

# HUDSON LOGISTICS CENTER

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NOVEMBER 18, 2020



amazon

LOT C  
±111.4 ACRE TOTAL LOT AREA  
CROSS DOCK FACILITY  
BUILDING FOOTPRINT = ±529,844 SF  
±130 LOADING DOCKS  
±188 TRAILER PARKING STALLS  
±421 CAR PARKING STALLS

amazon

MERRIMACK RIVER

EAGLE DRIVE

FAIRWAY DRIVE

BOUNDARY

ROAD



# TRAFFIC IMPACT STUDY



INTRO/PROCESS



TIS METHODOLOGY



TRIP GENERATION



TRIP DISTRIBUTION



ANALYSIS



PROPOSED CORRIDOR-WIDE IMPROVEMENTS

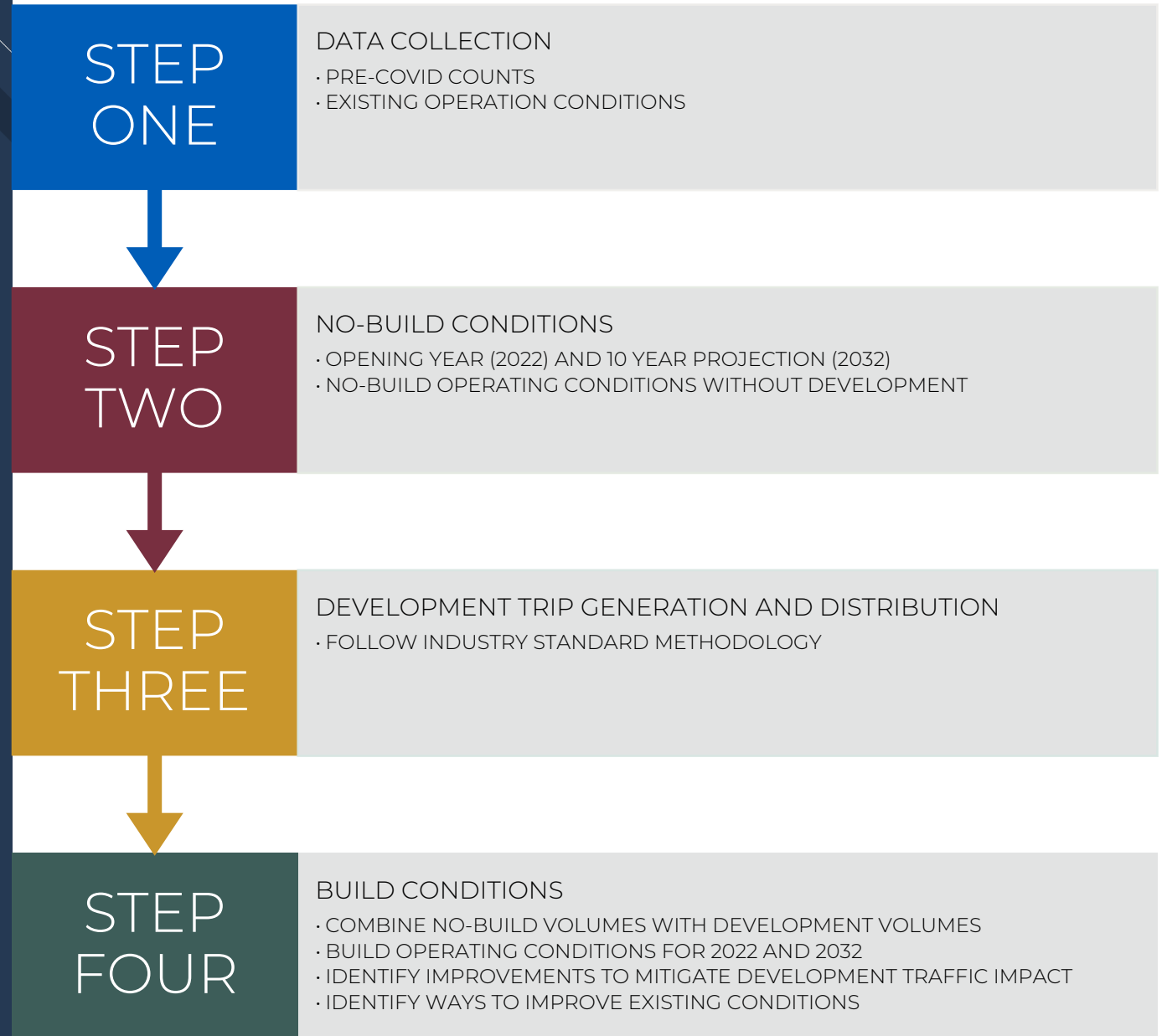


RESULTS



CONCLUSION

# METHODOLOGY



# TRIP GENERATION

HLC BUILDINGS – ITE LUC 155 HIGH-CUBE E-COMMERCE FULFILLMENT CENTER WAREHOUSE, NON-SORT

BUILDINGS A & B ARE AMAZON FACILITIES WITH DIFFERENT SPECIFIC FUNCTIONS; BUILDING C IS SPEC, NON-SORT

HILLWOOD, AMAZON AND DESIGN TEAM WANT THIS TO WORK

MISCONCEPTIONS OF TRIP GEN RELATED TO OPERATIONS AND SITE DESIGN

CONSERVATIVE APPROACH TO TRIP GEN (OVERESTIMATION)

HIGHER OF THE TENANT AND ITE TRIP GEN VOLUMES

USED ITE RATE FOR GENERATOR BECAUSE IT WAS HIGHER VOLUMES (# OF STUDIES)

ALTHOUGH OFFSET, COMBINED GENERATOR PEAK HOUR AND ROADWAY PEAK HOUR VOLUMES

MOV CREDIT OF 5% (AMAZON EXPERIENCES  $\pm 25\%$ ), ITE  $\pm 23\%$

NO CREDIT TAKEN FOR GOLF COURSE TRAFFIC

## TRIP GENERATION (CARS & TRUCKS)

AM: 334 IN 210 OUT

PM: 373 IN 382 OUT

ADT: 2057 IN 2057 OUT

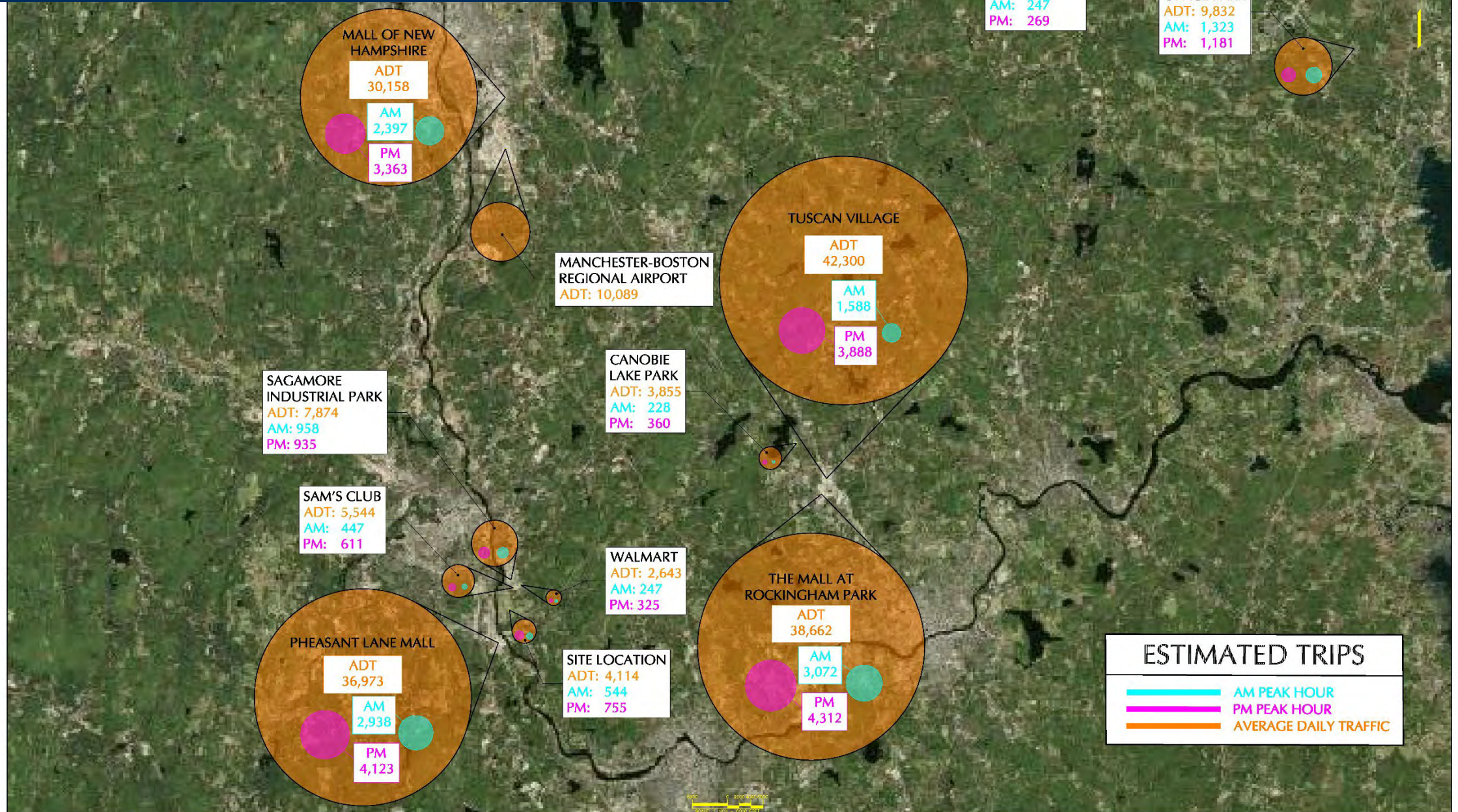
NHDOT HAS APPROVED THE TRIP GENERATION METHODOLOGY AND VOLUMES

# TRIP GENERATION

THIS PROJECT IS NOT THE LARGEST PROJECT EVER IN NEW HAMPSHIRE.



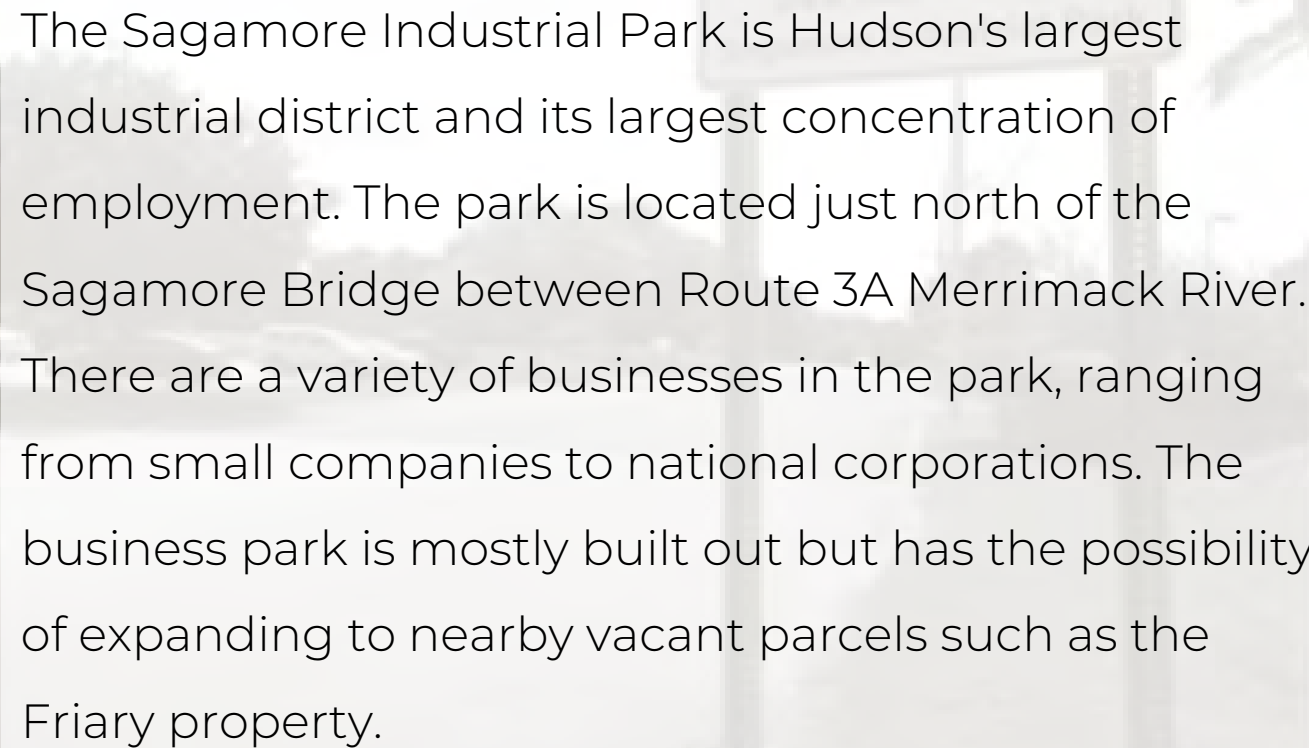
# TRIP GENERATION COMPARISON





# SAGAMORE INDUSTRIAL PARK

- Approximately 2,700 Jobs
- 56 Parcels Totaling 288 Acres
- Combined Property Assessment: \$168,366,800
- Total Building: 2,501,783 SF
- Combined 2017 Tax Revenue: \$3,320,193
- Zone: Industrial
- Traffic: 8,133 Average Daily Trips



The Sagamore Industrial Park is Hudson's largest industrial district and its largest concentration of employment. The park is located just north of the Sagamore Bridge between Route 3A Merrimack River. There are a variety of businesses in the park, ranging from small companies to national corporations. The business park is mostly built out but has the possibility of expanding to nearby vacant parcels such as the Friary property.

SOURCE: NRPC STUDY (2018) COMMISSIONED BY THE TOWN OF HUDSON



# TRUCK TRIP GENERATION

DETAILED DESCRIPTION TRUCK OPERATIONS IN TIS, PAGE 19

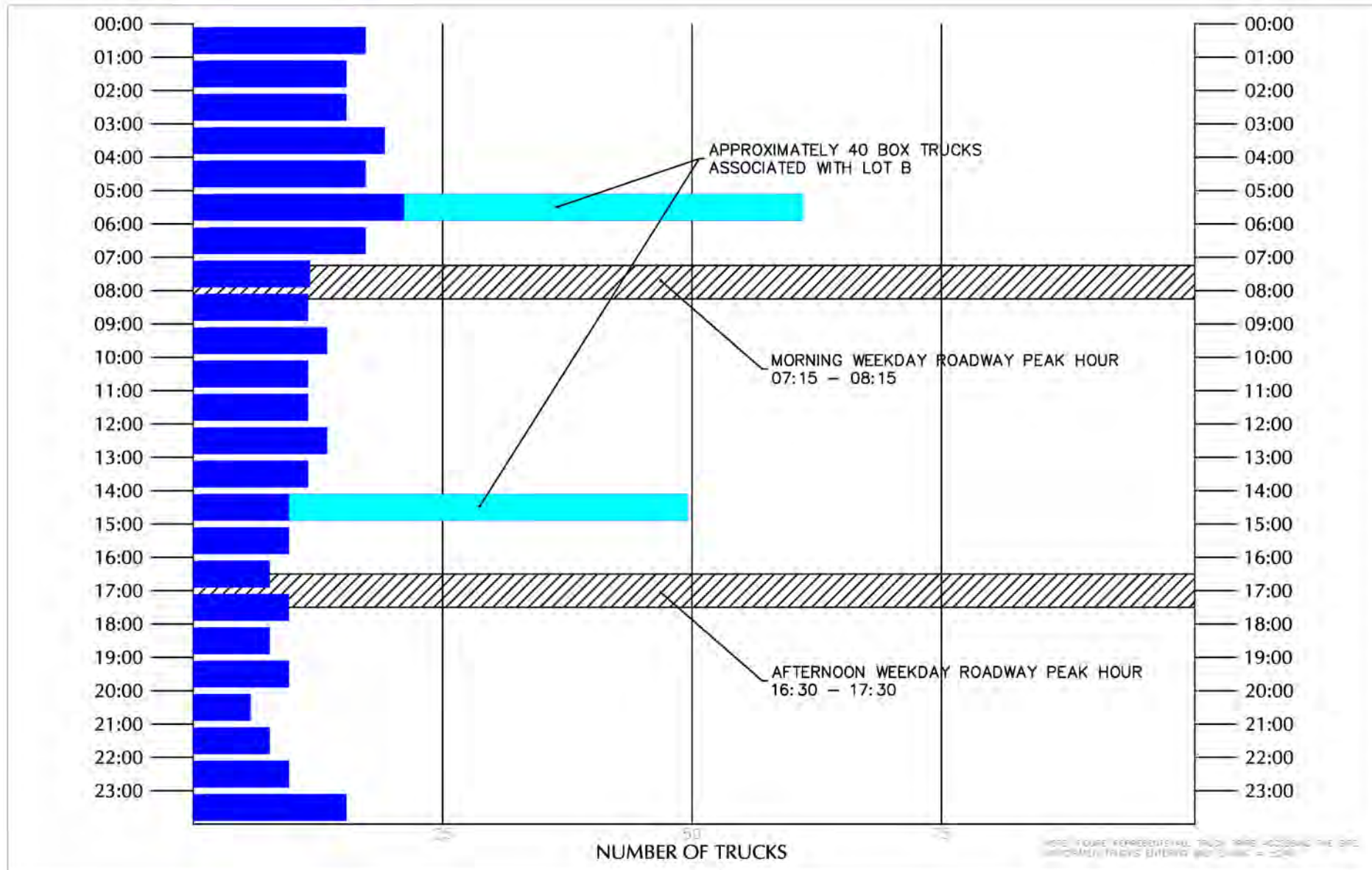
AMAZON KNOWS THE OPERATIONS OF THESE FACILITIES AND THE TRUCK TRAFFIC ASSOCIATED WITH IT PURPOSELY SPREAD OUT OVER THE ENTIRE DAY, NO REAL TRACTOR TRAILER TRUCK PEAKS

PURPOSELY OUTSIDE OF THE ROADWAY PEAK HOURS

USED THE HIGHER OF TENANT AND ITE TRUCK VOLUMES

**±240 TRACTOR TRAILER TRUCKS PER DAY AND 40 BOX TRUCKS PER DAY**

**TENANT ANTICIPATES 150-200 TRACTOR TRAILER AND BOX TRUCKS PER DAY**



# ANTICIPATED DAILY TRUCK ACTIVITY

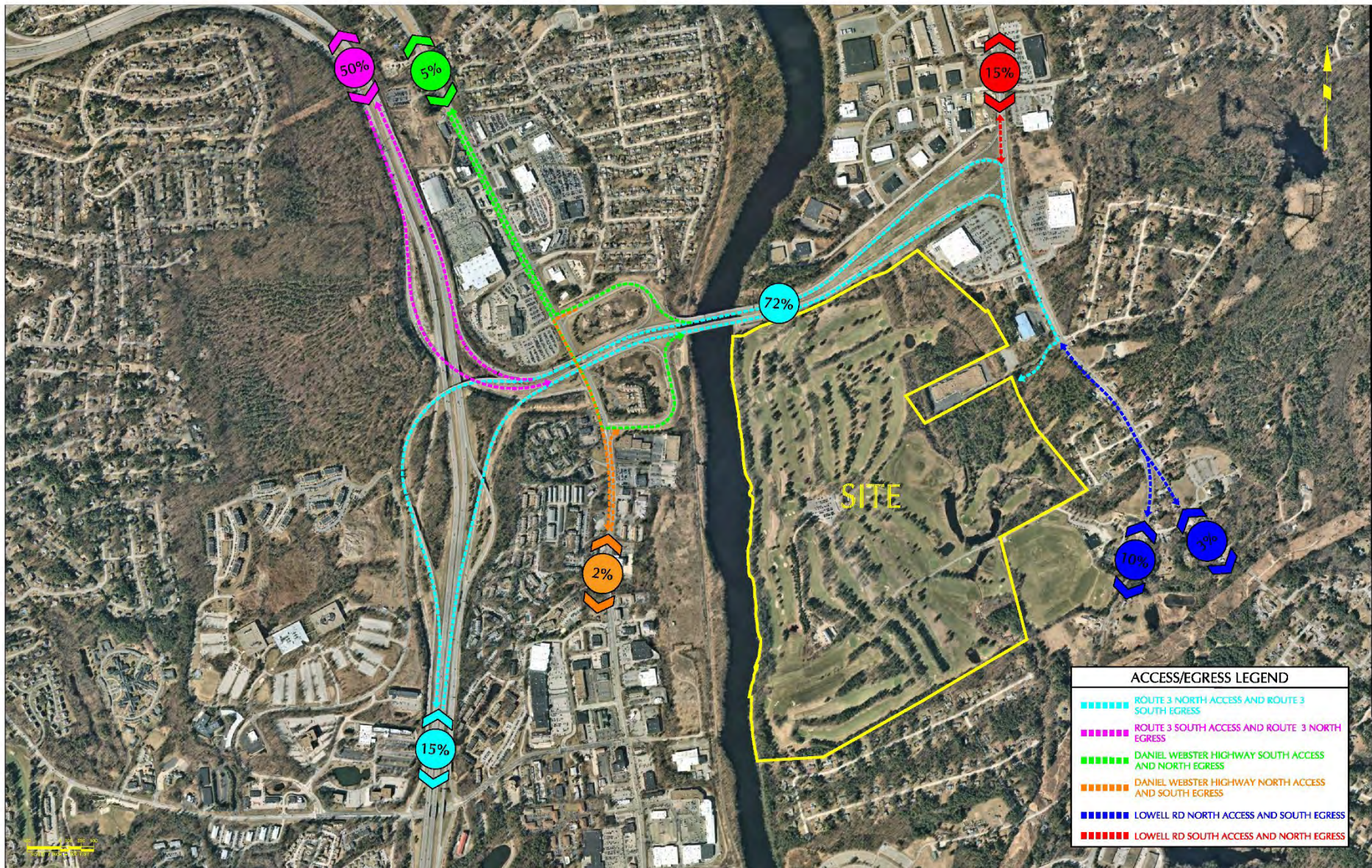
# TRIP DISTRIBUTION

IDEAL LOCATION FOR A LOGISTICS CENTER

DISTRIBUTION BASED ON INDUSTRY STANDARD PRACTICE; JOURNEY TO WORK DATA, EMPLOYEE DEMOGRAPHICS AND TRUCK ROUTING

TRUCK ROUTING – EFFICIENCY, PROXIMITY TO HIGHWAY SYSTEM, TRIP TIMING









# SITE ACCESS





# 24-HOUR DIESEL & REST AREAS

-  SITE
-  REST AREAS
-  24-HOUR HIGH-SPEED DIESEL FACILITY
-  24-HOUR HIGH-SPEED DIESEL FACILITY W/ LOUNGE

**HUDSON  
LOGISTICS  
CENTER**

# ANALYSIS

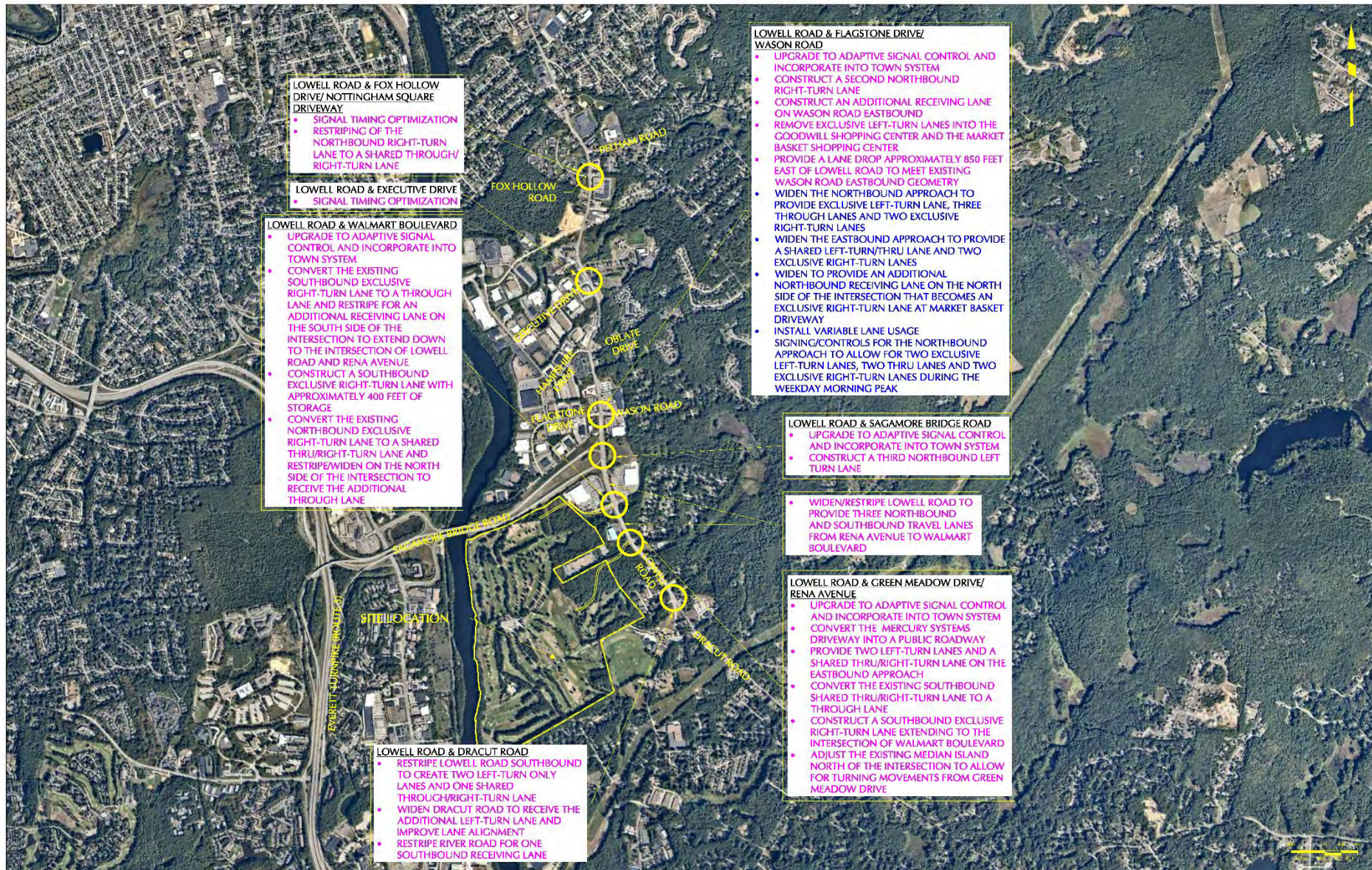
- CONFIRMED THAT THERE ARE EXISTING OPERATIONAL ISSUES IN THE LOWELL ROAD CORRIDOR
- NO-BUILD CONDITIONS FOR 2022 AND 2032
- BUILD OPERATING CONDITIONS FOR 2022 AND 2032
- RECOMMENDED CORRIDOR-WIDE IMPROVEMENTS TO NOT ONLY MITIGATE DEVELOPMENT'S TRAFFIC IMPACT, BUT ALSO TO ADDRESS EXISTING OPERATIONS ISSUES
- SIGNIFICANT IMPROVEMENT ON EXISTING CONDITIONS, BEYOND THE DEVELOPMENT'S IMPACT
- TOWN PEER REVIEW AND NHDOT CONFIRM THAT IMPROVEMENTS PROPOSED WILL IMPROVE TRAFFIC CONDITIONS AND REDUCE CONGESTION



# PROPOSED CORRIDOR-WIDE IMPROVEMENTS

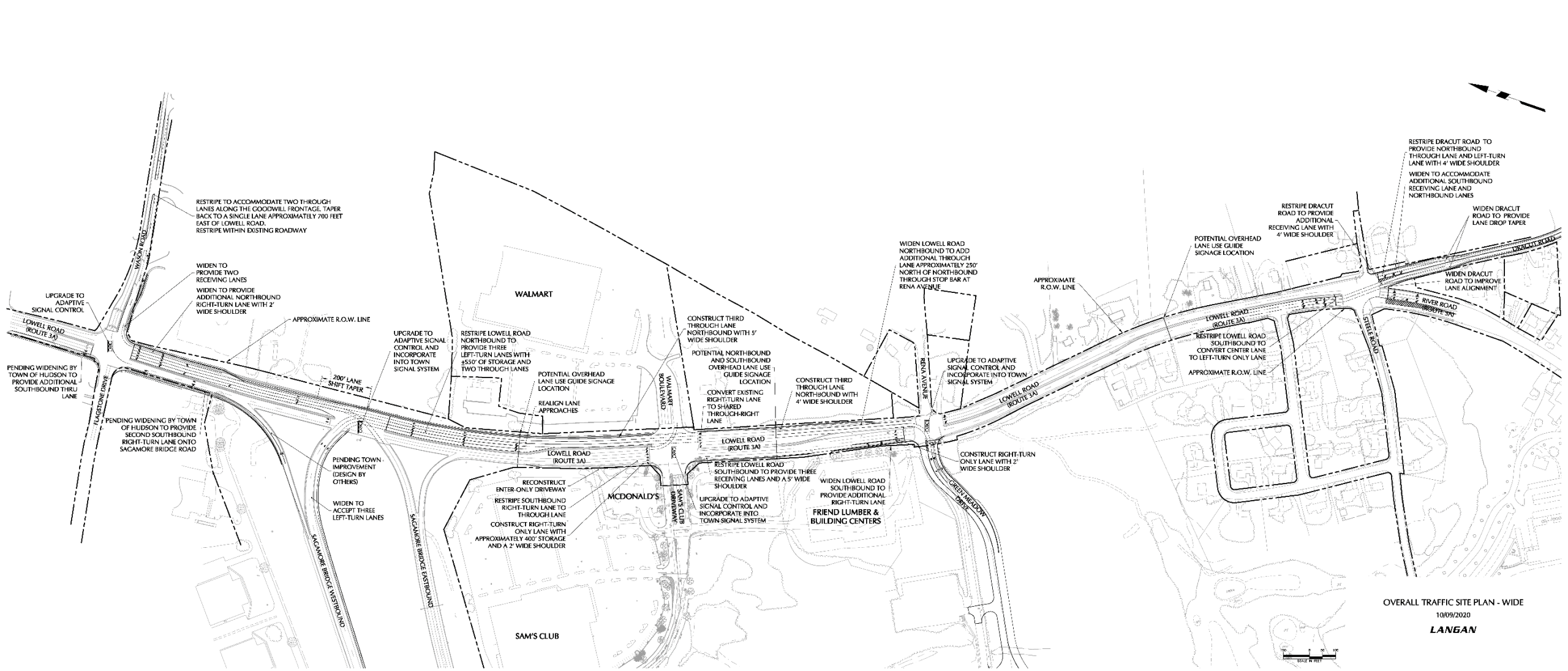
- LOWELL ROAD CORRIDOR-WIDE IMPROVEMENTS, FROM FOX HOLLOW DR TO DRACUT RD/RIVER RD/STEELE RD
- OVER **ONE MILE** OF IMPROVEMENTS TO TOWN AND STATE ROADWAYS, INTERSECTIONS AND TRAFFIC EQUIPMENT
- UPGRADE TRAFFIC SIGNALS TO STATE-OF-THE-ART EQUIPMENT COORDINATED WITH THE OTHER SIGNALS IN THE CORRIDOR
- TOWN HAS REQUESTED TO TAKE OVER THESE STATE SIGNALS TO INTERGRATE INTO THE TOWN EXISTING SIGNAL NETWORK





# TRAFFIC MITIGATION MEASURES

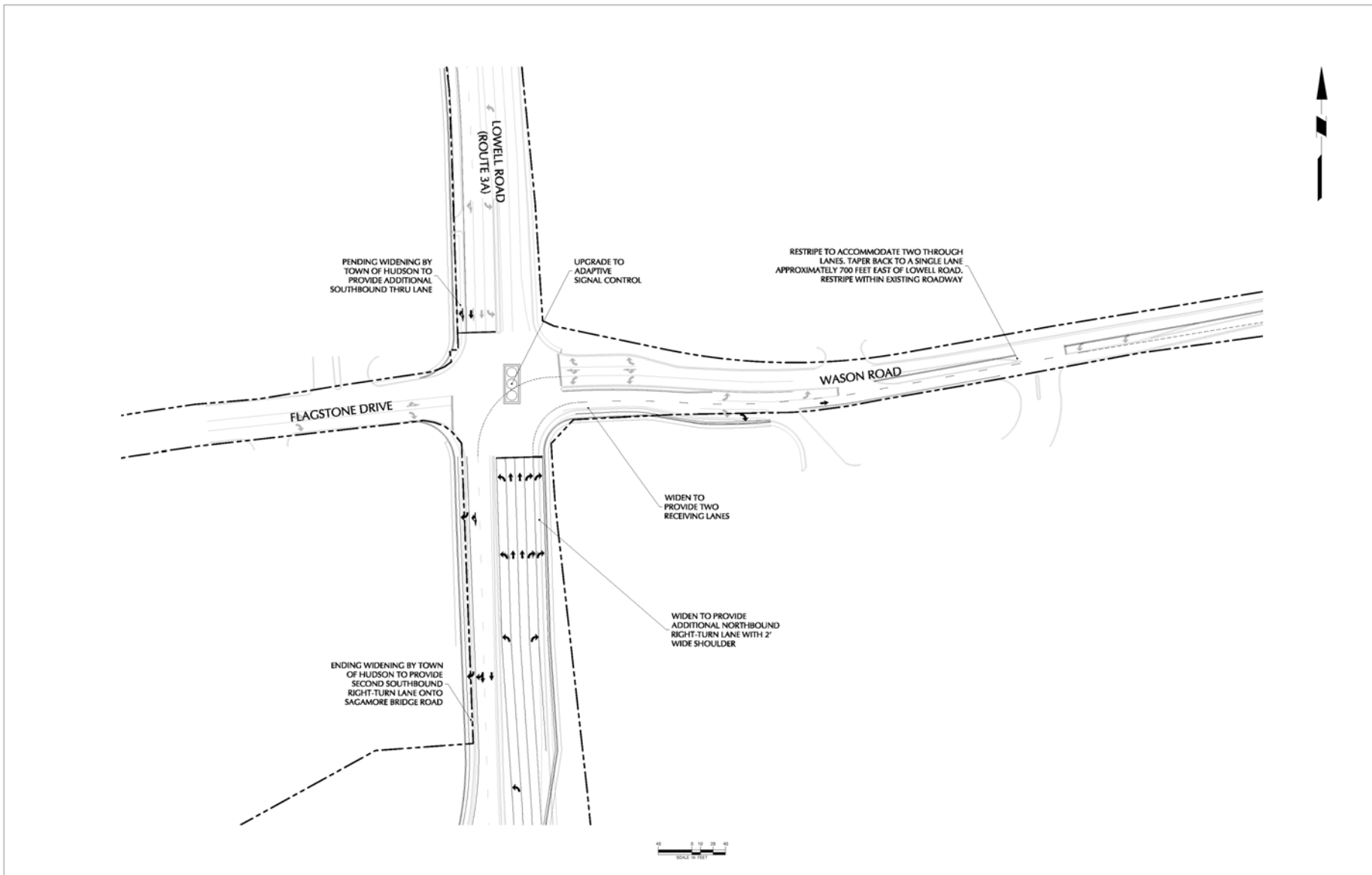




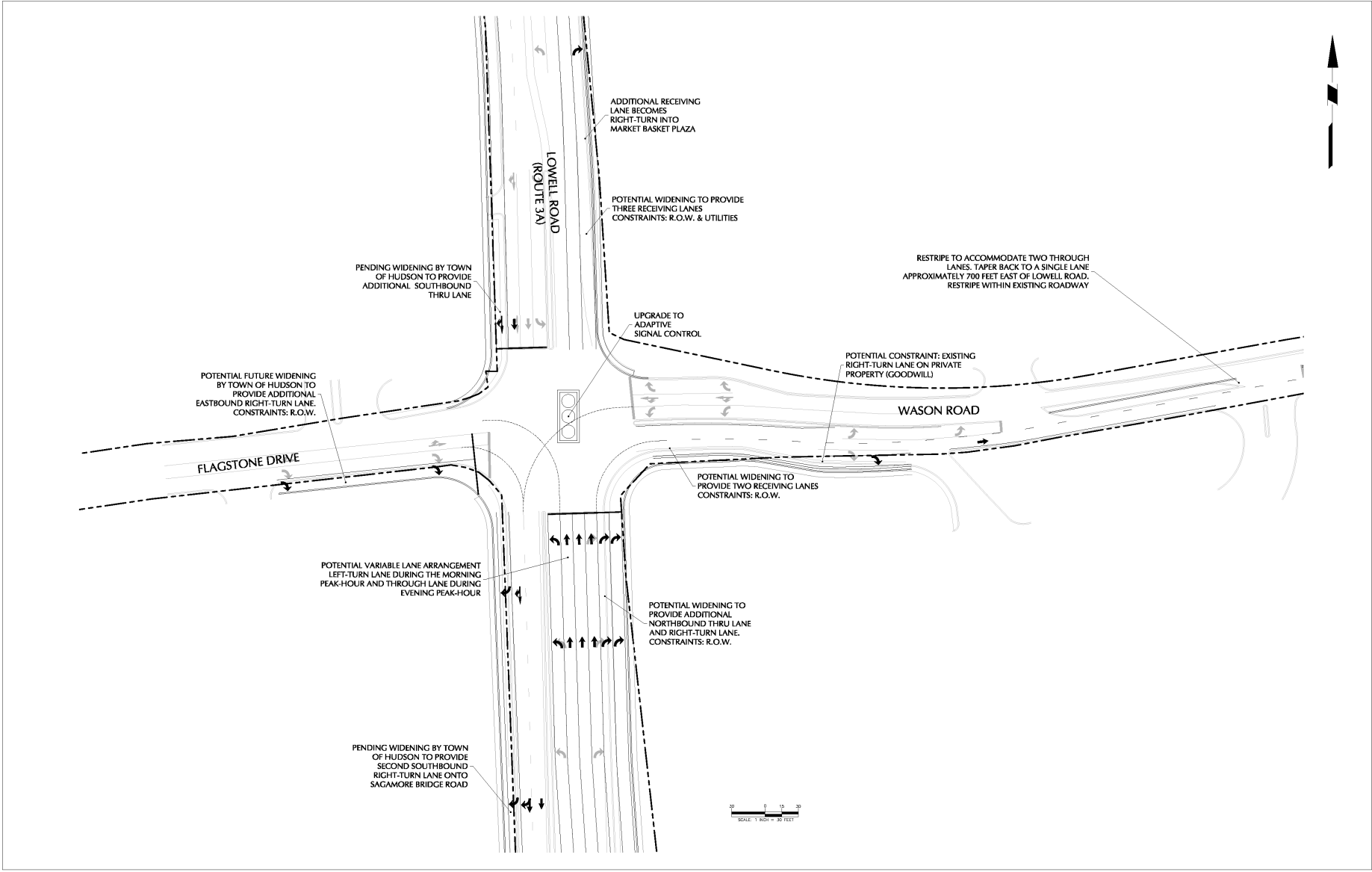
OVERALL TRAFFIC SITE PLAN - WIDE  
10/09/2020  
**LANGAN**

# CORRIDOR-WIDE IMPROVEMENT PLAN

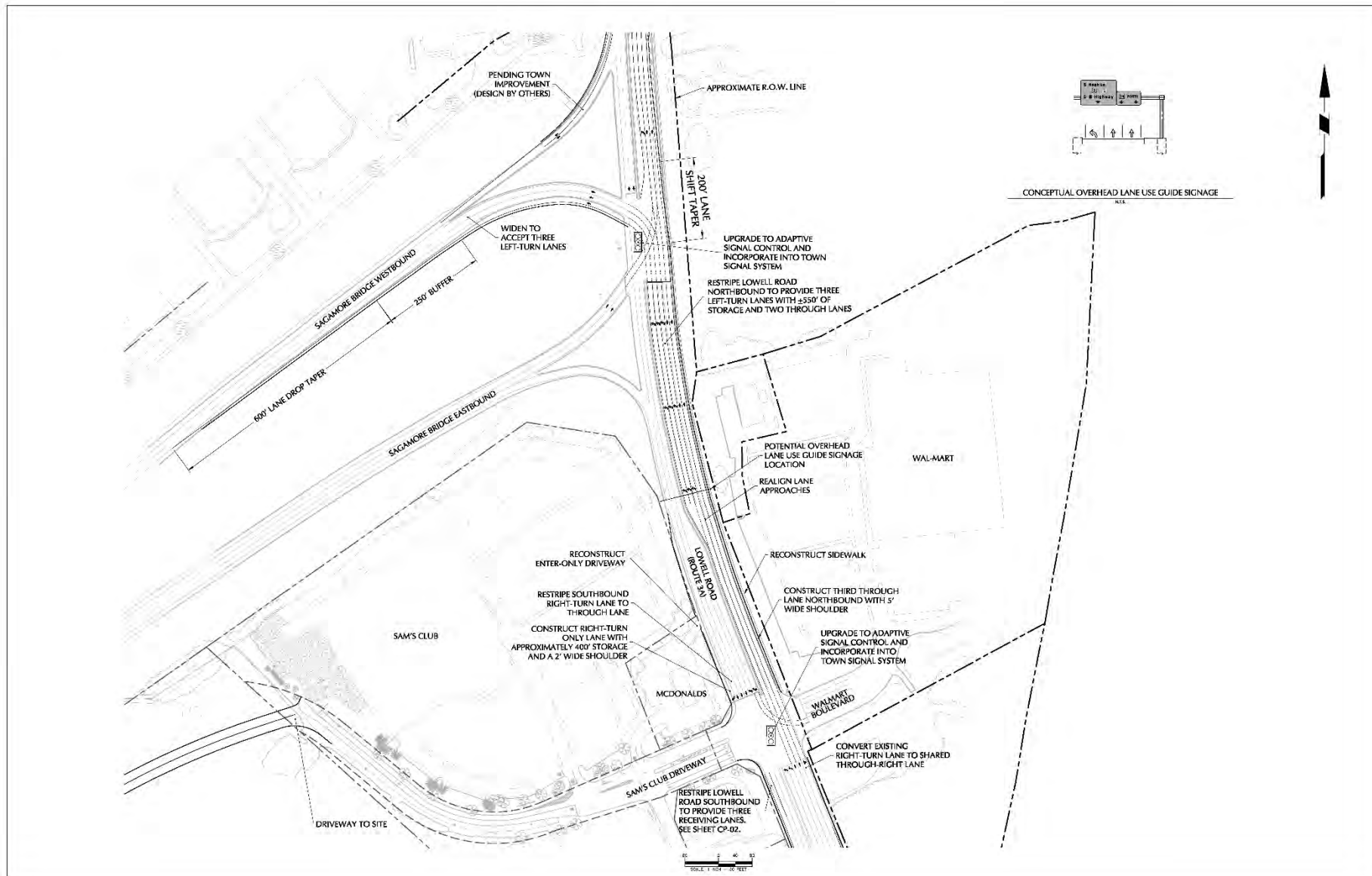




# LOWELL AT FLAGSTONE & WASON BASE IMPROVEMENTS PLAN

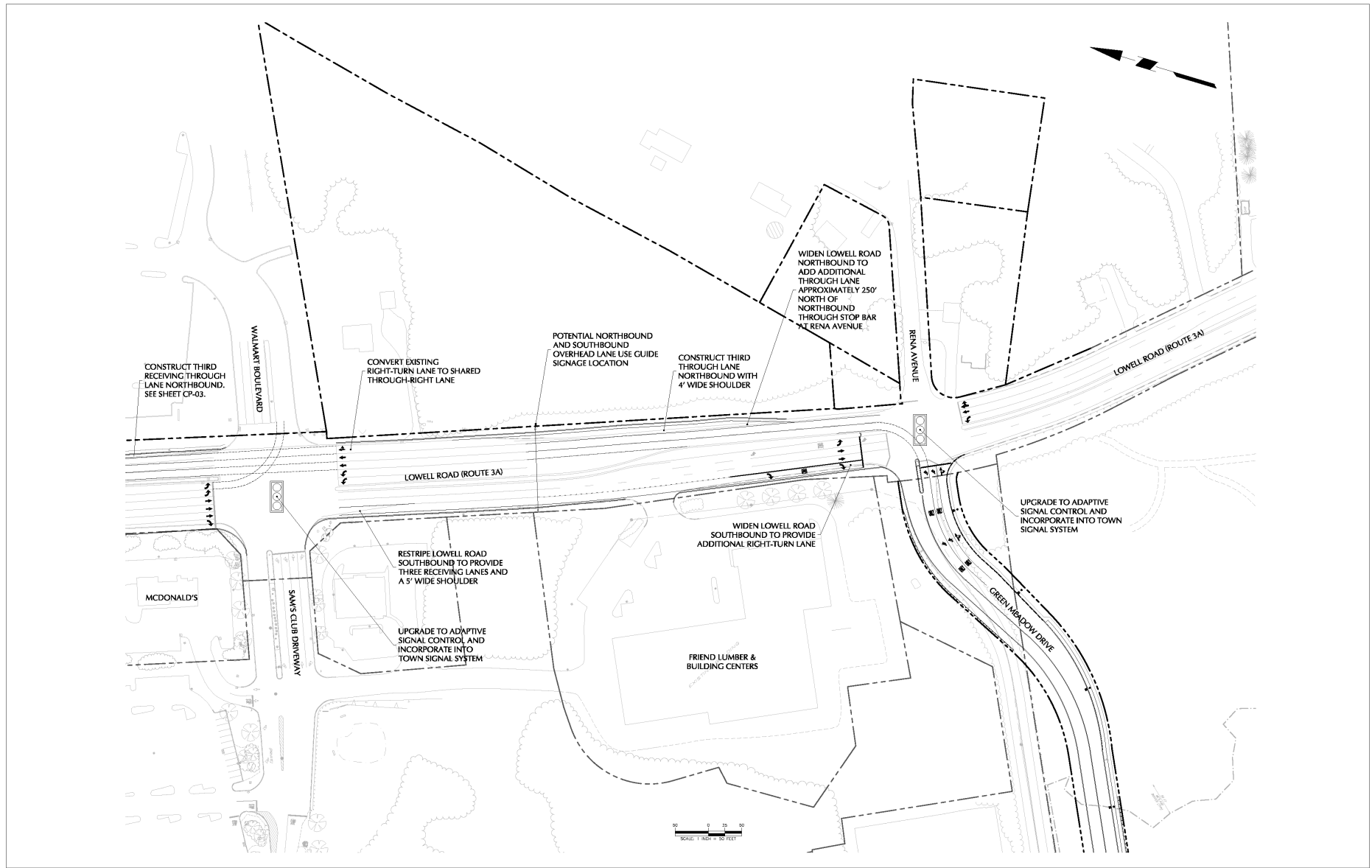


# LOWELL AT FLAGSTONE & WASON FUTURE IMPROVEMENTS PLAN

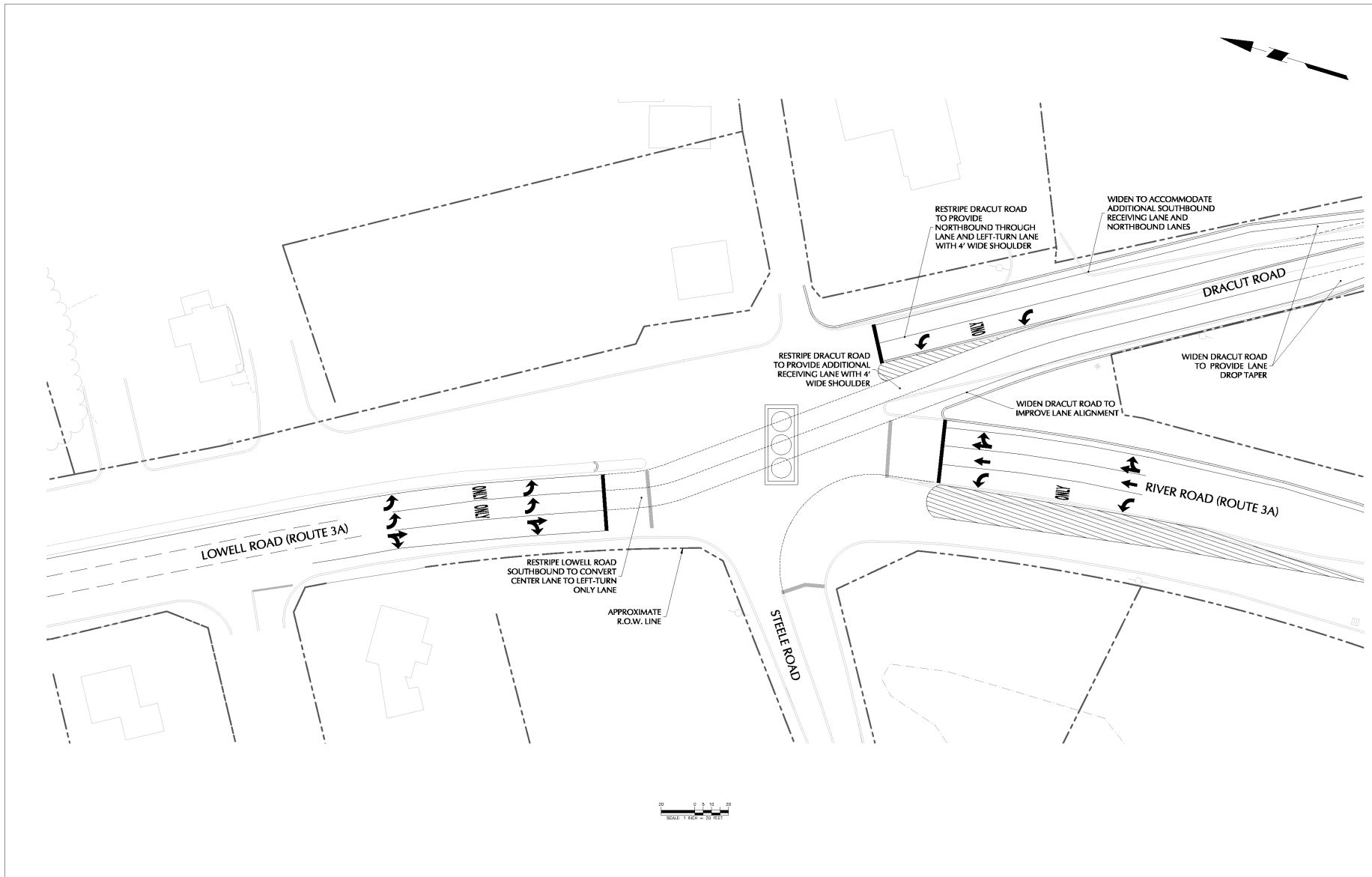


# WALMART BLVD TO SAGAMORE BRIDGE RD IMPROVEMENTS CONCEPT





# RENA AVE TO WALMART BLVD IMPROVEMENTS CONCEPT



# LOWELL/RIVER/STEELE/DRACUT DOUBLE LEFT-TURN LANE CONCEPT

# RESULT OF ANALYSIS

VERY DETAILED DESCRIPTION IN THE TIS

TWO WAYS TO ILLUSTRATE THIS:

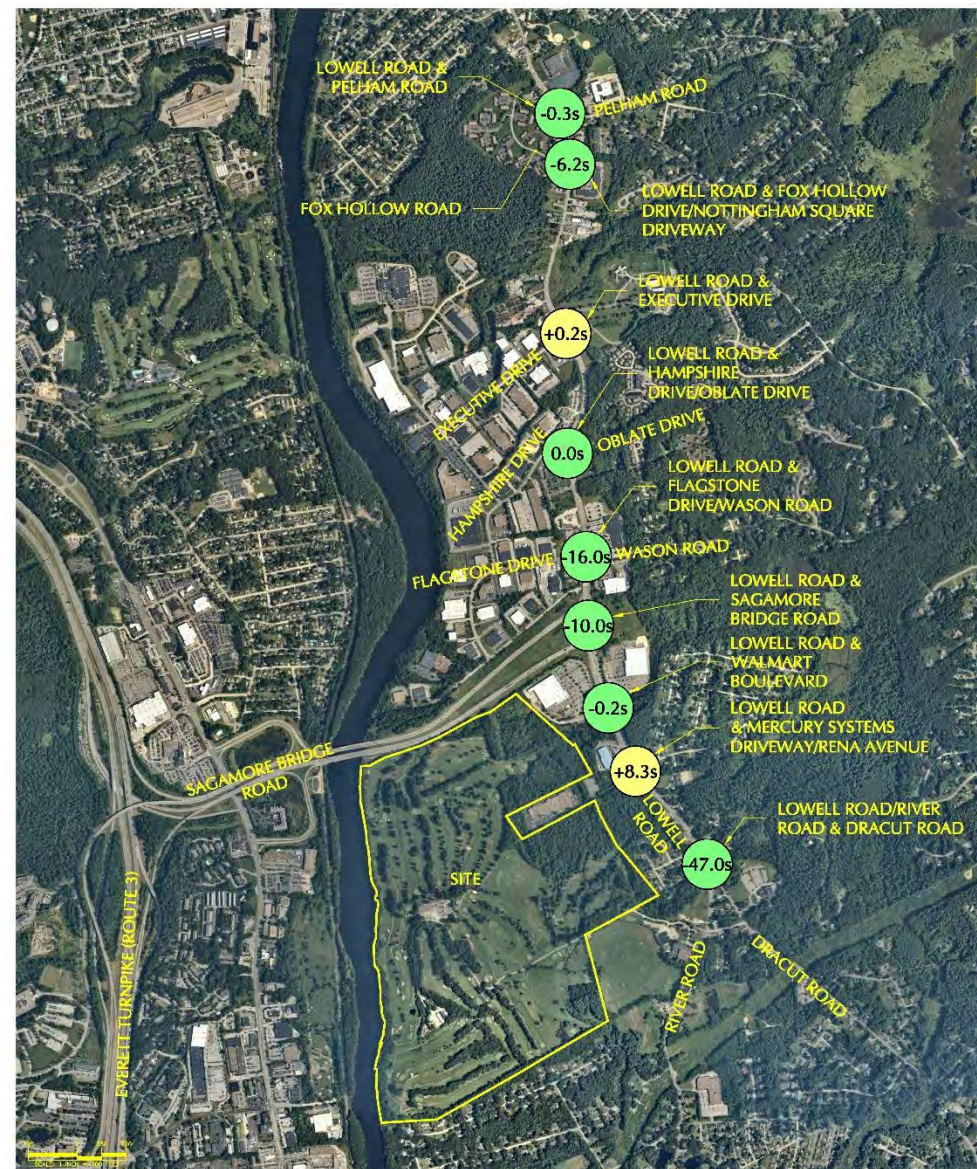
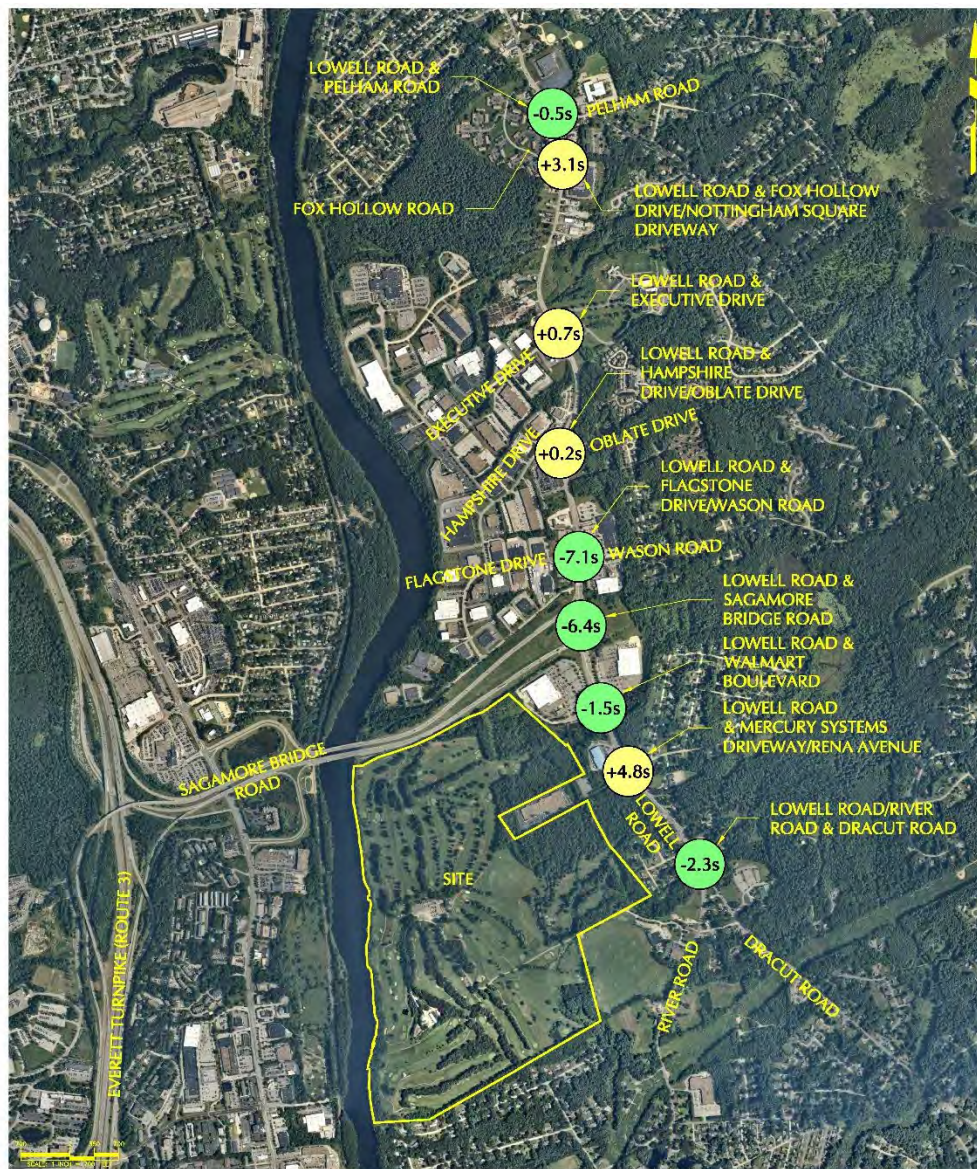
CHANGE IN AVERAGE INTERSECTION DELAY  
95<sup>TH</sup> PERCENTILE VEHICLE QUEUE LENGTHS



DECREASE

INCREASE

A  
M  
P  
E  
A  
K



P  
M  
P  
E  
A  
K

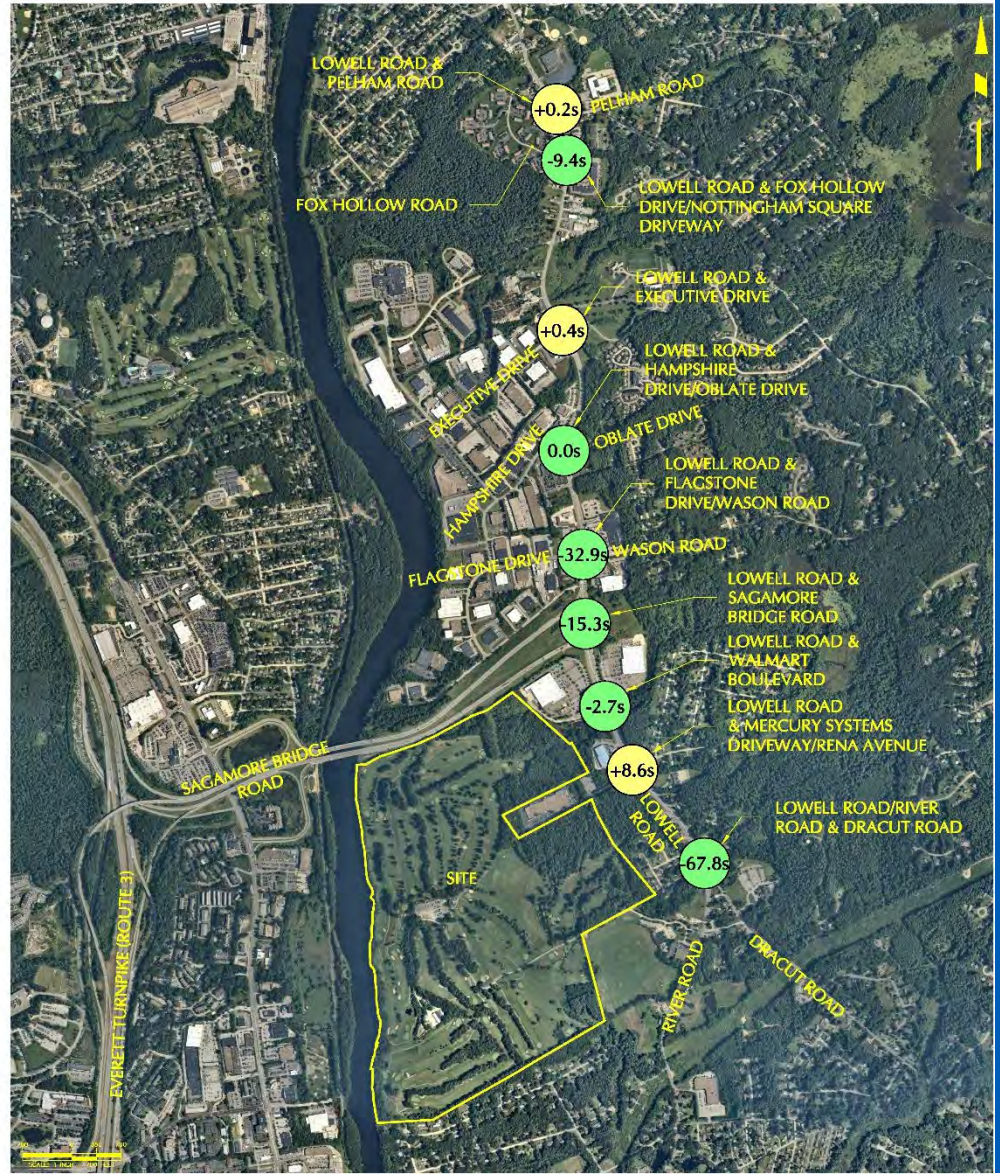
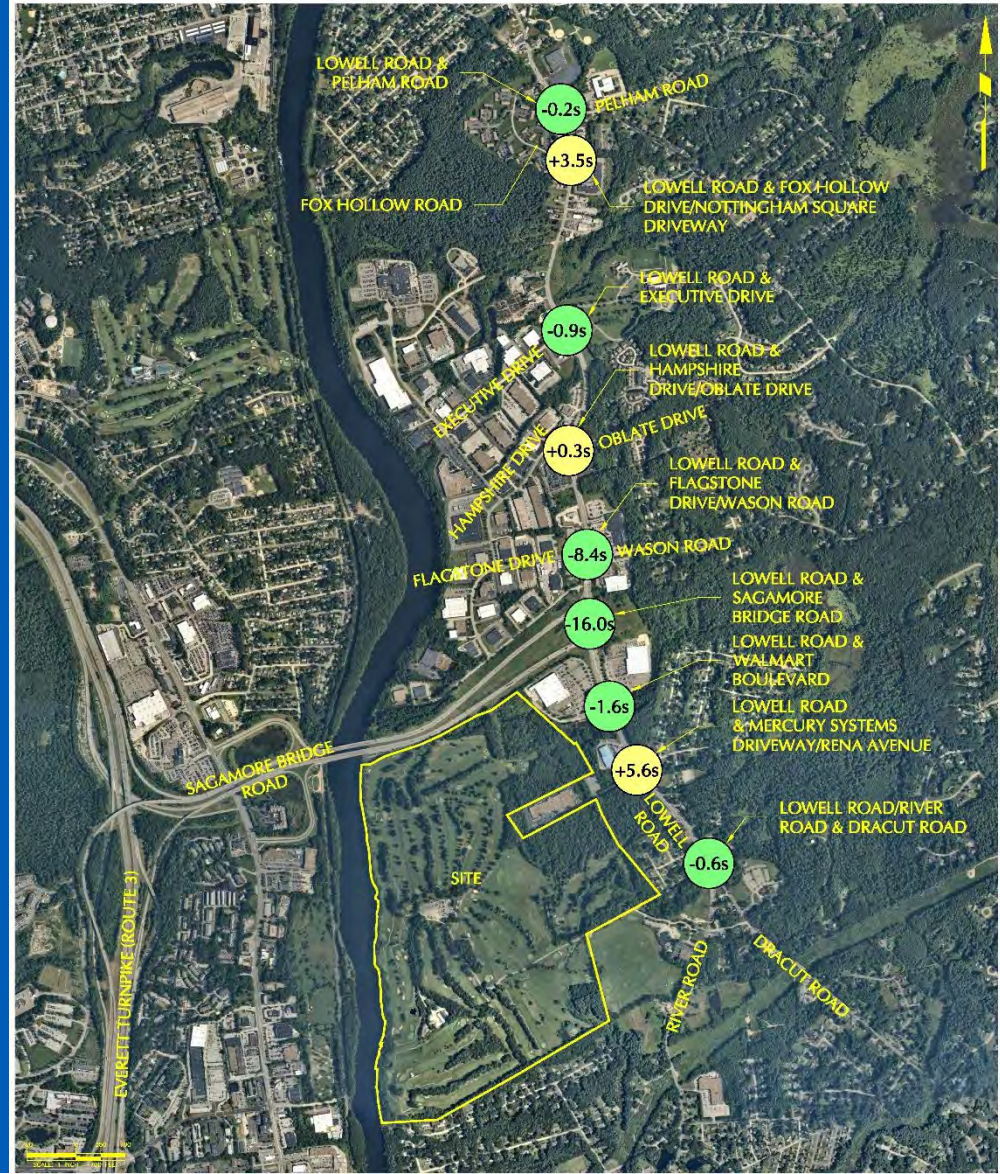
# 2022 AVERAGE DELAY COMPARISON



DECREASE

INCREASE

A  
M  
P  
E  
A  
K



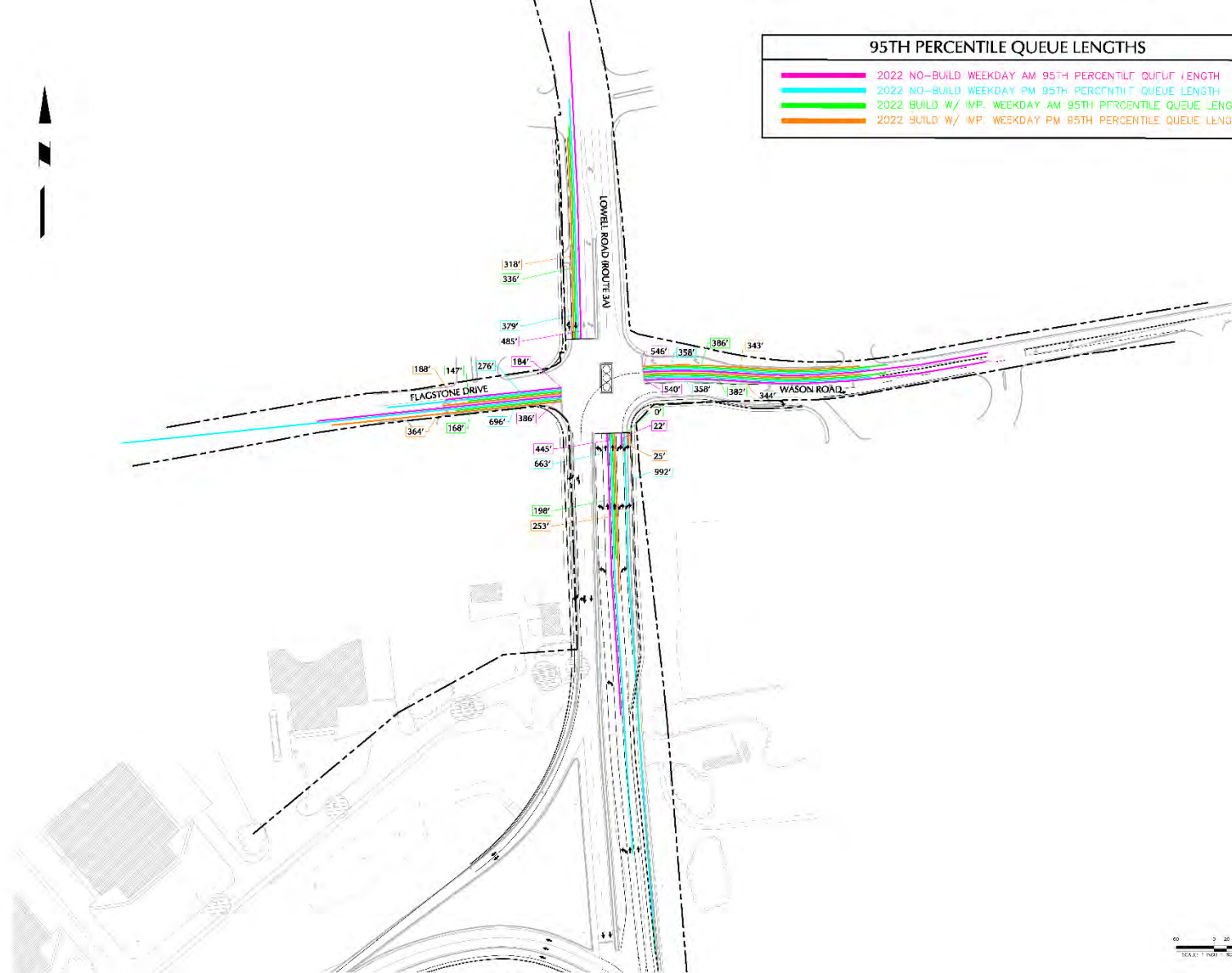
P  
M  
P  
E  
A  
K

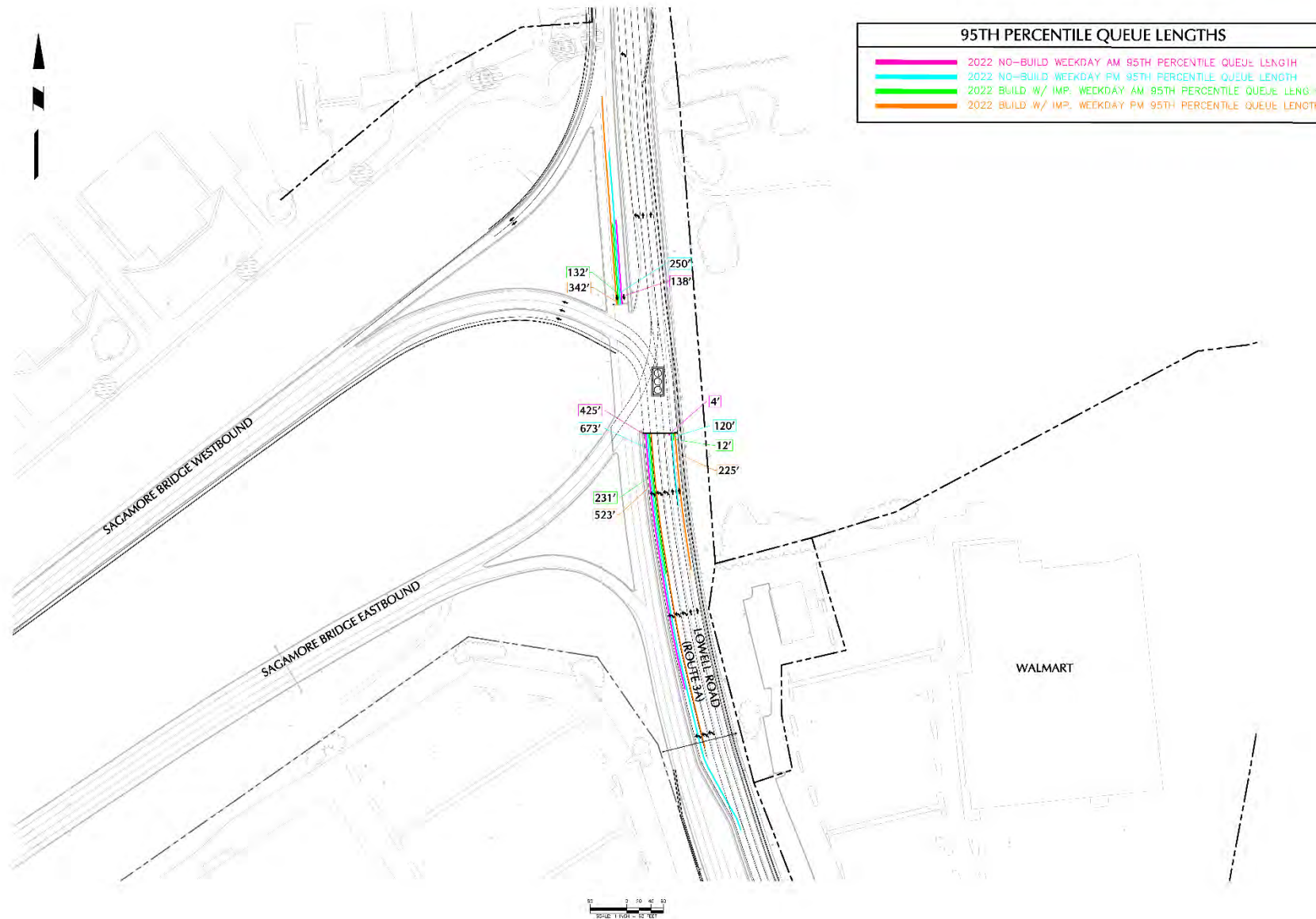
# 2032 AVERAGE DELAY COMPARISON



95TH PERCENTILE QUEUE LENGTHS

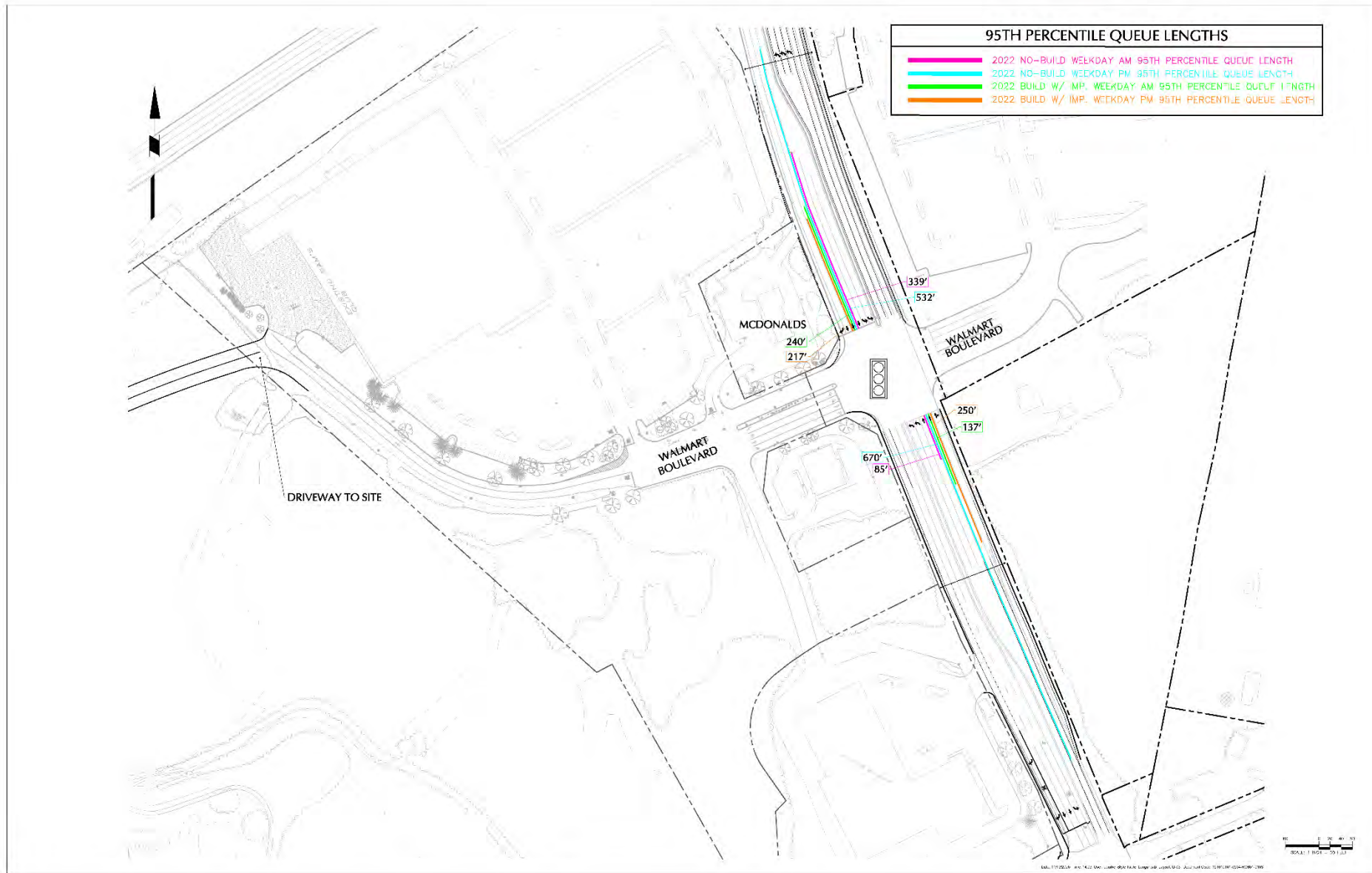
- 2022 NO-BUILD WEEKDAY AM 95TH PERCENTILE QUEUE LENGTH
- 2022 NO-BUILD WEEKDAY PM 95TH PERCENTILE QUEUE LENGTH
- 2022 BUILD W/ IMP. WEEKDAY AM 95TH PERCENTILE QUEUE LENGTH
- 2022 BUILD W/ IMP. WEEKDAY PM 95TH PERCENTILE QUEUE LENGTH



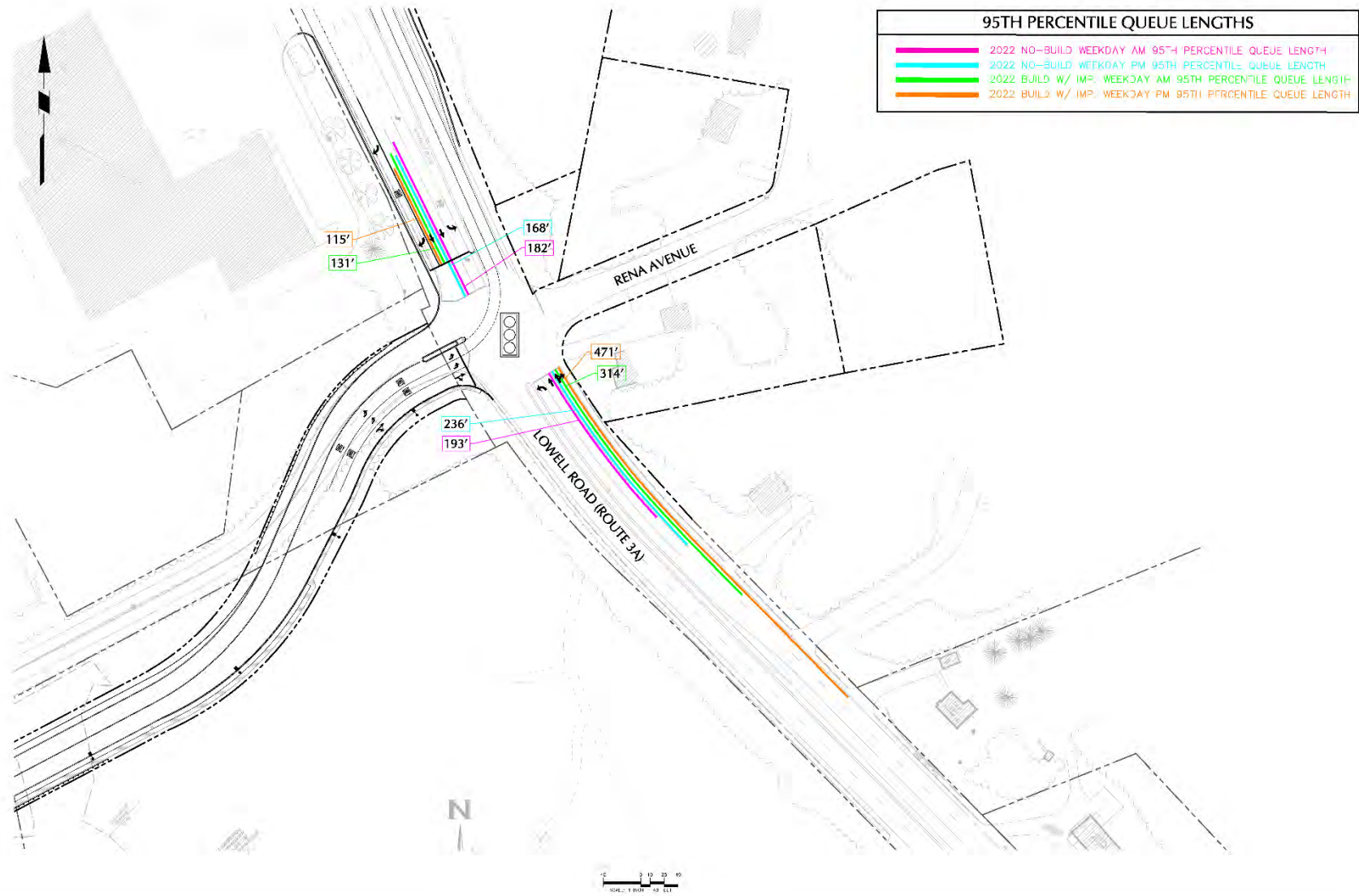


# 2022 95<sup>TH</sup> PERCENTILE QUEUES – LOWELL RD & SAGAMORE BRIDGE RD





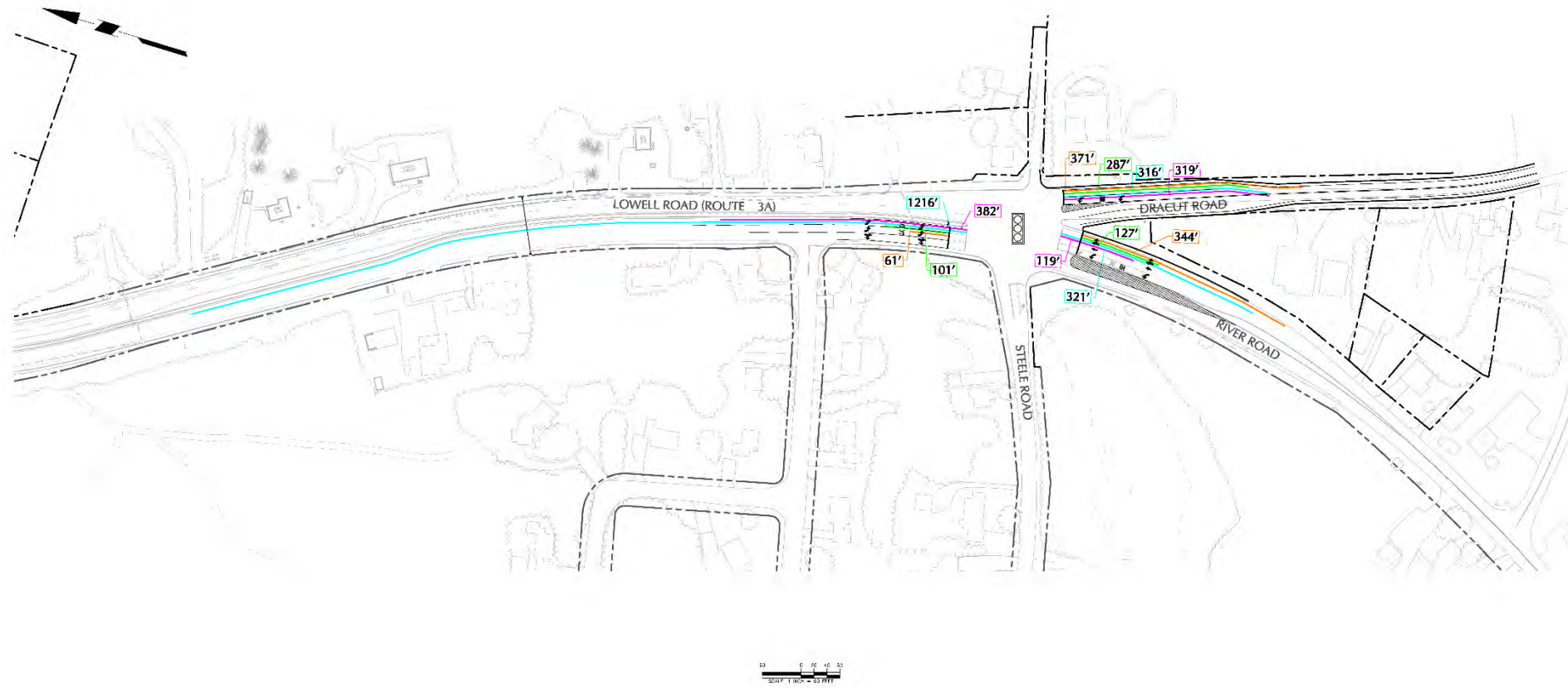
# 2022 95<sup>TH</sup> PERCENTILE QUEUES – LOWELL RD & WALMART BLVD



# 2022 95<sup>TH</sup> PERCENTILE QUEUES – LOWELL RD & RENA AVE

95TH PERCENTILE QUEUE LENGTHS

- 2022 NO-BUILD WEEKDAY AM 95TH PERCENTILE QUEUE LENGTH
- 2022 NO-BUILD WEEKDAY PM 95TH PERCENTILE QUEUE LENGTH
- 2022 BUILD W/ IMP. WEEKDAY AM 95TH PERCENTILE QUEUE LENGTH
- 2022 BUILD W/ IMP. WEEKDAY PM 95TH PERCENTILE QUEUE LENGTH



2022 95<sup>TH</sup> PERCENTILE QUEUES – LOWELL/RIVER/DRACUT/STEELE



# CONCLUSION

- TRAFFIC IMPACT STUDY DONE TO INDUSTRY AND REVIEWER'S STANDARDS
- WE ALL WANT THIS TO WORK AND WE BELIEVE WE HAVE PROVIDED ADDITIONAL CAPACITY IN THE CORRIDOR TO IMPROVE EXISTING CONDITIONS BUT TO ALSO HANDLE SEASONAL FLUCTUATIONS IN THE HLC EMPLOYMENT
- HILLWOOD TO PAY FOR ALL THE IMPROVEMENTS AND FUND FUTURE IMPROVEMENTS BY THE TOWN AT LOWELL/WASON/FLAGSTONE
- HILLWOOD AGREEABLE TO A CONDITION THAT, IF APPROVED, SUBSEQUENT TO BUILDING A & B BECOMING OPERATIONAL THE TRIP GENERATION PROJECTIONS ARE CONFIRMED PRIOR TO A BUILDING PERMIT FOR BUILDING C

# CONCLUSION

## NHDOT APPROVAL

“ The Department has reviewed and approved the methodology, trip generation, and traffic volumes developed in the TIS. We concur that the proposed geometric modifications and adaptive signal control proposed at the four signalized intersections will adequately mitigate the development’s traffic. Per our review the traffic analysis in the TIS, that proposed improvements will handle the existing and added traffic volumes reasonably well. Accordingly, the Department is supportive of the proposed development and the proposed mitigation.

## VHB – PEER REVIEW

“ In summary , VHB has concluded that, based on the estimated site generated vehicle trips presented in the traffic impact study the applicants proposed upgrades to the study area intersections adequately mitigate the project’s traffic impact. Note that the applicant needs to demonstrate that there is available ROW, or the...

## STANTEC – PEER REVIEW

“ *Level Of Proposed Investments.* Stantec also reviewed the traffic study level of service (LOS) results and associated off-site improvement plans. The proposed improvements were found to fully mitigate the development’s projected traffic impacts and, in some cases, provide additional capacity over what is available today. In particular the improved Route 3A intersection with Dracut, River and...

“ **Conclusions:** Overall we find that Langan has followed industry accepted practices and town guidance in developing vehicle trip estimates for the project and that the resulting trip estimates applied in the traffic study are conservative, or an overestimation of the traffic impact on the area roadway network.