SOLAEGUI
ENGINEERS

November 10, 2017

Janelle Thomas, P.E.
City of Reno
P.O. Box 1900
Reno, Nevada 89505

Re: Mountaingate 78

Dear Janelle:

Per your request we are providing this traffic queuing analysis for the gated entry serving the above mentioned project. The site plan used for the original traffic study indicated that access to the residential portion of the project would be provided form both Wedge Parkway and Whites Creek Lane. The current site plan indicates that a gated access will now be provided from Wedge Parkway with the Whites Creek Lane access converted to an emergency-only access. The assignment of project trips to the Wedge Parkway gated access was subsequently updated. A total of 49 trips are anticipated to enter the Wedge Parkway access during the PM peak hour.

Queuing was reviewed for the Wedge Parkway gated entry lane based on information obtained from the ITE Publication *Transportation and Land Development.* Figure 8-9 from this publication calculates average queue lengths based on a utilization factor that is calculated by dividing the peak hour demand by the anticipated service capacity. The peak hour demand is the 49 PM peak hour trips previously discussed. An average gate service time of 10 seconds per vehicle is expected based on our observed operation of the current Mountaingate gated access. In order to ensure conservative results we applied a safety factor of three to the observed average service time which produces a 30 second average service time per vehicle. The 30 second service time results in a maximum service capacity of 120 vehicles per hour. The 49 vehicle per hour demand and 120 vehicle per hour service capacity yields a utilization factor of 0.41 which corresponds to an average queue length of 1 vehicle (25 feet) per the attached Figure 8-9. The site plan indicates that the distance between the on-site median nose and the Wedge Parkway edge of pavement is approximately 65 feet. We anticipate that the entry keypad will be located within 15 feet of the median nose and therefore a minimum of 50 feet of on-site queuing length will be provided. The 50 feet length will accommodate the single vehicle (25 feet) demand queue length.

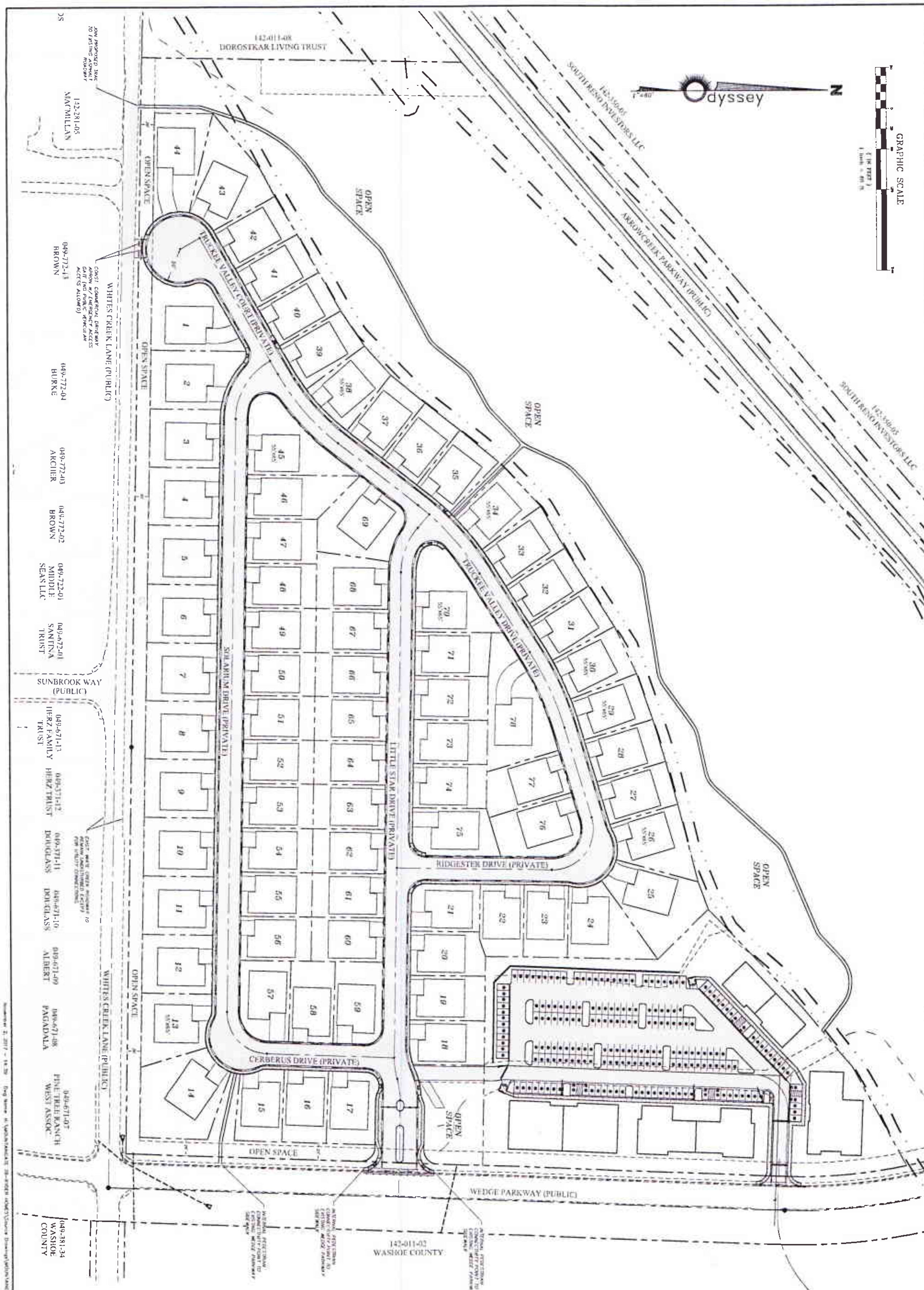
We trust that this information will meet your requirements. Please contact us if you have any questions or comments.

Very Truly Yours,
SOLAEGUI ENGINEERS, LTD.

Paul W. Solaegui, P.E.

11-10-17
EXP 6-30-18

Enclosures
Word/Letters/Mountaingate 78 Queuing



1.48" = 300'
1" = 202' ±

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Odyssey ENGINEERING INCORPORATED

TENTATIVE MAP
MOUNTAINGATE 78 RESIDENTIAL
REVISED SITE LAYOUT

RENO WASHOE COUNTY NEVADA

DATE:	11/2/17
DRAWN BY:	ACAD2017
DESIGNED BY:	K.W.A.
CHECKED BY:	K.W.A.

REV.	DATE	DESCRIPTION	BY	APP'D

SCALE	HORIZ. 1"=60'
	VERT.
JOB NO.	3897
SHEET	1 OF 1

INSTITUTE
OF
TRANSPORTATION ENGINEERS

Transportation and Land Development

Vergil G. Stover
Texas A & M University

Frank J. Koepke
The Traffic Institute, Northwestern University

Prentice Hall, *Englewood Cliffs, New Jersey 07632*

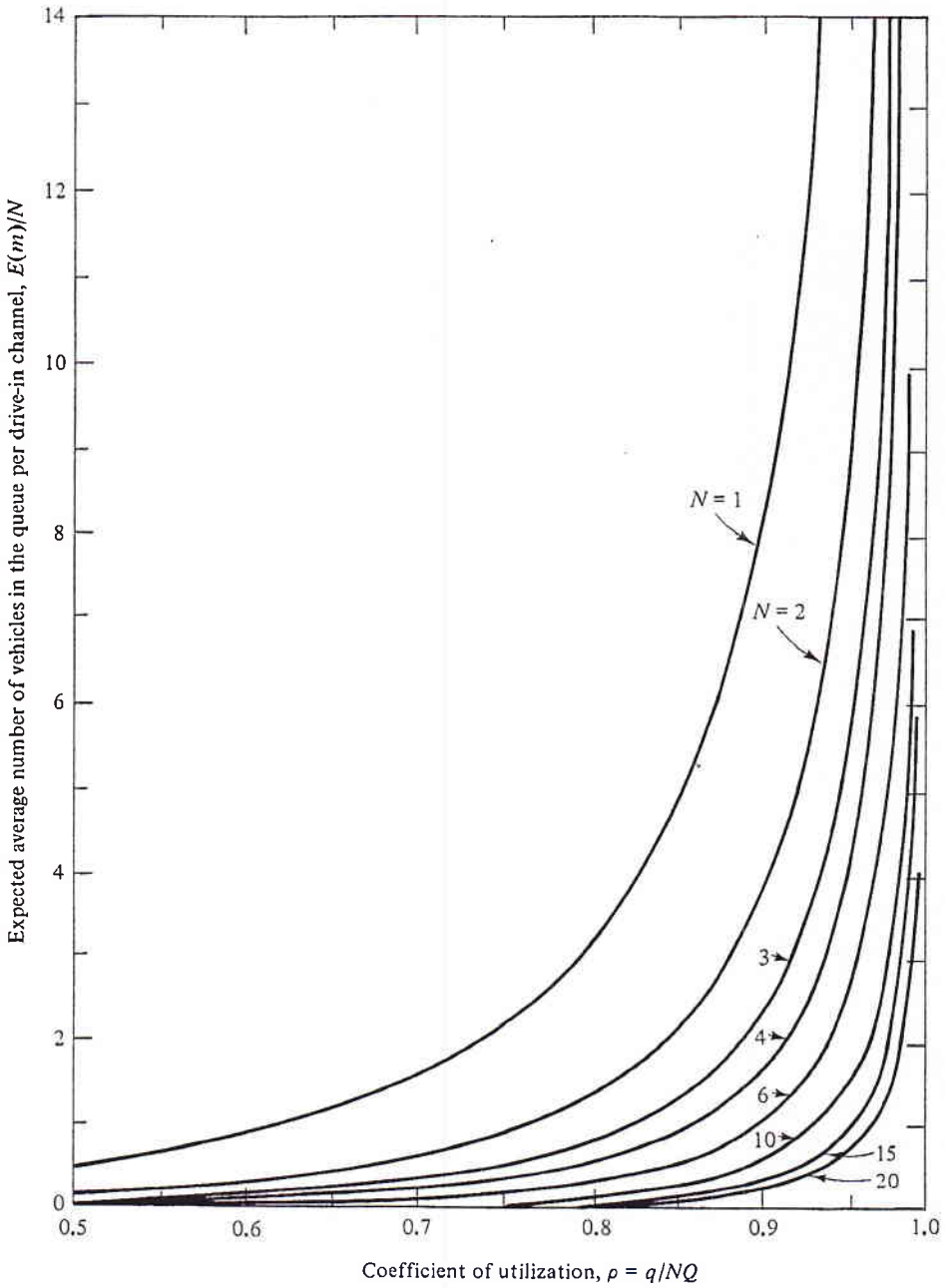

Figure 8-9 Average queue length per service position [$E(m)/N$ values]. SOURCE: Jones, Woods, and Thurgood [4].

Comparison:

Variable	Graphs	Equations
$P(0)$	0.05	0.0505
$E(m)$	3	2.97
$E(w)$	2.5	2.55

Example and Case Studies of Required Storage at a Drive-In Bank

Consider the following example of a drive-in bank facility as a demonstration of the use of queueing analysis. Review of a site plan for a proposed bank shows there are six drive-in window positions plus space to store 18 vehicles waiting to be served. In view of its