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Mr. Sarkis Sarkisian
Director of Planning
Town of Wayland
41 Cochituate Road
Wayland, Massachusetts 01778

December 3, 2018

Ref. T0737.11

Re: Transportation Engineering Peer Review
Loker Field Development – Wayland, Massachusetts

Dear Sarkisian:

On behalf of the Town of Wayland, TEC, Inc. (TEC) has reviewed documents as part of the transportation engineering peer review of a Site Plan application for the proposed redevelopment of the Loker Conservation and Recreation Area along the northerly side of Commonwealth Road in Wayland, Massachusetts. The project proposes to provide one recreational field with 50 parking spaces at the site while maintaining the existing site access/egress along Commonwealth Road.

The following documents were received as part of our review:

- *Traffic Evaluation – Loker Recreation Area – Wayland, Massachusetts*; prepared by Weston & Sampson; October 31, 2018;
- *Improvements to Loker Conservation and Recreation Area – Wayland, Massachusetts (Site Development Plans)*; prepared by Weston & Sampson; September 17, 2018

TEC completed a review of these documents for the Town of Wayland, and the following provides a summary of the comments that we compiled during our review:

## Transportation Impact Assessment

1.) The Traffic Evaluation presents a study area extending along Commonwealth Road from Rice Road to the west to Willowbrook Drive to the east. As the level of site trip generation is considered to be low, the study area as presented is adequate to assess project impacts. No response required.

2.) The Traffic Evaluation does not present information related to sight distance at the unsignalized study area intersections. On Tuesday, November 27, 2018, TEC staff visited the site to provide observations and measurements related to both the stopping sight distance (SSD) and intersection sight distance (ISD) at the existing Loker Conservation and Recreation Area Driveway. These measurements were an

approximation as vegetation was non-existent at the time of measurement. Tables 1 and 2 provide a summary of TEC's evaluation of SSD and ISD, respectively:

**Table 1 – Existing Stopping Sight Distance Measurements**

| Approach / Direction | Measured Stopping Sight Distance | AASHTO Recommended Maximum Design Speed [a] | Sufficient for Typical Operating Speed? |
|---|---|---|---|
| Commonwealth Road @ Loker Driveway: | | | |
| *Commonwealth Rd eastbound* | 950 FEET | >80 MPH | Yes |
| *Commonwealth Rd westbound* | 760 FEET | 71 MPH | Yes |

[a] Defines maximum design speed of roadway based on AASHTO calculations correlating to measured stopping sight distance.

**Table 2 – Existing Intersection Sight Distance Measurements**

| Approach / Direction | Measured Stopping Sight Distance | AASHTO Calculated Maximum Design Speed [a] | Sufficient for Typical Operating Speed? |
|---|---|---|---|
| Commonwealth Road @ Loker Driveway: | | | |
| *Loker Driveway Looking West* | >1,000 FEET | >80 MPH | Yes |
| *Loker Driveway Looking East* | 710 FEET | 64 MPH | Yes |

[a] Defines maximum design speed of roadway based on AASHTO calculations correlating to measured stopping sight distance.

As noted in Tables 1 and 2, the SSD and ISD approaching the Loker Conservation and Recreation Area Driveway is sufficient for speeds in excess of 60 miles per hour (MPH) which is well above the observed operating speeds of the roadway under prevailing conditions and well in excess of the documented Massachusetts Department of Transportation (MassDOT) Speed Regulation which establishes a posted speed limit of 40 MPH.

3.) The TIA reports that traffic counts were conducted while public schools were in session on March 24th and March 28th. The Applicant utilized no seasonal adjustment factor as March traffic-volumes in the vicinity are generally above average-month conditions. TEC concurs with this adjustment of traffic volumes. No response required.

4.) The Traffic Evaluation has not provided a safety analysis indicating crash history, geometric deficiencies, etc. within the study area. The Applicant should provide documentation of crash history and other traffic safety related issues/deficiencies at the intersections and subject roadways, if applicable.

5.) The Traffic Evaluation provides no appendix materials for the 2% annual growth rate as assessed. The Applicant shall provide these materials.

6.) The Applicant has provided an evaluation of the existing year (2018) and opening year (2019) conditions. It is industry standard within Massachusetts to provide a minimum 5-year design horizon to evaluate traffic operations for a non-state review project. The

Applicant should revise the Traffic Evaluation to evaluate traffic volumes and impact analyses based on a 5-year design horizon (2023).

7.) The Applicant has estimated the site generated trips based on empirical data provided by the Town of Wayland's Recreation Department which estimates negligible impact during the weekday morning peak hour, 62 new vehicle trips during the weekday evening peak hour, and 90 new vehicle trips during the Saturday midday peak hour. TEC generally concurs with the methodology utilized by the Applicant; however, no supporting materials or calculations are provided as part of the Traffic Evaluation. The Applicant shall provide this information.

8.) The vehicular traffic generated by the proposed project was distributed onto the adjacent roadway system based upon the population centers within the Town, existing traffic patterns, and the surrounding roadway network. This methodology should be acceptable if the fields are to be restricted for use by the Town. The Applicant should coordinate with the Town to determine whether the proposed recreational field could be utilized by other surrounding communities; such as Weston or Natick which are in extremely close proximity to the fields. If so, the distribution of traffic in/out of the driveway may change significantly.

9.) There is a discrepancy in balancing on the Site Traffic Volumes network (Figure 6). It appears that the site generated trips were imported based on calculations that rounded up/down values which were unbalanced upward or downward to match from intersection to intersection. This occurs in several locations; such as 36 vehicles turning right-out of Loker during the weekday evening peak; but 37 vehicles entering the signalized intersection. This should be corrected.

10.) TEC does concur with the *Highway Capacity Manual 2010* (*HCM 2010*) methodology as presented in the development of the capacity and queue analysis results. However, *HCM 2010* methodology states that the peak hour factor parameter should be assessed on an intersection basis, not approach basis. The Applicant should correct this methodology although TEC agrees that this will have minimal effect on the result of the capacity and queue analysis.

11.) The capacity and queue analysis worksheets as provided by the Applicant do not provide information related to geometry and signal timings. The Applicant should provide the worksheets for "Lanes, Volumes, and Timings" in addition to the materials provided.

12.) The Traffic Evaluation, nor the capacity and queue analysis, do not provide any information for whether the signal timings at the Commonwealth Road / Rice Road / Oak Street intersection will be adjusted as part of the project. Although the over-capacity movements are not directly related to new Loker Conservation and Recreation Area traffic, the additional traffic volumes at the intersection do impact the overall intersection operations. At a minimum, signal timings at the intersection of Commonwealth Road / Rice Road / Oak Street should be optimized to partially mitigate the project's impact.

13.) The comments as noted above may result in modifications to the results of the capacity and queue analysis and therefore TEC has not provided direct comment on the analysis

as presented at this time. TEC reserves the right to provide additional comments upon completion of the peer review comment responses.

**Site Development Plans**

14.) The Applicant should provide turning templates showing the ability of refuse vehicles and Town of Wayland fire apparatus to access, circulate, and egress the site through the circulation pattern of the internal roadway without leaving the paved surface. Currently, no dumpster enclosure is apparent on the Site Development Plans.

15.) The Applicant should coordinate with the Town of Wayland Fire Department for preferred locations of fire lanes (if needed), confirmation of hydrant locations, and sign requirements for fire lanes within the site.

16.) The Site Development Plans seem to indicate that the raised median at the end of the driveway is to be retained. This should be confirmed by the Applicant.

17.) Chapter 198 - Section 506.7.1 of the Town of Wayland Zoning Bylaws indicate that for all off-street parking facilities that are not enclosed within a building or structure, 10% of the parking facility shall be landscaped. The Applicant should investigate opportunities to increase the landscaped area within the parking field on-site.

18.) Chapter 198 - Section 506.7.1 of the Town of Wayland Zoning Bylaws indicate that off-street parking facilities of 10 or more spaces, bicycle racks facilitating locking, shall be provided to accommodate one bicycle per 10 parking spaces. The Site Development Plans as provided do not currently depict any bicycle storage accommodations on-site. The Applicant should evaluate an opportunity to provide bicycle storage accommodations on-site where applicable.

19.) Chapter 198 - Section 506.7.1 of the Town of Wayland Zoning Bylaws indicate that 90-degree parking stalls shall be minimum 18.5-feet in length. Parking stalls as depicted on the Site Development Plans are described as 18.0-feet in length. The Applicant shall address the stall length to meet Town standards.

20.) The Site Development Plans as provided depict an on-site sidewalk network along one side of the parking field and connecting to the playing field. There is no sidewalk provided connecting the site to Commonwealth Road. Although no accommodations are currently provided along Commonwealth Road, the Applicant should evaluate an opportunity to provide pedestrian connectivity to Commonwealth Road where future pedestrian accommodations may be constructed at a later date.

21.) The pedestrian path between the parking field and the recreational field at some locations is designed at up to an 18% grade. ADA / AAB standards limit pedestrian walkways to 5.0%. The Applicant shall evaluate opportunities to provide a ramp system to decrease the running slope.

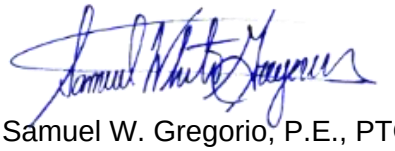
22.) The Site Developments Plans as provided do not include construction details for accessible ramps. These may be included on a page not provided to TEC. The Applicant shall confirm that accessible ramps are compliant to Massachusetts Architectural Access Board (AAB) and Americans with Disabilities Act (ADA) standards.

The current ramp depicted between the handicap parking stalls is dimensioned with 7-foot transition lengths on both the low-side and high-side. For the high-side transition, the length should be calculated to provide no more than a 7.5% ±0.5% transition slope.

23.) The Applicant shall provide a dedicated plan for all snow storage to be designated as part of the project, if applicable based on winter / non-winter scheduling of events on site.

Please do not hesitate to contact me directly if you have any questions concerning our peer review at 978-794-1792. Thank you for your consideration.

Sincerely,
TEC, Inc.
*"**T**he **E**ngineering **C**orporation"*



Samuel W. Gregorio, P.E., PTOE
Senior Traffic Engineer