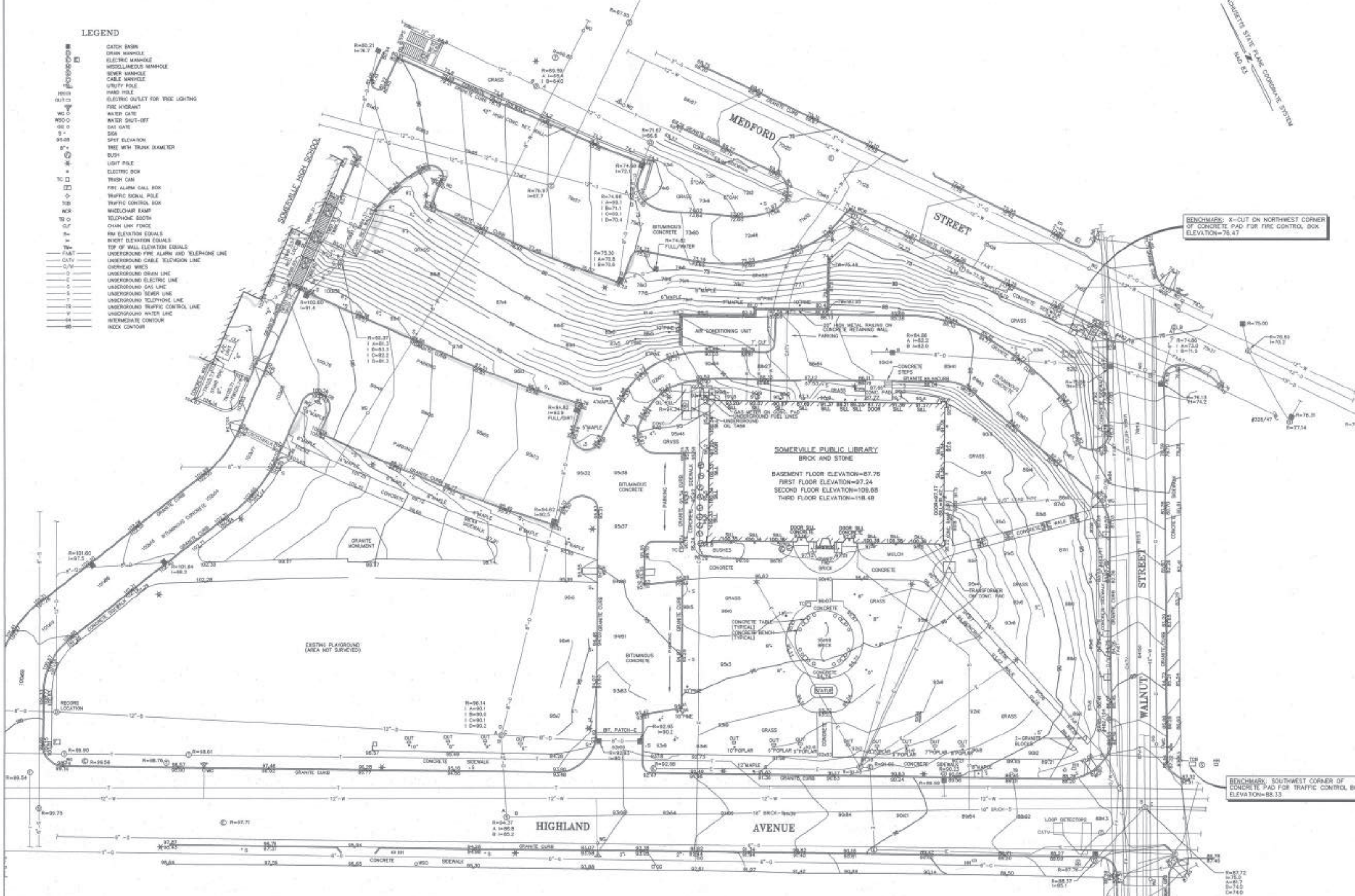
DEMOLITION ELEVATIONS
SOUTH, EAST AND WEST
DRAWING TITLE

JOB NO: 3235
DATE: 28 MAY 1999
DWN: CKD:
SCALE: 1/8" = 1'-0"

CONSTRUCTION DOCUMENTS

AD104
DRAWING NUMBER

GENERAL NOTES:



NOTES

1. THIS PLAN IS BASED ON AN ACTUAL "ON THE GROUND SURVEY" PERFORMED BETWEEN JANUARY 4, AND JANUARY 6, 1999.
2. ALL UNDERGROUND UTILITIES AS SHOWN WERE COMPILED UTILIZING FIELD SURVEY INFORMATION AND AVAILABLE RECORD INFORMATION.
3. RECORD UTILITY INFORMATION FROM THE VARIOUS UTILITY COMPANIES AND PUBLIC AGENCIES, ARE APPROXIMATE ONLY AND ACTUAL LOCATIONS MUST BE DETERMINED IN THE FIELD.
4. ALL UTILITY COMPANIES, PUBLIC AND PRIVATE MUST BE NOTIFIED, INCLUDING THOSE IN CONTROL OF UTILITIES NOT SHOWN ON THIS PLAN, (SEE CHAPTER 370, ACTS OF 1963, MASSACHUSETTS) PRIOR TO DESIGNING, EXCAVATING, BLASTING, INSTALLING, BACKFILLING, GRADING, PAVEMENT RESTORING OR REPAVING.
5. JUDITH NITSCH ENGINEERING, INC. ASSUMES NO RESPONSIBILITY FOR DAMAGES INCURRED AS A RESULT OF UTILITIES OMITTED OR INACCURATELY SHOWN.
6. ELEVATIONS REFER TO CITY OF SOMERVILLE DATUM.
7. THIS DOCUMENT IS AN INSTRUMENT OF SERVICE OF JUDITH NITSCH ENGINEERING, INC. ("JNEI"). IT IS ISSUED TO CAROL R. JOHNSON ASSOCIATES, INC. FOR PURPOSES RELATED DIRECTLY AND SOLELY TO JNEI'S SCOPE OF SERVICES UNDER CONTRACT WITH CAROL R. JOHNSON ASSOCIATES, INC. FOR SOMERVILLE PUBLIC LIBRARY. ANY USE OR REUSE OF THIS DOCUMENT FOR ANY REASON BY ANY PARTY FOR PURPOSES UNRELATED DIRECTLY AND SOLELY TO SAID CONTRACT AND SAID PROJECT PROJECT SHALL BE AT THE USER'S SOLE AND EXCLUSIVE RISK AND LIABILITY, INCLUDING LIABILITY FOR VIOLATION OF COPYRIGHT LAWS, UNLESS WRITTEN AUTHORIZATION IS GIVEN THEREFOR BY JNEI.

GRAPHIC SCALE

20 10 0 20 40 80

SCALE: 1"=20'

REVISIONS:

JUDITH NITSCH ENGINEERING, INC.
CIVIL ENGINEERS + LAND SURVEYORS + PLANNERS
ONE APPLETON STREET BOSTON, MA 02116
TEL: (617) 338-0063 + FAX (617) 338-6475

SHEPLEY BULFINCH RICHARDSON AND ABBOTT
INCORPORATED ARCHITECTS
40 BROAD STREET BOSTON MASSACHUSETTS 02109 617-423-1700

CITY OF SOMERVILLE
OWNER

ADDITIONS & ALTERATIONS TO THE SOMERVILLE PUBLIC LIBRARY
PROJECT

EXISTING CONDITIONS PLAN
DRAWING TITLE

JOB NO.: 2339	WORKING DRAWINGS
DATE: 28 MAY 1999	X1
DWN: WAD / CHK:	
SCALE: 1" = 20'	
FILE #: 2339X1	DRAWING NUMBER

2339X1.DWG 5-27-99 4:07:04 pm EST

NORTH ELEVATION

NOTES:

SELECTIVE DEMOLITION LEGEND

	ITEMS AND AREAS TO BE REMOVED
1	ALL EXISTING CLAY TILES TO BE REMOVED SALVAGE FOR RE-USE.
2	REMOVE ENTIRE SKYLIGHT ASSEMBLY INCLUDING FRAME, GLAZING AND FLASHING
3	REMOVE ENTIRE WINDOW OR LOUVER FRAME, GLAZING AND TRIM - PREPARE AREA FOR NEW CONSTRUCTION
4	REMOVE ENTIRE DOOR AND DOOR FRAME; REMOVE ALL REPLACEMENT BRICK UP TO THE EXISTING LIMESTONE SURROUND
5	REMOVE REPLACEMENT BRICK AROUND BASE OF ENTRY COLUMNS
6	REMOVE PORTION OF EXISTING MASONRY WALL. COORDINATE SIZE OF OPENING WITH NEW CONSTRUCTION
7	REMOVE SLOPED GRADE AT CENTER DOORS TO HEIGHT OF FINISHED FLOOR SEE LANDSCAPE DRAWINGS

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SHEPLEY BULFINCH RICHARDSON AND ABBOTT
INCORPORATED ARCHITECTS
40 BROAD STREET BOSTON MASSACHUSETTS 02109 617-423-1700

CITY OF SOMERVILLE
OWNER

ADDITIONS & ALTERATIONS TO THE SOMERVILLE PUBLIC LIBRARY
PROJECT

DEMOLITION ELEVATION
NORTH (@ CONNECTION)
DRAWING TITLE

JOB NO: 3235
DATE: 28 MAY 1999
DWN: CKD:
SCALE: 1/4" = 1'-0"

CONSTRUCTION DOCUMENTS

AD105
DRAWING NUMBER

Appendix R:

Cost Estimate

Feasibility Estimate

Central Hill Campus Plan
Site Work

Somerville, MA

PM&C LLC
20 Downer Ave, Suite 1C
Hingham, MA 02043
(T) 781-740-8007
(F) 781-740-1012

Prepared for:

SMMA

December 31, 2018

PM&C

Central Hill Campus Plan
Site Work
Somerville, MA
Feasibility Estimate

31-Dec-18

MAIN CONSTRUCTION COST SUMMARY

	Construction Start	Estimated Construction Cost
SITE WORK		
HS P2	Apr-20	
SITEWORK		$673,820
ESCALATION TO START OF PHASE 2	6.67%	$44,921
SUBTOTAL HS PHASE 2		$718,741
CHCP PHASE 1	Apr-20	
SITEWORK		$2,212,837
ESCALATION TO START OF CHCP P1 - 2020	6.67%	$147,522
SUBTOTAL CHCP PHASE 1		$2,360,359
CHCP PHASE 2	Apr-21	
SITEWORK		$3,518,399
ESCALATION TO START OF CHCP P2 - 2021	11.67%	$410,480
SUBTOTAL CHCP PHASE 2		$3,928,879
CHCP PHASE 3	21.67%	
SITEWORK		$2,126,661
ESCALATION TO START OF CHCP P3 - 2023	8.63%	$183,425
SUBTOTAL CHCP PHASE 3		$2,310,086
CHCP PHASE 4	Apr-24	
SITEWORK		$1,120,254
ESCALATION TO START OF CHCP P4 - 2024	26.67%	$298,734
SUBTOTAL CHCP PHASE 4		$1,418,988
STREET WORK, TOOLE DEIGN		
SITEWORK		$310,318
ESCALATION	6.67%	$20,688
SUBTOTAL STREET WORK		$331,006
SUB-TOTAL		$11,068,058
DESIGN AND PRICING CONTINGENCY	15.00%	$1,660,209
SUB-TOTAL		$12,728,267
GENERAL CONDITIONS	10.00%	$1,272,827
GENERAL REQUIREMENTS	4.00%	$509,131
BONDS	1.15%	$146,375
INSURANCE	1.25%	$159,103
PERMIT		Waived
CM FEE	4.00%	$592,628
CM/GMP CONTINGENCY	3%	$381,848
TOTAL OF ALL CONSTRUCTION		**$15,790,179**

Central Hill Campus Plan
Site Work 31-Dec-18
Somerville, MA

Feasibility Estimate

ALTERNATES

FUTURE PV	**$175,725**
GEOTHERMAL WELLS	**$2,805,000**

This Feasibility cost estimate was produced from drawings, outline specifications and other documentation prepared by SMMA Architects Inc. and their design team received November 19, 2018. Design and engineering changes occurring subsequent to the issue of these documents have not been incorporated in this estimate.

This estimate includes all direct construction costs, construction manager's overhead, fee and design contingency. Cost escalation assumes start dates indicated.

Bidding conditions are expected to be public bidding under Chapter 149a of the Massachusetts General Laws to pre-qualified construction managers, and pre-qualified sub-contractors, open specifications for materials and manufactures.

The estimate is based on prevailing wage rates for construction in this market and represents a reasonable opinion of cost. It is not a prediction of the successful bid from a contractor as bids will vary due to fluctuating market conditions, errors and omissions, proprietary specifications, lack or surplus of bidders, perception of risk, etc. Consequently the estimate is expected to fall within the range of bids from a number of competitive contractors or subcontractors, however we do not warrant that bids or negotiated prices will not vary from the final construction cost estimate.

ITEMS NOT CONSIDERED IN THIS ESTIMATE

Items not included in this estimate are:

- Land acquisition, feasibility, and financing costs
- All professional fees and insurance
- Site or existing conditions surveys investigations costs, including to determine subsoil conditions
- All Furnishings, Fixtures and Equipment
- Items identified in the design as Not In Contract (NIC)
- Items identified in the design as by others
- Owner supplied and/or installed items as indicated in the estimate
- Utility company back charges, including work required off-site
- Work to City streets and sidewalks, (except as noted in this estimate)
- Construction contingency (GMP Contingency is included)
- Rock removal
- Contaminated soils removal, other than defined

Central Hill Campus Plan
Site Work
Somerville, MA

31-Dec-18

Feasibility Estimate

CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
HIGH SCHOOL PHASE 2							
G	***SITEWORK***						
G10	**SITE PREPARATION & DEMOLITION**						
	SELECTIVE SITE DEMOLITION						
	Site construction fence/barricades	**750**	lf	12.00	9,000		
	Construction gates	**1**	loc	3,000.00	3,000		
	Clearing existing site	**28,600**	sf	1.00	28,600		
	Disassemble and store Korean War Memorial	**1**	ls	10,000.00	10,000		
	Disassemble and store Vietnam War Memorial	**1**	ls	10,000.00	10,000		
	Miscellaneous demolition	**1**	ls	20,000.00	20,000		
	EARTH MOVING						
	Cut	**2,100**	cy	8.00	16,800		
	Premium for soil disposal off site	**2,100**	cy	45.00	94,500		
	Import fill	**1,050**	cy	14.00	14,700		
	Fine grading	**3,178**	sy	1.00	3,178		
	Erosion control	**750**	lf	14.00	10,500		
	Construction entrance	**1**	ls	10,000.00	10,000		
	Tree protection	**7**	ea	200.00	1,400		
	Silt fence maintenance, dust control and monitoring	**1**	ls	5,000.00	5,000		
	Rock removal allowance				NIC		
	SUBTOTAL					236,678	
G20	**SITE IMPROVEMENTS**						
	PAVING						
	<u>Concrete Sidewalk</u>						
	gravel base; 12" thick	**98**	cy	40.00	3,926		
	concrete; 5" thick	**2,650**	sf	9.00	23,850		
	premium for brick banding, 20%	**530**	sf	20.00	10,600		
	<u>Concrete Walkway</u>						
	gravel base; 12" thick	**189**	cy	40.00	7,556		
	concrete; 5" thick	**5,100**	sf	9.00	45,900		
	<u>Brick band, 2'</u>						
	gravel base; 12" thick	**17**	cy	40.00	667		
	brick band, 2'	**450**	sf	29.00	13,050		
	<u>Permeable Pavers</u>						
	open graded stone sub-base, 32"	**214**	cy	45.00	9,612		
	open graded stone base, 6"	**40**	cy	45.00	1,800		
	open graded bedding course, 2"	**14**	cy	50.00	680		
	3" thick permeable pavers	**2,160**	sf	20.00	43,200		
	CURBING						
	Vertical granite curbs	**620**	lf	42.00	26,040		
	Flush granite curbs w/ tactile warning	**65**	lf	45.00	2,925		
	KOREAN WAR MEMORIAL						
	Flag poles w/ foundations	**2**	ea	7,500.00	15,000		
	Memorial wall foundations	**75**	lf	750.00	56,250		
	Permeable pavement - included above	**850**	sf		-		
	Accent lights	**4**	ea	900.00	3,600		
	VIETNAM WAR MEMORIAL						
	Monument foundation	**1**	ea	15,000.00	15,000		
	Memorial bench footing	**5**	ea	2,000.00	10,000		
	Bronze restoration	**1**	ls	5,000.00	5,000		
	Permeable pavement - included above	**1,125**	sf		-		
	Accent lights	**2**	ea	900.00	1,800		
	SIGNAGE						
	Sign type 5	**4**	ea	3,000.00	12,000		

Feasibility Estimate

CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
HIGH SCHOOL PHASE 2							
	TURF AND GRASSES						
	Import topsoil; 8"	**461**	cy	50.00	23,047		
	Bioretention soil; 32"	**10**	cy	90.00	890		
	Sod	**14,900**	sf	1.50	22,350		
	Shrubs/groundcover	**3,675**	sf	2.00	7,350		
	PLANTS						
	Tree, medium	**10**	ea	1,500.00	15,000		
	Tree, small	**5**	ea	1,100.00	5,500		
	Tree well at existing tree	**1**	ea	1,400.00	1,400		
	SUBTOTAL					383,992	
G30	**CIVIL MECHANICAL UTILITIES**						
	Irrigation	**18,575**	sf	2.00	37,150		
	SUBTOTAL					37,150	
G40	**ELECTRICAL UTILITIES**						
	Vehicular lights; 24 ft high with bases and conduit	**2**	ea	8,000.00	16,000		
	SUBTOTAL					16,000	
	TOTAL - SITE DEVELOPMENT						***$673,820***

Central Hill Campus Plan
Site Work
Somerville, MA

31-Dec-18

Feasibility Estimate

CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
CHCP PHASE 1							
G	***SITEWORK***						
G10	**SITE PREPARATION & DEMOLITION**						
	SELECTIVE SITE DEMOLITION						
	Site construction fence/barricades	**1,525**	lf	12.00	18,300		
	Construction gates	**2**	loc	3,000.00	6,000		
	Clearing existing site	**54,750**	sf	1.00	54,750		
	Disassemble and store bronze section of Honor Roll Memorial demolish remainder	**1**	ls	10,000.00	10,000		
	Miscellaneous demolition	**1**	ls	10,000.00	10,000		
	EARTH MOVING						
	Cut	**4,100**	cy	8.00	32,800		
	Premium for soil disposal off site	**4,100**	cy	45.00	184,500		
	Import fill	**2,100**	cy	14.00	29,400		
	Fine grading	**6,083**	sy	1.00	6,083		
	Erosion control	**1,525**	lf	14.00	21,350		
	Construction entrance	**2**	ls	10,000.00	20,000		
	Tree protection	**18**	ea	200.00	3,600		
	Silt fence maintenance, dust control and monitoring	**1**	ls	5,000.00	5,000		
	Rock removal allowance				NIC		
	SUBTOTAL					401,783	
G20	**SITE IMPROVEMENTS**						
	PAVING						
	<u>Concrete Sidewalk</u>						
	gravel base; 12" thick	**236**	cy	40.00	9,430		
	concrete; 5" thick	**6,365**	sf	9.00	57,285		
	premium for brick banding, 20%	**1,273**	sf	20.00	25,460		
	<u>Concrete Walkway</u>						
	gravel base; 12" thick	**337**	cy	40.00	13,481		
	concrete; 5" thick	**9,100**	sf	9.00	81,900		
	<u>Brick band, 2'</u>						
	gravel base; 12" thick	**14**	cy	40.00	563		
	brick band, 2'	**380**	sf	29.00	11,020		
	<u>Permeable Pavers</u>						
	open graded stone sub-base, 32"	**410**	cy	45.00	18,468		
	open graded stone base, 6"	**77**	cy	45.00	3,458		
	open graded bedding course, 2"	**26**	cy	50.00	1,306		
	3" thick permeable pavers	**4,150**	sf	20.00	83,000		
	<u>Stairs and Ramps</u>						
	Concrete to stair treads	**115**	lfr	190.00	21,850		
	Cheek walls	**26**	lf	600.00	15,600		
	Ramps - gravel base; 12" thick	**31**	cy	40.00	1,259		
	Ramps - concrete paving; 6" thick	**850**	sf	20.00	17,000		
	<u>Play Surface</u>						
	Resilient play surface	**5,730**	sf	18.00	103,140		
	CURBING						
	Vertical granite curbs	**830**	lf	42.00	34,860		
	Flush granite curbs	**65**	lf	45.00	2,925		
	Curb edge	**550**	lf	38.00	20,900		
	HONOR ROLL						
	<u>Strip footings to retaining wall</u>						
	Excavation	**133**	cy	15.00	2,000		
	Backfill with selected material	**133**	cy	12.00	1,600		
	Formwork	**150**	sf	14.00	2,100		
	Re-bar	**600**	lbs	1.32	792		
	Concrete material; 3,000 psi	**23**	cy	132.00	3,080		

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CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
CHCP PHASE 1							
	Placing concrete	**23**	cy	55.00	1,283		
	Walls						
	Formwork	**1,200**	sf	19.00	22,800		
	Re-bar	**15,000**	lbs.	1.32	19,800		
	Concrete material; 4,000 psi	**35**	cy	132.00	4,620		
	Placing concrete	**35**	cy	55.00	1,925		
	New granite and LED name boards	**1**	ls	50,000.00	50,000		
	Bronze restoration	**1**	ls	15,000.00	15,000		
	Cap at retaining wall	**60**	lf	190.00	11,400		
	2' x 2' granite seatwall	**40**	lf	550.00	22,000		
	Flagpole	**1**	ls	6,500.00	6,500		
	Permeable pavement - included above	**1,700**	sf		-		
	Accent lights	**7**	ea	900.00	6,300		
	RAILINGS/FENCES						
	Decorative railing, 42"	**630**	lf	350.00	220,500		
	Handrail at stair	**24**	lf	100.00	2,400		
	Freestanding handrail at ramp	**210**	lf	190.00	39,900		
	PLAY STRUCTURES						
	Play elements	**1**	al	100,000.00	100,000		
	SITE STONEWORK						
	2' x 2' granite seatwall	**140**	lf	550.00	77,000		
	SITE IMPROVEMENTS						
	Strip footings to retaining wall						
	Excavation	**119**	cy	15.00	1,778		
	Backfill with selected material	**119**	cy	12.00	1,422		
	Formwork	**200**	sf	14.00	2,800		
	Re-bar	**800**	lbs	1.32	1,056		
	Concrete material; 3,000 psi	**16**	cy	132.00	2,053		
	Placing concrete	**16**	cy	55.00	856		
	Walls						
	Formwork	**1,280**	sf	19.00	24,320		
	Re-bar	**16,000**	lbs.	1.32	21,120		
	Concrete material; 4,000 psi	**37**	cy	132.00	4,928		
	Placing concrete	**37**	cy	55.00	2,053		
	Form liner	**320**	sf	12.00	3,840		
	Blue bike with docking station and concrete pad	**1**	ls	15,000.00	15,000		
	Embedded bike racks	**4**	ea	800.00	3,200		
	Embedded bench	**4**	ea	3,000.00	12,000		
	Free standing café table w/ 4 chairs	**5**	ea	4,000.00	20,000		
	Free standing lounge seats	**6**	ea	1,500.00	9,000		
	SIGNAGE						
	Traffic signs	**10**	ea	300.00	3,000		
	Sign type 1	**10**	ea	1,500.00	15,000		
	Sign type 1a	**5**	ea	5,000.00	25,000		
	Sign type 2	**1**	ea		NIC		
	Sign type 3	**2**	ea	9,000.00	18,000		
	Sign type 4	**3**	ea	4,000.00	12,000		
	Sign type 5	**3**	ea	3,000.00	9,000		
	Sign type 6	**1**	ea	30,000.00	30,000		
	PLANTING IRRIGATION						
	Irrigation	**25,160**	sf	2.00	50,320		
	TURF AND GRASSES						
	Import topsoil; 8"	**624**	cy	50.00	31,217		
	Bioretention soil; 32"	**100**	cy	90.00	8,989		
	Sod	**17,650**	sf	1.50	26,475		

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	CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
	CHCP PHASE 1							
126		Shrubs/groundcover	**7,510**	sf	2.00	15,020		
127								
128								
129		*PLANTS*						
130		Tree, medium	**23**	ea	1,500.00	34,500		
131		Tree, small	**12**	ea	1,100.00	13,200		
132		SUBTOTAL					1,551,053	
133								
134	**G30**	**CIVIL MECHANICAL UTILITIES**						
135								
136		*STORM DRAINAGE UTILITIES*						
137		Rainwater harvesting tank; 10,000 gal tank and pump station	**1**	ls	200,000.00	200,000		
138		SUBTOTAL					200,000	
139								
140	**G40**	**ELECTRICAL UTILITIES**						
141		Vehicular lights; 24 ft high with bases and conduit	**5**	ea	8,000.00	40,000		
142		Pedestrian lights; 14 ft high with bases and conduit	**4**	ea	5,000.00	20,000		
143		SUBTOTAL					60,000	
143								
144		**TOTAL - SITE DEVELOPMENT**						***$2,212,837***

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CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
CHCP PHASE 2							
G	*SITEWORK*						
G10	**SITE PREPARATION & DEMOLITION**						
	SELECTIVE SITE DEMOLITION						
	Site construction fence/barricades	**1,545**	lf	12.00	18,540		
	Construction gates	**1**	loc	3,000.00	3,000		
	Clearing existing site	**82,000**	sf	1.00	82,000		
	Disassemble and store Civil War Memorial and Cannons	**1**	ls		NIC		
	Disassemble and store Spanish American Memorial	**1**	ls	20,000.00	20,000		
	Disassemble and store WW1 and Dilboy Memorials	**2**	ls	20,000.00	40,000		
	Disassemble and store Unitarian Memorial	**1**	ls		NIC		
	Miscellaneous demolition	**1**	ls	10,000.00	10,000		
	EARTH MOVING						
	Cut	**7,500**	cy	8.00	60,000		
	Premium for soil disposal off site	**7,500**	cy	45.00	337,500		
	Import fill	**3,000**	cy	14.00	42,000		
	Fine grading	**9,111**	sy	1.00	9,111		
	Erosion control	**1,545**	lf	14.00	21,630		
	Construction entrance	**1**	ls	10,000.00	10,000		
	Tree protection	**9**	ea	200.00	1,800		
	Silt fence maintenance, dust control and monitoring	**1**	ls	5,000.00	5,000		
	Rock removal allowance				NIC		
	SUBTOTAL					660,581	
G20	**SITE IMPROVEMENTS**						
	PAVING						
	Vehicular Pavers						
	gravel base; 18" thick	**90**	cy	40.00	3,600		
	vehicular pavers	**1,620**	sf	25.00	40,500		
	Vehicular Permeable pavers						
	open graded stone sub-base, 32"	**807**	cy	45.00	36,334		
	open graded stone base, 6"	**151**	cy	45.00	6,804		
	open graded bedding course, 2"	**51**	cy	50.00	2,570		
	vehicular permeable pavers	**8,165**	sf	28.00	228,620		
	Concrete Sidewalk						
	gravel base; 12" thick	**147**	cy	40.00	5,881		
	concrete; 5" thick	**3,970**	sf	9.00	35,730		
	premium for brick banding, 20%	**794**	sf	20.00	15,880		
	Concrete Walkway						
	gravel base; 12" thick	**335**	cy	40.00	13,407		
	concrete; 5" thick	**9,050**	sf	9.00	81,450		
	Concrete Walkway at Terrace						
	gravel base; 12" thick	**239**	cy	40.00	9,556		
	concrete; 5" thick	**6,450**	sf	9.00	58,050		
	Pavers						
	gravel base; 12" thick	**620**	cy	40.00	24,815		
	pavers	**16,750**	sf	20.00	335,000		
	Brick band, 2'						
	gravel base; 12" thick	**22**	cy	40.00	874		
	brick band, 2'	**590**	sf	29.00	17,110		
	Permeable Pavers						
	open graded stone sub-base, 32"	**461**	cy	45.00	20,737		
	open graded stone base, 6"	**86**	cy	45.00	3,883		
	open graded bedding course, 2"	**29**	cy	50.00	1,467		
	3" thick permeable pavers	**4,660**	sf	20.00	93,200		
	Stairs and Ramps						
	Concrete to stair treads	**250**	lfr	190.00	47,500		

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	CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
	CHCP PHASE 2							
62		Concrete to stair treads at terrace	**300**	lfr	190.00	57,000		
63		Cheek walls at ramp	**200**	lf	500.00	100,000		
64		Ramps - gravel base; 12" thick	**40**	cy	40.00	1,615		
65		Ramps - concrete paving; 6" thick	**1,090**	sf	20.00	21,800		
66								
67		*CURBING*						
68		Vertical granite curbs	**1,160**	lf	42.00	48,720		
69								
70		*CIVIL WAR MEMORIAL AND CANNON*						
71		Monument foundations	**3**	ea	2,500.00	7,500		
72		Reinstall monument	**3**	ea	8,000.00	24,000		
73		Bronze restoration	**1**	ls	5,000.00	5,000		
74		Stone and iron restoration	**1**	ls	10,000.00	10,000		
75		Monument bench foundation	**40**	lf	300.00	12,000		
76		Reinstall monument bench	**40**	lf	200.00	8,000		
77		Permeable pavement - included above	**665**	sf		-		
78		Accent lights	**4**	ea	900.00	3,600		
79								
80		*SPANISH AMERICAN MEMORIAL*						
81		Monument foundations	**1**	ea	2,500.00	2,500		
82		Reinstall monument	**1**	ea	5,000.00	5,000		
83		Stone restoration	**1**	ls	10,000.00	10,000		
84		Bronze restoration	**1**	ls	500.00	500		
83		2' x 2' granite seatwall	**25**	lf	550.00	13,750		
84		Permeable pavement - included above	**520**	sf		-		
85		Accent lights	**2**	ea	900.00	1,800		
86								
87		*WWI AND DILBOY MEMORIALS*						
88		Monument foundations	**2**	ea	2,500.00	5,000		
89		Reinstall monument	**2**	ea	5,000.00	10,000		
90		Stone restoration	**2**	ls	15,000.00	30,000		
91		Bronze restoration	**1**	ls	5,000.00	5,000		
90		2' x 2' granite seatwall	**30**	lf	550.00	16,500		
91		Permeable pavement - included above	**410**	sf		-		
92		Accent lights	**3**	ea	900.00	2,700		
93								
94		*UNITARIAN MEMORIAL*						
95		Monument foundations	**1**	ea	2,500.00	2,500		
96		Stone restoration	**1**	ls	10,000.00	10,000		
97		Bronze restoration	**1**	ls	5,000.00	5,000		
96		Accent lights	**1**	ea	900.00	900		
97								
98		*RAILINGS/FENCES*						
99		Decorative railing, 42"	**55**	lf	350.00	19,250		
100		Handrail at stair/ramp wall	**415**	lf	100.00	41,500		
101		Freestanding handrail	**145**	lf	190.00	27,550		
102								
103		*SITE STONEWORK*						
104		Granite to stair treads	**125**	lfr	280.00	35,000		
105		Granite cheek wall	**270**	lf	650.00	175,500		
106		Granite retaining wall, 18"	**60**	lf	500.00	30,000		
107		2' x 2' granite seatwall	**155**	lf	550.00	85,250		
108		2' x 2' granite seatwall at terrace	**615**	lf	550.00	338,250		
109								
110		*SITE IMPROVEMENTS*						
111		Strip footings to retaining wall						
112		Excavation	**81**	cy	15.00	1,222		
113		Backfill with selected material	**81**	cy	12.00	978		
114		Formwork	**138**	sf	14.00	1,925		
115		Re-bar	**550**	lbs	1.32	726		
116		Concrete material; 3,000 psi	**11**	cy	132.00	1,412		

Feasibility Estimate

CSI CODE	*DESCRIPTION*	*QTY*	*UNIT*	*UNIT COST*	*EST'D COST*	*SUB TOTAL*	*TOTAL COST*
CHCP PHASE 2							
	Placing concrete	**11**	cy	55.00	588		
	Walls						
	Formwork	**880**	sf	19.00	16,720		
	Re-bar	**11,000**	lbs.	1.32	14,520		
	Concrete material; 4,000 psi	**26**	cy	132.00	3,388		
	Placing concrete	**26**	cy	55.00	1,412		
	Form liner	**220**	sf	12.00	2,640		
	Elevator w/ weatherproof enclosure, 20' rise	**1**	ls	100,000.00	100,000		
	Decorative bollards	**24**	ea	1,600.00	38,400		
	Embedded bench	**1**	ea	3,000.00	3,000		
	Free standing café table w/ 4 chairs	**7**	ea	4,000.00	28,000		
	SIGNAGE						
	Traffic signs	**10**	ea	300.00	3,000		
	Sign type 4	**3**	ea	4,000.00	12,000		
	Sign type 6	**1**	ea	30,000.00	30,000		
	PLANTING IRRIGATION						
	Irrigation	**30,210**	sf	2.00	60,420		
	TURF AND GRASSES						
	Import topsoil; 8"	**750**	cy	50.00	37,483		
	Bioretention soil; 32"	**40**	cy	90.00	3,560		
	Sod	**25,700**	sf	1.50	38,550		
	Shrubs/groundcover	**4,510**	sf	2.00	9,020		
	PLANTS						
	Tree, medium	**32**	ea	1,500.00	48,000		
	Tree, small	**12**	ea	1,100.00	13,200		
	SUBTOTAL					2,725,818	
G30	**CIVIL MECHANICAL UTILITIES**						
	STORM DRAINAGE UTILITIES						
	Underground infiltration system	**500**	lf	150.00	75,000		
	SUBTOTAL					75,000	
G40	**ELECTRICAL UTILITIES**						
	Vehicular lights; 24 ft high with bases and conduit	**4**	ea	8,000.00	32,000		
	Pedestrian lights; 14 ft high with bases and conduit	**5**	ea	5,000.00	25,000		
	SUBTOTAL					57,000	
	TOTAL - SITE DEVELOPMENT						***$3,518,399***

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Feasibility Estimate

CSI CODE	*DESCRIPTION*	*QTY*	*UNIT*	*UNIT COST*	*EST'D COST*	*SUB TOTAL*	*TOTAL COST*
CHCP PHASE 3							
G	***SITEWORK***						
G10	**SITE PREPARATION & DEMOLITION**						
	SELECTIVE SITE DEMOLITION						
	Site construction fence/barricades	**1,075**	lf	12.00	12,900		
	Construction gates	**1**	loc	3,000.00	3,000		
	Clearing existing site	**36,100**	sf	1.00	36,100		
	Miscellaneous demolition	**1**	ls	10,000.00	10,000		
	EARTH MOVING						
	Cut	**2,500**	cy	8.00	20,000		
	Premium for soil disposal off site	**2,500**	cy	45.00	112,500		
	Import fill	**1,300**	cy	14.00	18,200		
	Fine grading	**4,011**	sy	1.00	4,011		
	Erosion control	**1,075**	lf	14.00	15,050		
	Construction entrance	**1**	ls	10,000.00	10,000		
	Tree protection	**8**	ea	200.00	1,600		
	Silt fence maintenance, dust control and monitoring	**1**	ls	5,000.00	5,000		
	Rock removal allowance				NIC		
	SUBTOTAL					248,361	
G20	**SITE IMPROVEMENTS**						
	PAVING						
	Concrete Sidewalk						
	gravel base; 12" thick	**83**	cy	40.00	3,319		
	concrete; 5" thick	**2,240**	sf	9.00	20,160		
	premium for brick banding, 20%	**448**	sf	20.00	8,960		
	Concrete Walkway						
	gravel base; 12" thick	**223**	cy	40.00	8,904		
	concrete; 5" thick	**6,010**	sf	9.00	54,090		
	Pavers						
	gravel base; 12" thick	**331**	cy	40.00	13,259		
	pavers	**8,950**	sf	20.00	179,000		
	Brick band, 2'						
	gravel base; 12" thick	**13**	cy	40.00	533		
	brick band, 2'	**360**	sf	29.00	10,440		
	Permeable Pavers						
	open graded stone sub-base, 32"	**66**	cy	45.00	2,959		
	open graded stone base, 6"	**12**	cy	45.00	554		
	open graded bedding course, 2"	**4**	cy	50.00	209		
	3" thick permeable pavers	**665**	sf	20.00	13,300		
	CURBING						
	Vertical granite curbs	**475**	lf	42.00	19,950		
	RAILINGS/FENCES						
	Decorative railing, 42"	**55**	lf	350.00	19,250		
	Handrail at stair/ramp wall	**415**	lf	100.00	41,500		
	Freestanding handrail	**145**	lf	190.00	27,550		
	SITE STONEWORK						
	Granite to stair treads	**275**	lfr	280.00	77,000		
	Granite cheek wall	**115**	lf	1,400.00	161,000		
	Granite retaining wall to match existing, 2'	**45**	lf	500.00	22,500		
	Granite wall, 6' and balustrade to match existing	**115**	lf	2,100.00	241,500		
	Granite wall, 4' and balustrade to match existing	**110**	lf	1,800.00	198,000		
	Granite pier	**2**	ea	9,000.00	18,000		

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CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
CHCP PHASE 3							
	2' x 2' granite seatwall	**110**	lf	550.00	60,500		
	SITE IMPROVEMENTS						
	<u>Strip footings to retaining wall</u>						
	Excavation	**156**	cy	15.00	2,333		
	Backfill with selected material	**156**	cy	12.00	1,867		
	Formwork	**263**	sf	14.00	3,675		
	Re-bar	**1,050**	lbs	1.32	1,386		
	Concrete material; 3,000 psi	**20**	cy	132.00	2,695		
	Placing concrete	**20**	cy	55.00	1,123		
	<u>Walls</u>						
	Formwork	**1,470**	sf	19.00	27,930		
	Re-bar	**18,375**	lbs.	1.32	24,255		
	Concrete material; 4,000 psi	**43**	cy	132.00	5,660		
	Placing concrete	**43**	cy	55.00	2,358		
	Form liner	**315**	sf	12.00	3,780		
	Blue bike with docking station and concrete pad	**1**	ls	15,000.00	15,000		
	Embedded bike racks	**5**	ea	800.00	4,000		
	Embedded bench	**1**	ea	3,000.00	3,000		
	Flagpole	**3**	ea	6,500.00	19,500		
	SIGNAGE						
	Traffic signs	**5**	ea	300.00	1,500		
	Sign type 1	**1**	ea	1,500.00	1,500		
	Sign type 2	**1**	ea		NIC		
	Sign type 3	**1**	ea	9,000.00	9,000		
	Sign type 4	**1**	ea	4,000.00	4,000		
	Sign type 6	**2**	ea	30,000.00	60,000		
	PLANTING IRRIGATION						
	Irrigation	**16,030**	sf	2.00	32,060		
	TURF AND GRASSES						
	Import topsoil; 8"	**398**	cy	50.00	19,889		
	Bioretention soil; 32"	**28**	cy	90.00	2,492		
	Sod	**15,400**	sf	1.50	23,100		
	Shrubs/groundcover	**630**	sf	2.00	1,260		
	PLANTS						
	Tree, medium	**14**	ea	1,500.00	21,000		
	Tree, small	**5**	ea	1,100.00	5,500		
	SUBTOTAL					1,502,300	
G30	**CIVIL MECHANICAL UTILITIES**						
	STORM DRAINAGE UTILITIES						
	Rainwater harvesting tank; 20,000 gal tank and pump station	**1**	ls	300,000.00	300,000		
	SUBTOTAL					300,000	

Feasibility Estimate

	CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
	CHCP PHASE 3							
111	**G40**	**ELECTRICAL UTILITIES**						
112		Vehicular lights; 24 ft high with bases and conduit	**2**	ea	8,000.00	16,000		
113		Pedestrian lights; 14 ft high with bases and conduit	**12**	ea	5,000.00	60,000		
114		SUBTOTAL					76,000	
115								
110								
111		**TOTAL - SITE DEVELOPMENT**						***$2,126,661***

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CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
CHCP PHASE 4							
G	*SITEWORK*						
G10	**SITE PREPARATION & DEMOLITION**						
	SELECTIVE SITE DEMOLITION						
	Site construction fence/barricades	1,180	lf	12.00	14,160		
	Construction gates	2	loc	3,000.00	6,000		
	Clearing existing site	36,800	sf	1.00	36,800		
	Miscellaneous demolition	1	ls	10,000.00	10,000		
	EARTH MOVING						
	Cut	3,000	cy	8.00	24,000		
	Premium for soil disposal off site	3,000	cy	45.00	135,000		
	Import fill	2,200	cy	14.00	30,800		
	Fine grading	4,089	sy	1.00	4,089		
	Erosion control	1,180	lf	14.00	16,520		
	Construction entrance	2	ea	10,000.00	20,000		
	Tree protection	5	ea	200.00	1,000		
	Silt fence maintenance, dust control and monitoring	1	ls	5,000.00	5,000		
	Rock removal allowance				NIC		
	SUBTOTAL					303,369	
G20	**SITE IMPROVEMENTS**						
	PAVING						
	Vehicular Pavers						
	gravel base; 18" thick	211	cy	40.00	8,444		
	vehicular pavers	3,800	sf	25.00	95,000		
	Concrete Walkway						
	gravel base; 12" thick	115	cy	40.00	4,593		
	concrete; 5" thick	3,100	sf	9.00	27,900		
	Permeable Pavers						
	open graded stone sub-base, 32"	42	cy	45.00	1,869		
	open graded stone base, 6"	8	cy	45.00	350		
	open graded bedding course, 2"	3	cy	50.00	132		
	3" thick permeable pavers	420	sf	20.00	8,400		
	Stairs and Ramps						
	Concrete to stair treads	140	lfr	190.00	26,600		
	Cheek walls	100	lf	600.00	60,000		
	CURBING						
	Vertical granite curbs	215	lf	42.00	9,030		
	RAILINGS/FENCES						
	Decorative railing, 42"	155	lf	350.00	54,250		
	Handrail at stair	120	lf	100.00	12,000		
	SITE STONEWORK						
	Granite cheek wall	65	lf	650.00	42,250		
	Granite retaining wall, 4'	85	lf	900.00	76,500		
	Granite pier	2	ea	9,000.00	18,000		
	2' x 2' granite seatwall	60	lf	550.00	33,000		
	2' x 2' granite seatwall at terrace	225	lf	550.00	123,750		
	SITE IMPROVEMENTS						
	Strip footings to retaining wall						
	Excavation	81	cy	15.00	1,222		
	Backfill with selected material	81	cy	12.00	978		
	Formwork	138	sf	14.00	1,925		
	Re-bar	550	lbs	1.32	726		
	Concrete material; 3,000 psi	11	cy	132.00	1,412		
	Placing concrete	11	cy	55.00	588		

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Central Hill Campus Plan 31-Dec-18
Site Work
Somerville, MA

Feasibility Estimate

CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
CHCP PHASE 4							
	Walls						
	Formwork	**770**	sf	19.00	14,630		
	Re-bar	**9,625**	lbs.	1.32	12,705		
	Concrete material; 4,000 psi	**22**	cy	132.00	2,965		
	Placing concrete	**22**	cy	55.00	1,235		
	Form liner	**165**	sf	12.00	1,980		
	Embedded bike racks	**5**	ea	800.00	4,000		
	Embedded bench	**3**	ea	3,000.00	9,000		
	Free standing café table w/ 4 chairs	**4**	ea	4,000.00	16,000		
	SIGNAGE						
	Traffic signs	**5**	ea	300.00	1,500		
	Sign type 2	**1**	ea		NIC		
	Sign type 4	**1**	ea	4,000.00	4,000		
	PLANTING IRRIGATION						
	Irrigation	**20,150**	sf	2.00	40,300		
	TURF AND GRASSES						
	Import topsoil; 8"	**500**	cy	50.00	25,001		
	Sod	**19,500**	sf	1.50	29,250		
	Shrubs/groundcover	**650**	sf	2.00	1,300		
	PLANTS						
	Tree, medium	**10**	ea	1,500.00	15,000		
	Tree, small	**1**	ea	1,100.00	1,100		
	SUBTOTAL					788,885	
G30	**CIVIL MECHANICAL UTILITIES**						
	No work in this section						
	SUBTOTAL					-	
G40	**ELECTRICAL UTILITIES**						
	Vehicular lights; 24 ft high with bases and conduit	**1**	ea	8,000.00	8,000		
	Pedestrian lights; 14 ft high with bases and conduit	**4**	ea	5,000.00	20,000		
	SUBTOTAL					28,000	
	TOTAL - SITE DEVELOPMENT						***$1,120,254***

Central Hill Campus Plan
Site Work
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Feasibility Estimate

CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
TOOLE DESIGN							
G	***SITEWORK***						
G20	**SITE IMPROVEMENTS**						
	Raised crosswalk						
	gravel base; 18" thick	**29**	cy	40.00	1,156		
	raised crosswalk	**1**	ls	17,000.00	17,000		
	sawcut street	**92**	lf	20.00	1,840		
	remove existing pavement	**520**	sf	2.00	1,040		
	High Friction Green Colored Pavement						
	green coloring on existing pavement	**10,075**	sf	5.95	59,946		
	Reflectorized White Line						
	6" reflectorized white line (thermoplastic)	**4,030**	lf	1.00	4,030		
	Bike Symbols						
	bike symbols	**10**	ea	83.00	830		
	Crosswalk						
	Crosswalk high friction intersection treatment on existing pavement	**2,640**	sf	5.00	13,200		
	ADA Compliant pedestrian ramp						
	Pedestrian ramp	**20**	ea	3,000.00	60,000		
	Detectable warning pad on ramp						
	Warning pad	**22**	ea	260.00	5,720		
	Curb extension						
	gravel base; 18" thick	**225**	cy	40.00	9,000		
	Curb extension	**450**	sy	100.00	45,000		
	Granite curbs	**918**	lf	42.00	38,556		
	Rectangular Rapid Flashing Beacon						
	Rectangular rapid flashing beacon	**2**	ea	16,000.00	32,000		
	Police detail	**7**	days	3,000.00	21,000		
	SUBTOTAL					310,318	
	TOTAL - SITE DEVELOPMENT						***$310,318***

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Central Hill Campus Plan
Site Work
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Feasibility Estimate

CSI CODE	*DESCRIPTION*	*QTY*	*UNIT*	*UNIT COST*	*EST'D COST*	*SUB TOTAL*	*TOTAL COST*
PV, GEOTHERMAL							
	FUTURE SOLAR PLAN						
	3" conduit	**500**	lf	75.00	37,500		
	2" conduit	**1150**	lf	60.00	69,000		
	MARKUPS	**65%**			69,225		
	SUBTOTAL					175,725	
	TOTAL - FUTURE SOLAR PLAN						***$175,725***
	GEOTHERMAL WELLS						
	Wells; 170 ea at 200' deep	**34,000**	lf	50.00	1,700,000		
	MARKUPS	**65%**			1,105,000		
	SUBTOTAL					2,805,000	
	TOTAL - GEOTHERMAL WELLS						***$2,805,000***