



Date: May 17, 2018

To: Karen Vitkay, PLA, Metro Parks and Nature
Kate McQuillan, Multnomah County

From: Haregu Nemariam, PE, NEA
Teblez Nemariam, PE, NEA
Merih Tesfai, PHD, EIT, NEA

Copy: Gary Shepherd, J.D.
Marah Danielson,
Abraham Tayar, PE

RE: Traffic Impact Analysis Scope of Work for Burlington Forest (Land Use File No. T3-2017-9165) Multnomah County, OR

The purpose of this memorandum is to get concurrence on the method and assumptions that would be used to assess the transportation impacts of the proposed park related improvements to be constructed at the Burlington Creek Forest Area in Multnomah County, Oregon. This memorandum will define the study area boundaries and establish the analysis requirements/methodologies to perform the traffic analysis tasks.

Project Description

The project involves park related improvements to parking, amenities, restrooms, and, roadway and trail safety improvements to be constructed at the Burlington Creek Forest Area. See the attached project site plan for the improvements.

Project Location

The project site is located approximately 16 miles north from downtown Portland. Primary access to the site is provided on NW McNamee Road, approximately half a mile south of the US 30/NW McNamee Road. Burlington Creek Forest Nature Park encompasses 354 acres of land in Multnomah County, along north-eastern border of the Urban Growth Boundary (UGB) just outside of Portland city limits. The local zoning for the park property is commercial forest use (CFU). Refer to the attached Burlington Creek Forest Zoning map for the project site vicinity and zoning information.

Transportation Impact Study Locations

The TIS will evaluate the following study locations to assess the impact of trips generated by the proposed development.

1. US30/NW McNamee Road
2. NW McNamee Road/Project Site Access
3. NW McNamee Road/NW Skyline Boulevard
4. NW Skyline Boulevard/NW Cornelius Pass Road
5. US 30/NW Cornelius Pass Road

The intersections of US30/NW McNamee Road and US 30/NW Cornelius Pass Road are located within ODOT jurisdiction. NW McNamee Road/NW Skyline Boulevard is within the City of Portland city limit and the remaining intersections are located within Multnomah County.

Site Trip Generation

Typically, trips generated by proposed developments are estimated using trip rates from *ITE Trip Generation Manual*, however, the *ITE Trip Generation Manual, 9th Edition* does not provide trip rates for nature parks of the type proposed. Therefore, daily and peak hourly trip rates for the proposed development will be provided by Metro consistent with Metro's conversation with County staff.

Trip Distribution Assumptions

Trip distribution patterns and trip assignments will be performed in accordance with guidelines outlined in the *ITE Trip Generation Handbook, 3rd Edition*. A road net diagram with percentage distributions and the resulting volumes will be provided. Trip distribution methodology will be based on trip patterns at existing intersection, input from Multnomah County and Metro.

Design Hour Volume

Per Multnomah County comment, design hour volumes (DHV) for study locations within the County's jurisdiction will be developed using weekend peak traffic hour turn movement counts. Assuming the weekend peak traffic occurs from 10:AM to 1:00 PM, the counts will be taken during this period. For the intersections within ODOT jurisdiction, the DHV will be developed based on typical weekday peak traffic hour (3:00 PM to 6:00 PM).

Seasonal adjustment factor for counts taken between the months of May and August will not be needed as these months are the peak summer months. Seasonal adjustment factor for counts taken during other month will be determined using On-Site (Automatic Traffic Recorder) method in the Oregon Department of Transportation Analysis Procedure Manual (APM) and applied to the counts. The seasonal adjustment factor will be based on traffic data obtained from the nearest ODOT Automatic Traffic Recorder on US 30.

Future year DHV will be developed by applying an annual growth rate of 2.03%. This rate is obtained from the County's TSP (Table 13 in Appendix B).

Intersection Operational Analysis

Traffic impact analysis will follow the *Highway Capacity Manual (HCM) Operating Methodology* contained in the *SYNCHRO* software package. Peak hour conditions at the intersections identified in the study area will be reported in terms of average delay (seconds/vehicle), volume-to-capacity ratio (v/c), control delay and levels-of- services (LOS).

Adequacy of the study intersections capacity within ODOT jurisdiction will be determined based on ODOT's standards; and, adequacy of study locations within Multnomah County and the City will be determined based on Multnomah County standards. Per the City of Portland Bureau of Transportation (PBOT) April 11, 2018 e-mail correspondence, the City accepts the findings in the *Burlington Creek Forest Area Transportation Analysis Letter, July 26th, 2017*. See attached e-mail from PBOT.

The analysis will be performed for the following scenarios.

- Existing weekend/weekday peak hour
- Build year background for weekend/weekday peak hour traffic.
- Build year background and site for weekend/weekday peak hour traffic.
- Year 2033 background weekend/weekday peak hour traffic.
- Year 2033 background and site trips weekend/weekday peak hour traffic.

Safety Analysis

Safety analysis will be performed based on the most recent 10-year crash data obtained from the Oregon Department of Transportation. Critical crash rates expressed in crashes per million entering vehicles (MEV) will be calculated to screen intersections with higher than usual crashes. The Crash rates will be calculated using the procedure in the *ODOT's Analysis Procedure Manual (APM), Version 2*. The ADT that will be used to calculate the rates will be based on information obtained from the County's most current Comprehensive Plan/TSP, KPFF's 2014 Intersection Sight Distance Memorandum and ODOT's most recent Transportation Volume Table (TVT).

Queueing analysis.

The 95th percentile queue analysis will be based on multiple Sim-traffic simulations. The 95th percentile queue length will be rounded to the nearest 25 feet to determine adequacy of vehicle storage length.

We believe the information noted above adequately describes the proposed project, establishes the analysis requirements and methodologies/assumptions and defines the study area boundaries that was included in the traffic impact study. Should you have any comments or questions, please do not hesitate to contact Haregu Nemariam at (541) 680-3411. We look forward to your comments at your earliest convenience.



Haregu Nemariam <haregu.nemariam@gmail.com>

RE: Burlington Creek Forest Park Improvement Project. Traffic Impact Analysis

1 message

Jeffrey, Andy <Andy.Jeffrey@portlandoregon.gov>
To: Haregu Nemariam <haregu.nemariam@gmail.com>

Wed, Apr 11, 2018 at 9:17 AM

Hi Haregu,

I have no issues with the TIS. It seems that the only PBOT intersection (Skyline and McNamee) is operating at an acceptable LOS and does not have any crash history in the past three years. Also, with the increase of five peak hour trips from Burlington Park, this will not significantly impact the intersection. Therefore, we are okay with these findings and will not require any mitigation form this development.

Thanks,

Andy Jeffrey, P.E.

Senior Engineering Associate

PBOT Development Review

503-823-4270

Andy.Jeffrey@portlandoregon.gov

From: Haregu Nemariam [mailto:haregu.nemariam@gmail.com]
Sent: Monday, April 09, 2018 3:17 PM
To: Ed Anderson <Ed_Anderson@co.washington.or.us>; Jinde Zhu <Jinde_Zhu@co.washington.or.us>
Cc: Naomi Vogel <Naomi_Vogel@co.washington.or.us>; Jeffrey, Andy <Andy.Jeffrey@portlandoregon.gov>
Subject: Re: Burlington Creek Forest Park Improvement Project. Traffic Impact Analysis

Attached is the Burlington Creek Nature Park TIS that I meant to send with this mornings e-mail. Sorry for the inconvenience.

Ed, I have included Jinde Zhu in this e-mail. Thanks.

Best,

Haregu

Hi Haregu,

Did you intend to send this to me?

Ed Anderson PE | Traffic Engineer

503-846-7956

edward_anderson@co.washington.or.us

From: Haregu Nemariam [mailto:haregu.nemariam@gmail.com]

Sent: Monday, April 09, 2018 10:56 AM

To: Ed Anderson; Andy Jeffrey

Subject: Burlington Creek Forest Park Improvement Project. Traffic Impact Analysis

Good morning Agency Representatives,

Nemariam Engineers & Associates, is working on the scope of work for the subject project Traffic Impact Analysis.

The project is within Multnomah County. The county has requested that a full traffic impact analysis at the study locations be submitted rather than a traffic analysis letter (TAL) we previously submitted. In addition, the county has requested that we coordinate with jurisdiction that are likely to have intersections near the project site. Attached is the traffic analysis letter for your information/review. Please review the attached at your earliest convenience and let us know if you have any questions/comments.

The study locations are shown in the attached TAL and listed below for your convenience.

1. US 30/NW McNamee Road
2. NW McNamee Road/Project Site Access
3. NW McNamee Road/NW Skyline Boulevard
4. NW Skyline Boulevard/NW Cornelius Pass Road
5. US 30/ NW Cornelius Pass Road.

We look forward to hear from you soon.

Best Regards,

Haregu Nemariam, PE