



July 13, 2020

Beverly Planning Board  
City Hall  
191 Cabot Street  
Beverly, MA 01915

**Subject: Adequacy of Way Analysis  
for Livingstone Avenue Extension**

Dear Planning Board Members:

As required by the City of Beverly Rules and Regulations Governing the Subdivision of Land, a field investigation and analysis was conducted on the subject portion of Livingstone Avenue and Upland Road which provides vehicular access to the proposed Livingstone Avenue extension. Sight distance measurements and an inspection of existing conditions were performed in the project vicinity.

The proposed project consists of constructing an approximately 280-foot long extension of Livingstone Avenue. The subject portion of Livingstone Avenue is currently a 250-foot long private dead-end roadway that intersects with Upland Road at a four-way intersection. An additional 100-ft extension was approved by the Board in December 2019 which is under construction. The proposed roadway extension will be constructed in general compliance with subdivision regulations; waivers have been requested from certain design specifications outlined in the City of Beverly Rules and Regulations Governing the Subdivision of Land.

This letter summarizes existing traffic conditions along the subject portion of Livingstone Avenue and Upland Road and addresses potential traffic impacts associated with the proposed roadway extension.

**Existing Conditions**

Livingstone Avenue is an approximately 3,600-foot long local roadway that generally runs in a north-south orientation between Woodland Avenue and Obear Park along the Danvers River. An approximately 820-foot long section of the roadway between Leech Street and Upland Road is an unimproved paper street. Connecting Upland Road, a 250-foot long dead-end section of Livingstone Avenue has been improved. The City recently approved an additional 100-ft extension of the improved portion of Livingstone Ave associated with the 21 Porter Terrace subdivision. An approximately 280-ft extension is proposed beyond the recently approved improvements.

The improved section of Livingstone Avenue is a 40-foot wide private right-of-way

that provides vehicular access to four single-family residences. The existing pavement is 24-feet wide and in new condition. There is neither curbing nor sidewalks along the roadway. A stop sign control is also not present at the intersection with Upland Road. Sight lines and centerline grades along the subject section of the roadway are adequate. Photographs are attached showing the existing conditions of the roadway in the study area.

Upland Road is an approximately 685-foot long roadway that extends between Kernwood Avenue and Ashton Street. In addition to Livingstone Avenue, Porter Terrace also connects to Upland Road. Upland Road is a 50-foot wide public right-of-way with an approximately 27-foot wide paved surface in good condition. There is bituminous curbing along both sides of the roadway and a sidewalk on one side of the roadway.

Upland Road provides direct access to nine (9) single-family residential homes. Observed traffic volumes are generally low; there is no posted speed limit (the City default speed limit is 25 mph) along its length. Obear Park exists at the southerly end of Livingstone Avenue which is presumed generate a seasonal increase in traffic volumes along Upland Road.

The stopping site distance was measured along Upland Road at the intersection of the recently improved portion of Livingstone Avenue. The stopping site distance is approximately 225 feet to the northwest (towards Ashton Street) and 245 feet to the southeast (towards Kernwood Avenue). For the City's default roadway speed limit of 25 mph, the minimum required stopping sight distance is 155 feet. Therefore, there is adequate stopping sight distance in both directions at the existing roadway intersection.

### **Project Traffic Impacts**

Trip generation estimates were estimated using the Institute of Transportation Engineering (ITE) *Trip Generation, 9<sup>th</sup> Edition*, 2012 manual, Land Use Code (LUC) 210, Single-Family Detached Housing. The proposed development will result in the construction of two single-family residences. The net increase in traffic generated is estimated to be approximately 20 additional vehicle trips on an average weekday (10 vehicles entering and 10 vehicles exiting). The proposed development will generate approximately 2 additional vehicle trips during the morning peak hour and 2 additional vehicle trips during the evening peak hour. This results in approximately 1 additional vehicle every 30 minutes during peak commuting hours.

In the event the three additional lots (total of 5 new residences along Livingstone Avenue) are developed, the traffic impacts presented above would essentially double and effectively result in 1 additional vehicle every 10 to 15 minutes during peak commuting hours. This increase in vehicle trips would not be noticeable and

would not affect existing traffic operations or nearby intersection level of service.

At a full build-out condition, the subject section of Livingstone Avenue could serve ten single-family residences (4 existing, 1 recently approved, and 5 new). The traffic generated would be approximately 96 vehicle trips on an average weekday (48 vehicles entering and 48 vehicles exiting). In accordance with the American Association of State Highway and Transportation (AASHTO), *A Policy on Geometric Design of Highways and Street*, the proposed 24-foot wide roadway is more than adequate to accommodate the estimated traffic volume.

### **Proposed Traffic Mitigation Measures**

The subject section of Livingstone Avenue and Upland Road existing conditions do not fully conform to current City of Beverly design standards for local roads (e.g. width, curbing, sidewalks, etc.) but are consistent with similar local roadways in the City. The existing roadways appear to function adequately with minimal safety issues or concerns.

Mitigation in the form of stop sign controls (i.e. stop sign) are proposed at the end of Livingstone Avenue. In addition, a 60-ft diameter paved cul-de-sac turning area is proposed at the dead-end of Livingstone Avenue to aid in vehicle turn-around.

### **Conclusion**

The existing Livingstone Avenue and Upland Road roadways, although they do not fully conform to the City's current roadway construction design standards, adequately handle existing traffic volumes. Signage is proposed to improve conditions at the proposed roadway intersections. The proposed project is small and will have no impact on the overall traffic operation in the area. The project is estimated to generate 2 additional vehicle trip in the morning and 2 additional vehicle trip in the evening commuter peak hour.

We trust the above is satisfactory. Please do not hesitate to contact the undersigned with any questions or comments.

Very truly yours,

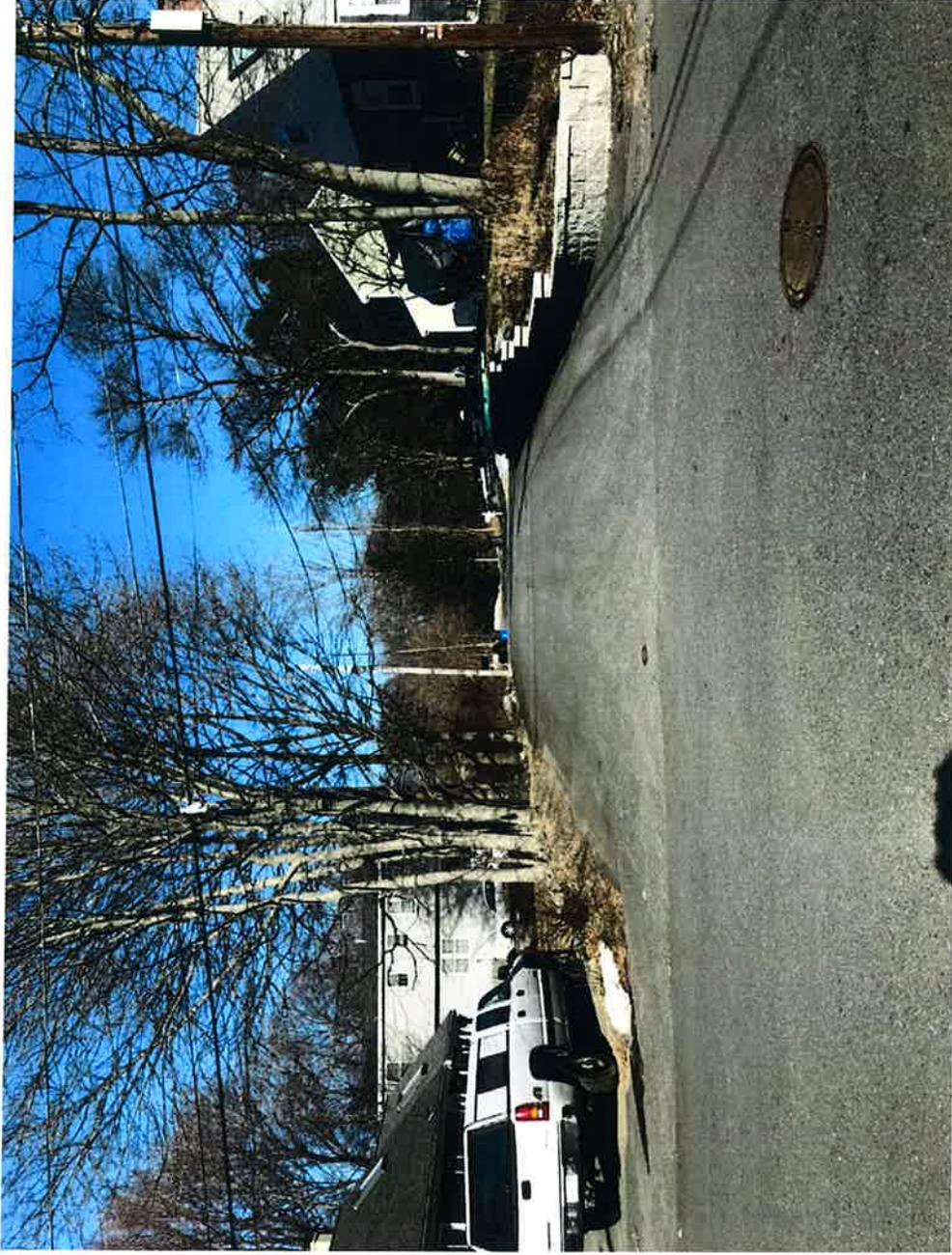
**GRIFFIN ENGINEERING GROUP, LLC**



Robert H. Griffin, P.E.

Enc: Photographs (3)

Cc: B. Marks



## Livingstone Avenue

(Roadway to be Extended)

Photo Date: 1/26/18



## Upland Road

(Looking North-West Towards Ashton Street  
From Livingstone Avenue Intersection)

Photo Date: 1/26/18



## Upland Road

(Looking South-East Towards Kernwood Avenue  
From Livingstone Avenue Intersection)

Photo Date: 1/26/18