

SECTION 8.0

ENVIRONMENTAL CONSEQUENCES, TAUNTON

SECTION 8.0

ENVIRONMENTAL CONSEQUENCES, TAUNTON

This section describes the environmental consequences that would result from the development of Alternatives A, B, C, and D on the Project Site in Taunton, Massachusetts. The analysis presented in this section has been prepared in accordance with the Council on Environmental Quality's (CEQ) National Environmental Policy Act (NEPA) Regulations Section 1502.16. The direct environmental effects of each Alternative are provided under the resource headings described in **Section 7.0**. This section also provides analysis of sustainability measures in **Section 8.18**, construction impacts in **Section 8.19**, growth-inducing and indirect effects in **Section 8.20**, cumulative impacts in **Section 8.21**, relationship between short-term uses and long-term productivity in **Section 8.22**, irreversible or irretrievable commitments of resources in **Section 8.23**, and unavoidable adverse effects in **Section 8.24**.

Because of their distinct locations and proposed development actions, the environmental consequences related to the land in Mashpee and the land in Taunton have been evaluated separately. The environmental consequences anticipated on the Mashpee site are detailed in **Section 6.0** of this DEIS.

CEQ regulations (40 CFR Section 1508.27) define significance of effects in terms of context and intensity. Significance criteria are more precisely defined in standard practices, environmental compliance criteria, or in the statutes or ordinances of the jurisdictional entities. Thus, the BIA's determination of significance of impacts may be accomplished with the assistance of governmental entities that have jurisdiction or special expertise for each resource. Further, BIA may use the standard practices and criteria already established by those entities prior to the preparation of this EIS.

Consistent with 40 CFR 1508.15 and 1508.26, the BIA identified several parties having jurisdiction by law to approve, veto, or finance all or part of the proposal and/or special expertise regarding the project alternatives. These entities may assist the BIA in the determination of significant impact for the alternatives for areas within their jurisdiction and/or area of special expertise. These agencies have agreed to serve as NEPA Cooperating Agencies, to comment on the Draft EIS or to otherwise provide consultation in the analysis process.

SECTION 8.1

TRANSPORTATION

8.1.1 INTRODUCTION

The Mashpee Wampanoag Tribe (the Tribe) is planning to develop a resort casino on a parcel of land in Taunton, Massachusetts, a portion of which is located in Phase 2 of the destination Liberty Union Industrial Park (LUIP).

At full build-out under the Proposed Development (Alternative A), the casino development will include a total of 400,019 gross square feet with 132,156 square feet of gaming space; this includes 3,000 slot machines, 150 table games plus 40 poker tables for a total of 4,400 total gaming positions, and an entertainment lounge. Also included are a 4-5 venue food court and two fine dining restaurants and other dining space (buffet restaurant, 24-hour restaurant, employee dining area) comprising approx. 41,165 square feet. The Proposed Development also includes back-house support area, a 23,423 square feet event center, a 4,431 space parking structure and an additional 1,940 surface parking spaces. At full build, there will be a total of 900 hotel rooms, plus a 25,000 square foot indoor/outdoor water park in addition to the casino.

To help the host City of Taunton understand the traffic impacts of the proposed project and possible mitigating measures, a preliminary traffic study for a core area of intersections and roadways within the City of Taunton was completed on May 21, 2012. This study was appended to the Environmental Notification Form (ENF) filed for the project submitted to the Massachusetts Office of Environmental and Energy Affairs MEPA Office on July 2, 2012 and noticed in the Environmental Monitor on July 11, 2012.

In response to the ENF, the MEPA Office issued a “Certificate of the Secretary of Energy and Environmental Affairs on the ENF” for the Project on August 24, 2012, The Environmental Protection Agency, on September 6, 2012, issued Scoping Comments for the Bureau of Indian Affairs Notice of Intent to Prepare an Environmental Impact Statement for the Proposed Fee-to-trust Transfer of Property and Subsequent Development of a Resort/Hotel and Ancillary Facilities in the city of Taunton, Massachusetts by the Tribe. Both agencies requested an expanded study that has been prepared for a broader study area that captures regional as well as local impacts – “the Scope.”

In the sections below, this chapter establishes an Alternative D, No-Action 2022 condition (should the project not go forward and the LUIP be built out to approved levels of development); it estimates and distributes traffic to roadways generated by the project, analyzes a Build 2022 condition, suggests appropriate traffic mitigation, and documents the resultant operational improvements.

8.1.2 IMPACT ANALYSIS: ALTERNATIVE D NO-ACTION ALTERNATIVE 2022

8.1.2.1 Background Traffic

Following the analysis of existing conditions, the next step in estimating traffic impacts of the proposed project is to assemble a study area traffic network that reflects traffic volumes that would be present if the project were not built – a No Action Alternative. After consultation with the City of Taunton’s consultants and the Massachusetts Department of Transportation Highway Division (MassDOT), this Alternative D No-Action traffic network was determined based on a 0.75% per year growth rate for the first five years and a 0.5% growth rate for the second five years – a 0.6% per year growth rate overall. This rate was applied in order to convert the existing, adjusted traffic volumes into 2022 Alternative D No-Action volumes. It should be noted that a review of the permanent counting stations adjacent to the project area has shown that annual traffic volumes have decreased over the past five years.

8.1.2.2 Proposed Roadway and Transit Improvements

This section presents regional transportation improvements that will proceed under the Alternative D No-Action Alternative, as well as the major development alternatives. These potential projects are intended to meet long-term needs in the region and are beyond what is necessary to mitigate the impacts of the proposed casino project. Generally, the design, construction, and funding of these projects are to be done by others; however, the Tribe, working collaboratively with the affected communities and the Commonwealth, will help to construct, design, and/or fund some additional improvements that are compatible with the state’s long-range plans. The Tribe expects that public and agency review of this DEIS will help to identify specific improvement projects that the Tribe could assist in implementing. As part of the MEPA process, the Tribe has already engaged with the Massachusetts Department of Transportation (MassDOT) in further study of potential mitigation measures and expects that review of this DEIS will help further clarify any issues of concern.

South Coast Rail Project

The Massachusetts Bay Transportation Authority (MBTA)’s South Coast Rail project is intended to restore passenger rail service from South Station in Boston to Fall River and New Bedford in southeastern Massachusetts. The three proposed rail alternatives via Attleboro, Stoughton or Whittenton include stops in Taunton at Taunton Depot, Taunton (Dean Street) and Downtown Taunton, as shown in **Figure 8.1-1** and described below:

- The Taunton Depot Station would be located off Route 140 at the rear of a shopping plaza that includes Target, Home Depot and other stores. It would provide 456 total parking spaces and a “kiss and ride” area in a paved lot and accommodations for two bus bays. Access to the parking area and bus bays would be afforded from a driveway that would go through the existing Target plaza. The station would provide one center platform with a pedestrian bridge over the tracks.
- This location would be the closest to the proposed casino site. Shuttle service could connect the casino with the station. It would be an approximately 10 minute trip.

- The Taunton Station (Dean Street) is located along Arlington Street near Dean Street (Route 44) near an historic train station. It would provide 209 parking spaces and a “kiss and ride” area in a paved lot and accommodations for two bus bays. GATRA Route 7 would be rerouted to serve the station. Platforms would be provided on one side of a single track. The station would be about ten minutes away from the site.
- Downtown Taunton Depot would be located on Oak Street next to the GATRA/Former Oak Street Mall site. A portion of the site accommodates an existing GATRA maintenance facility. This site could accommodate 726 total parking spaces in a paved lot; buses would be accommodated at the existing GATRA depot, with improved pedestrian connections to the station. This location would be about 15 minutes away from the site.

An Environmental Impact Statement for the project was filed by the U.S. Army Corps of Engineers in February 2011 and accepted by MassDOT as the relevant state document as well. In this document, the group of alternatives going through Stoughton was adopted by MassDOT as the preferred corridor for the service. The Stoughton alternative would accommodate the Taunton Depot and Taunton (Dean Street) options, but not the Downtown Taunton option.

Since the filing of the EIS/EIR, MassDOT has been proceeding with some of the elements of the project that would need to be in place before the rail project can proceed, including the successfully completed replacement of three structurally deficient rail bridges, purchase from CSX of 30 miles of track between Taunton, Fall River and New Bedford, and the conceptual design and environmental review for the ultimate expansion of South Station to accommodate the new service and improve existing MBTA and AMTRAK service. Funding has also been allocated in the MassDOT capital plan released late in 2011 to fund continued planning and design for the rail service. No additional funds were allocated in a one year transportation bond bill filed in March 2012, although that does not preclude additional funding at a later date. With this said, it is likely that implementation of the South Coast Rail project is not anticipated for many years.

MassDOT Rail Right-of-Way

Because the proponent has agreed with the City of Taunton that no vehicular access will be provided to the northerly segment of the site from Middleborough Avenue, a solution for crossing the MassDOT rail right-of-way is needed. This situation was discussed by the project design team with representatives of MassDOT. Typically, MassDOT would be unlikely to approve new at-grade crossings of high-speed rail due to safety concerns. As the spur that bisects the site is not currently proposed as part of the planned high speed South Coast Rail alignment, only the existing, low speed CSX rail traffic will be using the spur. As such, MassDOT has indicated that they would approve an at-grade crossing under that condition. MassDOT further indicated that if the spur were upgraded by the MBTA to accommodate South Coast Rail, either temporarily or permanently, if the rail right-of-way were to be used as one of the South Coast Rail alternatives linking the South Coast rail line to the south into the Middleborough/Lakeville line, then the crossing would be required to be grade-separated with a vertical clearance of at least 16'-6". Achieving the significant grade change either above or below the tracks probably is not feasible from a roadway design point of view without severe wetland and water table impacts and impacts to property not controlled by the Tribe. MassDOT, however, indicated that under this

scenario, if the Tribe were to establish a station stop and an associated platform located on the northern side of the right-of-way, trains would move more slowly and, under that condition, a grade crossing could be allowed.

Potential Regional Transit Improvements

Interviews with planning and management staff at GATRA, BAT, SRTA, Southeastern Regional Planning and Economic Development District (SRPEDD) and Old Colony Planning Council (OCPC) uncovered a range of potential transit services that could be offered or extended to serve the Taunton casino site. SRPEDD does route planning for GATRA and SRTA. Possible new or extended routes to serve casino employees and patrons include:

- Potential for GATRA and BAT service to connect at the casino as a transfer point, or at the GATRA intermodal center, the Raynham Dog Track, a park and ride lot or a community center. The GATRA center could also easily connect to SRTA service.
- Potential Plymouth and Brockton service from the Cape and Plymouth;
- GATRA service along Routes 44 and 79;
- Potential intermodal center at the Route 495/24 interchange rest areas to serve local and intercity bus, charter bus, and park and ride. This area could also serve as a potential layover area for charter buses;
- Service from local community centers or Councils on Aging facilities;
- Working with casino on employee commute management through a Mobility Management Office being set up at GATRA, coordinated with the expansion of the Myles Standish Industrial Park in Taunton;
- Shuttle services from Lakeville, Campello, Attleboro or South Attleboro MBTA commuter rail stations and eventual Taunton Depot and Freetown stations on the South Coast Rail. The Attleboro and South Attleboro shuttles could serve employees and patrons from the Providence area.
- Summer rail service to Hyannis from Lakeville station will resume this summer. It is possible that a shuttle from Lakeville Station could also connect with this service. GATRA runs a connection from Wareham to Lakeville as well.
- GATRA could look at splitting its Route 8, adding an “8A” service to serve the Raynham dog track and the casino.
- Although GATRA now runs no nighttime service, there is potential to add service around evening and night work shifts.
- Bonanza/Peter Plan operates a bus from Rhode Island to the Cape along I-195, stopping at Fall River.
- In response to recent condominium and apartment construction on the north side of Fall River and potential development at the Route 24/Freetown interchange, Peter Pan has been looking for a park and ride site along Route 24 near Fall River. There is no direct bus service now from Fall River to Taunton.

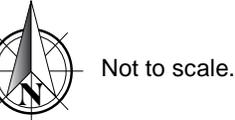
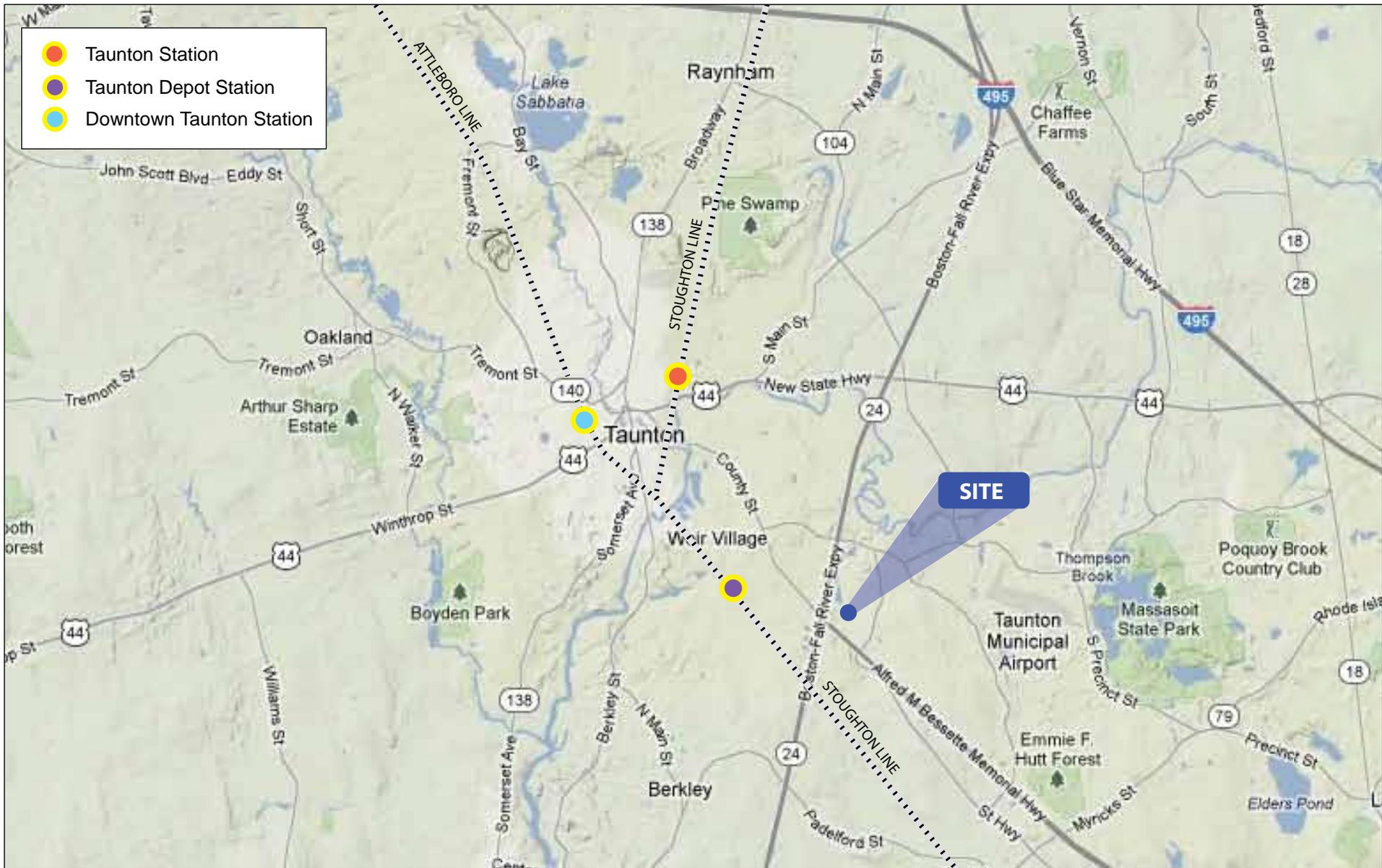


Figure 8.1-1
 Proposed Taunton Station Locations:
 South Coast Rail, Stoughton Alternative

Hart's Four Corners Intersection Improvements

Future roadway and traffic control improvements are proposed at this intersection through Massachusetts Department of Transportation Project #605679. The improvements, with a MassDOT cost estimate of \$1,680,000, are forecast to begin construction in Winter 2016/2017. The plan includes widening of County Street and new traffic signal operations and equipment. These future improvements, as shown in **Figure 8.1-2**, are reflected in the Alternative D No-Action and Build conditions analyses. The 25% plans were approved in September 2011, and design is now progressing. The City of Taunton is responsible for the right-of-way acquisition necessary to implement the project.

MassDOT Improvements at Route 24/Route 140 Interchange

In conjunction with replacing the structurally deficient Route 24 bridge over Route 140, MassDOT has investigated a number of conceptual alternatives for relieving traffic congestion, accommodating a potential future widening of Route 24 and improving pedestrian and bicycle accommodations at the interchange of Route 24 with Route 140 in Taunton. MassDOT Project #605888 has been under consideration since the mid-1990's by the Southeast Regional Planning and Economic Development District (SRPEDD). In 2003, improvements were studied in relationship to LUIP development; in 2008, acceleration and deceleration lanes were added to Route 24 to accommodate periodic queues generated by the interchange.

MassDOT's preferred alternative, 1D, is shown in **Figure 8.1-3**. The Route 24 southbound off-ramp is proposed to split from the mainline in two lanes, one to a new ramp to Route 140 northbound and the other to Route 140 southbound. The ramp to Route 140 southbound would enter Route 140 in its own lane, outside of a signal as currently exists today. Route 140 under Route 24 would be widened to seven lanes (from four lanes today) to accommodate a northbound double left to Route 24 southbound and a double through on Route 140 northbound. Route 140 southbound would have a divided single off-ramp lane from Route 24 southbound divided with a median barrier from two through lanes to Route 140 southbound and a transition to a double left turn to the Route 24 northbound ramp. Route 140 northbound between interchange 11 (Stevens Street) and Route 24 would be widened to the north to provide three lanes (currently two lanes with an auxiliary lane transition from the Stevens Road on-ramp). Exit 11A to Stevens Street at the Galleria Mall Drive would become signalized.

As of spring 2012, this improvement has not been programmed by the State. The preliminary cost estimate for this alternative is \$28,750,000. Future work would involve seeking additional public input, finalizing the alternatives, initiating environmental studies and preliminary design and finalizing the feasibility study for the interchange improvements. Because a specific schedule has not yet been defined, its implementation has not been incorporated into the 2022 traffic networks.



Reconstruction of Route 140 from Route 24 to Taunton Depot Drive

MassDOT Project #605191 involves roadway reconstruction, median installation and sidewalk reconstruction on Route 140 in the City of Taunton, with an estimated construction cost in 2009 of \$2,121,800. Also included are traffic signal upgrades and drainage improvements. The 25% plans for this project were approved by MassDOT in August, 2009. Construction was projected to begin in spring, 2016. Three study area intersections with Route 140 are included in this project area: Route 140 at Mozzone Boulevard, Hess Gas Station/Bristol-Plymouth High School and Erika Drive. Because plans for specific improvements at these locations were not available, implementation of this project was not factored into the 2022 traffic networks.

Middleborough Rotary Improvements

The need for safety and operational improvements at the Middleborough Rotary has been acknowledged by the state. MassDOT Project #606307 includes updating traffic analyses and preparing concept alternative for the rotary, which is the intersection of three major routes in Middleborough, Massachusetts: Route 18, Route 28, and Route 44. According to MassDOT, this project is anticipated to start construction in 2016. Since this project is in its early concept stages, proposed improvements for the Middleborough Rotary are not reflected in the analyses of future conditions in this report. However, it should be noted that improvements to safety and operations are planned for this location by MassDOT as described above. The construction costs for the improvements are estimated at \$13,800,000.

Signal and Intersection Improvements at Route 44, Orchard Street, and Route 24 NB Off-ramp

MassDOT Project #605668 includes improvements to the intersections at Route 44/Orchard Street and the intersection at Route 44/Route 24 NB off-ramp. The work consists of traffic signal installation and reconstruction of the intersections. According to MassDOT, the 25% design plans have been submitted and approved. Construction is anticipated to begin in 2014 with an estimated construction cost of \$2,302,700. The details of the proposed improvements are unknown; however, it is anticipated that the design will address operational and safety issues at these locations. Proposed improvements are not reflected in the analyses of future conditions in this report.

8.1.2.3 LUIP Phase 1 and 2 Buildout Traffic

The second step in determining Alternative D No-Action traffic was to estimate the traffic that would be generated by the approved full buildout of the Liberty & Union Industrial Park, both Phase 2 on the site itself, less the trips generated by uses already on the site today, which are reflected in the existing traffic counts, and Phase 1 south of Stevens Street.

8.1 Environmental Consequences, Taunton: Transportation

LUIP Phase 2 (generally the site) was approved for 663,400 square feet of warehouse/distribution space and 69,900 square feet of office space.¹ Vehicle trips that would be generated by the potential full development at LUIP Phase 2 if a casino were not built on the site are summarized in **Table 8.1-1**.

**TABLE 8.1-1
LIBERTY & UNION INDUSTRIAL PARK: PHASE 2 ESTIMATED TRIP GENERATION AT APPROVED FULL BUILDOUT**

Component	Size	Category	Trip Rates (Trips/ksf or unit)	Unadjusted Vehicle Trips
Daily Trip Generation				
<i>Warehouse</i> ¹	663.40 ksf	Total	3.56	2,362
		In	1.78	1,181
		Out	1.78	1,181
<i>Office</i> ²	69.90 ksf	Total	14.49	1013
		In	7.24	506
		Out	7.24	506
Total		Total		3,374
		In		1,687
		Out		1,687
AM Peak Hour Trip Generation				
<i>Warehouse</i> ¹	663.40 ksf	Total	0.30	199
		In	0.24	157
		Out	0.06	42
<i>Office</i> ²	69.90 ksf	Total	2.02	141
		In	1.78	124
		Out	0.24	17
Total		Total		340
		In		281
		Out		59
Friday PM Peak Hour Trip Generation				
<i>Warehouse</i> ¹	663.40 ksf	Total	0.32	212
		In	0.08	53
		Out	0.24	159
<i>Office</i> ²	69.90 ksf	Total	2.25	157
		In	0.38	27
		Out	1.87	130
Total		Total		369
		In		80
		Out		290
Saturday Peak Hour Trip Generation				
<i>Warehouse</i> ¹	663.40 ksf	Total	0.13	86
		In	0.07	43
		Out	0.07	43
<i>Office</i> ²	69.90 ksf	Total	2.40	168
		In	1.20	84
		Out	1.20	84
Total		Total		254
		In		127
		Out		127

Notes:

1. ITE Trip Generation Rate, 8th Edition, LUC 160 (Warehousing), Rate

¹ Secretary of Environmental Affairs. January 6, 2006. Certificate on the Notice of Project Change, East Taunton Industrial Park. Massachusetts Environmental Policy Act (MEPA) Office (EEA No. 12631).

Phase 1 of the LUIP was approved by the Executive Office of Environmental Affairs Massachusetts Environmental Policy Act (MEPA) office for 1,783,360 square feet of warehouse/distribution facilities, including about 183,440 square feet of office space. In 2012, 773,060 square feet of warehouse space remains to be built on the Phase 1 site. Vehicle trips that would be added to existing volumes for Phase 1 are summarized in **Table 8.1-2**.

**TABLE 8.1-2
LIBERTY & UNION INDUSTRIAL PARK: PHASE 1 ESTIMATED ADDITIONAL TRIP GENERATION AT
APPROVED FULL BUILD-OUT**

Component	Size	Category	Trip Rates (Trips/ksf or unit)	Unadjusted Vehicle Trips
Daily Trip Generation				
Warehouse¹	773.06 ksf	Total	3.56	2,752
		In	1.78	1,376
		Out	1.78	1,376
AM Peak Hour Trip Generation				
Warehouse¹	773.06 ksf	Total	0.30	232
		In	0.24	183
		Out	0.06	49
Friday PM Peak Hour Trip Generation				
Warehouse¹	773.06 ksf	Total	0.32	247
		In	0.08	62
		Out	0.24	186
Saturday Midday Peak Hour Trip Generation				
Warehouse¹	773.06 ksf	Total	0.13	100
		In	0.07	50
		Out	0.07	50

Notes:

1. ITE Trip Generation Rate, 8th Edition, LUC 160 (Warehousing), Rate
2. ITE Trip Generation Rate, 8th Edition, LUC 492 (Health Club), Rate
3. ITE Trip Generation Rate, 8th Edition, LUC 710 (General Office Building), fitted curve equation

The buildout analysis for the LUIP Phase 2 site was based on LUC 150 – Warehousing and LUC 710 – General Office. The warehousing code covers buildings primarily devoted to the storage of materials, but can also include office and maintenance areas. General office is defined as an office building containing multiple tenants. An office building typically contains a mixture of professional services. Calculations of the number of vehicle trips use ITE's average rate per 1,000 square feet.

The trip generation from the full buildout of Phase 2 of the industrial park was used to represent site traffic in the Alternative D No-Action traffic networks. The full buildout of Phase 1 was reflected in all alternatives.

8.1.2.4 2022 Alternative D No-Action Alternative Intersection Operations Analysis

Alternative D No-Action (2022) traffic volumes at study area intersections for the AM, PM, and Saturday midday peak hours are shown in **Figure 8.1-4** through **Figure 8.1-15**. **Figure 8.1-16** through **Figure 8.1-19** show the Alternative D No-Action Conditions level of service summary for study area intersections for the AM, PM and Saturday midday peak hours. Summary tables including the delay, volume-to-capacity ratio, average queue length, and 95th percentile queue length are shown in Table 1, Table 2, and Table 3 of **Appendix B-3**. Detailed Synchro analyses for all conditions are also presented in **Appendix B-3**.

2022 Alternative D No-Action Alternative AM Peak Hour Intersection Operations

Under Alternative D No-Action Conditions, operations generally remain the same as existing conditions during the morning peak hour.

At *Dean Street/Longmeadow Road/Gordon Owen Parkway*, both the Dean Street eastbound and westbound left-turn movements worsen from LOS D to LOS E.

At *Broadway/I-495 SB Ramps*, the Broadway southbound left-turn movement worsens from LOS D to LOS E.

The Driveway left/through movement at *O'Connell Way/Stevens Street* worsens from LOS C to LOS F.

2022 Alternative D No-Action Friday PM Peak Hour Intersection Operations

Under Alternative D No-Action Conditions, operations generally remain the same as existing conditions during the evening peak hour. However, there are a few locations where certain approaches worsen to below LOS D.

At *Route 24 SB Ramp/County Street*, the overall LOS worsens from LOS E to LOS F.

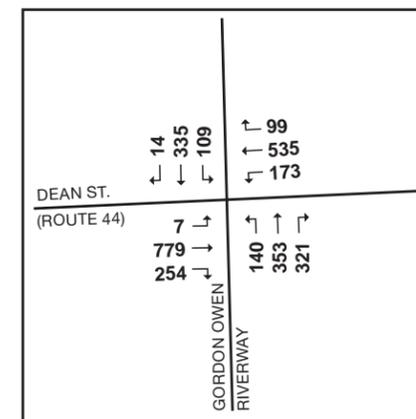
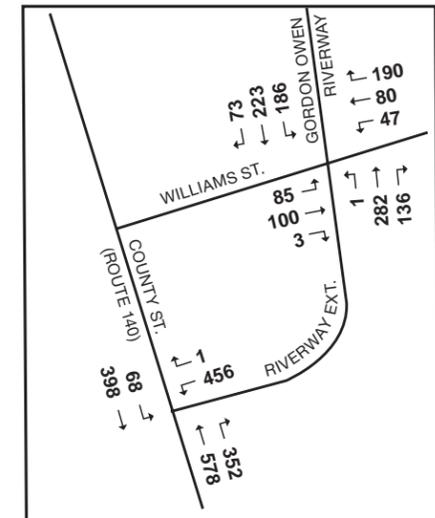
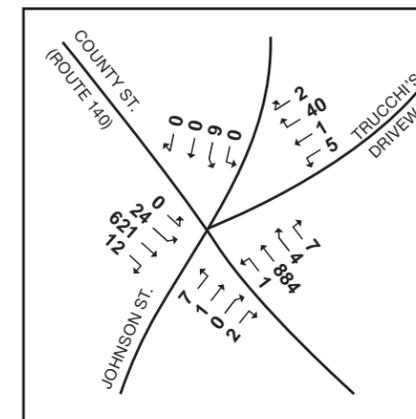
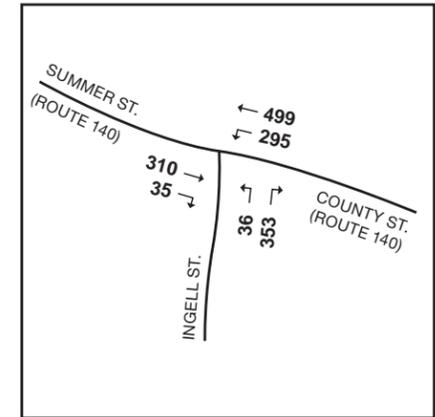
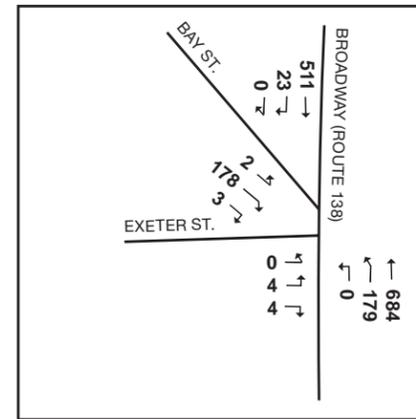
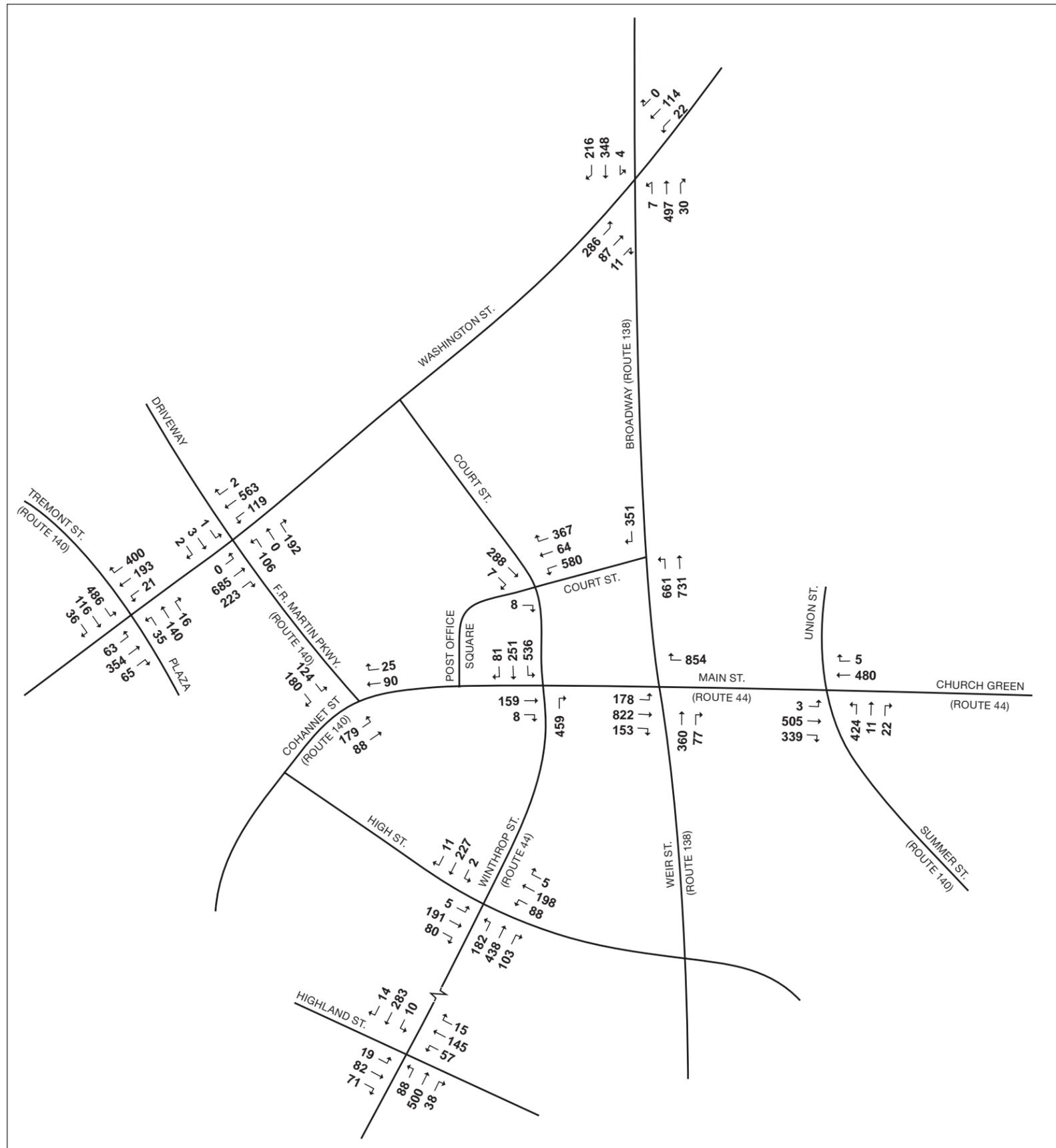
At *High Street/Winthrop Street*, the overall LOS worsens from LOS E to LOS F.

At *Cape Highway/Orchard Street*, the Orchard Street northbound left-turn movement worsens from LOS E to LOS F.

At *Broadway/I-495 NB Ramps*, the Broadway southbound approach worsens from LOS D to LOS F.

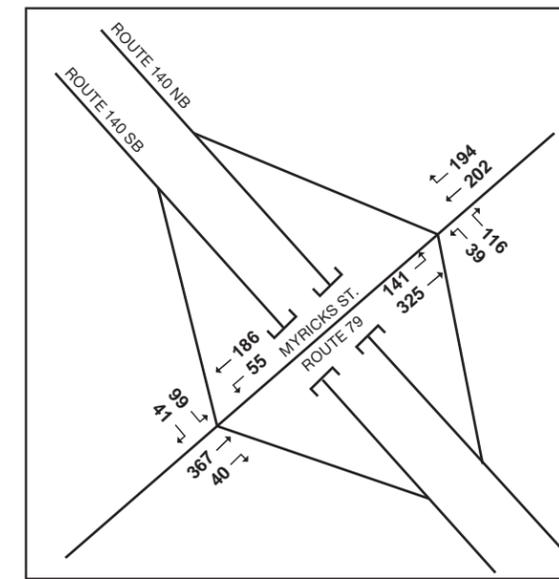
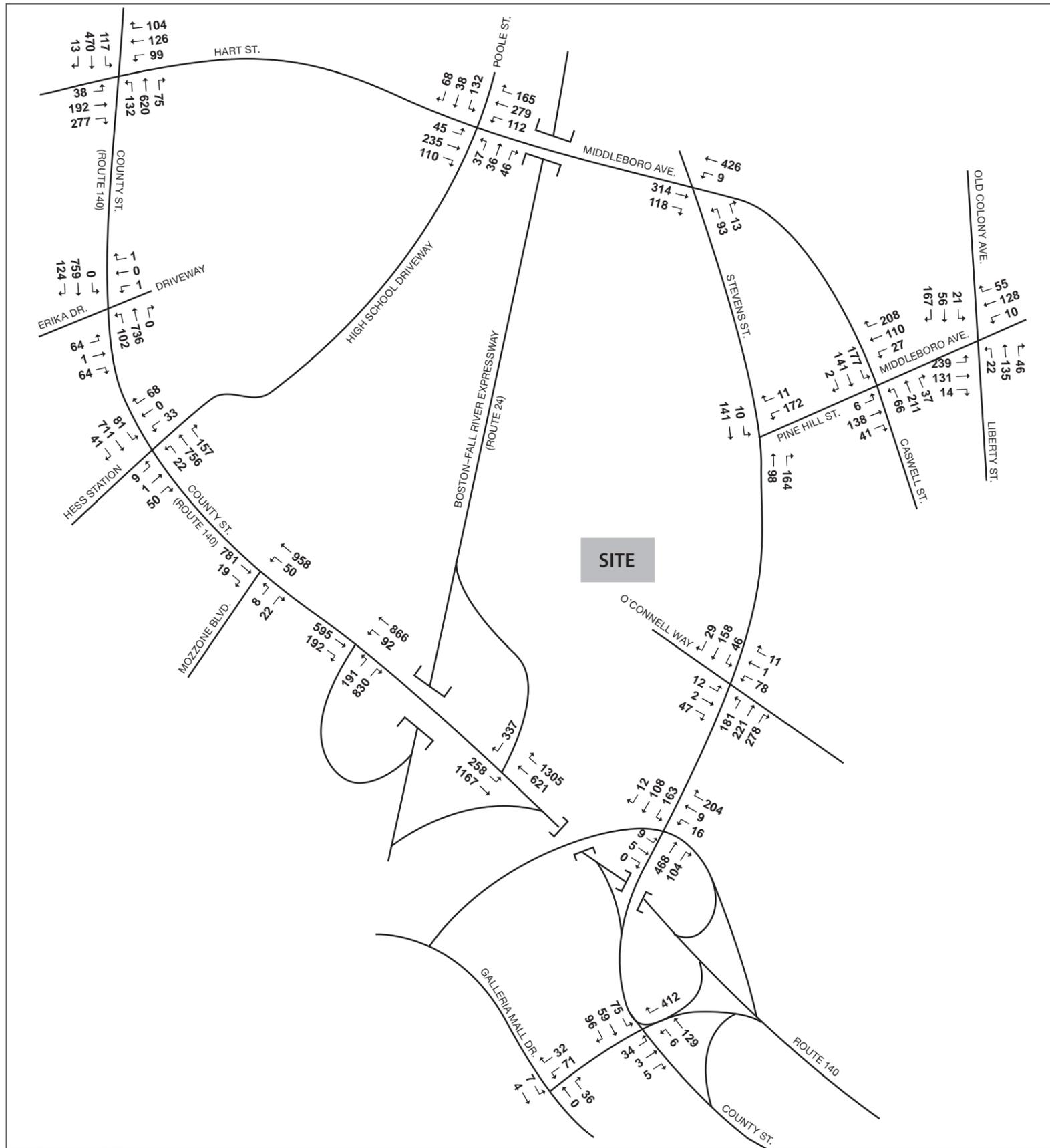
At *O'Connell Way/Stevens Street*, the O'Connell eastbound left/thru movement worsens from LOS E to LOS F.

At *Middleboro Avenue/Stevens Street*, the Stevens Street northbound approach worsens from LOS D to LOS E.



Not to scale.

SOURCE: Howard/Stein-Hudson Associates, Inc.

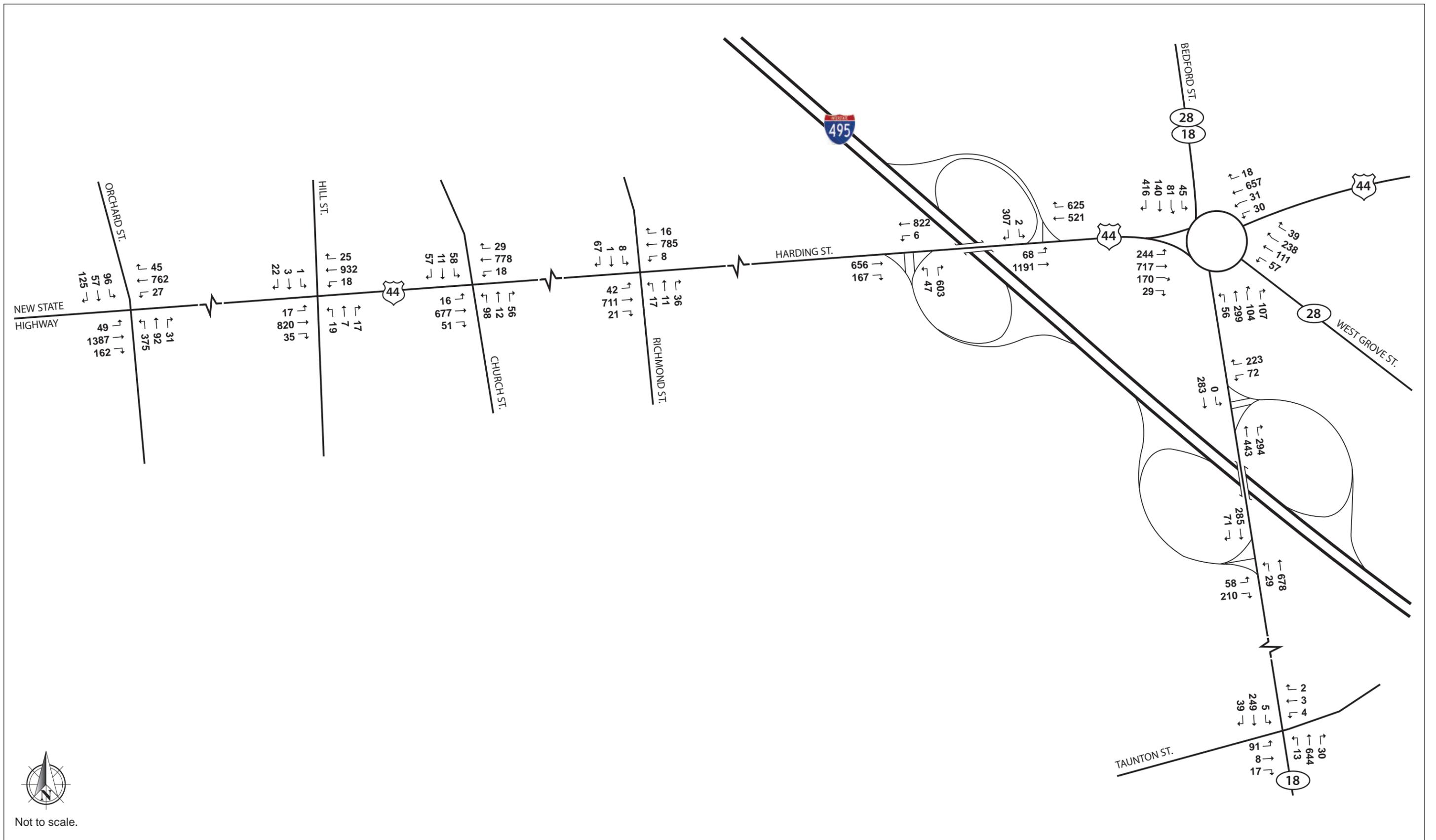


Not to scale.

SOURCE: Howard/Stein-Hudson Associates, Inc.

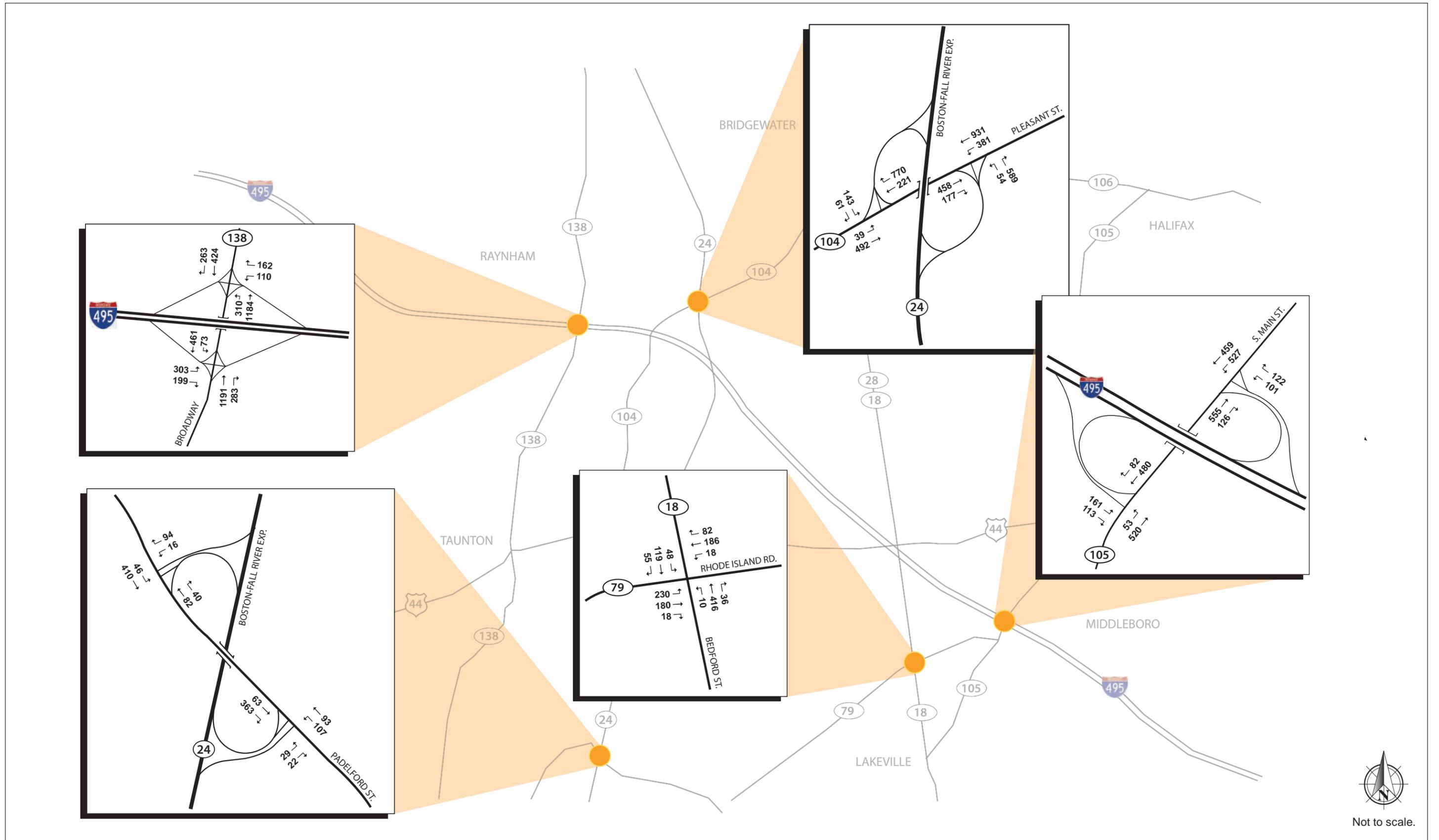
Mashpee Wampanoag Tribe – Fee to Trust Acquisition – Draft EIS ■

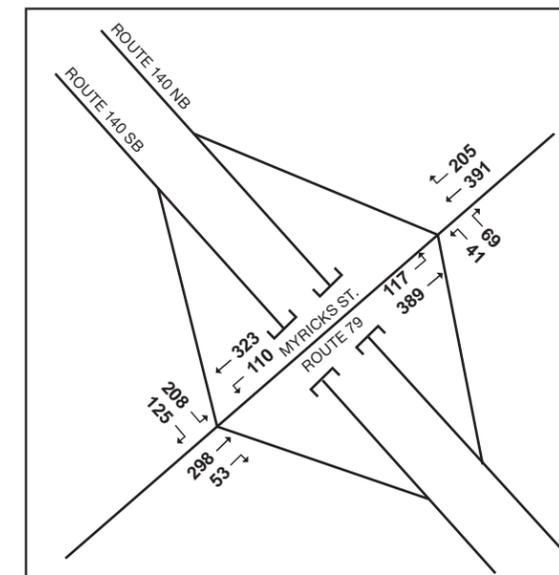
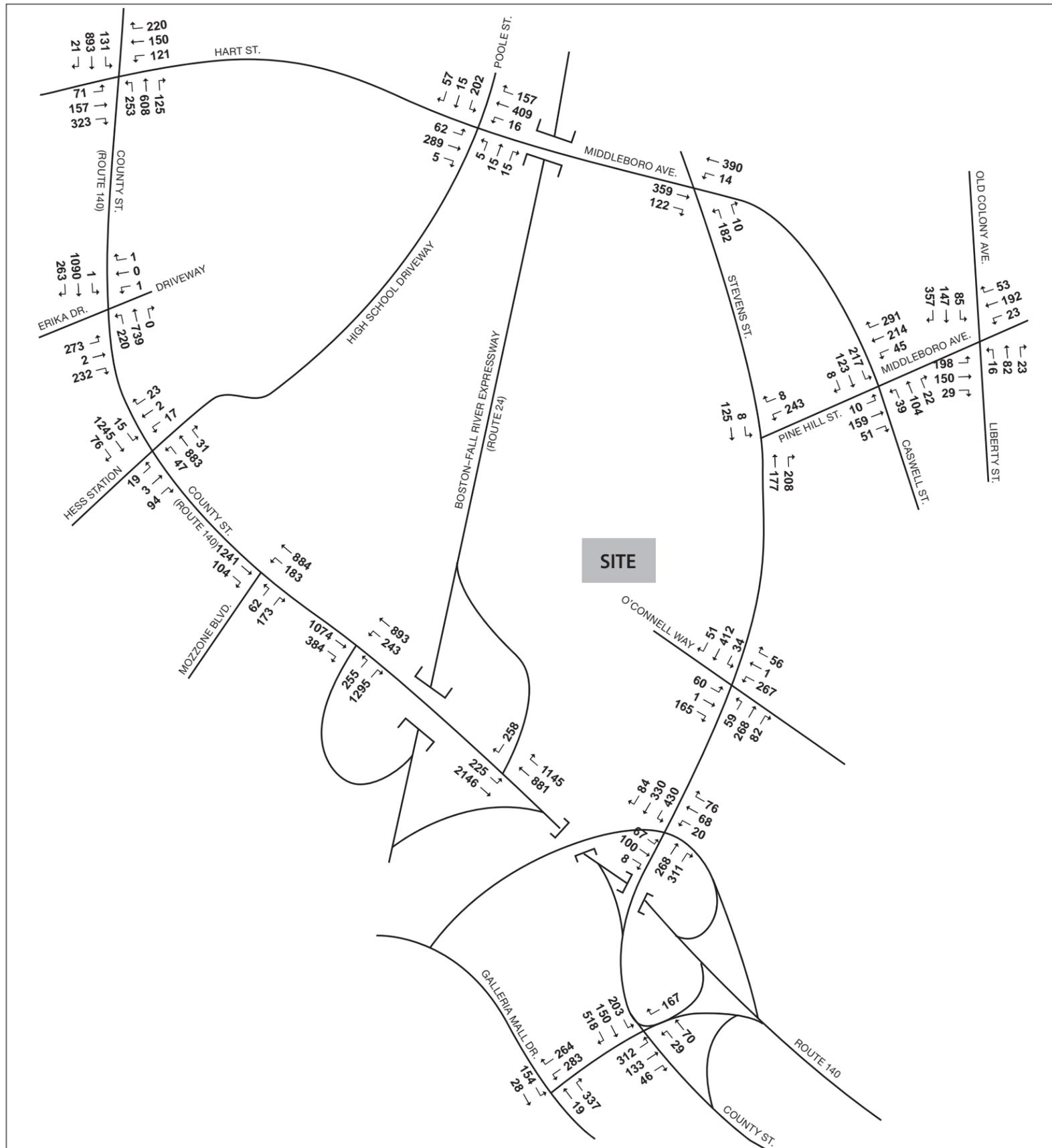
Figure 8.1-5
No-Action Alternative (2022) AM Peak Hour Volumes –
East Taunton



SOURCE: Howard/Stein-Hudson Associates, Inc.

Figure 8.1-6
No-Action Alternative (2022) AM Peak Hour Volumes –
Route 44 Corridor



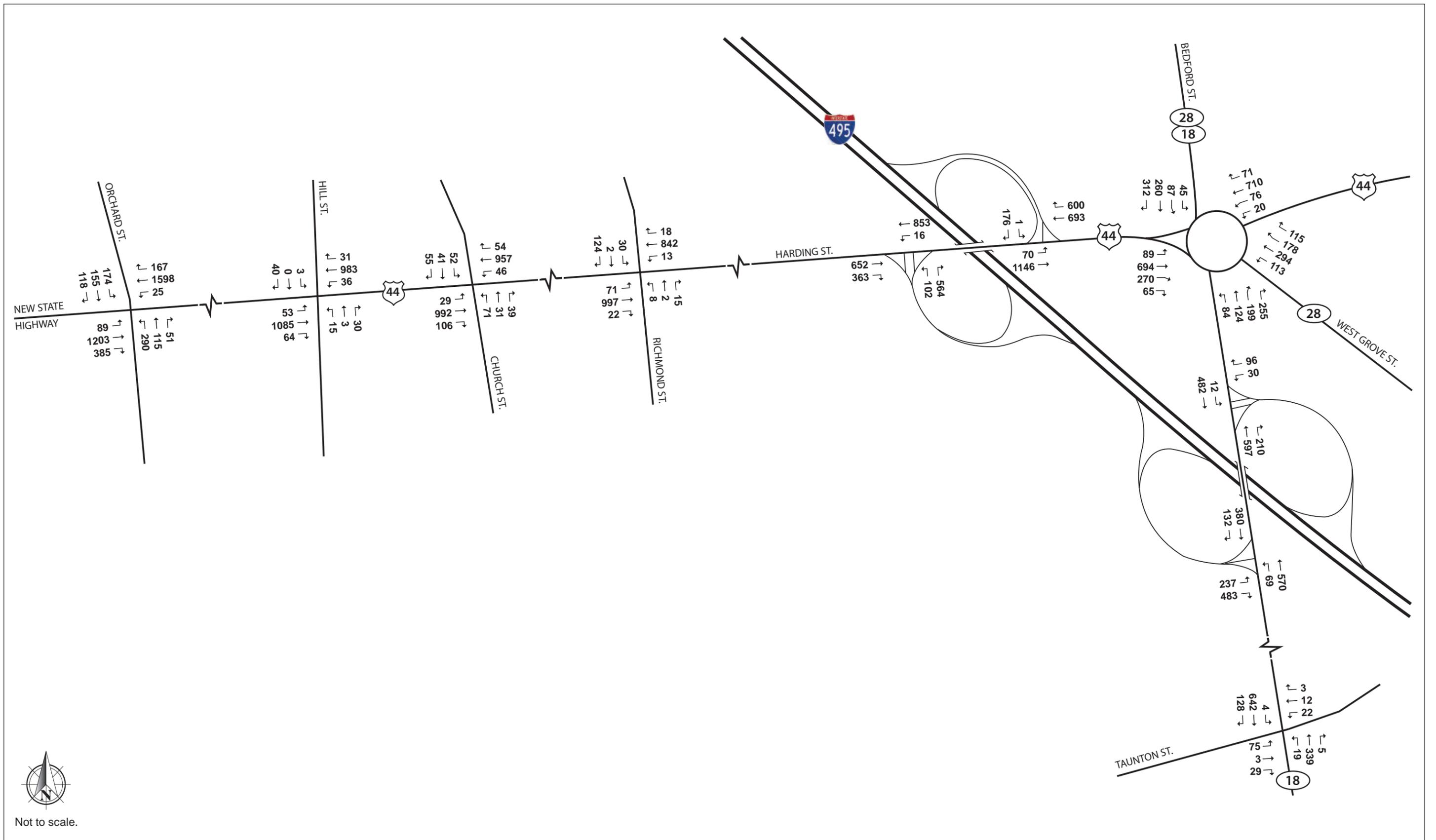


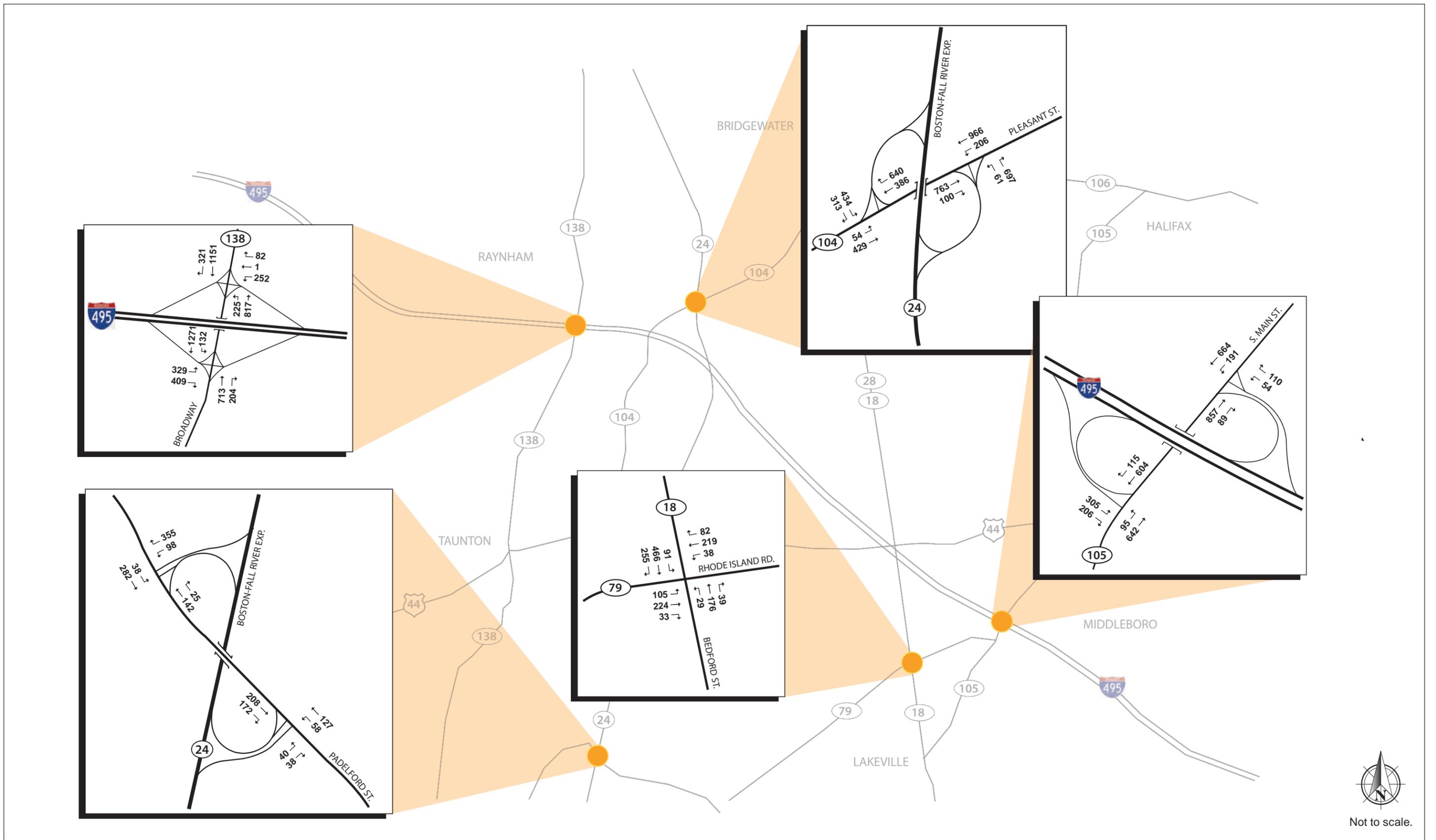
Not to scale.

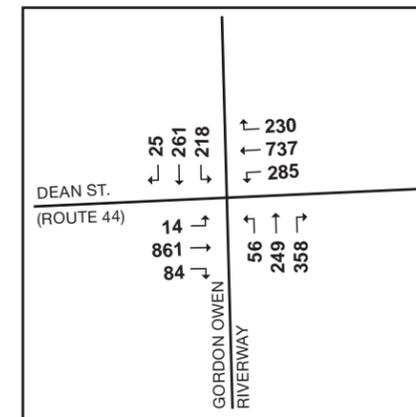
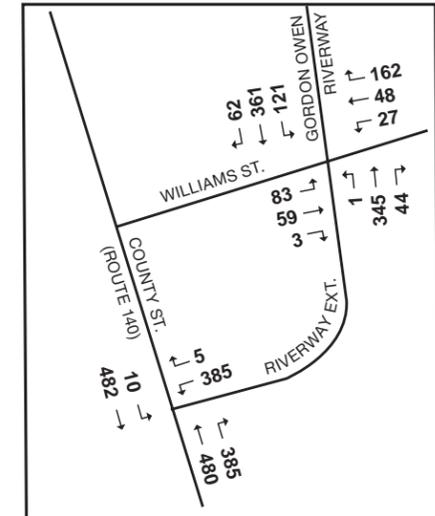
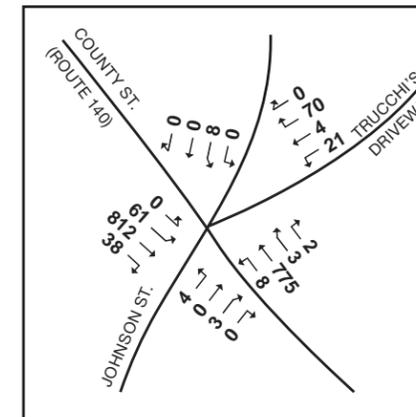
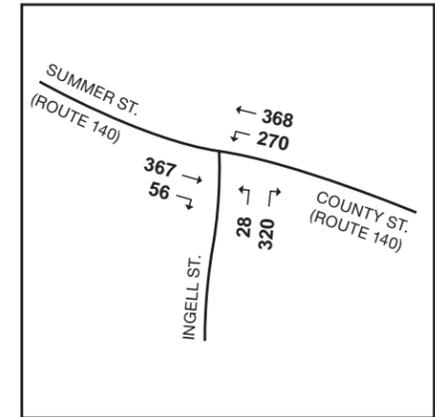
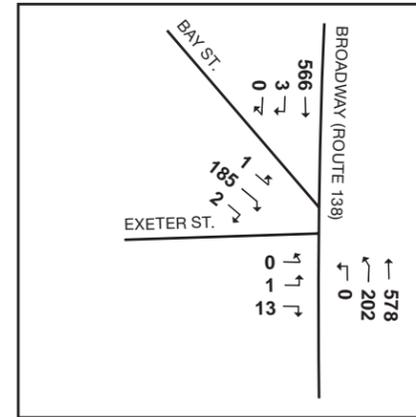
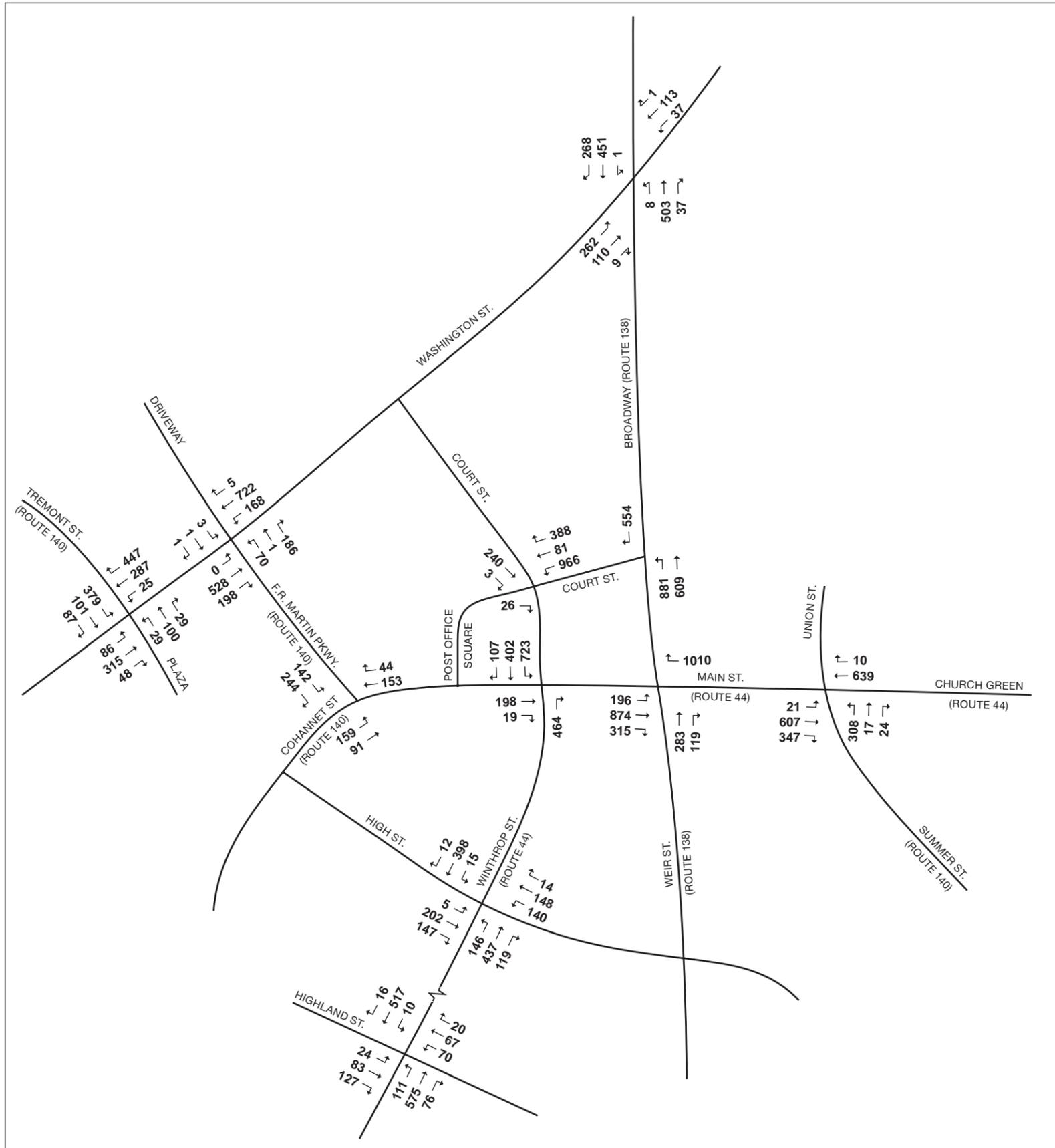
SOURCE: Howard/Stein-Hudson Associates, Inc.

Mashpee Wampanoag Tribe – Fee to Trust Acquisition – Draft EIS ■

Figure 8.1-9
No-Action Alternative (2022) PM Peak Hour Volumes – East Taunton





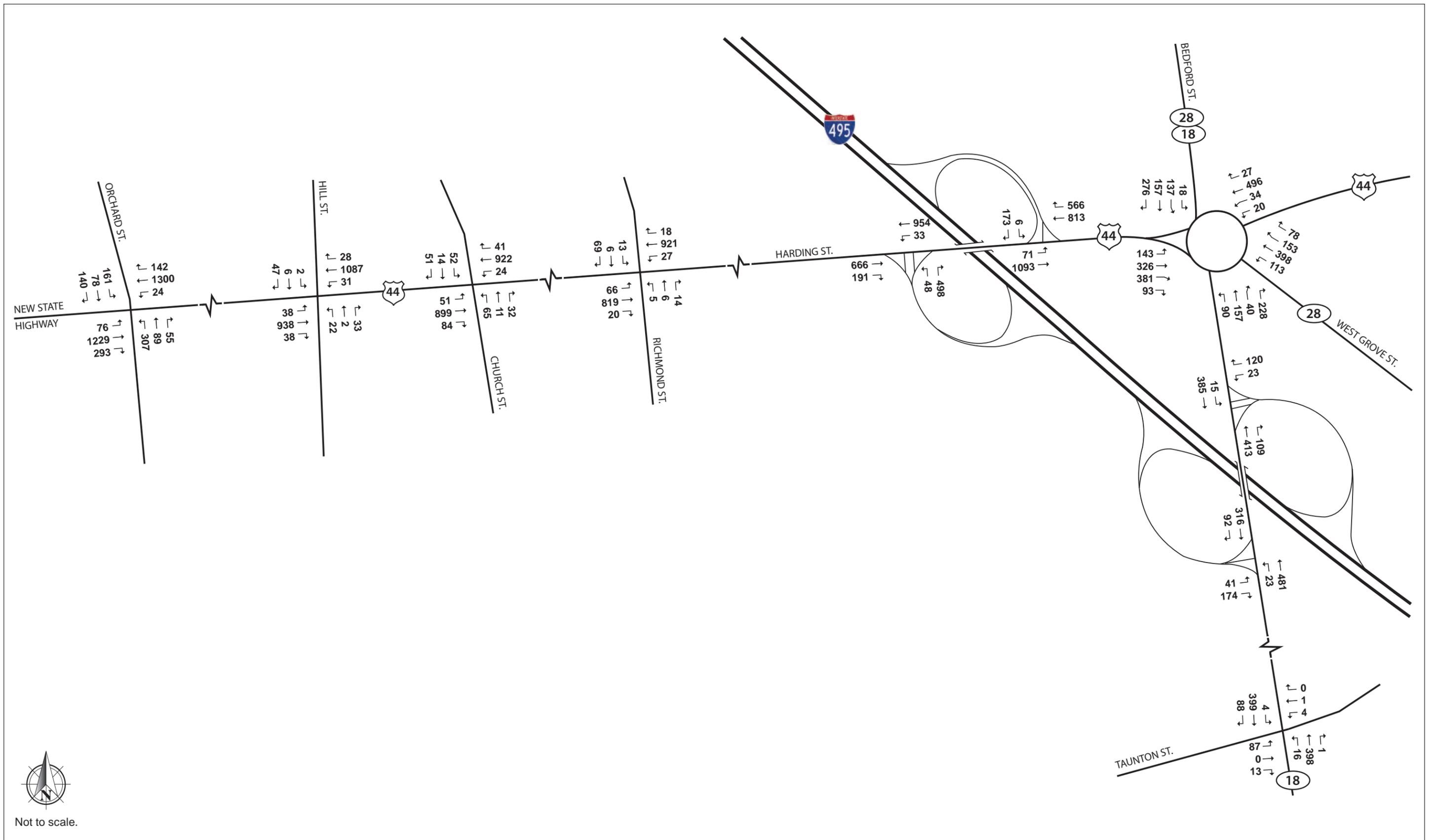


Not to scale.

SOURCE: Howard/Stein-Hudson Associates, Inc.

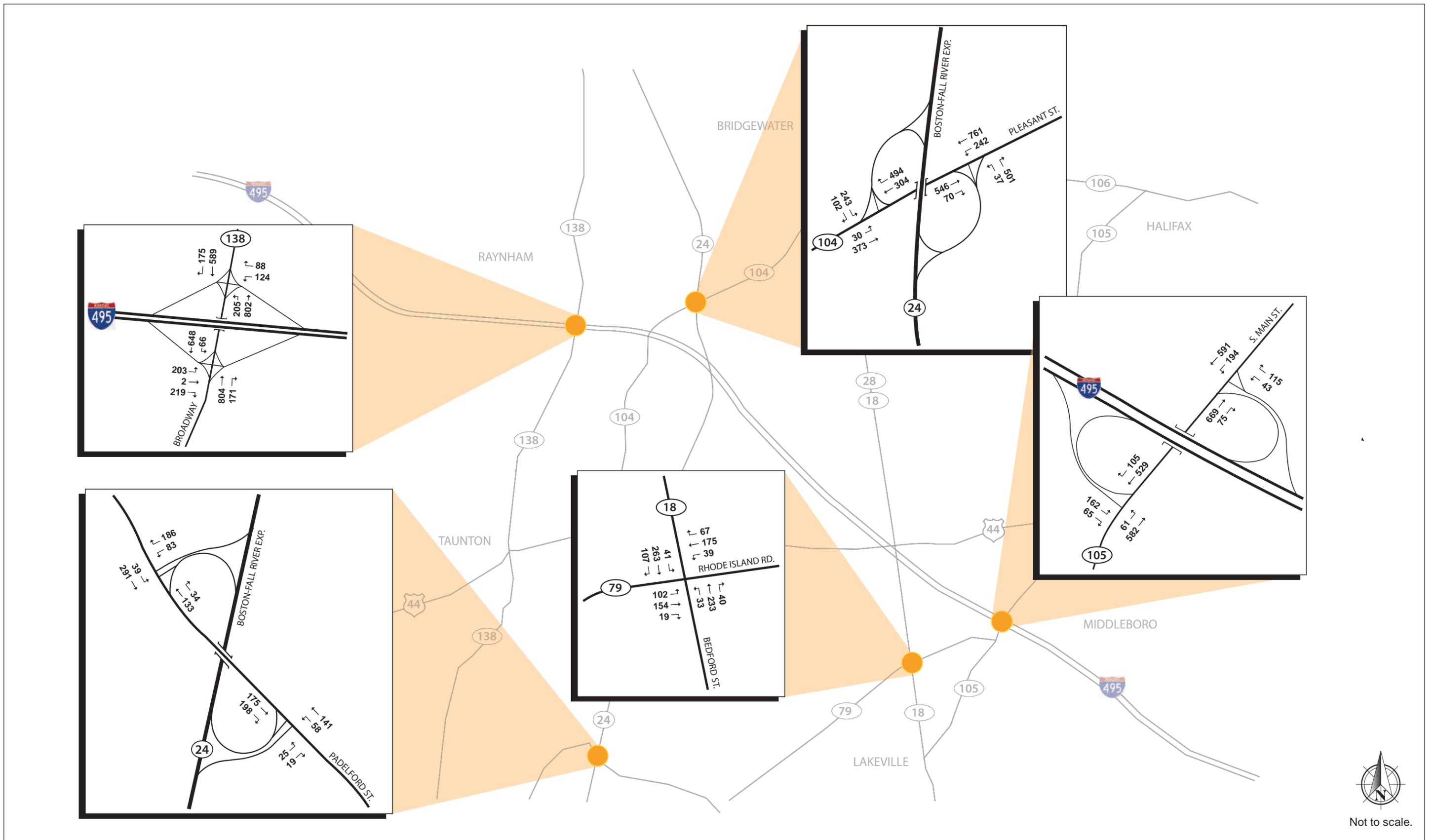
Mashpee Wampanoag Tribe – Fee to Trust Acquisition – Draft EIS ■

Figure 8.1-12
No-Action Alternative (2022) Saturday Midday Peak Hour Volumes – West Taunton



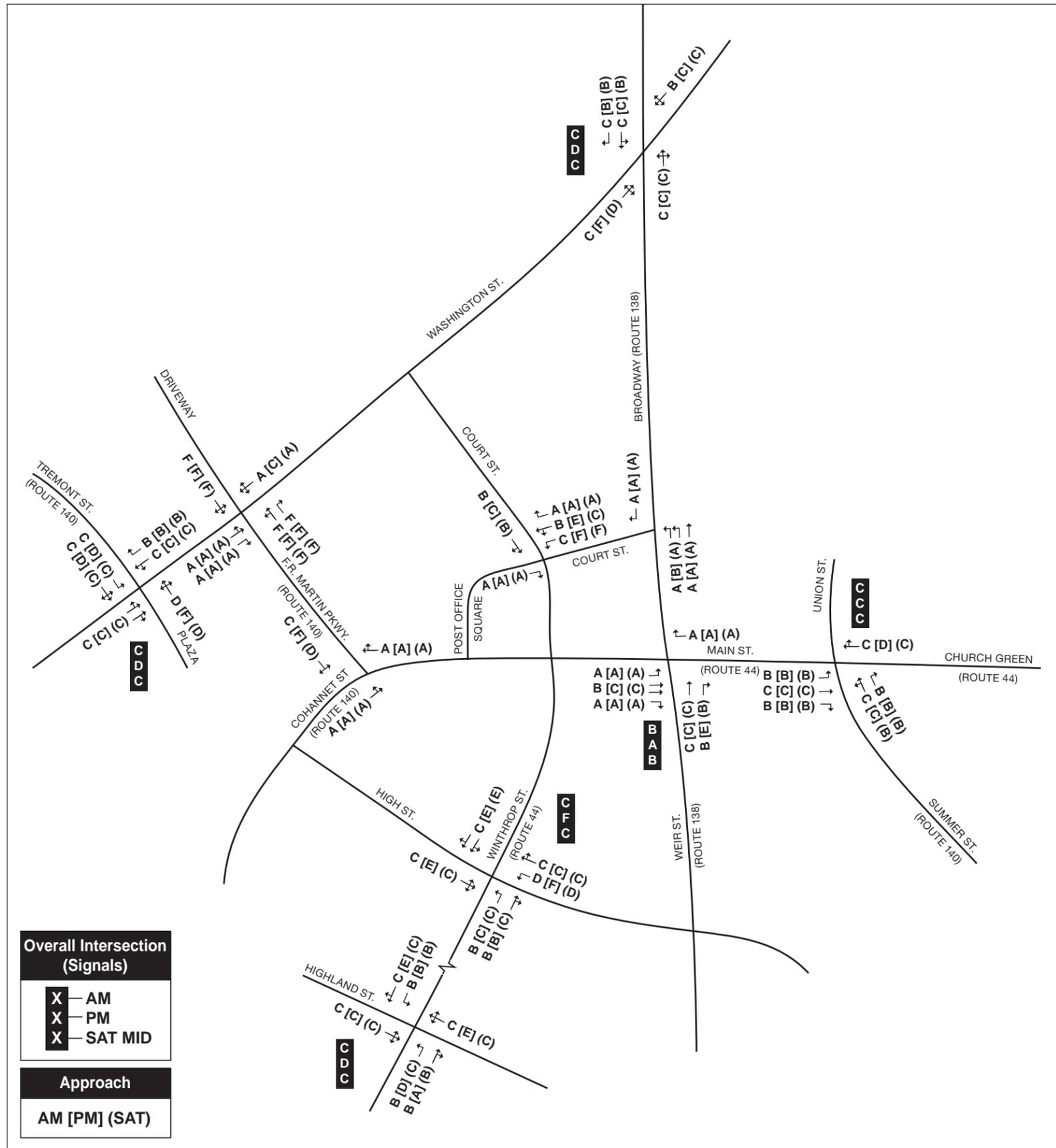
SOURCE: Howard/Stein-Hudson Associates, Inc.

Figure 8.1-14
 No-Action Alternative (2022) Saturday Midday Peak Hour Volumes –
 Route 44 Corridor

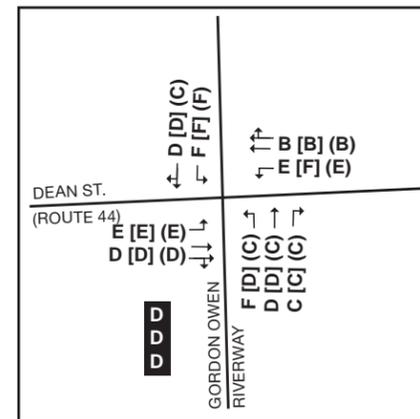
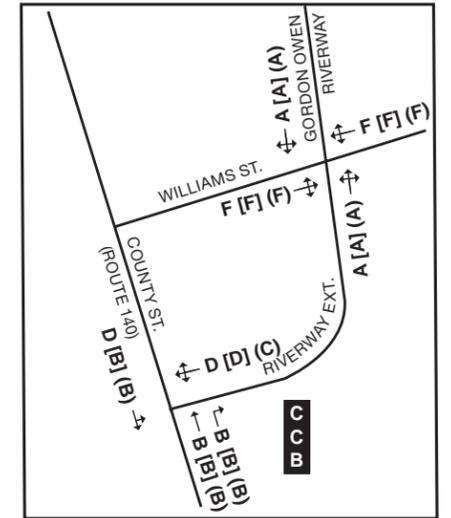
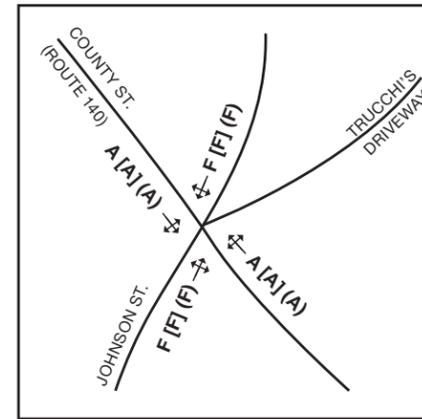
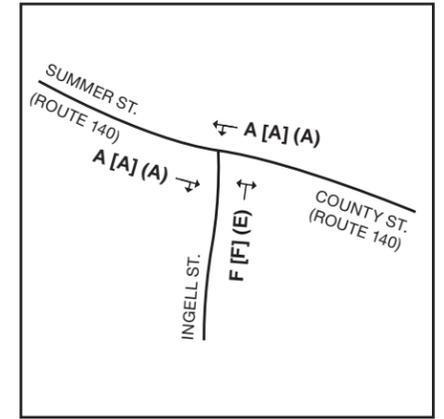
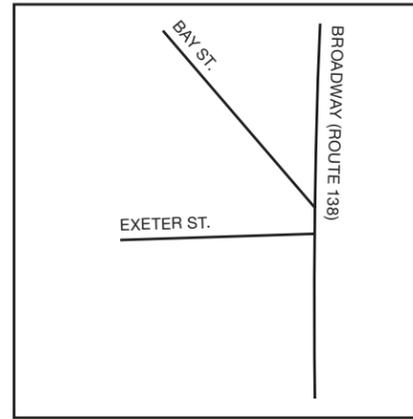


SOURCE: Howard/Stein-Hudson Associates, Inc.

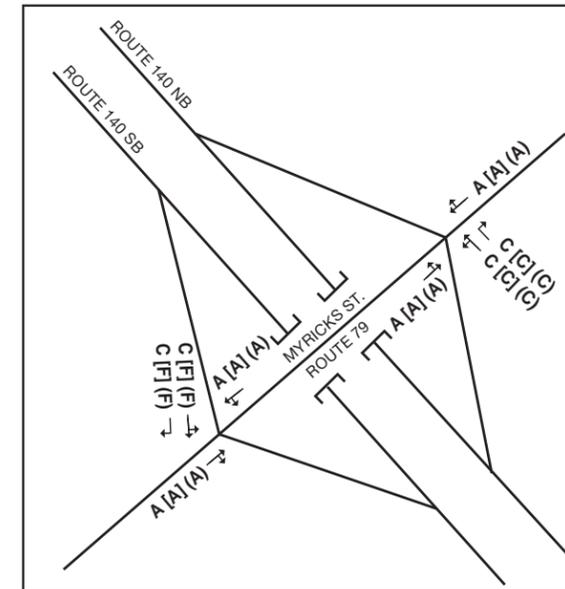
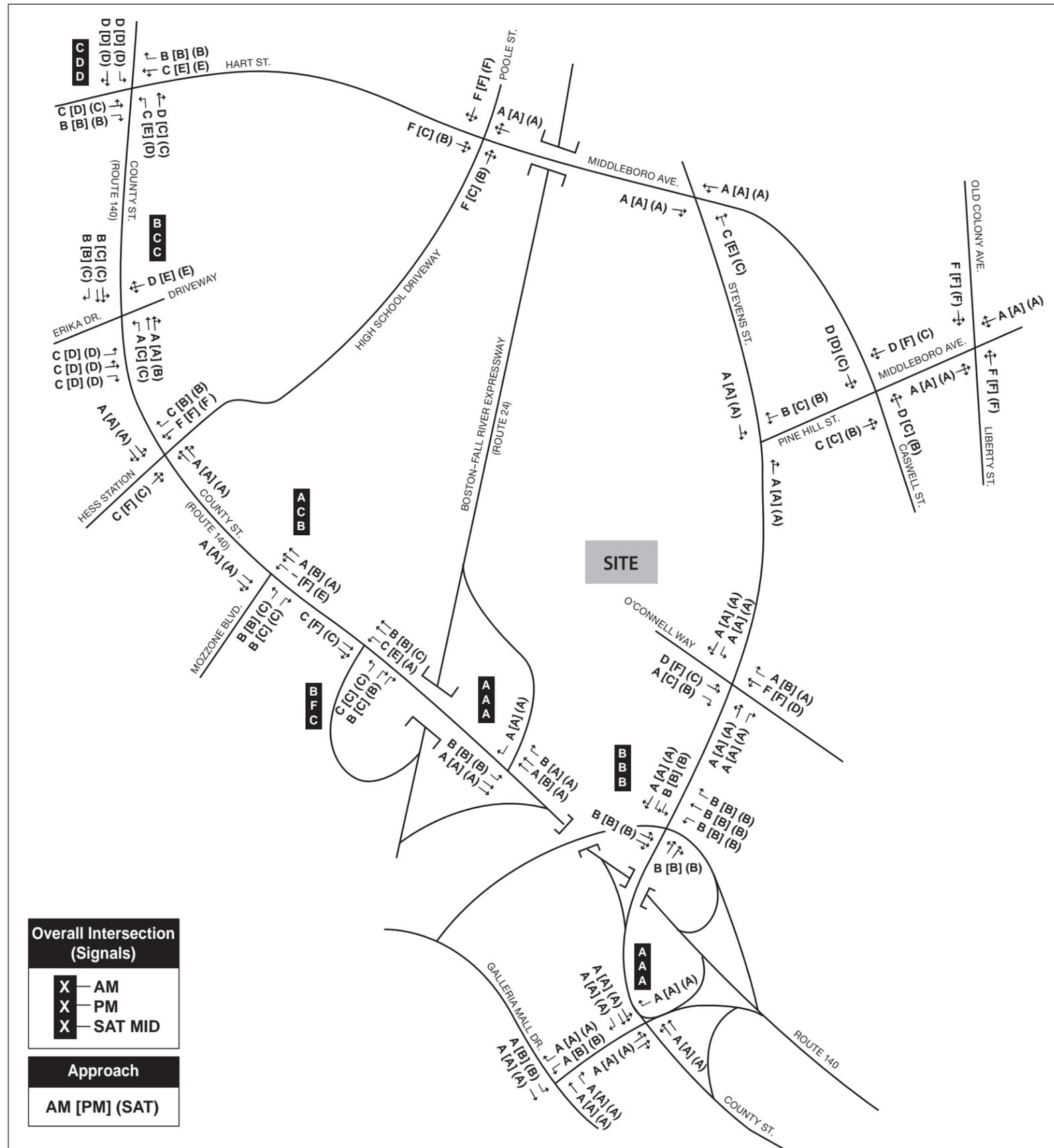
Figure 8.1-15
No-Action Alternative (2022) Saturday Midday Peak Hour Volumes –
Other Local Intersections



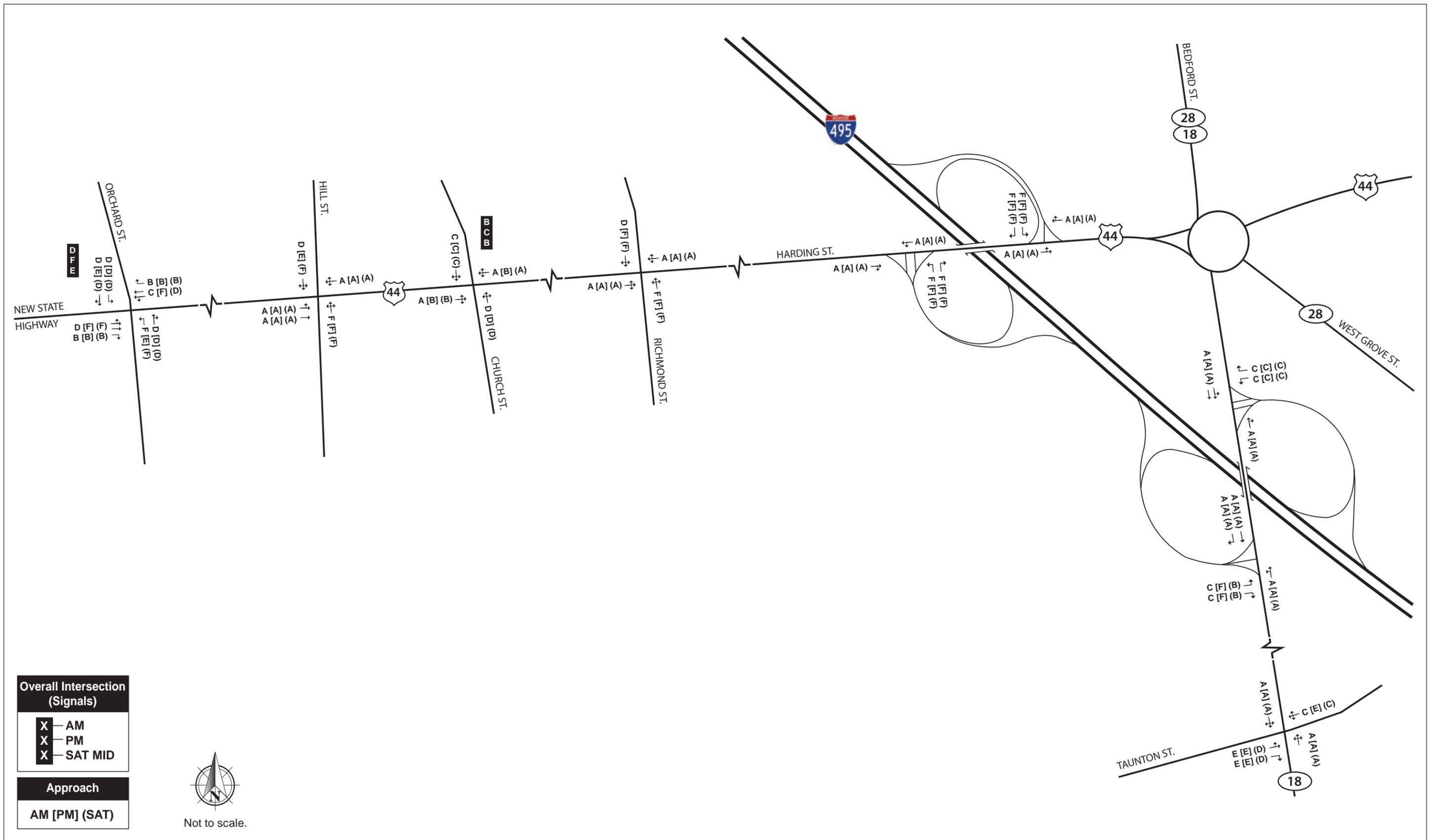
Overall Intersection (Signals)	
X	AM
X	PM
X	SAT MID
Approach	
AM [PM] (SAT)	

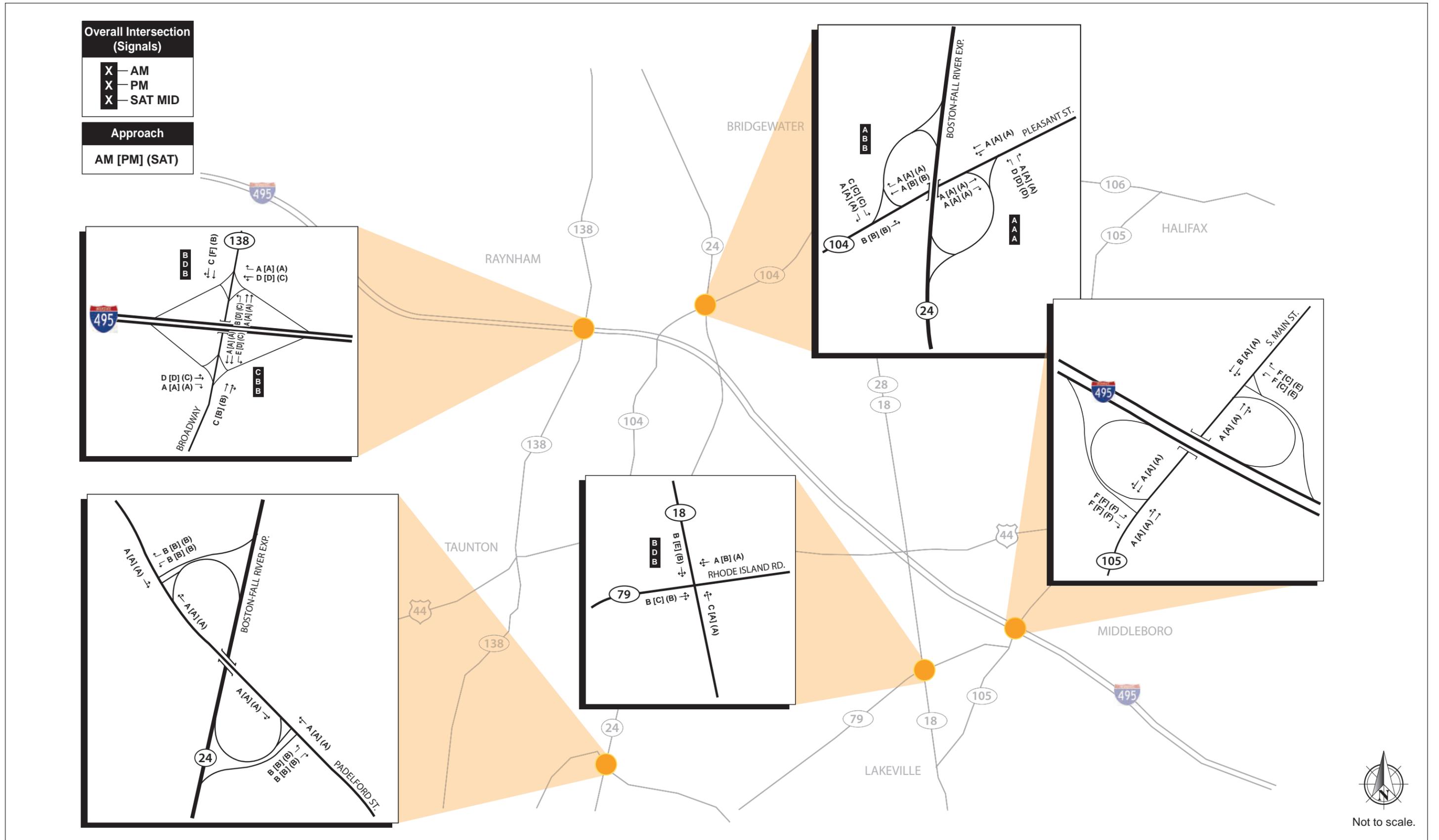


Not to scale.



Not to scale.





Not to scale.

At *Cape Highway/I-495 NB Ramps*, the southbound left-turn and right-turn movement from the I-495 NB Ramp both worsen from E to LOS F.

2022 Alternative D No-Action Alternative Saturday Midday Peak Hour Intersection Operations

Under Alternative D No-Action Conditions, operations generally remain the same as existing conditions during the Saturday midday peak hour. However, there are a few locations where certain approaches worsen to below LOS D.

The Bristol HS Driveway left-turn/through movement at *Bristol Plymouth HS Driveway/County Street* worsens from LOS E to LOS F.

8.1.2.5 2022 Alternative D No-Action Alternative Interchange Operations Analysis

Interchange operations within the study area were analyzed for a 2022 design year under the Alternative D No-Action alternative. In addition, MassDOT requested that the Route 24/140/Stevens Street interchange also be analyzed under a 2032 scenario. These analyses are presented below.

Alternative D No-Action (2022) traffic volumes at interchanges are shown in **Figure 8.1-20**, **Figure 8.1-21**, and **Figure 8.1-22**. **Figure 8.1-23**, **Figure 8.1-24**, and **Figure 8.1-25** show the Alternative D No-Action Conditions level of service summary for interchanges during the Friday AM, Friday PM, Saturday midday peak hours, and Saturday PM peak hours. Highway Capacity Manual analyses for all conditions are presented in **Appendix B-4**.

Under Alternative D No-Action Conditions, operations generally remain the same as existing conditions. However there are a few, merge, diverge, and weaving segments that worsen below LOS D and will experience reductions in LOS.

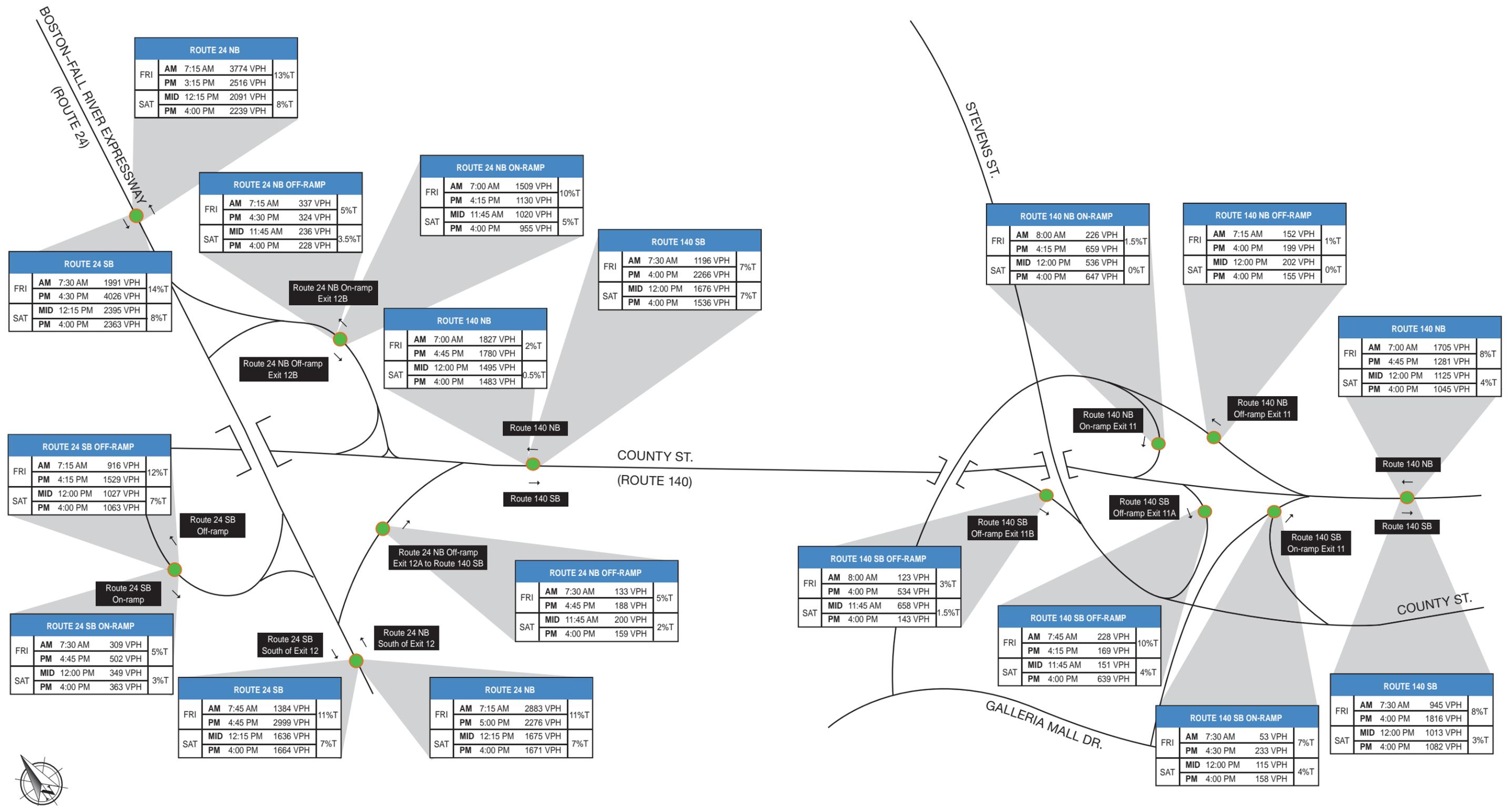
Route 24/Route 140 Interchange

During the Friday PM peak hour, the Route 24 southbound mainline will continue to operate at LOS E (at capacity) and will experience an increase in density from 37.1 to 40.9 pc/mi/ln as a result of background growth – just four passenger cars/mile/lane below the threshold for LOS F (over capacity).

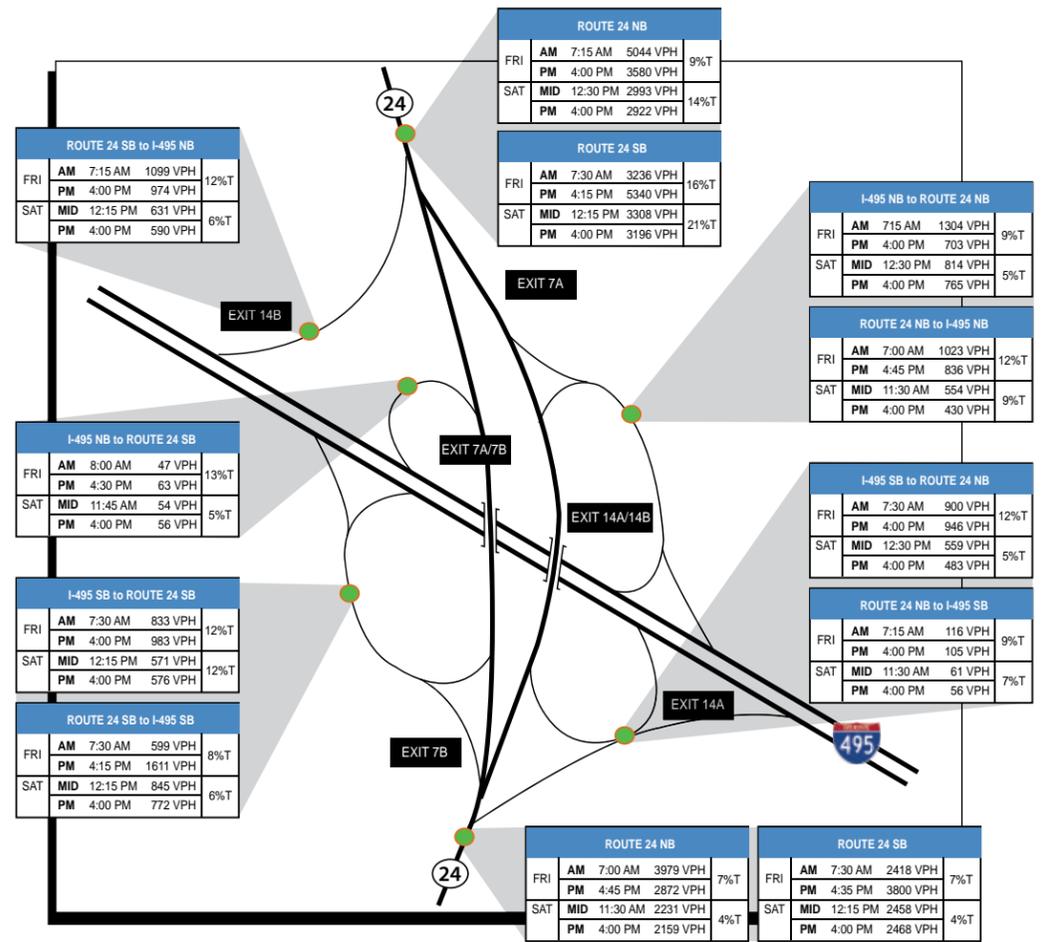
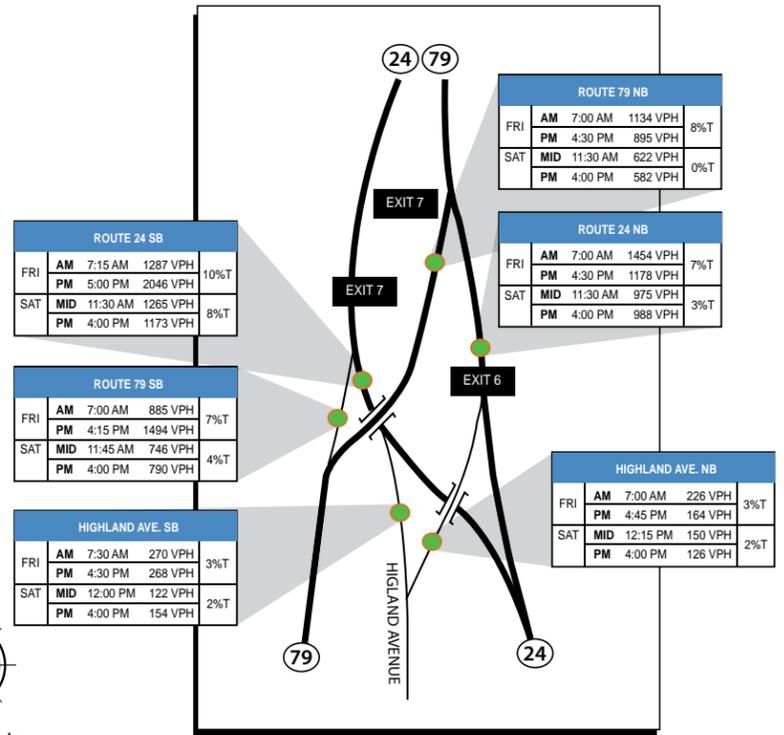
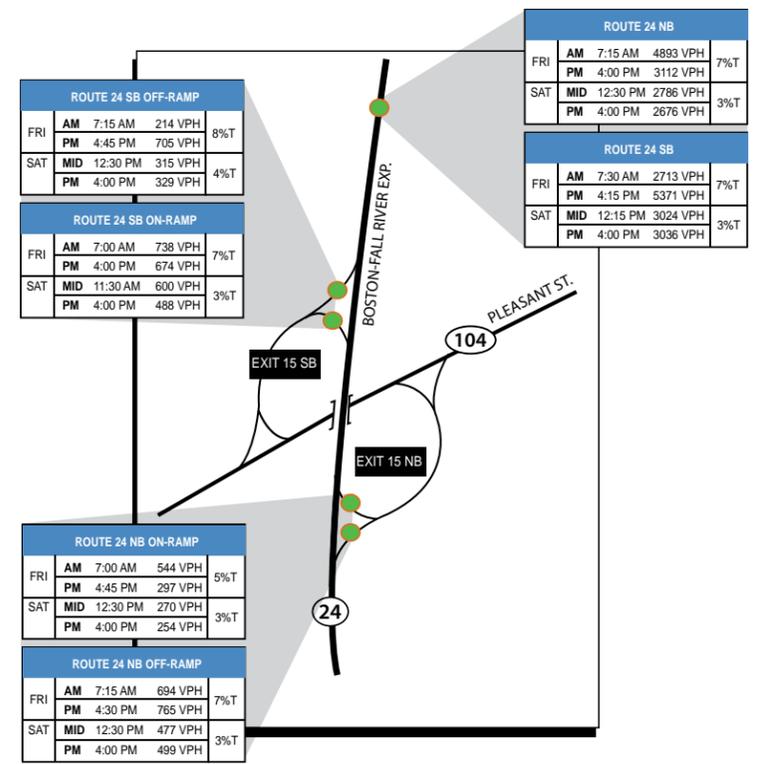
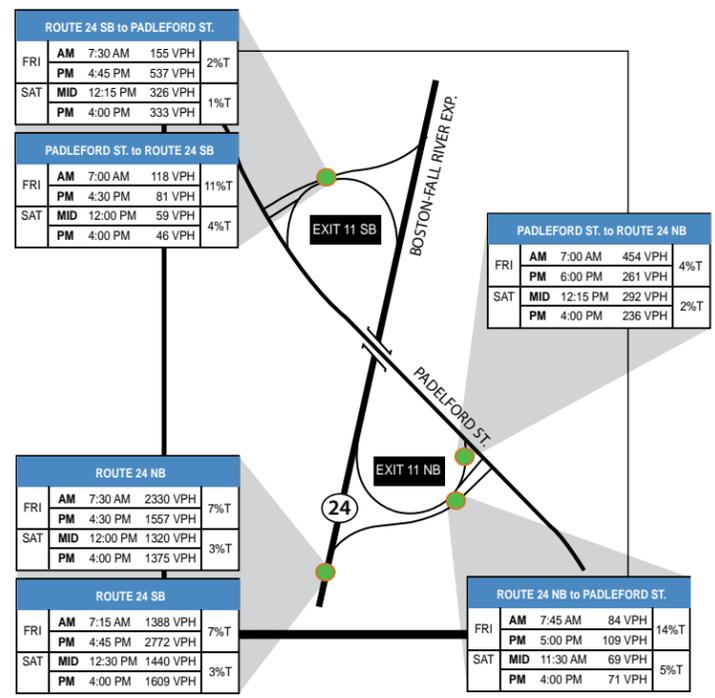
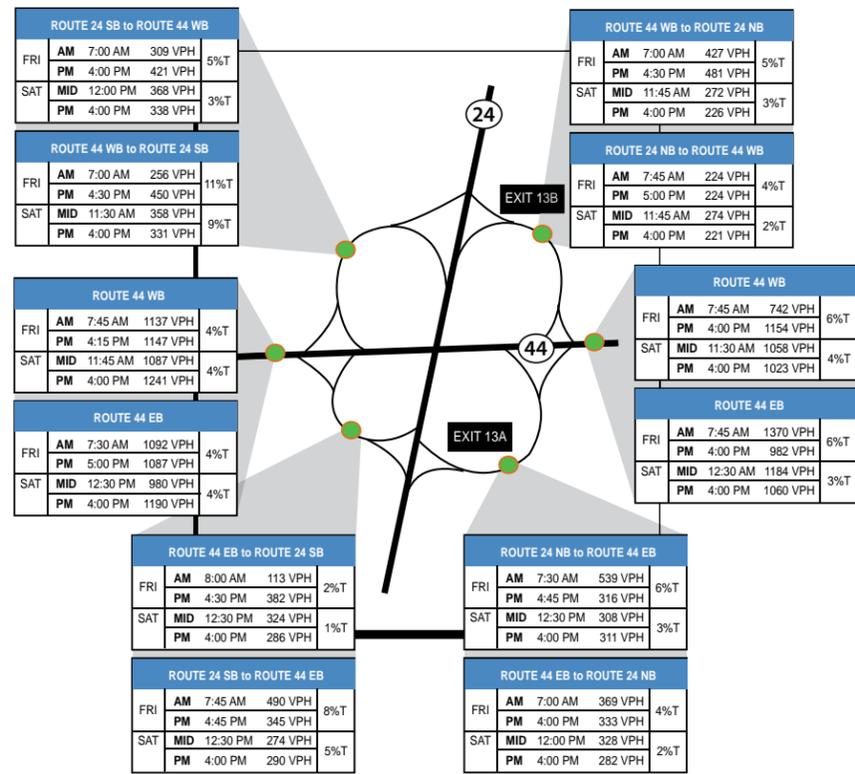
I-495/Route 44 (Exit 6)/Route 18 (Exit 5) Interchange

During the Friday PM peak hour the I-495 southbound weave segment between exits 6 & 5, will worsen and operate over capacity at LOS F as a result of background growth.

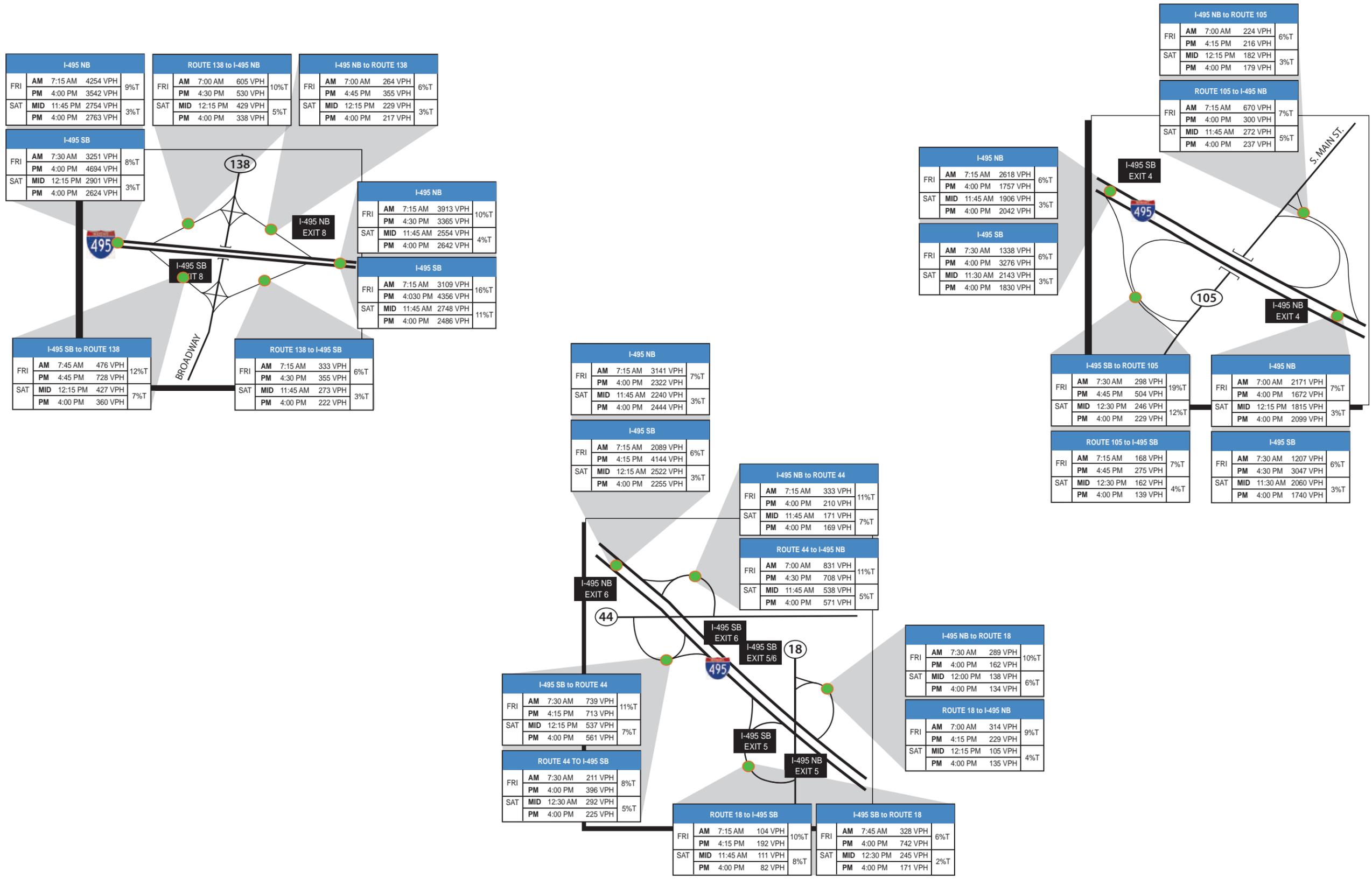
During the Friday PM peak hour the I-495 southbound mainline (north of exit 6), will worsen from LOS D to LOS E, an increase in density from 33.3 to 37.0 pc/mi/ln as a result of background growth – just 2 passenger cars/mile/lane over the threshold for LOS E (at capacity). I-495 southbound, which



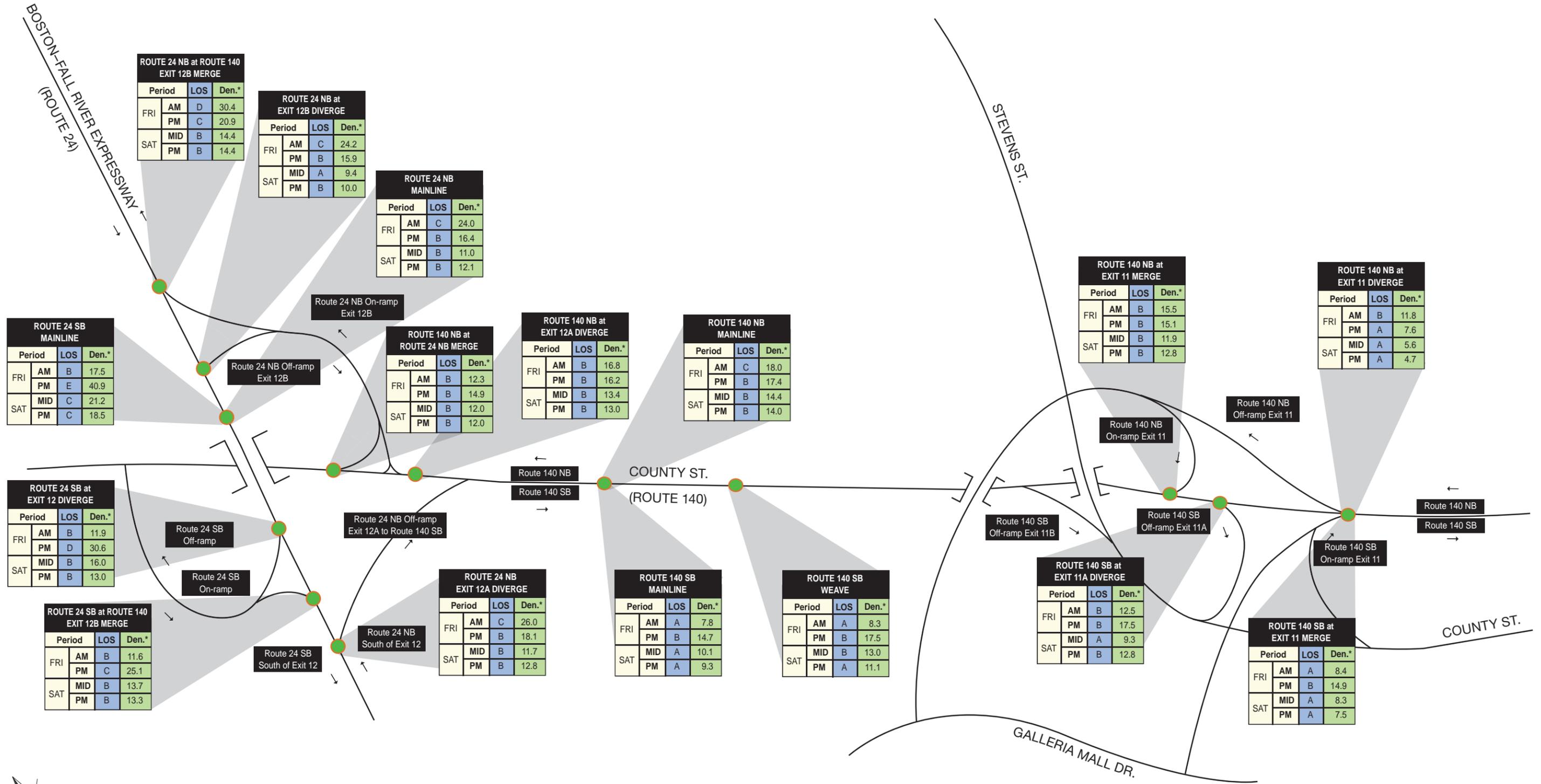
Not to scale.



Not to scale.



SOURCE: Howard/Stein-Hudson Associates, Inc.



Not to scale.

ROUTE 24 NB at ROUTE 140 EXIT 12B MERGE

Period	LOS	Den.*
FRI AM	D	30.4
FRI PM	C	20.9
SAT MID	B	14.4
SAT PM	B	14.4

ROUTE 24 NB at EXIT 12B DIVERGE

Period	LOS	Den.*
FRI AM	C	24.2
FRI PM	B	15.9
SAT MID	A	9.4
SAT PM	B	10.0

ROUTE 24 NB MAINLINE

Period	LOS	Den.*
FRI AM	C	24.0
FRI PM	B	16.4
SAT MID	B	11.0
SAT PM	B	12.1

ROUTE 24 SB MAINLINE

Period	LOS	Den.*
FRI AM	B	17.5
FRI PM	E	40.9
SAT MID	C	21.2
SAT PM	C	18.5

Route 24 NB On-ramp Exit 12B

ROUTE 140 NB at ROUTE 24 NB MERGE

Period	LOS	Den.*
FRI AM	B	12.3
FRI PM	B	14.9
SAT MID	B	12.0
SAT PM	B	12.0

ROUTE 140 NB at EXIT 12A DIVERGE

Period	LOS	Den.*
FRI AM	B	16.8
FRI PM	B	16.2
SAT MID	B	13.4
SAT PM	B	13.0

ROUTE 140 NB MAINLINE

Period	LOS	Den.*
FRI AM	C	18.0
FRI PM	B	17.4
SAT MID	B	14.4
SAT PM	B	14.0

ROUTE 140 NB at EXIT 11 MERGE

Period	LOS	Den.*
FRI AM	B	15.5
FRI PM	B	15.1
SAT MID	B	11.9
SAT PM	B	12.8

ROUTE 140 NB at EXIT 11 DIVERGE

Period	LOS	Den.*
FRI AM	B	11.8
FRI PM	A	7.6
SAT MID	A	5.6
SAT PM	A	4.7

ROUTE 24 SB at EXIT 12 DIVERGE

Period	LOS	Den.*
FRI AM	B	11.9
FRI PM	D	30.6
SAT MID	B	16.0
SAT PM	B	13.0

Route 24 SB Off-ramp

Route 24 NB Off-ramp Exit 12A to Route 140 SB

ROUTE 24 NB EXIT 12A DIVERGE

Period	LOS	Den.*
FRI AM	C	26.0
FRI PM	B	18.1
SAT MID	B	11.7
SAT PM	B	12.8

Route 140 NB

Route 140 SB

ROUTE 140 SB MAINLINE

Period	LOS	Den.*
FRI AM	A	7.8
FRI PM	B	14.7
SAT MID	A	10.1
SAT PM	A	9.3

ROUTE 140 SB WEAVE

Period	LOS	Den.*
FRI AM	A	8.3
FRI PM	B	17.5
SAT MID	B	13.0
SAT PM	A	11.1

Route 140 NB On-ramp Exit 11

Route 140 NB Off-ramp Exit 11

ROUTE 140 SB at EXIT 11A DIVERGE

Period	LOS	Den.*
FRI AM	B	12.5
FRI PM	B	17.5
SAT MID	A	9.3
SAT PM	B	12.8

Route 140 SB Off-ramp Exit 11A

Route 140 SB On-ramp Exit 11

ROUTE 140 SB at EXIT 11 MERGE

Period	LOS	Den.*
FRI AM	A	8.4
FRI PM	B	14.9
SAT MID	A	8.3
SAT PM	A	7.5

Route 140 NB

Route 140 SB

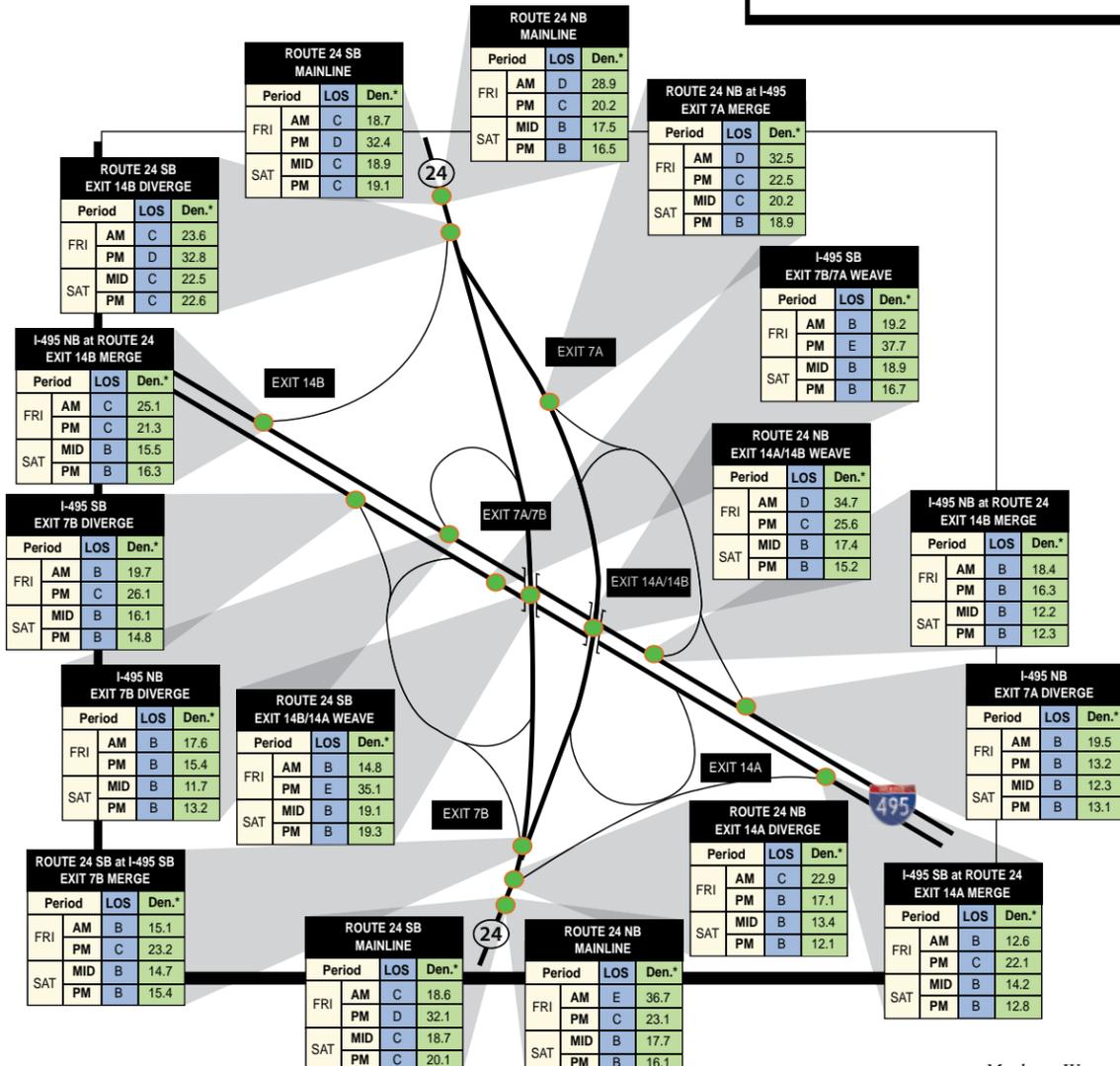
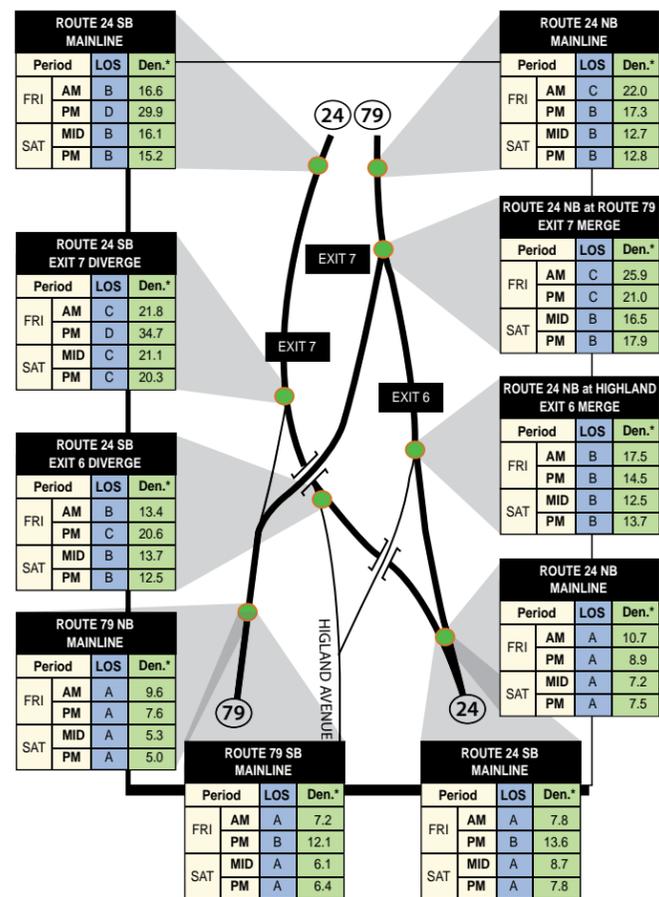
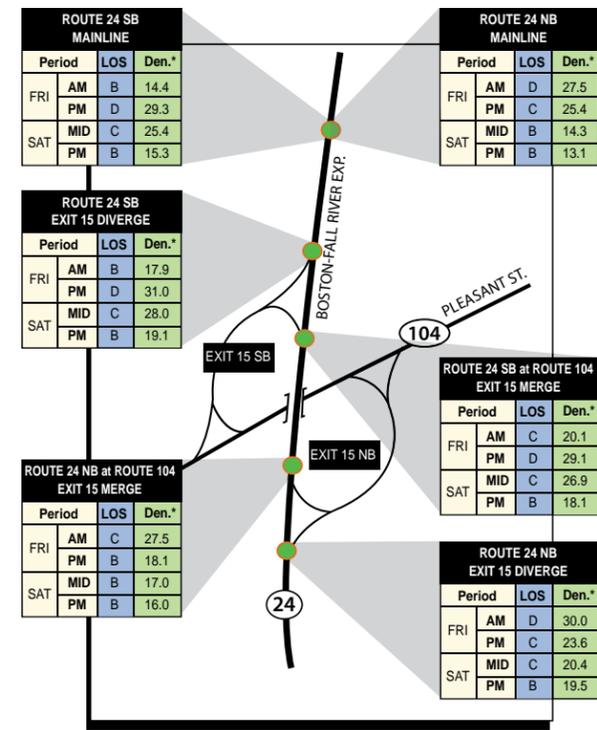
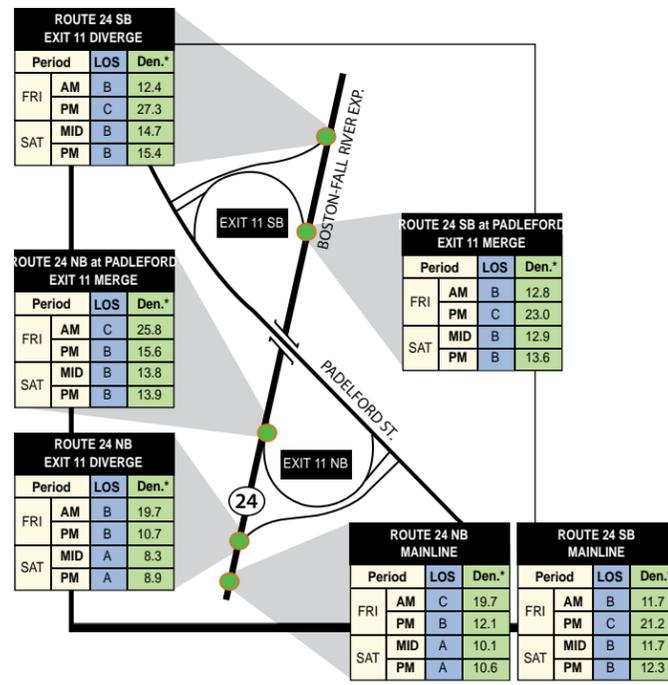
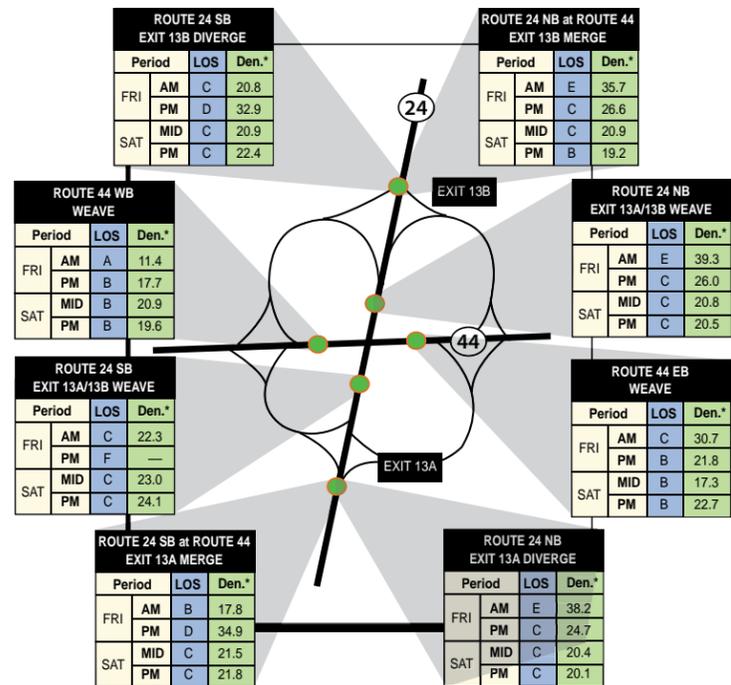
COUNTY ST.

GALLERIA MALL DR.

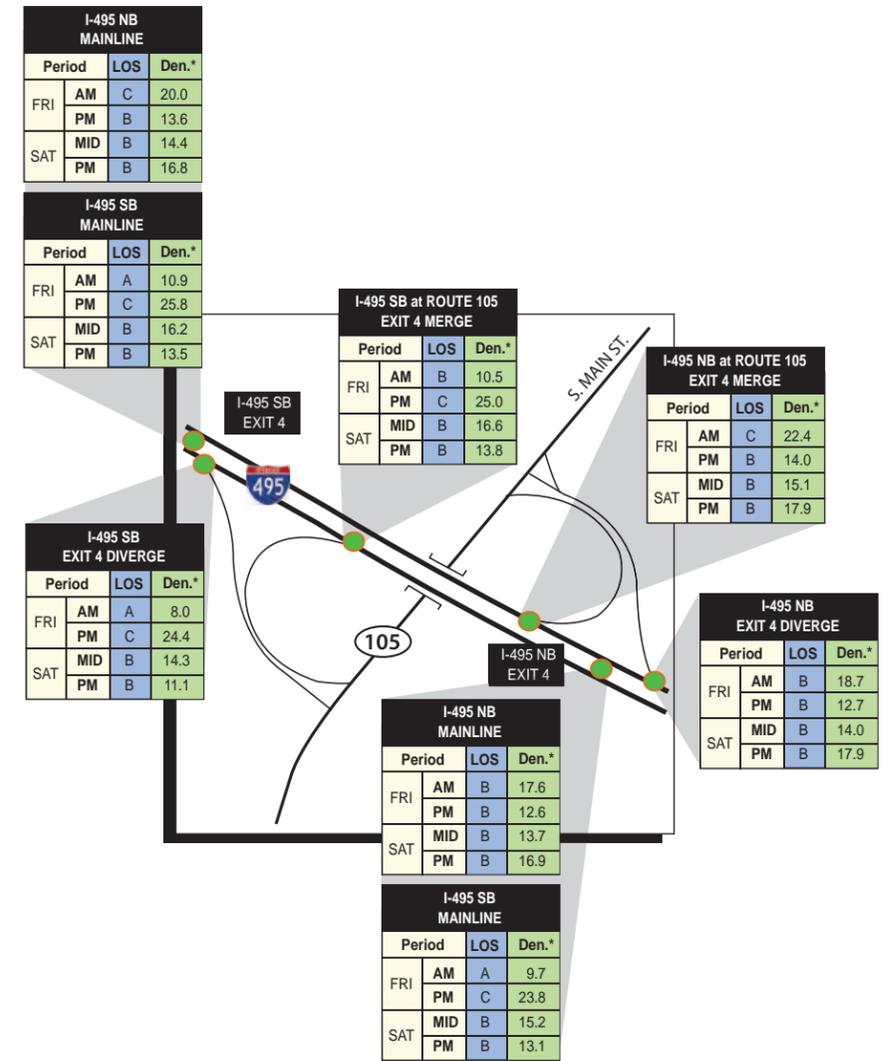
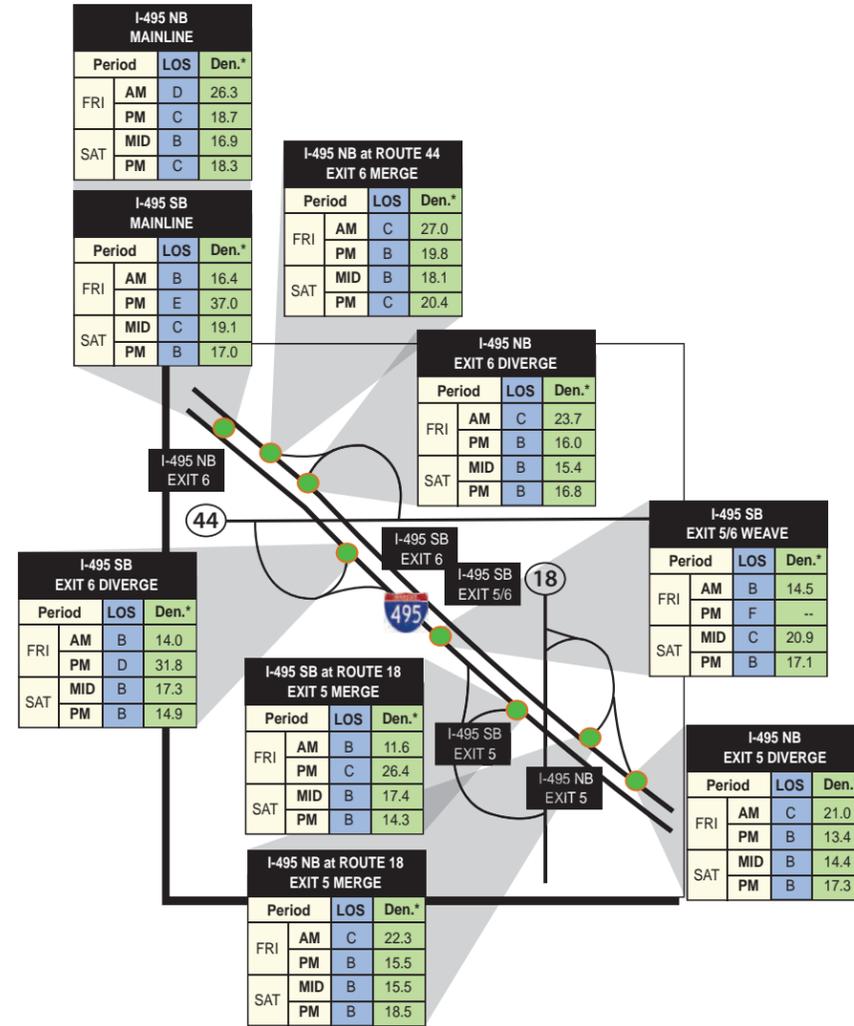
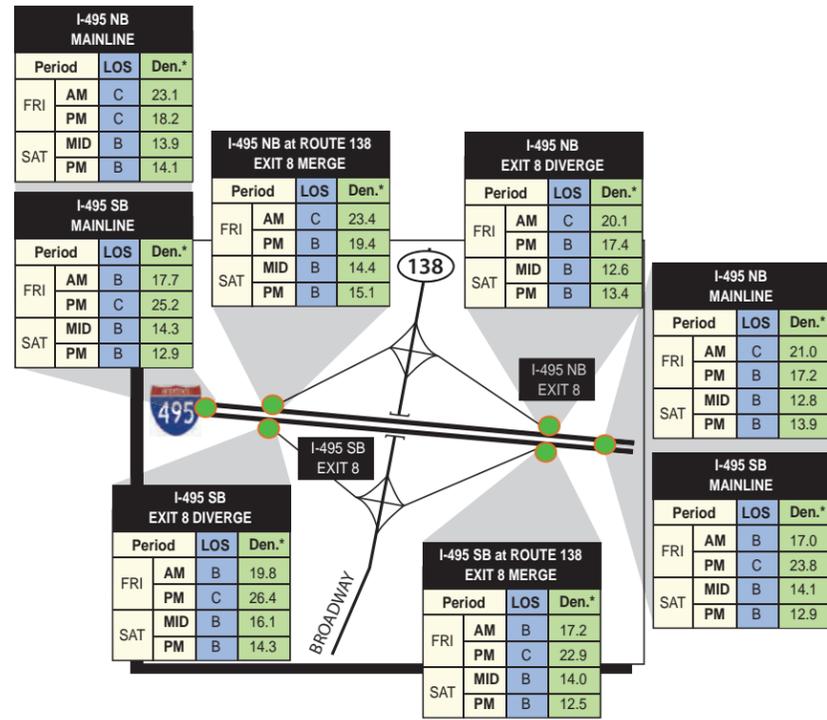
STEVENS ST.

BOSTON-FALL RIVER EXPRESSWAY (ROUTE 2A)

COUNTY ST. (ROUTE 140)



Not to scale.



Not to scale.

consists of two travel lanes, is anticipated to carry approximately 4,150 vehicles per hour during the Friday PM peak hour. The I-495 southbound basic roadway segment operates at LOS B during the Friday AM and Saturday PM peak hours; and LOS C during the Saturday Midday peak hour.

Route 24/Route 44 Interchange

During the Friday PM peak hour the Route 24 southbound weave segment between exits 13B & 13A, will worsen and operate over capacity at LOS F as a result of background growth.

During the Friday AM peak hour the Route 24 northbound exit 13A diverge segment to Route 44 eastbound, will continue to operate at LOS E and will experience an increase in density from 35.9 to 38.2 pc/mi/ln as a result of background growth.

During the Friday AM peak hour the Route 24 northbound weave segment between exits 13A & 13B, will continue to operate at LOS E and will experience an increase in density from 36.5 to 39.3 pc/mi/ln as a result of background growth.

During the Friday AM peak hour the Route 24 northbound exit 13B merge, will worsen from LOS D to LOS E, an increase in density from 33.7 to 35.7 pc/mi/ln as a result of background growth. The exit 13B on-ramp consists of one travel lane and is anticipated to carry approximately 430 vehicles per hour during the Friday AM peak hour. The merge segment at exit 13B operates at LOS C during the Friday PM and Saturday midday peak hours; and LOS B during the Saturday PM peak hours.

I-495/Route 24 Interchange

During the Friday AM peak hour the Route 24 northbound mainline (south of exit 14A), will worsen from LOS D to LOS E, an increase in density from 33.1 to 36.7 pc/mi/ln as a result of background growth – just two passenger cars/mile/lane over the threshold for LOS E (at capacity). Route 24 northbound, which consists of two travel lanes, is anticipated to carry approximately 4,000 vehicles per hour during the Friday AM peak hour. The Route 24 northbound basic roadway segment operates at LOS C during the Friday PM peak hour and LOS B during the Saturday midday and Saturday PM Peak hours.

During the Friday PM peak hour the I-495 southbound weave segment between exits 7B & 7A, will worsen from LOS D to LOS E, an increase in density from 34.7 to 37.7 pc/mi/ln as a result of background growth – just three passenger cars/mile/lane over the threshold for LOS E (at capacity). This section of I-495 southbound, which consists of three travel lanes, is anticipated to carry approximately 5,000 vehicles per hour during the Friday PM peak hour. The weaving segment between exits 7B & 7A operates at LOS B during the Friday AM, Saturday midday, and Saturday PM peak hours.

During the Friday PM peak hour the Route 24 southbound weave segment between exits 14B & 14A, will worsen from LOS D to LOS E, an increase in density from 32.4 to 35.1 pc/mi/ln as a result of background growth – at the threshold for LOS E (at capacity). This section of Route 24 southbound, which consists of three travel lanes, is anticipated to carry approximately 4,450 vehicles per hour during the Friday PM peak hour. The weaving segment between exits 14B & 14A operates at LOS B during the Friday AM, Saturday midday, and Saturday PM peak hours

8.1.3 IMPACT ANALYSIS: BUILD ALTERNATIVES

This section documents the methodology adopted for estimating vehicle trip generation and trip distribution for three alternative scenarios for the casino/hotel project proposed on parcels within and adjacent to the Liberty & Union Industrial Park (LUIP) in Taunton. These options are described below:

Alternative A – the Proposed Development – includes:

- A 400,019 gross square foot (gsf) destination resort casino complex, including 4,400 gaming positions on the 132,156 sf gaming floor, restaurants, some retail and back of house space, and a 23,423 sf events center, along with administrative and other back of house space.
- 900 hotel rooms in three facilities; and
- A 25,000 sf indoor water park.
- Total parking spaces 6,371.
- The proposed site plan is shown in **Figure 8.1-26**.

Alternative B – Reduced Intensity I – includes:

- A 174,000 gross square foot (gsf) destination resort casino complex, including 2,330 gaming positions on the gaming floor, restaurants, some retail and back of house space and 15,000 sf events center.
- 300 hotel rooms in one facility; and
- A 25,000 sf indoor water park.
- Total parking spaces: 4,952.
- The proposed site plan is shown in **Figure 8.1-27**.

Alternative C – Reduced Intensity II – includes:

- A 400,019 gross square foot (gsf) destination resort casino complex, including 4,400 gaming positions on the gaming floor, restaurants, some retail and back of house space, and a 23,423 sf events center; and
- 600 hotel rooms in two facilities.
- Total parking spaces 5,871.
- The proposed site plan is shown in **Figure 8.1-28**.



Not to scale.



Not to scale.



Not to scale.

8.1.3.1 Vehicle Trip Generation

Vehicle trip rates were calculated by gaming position for the proposed Class III destination resort casino/hotel and by square feet for the indoor water park, as described below.

Casino/Hotel

The Secretary's Certificate and MassDOT's comment letter on the Environmental Notification Form filed by the Tribe through MEPA called for documentation of how the trip generation data that had been used for the ENF transportation study for the casino and the indoor/outdoor water park uses had been derived. In response to this request, the study team reviewed available literature and prepared a memorandum on October 2, 2012 outlining how the rates used in the study had been developed. A meeting was held on October 9, 2012 between MassDOT staff and the study team to discuss the findings in the memorandum. Subsequent to the discussion held at this meeting, as outlined in a letter from MassDOT on November 6, 2012, MassDOT required that the DEIR use patron and employee casino/hotel trip rates based on gaming positions for purposes of trip generation estimation. In this regard, MassDOT provided as a source a study prepared in 1999 for a proposed expansion of the Connecticut Mohegan Sun casino as a source for rates based on gaming positions.² The correspondence and meeting minutes are provided in **Appendix B-5**.

The following total rates based on gaming positions for both employees and patrons, were used. These rates include both casino and hotel trips; hotel is not pulled out as a separate category. The actual number of gaming positions in the completed casino is somewhat dependent on how the physical space is laid out as the plans progress. The current plan is for 4,400 gaming positions. To be conservative, that number was rounded to 4,500 gaming positions for traffic analysis purposes throughout this report. The rates that could be directly derived from the ConnDOT study as applied to 4,500 gaming positions were used to develop casino/hotel trip generation, as follows:

- Weekday daily rates: 4.58 total trips per gaming position (2.29 in and 2.29 out): 20,610 trips per day;
- Weekday (Friday) PM peak hour (of generator and background traffic – 4:30 to 5:30 PM): 0.38 total trips per gaming position (0.17 in and .21 out) – for 1,720 PM peak hour trips; and
- Saturday daily rates: 5.2 total trips per gaming position (2.6 in and 2.6 out), for 23,400 daily trips.

Based on hourly volume charts for Routes 140 and 24 submitted by the team, MassDOT requested that two peak hours be analyzed for Saturday. On Route 140, Saturday volumes clearly peaked around noon. The midday peak hour from 11:45 AM to 12:45 AM was thus judged satisfactory for all analysis of local intersections. However, because volumes on Route 24 north of Route 140 clearly showed a Saturday

² Close, Jensen and Miller, P.E. for the Mohegan Tribe of Indians of Connecticut. January, 1999. Traffic Impact Report, Mohegan Sun Expansion Phase II, Uncasville, CT. P. 6.

afternoon southbound peak between 4:00 and 5:00 PM, MassDOT requested that Saturday analyses related to Route 24 be conducted for the afternoon highway peak period rather than the midday peak. Direct trip rates based on gaming positions were not available for a weekday AM peak hour, a Saturday midday peak hour, or a Saturday afternoon highway peak hour. For this reason, the team applied to the weekday and Saturday daily rates based on gaming positions the hourly distribution described in a 1998 *ITE Journal* article.³

From the weekday and Saturday daily trips based on gaming positions from the ConnDOT study, as described above, the team applied the hourly trip factors from the ITE study to yield the results highlighted in **Table 8.1-3** for the weekday AM peak hour, and in **Table 8.1-4** for the Saturday midday and afternoon highway peak hours. These rates were used for casino/hotel trips in Alternatives A and C.

**TABLE 8.1-3
HOURLY CASINO/HOTEL VOLUMES BASED ON GAMING POSITIONS: WEEKDAY**

Time Period	In %	Volume	Out %	Volume	Total Volume	% Total
Hour Beginning:						
0	2.50%	258	4.30%	443	701	3.40%
1	1.80%	185	3.90%	402	587	2.85%
2	1.20%	124	3.30%	340	464	2.25%
3	0.70%	72	3.20%	330	402	1.95%
4	1.00%	103	3.30%	340	443	2.15%
5	0.70%	72	1.60%	165	237	1.15%
6	1.00%	103	0.60%	62	165	0.80%
AM Peak						
7	1.60%	165	0.60%	62	227	1.10%
8	3.90%	402	1.20%	124	526	2.55%
9	5.60%	577	1.30%	134	711	3.45%
10	5.20%	536	2.10%	216	752	3.65%
11	5.50%	567	3.00%	309	876	4.25%
12	5.80%	598	4.10%	423	1,020	4.95%
13	6.00%	618	5.20%	536	1,154	5.60%
14	5.40%	556	6.10%	629	1,185	5.75%
15	5.20%	536	6.40%	660	1,195	5.80%
16	5.30%	546	7.10%	732	1,278	6.20%
PM Peak						
17	5.90%	608	6.60%	680	1,288	6.25%
18	7.80%	804	7.00%	72	1,525	7.40%
19	7.40%	763	5.70%	587	1,350	6.55%
20	6.30%	649	5.30%	546	1,195	5.80%
21	5.30%	546	5.70%	587	1,134	5.50%
22	4.80%	495	6.30%	649	1,144	5.55%
23	4.10%	423	6.10%	629	1,051	5.10%
TOTAL	100.00%	10,305	100.00%	10305	20,610	100.00%

³ Box, Paul C. and Bunte, William. Gaming Casino Traffic. *ITE Journal*, March 1998, pp. 42-45.

**TABLE 8.1-4
HOURLY CASINO/HOTEL VOLUMES BASED ON GAMING POSITIONS: SATURDAY**

Time Period	In %	Volume	Out %	Volume	Total Volume	% Total
Hour Beginning: 0	3.00%	351	5.90%	690	1,041	4.45%
1	2.70%	316	4.40%	515	831	3.55%
2	1.30%	152	4.20%	491	644	2.75%
3	0.80%	94	4.70%	550	644	2.75%
4	0.60%	70	3.70%	433	503	2.15%
5	0.60%	70	2.00%	234	304	1.30%
6	0.70%	82	0.70%	82	164	0.70%
7	1.10%	129	0.50%	59	187	0.80%
8	3.30%	386	0.90%	105	491	2.10%
9	4.70%	550	0.90%	105	655	2.80%
10	4.30%	503	1.70%	199	702	3.00%
11	4.90%	573	2.60%	304	878	3.75%
Midday Peak** 12	4.80%	562	2.80%	328	889	3.80%
13	5.20%	608	3.50%	410	1,018	4.35%
14	5.60%	655	4.10%	480	1,135	4.85%
15	5.60%	655	5.80%	679	1,334	5.70%
Route 24 PM Peak++ 16	5.70%	667	6.30%	737	1,404	6.00%
17	6.70%	784	6.80%	796	1,580	6.75%
18	7.80%	913	6.90%	807	1,720	7.35%
19	7.70%	901	6.40%	749	1,650	7.05%
20	6.50%	761	6.70%	784	1,544	6.60%
21	6.10%	714	6.10%	714	1,427	6.10%
22	5.70%	667	6.00%	702	1,369	5.85%
23	4.60%	538	6.40%	749	1,287	5.50%
TOTAL	100.00%	11,700	100.00%	11700	23,400	100.00%

** proposed for use in all intersection analysis

++ proposed for use in all Route 24 analysis

The hourly rates shown above were then prorated into patron and employee trips using the same proportions reflected in the 1999 ConnDOT study supplied by MassDOT.

MassDOT questioned the distribution of inbound and outbound trips shown in **Tables 8.1-3** and **8.1-4** for the Saturday 4-5 PM highway peak period (47.5% in and 52.5% out); stating that for a Class III casino there would be more inbound than outbound trips in this peak hour. For this reason, the team changed the distribution of inbound and outbound trips for the Saturday 4-5 PM peak hour to reflect an overall distribution of 55% in and 45% out, based on generator peak hour rates. For patrons, the split was 60% in and 40% out at the Saturday 4-5 PM peak.

Bus trips – an estimated 50 entering and 50 exiting per day – were included in the overall patron trip generation numbers. Per the *Draft Environmental Impact Statement, Proposed Mashpee Wampanoag Initial Reservation and Destination Resort Casino*, October 17, 2008, “during the week, the bulk of the buses will enter the site during the morning hours. Bus trips will be more evenly spread out on weekends. It is estimated that buses could generate between 20 and 30 trips during the weekend peak hours.” (P. 7-72).

In the interest of a conservative analysis, no credit was taken for transportation demand management programs or public transportation use by employees or patrons.

It is difficult to estimate the proportion of total casino trips that would be made by charter airplane, accommodated at the Taunton Municipal Airport, which is classified as a General Aviation airport. Once the casino is open, it is possible that the flight school and sightseeing charter operator now at the airport would offer charters to and from the casino, with limousine service to and from the airport. Many air charter services are also available to offer private jet rentals to the casino industry. The private jets would only account for a very small proportion of total casino patrons.

Hotel

Because the only hotel in Alternative B would be the one associated with the water park, a separate hotel rate was used based on ITE’s Trip Generation manual, 8th edition (2008), Land Use Code 310. Water park trips were reduced by 80% to reflect the fact that most water park trips would involve a hotel stay.

Indoor Water Park

Because indoor water parks are a relatively new concept there is little data available upon which to base estimates of daily or peak hour trips. The study team found daily and peak hour traffic volume data that was recorded on the site of an existing 55,000 sf “Coco Keys” indoor water park in Mount Laurel, New Jersey. A trip rate for the proposed 25,000 sf facility was developed based on the rates for the larger Mount Laurel water park. Daily trips for the water park were derived from ITE data for Land Use Code 414 – Water Slide Park.

Summary of Trip Generation by Build Alternative

A summary of the resulting total, casino patron, and casino employee vehicle trips generated by the casino, the hotels, and the water park by land use and time period for each of the build alternatives is presented in **Table 8.1-5**. The casino trips include 50 buses in and out per day. Detailed trip generation spreadsheets for each alternative by patron and employee are provided in **Appendix B-6**.

**TABLE 8.1-5
COMPARISON OF VEHICLE TRIPS BY ALTERNATIVE**

Time/Direction	Vehicle Trips		
	Alternative A: Proposed Development	Alternative B: Reduced Intensity I	Alternative C: Reduced Intensity II
Daily (Friday)			
Total	20,922	11,518	20,610
In	10,461	5,759	10,305
Out	10,461	5,759	10,305
Weekday AM Peak Hour			
Total	226	158	226
In	165	109	165
Out	61	48	61
Friday PM Peak Hour			
Total	1,726	938	1,720
In	908	492	905
Out	818	446	815
Saturday Highway Peak Hour			
Total	1,410	775	1,405
In	778	425	775
Out	632	350	630
Saturday Midday Peak Hour			
Total	894	513	890
In	497	280	493
Out	407	233	407

As shown above, the peak hour trips for Alternatives A and C are very similar. For this reason, no separate traffic analysis was performed for Alternative C.

Current Active Land Use on the Project Site

The current, occupied land uses on the Project Site include 108,700 sf of commercial-industrial-warehouse use across multiple buildings, including a 22,840 sf fitness center (Workout World) and 40,400 square feet of office space across multiple buildings, and three residential dwellings totaling 3,625 sf at 50 O'Connell Way, along with two 175,200 sf warehouse buildings at the Crossroads Commerce Center north of the casino site in the Liberty Union Industrial Park Phase 2. These two buildings north of the casino site will remain for all the Build alternatives. The fitness center will remain only for Alternative B.

8.1.3.2 Trip Distribution

In the 2008 *Environmental Impact Statement* for the proposed casino at Middleborough, trip distribution patterns were developed independently for patron trips and employee trips. The methodology incorporated population data from the Year 2000 U.S. Census. The same methodology, as described below, was adopted for this Project, although population estimates have been updated to the Year 2010 Census. Detailed trip distribution worksheets are found in **Appendix B-7**.

Patron Trips

For patron trips, market studies have shown that two hours is the maximum time that patrons will spend driving to a resort casino. Therefore, population data were gathered for communities within a two-hour drive of the Project site. The population figures were modified by distance factors based on market studies, as follows:

- Those within a 30-minute drive would make 3.2 more visits to the resort than patrons located within a 1-2 hour drive.
- Those within a 30 to 60 minute drive would make 1.6 times as many visits to the resort than patrons located within a 1-2 hour drive.

Thus, population of communities within 30 minutes was multiplied by 3.2 and population of communities within 30-60 minutes was multiplied by 1.6.

A second factor, called a “competition factor”, was developed to represent the proximity of the communities to competing casinos – i.e., Mohegan Sun, Foxwoods, Twin Rivers and several facilities in Maine. (A high factor represents little competition and a low factor reflects higher competition.) These factors ranged from 0.2 used for communities in Connecticut and Rhode Island close to competing casinos up to 0.9 applied to Taunton and abutting communities. Regional competition factors were assigned to reduce trips from communities to the north and west that would generally fall within the market area for potential casinos for the west and north regions as established in the Massachusetts Gaming legislation. No specific casino locations in the north or west districts were assumed in the trip distribution.

As with the distance factor, community populations were multiplied by the specific competition factor to yield an estimate of the potential market population for the casino.

Employee Trips

Unlike patrons, who will travel up to two hours to visit the casino, most employees will travel 45 minutes or less. The associated trip distribution methodology for employees is similar to that of patrons, but incorporates only communities within a 45 minute commuting distance of the Project site. Distance factors were also applied to assign a higher proportion of trips to those communities closer to the Taunton site. As a separate trip rate was not established for hotel and water park employees, the overall patron trip distribution was used for all hotel and water park trips.

Resulting Trip Distribution

The above calculations yielded the first cut distribution of trips on a regional basis, as shown in **Figure 8.1-29** for all trips, **Figure 8.1-30** for casino and hotel patrons and **Figure 8.1-31** for casino employees. Once the trips from each of the regional highway approaches were calculated, they were distributed to local roadways and streets within the study area based on their relative convenience to the site.

Figure 8.1-32 through **Figure 8.1-35** show the percentage distribution on local streets and intersections for patrons; **Figure 8.1-36** through **Figure 8.1-39** show the percentage distribution on local streets and intersections for employees.

8.1.3.3 Operations Analysis: Alternative A

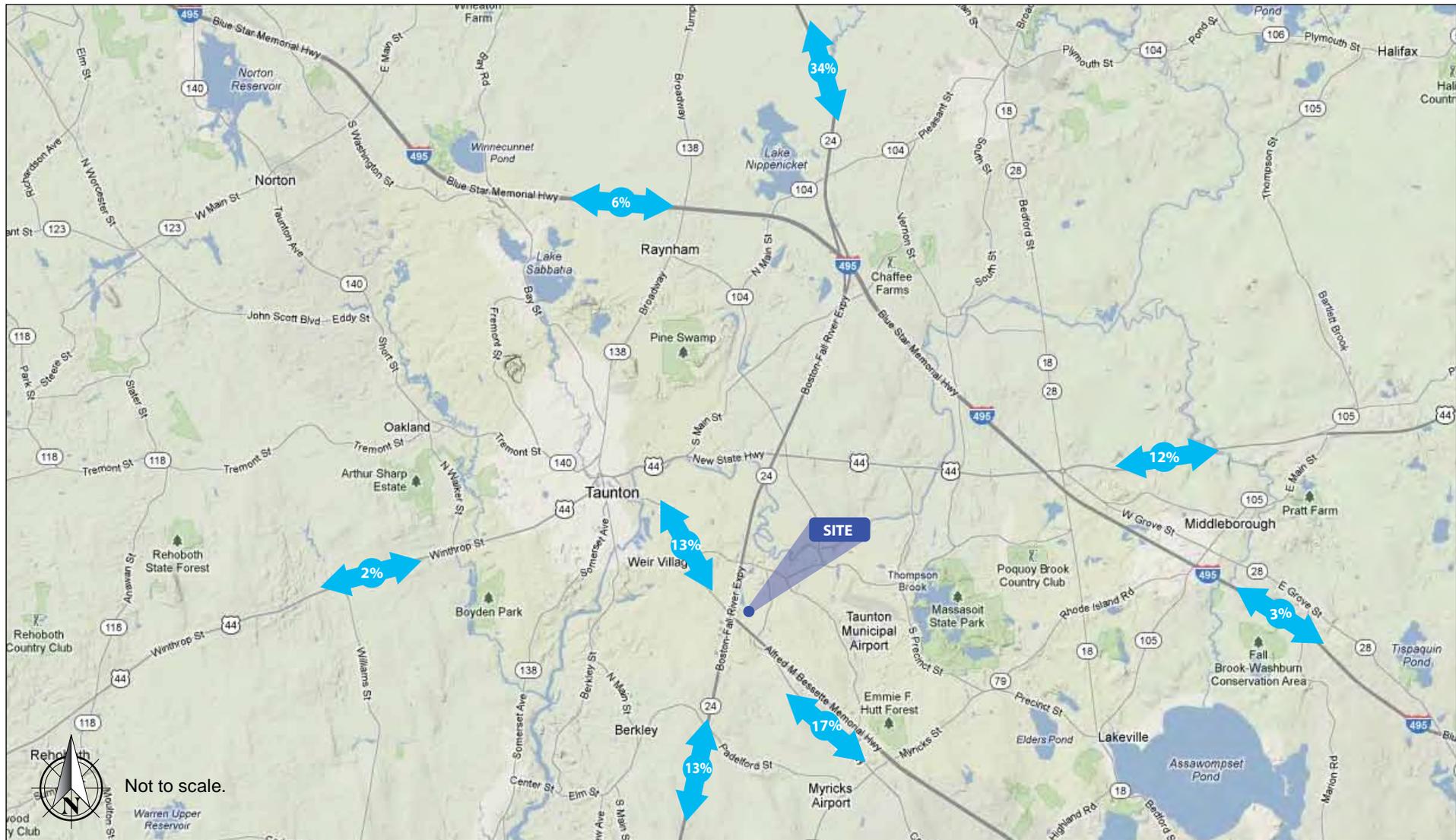
Alternative A Site Circulation

As shown in **Figure 8.1-40**, Alternative A, there are two access/egress roads to the Project Site. The primary access and egress is located at the current site driveway, O'Connell Way. Two exclusive left-turn lanes on Stevens Street northbound will be provided for traffic entering the site at this location. Within the site, the number of inbound lanes increases to three, leading to a traffic circle in the center of the site. Most traffic will be destined to the garage. Signage will direct patrons to the garage and its access from either the left- or the right-lane.

- Traffic in the left lane will enter a tunnel under the traffic circle that provides direct access to the parking garage, thereby minimizing surface traffic conflicts.
- Traffic in the right lane will enter the garage at grade just prior to the traffic circle. Valet or drop-off vehicle patrons will bear left, around the circle into the port cochere where there will be several receiving lanes for storage. Valet drivers will continue around the circle to a valet entrance/exit driveway into the garage, separate from the patron garage access. Patrons requiring handicap accessible parking will be directed to an access roadway around the north side of the casino to a parking area near the bus lobby entrance.
- The through-lane will be for traffic that will drop off patrons, valet their vehicles, or continue through on O'Connell Way to north surface parking or other existing uses in the LUIP. The through lane will continue in a grade crossing over the rail right-of-way to access the water park hotel parking north of the tracks. There will be no access to the water park or its hotel from Middleboro Avenue.

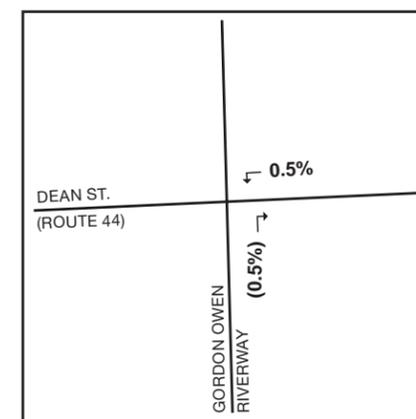
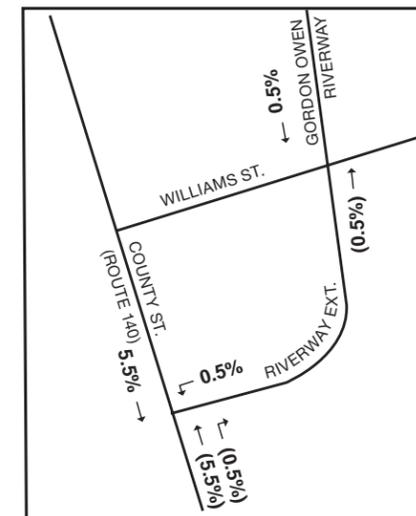
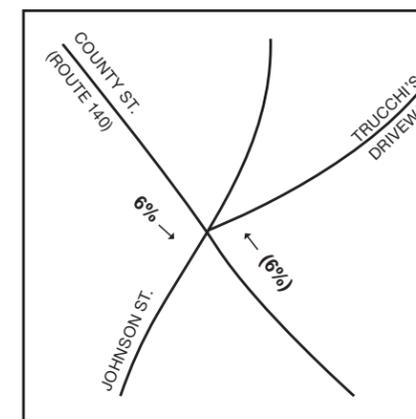
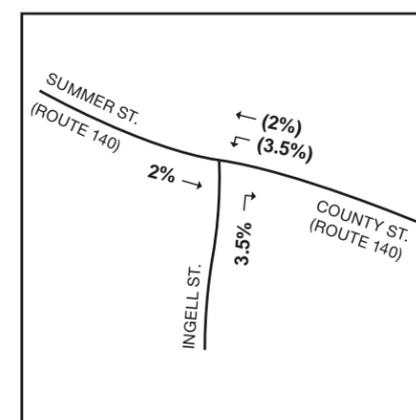
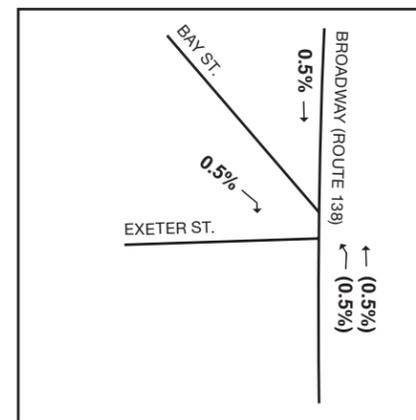
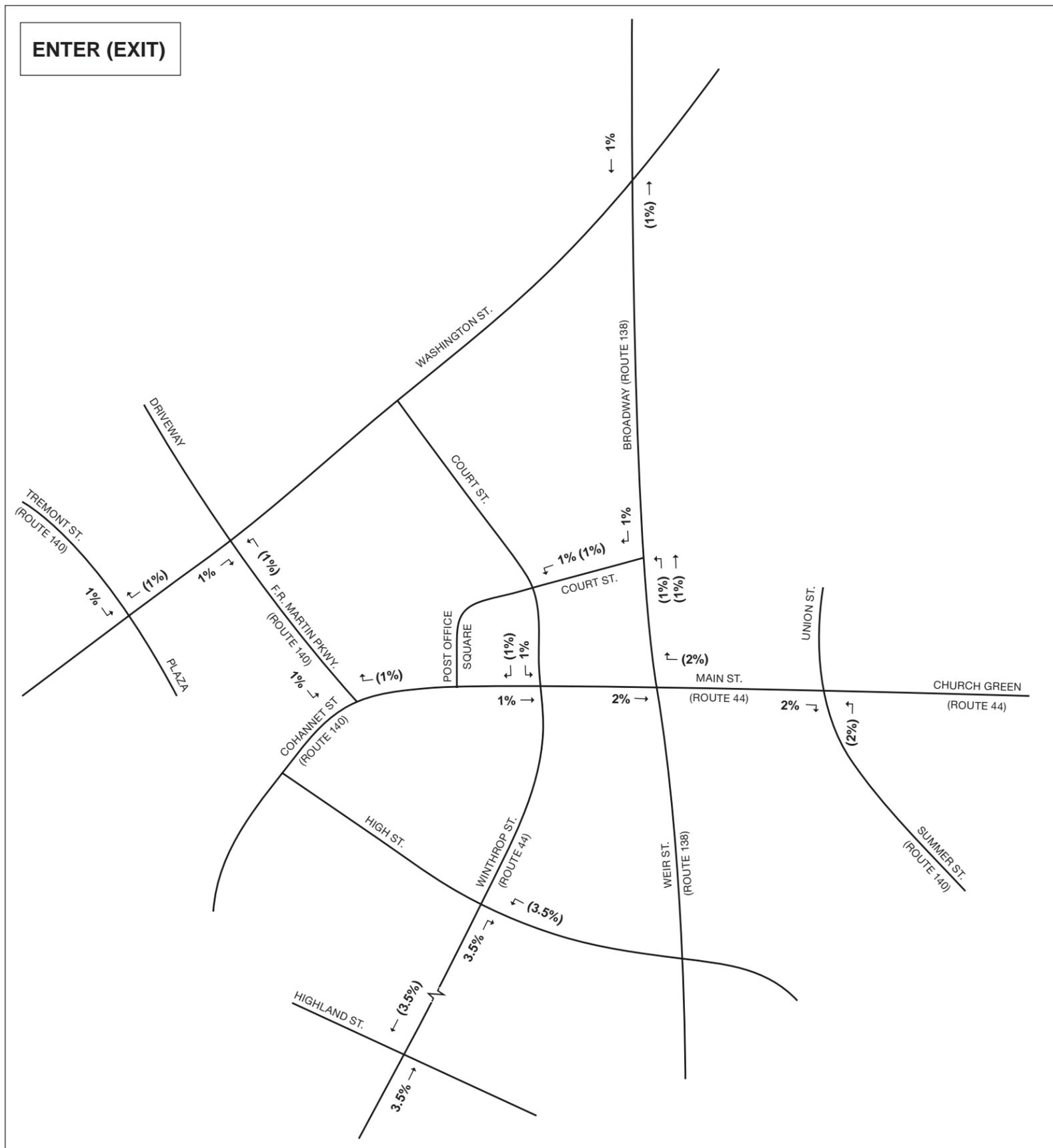


Not to scale.

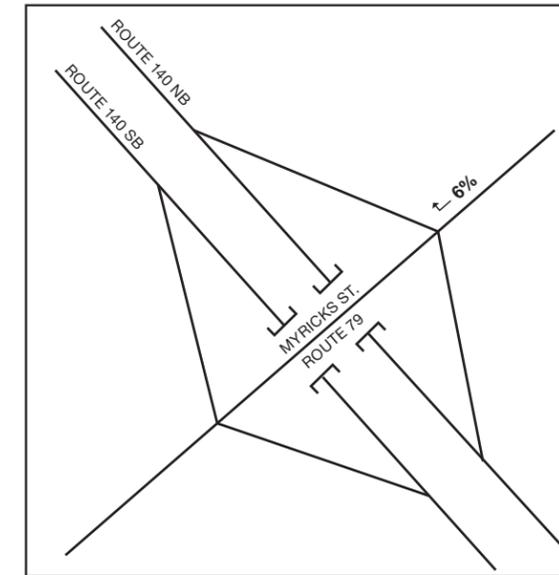
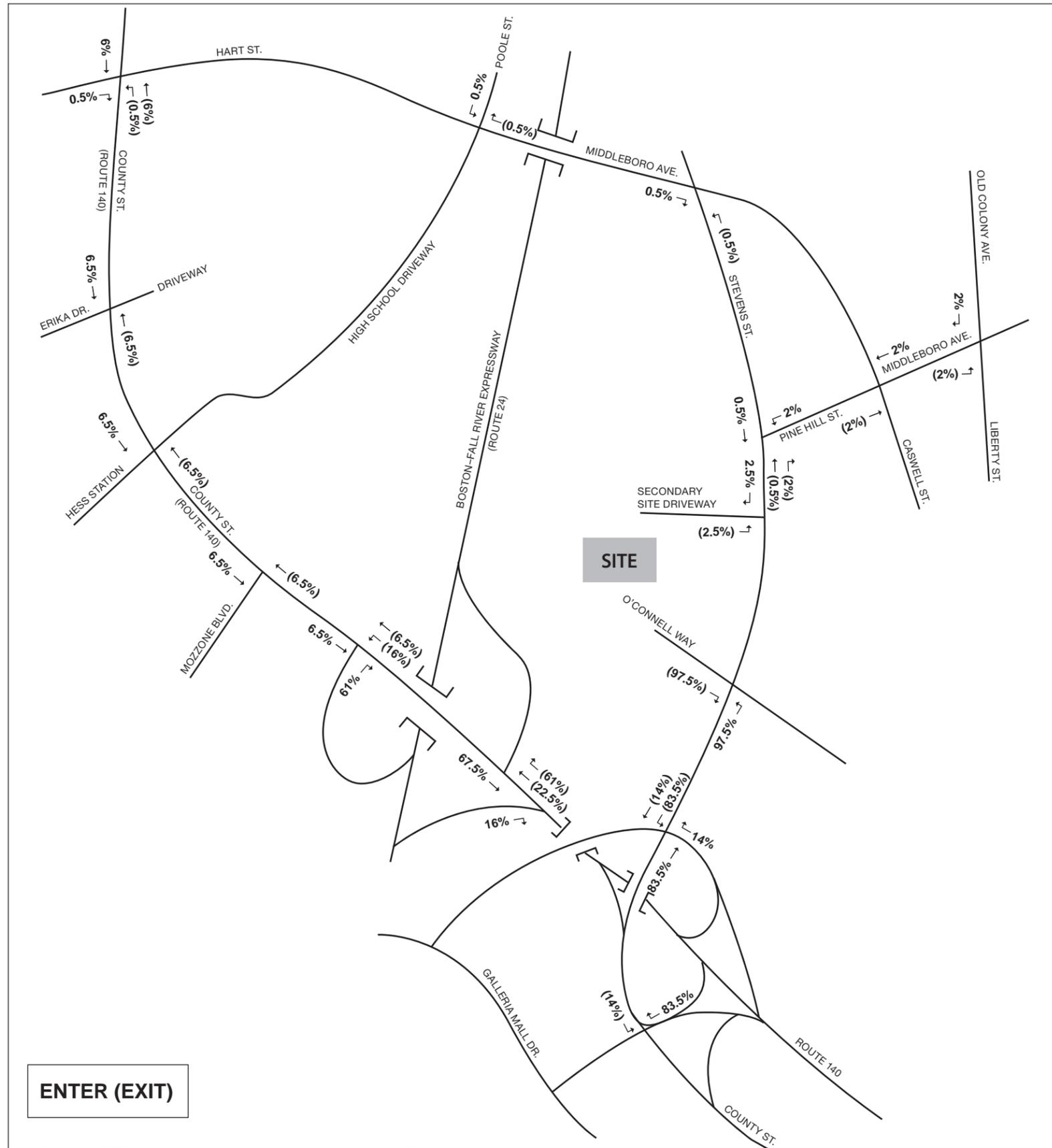


SOURCE: Howard/Stein-Hudson Associates, Inc.

Figure 8.1-31
Regional Trip Distribution: Employees



Not to scale.



ENTER (EXIT)



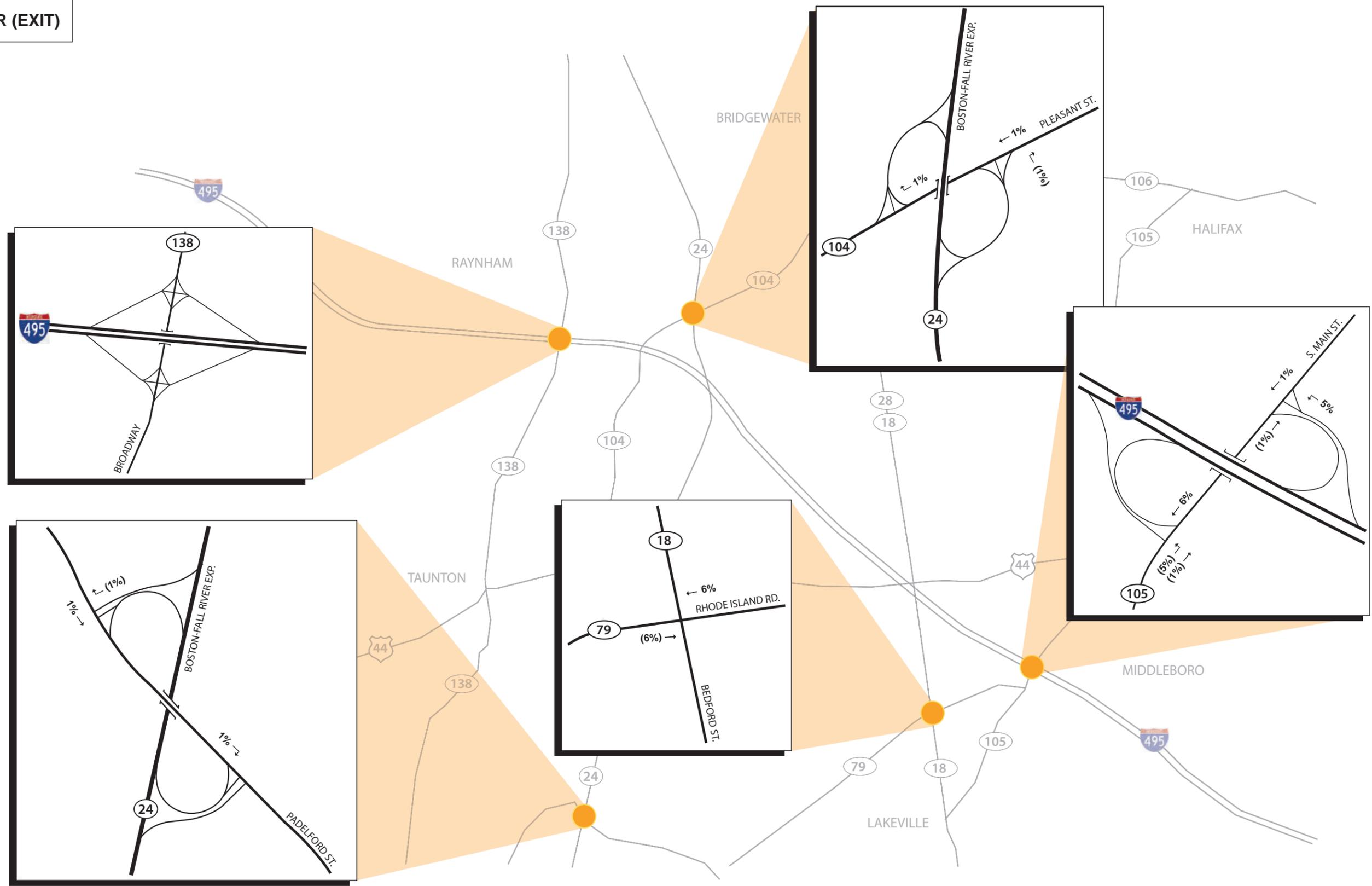
Not to scale.

ENTER (EXIT)

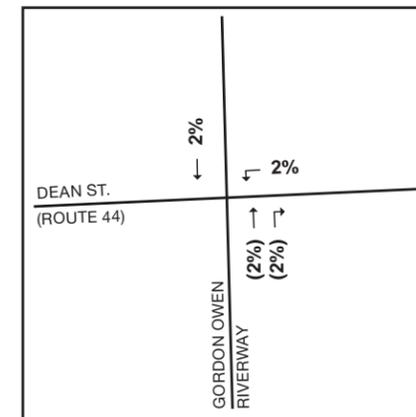
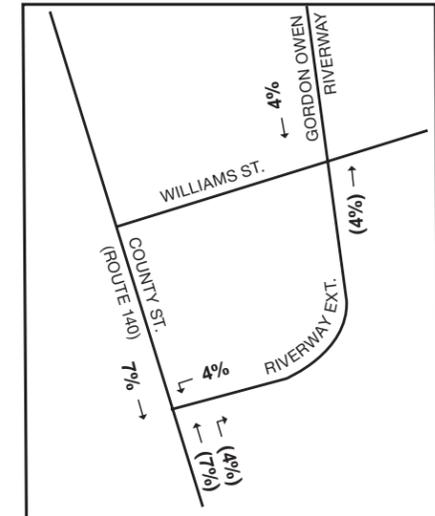
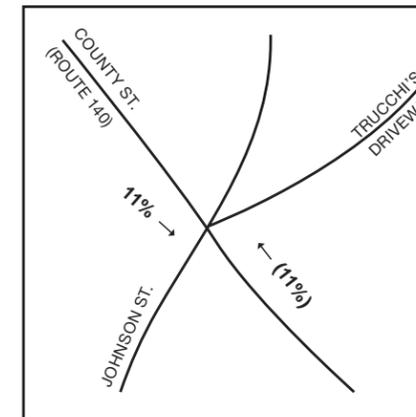
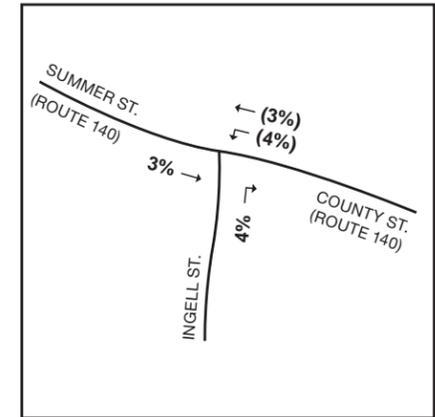
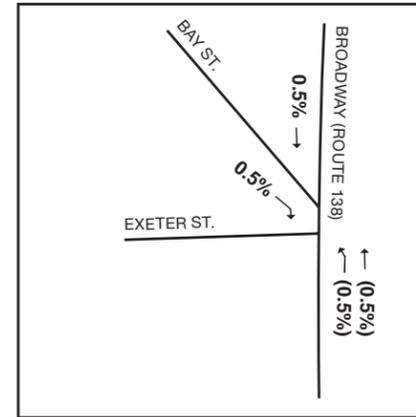
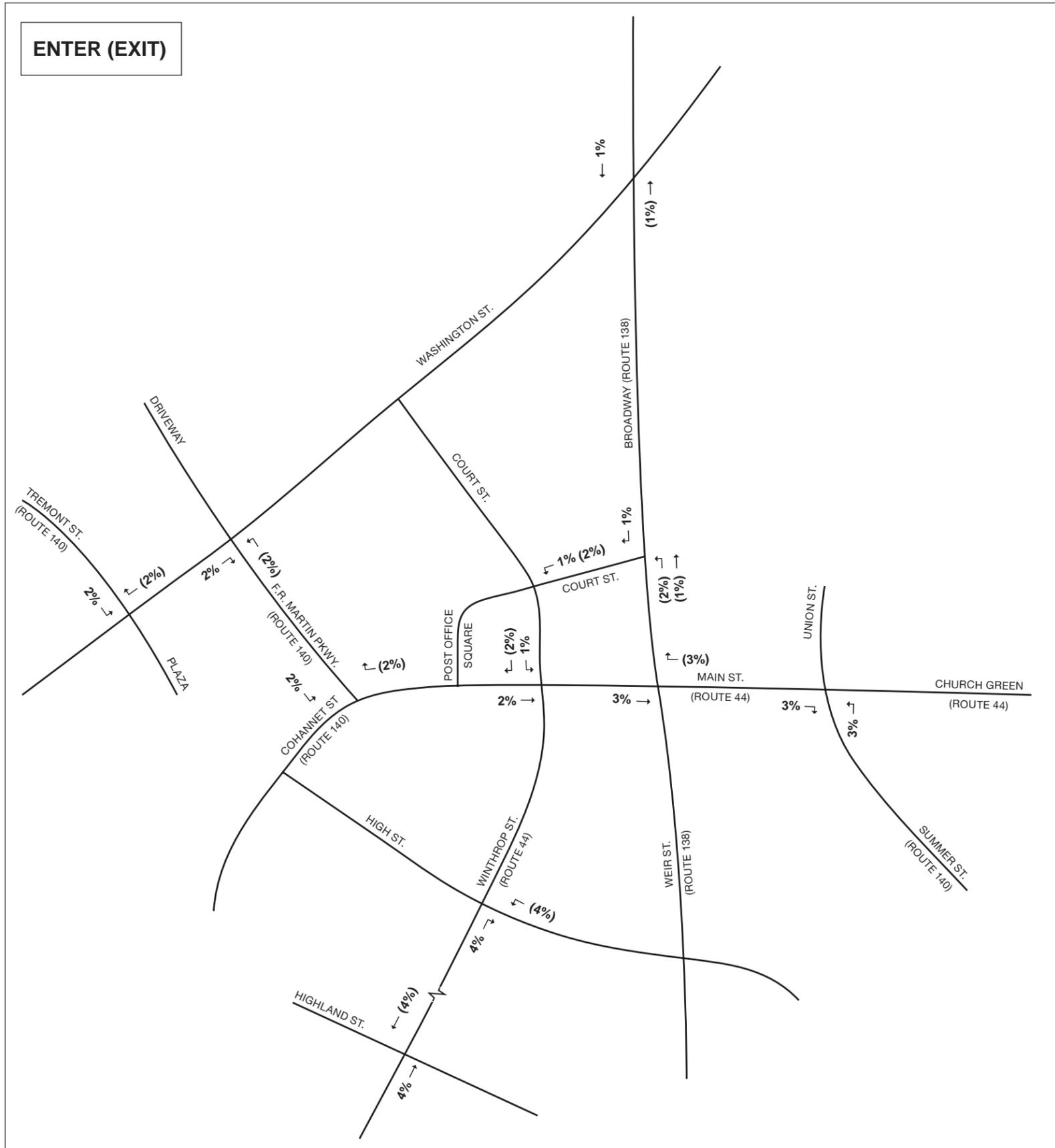


Not to scale.

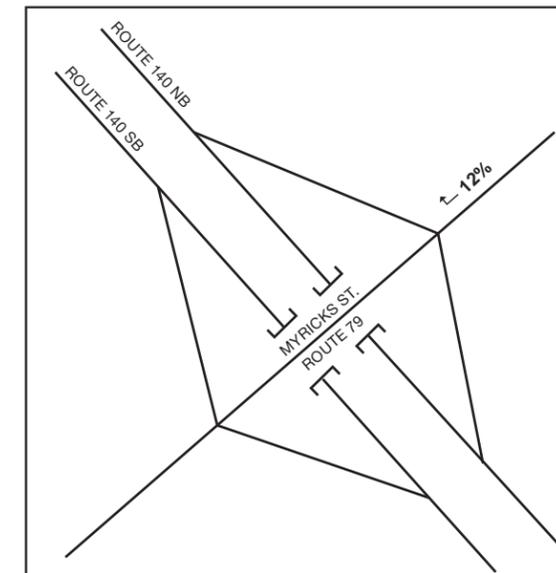
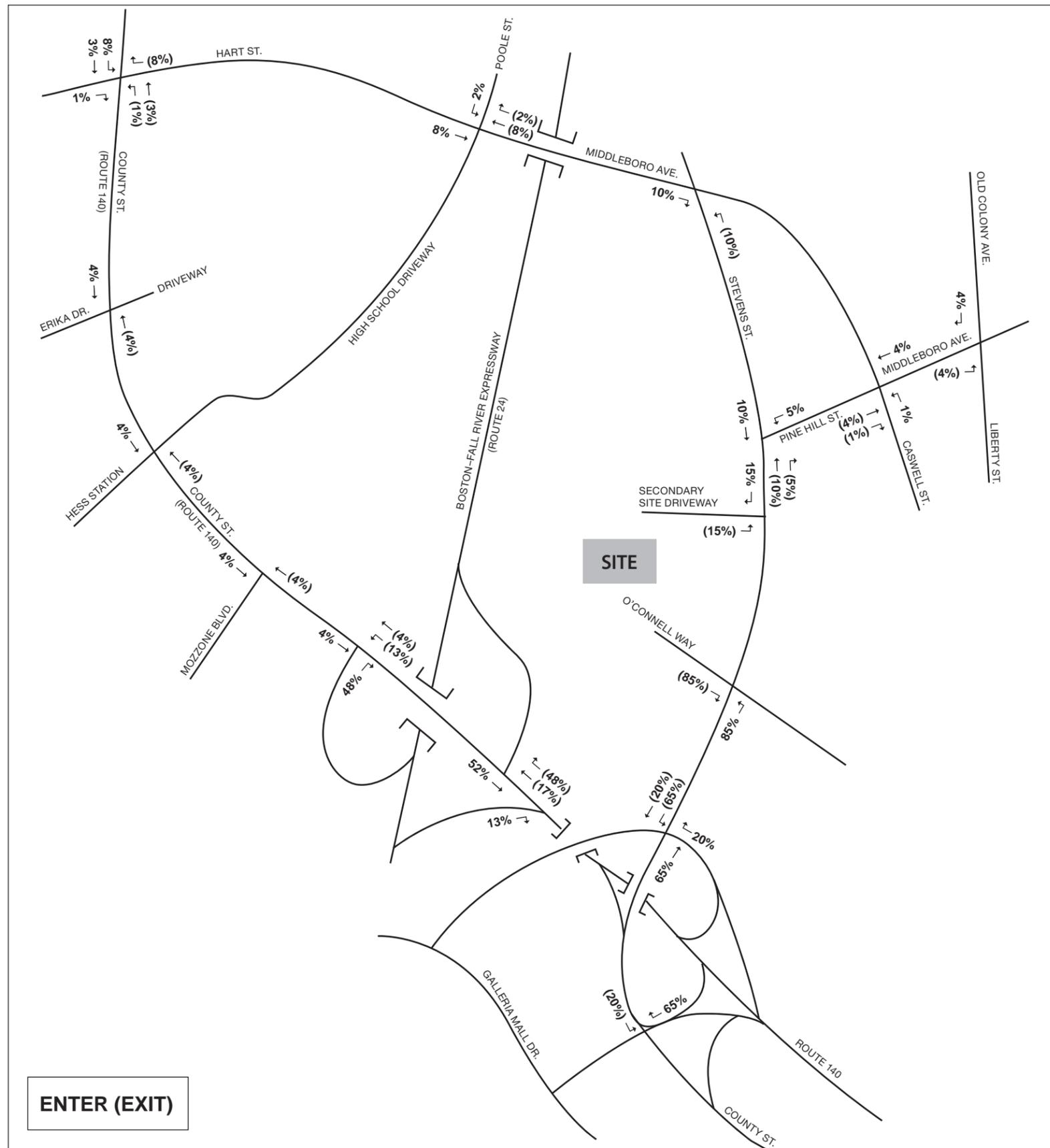
ENTER (EXIT)



Not to scale.



Not to scale.



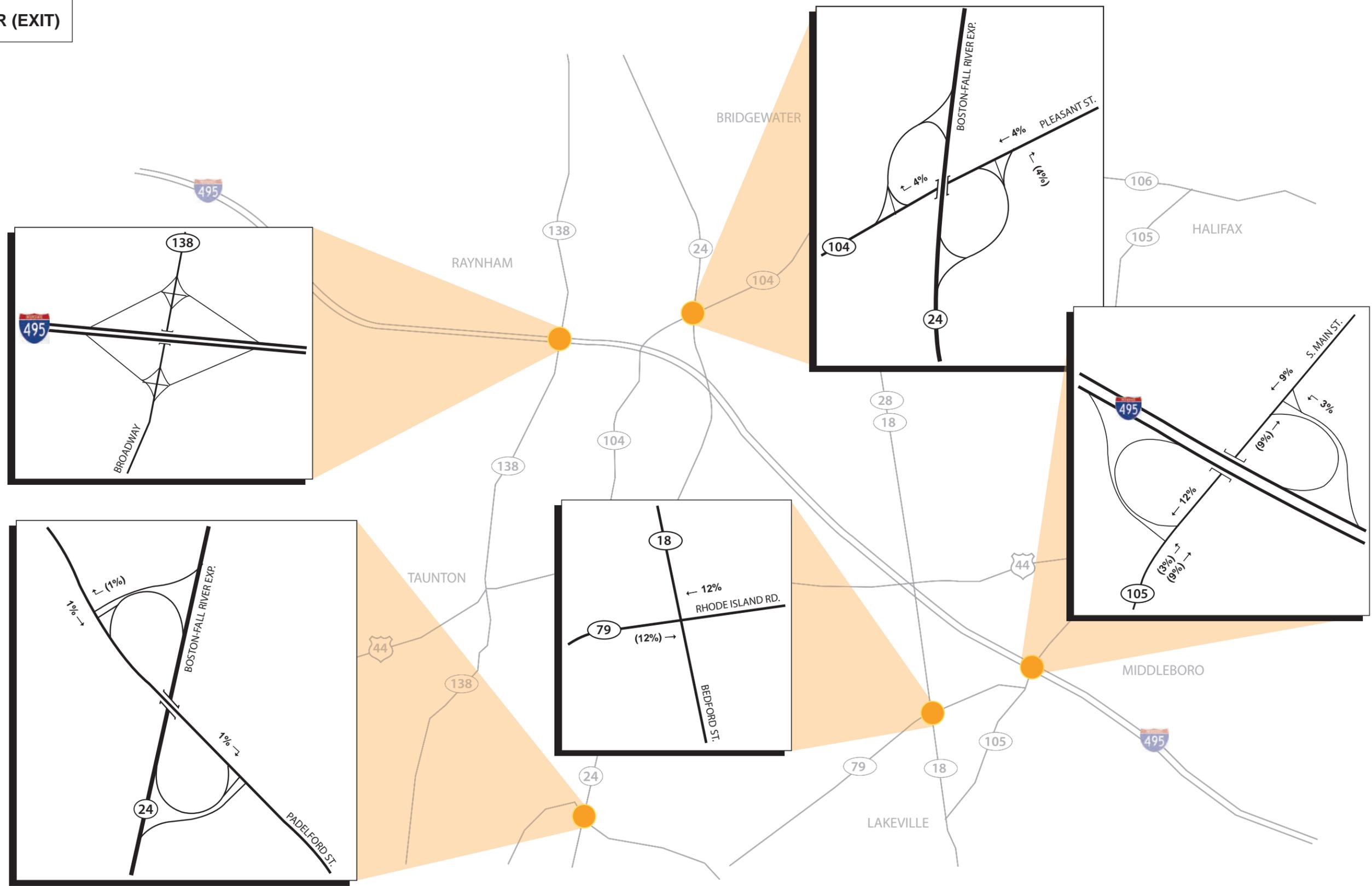
Not to scale.

ENTER (EXIT)



Not to scale.

ENTER (EXIT)



Not to scale.



Bus and delivery traffic will be directed on Stevens Street to use the northerly Service Road, which will have an exclusive left-turn lane into the Site. Once on this road, any truck traffic to existing LUIP uses will turn right at a stop-controlled intersection onto O'Connell Way. Bus or delivery traffic destined for the casino will turn left onto O'Connell Way and then right onto the roadway on the north side of the casino. Deliveries will occur on the north side of the casino building. Bus traffic will continue to a bus facility just outside of the bus lobby. An employee shuttle stop will also be located off of the north side of the casino, just south of the executive parking lot.

Traffic will exit the site primarily via O'Connell Way. Existing uses may find the Service Road to be more desirable for egress than through the casino traffic circle; however, both will be possible. Bus traffic and delivery vehicles will also be encouraged to use the Service Road to exit the site. All exiting traffic from the Service Road may turn right into its own lane onto Stevens Street southbound. Because Stevens Street north of the Service Road will have a heavy-vehicle exclusion, no trucks or buses will be allowed to turn left; however, this move will still be physically possible for passenger cars.

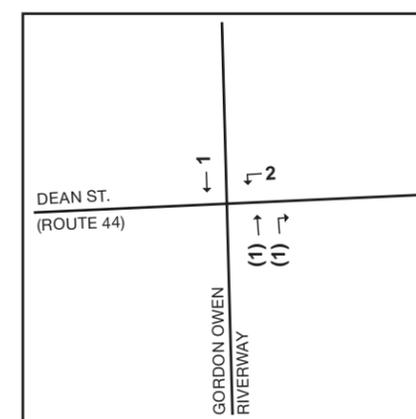
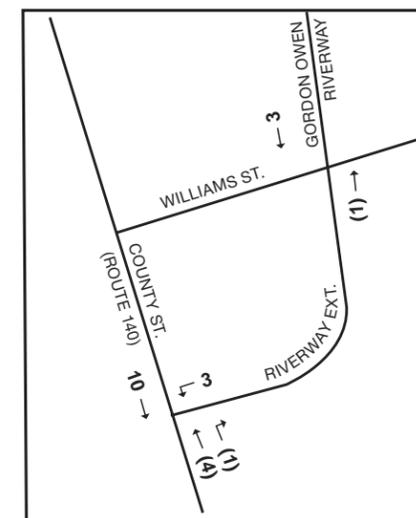
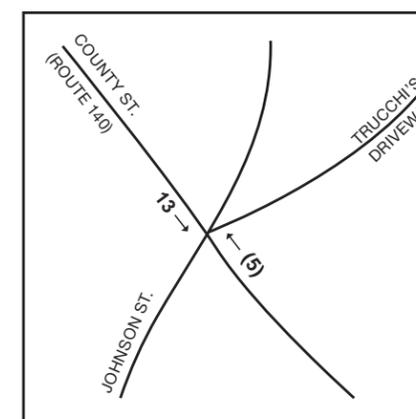
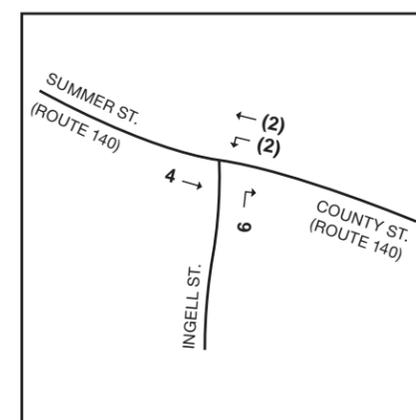
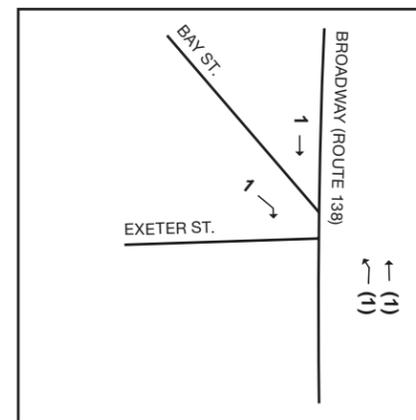
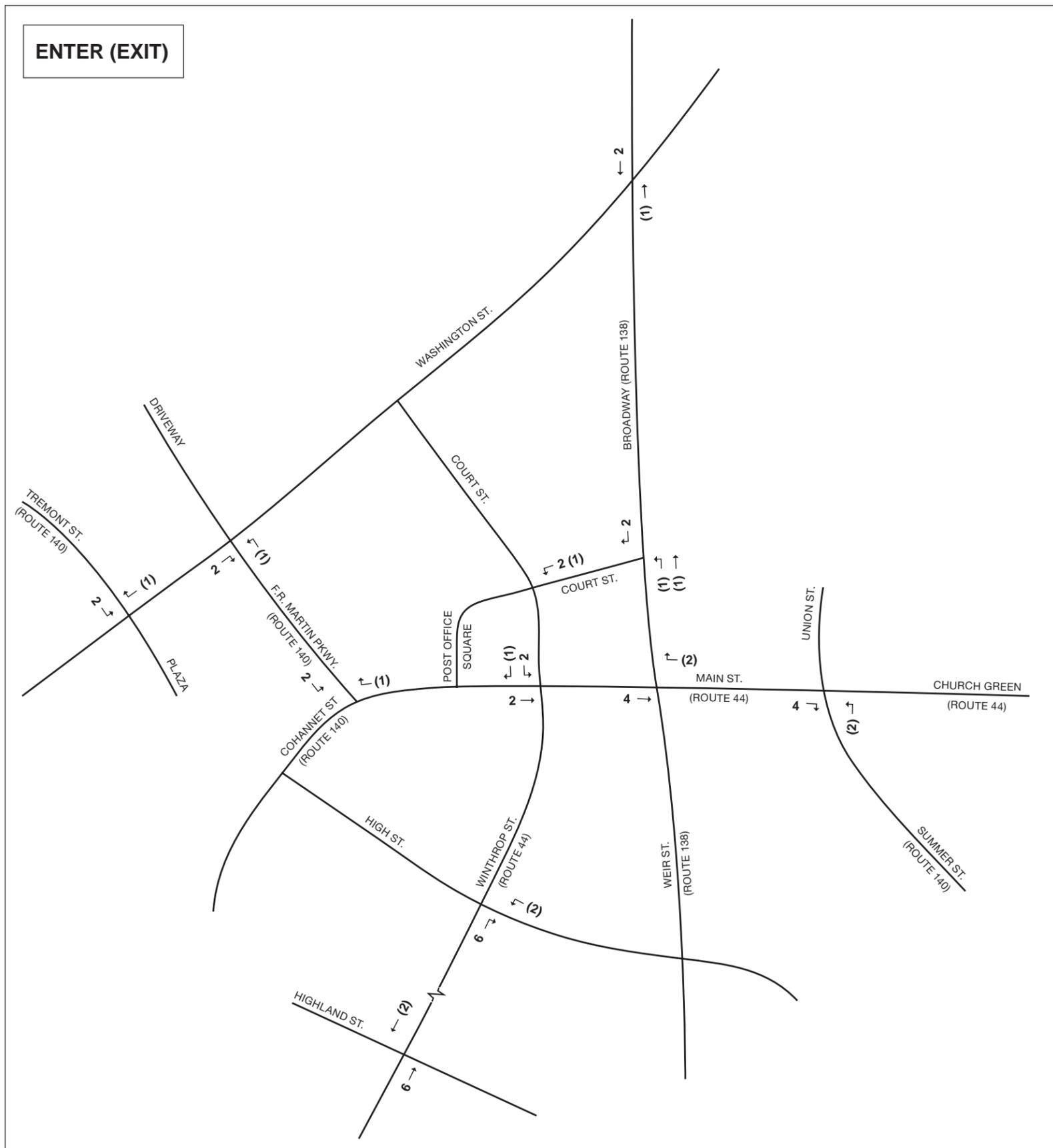
Traffic will be able to exit the garage at three locations: the tunnel as described above, a second egress on the west side of the garage, and a third overflow entrance/exit on the north side of the garage. The primary egress from the garage will be via the tunnel under the traffic circle that connects to O'Connell Way. Tunnel traffic will join existing surface traffic from the traffic circle, which will include traffic from the secondary garage egress on the west side of the garage at the O'Connell Way intersection. There is also a third entrance and exit on the north side of the garage. There will be no signage or direction to this entrance/egress point, which will be gated. This access point will only be used in the event of overflow situations and will be manned on such occasions. All traffic will head east, towards Stevens Street.

No left turns will be allowed out of O'Connell Way onto Stevens Street northbound under any of the alternatives. All traffic exiting the site at this signalized driveway will free flow right onto Stevens Street into their own lanes, to access Route 140 via the new ramp or existing ramps.

Pedestrian access and egress to the Project Site will be via crosswalks at the O'Connell Way/ Stevens Street intersection; from the sidewalk on the east side of Stevens Street to a new sidewalk on the north side of O'Connell Way. The sidewalk will lead to doors at the garage lobby where pedestrians will take elevators to the pedestrian overpass, over the traffic circle, into the hotel/casino lobby. All pedestrians from the garage will also use this overpass to access the casino.

Figure 8.1-41 through **Figure 8.1-52** show peak hour project generated trips for Alternative A on local streets and intersections. **Figure 8.1-53**, **Figure 8.1-54**, and **Figure 8.1-55** shows peak hour project generated trips at the interchanges.

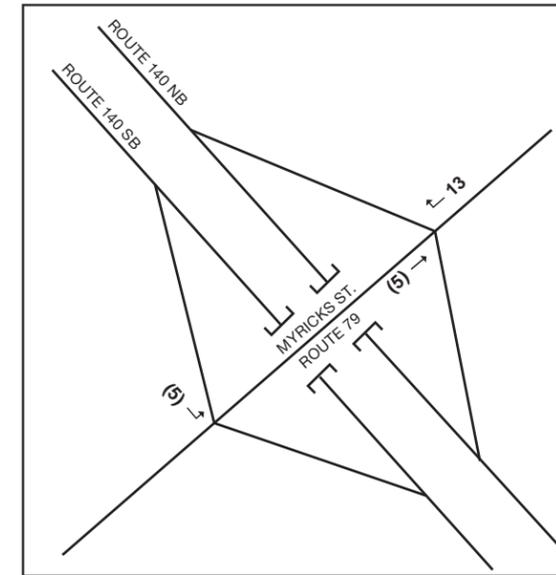
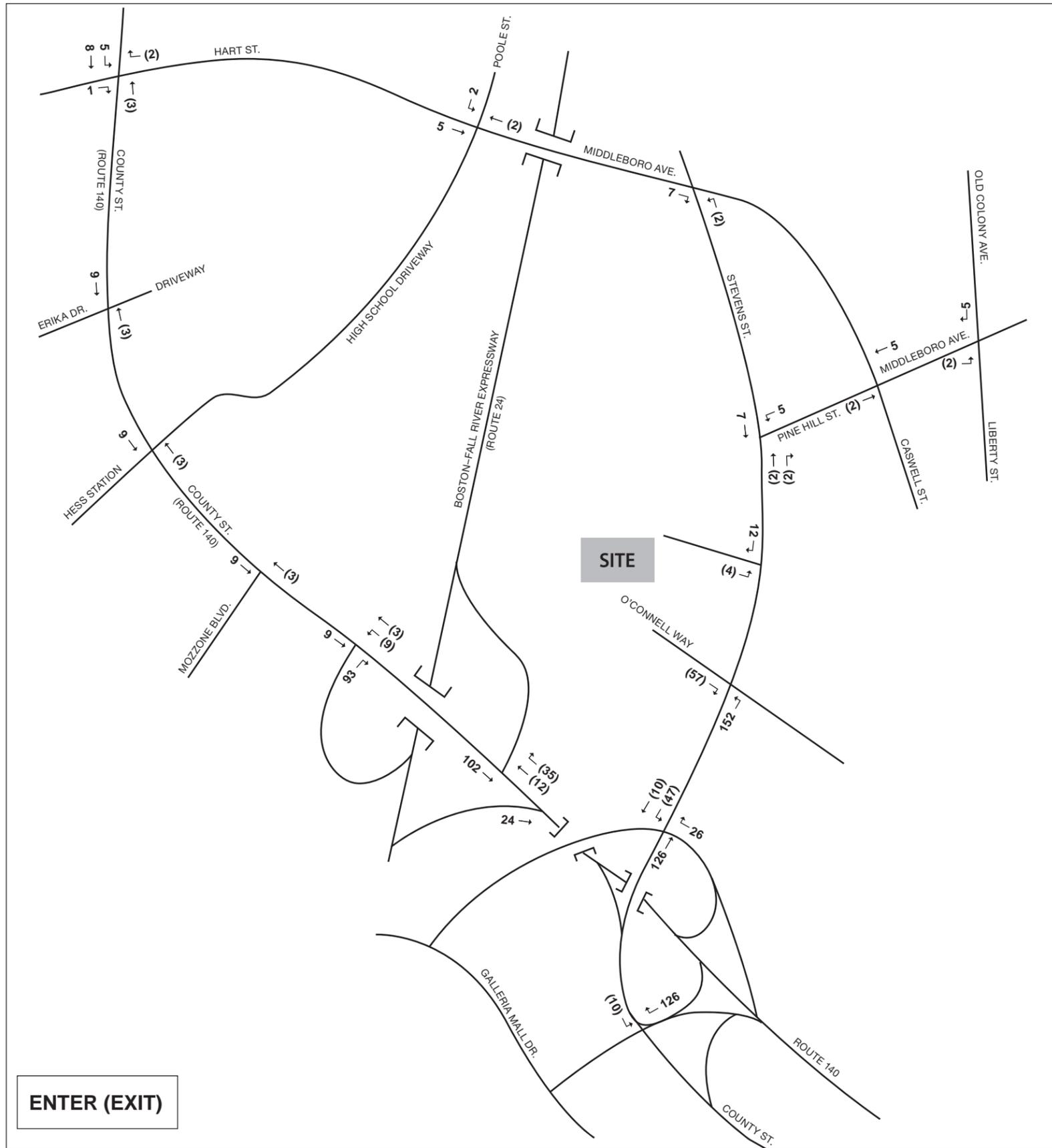
Figure 8.1-56 through **Figure 8.1-59** show Alternative A volumes in the AM peak hour at study area intersections; **Figure 8.1-60** through **Figure 8.1-63** show PM peak hour Alternative A volumes, and **Figure 8.1-64** through **Figure 8.1-67** show Saturday midday peak hour Alternative A volumes. **Figure 8.1-68**, **Figure 8.1-69**, and **Figure 8.1-70** show Alternative A volumes at the interchanges.



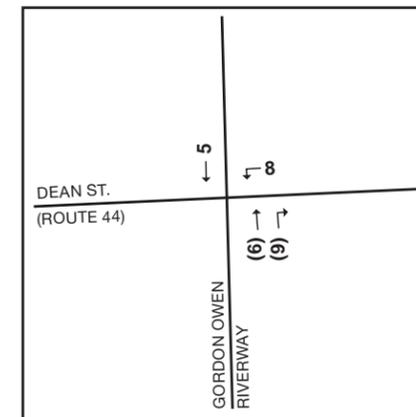
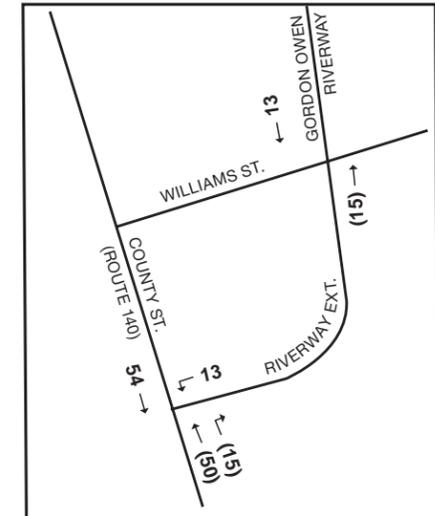
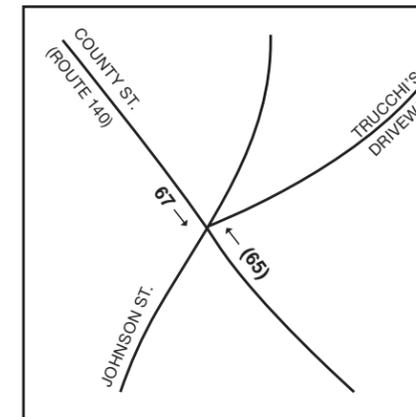
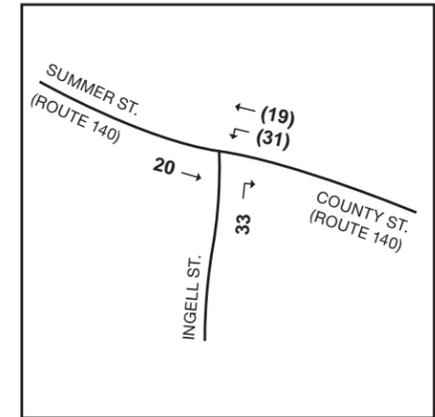
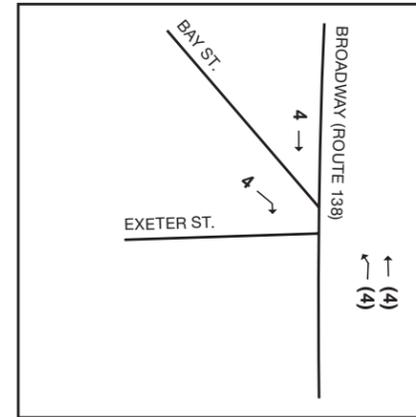
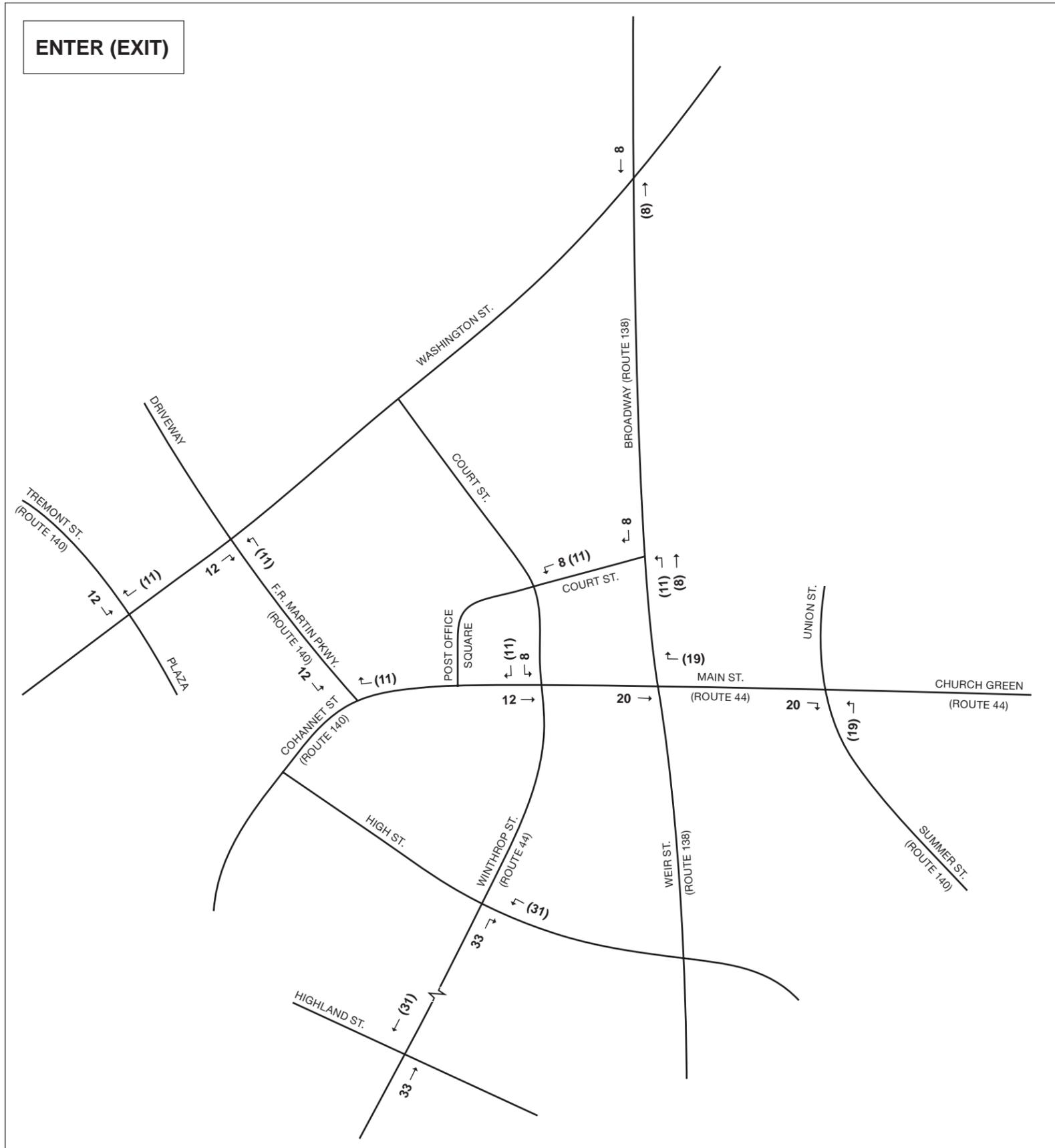
Not to scale.

SOURCE: Howard/Stein-Hudson Associates, Inc.

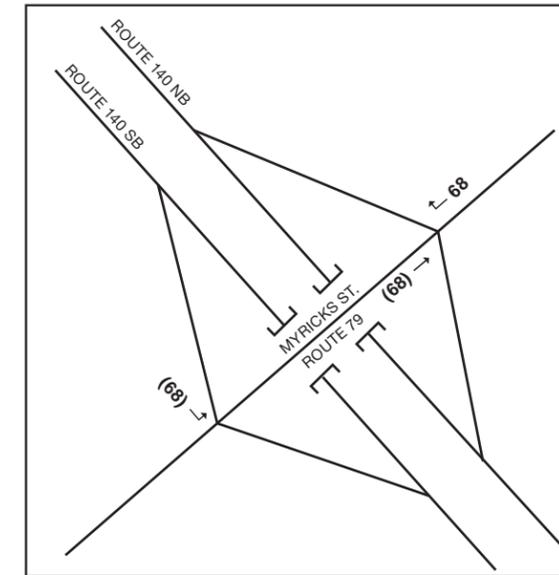
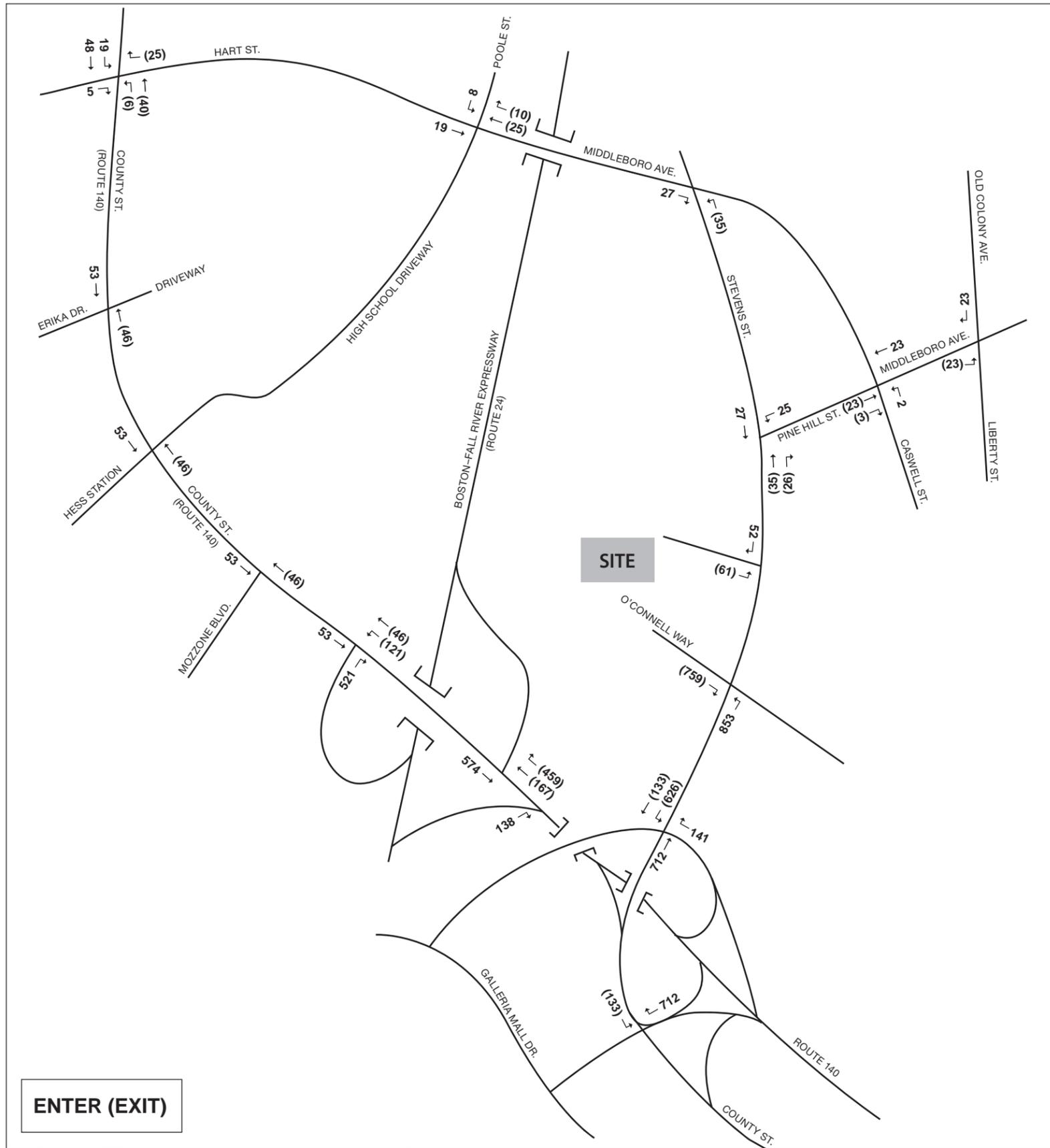
Mashpee Wampanoag Tribe – Fee to Trust Acquisition – Draft EIS ■
Figure 8.1-41
 Project-Generated Trips, AM Peak Hour Volumes –
 West Taunton



Not to scale.



Not to scale.



Not to scale.

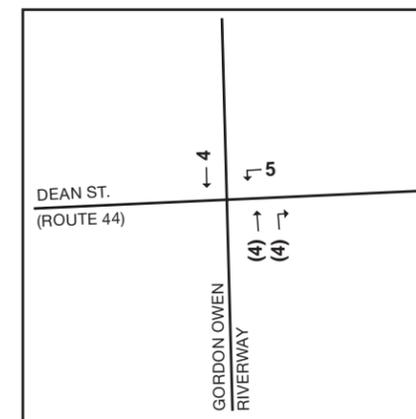
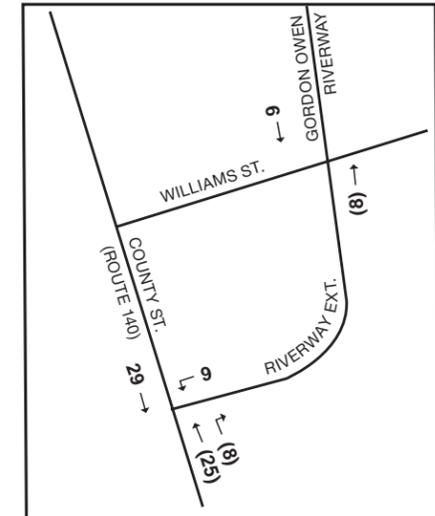
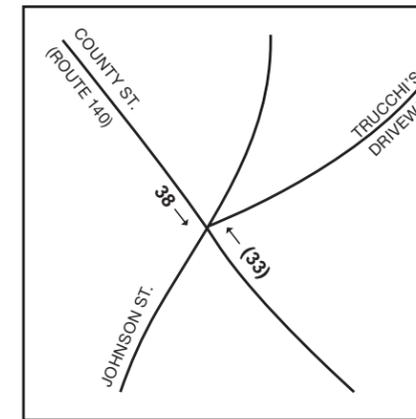
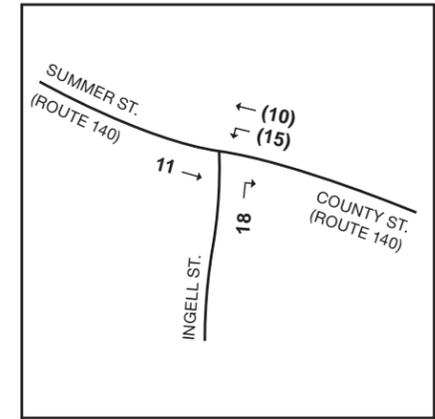
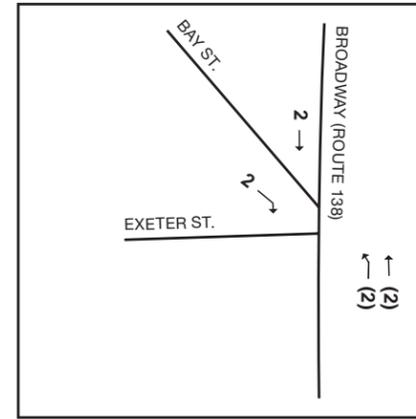
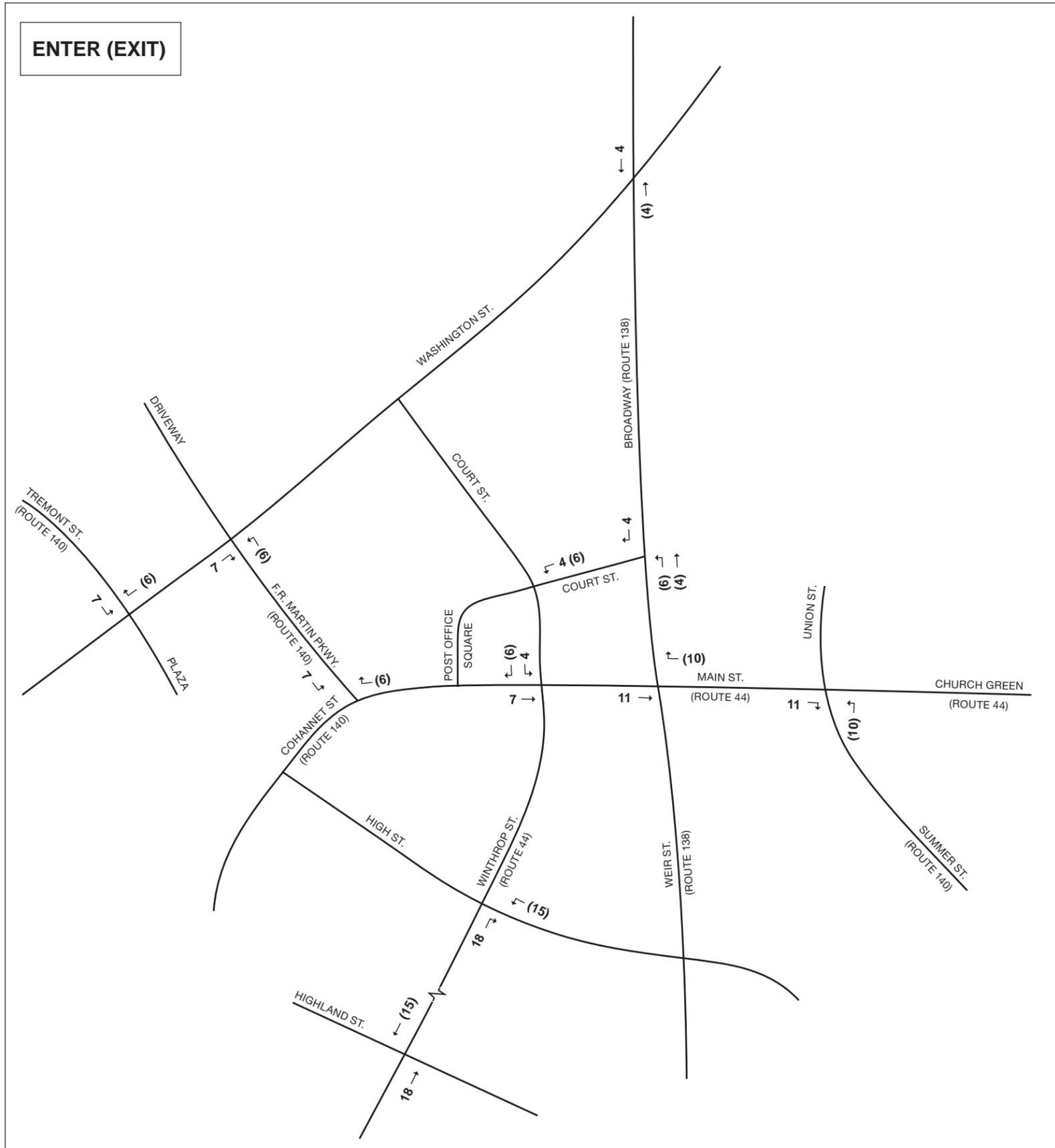
SOURCE: Howard/Stein-Hudson Associates, Inc.

Mashpee Wampanoag Tribe – Fee to Trust Acquisition – Draft EIS ■
Figure 8.1-46
 Project-Generated Trips, PM Peak Hour Volumes –
 East Taunton

ENTER (EXIT)

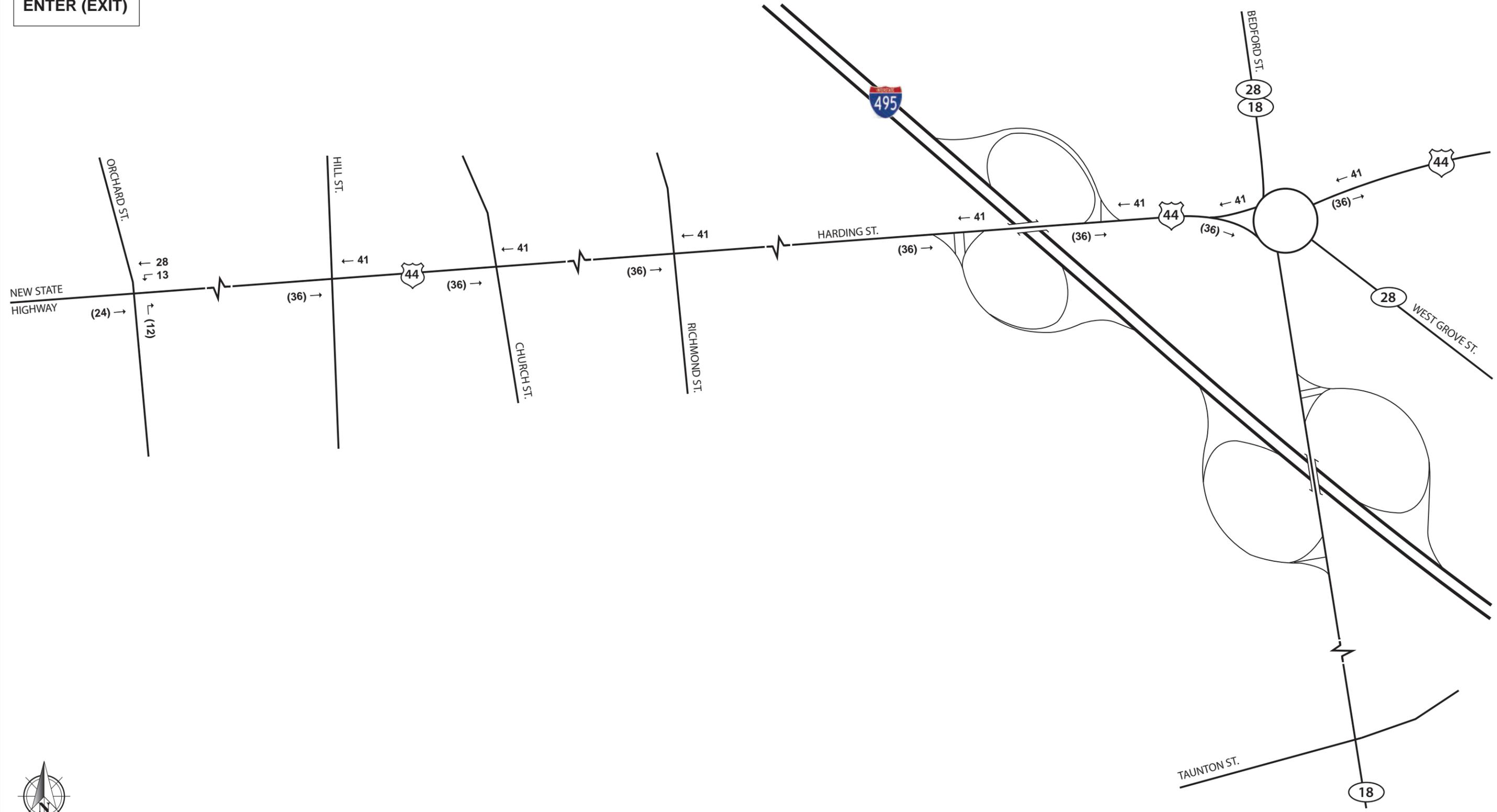


Not to scale.



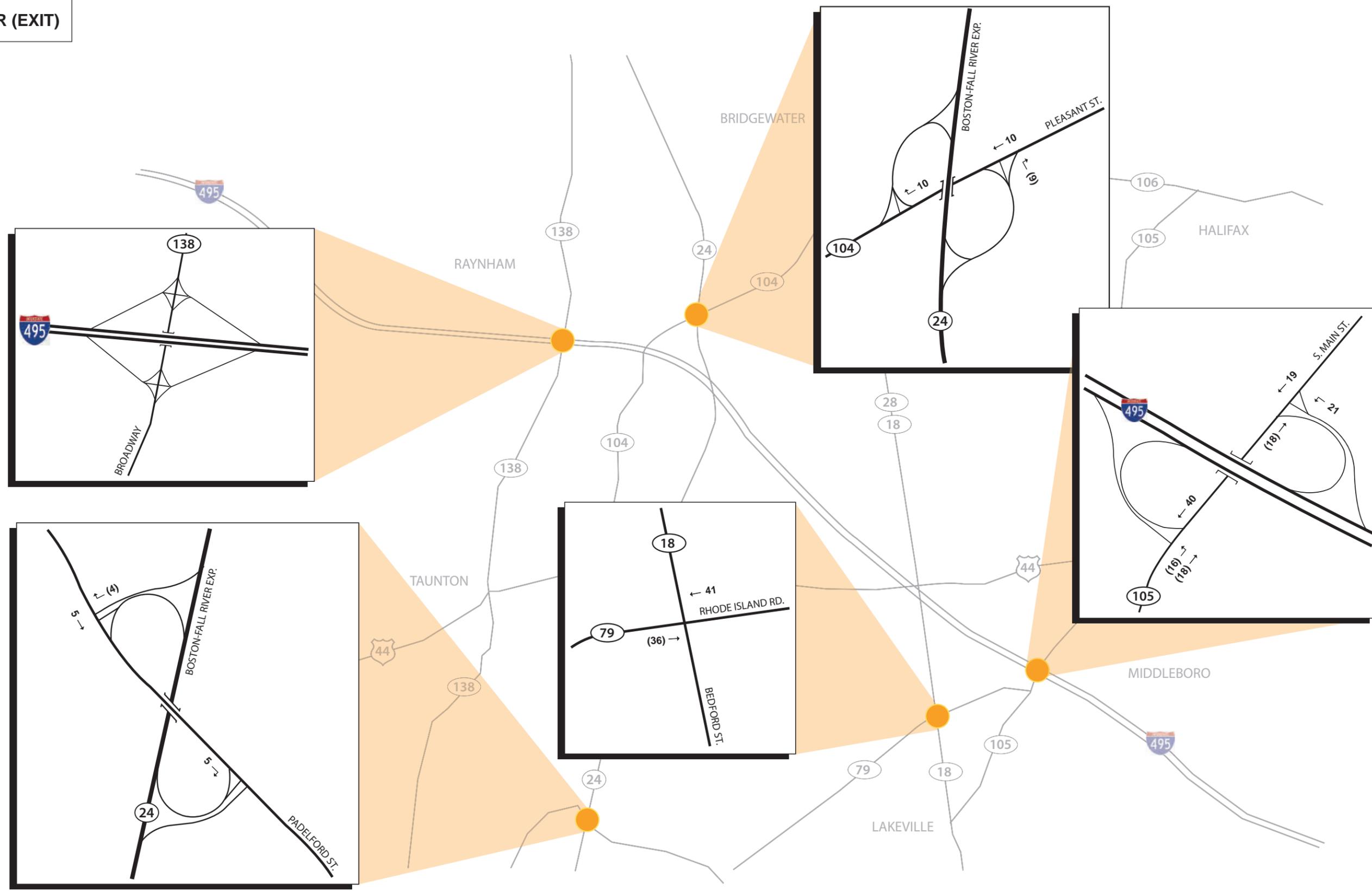
Not to scale.

ENTER (EXIT)

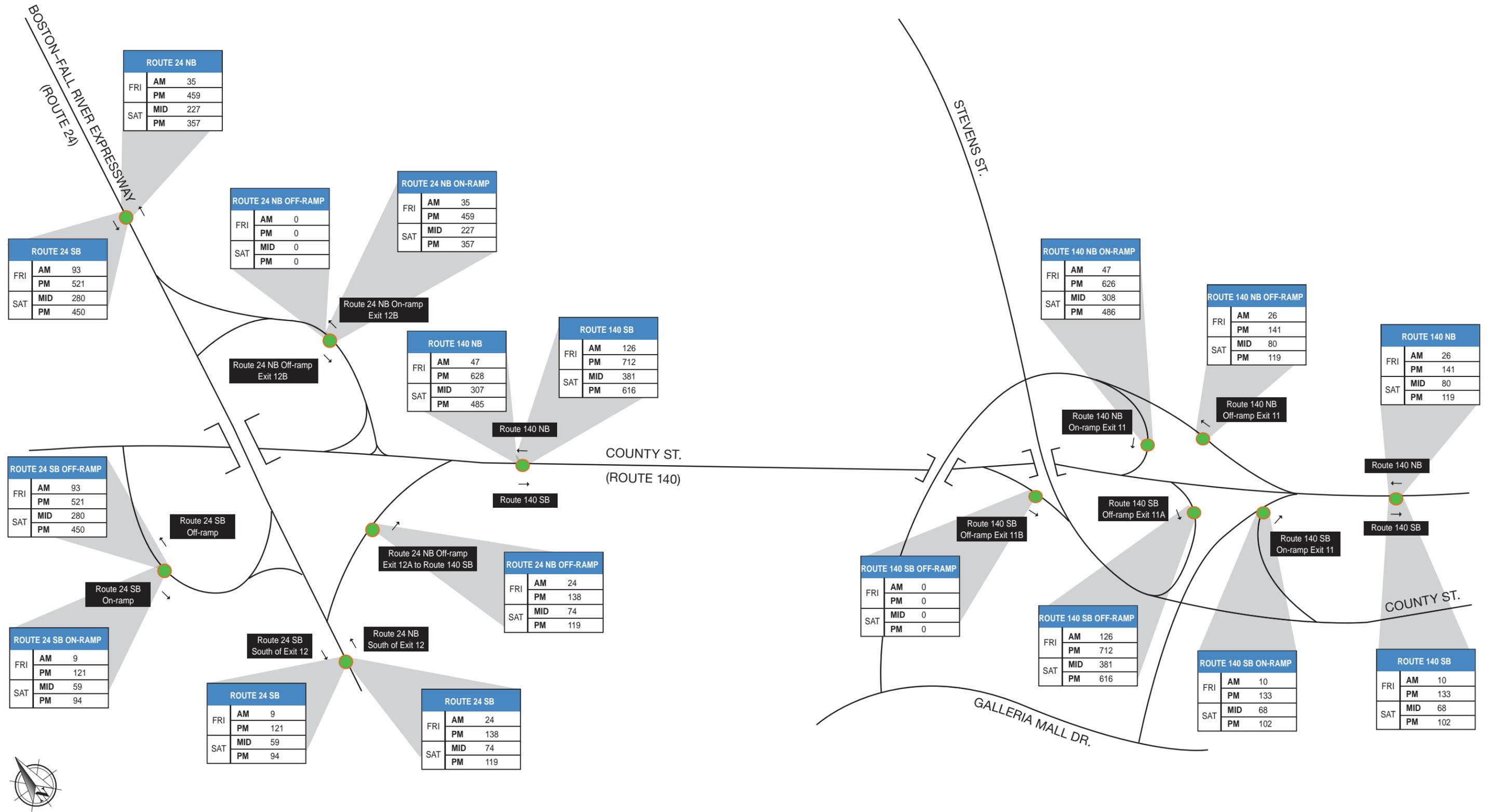


Not to scale.

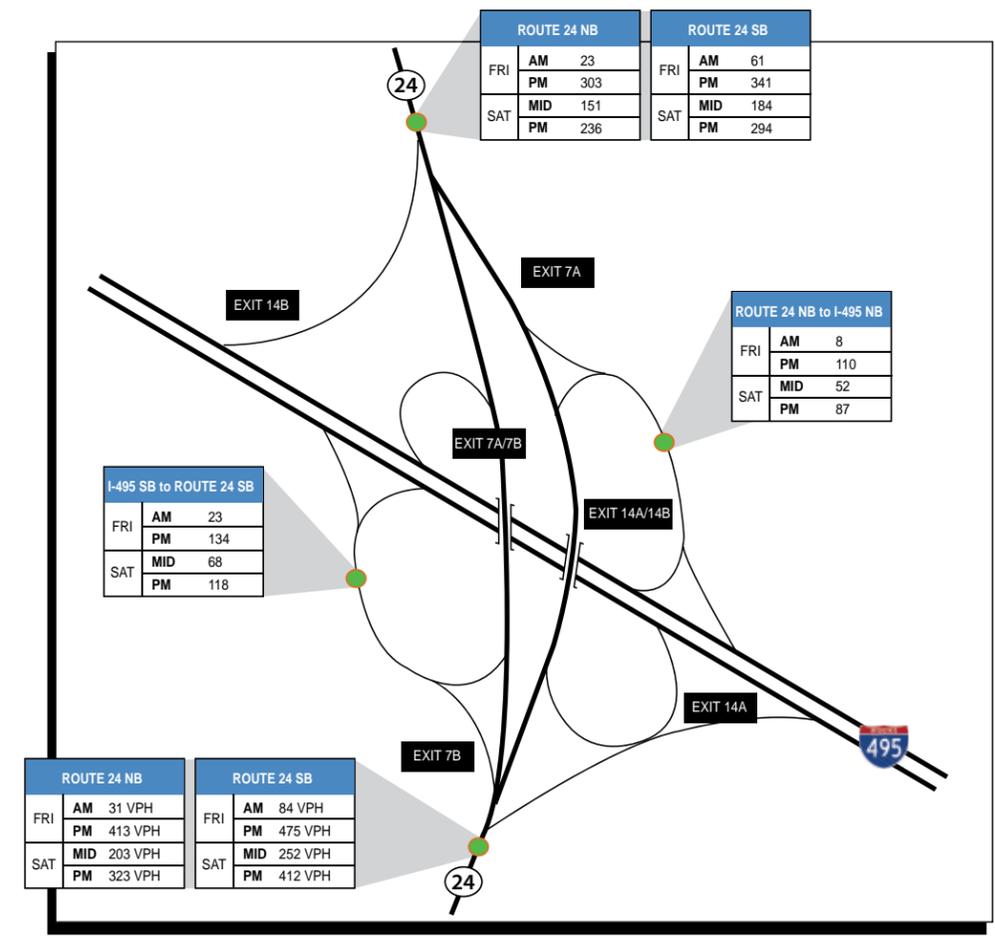
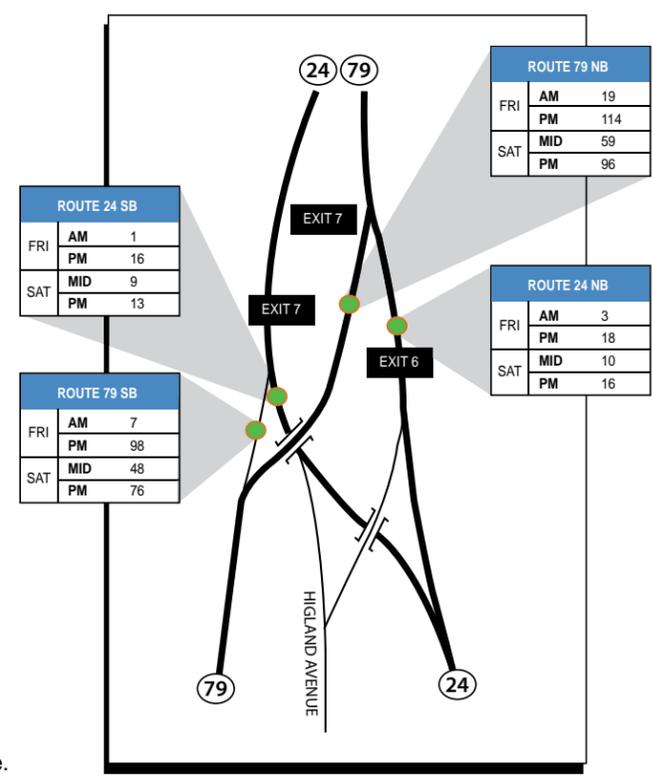
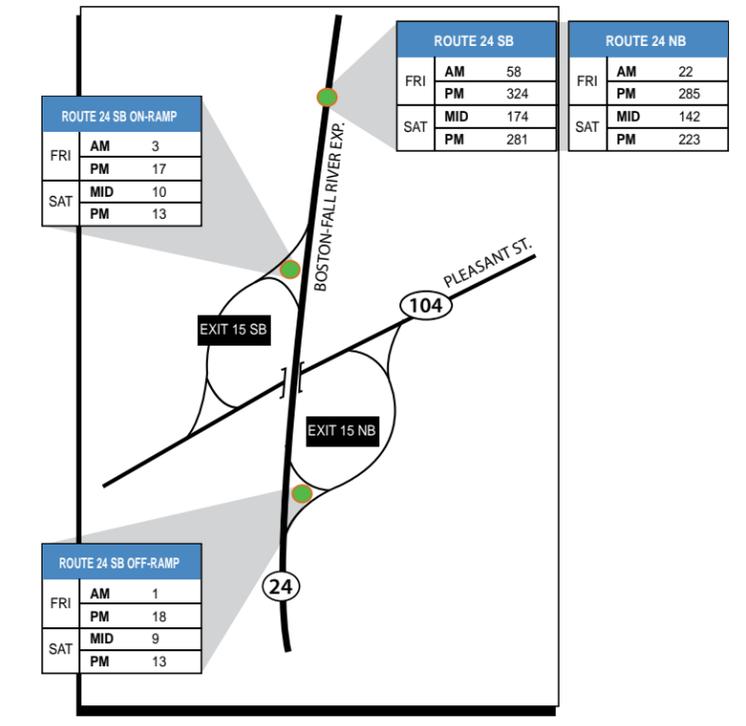
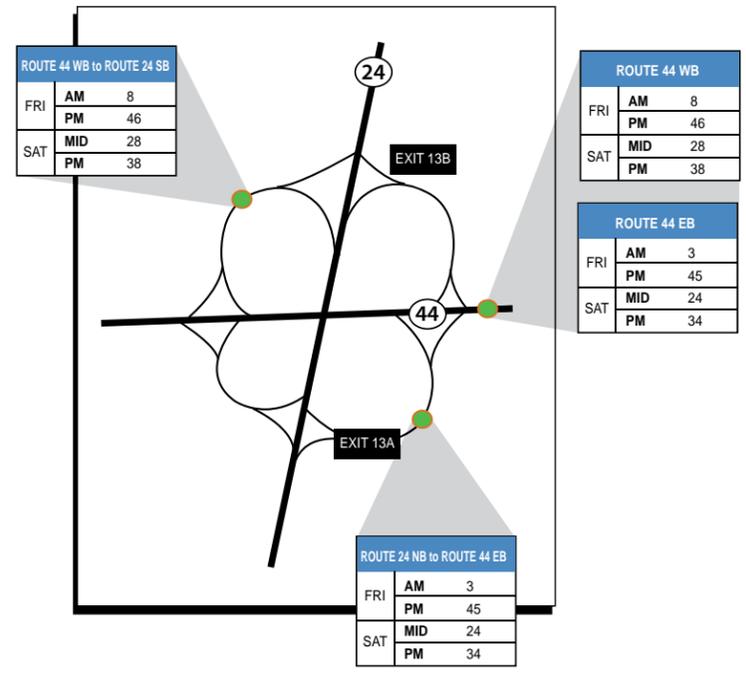
ENTER (EXIT)



Not to scale.



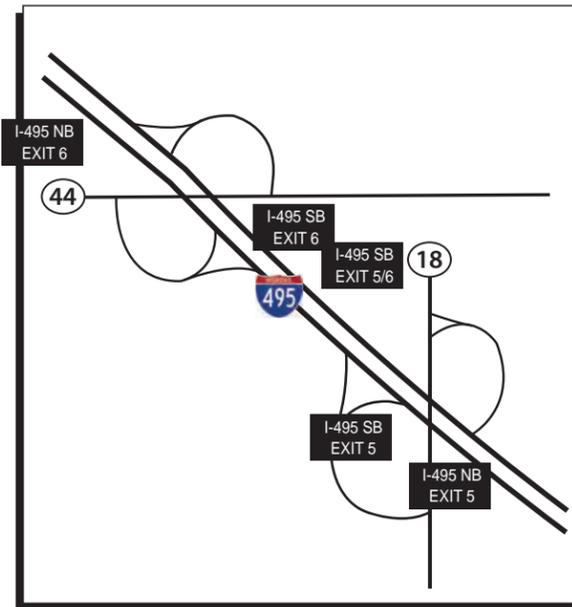
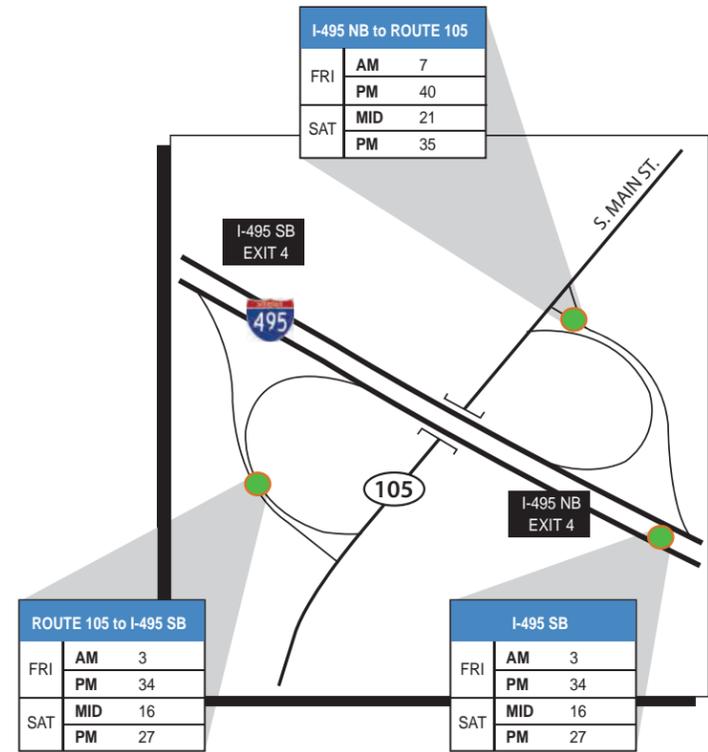
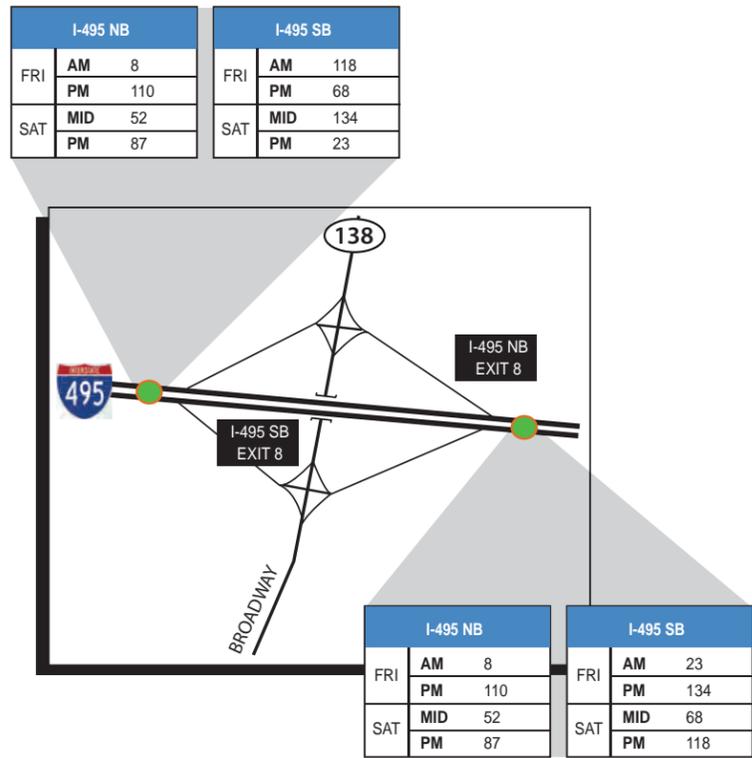
Not to scale.



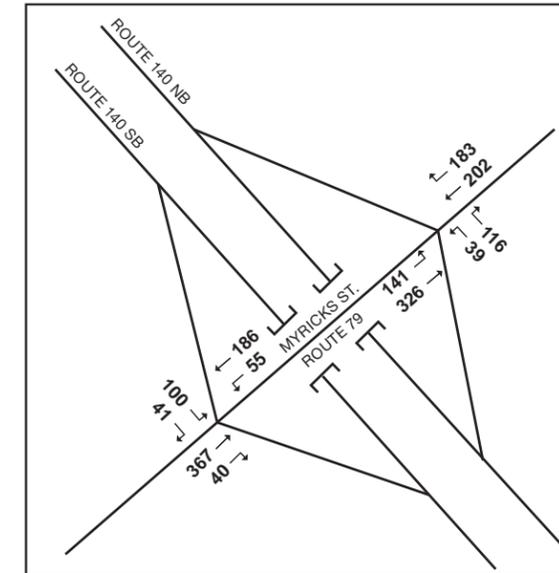
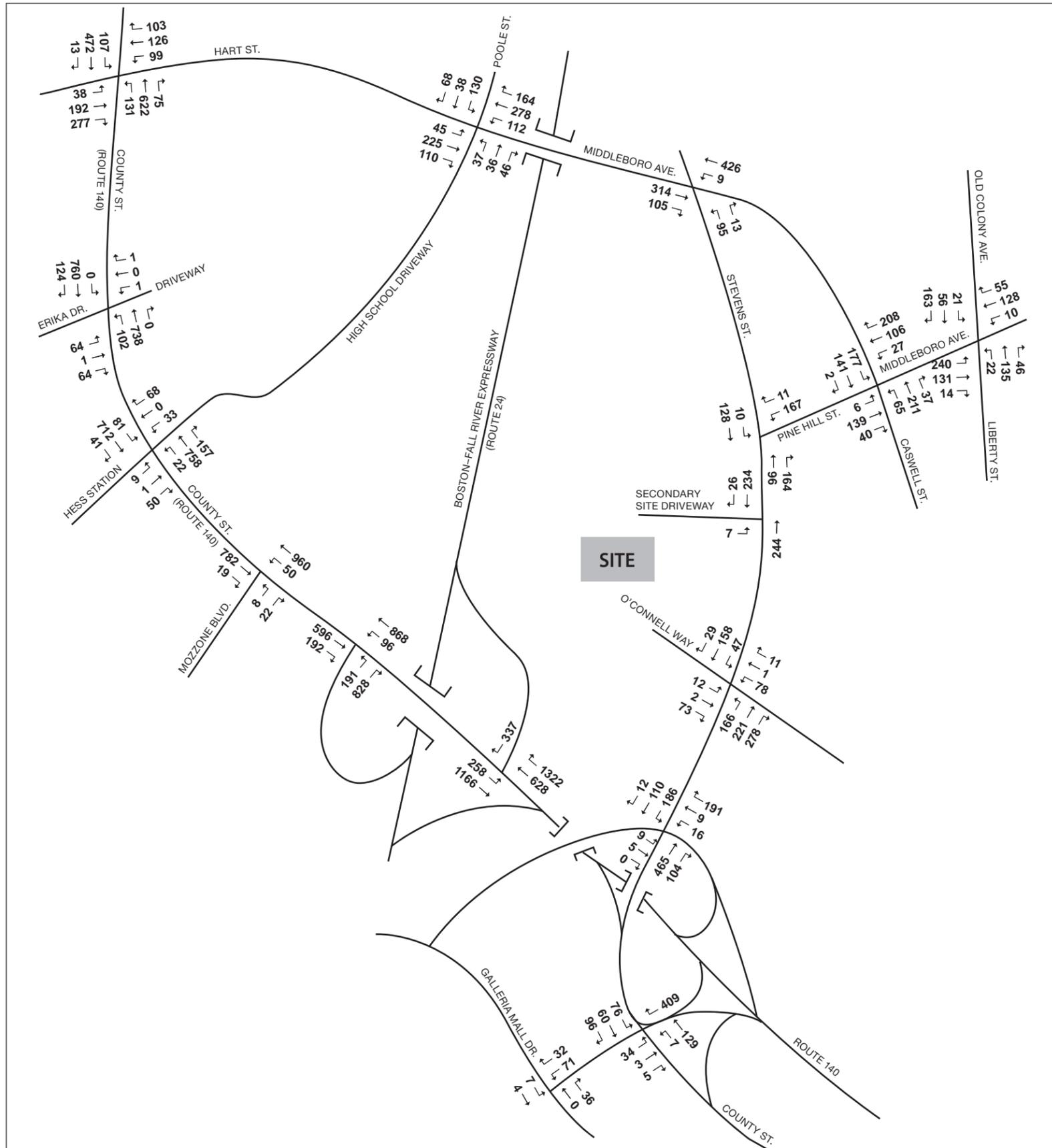
Not to scale.

SOURCE: Howard/Stein-Hudson Associates, Inc.

Figure 8.1-54
Project-Generated Trips Interchange Volume Data –
Route 24 Interchanges



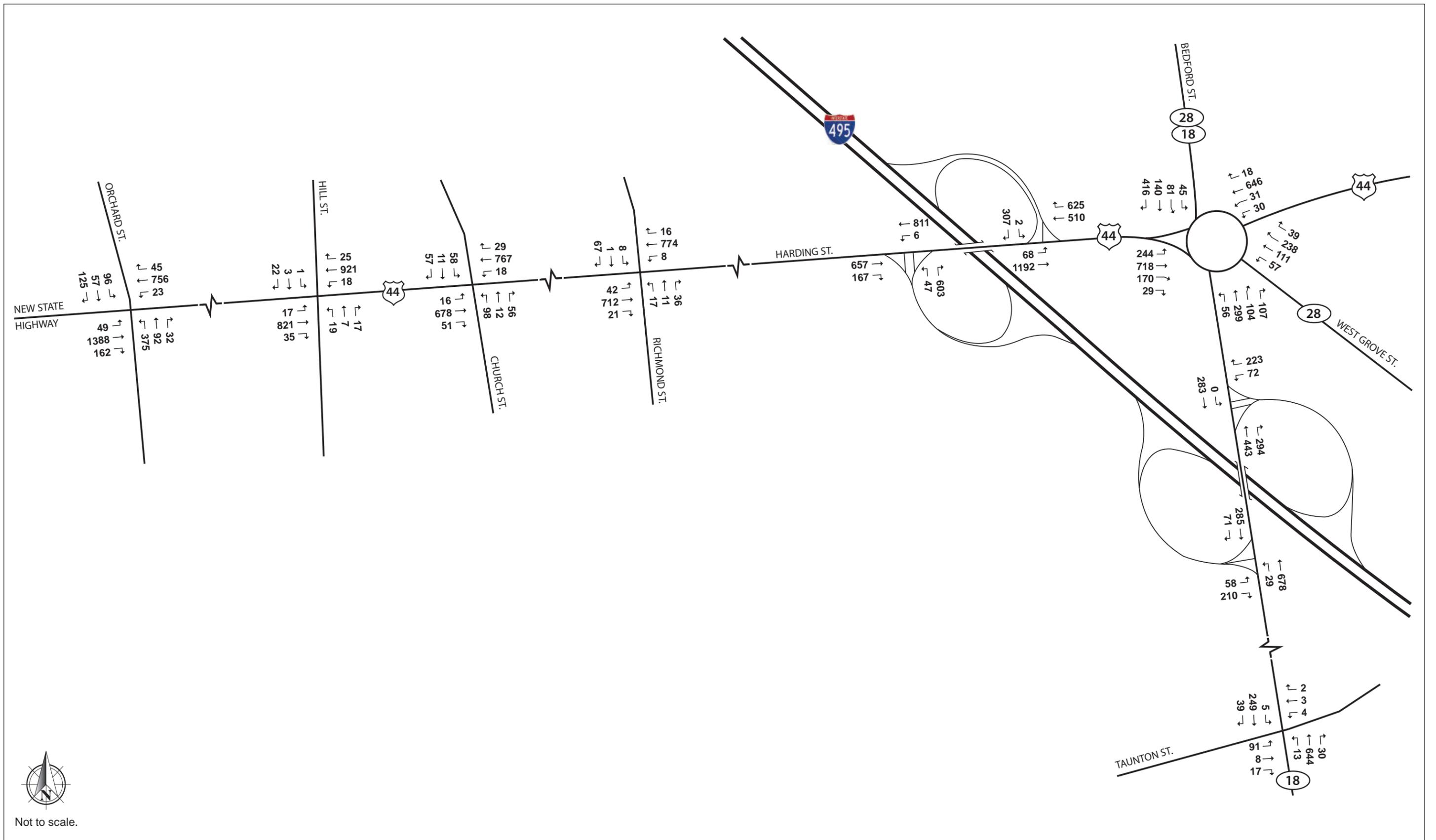
Not to scale.

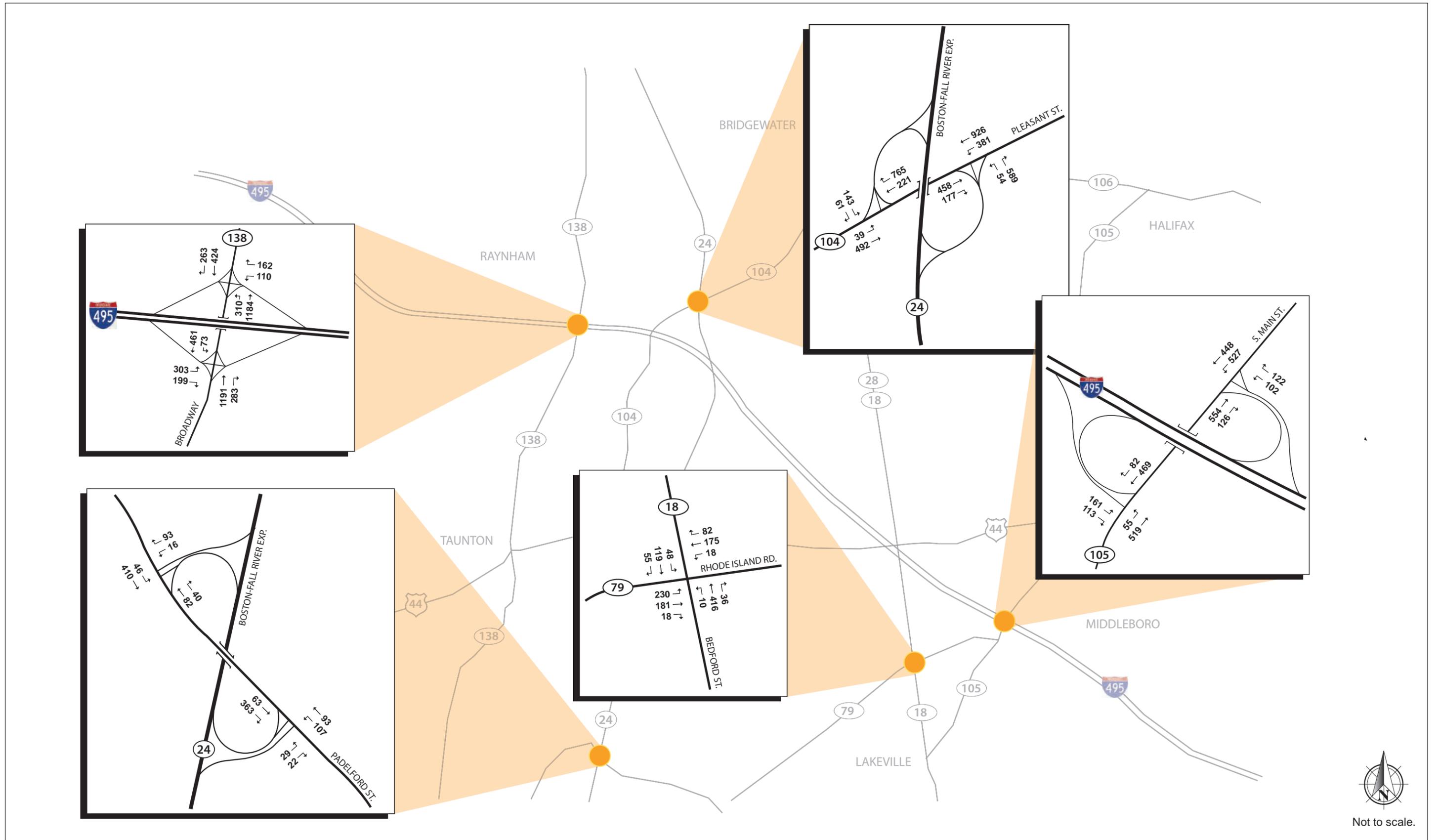


Not to scale.

SOURCE: Howard/Stein-Hudson Associates, Inc.

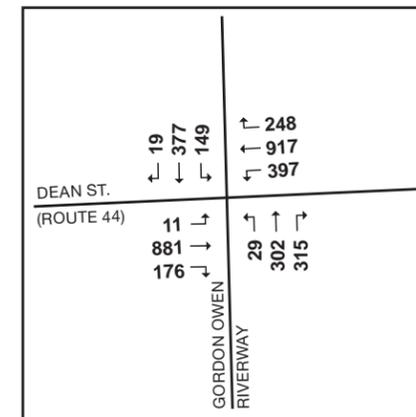
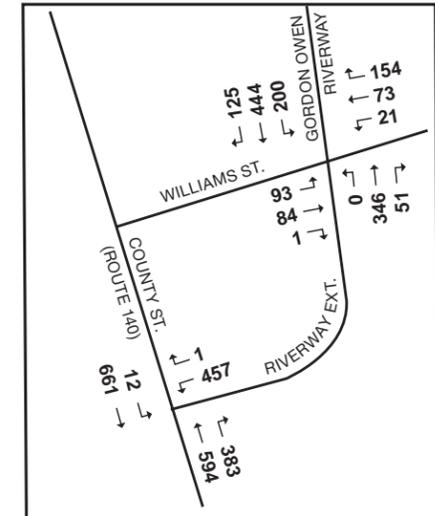
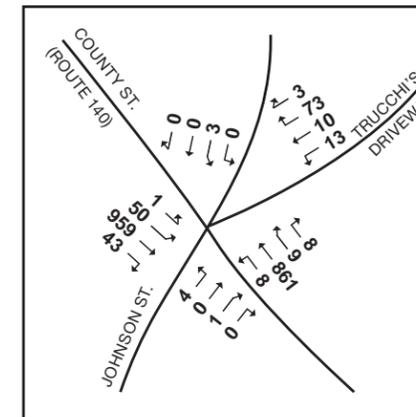
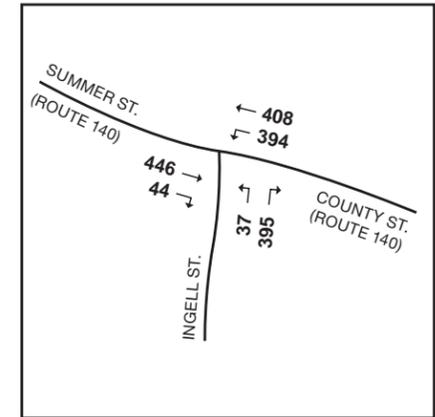
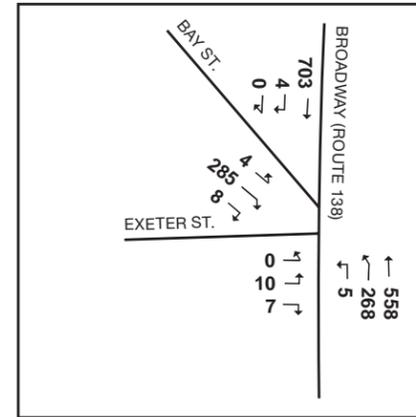
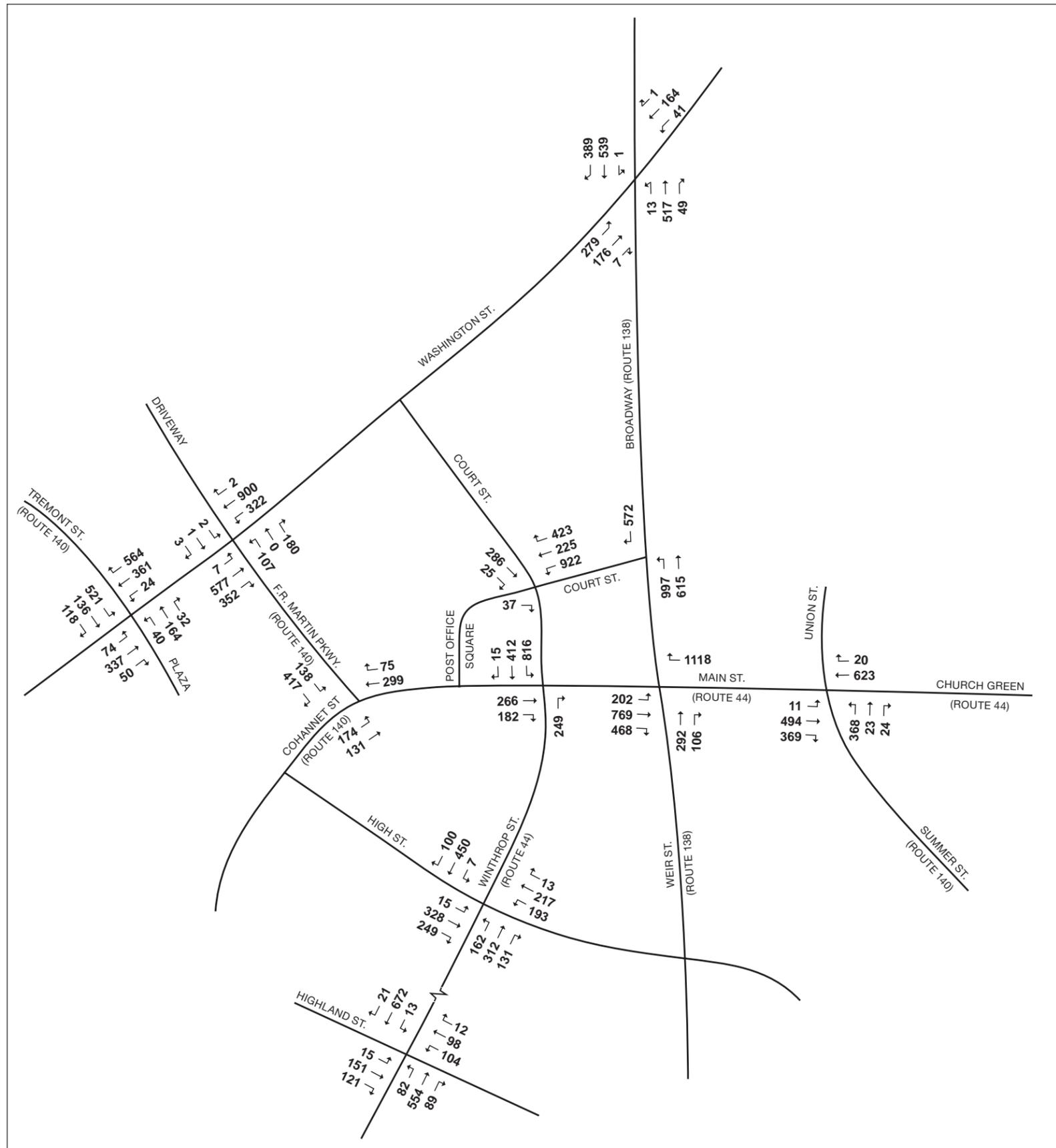
Mashpee Wampanoag Tribe – Fee to Trust Acquisition – Draft EIS ■
Figure 8.1-57
 Build Alternative A (2022) AM Peak Hour Volumes –
 East Taunton





SOURCE: Howard/Stein-Hudson Associates, Inc.

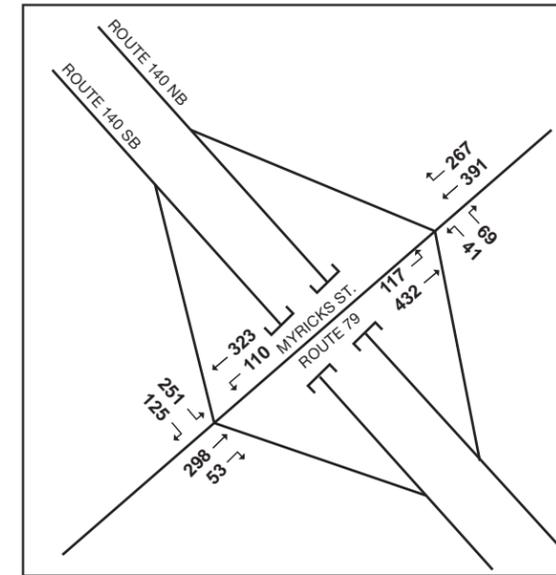
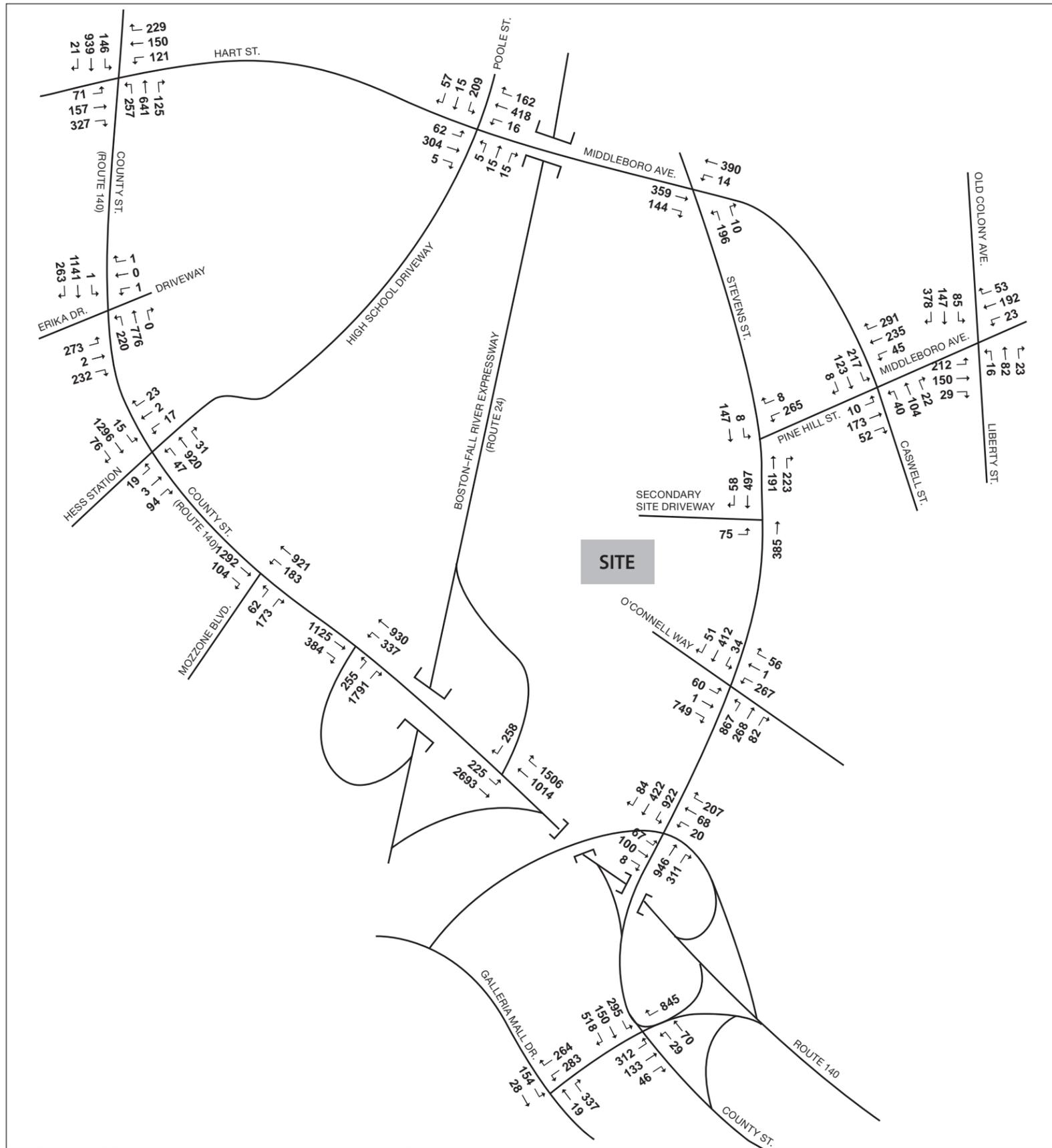
Mashpee Wampanoag Tribe – Fee to Trust Acquisition – Draft EIS ■
Figure 8.1-59
 Build Alternative A (2022) AM Peak Hour Volumes –
 Other Local Intersections



Not to scale.

SOURCE: Howard/Stein-Hudson Associates, Inc.

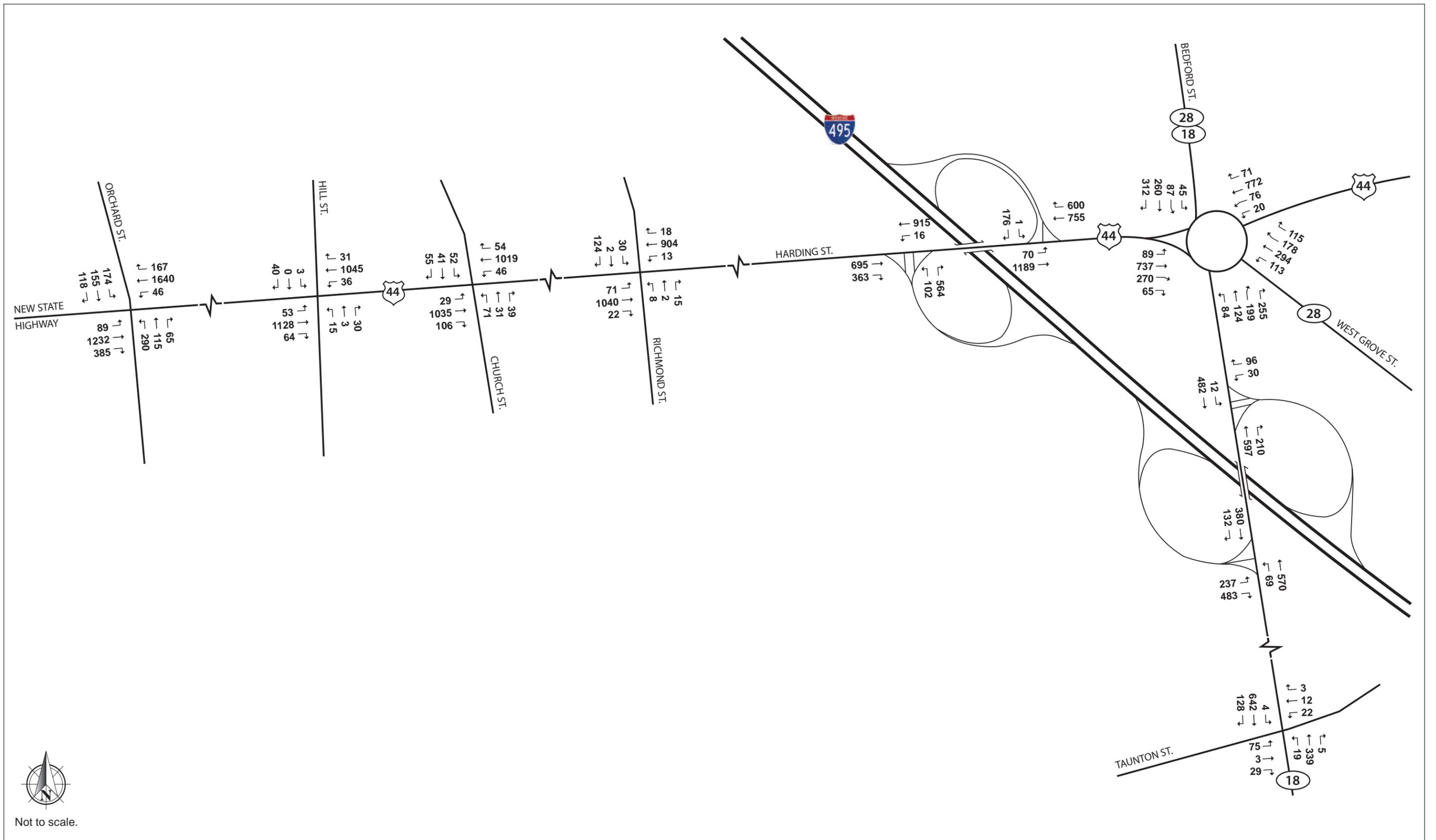
Mashpee Wampanoag Tribe – Fee to Trust Acquisition – Draft EIS ■
Figure 8.1-60
 Build Alternative A (2022) PM Peak Hour Volumes –
 West Taunton

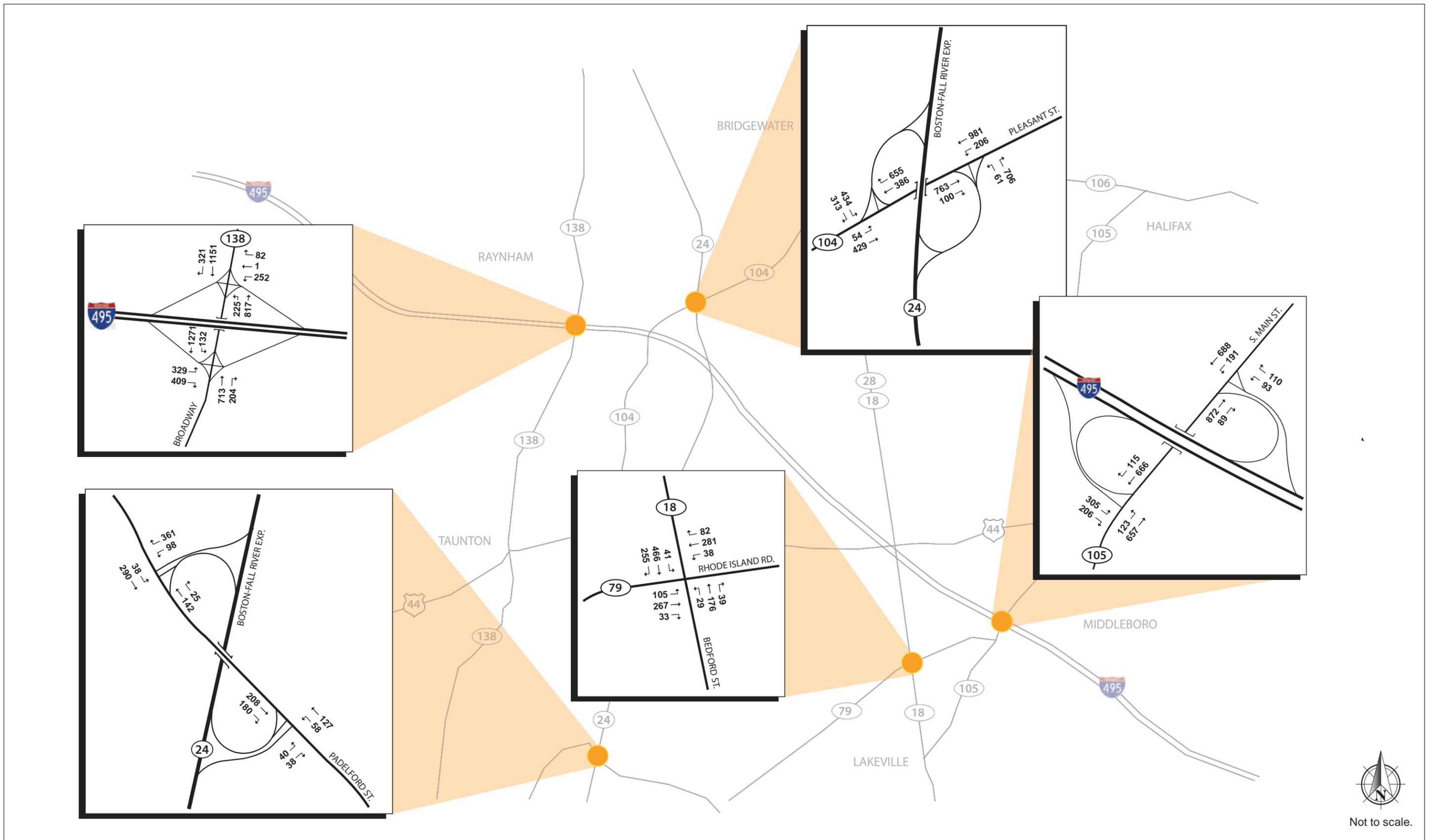


Not to scale.

SOURCE: Howard/Stein-Hudson Associates, Inc.

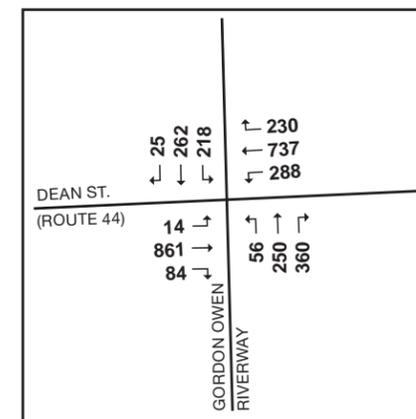
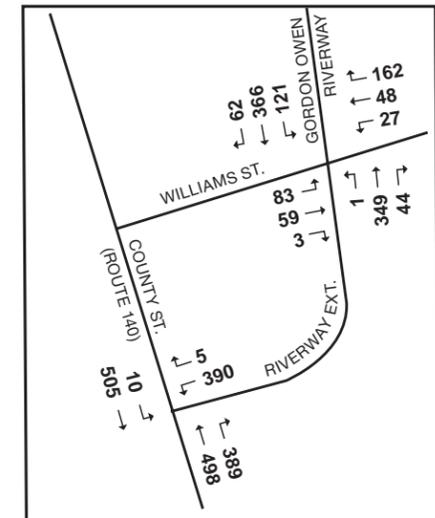
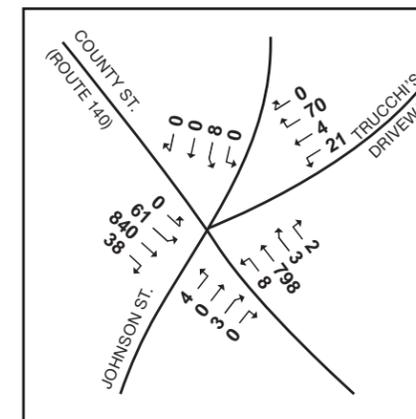
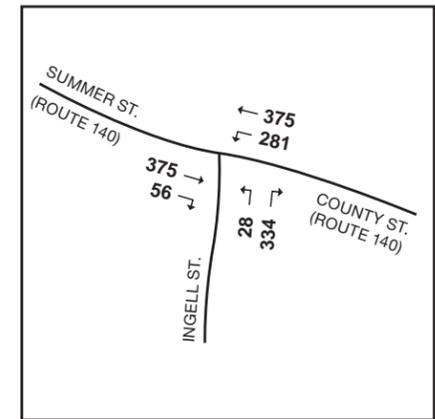
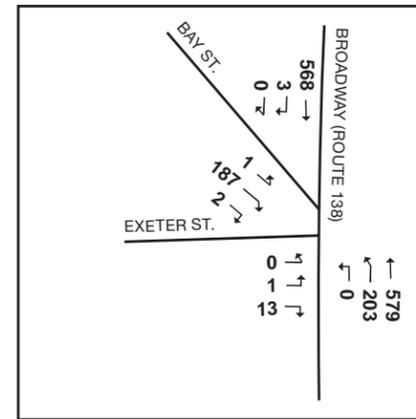
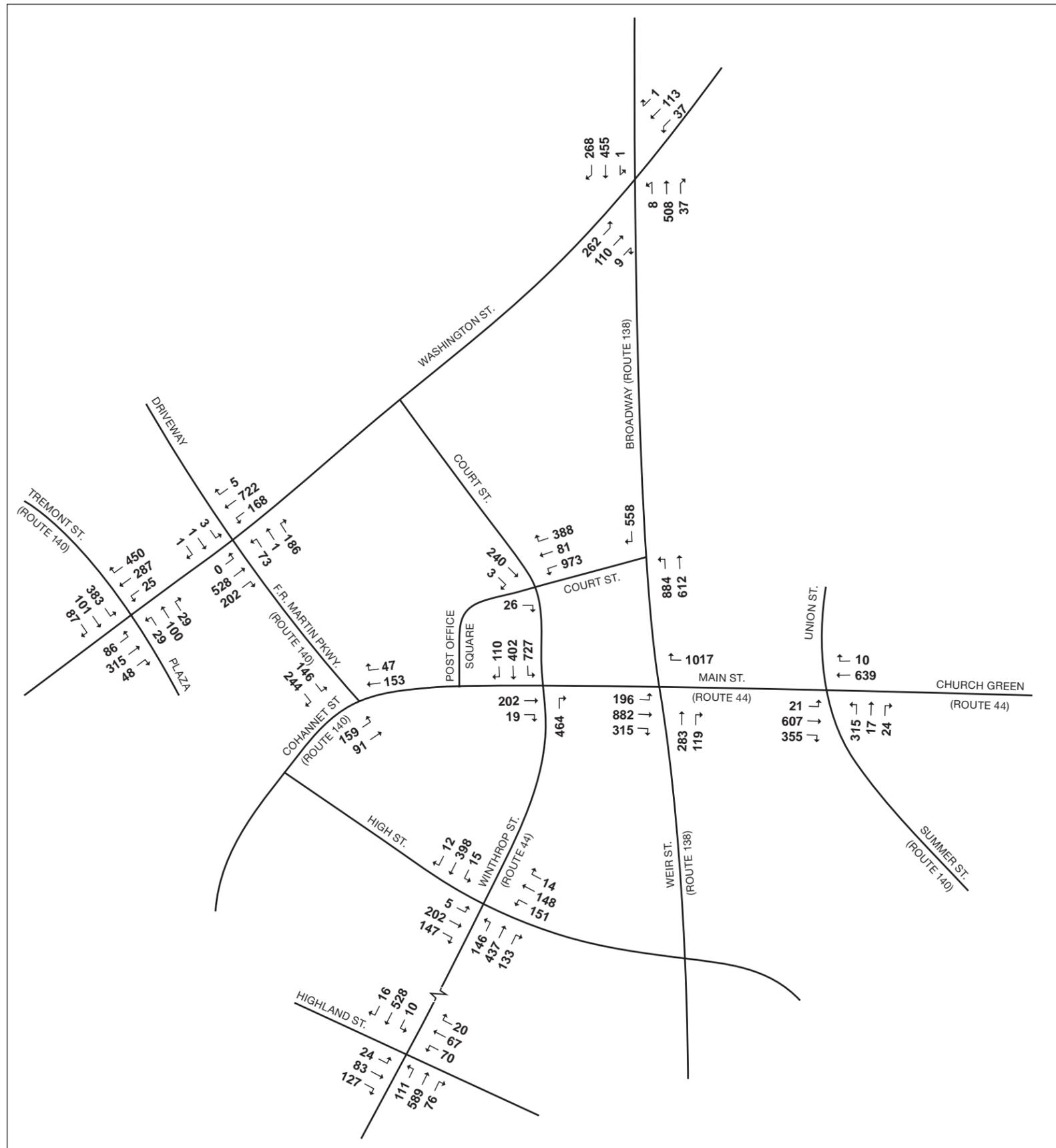
Mashpee Wampanoag Tribe – Fee to Trust Acquisition – Draft EIS ■
Figure 8.1-61
 Build Alternative A (2022) PM Peak Hour Volumes –
 East Taunton





SOURCE: Howard/Stein-Hudson Associates, Inc.

Mashpee Wampanoag Tribe – Fee to Trust Acquisition – Draft EIS ■
Figure 8.1-63
 Build Alternative A (2022) PM Peak Hour Volumes –
 Other Local Intersections

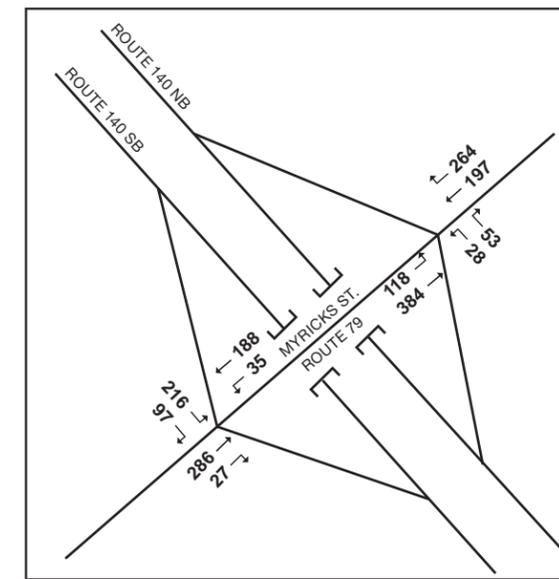
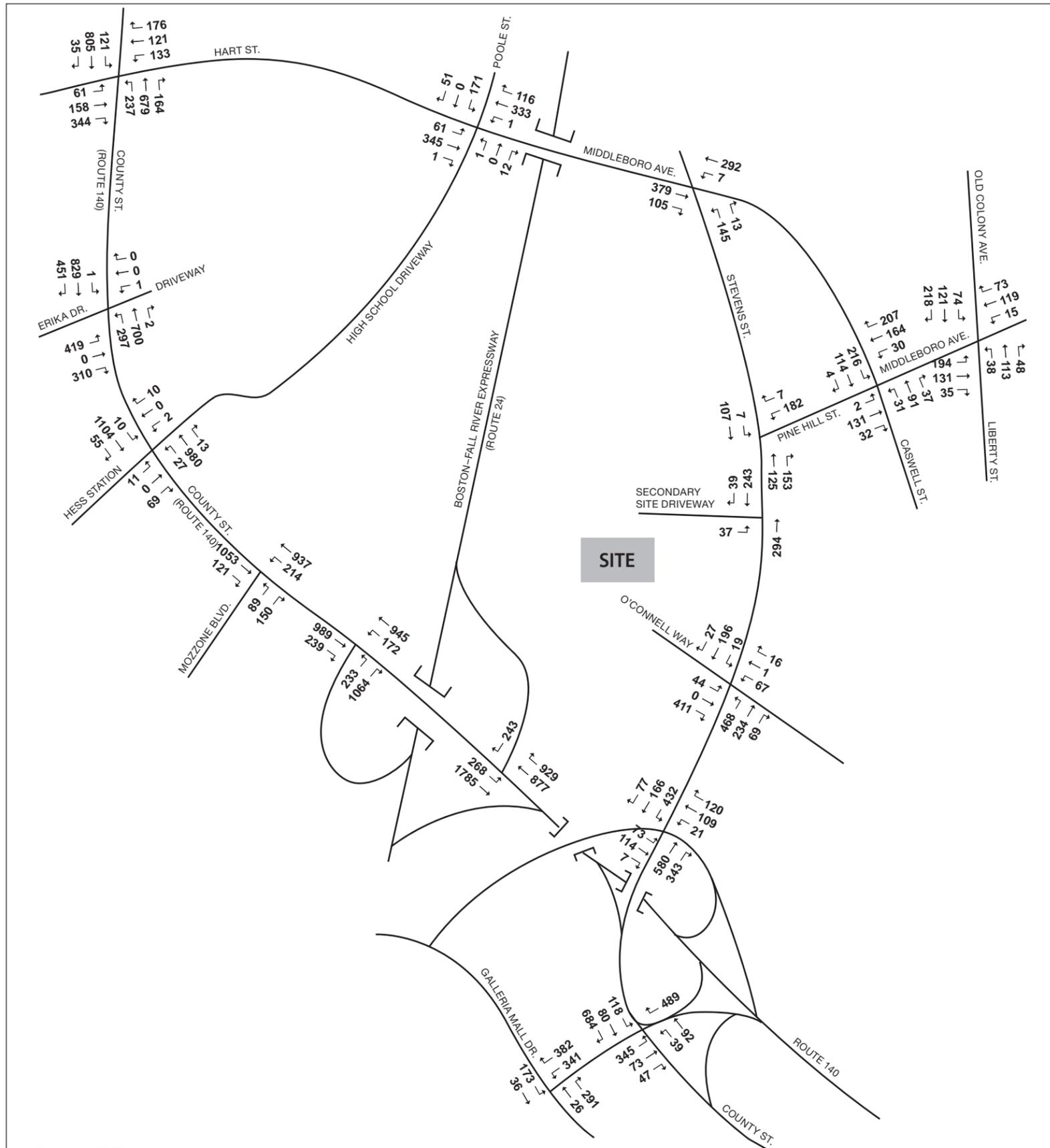


Not to scale.

SOURCE: Howard/Stein-Hudson Associates, Inc.

Mashpee Wampanoag Tribe – Fee to Trust Acquisition – Draft EIS ■

Figure 8.1-64
Build Alternative A (2022) Saturday Midday Peak Hour Volumes – West Taunton

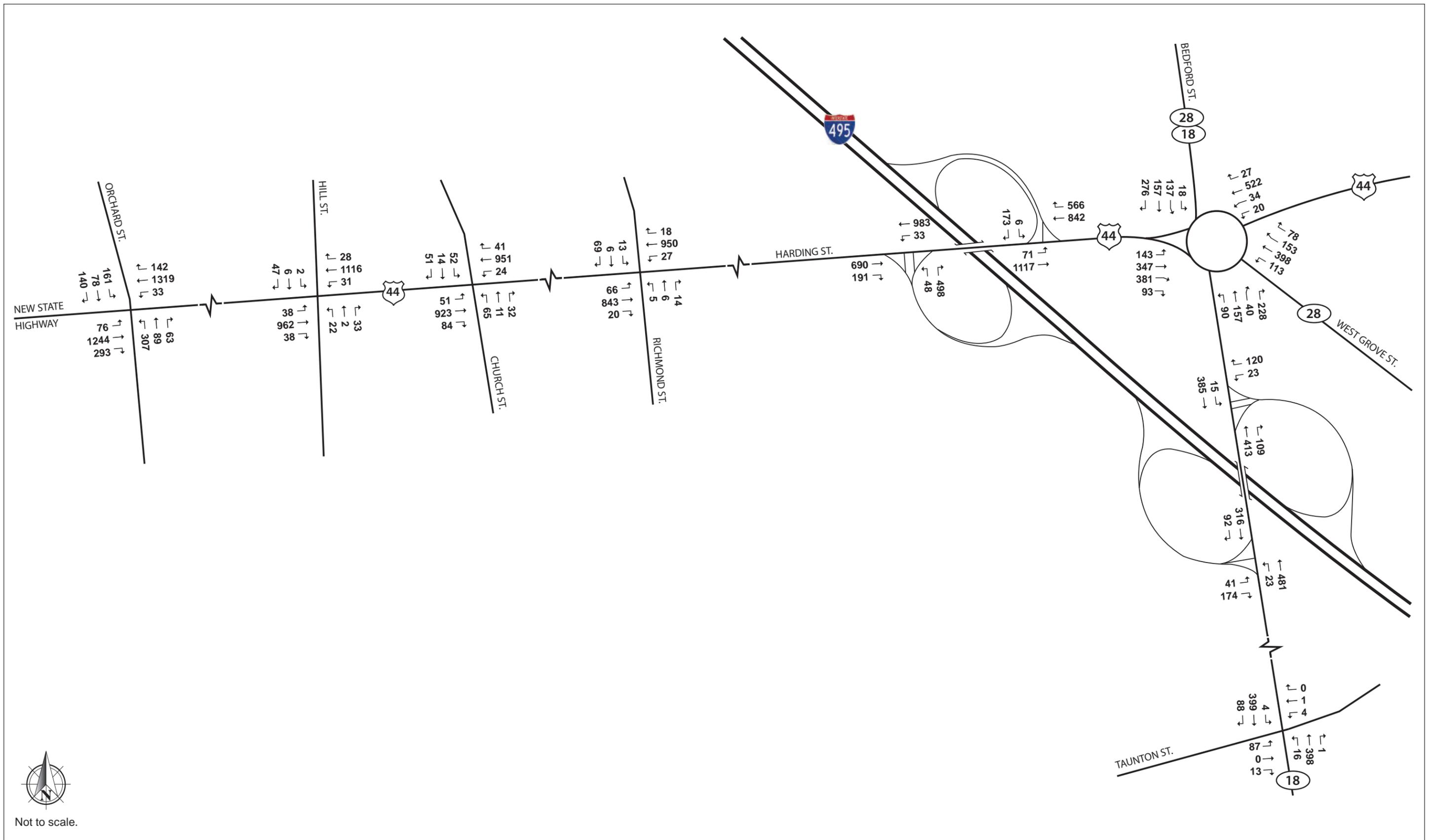


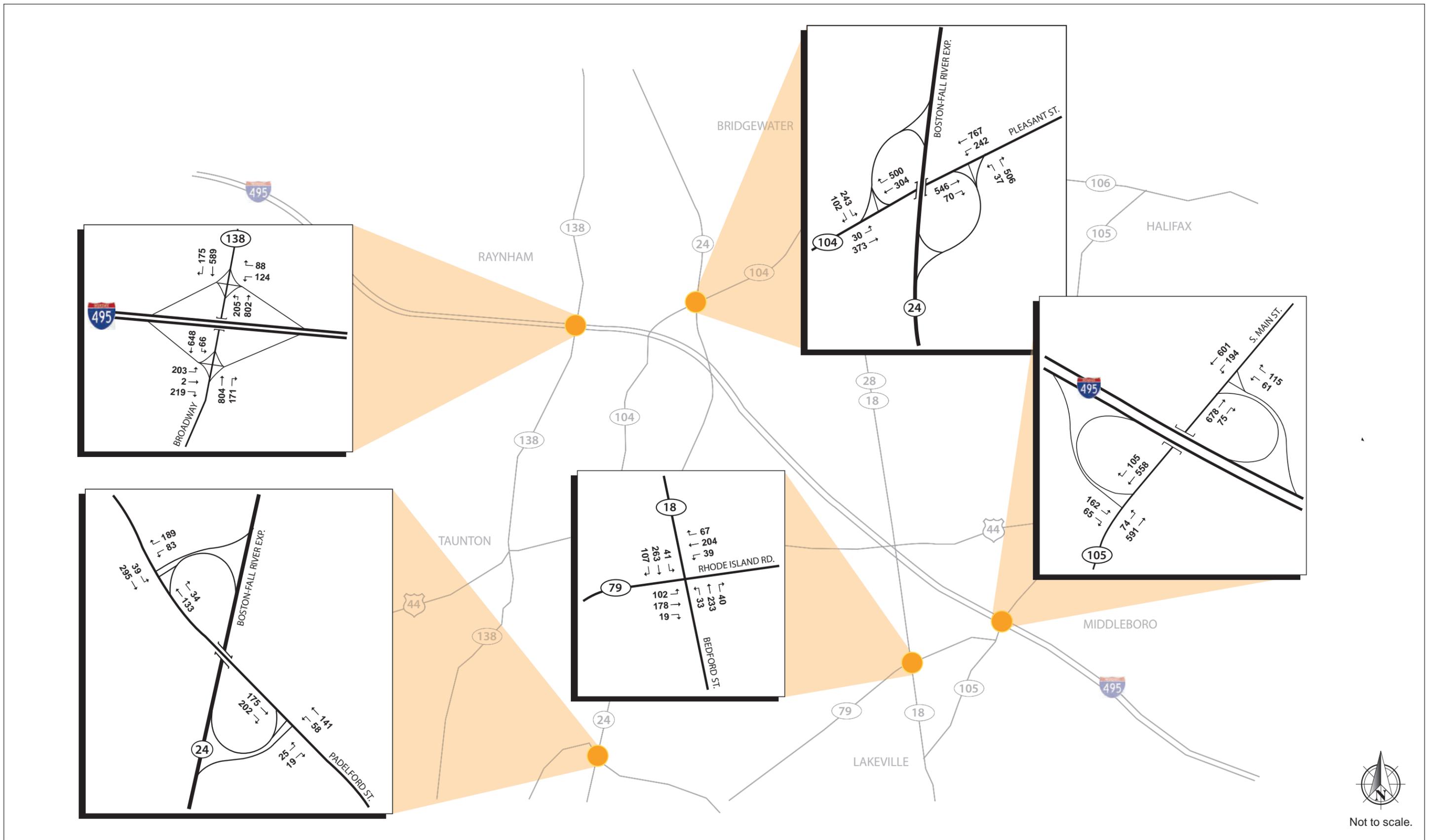
Not to scale.

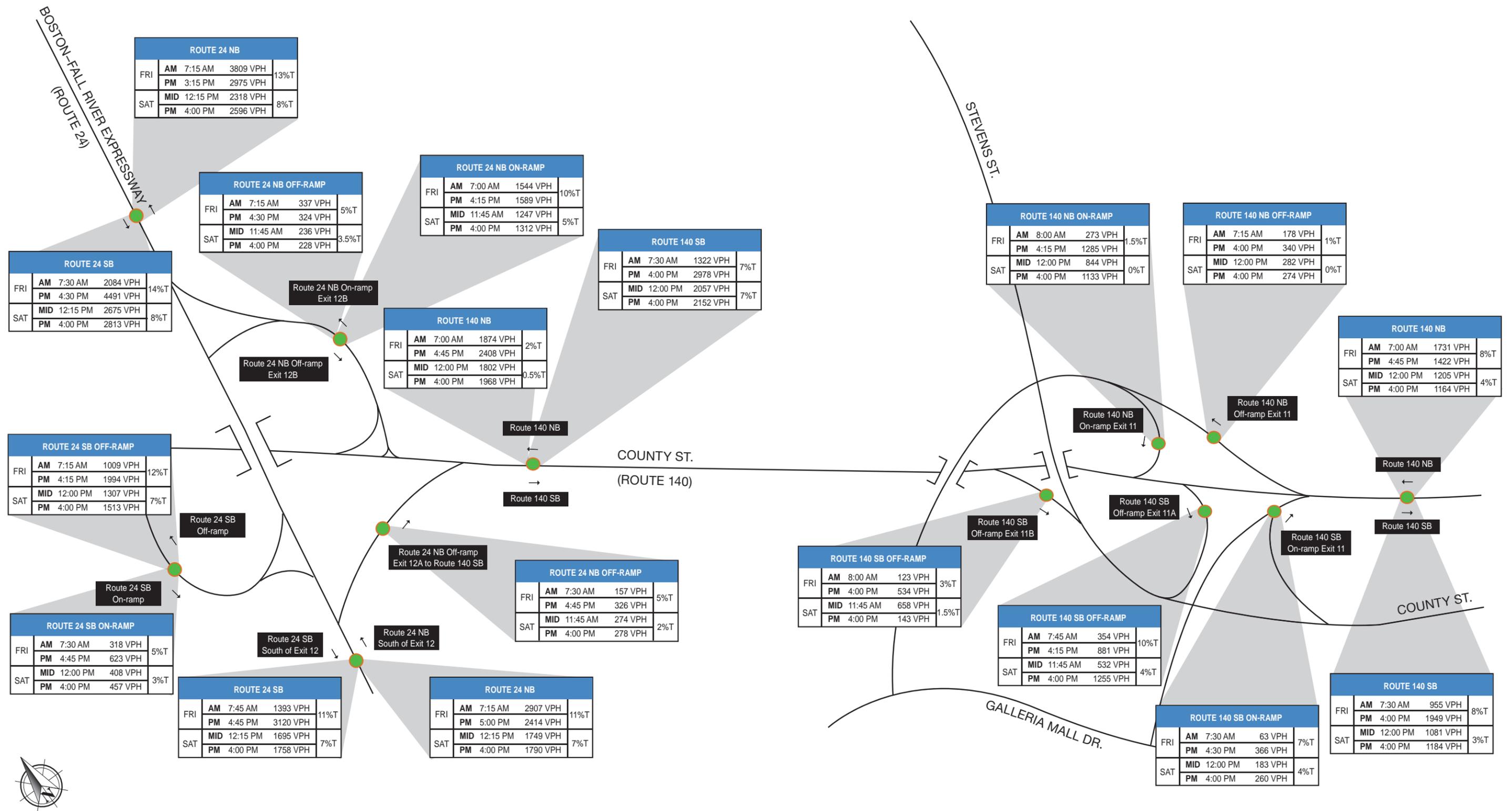
SOURCE: Howard/Stein-Hudson Associates, Inc.

Mashpee Wampanoag Tribe – Fee to Trust Acquisition – Draft EIS ■

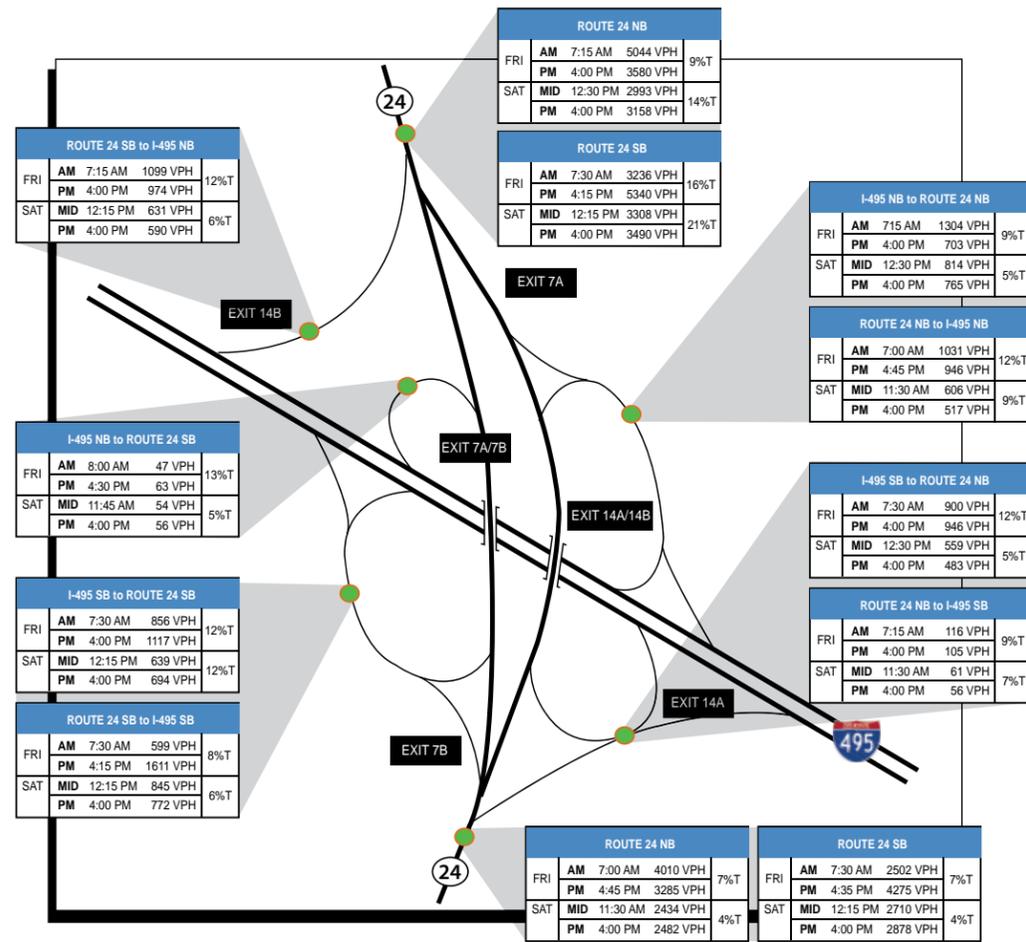
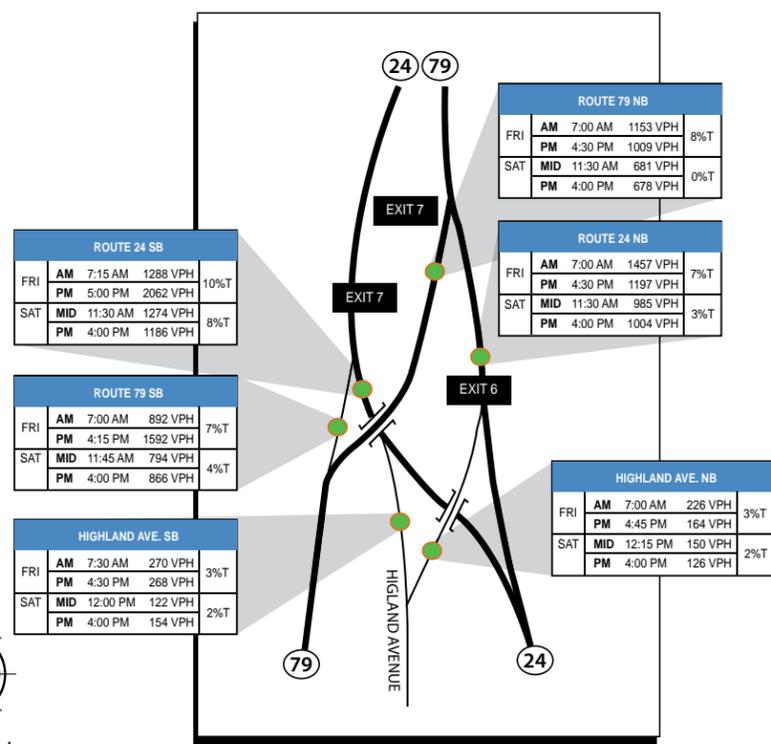
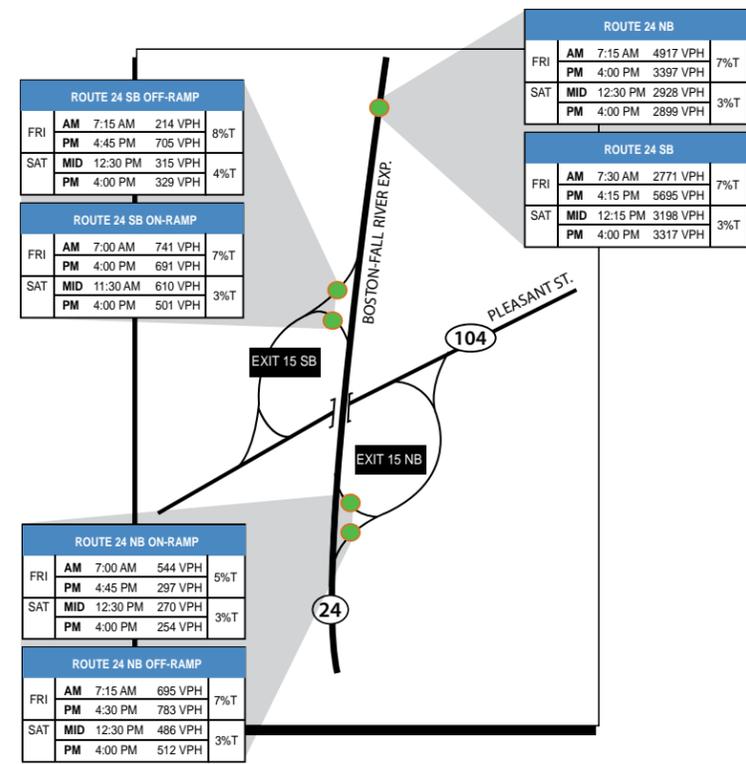
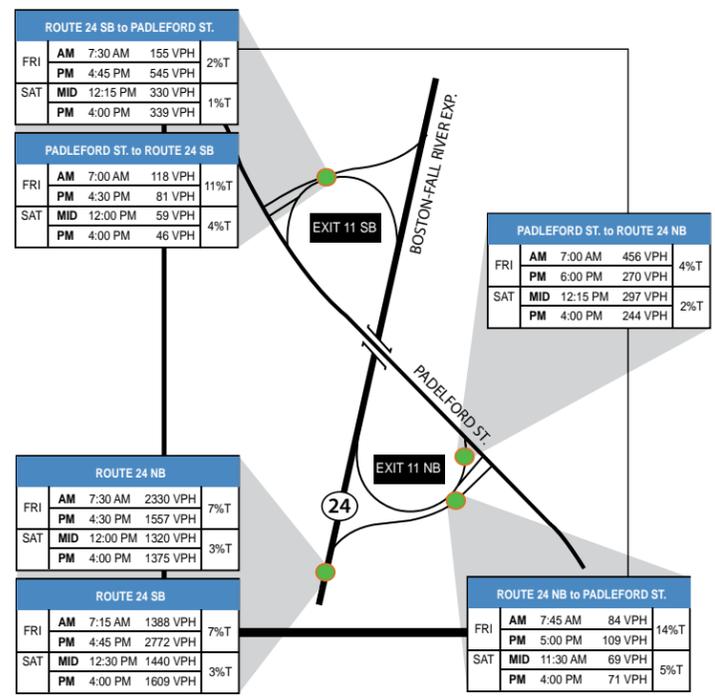
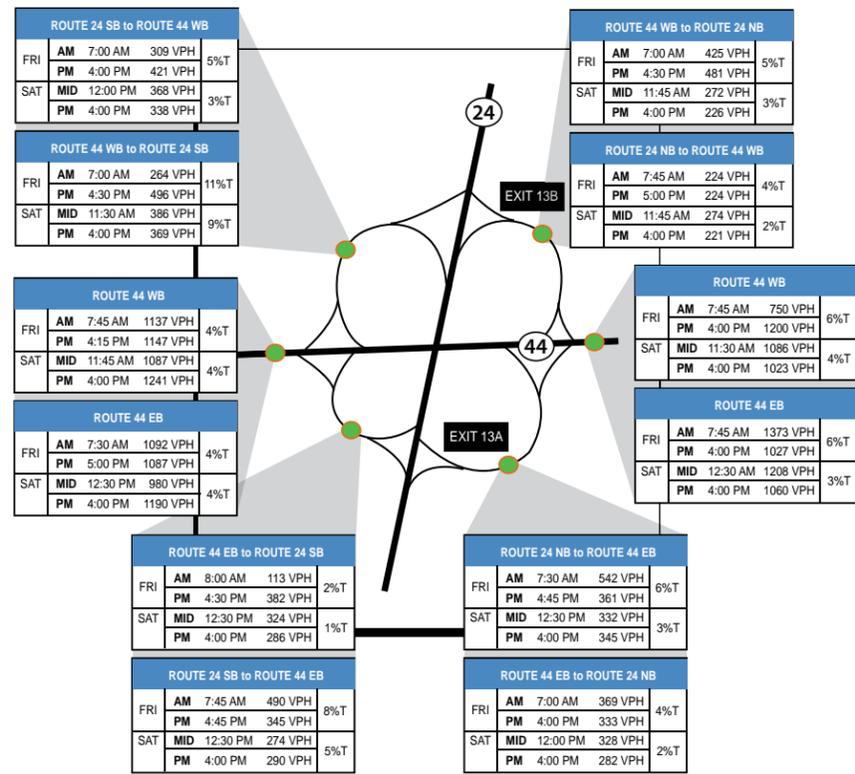
Figure 8.1-65
Build Alternative A (2022) Saturday Midday Peak Hour Volumes – East Taunton



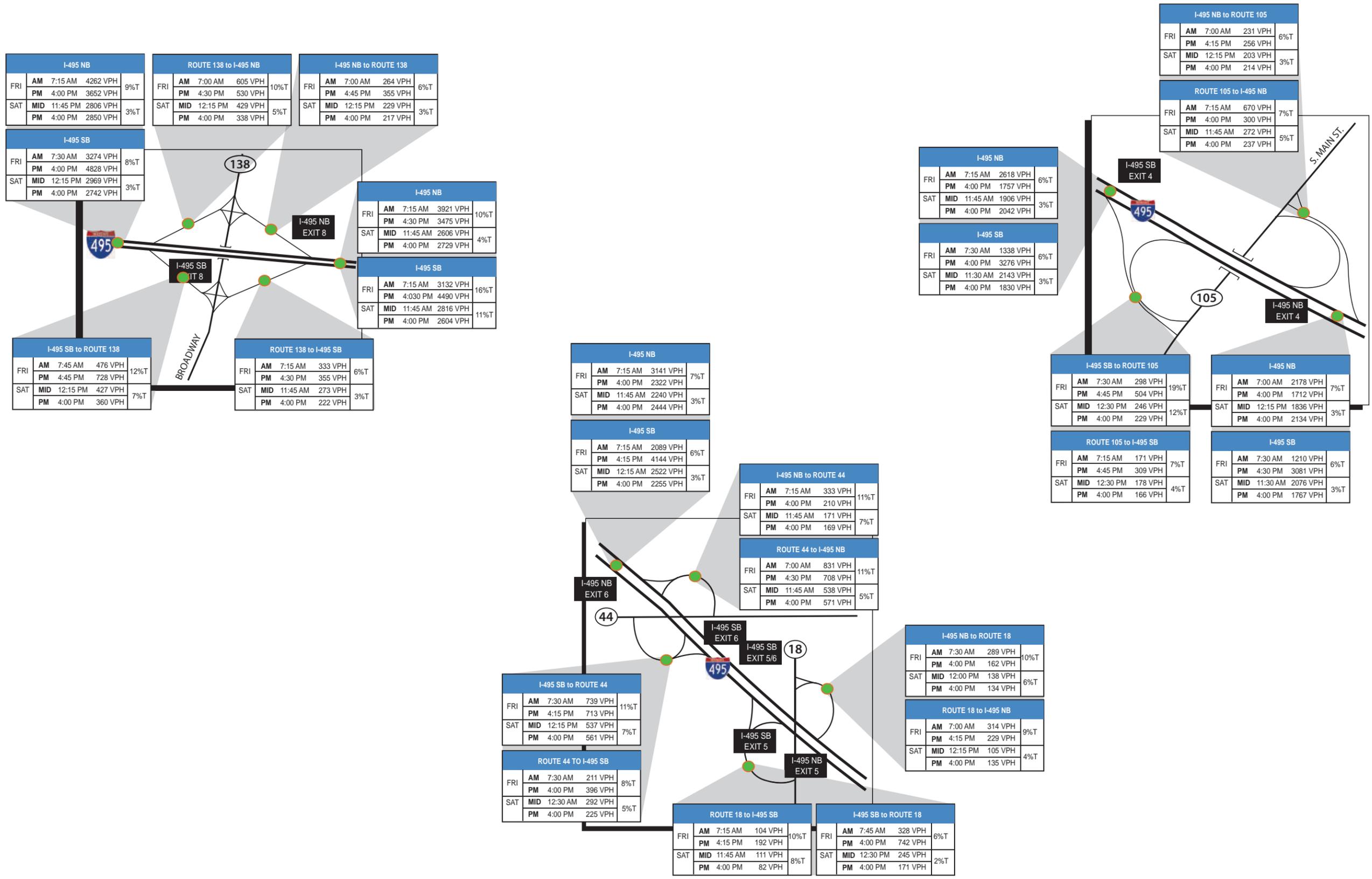




Not to scale.



Not to scale.



Not to scale.

Figure 8.1-71 through **Figure 8.1-74** show the Build Conditions intersection level of service summary for study area intersections during the AM peak hour, PM peak hour, and Saturday midday peak hour. Summary tables including the delay, v/c ratio, average queue length, and 95th percentile queue length are shown in Table 1, Table 2, and Table 3 of **Appendix B-3**. Detailed Synchro analyses for all conditions are also presented in **Appendix B-3**.

2022 Alternative A AM Peak Hour Intersection Operations

Under Build Conditions, there were no locations where the LOS worsens from Alternative D No-Action Conditions in the AM peak hour.

2022 Alternative A Friday PM Peak Hour Intersection Operations

During the evening peak hour, the overall LOS at *Overpass Connector/Route 140 NB Ramps/Stevens Street* worsens from LOS B under Alternative D No-Action Conditions to LOS F under Build Conditions. The Stevens Street southbound left-turn movement worsens from LOS B to LOS F.

At *Route 24 SB Ramp/County Street*, the overall LOS worsens from LOS E to LOS F. The Route 140 northbound left-turns worsen from LOS D to LOS F. At *Hart Street/County Street*, the Hart Street westbound left-turn/through movement worsens from LOS E to LOS F. The Route 140 southbound left-turn movement worsens from LOS D to LOS E.

At *County Street/Gordon M. Owen Riverway Extension*, the Riverway southbound approach worsens from LOS D to LOS E. At *Dean Street/Longmeadow Road/Gordon Owen Parkway*, the overall LOS worsens from LOS D to LOS E.

At *Winthrop Street /Highland Street*, the Winthrop Street westbound thru/right approach worsens from LOS E to LOS F.

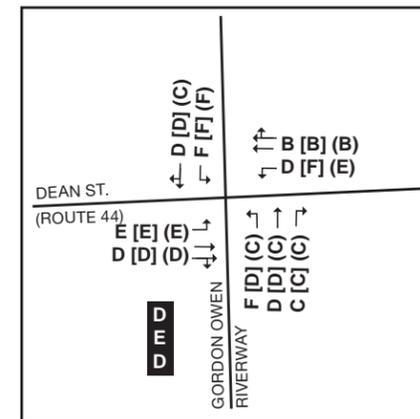
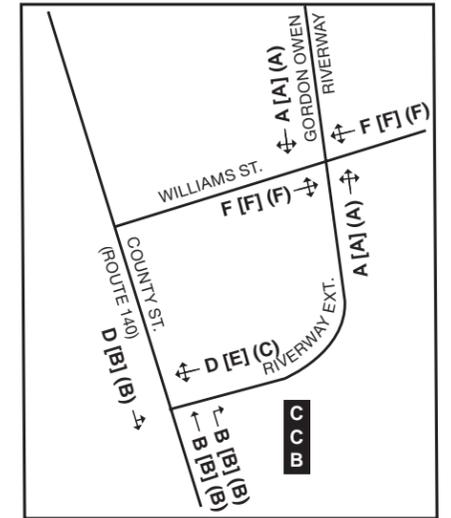
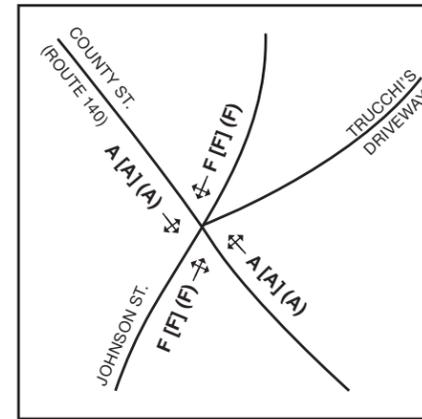
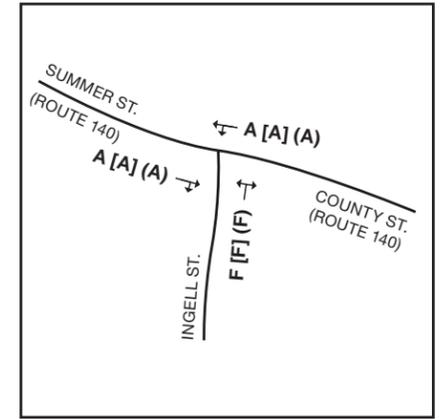
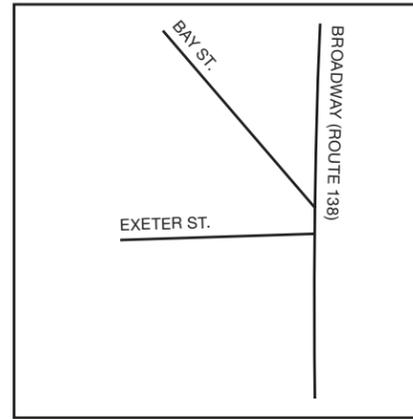
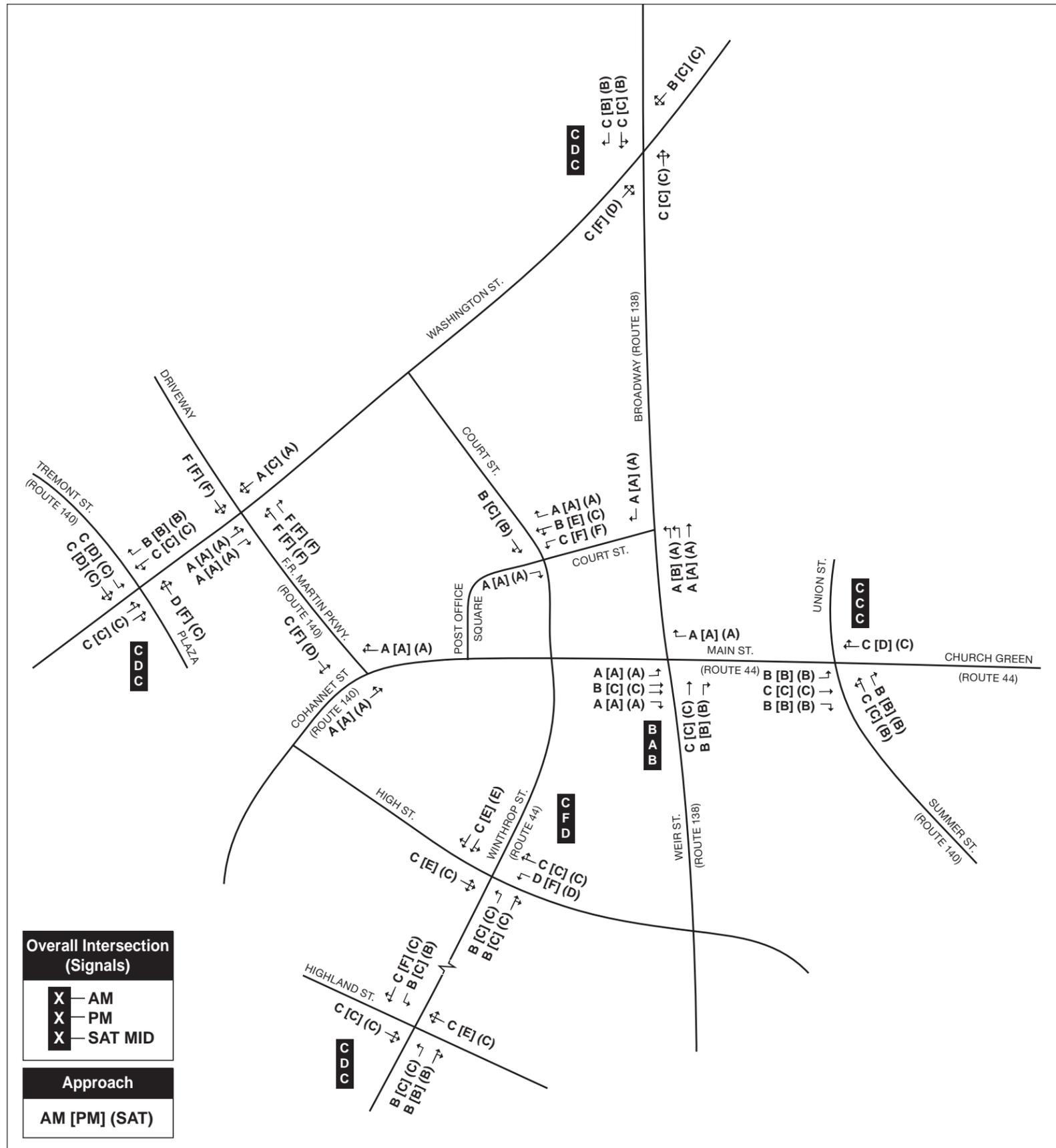
At *Bedford Street/Rhode Island Road*, the Bedford Street southbound approach worsens from a LOS E to LOS F. At *O'Connell Way/Stevens Street*, the Stevens Street northbound left/through movement worsens from LOS A to LOS E.

At *Cape Highway/Hill Street*, the Hill Street southbound approach worsens from LOS E to LOS F.

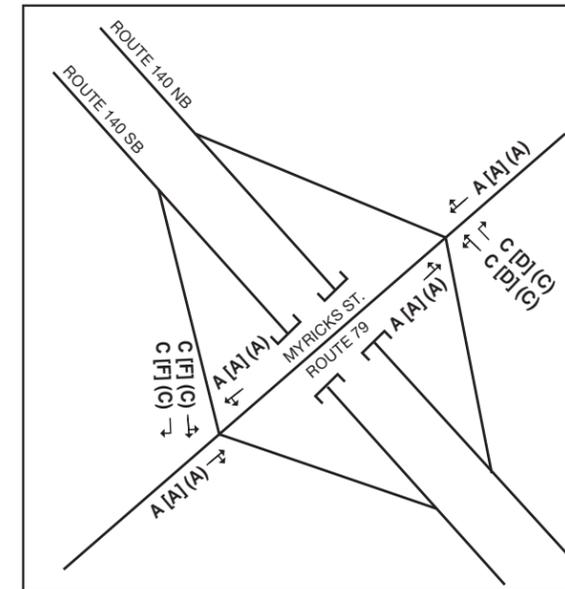
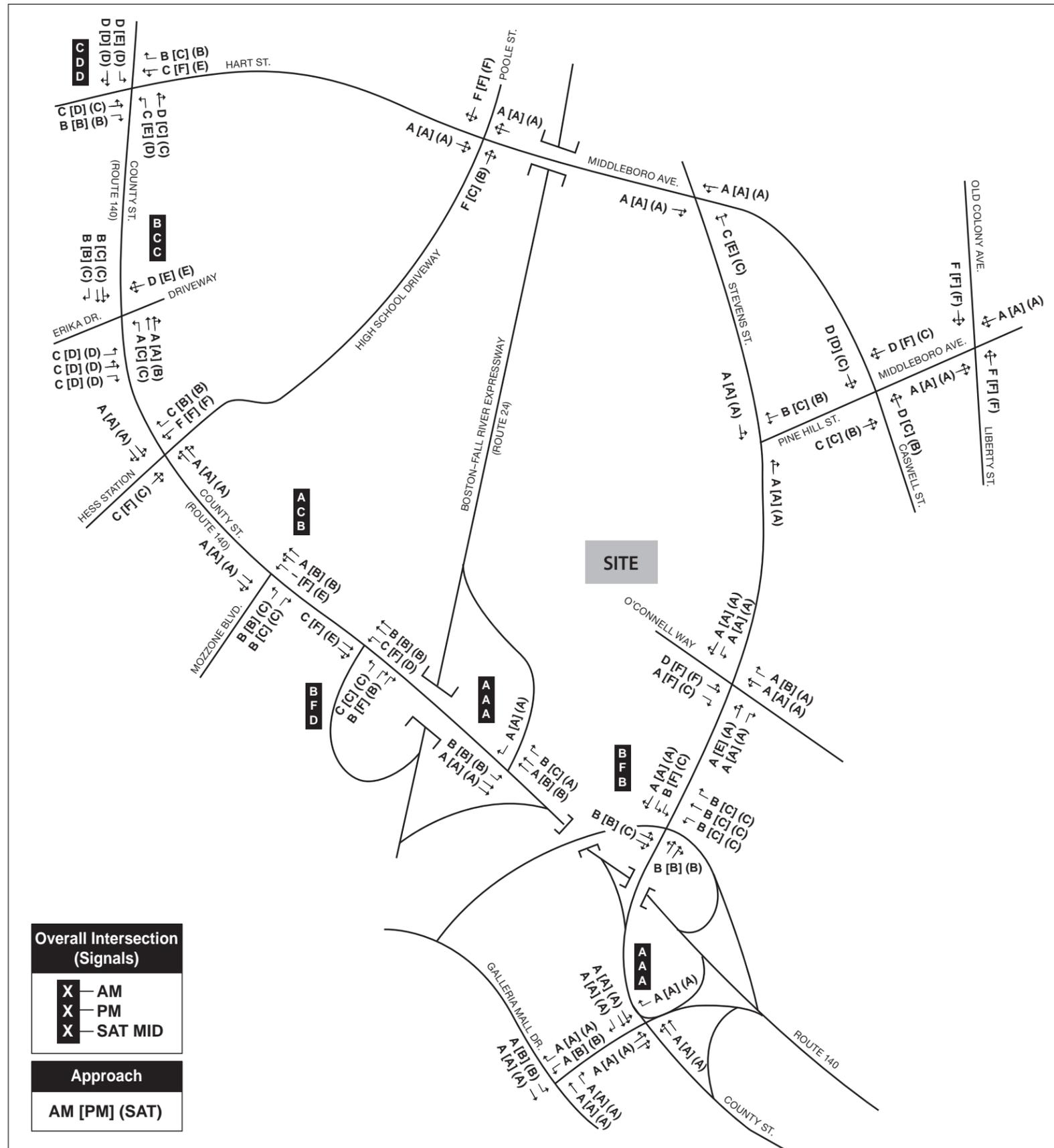
2022 Alternative A Saturday Midday Peak Hour Intersection Operations

During the midday Saturday peak hour, no overall LOS was reduced to unacceptable conditions, but some locations had approaches that worsened below LOS D from Alternative D No-Action Conditions to the Build Conditions.

At *Route 24 SB Ramp/County Street*, the Route 140 southbound approach worsens from LOS C to LOS E.

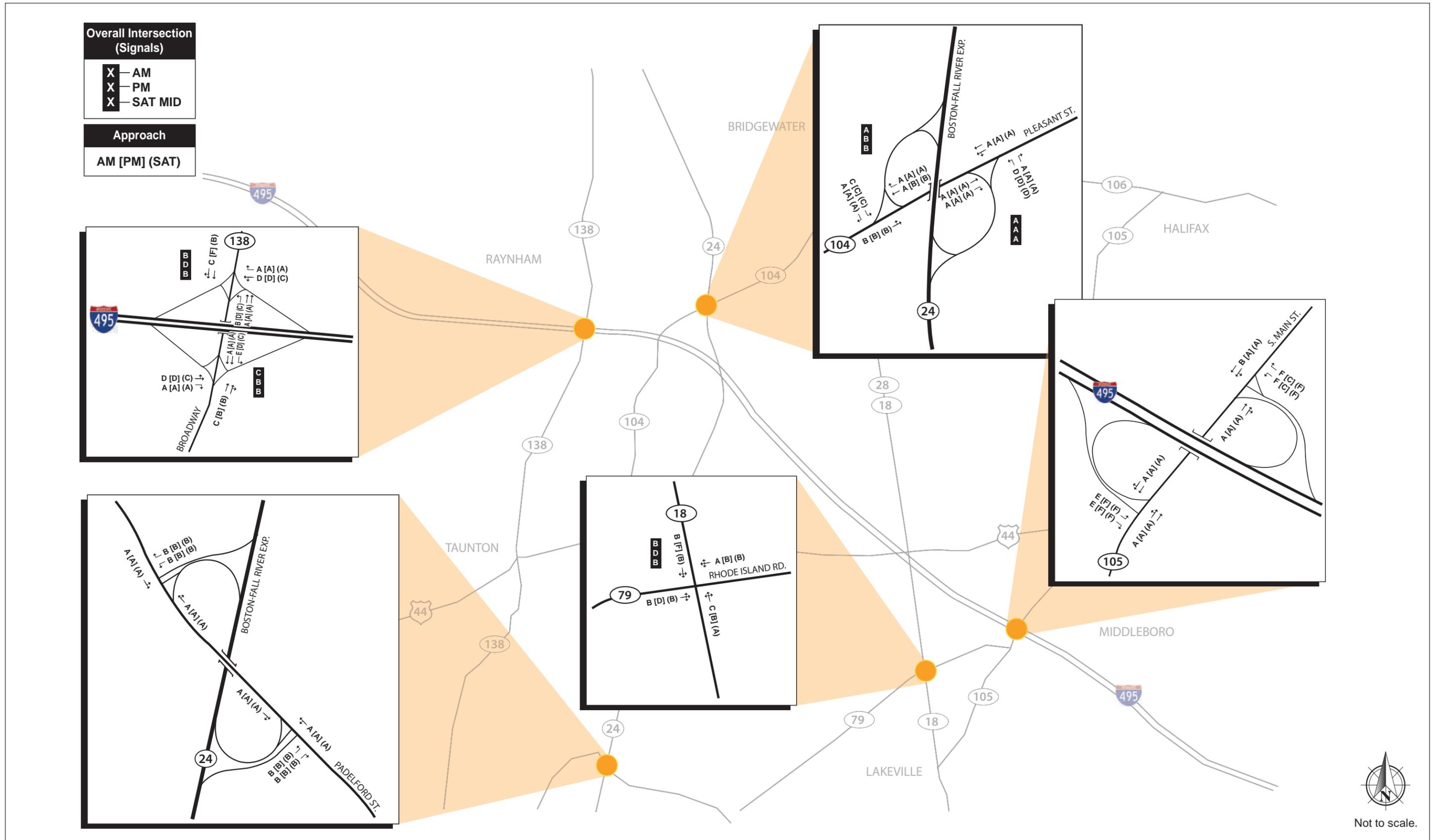


Not to scale.



Not to scale.





At *Cape Highway/Orchard Street*, the Cape Highway westbound left/through and through movements worsen from LOS D to LOS E.

At *O'Connell Way/Stevens Street*, the eastbound left-turn/through movement worsens from LOS C to LOS F. The driveway westbound left/through movement worsens from LOS D to LOS F.

At *Summer Street/County Street/Ingell Street*, the Ingell Street northbound approach worsens from LOS E to LOS F.

At *South Main Street/I-495 NB Ramps*, both the I-495 westbound left-turn and right-turn approaches worsen from LOS E to LOS F.

2022 Alternative A Build Interchange Operations

Figure 8.1-75, Figure 8.1-76, and Figure 8.1-77 summarize the 2022 Alternative A Build interchange operations during the Friday AM, Friday PM, and Saturday midday peak hours. Highway Capacity Manual analyses for all conditions are presented in **Appendix B-4**.

Under Build Conditions, operations generally remain the same as Alternative D No-Action conditions. However there are a few, merge, diverge, and weaving segments that worsen below LOS D and will experience reductions in LOS.

Route 24/Route 140 Interchange

Under the conservative assumption of 4,500 gaming positions, the Route 24 southbound mainline will worsen from LOS E to LOS F in the Friday PM peak hour. For this reason, the analysis was refined to reflect more accurately the currently planned 4,400 gaming positions and to account for the removal of the fitness center trips from the site. Under this assumption, the mainline operations remain at LOS E. This location will operate far better under Build conditions during the other time periods analyzed; going from LOS B to LOS C during the Friday AM peak hour and operating at LOS C during the Saturday midday and Saturday PM peak hours.

During the Friday PM peak hour, The Route 24 at Exit 12 Diverge will worsen from LOS D to LOS F under the assumption of the currently planned 4,400 gaming positions. This condition is mitigated by the proposed widening of the ramp to two lanes, as discussed below in **Section 8.1.3.4**. This location will continue to operate at LOS B during the Friday AM, Saturday midday, and Saturday PM peak hours.

I-495/Route 44 (Exit 6)/Route 18 (Exit 5) Interchange

During the Friday PM peak hour the I-495 southbound weave segment between exits 6 & 5 will continue to operate over capacity at LOS F. This location will continue to operate at LOS B during the Friday AM and Saturday PM peak hours and operate at LOS C during the Saturday midday peak hours.



ROUTE 24 NB at ROUTE 140 EXIT 12B MERGE			
Period	LOS	Den.*	
FRI	AM	D	30.6
	PM	C	24.8
SAT	MID	B	16.2
	PM	B	17.3

ROUTE 24 NB at EXIT 12B DIVERGE			
Period	LOS	Den.*	
FRI	AM	C	24.2
	PM	B	15.9
SAT	MID	A	9.4
	PM	B	10.0

ROUTE 24 NB MAINLINE			
Period	LOS	Den.*	
FRI	AM	C	24.0
	PM	B	16.4
SAT	MID	B	11.0
	PM	B	12.1

ROUTE 24 SB MAINLINE			
Period	LOS	Den.*	
FRI	AM	C	18.4
	PM	E	44.2
SAT	MID	C	24.1
	PM	C	22.4

ROUTE 140 NB at ROUTE 24 NB MERGE			
Period	LOS	Den.*	
FRI	AM	B	12.4
	PM	B	16.2
SAT	MID	B	12.6
	PM	B	13.0

ROUTE 140 NB at EXIT 12A DIVERGE			
Period	LOS	Den.*	
FRI	AM	B	17.3
	PM	C	22.0
SAT	MID	B	16.1
	PM	B	17.3

ROUTE 140 NB MAINLINE			
Period	LOS	Den.*	
FRI	AM	C	18.5
	PM	B	15.7
SAT	MID	B	17.3
	PM	C	18.5

ROUTE 140 NB at EXIT 11 MERGE			
Period	LOS	Den.*	
FRI	AM	B	16.0
	PM	C	20.7
SAT	MID	B	14.2
	PM	B	16.9

ROUTE 140 NB at EXIT 11 DIVERGE			
Period	LOS	Den.*	
FRI	AM	B	12.1
	PM	A	8.9
SAT	MID	A	6.4
	PM	A	6.0

ROUTE 24 SB at EXIT 12 DIVERGE			
Period	LOS	Den.*	
FRI	AM	B	12.8
	PM	F	31.7
SAT	MID	B	18.9
	PM	B	17.2

ROUTE 24 SB at ROUTE 140 EXIT 12B MERGE			
Period	LOS	Den.*	
FRI	AM	B	11.6
	PM	C	25.9
SAT	MID	B	14.9
	PM	B	14.7

ROUTE 24 NB EXIT 12A DIVERGE			
Period	LOS	Den.*	
FRI	AM	C	26.2
	PM	B	19.4
SAT	MID	B	12.3
	PM	B	13.9

ROUTE 140 SB MAINLINE			
Period	LOS	Den.*	
FRI	AM	A	8.6
	PM	C	19.3
SAT	MID	B	12.4
	PM	B	13.0

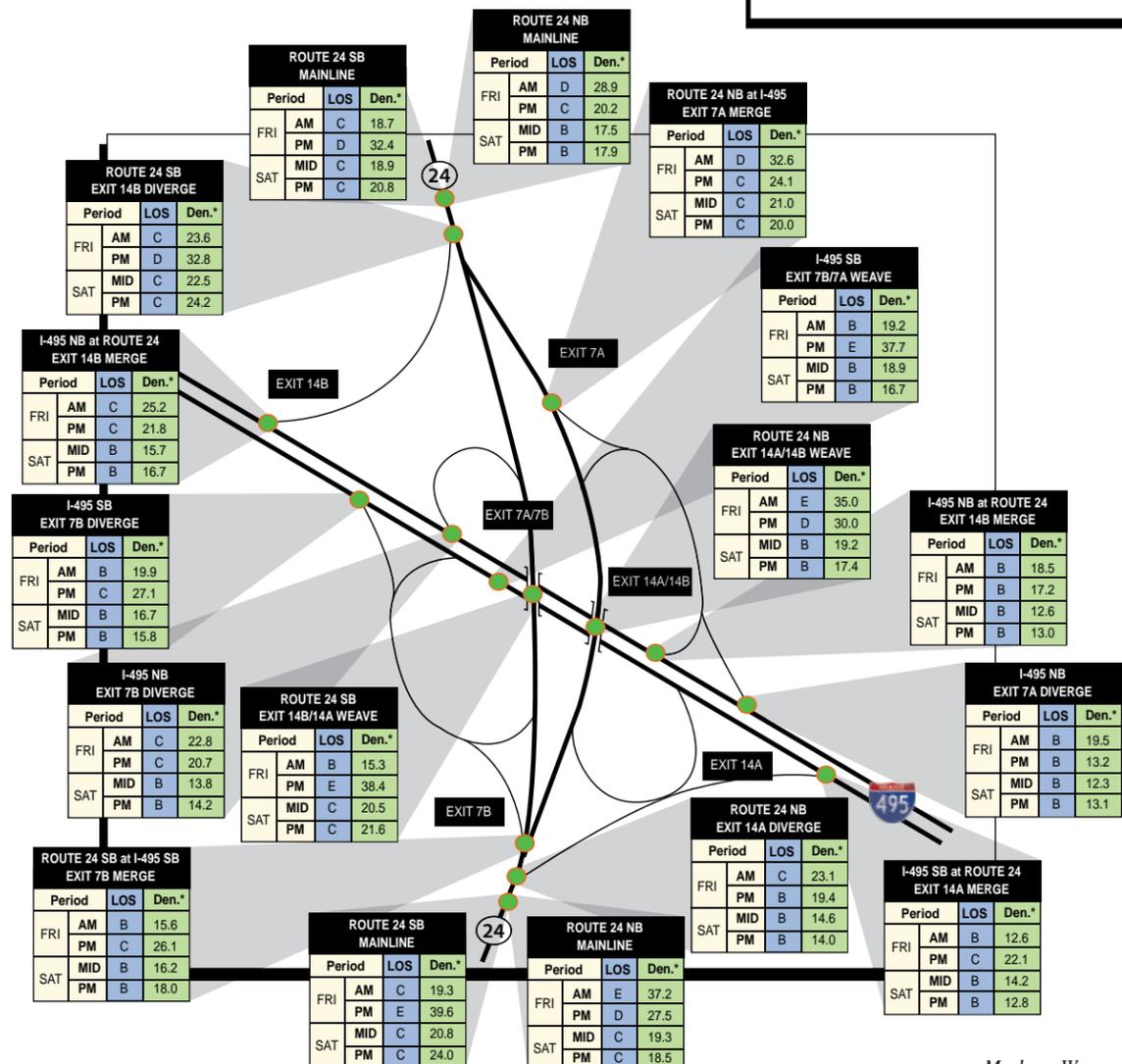
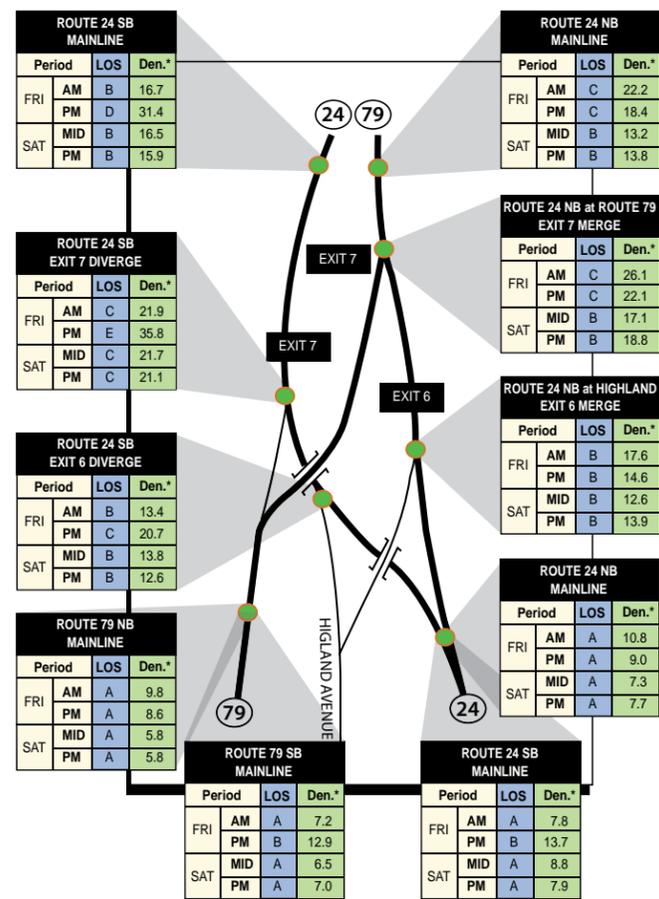
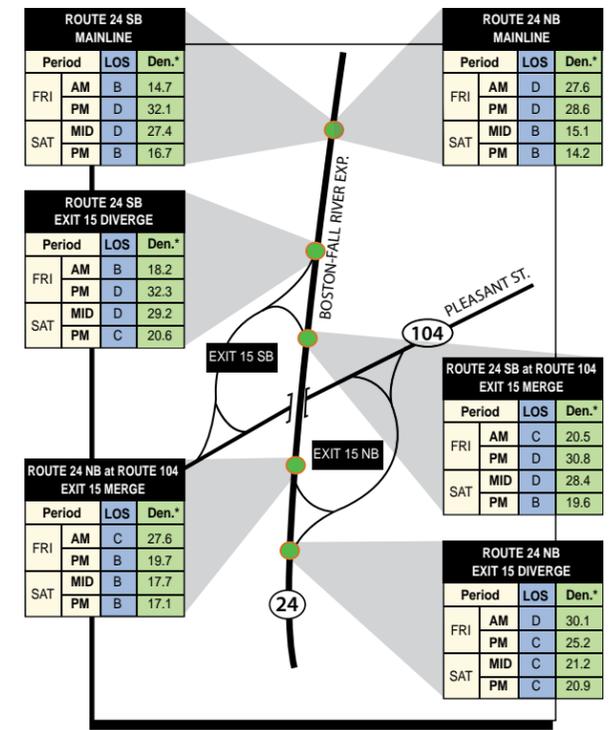
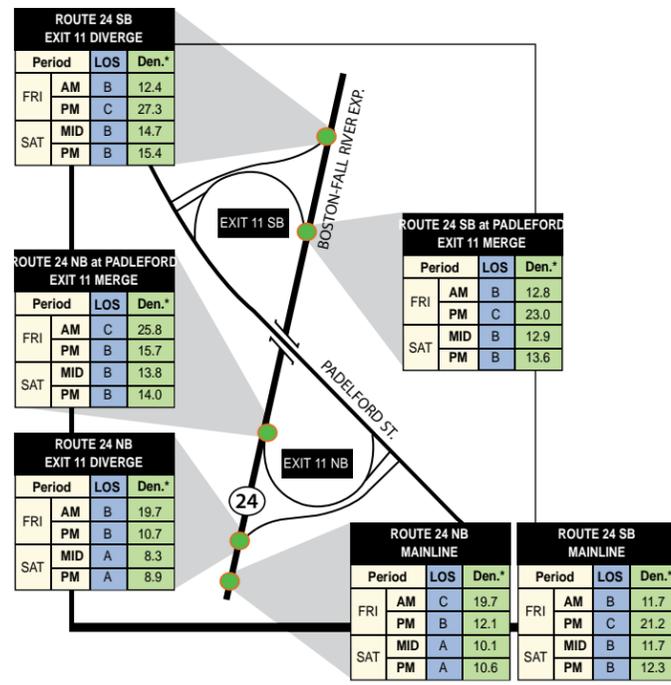
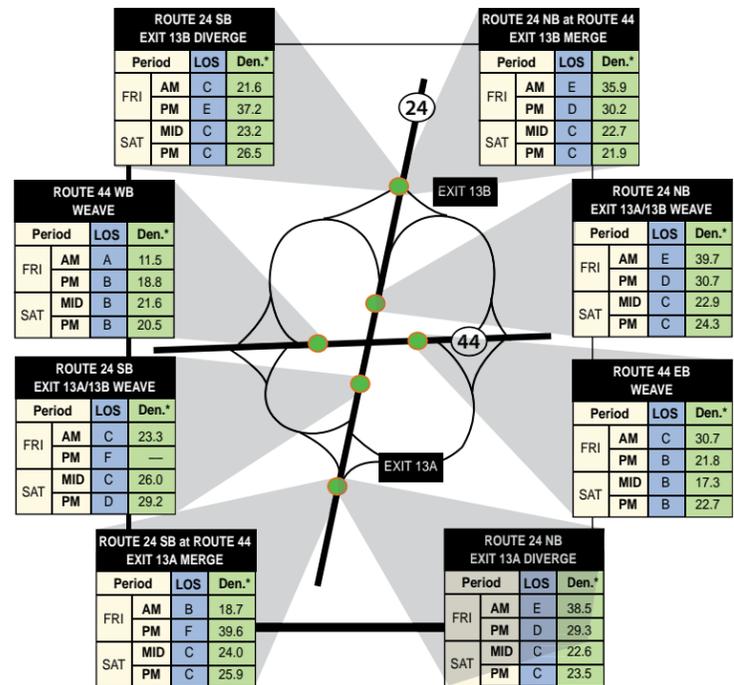
ROUTE 140 SB WEAVE			
Period	LOS	Den.*	
FRI	AM	A	9.2
	PM	C	24.1
SAT	MID	B	16.2
	PM	B	16.1

ROUTE 140 SB at EXIT 11A DIVERGE			
Period	LOS	Den.*	
FRI	AM	B	14.0
	PM	C	24.8
SAT	MID	B	12.9
	PM	B	18.6

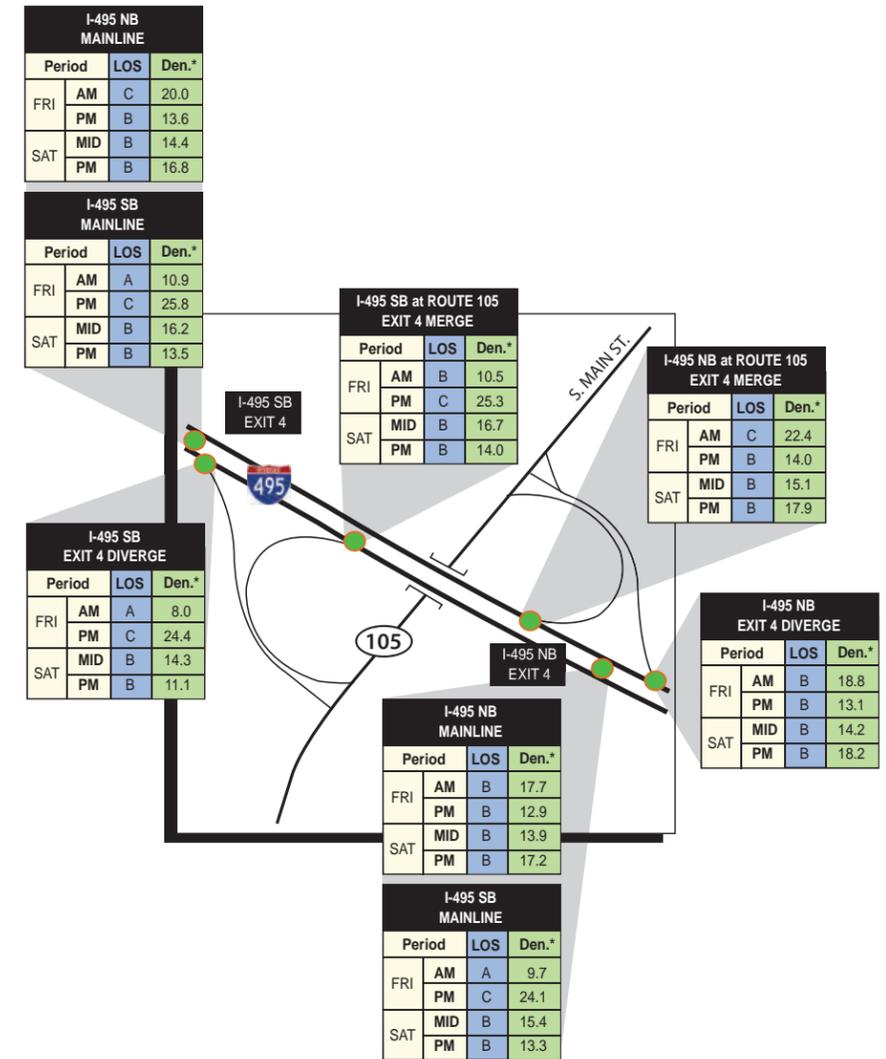
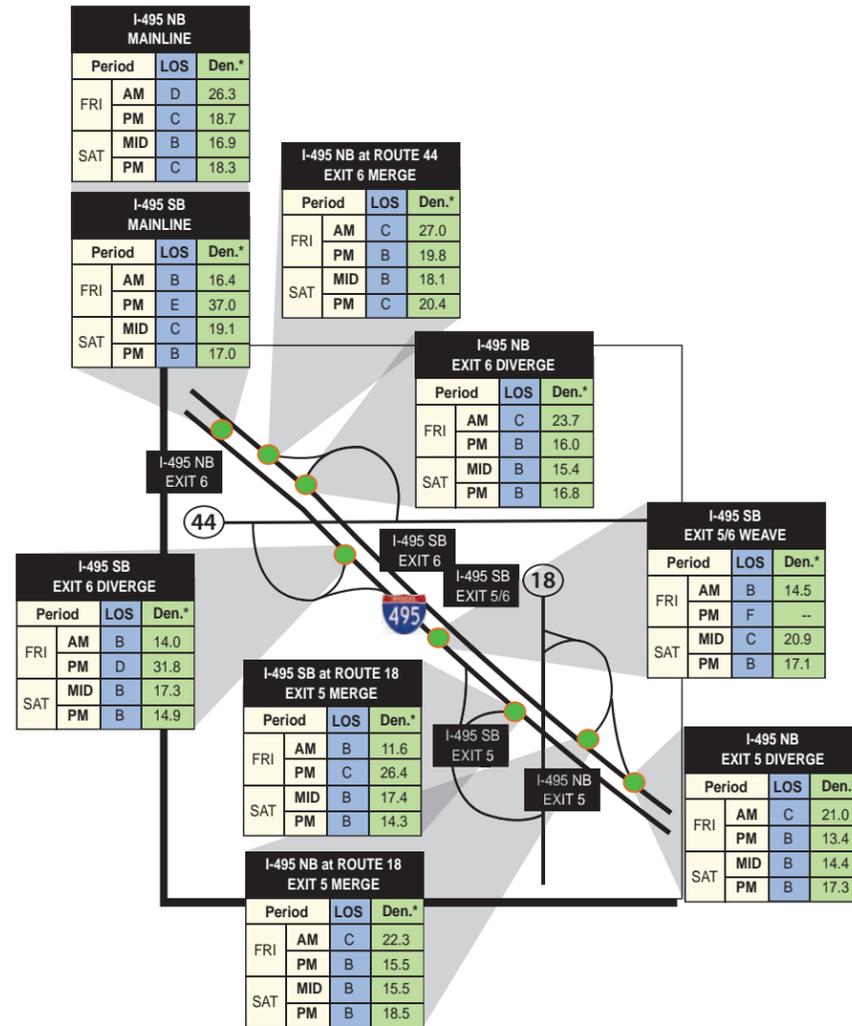
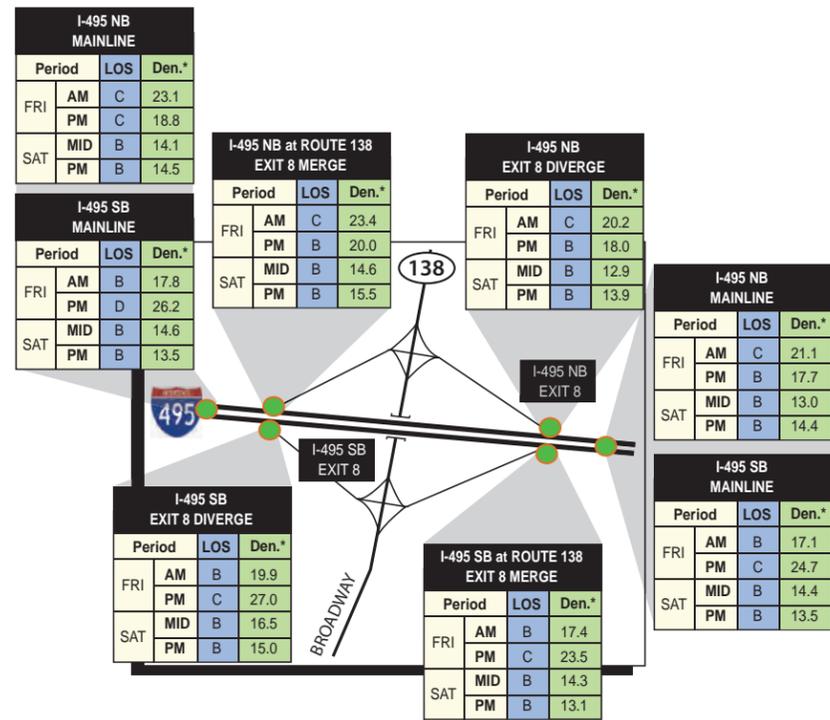
ROUTE 140 SB at EXIT 11 MERGE			
Period	LOS	Den.*	
FRI	AM	A	8.5
	PM	B	16.0
SAT	MID	A	8.9
	PM	A	9.7



Not to scale.



Not to scale.



Not to scale.

During the Friday PM peak hour the I-495 southbound mainline (north of exit 6), will continue to operate at LOS E at 37.0 pc/mi/ln. This location will continue to operate at LOS B during the Friday AM and Saturday PM peak hours and operate at LOS C during the Saturday midday peak hours.

Route 24/Route 44 Interchange

The Route 24 southbound weave segment between exits 13B & 13A will continue to operate over capacity at LOS F during the Friday PM peak hour; as a result of an increase of approximately 475 vehicles per hour on the mainline and 46 vehicles per hour using the 13B on-ramp. This location will continue to operate at LOS C during the Friday AM and Saturday midday peak hours and worsen from LOS C to LOS D during the Saturday PM peak hour.

During the Friday AM peak hour, the Route 24 northbound exit 13A diverge segment to Route 44 eastbound, will continue to operate at LOS E and will experience an increase in density from 38.2 to 38.5 pc/mi/ln as a result of an increase of approximately 31 vehicles per hour on the mainline and approximately three vehicles per hour using the off-ramp. This location will worsen from LOS C to LOS D during the Friday PM peak hour, and operate at LOS C during the Saturday midday and PM peak hours.

During the Friday AM peak hour the Route 24 northbound weave segment between exits 13A & 13B will continue to operate at LOS E and will experience an increase in density from 39.3 to 39.7 pc/mi/ln as a result of an increase of approximately 31 vehicles per hour on the mainline. This location will worsen from LOS C to LOS D during the Friday PM peak hour and operate at LOS C during the Saturday midday and Saturday PM peak hours.

During the Friday AM peak hour the Route 24 northbound exit 13B merge will continue to operate at LOS E and will increase in density from 35.7 to 35.9 pc/mi/ln; as a result of an increase of approximately 31 vehicles per hour on the mainline. This location will worsen from LOS C to LOS D during the Friday PM peak hour, continue to operate at LOS C during the Saturday midday peak hour, and worsen from LOS B to LOS C during the Saturday PM peak hour.

I-495/Route 24 Interchange

During the Friday AM peak hour the Route 24 northbound mainline (south of exit 14A) will continue to operate at LOS E, with an increase in density from 36.7 to 37.2 pc/mi/ln as a result of an increase of approximately 31 vehicles per hour on the mainline. This location will worsen from LOS C to LOS D during the Friday PM peak hour and from LOS B to LOS C during the Saturday midday and Saturday PM peak hours.

During the Friday PM peak hour the I-495 southbound weave segment between exits 7B & 7A, will continue to operate at LOS E at 37.7 pc/mi/ln. This location will continue to operate at LOS B during the Friday AM, Saturday midday, and Saturday PM peak hours.

During the Friday PM peak hour the Route 24 southbound weave segment between exits 14B & 14A will continue to operate at LOS E with an increase in density from 35.1 to 38.4 pc/mi/ln; as a result of an

increase of approximately 341 vehicles per hour on the mainline. This location will continue to operate at LOS B during the Friday Am peak hour and worsen from LOS B to LOS C during the Saturday midday and Saturday PM peak hours.

During the Friday PM peak hour the Route 24 southbound mainline (south of exit 14A) will worsen from LOS D to LOS E, an increase in density from 32.1 to 39.6 pc/mi/ln as a result of an increase of approximately 475 vehicles per hour on the mainline. This segment of Route 24 southbound, which consists of two travel lanes, is anticipated to carry approximately 4,275 vehicles per hour during the Friday PM peak hour. The Route 24 southbound basic roadway segment operates at LOS C during the Friday AM, Saturday midday, and Saturday PM peak hours.

During the Friday AM peak hour the Route 24 northbound weave segment between exits 14A & 14B will worsen from LOS D to LOS E, an increase in density from 34.7 to 35.0 pc/mi/ln (at LOS E threshold) as a result of an increase of approximately 31 vehicles per hour on the mainline. This segment of Route 24 northbound, which consists of three travel lanes, is anticipated to carry approximately 4,800 vehicles per hour during the Friday AM peak hour. This location will worsen from LOS C to LOS D during the Friday PM peak hour and LOS B during the Saturday midday and Saturday PM peak hour.

Route 24/Route 79 Interchange

During the Friday PM peak hour the Route 24/79 southbound exit 7 diverge will worsen from LOS D to LOS E, an increase in density from 34.7 to 35.8 pc/mi/ln (at LOS E threshold); as a result of an increase of approximately 98 vehicles per hour on Route 79 and approximately 16 vehicles per hour on Route 24. This section of Route 24/79 which consists of two travel lanes, is anticipated to carry approximately 3,650 vehicles per hour during the Friday PM peak hour. This location will continue to operate at LOS C during the Friday PM, Saturday midday, and Saturday PM peak hours.

8.1.3.4 Proposed Mitigating Measures: Alternative A

Proposed geometric and traffic signal improvements measures to mitigate identified traffic impacts are discussed in this section. Any measures affecting state-controlled highways or signals will be coordinated with and approved by MassDOT. Those measures under the jurisdiction of the City of Taunton will be coordinated and approved by the City.

Galleria Mall Drive South/County Street/Route 140 SB Ramps (Exit 11A)

The majority of trips to the Project Site are expected to use Route 140 SB via Exit 11A. Currently, the Exit 11A ramp to the Stevens Street Connector has vehicular traffic entering into its own lane and then merging with traffic from County Street after approximately 150 feet. The volume from County Street and the Silver City Galleria Mall is minimal compared to that coming from Route 140 SB. To facilitate continuous flow from Route 140 SB to the Stevens Street Connector, it is proposed that the ramp maintain its own lane, while the County Street traffic merges from two lanes to one lane before meeting with the Route 140 SB ramp traffic, as shown in **Figure 8.1-78**. The Stevens Street Overpass centerline will shift to the west to allow for three travel lanes as it approaches the signal at the Overpass Connector/Route 140 NB Ramps/Stevens Street intersection. The Stevens Street Overpass bridge will restriped to consist of

three travel lanes northbound and one travel lane southbound. This improvement will include updating all traffic signal equipment. All planning, permitting, design and construction costs associated with implementation are included in this improvement.

Overpass Connector/Route 140 NB Ramps/Stevens Street Intersection

As previously reported, the majority of site traffic will access the site from the west using Route 140 southbound and exit the site toward Route 140 northbound. Two optional solutions are proposed to handle this traffic movement, as discussed below.

Option 1 – New Route 140 NB Ramp

To accommodate the added site trips to and from Route 140, Option 1 proposes a new Route 140 NB ramp to remove the conflict between the northbound through traffic and southbound left-turns at the intersection of the Overpass Connector/Route 104 NB Ramp/Stevens Street. A right-entering on-ramp is proposed to connect Stevens Street southbound to Route 140 northbound prior to the signal prior to the Overpass Connector/Route 104 NB Ramp/Stevens Street.

The new ramp will remove the need for the double southbound left-turn onto Route 140 NB ramp at this intersection, requiring only a single shared through/right-turn lane for the Stevens Street southbound approach. The northbound Stevens Street Overpass Approach will have three through lanes including a channelized right-turn to the existing Route 140 NB on-ramp. Both the northbound and eastbound approaches will continue to access Route 140 NB as they currently do. The proposed ramp for Option 1 is shown in **Figure 8.1-79**.

After considerable investigation, it was found that the proposed ramp location is proximate to environmentally sensitive areas and will also require a bridged crossing of the Cotley River. This alternative has benefits of eliminating intersection conflicts, but the benefits are balanced by potential impacts to wetlands. Because of the impacts, Option 2 was developed as a second potential solution to servicing exiting traffic from the site and Stevens Street onto Route 140 NB.

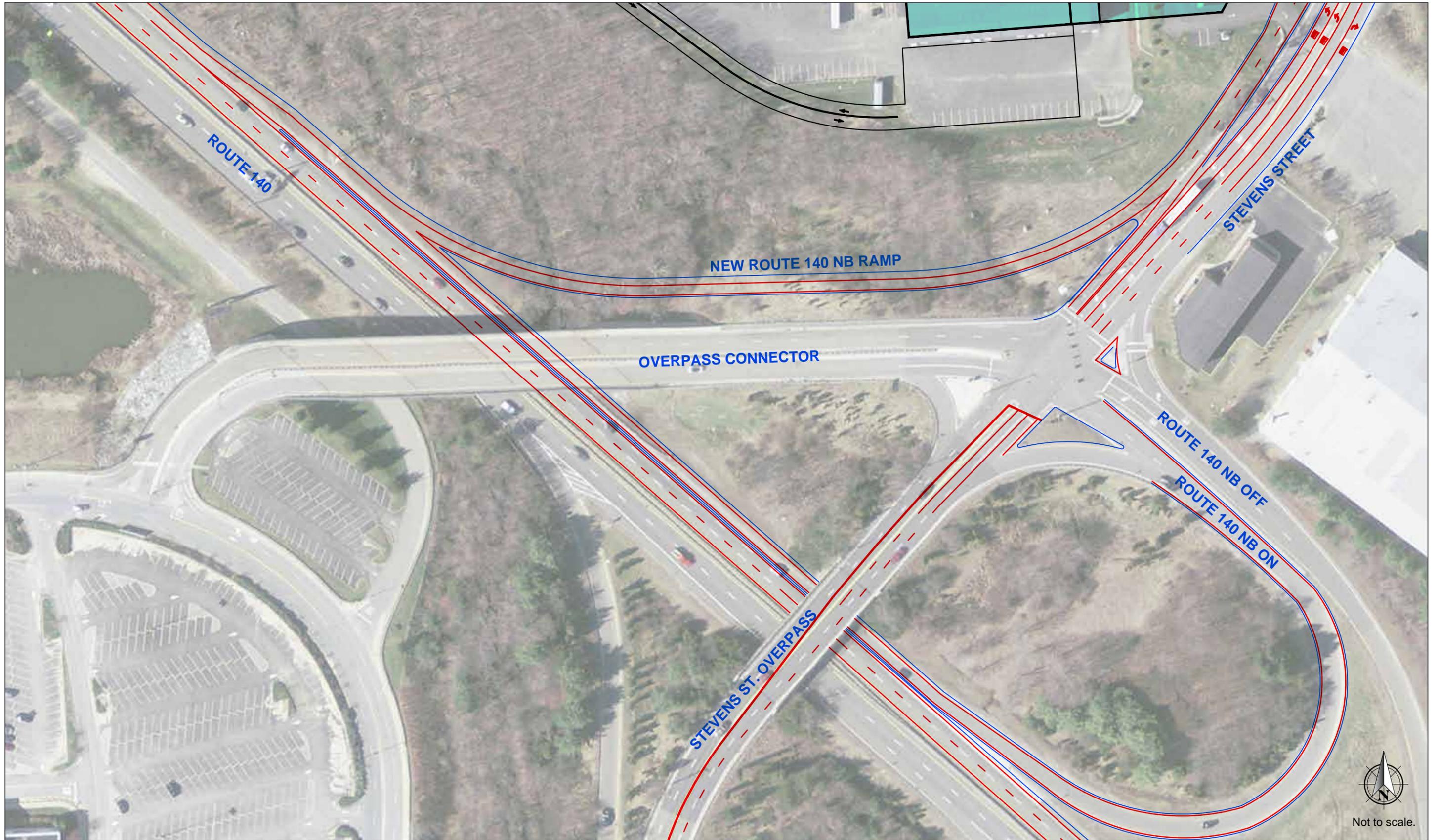
Option 2 – Stevens Street Signal Improvements

Option 2 utilizes the existing Route 140 NB on-ramp from Stevens Street. In order to accommodate the increase in traffic from the project site, additional travel and approach lanes are necessary at O'Connell Way/Stevens Street and Overpass Connector/Route 140 NB Ramps/Stevens Street in order to minimize delay and queuing in this area. As shown in **Figure 8.1-80**, the right-turn out of the site driveway will be signalized to prevent weaving between vehicles traveling through on Stevens Street and those making a left-turn onto the Route 140 NB ramp. Two lanes will be provided out to the driveway to prevent excessive on site queuing. Traffic from the site onto Stevens Street will access the ramp via a double left turn onto the existing ramp.



SOURCE: Howard/Stein-Hudson Associates, Inc.

Figure 8.1-78
Proposed Improvements: Galleria Mall Drive South/Overpass Connector/Route 140 SB and NB Ramps





For both options, this intersection will be coordinated with the intersection of O’Connell Way/Stevens Street. Mitigation for O’Connell Way/Stevens Street is discussed in a later section of this report. Intersection improvements will include updating all traffic signal equipment. All planning, permitting, design and construction costs associated with implementing these improvements are included in this improvement.

Table 8.1-6 shows a comparison of the overall level of service at the Overpass Connector/Route 140 NB Ramps/Stevens Street for both of the options. Detailed LOS tables and Synchro reports can be found in **Appendix B-3**.

**TABLE 8.1-6
COMPARISON OF OVERPASS CONNECTOR/ROUTE 140 NB RAMPS/STEVENS STREET OPTIONS**

Analysis Period	Option 1		Option 2	
	LOS	Delay (sec.)	LOS	Delay (sec.)
AM Peak Hour	B	10.0	B	17.5
PM Peak Hour	B	10.5	C	28.8
Saturday Midday Peak Hour	B	13.2	C	21.7

As shown in the table, the intersection operates acceptably under both conditions. Each option has its benefits and issues. Option 1, which was presented in the IGA, will provide uninterrupted access from the north on Stevens Street onto Route 140 NB. Option 2 would require the widening of Stevens Street between the bridge and the casino entrance to a seven lane cross-section. There is more potential for traffic to gridlock if incidents occur or a higher than expected peak is temporarily realized. With such congestion, air quality would also be diminished. The overall LOS for this critical intersection is minimally worse under this scenario. The design team is working to minimize and mitigate any environmental impacts associated with a ramp alternative, as this direct link to Route 140 is desirable.

Route 140 NB (between Exit 11 and 12)

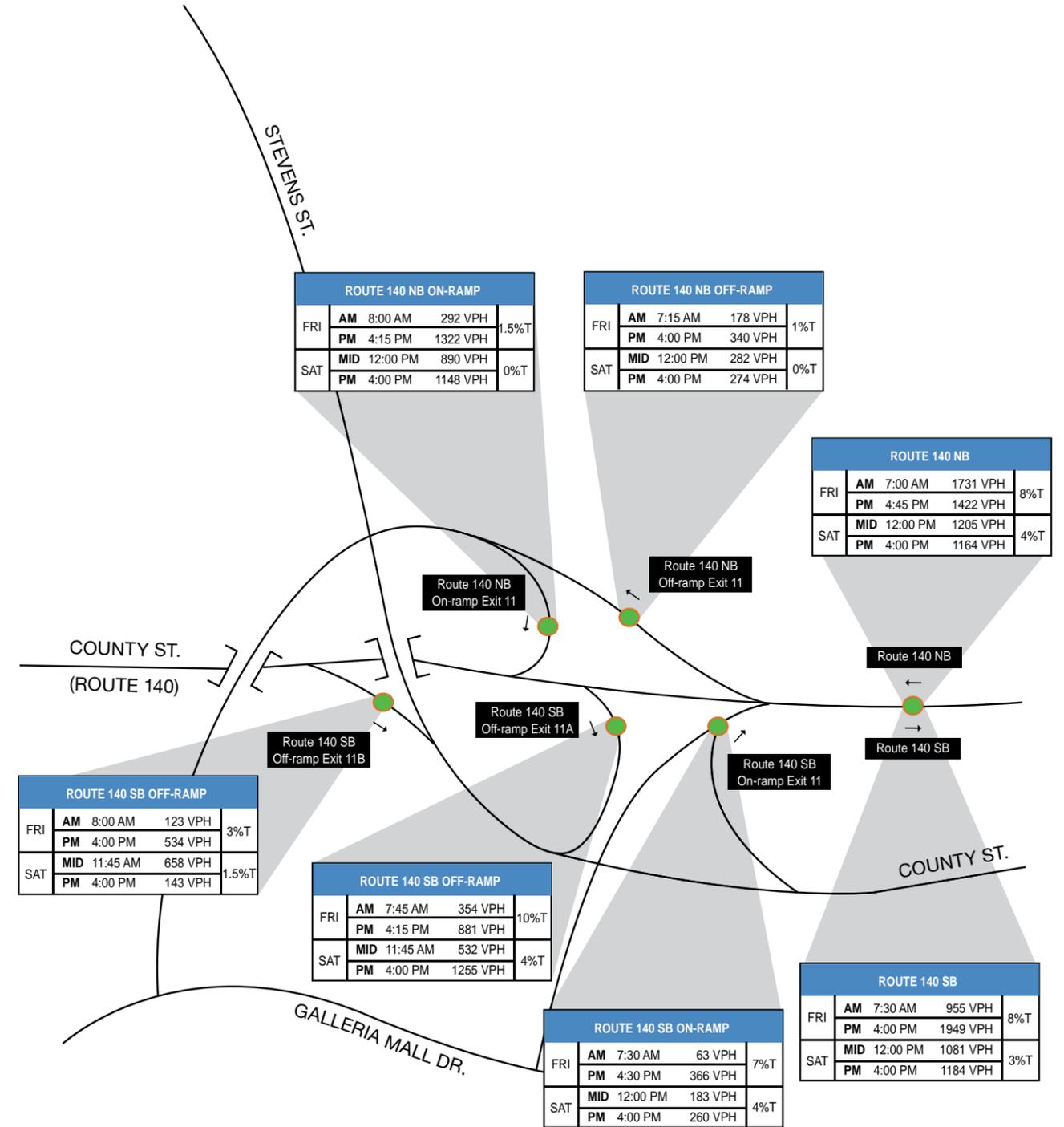
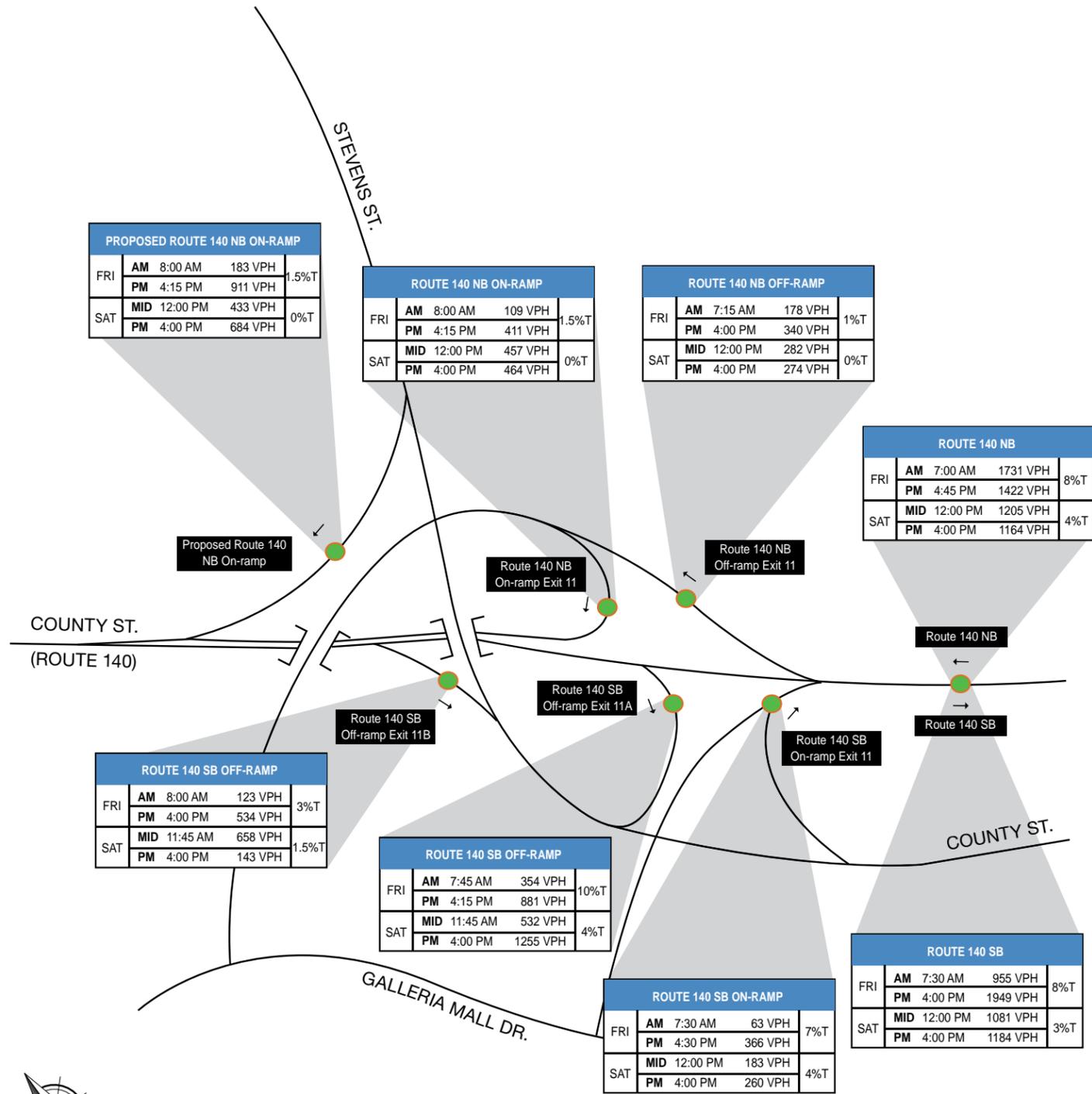
Under Option 1 as discussed above, the additional ramp from Stevens Street will require some widening of Route 140 NB where the ramp meets the highway. Since the new ramp will enter Route 140 NB approximately 700 feet from the existing on-ramp to the south, it is proposed that this ramp be separated from the main line traffic by a barrier. The traffic from both ramps will merge together before joining with main line Route 140 NB traffic. In addition, Route 140 NB will be widened from two lanes to three lanes between the new ramp and the approach to the Route 24 NB on-ramp.

Route 140 NB between Exit 11 and Exit 12 will also be widened to three lanes under Option 2. Improvements for Route 140 NB for Option 1 and Option 2 are shown in **Figure 8.1-79** and **Figure 8.1-80**, respectively.

Redistributed volumes at the interchanges under the proposed mitigation are shown in **Figure 8.1-81**.

OPTION 1

OPTION 2



Not to scale.

Site Driveways

O'Connell Way/Stevens Street

With the added volume at the southern end of Stevens Street and new traffic into and out of the Project Site, O'Connell Way/Stevens Street will need to be signalized. As shown in **Figure 8.1-82**, the northbound Stevens Street approach will have two left-turn lanes, a through lane, and a right-turn lane. The southbound approach will have a left-turn lane, a through lane, and a right-turn lane. The westbound approach will operate as left-turn lane and a shared through/right-turn lane. Under Option 1, the eastbound site drive approach will operate as two signalized right-turn lanes that merge and enter into its own lane on Stevens Street. This will allow immediate access onto the new ramp to Route 140 NB. Left-turns and through movements will not be allowed out of the main site driveway, physically restricted by geometry.

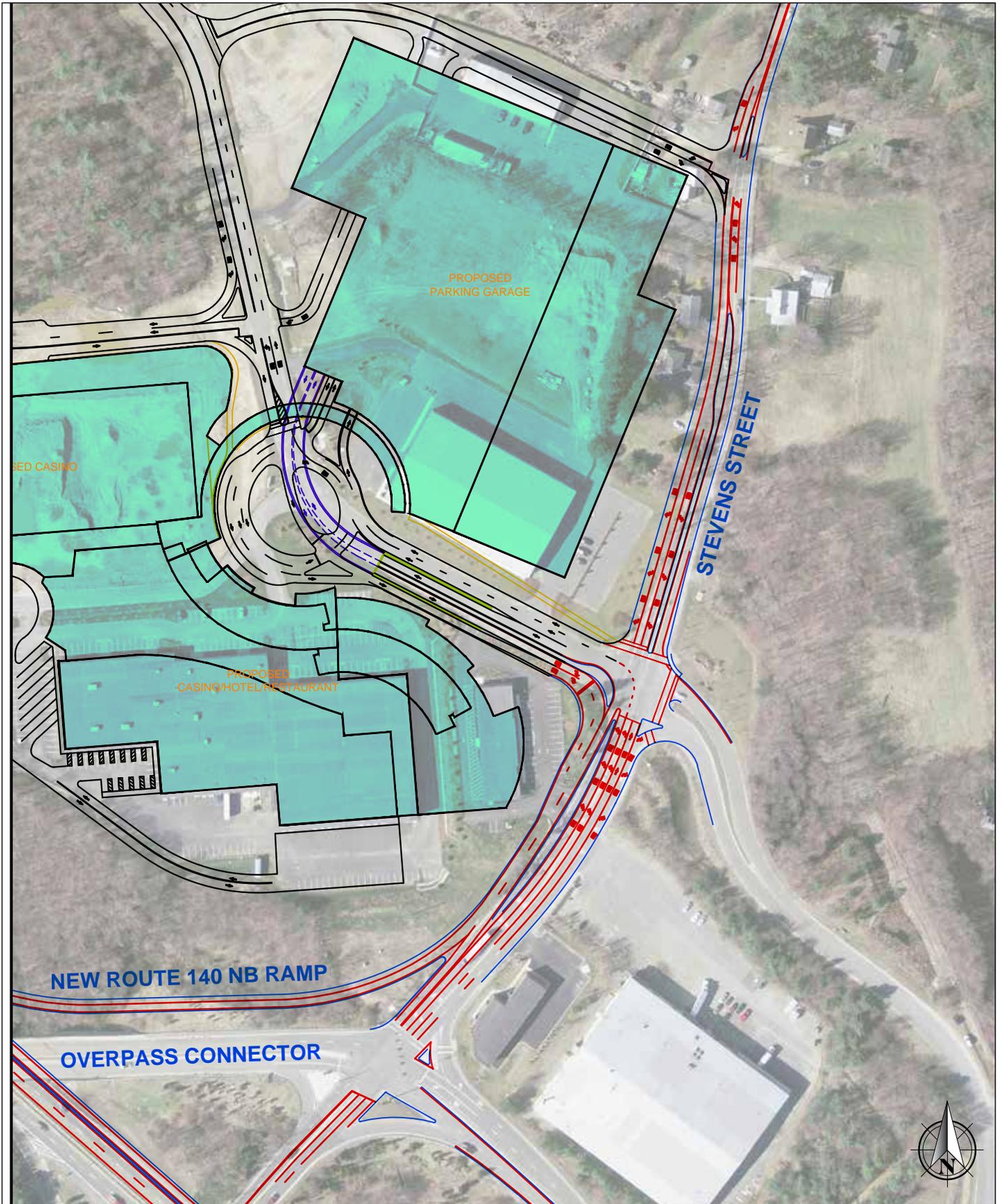
Under Option 2, the eastbound site drive approach will have two right-turn lanes, which will operate under signal control. As with Option 1, left-turns and through movements will not be allowed out of the main site driveway; these moves will be physically restricted by geometry. **Figure 8.1-83** shows the geometry of the site driveways under Option 2.

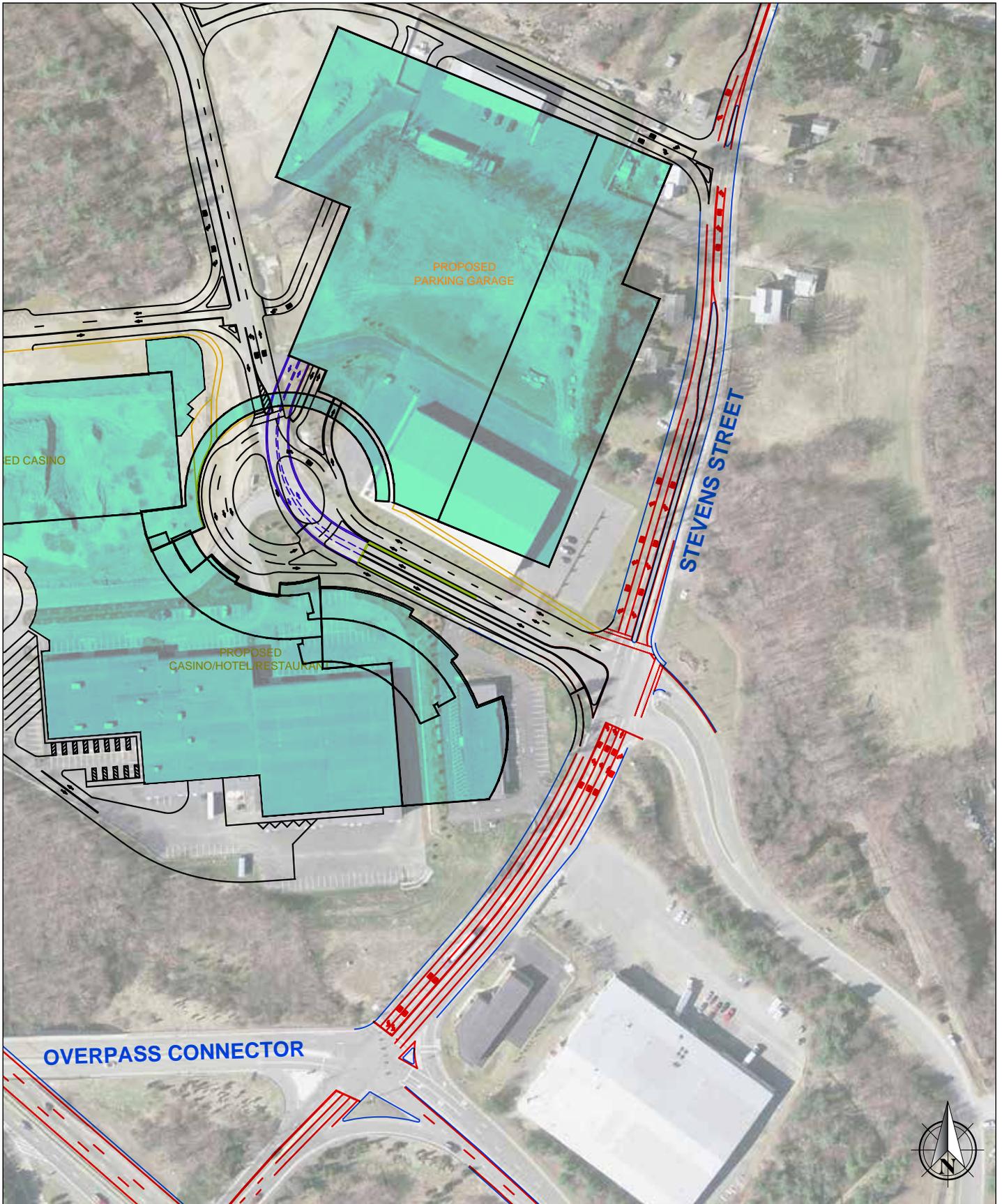
Under both options, this intersection shall be coordinated with the intersection of Overpass Connector/Route 140 NB Ramps/Stevens Street Intersection. This improvement will include updating all traffic signal equipment. All planning, permitting, design and construction are included in this improvement.

Stevens Street/Proposed Casino Service Road

A secondary service road has been proposed to the north of the proposed garage to accommodate service vehicles generated by Crossroads Center and by the casino itself, as shown in **Figure 8.1-82** and **Figure 8.1-83**. The garage exits will be signed so as to prohibit right turns by casino patrons or employees on to that service road. Further, the Tribe will work with the City of Taunton and MassDOT to investigate a heavy-vehicle exclusion on Stevens Street north of the service driveway. All planning, permitting, design and construction costs are included in this improvement.

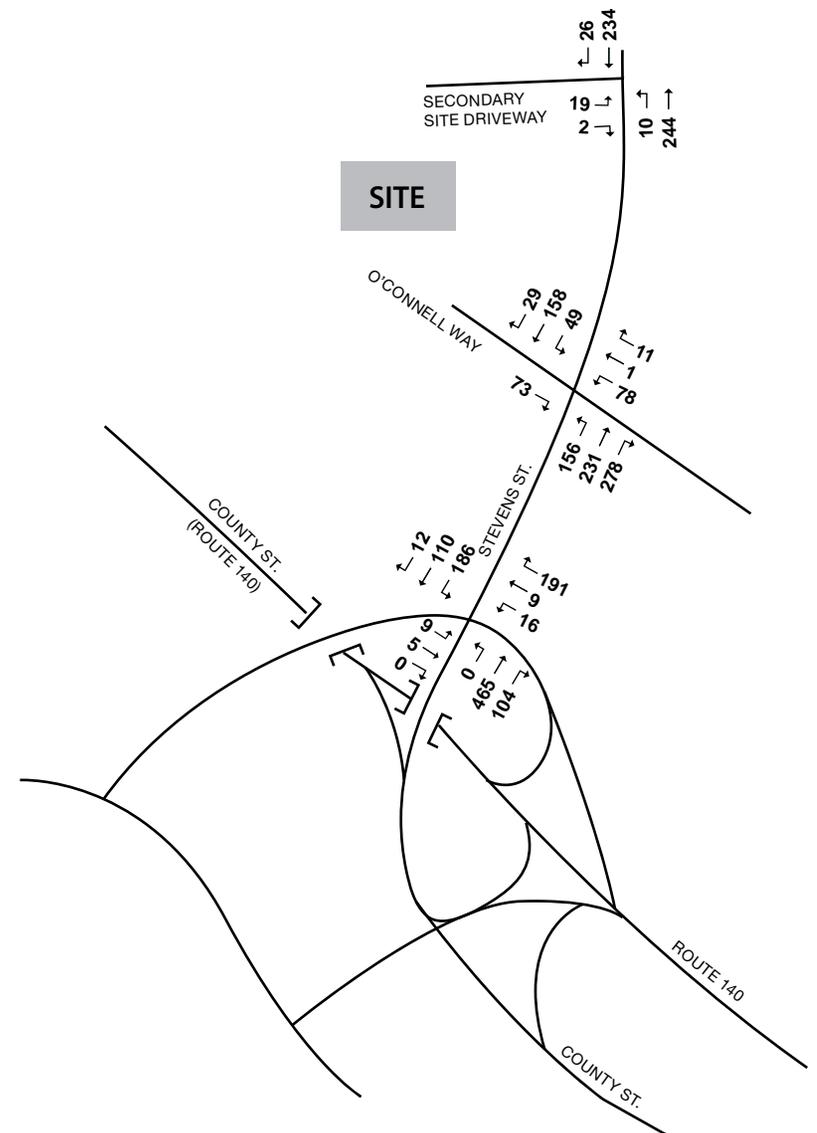
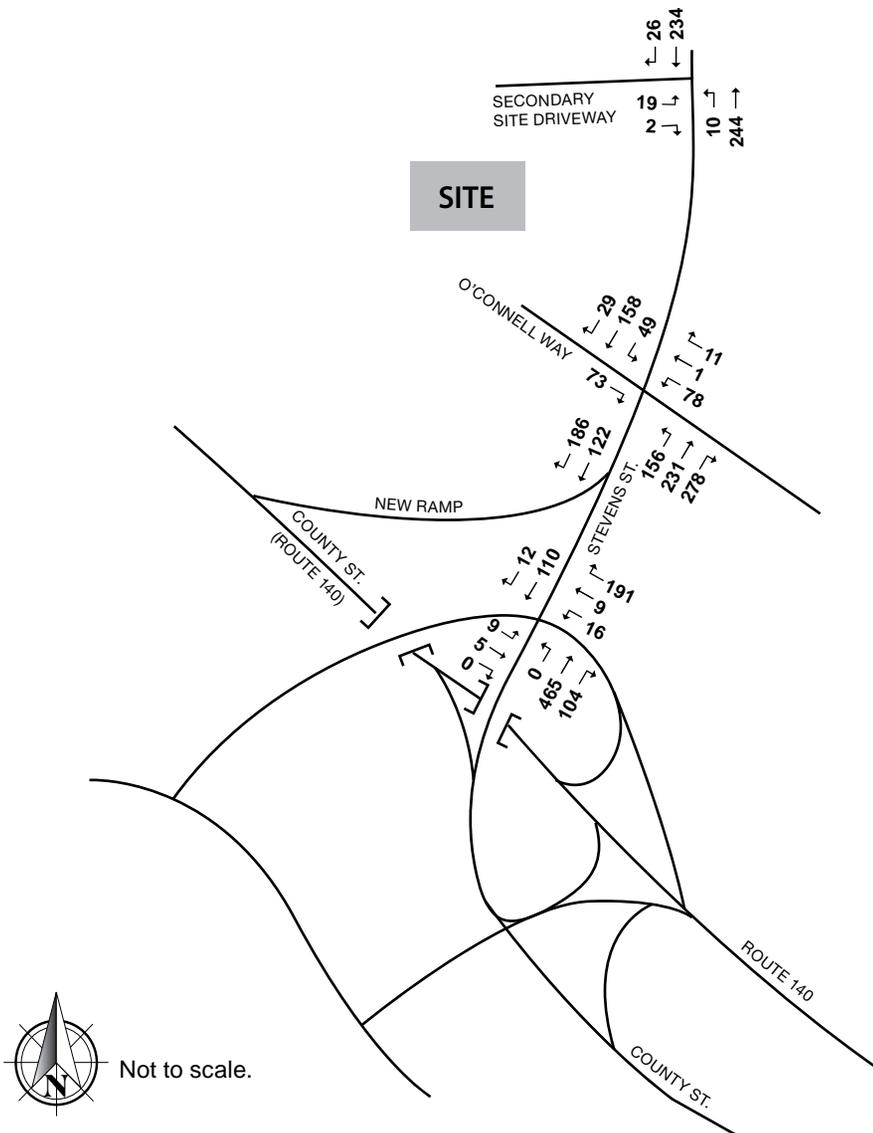
Redistributed volumes at the intersections due to the new site circulation and ramp options are shown in **Figure 8.1-84**, **Figure 8.1-85**, and **Figure 8.1-86**.





OPTION 1

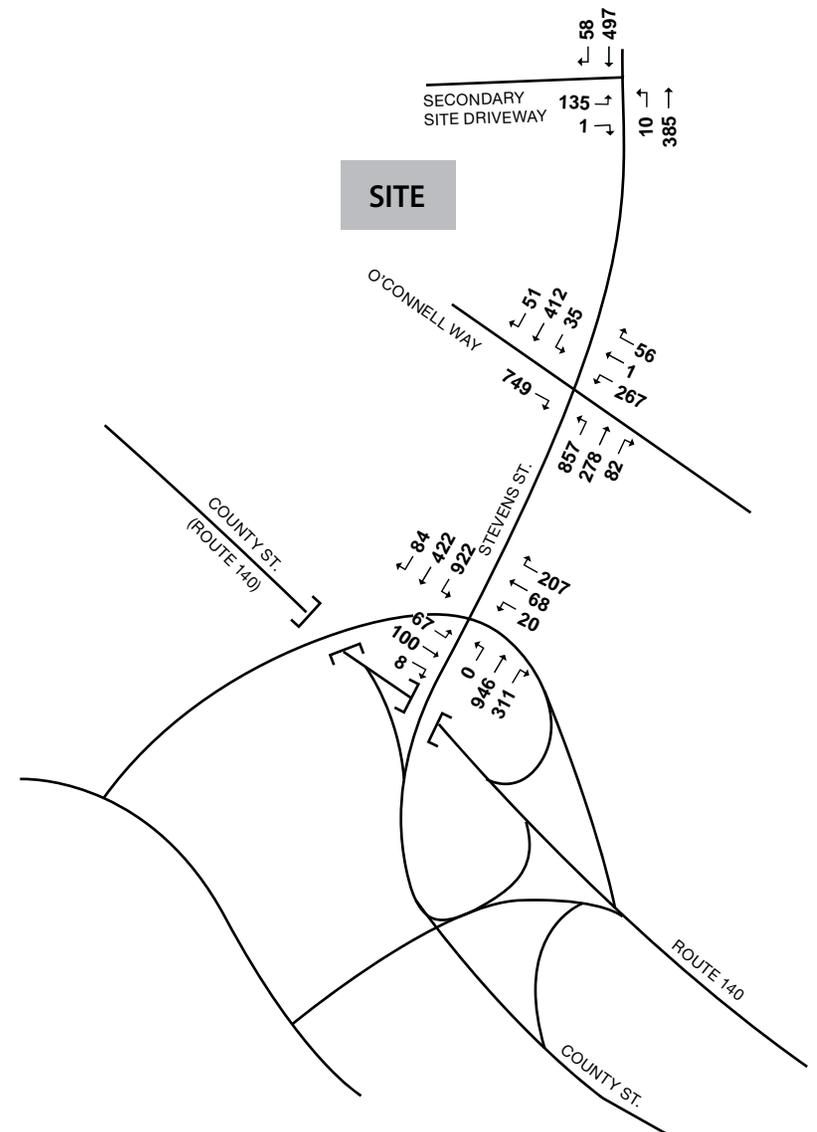
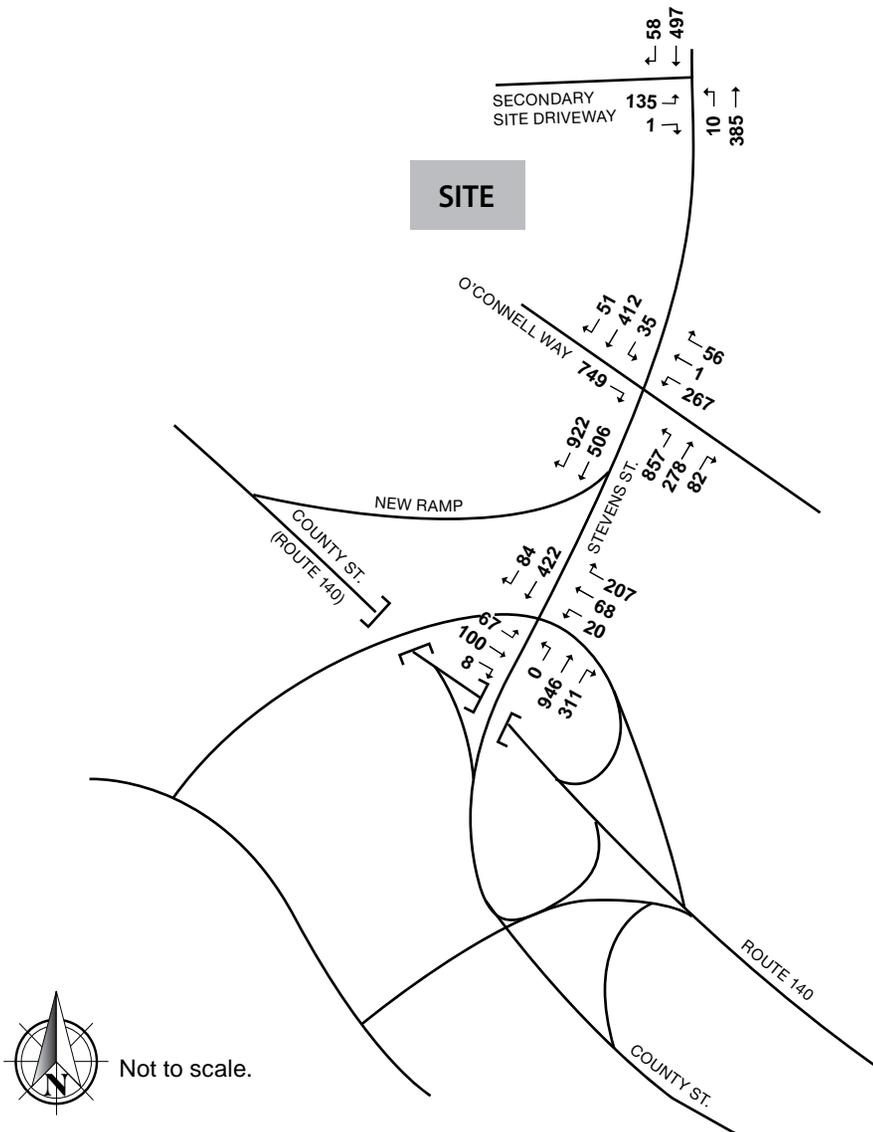
OPTION 2



Not to scale.

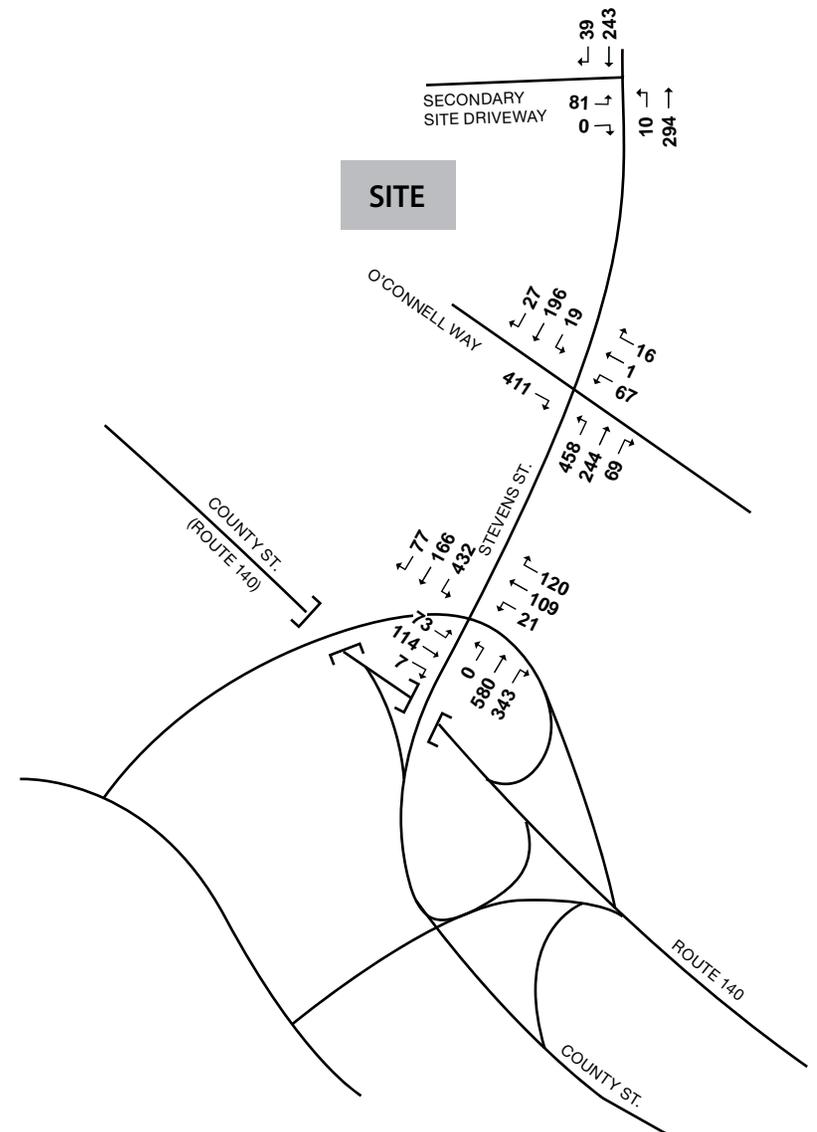
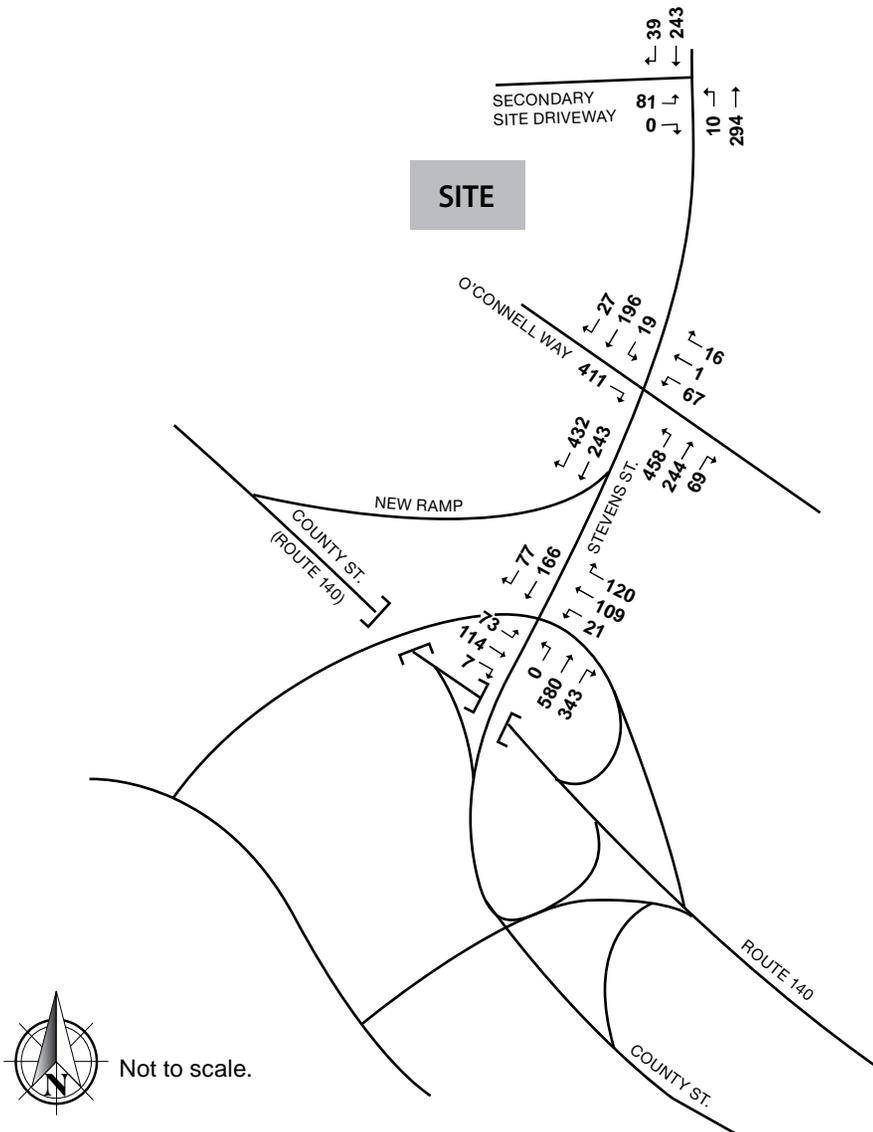
OPTION 1

OPTION 2



OPTION 1

OPTION 2



Route 24 SB Ramp (Exit 12B)/County Street (Route 140)

As stated above, the Massachusetts Department of Transportation, in conjunction with replacing the structurally deficient Route 24 bridge over Route 140 and addressing regional traffic concerns, has investigated a number of conceptual alternatives for relieving traffic congestion, accommodating a potential future widening of Route 24 and improving pedestrian and bicycle accommodations at the interchange of Route 24 with Route 140 in Taunton (MassDOT Project #605888). Improvements at this location have been under consideration since the mid-1990's by the Southeast Regional Planning and Economic Development District (SRPEDD). In 2003, improvements were studied in relationship to proposed LUIP development; in 2008 acceleration and deceleration lanes were added to Route 24 to accommodate periodic queues generated by the interchange. At the present time, alternatives for improvements have been identified, but the project has not reached the feasibility study stage.

Given the long-term time frame necessary for planning, permitting, design and construction, it is not realistic to expect that these improvements will be available in time for the opening of the proposed casino. For this reason, immediate solutions are proposed to improve the existing operation of the interchange and accommodate casino traffic. The Tribe has studied two Options, designated as Option 3 and Option 4, as discussed below. Both Options are able to safely and efficiently handle the expected increase in traffic caused by the proposed casino. The Tribe will continue to work with MassDOT to develop a long-term interchange alternative which when realized will accommodate all projected traffic volumes including the potential revitalization of the Silver City Galleria Mall.

Option 3 – New Route 24 SB Slip Ramp to Route 140 NB

This Option, shown on **Figure 8.1-87**, features the construction of a new slip ramp in the northwest quadrant of the interchange to accommodate traffic from Route 24 SB to Route 140 NB, allowing the existing Route 24 SB exit ramp to handle solely traffic headed for Route 140 SB. This allows for the elimination of a traffic signal phase at the intersection. In addition to the new Route 24 SB to Route 140 NB ramp, Option 3 also improves the existing Route 24 SB exit ramp. At its approach to Route 140, a single channelized right-turn lane will be provided. The channelized right turn lane will enter Route 140 SB in its own lane, allowing a free, uninterrupted movement. The Route 140 SB approach will be widened to allow two through lanes and a channelized right-turn lane, capable of accommodating the resultant queues. The right-turn lane will be signalized so as to not conflict with the Route 140 northbound double left-turning movement. Route 140 SB beneath Route 24 will be widened to accommodate two through lanes and a barrier-separated through lane, which accommodates the free right turn from the Route 24 SB off-ramp. This improvement will include updating all traffic signal equipment.

Option 4 – Intersection Improvements at Route 140

Option 4 proposes that the Route 140 NB approach at the Route 24 SB ramps be widened to accommodate two left-turn lanes and two through lanes just beyond the Route 24 overpass, as shown in **Figure 8.1-88**. The widening required will not affect the Route 24 bridge abutments.

The proposed cross-section under the bridge is provided in **Figure 8.1-89**. The Route 24 SB off-ramp will continue to come off of Route 24 in one lane and then widen to two lanes after the curve in the ramp, but far enough back to accommodate the 95th percentile queue length. At the approach to Route 140, two left-turn lanes and a single channelized right-turn lane will be provided. The channelized right turn lane will enter Route 140 SB in its own lane, allowing a free, uninterrupted movement. The Route 140 SB approach will be widened to allow two through lanes and a channelized right-turn lane, capable of accommodating the resultant queues. The right-turn lane will be signalized so as to not conflict with the northbound double left-turning movement. Route 140 SB beneath Route 24 will be widened to accommodate two through lanes and a barrier-separated through lane, which accommodates the free right turn from the Route 24 SB off-ramp. This improvement will include updating all traffic signal equipment. All planning, permitting, design and construction costs associated with implementing these improvements are included in this improvement.

The Route 24/Route 140 interchange volumes for Option 3 and 4 are shown in **Figure 8.1-90**. The intersection volumes at the interchange ramps are shown in **Figure 8.1-91**. **Table 8.1-7** shows a comparison of the intersection operations for the signals at the Route 24/Route 140 interchange for both mitigation options.

**TABLE 8.1-7
COMPARISON OF ROUTE 24 AT ROUTE 140 INTERCHANGE OPTIONS**

Analysis Period	Option 3		Option 4	
	LOS	Delay (sec.)	LOS	Delay (sec.)
Route 24 NB at Route 140				
AM Peak Hour	A	8.2	A	8.4
PM Peak Hour	A	6.3	A	6.0
Saturday Midday Peak Hour	A	6.9	A	5.4
Route 24 SB at Route 140				
AM Peak Hour	A	3.7	A	7.1
PM Peak Hour	D	38.8	D	37.7
Saturday Midday Peak Hour	A	6.3	A	9.0

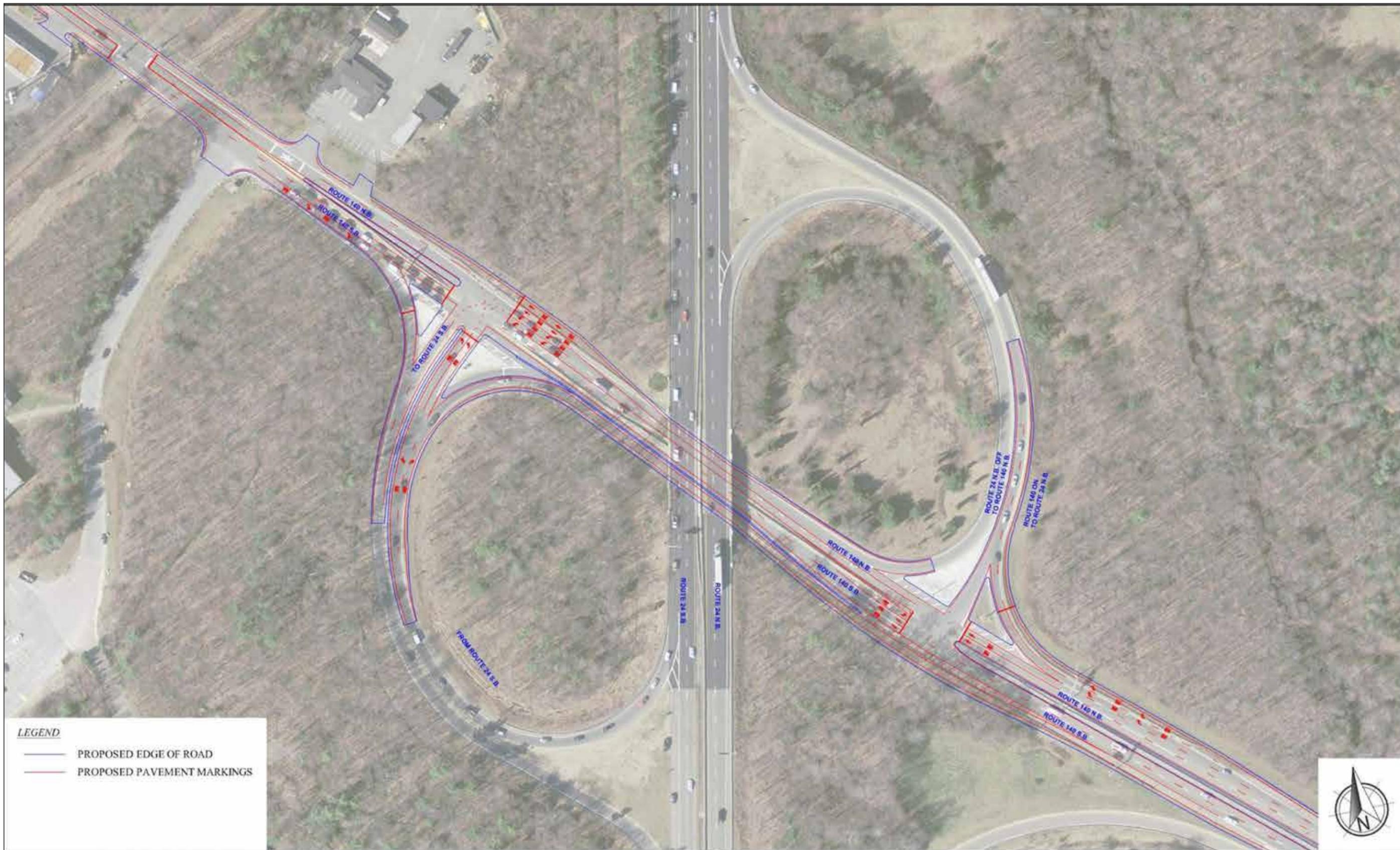
At the intersection of Route 140 and the Route 24 SB ramp, the intersection operations are generally the same for both options. While the left-turn movement and associated traffic signal phase is being removed from the intersection in Option 3, the amount of delay caused by the left-turn in Option 4 is very low compared to the other movements at the intersection.

Route 24 NB Ramp (Exit 12A)/County Street (Route 140)

At the Route 24 NB Ramp, the Route 140 SB approach will have two through lanes, an added lane from the Route 24 SB ramp, and one exclusive left-turn lane. The northbound approach will have two through lanes and two channelized right-turn lanes, as also shown in **Figure 8.1-87** and **Figure 8.1-88**. Under existing conditions, the channelized right-turn lane operates under yield control. With the addition of a second lane for the right-turning movement, the channelized right-turns will be signalized. The Route 140 NB right turn approach will be widened to allow two channelized right-turn lanes, capable of accommodating the resultant queues that will taper to one lane onto Route 24 NB. This improvement will include updating all traffic signal equipment. All planning, permitting, design and construction costs associated with implementation are included in this improvement.

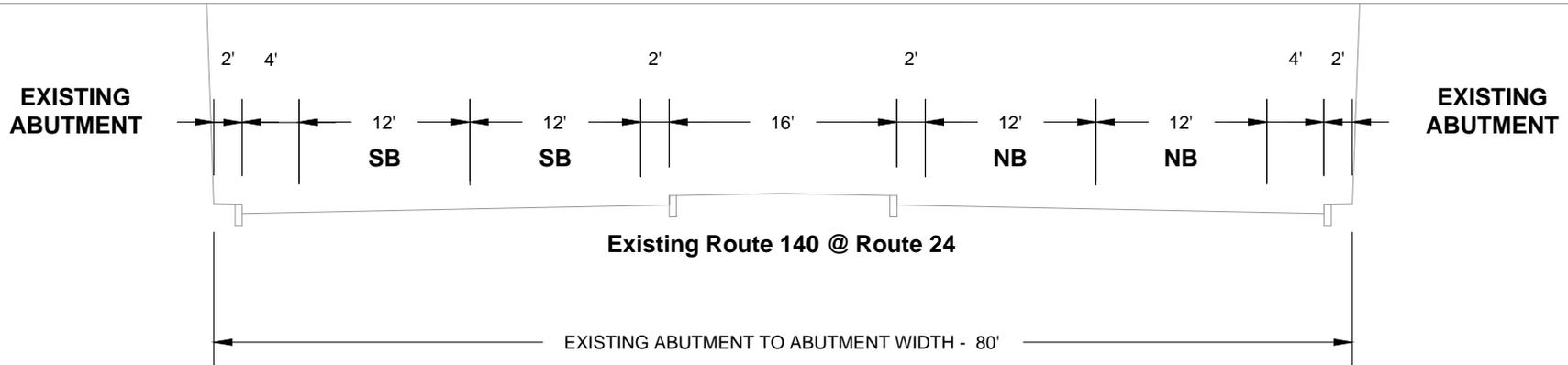


Not to scale.

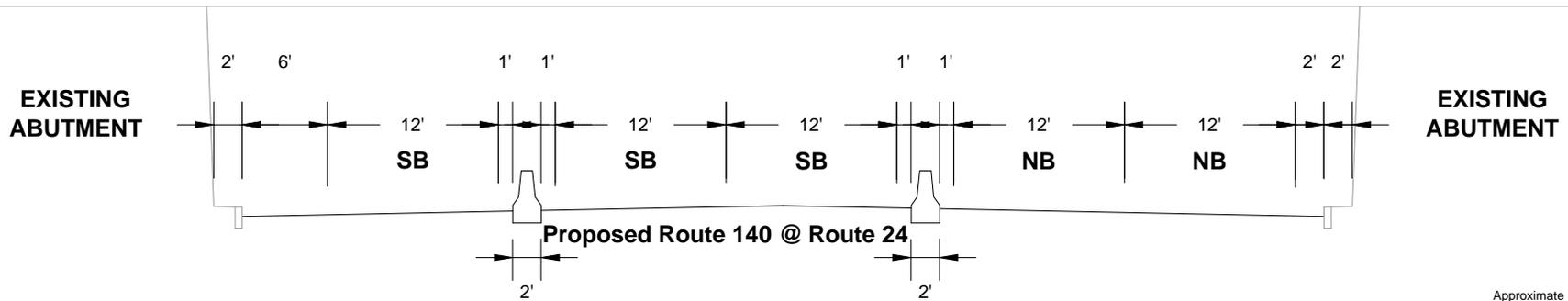


Not to scale.

Interstate Route 24 Bridge over Route 140



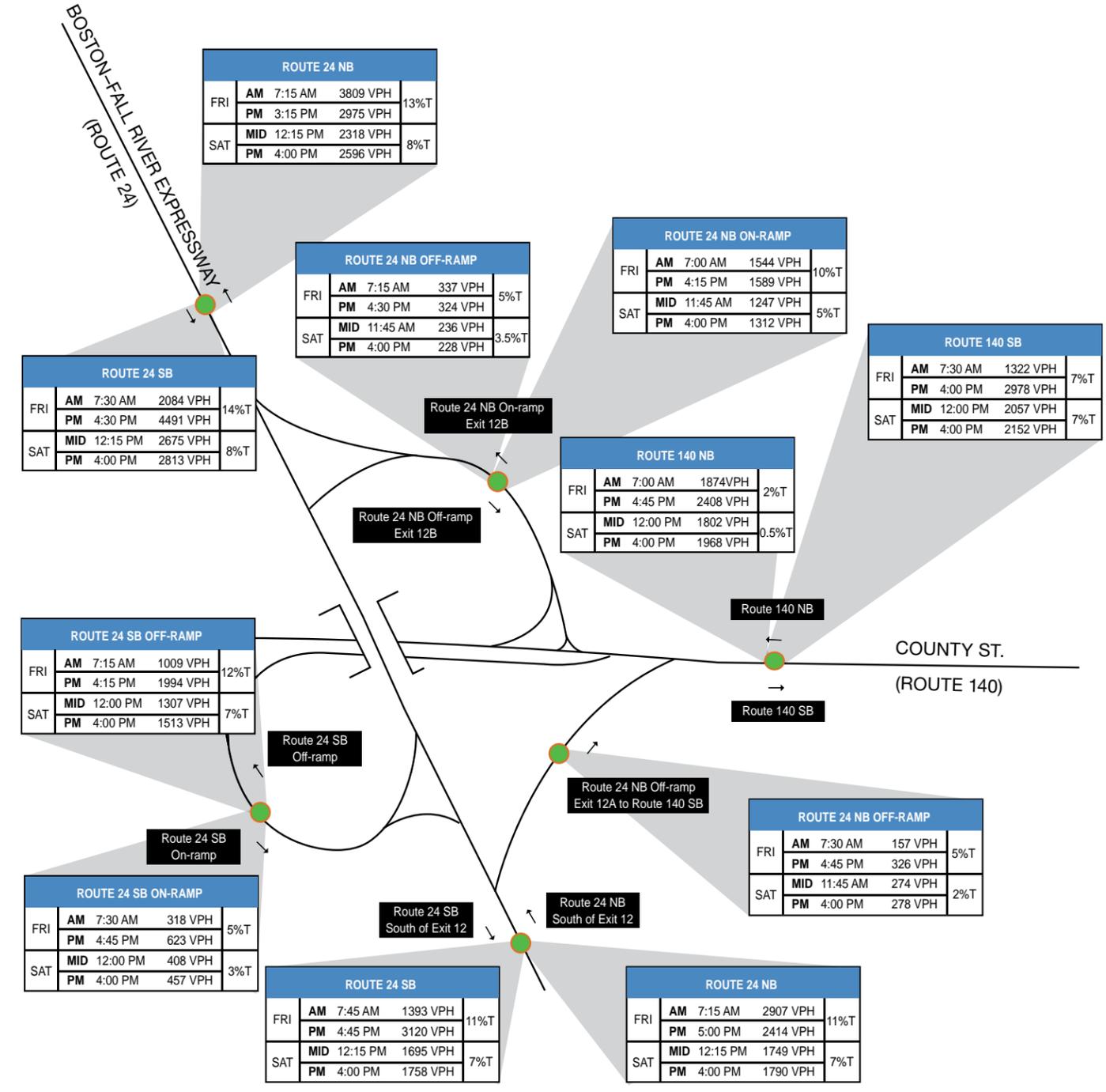
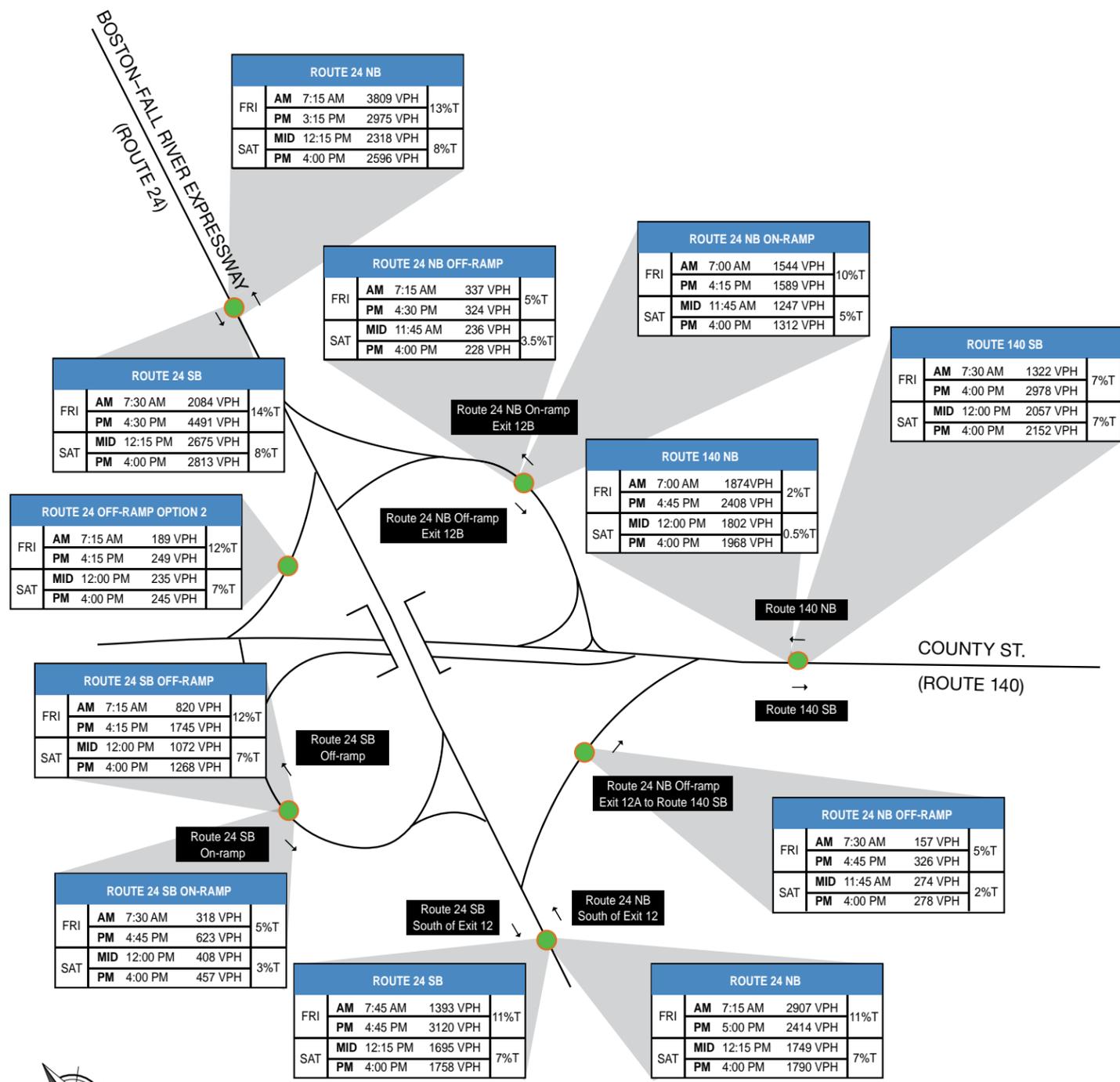
Interstate Route 24 Bridge over Route 140



Approximate Scale: 1" = 8'-0"

OPTION 3

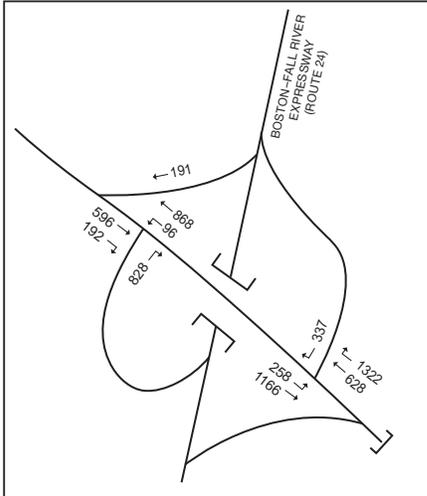
OPTION 4



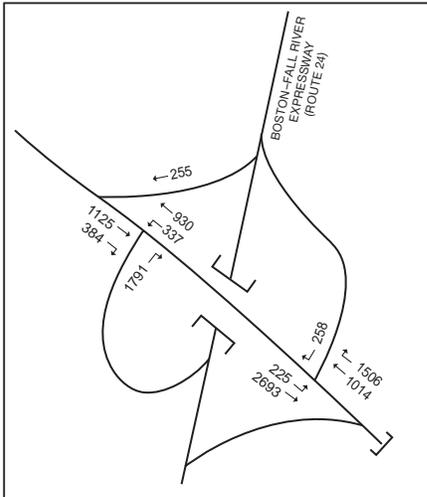
Not to scale.

OPTION 3

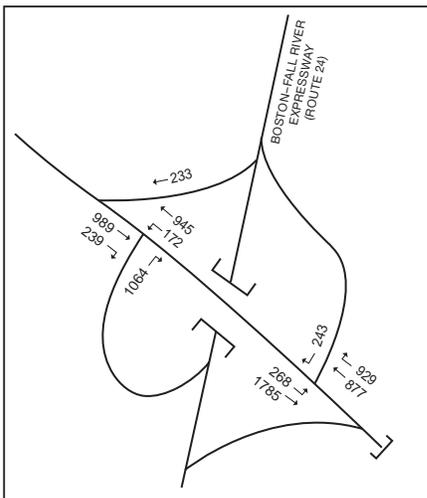
Build Mitigated (2022) a.m. Peak Hour



Build Mitigated (2022) p.m. Peak Hour

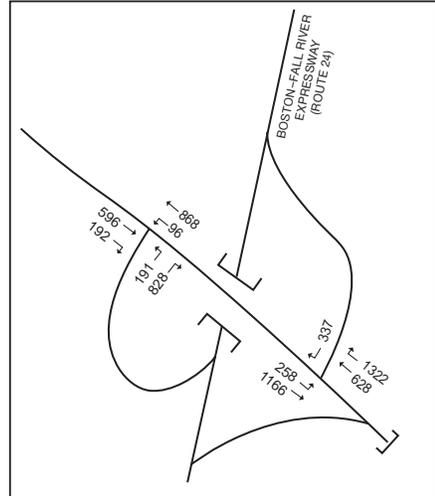


Build Mitigated (2022) Saturday Peak Hour

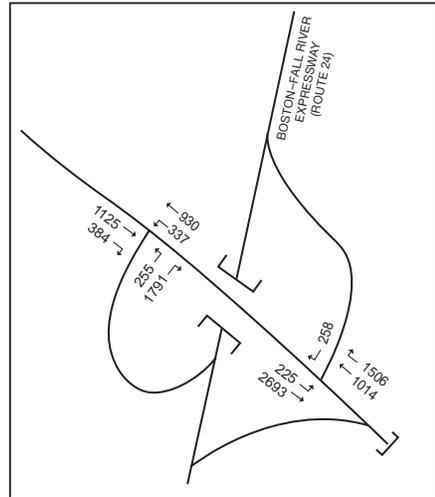


OPTION 4

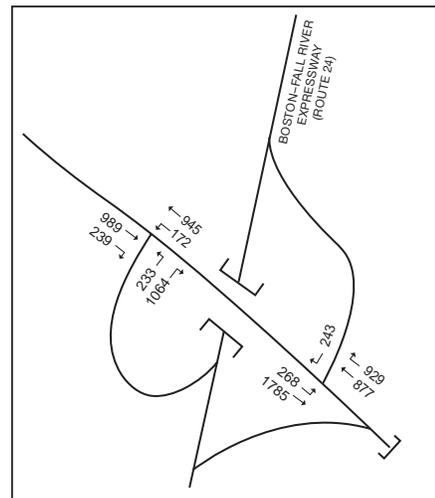
Build Mitigated (2022) a.m. Peak Hour



Build Mitigated (2022) p.m. Peak Hour



Build Mitigated (2022) Saturday Peak Hour



Route 140 West of Route 24

MassDOT Project #605191 involves roadway reconstruction, median installation and sidewalk reconstruction on Route 140 in the City of Taunton, which is to be funded by MassDOT. Also included are traffic signal upgrades and drainage improvements. Additionally, MassDOT Project #605679 included the total reconstruction of Hart's Four Corners. Four study area intersections with Route 140 are included in this project area: Hart's Four Corners, Mozzone Boulevard, Hess Gas Station/Bristol-Plymouth High School, and Erika Drive. While the MassDOT project will widen the road and make positive changes to today's operations, Project-related mitigation proposed at intersections in this corridor includes the following measures:

Mozzone Boulevard/County Street (Route 140)

At Mozzone Boulevard/County Street, the northbound Route 140 left-turn movement is very difficult to make during the weekday evening and Saturday mid-day peak hours. Due to the high volumes making this move, the left-most northbound lane operates as a de facto left-turn lane during these times. With added volumes on Route 140, it will be even more difficult to find acceptable gaps in the southbound traffic in order to make the northbound left-turn movement.

To improve operations, a short leading northbound phase is proposed to allow left-turning vehicles to make protected and permissive turns. Re-striping the northbound lanes to have a left-turn only lane and a through lane would allow the leading northbound phase to be actuated only when vehicles are detected in the left-most lane. This signal will be coordinated with the signals at Erika Drive, the Bristol Plymouth High School Drive and the Route 24/140 interchange. All planning, permitting, design and construction costs are included in this improvement.

Bristol Plymouth HS Drive/County Street (Route 140)

The high school driveway and Hess station approaches to this intersection currently operate with significant delays to the driveways, particularly the traffic leaving Bristol-Plymouth High School. With the additional volumes along County Street, the delay for these driveway movements will increase. It is proposed that this intersection be signalized to allow vehicles to enter and exit the driveways more easily. This intersection meets both the four-hour volume (Warrant 2) and peak hour (Warrant 3) MUTCD criteria for justifying signalization. Traffic signal warrant worksheets are provided in **Appendix B-8**. All planning, permitting, design and construction costs are included in this improvement.

Erika Drive/County Street (Route 140)

During the Saturday mid-day peak hour, the Erika Drive approach worsens under Build Conditions. By updating the cycle length and phasing splits at this location, all approaches can achieve acceptable operations during all peak hours. No geometric changes are necessary at this intersection. Costs associated with this improvement will include updating the traffic signal controller.

If the casino opening date precedes the implementation of MassDOT Project #605191 the intersections of Mozzone Boulevard, Erika Drive and (if constructed) Bristol Plymouth HS Drive will be coordinated during peak hours as a condition of this mitigation proposal.

Hart's Four Corners -- Hart Street/County Street (Route 140)

This location is assigned as MassDOT Project #605679. The 25% plans were submitted for review in September 2011, and design is progressing. The current design proposes that both County Street approaches be widened to three lanes consisting of a left-turn lane, a through lane, and a shared through/right-turn. The lane usage for the Hart Street approaches is proposed to remain as a shared left-turn/through lane and a right-turn lane. To further improve operations at this location, it is suggested that both Hart Street approaches be widened at the intersection to include a left-turn lane, a through lane, and a right-turn lane. All planning, permitting and construction costs are included in this improvement.

Improvements at Other Locations

County Street (Route 140)/Gordon M. Owen Riverway Extension

Under Existing Conditions, the Gordon M. Owen Riverway Extension approach operates with considerable delay during the peak hours. By adjusting the phasing splits at this intersection, the delay for this approach and the intersection overall can be improved. No geometric changes are necessary at this intersection. This improvement will include all costs of updating the traffic signal equipment.

High Street/Winthrop Street

The High Street westbound left-turn movement worsens during the weekday morning and Saturday mid-day peak hours, respectively. During the evening peak hour, the Winthrop Street southbound approach also worsens. While this location is already nearing capacity during the evening peak hour under Existing Conditions, mitigation can be done to lessen the impact of the added trips and even improve the operations over the Existing Conditions.

Operational improvements at High Street/Winthrop Street can be achieved without having to do any major geometric changes by updating the signal timings and phasing. Signal phasing changes will allow this intersection to operate at an acceptable level.

Winthrop Street/Highland Street

This intersection will be evaluated and updated signal timings and phasing will be implemented to improve operational conditions.

Emergency Vehicle Pre-emption at Thirteen Signalized Intersections

A total of thirteen existing traffic signals will be outfitted with emergency vehicle priority equipment to allow a rapid response from the firehouse to the Project Site, including any locations where signal modifications are already proposed. Up to ten emergency response vehicles will be outfitted with emitters

to trigger the before mentioned emergency vehicle priority equipment. All costs of implementation are included.

East Taunton Neighborhood Improvements

Various “traffic calming” measures are recommended in East Taunton to reduce speeds, improve safety and discourage vehicles traveling to/from the project area from using the residential streets. The proponent will contribute funds to initiate planning for and implementation of a comprehensive traffic calming plan for the area shown in **Figure 8.1-92**. The contribution will include an allowance for monitoring project traffic on Stevens Street, Middleboro Avenue and other neighborhood roadways at agreed-upon intervals after opening of each phase of the project. Additionally, specific intersection improvements proposed include the following:

Bristol Plymouth High School Drive/Hart Street/Poole Street

Improvements proposed here include realignment of the High School driveway to align with Poole Street, Americans with Disabilities Act (ADA) accommodations and a flashing warning beacon on Hart Street.

Stevens Street/Middleboro Avenue

Proposed improvements include a flashing warning beacon, ADA accommodations, sidewalk widening on the intersection approaches, and installation of crosswalk markings. Additionally, it is proposed that Stevens Street be signed as a Heavy Vehicle Exclusion.

Stevens Street/Pinehill Street

Radar speed control signs both northbound and southbound in advance of Pinehill Street are proposed, along with ADA improvements at the intersection, updated crosswalk markings, and a posted Heavy Vehicle Exclusion for Pinehill Street.

Middleboro Avenue/Pinehill Street/Caswell Street

A fully actuated traffic signal control is proposed at this location. This intersection meets the four-hour volume (Warrant 2) MUTCD criteria for justifying signalization. Traffic signal warrant worksheets are provided in **Appendix B-8**. Heavy Vehicle exclusion signs can be provided on Pinehill Street. ADA accommodations and crosswalks are also proposed. All planning, permitting, design and construction costs associated with implementing these improvements are included in this improvement.

Middleboro Avenue/Old Colony Avenue/Liberty Street

A fully actuated traffic signal control is proposed at this location. This intersection meets the four-hour volume (Warrant 2) MUTCD criteria for justifying signalization. Traffic signal warrant worksheets are provided in **Appendix B-8**. Geometric improvements, ADA accommodations, crosswalks and sidewalks are proposed to provide improved channelization of traffic and redistribute unused roadway space to pedestrians. All planning, permitting, design and construction costs associated with implementing these improvements are included in this improvement.



SOURCE: Howard/Stein-Hudson Associates, Inc.

East Taunton Elementary Driveway at Stevens Street

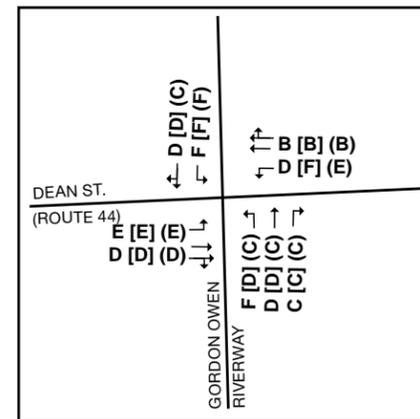
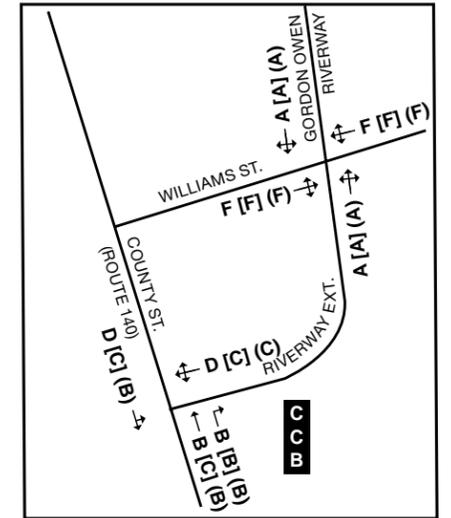
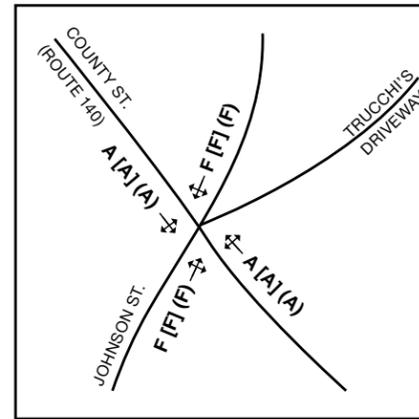
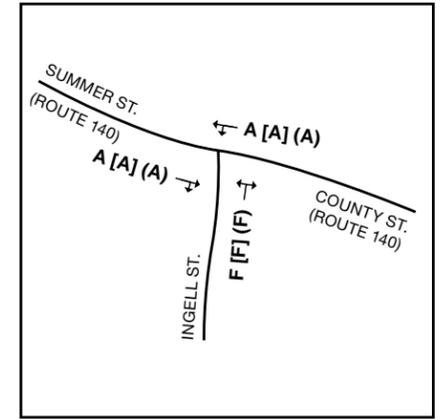
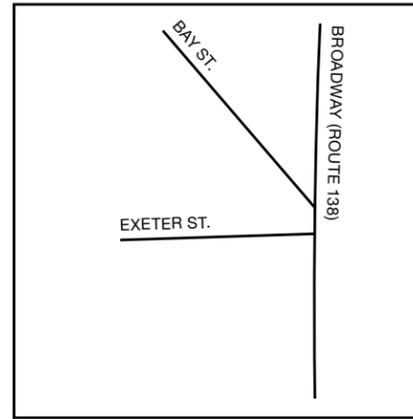
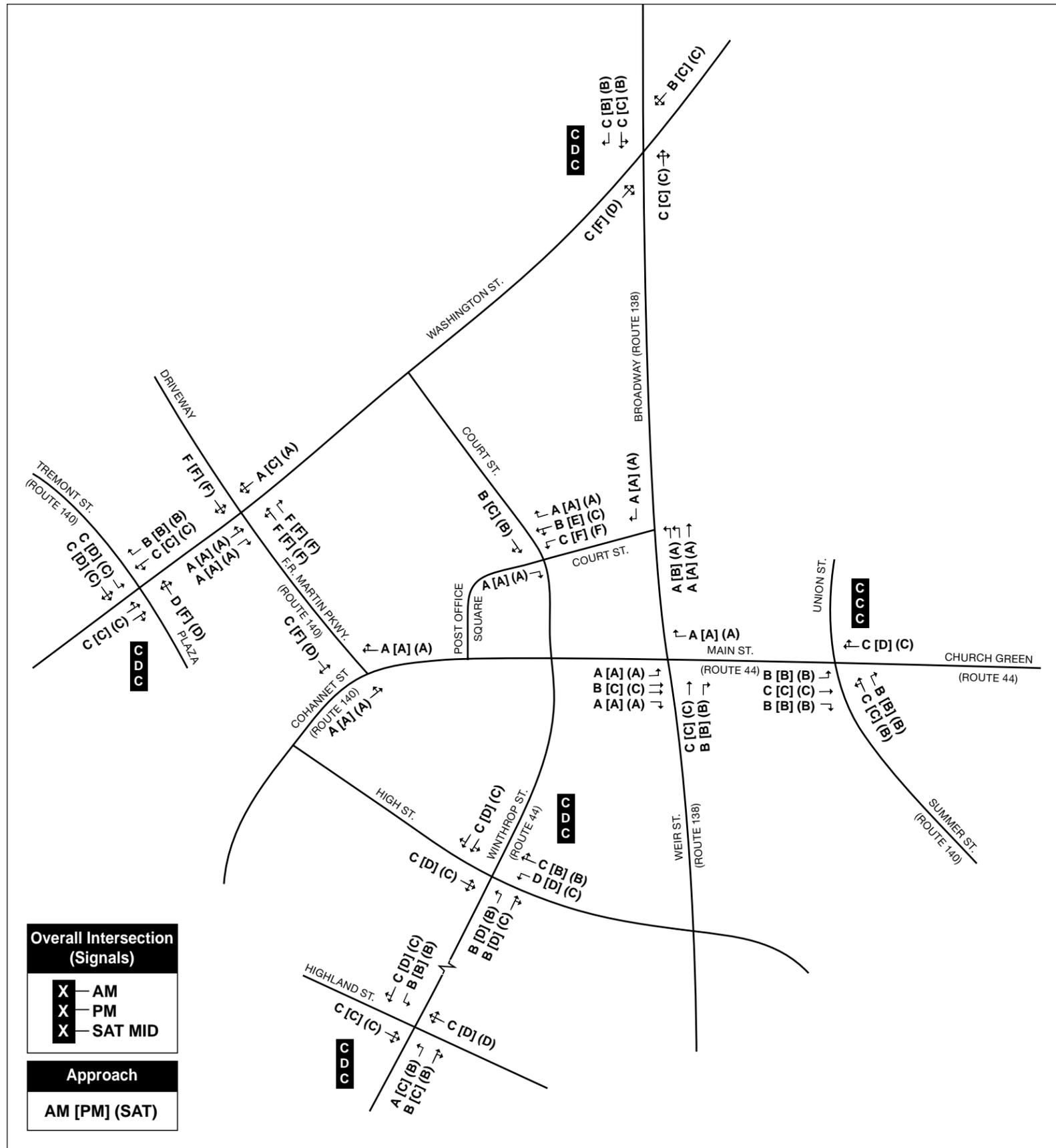
School zone flashing warning devices will be installed on each approach to the driveway, along with the appropriate signage and pavement markings.

Summary of Mitigated Intersection Traffic Operations: Alternative A

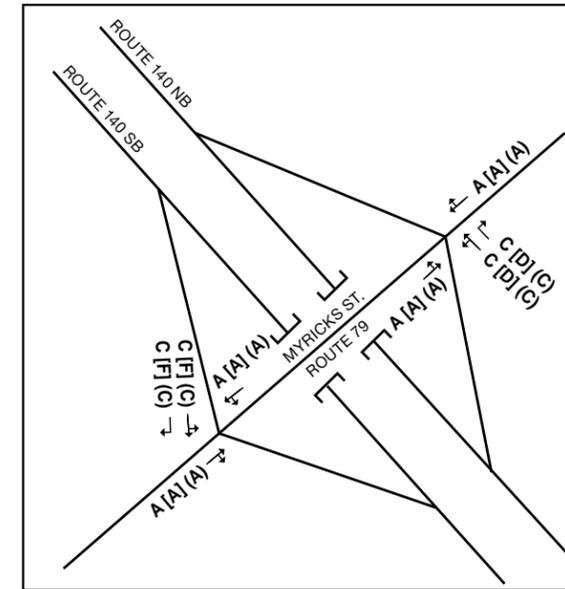
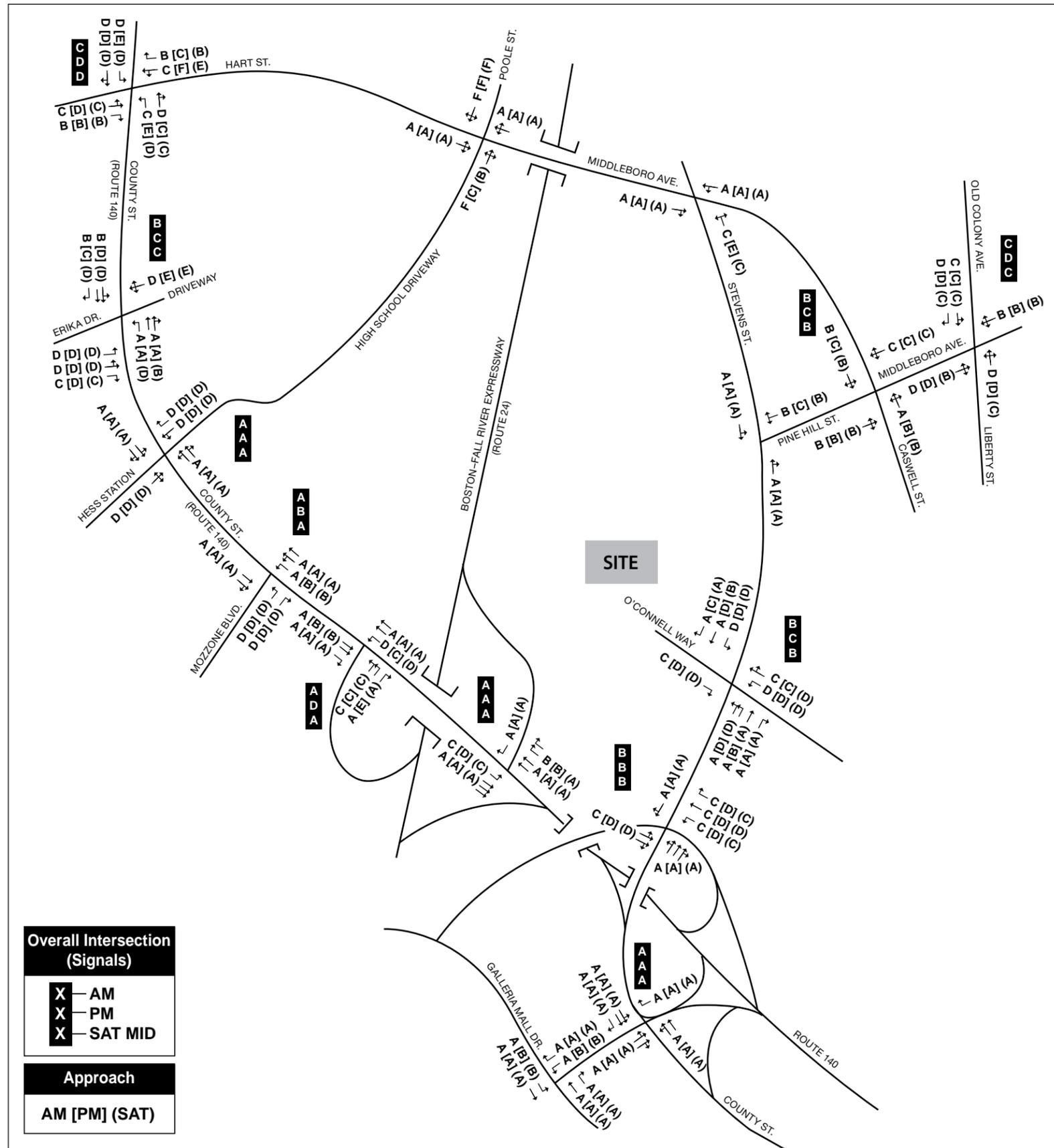
Intersection operations under Alternative A Mitigated conditions are shown in Figure 8.1-93, Figure 8.1-94, Figure 8.1-95, and Figure 8.1-96. Detailed LOS summaries are shown in Table 1, Table 2, and Table 3 in Appendix B-3. Synchro reports can also be found in Appendix B-3.

Summary of Mitigated Interchange Operations: Alternative A

Figure 8.1-97 and Figure 8.1-98 illustrate the interchange operations for the Build Alternative A Mitigated Interchange conditions for the Friday AM, Friday PM, and Saturday Midday peak hours. The proposed mitigation will result in the following improvements, and/or changes, to operating conditions at the locations described below. It should be noted that the volumes used for analysis of interchange operation volumes did not take into account any credit from Transportation Demand Management (TDM) measures or the removal of trips from existing developments that will be displaced from the Project Site; therefore, the analysis is to be considered conservative.



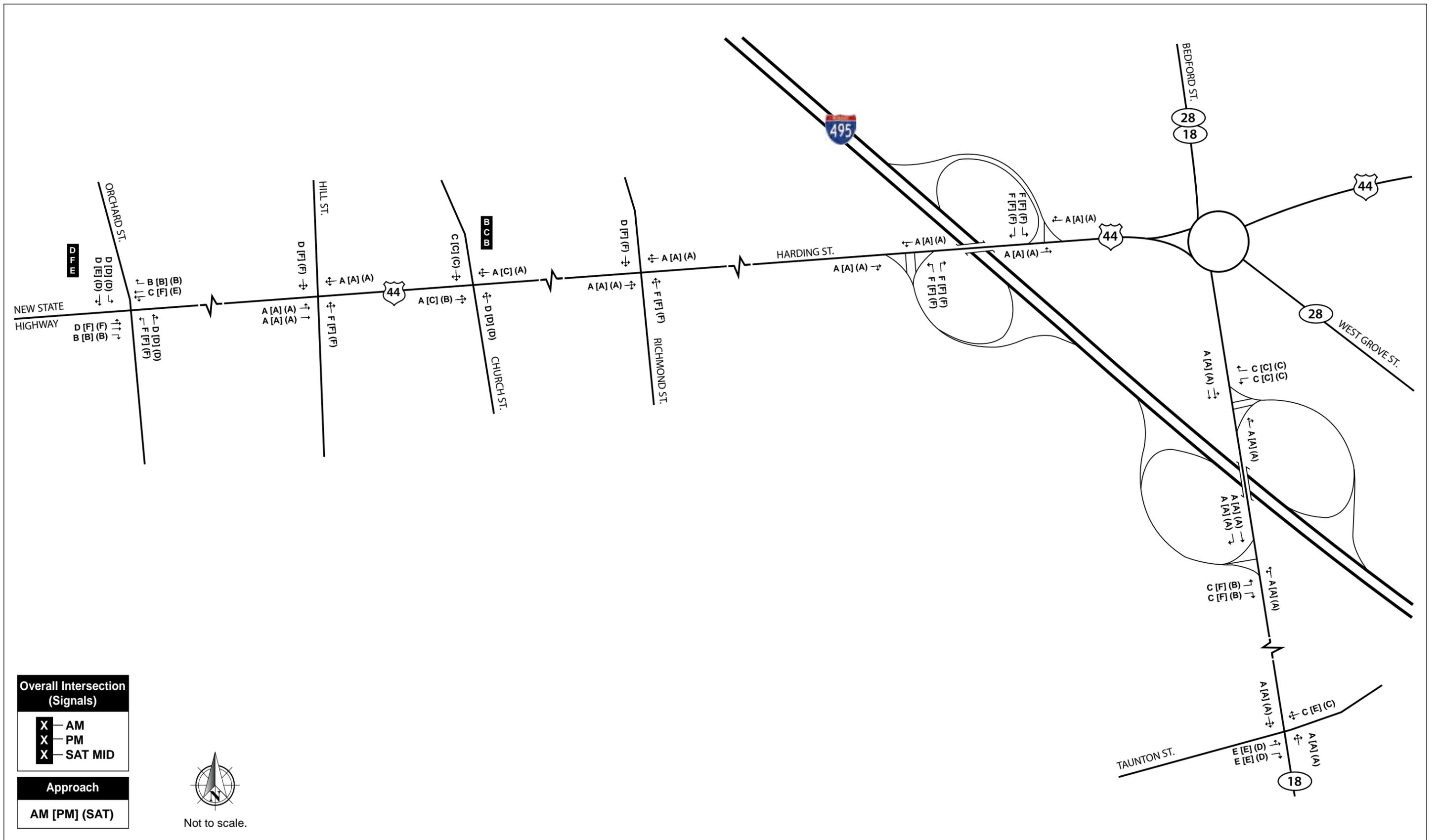
Not to scale.

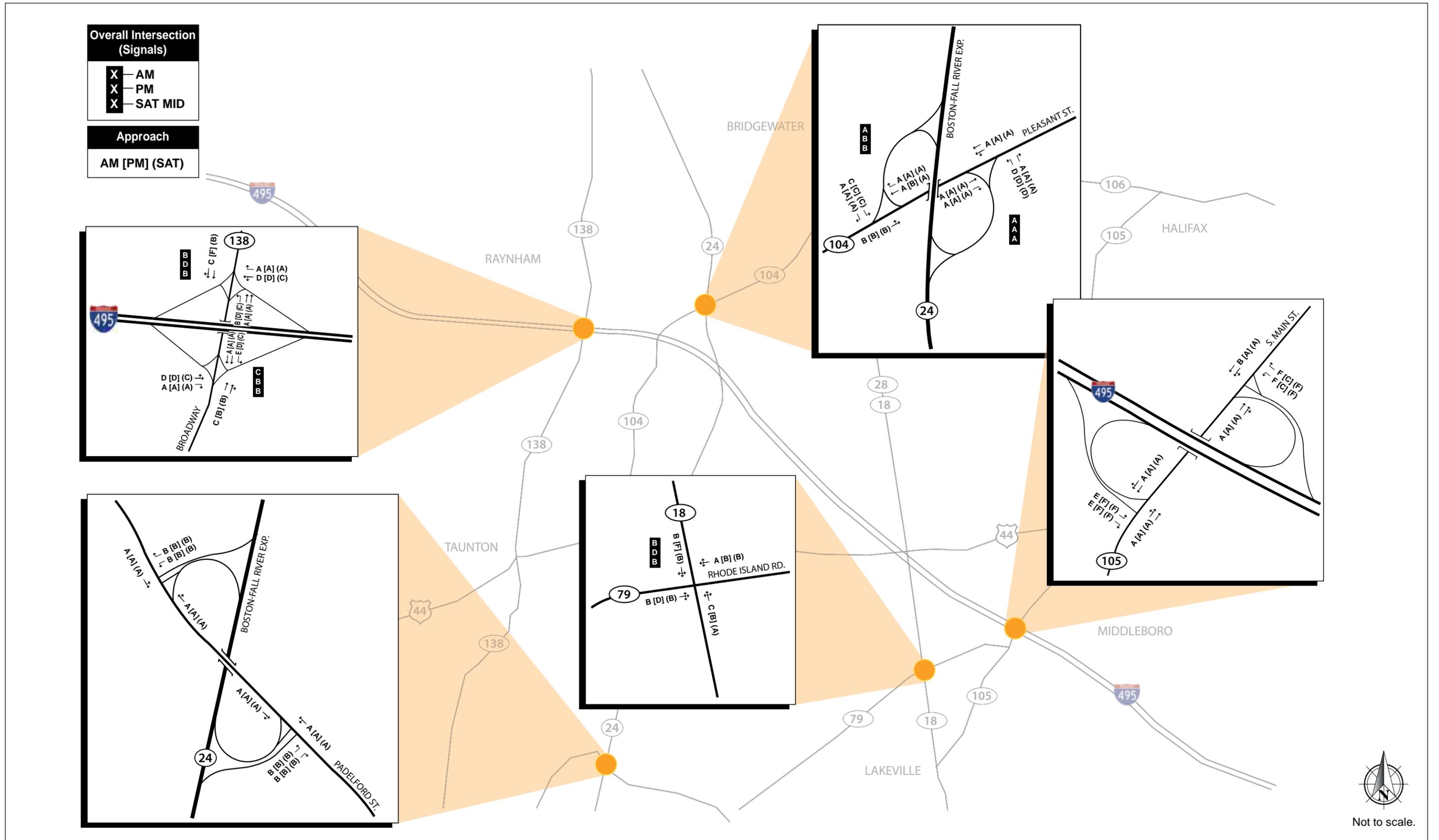


Overall Intersection (Signals)	
X	AM
X	PM
X	SAT MID
Approach	
AM	[PM] (SAT)

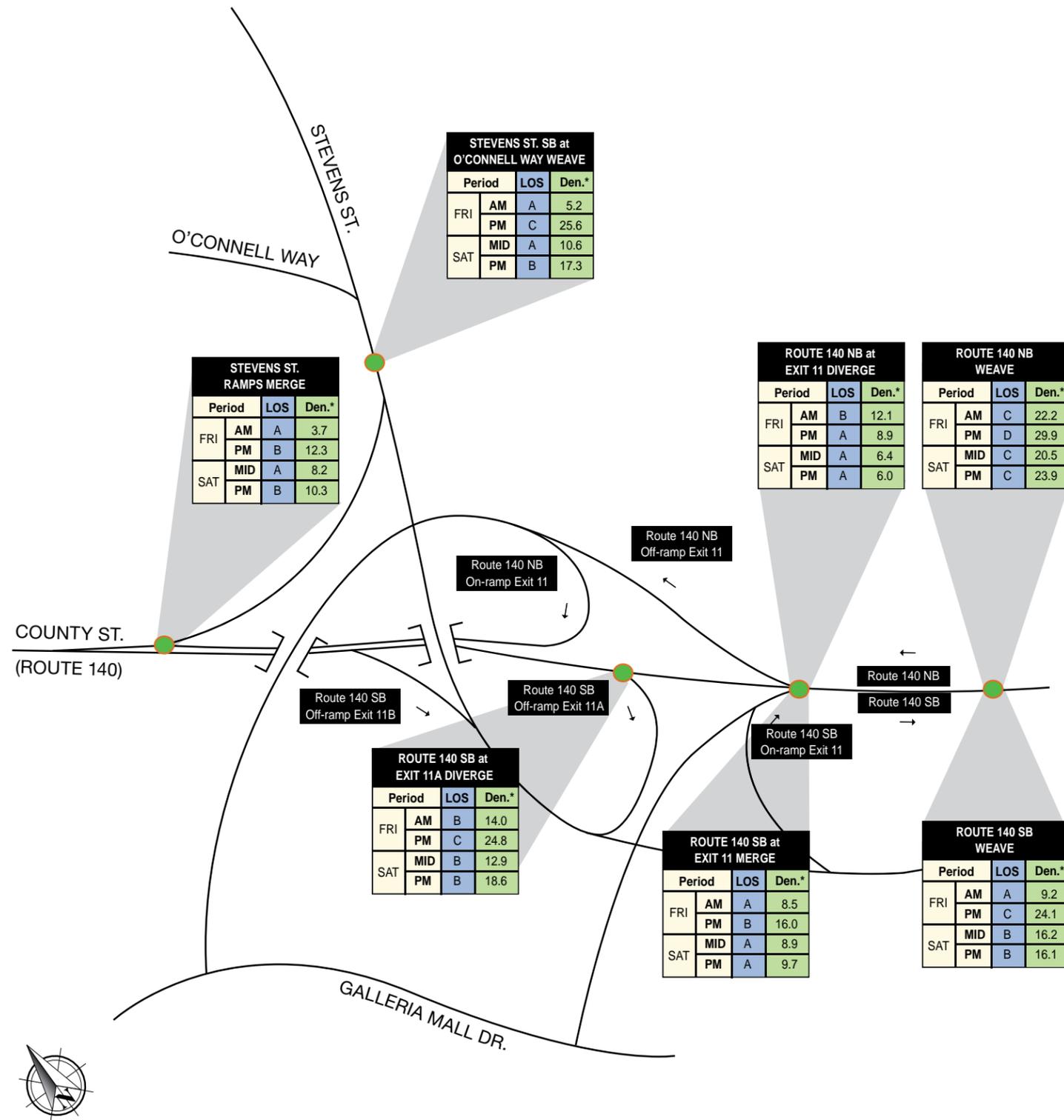


Not to scale.

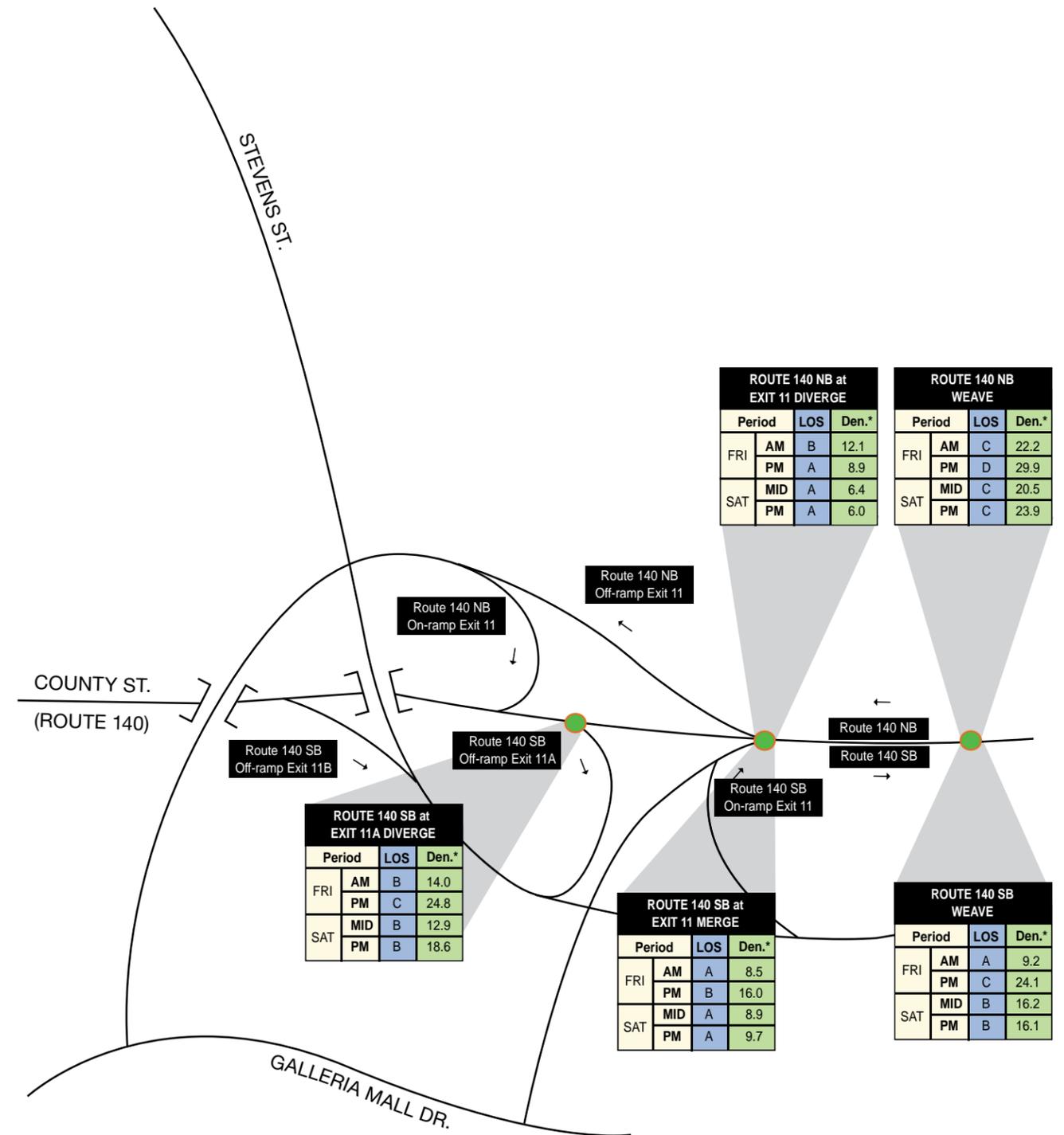




OPTION 1



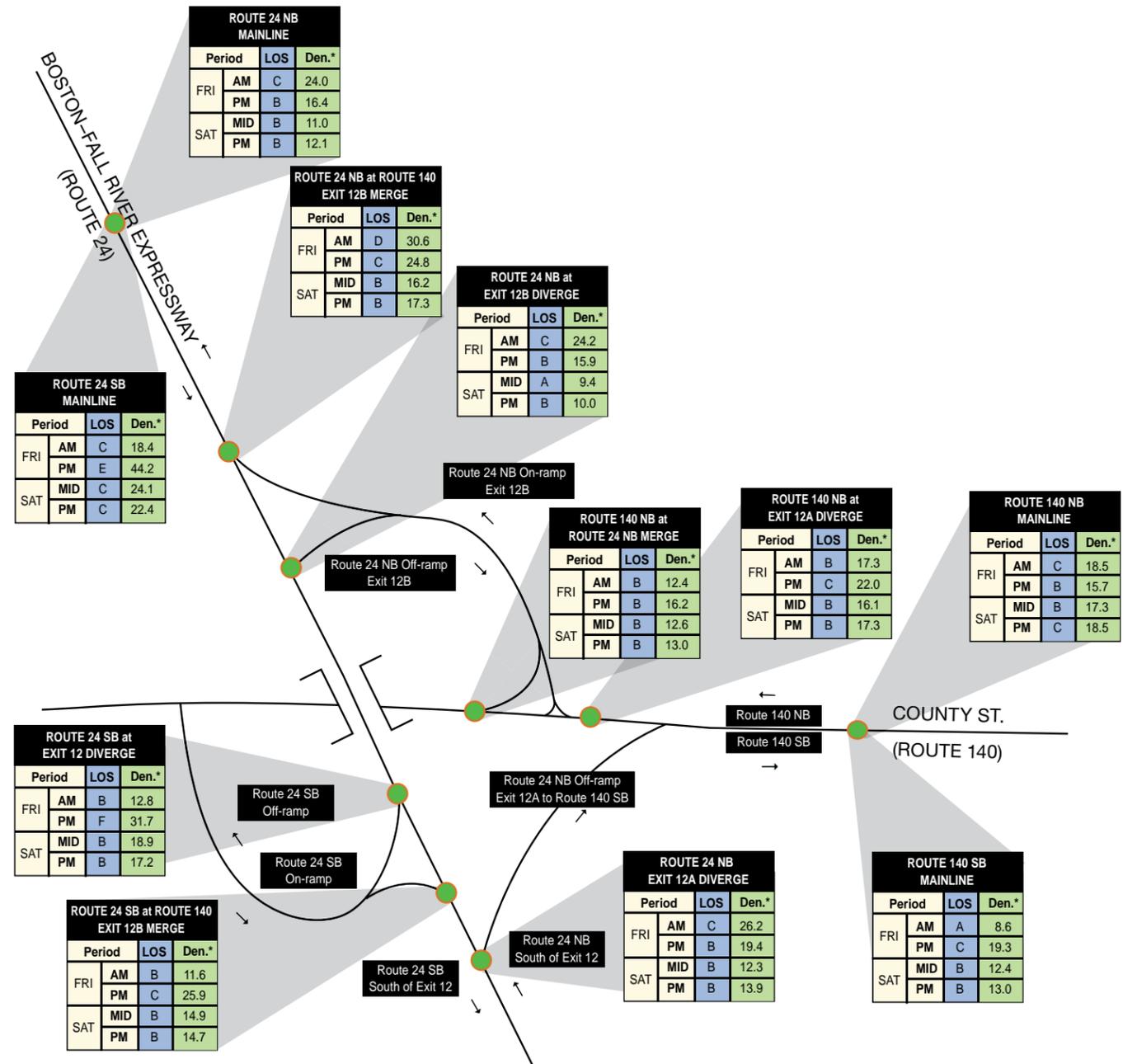
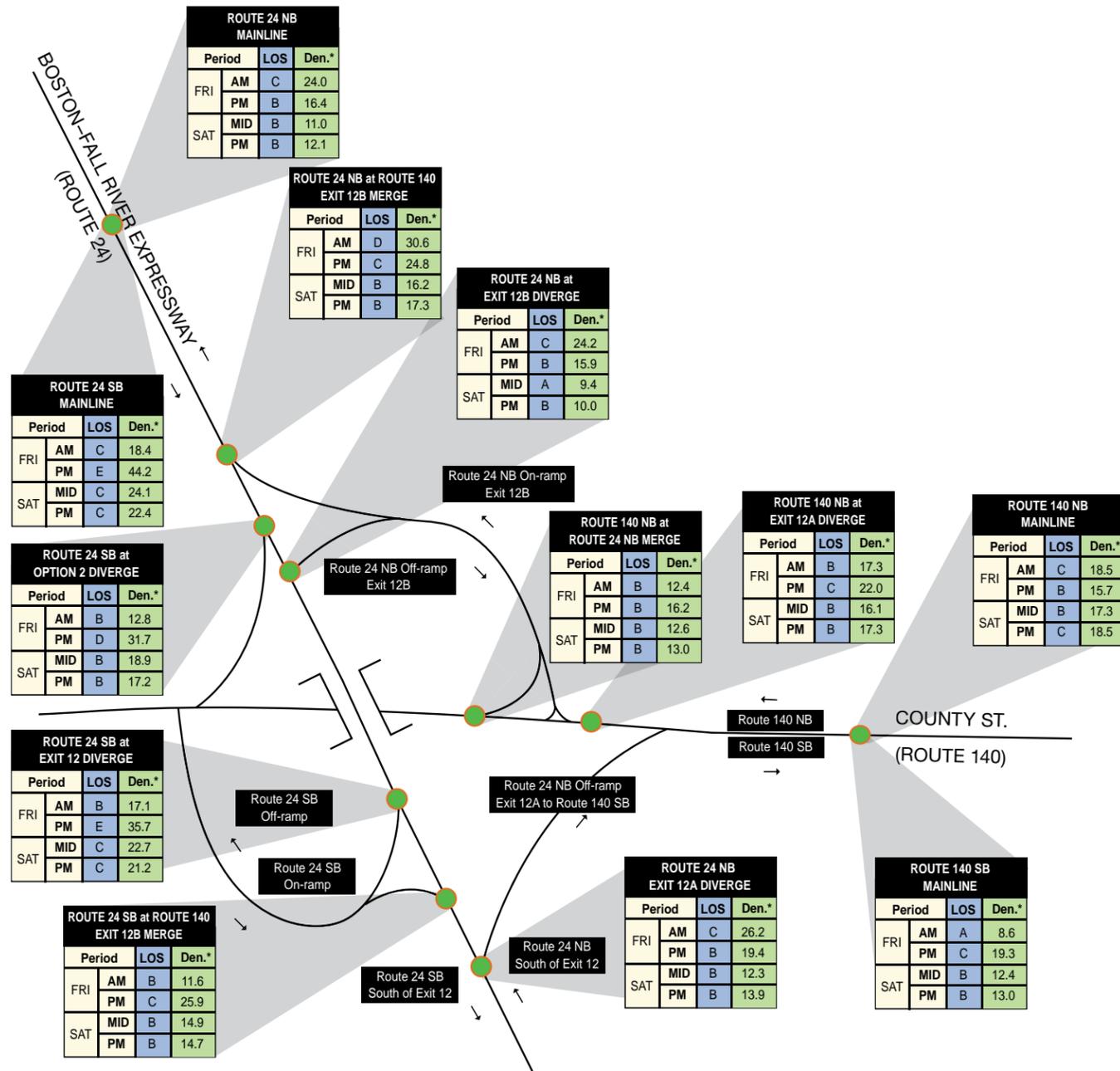
OPTION 2



Not to scale.

OPTION 3

OPTION 4



Not to scale.

New Stevens Street Ramp to Route 140 Northbound

The addition of the new Stevens Street ramp will create a weave condition on Stevens Street southbound between O'Connell Way and the new ramp. The weave is expected to operate at LOS C or better under all conditions.

Stevens Street Ramps Merge

The addition of the new Stevens Street ramp will create a merge condition upstream of Route 140 northbound, which is expected to operate at LOS B or better under all conditions.

Route 140 NB (between Exit 11 and 12)

A new ramp is proposed on Stevens Street to the north of the Route 140 exit 11 ramps to allow all Stevens Street southbound traffic to access Route 140 NB prior to this intersection.

The additional ramp from Stevens Street will require some widening of Route 140 NB where the ramp meets the highway. Since the new ramp will enter Route 140 NB approximately 700 feet from the existing on-ramp to the south, it is proposed that this ramp be separated from the main line traffic by a barrier. The traffic from both ramps will merge together before joining with main line Route 140 NB traffic. In addition, Route 140 NB will be widened from two lanes to three lanes between the new ramp and the approach to the Route 24 NB on-ramp.

These improvements introduce a new merge and weave condition. The new merge of the existing Route 140 on-ramp from Stevens Street with the proposed new ramp will operate at LOS B in the worst-case condition. The weave of this combined ramp with Route 140 NB will operate at LOS D in the worst case condition.

There will also be a new weave at the channelized right turn from O'Connell Way with Stevens Street traffic to the new ramp (140 NB). This will operate at LOS C during the worst case condition. Under Option 2, as discussed above, all exiting vehicles accessing Route 140 northbound will remain to use the existing on-ramp. The proposed widening of Route 140 NB from two to three lanes will create a weave condition that will operate at LOS D in the worst case condition.

Route 24 Southbound at Exit 12

A comparison of the interchange operations for Option 3 and 4 are shown in **Figure 8.1-98**. The results from the analysis indicate that the addition of the Route 24 SB slip ramp to Route 140 NB improves operations at the downstream ramp diverge. As this location has always been borderline, the introduction of a slip ramp indicates an improvement to the diverge LOS as it's removing just over 200 vehicles in the p.m. peak hour just upstream of the exit to Route 140 southbound. However, it does introduce a new divergence point on Route 24 southbound mainline from the same deceleration lane fairly close to the other, which suggest that the LOS results here are misleading.

Route 24 Southbound at Route 140 Southbound Merge

The merge condition created from the added lane from the Route 24 southbound approach at Route 140 southbound will operate at LOS C or better during all time periods.

8.1.3.5 Operations Analysis: Alternative B

Alternative B Site Circulation

As shown in **Figure 8.1-99**, Alternative B will be similar to Alternative A for circulation related to garage access/egress, deliveries, employee shuttle, access to existing LUIP uses just south of the rail alignment and site access to the north of the rail alignment. Under this scenario, however, access to existing uses in the southern-most existing building (fitness center) must be maintained. Thus, there will be no porte-cochere, and pick-up/drop-off /valet operations would be run out of the bus lobby area. A loop road around the casino building would provide access to pick-up/drop-off, the existing southern building, parking, and site egress. A valet-only road would provide a direct connection between the lobby and the garage.

Alternative B Study Area

As shown in **Table 8.1.3**, presented previously, the trips generated by Alternative B (Reduced Intensity Alternative 1), are considerably less than the full build of the proposed project (Alternative A). For this reason, the study area for Alternative B is much smaller as the impacts to local intersections further from the site will be insignificant. The analysis for Alternative B includes the following six intersections:

- Galleria Mall Drive South/County Street (Route 140);
- Overpass Connector/Route 140 NB Ramps/Stevens Street;
- Route 24 NB Ramps (Exit 12B)/County Street (Route 140);
- Route 24 SB Ramps (Exit 12A)/County Street (Route 140);
- O'Connell Way/Stevens Street; and
- Stevens Street/Secondary Site Driveway.



SOURCE: Howard/Stein-Hudson Associates, Inc.

Figure 8.1-99
Site Circulation: Alternative B

Figure 8.1-100, Figure 8.1-101, and Figure 8.1-102 show Build Alternative B volumes in the AM peak hour, PM peak hour, and Saturday midday peak hour, respectively. **Figure 8.1-103** shows the Build Alternative B conditions intersection level of service summary for study area intersections. Summary tables including the delay, v/c ratio, average queue length, and 95th percentile queue length are shown in Table 1, Table 2, and Table 3 of **Appendix B-3**. Detailed Synchro analyses for all conditions are also presented in **Appendix B-3**.

2022 Alternative B Build AM Peak Hour Intersection Operations

During the morning peak hour, the overall operations of the Alternative B study area intersections are very similar to the Alternative D No-Action Alternative. All intersections will continue to operate at LOS A or B.

2022 Alternative B Friday PM Peak Hour Intersection Operations

During the evening peak hour the overall operations at *Overpass Connector/Route 140 NB Ramps/Stevens Street* worsens from LOS B in the Alternative D No-Action Alternative to LOS F under Alternative B conditions. This is due to the increase in the Stevens Street southbound left-turning volumes. Mitigation for this condition is discussed below.

At *Route 24 SB Ramp (Exit 12A)/County Street (Route 140)*, the overall LOS remains at an F, but the County Street northbound left-turning movement worsens from LOS E to LOS F. This is due to the exiting trips being added to this movement. Mitigation for this condition is discussed below.

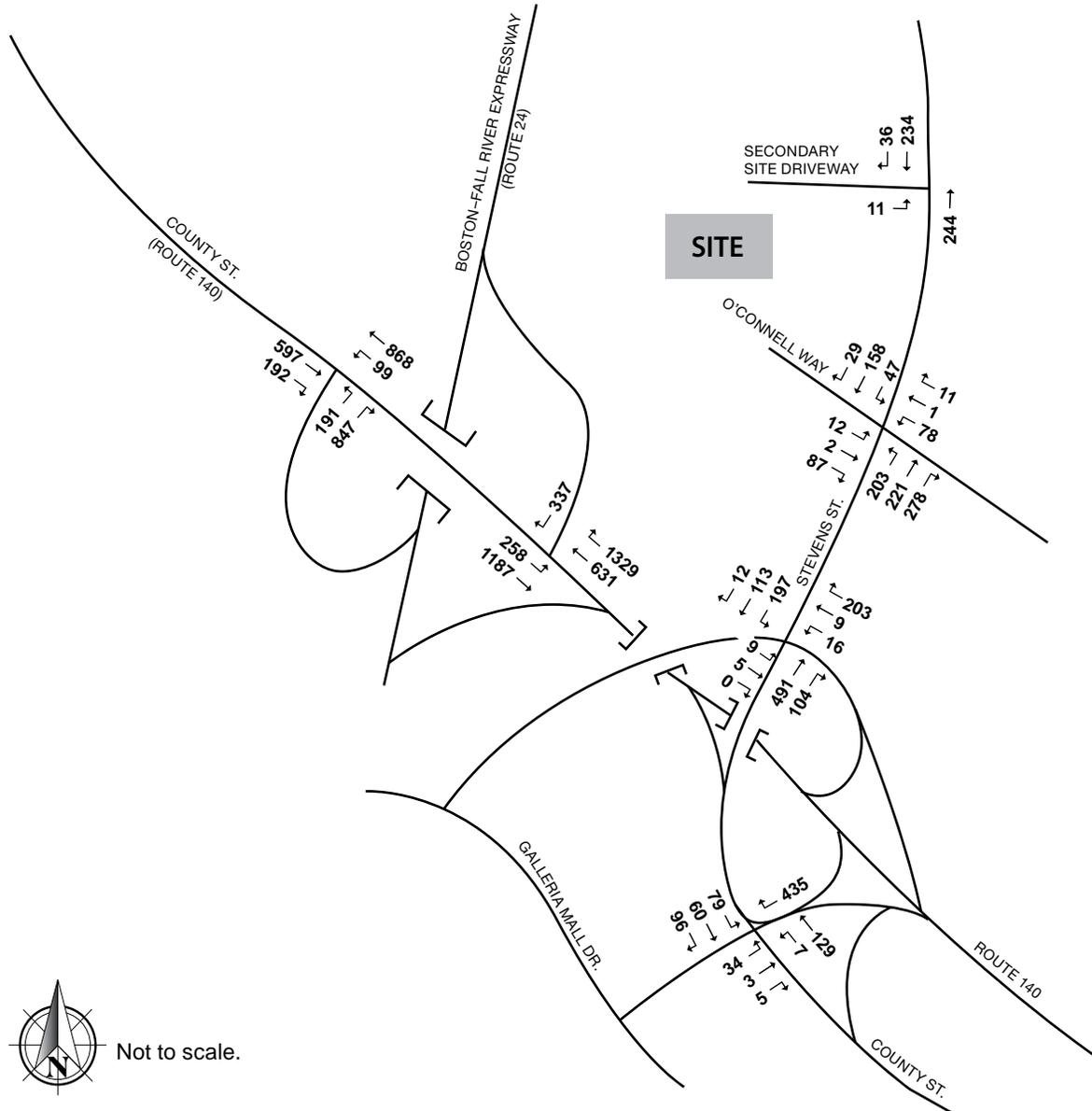
At *O'Connell Way/Stevens Street*, the eastbound O'Connell Way right-turn worsens from LOS C to LOS F. This is due to the increase in exiting trips under Alternative B. Mitigation for this condition is discussed below.

2022 Alternative B Saturday Midday Peak Hour Intersection Operations

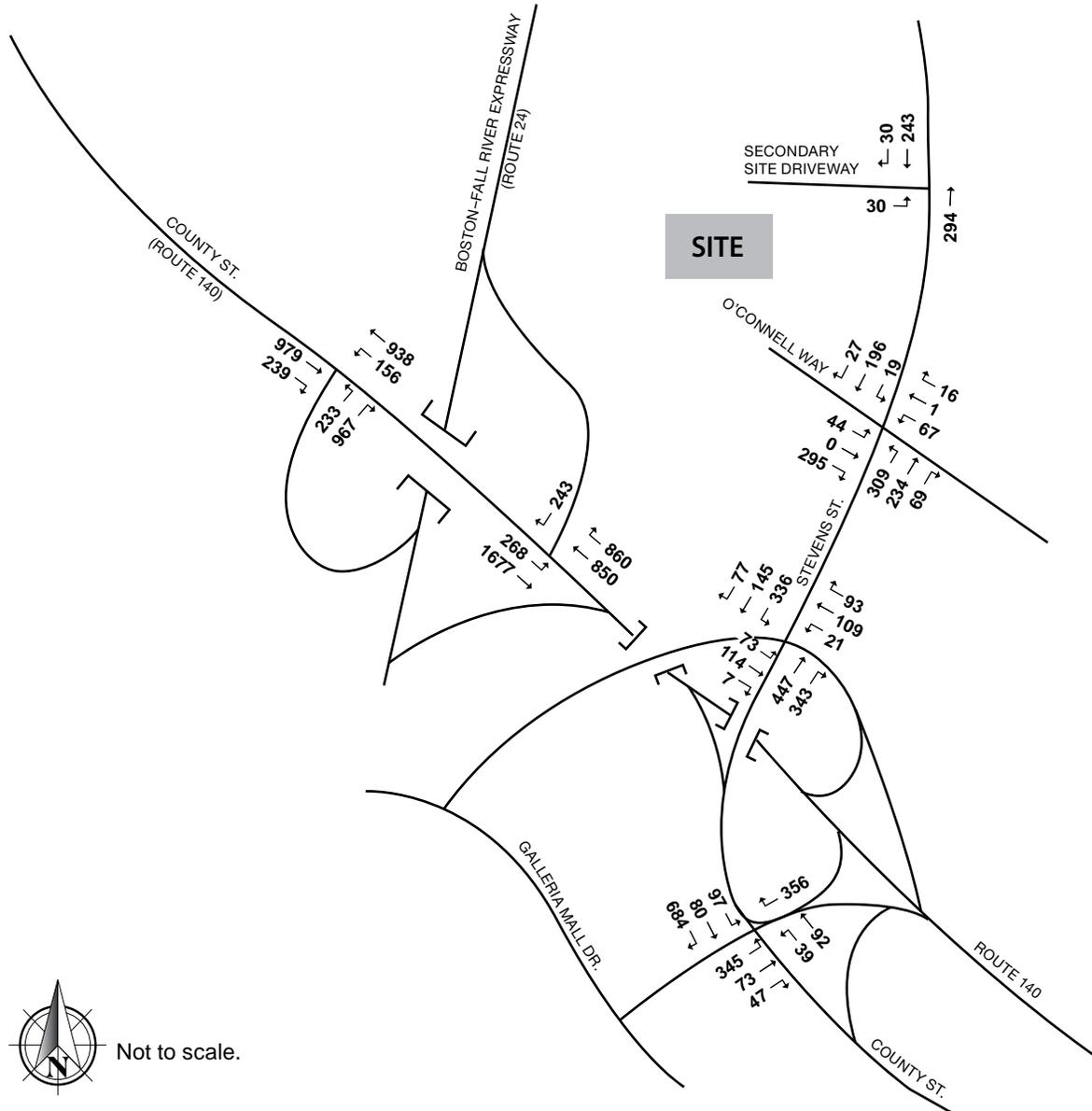
During the Saturday midday peak hour, all study area intersections continue to operate at LOS C or better. However, the O'Connell Way and Revolutionary Road approaches at *O'Connell Way/Stevens Street* worsen to LOS F. This is due to the added project-generated trips on Stevens Street and the lack of acceptable gaps at this unsignalized intersection. Mitigation is discussed below.

8.1.3.6 Proposed Mitigating Measures: Alternative B

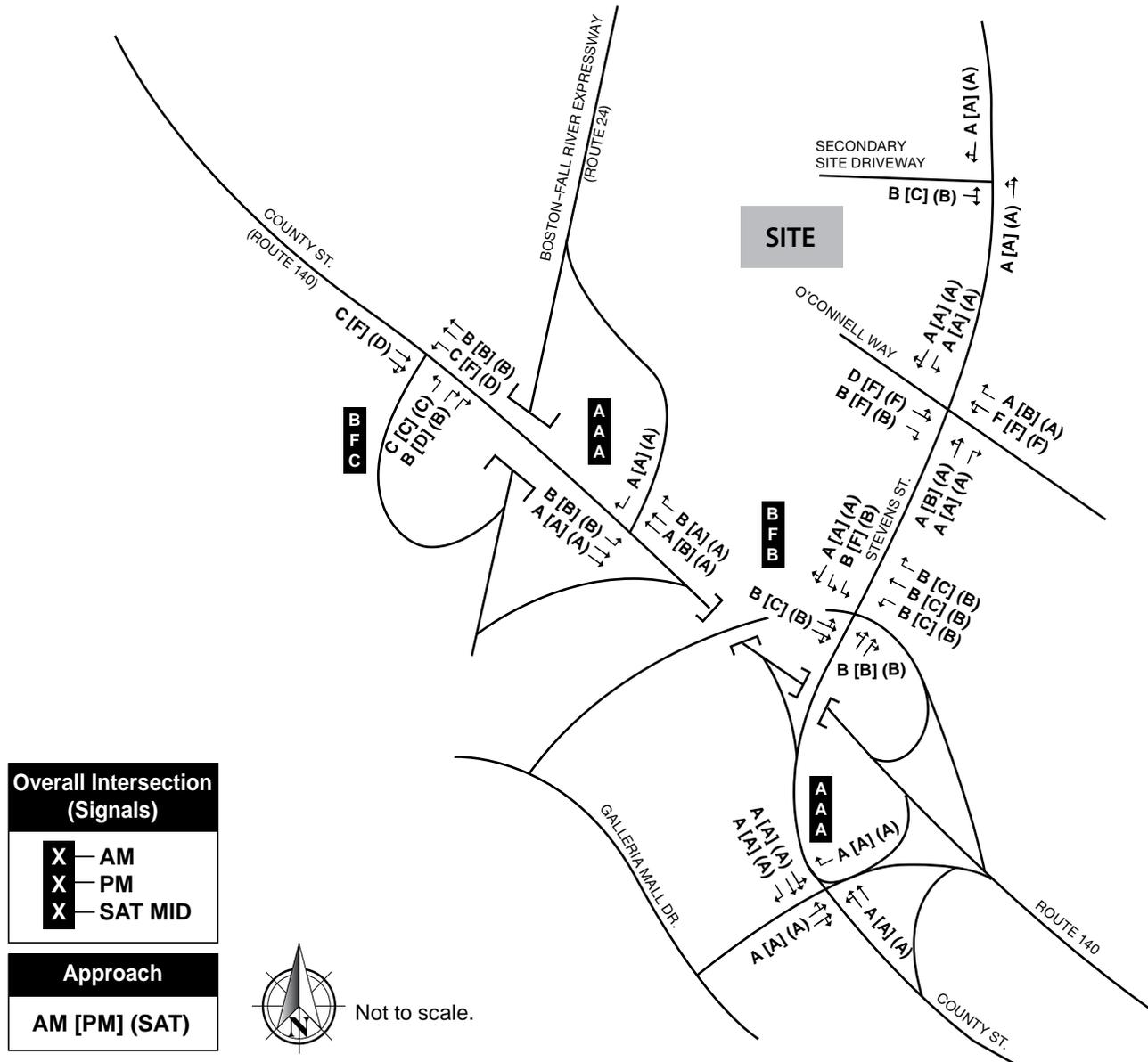
The analysis showed that mitigation to accommodate Alternative B would be necessary at only four locations, including the main driveway and secondary driveway serving the site. The mitigation includes the following measures:



Not to scale.



Not to scale.



Overall Intersection (Signals)	
X	AM
X	PM
X	SAT MID
Approach	
AM	[PM] (SAT)



O'Connell Way/Stevens Street/Revolutionary Road (Main Driveway)

To accommodate Alternative B, the site driveway must be signalized. The Stevens Street northbound approach would be restriped to include a 250-foot left-turn lane, a through lane, and a right-turn lane. The westbound Revolutionary Road approach would be striped as a left-turn lane and a shared through/right-turn lane. The eastbound O'Connell Way approach would be reconstructed with a channelized island to allow only right-turns out of the site. All vehicles wanting to exit to Stevens Street northbound would use the secondary site driveway. The southbound Stevens Street approach would be widened to accommodate a left-turn lane, a through lane, and a right-turn lane. The signal at this location should be coordinated with the signal at Overpass Connector/Route 140 NB Ramps/Stevens Street to prevent spillback between the two locations.

Overpass Connector/Route 140 NB Ramps/Stevens Street

This intersection has enough capacity to handle the added traffic from Alternative B. However, to accommodate the restriping of the northbound approach at O'Connell Way/Stevens Street/Revolutionary Road, the southbound Stevens Street approach at this location will be restriped as a single travel lane, which opens to three lanes at the intersection. The southbound approach will have a through lane with two left-turn lanes that have storage lanes of 200 feet. The signal at this intersection would be retimed and coordinated with the signal at O'Connell Way/Stevens Street/Revolutionary Road.

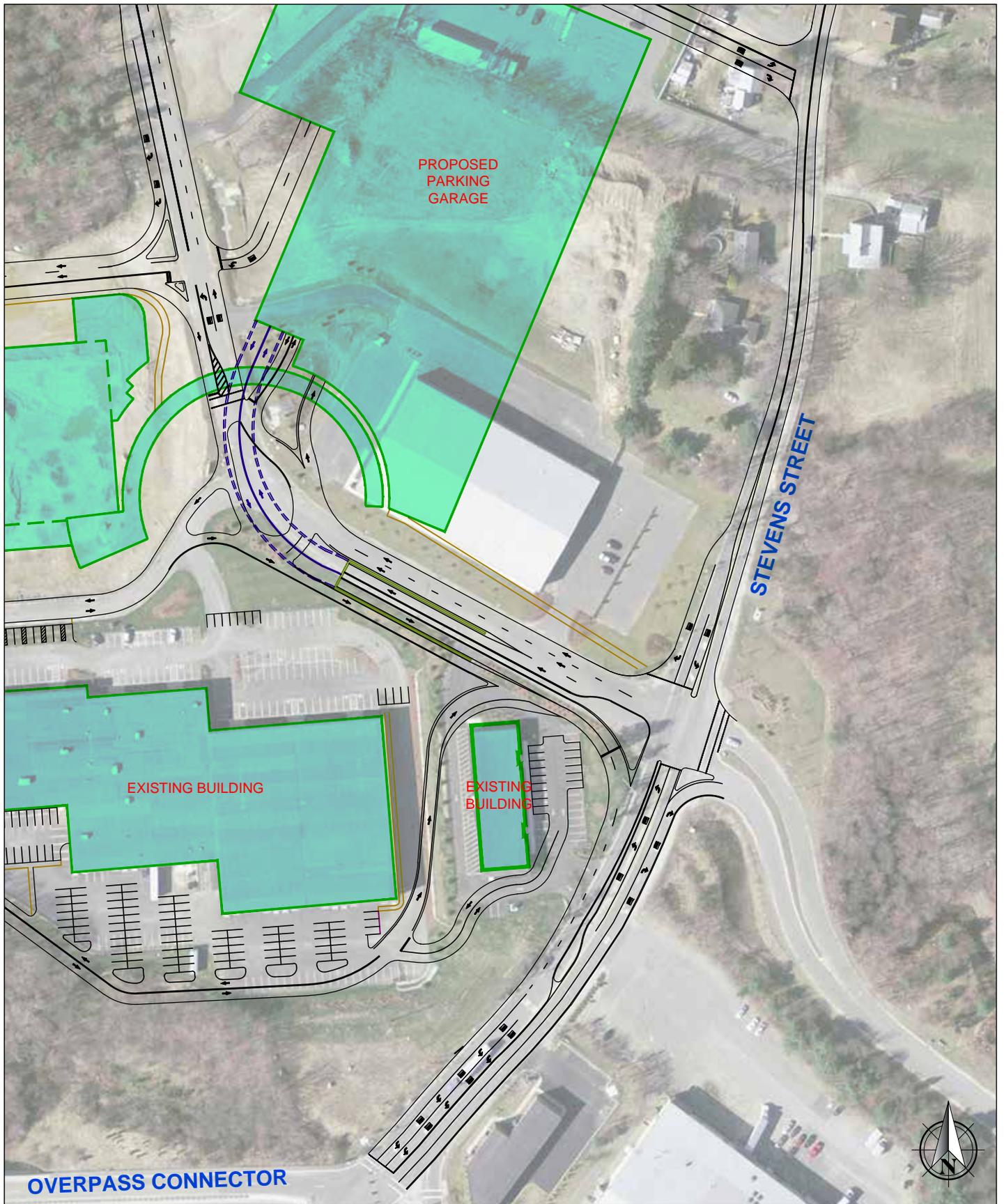
Route 24/Route 140 interchange SB off ramp

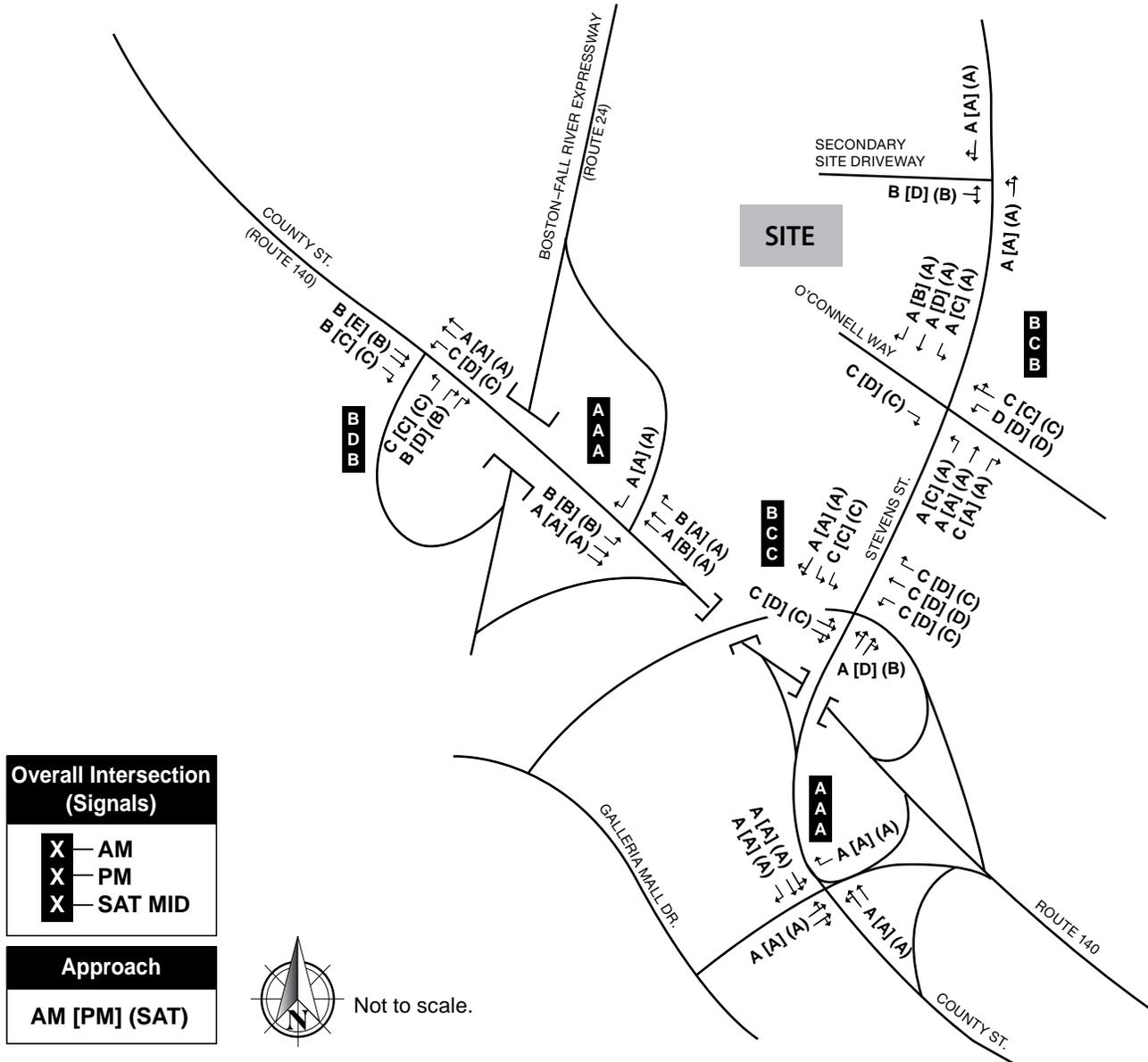
At this location, the cycle lengths and splits would be reevaluated to reduce the queuing along the Route 24 SB off-ramp and the intersection. It is proposed that the cycle length be reduced during all peak hours to reduce the queues. It is also proposed that a full right-turn lane be added to the County Street southbound approach that extends to Industrial Drive. This would allow vehicles wishing to make a right-turn onto Route 24 SB to bypass some of the queue at the intersection.

Secondary Site Drive/Stevens Street

The majority of site traffic will use the main site driveway. However, the secondary site drive will service those passenger vehicles wanting to exit the site to travel northbound on Stevens Street. This driveway will also accommodate all trucks entering the site. This intersection is proposed to be unsignalized. Additional lanes are not necessary on Stevens Street for Build Alternative B.

Figure 8.1-104 shows the improvements needed along Stevens Street. **Figure 8.1-105** shows the Build Alternative B mitigated conditions intersection level of service summary for study area intersections. Summary tables including the delay, v/c ratio, average queue length, and 95th percentile queue length are shown in Table 4, Table 5, and Table 6 of **Appendix B-3**.





8.1.3.7 Operations analysis Alternative C

Alternative C Site Circulation

The site circulation for Alternative C will be the same as the plan for Alternative A, with the exception that there will be no land use on or access to the part of the site north of the railroad right-of-way.

Operations Analysis Alternative C

In terms of traffic impacts, the only difference between Alternative A and Alternative C is the removal of the water park and associated hotel from the north part of the site. Because this element of the Project did not generate significant peak hour trips at any of the analysis hours, no additional traffic analysis was done for Alternative C. Its relative impacts in terms of trips generated can be seen in **Table 8.1-3**, above.

8.1.3.8 Impact Analysis: Parking

Parking demand was estimated for each of the three build alternatives on the basis of recommended industry parking ratios, as follows:

- 0.7 spaces/gaming position;
- 1 space/100 sf to 1 space/1000 sf of back of house and support space
- 0.5 spaces/seat for restaurant/buffet/bar space
- 3 spaces/1,000 sf for retail space
- 0.7 spaces/key for hotel keys
- 5 spaces/1,000 sf for water park.

Parking supply was allocated by alternative in terms of garage vs. surface lot spaces. The number of spaces for each of the options is indicated below:

- **Alternative A:** 4,431 garage spaces plus 1,940 surface lot spaces for a total of 6,371 spaces. Of the surface spaces, 500 will be located north of the MassDOT rail right-of-way to serve the 300 room hotel and water park on that side of the site;
- **Alternative B:** 3,012 garage spaces plus 1,940 surface lot spaces for a total of 4,952 spaces. Of the surface spaces, 500 will be located north of the MassDOT rail right-of-way to serve the 300 room hotel and water park on that side of the site;
- **Alternative C:** 4,431 garage spaces plus 1,440 surface lot spaces for a total of 5,871 spaces. In this alternative, no land uses or parking will be located north of the rail right-of-way as the water park and associated hotel are eliminated in this option.

The resulting parking demand and supply by alternative is shown in **Table 8.1-8**, below.

**TABLE 8.1-8
SUMMARY OF PARKING DEMAND AND SUPPLY BY ALTERNATIVE**

Type	Alternative A (4,500 gaming positions)		Alternative B (2,330 gaming positions)		Alternative C (4,500 gaming positions)	
	Demand	Supply	Demand	Supply	Demand	Supply
Gaming positions	3,150		1,595		3,150	
Non-casino floor	1,256		538		1,256	
Hotel	630		210		420	
Water park	125		125		-	
TOTAL	5,161	6,371	2,468	4,952	4,826	5,871

As shown above, there is adequate on-site parking capacity to meet project demand for all alternatives.

8.1.3.9 Impact Analysis: Public Transportation

To help reduce traffic impacts, public transportation both for employees and patrons will be a key component of casino access management. To promote use of public transportation, the Tribe will do the following:

Patrons

- The casino website and other promotional materials will encourage patrons to travel to the casino via public transportation.
- Once operations begin at the Taunton Depot commuter rail station, the Tribe is willing to explore establishing a shuttle bus service that would provide a connection between the station and the Casino. This would allow patrons from the Boston area, Fall River and New Bedford to travel to the site without using their automobiles. The times and frequency of potential service would be tied into the train schedule, with the number and size of the shuttle vehicles determined based on the demand. It is also anticipated that if demand is sufficient to warrant a shuttle bus service, the vehicles used for this service would use a clean energy source (such as compressed natural gas - CNG), or use hybrid vehicles to minimize emissions.
- Casino shuttle service from nearby Campello Station and Middleborough/Lakeville station on the Middleborough/Lakeville line and Mansfield Station on the Stoughton/Providence line will also be investigated.
- Prior to implementation of the South Coast Rail project, the Tribe is willing to meet with GATRA and Bloom Bus representatives to explore the possibility of expanding/modifying their existing service to include the Casino Project Site.
- As South Coast Rail planning continues, and depending on what alternative routing is chosen, the proponent will work with MassDOT and the MBTA to investigate locating a platform to serve the casino along the north side of the CSX right of way.

- An on-site Intermodal Transportation Center that will serve charter buses, intercity buses, GATRA buses and shuttle services to rail stations will be provided. The ITC will be visible and fully integrated into the casino and other elements of the Project. It will provide comfortable waiting areas and other amenities for passengers.

Employees

- The Tribe will encourage employees to travel to the casino via public transportation (commuter rail). The Tribe is willing to explore establishing a shuttle bus service that would provide a connection between the Taunton Depot commuter rail station on Route 140 and the casino. This would allow employees from potential employment centers such as New Bedford or Fall River to travel to work at the casino without having to drive the entire distance. Again, the vehicles used for the shuttle service would use a clean energy source (such as compressed natural gas - CNG), or use hybrid vehicles to minimize emissions. As noted above, the potential shuttle service could be coordinated with existing shuttle bus services operated by GATRA in the Lakeville/Middleborough/Wareham area that could provide a means for employees living in Taunton or Wareham to commute to the Project Site without using their automobiles.
- The Tribe will post information regarding MBTA schedules, shuttle bus services, ride matching opportunities, etc. in employee break areas.
- The Tribe will establish a web page that describes all the public transportation travel options available to employees, and will work through its Human Resources Department to coordinate sale of MBTA and GATRA transit passes.

8.1.3.10 Impact Analysis: Pedestrians and Bicycles

Pedestrian and bicycle circulation for easy and safe movement within the Project Site are important to the overall site plan. Secure bicycle storage will be provided in the main casino garage. Internal site roadways will all have sidewalks with a minimum width of five feet' to meet Americans with Disabilities Act (ADA) requirements. The intersection of the site driveway with Stevens Street will be signalized and provided with crosswalks to facilitate pedestrian movement to the Silver City Galleria Mall across the street. Off-site mitigation will also be designed to accommodate pedestrians and bicycles safely.

8.1.3.11 Transportation Demand Management Measures

The traffic analyses conducted for this study, including the mitigation analyses discussed above, have taken a "worst case" approach in that no reduction in trips to and from the site was assumed to result from Transportation Demand Management (TDM) measures. To ensure the success of the Project, a comprehensive TDM program has also been developed by the Tribe. The elements of the TDM program are described below.

High Occupancy Vehicles

To promote the use of high occupancy vehicles as a transportation alternative for patrons and employees at the casino, the Tribe will:

Patrons

- Encourage patrons to travel to the casino by high occupancy vehicles such as buses or limousines. Convenient bus and limousine drop-off and pick-up areas will be designated within the structured parking facility. On-site bus and limousine "layover" facilities will also be provided.
- Establish a web page that describes all the public transportation and high occupancy vehicle travel options available to patrons.

Employees

- Establish car and van pool programs that will be available to all employees. The program will also use the free services of MassRIDES (<http://www.commute.com/>) to assist in matching potential van pool participants.
- Establish a web page for employees where they can enter basic data to facilitate ride matching. The data would include information such as:
 - Zip Code;
 - Gender preference (if specified);
 - Smoking preference (if specified);
 - Driving preference; and
 - Work schedule (work days, departure times, return times)
- Establish a shuttle bus system on the site for employees to travel between employee parking facilities and the casino. The on-site employee shuttle vehicles will also be powered by a clean energy source (CNG), or use hybrid vehicles to minimize emissions.
- Provide preferential parking spaces for employees who are ride sharing participants as an incentive to become involved in a carpool or vanpool. These designated carpool or vanpool spaces will be located closest to the employee shuttle bus stops in the employee parking areas.
- Provide preferential parking spaces for employees who drive hybrid or clean fuel vehicles. These designated spaces will be located closest to the employee shuttle stops.
- Provide electric vehicle charging stations in the parking garage.
- Post data in employees break areas pertaining to rideshare programs.

Additional TDM Measures/Project Amenities

- Set aside designated spaces in the structure parking facility for patrons who use shared cars, such as Zip cars (<http://www.zipcar.com/>).
- Designate an on-site TDM coordinator to oversee implementation and maintenance of the TDM program. The coordinator will also work with MassDOT, SRPEDD, other businesses and Transportation Management Associations (TMA) in the region to identify opportunities to expand the proposed TDM programs.

East Taunton Neighborhood Traffic Calming

The Tribe will work with the City of Taunton to plan for and implement a program of traffic calming improvements in East Taunton and other locations near the Project Site, as necessary. These measures could include solutions as appropriate for individual locations selected from the following menu:

- **Speed restriction signs** -- both permanent and moveable to indicate motorists' speeds in real time;
- **Speed humps** – rounded, raised areas placed across the roadway, generally 10-14' long in the direction of travel. They are often tapered as they reach the curb on each end to allow for drainage. They are suitable for locations where very low speeds are desired and reasonable.
- **Speed tables** – flat-topped speed humps, often constructed with brick or other textured materials on the flat section. They have a higher design speed than speed humps. They are good for locations where low speeds are desired, but a somewhat smooth ride is needed for larger vehicles.
- **Raised crosswalks** – speed tables outfitted with crosswalk markings and signage to channelize pedestrian crossings. They are good for locations where pedestrian crossings occur at haphazard locations and vehicle speeds are higher.
- **Raised intersections** – raised crosswalks that expanded to cover an entire intersection, with ramps on all approaches and often with textured materials on the flat section. These are good for locations with substantial pedestrian activity.
- **Textured pavement** – the use of stamped pavement or alternate pavement materials to create a more visible and uneven surface for vehicles to cross. These can be used to emphasize a crosswalk, an entire intersection, or even a larger area as appropriate.
- **Traffic circles** – as contrasted with traffic rotaries, these are raised islands within neighborhoods that are used to moderate speeds and improve safety. They can be combined with landscaping in the center. At an intersection, they can calm two streets at once. They are only suitable where large vehicle traffic is not a major concern, but there are speed, volume or safety problems.
- **Roundabouts** – Roundabouts require traffic to circulate around a center island. Unlike traffic circles, they are better used on higher volume streets to slow speeds and allocate right-of-way between conflicting movements. They are good for locations with a history of accidents or where queuing needs to be addressed. They are an inexpensive alternative to a traffic signal.
- **Chicanes** – these are curb extensions that alternate from one side of the street to another, forming a “zig-zag” path for the vehicles. These are suitable for low-volume streets where on-street parking is desired.
- **Re-aligned intersections** – changes in alignment that convert “T” intersections into curving streets that meet at right angles. Thus a former “straight-through” movement becomes a turning movement. They are one of the few traffic calming measures suitable for T-intersections.
- **Neckdowns** – these curb extensions reduce the roadway width from curb to curb, shortening crossing distances for pedestrians, and tightening turning radii at corners, reducing the speeds of turning vehicles. They are good for locations with significant pedestrian activity and also where there is the need to define a curbside parking or service lane.

- **“Gateway Islands”** – short, raised center islands located along the center of a two way street that narrow the travel lanes. They are often landscaped as well. These are suited to mark entrances to residential neighborhoods and can be combined with landscaping or “gateway” signing to alert drivers that they are entering a residential zone.
- **Truck/bus exclusions** – employed by many communities to keep trucks and buses to designated routes and to avoid their travel on residential streets. Such restrictions must be paired with acceptable detour routes and be approved by MassDOT.

8.1.4 CONCLUSIONS

This study has identified necessary traffic improvements that will improve existing conditions and accommodate casino traffic, as shown above. The Tribe will be responsible for the design and construction costs for improvements to transportation infrastructure including, but not limited to, road construction, infrastructure improvements and traffic signals necessitated by the Project. The objective of these traffic improvements is to construct a road system by which traffic to and from the Project can have ample ingress and egress to the site via a major roadway without having to navigate through minor or residential roads within the City roadway network system. The goal is to provide integrated road system improvements that will mitigate adverse traffic impacts caused by the Project and to allow safe and efficient flow of traffic to and from the Project Site, particularly on the southern end of Stevens Street at the interchange, avoiding residential neighborhoods to the north, as well as along Route 140 and Route 24 servicing the Project and other state and local roads without adverse impact to the City. The time-frame for implementation of various improvement elements will be coordinated in good faith with the City, MassDOT, and the Tribe.

Prior to the casino’s opening date, the Tribe will cause to be constructed or otherwise implemented any necessary traffic improvements as described above, that address impacts that are caused by the Project. The Tribe will use its reasonable efforts to mitigate traffic, safety and circulation issues relating to ingress and egress to the Project Site. Mitigation will also include appropriate transportation demand management and traffic calming measures, as described above.

Over the long-term, the Tribe will work cooperatively with the City of Taunton and MassDOT to seek funding from the Commonwealth and the federal government to construct improvements on Routes 140 and 24 in an effort to mitigate regional traffic concerns as contemplated by MassDOT prior to the date of this proposal.

SECTION 8.2

FLOODPLAIN, WETLANDS AND OTHER WATERS OF THE U.S.

8.2.1 INTRODUCTION

This section addresses potential project-related impacts to floodplain, wetlands and other waters of the U.S. for the Proposed Development, Reduced Intensity Alternatives, No Action Alternative and various options therein. A discussion of resource functions/values, and compliance with Executive Orders pertaining to Floodplain Management and the Protection of Wetlands, as well as the US Army Corps of Engineers (Corps) regulations and the US Environmental Protection Agency (EPA) Section 404(b)(1) Guidelines are addressed below. For the purposes of this DEIS it is assumed that all waters and wetlands described herein are jurisdictional waters of the U.S. regulated by the Corps under Section 404 of the federal Clean Water Act (33 U.S.C. 1344).

8.2.2 IMPACTS

8.2.2.1 Alternative A: Proposed Development

Direct Impacts – On Site

As defined by the Department of the Army General Permit for the Commonwealth of Massachusetts (General Permit) (Corps, 2011), direct impacts refer to the immediate loss of aquatic ecosystem (including wetlands) within the footprint of the fill.

Activities associated with Alternative A (the Proposed Development) on the Project Site south of the railroad tracks will result in direct impacts to waters of the U.S. during construction of proposed access driveways, loop road, and construction of surface parking lots. North of the railroad tracks, direct impacts to waters of the U.S. will occur during construction of the proposed surface parking lots and access road to the proposed indoor water park and hotel. All on-site direct impacts of Alternative A are explained and quantified in further detail on **Table 8.2-1** below.

The proposed off-site improvements at the Route 24/Route 140 interchange and at the proposed Route 140 Northbound Entrance Ramp will also result in direct impacts to waters of the U.S. For more information on the impacts of these off-site improvements and the options that were studied, see the description of off-site direct impacts below. The locations and extent of all direct impacts are depicted on **Figures 8.2-1 through 8.2-6**. Where applicable the proposed stream crossings will be designed to comply with the design standards referenced in the Corps General Permit for the Commonwealth of Massachusetts and the Massachusetts River and Stream Crossing Standards (revised March 1, 2011) relative to fish and wildlife passage and stream continuity.

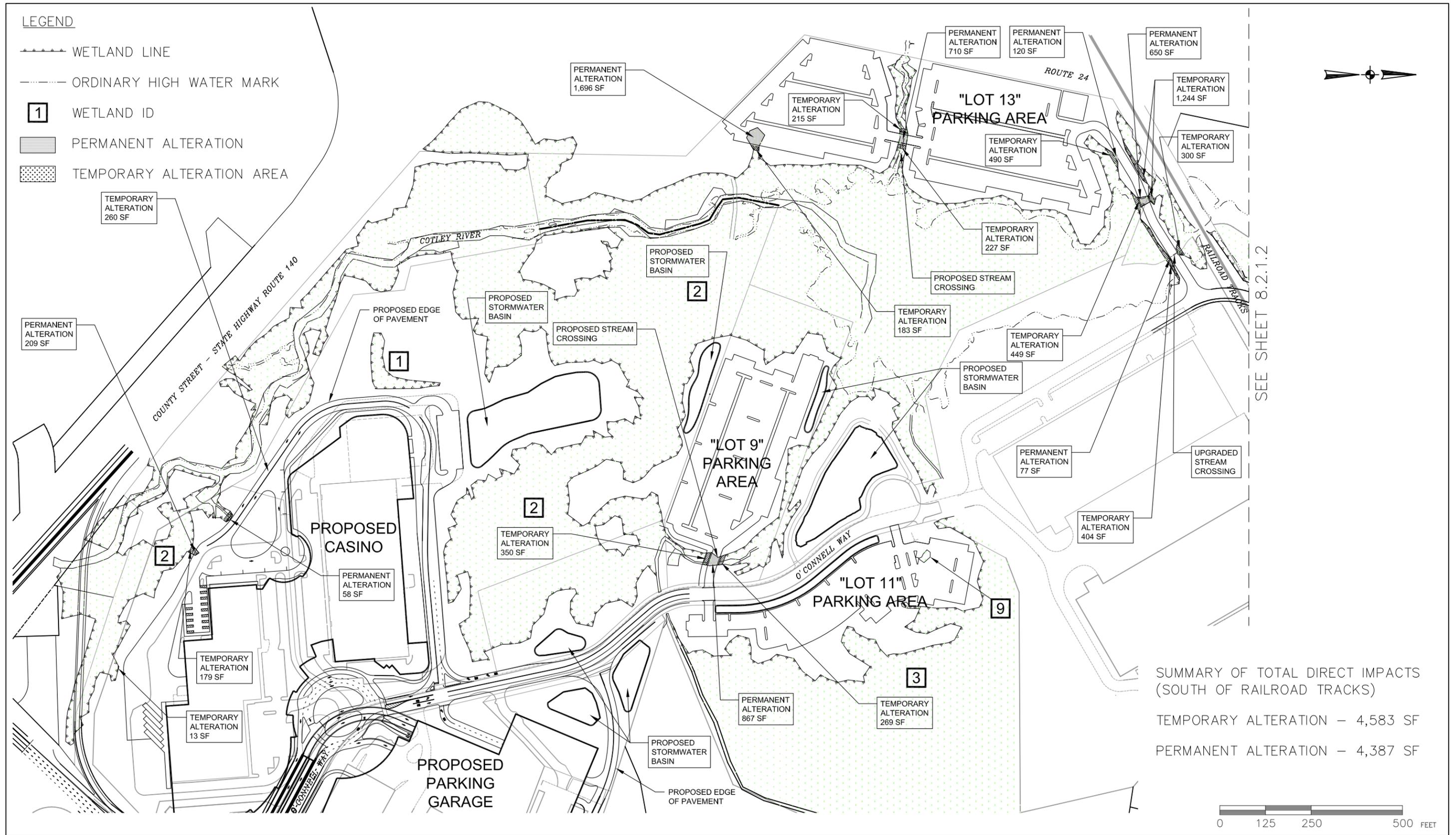
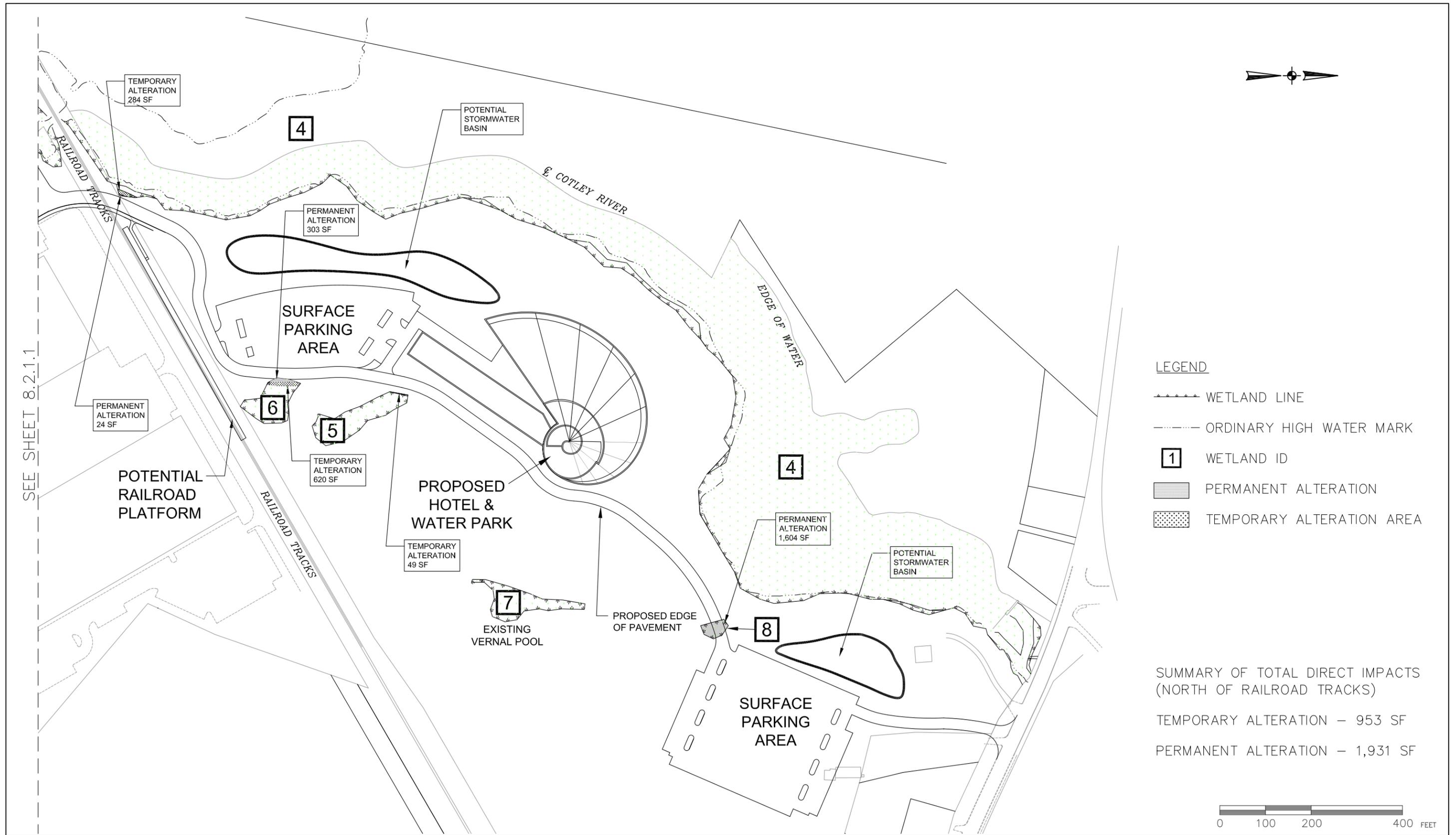


Figure 8.2-1
DIRECT IMPACTS TO WATERS OF U.S.
PROPOSED ACTION - LIT SITE (SOUTH OF RAILROAD TRACKS)



SOURCE: FIELD ENGINEERING CO., INC.

Mashpee Wampanoag Tribe - Fee to Trust Acquisition - Draft EIS

Figure 8.2-2
 DIRECT IMPACTS TO WATERS OF U.S.
 PROPOSED ACTION - LIT SITE (NORTH OF RAILROAD TRACKS)

**TABLE 8.2-1
DIRECT IMPACTS TO WATERS OF THE U.S. FOR THE PROPOSED DEVELOPMENT – ON SITE**

Activity	Wetland Series ID	Wetland Classification ¹	Description of Direct Impact	Impact Area Square Feet (s.f.)	
				Temporary ²	Permanent
Project Site (South of Railroad Tracks)					
Access driveway to Lot 9 Parking Area	2	PFO	Wetland fill and intermittent stream crossing with culvert. The proposed culvert will comply with the design standards referenced in the Massachusetts River and Stream Crossing Standards.	619 s.f.	867 s.f.
Loop Road and Stormwater Upgrades South of Proposed Hotel and Casino	2	PSS	Temporary and permanent wetlands fill in 3 locations to construct loop road around proposed buildings and upgrade existing stormwater management system.	452 s.f.	267 s.f.
Lot 13 Parking Area	2	PSS	Wetland fill (2 separate locations) including perennial stream crossing to construct connector drive between surface parking lots. The proposed culvert will comply with the design standards referenced in the Massachusetts River and Stream Crossing Standards.	625 s.f.	2,406 s.f.
Access Driveway to Lot 13 Parking Area	2	PFO, PSS	Wetland fill (3 separate locations). The existing concrete culvert that conveys the Cotley River beneath the existing electric distribution line right-of-way access road will be replaced with a new culvert that complies with Stream Crossing Standards.	2,877 s.f.	847 s.f.
			SUBTOTAL	4,573 s.f.	4,387 s.f.

¹ Cowardin, L. et al. 1979. Classification of Wetlands and Deepwater Habitats of the United States. United States Fish and Wildlife Service, Biological Services Program. Washington, D.C. (FWS/OBS-79/31).

² Temporary impacts refer to an assumed approximately 10 foot wide work area down gradient of each retaining wall or driveway shoulder to facilitate construction. Wetlands would be restored upon completion of work.

**TABLE 8.2-1
DIRECT IMPACTS TO WATERS OF THE U.S. FOR THE PROPOSED DEVELOPMENT – ON SITE (CONTINUED)**

Activity	Wetland Series ID	Wetland Classification	Description of Direct Impact	Impact Area Square Feet (s.f.)	
				Temporary	Permanent
Project Site (North of Railroad Tracks)					
Access Road and Parking Areas Associated with Hotel and Water Park Complex	4, 5, 6 and 8	PFO, PSS	Wetland fill to construct parking areas and access road across railroad tracks leading to hotel and water park.	953 s.f.	1,931 s.f.
			SUBTOTAL	953 s.f.	1,931 s.f.
			PROPOSED DEVELOPMENT ON-SITE TOTAL	5,526 s.f. (0.13 acre)	6,318 s.f. (0.15 acre)

Direct Impacts – Off Site

Access/Egress Options

As described in **Section 4.3.6**, this EIS involves the study of two access/egress options for the Project Site in Taunton. Option 1 involves the construction of the Route 140 Northbound Ramp from Stevens Street described under Alternatives A and C in the analyses above. The new entrance ramp would allow vehicles leaving the casino to turn right freely from O’Connell Way onto Stevens street, bypass the Stevens Street/Route 140 Northbound Entrance/Exit Ramp intersection, and flow directly onto Route 140 northbound. Option 2 involves a set of improvements to Stevens Street in lieu of the construction of a new ramp. These Options and the traffic operations are discussed in more detail in **Section 8.1.3.4**.

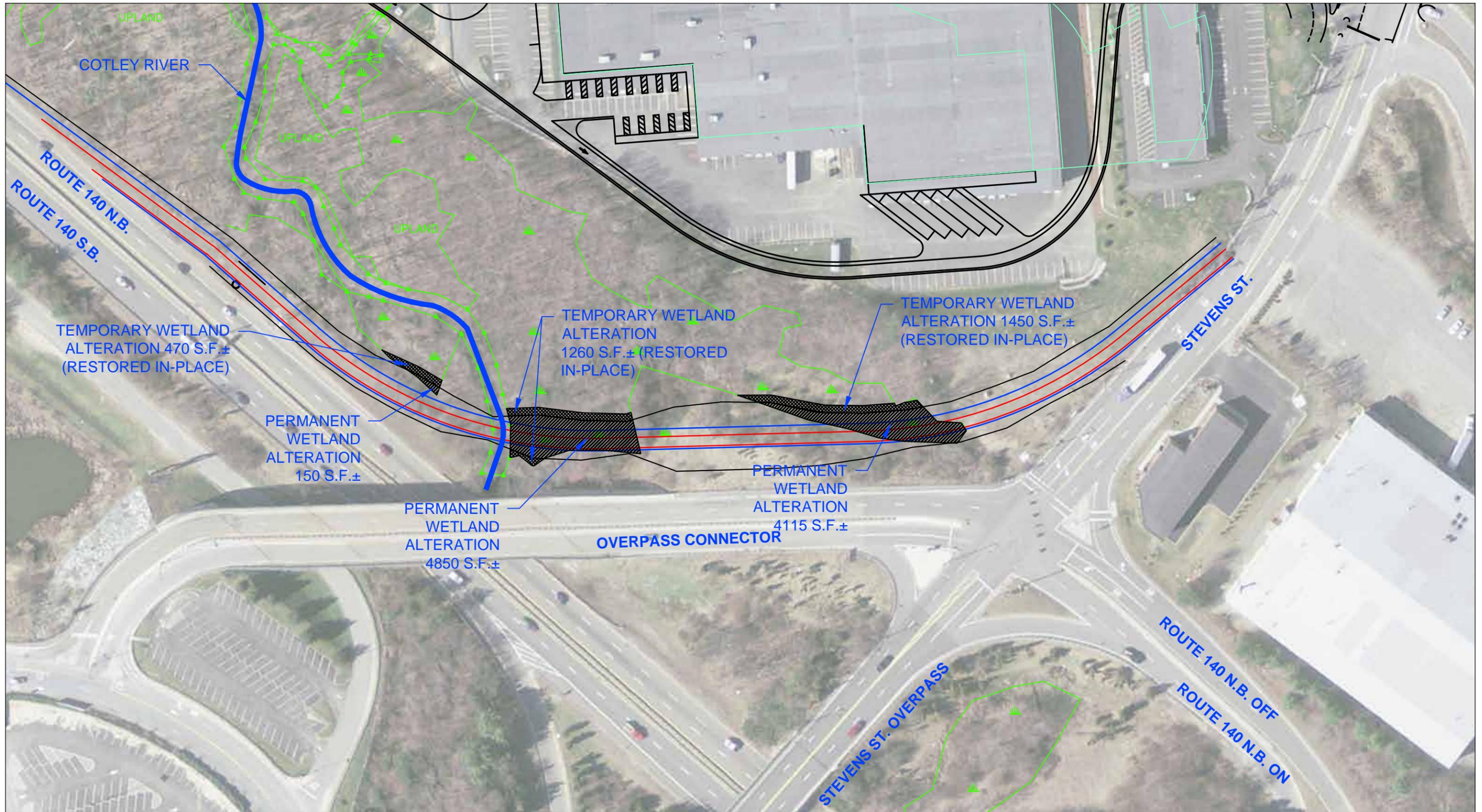
Table 8.2-2 below compares the potential temporary and permanent alterations to wetlands and other waters of the U.S. for the two Options proposed for access and egress between the Project Site and Route 140 Northbound.

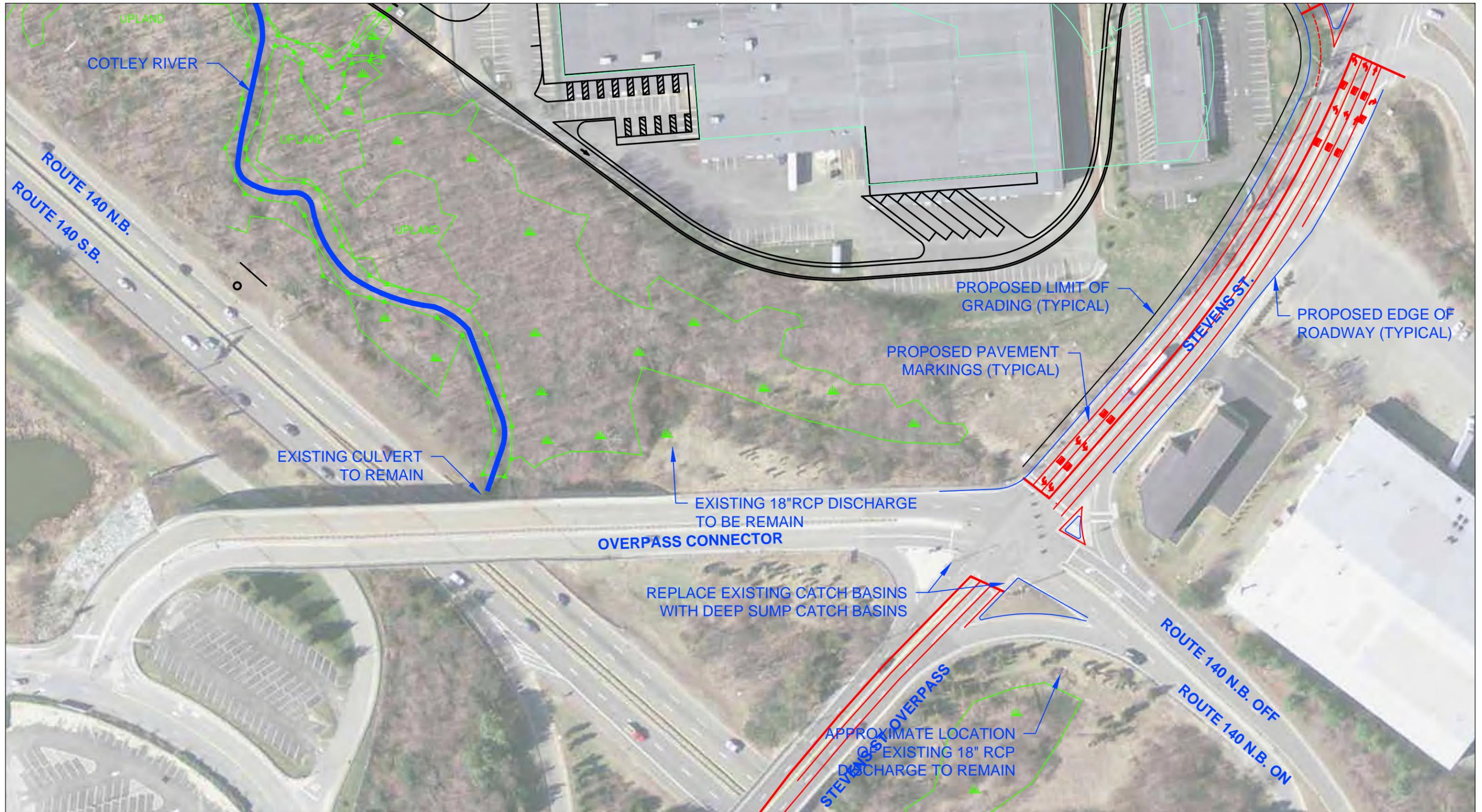
**TABLE 8.2-2
DIRECT IMPACTS TO WATERS OF THE U.S. FOR THE PROPOSED DEVELOPMENT OFF SITE OPTIONS 1 AND 2**

Activity	Wetland Series ID	Wetland Classification	Description of Direct Impact	Impact Area Square Feet (s.f.)	
				Temporary	Permanent
Off Site					
Option 1 – Route 140 Northbound Entrance Ramp from Stevens Street	2, 11	PFO, PSS	Wetland fill and span of Cotley River to construct proposed ramp to Route 140. The Cotley River crossing will comply with the design standards referenced in the Massachusetts River and Stream Crossing Standards.	3,180 s.f.	9,115 s.f.
Option 2 – Stevens Street improvements	NA	NA	This option does not involve any alterations to wetlands or other waters of the US.	0 sf	0 sf

Figure 8.2-3 depicts temporary and permanent wetland impacts associated with the proposed Option 1 design for the Route 140 Northbound Entrance Ramp. This design incorporates 2:1 sideslopes and guardrails to minimize wetland impacts. An alternative design for the Option 1 ramp was also explored in which the guardrail was eliminated on the north side of the proposed entrance ramp. Without the guardrail, the sideslopes would need to be flattened to approximately 4:1 in order to provide safe travel conditions. While the elimination of the guardrail would reduce the overall cost and maintenance of the ramp, the impact to the wetlands would be more significant resulting in approximately 4,770 sf of temporary alterations and 17,029 sf permanent alterations.

If the Route 140 Northbound Ramp were not constructed, the Option 2 approach would involve improvements to Stevens Street including signalization and construction of a wider cross section. These improvements are shown in **Figure 8.2-4**. To access Route 140 northbound from the casino, vehicles would turn right onto Stevens Street, then turn left at the signalized intersection of Stevens Street with the Route 140 Entrance and Exit Ramps. This Option would not involve any impacts to wetlands or other waters of the U.S. and would eliminate a crossing of the Cotlely River and the costs associated with this construction. Thus, the selection of Option 2 would reduce the total direct impacts to wetlands listed under Alternatives A and C. However, this Option would result in a less desirable level of service for vehicles entering and exiting the Project Site, longer vehicle queues, greater air emissions and other similar traffic flow issues.





Route 140 Northbound Access from Route 24 Southbound

As described in **Section 4.3.6**, this EIS also examines two options (Options 3 and 4) for vehicle usage on Route 24 Southbound to access Route 140 Northbound. Option 3 involves the construction of a short connector road (slip ramp) in the northwest quadrant of the interchange from Route 24 Southbound directly to Route 140 Northbound, while Option 4 involves substantial improvements to the existing ramp from Route 24 Southbound to Route 140. These Options and the traffic operations are discussed in more detail in **Section 8.1.3.4**. **Table 8.2-3** below compares the potential temporary and permanent alterations to wetlands and other waters of the US for Options 3 and 4 relative to access to Route 140 Northbound from Route 24 Southbound.

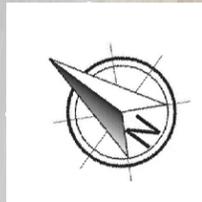
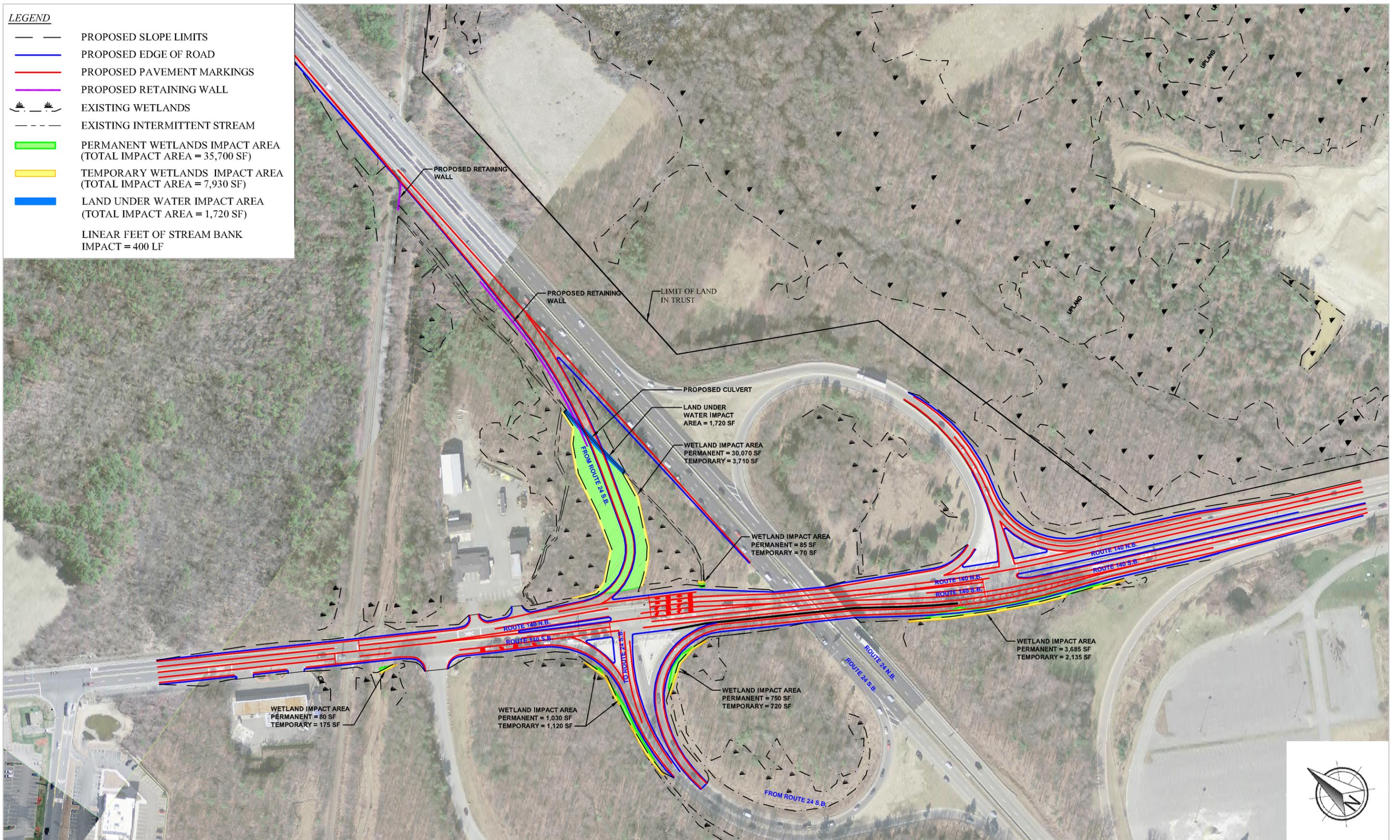
**TABLE 8.2-3
DIRECT IMPACTS TO WATERS OF THE U.S. FOR THE PROPOSED DEVELOPMENT OFF SITE OPTIONS 3 AND 4**

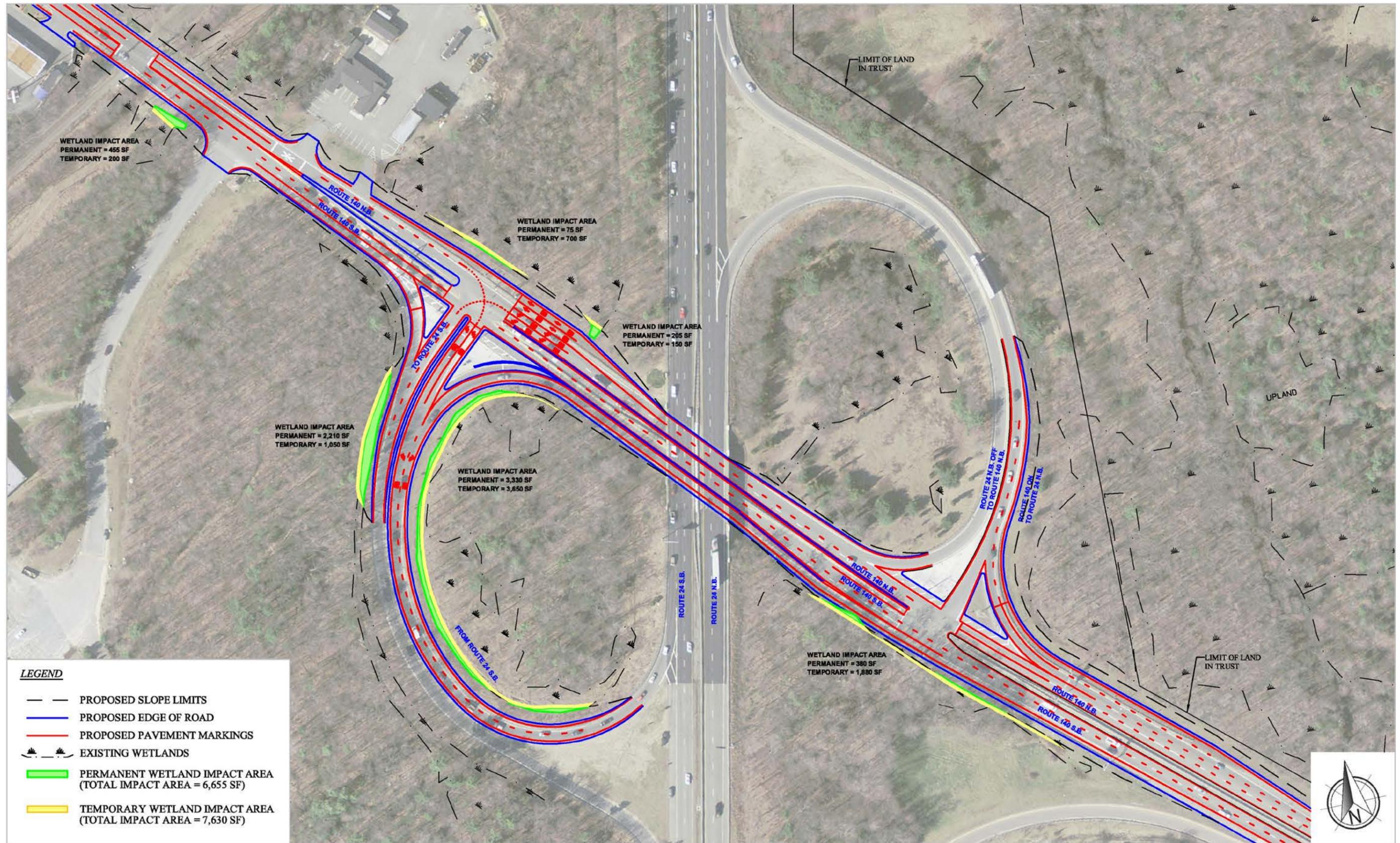
Activity	Wetland Series ID	Wetland Classification	Description of Direct Impact	Impact Area Square Feet (s.f.)	
				Temporary	Permanent
Off Site					
Option 3 – Slip ramp to Route 140 Northbound from Route 24 Southbound	10	Riverine Intermittent Streambed, PFO, PSS, PEM	Temporary and permanent wetland fill and stream (drainage ditch) crossing associated with ramp construction and related intersection widening and stormwater management system improvements.	7,930 sf (wetlands) 400 lf / 1,720 sf stream bank (Land Under Water)	35,700 sf (wetlands)
Option 4 – Route 24/140 intersection improvements	10	PSS	Temporary and permanent wetland fill at multiple locations associated with minor widening along Route 24 SB ramp and Route 140	7,630 sf (wetlands)	6,655 sf (wetlands)

Figure 8.2-5 depicts temporary and permanent wetland impacts associated with the proposed Option 3 design for the Route 140 Northbound slip ramp from Route 24 Southbound. To minimize wetland and stream impacts the proposed design incorporates retaining walls and a combination of 1.5:1 and 2:1 side slopes with guardrails. The retaining wall would approach heights of approximately 20 feet in certain locations. The existing stream channel/drainage ditch would remain in its current location and would be crossed with a culvert that complies with the Corps Stream Crossing Standards, as may be applicable. An alternative design that involves 2:1 side slopes and guardrails and no retaining wall was also explored. This alternative design would potentially be less expensive to construct because a retaining wall is not involved, but would result in greater wetland and stream impacts. In comparison to this 2:1 side slope alternative, the Option 3 design proposed reduces wetland impacts from 32,500 square feet to 30,070 square feet and reduces intermittent stream impacts from 6,030 square feet to 1,720 square feet.

LEGEND

- — PROPOSED SLOPE LIMITS
- — PROPOSED EDGE OF ROAD
- — PROPOSED PAVEMENT MARKINGS
- — PROPOSED RETAINING WALL
- — EXISTING WETLANDS
- — EXISTING INTERMITTENT STREAM
- — PERMANENT WETLANDS IMPACT AREA (TOTAL IMPACT AREA = 35,700 SF)
- — TEMPORARY WETLANDS IMPACT AREA (TOTAL IMPACT AREA = 7,930 SF)
- — LAND UNDER WATER IMPACT AREA (TOTAL IMPACT AREA = 1,720 SF)
- — LINEAR FEET OF STREAM BANK IMPACT = 400 LF





SOURCE: Fay, Spofford & Thorndike

Mashpee Wampanoag Tribe – Fee to Trust Acquisition – Draft EIS
Figure 8.2-6
 Wetland Impact Plan – Route 24/140 Interchange

If the Route 140 Northbound Ramp were not constructed, the Option 4 approach would involve improvements to the existing interchange of Route 24 and Route 140. Option 4 proposes that the Route 24 SB exit ramp be widened to accommodate two left-turn lanes to Route 140 NB and a right-turn lane to Route 140 SB. Option 4 also proposes that the Route 140 NB approach at the Route 24 SB ramps northwest of the Route 24 overpass be widened to accommodate two left-turn lanes and two through-lanes. These improvements and their impacts to wetlands are shown in **Figure 8.2-6**. The proposed improvement work under Option 4 minimizes wetland impacts using 2:1 slopes and guardrails along the ramps and along Route 140 where roadway widening will occur.

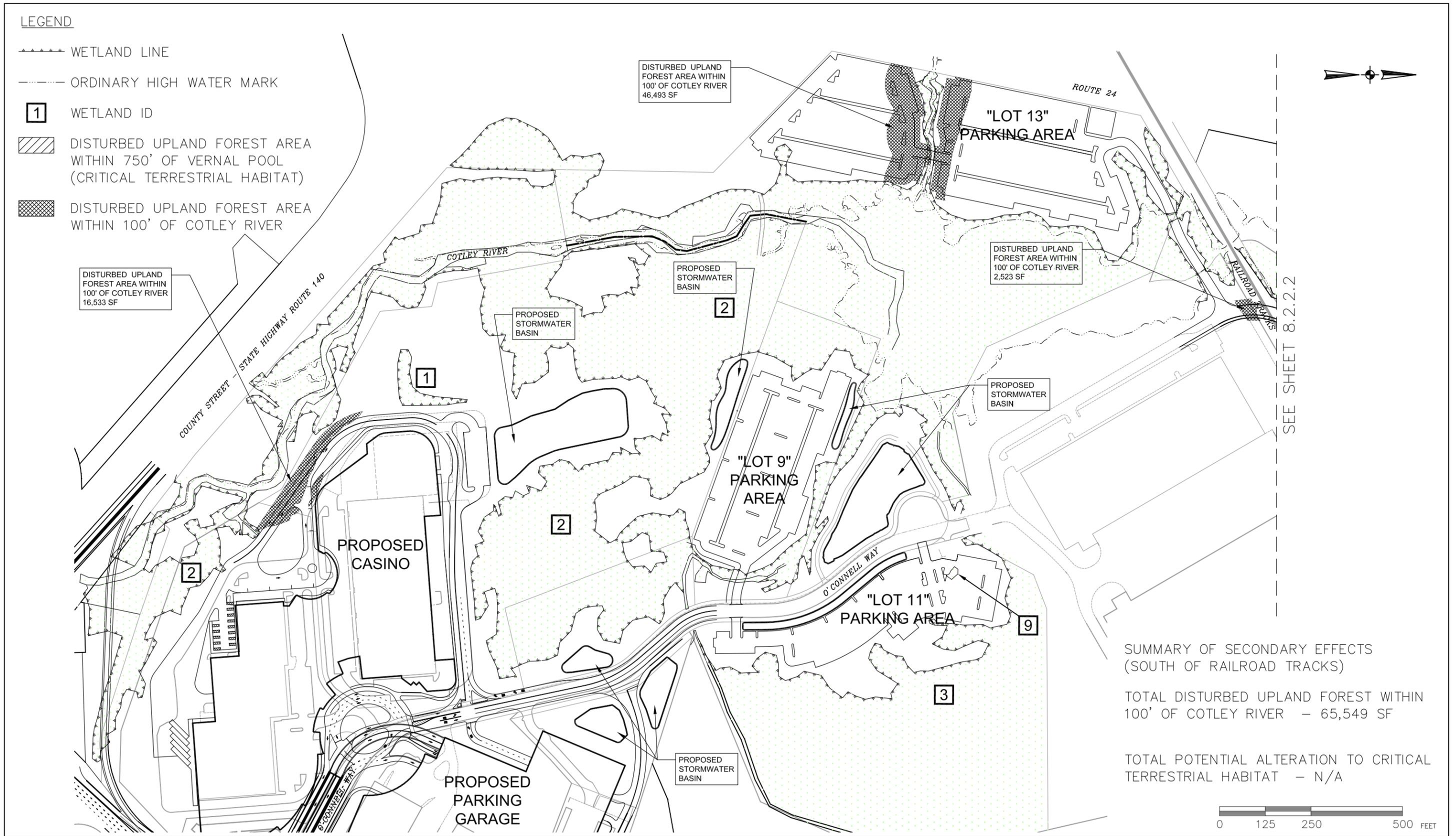
Secondary Effects

Secondary effects are impacts on an aquatic ecosystem that are associated with a discharge of dredged or fill material, but do not result from the actual placement of the dredged or fill material (see Corps General Permit, Appendix B and 40 CFR 230.11(h)). In other words, secondary effects are those impacts outside the footprint of the fill that arise from and are associated with the discharge of dredged or fill material, including the operation of an activity or facility associated with the discharge. Relative to the proposed project, these sorts of secondary impacts are limited to the on site development work and alternatives thereto. Impacts to wetlands and other waters of the US associated with the off-site roadway and intersections improvement work are essentially limited to the footprint of the fill material (direct impacts) with no additional secondary effects.

According to the Corps “New England District Compensatory Mitigation Guidance Manual” (Corps, July 20, 2010), secondary effects to waters of the U.S. associated with the Proposed Development would be limited to the clearing of upland forest and scrub-shrub vegetation within 100 feet of stream banks. The Proposed Development would also result in the removal of contiguous upland forest within 750 feet of a vernal pool (Critical Terrestrial Habitat) associated with Wetland Series 7; however, the amount of proposed disturbance (approximately 2.8 acres or 13%) is significantly below the 25 percent disturbance threshold referenced in Appendix A of the Corps General Permit for Massachusetts to be considered a secondary effect. These impact areas are depicted on **Figures 8.2-7 and 8.2-8** below. The potential secondary effects from clearing upland vegetation within 100 feet of a stream bank are described on **Table 8.2-4** below.

**TABLE 8.2-4
POTENTIAL SECONDARY EFFECTS TO WATERS OF THE U.S. FOR THE PROPOSED DEVELOPMENT**

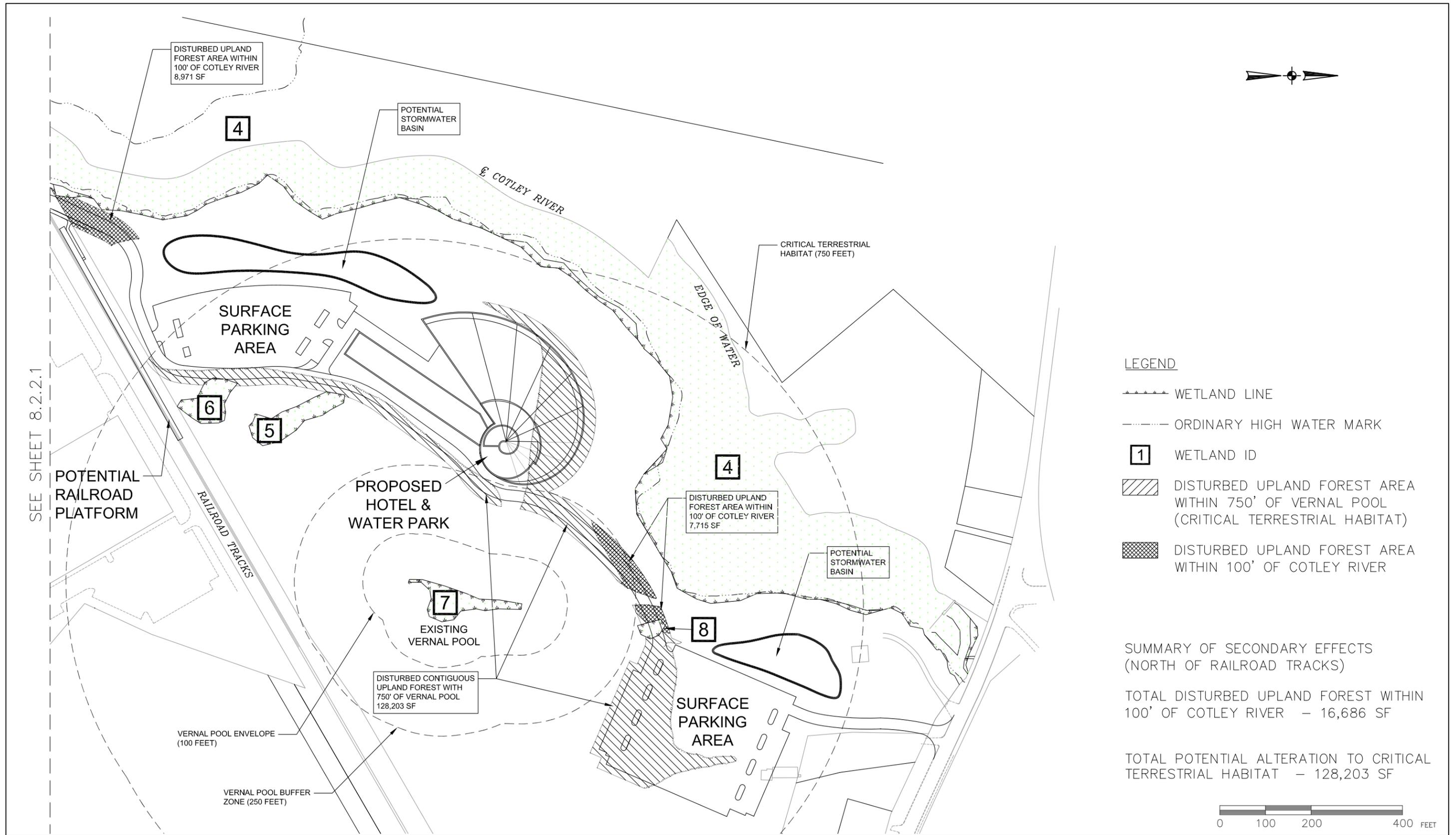
Potential Secondary Effect	Wetland Series ID	Activity	Impact Area Square Feet (s.f.)
Clearing of upland forest and scrub-shrub vegetation within 100 feet of a stream bank	Upland Buffer to Cotley River	Access road leading to north parcel to develop hotel and water park facilities; construction of loop road around proposed casino complex; and Parcel 12 (“Lot 13”) parking area	16,686 s.f. (north of RR tracks)
			65,549 (south of RR tracks)
		Proposed Development Total	82,235 s.f.



SOURCE: FIELD ENGINEERING CO., INC.

Mashpee Wampanoag Tribe - Fee to Trust Acquisition - Draft EIS

Figure 8.2-7
 SECONDARY EFFECTS TO WATERS OF U.S.
 PROPOSED ACTION - LIT SITE (SOUTH OF RAILROAD TRACKS)



SOURCE: FIELD ENGINEERING CO., INC.

Mashpee Wampanoag Tribe - Fee to Trust Acquisition - Draft EIS

Figure 8.2-8
 SECONDARY EFFECTS TO WATERS OF U.S.
 PROPOSED ACTION - LIT SITE (NORTH OF RAILROAD TRACKS)

Avoidance and Minimization Measures

Section 404 authorizes the Corps to issue permits, after notice and opportunity for public comment, for the discharge of dredged or fill material into “waters of the United States” at specified disposal sites. The Corps approves discharges at particular sites through application of the EPA Section 404(b)(1) Guidelines (see 40 CFR Part 230) (Guidelines).

In conducting the 404(b)(1) review, the Corps will determine (in part): 1) whether the proposed project represents the least environmentally damaging practicable alternative (LEDPA) of impacts to the aquatic ecosystem, so long as the alternative does not have other significant environmental consequences; 2) whether all state and/or federal environmental criteria will be met; 3) whether the project will result or contribute to significant degradation of the aquatic environment; and, 4) whether all appropriate and practicable steps have been taken to minimize the potential adverse impacts of the discharge to the aquatic ecosystem.

Executive Orders (EO) 11988 (Floodplain Management) and 11990 (Protection of Wetlands) were signed by then President Carter on May 24, 1977. EO 11988 requires that:

“If an [Federal] agency has determined to, or proposes to, conduct, support, or allow an action to be located in a floodplain, the agency shall consider alternatives to avoid adverse effects and incompatible development in the floodplains. If the head of the agency finds that the only practicable alternative consistent with the law and with the policy set forth in this Order requires siting in a floodplain, the agency shall, prior to taking action, design or modify its action in order to minimize potential harm to or within the floodplain.”

EO 11990 requires that Federal agencies:

“avoid undertaking or providing assistance for new construction located in wetlands unless the head of the agency finds (1) that there is no practicable alternative to such construction, and (2) that the proposed action includes all practicable measures to minimize harm to wetlands which may result from such use. In making this finding the head of the agency may take into account economic, environmental and other pertinent factors.”

To demonstrate compliance with the aforementioned Executive Orders and to assist the Corps with its application of the 404(b)(1) Guidelines, and as an integral part of the comprehensive NEPA review process, the Tribe conducted a multi-step alternatives analysis. A summary of the avoidance and minimization measures for the Proposed Development (Alternative A) include:

Project Site

- Adjustment of building footprints, reconfiguring the layout of surface parking lots, and incorporating 2:1 slopes or retaining walls into the site grading plans to avoid wetlands and related secondary effects wherever practicable. For perspective, none of the building foundations

and related appurtenances proposed on the Project Site involve wetland fill. Wetland fill north of the existing railroad tracks is limited to two small pocket wetlands (Wetland Series 6 and 8) and the fringe of Wetland Series 2 that will be filled to facilitate construction of a proposed parking lot and an access road leading to the proposed hotel and water park complex; otherwise the majority of site development on this tract of land is restricted to former agricultural fields that are currently maintained as an upland meadow cover type. All other wetlands north of the railroad, including the vernal pool in Wetland Series 7, will be avoided.

Regarding the area south of the railroad tracks, early in the design process the Tribe eliminated a proposed access road that would have extended from the vicinity of the proposed casino and hotel complex, across the main channel of the Cotley River and adjacent forested wetlands, and onto the southern end of the site of the proposed Lot 13 parking area.³ Under the Proposed Development, access to the Lot 13 parking area will be achieved from the north by following the existing gravel access road located within the electric distribution line right-of-way parallel to the railroad tracks. This alternate crossing location takes advantage of an existing access road and results in substantially fewer wetland impacts when compared to the previously proposed crossing location. This crossing location also creates an opportunity to enhance fisheries and wildlife habitat by upgrading an existing concrete culvert that conveys the Cotley River beneath the distribution line right-of-way access road towards the railroad trestle (see Stream Crossing Standards discussion below).

- Wherever feasible, wetlands are proposed to be crossed at their narrowest points or within previously disturbed areas (including as noted above existing access pathways or access roads) in order to reach otherwise inaccessible upland areas. The proposed crossing designs incorporate spans, open bottom box culverts and retaining walls wherever feasible in lieu of more traditional 3:1 side slopes and culvert installation techniques to minimize the work footprint and the amount of permanent fill placed in wetlands.
- Maintaining to the maximum extent practicable a 100-foot wide undisturbed riparian corridor / buffer zone along the Cotley River. Exceptions include a discrete area located south of the proposed hotel and casino where the loop road will be constructed, in the vicinity of the proposed Lot 13 parking area, and a portion of the proposed access road on the north parcel leading to the proposed water park and casino complex and related parking areas. North of the railroad, the proposed access road has been oriented with the existing access road from the south to the at-grade railroad crossing and then abruptly shifts eastward away from the river to minimize alterations to the Cotley River riparian corridor.
- The site layout and roadway alignment described above for the north parcel also considered the vernal pool in Wetland Series 7 and properly strikes a balance by minimizing encroachments into the Cotley River riparian corridor and maintaining a limit of work setback from the vernal pool.

³ See: Mashpee Wampanoag Tribe. July, 2012. Project First Light Destination Resort Casino Environmental Notification Form (ENF). Massachusetts Environmental Policy Act (MEPA) Office (EEA No. 14924). Attachment 5, "Proposed Conditions."

No work is proposed within approximately 200 feet of the vernal pool in Wetland Series 7 and clearing of contiguous upland forest within 750 feet of the pool's edge (Critical Terrestrial Habitat) has been minimized to the maximum extent feasible (approximately 2.8 ac) in order to preserve Critical Terrestrial Habitat for amphibian species likely to use the vernal pool during the spring breeding season.

- Where applicable the proposed stream crossings will be designed to comply with the design standards referenced in the Corps General Permit and the Massachusetts River and Stream Crossing Standards (revised March 1, 2011) relative to fish and wildlife passage and stream continuity. This includes replacing the existing concrete culvert that carries the Cotley River beneath the electric distribution line right-of-way access road with a new culvert that complies with the Standards. This work, in conjunction with the Barstow Dam Removal Project being proposed by others, could enhance fish passage and open up previously inaccessible habitat for anadromous fish species migrating to and from the Cotley River and Taunton River located to the northeast. The Tribe will work closely with the Corps through the permitting review process to advance the details of this project element.
- Implementing soil erosion and sediment controls during construction, as well as a Stormwater Pollution Prevention Plan (SWPPP) in accordance with National Pollutant Discharge Elimination System (NPDES) Permit requirements; and
- Integrating BMPs into the stormwater management plans that comply with the 401 Water Quality Certification Regulations (314 CMR 9.06) and the Massachusetts Department of Environmental Protection (MassDEP) Stormwater Management Standards/Handbook (effective January 2, 2008).

Off-Site Roadway Improvements and Access / Egress Alternatives

- With the exception of the proposed Route 24/140 interchange work and the proposed Route 140 Northbound Entrance Ramp, none of the off-site roadway improvements involve the placement of fill in wetlands or other waters of the U.S.
- The proposed Route 140 Northbound Entrance Ramp (Option 1) purposefully abuts Galleria Mall Drive along the extreme southern fringe of Wetland Series 2 in order to minimize impacts. Relocating the ramp further northward away from the Galleria Mall Drive would result in significantly greater wetland impacts. The proposed ramp will span the Cotley River as it flows through a culvert beneath Galleria Mall Drive. This crossing location avoids the placement of fill in the Cotley River and the interior or core of Wetland Series 2. The proposed connector ramp design incorporates 2:1 side slopes and guardrails in order to minimize wetland fill. See **Figure 8.2-3** above for additional detail.
- The design of the proposed slip ramp from Route 24 Southbound to Route 140 Northbound under Option 3 incorporates retaining walls and a combination of 1.5:1 and 2:1 sideslopes with guardrails to minimize wetland impacts. The existing stream channel/drainage ditch would

remain in its current location and would be crossed with a culvert that complies with the Corps Stream Crossing Standards, as may be applicable. See **Figure 8.2-5** above for additional detail.

- The proposed improvement work at Route 24/140 under Option 4 also minimizes wetland impacts by utilizing 2:1 slopes and guardrails along the ramps and the Route 140 corridor where roadway widening will occur. See **Figure 8.2-6** above for additional detail.

8.2.2.2 Alternative B: Reduced Intensity I

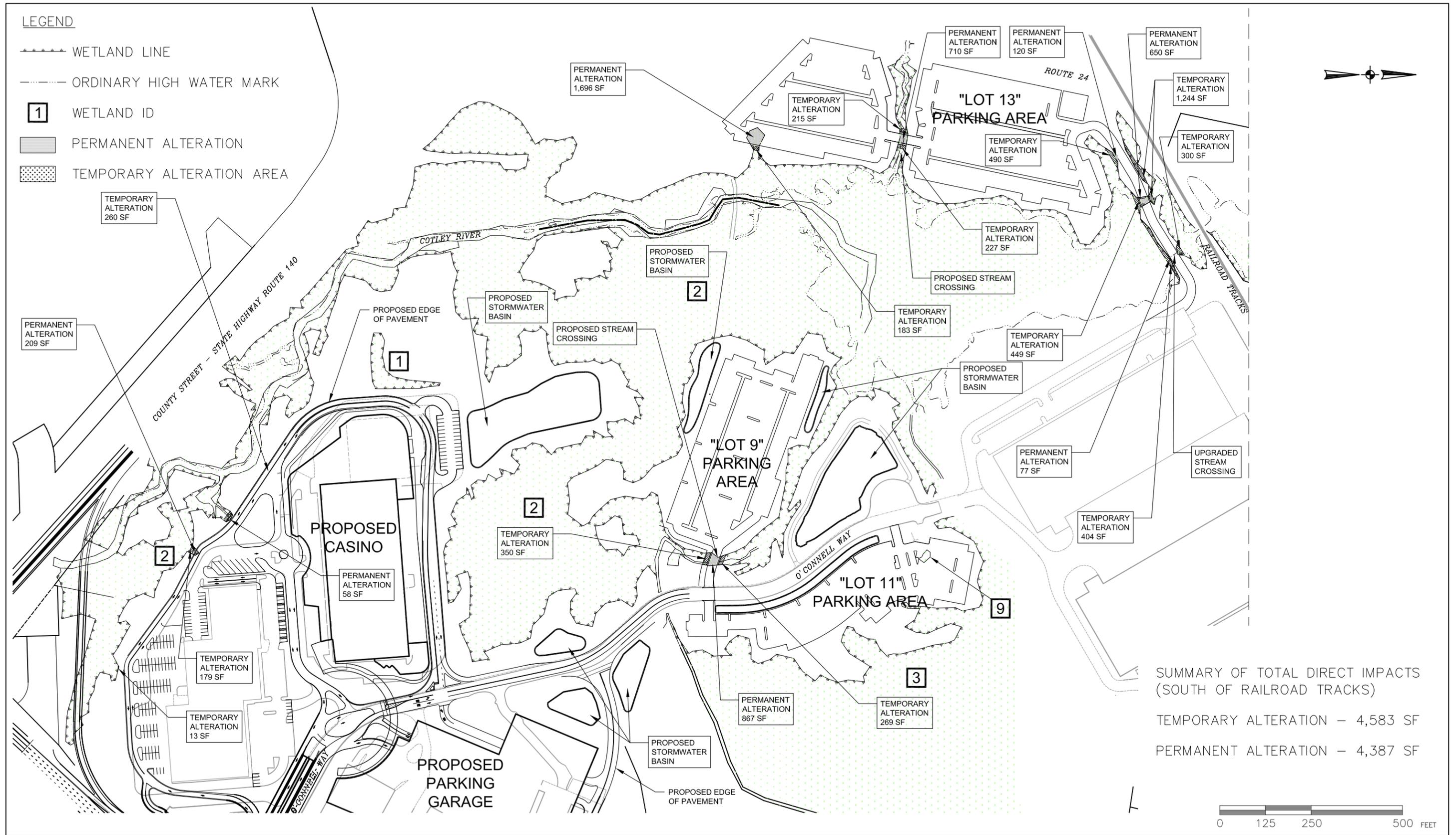
Alternative B would exclude the two casino hotels and reduce the casino space, thereby reducing operations and footprint. This Alternative would also be built in two phases. For a more thorough description of Alternative B, see **Section 4.3.2**. These modifications would occur in the upland and would not reduce direct wetland impacts or secondary effects when compared to the Proposed Development.

Direct Impacts

Alternative B would involve approximately 6,318 square feet of total permanent alterations to waters of the U.S. and approximately 5,526 square feet of total temporary alterations to waters of the U.S. See **Figures 8.2-9 and 8.2-10**. These totals are equivalent to the on-site impacts of Alternative A.

Because of its reduced trip generation, Alternative B would require fewer off-site roadway improvements than Alternative A (see **Section 8.1.3.6**). The Route 24/140 interchange work and the Route 140 Northbound Entrance Ramp proposed under Alternative A would be eliminated under Alternative B. Therefore, all off-site impacts described for Alternative A in **Section 8.2.2.1** and **Table 8.2-1** would be eliminated under Alternative B.

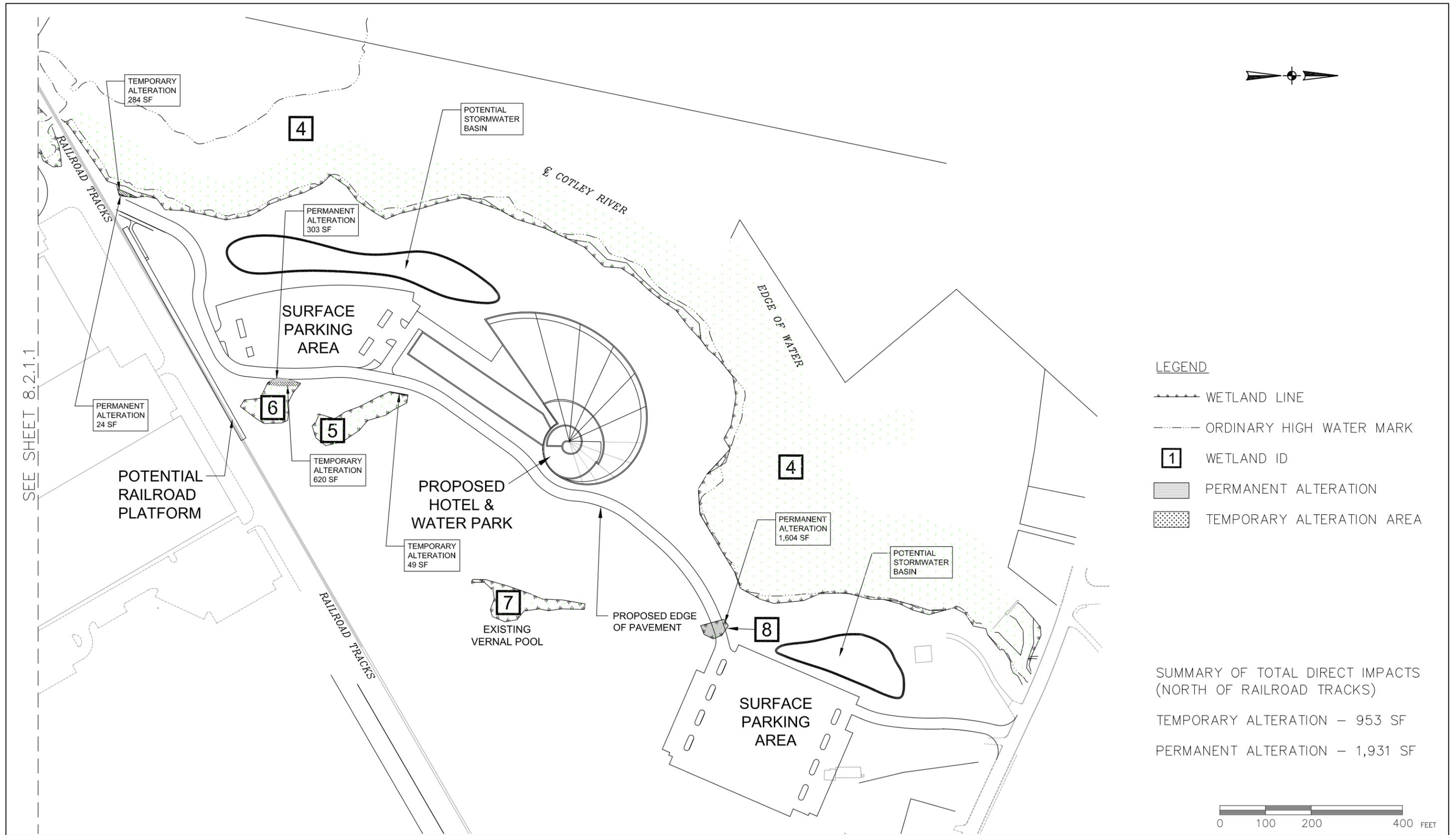
All direct impacts of Alternative B are explained and quantified in further detail on **Table 8.2-5** below.



SOURCE: FIELD ENGINEERING CO., INC.

Mashpee Wampanoag Tribe - Fee to Trust Acquisition - Draft EIS

Figure 8.2-9
 DIRECT IMPACTS TO WATERS OF U.S.
 REDUCED INTENSITY I - LIT SITE (SOUTH OF RAILROAD TRACKS)



SOURCE: FIELD ENGINEERING CO., INC.

Mashpee Wampanoag Tribe - Fee to Trust Acquisition - Draft EIS

Figure 8.2-10
 DIRECT IMPACTS TO WATERS OF U.S.
 REDUCED INTENSITY I - LIT SITE (NORTH OF RAILROAD TRACKS)

**TABLE 8.2-5
DIRECT IMPACTS TO WATERS OF THE U.S. FOR ALTERNATIVE B**

Activity	Wetland Series ID	Wetland Classification	Description of Direct Impact	Impact Area Square Feet (s.f.)	
				Temporary	Permanent
Project Site (South of Railroad Tracks)					
Access driveway to Lot 9 Parking Area	2	PFO	Wetland fill and intermittent stream crossing with culvert. The proposed culvert will comply with the design standards referenced in the Massachusetts River and Stream Crossing Standards.	619 s.f.	867 s.f.
Loop Road and Stormwater Upgrades South of Proposed Hotel and Casino	2	PSS	Temporary and permanent wetlands fill in 3 locations to construct loop road around proposed buildings and upgrade existing stormwater management system.	452 s.f.	267 s.f.
Lot 13 Parking Area	2	PSS	Wetland fill (2 separate locations) including perennial stream crossing to construct connector drive between surface parking lots. The proposed culvert will comply with the design standards referenced in the Massachusetts River and Stream Crossing Standards.	625 s.f.	2,406 s.f.
Access Driveway to Lot 13 Parking Area	2	PFO, PSS	Wetland fill (3 separate locations). The existing concrete culvert that conveys the Cotley River beneath the existing electric distribution line right-of-way access road will be replaced with a new culvert that complies with Stream Crossing Standards.	2,877 s.f.	847 s.f.
			SUBTOTAL	4,573 s.f.	4,387 s.f.

**TABLE 8.2-5
DIRECT IMPACTS TO WATERS OF THE U.S. FOR ALTERNATIVE B (CONTINUED)**

Activity	Wetland Series ID	Wetland Classification	Description of Direct Impact	Impact Area Square Feet (s.f.)	
				Temporary	Permanent
<i>Project Site (North of Railroad Tracks)</i>					
Access Road and Parking Areas Associated with Hotel and Water Park Complex	4, 5, 6 and 8	PFO, PSS	Wetland fill to construct parking areas and access road across railroad tracks leading to hotel and water park.	953 s.f.	1,931 s.f.
			SUBTOTAL	953 s.f.	1,931 s.f.
			ALTERNATIVE B TOTAL	5,526 s.f. (0.13 acre)	6,318 s.f. (0.15 acre)

Secondary Effects

Secondary effects to waters of the U.S. associated with Alternative B would be equivalent to those associated with Alternative A. As described in **Section 8.2.2.1**, these effects would be limited to the clearing of upland forest and scrub-shrub vegetation within 100 feet of stream banks. Alternative B, like Alternative A, would also result in the removal of contiguous upland forest within 750-feet of a vernal pool (Critical Terrestrial Habitat) associated with Wetland Series 7; however, the amount of proposed disturbance (approximately 2.8 acres or 13%) is significantly below the 25% disturbance threshold referenced in Appendix A of the Corps General Permit for Massachusetts to be considered a secondary effect.

Avoidance and Minimization Measures

Alternative B would involve all avoidance and minimization measures described for the Project Site under **Section 8.2.2.1**.

None of the off-site roadway improvements involve the placement of fill in wetlands or other waters of the U.S. under Alternative B, so no further avoidance and minimization measures would be necessary for off-site work.

8.2.2.3 Alternative C: Reduced Intensity II

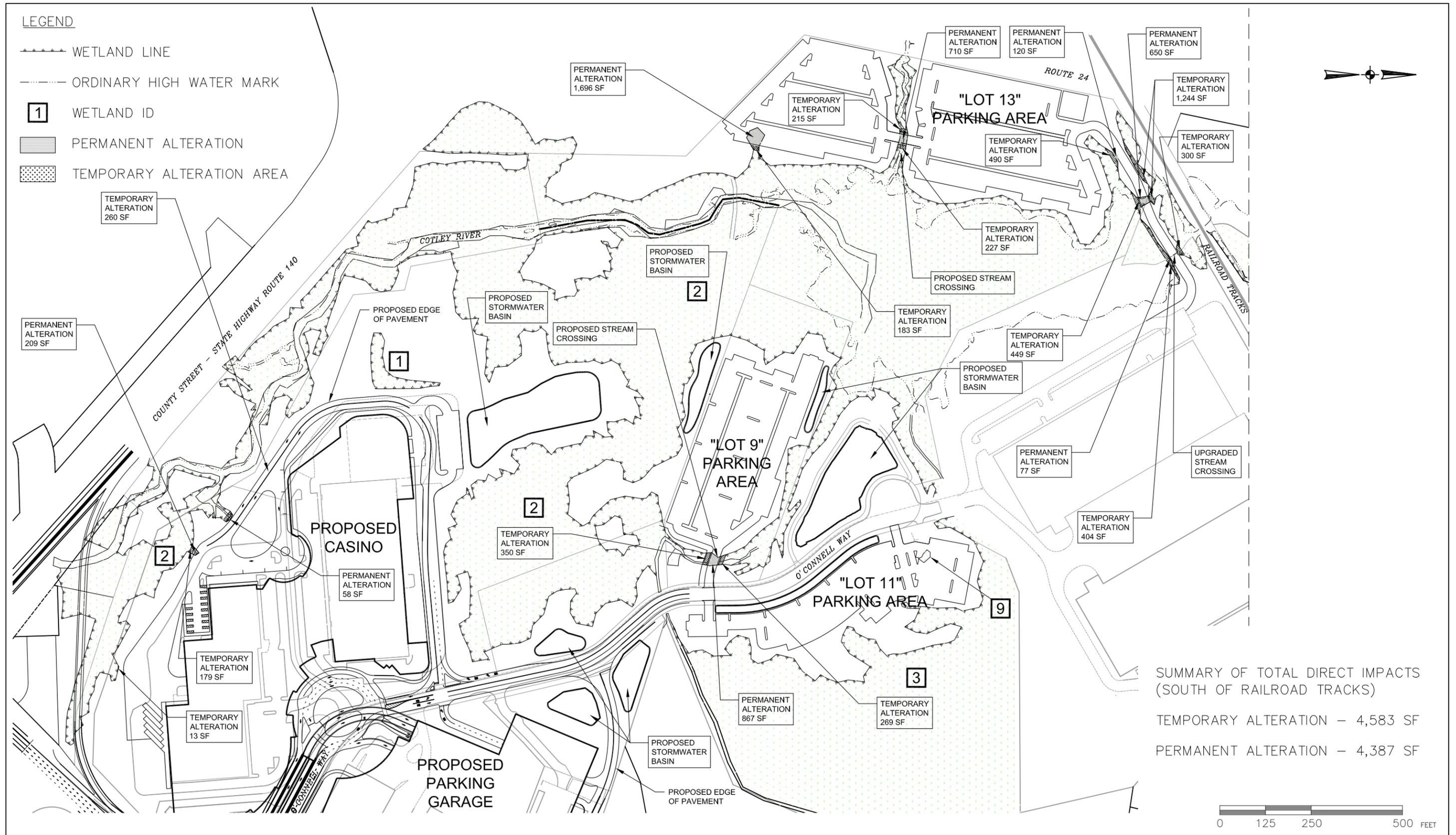
Alternative C would eliminate development of the water park and related facilities north of the railroad on the Project Site. For a more thorough description of Alternative C, see **Section 4.3.3**. Relative to wetlands impacts, Alternative C would be the same as Alternative A in the area south of the railroad tracks that cross the Project Site, but would eliminate all impacts north of the railroad tracks. The need for the construction of a railroad crossing would therefore also be eliminated.

Direct Impacts

Because Alternative C would not involve construction north of the railroad tracks, it would avoid the placement of fill in Wetland Series 4, 5, 6, and 8. Alternative C would involve approximately 4,387 square feet of total permanent alterations to waters of the U.S. and approximately 4,573 square feet of total temporary alterations to waters of the U.S. These impacts represent reductions from the total on-site impacts to wetlands and waters of the U.S. anticipated under Alternatives A and B. **Figure 8.2-11** shows all on-site direct impacts associated with Alternative C.

Alternative C includes the same off-site roadway improvements proposed under Alternative A, and the wetland impacts of these improvements would be the same under the two Alternatives. For more information on the impacts of these off-site improvements and the options that were studied, see **Section 8.2.2.1**.

All direct impacts of Alternative C are explained and quantified in further detail on **Table 8.2-6** below.



SOURCE: FIELD ENGINEERING CO., INC.

Mashpee Wampanoag Tribe - Fee to Trust Acquisition - Draft EIS

Figure 8.2-11
 DIRECT IMPACTS TO WATERS OF U.S.
 REDUCED INTENSITY II - LIT SITE (SOUTH OF RAILROAD TRACKS)

**TABLE 8.2-6
DIRECT IMPACTS TO WATERS OF THE U.S. FOR ALTERNATIVE C -- ON SITE**

Activity	Wetland Series ID	Wetland Classification	Description of Direct Impact	Impact Area Square Feet (s.f.)	
				Temporary	Permanent
Project Site (South of Railroad Tracks)					
Access driveway to Lot 9 Parking Area	2	PFO	Wetland fill and intermittent stream crossing with culvert. The proposed culvert will comply with the design standards referenced in the Massachusetts River and Stream Crossing Standards.	619 s.f.	867 s.f.
Loop Road and Stormwater Upgrades South of Proposed Hotel and Casino	2	PSS	Temporary and permanent wetlands fill in 3 locations to construct loop road around proposed buildings and upgrade existing stormwater management system.	452 s.f.	267 s.f.
Lot 13 Parking Area	2	PSS	Wetland fill (2 separate locations) including perennial stream crossing to construct connector drive between surface parking lots. The proposed culvert will comply with the design standards referenced in the Massachusetts River and Stream Crossing Standards.	625 s.f.	2,406 s.f.
Access Driveway to Lot 13 Parking Area	2	PFO, PSS	Wetland fill (3 separate locations). The existing concrete culvert that conveys the Cotley River beneath the existing electric distribution line right-of-way access road will be replaced with a new culvert that complies with Stream Crossing Standards.	2,877 s.f.	847 s.f.
			ALTERNATIVE C ON-SITE TOTALL	4,573 s.f.	4,387 s.f.

Secondary Effects

Alternative C would avoid secondary effects to the north of the railroad tracks and those associated with the rail crossing described under Alternatives A and B. **Table 8.2-7** describes the secondary effects of Alternative C.

**TABLE 8.2-7
POTENTIAL SECONDARY EFFECTS TO WATERS OF THE U.S. FOR ALTERNATIVE C**

Potential Secondary Effect	Wetland Series ID	Activity	Impact Area (s.f.)
Clearing of upland forest and scrub-shrub vegetation within 100 feet of a stream bank	Upland Buffer to Cotley River	Construction of loop road around proposed casino complex; and Parcel 12 ("Lot 13") parking area	63,026 (south of RR tracks)
		Alternative C Total	63,026 s.f.

Avoidance and Minimization Measures

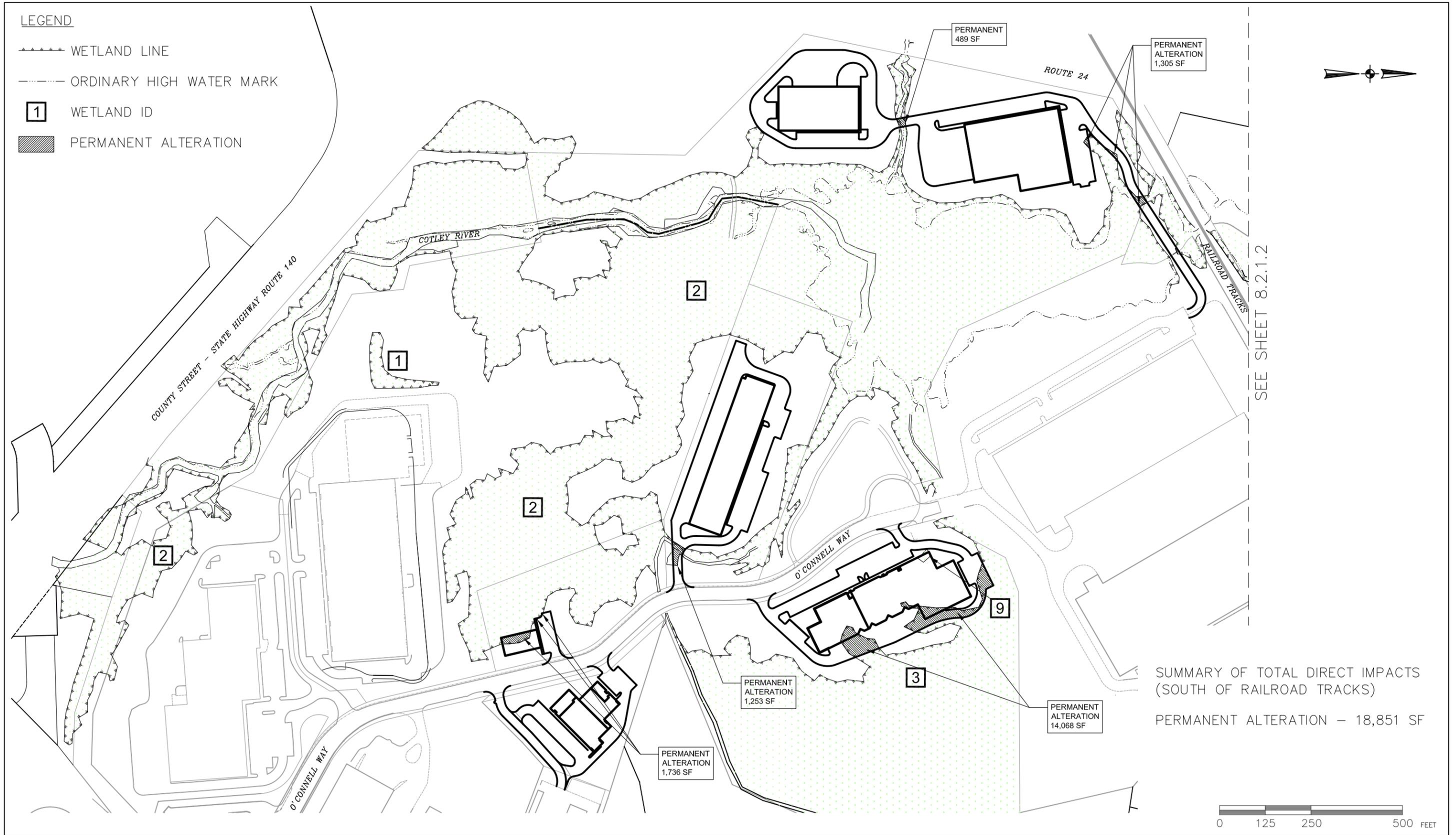
Avoidance and minimization measures described under **Section 8.2.2.1** would also be applied under Alternative C, with the exception of any measures specifically describing work conducted north of the railroad tracks.

8.2.2.4 Alternative D: No Action

Under the No Action Alternative, no land would be taken into federal trust for the Tribe. The Tribe would not establish an initial reservation nor develop a destination resort casino. Without land being taken into trust, it is assumed that the parcels within and adjacent to the LUIP in Taunton would continue to develop to their capacity as currently zoned and permitted. Theoretical plans for this build-out were designed using information from the Taunton Development Corporation's original proposal for the site, details of building permits held by current owners, and professional estimates on the ability to build out vacant lots. For a more thorough description of Alternative D, see **Section 4.3.5**.

Direct Impacts

Alternative D would involve approximately 17,600 square feet of total permanent alterations to waters of the U.S. and no temporary alterations to waters of the U.S. This impact represents a significant increase from the total on-site impacts to wetlands and waters of the U.S. anticipated under Alternatives A, B, and C. **Figures 8.2-12 and 8.2-13** show all on-site direct impacts associated with Alternative D.



SOURCE: FIELD ENGINEERING CO., INC.

Mashpee Wampanoag Tribe - Fee to Trust Acquisition - Draft EIS

Figure 8.2-12
 DIRECT IMPACTS TO WATERS OF U.S.
 NO ACTION ALTERNATIVE - LIT SITE (SOUTH OF RAILROAD TRACKS)

Secondary Effects

Alternative D could result in some secondary effects to upland forest communities associated with the Cotley River. As described in **Section 4.3.5**, Alternative D would involve the build-out of the remaining parcels on the Project Site as commercial, industrial, warehouse, and office facilities. These buildings and additions could be developed concurrently or over several years by one or more developers, and designs could vary from the layout projected in **Figure 4.3-4**. Development north of the railroad tracks on the Project Site would likely take place and could impact Critical Terrestrial Habitat associated with the vernal pool in Wetland Series 7. It can be assumed that these developers would comply with the Massachusetts Wetlands Protection Act and the Taunton Wetlands Protection Bylaw as necessary, and impacts would be minimized and mitigated to the maximum extent practicable.

Avoidance and Minimization Measures

Under Alternative D, avoidance and minimization of impacts to wetlands and waters of the U.S. would be the responsibility of developers of the industrial, commercial, and warehouse facilities on the site. It can be assumed that they would take steps to ensure compliance with Section 404(b)(1) and Executive Orders 11988/11990, as described in **Section 8.2.2.1** above. These measures would likely include crossing wetlands at their narrowest points, minimizing access road side slopes, spanning wetlands wherever feasible, complying with Stream Crossing Standards, maintaining a reasonable undisturbed buffer from the Cotley River, and orienting building foundations and roadway configurations to avoid wetlands.

8.2.3 MITIGATION

Compensatory mitigation for unavoidable impacts to wetlands and other waters of the U.S. will be provided in accordance with the ratios contained in the Revision of New England District Compensatory Mitigation Guidance⁴ under any of the Alternatives involving the BIA taking the Project Site into trust on behalf of the Tribe. The Tribe will consult with the Corps regarding the details of the proposed compensatory mitigation plan. The preferred approach would be to create or enhance wetlands on the Project Site and/or proximate to each impact location at the proposed Route 140 Northbound Entrance Ramp (under Option 1), at the proposed Route 140 northbound ramp from Route 24 southbound (under Option 3), and/or at the Route 24/140 intersection (under Option 4) at an agreed upon mitigation ratio. Compensatory flood storage would be provided for all flood storage that would be lost within the 100 year floodplain so as not cause an increase, incremental or otherwise, in the horizontal extent and level of flood waters during peak flows. For those activities and alternatives that are subject to the Massachusetts Wetlands Protection Act and the Taunton Wetlands Protection Bylaw (e.g., Alternative D, off-site roadway improvements), impacts to Bordering Vegetated Wetlands would be mitigated by creating new Bordering Vegetated Wetlands in the vicinity of the impact areas. At a minimum the replacement area(s)

⁴ U.S. Army Corps of Engineers New England District. July, 2010. Compensatory Mitigation Guidance. Available at <http://www.nae.usace.army.mil/Regulatory/Mitigation/guidance.htm>.

would be equal to that of the area that would be lost. Consequently, there would be no net loss of vegetated wetlands or flood storage as a result of project implementation under Alternatives A, B, C, D or for the proposed off-site roadway improvement locations and access/egress options.