



June 10, 2022

Town of Billerica
Planning Board
365 Boston Road
Billerica, Massachusetts 01821

Attn.: Ms. Erika Oliver Jerram, Director of Planning and Community Development

Re: **101 Billerica Ave - Peer Review - Planning**

Dear Ms. Jerram:

BETA Group, Inc. has received a copy of documents submitted for the project entitled: **101 Billerica Ave Building 2 Billerica, MA**. This letter is provided to outline BETA's findings, comments, and recommendations.

BASIS OF REVIEW

The following documents were received by BETA and will form the basis of the review:

- **Form S Application for Site Plan Special Permit**, including the following attachments:
 - Cover Letter
 - Copy of Deed
 - Special Permit Checklist
 - Project Narrative
 - Abutters List
 - Aerial Photo
- Site Plan and Plans to accompany SWPPP (11 sheets) entitled **Site Development Plans for 101 Billerica Ave., Building 2 Billerica MA**, dated May 6, 2022, prepared by Kelly Engineering Group, Inc., Braintree, MA
- Landscape Plans (2 sheets) entitled **Site Development Plans for 101 Billerica Ave., Building 2 Billerica MA**, dated May 6, 2022, prepared by Kelly Engineering Group, Inc., Braintree, MA
- Photometric Plan entitled **101 Billerica Ave., Building 2 Billerica MA**, dated April 26, 2022, prepared by U.S. Architectural Lighting & Sun Valley Lighting, Palmdale, CA
- Floor Plans, Elevations and Renderings (9 sheets) entitled **101 Billerica - Building 2 Billerica MA 01862**, dated May 6, 2022, prepared by GMA Architects, Framingham, MA
- **Stormwater Management Report for 101 Billerica Ave., Building 2 Billerica MA**, May 6, 2022, prepared by Kelly Engineering Group, Inc.
- **Traffic Impact and Access Study Proposed Industrial Redevelopment 101 Billerica Avenue Billerica Massachusetts** dated April 2022, prepared by MDM Transportation Consultants, Inc. Marlborough, MA

Review by BETA will include the above items along with the following:

- **Zoning By-Law of the Town of Billerica** updated through October 2017.
- **Zoning Map of the Town of Billerica, Massachusetts** last updated October 11, 2016
- **Billerica Board of Health Rules and Regulations** updated June 2014

INTRODUCTION

The 5.54± acre project site is located on the east side of Billerica Ave. Billerica, MA. The parcel is currently developed with a two two-story building (40,869 sq. ft. footprint), paved parking areas, utilities, and stormwater management system.

The site is within the Industrial Zoning District. There are mapped wetland resource areas in the northwest portion of the site as well as off-site along the north and south property lines. The property is not in proximity to FEMA mapped 100-year flood zone, stormwater critical areas, estimated habitats of rare wildlife or priority habitats of rare species. Green Engineering Map 46 shows the flood area extended onto the west side of the site. NRCS soil maps indicate the presence of Urban land with no hydrologic soil group rating (HSGR).

The proposed work is within 100' of the FEMA 100-year Flood Zone and within the limits of Green Engineering Floodplain. The proposed work is also partially within the buffer zone of wetland resource areas, and therefore will require obtaining an Order of Conditions from the Billerica Conservation Commission. Stormwater management systems are subject to the MassDEP Stormwater Management Standards and the Billerica Stormwater Management Bylaw and Regulations.

The Applicant proposes to remove existing buildings and pavements to construct a 51,200± SF building with a 19,122± sq. ft. mezzanine and associated parking areas and utilities, additional landscaping, and installation of new stormwater management features.

SITE VISIT

BETA conducted a site visit on 6/3/2022 to assess existing conditions. Field conditions were found to be generally in accordance with the existing conditions plan. Comments associated with this site visit are as follows and as noted throughout this report.

SV1. *Indicate proposed treatment of existing sign located at the proposed Billerica Ave site entrance denoting a T-shaped intersection ahead.*

ZONING

The project parcel is within the Industrial (I) Zoning District. The Notice of Intent narrative indicates that the property will be redeveloped into a manufacturing building which is a use allowed by right.

Portions of the Site are within the Flood Plain Overlay District due to the presence of the green engineering flood plain (GEFP). All uses permitted by right in the underlying district are permitted in this district. Work proposed in the flood plain includes a small area of tree clearing and paving at the site entrance.

Z1. *Clearly state the proposed building use on the plans to verify conformance with the bylaw.*

Z2. *Indicate location of the GEFP on the plans, adjusted to reflect actual surveyed topography.*

SITE PLAN APPROVAL (§6)

The project has been submitted for site Plan approval and is required to comply with this section of the Bylaw.

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SP1. *Revise site plan to include the signature, stamp, and seal of the professional engineer responsible for preparing the plan (§6.E.4.b.).*

SP2. *Provide profile for proposed drainage system (§6.E.4.p.).*

SP3. *Indicate bulb type for proposed luminaires (§6.E.4.q.).*

SP4. *Indicate if new rubbish collection areas are proposed (§6.E.4.s.).*

SP5. *Provide description of the hours of operation of the proposed use (§6.E.4.ff).*



REVIEW CRITERIA

BUILDINGS, STRUCTURES, AND SITE CHARACTER (1): See all comments provided herein.

TRAFFIC (2): See Traffic Assessment Review.

PARKING, LOADING AND LIGHTING (3): See Parking and Loading and Lighting sections.

STORMWATER AND SITE DRAINAGE (4): See review letter for stormwater, floodplain and wetlands for Conservation Commission and Board of Health under separate cover.

UTILITIES (5): See Utilities section.

TOWN SERVICES (6): BETA defers to the Town of Billerica.

VEGETATION AND LANDSCAPING (7): See Landscape Treatment section.

WETLANDS (8): See review letter for stormwater, floodplain and wetlands for Conservation Commission and Board of Health under separate cover.

DIMENSIONAL REGULATIONS

The parcel meets the requirements for lot area, frontage, front yard from Billerica Ave, side yard, rear yard, lot coverage, building height, and green space.

Required front yard is not provided from the unnamed road to the south of the Site. The applicant has noted that this is an industrial road and thus only a 40' front yard need be provided. However, §7.L, Note 4, stipulates that this reduced width front yard may only be used for landscaping, pedestrian walkways, and curb cut access driveways only. The proposed parking area is not permitted within this front yard.

Refer to the Landscaping section below for findings related to green strips.

D1. Revise front yard from the unnamed roadway to the south to meet the requirements of §7.L, Note 4. BETA notes that the existing Site and nearby properties along this roadway also include parking areas within the front yard.

TRAFFIC ASSESSMENT REVIEW

BETA reviewed the *Traffic Impact and Assessment Study* (TIAS) prepared by MDM Transportation Consultants, Inc. dated April 2022 and found it to have been conducted in accordance with the MassDOT *Transportation Impact Assessment Guidelines* and current standards and professional practices.

The proposed Project consists of redeveloping an existing approximate 5.5 acre parcel to include a 71,000 sf manufacturing building. The existing site is also comprised of an 82,000 sf office building, and is part of the larger approximate 450,000 sf BT Business Center, which is located in both Billerica and Tewksbury. Access to the site is provided by the existing site driveway along Billerica Avenue. The Project intends to construct a second, truck-only, driveway just south of the existing driveway.

STUDY AREA

The TIAS assessed the following study area intersections:

- Billerica Avenue at 101 Billerica Avenue (BT 37 Business Center)

BETA finds this study area to be appropriate.



TRAFFIC VOLUME

The summary of existing roadway conditions is appropriate. The TIA assessed traffic volume data was collected in September 2019. Automatic Traffic Recorder (ATR) were conducted along Billerica Avenue and Turning Movement Counts (TMC) were collected at study area intersection on a typical weekday, between 7:00-9:00AM and 4:00-6:00PM. The ATR data collection took place north of the site driveway and revealed an Average Daily Traffic (ADT) volume of approximately 13,570 vehicles per day.

BETA finds the data collection to be appropriate. However, we note that additional ATR and TMC data was collected on February 10, 2022. This collection shows an ADT of approximately 6,500 vehicles per day, with the TMC collection showing similar reduced volumes. *The assessment utilizing the higher, more conservative, 2019 volumes is appropriate.*

CRASH HISTORY

The MassDOT Crash Database was evaluated for Billerica Avenue in the vicinity of the Site and at the existing Business Center Driveway. The assessment found zero reported crashes in recent years (2017-2021). BETA finds this assessment to be appropriate.

EXISTING TRIP GENERATION

The assessment noted that the September 2019 collection occurred while the Business Center Complex was not fully occupied. The assessment juxtaposed the observed traffic volume entering and departing the Business Center Driveway in September 2019 and with projected traffic volume assuming a Full Business Center. The projected volume were estimated in accordance with the Institute of Transportation Engineers (ITE) *Trip Generation Manual, 11th Edition* for Land Use Code (LUC) 710 "General Office" and LUC 760 "Research and Development." This found the existing volume observed were significantly lower ($\pm 30\%$) than the projected full (noted as "historical") center.

ALTERNATIVE TRANSPORTATION

The discussion of alternative transportation facilities (public transportation) is adequate. No credit was taken for the presence of transit. BETA finds this methodology to be conservative and acceptable.

SIGHT DISTANCE

The assessment summarized the available sight distance for the existing Business Center Driveway and the proposed truck only driveway. The assessment found the sight distance is adequate for both driveways. BETA finds the assessment to be acceptable.

- T1. *Note that the existing roadway configuration includes Intersection Warning Signs (W2-2) in advance of the Business Center Driveway. Consider whether these signs should be relocated or altered in response to the new driveway configuration. The roadway also provides Thickly Settled 30mph warning signs. Consider whether these are applicable.*
- T2. *Consider installation of "Trucks Entering" or similar signage given the new land use.*

BACKGROUND TRAFFIC GROWTH

Background traffic growth was approximated based on a growth rate of 0.5% compounded over a seven year design horizon. BETA finds this methodology to be acceptable and generally in accordance with industry standards.

In addition, the assessment applied traffic generated by three nearby developments including: 95 Billerica Avenue, 495 Woburn Street, and 101 Billerica Avenue.



- T3. *The methodology of applying nearby development trips is appropriate, though BETA notes that relevant “trip tracings for the vacancies of 101 Billerica Avenue” could not be found in the Appendix. These significantly increase the volume entering and exiting the 101 Billerica Avenue Site driveway for the No-Build Condition. In a subsequent section, these trips were then removed prior to assessing the Build condition. Provide relevant trip assignment or “trip tracing” maps in the Appendix for review.*

SITE TRIP GENERATION

The projected Site Trip Generation was estimated in accordance with the Institute of Transportation Engineers (ITE) *Trip Generation Manual, 11th Edition* for Land Use Code (LUC) 140 “Manufacturing” based on a building size of 71,000 square feet. This found the proposed land use would generate approximately 48 trips in the weekday morning peak hour, 53 trips in the weekday evening peak hour, and 338 vehicles on a typical weekday. Of these trips, approximately two were projected to be trucks in both peak hours, with 32 total trips per day represented as trucks. BETA finds this exercise to have been conducted in accordance with industry standards.

The projected Manufacturing trips were juxtaposed with the projected trips associated with maintaining the 82,000 square foot office building. This found the Manufacturing use represents a reduction in overall trips by 77 (62%) in the weekday morning peak hour, 65 (55%) in the weekday evening peak hour, and 550 (62%) on a typical weekday. BETA finds the summary to be acceptable.

TRIP DISTRIBUTION AND ASSIGNMENT

The assessment distributed site trips with approximately 85% destined to/from the north (likely to Interstate 495) into Tewksbury and 15% destined to/from the south into Billerica. The proposed Site provides a dedicated truck only access for which all truck trips utilize. All other vehicle trips were distributed to the existing Business Center driveway. BETA finds the trip distribution to be reasonable given the land use and the proximity to the interstate highway.

To assess the Build condition traffic volume, the existing trips associated with the Office Land Use were removed from the No-Build network and the subsequent Manufacturing trips were added. This methodology is reasonable, though no sheets were provided in the Appendix to verify this process. **See comment T3.**

- T4. *While not significant to the conclusions of the study, BETA notes that Figure 7 of the assessment should include two trucks utilizing the Proposed Truck Driveway in both peak hours. These were included in Figure 8.*
- T5. *Figure 7 and Figure 8 of the assessment suggest that vehicles could turn left exiting the proposed Truck Driveway. Review of Site Plans suggest this is not intended to be allowed.*

CAPACITY ANALYSIS

Level of Service (LOS) capacity analysis was conducted for the Business Center Driveway at Billerica Avenue and the proposed truck driveway at Billerica Avenue for the existing, no-build, and build conditions during each peak hour. The analysis was conducted utilizing Synchro software. This exercise is in accordance with industry standards.

The assessment calibrated the analysis based on a Delay Study conducted in September 2019 in attempts to replicate existing delays and queues observed in the field. The calibrations suggest the two driveways operate with LOS C or better in both peak hours under all scenarios. BETA assessed the network with no calibration, utilizing default values. This found the Business Center driveway operates with excessive delays (LOS F) and queues (greater than 20 vehicles) under the No-Build and Build peak hours. In general, the calibration exercise

is an acceptable practice within the industry, but BETA has no explicit way to verify the legitimacy of the delay study and as such must accept what is presented as reasonable.

Regardless of calibration or no calibration, since the Build Condition includes removing the Office Land Use trips, and the Manufacturing land use represents a lower trip generation than the Office Use, the **Build condition represents lower delays and queues (improved operating conditions) than the No-Build conditions.**

T6. *BETA notes that the results presented in Table 7 and Table 8 of the Assessment do not match the Synchro analysis results sheets provided in the Appendix.*

TRAFFIC ASSESSMENT RECOMMENDATIONS

The assessment recommended several improvements to accommodate the proposed change in land use including the installation of a truck only driveway, changes to site circulation, maintenance of STOP sign and Stop Line markings for the Business Center driveway, and maintenance of adequate sight line triangles for both driveways. BETA generally supports these recommendations.

T7. *Clarify the need for the proposed Truck Only Driveway. It is generally expected that this is needed due to truck turn restrictions in accessing the existing Business Center Driveway.*

T8. *Clarify why the proposed Truck Only Driveway needs to be "Truck Only." If this were made a general vehicle and truck access, how would this effect site circulation and flow at the existing Business Center Driveway?*

TRAVEL DEMAND MANAGEMENT PROGRAM

The Assessment recommended a Travel Demand Management Program (TDM) which includes the following:

- Join Middlesex 3 Coalition
- Utilize the Workforce Transportation Program
- Appoint an Employee Transportation Coordinator
- Encourage Automatic Employee Payroll Transactions
- Schedule and promote off-peak commuting travel patterns
- Provide information related to area public transit
- Encourage transit fare subsidies
- Provide preferential parking for low-emission vehicles
- Provide preferential parking for carpools
- Provide Electric Vehicle Charging Stations
- Incorporate internal pedestrian infrastructure
- Provide on-site showers and lockers
- Provide bicycle storage facilities
- Provide on-site amenities that encourage staff to remain on-site

BETA generally supports the above measures.

T9. *The Site Plan should show the locations of proposed dedicated parking for Low Emissions Vehicles, Carpools, Electric Vehicles, Bike Racks/Bike Parking, and Pedestrian Infrastructure (including sidewalks, crosswalks, accessible ramps, and signage).*

TRUCK TURN ANALYSIS



The assessment provided sketches in the appendix for several truck turn analysis situations. This included vehicle moves for a typical fire truck circulating the site, as well as movements for a WB-67 articulated truck and WB-50 articulated truck entering the Truck Only Driveway.

- T10. *The WB-67 turns only show the entering and exiting of the Site. Provide a diagram that shows the trucks can circulate the Site and access the relevant truck loading bays on the southern side of the building.*
- T11. *The Traffic Assessment defines the Site Plan provides four truck loading bays. Review of the Site Plan suggests there are six bays.*
- T12. *AutoTurn analysis for the fire truck (sheet 1, sheet 3, and sheet 4) show the fire truck needs to travel over parking spaces and landscaped areas outside of the paved area. Clarify the need for these movements and obtain approval from the Fire Chief that these moves are acceptable.*

PARKING

The Traffic Assessment did not evaluate parking demand. Estimating parking demand based on ITE’s *Parking Generation Manual, 5th Edition* revealed a typical demand of 65 spaces for Land Use Code 140 – Manufacturing with a building size of 71,000 square feet.

The proposed Site includes one building with an Industrial Use. Required parking for this use is as follows:

Use	Area (SF) or Employee	Rate (Space / SF or Space / Employee)	Required Parking
Industrial	56,300 SF	1 / 800 SF	71
Industrial (Per Employee)	141	1 / 2 Employees	71
<u>Total:</u>			<u>142</u>

Parking is provided at all sides of the proposed building. A total of 256 parking spaces are provided. Eight of these spaces are designed as accessible with two designed as van accessible. Thirty of these spaces are designed as compact. Six loading spaces are provided on the south side of the proposed building.

Proposed parking spaces are designed to be 9’ wide and 19’ deep with min. 24’ aisles. Compact parking spaces are 9’ wide and 16’ deep. Proposed loading spaces are 13’ wide and 60’ deep.

- T13. *Revise typical striping detail to show a 19’ deep typical parking space.*

SITE ACCESS AND CIRCULATION

Site access is provided via one new entrance along Billerica Ave and two existing curb cuts along the industrial road. The entrance at Billerica Ave includes a right-turn only lane for site egress. Driveways extend from these entrances and circle around the entire perimeter of the proposed building, providing access to parking and loading areas.

The proposed building will provide a large loading dock area on the southern side of the building.

BETA finds the proposed use to be in accordance with land uses of the existing office park.

- T14. *Revise standard bituminous pavement to include a 2” min. binder course (§8.B(8)).*



SIGNS AND LIGHTING

The submitted documents indicate several signs:

<u>Sign Designation</u>	<u>Location</u>
Unknown (x4)	Southwest Site Entrance
Accessible Parking Signs	Accessible Parking Spaces

Minimal information has been provided for proposed signage. Signs proposed at the new site entrance are anticipated to be traffic flow signs which will not require a permit.

A lighting plan has been provided showing location of 4 building mounted luminaires and 15 pole mounted luminaires.

- L1. *Provide labels and details for all proposed signs.*
- L2. *Provide detail of luminaire.*
- L3. *Revise lighting plan such that significant illumination does not extend beyond the site boundary.*

UTILITIES

The project plans indicate connections to public water, sanitary sewer, gas, and electric services. Public water and gas services will link to existing services beneath Billerica Avenue. Electric service will link to existing services along the industrial road. Sanitary sewer will connect to an existing sewer pump station located along Billerica Avenue to the southwest and will link to sewer manholes located beneath the industrial road to the north. The project will generally retain existing lines for sanitary sewer. Four new hydrants are proposed within the property for firefighting activities.

- U1. *Clearly identify which utilities are existing and which are proposed on Sheet 6, including which existing utilities are to remain.*
- U2. *Provide detail for crossing of water and sewer lines. Clearly indicate which sanitary sewer lines are to be retained in areas where proposed water crosses existing sewer.*
- U3. *Provide information on expected domestic water required.*
- U4. *Confirm that there is sufficient flow capacity and pressure to meet the fire services requirement.*
- U5. *Review design of proposed underground electric line. Electric service appears to pass through a proposed drain manhole.*
- U6. *Provide information on rights granted by existing utility easements and confirm that proposed modifications to the area within the easements are permitted.*

LANDSCAPE TREATMENT

The project proposes landscaping around the building perimeter, lot perimeter, and throughout the parking islands consisting of deciduous, evergreen, and ornamental trees and seeding. The project will retain vegetation within the wetland resource area and proposed removal of existing invasive species along the lot's frontage.

A Green Strip consisting of trees and seeding is proposed around approximately 65%-70% of the building perimeter. Green strip widths are generally 4' – 5' wide. The Applicant has requested a waiver from required green strip perimeter and width on the grounds that it is an existing nonconformity.

The project does not abut any residential districts or uses and thus extensive screening is not required. A green strip is provided around the majority of the lot perimeter with a typical width ranging from 10' – 15'. A waiver has been requested from providing the required 20' green strip width on the grounds that it is an existing nonconformity.

- LA1. *BETA defers to the Town regarding the approval of the proposed waivers. BETA recommends the Applicant consider reconfiguring the parking lot to provide the required green strips, given that provided parking is in substantial excess of what is required.*
- LA2. *Provide shrubs for the building green strips. At least 8 shrubs per 50 feet of green strip are required (§7.G(2)). For the proposed building perimeter of 965 ft ±, the required number of shrubs is 116. For the proposed lot perimeter of 2,025 ft ±, the required number of shrubs is 324.*
- LA3. *Relocate proposed tree at the southeast site entrance to avoid obstructing the proposed stop sign in the same area.*

If we can be of any further assistance regarding this matter, please contact us at our office.

Very truly yours,
BETA Group, Inc.



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