



GREEN INTERNATIONAL AFFILIATES, INC.

100 AMES POND DRIVE, SUITE 200 TEWKSBURY, MA 01876

T: (978) 923-0400 | WWW.GREENINTL.COM

PROJECT NAME	Northern Bank Town Common Peer Review
DATE	12/14/2022
UPDATED:	
PROJECT NO.	22015.0806

Peer Review Comment Form

NO.	SHEET NO.	SECTION	GREEN'S COMMENT	Applicant's RESPONSE	CONFIRMED BY	DATE
Lot Standards (\$173-220)						
1	C-200 ("N Bank Civil and LA Updated 11-14- 2022.PDF")	Lot Standards §173-220.A.b.	<p>The FBC states: "Building façade(s) must be built parallel to any primary front lot line at or between the minimum and maximum front setbacks."</p> <p>While Buildings B, C, D, and E are all compliant, Building A is rotated such that its façade is not built parallel to the front lot line (along Great Rd). This rotation also complicates setback measurements, where portions of the facade is compliant while other portions are not.</p> <p>Utile recommends rotating / redesigning Building A such that it is built parallel to the primary front lot line at or between the minimum and maximum front setbacks. One of the primary intents of the FBC is to promote a Village Common district with a consistent street wall along primary streets for all private development; the rotation of Building A breaks this continuity.</p>	<p>The Applicant believes that the orientation of Building A responds to the unique geometry of its angular site, engages a corner gathering place, and allows for a dynamic building design. The angular intersection of Robinson Road and Great Road create greenspace islands and a pocket park at the tip of the angular intersection. Keeping Building A at an angle complements this unique geometry and allows for enhancement of public space. Pedestrian connections are further emphasized with the design, and the view of the building from the intersection creates a focal point and slows traffic, adding safety and interest to this site.</p>		
2	C-200 ("N Bank Civil and LA Updated 11-14- 2022.PDF")	Lot Standards §173-220.A.c.	<p>The FBC states: "Building façade(s) must be built-out to a percentage of the lots width as specified in §173-220.B. Standards for all Lots."</p> <p>Related to comment 1 above, Building A's rotation complicates the facade build-out percent calculations. Discounting this building's contribution to the facade build-out percent means that the remaining 4 buildings do not collectively meet the minimum facade build-out percent (~46% out of the minimum 60%).</p> <p>See recommendation for comment 1 above.</p>	<p>Given the site's unique geometry and that Building A has an immediate relationship to Great Road, the Applicant requests that the entirety of Building A's long dimension be included in the build-out calculation, yielding a total buildout of ~60%</p>		
Building Standards (\$173-221): BUILDING A						
3	Building A - Floor Plan (Page 3 of 'N Bank Architectural Updated 11- 14-2022.PDF')	Building Standards §173-221.C.a.	<p>The FBC states: "The primary massing(s) of a building must be of rectangular form with a single type of pitched roof and may be oriented either with the narrow end or long side toward the front lot line."</p> <p>Building A is rotated such that neither the Primary Massing's narrow end nor its long side are oriented toward the front lot line (along Great Rd).</p> <p>See recommendation for comment 1 above.</p>	<p>Please refer to the Applicant's response to Note 1</p>		
4	Building A - Floor Plan (Page 3 of 'N Bank Architectural Updated 11- 14-2022.PDF')	Building Standards §173-221.C.b and c.	<p>The FBC states: "Width of the primary massing is measured parallel to the facade, from the exterior plane of each side wall. Depth of the primary massing is measured perpendicularly from the facade as the maximum length the longest exterior side wall of a building."</p> <p>Related to comments 1, 2, and 3 above, the rotation of Building A also complicates the measurement of the Primary Massing's dimensions (i.e., width vs depth) since it is unclear which building side is considered front vs the side. If the long side is considered oriented front, then the primary massing exceeds the maximum width (currently 69'-5" out of the maximum 65').</p> <p>See recommendation for comment 1 above.</p>	<p>The Applicant considers the building (albeit angled) to have its primary massing oriented with its long side facing Great Road. The 69'-5" dimension includes a rear building portion (9'-10" wide) that we do not consider part of the primary building mass, but rather a rear addition. The setback of this rear addition is currently 2'-9" (not 4') due to operational requirements within the bank.</p>		
Building Standards (\$173-221): BUILDING B						
5	Building B - Floor Plan (Page 6 of 'N Bank Architectural Updated 11- 14-2022.PDF')	Building Standards §173-221.B.a.	<p>The FBC states: "Buildings are comprised of one or more primary massings and various optional building components that are assembled to make a single building complex."</p> <p>While labels are missing on the floorplan, this building appears to be comprised of 1 larger primary massing with its narrow end oriented toward the front lot line, one smaller primary massing with its long side oriented toward the front lot line, and one side addition appended to the end of the smaller primary massing. However, there is a 1-story -9'-4" narrow strip at the middle that is neither a primary massing nor a permitted building component.</p> <p>Utile recommends removing, at minimum, the portion of this strip that is visible from the street and consequently preserving a simple farmhouse-like reading of 2 intersecting primary massings along Great Rd.</p>	<p>The Applicant will remove the -9'-4" narrow building component as suggested by Utile.</p>		
6	Building B - Elevations (Page 4 of 'N Bank Architectural Updated 11- 14-2022.PDF')	Building Standards §173-221.G.b.	<p>The FBC states: "For buildings with ground story commercial spaces, ground story fenestration is measured between two (2) feet and twelve (12) feet above the finished floor of the ground story."</p> <p>The facade of Building B does not meet the minimum fenestration percent (~33% out of the minimum 60%). The proponent suggests including the full height of the entrance storefront into the calculation of the fenestration percent, which would more or less meet the minimum percent.</p> <p>Utile deems this an acceptable deviation and defers to the Town's discretion.</p>	<p>The Applicant requests that the Town exercise its discretion to include the full height of the entrance storefront when calculating the building's fenestration, as noted in Utile's comments.</p>		
7	Building B - Floor Plan (Page 6 of 'N Bank Architectural Updated 11- 14-2022.PDF')	Building Standards §173-221.J.b.i.	<p>The FBC states: "Each primary massing must have at least one (1) principal entrance. The principal entrance of a building must be located on the façade for any building contributing toward the frontage build out calculation."</p> <p>The smaller of the 2 primary massings of this building (with its long side oriented toward the front lot line) does not have a principal entrance. Principal entrances on the facades of primary massings make ground floor commercial uses approachable and activate the public sidewalk.</p> <p>Utile recommends adding a principal entrance on the facade of this primary massing (with attendant footpaths, etc.).</p>	<p>The Applicant will add a principal entrance and pathway as suggested by Utile.</p>		
8	Building B - Floor Plan (Page 6 of 'N Bank Architectural Updated 11- 14-2022.PDF')	Building Standards §173-221.L.a.	<p>The FBC states: "Building components are...permitted according to the following schedule."</p> <p>The side addition attached to the narrow end of the smaller primary massing does not meet the minimum setbacks from the facade and rear wall (currently showing 2'-4" out of the required 4'-0"). Setbacks for side and rear additions are intended to further reduce the scale of building assemblies.</p> <p>Utile recommends increasing both setbacks to meet the minimum 4'-0".</p>	<p>The Applicant will increase the setback of the side addition to 4'-0" as suggested by Utile.</p>		



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Building Standards (§173-221): BUILDING C						
9	Building C & D - Floor Plan (Page 11 of 'N Bank Architectural Updated 11-14-2022.PDF')	Building Standards §173-221.K.	<p>The FBC table for Building Standards indicates that the maximum width of a primary massing with its long side oriented toward the front lot line is 65 ft.</p> <p>The width of the primary massing shown is 93'-6", exceeding the maximum of 65 ft. The maximum widths of primary massings with its long side oriented front is intended to reduce the perceived scale of buildings from the public realm.</p> <p>Utile recommends splitting this single primary massing into 2 primary massings that are offset from each other by the minimum required 8 ft, or alternatively, making the long, deep part of the building a primary massing and the side as another intersecting primary massing, etc.</p>	<p>The Applicant is in the process of considering a modification to Building C's front primary massing.</p>		
Building Standards (§173-221): BUILDING C & D						
10	Building C & D - Floor Plan (Page 11 of 'N Bank Architectural Updated 11-14-2022.PDF')	Building Standards §173-221.L.b.	<p>The FBC states: "Building components that are not identified below are prohibited."</p> <p>A bridge connecting 2 buildings is not a permitted building component. Proponent has suggested that this bridge connecting buildings C and D reduces the number of elevators and stairs that would otherwise need to be duplicated.</p> <p>Utile deems this an acceptable deviation and defers to the Town's discretion.</p>	<p>The Applicant requests that the Town exercise its discretion to accept the bridge as a useful building feature, as noted in Utile's comments.</p>		
APPLICATION						
11	5	Special Permit Application	<p>The VC district + AWRD lot coverage is checked in the document signed on 9/13/2022 but not checked in the document signed on 10/6/2022. Please confirm.</p>	<p>The application form has been updated and submitted to the Planning Department per discussions with the Planning Director.</p>		
12	7	Special Permit Application	<p>The required information and materials are not checked (e.g. the forms and checklists, summary table, existing conditions plan etc.). Please check as complete if provided.</p>	<p>The application form has been updated and submitted to the Planning Department per discussions with the Planning Director.</p>		
TRAFFIC STUDY						
13	PAGE 1		<p>The Traffic Impact Study states that the proposed buildings will consist of: 13,100 sf bank, a 7,600 sf grocery store, a 14,800 sf building with 7,400 sf of retail space on the first floor and 7,400 sf of office space on the second floor, a 6,000 sf building with 3,000 sf of retail space on the first floor and 3,000 sf of office space on the second floor, and a 3,100 coffee shop without a drive-through window</p> <p>However, the Site Plan shows that the proposed buildings include: 3,200 sf of bank, a 6,600 sf of grocery store, a 14,800 sf building with 7,400 sf of retail space on the first floor and 7,400 sf of office space on the second floor, a 6,000 sf building with 3,000 sf of retail space on the first floor and 3,000 sf of office space on the second floor, and a 3,500 coffee shop.</p> <p>The proposed review assesses the application site plan and traffic study report shall be consistent.</p>	<p>The traffic analysis will be updated with the latest site plan component.</p>		
14	COVID-19 ADJUSTMENT DATA		<p>The Daily Traffic Volume of July 2022 at count station 4172 uses data from 07/01 to 07/22. We recommend updating to full-month count (MassDOT has traffic count of July 2022 from July 1st to July 31st)</p>	<p>At the time of the study preparation, the full month of July data was not available. This data is now available and based on the full month data, the COVID correction factors all decreased from what was used in the TIA. Therefore, to provide a conservative analysis condition, the previously developed correction factors were retained in the updated analysis.</p>		
15	COVID-19 ADJUSTMENT DATA		<p>Please confirm the "4172: Monthly Hourly Volume for July 2019" is correct. It has been noticed that some count data were skipped/deleted from the original MassDOT counting data, please provide an explanation.</p>	<p>Correction factors were developed for weekday daily, weekday morning peak hour, weekday evening peak hour, Saturday daily, and Saturday midday peak hour time periods. Data "skipped" or "deleted" refers to weekend data that was not included in the development of the weekday daily, weekday morning peak hour, and weekday evening peak hour correction factors. Following the same logic, only Saturday data was used to develop the Saturday daily and Saturday midday peak hour correction factors.</p>		
16	COVID-19 ADJUSTMENT DATA		<p>The COVID-19 correction factors in this report developed by comparing the MassDOT 2022 July count data at Station 4172 and expected 2022 average daily traffic volume predicted by applying annual growth factor of 1%. However, in the appendix, the calculated annual growth rate was 0.94%, please clarify.</p>	<p>As is common practice, the calculated growth rate (0.94) for the area was rounded up to 1 percent to provide a conservative analysis.</p>		
17			<p>We concur with the seasonal adjustment rate used by the Applicant.</p>	<p>No response required.</p>		
18			<p>The weekday traffic count for this report was conducted on Thursday and Friday when school was off-session. Based on MassDOT TIA guideline, Weekday traffic counts should be conducted on a "typical" Tuesday, Wednesday, or Thursday when school is in session (when possible) during weeks not containing a holiday.</p>	<p>The counts were conducted in the summer when school was not in session. As stated "when possible" counts should be done when school is in session. That was not possible based on the timeline of this project.</p> <p>As this is a mixed use development with retail uses, Saturday was analyzed. As such we needed both a weekday and Saturday ATR data. The most efficient way to get both a typical weekday, in this case Thursday, and Saturday would be to count continuously from Thursday through Saturday. The Thursday data was used to develop weekday volumes and the Saturday day used for Saturday volumes. The Friday data was not used and was just recorded as it is easier to leave the counters out from Thursday to Saturday than it is to put it out for Thursday than pick it up and put it back our for Saturday and then click it to zero.</p>		
19			<p>The baseline volume during Weekday PM Peak of below movements do not match the calculated adjusted baseline volume, please provide clarification if there's any other adjustment:</p> <ul style="list-style-type: none"> Great Rd westbound through (calculated 720 vpd, show as 752 vpd) and eastbound through (calculated 471 vpd, show as 481 vpd) at Great Rd and Robinson Rd intersection. Great Rd westbound through (calculated 640 vpd, show as 673 vpd) and eastbound through (calculated 272 vpd, show as 293 vpd) at Great Rd and Meetinghouse Rd / Adams St intersection. King St southbound through (calculated 431 vpd, show as 446 vpd), southbound left (calculated 113 vpd, show as 118 vpd) and King St northbound bare right (calculated 164 vpd, show as 181 vpd) at Great Rd and Goldsmith St / Driveaway/King St intersection. 	<p>The discrepancy noted is due to balancing the volumes between intersections. Volumes were balanced to the higher values between the following locations:</p> <ul style="list-style-type: none"> King Street at Goldsmith Street/Private Driveway/Steven Street King Street at Great Road King Street at Meetinghouse Road Great Road at Steven Street/Meetinghouse Road/Adams Street Great Road at Robinson Road <p>Volumes were not balanced between Robinson Road and Power Road</p>		



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20			<p>The baseline volume during Saturday Mid-Day Peak of below movements do not match the calculated adjusted baseline volume, please provide clarification if there's any other adjustment:</p> <ul style="list-style-type: none">- Great Rd westbound through (calculated 619 vpd, show as 645 vpd), and eastbound through (calculated 578 vpd, show as 588 vpd) at Great Rd and Robinson Rd intersection.- Great Rd westbound through (calculated 524 vpd, show as 535 vpd), Great Rd westbound right (calculated 94 vpd, show as 95 vpd) and eastbound through (calculated 395 vpd, show as 399 vpd) at Great Rd and Meetinghouse Rd / Adams St intersection.- King St northbound left (calculated 166 vpd, show as 171 vpd) and northbound through (calculated 219 vpd, show as 225 vpd), southbound left (calculated 113 vpd, show as 118 vpd) and King St northbound bare right (calculated 164 vpd, show as 181 vpd) at Great Rd and King St intersection.	See response to Comment 7.		
21	PEDESTRIAN AND BICYCLE FACILITIES		<p>The report states that "Sidewalks are provided along both sides of King Street southwest of Goldsmith Street, on Goldsmith Street, and on Great Road between Adams Street and Robinson Road." It has been noted that sidewalk along Goldsmith St only presents on the east side; sidewalks along both sides of Great Rd between Acton Toyota of Littleton south driveway and Meetinghouse Road.</p>	VAI concurs that there is only sidewalk on the east side of Goldsmith Street. VAI continues to state that sidewalks are provided on Great Road between Adams Street/Meetinghouse Road to Robinson Road and not to the Acton Toyota of Littleton south driveway. The sidewalk on the northeast side of great road stops at Robinson Road and begins again at 235 Great Road.		
22			<p>The report states that "Sidewalks are also provided on the northwest side of King Street northeast of Goldsmith Street...." the majority part along northwest side of King Street northeast of Goldsmith Street is paved parking, the existing sidewalk along northwest side of King Street south to Great Rd ends at intersection of Stevens St.</p>	VAI agrees with this clarification.		



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23	PUBLIC TRANSPORTATION		Littleton-Westford Commuter Rail Shuttle Service had been suspended due to COVID-19 from 3/16/20 and yet still remain.	The MART Littleton-Westford Commuter Rail Shutter is still listed on the Town of Littleton's "Transportation in Littleton" webpage. Therefore, it was listed in the report. There was an announcement from Cross Town Connect that this service was suspended until further notice. Whether this service is restarted or not, the area near the Project site has little to no public transit options.		
24			The crash data reviewed in this report based on the latest 3 years of data available, we recommend expand to the latest 5 years of data based on the MassDOT preference.	Crash data has been compiled and is being processed.		
25			The crash data reviewed was obtained from MassDOT. We recommend obtaining and reviewing crash records from the Town of Littleton Police Department in addition to the MassDOT crash data.	Crash data has been requested from the Littleton Police Department and will be analyzed when received.		
26	MOTOR VEHICLE CRASH DATA		The report stated that there were 46 crashes recorded at the intersection of King Street and Great Road. However, after reviewing the crash record from MassDOT crash portal, we noted that there were a total of 56 crashed located at this intersection with 1 non-fatal injury during the 2017-2019 period. We recommend updating the crash analysis at this intersection to be consistent with MassDOT and Littleton Police Department record.	The MassDOT crash portal does initially indicate that 56 crashes occurred at the intersection of King Street with Great Road between 2017 and 2019. However, as is typically the case, this data requires further examination to determine if all 56 crashes actually occurred at or are attributable to the intersection. Often times crashes that occurred at a different location are improperly geolocated or crashes that occurred in parking lots nearby are said to have occurred at the intersection. In addition, some crashes occur at an intersection but the vehicle involved pull off into a parking lot or onto a nearby side road before stopping or waiting for police to arrive. This also contributes to misleading crash location data on the crash website. Therefore, one should always look through the data in detail to determine which crashes if any crashes should be eliminated from the data set. After looking through the 56 crashes, VAI determined that 46 of those crashes should be attributed to the intersection of King Street with Great Road. This will be reviewed with the Littleton Police Department data as well.		
27	VEHICLE SPEEDS		The speed zone description under this section is not clear and is misleading: <i>"The speed limit on Great Road eastbound is posted at 25 miles per hour (mph) west of the site and changes to 35 mph at the west end of the site. The speed limit on Great Road westbound is posted at 45 mph east of the site and changes to 25 mph at the west end of the site."</i>	This typo has been corrected. The speed noted as 45 mph should have read 35 mph.		
28	SPECIFIC DEVELOPMENT BY OTHERS		The Report illustrated that no trips from King Street 550 project would be considered in the future condition because the 265-269 development would be ahead of 560 King Street Project. After checking the Littleton Town website, it has been noted that the Littleton Planning Board has approved the Special Permits, with conditions. Moreover, the site plans has been posted on the town website. Although the 550 King Street Project may start after this project, with considering of the potential significant impact on the traffic operation at the signalized intersection of King Street and Great Street, the applicant shall include the background development analysis of 550 King Street development in the report and shall include the generated trips of 550 King Street project in the later section of traffic operations analysis.	The Town Planner was contacted to determine the background projects to be included in this study. Based on conversations with the Town Planner it was determined that 550 King Street has not had any traffic analysis conducted at this time. (we reconfirmed this with the planner on December 9th 2022. As such the developer has to go to the Town with a site plan and traffic study prior to any components of the approved master plan being constructed. As this is the case, the project was not included in our future condition networks since that development has not conducted a traffic analysis to determine the projects own access issues, impacts on the surrounding area, and the mitigation to offset those impacts.		
29	EXISTING SITE TRIP GENERATION		The Existing Site Trip Generation in this report was developed by using 10th Edition Institute of Transportation Engineers (ITE), we recommend using 11th Edition ITE.	The 3rd footnote in the TIA incorrectly states the 10th edition ITE was used. As is shown in the appendix of the report all trip generation calculations were conducted using the 11th edition ITE data.		
30	EXISTING SITE TRIP GENERATION		The Existing Site Trip Generation in this report used Land Use Code (LUC) 943 - Automobile Parts and Service Center to estimate the number of trips associated with reoccupancy of the former vehicle service station on the #277 Great Road parcel. The previous vehicle service station was closed from November 2020. Given this, since the traffic count of this TIAS was conducted on July 2022, the traffic volume shall only include the trips generated by Barbershop, Subway and bank with drive through window. The trip generation rates for Automobile Parts and Service Center, if included within existing site trips, will cause an underestimate of Net New Project Trips, thus is not expected to present an accurate accurate assessment of the level of impact associated with the current proposed redevelopment.	Traffic from uses on-site that were discontinued less than 3 years ago are typically accounted for in the existing site trip generation. This is standard practice as noted in 301 CMR 11.00: MEPA Regulations Section 11.02. In addition, this existing use could be reoccupied and generating traffic immediately, therefore it is valid to include this use in future conditions.		
31	EXISTING SITE TRIP GENERATION		The TIAS used Land Use Code (LUC) 932 - High-Turnover (Sit-Down) Restaurant to estimate the number of trips associated with reoccupancy of the former Subway store on the #287 Great Road parcel. Given this previous use of the building, trip generation rates for LUC 932 are expected to underestimate the number of trips that were associated with the previous Subway Store. As a result, we recommend the Applicant use LUC 933 - Fast-Food Restaurant without Drive-Through Window to estimate the number of trips associated with reoccupancy of the former Subway store.	In VAI's experience LUC 933 Fast-Food Restaurant without Drive-Through Window overestimates the trips generated by a restaurant like Subway. Therefore, to be conservative, we assumed the Subway would generate trips similar to 932 High-Turnover (Sit-Down) Restaurant. Using this methodology, the Net New Trips for the site provided a conservative analysis condition. If LUC 933 is used to estimate the trips for Subway the net new trips for the Project would decrease from what is shown in the TIA, further decreasing the Project impact on the surrounding roadway infrastructure.		
32	NO-BUILD TRAFFIC VOLUMES		We recommend including 550 King Street Development project into No-Build Traffic Volume.	See VAI's response to Comment 16.		
33	PROJECT-GENERATED TRAFFIC		The Land use areas listed in this section do not match with the latest site plan. We recommend update the land use area in the TIAS to be consistent with site plan.	See response to Comment 13.		
34			The Pass-By rates used in the TIAS do not include in the latest edition of ITE. Please provide the reference. Based on the latest edition of ITE, there are no pass-by adjustment factor for the LUC 936 - Coffee/Donut Shop without Drive-Through Window and LUC 822 Stripe Retail Plaza (<40K). We recommend including new trips generate by renovated drive-in back (due to limited amount of historical data for walk-in bank), using average pass-by ratio of LUC 934 - Fast-Food Restaurant with Drive-Through Window for the coffee shop, LUC 850 - Supermarket for the grocery store and adopting a pass-by rate of 15 percent (15%) for the rest area of the site of the adjacent street traffic volume based on MassDOT guidelines.	The 11th edition of ITE does not provide pass-by rates for any land uses. The pass-by rates come from the ITE Trip Generation Handbook 3rd Edition which was released in September 2017. This is standard practice. Using the 3rd Edition pass-by rates for LUC 820 and LUC 932 were chosen as they are the closest land uses to LUC 820 and LUC 936 that have pass-by data. LUC 934 was not used as that data is for a fast-food restaurant with a drive through window which would drastically overestimate the pass-by trips for a coffee donut shop that does not have a drive through window. Using LUC 820 and LUC 932 is likely underestimating the number of pass-by trips for the Project and therefore provide a conservative analysis condition.		
35	NET NEW PROJECT TRIP GENERATION		We recommend subtracting out the internal trips among the among multi-use developments in order to avoid overestimate the impacts on the adjacent roadways.	Leaving out the internal capture again provides a conservative analysis condition. Also, as the Project has minimal to no impact on the surrounding area without taking credit for internal trips, VAI does not feel it is necessary to determine the internal capture and rerun the analysis to show even less of an impact.		



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36	TRIP DISTRIBUTION AND ASSIGNMENT		The Trip Distribution used in this TIAS is based on the existing travel patterns. After reviewing the existing traffic volumes, the trip distribution of King Street north leg and King Street south leg shall be at same percentage during both Weekday PM and Saturday Mid-Day peak periods. We agree with the trip distribution percentage along Great Road.	Based on VAI's existing travel pattern calculations, King Street to/from the north would get 23 percent of the site traffic and King Street to/from the south would get 22 percent. For simplification of calculations, it was assumed King Street to and from the north was 25 percent and King Street to and from the south was 20 percent. All trip distribution percentages were rounded to the nearest increment of 5. In the end, the change proposed would move two trips to/from King Street to the north and add them to/from King Street to the south. The redistribution of two trips will not change any of the recommendations/conclusions of the TIA.		
37	SIGHT DISTANCE EVALUATION		The sight distance measurements were performed following the appropriate standards and we are generally in agreement that the recommended minimum lines of sight for safe operation based on the design speed along Great Road within the vicinity of project site are met.	No response required.		
38	TRAFFIC OPERATION ANALYSIS - LEVELS OF SERVICE		The description of six levels of service of unsignalized and signalized intersection in the TIAS is not clear. We recommend referencing the description of each LOS from 6th Edition of HCM	The descriptions provided for the six levels of service are shortened summaries of the full paragraphs provided in the HCM 6th Edition. Summaries are provided in order to save time and space. VAI feels these descriptions are clear and properly represent what is described in the HCM 6th edition.		
39	TRAFFIC OPERATION ANALYSIS - Analysis Results		We recommend including the #550 King Street Project into traffic operation analysis.	See VAI's response to Comment 16.		
40			Based on the LOS analysis of proposed development in the TIAS, the LOS of 2029 No-Build condition illustrated that the King Street and Great Road intersection already performing with poor operating characteristics (LOS E), and the proposed site development is expected to cause the operations and efficiency of this intersection measurably degrade to LOS F. In addition, it has been noted that long queue present on all approaches. More than that, the project #550 King Street redevelopment will cause the intersection operation further worse. The applicant shall provide mitigation analysis to mitigate the impacts of the proposed development in a manner that avoids further degradation to the traffic performance.	As shown in Table 14 of the TIA, the intersection of King Street with Great Road operates at an overall LOS F under 2029 No-Build Conditions during the weekday morning peak hour. The 2029 No-Build condition does not include the Project traffic. Therefore, it is incorrect to state that the "the proposed site development is expected to cause the operations and efficiency of this intersection measurably degrade to LOS F" as the intersection is operating at LOS F under 2029 No-Build condition without the Project traffic. The Project traffic does not cause any movement at the intersection to degrade in level of service during either the weekday evening or Saturday midday peak hours. In addition, vehicle queue length increases by 3 vehicles or less for all movements. Based on this analysis the Project has minimal impact on the intersection and the intersection does not require mitigation due to Project.		
41			The TIAS concluded that "The study area intersections crash rates were observed to be lower than the MassDOT District 4 crash rates for unsignalized and signalized intersections except for the intersection of King Street with Great Road. No fatalities were reported over the five-year period reviewed." We recommend referencing the MassDOT District 3 state average crash rates Instead of the District 4 values as Littleton is located with District 3.	This was a typo. The sentence should read "The study area intersections crash rates were observed to be lower than the MassDOT District 3 crash rates for unsignalized and signalized intersections except for the intersection of King Street with Great Road.		
42			This TIAS reviewed the three year crash report from MassDOT during the 2017-2019 period, not five year period.	MassDOT does not have parking requirements for private developments.		
43			We recommend the Applicant providing an overview of proposed parking supply and layout in the TIAS based on MassDOT requirement.	No response required.		
SITE PLANS						
44	C-200	§ 173-224	We concur that the calculated minimum number of parking spots meet the requirements of Littleton Zoning Bylaw, § 173-224 Site Standard of Village Common Area.	No Comment		
45	C-200	§173-33	Load zones and facilities should be added to the plans. Per Littleton Zoning Bylaw, § 173-33. Loading requirements, Adequate off-street loading facilities and space must be provided to service all needs created by new construction, whether through new structures, or additions to old ones, and by change of use of existing structures. Facilities shall be so sized and arranged that no trucks need back onto or off of a public way or be parked on a public way while loading, unloading or waiting to do so.	A loading area is provided for Building B. The other uses will use the site drives during non-peak times. No loading in the public way or backing into the public way will be required.		
46	C-200	§173-220	The sidewalk between Building C rear ear and parking lot is only 5-foot wide. At least 20-foot-wide setback shall be provided between the Building C rear and rear side parking lot to meet the Littleton Zoning Bylaw and provide comfort and safe walking environment for the pedestrians on the sidewalk. When development occurs in any lot abutting a sidewalk that is less than 10 feet in total width, buildings must be setback an additional distance and a sidewalk at least 10 feet in width must be provided within the frontage area. The minimum east maximum front setbacks are increased exponentially.	The section of the FBC referenced applies to the site frontage and Great Road is defined as the primary front line. A ten foot sidewalk along the Great Road frontage as required by the FBC is provided.		
47	C-200		The Littleton ladder truck used for the turning movements has a steering angle of 45.6 feet. We have concerns of the turning movements within the proposed parking lot area. The applicant shall provide a turning movement check as such to ensure the driveways within parking lot could accommodate emergency vehicles and could accommodate regular parking maneuvers.	The fire department turning movement diagrams submitted used a minimum 41-foot centerline turning radius which would accommodate a steering angle of 45.6 degrees. This will be reviewed with the Fire Department.		
48	C-200	§ 173-177	We recommend adding bicycle parking on the plan for each building per zoning code § 173-177. Bicycle parking shall be provided for all new developments, and shall be at least 50% sheltered from the elements. At least two bicycle parking or storage spaces shall be created for each commercial use within the site.	Bicycle parking has been added to C-200. 12 open spaces and 12 covered spaces (attached to the rear of Building C) are proposed.		
49	C-200		Direction arrow shall be provided within parking lot to clarify one-way/ two-way aisle.	Painted direction arrows have been added to C-200		
50	C-200		We recommend placing the stop bars at site exit driveways back of sidewalk. The stop bar shall be placed at least 4 feet from roadway edge.	The stop bars at the site egresses have been revised as recommended		
51	C-200		Sidewalk and walkways are only provided surrounding the proposed buildings, however, there's no other walk path/pedestrian accommodations provided for parking lot. Also, there is a median island in front of building B and C providing separations between parking rows, the three wheelchair ramps on the east, west and north ends of sidewalk lead only to parking spots without connecting to any walkways. To increase walkability and reduce conflicts between pedestrians and motor vehicles, we recommend providing walking path along the outer edge of whole parking lot area and add high-visibility crosswalk and additional wheelchair ramps within parking area.	When compared to typical multi-use commercial project, all of the proposed parking areas are close to the proposed buildings. There is a sidewalk within 50-60 feet of all parking spaces. This is 20-25 steps for a typical person. We believe the additional impervious area introduced to the site with more sidewalks in not necessary in this application. Accessible ramps are provided wherever a sidewalk meets a drive for pedestrian convenience.		
52	C-200		There are several merging area within parking lot, we recommend adding stop bars on minor streams.	The recommended stop bars and stop signs have been added to C-200		



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53	C-200		There are no turning movements provided for trash vehicles accessing the designated dumpster/recycling area. Figures showing the turning movements for dumpster/recycling pick-up should be provided at the designated areas within parking lot.	The trash vehicle turning movement diagrams have been prepared.		
54	C-200	700 CMR 13.01	MassDOT Vehicular Access Permit will be required for modification of curb cuts and for curb improvements within the State ROW.	Comment Noted. This permit is typically applied for after a local site plan approval.		
55	C-200	PDG 15.2.3	Per MassDOT PDDG Section 15.2.3, a driveway for commercial uses with retail customers and regular visitors must have a nominal width of 30 feet, revise to provide a 30 foot wide driveway entrance measured at the SHLO.	The radii at both of the site ingress/egress locations has been increased from 15' to 20' to provide an opening of at least 33.4' at the Right-of-Way line.		
56	C-200		Who will maintain the proposed sidewalk beyond Town Row on Robinson Rd? The proposed sidewalk appears to have a stub extend to the existing edge of pavement on Robinson Rd. If this is for a future mid block crossing, a wheelchair ramp should be proposed.	The stub on Robinson Road is provided for access to the site from the existing sidewalk on the northside of Robinson Road and a Accessible Ramp has been added to the plan. We anticipate that this stub will be maintained by the applicant as part of the on-site walkway maintenance.		
57	C-200	Urban Land Institute/Mass Smart Parking Bylaw	The aisle width in the proposed parking lots are 20' wide. Urban Land Institute Chapter 7 recommends a 23' aisle for two-way 90 degree parking and the Massachusetts Smart Parking Model Bylaw requires 24'. The applicant provide documentation to justify the 20' aisle width or revise the aisle width to meet design standard.	Although the 20' driveway width is smaller than standard, our experience is this is acceptable in many towns. Newer development guidelines and methodologies encourage less impervious area. The proposed 20' width will help keep speeds down through lot increasing pedestrian safety and minimize impervious area. The FBC indicates a drives to be at least 8' wide and no more than 24' suggesting less width is acceptable and possibly desired.		
58	C-200		What is the width of the buffer between the existing edge of pavement and the 10 foot sidewalk along Great Road? A 3 foot minimum should be proposed in order to provide for an adequate area for grass to grow and be maintained.	A 4' minimum separation from face of curb to the sidewalk is provided.		
59	C-200		The wheelchair ramp associated with the handicap spot nearest the bank building should propose the detectable warning panel flush with the edge of curb and not perpendicular to the parking lot as currently shown.	The detectable warning panel has been revised as recommended.		
60	C-200	PROWAG R302.3	Per PROWAG Section R302.3, all wheelchair ramps should provide for a minimum of 4' level sidewalk area beyond the ramps, the ramp outside building D in front of the handicap spaces looks very close to the sidewalk corner. Verify 4' is provided.	This ramp and the associated accessible spaces have been relocated. There is a 10' separation between the top of the ramp and the building.		
61	C-200		Although the parking offset from the state layout line is met at 20' the first parking spaces nearest Great Road between buildings D and E the spaces may be difficult to navigate in and out of as traffic also enters the parking lot from Great Road. We recommend removing these spaces given the provided spaces exceeds what is required.	The two spaces between Building D and E, nearest the Great Road, have been removed increasing the ingress/egress threat.		
62	C-200	§173-17	The Applicant should clearly show and label the right-of-way lines on the plans and show the demarcation between State Highway Layout and Town layout lines.	The state right-of-way is shown and called out on sheet C-100.		
63	C-200		Who is the intended owner of the sidewalk along Great Road and will the applicant be responsible for maintenance (repairs, snow removal, etc.)?	We anticipate that sidewalks on the applicants property will be maintained by the applicant as part of the on-site walkway maintenance.		
64	C-200		What is expected to happen in the grass triangle at the corner of Robinson Road and Great Road (area where UP#1 is located)?	This area is town land and the applicant has no plans to try and incorporate this space into the project.		
65	C-200		Where are deliveries anticipated to occur for the retail tenants? The parking lot design is very tight and there are no designated loading zones shown on the plans.	Please see the response to comment 45 above.		
66	C-200	§38-16.C.5	The Applicant shall show a number in square feet of the land area to be disturbed on the site plan.	Acreage and square feet of disturbed area is shown on C-500		
67	C-200		All buildings are labeled except for the bank. Please label the bank as building A.	This label has been added to the plan		
68	C-200		The legend has a hatch for bituminous pavement but it is not shown on the plans. Please revise plans to be consistent with the legend.	The legend has been revised		
69	C-300		One accessible space symbol near building B is shown, but the other accessible space symbols are not shown on the grading plan. Please be consistent with labeling.	All accessible space symbols are shown on the plan		
70	C-300	§38-16.C.7.	The site control notes indicate that inlet protection around existing storm drainage inlets with an immediately downstream gradient of the work limits and as shown on plan. The plan does not show or callout locations for inlet protection on existing or proposed inlets. It is recommended to provide inlet protection on proposed structures since they will be installed during earth disturbing activities. Locations of erosion control measures shall be shown on the plans.	The notes on C-300 has been revised to indicate inlet protection barriers are required on all proposed and existing storm drain inlets within and immediately downstream of the limit of work. Callout and symbols have been added to the plan.		
71	C-300		Watershed plans indicate that a portion of the site discharges to Great Road under existing and proposed conditions. Sedimentation barrier should be wrapped around the whole site including Great Road side of the site.	The sedimentation barrier has been added to the plan as recommended as well as Erosion Control Note #7 indicating the contractor shall adjust and reset the sedimentation barrier as necessary.		
72	C-300		A construction fence should be added to the plan to show how the project will be contained.	Note 8 has been added to sheet C-200 indicating the site shall be surrounded by a 6' high chainlink temporary fence with locking gates.		
73	C-300		The pipe angles entering the manhole at PDMH 18 do not seem constructable. Please revise drainage layout with constructable pipe angles.	The piping for PDMH 18 has been revised.		
74	C-300		AD-1 to PDMH 19 has no slope. We recommend providing a minimum of 0.5% slope for all drainage pipes.	The inverts of AD-1 have been revised.		
75	C-300		Most of the manholes associated with the infiltration systems and detention system do not show pipes connecting to the structure and the system. Also, they are not detailed. Manholes should be detailed and aligned with the system pipes so the connection and functionality is clear.	The manhole locations have been clarified on the plan		
76	C-300		PDMH 12 and PDMH 13 are located in the assessable aisle for handicap parking. We recommend locating manhole covers outside of the accessible aisles.	The plan has been revised to remove the manhole covers from the accessible aisles		
77	C-300	MA Stormwater Handbook Vol 2 Chp 2	PCB 9, AD 11, and AD 12 directly discharges to the detention system. All closed drainage shall have pretreatment before entering the detention system except for roof drains.	Area drains discharging directly to an infiltration or detention system have been changed to a deep sump catchbasin to provide pretreatment. The are located in landscape areas and do not receive runoff associated with higher pollutant loads therefore making it acceptable pretreatment. PCB 9 is the overflow structure from the ILSF area which does not receive runoff from the site developed area.		
78	C-300		How do AD 7 & 8 connect into the drainage system? Do they connect using a tee? We recommend providing a drainage structure instead of a tee.	These area drains have been revised to discharge to a structure.		
79	C-300	MA Stormwater Handbook Vol 2 Chp 2	No test pits are provided at the location for infiltration system 1B. Test pits should be provided at infiltration BMPs to confirm localized soil and groundwater conditions.	System 1b is located approximately 47' east of TP #5, 34' north of TP #3 and 80' south of TP #6. These test pits showed Estimated Seasonal High Groundwater Elevation of 275.33, 275.0 and 275.1 respectively. An ESHGW elevation of 275.33 was used in design of this system with soil texture of silt loam. This is consistent with the highest ESHGW and most restrict soil layer in the abutting test pits. We suggest a condition of approval that a test pit shall be conducted in system 1B to verify assumptions prior to construction.		
80	C-300,C-501	ADA/MAAB REGULATIONS	There is not enough detailed grading to verify that the accessible parking spaces and sidewalks meets ADA/MAAB requirements, but the handicap ramp detail and parking stall striping detail notes ADA requirements would be met in construction. We defer to the Board if this is acceptable.	Some additional spot grades have been added. Due to the flat nature of the site The parking lots are generally graded from 1%-2% and ADA requirements will be met in full.		
81	C-300/C-501	§38-16.C.7.	There is a detail of a stabilized construction entrance but the location is not shown on the plans. Locations of erosion control measures shall be shown on the plans.	Stabilized entrances have been added to Sheet C-300		
82	C-300/C-503	ADA/MAAB REGULATIONS	The detail for the area drain indicates pedestrian safe grate. Please confirm area drain grates are ADA and heel compliant.	The detail has been revised to indicated the grates shall be ADA and heel compliant. Heel safe grates (openings between 1/4" and 5/16") are ADA compliant		



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83	C-300/C-503		Special manhole detail PDMH 9 and PDMH 9 on sheet C-300 have different invert and weir elevations. Please revise to show consistent information.	The detail on Sheet C-503 has been corrected		
84	C-300/C-503		Special manhole detail PDMH 14 is shown as PDMH 13 on C-300. Please revise to show consistent information.	The detail on Sheet C-503 has been corrected		
85	C-300/C-503		Special manhole detail PDMH 14 and Pipe detention system detail have different invert. Please confirm. If Pipe detention section is correct then the bottom 6' of stone will be permanently filled with water due to the impervious liner. We recommend an underdrain at the bottom of the system to prevent the system from permanently having water at the bottom.	The underdrain has been added to the detail on Sheet C-504 as recommended		
86	C-300/C-504		Pipe sections detail include inspection ports. The location of the inspection ports should be shown on the site plans. The existing water service line towards Building A at the northwest corner of the lot does not have any proposed callouts. Please indicate if this will be abandoned and how it will be abandoned.	Inspection port locations have been added to Sheet C-300		
87	C-400		In front of building B the drain, gas, and water are running parallel and are very close to each other. Are there concerns with future access? Can the drain or water be replaced in the future without impacting the gas?	The plan has been revised to indicate this service is to be cut and capped.		
88	C-400		Hydrant west of building B is missing a gate valve. Please add gate valve.	The utility services along the frontage of the site have been revised to eliminate this conflict		
89	C-400		Proposed 8" water is connecting to an existing 12" water line in front of Building B. Has this been coordinated with the water department? Should the 12" water continue along Great Road and reduce onsite?	The gate valve has been added to the plan		
90	C-400		For proposed water all bends, fittings(reducers, tees, etc), and tapping sleeve and valves should be called out on the plans.	We have met with the water department and coordinated the service connections. We will continue to coordinate water and sewer service locations with the town through plan preparation and construction of the sewer in Great Road.		
91	C-400		All proposed and existing sewer invert shall be shown on the plans. There are potential utility conflicts between the sewer services at Building C and D and the proposed drainage.	Additional callouts have been added to the plan		
92	C-400		We recommend encasing sewer lines in concrete when crossing water lines.	The proposed invert at the buildings have been shown on the plan. These will be coordinated with the final drawings for the town sewer project. The building invert are at least 1 foot below the proposed drainage and 18" above the preliminary sewer invert provided by the town water and sewer department.		
93	C-400		Provide or confirm 10' separation between water and sewer lines between buildings D and E.	Encasement of the sewer line is specified with Note 14 on Sheet C-400		
94	C-400		The handicap ramp detail shows 1:12 (8.33%) max slope for the up-ramp and 1:20(5%) max slope for the sidewalk. We recommend max 7.5% slope and 4.5% cross slope to allow for construction tolerance.	The separation of the water and sewer lines between Buildings D & E is greater than 10'		
95	C-501		Sidewalk and handicap ramp details should indicate max cross slopes. We recommend 1.5% cross slope to allow for construction tolerance.	The plan has been revised as recommended.		
96	C-501	ADA/MAAB REGULATIONS	Domestic service connection detail indicates 4.5' min cover for water service. We recommend a 5' min of cover for water to prevent freezing.	The plan has been revised as recommended.		
97	C-502		Protection Bollards are shown on C-503 but are not shown on the c-sheets. Granite bollards are different and are shown on L-503 but are not shown on the L-sheets. The L-sheets callout Bollard light which are not detailed on the plans. Please revise and confirm bollard detail and location.	The plan has been revised as recommended.		
98	C-503/L-503		Drain Manhole detail refers to Concord Public works. Please revise to not refer to other Town's Public Works.	The protection bollards on the Civil Plans are for the bank drive-thru. The locations have been called out on Sheet C-200. Granite Posts are for decorative and visual use only. These have been selected for the parking lot cross walk area to fit into the agrarian theme. Detail 3, L-503 has been revised to say Granite Post.		
99	C-503		Required water quality flows or model for each Stormwater Treatment unit should be provided in the detail to confirm correct size unit is proposed.	The plan has been corrected.		
ZONING BYLAWS						
101		\$173-18.D.	Adequate access to each structure for fire and service equipment shall be provided. Confirm this has been reviewed and coordinated with the Littleton Fire Department.	The applicant will review with FD		
102		\$173-17	Service entries are checked off in the application but only one service entry is shown to Building B. Do the rest of the buildings not have service entries?	It is expected that each of the buildings will utilize a rear door for service access. Rear-service doors are presently shown at the back of Buildings B and E. The locations and types of service doors for all buildings will be finalized when interior building layouts and tenants are confirmed.		
103		\$173-222.i.	Rain Gardens and bioswales should be installed to infiltrate runoff from parking lots, throughfares, entry plazas, dining patios, and other impervious surfaces. Rain gardens were not proposed for this project. The applicant has stated that rain gardens are not feasible for the site. We defer to the board if this is acceptable.	As discussed previously with the board, the site has shallow groundwater and not very permeable soils. Providing 2' separation to ESHGW and a biofiltration soil filter would be very difficult and not function well due to on-site soils. Additionally the area that could accommodate the site drainage is at the rear of the site which is an ILSF with shallow groundwater.		
104		\$173-222.j.	Where vegetative solutions are not feasible, porous concrete or porous asphalt should be used for sidewalks, parking lots, entry plazas, and dining patios to infiltrate stormwater. Porous pavement was not proposed for this project. Pervious pavers were used in some locations which are similar to porous pavement. We defer to the board if this is acceptable.	We will review with the Planning Board		
105		\$38-17.C.5	Estimated seasonal high groundwater elevation should be done between November and April per the Stormwater bylaw. The test pits were performed in May. Season high groundwater appears to be measured based on redoximorphic features instead of actual groundwater elevation. We feel since this method was used and was less than a month later, the seasonal high groundwater should be acceptable. We defer to the board if this is acceptable.	We will review with the Planning Board		
STORMWATER REPORT						
106			It appears that the Great Road and Robinson Road peak rates are mislabeled in Table 1.2.1. Also, the post development peak rates do not match the table. Please revise roadway names to match with the correct peak rates and revise table to use current peak rates.	The Table 1.2.1 in the stormwater report has been corrected		
107	Recharge Calcs	MA Stormwater Handbook Vol 3 Chp 1	MA Stormwater Handbook notes that the required recharge volume shall be calculated from the impervious areas covering the soil type at the post-development site. Revise calculation to include all impervious areas not just new impervious areas.	The recharge volume calculation has been revised to include all impervious surface in the Post-development condition. Infiltration system 1B has been expanded to increase the infiltration on site.		
108	Recharge Calcs	MA Stormwater Handbook Vol 3 Chp 1	MA Stormwater Handbook notes that porous pavement is considered impervious when calculating required water quality volume and required recharge volume. Porous pavers are similar to porous pavement and should be considered impervious for calculations.	The calculations have been revised to include pervious paver areas as impervious for recharge and water quality		
109	Recharge Calcs		The total recharge volume for the systems is noted 12,498 cf in the report. Please provide backup such as HydroCAD storage tables to confirm this number.	Stage storage tables have been included in the HydroCAD printouts		
110	Test Pits		TP-5 indicated seasonal high groundwater is 32' below grade which appears to be elevation 275.33. The bottom of infiltration system 1C is at elevation 277.1. This is less than 2' separation to groundwater please revise to provide 2' separation to groundwater.	The stormwater system has been revised to use a bottom of stone elevation of 275.33 to provide a minimum of 2' of separation for Infiltration systems 1C and 1B.		
111	HydroCAD		A minimum Tc of 6 minutes should be used.	The stormwater calculations have been revised to use a minimum Tc of 6.0 minutes.		



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112	HydroCAD		Existing Pond 1B indicates the bottom is at elevation 277 but there are no 277 contours at Pond 1B on the site plans. Please revise.	The 277 contour has been added to the plan		
113	HydroCAD		Proposed Pond 1A is taking credit for infiltration. There is less than 2' separation to groundwater therefore exfiltration cannot be used.	Post Pond 1A is not considered a stormwater BMP and is within the area of the existing ILSF. This pond does not receive any flow from the proposed project area. The infiltration is necessary to compare to the ILSF function in the Pre-Development condition and actual post-development condition.		
114	HydroCAD		For proposed Pond 1A the outlet pipe should be modeled with the grate and for proposed Pond 1B the outlet pipe should be modeled with the weir to confirm peak elevation and peak rates. This should be modeled in the same pond as devices(grate, weir, orifice) routed through the pipe.	Pond 1A was modeled with a standard catchbasin grate and Pond 1B was modeled with a 4' long weir wall.		
115	HydroCAD		Post Development Basin 1B has many warnings including storage exceeded, basin 1C exceeded, WQU exceeded. HydroCAD does not give accurate results when warnings are triggered. Based on these warnings the basin as well as other structures/systems are failing. Please revise to have a working model with no warnings.	We have reviewed the warning in the HydroCAD model. This is due to the basins having different times of peak flow entering. We do not believe this affects the function and results of the model.		
116	Subcatchment Plans	§38-17.C.7.	The Applicant is required to add the existing and proposed ground surfaces with runoff coefficient for each on a site plan. Please add these to the drainage maps.	Existing and proposed ground cover and CN number have been added to the plans		
117	SW checklist		This project should be considered as a new development because no existing site features are to remain and all standards should be fully met.	While the majority of the site is new development and increases impervious area, the front portion of the project whose watershed flows directly to Great Road should be considered redevelopment since it has been commercially used for decades and the proposed project decreases the impervious area within this subcatchment.		
118	SW checklist		The project attenuates peak flows for storms greater than the 10 year storm and has less than 4 feet of separation to groundwater. Therefore, a mounding analysis should be provided.	A mounding analysis is provided. The analysis shows there will be no break out of the groundwater mound.		
119	ILSF Calcs	Hydrology Handbook for Conservation Commissioners	No infiltration should be accounted for within the ILSF. The curve number should be 98 or 100 for the bottom of the basin. Revise calcs using correct curve number for the bottom of the ILSF. This applies to Stormwater HydroCAD calcs as well.	The HydroCAD model for the ILSF calculations has been revised to not include infiltration and use a CN of 98 for the bottom of the ILSF area.		
120	ILSF/Post Development Subcatchment Plan	Hydrology Handbook for Conservation Commissioners	The post construction ILSF limit should be provided on this plan similar to existing conditions.	The ILSF has been delineated with a call out on the plan		
O&M PLAN						
121	O&M Plan	§38-18.B.3	The O&M Plan shall be signed by the responsible parties. We defer to the board whether this be made a condition of approval.	The applicant feels this would be an acceptable condition of approval		
122	O&M Plan		Snow storage locations have not been identified on the site plans. We recommend these locations be shown on the plans. Snow storage should not be allowed in the new ILSF or upgradient to it.	Snow storage locations have been added to Sheet C-200. Snow will be stored on paved areas which drain to the site stormwater treatment systems.		
123	O&M Plan		Area drains should be included in the catch basin and manhole inspection section.	Area drains have been added to the catchbasin and manhole inspection section		
124	O&M Plan		The O&M plan should include maintenance of the pervious pavers and new ILSF.	The O&M plan has been revised to include inspection and maintenance of pervious pavers and the ILSF area.		
MassDEP COMMENTS						
125			Field work appears to have occurred in June and October of 2022. The Applicant should confirm whether this ILSF is likely to contain breeding habitat for vernal pool obligate species and confirm whether this area was investigated for the presence of breeding activity during the spring breeding season. An additional description of the site working completed to determine the lack of vernal pool obligate species should be submitted.	Goddard conducted a detailed wildlife habitat evaluation (see <i>WILDLIFE HABITAT EVALUATION For the Proposed ILSF IMPACTS at 25 Robinson Road</i>) of the ILSF. Based on multiple site visits, the area does not function as a vernal pool. The Commission and its agent have also walked these areas to review the conditions of the ILSF.		
126			Test pits are required at the location of any infiltration BMP, one sample for every 5,000 sf of basin to verify seasonal high groundwater and soil type. While there appear to be soil logs, a test pit per basin does not appear to be shown on the plans and does not appear to be situated at each infiltrating BMP. Please provide additional information for where BMPs are situated and confirm the depth is at least 2 ft to seasonal high groundwater and/or bedrock. A detail on the separation from SHGW should also be provided. See V2, Ch2, p88 of the MA Stormwater Handbook.	Please see the response to comment #79		
PLANNING BOARD COMMENTS						
127	P.122		When you return, please confirm colors of buildings - will they be same colors as depicted?	Actual building colors will be finalized as construction documents are developed.		
128	P.123		Why no rain water gardens?	Please see the response to comment #103		
129			What remediation will take place when removing the old gas tanks at the former gas station?	Underground storage tanks have been removed and soil samples indicate that no remediation necessary		
130			Are you providing charging stations for electric cars?	Not at this time		
131			What about timing with the Sewer, what does the build time look like?	We understand from Corey Godfrey that the sewer construction will begin in the spring/summer of 2023. This is the same time the project construction is expected to begin.		
132			Did you show us the lighting on the plans or did I miss that?	A lighting plan will be submitted.		
133			Cross cut plans are supposed to be submitted as well for site review?	A potential cross-connection is shown on the plan. This would have to be coordinated with the abutting property owner and any redevelopment of that site.		
134			What are you planning for signage?	The signage program for the site and buildings will be finalized as building construction details and timelines are confirmed.		
135	P.249		Stormwater plan isn't checked for tree box filters. I'd like to see those used along great road trees to protect them from the gas fumes and dirt.	There are no proposed trees along Great Road.		
RESIDENTS' COMMENTS						
136			Where will it be documented regarding the "not able to develop zone" on the green space frontage on Robinson Road?	There is no development proposed along Robinson Road. Any modifications to the layout or the introduction of new buildings would require a new site plan submission, a new public hearing process and Planning Board approval. Realistically, given the parking requirements associated with the proposed plan and the significant investment for berm, landscaping and stormwater design, a building could not be located in that area.		
137			Continuation of the bank's sidewalk from the corner of Robinson Road to the end of their property line at 25 Robinson Road (this is for safety reasons).	No new sidewalk proposed along Robinson Road as this would impact proposed buffer and berming elements and sidewalk presently exists on other side of Robinson Road.		
138			Documentation that there will not be parking on Robinson Road during construction. All vehicles need to park on job site.	Construction management plan will address		



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NO.	SHEET NO.	SECTION	GREEN'S COMMENT	Applicant's RESPONSE	CONFIRMED BY	DATE
CONSERVATION COMMISSION'S COMMENTS						
139			How long/often there might be standing water in the "new" ILSF area - I'm concerned that long time flooding will kill the trees and I'm not sure if the storage being assumed in this sort of area needs to show drawdown after (72) hours.	The highwater elevation in the ILSF will decrease in the Post Development conditions. The infiltration in this area not change from the existing condition. Based on our calculations and assumed infiltration rate, this area should drain within 52 hours.		
DISABILITY COMMISSION'S COMMENT						
140			Is the project ADA and MAAB compliant? We want to be sure the best things are being done for the Town with projects regarding Disability accessibility.	Yes, will meet all ADA and MAAB requirements		
SUSTAINABILITY COMMITTEE'S COMMENTS						
141	EV Chargers for visitors/customers		EV chargers, principally Level 3 fast charging stations (e.g. EVGo or Electrify America) and Level 2 charging stations, should be provided for visitors. To ease future growth, the electrical infrastructure should be in place for installation of chargers at locations throughout the parking facilities.	See response to Comment 130		
142	Native plantings		Only native plants should be used, with attention to water use and tree species longevity in changing climate. Landscape design should be environmentally friendly, and drought resistant, with limited lawn and possibly incorporating areas such as a pollinator garden.	Native plantings have been used. Species have been selected for longevity and species diversity. The native plants are drought resistant. Many of the plants and tree species are pollinator host plants or nectar plants that support a variety of pollinators.		
143	Pedestrian connection		Traffic solutions should prioritize pedestrian and bicycle connections to the Common and surrounding area.	This design includes pedestrian and bicycle connections as well as bicycle storage and bike racks.		
144			LEED certification of buildings	A decision has not yet been made as to whether the Applicant will pursue LEED Certification.		
145	Lighting		Low energy and downward facing lighting should be used to minimize the effect of artificial lighting on local fauna, save energy, and preserve access to nighttime skies.	Comment noted, a lighting plan will be submitted.		
146	Low impact development practices		e.g. permeable pavement and water management. In June of 2018, the town of Littleton received a Regulatory Analysis for Low Impact Development as a product of a Municipal Vulnerability Preparedness grant. This analysis, as well as the Summary of Findings from the Community Resilience Building Workshop, is available at https://www.littletonma.org/town-administrator/pages/municipal-vulnerability-preparedness . We urge the Planning Board, as well as the Select Board, to review the regulatory analysis for potential improvements in existing policies and requirements that would lead to better procedures and incentives promoting sustainable development.	This design includes Low Impact Development Practices such as Permeable Pavers, Native Plants and saving Existing Trees.		
147	Accessible/universal design		The ADA sets minimum standards for buildings and facilities. Universal design incorporates inclusive elements and accessible features in the design, creating coherent, usable spaces that benefit all.	This design includes ADA standards		
148	Open space gathering areas		Public gathering areas are an important part of a resilient community. Open space and social gathering areas with sun shelters, benches, and picnic tables, and connectivity throughout the property via pedestrian paths will help to bring a human scale to the development.	This design includes a main public gathering plaza and smaller gathering patio spaces that are inter connected. These elements bring a human scale to the development and connect to the community.		