



NATICK BOARD OF SELECTMEN  
AGENDA  
Edward H. Dlott Meeting Room  
Thursday, May 9, 2019  
5:30 PM

Agenda Posted Tuesday, 5/7/19 at 4:00 PM

(Times listed are approximate. Agenda items will be addressed in an order determined by the Chair.)

1. 5:30 OPEN SESSION - Call to Order

2. CITIZENS' CONCERNS

Any individual may raise an issue that is not included on the agenda and it will be taken under advisement by the Board. There will be no opportunity for debate during this portion of the meeting. Any individual addressing the Board during this section of the agenda shall be limited to five minutes.

3. 5:30 BOARD OF SELECTMEN UPDATES

A. Downtown Parking Garage Update

4. SELECTMEN'S CONCERNS

5. TOWN ADMINISTRATOR NOTES

6. 6:15 ROLL CALL VOTE TO ENTER EXECUTIVE SESSION

7. EXECUTIVE SESSION

This portion of the meeting is not open to the public.

A. Purpose 3: To discuss strategy with respect to litigation if an open meeting may have a detrimental effect on the litigating position of the public body and the chair so declares:

Collective Bargaining Agreements:

- Local 1707, International Association of Firefighters, AFL-CIO
- Deputy Fire Chiefs' Association
- New England Police Benevolent Association, Inc., Local 182 (Police Superiors)
- New England Police Benevolent Association, Inc., Local 182 (Dispatch)
- Supervisors' and Administrators' Association (DPW Supervisors)
- Laborers' Internal Union of North America (LIUNA)
  - Public Employees Local Union 1116 (Clerical)
  - Public Employees Local Union 1116 (DPW Laborers)
  - Maintenance and Custodians Local 1115 (Facilities Maintenance)
  - Public Employees Local Union 1116 (Library)

B. Purpose 4: To discuss the deployment of security personnel or devices, or strategies with respect thereto: Communications Protocol (4/22/19 Natick High School Events)

8. The Board will not return to Open Session but will adjourn from Executive Session

NEXT MEETING DATES: Monday, 5/13; Tuesday, 5/28; Monday, 6/10

Agenda posted in accordance with Provisions of M.G.L. Chapter 30, Sections 18-25

Meeting recorded by Natick Pegasus

---

**ITEM TITLE:** Downtown Parking Garage Update

**ITEM SUMMARY:**

---

**ATTACHMENTS:**

<b>Description</b>	<b>Upload Date</b>	<b>Type</b>
Detailed Site Plan	5/7/2019	Cover Memo
Concept Plan Cover	5/7/2019	Cover Memo
Final Report from Walker Consultants	5/7/2019	Cover Memo
Status Report from J. Errickson and T. Fields	5/7/2019	Cover Memo



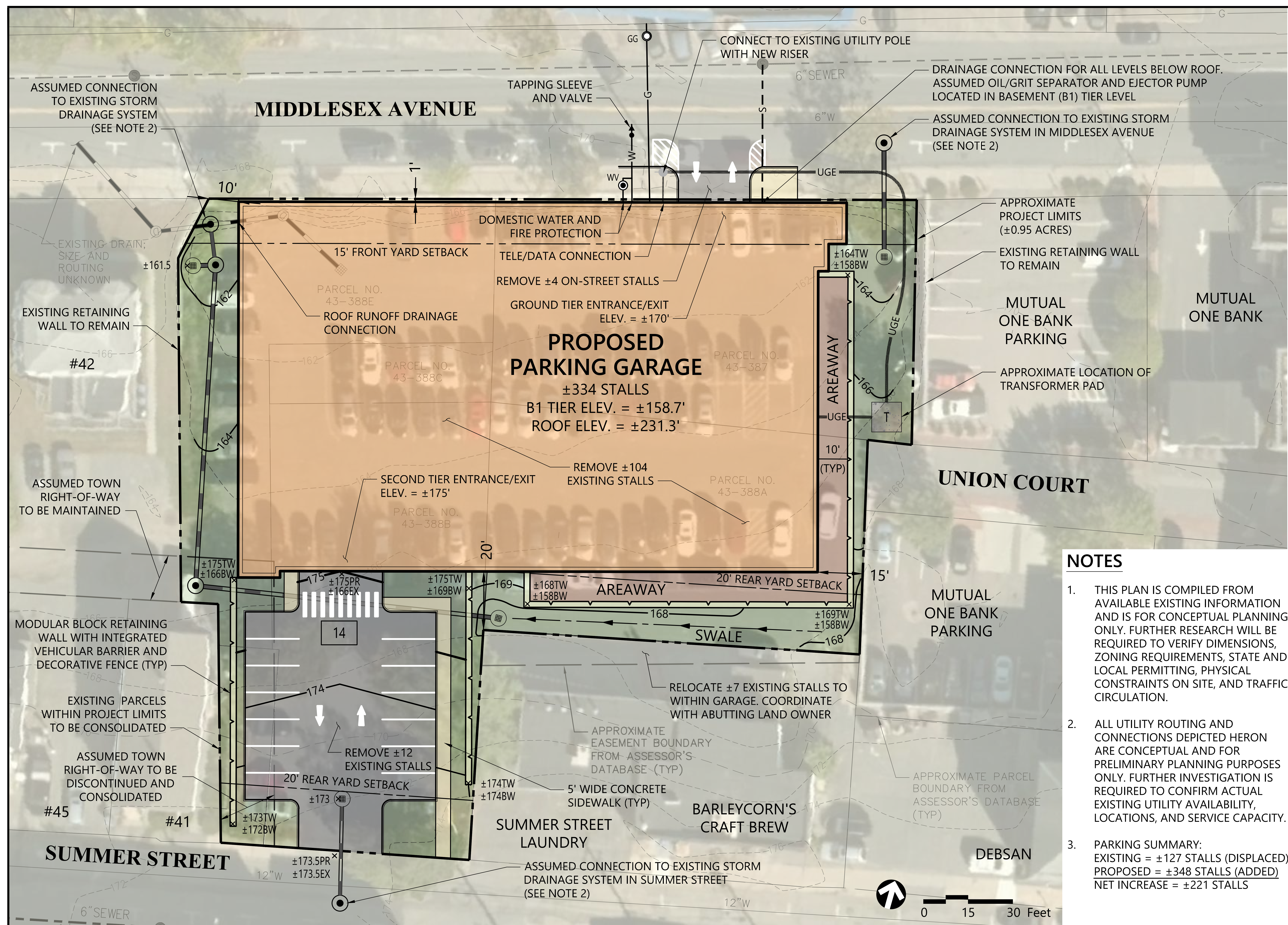
PRELIMINARY - DO NOT USE FOR CONSTRUCTION

TOWN OF NATICK  
PARKING GARAGE

TOWN OF NATICK

MARK	DATE	REVISIONS	DESCRIPTION
ISSUE:		SCHMATIC DESIGN	
ISSUE DATE:	04/04/2019		
VHB PROJECT NO:	14118.00		
DRAWN BY:	KRM		
CHECKED BY:	REW		
COPYRIGHT © 2019. ALL RIGHTS RESERVED. NO PART OF THIS DOCUMENT MAY BE REPRODUCED IN ANY FORM OR BY ANY MEANS WITHOUT PERMISSION FROM WALKER CONSULTANTS.			
SHEET TITLE CONCEPTUAL SITE PLAN			

FIGURE 1



**NOTES**

1. THIS PLAN IS COMPILED FROM AVAILABLE EXISTING INFORMATION AND IS FOR CONCEPTUAL PLANNING ONLY. FURTHER RESEARCH WILL BE REQUIRED TO VERIFY DIMENSIONS, ZONING REQUIREMENTS, STATE AND LOCAL PERMITTING, PHYSICAL CONSTRAINTS ON SITE, AND TRAFFIC CIRCULATION.
2. ALL UTILITY ROUTING AND CONNECTIONS DEPICTED HEREON ARE CONCEPTUAL AND FOR PRELIMINARY PLANNING PURPOSES ONLY. FURTHER INVESTIGATION IS REQUIRED TO CONFIRM ACTUAL EXISTING UTILITY AVAILABILITY, LOCATIONS, AND SERVICE CAPACITY.
3. PARKING SUMMARY:  
EXISTING = ±127 STALLS (DISPLACED)  
PROPOSED = ±348 STALLS (ADDED)  
NET INCREASE = ±221 STALLS





CONCEPT DESIGN  
4/12/2019

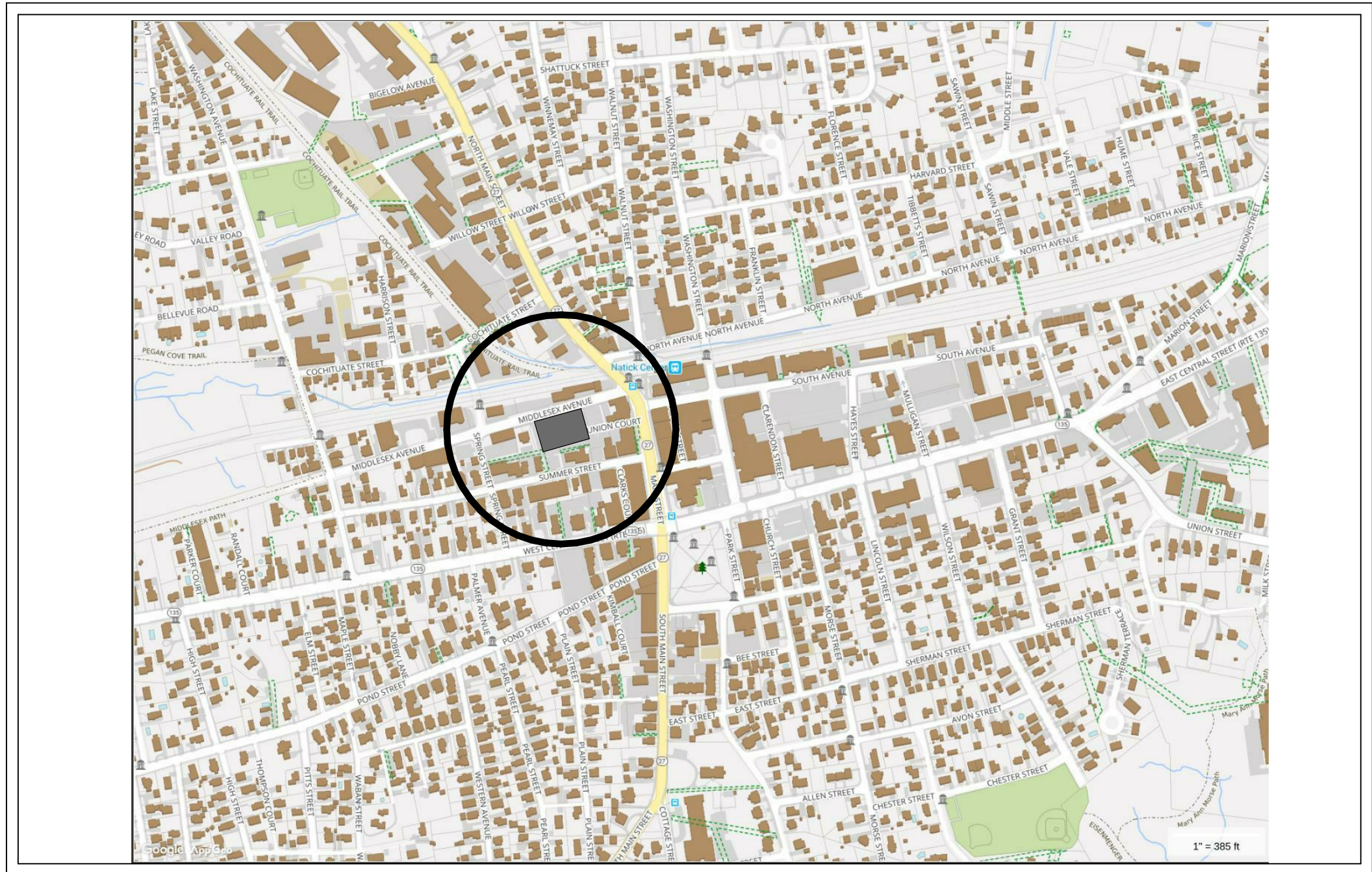
Owner:  
**Town of Natick**  
13 East Central ST.  
Natick, MA 01768

Prime Designer / Architect:  
**Walker Consultants**  
20 Park Plaza, Suite 1202  
Boston, MA  
Tel: 617.350.5040

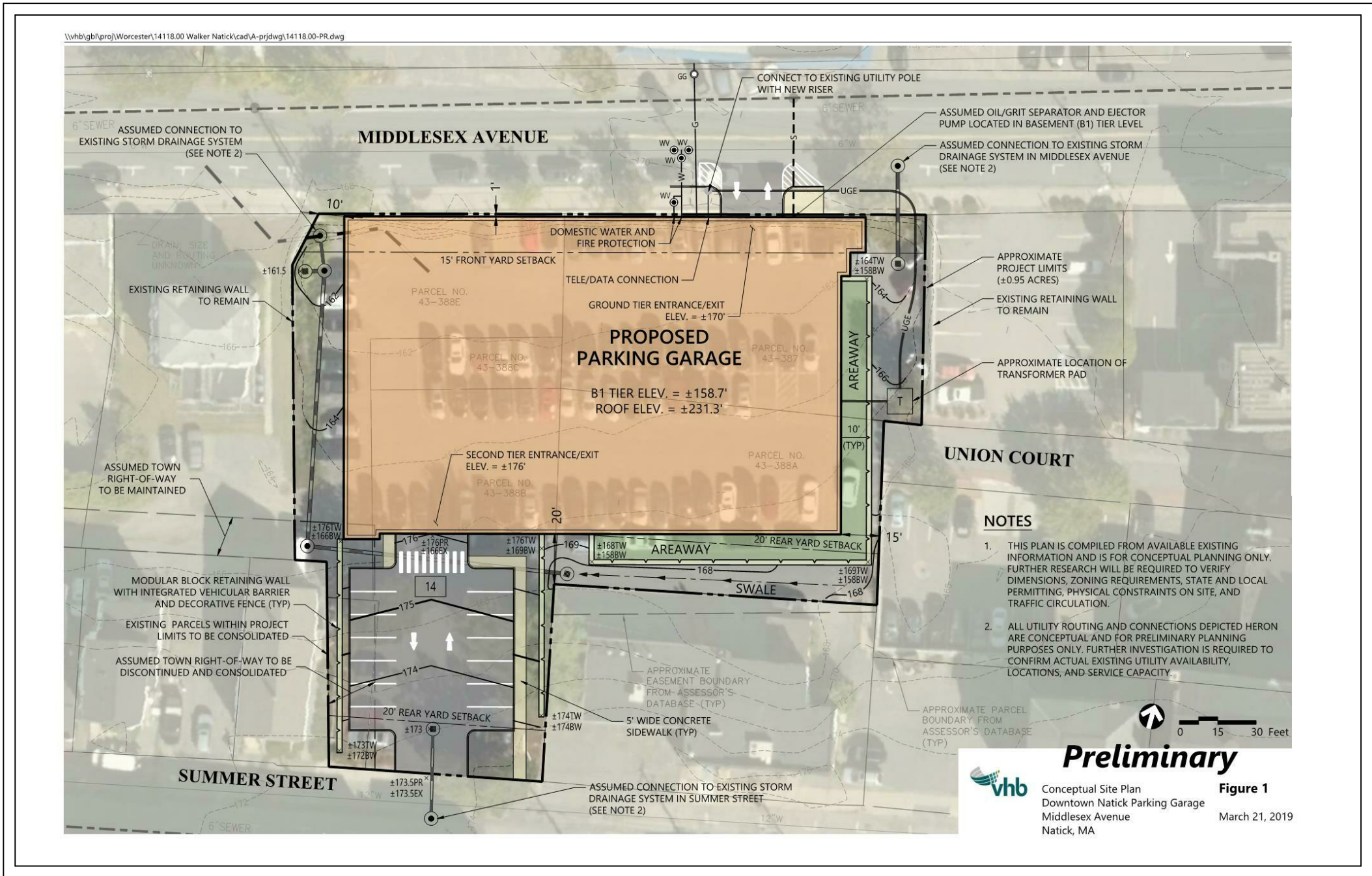
Civil Engineer:  
**VHB**  
120 Front Street, Suite 500  
Worcester, Massachusetts 01608  
Tel: 508.752.1001

DRAWING INDEX

NO.	SHEET NAME	
G-000	COVER SHEET AND SITE & LOCATION MAP	X
A-100	B1 TIER PLAN	X
A-101	GROUND TIER PLAN	X
A-102	SECOND TIER PLAN	X
A-103	THIRD TIER PLAN	X
A-104	FOURTH TIER PLAN	X
A-105	TOP TIER PLAN	X
A-201	BUILDING ELEVATIONS	X
A-202	BUILDING ELEVATIONS	X



PROJECT SITE PLAN



PROJECT SITE PLAN





April 12, 2019

Ted Fields  
Senior Planner  
Town of Natick  
13 East Central Street  
Natick, MA 01760

Re: Natick Center Parking Garage Feasibility Study  
Phase 3 Report  
Walker Project No. 16-2824.00

Dear Ted:

Walker is pleased to submit the following final report for the Natick Center Parking Garage Feasibility Study Phase 5 Report. Please review at your convenience and we can discuss any comments you have.

We appreciate the opportunity to be of service to you on this project. If you have any questions or comments, please do not hesitate to call.

Sincerely,

WALKER CONSULTANTS

A handwritten signature in black ink, appearing to read "B. Schrenker", is written over a light gray circular background.

Brandon Schrenker, PE (MA)  
Project Manager





BUILDING ENVELOPE  
CONSULTING  
FORENSIC RESTORATION  
PARKING DESIGN  
PLANNING

Draft Report

**Natick Center Parking Garage  
Feasibility Study Phase 5  
Development Summary Report**

Natick, MA

April 12, 2018



**WALKER**  
CONSULTANTS

## TABLE OF CONTENTS

<b>EXECUTIVE SUMMARY</b>	<b>IV</b>
<b>INTRODUCTION</b>	<b>8</b>
<b>STUDY BACKGROUND</b>	<b>8</b>
Phase 1: Existing Conditions Analysis	8
Phase 2: Stakeholder Outreach	9
Phase 3: Feasibility Assessment / Development Recommendations	10
Phase 4: Conceptual Design Study	12
Phase 5: Development Summary Report	13
<b>PROJECT VISION AND GOALS</b>	<b>13</b>
<b>DESIGN PARKING SPACE CAPACITY</b>	<b>13</b>
<b>GENERAL DESIGN DESCRIPTION</b>	<b>17</b>
Building Classification	17
Parking Capacity	17
<b>INTERNAL FUNCTIONALITY</b>	<b>17</b>
Parking Geometrics	17
Parking Structure Footprint	18
Vehicular Access	19
Pedestrian Access	20
<b>ARCHITECTURAL DESIGN</b>	<b>22</b>
Historic District	23
Cultural District	23
Stakeholder Input	24
Conceptual Architectural Design	24
<b>STRUCTURAL SYSTEM</b>	<b>26</b>
Precast System Configuration	27
Foundations / Retaining Walls	28
Structural System Durability Measures	28
<b>ZONING IMPLICATIONS</b>	<b>30</b>
Zoning Requirements	30
Structure Positioning / Zoning Implications	31
<b>ANCILLARY PARKING STRUCTURE SYSTEMS AND PROGRAM</b>	<b>34</b>
Ancillary Rooms	34
MEFP Systems	34
Photovoltaic (Solar) Array Capability	36
Mixed-Use Potential	37
<b>SUSTAINABILITY</b>	<b>38</b>
Certification	39
<b>SITE CONDITIONS AND IMPACTS</b>	<b>40</b>





Utilities	40
Existing Foundations	41
Existing Soil / Fill	41
Typography	42
Back-of-House Connectivity Impacts	43
<b>CONSTRUCTION CONSIDERATIONS</b>	<b>44</b>
Construction Challenges	44
Construction Timeline Estimate	45
<b>ADDITIONAL PROGRAMMING CONSIDERATIONS</b>	<b>46</b>
Exterior Site Signage Improvements	46
Future adaptive re-use	46
<b>CONCEPT DESIGN LIMITATIONS</b>	<b>47</b>
<b>LIMITATIONS OF FINDINGS</b>	<b>49</b>
<b>DEVELOPMENT COSTS (DEBT SERVICE)</b>	<b>49</b>
Constructions Cost	49
Project Soft Costs	49
Contaminated Soil Contingency	49
<b>FINANCING ASSUMPTIONS</b>	<b>50</b>
<b>OPERATING EXPENSES</b>	<b>50</b>
Staffing	51
Reserve for Replacement Sinking Fund	51
<b>REVENUE PROJECTIONS</b>	<b>51</b>
Existing Rate Structure	51
Turns	51
Existing Revenue	51
Public Input	52
Timing / Implementation Schedule	52
<b>INFLATION FACTORS</b>	<b>52</b>
<b>PRO FORMA</b>	<b>52</b>
<b>STATEMENT OF LIMITING CONDITIONS</b>	<b>53</b>
<b>SUMMARY FINANCIAL OBSERVATIONS</b>	<b>53</b>
<b>ALTERNATE FUNDING OPTIONS</b>	<b>53</b>
MassDevelopment - District Improvement Financing	53
MassDevelopment - Local Infrastructure Development Program (23-L)	54
MassDevelopment - I-Cubed (Infrastructure Investment Incentive Program)	54
Massworks Infrastructure Program	54
Private Entity Construction / Operation	55
Public / Private Mixed-Use Joint Venture	55
Local Capital	55
Existing Traffic Counts	57
Site-Generated Traffic	57
Future Traffic Volumes	58
Queuing Impacts at Parking Access Locations	58
<b>PARKING IN THE AGE OF TRANSPORTATION NETWORK COMPANIES AND AUTONOMOUS VEHICLES</b>	<b>66</b>
TNC Probable Impacts on Parking	66



TNC Trips Per Person Annually	67
Autonomous Vehicles	69
AV Timing	69
<b>COMPARATIVE COMMUNITY ANALYSIS</b>	<b>71</b>
Wellesley, MA	72
Newton, MA	75
Framingham, MA	78
Needham, MA	81
Key Comparisons with Natick Center	83
<b>PARKING ALTERNATIVES</b>	<b>84</b>
Replace the Previous Single-Level Parking Deck	84
Purchase Property and Build Surface Parking	85
Discontinue Commuter Parking	86
Relocate Commuter and/or Business Parking to On-Street Locations	86
Increase Parking Density – Valet Operation	87
Increase Parking Density – Mechanical Parking	87
Shuttle Program	88





*Rendering from Middlesex Avenue / Northeast Corner. Source – Walker Consultants*

## EXECUTIVE SUMMARY

The project team comprised of Walker Consultants, VHB, Abramson & Associates, and representatives of the Town of Natick performed a feasibility study for the addition of a new parking structure in Natick Center. The proposed parking facility site is located at the existing Middlesex parking lot, bound by Middlesex Avenue, Summer Street, Main Street, and Spring Street. This Phase 5 Report summarizes the key findings of this study and presents the conceptual design option developed through this process. Refer to the appendices for conceptual drawings.

Through the five phases of this study, the Team collected and reviewed information related parking needs of Natick Center, collected stakeholder input and feedback of the past, present, and potential future conditions of parking in the Center, and worked with the Town to develop the goals and programmatic requirements for a parking facility in the Center.

The study process identified a target parking capacity range of 310 to 435 spaces, representing a potential net add of approximately 200 to 300 spaces to the project site. This additional capacity is intended to address the current parking demand concerns, facilitate occupation of existing commercial vacancies, spur redevelopment/new development in the area, and accommodate some amount of commuter parking. The Team use the study information and programmatic requirements to develop several conceptual designs to meet this demand and project goals. The Town selected the design option with the following primary attributes:

- The facility is located completely on Town-owned property. All other options required acquisition of adjacent properties.
- The facility fronts Middlesex Avenue with vehicular and pedestrian access points on both Middlesex Avenue and Summer Street.
- The structure is four-supported levels and one on-grade level and provides a capacity of approximately 350 spaces.
- Mixed-use space is not provided in the parking structure; the intent is to promote redevelopment of the parcels along Summer Street, potentially by selling a portion of Town-owned land to a developer.
- Conceptual opinion of probable construction cost for this structure is \$11.5M. Assuming 20% for soft costs, the total project costs for this project are estimated at \$13.8M. This includes a 15% contingency and \$100K allowance for soil remediation.

Sections 2 and 3 of this report provide details of the selected conceptual design from functional, architectural, structural, building systems, site impact, and constructability perspectives, and provides an opinion of probable cost for the construction of this parking structure. Refer to the subsequent sections for additional detail.

Section 3 of this report provides financial considerations and pro forma iterations to assist the Town in understanding the financial aspects of construction and operating the proposed parking structure. In summary, the revenues generated by the current parking rate structure will not cover anticipated operating expenses and will not cover debt service. An approximate increase of 50% in rate structure would cover operating expenses but will not cover debt service. The necessary increase to parking rates (approximately 10 times currently rates) is far too high for this market. It will be necessary for the Town to fund the construction of this project by another means such as bonding; options are outlined in this section. It should be assumed for planning purposes that the Town will need to finance this project through conventional borrowing opportunities.

Section 4 of this report includes a traffic impact analysis of the proposed parking structure. In summary, the proposed parking structure will increase traffic to and from the site and the direction of travel will change for some of the existing users due to the change of access location to the site from Union Court to Middlesex Avenue. For current conditions, the parking structure is projected to generate a maximum of 119 new trips in the morning peak hour and 129 new trips in the evening peak hour; approximately 2 additional trips per minute. For potential future conditions, during the morning peak hour, the hourly change in site-generated cars traveling through the nearby intersections ranges from a decrease of 31 cars at the Union Court/Main Street intersection to an increase of 42 cars at the Middlesex Avenue/Main Street/South Avenue intersection. During the evening peak hour, the hourly change in site-generated cars ranges from a decrease of 32 cars at the Union Court/Main Street intersection to an increase of 40 cars at the Summer Street/Spring Street intersection. This is less than 1 additional vehicle per minute during the peak hours.

Section 5 of this report provides background information and demand impact projections related to increased use of traffic network companies (TNC) such as Uber / Lyft and autonomous vehicles as it relates to Natick. There are significant differences in opinions throughout the transportation industry of the magnitude of the demand impacts and when they will really occur. This section provides some insight into this and identifies a nationwide potential impact by 2050 of 10% to 40% depending on location. For Natick, we expect this demand impact to be on the lower end of the scale.



Section 6 of this report provides two additional scope items requested by the Town. The first is a comparative analysis summarizing how the neighboring towns / cities of Needham, Newton, Framingham, and Wellesley manage their public parking in their downtown areas. Parking management is primarily through a combination of identified areas of permit parking, time-limitations, and payment structures. Payment technologies and general enforcement approaches are also identified.

The second scope item in Section 6 identifies alternative approaches the Town could take to increase parking supply in the Center without building a parking structure. Several options are presented, however the most realistic for increasing capacity is purchasing properties to develop surface lots. Real estate values near the Center and in Natick in general are high so this would be an expensive land acquisition for surface parking. An alternative that does not truly increase capacity but potentially better utilizes existing supply is identifying public streets on the outer edges of the Center that could be used for daily permit / commuter parking and monetarily incentivizing users to park at these locations. This could potentially free up parking in the existing lots in the Center, like the Middlesex lot, to allow for more permit parking and/or more short to mid-term parking in this lot.



# 01 Project Background

## INTRODUCTION

The project team comprised of Walker Consultants, VHB, Abramson & Associates, and representatives of the Town of Natick performed a feasibility study for the addition of a new parking structure in Natick Center. The project study location is the Town-owned Middlesex parking lot bound by Middlesex Ave., Summer St., Main St., and Spring St.

The intent of this report is to summarize the key findings of the study process, provide the pertinent information from the previous study phases relative to the parking structure conceptual design, and provide additional information requested from the Town including a traffic impact analysis, neighboring downtown comparative analysis, and alternatives to provide additional parking in the Center without constructing a parking structure. Some information in this report is taken directly from the previous reports; other information is new or modified as necessary based on the design process since Phase 3.

## STUDY BACKGROUND

The study is comprised of five primary phases:

- Phase 1: Existing Conditions Analysis
- Phase 2: Stakeholder Outreach
- Phase 3: Feasibility Assessment and General Development Recommendations
- Phase 4: Conceptual Site Design Study
- Phase 5: Comprehensive Development Summary

The following provides an abbreviated summary of the work performed in each of the previous phases; refer to the referenced reports / memoranda for additional detail on the work.

### PHASE 1: EXISTING CONDITIONS ANALYSIS

The Phase 1 effort gathered background information for the proposed project site to understand the current conditions of the site and surrounding study area, including:

- Review of existing reports / background information
- Parking supply utilization analysis
- Potential parking demand sources
- Traffic volume assessment
- Mobility analysis
- Phase I Environmental Site Assessment (ESA)
- Existing infrastructure review
- Zoning / permitting analysis
- Mixed-use development market assessment

The key findings of these tasks were used during the subsequent study and design phases to inform the design selection process. Sections in this Phase 5 report will summarize findings related to parking demand and zoning / permitting as it relates to the selected conceptual design.



Findings from the Phase I ESA identify a potential at the site for Recognized Environmental Conditions (REC's) that may require remediation measures. Potential REC's are the result of a historic presence of a dry-cleaning facility, coal storage, buried storage tanks, automotive repair and service shop, and a machine shop (refer to the Phase I ESA Report for additional information). The ESA does not include testing at the site, however there are ranges of probability of presence of REC's on the site. A contingency is therefore carried in the Opinion of Probable Cost and additional investigation will be necessary to confirm presence and limits / quantities if the project moves forward.

The mixed-use development market assessment included a review of the real estate market, development potential, relevant parking demand generation, and potential real estate tax revenues that could be generated from the development of a parking structure at the project site. Information from this analysis was used to identify the potential parking demand and user type that could be generated through increased development in Natick Center and what types of mixed-use could potentially be used if a mixed-use component was integral with the parking structure design.

Phase 1 Existing Conditions Analysis included four deliverables:

1. *Baseline Conditions Report – Parking Garage Project*, dated March 30, 2018, prepared by VHB
2. *ASTM E 1527-13 Phase I Environmental Site Assessment – Commercial Properties and Municipal Parking Lots*, dated December 29, 2017, prepared by VHB
3. *Phase 1 Real Estate Evaluation for Middlesex Parking Deck Study in Natick Center*, dated March 15, 2018, prepared by Abramson & Associates
4. *Middlesex Parking Deck Study in Natick Center – Potential Land Disposition Lease and Real Estate Tax Revenues from Remnant Land*, dated April 17, 2018, prepared by Abramson & Associates

## PHASE 2: STAKEHOLDER OUTREACH

The Team performed a series of in-person and phone interviews of a group of stakeholders identified by the Town. Stakeholders included business owners, property owners, current and past public officials / employees, developers, and committee members. The intent of the interview process was to gather information regarding (a) past parking observations in Natick Center, (b) expectations for a new parking facility at the proposed site and (c) market analysis / financial considerations.

Comments from the outreach are summarized in *Natick Center Shareholder Interview Memorandum*, dated February 9, 2018, prepared by Walker Consultants. As with any outreach process, comments collected represented a range of common and differing opinions. The following is an abbreviated summary of feedback gathered during this phase.

## PARKING AVAILABILITY IN NATICK CENTER

1. Lack of parking during weekdays; parking permits are oversold; employees are parking in short-term parking on-street spaces; commuters are parking on the streets.
2. Parking is more of a concern for people outside of Natick; perception that Natick doesn't have parking. The parking perception hurts businesses in the Center; leasable space in Natick Center is about \$25/SF whereas Wellesley can be about \$40/SF. Lack of parking makes it difficult to get certain business types in the Center.

3. While most identify a need for additional parking, a few stakeholders noted that there is sufficient parking a few blocks away; that is more the mentality of people wanting to park in close proximity to their destination.
4. Some want commuters in a garage and off the streets; others do not want to allow commuters in a Town-funded parking structure.

#### *PARKING STRUCTURE EXPECTATIONS*

1. The design capacity needs to be sized for future plans / development of the Center.
2. The design needs a mixed-use component to activate the streetscape. Commonly identified use types include restaurant, a community / youth center, and a small grocery store.
3. The design should include sustainable features such as solar, green roof, electric vehicle charging, bike storage, and a dimmable / controllable lighting system.
4. Opinions on the aesthetic design range widely from “something other than a garage” to a plain, utilitarian garage.
5. The design must incorporate an art component.

#### *FINANCIAL CONSIDERATIONS*

1. Parking availability is not the issue; price point is. Rates should be increased in the Center to encourage spreading parking out.
2. Some think current parking rates are too low and should be increased; others think that a monthly permit increase to \$500 or \$600 per year is too high and would not be welcomed.
3. Parking should be treated like a utility; funded by the Town / tax base.
4. If the parking structure is \$30k per space with 400 spaces, so approximately \$12M that is too much cost for the Town to incur.

This feedback was reviewed by the Team and taken into consideration as it relates to the demand sources, parking structure design options, programming, and financial impacts / pro forma iterations. Through the design process, decisions were made with the Town with regards to what feedback would be included in the proposed programmatic requirements and conceptual design and to what extent.

#### **PHASE 3: FEASIBILITY ASSESSMENT / DEVELOPMENT RECOMMENDATIONS**

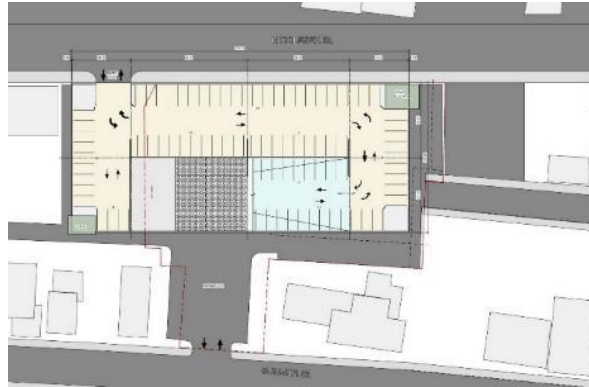
The Phase 3 included four primary tasks: structured parking feasibility at the project site, programmatic requirements for a parking structure, development of several conceptual designs, and financial considerations. The intent of this Phase was to take the information collected in Phases 1 and 2 and use it to develop parking structure options for the project site that attempt to respond to the needs and wants of the Town. This included options that provide:

- Varying parking capacities
- Varying footprint sizes vs. structure height
- Provide mixed-use opportunities integral or not integral with the structure
- Are located completely on the Town-owned property or that require acquisition of adjacent properties

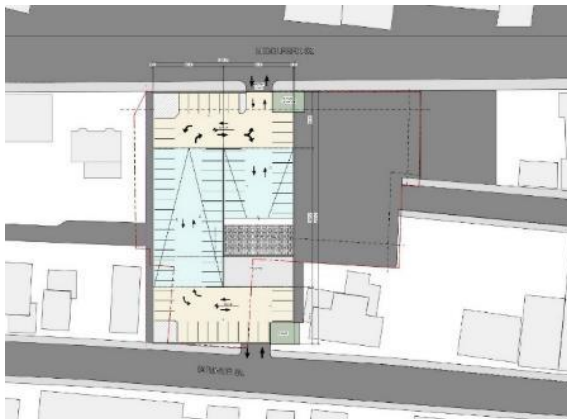
The Team and Town performed a selection process to choose four concept options. These options were presented in the Phase 3 Report.



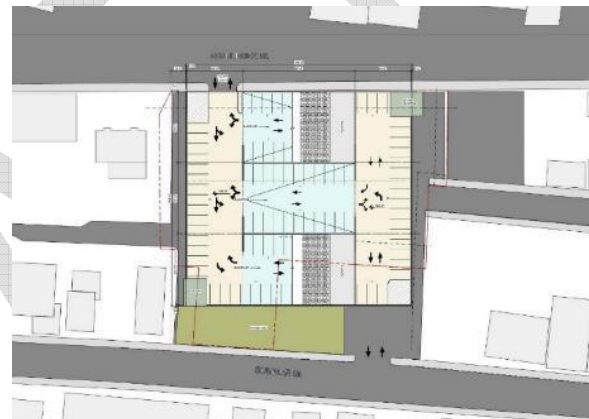
Phase 3 Option 1



Phase 3 Option 2



Phase 3 Option 3



Phase 3 Option 4

### OPTION 1

- Completely located on the Town-owned property. Smallest footprint option.
- A two-bay wide structure provides approximately 340 spaces on five levels.
- Vehicular access provided from both Middlesex Ave. and Summer St.
- Lowest cost option (conceptual construction cost range of \$10M to \$12M)
- Mixed-use is not integral but an opportunity for mixed-use is provided to the south along Summer St.

### OPTION 2

- Elongated two-bay parking structure design compared to Option 1. Intent was to provide a similar capacity to Option 1 with one less level in height.
- The two-bay wide structure provides approximately 370 spaces on four levels.
- Concept requires purchasing the adjacent property to the west and demolition of an existing building.
- Vehicular access from Middlesex St. only.
- Conceptual construction cost range of \$11.5M to \$13.5M.



- Mixed-use is not integral but an opportunity for mixed-use is provided to the south along Summer St.

### OPTION 3

- Design concept intent maximizes the available area for mixed-use and/or open/community space opportunities.
- A two-bay wide structure provides approximately 340 spaces on five levels.
- Concept requires purchasing the adjacent properties to the south of the site and demolition of two existing building.
- Vehicular access provided from both Middlesex Ave. and Summer St.
- Conceptual construction cost range of \$11.5M to \$13.5M. This does not include construction of mixed-use programming.
- Mixed-use was not integral but the concept provides an area east of the parking structure extending completely from Middlesex Ave. to Summer St. of approximately 90-ft to 105-ft in width for mixed-use opportunities.

### OPTION 4

- Design concept intent is to provide a higher car count in a shorter structure height than other options and provide a mixed-use opportunity either along Middlesex Ave or Summer St. This was achieved by acquiring adjacent properties.
- A three-bay wide structure provides approximately 400 spaces on four levels.
- Concept requires purchasing the adjacent properties to the south of the site and demolition of two existing building.
- Vehicular access provided from both Middlesex Ave. and Summer St.
- Highest cost option with conceptual construction cost range of \$13M to \$15.5M. This does not include construction of mixed-use programming.
- Mixed-use is located exterior of the parking structure to maximize parking but is located immediately adjacent parking structure.

These options were also presented in two public meetings to gather feedback on the designs. Ultimately the Town selected Option 1 for advancement in Phase 4. Primary decision factors are cost and that the structure will be completely on Town-owned property.

This Phase 5 Report includes the key programmatic requirements established during the Phase 3 process, Option 1 description and key impacts, and an updated construction cost and pro forma iteration specific to the selected option.

Refer to the *Natick Center Parking Garage Feasibility Study – Phase 3 Report*, dated May 3, 2018, prepared by Walker Consultants, for additional detail beyond this Phase 5 Report.

### PHASE 4: CONCEPTUAL DESIGN STUDY

Phase 4 includes the advancement of the selected Option 1. This includes preparation of a conceptual site plan, parking structure plans, elevations, building rendering, and an updated opinion of probable cost. This Phase is

being delivered integrally with the Phase 5 Development Summary Report. Drawings are provided in Appendix A.

## PHASE 5: DEVELOPMENT SUMMARY REPORT

The intent of this report is to summarize the key findings of the study process, provide the pertinent information from the previous study phases relative to the selected option, and provide additional information requested from the Town including a traffic impact analysis, neighboring downtown comparative analysis, and alternatives to provide additional parking without constructing a parking structure.

## PROJECT VISION AND GOALS

Background information collected and interview feedback from project stakeholders during Phases 1 and 2 of the Natick Center Parking Feasibility Study have indicated an insufficient parking supply in Natick Center. This is believed by some to have limited the ability to achieve peak utilization of existing development space in the Center, precludes redevelopment / future development, and has led to a public perception that Natick Center lacks sufficient parking. In other cases, for example with The Center for Arts in Natick, weekday programming is not feasible due to lack of sufficient parking to support the events.

The Natick 2030+ Master Plan further explored the Natick's vision for future development in the Town. Common desires include redevelopment and growth in Natick Center, specifically restaurant, residential, community centers, retail, and cultural uses. There is also a desire to target high-value businesses including startups and enterprises.

Parking occupancy observations performed in Phase 1 indicate public parking in the Center is at or near capacity during weekday hours, particularly with regards to downtown business parking. With the intent of filling commercial space vacancies downtown and promoting redevelopment / new growth, the Center has a need to accommodate additional parking.

The vision and goals of this project extend beyond just parking capacity. Town representatives and community input have identified other goals for the project including a desire for mixed-use potential, flexibility to accommodate future conditions, sustainability measures, and aesthetic considerations.

## DESIGN PARKING SPACE CAPACITY

A parking supply and demand study was prepared in the Phase 1 and further developed during Phase 3 programmatic definition tasks. There are several potential sources that could influence / support the parking structure in the near or long-term that can be considered. From review between the design team and the Town, the potential demand sources and corresponding demand ranges are identified in the following table:

Potential Parking Demand Source	Parking Demand
Existing Displaced Spaces	127 spaces
Existing Permit Oversell Correction	25 to 75 spaces
Existing Downtown Retail / Office Redevelopment	55 to 100 spaces
Future Development (Residential / Office)	20 to 105 spaces
Daytime Event	10 to 50 spaces
Parking Structure Mixed Use	10 to 20 spaces

Commuters	50 to 200 spaces
Short-Term Vehicle Rental (Zipcar)	5 to 10 spaces

---

It is important to recognize the following as it relates to the design demand for the project:

1. Existing Displaced Spaces, Existing Permit Oversell Correction, and Commuter demand streams are the sources that currently exist. This represents a range of 200 to 300 spaces (see below regarding commuter parking). All other sources are predicated on future redevelopment or growth.
2. It should be recognized that not all demand sources may come to fruition with time; market demands may change with time and it is anticipated that parking demand may decrease as autonomous vehicles and transportation network companies (Uber, Lift, etc.) become more prevalent. This is further addressed in Section 5 of this report.
3. Permit Oversell – The Town currently oversells parking permits by approximately 27%. The range shown represents a 10% to 27% correction in parking permits to address the oversell.
4. Daytime Event – The intent would be to facilitate daytime programming at TCAN and/or allow for municipal / corporate daytime events for business in the Center. This is not expected to be a demand source that occurs five days a business week but was identified as a desire during the stakeholder outreach process.
5. Commuter Parking
  - a. The low end of the range is established by the current waiting list for commuter parking permits (47).
  - b. Currently there are 83 commuter spaces available in the Center located on a lot rented by the Town; the Town has mentioned the possibility of moving the spaces into the parking structure to no longer rely on renting the lot. However, this would not preclude the existing lot owner from continuing to rent parking spaces, and if offered at a lower price point, could be a source of competition for the Town to fill the parking structure.
  - c. The previous Nelson Nygaard Natick Center study identified a commuter demand of approximately 200 spaces. The ridership information presented in the Natick 2030+ Master Plan indicates an inbound ridership of 1077 people which corresponds to approximately 300 spaces per day. These inherently seem high given that there do not appear to be 200 additional vehicles currently parked on the streets in this area; however, if the parking is available at the correct price point, it could attract commuters to the parking structure beyond the current supply and waiting list.
  - d. It was identified in the stakeholder interviews that commuters park in the residential neighborhoods where there are no parking limitations. Several noted that the parking structure should be used to get the commuter off of the streets and into the parking structure; some noted that the supply exists on the streets and the streets are public property so should be utilized. If the desire is to push the commuters into the parking structure, it will be necessary to implement and enforce parking limitations on surrounding areas. This may not result in all parkers choosing to park at this location.



6. Walker typically recommends an increase of 5% beyond the calculated demand stream. This accounts for parking spaces that are taken out of service for a variety of reasons and the inherent difficulty with truly filling a parking structure to 100% of capacity.

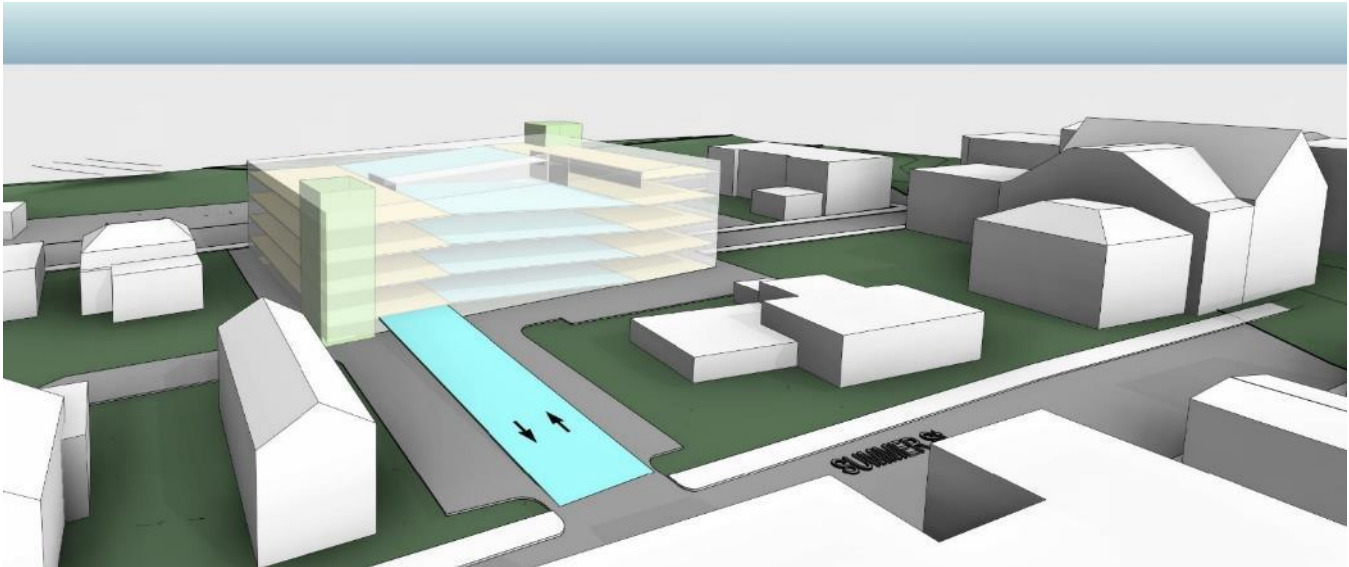
Based on the potential design demand streams, the Town's goal to accommodate future development, and physical constraints of the project site, the target space count for this structure was established as 310 to 435 spaces, representing a net add of 180 to 300 spaces to the existing supply. The selected design option provides approximately 355 space; a net add of 225 spaces.

Design Parking Demand Source	Design Parking Demand
Existing Displaced Spaces	127 spaces
Existing Permit Oversell Correction	30 spaces
Existing and Future Downtown Redevelopment	75 to 125 spaces
Daytime Event	10 spaces
Parking Structure Mixed Use (if applicable)	0 to 20 spaces
Commuter	50 to 100 spaces
Short-Term Vehicle Rental	5 spaces
<b>Total Demand with 5% Increase</b>	<b>310 to 435</b>
<b>Proposed Parking Structure Design Capacity</b>	<b>355 spaces</b>

There are a variety of different combinations of demand sources that can be accommodated and will continue to change throughout the service life of the facility. For example, with the proposed 355 parking space capacity structure, after the displaced spaces and oversell correction, there is a remaining 198 spaces. If Main Street occupancy completely fills out to require the 100-space projection, 98 spaces remain for other uses. This could accommodate current or additional commuter parking, TCAN weekday, and/or support residential development of adjacent parcels that would require overflow parking beyond what can be accommodated on-site.



## 02 Parking Structure Conceptual Design



*Option 1 – Massing Perspective, Source – Walker Consultants*

## GENERAL DESIGN DESCRIPTION

The following documents the programming design requirements established by the design team and Town used in development of the selected design concept.

The design intent for the selected option is to provide a parking structure that fits on the Town-owned property and respects current zoning requirements as much as feasible. The parking structure function is a 2-bay wide, single threaded helix with sloped floors on both bays to achieve the necessary ramp length for parked-on ramps.

Refer to the Appendix A for conceptual drawings generated in Phase 4 which includes the Conceptual Site Plan, Conceptual Plans A-100 to A-105, and Conceptual Elevations A-201 to A-202.

## BUILDING CLASSIFICATION

The parking structure will be classified as an open parking structure in accordance with 780 CMR Section 406.5. This building classification does not require sprinklers and mechanical ventilation and has other advantages such as open stair towers. This requires that a specific percentage of length and area of the façade are open-air and that the structure is positioned 10-ft from a property line (with the exception of a property line abutting a street). The option has been sited accordingly and includes site retaining walls along the lowest level of the parking structure to provide yard areaways to maintain natural ventilation.

## PARKING CAPACITY

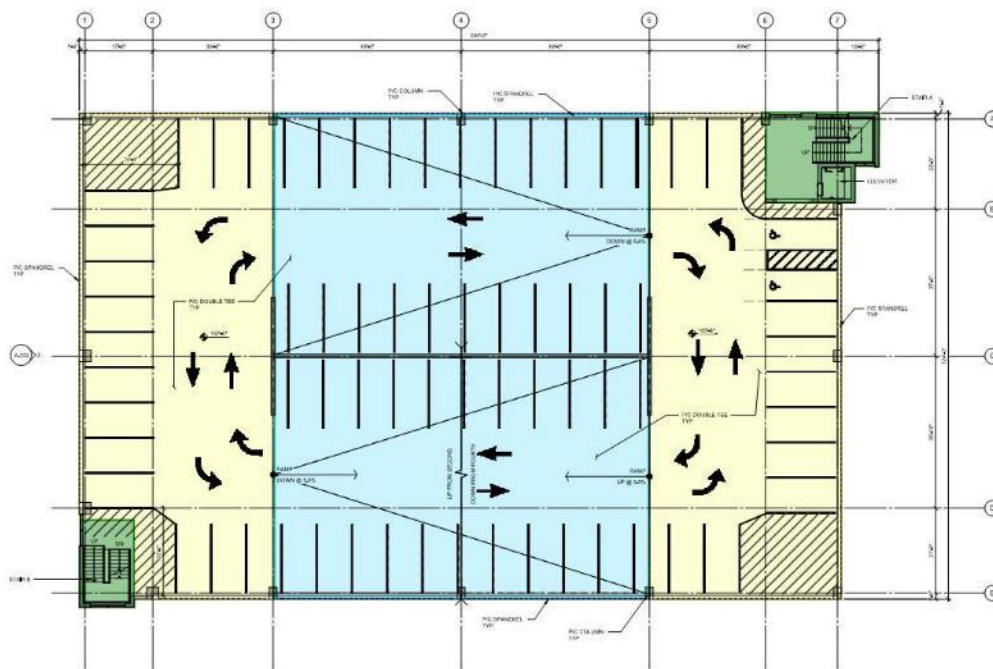
The structure provides approximately 355 spaces on five levels. This includes the 14 spaces that are located in the exterior parking lot that along the connection from Summer Street to the parking structure.

## INTERNAL FUNCTIONALITY

### PARKING GEOMETRICS

1. Parking space sizes – 9'-0" by 18'-0"

2. Parking Bay: 60-ft parking bays, two-way travel lanes (18-ft parking stall and 24-ft drive aisle)
3. Turning / End Bays: 48-ft
4. Parked-on ramps: Ramped floors are required on both the south and north bays to provide sufficient ramp length for parked-on ramps. Ramp slopes will be in the range of 6% to 6.67%.
5. Parking space offsets from obstructions
  - a. Typical parking areas – 1-ft minimum from all walls and columns
  - b. Dead end areas – 3-ft minimum / 5-ft preferred from end wall
6. Floor-to-floor height – 11'-4". This is based on the 8'-2" clearance required for accessible van spaces, an assumed 3'-0" structure depth, and 2" of construction tolerance / deflection. This is also on a brick module if brick will be used on the exterior vertical elements. It is feasible to decrease the floor-to-floor heights on levels above the 8'-2" clearance levels to 10'-2" to 10'-6" floor-to-floor (refer to the Zoning section of this report for additional discussion).



Typical Floor Plate Footprint, Source – Walker Consultants  
Yellow – Flat end bay turns; Blue – Ramps; Green – Stair towers

## PARKING STRUCTURE FOOTPRINT

From a width perspective, a minimum of approximately 123-ft is required to accommodate 2 – 60-ft parking modules and the structural elements (walls / spandrel beams).

From a length perspective, there needs to be sufficient distance to accommodate the parking ramps and the nominally flat turning bays at each end to link the two parking modules together. The building code limits parked-on ramps to 6.67%; the 11'-4" floor-to-floor height noted above requires 170-ft minimum length. Turning bays are 48-ft with end bay parking to accommodate an 18-ft end bay parking stall and a 30-ft width for



a two-way concentric vehicular turning movement. In these designs, end bay parking is provided to be more efficient / provide a higher car count.

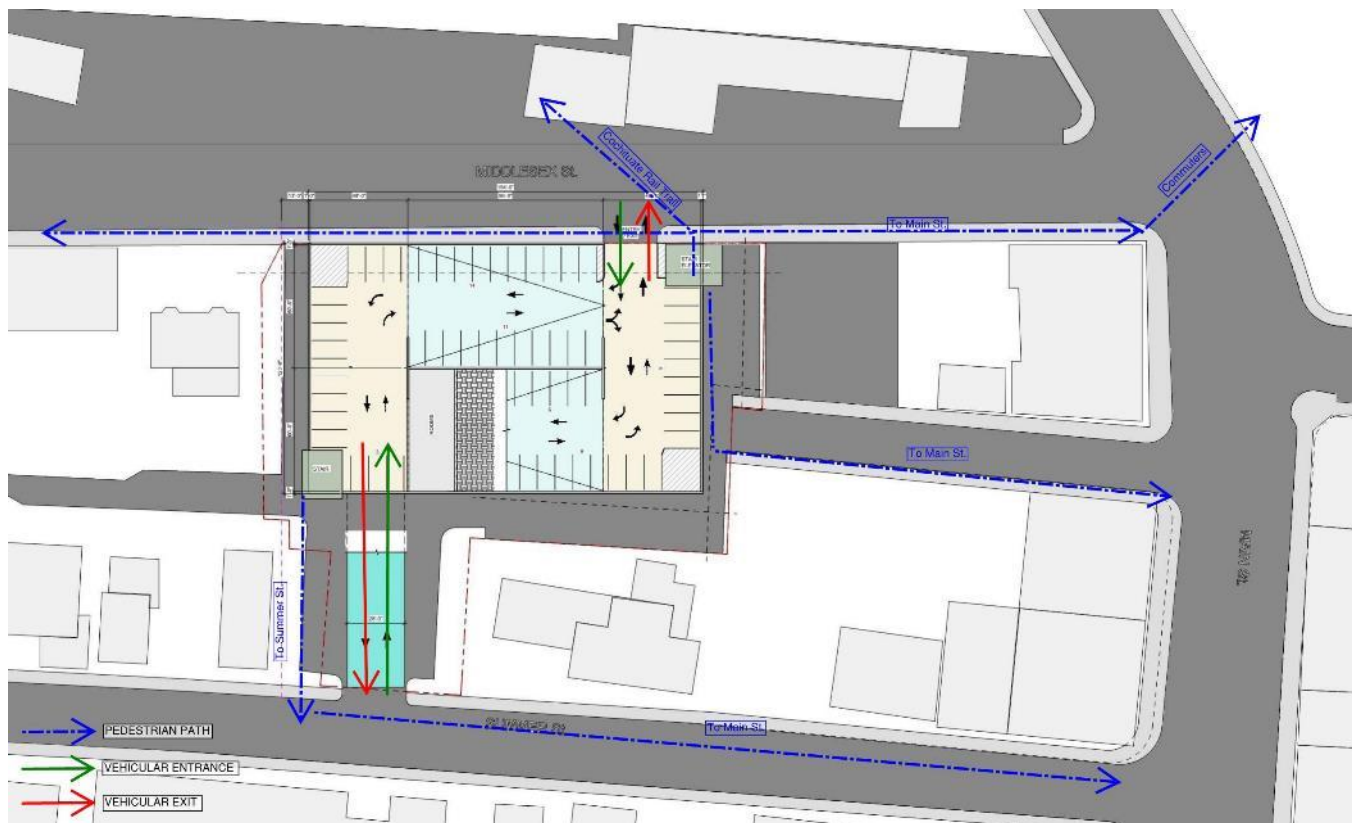
Another consideration is to work with a 12-ft module in plan as much as possible based on typical precast construction elements (refer to the Structural System section for additional information). Based on this and side-by-side ramps, the length of ramp is 192-ft (2-96-ft ramp sections) to provide a nominal 6% ramp slope. Adding in end walls / beams, the minimum structure length is approximately 194-ft.

### VEHICULAR ACCESS

Vehicular access is provided from Middlesex Avenue and Summer Street. While the structure is not of the size that requires two vehicular access points for flow capacity, two access points is advantageous in the event of traffic congestion, road work / closures, repairs in the parking structure, or similar conditions, there is more flexibility to accommodate varying operational conditions. The Phase 1 Baseline Conditions Report notes that the volume of traffic on Middlesex Avenue and Summer Street is low and would not limit vehicular access to the parking structure. Additional information is provided in Section 4 of this report.

In the event that the surface lot connection between the parking structure and Summer Street is redeveloped into a mixed-use component (refer to the Mixed-Use section below), it is possible to limit access to Middlesex Avenue only. The Middlesex Avenue entrance is the preferred location of the two entrances as it would keep users that are driving from the north on Main Street from entering the downtown area to access the parking structure. The Phase 1 Baseline Conditions Report notes significant queues in the Center from the Main Street / Central Street intersection that can back up as far as the Main Street / Middlesex Avenue intersection. The Team also understands that a traffic signal may be added to the intersection of Main Street and Middlesex Avenue which would facilitate safer traffic patterns opposed to Main Street and Summer Street.

Union Court was identified as being too narrow to be used as a primary access point for two-way traffic for the parking structure. Further, there is a preference to limit traffic on Union Court if feasible to improve the pedestrian access along Union Court.



*Pedestrian and Vehicular Access, Source – Walker Consultants*

## PEDESTRIAN ACCESS

Two points of egress are required by the building code. Pedestrian access will be provided via a primary stair / elevator core on Middlesex Avenue and an egress stair core leading out to Summer Street. An elevator is required for ADA accessibility due to the number of levels of the structure. The intent is to only provide one elevator to limit cost and site impacts, however it is feasible to provide an elevator (or multiple elevators) at each pedestrian access location either for convenience or redundancy.

The mobility analysis of the Phase 1 Baseline Conditions Report identified several pedestrian paths that will be taken when exiting the parking structure. This includes:

- Access to the east / southeast to Main Street destinations (primary user destination)
- Access to south for Summer Street destinations (Middlesex Savings Bank, TCAN, similar)
- Access to the northeast for Natick Commuter Rail station
- Access to northwest for Cochituate Rail trail connection

## PRIMARY STAIR / ELEVATOR CORE

The general design intent is to locate the primary stair / elevator core in closest proximity to Main Street and outlet onto a primary, well-lit street from a safety and security standpoint. This design therefore locates the primary stair / elevator element in the northeast corner of the site.

- The proposed location provides a direct connection to Middlesex Avenue as well as access to Union Ct. via a new sidewalk link if desired. However, there is some safety concern about pedestrians and vehicles sharing Union Court.
- This is also an advantageous location for commuter access and access to the Cochituate Trail.
- Accessible parking spaces are located in the northeast corner of the parking structure to provide the shortest access to a public way and Main Street.

#### *SECONDARY EGRESS STAIR*

The secondary stair is located in the southwest corner of the structure with a walking path to Summer Street. The Phase 1 Baseline Conditions Report indicates a pedestrian connection to Summer Street is important to service the Middlesex Savings Bank and TCAN; this provides the shortest pedestrian distance from the parking structure to Summer Street.

- This location will not have an elevator to limit the cost of the facility. For accessibility purposes, ADA spaces could be provided in the exterior parking area close to Summer Street or exiting on-street parking spaces could be repurposed for ADA access to these buildings.

#### *PEDESTRIAN TRAVEL DISTANCES*

- |   |        |
|---|--------|
| • Maximum internal horizontal travel distance                     | 230-ft |
| • Minimum distance to Main Street / Middlesex Avenue intersection | 250-ft |
| • Minimum distance to Main Street / Summer Street intersection    | 500-ft |
| • Minimum distance to Summer Street                               | 115-ft |



*Rendering from Middlesex Avenue / Northeast Corner. Source – Walker Consultants*

## ARCHITECTURAL DESIGN

The architectural aesthetic design of the parking structure is beyond the scope of this study and is anticipated for a subsequent phase of design. However, for the purposes of identifying programmatic requirements, this study phase establishes baseline considerations for the future aesthetic design process based on the site location and Phase 2 stakeholder feedback.

The project site falls within a Historic District and a Cultural District; the design process will need to consider the Massachusetts General Laws associated with these districts (see sections below for additional information).





Natick Center Photos – Source: Walker Consultants

### HISTORIC DISTRICT

As part of the Historic District, the site is subject to Massachusetts General Law 40C. This project will require a certificate of appropriateness, a certificate of non-applicability, or a certificate of hardship. Section 7 of 40C is the most significant as it relates to the architecture of this building:

*“In passing upon matters before it the commission shall consider, among other things, the historic and architectural value and significance of the site, building or structure, the general design, arrangement, texture, material and color of the features involved, and the relation of such features to similar features of buildings and structures in the surrounding area. In the case of new construction or additions to existing buildings or structures the commission shall consider the appropriateness of the size and shape of the building or structure both in relation to the land area upon which the building or structure is situated and to buildings and structures in the vicinity, and the commission may in appropriate cases impose dimensional and set-back requirements in addition to those required by applicable ordinance or by-law.”*

The architectural design will therefore need to go through this 40C process for approval. The architecture of the Natick Center Cultural district is late 19<sup>th</sup>-century “neo-gothic”; it is anticipated that the parking structure will need cues from / complement this architecture for the façade treatment.

### CULTURAL DISTRICT

As part of a Cultural District, the site is subject to Massachusetts General Law Chapter 10 Section 58. The intent of a Cultural District is as follows:

*“Cultural districts shall attract artists and cultural enterprises to a community, encourage business and job development, establish tourist destinations, preserve and reuse historic buildings, enhance property values and foster local cultural development.”*

Input from the cultural council will be critical during the architectural design phase. Numerous interviewees in the Phase 2 process noted the need for artwork to be integrate into the parking structure to complement the nature of Natick’s Cultural District. There are a variety of ways this could be accomplished, whether it is physically part of the façade, the façade provides spaces where art can be mounted and periodically changed

out, art is integrated into the site design around the structure, art images are visually projected onto the structure, or similar.

### STAKEHOLDER INPUT

The Team received feedback on the desired aesthetic qualities of the parking structure from the Phase 2 process. Notable comments included the following:

1. Should have a rustic look, brick, embrace the historic aspects of Natick Center.
2. Consider extending brick pavers on sidewalks from Main Street.
3. Have some brick trim, but not all brick.
4. Creamy stone with brick.
5. Streetscape needs to be aesthetically pleasing.
6. Natick has the look of classic New England. The garage would need to fit into that look.
7. Take cues from the TCAN fire house.
8. Function over fashion. Possibly 2/3 brick façade, 1/3 concrete.
9. Garage should not be the Taj Mahal. Just need a building to park cars in, and needs to be maintained.

While most of the input was consistent with maintaining the historic aesthetic, some expressed a desire for a look that is modern while complementing the existing buildings. The Town will ultimately need to decide the direction by developing multiple approaches to present to the public and the Historic and Cultural Councils for feedback.

If it is the desire of the Town for this facility to be aesthetically different than the historic nature of the Center, the Historic District limit could potentially be reduced to exclude the parking structure site, as it is on the edge of the district limits. This would require review and approval by the Historic District Commission.

### CONCEPTUAL ARCHITECTURAL DESIGN

For the purposes of this study, a conceptual design has been shown in the drawing elevations and rendering to indicate a typical precast concrete façade design that could be used for the structure; this concept is considered a relatively low-cost approach to the façade design. There are a number of different conceptual approaches that could be taken to the parking structure design with significantly different impacts on cost. It is also important that the exterior wall openness is taken into consideration with the design to maintain the open-parking structure classification.



*Thin-Brick Integral with Precast Exterior Beams*



*Artwork Integral with Facade*

The proposed conceptual design attempts address some the stakeholder feedback gathered while being mindful of budget. This design includes the following:

1. Brick façade – The typical façade treatment provides a brick inlay in the precast exterior beams. This is intended to complement existing façade treatments in the Center. The concrete “frames” around the brick and columns are colored to match / complement the typical limestone window sill and blocks features of the adjacent buildings, for example the adjacent Mutual One Bank building.
2. Cost-effective façade – The brick is integral with the precast structural elements; the structural element once erected provide the façade and does not require a secondary façade system application.
3. Modern architecture opportunities – The stair / elevator towers provide an opportunity complement the brick façade with potentially a more modern aesthetic. Precast panels with reveal patterns / form-liner patterns and glazed curtain walls are indicated to achieve this in a cost-effective manner; a wide variety of other material configurations are possible to achieve the same intent, for example a metal panel system. The design is intended to draw attention to these elements so that pedestrian access and wayfinding is easily identifiable.
4. Art opportunities – The relatively simple façade provides opportunities for the application of the art to the façade in order to break up the mass or simply draw attention away from the parking structure. This is not indicated on the conceptual design drawing, but something could be done along Middlesex Avenue at the pedestrian level to make the structure’s façade feel softer and more engaging.

## STRUCTURAL SYSTEM

The basic parameters for this project advocate a structural system selection based on project criteria that includes: functional design, durability considerations, construction costs, and mitigation of service life costs. The design team performed an internal review of potential systems to be recommended for this project. This process typically eliminates categories and/or types of structures from consideration based on the established project criteria and Walker's experience. Examples of this would be any number of short-span systems that would be inefficient from a car count and functional design perspective or a conventionally reinforced concrete slab structure that does not have the inherent durability characteristics of a pre-tensioned system.

This review identified four basic systems that could meet the general project criteria discussed above. A brief description of each of these systems follows:

- All Precast Concrete System: Precast concrete spandrels and precast double tee beams supported on precast concrete frame elements.
- All Post-Tensioned Concrete System: Post-tensioned cast-in-place (CIP) concrete slabs and beams supported by conventionally reinforced columns. Spandrels can be CIP or precast.
- Steel Frame System with Precast Concrete Slabs: Precast pre-tensioned double tee beam slabs supported on structural steel frame system. Spandrels can be precast or metal (barrier strand, structural steel, or similar).
- Steel Frame System with CIP Post-Tensioned Slabs: Post-tensioned cast-in-place (CIP) concrete slabs supported on structural steel frame system. Spandrels can be precast or metal (barrier strand, structural steel, or similar).
- For all systems, the lowest level will be cast-in-place concrete slab-on-grade.

Construction costs related to the structural systems presented above are influenced by a number of parameters such as architectural treatments, efficiency of parking geometrics / layout, fire element rating requirements, and level of competition among perspective bidders. In today's economic climate the all precast deck system will be more cost competitive in the New England market.

A primary design feature identified to be in the best interests of the Town for the structure is durability and minimal maintenance. Each of the systems presented require various levels of maintenance throughout their intended service life depending upon numerous factors.

- The precast system will have a precast double tee floor which requires more sealant maintenance/replacement than those that use a post-tensioned CIP slab system.
- With that said, the costs associated with routine maintenance items like sealants for precast concrete floor systems do not typically justify the higher capital costs of constructing post-tensioned concrete slab systems in New England.
- Both the precast and post-tension systems will require periodic application of a concrete sealer on the horizontal surfaces.
- The steel frame options will also require maintenance of the steel frame's protective coating system. A hot-dipped galvanized finish would be the most durable option, but will require periodic touch-up applications of cold galvanizing at weld areas, areas where the coating is damaged, etc.

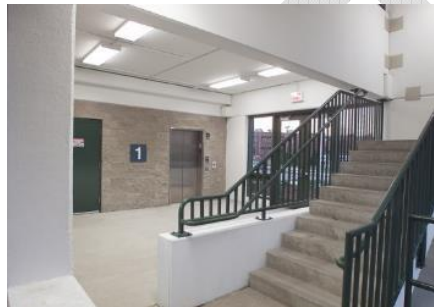


- Experience has shown that the CIP post-tension slab systems on a structural steel frame can be more susceptible to cracking than other systems. This is a durability and maintenance concern.
- Inherent detailing challenges with a precast concrete slab system on a structural steel frame presents some durability concerns and ultimately require specialty detailing / increased cost to adequately address.

The Team therefore recommends the design for this project proceed based on the all precast concrete system. This is based on construction cost, availability, and maintenance requirements. If this project proceeds forward in design, Walker recommends the Town contract a construction manager to review the logistical impacts of precast erection on this site.



*Typical Precast Interior Framing*



### PRECAST SYSTEM CONFIGURATION

The parking structure design as depicted on the conceptual design drawings is based on the precast concrete system. This uses a nominal 12-ft double tee layout module, which defines the typical 48-column spacing shown. The primary system components will include the following elements:

- Precast concrete double tee beams - 12'-0" wide by 60'-0" long by 2'-10" deep – These elements comprise the typical slab system throughout the supported levels.
- Precast inverted tee girder – 3'-0" wide by 2'-10" deep by 48'-0" long beams that support double tees at vehicular drive areas. These beams occur between columns C/1 to C/3 and C/6 to C/7.
- Precast concrete columns – Sizes range depending on locations; typical 3'-0" by 2'-0" and 3'-0" by 3'-0".
- Precast concrete wall panels – Used for vertical and lateral load resistance.
  - 10" to 12" thick typical for shear walls (locations C/3 and C/6), light walls (location C/3 to C/3), and stair walls.
  - 14" thick insulated precast panels at the elevator core.
  - Shear walls and light walls shall include openings to provide the code mandated 20% openness and improve interior visibility.
- Precast concrete stair risers
- Misc. precast slab panels – Stair roofs, infill areas and similar uses.
- Slab-on-grade – Cast-in-place concrete

The precast system will include some isolated area of cast-in-place concrete topping to smooth transitions between pieces, particularly at stair risers and drain locations. Cast-in-place areas should be limited as much as possible. All precast joints are sealed with a urethane sealant and a penetrating sealant is applied to all horizontal surfaces. The areas above rooms will have an elastomeric traffic bearing membrane application.

Given the relatively small length of parking structure, it is anticipated that the stair / elevator towers will be laterally tied into the overall parking structure, so the full structure performs uniformly (opposed to structurally separating the stair towers as is typical with longer structures). Attention should be given to the relative rigidity of these wall elements in the stair cores and their detailing to prevent cracking resulting from thermal movements of the parking deck.

### FOUNDATIONS / RETAINING WALLS

Geotechnical information was not available during this study effort. It is assumed based on the previous parking deck design that a spread footing design can be accommodated at this site. A geotechnical investigation will be necessary to confirm this prior to proceeding with structure and foundation design.

Foundations are therefore assumed to be cast-in-place spread footings bearing on natural soils. Foundation walls within the footprint of the parking structure (for example bearing walls below interior precast walls, retaining walls around the perimeter, and similar) will be cast-in-place concrete. Site walls exterior of the parking structure will be either cast-in-place concrete or mechanical stabilized earth (MSE) type walls. It is anticipated that the retaining wall along Middlesex Avenue may require replacement or partial replacement, which would be a cast-in-place concrete wall. The other proposed site walls are anticipated to be MSE walls as these are typically lower in construction cost and can be more aesthetically pleasing than a concrete wall.

### STRUCTURAL SYSTEM DURABILITY MEASURES

The previous parking deck at the Middlesex Lot was demolished relatively early in its service life due to accelerated deterioration. While the Team does not know specifically what the issues were for this deck, premature deterioration of parking structures is typically the result of poor drainage, insufficient maintenance, use of chloride deicing salts, and insufficient durability measures. From a design perspective, the system should be designed with durability in mind to ensure long-term service life expectancies.

Durability measures for the parking structure should at a minimum meet the requirements of ACI 362.1R – Guide for The Design and Construction of Durable Concrete Parking Structures, including.

1. Specific durability measures include meeting recommended water-to-cement ratios, concrete strengths, and air-entrainment to ensure a durable mix design in the precast elements and cast-in-place toppings, slab-on-grade, and walls.
2. It is further recommended that the mix design include a corrosion inhibitor admixture.
3. As noted in the previous section, the horizontal surfaces shall have a penetrating concrete sealer application and very select areas of an elastomeric traffic bearing membrane.
4. All exposed precast-to-precast steel connections should be stainless steel. Other exposed steel elements shall be stainless steel or galvanized.
5. Embedded conduit shall not be permitted in the structural elements.
6. Reinforcement larger than mesh in the top 3" of driving surfaces shall be epoxy coated or stainless steel.

A key design attribute to support the durability of the system is proper surface profiling to facilitate drainage of the parking deck. The parking structure shall be designed in such a manner to slope each floor toward the interiors of the structures and to provide positive drainage as recommended in ACI 362.1R. Slope should be such that water drains away from elevators and stairwells.

Following construction and operation of the parking structure, routine preventative maintenance and repairs will be necessary throughout the service life of the structure. The Precast Concrete Institute provides a free manual titled Maintenance Manual for Precast Parking Structures which provides recommendations for proper maintenance of a precast concrete parking structure.

DRAFT

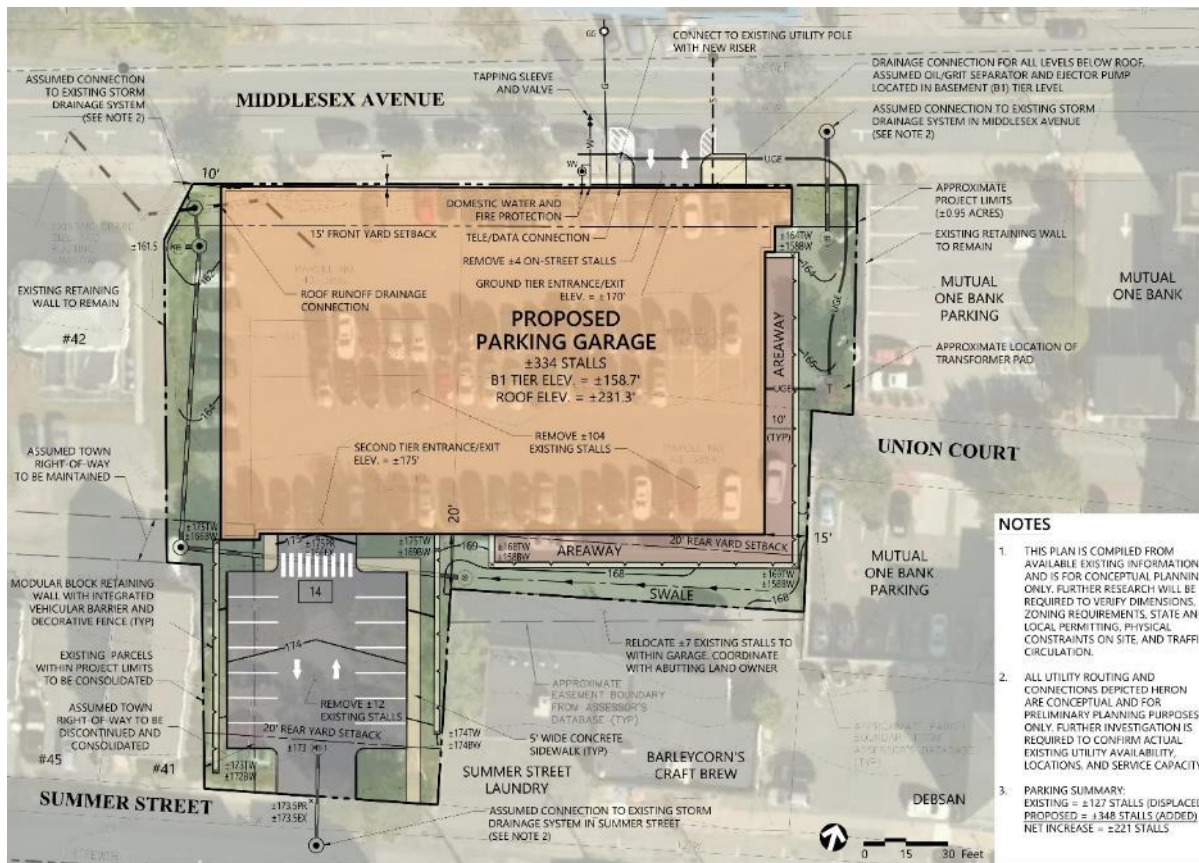
## ZONING IMPLICATIONS

### ZONING REQUIREMENTS

Zoning requirements are addressed in the previously issued Phase 1 Baseline Conditions Report. Key requirements on the underlying DM zone that relate to the parking concepts include:

- Setback requirements
  - Front yard: 15-ft unless adjacent property is closer to property line (requires special permit)
  - Side yards: 10-ft if abutting residential property; 0-ft otherwise
  - Rear setback: 20-ft
- Maximum building coverage: 60% lot area (66% with a waiver)
- Minimum open space: 10% lot area
- Building height: 50-ft (55-ft with a waiver, 60-ft with a special permit)
- Parking geometrics
  - Parking spaces: 9-ft x 18-ft
  - Drive aisle for two-way parking: 24-ft
- Permitted Uses in DM zone: The DM zoning currently does not explicitly allow for construction of a parking structure.





Conceptual Site Plan – Structure Position and Zoning Setback, Source - VHB

## STRUCTURE POSITIONING / ZONING IMPLICATIONS

The structure is designed and located to meet the zoning requirements as much as possible; refer to the Conceptual Site Plan which indicates the setbacks and positioning of the structure. Due to the geometric footprint requirements of a self-park parking structure on this site, there will need for potential zoning revisions, waivers / Special Permits, and/or revisions to existing rights-of-way. The following summaries each requirement based on the current conceptual design.

With regards to side and rear yards, the setbacks as indicated are to the face of the parking structure itself. There are site walls exterior of the parking structure to accommodate grade changes around the site and maintain areaways for natural ventilation to the lowest level. Site walls are not considered for the purposes of setback requirements.

## PARKING STRUCTURE IN DM ZONE

As noted in the previous section, the DM zone does not currently allow for construction of a parking structure. The Town will need to revise the zoning ordinance accordingly. When revising, an exception to the interior landscaping requirements for parking areas should also be included. These requirements are applicable to surface parking lots but do not typically apply to structured parking.

### FRONT YARD

The structure is positioned on the property line along Middlesex Avenue in order to maintain the rear yard requirement. Front yards are required to be 15-ft however can be reduced to match that of an abutting parcel with issuance of a Special Permit. The adjacent Mutual Bank building to the east appears to be positioned on the property line, so the intent is to acquire a Special Permit accordingly.

### MAXIMUM BUILDING COVERAGE

The conceptual design indicates that the maximum building coverage is almost exactly the limit of 60% or slightly over. Through final design it may be found that the design will be below or over this limit. This therefore may require the waiver for 66%, relief, or revision of the zoning requirement.

### BUILDING HEIGHT

The conceptual design is very close to the zoning height limitations and will require the 55' waiver to achieve the building height shown. Alternatively, the floor-to-floor heights between Levels 2 and 5 could be reduced from 11'-4" to 10'-4", which reduces the overall building height by 3' and therefore will meet the base zoning criteria. It should be recognized that this height will feel somewhat less user-friendly; the waiver should be considered if it is not difficult to obtain. Building heights along each primary façade are as follows:

- North Elevation
  - Approximate exterior average grade – 169.0'
  - Top of spandrel – 218.83' at east end, 213.33' at west end
  - Building height – 49.83' to 44.33'
- South Elevation
  - Approximate exterior average grade – 168.0'
  - Top of spandrel – 218.83' at east end, 213.33' at west end
  - Building height – 50.83' to 45.33'
  - Note that these heights are taken relative to the lower proposed grades along this façade and do not consider the new exterior ramp construction. If the interpretation is to consider those proposed grades, the design would meet the 50' limit. Further, the elevations along Summer St. are higher, in the range of 173'.
- East Elevation
  - Approximate exterior average grade – 166.0'
  - Top of spandrel – 218.83'
  - Building height – 52.83'
- West Elevation
  - Approximate exterior average grade – 164.0'
  - Top of spandrel – 213.33'
  - Building height – 49.33'

For the purposes of defining the height of the structure, the Team is assuming the top of structure elevation is the top of spandrel of the top level (approximately 3.5-ft above the top floor). This is not including the smaller stair / elevator elements that will be 10-ft to 18-ft above the top floor as required for headroom and elevator overruns. These areas are often excluded as they do not represent the overall building height for majority of the structure. The ordinance does not clearly define this; this will need to be clarified and potentially redefined in the zoning ordinance. If the stair / elevator cores are required to be below this requirement, the structure will either need a variance or else a shorter option parking structure will be necessary.

Similarly, a solar array is under consideration for this facility. Typically, solar arrays are classified similar to roof-mounted equipment and therefore not considered part of the structure height, but this will need to be clarified in the zoning ordinances.

#### *PUBLIC RIGHT-OF-WAY*

The property adjacent to the west of the site along Summer Street includes a public right-of-way that was granted to the Town for the purposes of access to municipal parking and related improvements. The existing surface lot on Summer Street is partially located on this right-of-way. It is assumed that this right-of-way will remain available for use by the Town with the new parking structure project.

The agreement requires a 20-ft wide access to the rear of the site. The Town will have to revisit this easement agreement and determine whether this access needs to be provided from / through the surface lot that will serve as the access to the parking structure from Summer St. As indicated in the Phase 4 drawings in Appendix A, the floor elevations for the parking structure are such that it is necessary to build new site retaining walls to provide a ramp up to the parking structure level and maintain the parking spaces in the exterior lot on Summer St. This impedes on the current designated access path.

If it is necessary to maintain access to Summer St. for this easement, the west side of the parking in the surface lot could be eliminated (7 spaces) and the retaining wall shifted to the east. There is also a small corner of the parking structure footprint that overlaps the easement; this is a portion of the stair tower that could be shifted north and result in the loss of 1 parking spaces per level of the parking structure (5 spaces). The total impact on capacity is a net loss of 12 parking spaces.

#### *ADDITIONAL REGULATORY REQUIREMENTS*

- Land Disturbance Permit – Will be required for disturbing an area greater than 40,000 SF. This will fall within the jurisdiction of the Natick Conservation Commission and its Stormwater Bylaw.
- Wetlands / stream related permitting – Not anticipated (as addressed in the Phase 1 Baseline Conditions Report)
- Massachusetts Environmental Policy Act (MEPA) - The jurisdiction of the Massachusetts Environmental Policy Act (MEPA) review extends to projects which meet or exceed MEPA review thresholds, and are also undertaken by a state agency, are the subject matter of any required state permit, involve state financial assistance, or are within the area of a land transfer. If the Project pursues state financial assistance or may involve a land transfer, it may fall within MEPA jurisdiction.

## ANCILLARY PARKING STRUCTURE SYSTEMS AND PROGRAM

### ANCILLARY ROOMS

The parking structure will include the following rooms:

- Main electrical room and emergency electrical room (potentially consolidated into one room). Room shall be a conditioned space.
- Cold water service room. Room shall be a conditioned space.
- Telecommunications / data room. Room shall be a conditioned space.
- Storage room / areas – Not required but may be advantageous for snow removal equipment, deicers, spare parts, etc. Could be a room or area enclosed by fence.
- Elevator closet – Required for machine-room-less controls. Room shall be a conditioned space.

### MEPFP SYSTEMS

The parking structure will include the following mechanical, electrical, plumbing, and fire protection systems:

**DRAINAGE – STORM SYSTEM** – System shall consist of a cast-iron pipe drainage system and drain bodies on the roof level to capture storm runoff from the top level. The roof level shall be connected directly to the storm system.

**DRAINAGE – SANITARY SYSTEM** – System shall consist of a cast-iron pipe drainage system and drain bodies on all other covered levels to capture runoff from the parking areas. This system shall be connected to an oil-sand separator unit and then discharged to the sanitary sewer. The system will require an ejector pump and pit to pump the lowest level of the parking structure to the sanitary sewer system.

**COLD WATER WASHDOWN** – System shall provide a cold-water supply to each level at each end of the ramp (column locations C/3 and C/6) for periodic cleaning purposes (once per year minimum). System shall include hose bibs for hose attachment and shall be completely drainage for cold weather conditions.

**FIRE PROTECTION SYSTEM** – As this building is an open parking structure, an active sprinkler system is not required. The fire protection system shall consist of a dry manual standpipe system; standpipes with fire hose connections located in each stair tower should provide sufficient coverage for the parking decks. The fire department connection for the standpipe system is anticipated to be located in the northeast corner of the structure and will need to be confirmed with the fire department.

**LED LIGHTING SYSTEM** – System shall be a high efficiency system with fixtures specifically intended for use in exterior parking structures. System shall be designed to meeting IES and National Parking Association (NPA) recommendations for lighting levels and uniformity. System shall include a programmable control system including timing controls, photocell controls, and occupancy sensor controls on each fixture.

**FIRE ALARM SYSTEM** – Provide a system as required by code and the authorities having jurisdiction.



**ELEVATOR SYSTEM** – The main stair /elevator core in the northeast corner shall include a machine-room-less traction elevator. The shaft shall be insulated and conditioned. Elevator size shall be capable of accommodating a stretcher.

**ACTIVE SECURITY SYSTEM** – System shall include CCTV cameras located at each vehicular entry / exit, each pedestrian entry / exit and throughout the parking levels. System shall include emergency aid Call for Assistance stations located at the main stair / elevator core. The system shall communicate with the Town’s public safety building.



PARCS – Multispace Meters



PARCS – Gated Access Pay-on-Foot System

**PARKING ACCESS AND REVENUE CONTROL SYSTEM** – The Phase 3 Report presents three options for parking access and revenue control systems (PARCS) for this facility; refer to that document for additional explanation for each system. Programming for the parking structure shall at a minimum include a multi-space meter system (pay by space or license plate), similar to the system that the Town is currently using for metered parking spaces. This structure would then be operated / enforced similar to the other parking supplies in Town.

Alternatively, the parking structure could be provided with a Pay-on-Foot system. It is anticipated that 4 to 8 parking spaces will be lost depending on the configuration of the access equipment. The disadvantage of this system is that it will require gates at the entry / exits, which could result in some queuing on the streets if there is a malfunction in the system or similar issues (the flows as noted in Section 4 of this report are such that the processing rate of this system should not result in significant queuing). Pay-in-Lane technology is not recommended to prevent queuing interior of the parking structure.

**AUTOMATED PARKING GUIDANCE SYSTEM** – An automated parking guidance system (APGS) is currently not included in the programmatic requirements, due to the structure’s size, relatively simple configuration, and budget considerations. The advantage of such a system would be assisting users with the decision of whether to go up or down the ramping system depending on which entrance they use. However, there are operational ways this can be managed (IE assigned parking for specific users and stationary signage). A system could be added if desired by the Town during or after construction.



*Steel Framed Solar Array on Precast Parking Structure*

#### PHOTOVOLTAIC (SOLAR) ARRAY CAPABILITY

Stakeholder input identified a desire for the parking structure to have a roof. This is based on minimizing snow removal operations and to enhance durability for the structure; it is believed by many that the accelerated deterioration of the previous Middlesex parking deck structure was due to not having a roof. It should be noted that most parking structures do not have non-parked-on roofs and have service lives for much longer than the previous Middlesex parking deck, but require routine maintenance to prevent deterioration, specific snow removal operations, regular wash downs, and similar measures.

Through the study process, it was decided by the Team that if a roof was incorporated into the structure, it would be a photovoltaic array with an integral drainage component (refer to the Phase 3 Report for additional information). The structure shall therefore at a minimum be designed and detailed to accommodate a future steel frame and photovoltaic system. Depending on project budget, available incentive programs, and/or third-party entities that would contribute the installation of a system, this could potentially be installed during initial construction.



*Mixed-Use Opportunity Along Summer St.*

### MIXED-USE POTENTIAL

In order to satisfy the geometric requirements of a self-park, parked-on ramp facility, the majority of the site footprint is utilized for the parking structure. It is therefore not feasible to include mixed-use on the site with the current configuration.

A mixed-use component could be realized along Summer Street if the vehicular connection from Summer Street to the parking structure is eliminated such that vehicular access is only provided from Middlesex Avenue. This is a relatively limited footprint area (approximately 70-ft x 90-ft) which may limit the potential uses for this site when considering current zoning requirements. This will also increase the building coverage area on the site and therefore will exceed the 60% / 66% maximum zoning requirement. A building on this area will also eliminate the 14 parking spaces included in the current space counts.

Another consideration is a mixed-use scenario that combines this small area along Summer Street with the existing Barleycorn / laundromat parcel to the east. This scenario would provide a larger footprint opportunity / increased frontage along Summer Street and may be more attractive from a redevelopment perspective. This would likely require a scenario where the Town sells or leases this portion of the land to the developer.

Refer to the Phase 3 Report for additional information related to mixed-use considerations and decisions that were made during the study / design process.

## SUSTAINABILITY

Sustainable design solutions protect and enhance the environment and integrate architecture, technology, and natural systems. They reduce environmental impacts through energy and water conservation, use of sustainable or renewable construction materials and make improvements to air quality.

Sustainable structures are also typically designed with durability in mind to require less maintenance and extended service lives. By their nature, a parking structure that is designed with durability measures for an expected service life of 50+ years has reduced demand on the environment.

During Phase 2 of this project, the design team contacted two members of Natick's Sustainability Committee to gain an understanding of current interests in design features for the parking structure. This was incorporated into the following lists, as well as the typical design features that Walker would ordinarily include in a parking facility in the northeast. This includes the following from a programming perspective:

Design features that will be provided in the parking structure's design:

- Electric vehicle car charging stations;
- Dedicated spaces for fuel efficient vehicles;
- Lighting efficiency – LED fixtures with photometric control and active dimming controls;
- Reflectivity / white stair core roof materials – heat island reduction;
- Recycled materials in concrete – fly ash, slag, or similar pozzolans;
- Concrete durability measures – high-density / low water-to-cement ratio, corrosion inhibitor, epoxy coated reinforcement where applicable, concrete sealer application for a durable structure / longer service life;
- Metal durability measures – use of aluminum, galvanized steel, and stainless steel to minimize corrosion induced deterioration;
- Use of local materials reduces environmental effects due to transportation;
- Open parking structure classification – minimal HVAC equipment means reduced energy consumption (HVAC only required in elevator shaft and mechanical / electrical rooms);
- Permeable paver surfaces (where practical).

Design features that may be provided in the parking structure's design depending on the project budget (not included in current opinions of probable costs):

- Secure bicycle storage areas inside of the parking structure;
- Photovoltaic (solar) array;
- Storm water retention on-site such as irrigation/rain water harvesting;
- Wind generators;
- Planters / green walls.



## CERTIFICATION

Parking structures cannot currently obtain LEED certification. However, a similar certification program known as Parksmart is available. It is assumed for this project that the Town will not seek Parksmart certification, however many of the design considerations in Parksmart will be implemented in the facility's design.

DRAFT

## SITE CONDITIONS AND IMPACTS

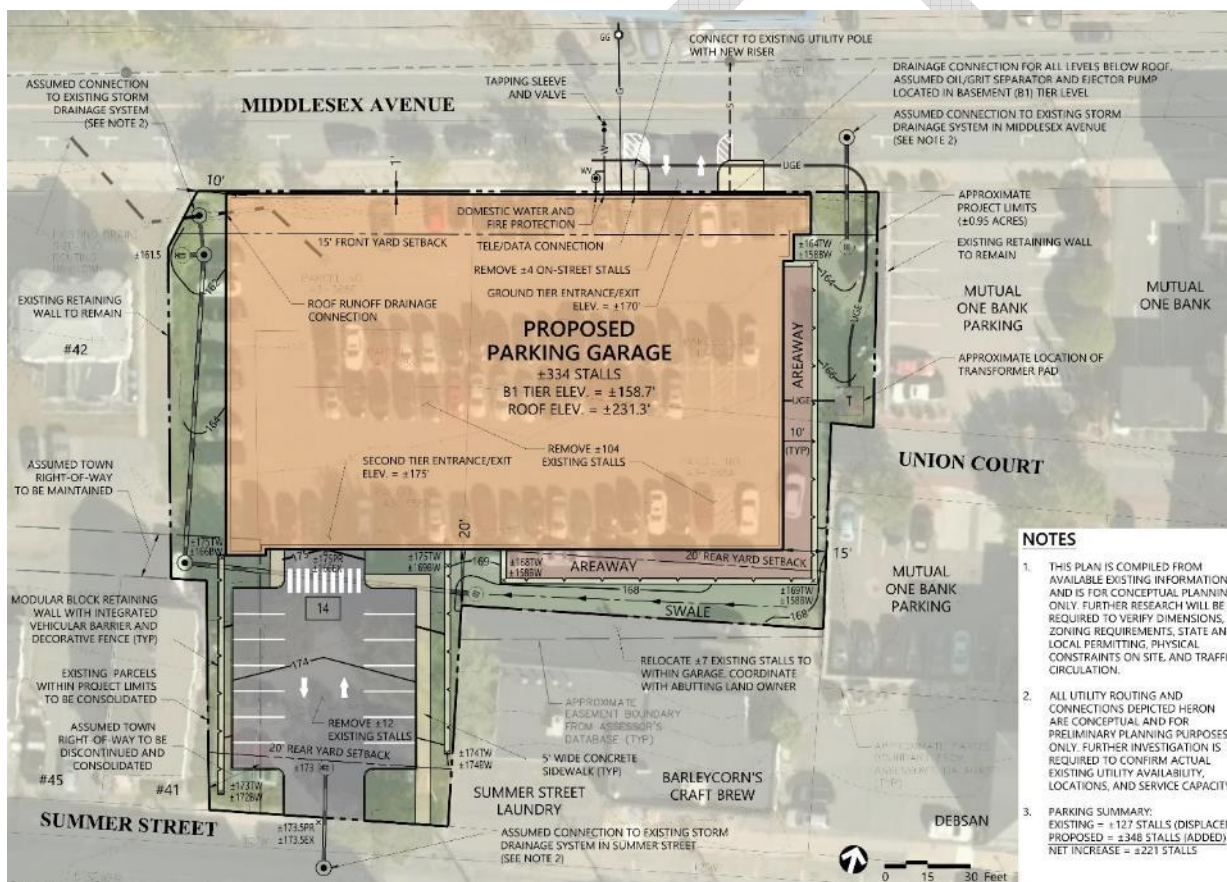
### UTILITIES

#### EXISTING UTILITIES - INTERIOR OF SITE

The existing conditions research performed in Phase 1 of this study identified a single drainage structure in the northwest corner of the site. This will be removed as part of the construction. No other utilities were identified on the project site during this effort. Refer to the Utilities section of the Baseline Conditions Report for additional information.

#### EXISTING UTILITIES - EXTERIOR OF SITE

The Proposed Utilities section below indicates the proposed connection to existing utilities primarily in Middlesex Avenue. The condition of these lines is unknown. The project scope will need to include inspection of these elements and a contingency to account for repairs / upgrades if required to facilitate the project.



Conceptual Site Plan – Proposed Utilities, Source: VHB

### PROPOSED UTILITIES

Refer to the Conceptual Site Plan prepared in Phase 4 for proposed utility connection and new utility elements necessary for the project site. In summary:

1. Storm Connections – The majority of the building storm and site storm will exit the site to the Middlesex Avenue storm system. The small surface lot providing the connection between the parking structure and Summer Street will exit the site to the Summer Street storm system. New drainage structures are provided around the perimeter of the site as necessary to facility drainage.
2. Sanitary Sewer Connection – The connection is provided to the Middlesex Avenue sewer system. A sewage ejector pit and pump are located within the parking structure on the lowest level adjacent to this location to lift from the oil-sand separator to the existing sewer system inverts.
3. Electric Service – The electric service will come from an existing utility pole on Middlesex Avenue. The service is fed below-grade to the transformer located on the east side of the parking structure adjacent to Union Court. Service will then enter the parking structure below grade to the electric room.
4. Water Service – The water service for the structure will come from the Middlesex Avenue source. Water service will enter below-grade into a water service room located on the lowest level of the parking structure.
5. Gas Availability – A gas connection is available on the Middlesex Avenue site of the structure however it is not anticipated that the parking structure will need a gas connection.

#### EXISTING FOUNDATIONS

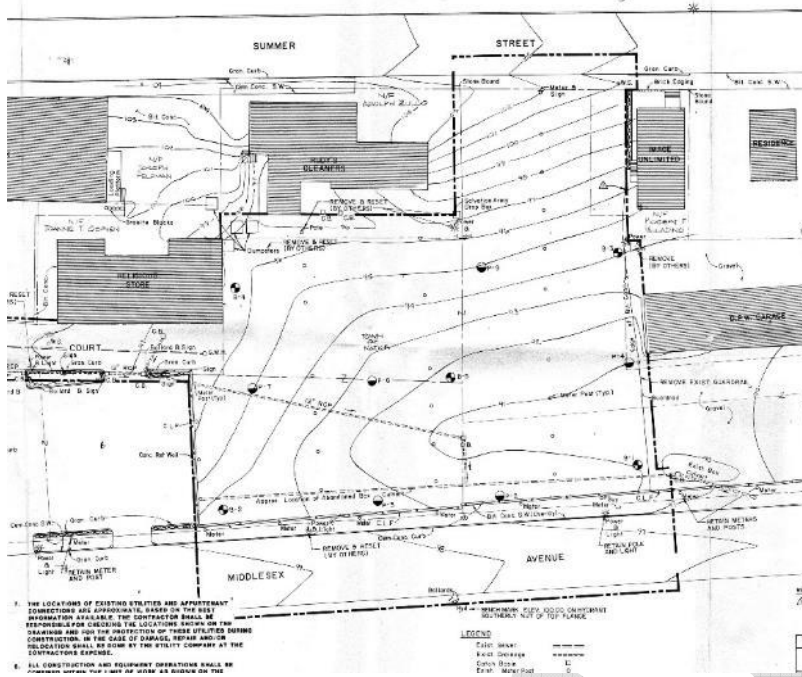
The Team understands that the existing foundations for the previous Middlesex parking deck were not removed when the structure was demolished. It should be assumed that these foundations will need to be removed to facilitate the new parking structure construction, unless they do not affect the foundations / slab-on-grade of the new facility. The existing retaining wall structures along Middlesex Avenue will require removal.

#### EXISTING SOIL / FILL

The Team has performed a Phase I Environmental Site Assessment (ESA) for the Town-owned parcel and select adjacent parcels. This report notes that it is probable that controlled / contaminated fill material will be encountered at the project site. Additional environmental testing and pre-classification of the site will be necessary to better understand the potential impacts to the project costs. A contingency allowance is currently included in the opinion of probable costs and will need to be verified in future phases of design.

It is also currently unknown whether this fill material can be reused if kept on-site, for example to backfill and support the portion of ramped slab-on-grade in the structure. This will need to be confirmed in subsequent phases of design.





Existing Typography – Up to 11-ft Difference from Middlesex Ave. to Summer St.

## TYPOGRAPHY

The previous Middlesex parking deck was a single supported level without a ramp between levels; access to the upper level was via Middlesex Avenue and access to the lower level was via Summer Street. This was achieved by excavation of the site and a retaining wall along Middlesex Avenue. This therefore results in a sloped grading from Summer Street to Middlesex Avenue, with a retaining wall along Middlesex Avenue providing a differential grade of approximately 8-ft.

The parking structure has been designed to meet the existing grades as much as feasible while maximizing the potential parking supply on the site. In doing so, there are two design impacts. The design requires an extension below grade to provide the lowest portion of the structure (lowest point in structure is approximately 158.68-ft vs existing grades between 162-ft and 166-ft). The site impacts related to this are the need for exterior site retaining walls to step the grading and provide areaways to allow for natural ventilation to the lowest level. The design also requires new site retaining walls to slope up slightly from Summer St. to access the second level of the parking structure. This is necessary to maintain a ramp slope below the 6.67% limit to accommodate the 14 parking spaces along the vehicular link between Summer St. to the parking structure. This construction impacts existing access to the back-of-house of the adjacent properties along Summer St., as addressed in the following section.

Refer to the Conceptual Site Plan for proposed grading and retaining walls planned for the site around the proposed parking structure.



*Existing Site Back-of-House Connectivity*

### BACK-OF-HOUSE CONNECTIVITY IMPACTS

The parking structure will impact the existing “back-of-house” access connectivity that exists behind the 21 Summer Street property, the properties west of the site, and Union Court.

#### 21 SUMMER ST. PROPERTY

There are approximately five existing parking spaces located behind this property that are currently accessed via the small Town-owned surface lot from Summer Street and a drive lane in the Middlesex lot. The proposed design would eliminate this connection based on the necessary retaining walls for the vehicular access to the parking structure.

It is assumed the Town could reach an agreement with the Owner of that property to provide replacement spaces within the new parking structure. Other potential approaches include (a) eliminating the Summer St. entrance so that surface lot and existing grading remains as-is or (b) entering the parking structure at Level 1 instead of Level 2. This would eliminate the retaining wall access to the parking structure but would require a steeper slope down (9%) to the parking structure opposed to a slight incline ramp (2.5%) up to the parking structure. This ramp slope could be accommodated however is relatively steep and will eliminate the existing parking in the small lot area (maximum slope for parked-on ramps is 6.67%).

#### PROPERTIES WEST OF SITE

Similar to the 21 Summer St. property, the vehicular access connectivity to the properties west of the site will be eliminated by the parking structure construction and retaining wall ramp up to the parking structure. The options to maintain this access noted in the 21 Summer St. Property section above would also be feasible to maintain access to the west. An additional option is addressed in the Zoning section of this report which addresses the public right-of-way along the west side of the parking lot. This would push the retaining wall east, eliminating the 7 proposed parking spaces in order to maintain access.

#### UNION COURT

Union Court currently connects to the Middlesex Lot; this connection will be lost, and Union Court will be a dead-end condition for vehicular traffic. Union Court will still be able to provide access to the back-of-house and parking for the properties that abut and currently utilize Union Court for access.

## CONSTRUCTION CONSIDERATIONS

### CONSTRUCTION CHALLENGES

The site / location of this project presents some challenges common to construction projects in denser urban-like environments.

#### TEMPORARY PARKING

The contractor will need to capture the entire site during construction, eliminating 127 current parking spaces. The Town will need to determine where the temporary parking is provided. This may require remote parking and a shuttle service during this period.

Contractor parking will also be necessary during this time, increasing demand in the Center. The Town may consider identifying a remote lot for contractor parking that cannot be accommodated on-site.

#### LIMITED SITE AREA

The necessary footprint for the parking structure will encompass the majority of the project. This will cause challenges with construction activities, for example temporary soil storage during excavation, staging areas during and after the structure erection, material deliveries / storage, and similar. Trucking for soil removal / fill and precast erection will need to be carefully coordinated and likely require a staging area in close proximity to the project site to allow for short trucking trips to / from the site depending on the activity. It is anticipated that the exterior parking area along Middlesex Avenue will need to serve as a primary area for these operations once erection is complete.

Accommodating a crane will also be challenging. It will be possible to erect a portion of the structure within the footprint of the structure, but at some point the crane will need to erect from outside of the footprint, which may require erecting from Middlesex Avenue.

#### PROXIMITY TO PROPERTY LINES

Due to the limited site area, the parking structure is positioned about one foot from the property line along Middlesex Avenue. Temporary support of excavation such as sheet piling will be necessary for footing and wall construction. In order for the footings to be designed in an efficient / cost-effective manner, footings will need to extend across the property lines into the streets, which will likely temporarily impact the street width.

In most cases there should be a minimum of 10-ft clear along the other sides of the structure to the property lines, however depending on grading and required depth of excavation, it may be necessary to provide support of excavation along the east / west / south as well. The intent is to install the permanent site walls around the structure initially, then cut down to the foundation excavation elevations within the areaway zones. This may still require some support of excavation depending on the specific site / soil conditions.

The existing foundations on the site also present a construction challenge. It is anticipated that the existing concrete retaining wall (a component of the previous Middlesex parking structure) will need to be removed to facilitate construction of the new parking structure. This will require extending temporary support of excavation into the structure to excavate down below its foundation and demolish.



### *SITE GRADING*

The existing site grading slopes down from Summer Street to Middlesex Avenue which will complicate the erection process. The crane will need a relatively flat surface to operate on, so it may be necessary to build a crane road to get the crane into the site, and either temporary over-excavation or over-fill to provide a level surface. It will then be necessary to backfill, install utilities, and construct the slab-on-grade below the structure.

As previously noted, this option will require excavation operations in order to construct the lowest level. Temporary on-site storage of soil materials, loading operations for soil required to be disposed, and trucking operations will be challenging given the location and limited site space.

### *CONSTRUCTION TIMELINE ESTIMATE*

The construction schedule will depend on the project delivery method (design/bid/build, CM, etc.), site environmental impacts, the Town's permitting / regulatory processes, the Town's review and approval process, time of year, and other similar factors. For a traditional design/bid/build delivery method, considering only design time (not including other factors noted which are highly variable), the following durations can be assumed for conceptual planning purposes:

- Design 30 to 40 weeks
- Bidding 8 to 10 weeks
- Contract Negotiations 3 to 4 weeks
- Preconstruction 4 to 6 weeks
- Construction 14 to 16 months

## ADDITIONAL PROGRAMMING CONSIDERATIONS

### EXTERIOR SITE SIGNAGE IMPROVEMENTS

Input received in Phase 2 suggested that there is confusion regarding where to park downtown. The Town should consider additional measures to guide users to the parking structure and other parking supply areas. A basic measure would be stationary signage at the corner of Middlesex Avenue and Main Street directing users down Middlesex Avenue for parking. Technology solutions such as parking guidance could be provided; for example, an active count system in the parking structure that relays vacancy numbers to dynamic signage on Main Street. Such a system could be implemented on Town-owned parking facilities throughout the Center to guide users to vacant parking. Smartphone apps such as Parkmobile are another technology-based solution that could be considered.

### FUTURE ADAPTIVE RE-USE

Future adaptive re-use is a term for designing a parking facility with flexibility to accommodate future conversion to another use type based on need / changes in the market demands. For parking, the fundamental idea is that in the long-term, parking demand will decrease based on autonomous vehicle use and traffic network company (Uber, Lift, etc.). Typical design considerations in parking structures for adaptive re-use include higher design loads, higher floor-to-floor heights, nominally flat floor plates, larger stair / elevator cores, accommodations for mechanical / electrical chases, other similar design attributes more typical of a commercial or residential facility compared to a parking structure.

A variety of different approaches can be taken for adaptive re-use, for example only designing the grade level for re-use opposed to the entire structure, resulting in a range of potential cost impacts for a project. However, common measures can be expected to increase the construction cost in the range of 10% to 20% and in some cases more.

During Phase 3, adaptive reuse was discussed with the Team and considered for the designs. The Team decided to design the structure for future adaptive reuse. For this particular design, both bays of the parking structure are ramped to meet the necessary floor-to-floor heights and cannot accommodate a different use type in the future; adaptive reuse is not feasible. Options were considered to provide the ability to have reuse opportunities on the grade level, however the impact to parking capacity and cost were too significant and did not meet the core intent of this project.

Refer to the Phase 3 Report for additional information related to adaptive reuse.

## CONCEPT DESIGN LIMITATIONS

The following limitations are important to recognize as they could impact the feasibility and cost of the information presented in this report.

- GIS – There are accuracy limitations associated with designing based on available GIS information. It is anticipated that a full site survey will be performed during the next phase of design in order to verify conditions and finalize the location of the structure on the site.
- Geotechnical Information – Information related to the geotechnical characteristics of the site are not currently available. It is therefore unknown what foundation system, depth of foundations, temporary excavation, dewatering, and other similar requirements that will be necessary for the construction of this facility. A geotechnical investigation will be necessary in the next phase of the design to define these project requirements.

DRAFT



## 03 Financial Considerations



This section of report presents the assumptions used in preparing preliminary financial model to generate a pro forma statement of income and expenses for the conceptual parking structure design. The intent is to provide the Town with an order-of-magnitude understanding for the financial aspects of constructing, owning, and operating a parking structure.

## **LIMITATIONS OF FINDINGS**

The information that follows is intended as a preliminary analysis for financial planning. “Preliminary” distinguishes the work from the more detailed study that goes into preparing a bond document close to the time of construction. A preliminary study is for earlier-stage budgeting purposes. The current “preliminary” analysis is not meant to provide the in-depth research effort and level of detail needed for obtaining financing and should not be used for that purpose.

## **DEVELOPMENT COSTS (DEBT SERVICE)**

The debt service is comprised of the parking structure construction costs, project soft costs, land acquisition, contaminated soils contingency. The following is assumed for the pro forma iterations.

### **CONSTRUCTIONS COST**

An Opinion of Probable Construction Cost was generated for the parking structure design and site construction. Refer to Appendix B for an AIA division summary of the construction costs. The Opinion of Probable Construction Cost for this structure is \$11.5M, corresponding with approximately \$32,000 per parking space. This does not include the cost of the photovoltaic array and support frame; that is estimated to be an additional \$2.5M to \$3M based on recent pricing information seen for these systems for considering complete coverage of the top level. This cost is also not included in the pro forma iterations.

Costs are based on historic data from similar projects in the northeast; fluctuations will occur depending on economic factors, availability of material, availability of labor force, and other similar factors. Costs presented are in 2019 dollars and are adjusted accordingly (see Inflation Factors below).

### **PROJECT SOFT COSTS**

Project soft costs include design fees, Owner’s management costs, testing costs, legal fees, Owner’s construction contingency, and other similar costs. Project soft costs have been assumed to be 20% of the construction cost.

### **CONTAMINATED SOIL CONTINGENCY**

The Phase 1 ESA identifies a potential to encounter controlled / contaminated fill on the site. Further, the 21 Summer Street property which previously was a laundromat has a higher potential for contaminated fill. A contingency allowance of \$100K is included in the opinion of probable cost to address this potential. Due to lack of information on quantity / limits, this is only an assumption at this time for the purposes of estimating a cost.

## FINANCING ASSUMPTIONS

The following assumptions are used in the pro forma iterations:

- Equity – It is assumed that 100% of this project is financed.
- Bond cost – 2%
- Interest rate – 4.5%
- Loan term – 25 years

## OPERATING EXPENSES

Operating expense projections are based on similar project experience regarding maintenance costs and labor scheduling. This includes the following primary expenses:

- salary and benefits,
- utilities,
- supplies and tickets,
- repairs and maintenance,
- elevator maintenance,
- snow removal / sanding,
- sweeping / power washing,
- insurance,
- line striping,
- management fee,
- damage claims, and
- miscellaneous expenses (unknowns at this time).

A line item is provided for the following typical expenses however these are shown to have no cost as they are items that are assumed to be already addressed by the Town or are not applicable. Costs can be included at the option of the Town.

- security,
- PARCS service agreement,
- accounting / bank fees.

The team assumes a third-party parking operator will manage the parking structure. Parking operators have familiarity with parking equipment, parking operations, seasonal demand, local parking rates, competitive climate, customer service, maintenance, revenue control, audit procedures, etc. If the Town contracts with a parking operator, depending on contract negotiations, the Town would typically maintain control of the parking structure and own the revenue stream. The operator is typically paid a monthly fee to operate the parking structure. All operating costs are paid by the owner.

## STAFFING

The team assumes this facility will not have full-time on-site management. The management company is assumed to devote approximately one-quarter of a full-time employee for management oversight and one-eighth of a full-time employee for custodial needs.

## RESERVE FOR REPLACEMENT SINKING FUND

We also include a Reserve for Replacements (Sinking Fund) as a set-aside for structural repairs that will be needed long-term to keep the parking structure in good condition. Though not part of the annual maintenance budget, it is important that this reserve be created to support the parking structure for the long term. This is not included in the Net Operating Income portion of the pro forma but is a post-NOI line item.

## REVENUE PROJECTIONS

### EXISTING RATE STRUCTURE

The following is the current rate structure in use in the Center area that is used in the pro forma iterations:

- Downtown Business Permits      \$325 / year
- Transient Parking                      \$0.25 / 30 minutes, assumed 2-hour typical duration
- Residential (assumed)                \$325 / year
- Commuter                                \$615 / year (resident rate)

Note that the resident rate is used for commuter parking; non-residents are \$725 per year. For the purposes of pro forma planning, the resident rate is used as it is unknown what the future mix may be and therefore this is a conservative approach.

### URNS

Employees typically park for four to eight hours or more during peak times, and residential parkers may leave a car parked for more than 24 hours at a time. It is therefore assumed that these spaces only turn over once per day. ("Turns" represents the number of times a transient space is vacated and reoccupied by a different car.) Given the low cost for hourly parking (\$1.00 for 2 hours) transient parkers park for two hours or less, turning twice a day. As there is more uncertainty in transient parking, these projections are then reduced by 20%.

"Oversell" describes the ability to sell more public monthly permits than there are spaces available, on the grounds that every permit holder will not be in the parking structure every day, due to business travel, vacations, sick days, etc. However, as we are including an oversell correction for the parking demand, we are not assuming an oversell factor in the parking structure. Note that we do not recommend overselling residential spaces, as there is potential for every car to be in the parking structure during nights and on snow-days.

### EXISTING REVENUE

It is important to note that these pro forma consider demand from the existing 127 parking spaces at the Middlesex parking lot. This is therefore revenue that the Town is already currently taking in, not new revenue.

## PUBLIC INPUT

During the Phase 2 process, public input was collected relative to the parking rates in the Center. As with most input, there were a range of opinions on current and future parking rates. In general, most feel that the existing rate structure is too low. When asked about increases, some thought that \$500 to \$600 per year would be reasonable; others thought this would be too high / problematic for typical downtown employees.

A pro forma iteration is provided to show the effect of increasing the current base rate for a downtown parking permit from \$325 per year by 50% to represent an approximate \$500 per year structure. Note that this only considers the financial effect of this increase relative to the parking structure and not the overall number of downtown permits for parking elsewhere.

## TIMING / IMPLEMENTATION SCHEDULE

The pro forma iterations currently assume the parking structure will be fully occupied on day 1 of 2022. This may or may not be a reasonable assumption for the purposes of budget planning. The demand currently included in the pro forma for Downtown Business Permits and transient is predicated on future development, so this revenue stream likely will not be full at this time. However, it is possible to offer additional commuter parking (which is currently at rates lower than most other MBTA stations) to offset some of this demand that is not yet realized.

## INFLATION FACTORS

The pro forma assume parking operations commencing in 2022. It is currently assumed that parking rates in the Center will not increase between now and commencement. The first year of stabilized occupancy is assumed to be 2023.

Debt Service is assumed to increase 3% per year for three years during planning, permitting and construction (a total of 9%).

Each pro forma incorporates the following revenue/expense assumptions from year 2022 through 2042:

- A 3.5% annual increase in all expense costs.
- A 6% increase every 3 years for all revenue sources.

## PRO FORMA

The pro forma in Appendix B include the revenue and expense assumptions discussed above for the proposed design. As previously noted, the first iteration considers the existing rate structure and the second iteration is an increased rate structure (50%).

In analyzing financing options, it is important to consider the Debt Service Coverage Ratio (DSCR). This compares the Net Operating Income (NOI) with the Debt Service and needs to be above 1.0 in order to satisfy the Debt Service. Note that the DSCR is similar to profit, before contributing to the Reserve for Repairs (Sinking Fund). If the DSCR is below 1.0 it is not profitable. Most public entities required a DSCR of 1.25 or higher.



## STATEMENT OF LIMITING CONDITIONS

This report is subject to the following limiting conditions:

1. Walker has drawn certain assumptions from its past work on other projects of similar or like nature and has done so in a manner consistent with the standard of care within the profession. Because of the inherent uncertainty and probable variation of the assumptions, actual results will vary from estimated or projected results. As such, Walker makes no warranty or representation, express or implied, as to the accuracy of the estimates or projections.
2. The results and conclusions presented in this report may be dependent on assumptions regarding the future local, national, or international economy. These assumptions and resultant conclusions may be invalid in the event of war, terrorism, economic recession, rationing, or other events that may cause a significant change in economic conditions.
3. The projections presented in the analysis assume responsible ownership and competent management. Any departure from this assumption may have a negative impact on the conclusions.

## SUMMARY FINANCIAL OBSERVATIONS

1. For the current rate structure, the proposed structure will not cover the operating expense. Consideration therefore needs to be given to how this difference in revenue vs. cost is budgeted for by the Town or whether rate increases are necessary.
2. For the current rate structure, the proposed structure will not cover the debt service.
  - a. Rate increases to the level necessary to cover debt service, operating expenses, and a sinking fund with 100% of the project costs financed would be well beyond what would be viewed as acceptable in Natick. For example, the yearly permit cost would need to increase from the current \$325 per year to about \$270 per month or \$3250 per year.
3. Rate increase scenario – Iteration based on increasing Downtown Business Permits to approximately \$500 / year (50% increase)
  - a. In the near term (less than 10 years of operation), this increase will result in covering or being close to covering operating expenses (but not debt service).
  - b. In the longer-term (beyond 10 years of operation), this increase with the inflation assumptions for revenues and expenses will not cover the operating expenses.

## ALTERNATE FUNDING OPTIONS

The pro forma assume conventional loan financing for the project. The following address other potential funding sources for the debt service for the project.

### MASSDEVELOPMENT - DISTRICT IMPROVEMENT FINANCING

MassDevelopment would issue a bond for the project through the tax-exempt bond market at an interest rate 1% to 2% lower than conventional loans. The Town would establish a district and use incremental property tax to fund the parking structure. The issue is whether the incremental increase in property tax would be sufficient to significantly offset the debt service; based on the Phase 1 Real Estate Evaluation, the amount of tax revenue does not appear to be significant enough to offset the debt service.

### **MASSDEVELOPMENT - LOCAL INFRASTRUCTURE DEVELOPMENT PROGRAM (23-L)**

Similar to DIF, this program would provide a tax-exempt bond for the project. This requires a new district petitioned by 100% of the property owners for an additional assessment on their properties within the district. This can be used in conjunction with a DIF so that the additional assessment is only used if the DIF revenue is insufficient. Similarly, the question is whether there will be sufficient funds generated from the increased assessment to offset the debt service. This would either need to be a large district or significant assessment increase, therefore does not seem to be a likely source.

### **MASSDEVELOPMENT - I-CUBED (INFRASTRUCTURE INVESTMENT INCENTIVE PROGRAM)**

Under I-Cubed, the Commonwealth issues tax exempt bonds to finance public infrastructure to support major development projects that create sufficient new state tax revenues (in the form of retail sales, employment, and hotel taxes) to cover (at 1.5 DCR) bond debt service.

The program is very much geared to major private development projects, with the Commonwealth needing to be comfortable that the private project will proceed to generate the tax revenues and the developer responsible for construction of the public infrastructure improvements (using competitive procurement process).

To the extent the Town does not intend to tie the deck's construction to a private development nor have a private developer take responsibility for the deck's construction, this program would not appear to be a good fit for this project.

### **MASSWORKS INFRASTRUCTURE PROGRAM**

The MassWorks Infrastructure Program is administered by the Executive Office of Housing and Economic Development (EOHED) in consultation with the Massachusetts Department of Transportation (MassDOT), Executive Office of Energy and Environmental Affairs (EEA) and the Executive Office for Administration and Finance (ANF).

The program provides grant funding for the construction, reconstruction and expansion of publicly owned infrastructure including parking facilities. Targets for funding include projects that support multi-family housing in walkable, transit-oriented mixed-use districts such as town centers, or that support economic development in weak or distressed areas.

50% or more of the program's total funding must be in support of developments in Gateway Cities (which Natick is not designated for), but other criteria appear to be favorable for the project. Priority was given in the 2017 round to applications that: 1) support the production of multi-family housing in mixed-use districts that are well-connected to significant employment opportunities; 2) support economic development in weak or distressed areas; or 3) support direct and immediate job creation opportunities.

Projects must be ready to proceed, including making reasonable efforts to demonstrate a timeline and funding source for completing design in a timeframe that allows for construction in the upcoming construction season and demonstration that all required permits can be reasonably obtained within 120 days of receipt of grant approval or shortly thereafter.

Communities with a population over 7,000 are eligible to apply for design / engineering costs along with a construction grant however no more than 10% of the total grant request may be used for design / engineering. If a project is seeking design / engineering funds as part of an application, the project must be able to complete

design / engineering in a period that allows the project to advance to construction during the upcoming construction season.

A local or private match is not required; however, those applications requesting infrastructure funds that support a development project will be favored if a match is available.

\$500 million was authorized for 2017. A total of approximately \$84 million was awarded in the 2017 funding round, with awards ranging from a few hundred thousand dollars to approx. \$5 million with \$1 million - \$3 million typical.

Based on the above criteria, this project may potentially be a reasonable candidate to receive funding from this program. Given the competitive nature of the program, award may depend upon the extent that the Town can establish the need for the project, likelihood of it spurring significant new or redevelopment, the commitment of other (Town) funding to it, and the ability to move forward in a timely fashion.

#### PRIVATE ENTITY CONSTRUCTION / OPERATION

As demonstrated by the pro forma iterations, the parking rates and associated revenue do not cover basic operating costs and construction cost / debt service for parking structure; the rate structure would need to be increased by six times to break even. The market will not likely entertain this kind of increase. Private entity would only entertain such a scenario if the structure would generate a profit which is not feasible.

#### PUBLIC / PRIVATE MIXED-USE JOINT VENTURE

Similarly, a public / private partnership would need to generate sufficient revenue for a private entity to enter into such an agreement with the Town. The Town previously solicited an RFP for a mixed-use joint venture at this site but it was determined that there was not sufficient space to develop enough residential units to make the project feasible. The only scenario that has potential for being feasible is acquiring all the properties west of the project site for a much larger project site that could reach the number of units necessary to financially feasible (as addressed in the Phase 1 Real Estate Evaluation). The assessed value of these properties is approximately \$3.2M; it therefore was not identified as a likely scenario at this time.

#### LOCAL CAPITAL

During the Phase 2 process, interviewees were asked whether they would be interested in putting up the capital to “own” a parking space in the parking structure. Some expressed interest, however with stipulations such as a 50-year contract of ownership of a dedicated (non-shared) parking space with no additional costs otherwise (i.e. maintenance) for the life of the contract. Price-point will also be critical; while some thought \$10K to \$20K a space may be feasible with negotiated terms, \$30K per parking space did not seem likely.



## 04 Traffic Impact Analysis



This section presents traffic volume estimates for the condition before and after the construction of the proposed parking structure option. The estimates are for morning and evening peak traffic hours at site driveways and nearby intersections.

### EXISTING TRAFFIC COUNTS

Turning movement counts were conducted on Thursday, March 14, 2019 at six intersections near the project site. The counts were conducted from 7:00 am to 9:00 am and 4:00 pm to 6:30 pm. Figure 1 shows the traffic volumes for the morning peak hour (8:00-9:00 am) and Figure 2 for the evening peak hour (4:45-5:45 pm).

The figures also depict peak hour traffic volumes at the two entrances to the existing parking lot on the site — Union Court and Summer Street. Traffic counts for the existing parking lot were collected on Friday, February 16, 2018.

### SITE-GENERATED TRAFFIC

The proposed parking structure will affect traffic volumes in two ways. First, there will be increased traffic to and from the site. Second, the direction of travel will change for some of the existing users due to the change in access to the site. The Summer Street entrance will remain, but the Union Court access will be replaced with access at Middlesex Avenue.

Table 1 shows the estimated trip generation for the parking structure. The parking structure is projected to generate a maximum of 119 new trips in the morning peak hour and 129 new trips in the evening peak hour. These estimates are calculated using the per-space trip generation rate of the existing parking lot and should be considered conservatively high. The existing users of the site parking have a relatively high trip generation rate (0.5 trips per parking space during the peak hour), but that is due to the many current parking permit holders working similar shift times in nearby banks. The parking structure would likely have a more varied set of users with more dispersed arrival and departure patterns. The estimate also assumes that all the additional parkers are new to Natick Center and not simply existing Natick Center parkers choosing to park in the parking structure instead of where they currently park.

Table 1 Trip Generation

	Morning Peak Hour			Evening Peak Hour		
	In	Out	Total	In	Out	Total
Existing Trips	57	0	57	5	57	62
New Trips	119	0	119	10	119	129
Total	176	0	176	15	176	191

## FUTURE TRAFFIC VOLUMES

Figure 3 and Figure 4 show the projected change in site-generated peak hour traffic volumes at the site driveways and nearby intersections. Some of the intersection turn movements would experience a decrease in volumes due to the change in site access for existing users from Union Court to Middlesex Avenue.

During the morning peak hour, the hourly change in site-generated cars traveling through the nearby intersections ranges from a decrease of 31 cars at the Union Court/Main Street intersection to an increase of 42 cars at the Middlesex Avenue/Main Street/South Avenue intersection.

During the evening peak hour, the hourly change in site-generated cars ranges from a decrease of 32 cars at the Union Court/Main Street intersection to an increase of 40 cars at the Summer Street/Spring Street intersection.

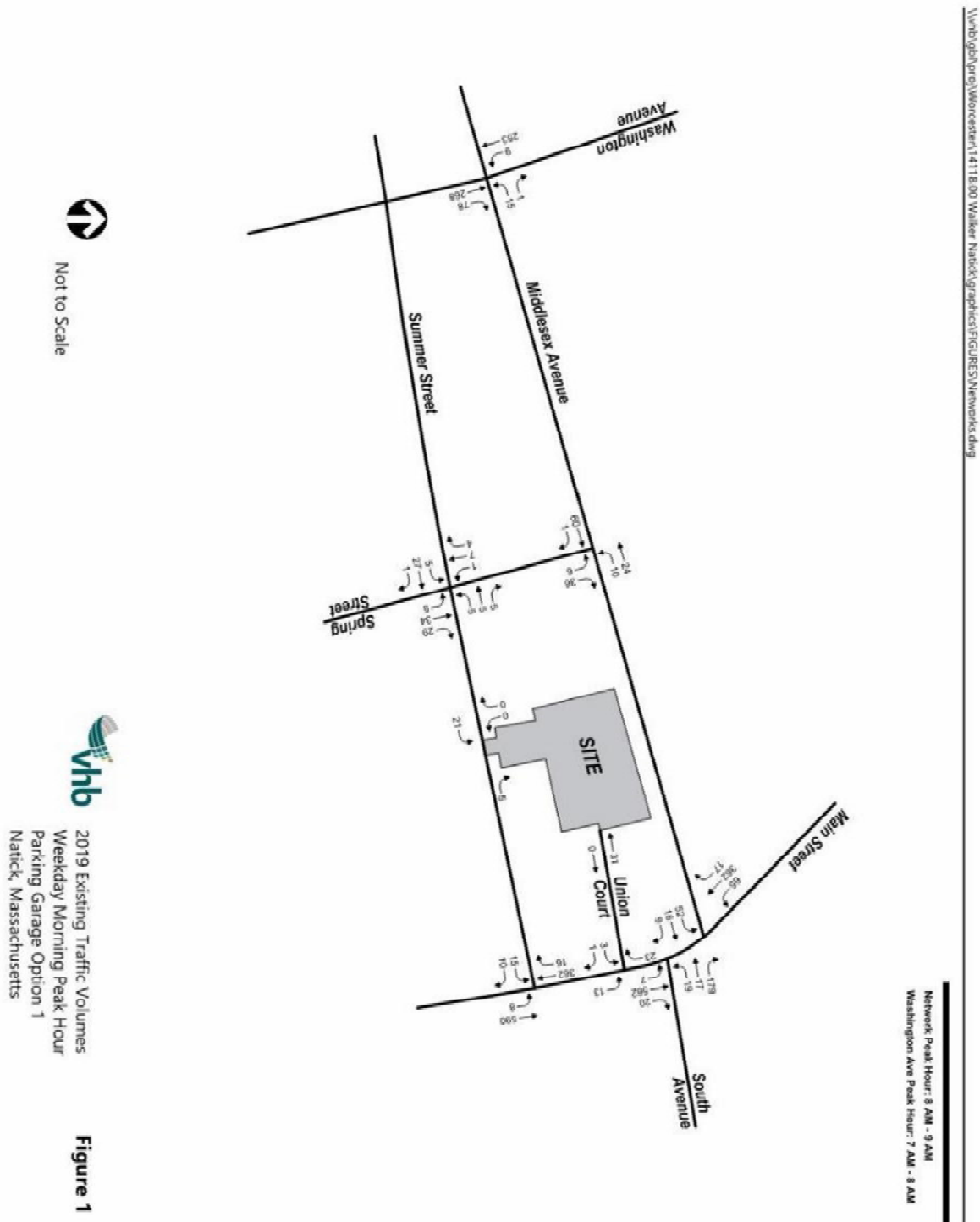
Figure 5 and Figure 6 show the peak hour traffic volumes with the site-generated traffic added to existing traffic volumes. The existing traffic volumes have not been adjusted for any background growth in traffic volumes. The intersection with the most noticeable increase in traffic associated with the proposed parking structure is Summer Street at Spring Street. During the morning peak hour, the number of cars traveling through the intersection will increase from 128 to 156. During the evening peak hour, the increase will be from 166 cars to 206 cars. Most of the increase is anticipated to be from parking structure traffic traveling to and from Central Street via Spring Street.

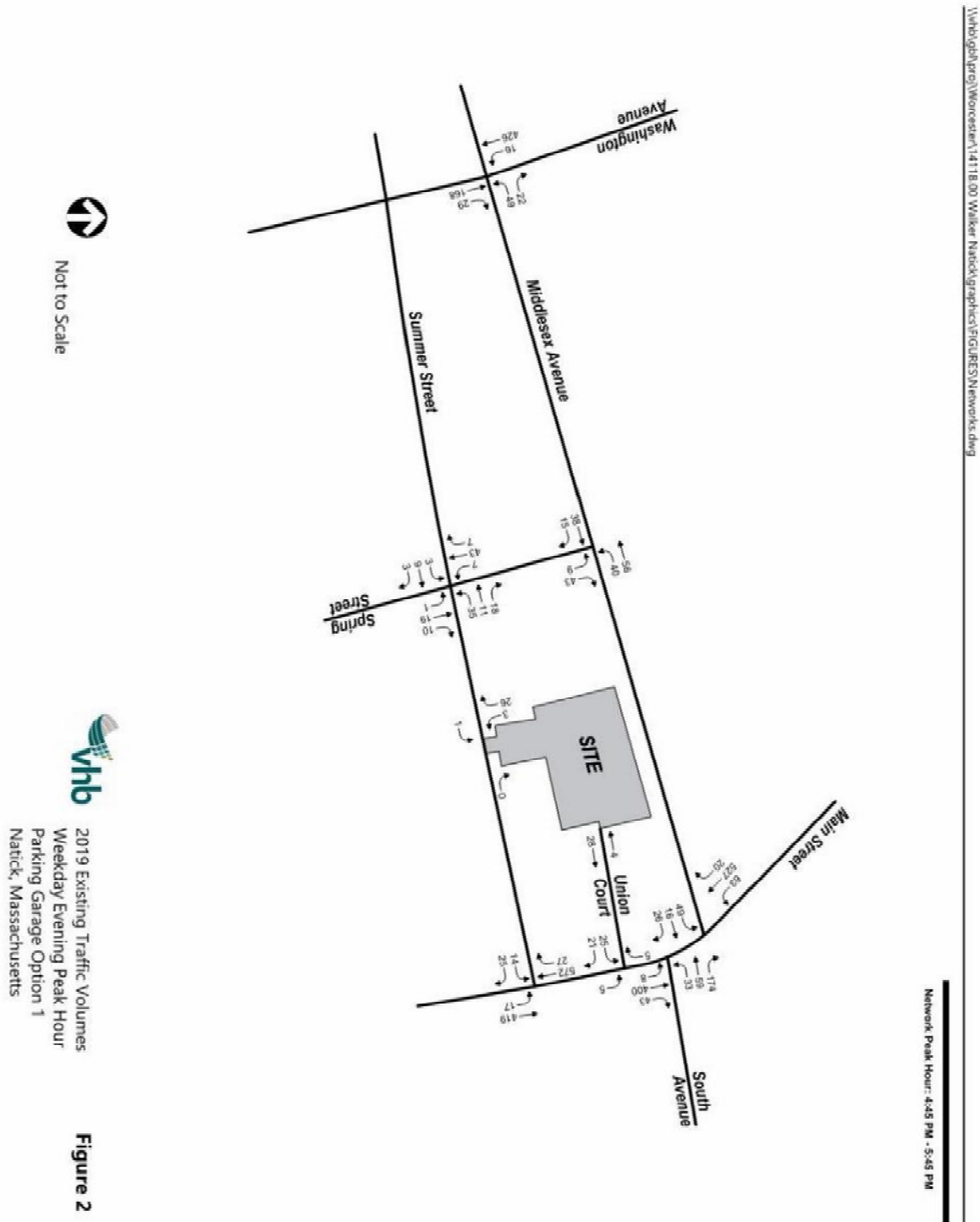
## QUEUING IMPACTS AT PARKING ACCESS LOCATIONS

Figures 3 to 6 show the peak hour volumes entering and exiting the parking structure.

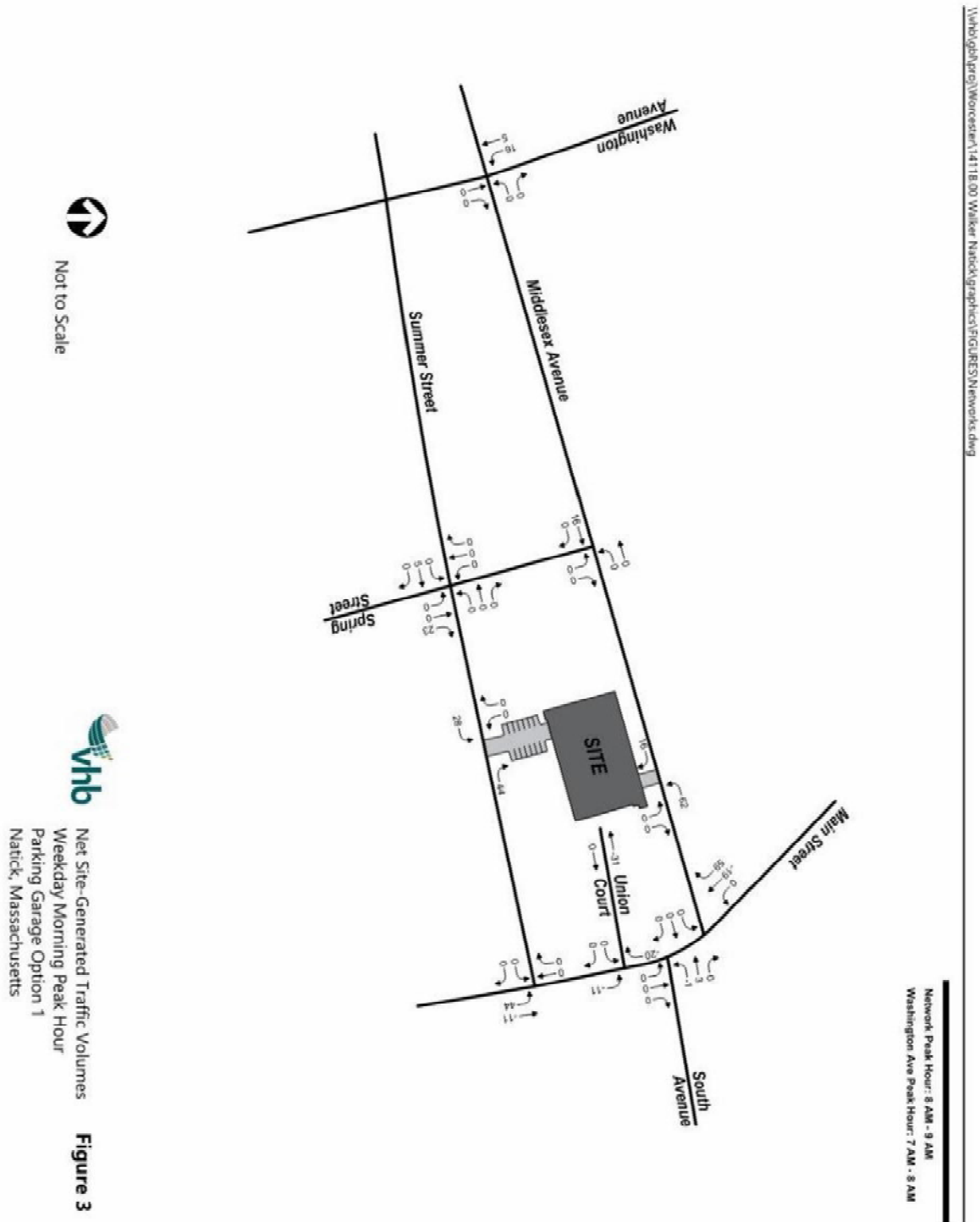
For entering or exiting the facility from Summer St., the maximum vehicles per hour is 113. This represents a vehicle entering / exiting every 30 seconds. For any of the PARCS systems proposed, particularly for the multi-space meter system proposed (representing free flow at the entry/exits), this will not result in any significant queuing at this access location. Note that if queuing did occur, there is an approximate 95-ft length of ramp between Summer St. and the parking structure.

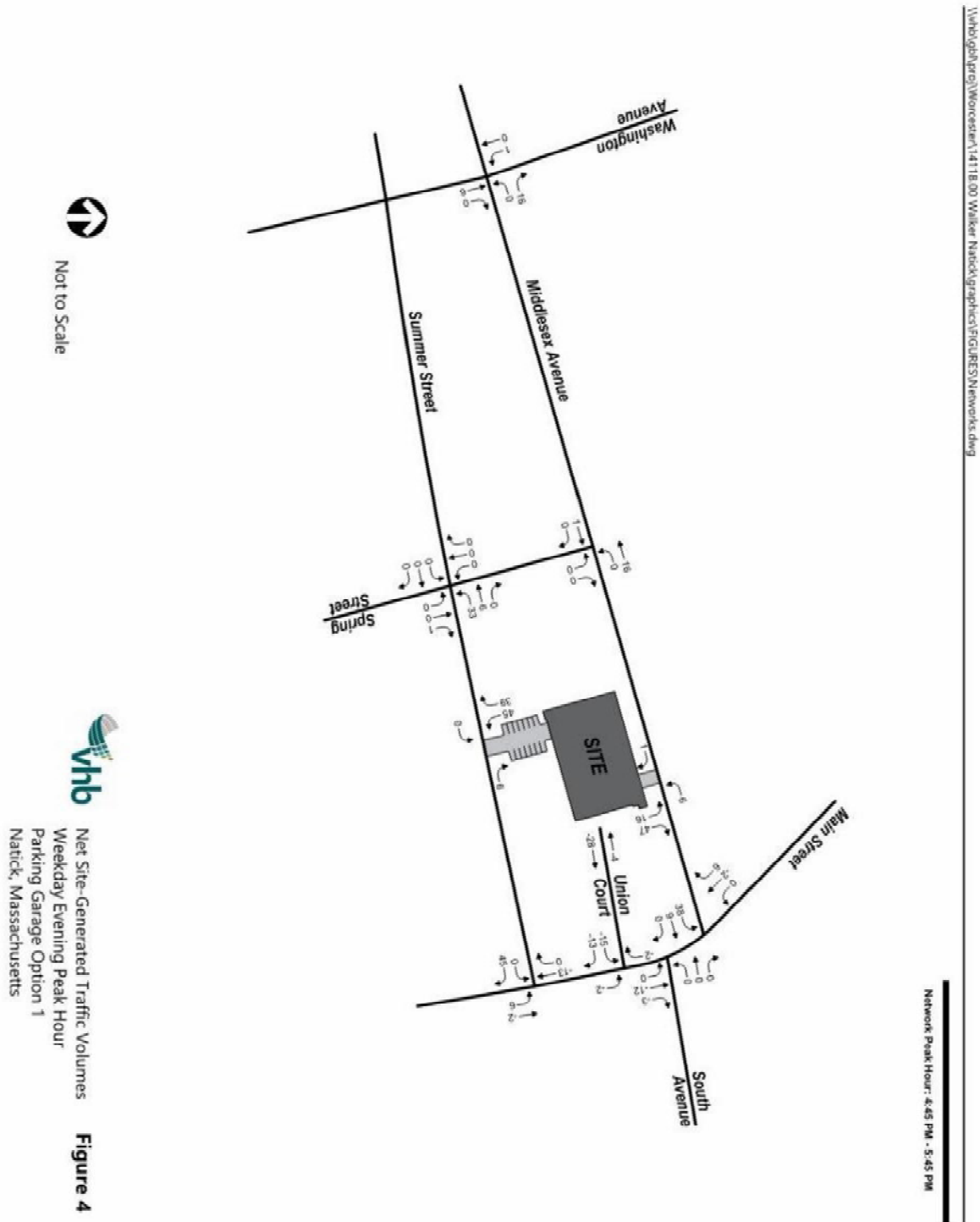
Similarly, for vehicles entering or exiting the facility from Middlesex Ave., the maximum vehicles per hour is 78, lower than that from Middlesex Ave. This represents a vehicle entering / exiting every 45 seconds. This will not result in any significant queuing at this entrance. Further, the volumes along Middlesex Ave. are low enough that intersection queuing would not block the access to the parking structure.

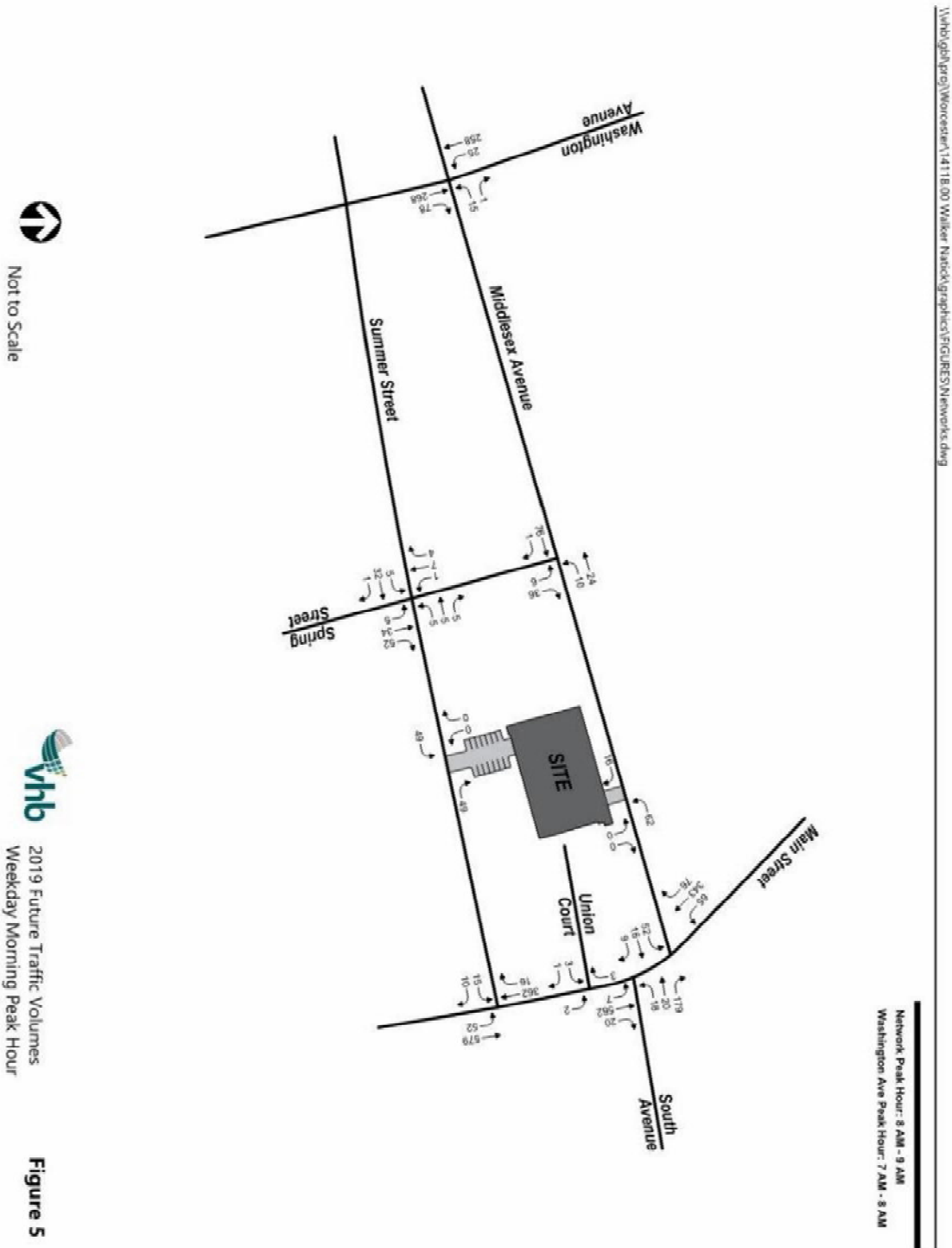


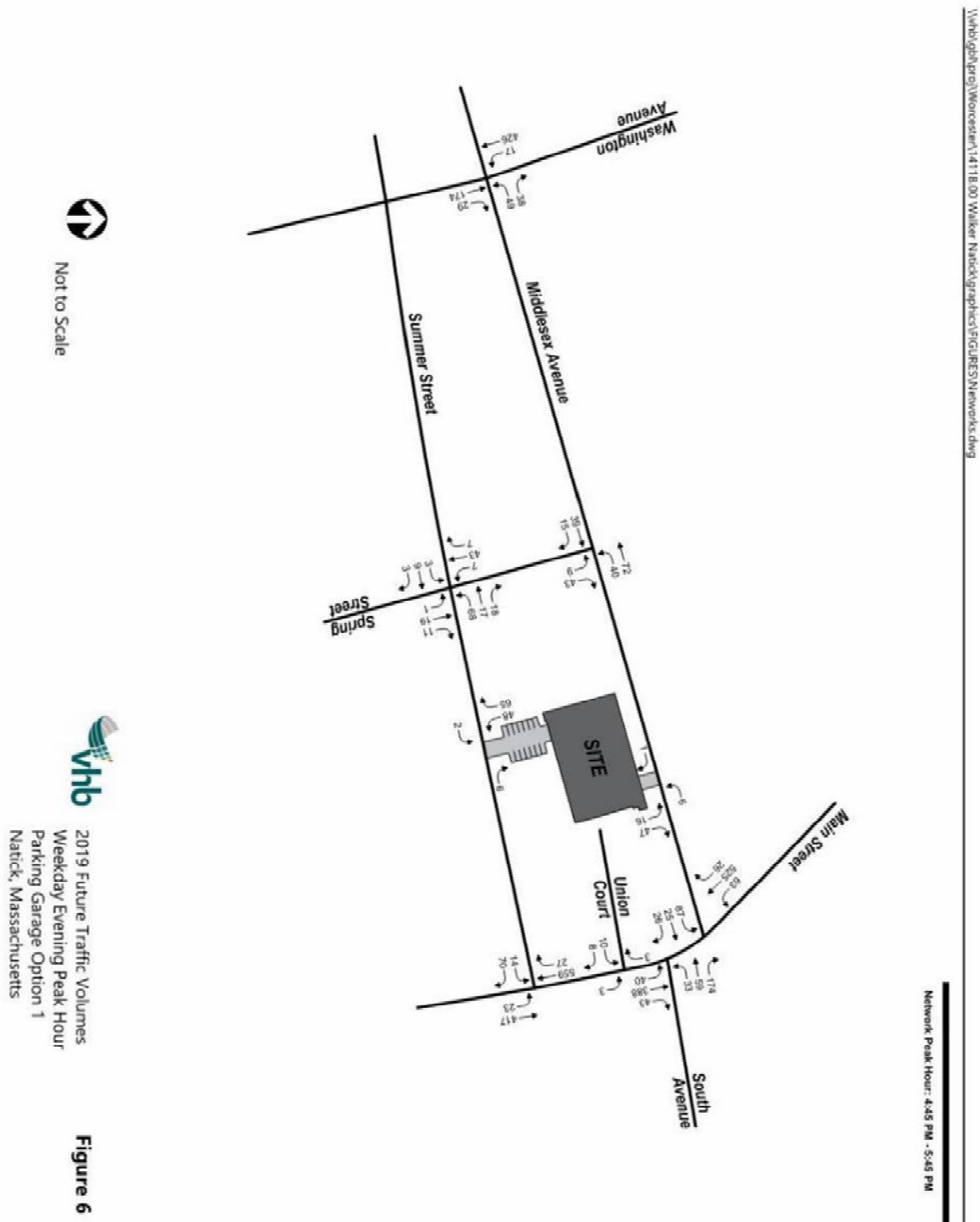




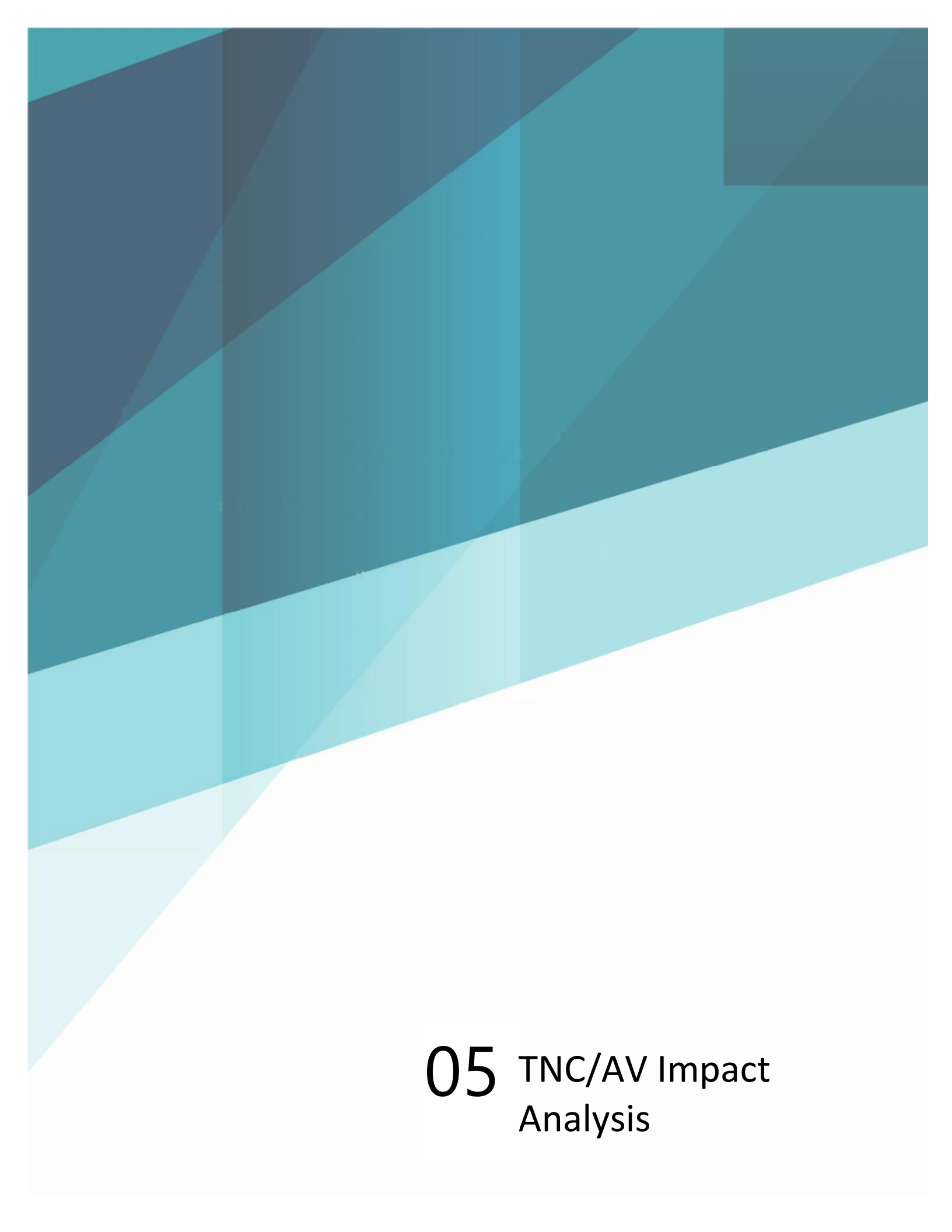












# 05 TNC/AV Impact Analysis

Transportation network companies (TNCs) are currently having a modest impact on parking demand in Natick, Massachusetts, a western suburb in the Greater Boston area. Currently, TNCs (including taxis) have only 1.29 percent of the transportation mode share in Natick.

By 2026, it is anticipated that TNCs will account for 1.58 percent of the transportation mode share, up from a current 1.29 percent. Growth in TNCs will modestly impact Natick's drive alone mode share which influences parking demand generation. Within the next 10 years, we project that TNCs will impact parking demand in Natick by a reduction factor of less than three percent.

While fully-autonomous vehicles are expected to soon be available for consumer purchase, it is not expected that fully-autonomous Level-5 vehicles will be a majority of the vehicle population for decades (whether personal-owned or provided as a mobility-as-a-service by TNCs or others) until the year 2050 or later. Parking demand reductions due to AVs will vary by geographic area and land use with greater disruption anticipated to impact major urban centers with higher population densities.

Since TNC growth modeled in Natick is very modest and a full-AV disruption future is at best decades away, we do not anticipate a major change to parking demand for Natick in the next ten years.

## **PARKING IN THE AGE OF TRANSPORTATION NETWORK COMPANIES AND AUTONOMOUS VEHICLES**

Transportation network companies (TNCs), e.g., ride-hailing companies like Uber and Lyft, are changing transportation habits and having a material impact on parking demand at selected land uses across communities throughout the country.

The largest impacts of TNCs to parking are occurring at hotels, restaurants, events centers, and airports where demand for TNCs is greatest. Although it is generally the policy of TNCs to withhold information, data has been extrapolated through survey, direct observation, and other secondary research reports. The state of Massachusetts enacted a law in 2016, requiring TNCs to share data with state agencies which is made available to the public through the Mass.gov website. This public data also informs our analysis.

### **TNC PROBABLE IMPACTS ON PARKING**

Ride-hailing services have been able to take advantage of the pent-up demand consumers have placed on access to urban centers. A strong correlation exists between high parking rates in urban metros and TNC market penetration.<sup>1</sup> Strong markets for ride-hailing services are found in dense urban centers with a bigger pool of potential customers (app users) and in places where parking costs become prohibitive. Parking costs remain a driver in consumer choice behavior regarding transportation. However, impacts to parking will potentially vary based upon geographic size and location, density or lack thereof, transit ridership, car ownership rates and costs, ride-share access and costs, demographics and other variables.

A report by Schaller Consulting (2018), finds that TNCs are generally not competitive with single occupancy vehicles as the core mode-choice for drivers when it comes to speed, convenience and comfort. Where TNCs are

- 
1. J. Cortright, "Cities and the Price of Parking," City Commentary, 19 October 2016. [Online]. Available: [http://cityobservatory.org/cities\\_and\\_the-price-of-parking/](http://cityobservatory.org/cities_and_the-price-of-parking/). [Accessed 2019].
  2. B. Schaller, "The New Automobility: Lyft, Uber and the Future of American Cities," Schaller Consulting, 25 July 2018. [Online]. Available: <http://schallerconsult.com/rideservices/automobility.pdf>. [Accessed 2019].

competitive with single-occupancy car trips is when parking is expensive or hard to find and where users are seeking to avoid drinking and driving.<sup>2</sup>

### TNC TRIPS PER PERSON ANNUALLY

Table 1: TNC Trips Comparison

Municipality	TNC trips, 2017 (origin)	TNC trips per person (origin)
Boston MA	34,911,476	56.53
Natick MA	153,110	4.64

Source: Massachusetts Department of Public Utilities, 2017.

In 2017, the most recent year of data available, Natick had a total of 153,110 TNC origin trips and a total of 167,403 TNC destination trips. Destination trips per person in Natick was 5.07 per person, slightly higher than 4.64 per person (origin). By comparison, Boston saw almost 228 x more TNC trips than Natick in 2017, which shows the relatively modest travel mode share of TNCs in the Natick market.<sup>3</sup>

This data is only available community wide and does not segment trips by geographic district or by trips into the downtown. At best, this data informs probable TNC future growth scenarios in Natick and is not intended to be predictive. Ultimately, the true level of future TNC market penetration is unknowable due to regulatory uncertainties, potential market shifts, and the level of consumer acceptance.

For our modeling purposes, we have assumed as a conservative base case scenario, a growth rate of 3 percent per annum. Population estimates are taken from the MAPC Natick Center Plan. The following table presents our base case business-as-usual scenario to the year 2026.

Table 2: Base Case Growth Scenario for TNCs – Natick, MA

Natick, MA	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
TNC trips (3% growth per annum)	153,110	157,703	162,434	167,307	172,327	177,496	182,821	188,306	193,955	199,774
Population Estimates*	33,006	33,237	33,470	33,704	33,940	34,177	34,417	34,658	34,900	35,145
TNC trips per person	4.64	4.74	4.85	4.96	5.08	5.19	5.31	5.43	5.56	5.68

\*Population growth estimates taken from MAPC Natick Center Plan, 2016. < [http://www.mapc.org/wp-content/uploads/2017/11/Natick-Center-Plan-Report\\_May2016.pdf](http://www.mapc.org/wp-content/uploads/2017/11/Natick-Center-Plan-Report_May2016.pdf)>

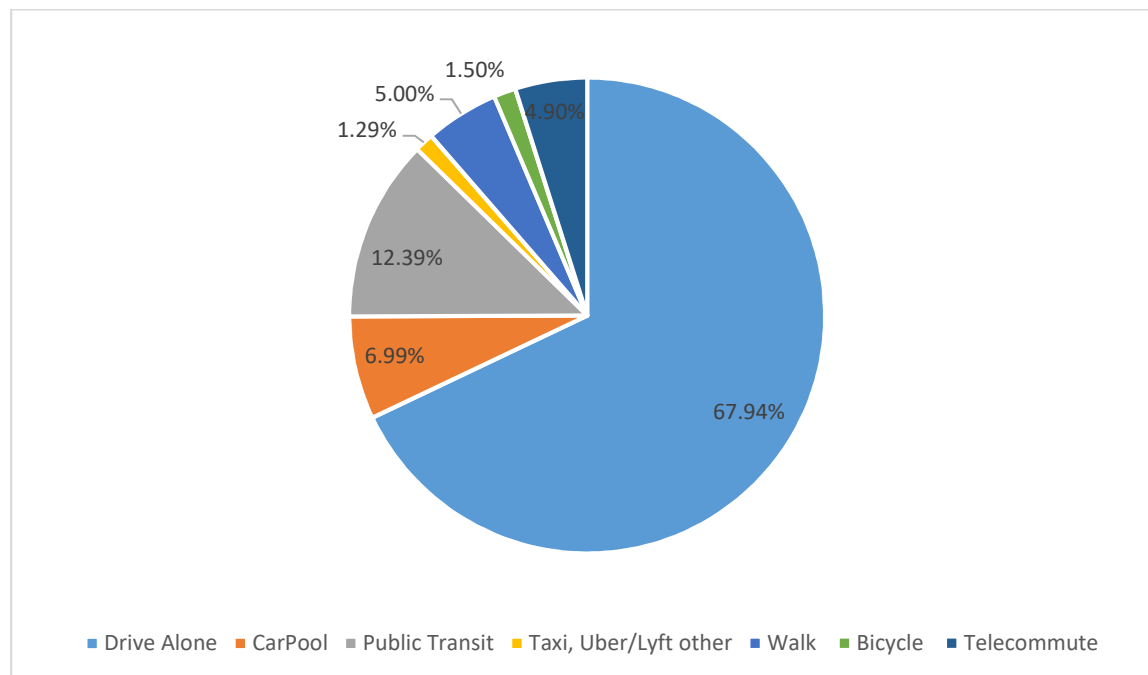
Source: Walker Consultants, Massachusetts Dept. of Public Utilities (data), MAPC (data), 2019

By 2026, it is estimated that TNC trips in Natick will reach just under 200,000 trips with trips per person increasing to an estimated 5.68 per person. Assuming the above baseline business-as-usual scenario for TNCs, potential impacts on parking in Natick are likely very modest, with single occupancy vehicle trips remaining the primary mode choice.

<sup>3</sup> Massachusetts Department of Public Utilities, "2017 Data Report: Rideshare in Massachusetts," Available Online: [https://tnc.sites.digital.mass.gov/?\\_ga=2.73016534.436716397.1550680337-375124147.1550680337](https://tnc.sites.digital.mass.gov/?_ga=2.73016534.436716397.1550680337-375124147.1550680337)

Figure 1 displays the current transportation modal split with TNCs (and taxis) occupying less than 2 percent of the current mode share.

Figure 1: Current Transportation Mode Share



Source: CTPP US Census Bureau Statistics, 2019

By 2026, it is anticipated that TNCs will account for 1.58 percent of the transportation mode share, up from a current 1.29 percent. Growth in TNCs will modestly impact Natick's drive alone mode share which influences parking demand generation. Table 3 displays growth in TNC mode share as modeled to the year 2026.

Table 3: TNC Mode Share Growth by 2026

Natick, MA	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Taxi, Uber/Lyft Other	11,988	12,348	12,718	13,100	13,493	13,897	14,314	14,744	15,186	15,642
Total Trips	931,415	937,935	944,500	951,112	957,770	964,474	971,225	978,024	984,870	991,764
Mode Share	1.29%	1.32%	1.35%	1.38%	1.41%	1.44%	1.47%	1.51%	1.54%	1.58%

For modeling purposes, we assumed total trips will increase in correlation to population growth percentage increases.

Source: Walker Consultants, CTPP US Census Bureau, 2019

Growth in TNCs will modestly impact Natick's drive alone mode share which directly influences parking demand generation. Within the next 10 years, we project that TNCs will impact parking demand in Natick by a reduction factor of less than three percent.

If Autonomous Vehicles (AVs) are introduced to TNC fleets (shared AVs), the disruptive impacts could be more significant.



## AUTONOMOUS VEHICLES

AVs are currently being developed and most industry experts believe these vehicles will be available within the next decade, first to ride-hailing companies (or transportation network companies, TNCs), like Uber and Lyft, and then to consumers. AVs could disrupt transportation since households would likely need fewer cars to meet transportation needs. For example, one AV could drop off a family member, and drive itself to pick up another. Once the service is driverless, it is generally expected that the cost of using ride-hailing for daily travel for urban residents will be 30 to 50% less than owning a personal vehicle. Numerous players, including tech companies like Google, Apple and Amazon, as well as auto manufacturers such as Ford and GM, are reportedly planning to enter the ride-hailing market and competition will likely be strong. If many urban residents then give up their cars and use TNCs, personal vehicle ownership rates could decline significantly and parking could be significantly impacted.

## AV TIMING

It is estimated that by 2030, 20% of new cars sold in the U.S. could be fully autonomous (Level 5). As context, there are an estimated 265 million registered passenger vehicles in the U.S. today, an estimated 17.5 million new passenger vehicles were sold in 2016 to U.S. consumers, and the average age of cars on U.S. roads is about 11.5 years. Therefore, AVs are expected to represent a small percentage of the total number of cars on U.S. roads in 2030. Moreover, most experts are predicting that AVs may soon be commercially available but would potentially not represent a majority of the vehicles on the road for several decades ahead, possibly by 2050 or greater.

According to Walker's own internal research, a scenario analysis of potential parking demand reduction nationwide, by the year 2050, can fall anywhere between 10 to 40 percent on average per unit land use (per residence, per square foot floor area) with variations based upon geographic size, area, location and population density. Smaller sized communities with less population density, will likely experience less of an impact from shared AVs than in dense urban areas where consumer preference for shared rides might be greater. Changes to transportation will be impacted by consumer acceptance, cost of the technology, and infrastructure readiness.

Given Natick's small geographic size and relatively modest existing TNC mode share, parking demand reduction from shared AV's will likely fall on a lower end of the 10-40 percent scenario spectrum with probability that it can be lower than the national average scenario. While there is a potential for a demand reduction of 10 percent, the existing local data analyzed suggests single digit percentage level impacts are far more likely.

Because much remains unknown, planners should consider solutions which are adaptable, like right-sizing parking projects, and demolition of older structures if demand declines.



## 06 Comparative Analysis / Alternatives Analysis

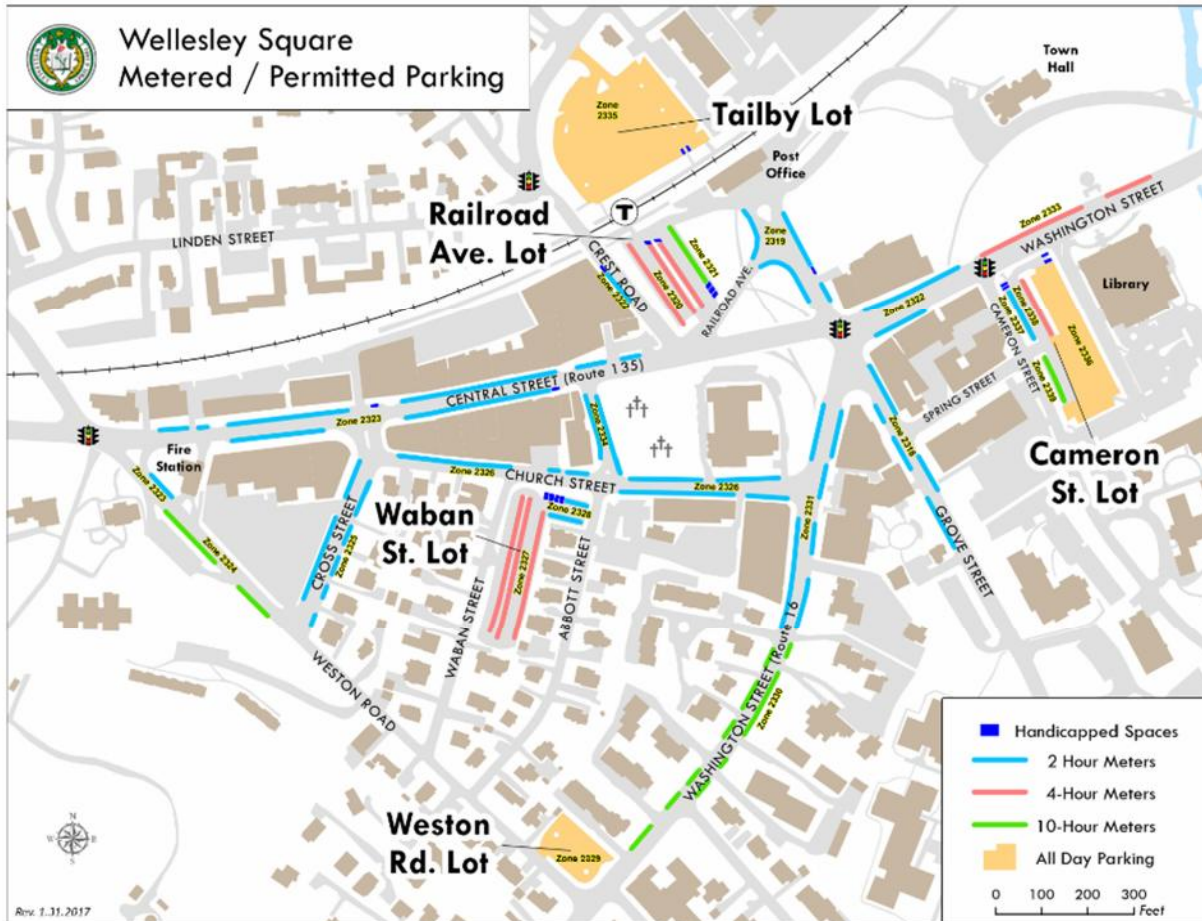
## COMPARATIVE COMMUNITY ANALYSIS

Walker performed a peer-cities benchmarking survey in order to document how communities similar to Natick are handling public parking in their downtown centers. The intent was to review how these communities manage their municipal parking, employee parking, and commuter rail parking in their downtowns.

The information presented in this section summarizes the key points regarding the public parking management used by these neighboring Town. Data methods include both online research and direct consultant interviewing. Wellesley, Newton, Framingham, and Needham represent the surveyed communities (as selected by Natick).

Regarding technology companies noted in the following section, companies noted are based only on what is being used by those Towns. Walker is vendor neutral and does not express any preference throughout for one technology solution over the other.

## WELLESLEY, MA



Source: Town of Wellesley, MA

### GENERAL PARKING MANAGEMENT

Public parking in Wellesley Square, the central business district, is provided both on street and across designated off-street “business” and “commuter” surface lots which offer a mix of short and long-term public parking options.

Business lots provide both short-term and long-term parking with a mix of 4-hr, 10-hr and “all day” spaces. Three business lots provide a total of 223 spaces for public parking accommodation (Railroad Avenue Lot, Waban Street Lot, and Weston Road Lot). Two surface lots provide commuter parking (addressed below).

Residents and non-residents can purchase annual parking permits for Tailby Lot, Waban St. Lot, Cameron St. Lot, Weston Rd. Lot, and the additional two commuter lots (noted below). Yearly parking rates are \$480 for residents and \$1080 for non-residents. Parking is not guaranteed and is provided on a first-come, first-serve basis.



As is common practice for long-term parking, the business and commuter parking are located on the outer limits of the Square and the denser areas around Central St. are limited to primarily 2-hr and 4-hr parking for visitors to the local businesses. On-street spaces across Wellesley Square are metered with 2-hour, 4-hour and 10-hour time limits across select areas. Hourly rates for all metered on street and off-street facilities is \$0.50 an hour. Meters are card and coin accepting. In addition, Pay-By-Phone is offered as a payment platform.

#### *PRIVATE BUSINESS PARKING*

A key parking attribute that has likely contributed to the success of Wellesley Square is the amount of private parking lots that specifically service the businesses in the Square. The primary stretch of business along the main street (Central St. / Route 135) run from Weston Road to Crest Road (the Square extends to Cameron St.). Along the north of the street, behind the business along Central Street, there is a private parking area with approximately 110 parking spaces for those businesses. On the south side of the street in the triangular area between Central Street, Weston Road, and Cross St, there is another private lot with approximately 115 parking spaces for those businesses. This provides a private capacity of 225 spaces for customers and employees right in the downtown area in addition to the on-street parking. This allows for the Town lots that are just outside of Central Street to be available more for long-term parking (primarily commuter).

#### *COMMUTER PARKING*

Commuter parking in the Square is primarily accommodated at the Tailby Lot (224 spaces) and the Cameron Lot, representing a total capacity of 361 spaces (it should be noted that some spaces at the Cameron St. Lot are 2 and 4 hour only, however the majority are daily / 10 hour). This is a significant capacity for accommodating commuters and/or business employees parking for the day. Daily rates are \$6.

Outside of the Square, the Town also two additional commuter rail stations with available parking. The Wellesley Hills Station provides 55 daily spaces and the Wellesley Farms Station Lot provides 190 daily spaces. This provides a total commuter parking capacity of approximately 600 spaces in the Town.

#### *MUNICIPAL PARKING*

The Wellesley Town Hall is located just outside of the eastern edge of the Square. This facility has its own dedicated parking and is also within a short walking distance to the Cameron St. Lot which provides short and long-term parking options (residents and non-residents have access to permit passes for this lot). The Town library is also located on the eastern edge of the Square, has dedicated parking, and is immediately adjacent to the Cameron St. Lot.

#### *TECHNOLOGY*

The Town of Wellesley has implemented a Pay-by-Phone mobile parking app option, using the vendor Passport, which offers customers the ability to purchase parking through smart phones and cellular devices. Commuter lots are metered by zone number with payment kiosks and Pay-By-Phone accepting options offered. A minimum 2-hour purchase is required for all commuter lots.

### *ENFORCEMENT*

The Town of Wellesley has five dedicated enforcement officers to review parking. This operates at an equivalent one to two full-time employees per day. The Town also has a dedicated Parking Clerk who administers and processes citations. All parking tickets can be paid online.

### *POTENTIAL REDEVELOPMENT*

The Town of Wellesley is currently reviewing RFPs for a redevelopment project at the Tailby Lot; as noted above this lot provide 224 commuter parking spaces. There are a variety of development considerations for this site, primarily residential, and it is noted that the parking capacity would potentially be increased to 315 spaces. It is unknown what portion of that parking will remain for commuters and what portion will be specifically assigned to the users of the redevelopment. Whether this project moves forward is also unknown at this time.

Beyond this, the Team is not aware of other plans to increase the parking supply in the Square.

## NEWTON, MA



Source: Google Maps

### GENERAL PARKING MANAGEMENT

Newtown Centre, the main commercial business area, contains four surface lots (341 total spaces). Short-term and long-term parking options are offered; short-term rates are \$0.75 an hour and long-term are \$0.50 an hour. Surface lots include:

- Beacon St. Lot - Adjacent to the Newton Centre Green which is limited to 2-hr parking for visitors to the Centre. 152 spaces.
- Cypress Lot - Primarily commuter parking at a 12-hr limit and some 3-hour parking. 31 spaces.
- Pleasant St. Lot - Combination of 3-hr and 12-hour parking to accommodate visitors and employees. 74 spaces.
- The Pelham St. Lot - Combination of 3-hr and 12-hour parking to accommodate visitors and employees. 84 spaces.

The City does not regulate which users can parking in spots in the Center other than the distinction of short-term and long-term parking (2 to 3-hour vs. 12-hour). Parking is therefore on a first-come, first-serve basis and

only enforced on the basis of time spent parked. The only exception is seniors who are permitted to park anywhere for 2-hour free of charge.

Discussions with the Town have indicated some similar operational issues that Natick has experience. Reported issues include as much as 20% of employees parking on the streets and therefore dealing with tickets and shuffling cars throughout the day and a general need for more long-term and commuter parking.

The Town commissioned a parking strategy report for Newton Centre in 2017 which was prepared by Nelson Nygaard. This report shares some similarities with the parking study previously prepared by Nelson Nygaard for Natick Center. The report offered a number of potential parking strategies for the Town to considering, including:

- Revising the pricing structure and parking time limits to encourage long-term parkers to move out of the Centre. Providing the enforcement to keep employees from parking on the streets including progressive fines for repeat violations.
- Establishing lease agreements for parking with private landowners (IE churches) as there was capacity identified in private locations.
- Establishing long-term parking options on select residential streets. This would be paid parking through a permit and could be available to residents only or residents and commuters only. Residents who lived on these streets would have the ability to obtain visitor passes.
- Signage programs to get users to available parking.
- Updates to parking technology payment methods.

Further research and discussion with the Town indicated that the Town did pursue a Shared Parking Pilot Program in an attempt to utilize available supply of private parking for public use. In short, an app-based system would be established to allow private property owners to charge public users to park on their lots. The program did not come to fruition; it was determined for legal reasons and general lack of interest from private property owners that the system was not currently feasible.

The Town has moved forward with some of the technology recommendations (see section below). The Town has not yet implemented changes to the pricing structure; this has been discussed politically but it still under review.

### COMMUTER PARKING

Newton Centre has a Green Line station on the southern side of the Center. Parking is not provided immediately adjacent to the station; however, the Cypress Street Lot is in relatively close proximity. This lot is the Cypress Lot with a capacity of 38 12-hour spaces (as well as 19 3-hour spaces). The station provides a dedicated pickup/drop-off area is provided in front on the station.

The Commuter Rail does not go through the Centre. The Town has three Commuter Rail stations; Auburndale, West Newton, and Newtonville. Total available parking spaces are 196. Daily rates range from \$4 to \$6 and monthly rates between \$70 and \$105.



### *MUNICIPAL PARKING*

As previously noted, the City does not make a distinction between municipal parking and parking for other uses. Parking is on a first-come, first-serve basis.

### *TECHNOLOGY*

In July 2018, Newton launched the Passport Parking app for Newton Centre allowing system users the ability to extend parking times from their mobile devices. A zone and parking spot number is required to start the parking session in the mobile app. In interviews with the Town Parking Manager, the Passport Mobile Parking app is well-received by both commuters, who can load additional time remotely and conveniently. The town parking administrator cited how it has created staffing efficiencies for her department, freeing up typical parking meter attendant duties to dedicate more time for maintenance. The Town has seen use of the mobile app increase from approximately 35% usage of space initially to more than 55% usage since its implementation.

Further, according to parking officials, the City plans to upgrade to IPS Group MS1 multi-space pay-kiosks in the next fiscal year.

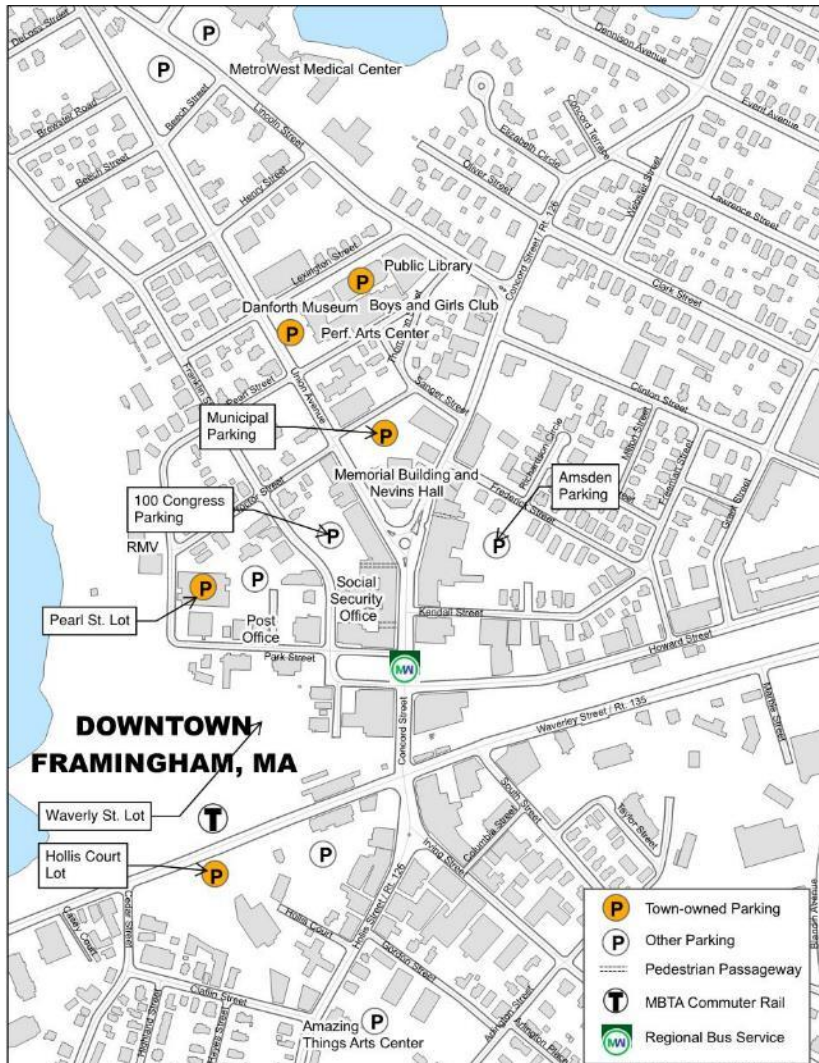
### *ENFORCEMENT*

Parking is administered by the City through the Transportation Division. The City has a full-time Parking Manager and 11 daytime enforcement officers enforcing parking regulations across posted daytime hours of enforcement. The Police Department handles any over-night parking violations.

### *POTENTIAL DEVELOPMENT*

The Nelson Nygaard report does briefly address the potential for a parking structure in the Centre but not in great detail. The report notes that there is parking capacity in the Centre (some of which is privately owned) and that an increase in capacity via structured parking should only be necessary if there is increased development in the Centre.

## FRAMINGHAM, MA



## GENERAL PARKING MANAGEMENT

The City of Framingham provides three public parking lot / garage options for the downtown with public parking and on-street parking:

- The Pearl Street Garage – Commuter parking (see Commuter Parking section below for additional information).
- The Hollis Court Lot – Commuter parking.
- The Waverly Street – Commuter parking.
- 2-hour limit on-street parking meters are provided throughout the downtown with no charge for parking.

- Other streets within the Downtown offer no charge parking without time limits, for example Howard Street and South Street.

Research has indicated that the Downtown previously had parking meters, but they were removed in several years ago providing free parking on the streets. Complaints indicated employees parking on the streets all day and taking spots from visitors / patrons. The spaces have been signed for 2-hour limits, but feedback indicates insufficient enforcement.

Framingham is currently planning to install new IPS smart parking meters in the Downtown at the rate of \$1 per hour with a potential to increase the rate to \$1.25 per hour.

#### *PRIVATE BUSINESS PARKING*

There is a several private business lots in the Downtown providing parking for patrons / employees. There are two primary parking lots located in the Downtown east and west of Concord St. that provide parking for prominent downtown businesses. The lot west of Concord St. provides parking for employees and patrons of the 100 Concord building businesses; capacity is approximately 155 spaces. The lot east of Concord St. provides parking for employees and patrons of the Amsden Building businesses; capacity is approximately 100 spaces or more (depending on allocation with adjacent buildings). These two lots provide approximately 255 spaces in the downtown for use by the building along Concord St. There are several other smaller private lots in the Downtown as well.

#### *COMMUTER PARKING*

The parking structure and lots primarily accommodate commuter parking; a total of approximately 440 spaces are provided. This includes:

- The Pearl Street Garage: Provides 289 spaces for monthly and daily parking. Rates are \$65.00 per month for residents and \$80.00 per month non-residents. There is an attendant on duty from 6:00 AM to 4:00 PM Monday through Friday.
- The Hollis Court Lot: Provides 89 spaces, on a first come, first serve basis for daily parking and is \$5 a day located near the commuter rail station.
- The Waverly Street commuter lot: Provides 65 spaces for monthly parking at a rate of \$90 a month and is located directly across from the train station.

#### *MUNICIPAL PARKING*

Municipal parking is provided on Town-owned lot located immediately adjacent to the City Hall and Police Department between Union St. and Concord St. Additional municipal and public parking is available north of City Hall at the library.

#### *TECHNOLOGY*

The Town has not yet implemented recent technologies for parking payment. Permits are purchased in person or by mail with the option to pay online for existing permits. Daily parking is paid on-site in a pay-by-space

fashion. The new parking meters that will be implemented are by IPS and will have more modern technology options.

#### *ENFORCEMENT*

The Police Department handles all parking enforcement in Framingham. The Town has also recently founded a Traffic Commission with a Parking Regulations Subcommittee. This group is developing the regulations related to the operation of the on-street parking meters.

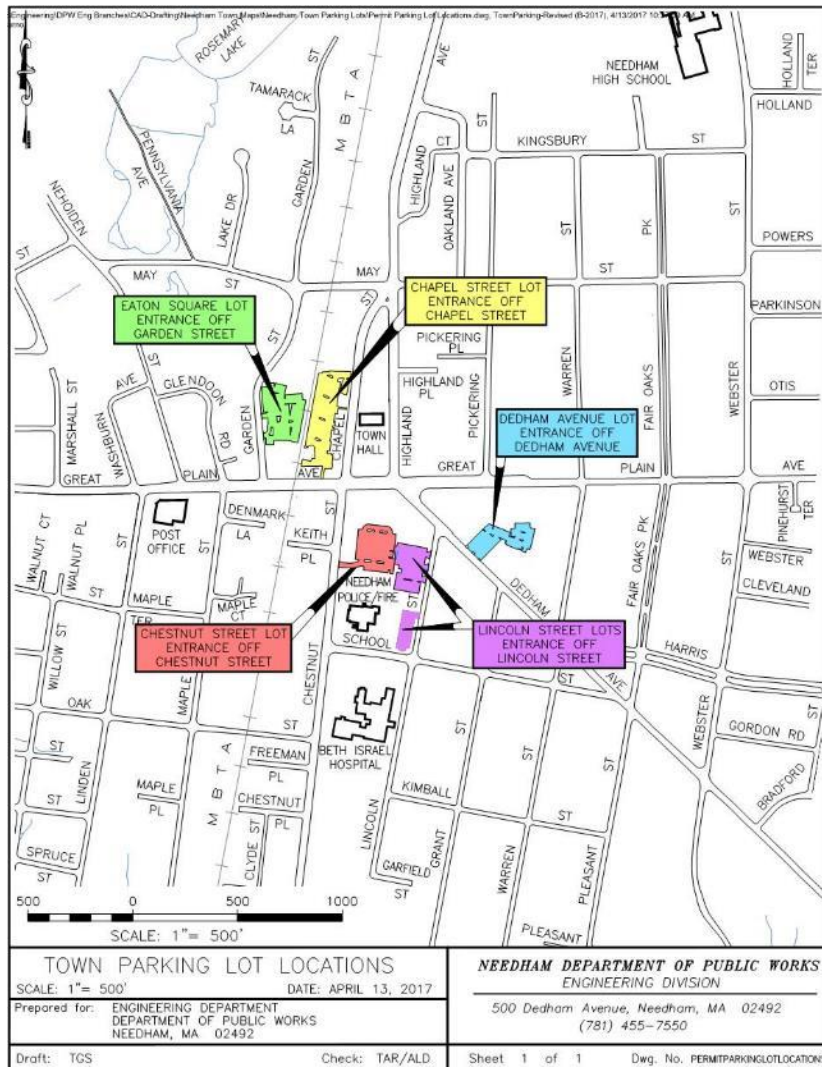
#### *POTENTIAL DEVELOPMENT*

The Team is not aware of any future parking development plans for the Downtown.





## NEEDHAM, MA



## GENERAL PARKING MANAGEMENT

The Town of Needham provides five parking lot options for the downtown and on-street parking:

- Chestnut Street Lot – 2-hour limit free parking – 95 spaces.
- Lincoln Street Lots – Permit parking and 2-hour limit free parking – 165 spaces.
- Dedham Avenue Lot – Permit parking and 2-hour limit free parking – 83 spaces.
- Chapel Street Lot - Permit parking and 2-hour free parking – 138 spaces.
- Eaton Square Lot – Permit parking – 104 spaces (some of this supply is shared with Needham Bank).
- 2-hour limit on-street is provided throughout the Center. Some areas are \$0.25 per hour, others are free.

Permits are provided to local business owners and municipal employees. Similar to Natick, the local business owners apply for permits based on their needs for their employees. Permits are \$200 per year.

Discussions with a Town representative indicated some similar parking complaints in Needham Center including employees parking in on-street spaces / 2-hour limit spaces and commuters parking on residential neighbor streets where parking is free.

#### *COMMUTER PARKING*

The Center previously provided 35 spaces at Chapel Street Lot for commuters. These spaces were taken back by the Town to increase the supply for local businesses; the Town no longer provides commuter parking in the Center. The Needham Center station is therefore primarily intended for those within walking distance and pickup/drop-off.

The Town has two other Commuter Rail Stations; Needham Heights and Needham Junction, which provide a total of 229 parking spaces. These are owned and operated by the MBTA. Daily rates are between \$4 and \$6 and monthly rates are \$70 to \$105.

#### *MUNICIPAL PARKING*

As noted above, municipal parking is via permits similar to business parking, primarily to serve the Town Hall located in the Center. The Town is constructing an addition to the public safety building on the corner of School St. and Lincoln St. The Town acquired existing properties adjacent to this location in order to building a new parking lot with approximately 70 new parking spaces for this facility (part of the Lincoln Street Lots).

#### *TECHNOLOGY*

The Town has not yet implemented recent technologies for parking payment. Meters are coin operated.

#### *ENFORCEMENT*

The Police Department handles parking enforcement in Needham. The Town has a parking clerk for payment processing.

#### *POTENTIAL DEVELOPMENT*

The Team is not aware of future parking development plans for the Center.

## KEY COMPARISONS WITH NATICK CENTER

In comparing the Town of Natick with these other downtown parking operations, there are obviously some similarities and differences in how the parking is managed. Some key observations that could be considered by the Town include:

### COMMUTER PARKING

The Town of Natick provides approximately 70 spaces in the Center for commuters and approximately 175 spaces at the West Natick station (owned/operated by the MBTA). In comparison, Needham Center provides no commuter parking in their Center and approximately the same number of spaces overall in the Town. Consideration could be given to changing how much commuter parking is allowed in Natick Center to accommodate additional business employee parking. The political implications of such a change will have to be considered.

Conversely, both Wellesley and Framingham provide a significant amount of commuter parking in their downtowns (360 spaces and 440 spaces respectively). Both of these downtowns have a significant amount of off-street private parking available for local businesses which likely makes this a feasible approach for their downtown public parking supply.

### PRIVATE BUSINESS PARKING VS. PUBLIC BUSINESS PARKING

The proposed parking structure for Natick Center would be likely be publicly funded. Wellesley and Framingham have been able to provide less publicly-funded off-street business parking in their downtowns because of the presence of sufficient privately-owned off-street business parking. While the density of buildings in Natick Center does not offer many opportunities for these businesses to provide additional parking, the need for parking should be considered with future developments in and around the Center.

### PARKING RATES

The parking rates vary between Towns but are within a reasonable range of each other. Natick is on the lower end of the rates with the exception of Needham's \$200 per year business permit (Natick at \$325 per year). Wellesley is at \$480 per year, and Newton, if considering 5 8-hour days a week, 47 weeks per year (accounting for vacations and holidays), is about \$950 per year. This does not really affect how parking is managed but is a financial consideration for the Town. The political implications of such a change will have to be considered.

### ENFORCEMENT

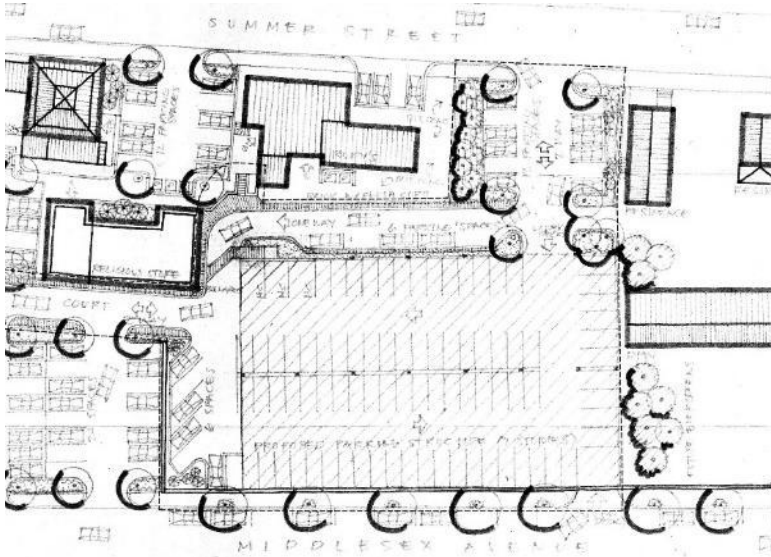
Strict enforcement is a key preventing unauthorized use of on-street parking. Wellesley and Newton both have significant dedicated staff to monitor and enforce parking regulations. Consideration could be given to increasing Natick's enforcement in the Center.

### GOOD PRACTICE EXAMPLE

Of the comparative downtown's reviewed, the best example of good practice in management of a system of parking is demonstrated in Wellesley. The general concepts of limiting length of stay close to the main street, providing sufficient private-owned parking to support businesses, locating long-term parking on the exterior of the downtown, and staying up-to-date with user-interface technologies help support an active downtown.

## PARKING ALTERNATIVES

In the event that the Town does not move forward with construction of the new parking structure proposed in this study, there remains a question of how the parking availability of the Center could be increased. The following provides some measures that could be pursued by the Town.



*Previous Single-Level Parking Deck at Middlesex Lot*

### REPLACE THE PREVIOUS SINGLE-LEVEL PARKING DECK

The first consideration is to replace the parking deck that previously existed at the Middlesex lot. This was a single-supported parking deck without ramping; users would drive onto the supported deck from Middlesex Avenue and below the supported deck from Summer St. The previous design provided 185 on the site, compared with the approximate 116 that will be displaced, so the net addition of spaces is 69 spaces. The Team developed an opinion of probable construction cost for this work which resulted in a per space cost of approximately \$23K per space. The project costs (construction and soft costs) are therefore anticipated to be in the range of \$5M. This cost does not include regulated soil mitigation.

The deck construction cost assumes removal of the existing foundation system and retaining wall along Middlesex Avenue and constructing new foundations and retaining walls as necessary. Depending on the existing capacity of these foundation elements, it may be feasible to reuse them to save cost related to foundations, excavation, and temporary support of excavation. This would have to be studied from a code and structural engineering standpoint to determine feasibility if the Town would be interested in pursuing this.

The Town has inquired about building only one supported level of the proposed parking structure now, designing the structure for future expansion, and then in the future constructing additional levels if necessary. Due the layout of the parking structure, it would require constructing three levels of the structure to recognize a net addition of approximately 100 spaces. This construction would still require all necessary site and foundation cost of the taller parking structure, which will increase the cost per space for initial construction. There are also logistical complexities with constructing a future expansion that will increase the cost of those future levels if



they are built. This is a feasible option if the Town is interested in approaching it, however it will increase the cost of net added space initially and overall cost of the full build condition.



*Potential Parking Surface Lot Location – 120+ Spaces*

### PURCHASE PROPERTY AND BUILD SURFACE PARKING

The Town could look for properties in or near the Center that are available for purchase and are of sufficient land area to be converted into surface lot parking. An example in the Center could potentially be the properties to the west of the Middlesex Lot in order to create a larger overall parking field. This effort would require outreach to determine which properties may be available and design to determine potential parking layouts.

Costs for this will vary greatly depending on the property values and existing structure demolition requirements. The real estate market in Natick is currently very competitive; property acquisition in this market could make this a significant cost per surface space. For example, the properties to the west of the Middlesex Lot up to Spring St. are assessed at approximately \$3.2M (actual sale costs should be expected to be above the assessed value, can assume 10%). A rough parking lot layout on this site may yield approximately 120 spaces; potentially more. The land acquisition alone would therefore represent a cost of approximately \$30,000 per parking space. Demolition, regrading, and new surface lot costs would all be added to this cost. A very preliminary approximation for this cost may be in the range of \$500,000 to \$750,000, resulting in a total construction cost of \$4M to \$4.25M or approximately \$35,000 per space. The project costs (construction and soft costs) are therefore anticipated to be in the range of \$5M. Note, the costs are very conceptual in nature; further design and cost estimation is necessary to confirm potential costs if the Town is interested in pursuing this option. It should also be considered how this would be viewed politically and whether it is counterproductive from the perspective of spurring development.

An example of this was found during the Comparative Analysis; the Town of Needham purchased residential properties next to the public safety building, demolished the existing structures, and built approximately 70 new surface parking spaces.

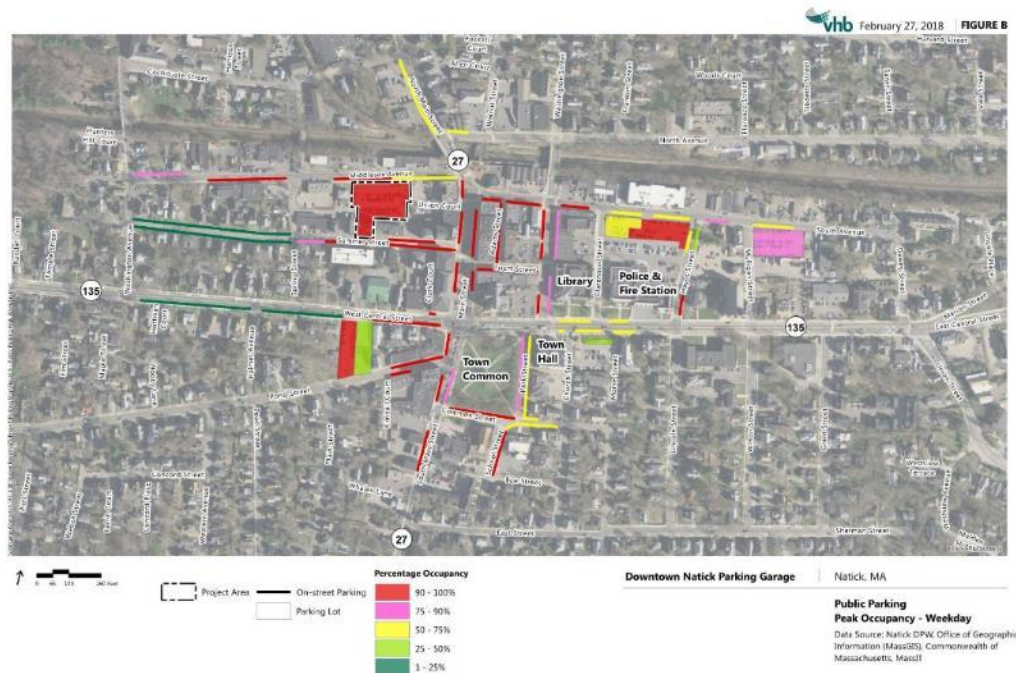


### DISCONTINUE COMMUTER PARKING

The Town currently leases the parking lot from Saint Patrick's Church during weekdays. This lot provides approximately 83 parking spaces. The Town could no longer provide parking for the Commuter Rail in the Center and use these spaces for business permit parking. This would either increase the amount business permit parking or enable a shift of business spaces from the Middlesex Lot to this lot to allow for some short / mid-term parking in the Middlesex Lot (IE 2-hour to 4-hour limited parking).

An example of this was found during the Comparative Analysis; the Town of Needham removed its commuter parking in its Town-owned parking lots in their downtown to accommodate more business permit parking.

This measure is not increasing the capacity in the Center but is reallocating for a specific use need. The political implications of such a change will have to be considered.



*Peak Weekday Parking Occupancy, Source – VHB.*

### RELOCATE COMMUTER AND/OR BUSINESS PARKING TO ON-STREET LOCATIONS

Similar to the discontinuing commuter parking from the Center, the Town could consider identifying / signing specific streets for permit parking and commuter parking. Parking could be paid and monetarily incentivized with lower cost permits to push users out of the lots closer to the Center (IE Middlesex Lot). This could provide more permit parking availability in the Middlesex Lot and/or open up more short- / mid-term parking. Example streets that were observed to have very low occupancy during peak conditions are Summer St. and West Central St. west of Spring St. Commuters could be placed on the north side of the commuter line tracks, for example along North Avenue.

The Phase 2 interviews and discussions with Town representatives did identify complaints about commuters parking on the streets in residential neighborhoods. The political implications of such a change will need to be

considered as this would likely be a point of contention with property owners on the streets that are selected. It should be noted that the streets around the Center are publicly owned and maintained, so this would be one of the lowest cost options for the Town to utilize existing supply to accommodate parking needs on Town property.

This measure is not increasing the capacity in the Center but is reallocating for a specific use need.

#### INCREASE PARKING DENSITY – VALET OPERATION

In dense urban environments where parking is at a premium, increasing the parking density is a tactic to increase capacity. The most common means for densify parking is valet operations. For example, a valet operation would allow for parallel parking in the drive aisles at the Middlesex Ave or South St. Lots. This would provide some additional parking, but not a significant amount. For example, it may increase the Middlesex lot capacity by approximately 25 spaces.

The obvious disadvantage is the operational cost associated with a valet operation. Municipalities rarely use this method to densify parking as the cost per space each year will be significant.



*Vehicle "Stacker", Source – Harding Steel*

#### INCREASE PARKING DENSITY – MECHANICAL PARKING

The other measure to densify parking is mechanical parking. There are several options for this, the most common application is referred to as "stackers". Stackers are hydraulic or electric powered lifts that can accommodate one vehicle on the lift and one vehicle below. There are also automated and semi-automated mechanical options; however, the cost of such equipment will likely be too cost-prohibitive for a site such as the Middlesex Ave. lot that can accommodate ramped self-parking.

A system of stackers on the Middlesex or South St. lots would essentially double the capacity of these lots. A stacker is typically in the range of \$10k to \$12K per stacker unit.

The disadvantage to stacker units is the operational requirements. Stackers for this user group would require operators, so the system would perform similar to a valet operation. This would be a significant operation cost for the Town. They are also more problematic in an exterior environment for snow removal operations.

### SHUTTLE PROGRAM

A shuttle program is another means to increase accessibility to the Center; it does not increase capacity of the Center but would allow for the ability to use remote parking to supplement the current supply. Shuttle programming would have to consider a number of factors such as available remote properties, headways to accommodate flow characteristics of the users serviced, number of shuttles, routes in relation to traffic congestion, and similar.

For business parking use, shuttling is more common for medical centers, larger businesses, or similar uses; a shuttle system for downtown retail or office use would likely disincentivize businesses from using the Center when more convenient parking options exist in other developments. Shuttling would likely only be effective to accommodate event parking; for example, to allow for weekday programming TCAN.

A shuttle program would again represent a yearly operational cost, as well as the cost of the property where the parking would be provided.



## Appendix A

### Conceptual Drawings





**CONCEPT DESIGN**  
4/12/2019

Owner:

**Town of Natick**  
13 East Central ST.  
Natick, MA 01768

Prime Designer / Architect:

**Walker Consultants**  
20 Park Plaza, Suite 1202  
Boston, MA  
Tel: 617.350.5040

Civil Engineer:

**VHB**  
120 Front Street, Suite 500  
Worcester, Massachusetts 01608  
Tel: 508.752.1001

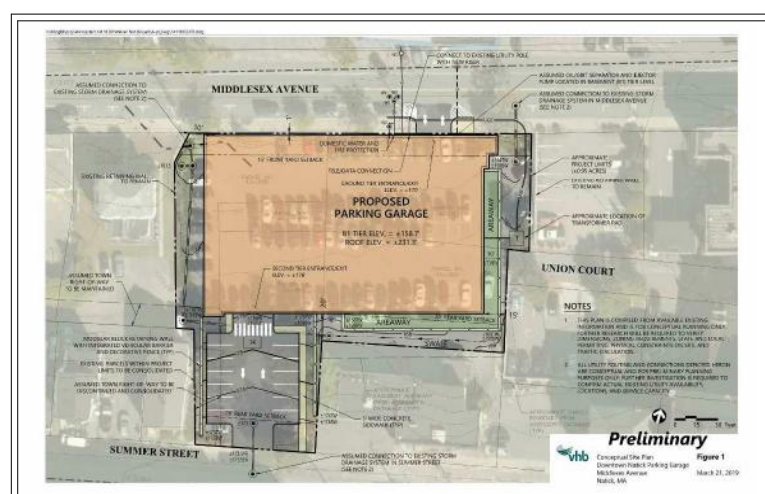
**DRAWING INDEX**

NO.	SHEET NAME	
G-000	COVER SHEET AND SITE & LOCATION MAP	X
A-100	B1 TIER PLAN	X
A-101	GROUND TIER PLAN	X
A-102	SECOND TIER PLAN	X
A-103	THIRD TIER PLAN	X
A-104	FOURTH TIER PLAN	X
A-105	TOP TIER PLAN	X
A-201	BUILDING ELEVATIONS	X
A-202	BUILDING ELEVATIONS	X

Concept Design

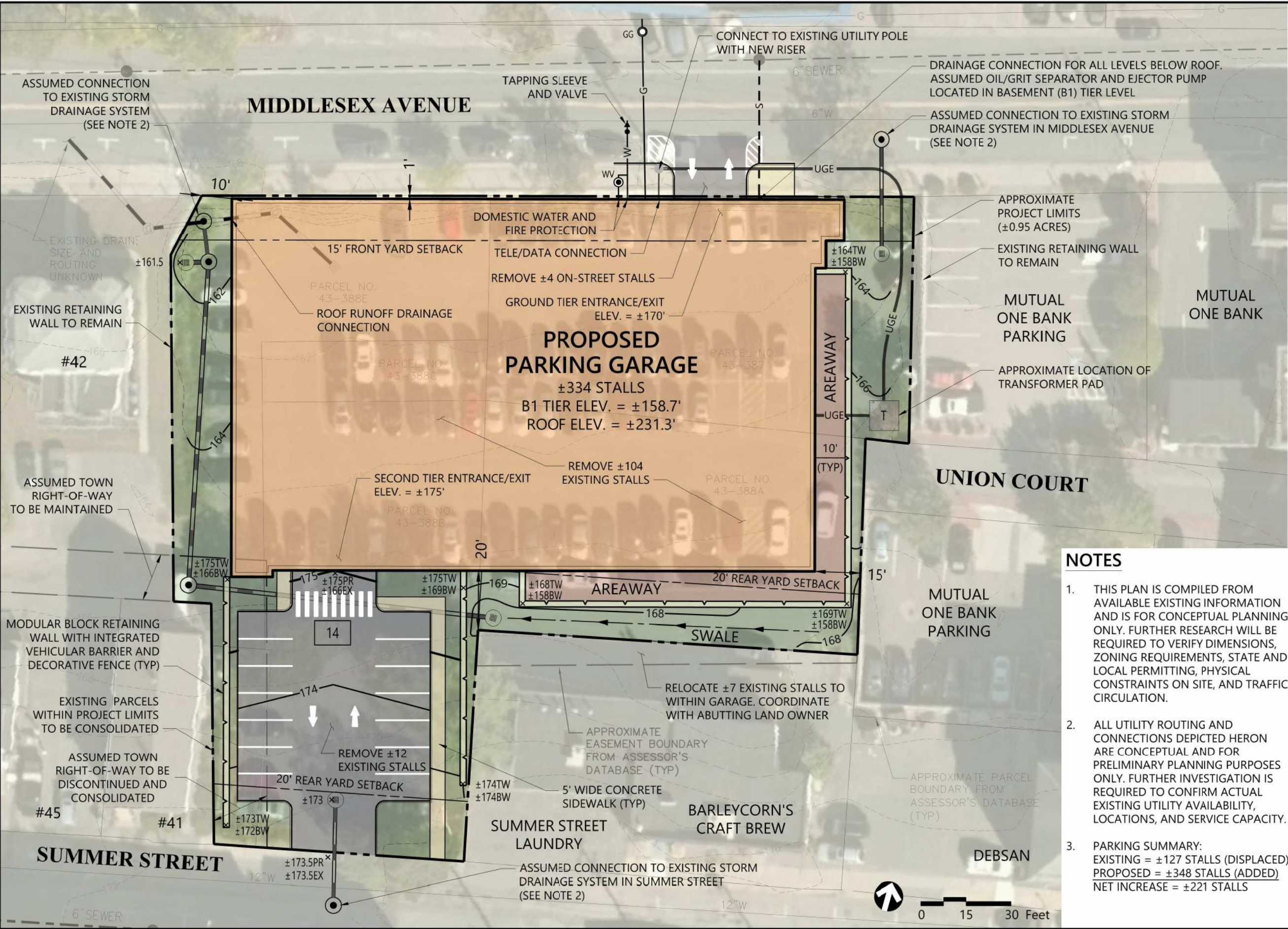


PROJECT SITE PLAN



PROJECT SITE PLAN





- NOTES**
1. THIS PLAN IS COMPILED FROM AVAILABLE EXISTING INFORMATION AND IS FOR CONCEPTUAL PLANNING ONLY. FURTHER RESEARCH WILL BE REQUIRED TO VERIFY DIMENSIONS, ZONING REQUIREMENTS, STATE AND LOCAL PERMITTING, PHYSICAL CONSTRAINTS ON SITE, AND TRAFFIC CIRCULATION.
  2. ALL UTILITY ROUTING AND CONNECTIONS DEPICTED HEREON ARE CONCEPTUAL AND FOR PRELIMINARY PLANNING PURPOSES ONLY. FURTHER INVESTIGATION IS REQUIRED TO CONFIRM ACTUAL EXISTING UTILITY AVAILABILITY, LOCATIONS, AND SERVICE CAPACITY.
  3. PARKING SUMMARY:  
EXISTING = ±127 STALLS (DISPLACED)  
PROPOSED = ±348 STALLS (ADDED)  
NET INCREASE = ±221 STALLS

PRELIMINARY - DO NOT USE FOR CONSTRUCTION

20 Park Plaza, Suite 1202  
Boston, MA 02118  
617.350.5040 PH  
www.walkerconsultants.com

120 Front Street  
Suite 500  
Worcester, MA 01608  
508.752.1001

TOWN OF NATICK  
PARKING GARAGE

TOWN OF NATICK

DATE	DESCRIPTION
04/04/2019	SCHEMATIC DESIGN
04/04/2019	ISSUE DATE
04/04/2019	YHB PROJECT NO. 14118.00
KPR	DRAWN BY
REV	CHECKED BY

COPYRIGHT © 2019. ALL RIGHTS RESERVED. NO PART OF THIS DOCUMENT MAY BE REPRODUCED IN ANY FORM OR BY ANY MEANS WITHOUT PERMISSION FROM WALKER CONSULTANTS.

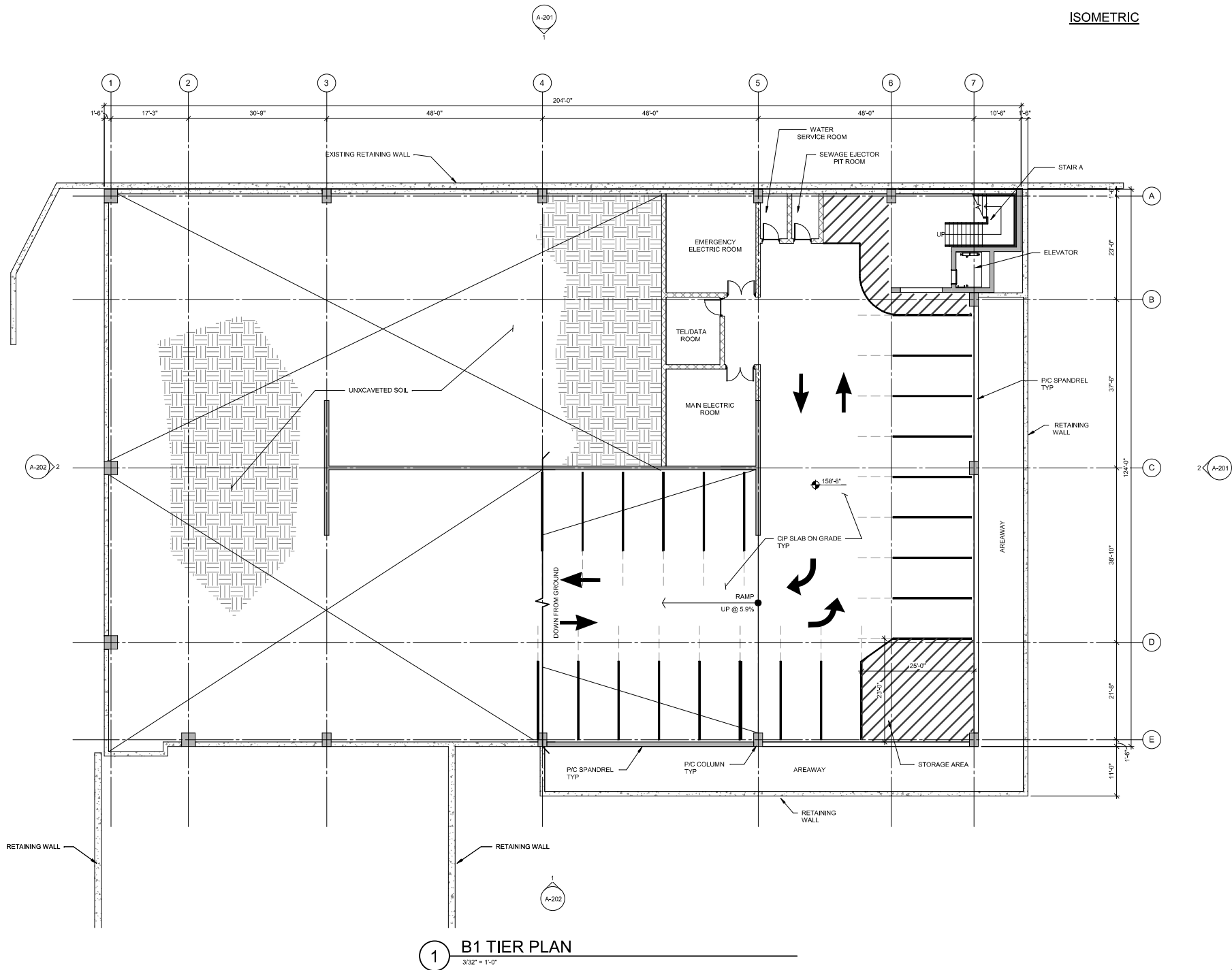
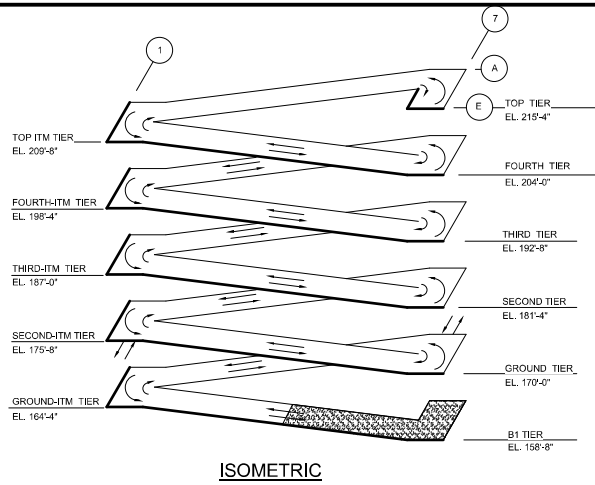
SHEET TITLE  
CONCEPTUAL SITE PLAN

FIGURE 1



4/10/2019 2:10:14 PM C:\Bowl Projects\16-2824-00-Natick\_PG-Natick\_SheetA100\_TheWayss.dwg

STALL CAR COUNT					
TIER	STALL	ADA STALL	ADA VAN STALL	EV STALL	2% TOTAL REDUCTION
B1 TIER	21	0	0	0	21
GROUND TIER	63	0	2	0	64
SECOND TIER	78	2	0	0	78
THIRD TIER	67	2	0	0	68
FOURTH TIER	67	2	0	0	68
FIFTH TIER	59	0	0	0	58
Grand total	355	6	2	0	356



## SHEET NOTES

## SHEET KEYNOTES

## LEGEND

	CIP
	CIP (PLAN CUT)
	PRECAST CONCRETE
	CMU
	EARTH - UNDISTURBED



20 Park Plaza, Suite 1202  
Boston MA 02116  
617.353.5940 Ph  
www.walkerconsultants.com

NATICK CENTER  
PARKING GARAGE

TOWN ON NATICK

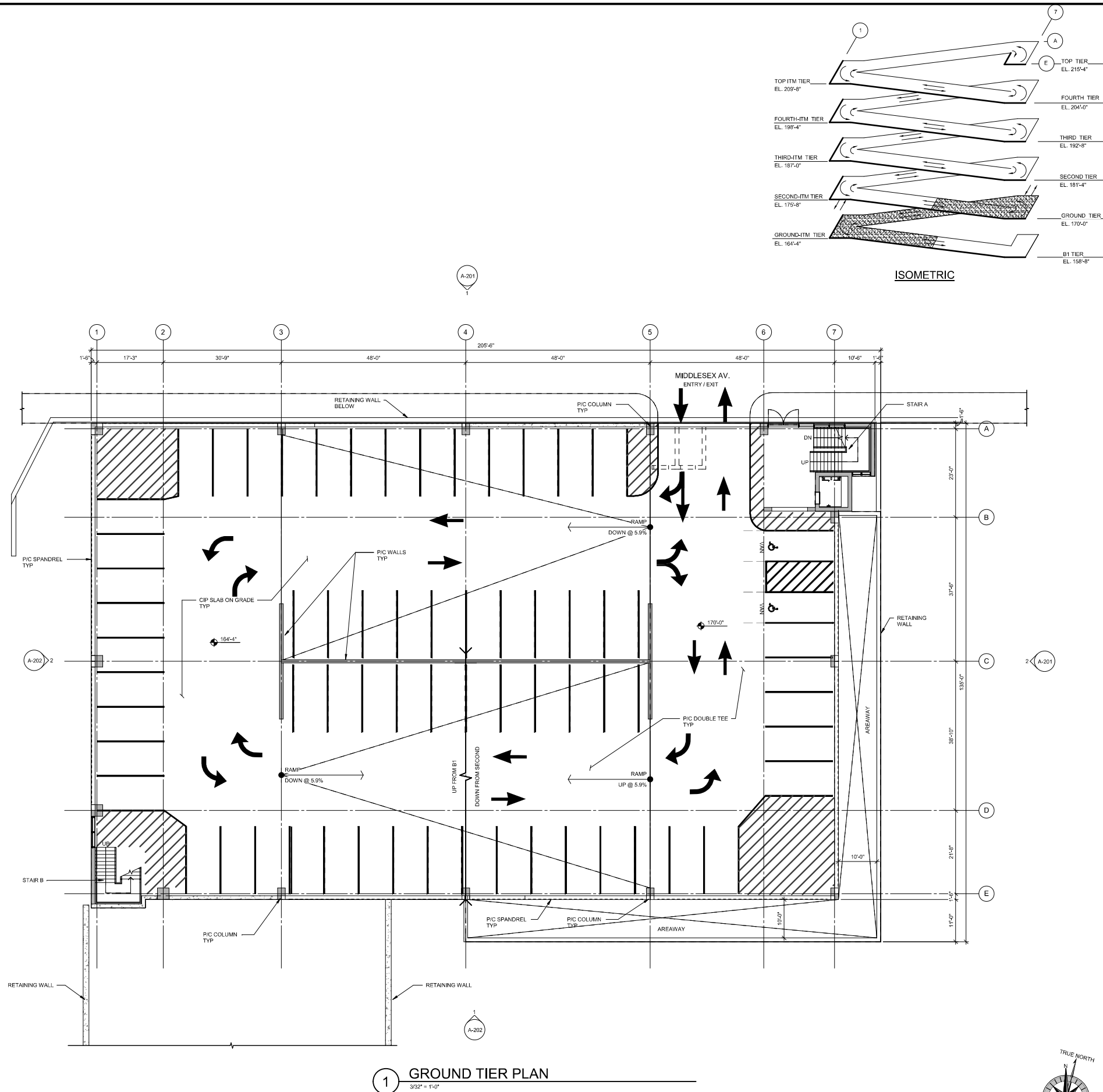
MARK	DATE	DESCRIPTION
REVISIONS		
ISSUE:	CONCEPT DESIGN	
ISSUE DATE:	4/12/2019	
PROJECT NO:	16-2824-00	
DRAWN BY:	JRM	
CHECKED BY:	BS	

COPYRIGHT © 2019. ALL RIGHTS RESERVED. NO PART OF THIS DOCUMENT MAY BE REPRODUCED IN ANY FORM OR BY ANY MEANS WITHOUT PERMISSION FROM WALKER CONSULTANTS.

SHEET TITLE:  
B1 TIER PLAN

A-100

4/10/2019 2:10:16 PM C:\Bowl Projects\16-2824-00-Natick\_PGC-Natick\_SheetA101\_Thermsys2.d



SHEET NOTES

SHEET KEYNOTES

LEGEND

PRELIMINARY - DO NOT USE FOR CONSTRUCTION

**WALKER CONSULTANTS**  
20 Park Plaza, Suite 1202  
Boston MA 02116  
617.353.5940 Ph  
www.walkerconsultants.com

NATICK CENTER  
PARKING GARAGE

TOWN ON NATICK

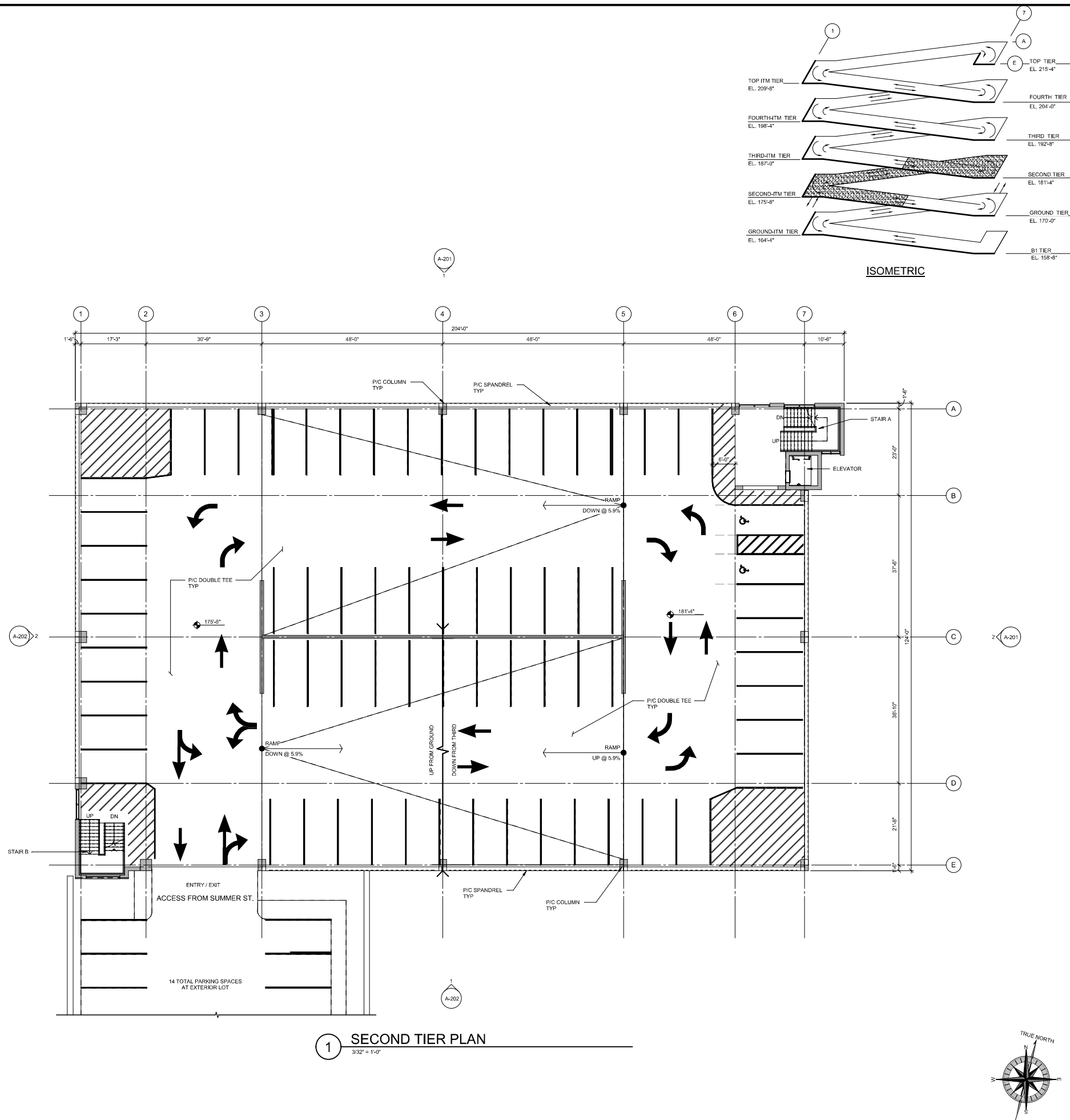
MARK	DATE	DESCRIPTION
REVISIONS		
ISSUE:	CONCEPT DESIGN	
ISSUE DATE:	4/12/2019	
PROJECT NO:	16-2824-00	
DRAWN BY:	JRM	
CHECKED BY:	BS	

COPYRIGHT © 2019. ALL RIGHTS RESERVED. NO PART OF THIS DOCUMENT MAY BE REPRODUCED IN ANY FORM OR BY ANY MEANS WITHOUT PERMISSION FROM WALKER CONSULTANTS.

SHEET TITLE:  
GROUND TIER PLAN

A-101

4/10/2019 2:10:18 PM C:\Bowl Projects\16-2824-00-Natick\_PG-Nick\_SheetA102\_Thermsys.dwg



## SHEET NOTES

## SHEET KEYNOTES

## LEGEND

	CIP
	CIP (PLAN CUT)
	PRECAST CONCRETE
	CMU



20 Park Plaza, Suite 1202  
Boston MA 02116  
617.353.5940 PH  
www.walkerconsultants.com

NATICK CENTER  
PARKING GARAGE

TOWN ON NATICK

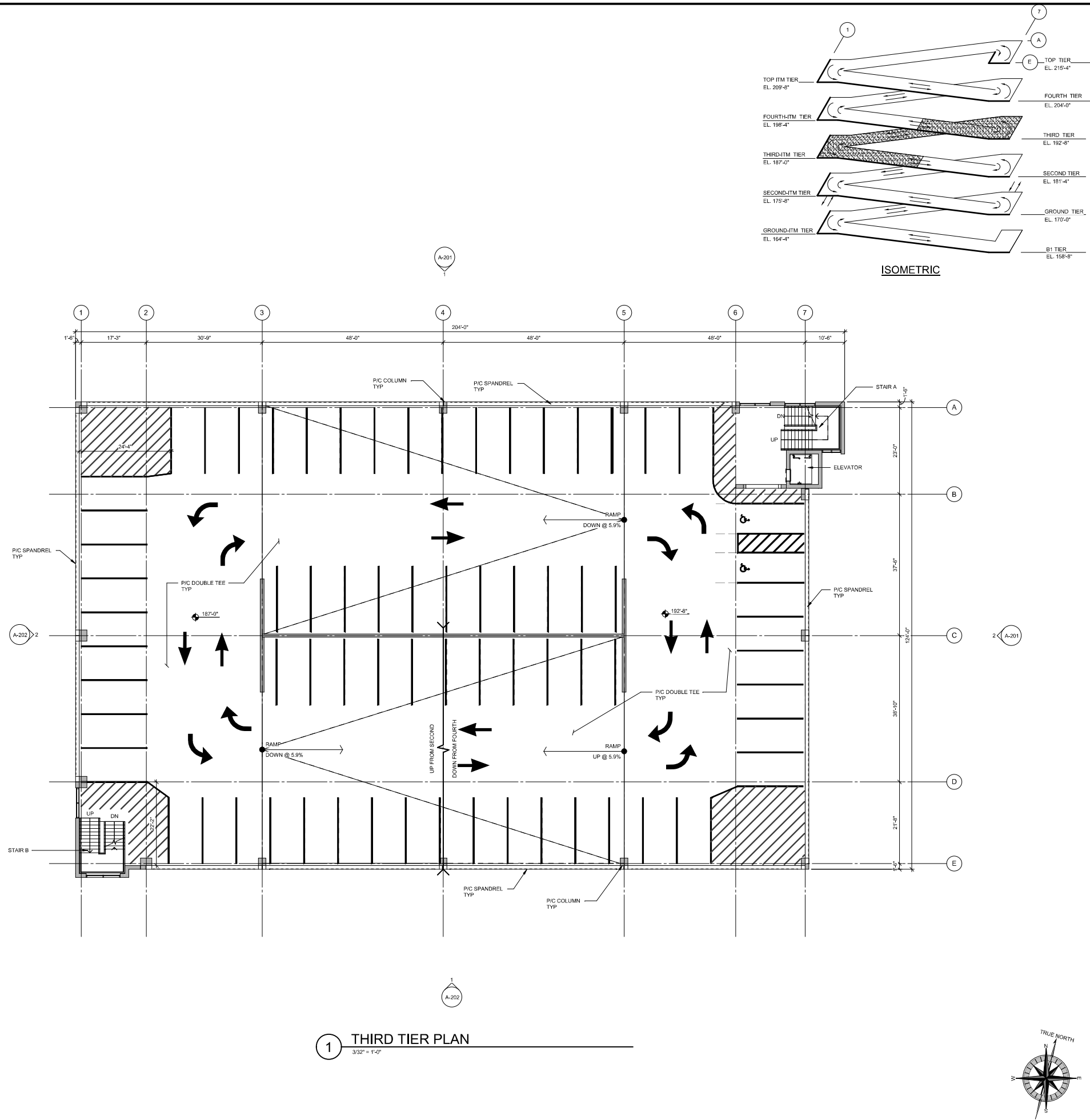
MARK	DATE	DESCRIPTION
REVISIONS		
ISSUE:	CONCEPT DESIGN	
ISSUE DATE:	4/12/2019	
PROJECT NO:	16-2824-00	
DRAWN BY:	JRM	
CHECKED BY:	BS	

COPYRIGHT © 2019. ALL RIGHTS RESERVED. NO PART OF THIS DOCUMENT MAY BE REPRODUCED IN ANY FORM OR BY ANY MEANS WITHOUT PERMISSION FROM WALKER CONSULTANTS.

SHEET TITLE:  
SECOND TIER PLAN

A-102





SHEET KEYNOTES

	CIP
	CIP (PLAN CUT)
	PRECAST CONCRETE
	CMU

NATICK CENTER  
PARKING GARAGE

TOWN ON NATICK

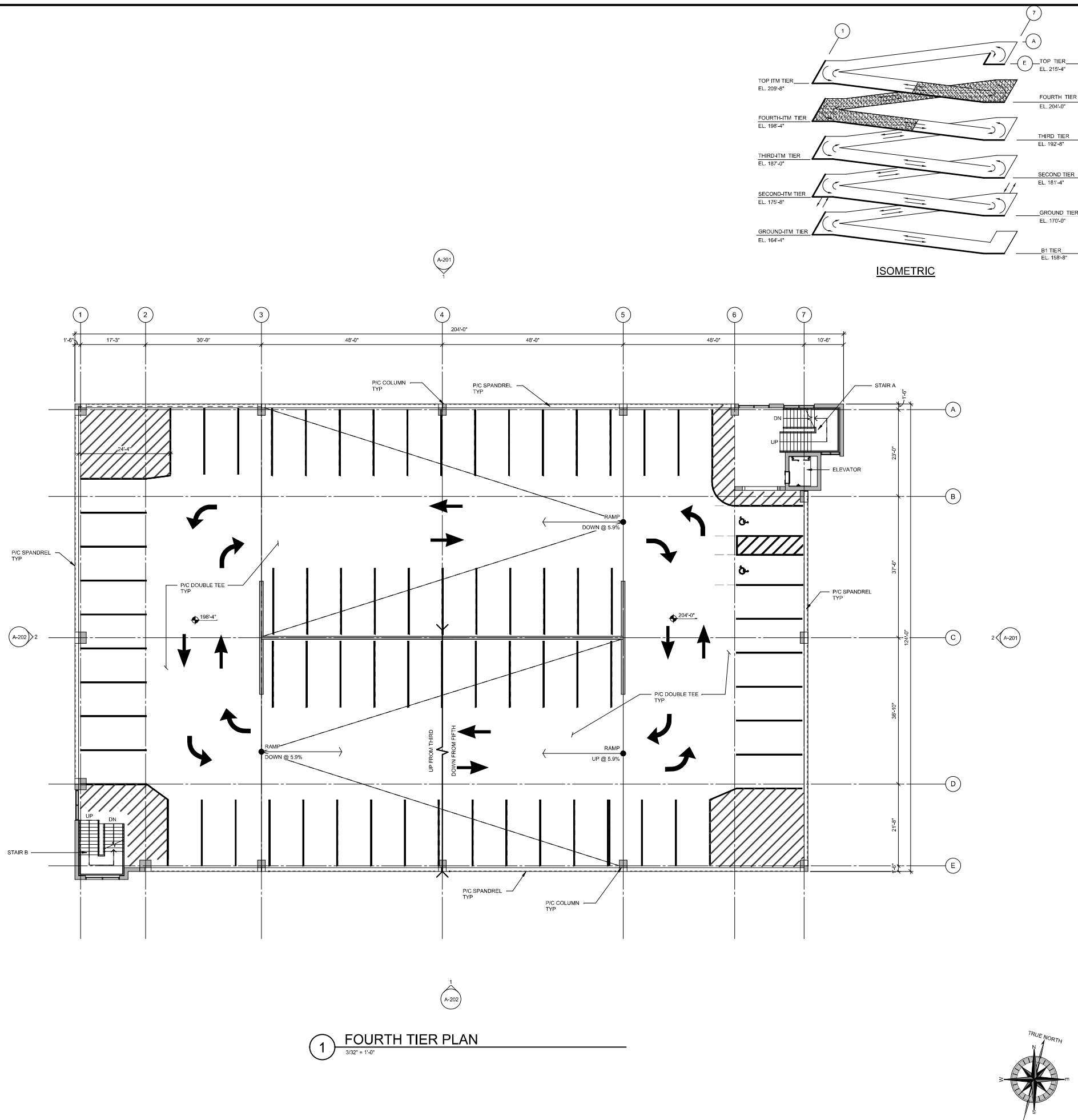
MARK	DATE	DESCRIPTION
REVISIONS		
ISSUE:	CONCEPT DESIGN	
ISSUE DATE:	4/12/2019	
PROJECT NO:	16-2824-00	
DRAWN BY:	JRM	
CHECKED BY:	BS	

COPYRIGHT © 2019. ALL RIGHTS RESERVED. NO PART OF THIS DOCUMENT MAY BE REPRODUCED IN ANY FORM OR BY ANY MEANS WITHOUT PERMISSION FROM WALKER CONSULTANTS.

SHEET TITLE:  
**THIRD TIER PLAN**

A-103

4/10/2019 2:10:22 PM C:\Bowl Projects\16-2824-00-Natick\_PG-Natick\_SheetF19\_Thermsys2.dwg



SHEET NOTES

SHEET KEYNOTES

LEGEND



20 Park Plaza, Suite 1202  
Boston MA 02116  
617.353.5940 Ph  
www.walkerconsultants.com

NATICK CENTER  
PARKING GARAGE

TOWN ON NATICK

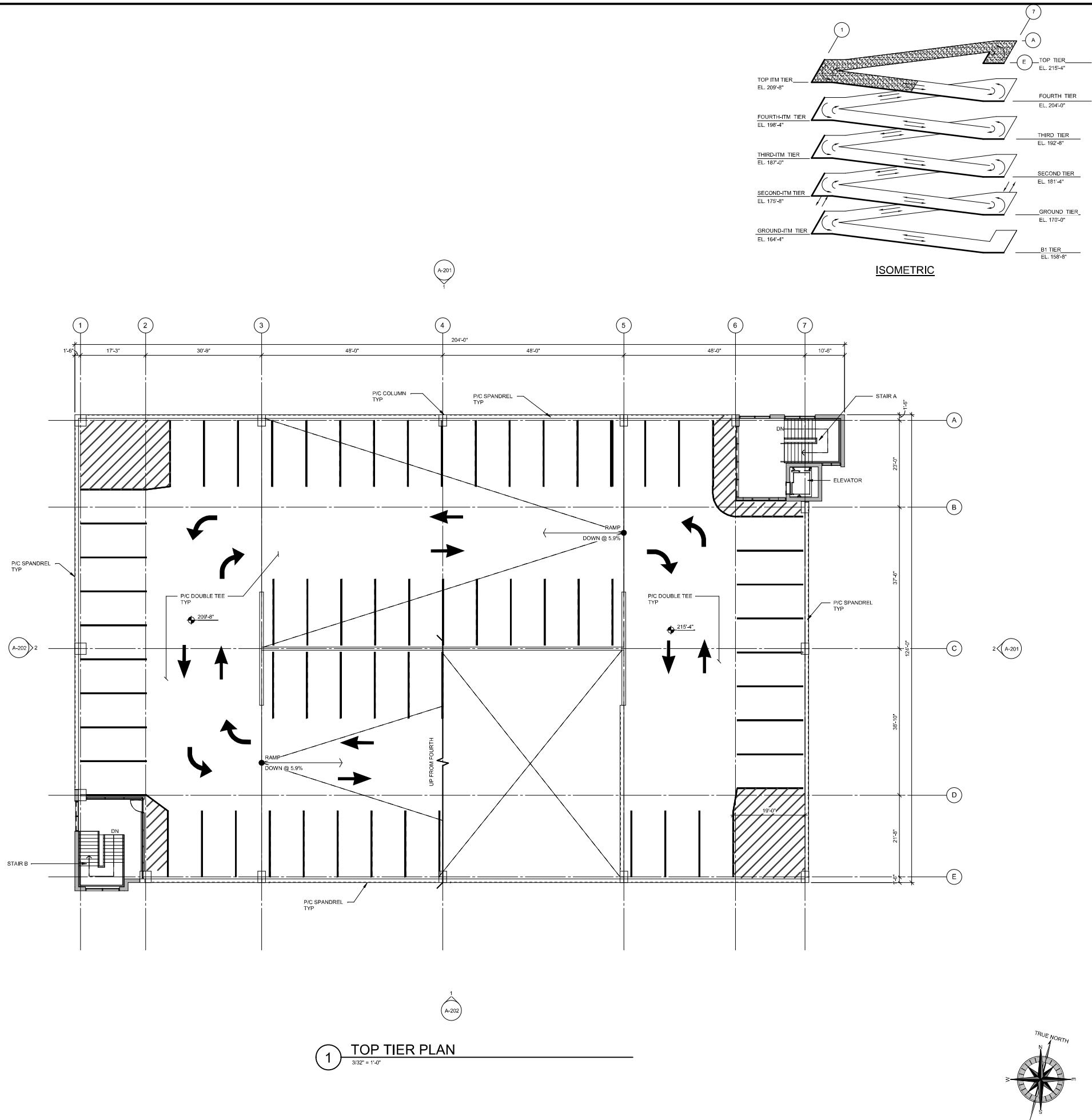
MARK	DATE	DESCRIPTION
REVISIONS		
ISSUE:	CONCEPT DESIGN	
ISSUE DATE:	4/12/2019	
PROJECT NO:	16-2824-00	
DRAWN BY:	JRM	
CHECKED BY:	BS	

COPYRIGHT © 2019. ALL RIGHTS RESERVED. NO PART OF THIS DOCUMENT MAY BE REPRODUCED IN ANY FORM OR BY ANY MEANS WITHOUT PERMISSION FROM WALKER CONSULTANTS.

SHEET TITLE:  
FOURTH TIER PLAN

A-104

4/10/2019 2:10:24 PM C:\Bowl Projects\16-2824-00-Natick\_PG-Natick\_SheetA105\_Thermsaw2.d



1 TOP TIER PLAN  
3/32" = 1'-0"

SHEET NOTES

SHEET KEYNOTES

LEGEND

- CIP
- CIP (PLAN CUT)
- PRECAST CONCRETE
- CMU



20 Park Plaza, Suite 1202  
Boston MA 02116  
617.353.5940 Ph  
www.walkerconsultants.com

NATICK CENTER  
PARKING GARAGE

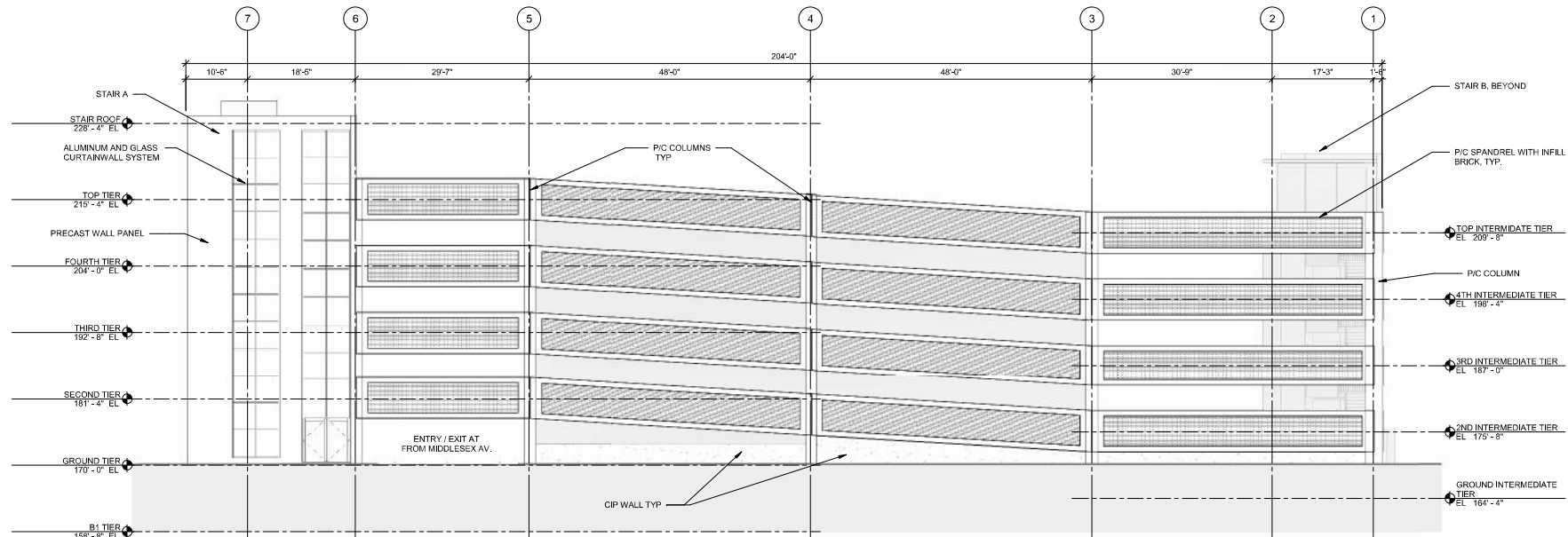
TOWN ON NATICK

MARK	DATE	DESCRIPTION
REVISIONS		
ISSUE:	CONCEPT DESIGN	
ISSUE DATE:	4/12/2019	
PROJECT NO:	16-2824-00	
DRAWN BY:	JRM	
CHECKED BY:	BS	

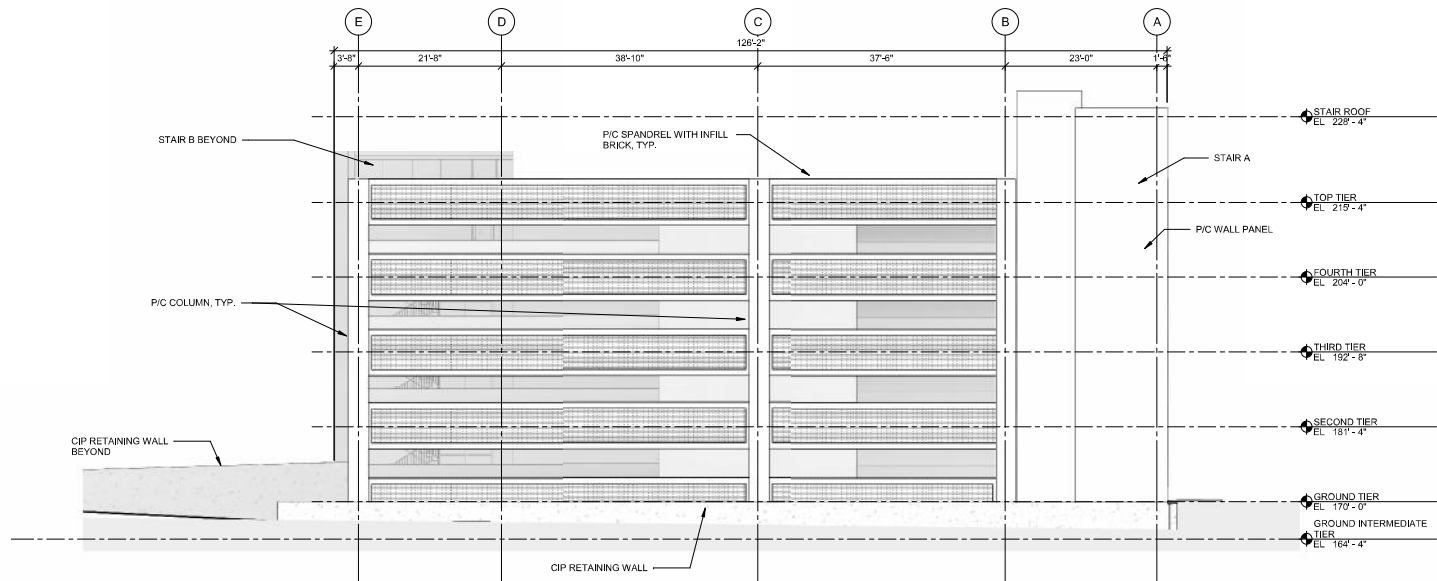
COPYRIGHT © 2019. ALL RIGHTS RESERVED. NO PART OF THIS DOCUMENT MAY BE REPRODUCED IN ANY FORM OR BY ANY MEANS WITHOUT PERMISSION FROM WALKER CONSULTANTS.

SHEET TITLE:  
TOP TIER PLAN

A-105



1 NORTH ELEVATION  
3/32" = 1'-0"



2 EAST ELEVATION  
3/32" = 1'-0"

PRELIMINARY - DO NOT USE FOR CONSTRUCTION

NATICK CENTER  
PARKING GARAGE

TOWN OF NATICK

MARK	DATE	DESCRIPTION
		REVISIONS
ISSUE:	CONCEPT DESIGN	
ISSUE DATE:	4/12/2019	
PROJECT NO:	16-2824-00	
DRAWN BY:	JRM	
CHECKED BY:	BS	

COPYRIGHT © 2019. ALL RIGHTS RESERVED. NO PART OF THIS DOCUMENT MAY BE REPRODUCED IN ANY FORM OR BY ANY MEANS WITHOUT PERMISSION FROM WALKER CONSULTANTS.

SHEET TITLE:  
BUILDING ELEVATIONS





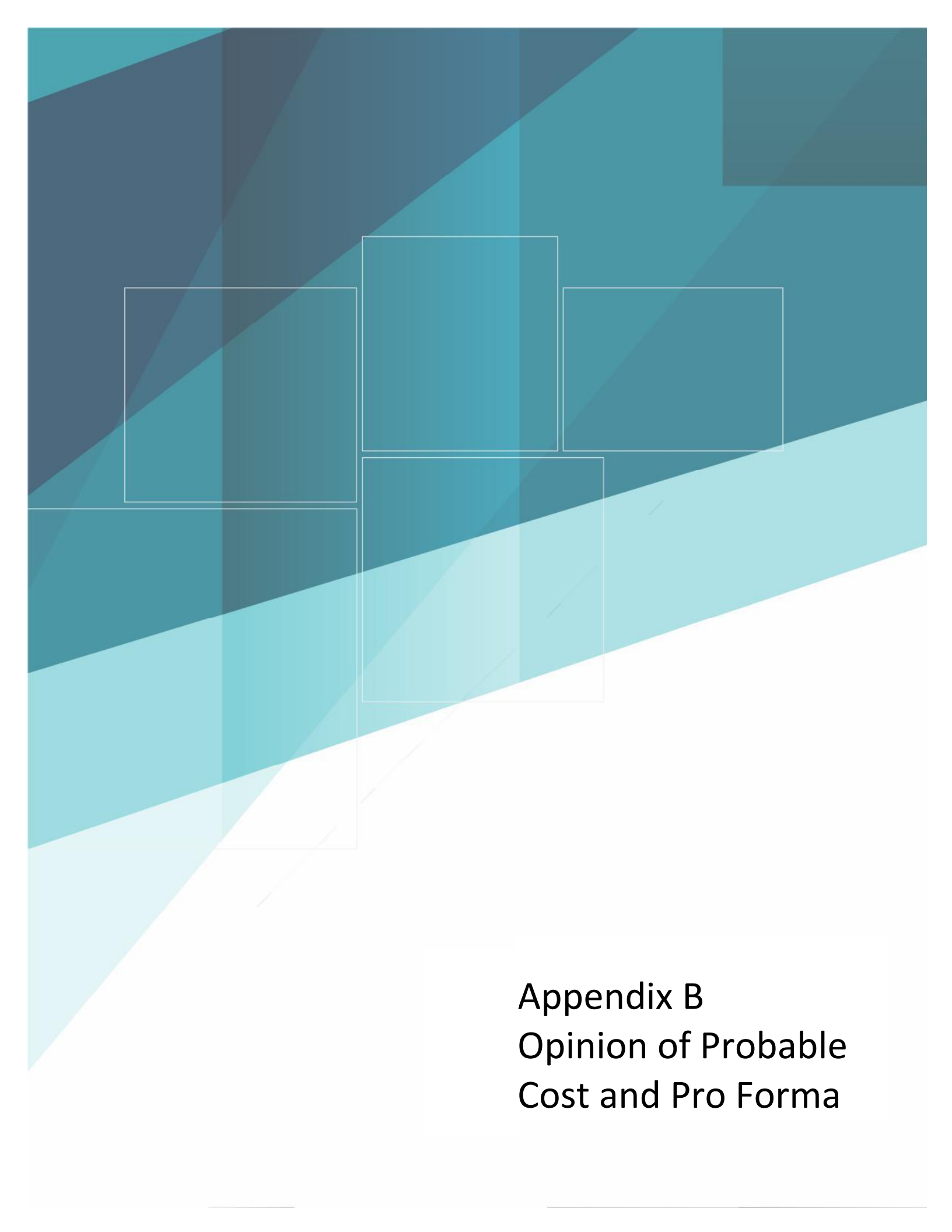
PRELIMINARY - DO NOT USE FOR CONSTRUCTION

TOWN ON NATICK

[illegible]

COPYRIGHT © 2019. ALL RIGHTS RESERVED. NO PART  
THIS DOCUMENT MAY BE REPRODUCED IN ANY FORM  
BY ANY MEANS WITHOUT PERMISSION FROM WALKER  
CONSULTANTS

SHEET TITLE:  
**BUILDING ELEVATIONS**



## Appendix B

### Opinion of Probable Cost and Pro Forma

**CONCEPTUAL OPINION OF PROBABLE COST**  
**Parking Structure Option 1**  
**Natick, MA**

Date: Feb 12, 2019

TIER	GRADE AREA (ft <sup>2</sup> )	SUPPORTED AREA (ft <sup>2</sup> )	TOTAL AREA (ft <sup>2</sup> )	# OF CAR STALLS
Ground Tier and Basement	23,862	10,455	34,317	86
2nd Tier		23,862	23,862	78
3rd Tier		23,862	23,862	68
4th Tier		23,862	23,862	68
5th Tier		20,982	20,982	58
<b>TOTALS</b>	23,862	103,023	126,885	358

SQUARE FEET PER CAR STALL = 354

ITEM	DIV	DESCRIPTION	UNIT	UNIT COST	QUANTITY	COST <sup>(6)</sup>	\$/SF Floor Area
1	2	Remove Existing Lot <sup>(1)</sup>	SF	\$1.00	40,150	\$40,000	\$0.32
2	2	Unclassified Soil Excavation <sup>(1)</sup>	CY	\$30.00	6,110	\$183,000	\$1.44
3	2	Classified Soil Disposal Allowance	ALL	\$100,000.00	1	\$100,000	\$0.79
4	2	Backfill	CY	\$35.00	4,600	\$161,000	\$1.27
5	2	Misc. Site Work, Grading, Landscaping	SF of Ground	\$2.00	40,150	\$80,000	\$0.63
6	2	Site Walls	SF	\$50.00	3,000	\$150,000	\$1.18
7	2	Utilities & Subdrainage	SF of Ground	\$6.75	23,862	\$161,000	\$1.27
8	2	Sheet piling	LF	\$1,200.00	350	\$420,000	\$3.31
9	3	Demolish Existing Foundations	CY	\$175.00	465	\$81,000	\$0.64
10	3	Foundations (Spread Footings) <sup>(2)</sup>	CY	\$510.00	930	\$474,000	\$3.74
11	3	CIP Slab-on-Grade	SF of Ground	\$10.00	23,862	\$239,000	\$1.88
12	3	CIP Walls	SF	\$40.00	8,850	\$354,000	\$2.79
13	3	Precast concrete w/ erection <sup>(3)</sup>	SF of Supported	\$32.50	103,023	\$3,348,000	\$26.39
14	3,5	Architectural Façade Upgrades	SF of Supported	\$2.50	103,023	\$258,000	\$2.03
15	3,5,8,9	Main Stair Tower w/ erection	Per Level	\$175,000.00	6	\$1,050,000	\$8.28
16	3,5,8,9	Egress Stair Tower w/ erection	Per Level	\$85,000.00	5	\$425,000	\$3.35
17	5	Misc Metals	LS	\$175,000.00	1	\$175,000	\$1.38
18	9	Stall Striping with Directional Arrows	Per Stall	\$20.00	358	\$7,000	\$0.06
19	10	Signage	SF	\$0.30	126,885	\$38,000	\$0.30
20	14	Elevator	Per Stop	\$30,000.00	6	\$180,000	\$1.42
21	15	Mechanical (Drainage and Standpipes) <sup>(4)</sup>	SF	\$2.00	126,885	\$254,000	\$2.00
22	16	Fire Alarm System <sup>(4)</sup>	SF	\$1.50	126,885	\$190,000	\$1.50
23	16	Photovoltaic Array	SF	\$0.00	23,862	\$0	\$0.00
24	16	Electrical <sup>(5)</sup>	SF	\$5.00	126,885	\$634,000	\$5.00
25	16	Security (CCTV and Call Stations)	SF	\$1.25	126,885	\$159,000	\$1.25
<b>SUBTOTAL</b>						<b>\$9,161,000</b>	<b>\$72.20</b>
GENERAL CONDITIONS				10.0%	of subtotal	<b>\$916,000</b>	<b>\$7.22</b>
CONSTRUCTION CONTINGENCY				15.0%	of subtotal	<b>\$1,374,000</b>	<b>\$10.83</b>
<b>TOTAL CONSTRUCTION COSTS <sup>(6)</sup></b>						<b>\$11,451,000</b>	<b>\$90.25</b>
<b>CARS = 358</b>						<b>\$32,000</b>	<b>CONST. \$/CAR</b>

**Notes:**

1. Approximate quantities based on spread footing foundation system. Cost based on non-contaminated soil removal. Hazardous or regulated materials not included in cost.
2. Assumed foundation system. Removal of existing foundation system not included.
3. Precast concrete includes structural elements (columns, beams, walls, tees) and architectural precast.
4. Costs do not include an automatic fire suppression system (i.e. sprinklers u.n.o)
5. Excluding CCTV, Security Equipment.
6. Numbers rounded to the nearest thousand and reflect 2019 dollars.

## Natick Middlesex Parking Structure

### DEBT SERVICE CALCULATION



16-2824.00

April 12, 2019

#### Annual Cost of Ownership

##### Conceptual Unit Costs

Hard Cost per Space	\$32,000
Soft Costs as % of Hard Cost	20%
Total Unit Cost per Space	<u>\$38,400</u>
Parking Spaces	<u>358</u>
Conceptual Project Costs	<u>\$13,747,200</u>
Land Acquisition	\$0
Additional Contaminated Soils Remediation	\$0
Mixed Use (Core & Shell)	\$0
Solar Alternate	<u>\$0</u>
Conceptual Project Costs + Land	<u>\$13,747,200</u>

(included in base cost)

Financing Assumptions: Equity 0% \$0

Debt	100%	\$13,747,200
Bond Cost	2%	<u>\$274,944</u>
Amount Financed		<u>\$14,022,144</u>

4.5% Interest  
25 Years

Annual Debt Service (rounded) \$946,000

Debt Service Increase to 2022 9% \$1,032,000

Sinking Fund per space \$300



Natick Middlesex Parking Structure

Current Parking Rates



FINANCIAL ANALYSIS

16-2824.00

April 12, 2019

Conceptual Pro Forma

Capacity		358 Spaces		Design/Construction		Stabilized Occ.																				Year 1		Year 2		Year 3		Year 4		Year 5		Year 6		Year 7		Year 8		Year 9		Year 10		Year 11		Year 12		Year 13		Year 14		Year 15		Year 16		Year 17		Year 18		Year 19		Year 20	
				2021 base	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042																																								
Estimated Operating Revenues		Turnover or Peak Adj.	Avg. Ticket	Day/Month/ Year	Trend Rate:	50.0%	0.0%	0.0%	0.0%	6.0%	0.0%	0.0%	6.0%	0.0%	0.0%	6.0%	0.0%	0.0%	6.0%	0.0%	0.0%	6.0%	0.0%	0.0%	6.0%	0.0%	0.0%	6.0%	0.0%	0.0%	6.0%	0.0%	0.0%	6.0%	0.0%	0.0%																													
		Spaces	Oversell	Factor																																																													
Downtown Business Permit		250	1.00	95%	\$325.00	1	\$77,000	\$115,500	\$115,500	\$115,500	\$122,430	\$122,430	\$122,430	\$129,776	\$129,776	\$129,776	\$137,562	\$137,562	\$137,562	\$145,816	\$145,816	\$145,816	\$154,565	\$154,565	\$154,565	\$163,839	\$163,839	\$163,839	\$163,839	\$163,839	\$163,839	\$163,839	\$163,839	\$163,839	\$163,839	\$163,839																													
Transient		33	2.00	80%	\$1.00	260	\$14,000	\$21,000	\$21,000	\$21,000	\$22,260	\$22,260	\$22,260	\$23,596	\$23,596	\$23,596	\$25,011	\$25,011	\$25,011	\$26,512	\$26,512	\$26,512	\$28,103	\$28,103	\$28,103	\$29,789	\$29,789	\$29,789	\$29,789	\$29,789	\$29,789	\$29,789	\$29,789	\$29,789	\$29,789	\$29,789																													
Garage Mixed Use - Employee		0	1.00	95%	\$325.00	12	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0																													
Garage Mixed Use - Patron		0	2.00	95%	\$1.00	260	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0																													
Residential		25	1.00	95%	\$325.00	1	\$8,000	\$12,000	\$12,000	\$12,000	\$12,720	\$12,720	\$12,720	\$13,483	\$13,483	\$13,483	\$14,292	\$14,292	\$14,292	\$15,150	\$15,150	\$15,150	\$16,059	\$16,059	\$16,059	\$17,022	\$17,022	\$17,022	\$17,022	\$17,022	\$17,022	\$17,022	\$17,022	\$17,022	\$17,022	\$17,022																													
Commuters		50	1.00	95%	\$615.00	1	\$29,000	\$43,500	\$43,500	\$43,500	\$46,110	\$46,110	\$46,110	\$48,877	\$48,877	\$48,877	\$51,809	\$51,809	\$51,809	\$54,918	\$54,918	\$54,918	\$58,213	\$58,213	\$58,213	\$61,706	\$61,706	\$61,706	\$61,706	\$61,706	\$61,706	\$61,706	\$61,706	\$61,706	\$61,706	\$61,706																													
Nights / Weekends		0	1.50	50%	\$1.00	257	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0																													
Special Event		0	1.00	80%	\$1.00	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0																													
		SF Area		Rent/SF/YR																																																													
Mixed-Use Space Leased		0	25.00		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0																													
Land Lease		0			\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0																													
Potential Gross Revenue								\$192,000	\$192,000	\$203,520	\$203,520	\$203,520	\$215,731	\$215,731	\$215,731	\$228,675	\$228,675	\$228,675	\$242,396	\$242,396	\$242,396	\$256,939	\$256,939	\$256,939	\$272,356	\$272,356	\$272,356	\$272,356	\$272,356	\$272,356	\$272,356	\$272,356	\$272,356	\$272,356	\$272,356	\$272,356																													
Credit Card Processing Fees		0.0%					0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0																													
Discounts, Coupons, Promotion		0.0%					0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0																													
Total Potential Gross Income (PGI)								192,000	192,000	203,520	203,520	203,520	215,731	215,731	215,731	228,675	228,675	228,675	242,396	242,396	242,396	256,939	256,939	256,939	272,356	272,356	272,356	272,356	272,356	272,356	272,356	272,356	272,356	272,356	272,356	272,356	272,356																												
Vacancy & Collection Loss		3.0%					(5,760)	(5,760)	(6,106)	(6,106)	(6,106)	(6,106)	(6,472)	(6,472)	(6,472)	(6,860)	(6,860)	(6,860)	(7,272)	(7,272)	(7,272)	(7,708)	(7,708)	(7,708)	(8,171)	(8,171)	(8,171)	(8,171)	(8,171)	(8,171)	(8,171)	(8,171)	(8,171)	(8,171)	(8,171)	(8,171)																													
Effective Gross Income (EGI)								186,240	186,240	197,414	197,414	197,414	209,259	209,259	209,259	221,815	221,815	221,815	235,124	235,124	235,124	249,231	249,231	249,231	264,185	264,185	264,185	264,185	264,185	264,185	264,185	264,185	264,185	264,185	264,185	264,185	264,185																												
Estimated Operating Expenses		Variable Expense Trend Rate:				Base	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%																														
Variable Expenses		Unit Cost																																																															
Salaries & Wages		See calc.	below			\$22,100	\$22,874	\$23,674	\$24,503	\$25,360	\$26,248	\$27,167	\$28,117	\$29,101	\$30,120	\$31,174	\$32,265	\$33,395	\$34,563	\$35,773	\$37,025	\$38,321	\$39,662	\$41,051	\$42,487	\$43,974	\$45,513	\$47,099	\$48,728	\$50,401	\$52,117	\$53,876	\$55,678	\$57,522	\$59,408	\$61,335																													
Benefits		See calc.	below			\$6,800	\$7,038	\$7,284	\$7,539	\$7,803	\$8,076	\$8,359	\$8,651	\$8,954	\$9,268	\$9,592	\$9,928	\$10,275	\$10,635	\$11,007	\$11,392	\$11,791	\$12,204	\$12,631	\$13,073	\$13,531	\$14,004	\$14,496	\$14,999	\$15,512	\$16,035	\$16,568	\$17,110	\$17,661	\$18,221	\$18,790																													
Security Service		\$0	per space /year			\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0																													
Utilities		\$100	per space /year			\$35,800	\$37,053	\$38,350	\$39,692	\$41,081	\$42,519	\$44,007	\$45,548	\$47,142	\$48,792	\$50,499	\$52,267	\$54,096	\$55,990	\$57,949	\$59,977	\$62,077	\$64,249	\$66,498	\$68,826	\$71,234	\$73,728	\$76,307	\$78,970	\$81,717	\$84,548	\$87,464	\$90,465	\$93,551	\$96,722	\$100,000																													
Supplies & Tickets		\$12	per space /year			\$4,296	\$4,446	\$4,602	\$4,763	\$4,930	\$5,102	\$5,281	\$5,466	\$5,657	\$5,855	\$6,060	\$6,272	\$6,492	\$6,719	\$6,954	\$7,197	\$7,449	\$7,710	\$7,980	\$8,259	\$8,548	\$8,847	\$9,155	\$9,472	\$9,798	\$10,134	\$10,480	\$10,836	\$11,202	\$11,578																														
Repairs & Maintenance		\$40	per space /year			\$14,320	\$14,821	\$15,340	\$15,877	\$16,433	\$17,008	\$17,603	\$18,219	\$18,857	\$19,517	\$20,200	\$20,907	\$21,639	\$22,396	\$23,180	\$23,991	\$24,831	\$25,700	\$26,599	\$27,530	\$28,494	\$29,491	\$30,521	\$31,585	\$32,683	\$33,815	\$34,981	\$36,181	\$37,415	\$38,683	\$39,984																													
Elevator Maintenance		\$600	per elevator / month			\$4,296	\$4,446	\$4,602	\$4,763	\$4,930	\$5,102	\$5,281	\$5,466	\$5,657	\$5,855	\$6,060	\$6,272	\$6,492	\$6,719	\$6,954	\$7,197	\$7,449	\$7,710	\$7,980	\$8,259	\$8,548	\$8,847	\$9,155	\$9,472	\$9,798	\$10,134	\$10,480	\$10,836	\$11,202	\$11,578	\$11,954																													
PARCS Service Agreement		\$0	per year			\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0																													
Snow Removal/Sanding		\$45	per space /year			\$16,110	\$16,674	\$17,257	\$17,861	\$18,487	\$19,134	\$19,803	\$20,496	\$21,214	\$21,956	\$22,725	\$23,520	\$24,343	\$25,195	\$26,077	\$26,990	\$27,935	\$28,912	\$29,924	\$30,971	\$32,055	\$33,177	\$34,336	\$35,531	\$36,762	\$38,029	\$39,332	\$40,671	\$42,045	\$43,454	\$44,898																													
Sweeping / Power Washing		\$17	per space /year			\$6,086	\$6,299	\$6,519	\$6,748	\$6,984	\$7,228	\$7,481	\$7,743	\$8,014	\$8,295	\$8,585	\$8,885	\$9,196	\$9,518	\$9,851	\$10,196	\$10,553	\$10,922	\$11,305	\$11,700	\$12,110	\$12,534	\$12,972	\$13,424	\$13,890	\$14,370	\$14,864	\$15,372	\$15,894	\$16,430	\$16,978																													
Insurance		\$50	per space /year			\$17,900	\$18,527	\$19,175	\$19,846	\$20,541	\$21,260	\$22,004	\$22,774	\$23,571	\$24,396	\$25,250	\$26,133	\$27,048	\$27,995	\$28,975	\$29,989	\$31,038	\$32,125	\$33,249	\$34,413	\$35,617	\$36,864	\$38,144	\$39,457	\$40,804	\$42,186	\$43,602	\$45,051	\$46,534	\$48,051	\$49,601																													
Line Striping		\$5	per space /year			\$1,790	\$1,853	\$1,917	\$1,985	\$2,054	\$2,126	\$2,200	\$2,277	\$2,357	\$2,440	\$2,525	\$2,613	\$2,705	\$2,799	\$2,897	\$2,999	\$3,104	\$3,212	\$3,325	\$3,441	\$3,562	\$3,686	\$3,813	\$3,943	\$4,076	\$4,212	\$4,351	\$4,492	\$4,636	\$4,783	\$4,932																													
Management Fee		\$1,000	per month			\$12,000	\$12,420	\$12,855	\$13,305	\$13,770	\$14,252	\$14,751	\$15,267	\$15,802	\$16,355	\$16,927	\$17,520	\$18,133	\$18,767	\$19,424	\$20,104	\$20,808	\$21,536	\$22,290	\$23,070	\$23,877	\$24,713	\$25,577	\$26,468	\$27,386	\$28,331	\$29,302	\$30,299	\$31,323	\$32,374	\$33,451																													
Accounting / Bank Fees		\$0	per space /year			\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0																													
Damage Claims		\$10	per space /year			\$3,580	\$3,705	\$3,835	\$3,969	\$4,108	\$4,252	\$4,401	\$4,555	\$4,714	\$4,879	\$5,050	\$5,227	\$5,410	\$5,599	\$5,795	\$5,99																																												

## Natick Middlesex Parking Structure

### Increase Parking Rates by 50%



## FINANCIAL ANALYSIS

16-2824.00

April 12, 2019

## Conceptual Pro Forma

[illegible]

<b>Payroll Calc.</b>	<b>Rate</b>	<b>Hours</b>	<b>FTE</b>	<b>Wages</b>	<b>Benefits %</b>	<b>Benefits</b>
Facility Management Oversight	\$35.00	2,080	0.250	\$18,200	32.0%	\$5,800
Custodian	\$15.00	2,080	0.125	\$3,900	25.0%	\$1,000
APS Service	\$15.00	2,080	0.000	\$0	25.0%	\$0
Bookkeeper	\$15.00	2,080	0.000	\$0	25.0%	\$0
Event labor	\$15.00	0	0.0	\$0	0.0%	\$0
				\$22,100		\$6,800



# COMMUNITY AND ECONOMIC DEVELOPMENT

BUILDING

PLANNING

ZONING

CONSERVATION

## MEMORANDUM

**To:** Michael Hickey, Chair, Natick Board of Selectmen  
**From:** James Errickson, Director  
Ted Fields, Senior Planner  
**CC:** Melissa Malone, Town Administrator  
**Date:** May 6, 2019  
**RE:** **Status report, Natick Center Parking Garage Feasibility Study**

---

Attached with this memorandum, please find the recently submitted Draft Phase 5 Summary Report from Walker Consultants regarding the proposed Natick Center Parking Garage. This report is extensive, providing a comprehensive analysis for designing, financing, constructing and operating a parking structure in Natick Center on the Town-owned Middlesex Avenue lot. The report was informed by extensive outreach, research, and analysis completed by the project team (Walker and sub-consultants) over the last 18-months, including several public meetings in the summer of 2018 after which the Town selected Design Option I for the garage structure (the basis for the Phase 5 Report). This design option includes the following attributes:

- Location entirely on the existing Middlesex Avenue municipal parking lot;
- Primary entrance to the structure from Middlesex Avenue with vehicular and pedestrian access points on both Middlesex and Summer Street;
- Structure is four-supported levels and one on-grade level, providing a capacity of approximately 350 spaces (223 net new spaces);
- Mixed-use space is not provided (will be encouraged on adjacent properties);

The probable construction cost of \$11.5M (\$32K per space), which does not include a roof of photovoltaic solar panels (estimated at an additional \$2.5-\$3M). Assuming 20% for soft costs, contingencies and soil remediation, total estimated project costs of \$13.8M (\$39.5K per space).

A rough cost estimate for constructing a parking deck similar to what was previously on the Middlesex Ave lot, was also provided in the report, highlighting the ability to construct a 185 space deck (net

addition of 69 spaces) with a probable construction cost of approximately \$23K per space or \$5M total for construction and soft costs (\$27K per space).

Along with comprehensive conceptual design details and construction considerations, the Phase 5 Report provides information regarding financing and alternative funding options, anticipated operating expenses, revenue projections, and other parking alternatives (surface parking, management of existing resources, etc). Additionally, based on comments provided by the community throughout the process, the report provides an expanded traffic analysis, a review of the potential impact current/future technologies (AV, TNC) may have on parking demand, as well as a comparative community analysis designed to provide context as to how other communities (Wellesley, Newton, Framingham, Needham) are managing parking resources.

As noted above, the Phase 5 Summary Report from Walker Consultants regarding the proposed Natick Center Parking Garage is extensive. The Walker Consultants team is available to attend a future public meeting to provide a more comprehensive presentation and answer detailed questions of the Board. In the meantime, please do not hesitate to contact staff at CED with any questions about the report.