

Cushing Village Mixed-Use Redevelopment

Planning Board Meeting
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Traffic Impact, Access, and Parking Study

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TEC, Inc.

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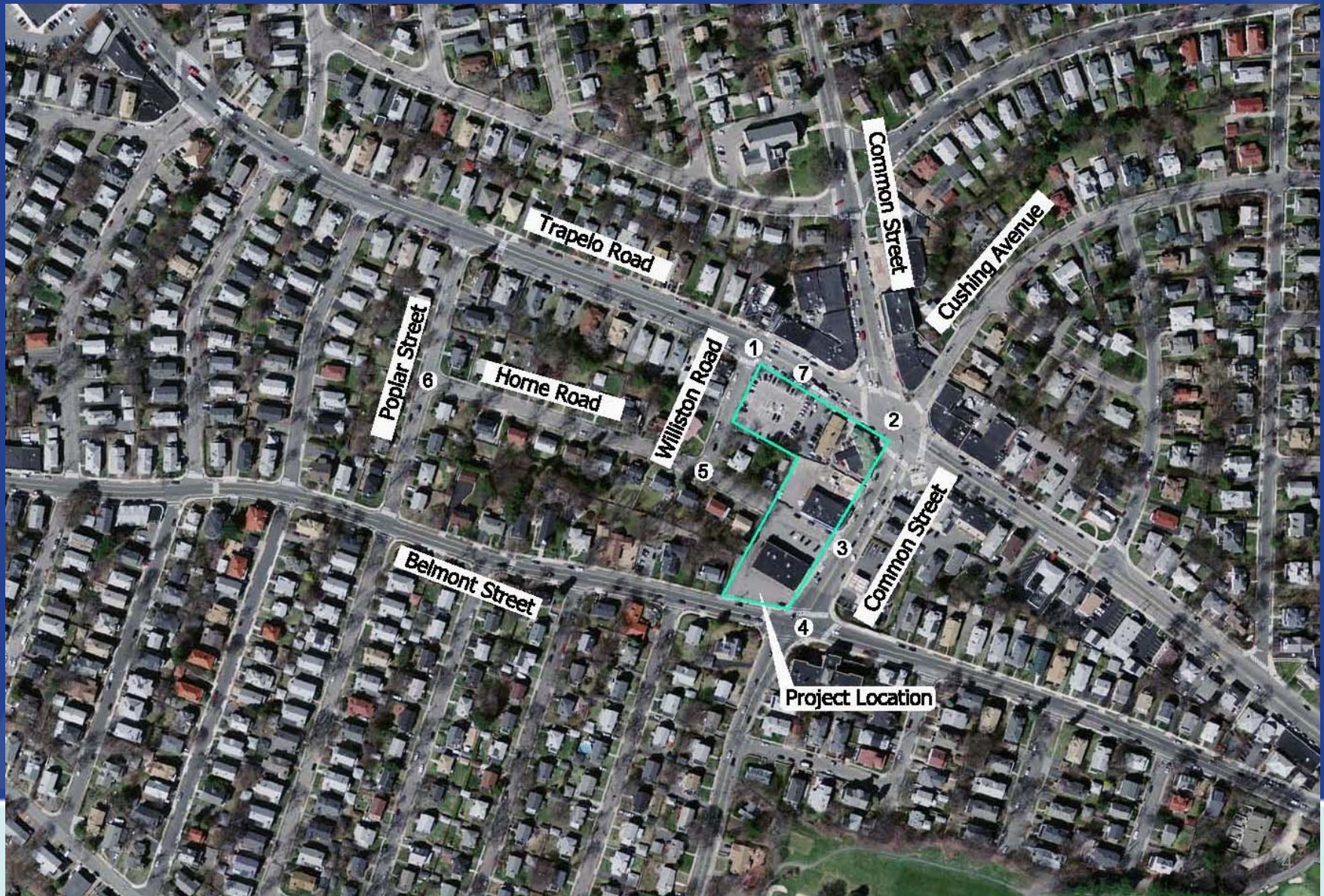
Who is TEC?

- Multi-discipline engineering firm
 - Plan, Permit, Design, Construct
- James D'Angelo, P.E., President/Founder
 - Co-founded VHB in 1979
 - Founded TEC, Inc. in 2001
- Kevin Dandrade, P.E., PTOE, Principal/Project Manager
 - Immediate Past President of NE ITE
- Rebecca Brown, P.E., Senior Transportation Engineer
 - Vice President of NH ITE

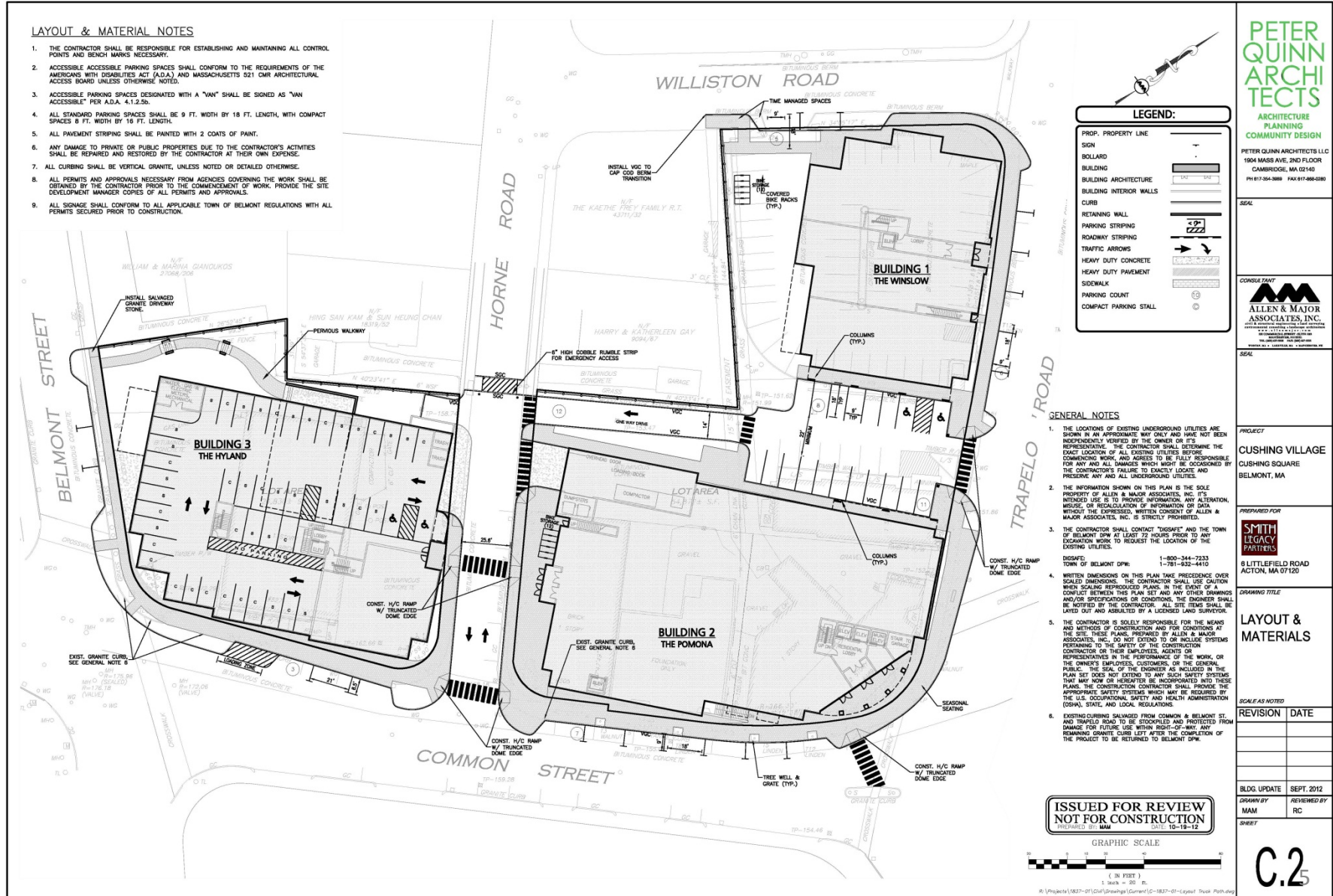
Introduction

- Safety Benefits
 - Traffic Calming Measures
 - Consolidation of Driveways
- Traffic Impacts
 - <4.0 second increase in delay
- Parking Supply
 - Exceeds peak parking demand

Project Location / Study Area



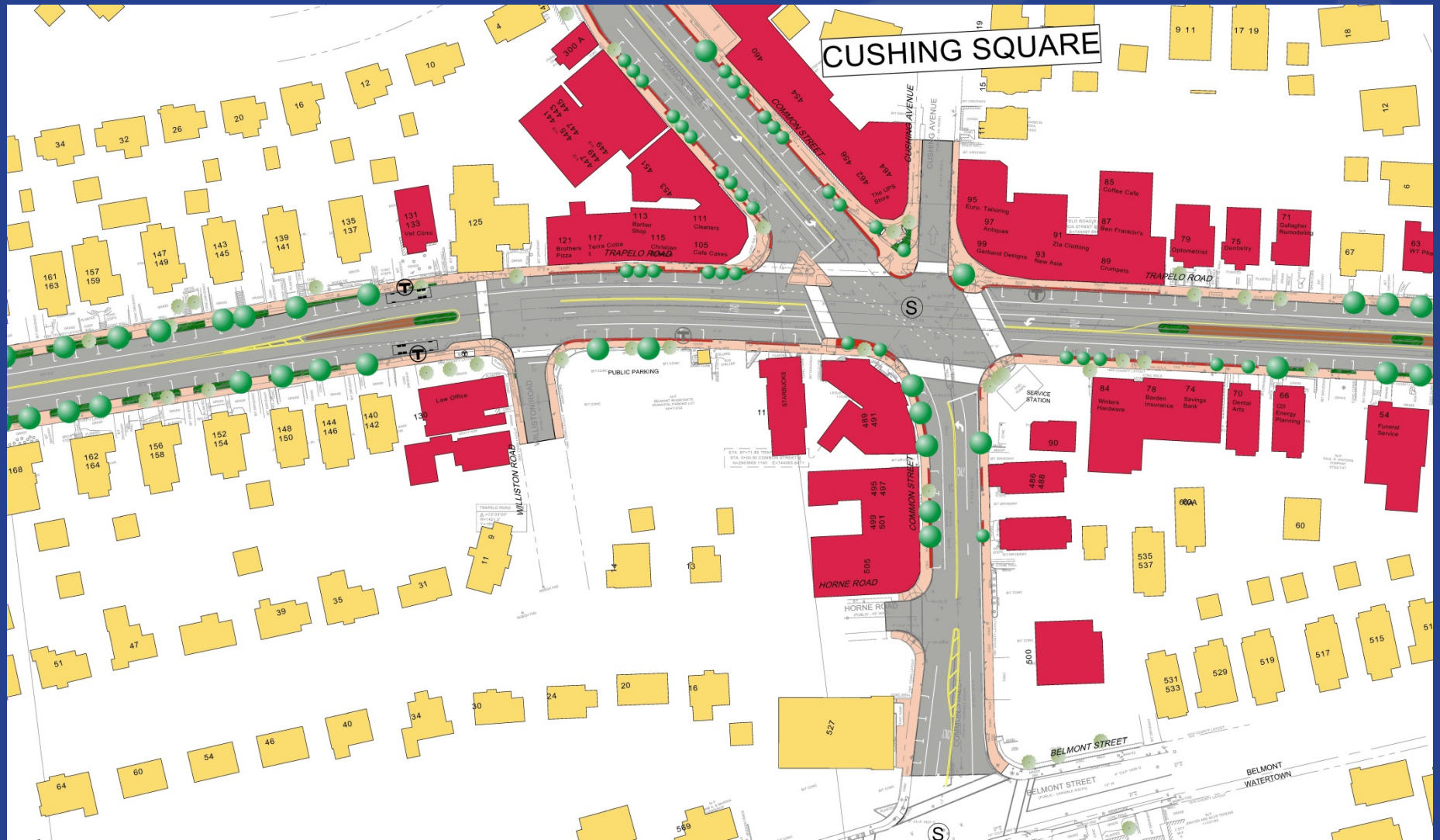
Proposed Project



Safety Analysis

- Collision History:
 - Fewer than 3 collisions per year at all locations
 - Crash rate less than statewide and district average for all locations
- Consolidation of Driveways:
 - Reduces conflict points
- Geometric Design:
 - Traffic calming
 - Improve sight lines
 - Better lane designations

Trapelo Road Improvements



Traffic Volume Projections

- Collected counts in June – higher than average
- Projected to 5-year design horizon
- Projected growth was significantly higher than actual growth trend
- Included reoccupancy of vacant space
- Evaluated relocation of municipal parking lot
- Redistributed Horne Road traffic

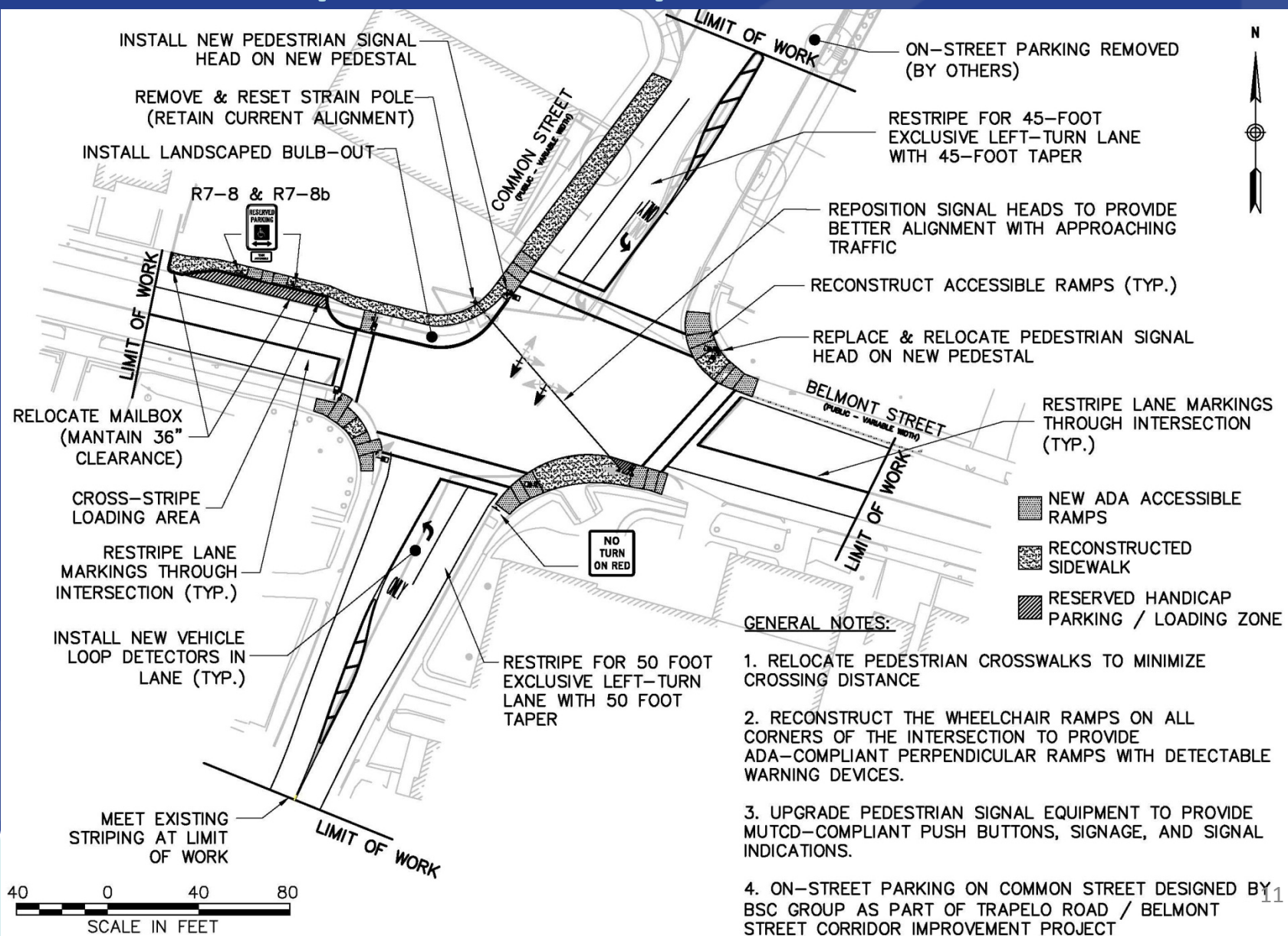
Trip Generation Summary

Time Period	Proposed Trips	Reoccupancy Trips	Net Increase	Multi-Use Trips	Pass-By Trips	New Primary Trips
Weekday Daily	5,681	2,822	2,859	1,860	-130	1,129
Weekday Morning Peak Hour						
Entering	173	136	37	31	-4	10
<u>Exiting</u>	<u>192</u>	<u>127</u>	<u>65</u>	<u>31</u>	<u>-4</u>	<u>38</u>
Total	365	263	102	62	-8	48
Weekday Evening Peak Hour						
Entering	238	82	156	54	13	89
<u>Exiting</u>	<u>205</u>	<u>85</u>	<u>120</u>	<u>54</u>	<u>13</u>	<u>53</u>
Total	443	167	276	108	26	142
Saturday Midday Peak Hour						
Entering	301	121	180	79	6	95
<u>Exiting</u>	<u>284</u>	<u>127</u>	<u>157</u>	<u>79</u>	<u>6</u>	<u>72</u>
Total	585	248	337	158	12	167

Traffic Operations

- Trapelo Road / Williston Road:
 - Relocation of municipal lot reduces delays & queues
- Trapelo Road / Common Street / Cushing Avenue:
 - Redistribution of traffic improves weekday AM and PM conditions
 - <3.0 seconds/vehicle increase in overall delay
- All Other Intersections:
 - LOS D or better for all movements
 - $V/C < 1.00$

Proposed Improvements



Proposed Parking Supply

- On-Street Parking:
 - Total = 173 proposed on-street spaces
- Off-Street Parking:
 - 108 residential spaces
 - 76 commercial spaces
 - 50 municipal spaces
 - Total = 234 spaces

Parking – Zoning Ordinance

Land use	Required Rate	Units	Required Spaces
Restaurant	1.0 per 4 seats	198 seats	50
Retail	1.0 per 550 SF	30,500 SF	56
Residential	1.0 per unit	118 units	118
Subtotal			224
20% Reduction for Proximity to Municipal Parking			-45
10% Reduction for Public Transportation			-22
Total Parking Required to Serve Project			157
Replacement Spaces			54
Total Parking – Required			211

Proposed Parking Demand

Lot Type/Location	Parking Demand	Parking Supply
Municipal Parking	167 spaces	223 spaces
Site-Related	157 spaces	184 spaces
Total Study Area	324 spaces	407 spaces

- Survey Conducted:
 - 7 AM to 6 PM on weekday
 - 11 AM to 1 PM on Saturday
- Peak Parking Demand Occurred:
 - 12:45 PM to 1:00 PM on weekday
 - 11:15 AM to 11:30 AM on Saturday

Conclusions

- Mixed-Use Redevelopment will have negligible impact on traffic operations
 - Less than 4.0 second increase in overall delay
- Parking supply will exceed peak parking demand
- Project will improve safety of study area roadways

Questions?

Reoccupancy Trip Generation Summary

Time Period	CVS Pharmacy LUC 880	Specialty Retail LUC 814	Starbucks LUC 936	Total Trips	Multi-Use Trips	Pass-by Trips	Primary Trips
Weekday Daily	554	535	1,733	2,822	0	1,300	1,522
Weekday Morning Peak Hour							
Entering	12	5	119	136	0	63	73
<u>Exiting</u>	<u>8</u>	<u>4</u>	<u>115</u>	<u>127</u>	<u>0</u>	<u>63</u>	<u>64</u>
Total	20	9	234	263	0	126	137
Weekday Evening Peak Hour							
Entering	26	15	41	82	0	41	41
<u>Exiting</u>	<u>26</u>	<u>18</u>	<u>41</u>	<u>85</u>	<u>0</u>	<u>41</u>	<u>44</u>
Total	52	33	82	167	0	82	85
Saturday Midday Peak Hour							
Entering	32	26	63	121	0	57	64
<u>Exiting</u>	<u>34</u>	<u>24</u>	<u>69</u>	<u>127</u>	<u>0</u>	<u>57</u>	<u>70</u>
Total	66	50	132	248	0	114	134

Proposed Trip Generation Summary

Time Period	Health Club LUC 492	Shopping Center LUC 820	Apartments LUC 220	Quality Restaurant LUC 931	Starbucks LUC 936	Total Trips	Multi-Use Trips	Pass-by Trips	Primary Trips
Weekday Daily	109	2,604	785	450	1,733	5,681	1,860	1,170	2,651
Weekday Morning Peak Hour	2	38	12	2	119	173	31	59	83
Entering	<u>3</u>	<u>24</u>	<u>48</u>	<u>2</u>	<u>115</u>	<u>192</u>	<u>31</u>	<u>59</u>	<u>102</u>
Exiting	5	62	60	4	234	365	62	118	185
Total									
Weekday Evening Peak Hour	7	118	47	25	41	238	54	54	130
Entering	<u>5</u>	<u>121</u>	<u>26</u>	<u>12</u>	<u>41</u>	<u>205</u>	<u>54</u>	<u>54</u>	<u>97</u>
Exiting	12	239	73	37	82	443	108	108	227
Total									
Saturday Midday Peak Hour	4	171	31	32	63	301	79	63	159
Entering	<u>5</u>	<u>158</u>	<u>30</u>	<u>22</u>	<u>69</u>	<u>284</u>	<u>79</u>	<u>63</u>	<u>142</u>
Exiting	9	329	61	54	132	585	158	126	301
Total									