

Ref: 8451

March 11, 2021

Ms. Jennifer Raitt  
Director of Planning and Community Development  
Town of Arlington  
730 Massachusetts Avenue Annex  
Arlington, MA 02476

Re: Responses to Peer Review Comments  
Thorndike Place Traffic Impact Assessment  
Proposed 176-Unit Residential Development  
Arlington, Massachusetts

Dear Ms. Raitt:

Vanasse & Associates, Inc. (VAI) is pleased to submit responses to the February 1, 2021 and February 16, 2021 letters from BETA GROUP, Inc. (BETA) the Town of Arlington's Peer Review consultant. The February 1, 2021 letter is BETA's responses to VAI's January 15, 2021 Responses to Peer Review Comments letter. The February 16, 2021 letter included a review of the Vox on Two 2019 TDM Annual Report Summary. For ease of review, we have listed the initial comments followed by our initial responses in italics. Any follow up comments by BETA are presented in bold italics. The first part of this letter address comments in the February 1, 2021 letter and the second part of the letter address comments from the February 16, 2021 letter. It should be noted that only comments that required a response are listed in this letter.

## **BETA Peer Review Letter – February 1, 2021**

### **SITE ACCESS, CIRCULATION, AND PARKING**

**Comment No. 6:** *BETA: "The Site Plan should define pedestrian connections to the Minuteman Commuter Bikeway. If an on-site connection is not provided, clarify the shortest route to/from the bikeway."*

*BSC: "No on-site pedestrian connection is currently proposed to the Minuteman Commuter Bikeway. The most direct route to the Minutemen is approximately 1/3 mile by taking Dorothy Road to Margaret Street south. For people who want to travel to the north, it is a similar distance taking Dorothy Road to Margaret Street north to Lake Street east."*

***BETA: "Recommend improving pedestrian crossing conditions, including ramps, warning panels, and crosswalks along the expected primary pedestrian route from the site to the Commuter Bikeway."***

**Response:** The pedestrian sidewalks along Dorothy Road, Burch Street, Edith Street, and Margaret Street provide sufficient facilities for pedestrians. Most of the intersections currently have tactile warning panels and accessible ramps. In general,

marked crosswalks are not always installed at intersections unless there are expectations of high numbers of vehicle-pedestrian conflicts. Given the project mode splits and the expected walking (Walk plus Transit) person trips of between 34 and 42 pedestrians during the peak hours, in areas where there is little vehicle conflict, crosswalks are not expected to be necessary. It should be noted that of the 17 internal intersection of the streets in the Thorndike Place neighborhood, or across Lake Street in the Cheswick Road and Bay State Road neighborhood, there is not a single crosswalk installed at any location. Intersections with Lake Street all have crosswalks as there are higher traffic volumes and a higher potential for conflicts between vehicles and pedestrians.

## **TRAFFIC VOLUMES**

**Comment No. 12:** *BETA: “Backup traffic volume information is not presented in the appendix for highlighted intersections. Backup data should justify the peak hour factor and heavy vehicle percentages utilized in the traffic analysis.”*

*VAI: “The backup traffic-volume information for Lake Street at Brooks Avenue is provided in the Appendix of this letter. The backup traffic-volume information for the intersections of Lake Street with Littlejohn Street and Massachusetts Avenue with Lake Street was obtained from the initial traffic study prepared for Thorndike Place, and raw traffic count data was not available. The peak- hour factor (PHF) at the intersection of Lake Street with Littlejohn Street were assumed to be the same as Lake Street at Homestead Road. No trucks were assumed to access Littlejohn Street and the truck percentages for Lake Street were carried over from Lake Street at Homestead Road. For the intersection of Massachusetts Avenue at Lake Street, the Massachusetts Avenue PHFs were unknown and assumed to be 0.92 (consistent with MassDOT guidance for urban conditions) while the PHF on Massachusetts Avenue was carried over from the intersection of Lake Street with Brooks Avenue. The truck percentages for the Massachusetts Avenue through movements were assumed to be 2 percent. The Massachusetts Avenue turning movement truck percentages were carried back from Lake Street at Brooks Avenue and split proportionally based on the turning volumes. Similarly, the Lake Street turning movement truck percentages were carried over from Lake Street at Brooks Avenue and split proportionally based on the turning volumes.”*

*BETA: “Backup information was provided for Lake Street at Brooks Avenue. Some discrepancies in Peak Hour Factor were found in the backup traffic analysis worksheets. The additional methodology described regarding Peak Hour Factors and Heavy Vehicle Percentages is reasonable given a lack of existing backup. It is noted that the Traffic Analysis Worksheets use a minimum Peak Hour Factor of 0.75, despite some approaches seeing lower PHF.”*

**Response:** Noted. The weekday morning eastbound Peak Hour Factor from the count was 0.88 but 0.91 was used in the analysis. This error does not significantly change the findings of the study.



## **PEDESTRIAN AND BICYCLE FACILITIES**

**Comment No. 14:** *BETA: “Recommend the Applicant summarize the condition of nearby pedestrian and bicycle facilities and specify if improvements are required to safely accommodate added non-motorized traffic to/from the Site.”*

*VAI: “Pedestrian and bicycle facilities were reviewed along Dorothy Road, Littlejohn Street, Burch Street, and Margaret Street. In general, sidewalks are in fair to good condition. Wheelchair ramps are present at intersections along each roadway. Dorothy Road, Burch Street, and Littlejohn Street have tactile warning panels present on wheelchair ramps. Some of the panels are filled with dirt and some have been worn down. Margaret Street has no tactile warning panels present on wheelchair ramps at intersections. There are no painted crosswalks present at any of the intersections on these streets besides at Lake Street.”*

**BETA: “Summary provided. Recommend improving pedestrian crossing conditions, including ramps, warning panels, and crosswalks along the expected primary pedestrian route to the Commuter Bikeway.”**

**Response:** See response to Comment No. 6.

## **PROJECT GENERATED TRAFFIC**

**Comment No. 23:** *BETA: “Modal split includes a 35% transit split in addition to bicycling and walking. Given the proximity to Alewife Station (0.8 miles), it is assumed that all transit trips will initially be Walk/Bike trips. Provide additional justification for walk/bike trips outside of transit trips.”*

*VAI: “The Vox on Two mode split survey indicates 19 percent of commuters bike or walk to work. The US Census data for Census Tract 3561, the tract in which the Project site is located, indicates 6.1 percent of commuters bike and 0 percent walk. However, the Vox on Two survey also indicates 1 percent “other” trips while the census data indicates 7.8 percent “other” trips. The bicycle volumes are similar from both sources. Therefore, the estimated pedestrian volumes may be higher using the Vox on Two survey than that of the Census data; however, 8 percent of the 14 percent walking trips would be converted to other trips using the census data, leaving a 6 percent increase in the auto mode share. A 6 percent increase in auto mode share would increase the anticipated site volumes by 56 daily trips, 4 weekday morning peak-hour trips and 5 weekday evening peak-hour trips. The estimated bicycle volumes would be the same using either set of data and the pedestrian volumes are high using the Vox on Two data. However, the estimated vehicle volumes do not change significantly if the pedestrian mode share is reduced to 0 in the analysis.”*

**BETA: “The Census data reveals a total of 54.5% of trips using single or high occupancy vehicles, an increase of 9.5% over Vox on 2 survey data. It can also be reasonably assumed that a percentage of the “other” trips include vehicle trips. At a conservative estimate of 10% increase in vehicle trips, this results in approximately 93 more weekday daily vehicle trips, 6 weekday morning peak**



***hour trips (2 entering, 4 exiting), and 9 weekday evening peak hour trips (5 entering, 4 exiting) when compared to the Vox on Two split percentages.”***

**Response:**

The census data does indicate 54.5 percent auto use. Our process for reducing the walking percentage was to increase the bicycle and other modes to the same as indicated in the census data. The census data indicated 7.8 percent other trips so 6.8 percent of the Vox on Two walking percentage was applied to other trips. Next census data indicates that the bicycle mode split is 6.1 so the Vox on Two bicycle mode split was increase by 1.1 percent. Removing 6.8 percent and 1.1 percent from the walking trips left 6.1 percent walking trips. As the transit mode split was question in the Vox on Two data no adjustments to this mode were made. The remaining 6.1 percent walking trips in the census data were then assigned to the Vox on Two auto mode share to get 51.1 percent auto mode share. This leads to an increase in the anticipated site volumes by 56 daily trips, 4 weekday morning peak-hour trips and 5 weekday evening peak-hour trips. If the transit mode split was also adjusted to match the census data, then the vehicle trip increases stated by BETA would be accurate but as the transit mode split percentage was not questioned no adjustment to that mode was made.

**Comment No. 25:**

***BETA: “Clarify and provide detail for the connection between the Site and the Minuteman Bikeway, including interface with Thorndike Field and its parking area.”***

***VAI: “Currently, there is no plan to connect the Site directly to the Minuteman Commuter Bikeway. Residents will likely follow Dorothy Road east to Margaret Street then follow Margaret Street south to the bikeway.”***

***BETA: “Discussion provided. As this will be the only reasonable pedestrian/bike connection, recommend upgrading the pedestrian infrastructure as required to provide a safe and accessible route.”***

**Response:**

See response to Comment No. 6. There is a possibility that the Applicant will provide approximately 12 acres of the site to the Town of Arlington as a conservation parcel and the Town may choose to provide a multi-use path between the site and the Bikeway, but the Applicant is not currently proposing to create this path.

**OPERATIONS ANALYSIS**

**Comment No. 39:**

***BETA: “Lake Street through volumes at the Minuteman Bikeway presented in the 2027 No-Build evening analysis were found to be lower than those presented on Figure 6 of the TIA. Update accordingly.”***

***VAI: “Table 12R above shows the revised level-of-service results of the analysis. The through volumes at the Minuteman Commuter Bikeway presented in the 2027 No-Build evening analysis have been updated to match the volumes on Figure 6R.”***

***BETA: “Issue resolved. Note that westbound queueing in the morning peak hour is metered by the upstream signal at Brooks Avenue. Queueing extends through the two intersections. A typo was found inaccurately representing queueing conditions in the 2027 Build Evening peak hour.”***





**Response:** Noted. The westbound queue on Lake Street at the Minuteman Bikeway was not properly updated in Table 12R. The queues presented in the table were 31 feet for the average queue and 45 for the 95<sup>th</sup> percentile queue. The table should have stated the average queue as 230 feet and the 95<sup>th</sup> percentile queue as 460 feet. It should be noted that Synchro shows that the 95<sup>th</sup> percentile queue is less than the average queue which is not logical. Therefore, the 95<sup>th</sup> percentile queue presented is the average queue doubled.

## **CONSTRUCTION IMPACTS**

**Comment No. 41:** *BETA: “Quantify and analyze the effect of construction on the Dorothy Road neighborhood. It is expected that the earthwork required for the site will result in a significant number of trips for large dump trucks, in addition to other construction vehicles related to the grading and construction of the Site building. Verify turning path of large construction vehicles at affected intersections within the neighborhood and to/from Lake Street.”*

*BSC: “Prior to construction, a Construction Traffic Management Plan will be prepared by the General Contractor and submitted to appropriate town staff prior to issuance of building permits. It is anticipated that coordination of the construction vehicle access route and construction hours will be undertaken with input from Public Works, Building and the Police Department prior to commencement of site preparation work. It is likely that construction vehicles will access the site from Route 2 and Lake Street via Littlejohn Street and will exit back to Route 2 via Burch Street or Margaret Street to Lake Street. Temporary parking restrictions during construction hours may be necessary on the construction vehicle route.”*

*BETA: “While it is expected that a Traffic Management Plan will be required, the response does not quantify the number of construction vehicle trips and as such fails to assess the expected impact of site construction on the Dorothy Road neighborhood.*

*The January 26th Zoning Board of Appeals meeting included discussion regarding the modular construction of the building. While this will reduce construction duration over traditional construction, it also requires transport of modular units to the site via Lake Street and neighborhood streets, likely Littlejohn Street. The applicant noted that the modular units are 63 feet long. This will likely require a cab and trailer and a wide turning movement from Lake Street to Littlejohn Street. The applicant should provide the following for the Board’s consideration:*

*1. Swept path analysis for the vehicle expected to transport modular units to the site. Swept paths should include turning from Lake Street to Littlejohn Street or other neighborhood streets, turnaround/backing path as required, and exit back to Lake Street.*

*2. Identify any parking or other access restrictions required along Lake Street or neighborhood streets to accommodate turning and vehicle access to the site.*



***3. Identify the number of modular units expected to be transported to the site. In the January 26th meeting this was estimated to be greater than 250.***

***4. Identify the schedule for transport, including expectation of number of modules to be transported per day and number of days that will be required. This may also include duration and frequency – for example, will it be completed in a shorter duration of continuous days, or along a shorter period of days repeated in specific intervals.***

***5. Identify storage area on site for modules. It is assumed that a crane will be necessary to remove modules from trailers and to move modules into place from the designated storage areas. Identify crane location and its intended operating area. Verify that crane path will not include aerial trespass over abutting properties.***

**Response:**

VAI has worked with BSC to provide preliminary estimates of truck traffic associated with the removal of soils associated with excavation for the garage and two subsurface drainage facilities. The estimated excavation is approximately 18,000 cubic yards. Assuming 10-yard dump trucks for hauling off site would result in the need for 1,800 dump truck loads. Assuming a 2 – 3-month duration, it would result in 25 – 38 trucks per day or 50 to 76 truck trips per day (one entering trip and one exiting trip per truck), six days per week.

With regard to the residential module deliveries, the Applicant has worked with multiple vendors in an effort to address construction impacts to the neighborhood. Accordingly, vehicle dimensions were provided and programmed into an AutoTurn analysis to identify vehicle swept paths at the intersections expected to be impacted, which include Route 2, Lake Street, Littlejohn Street, and the intersection of Littlejohn Street with Dorothy Road. This analysis is shown on Figure MT-1 and MT-2. In an effort to minimize the impact to the neighborhood, a staging area will be constructed on the site to allow trailers entering from Littlejohn Street to offload modules to the site, back into the site to reverse directions, and travel back via Littlejohn Street. Figure CR-1 indicates the proposed locations of police details and parking restrictions anticipated on the days of module deliveries.

It is expected that approximately 290 modules will be required to construct the Project. Assuming a 30-minute delivery and unloading period for each module and a six-hour (9:00 AM to 3:00 PM) delivery window over the typical work week (Monday through Friday) results in nearly five weeks to transport the modules to the site. It is anticipated that the modules will be delivered over one week period and then installed the following week; therefore, module delivery will occur every other week for a period of two to three months.

**BETA Peer Review Letter – February 16, 2021**

The following section addresses comments from the February 16, 2021 BETA peer review letter. This letter lists the same Comment No. 23 that is listed in the February 1, 2021 BETA peer review letter. As that comment was addressed earlier in this letter, it has not been reproduced here. The remainder of the letter discusses Transportation Demand Management (TDM) measures from the Vox on Two development and



comments on which ones should be proposed for Thorndike Place. For easy of review BETA's comments are listed in bold italics followed by VAI's responses.

### **TDM MEASURES**

**Comment No. 1:** *“Designate an on-site employee as the site’s Transportation Coordinator to oversee marking and promoting of transportation options at the site.”*

**Response:** An on-site Transportation Coordinator will be appointed to promote sustainable transportation such as bicycle, pedestrian, and transit usage.

**Comment No. 2:** *“Provide new residents transportation information packets with information on getting around Arlington sustainably.”*

**Response:** New residents will be provided with a transformation information pack that details information on getting around Arlington sustainably.

**Comment No. 3:** *“Provide Transitscreen installation in the building lobby which depicts accurate real-time information for area transit, Bluebikes stations, and Uber/Lyft services in the area.”*

**Response:** A Transitscreen will be installed in the lobby to depict accurate real-time information for transit, Bluebike station, and Uber/Lyft services in the area.

**Comment No. 4:** *“Provide information on available pedestrian and bicycle facilities in the vicinity of the Project site.”*

**Response:** Information on available pedestrian and bicycle facilities in the vicinity of the Project site will be available to residents in a centralized location of the building.

**Comment No. 5:** *“TMA membership via Alewife TMA or 128 Business Council.”*

**Response:** Property management confirms its commitment to joining either the 128 Business Council or the Alewife TMA.

**Comment No. 6:** *“Ride-matching service in coordination with Alewife TMA, or a private ride-matching service.”*

**Response:** Ride-matching services will be provided via membership to the Alewife TMA or a private ride-matching service.

**Comment No. 7:** *“Implement parking fee structure with appropriate fee structure to match parking demand to available parking supply.”*

**Response:** A parking fee structure is proposed that will be “unbundled” and allow for parking fees to be charged separately from rental fees. It is expected that a market survey will be performed as the Project becomes closer to receiving an occupancy permit to allow parking charges to be consistent with area developments. One fee will be developed for the first parking space requested by a unit, with additional spaces charged at a higher rate. Additional spaces will be made available on a first-come/first-served basis after the Project is fully occupied and residents in each unit have had the opportunity to request one space.



**Comment No. 8:** *“Provide 1-month Charlie Card bus/subway pass to all adult residents for the 1st month of rental agreement, up to two per household.”*

**Response:** New residents will be provided a 1-month MBTA pass upon move in. Each household has a limit of 2 passes.

**Comment No. 9:** *“Provide electric vehicle charging infrastructure with up to 2 charging stations, with ability to expand based on future demand.”*

**Response:** Approximately 10 charging stations are proposed on-site in the parking garage.

**Comment No. 10:** *“Provide an annual update to the Arlington Department of Planning and Community Development. Annual report will include number of leased/occupied units, number of leased/occupied parking stalls, annual unit turnover, summary of parking fee structure, and any proposed changes to parking fee structure.”*

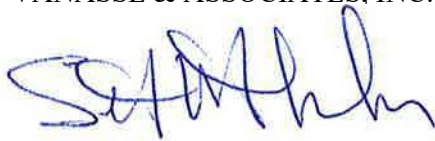
**Response:** The Applicant will provide this information on an annual basis.

In addition to the measures identified by BETA and agreed to by the Applicant, the Applicant has committed to the installation of a 23-dock Bluebikes station in the vicinity of the surface lot; committed to discussions with Zipcar to make available up to two surface parking spaces for Zipcars; and agreed to provide 176 covered and secure bicycle parking spaces in the garage. The Applicant has also agreed to provide “Do Not Block” intersection pavement markings at the intersections of Lake Street with Littlejohn Street, Burch Street, and Margaret Street, as shown on Figure TC-1 and TC-2.

It is anticipated that this information addresses the comments. Please feel free to contact us directly if there should be any further clarification needed.

Sincerely,

VANASSE & ASSOCIATES, INC.



Scott W. Thornton, P.E.  
Principal



Derek Roach, P.E.  
Senior Transportation Engineer

Attachments:

Graphic Exhibits: Figures CR-1, MT-1, MT-2, MT-3, TC-1, TC-2

cc: BETA Group, Inc. – Greg E. Lucas, P.E., P.T.O.E, R.S.P





**Legend:**



Police Officer Detail Location



Flagger / Contractor Location



Parking Restrictions -  
9:00 AM to 3:00 PM  
Monday - Friday

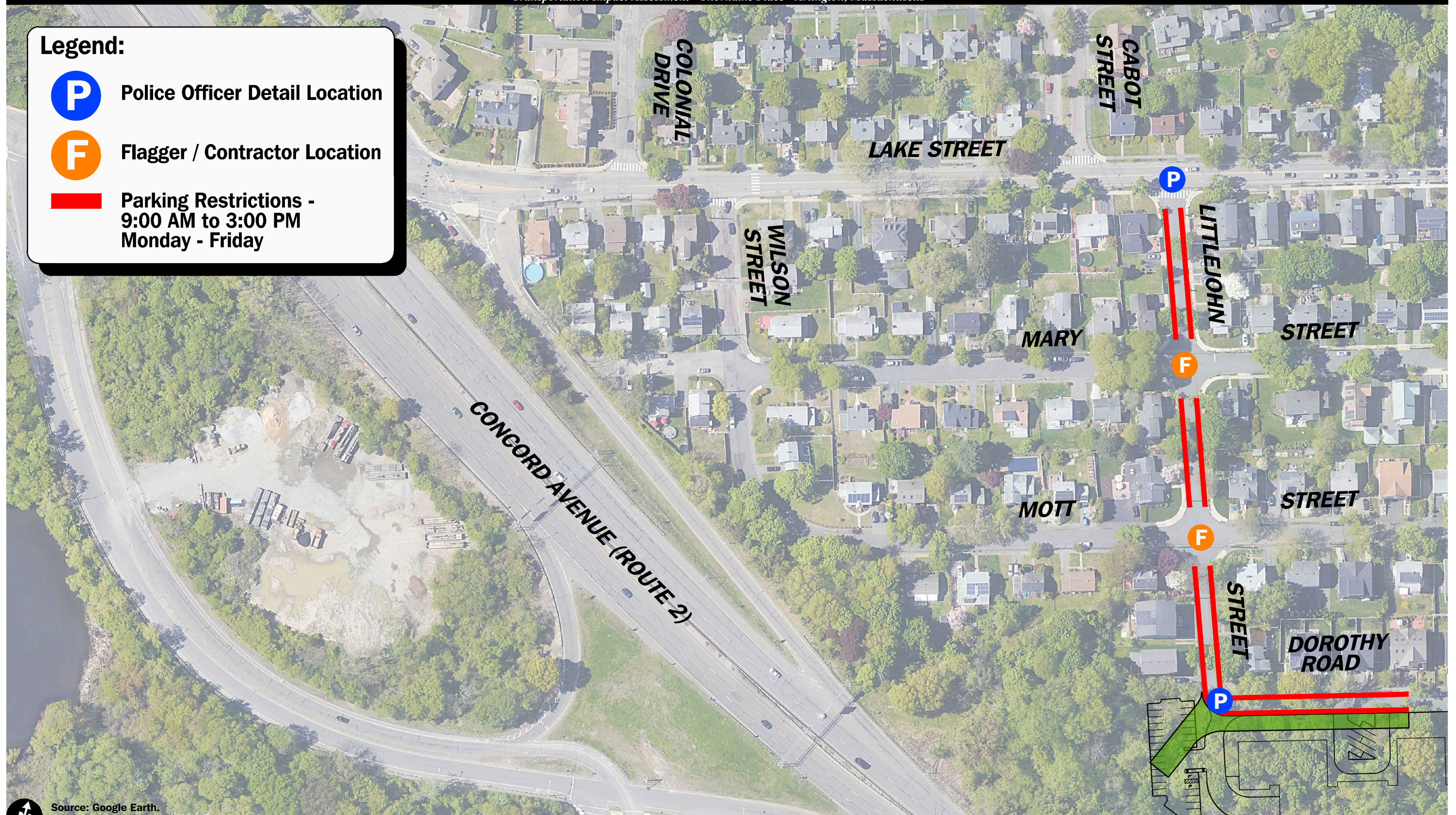


Figure CR-1

Construction Routing



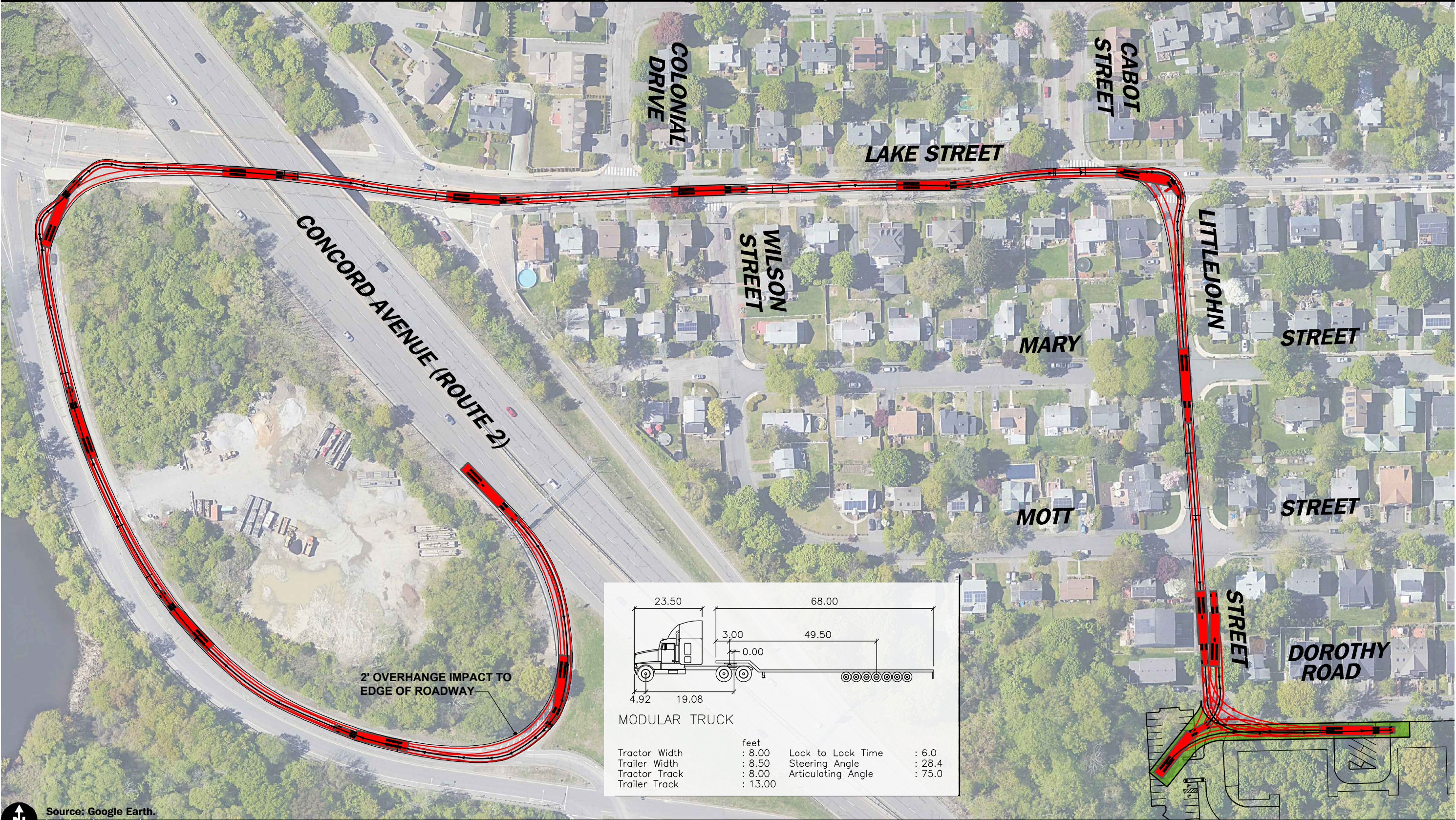


Figure MT-1  
Modular Truck Entering Site



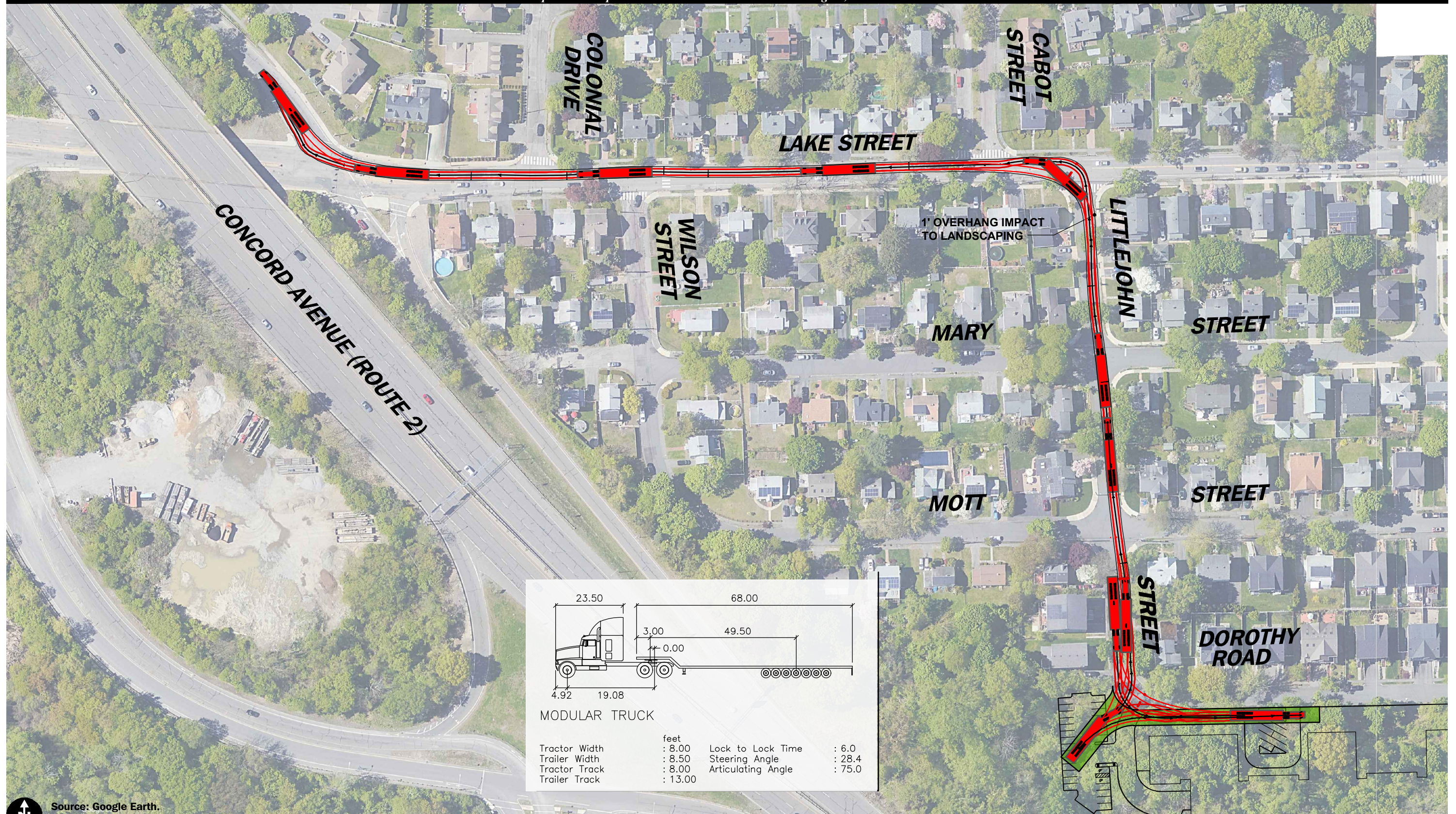
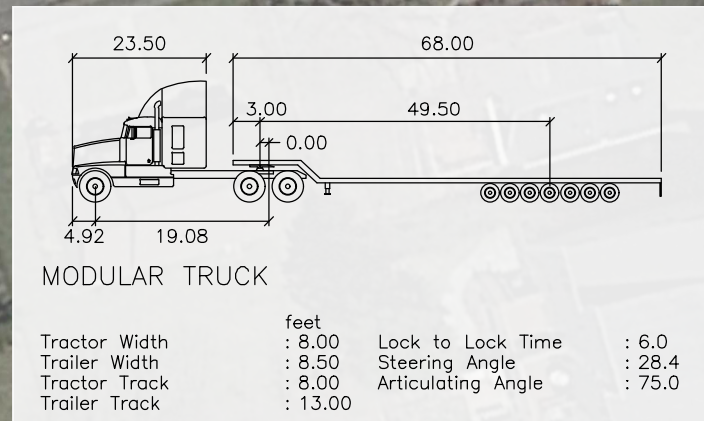


Figure MT-2

Modular Truck Exiting Site





STAGING POSITION 2

LITTLEJOHN STREET

DOROTHY ROAD

STAGING POSITION 1

CONSTRUCT TEMPORARY STAGING AREA

Source: Google Earth.  
0 20 40 Scale in Feet

**VA** Vanasse & Associates inc

Figure MT-3

Modular Truck Staging Options





Figure TC-2

Lake Street Intersection  
Improvement Locations



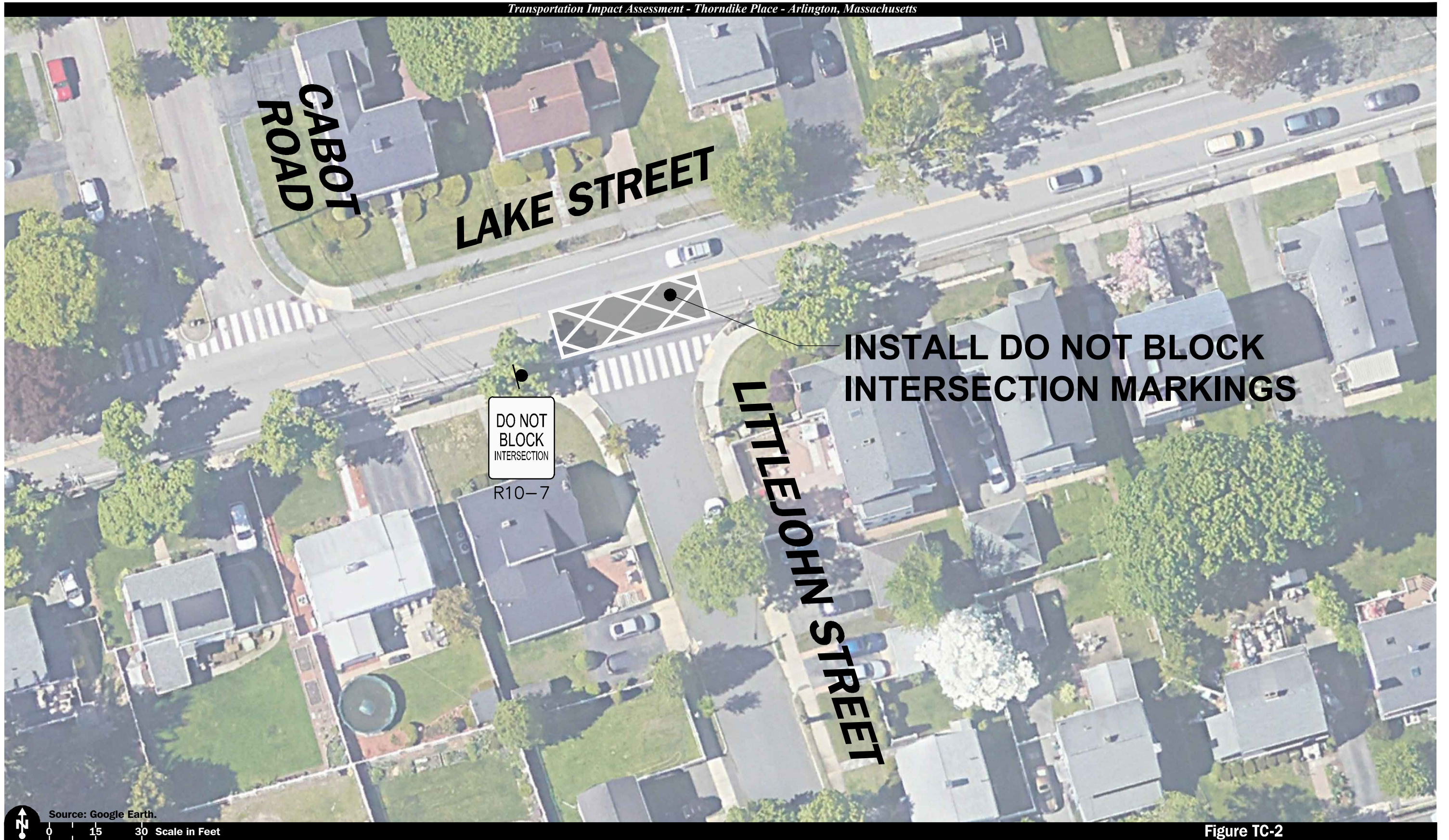


Figure TC-2

Lake Street Intersection  
Improvements Sample