

TECHNICAL MEMORANDUM

To: Jason Burdette, AICP
Planning Director
Town of Davidson

From: Laura Reid, PE
Kimley-Horn

Date: December 16, 2019

Subject: **Davidson Cottages Trip Generation
Davidson, NC**



Laura N Reid
12/16/19

Kimley-Horn and Associates, Inc. was retained by Landworks Design Group, P.A. to complete a trip generation analysis for the proposed Davidson Cottages development located east of Davidson Gateway Drive and north of Central Park Circle in Davidson, NC. The site is currently entitled, but the development team is proposing to develop different land uses on the property.

Based on coordination with the Town of Davidson, a transportation impact analysis (TIA) is not required for this development at this time. Per DPO 6.10.1, the town will require a TIA if any of the following thresholds are met:

- 50 or more residential units;
- the proposed development would increase the town's population by one percent or greater;
- the proposed development expects to create 100 or more peak hour vehicle trips and/or 500 or more daily trips;
- the proposed development includes driveways connecting to existing roadways with a level of service E or F.

The proposed site does not meet any of these thresholds; therefore, a full TIA is not required. A trip generation comparison of the current entitled land use versus the proposed land uses was undertaken independently by the development team.

TRIP GENERATION

Based on information provided by the development team and the current site plan, the current entitlements and proposed land use are as follows:

Current Entitlements:

- 20,400 Square Foot General Office
- 2 Soccer Fields

Proposed Land Use:

- 30 Single-Family Homes
- 4 Duplex Units

The traffic generation potential of both scenarios was determined using the trip generation rates and equations published in *Trip Generation* (Institute of Transportation Engineers, Tenth Edition, 2017). **Table 1** shows the trip generation potential of the current entitlements while **Table 2** shows the trip generation potential of the proposed land use. Based on the current and proposed land uses, internal capture was not included in these calculations. Internal capture is not expected between office and soccer fields due to their

typical hours of use, nor between two residential uses. Pass-by was also not included in these calculations as none of the current or proposed uses are retail in nature.

In addition to daily, AM, and PM trip generation, the midday peak hour was included in this trip generation analysis due to the nearby Community School of Davidson. The school day ends at the Community School of Davidson at 3:15 PM on Monday through Thursday and 3:00 PM on Friday. Hourly breakdowns provided in *Trip Generation* (Institute of Transportation Engineers, Tenth Edition, 2017) and the daily site trip generation were used to calculate the potential trip generation in the 3:00 – 4:00 PM hour. It was assumed that the in/out percentages in the midday peak hour are consistent with those in the PM peak hour.

Land Use	Intensity	Daily	AM Peak Hour			Midday Peak Hour (3 PM)			PM Peak Hour		
			Total	In	Out	Total	In	Out	Total	In	Out
General Office [ITE 710]	20,400 SF	227	41	36	5	17	3	14	88	16	72
Soccer Complex [ITE 488]	2 Fields	143	4	2	2	7	3	4	34	16	18
Net New External Trips		370	45	38	7	24	6	18	122	32	90

Land Use	Intensity	Daily	AM Peak Hour			Midday Peak Hour (3 PM)			PM Peak Hour		
			Total	In	Out	Total	In	Out	Total	In	Out
Single-Family Homes [ITE 210]	30 DU	343	26	7	19	25	16	9	32	20	12
Multifamily Housing Low-Rise - (Duplex) [ITE 220]	4 DU	29	2	0	2	2	1	1	3	2	1
Net New External Trips		372	28	7	21	27	17	10	35	22	13

As shown in **Table 1**, the current entitlements have the potential to generate 370 daily trips. In the peak hours, the current entitlements have the potential to generate 45 AM trips, 24 midday trips, and 122 PM trips.

As shown in **Table 2**, the proposed land use has the potential to generate 372 daily trips. In the peak hours, the proposed land use has the potential to generate 28 AM trips, 27 midday trips, and 35 PM trips. A comparison of the proposed land use trips to the current entitlement trips can be seen in **Table 3**.

	+/- in Proposed Trips
Daily	+2
AM	-17
Midday	+3
PM	-87

CONCLUSIONS

The proposed land use is expected to minimally increase daily and midday trips; by 2 and 3 trips, respectively. However, the proposed land use is also expected to reduce the number of site trips by 17 and 87 in the AM and PM peak hours, respectively.

Please contact me if you have any questions.