

## MEMORANDUM

To: Mr. Jim Caneff - Roake and Associates, Inc.

From: Tim Sjogren, P.E., PTOE – Kimley-Horn  
Gina Showers, EIT – Kimley-Horn

Date: October 4, 2017

RE: Trip Generation Analysis for Proposed Clow Farm Residential Development  
Naperville, Illinois

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On behalf of Roake and Associates, Inc., Kimley-Horn has prepared trip generation projections for a low-density single-family residential development proposed for the Clow Farm property, located on the south side of 103<sup>rd</sup> Street west of Book Road, in Naperville, Illinois. The subject development would provide 61 single-family residential lots which would effectively function as an extension of the existing Clow Creek Farm Subdivision to the west. As part of the project, a detention basin would be provided at the southeast quadrant of the property, along the Book Road frontage. The purpose of this review is to evaluate the trip generation and site access characteristics of the proposed development.

### Site Access

Access to the proposed subdivision would be provided via Alfalfa Lane at its intersections with Schillinger Drive and Haider Avenue. The proposed access would be an extension of the Clow Creek Farm Subdivision roadway network; new access to 103<sup>rd</sup> Street and Book Road is not proposed. The existing intersections of 103<sup>rd</sup> Street/Schillinger Drive and Book Road/Wicklow Road are expected to provide access to the local roadway network. As part of the proposed development, Alfalfa Lane would be extended across the subject site, connecting the two existing stub streets. A new loop road would also be constructed.

Continuous sidewalk is currently provided on both sides of Schillinger Drive, Haider Avenue, and the Alfalfa Lane stub streets, as well as throughout the existing Clow Farm Subdivision. As part of the proposed development, sidewalk would be provided on both sides of the proposed roadways. New sidewalk would also be installed across the property frontage on 103<sup>rd</sup> Street and Book Road, thereby filling existing gaps in the sidewalk network.

In order to verify existing traffic conditions, field observations were conducted from 5:00 to 6:00 PM on Tuesday, October 3, 2017 and from 7:00 to 8:00 AM on Wednesday, October 4. During the peak hour observations, adequate gaps in traffic were available on 103<sup>rd</sup> Street and Book Road to accommodate turning movements to and from Clow Creek Farm Subdivision during the morning and evening peak hours. A maximum of two vehicles were queued on Wicklow Road at its intersection with Book Road; no vehicle queues were observed on Schillinger Drive at 103<sup>rd</sup> Street.

### Trip Generation

In order to calculate site-generated traffic projections for this analysis, data were referenced from the Institute of Transportation Engineers (ITE) manual Trip Generation, Ninth Edition. Trip generation data for the proposed use, ITE Land Use Code (LUC) 210, Single-Family Detached Housing, is shown in **Table 1**.

Table 1. ITE Trip Generation Data

ITE Land Use	Weekday			Saturday	
	Daily	AM Peak	PM Peak	Daily	Midday Peak
Single-Family Detached Housing (LUC 210)	$\ln(T) = 0.92 \ln(X) + 2.72$ 50% in/50% out	$T = 0.70(X) + 9.74$ 25% in/75% out	$\ln(T) = 0.90 \ln(X) + 0.51$ 63% in/37% out	$\ln(T) = 0.93 \ln(X) + 2.64$ 50% in/50% out	$T = 0.89(X) + 8.77$ 54% in/46% out

T – Site-generated trips      X – Number of dwelling units

The preceding data was used to estimate the trips produced by the proposed residential development. The results of this calculation are shown in **Table 2**.

Table 2. Site-Generated Traffic Projections with ITE Equations<sup>1</sup>

Land Use	Size	Weekday							Saturday			
		Daily	AM Peak Hour			PM Peak Hour			Daily	Midday Peak Hour		
			In	Out	Total	In	Out	Total		In	Out	Total
Single-Family Detached-Housing (LUC 210)	61 Units	670	15	40	55	40	25	65	640	35	30	65

<sup>1</sup> Peak hour trip generation was rounded up to the nearest multiple of five for the purpose of this study.

As shown in Table 1, the ITE equation for LUC 210 was used for each scenario because it is shown to result in a more conservative trip generation estimate as compared to ITE average rates. Use of ITE average rates would result in nearly 20 percent fewer trips during the weekday morning peak hour, and 15 percent fewer trips during the Saturday midday peak hour. As shown in Table 2, the anticipated traffic generated by the proposed residential development is relatively low. Using the conservative methodology employed for this memo, it is estimated that the proposed development would generate a total of 670 daily trips, 55 trips during the weekday morning peak hour, and 65 trips during both the weekday evening and Saturday midday peak hours. Based on a review of the anticipated distribution of vehicles and the average daily traffic (ADT) volumes provided by the Illinois Department of Transportation (IDOT), anticipated site-generated traffic is not expected to materially impact the area roadway network. A summary of the existing ADT volumes in the site vicinity is provided in **Table 3**.

Table 3. Summary of Average Daily Traffic Volumes on Adjacent Roadways

Segment	ADT Volume	Year
103 <sup>rd</sup> Street west of Book Road	3,750	2016
Book Road north of 103 <sup>rd</sup> Street	9,300	2016
Book Road south of 103 <sup>rd</sup> Street	9,400	2016
Route 59 at 103 <sup>rd</sup> Street	33,400	2015

The proposed residential density is in keeping with the existing residential subdivisions; and therefore, peak hour traffic conditions attributable to the proposed development are expected to be generally consistent with existing conditions. The addition of site-generated traffic is not expected to materially impact existing traffic conditions in the area surrounding the development site.

Please do not hesitate to contact us with any questions related to the information in this memorandum.