



# **ALDRIDGE TRANSPORTATION CONSULTANTS, LLC**

*Advanced Transportation Planning and Traffic Engineering*

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Mr. Todd Johnson  
Urban Cottages, LLC  
10675 East Ida Ave.  
Englewood, CO 80111

RE: Traffic Letter  
11000 E Jewell – Aurora, CO

Dear Mr. Johnson

Aldridge Transportation Consultants (ATC) is pleased to present this traffic letter for the proposed construction of a 36-unit residential development located at 11000 E. Jewell Ave. in Aurora.

ATC is professional service firm specializing in traffic engineering and transportation planning. ATC's principal, John M.W. Aldridge is a Colorado licensed professional engineer. In the past 20 years, ATC has prepared over 1,000 traffic impact studies, designed over 100 traffic signals, and has provided expert witness testimony on engineering design and access issues on multi-million-dollar interchange and highway projects in Kansas and Colorado.

We acknowledge that City of Aurora's review of this study is only for general performance with submittal requirements, current design criteria, and standard engineering principles and practice.

ATC appreciates the opportunity to be of service. Please call if you have any questions. We can be reached at 303-703-9112.



Respectfully submitted,

**Aldridge Transportation Consultants, LLC**

John M.W. Aldridge, P.E.  
Principal



## INTRODUCTION

This Traffic Impact Study examines the potential impact on traffic that would be caused by the development of an Urban Cottages residential project in Aurora. The red box in Figure 1 shows the site location and the surrounding streets and intersections.



*Figure 1 Site Location and Surrounding Streets and Intersections*

The site is located between S. Havana St. to the west and S. Lima St. to the east. It is on the south side of E. Jewell Ave. The site will be developed with 36 single-family attached homes.

## EXISTING CONDITIONS

**E. Jewell Ave.** is a two-lane Collector roadway. The speed limit is 30 mph. It is developed on the north side with attached sidewalks. On the south side there are no sidewalks and/or curb and gutter.

**Havana St.** is a six-lane Major Regional Arterial. It is a State Highway (SH-30) and categorized as an NR-B. Currently it carries approximately 46,000 AADT and is posted at 45 mph. The CDOT 20-year growth factor is quite low at 1.06 (approximately .3% per annum).

**Lima St.** is a two-lane Minor Arterial. It carries an estimated 2,500 ADT based on data from the DRCOG Regional County Map. It is posted 30 mph.

The intersections of E. Jewell Ave. and Havana St. and Lima St. are traffic signal controlled.

## ACCESS LOCATIONS

Figure 2 shows the access locations. Two full-movement accesses approximately 360 feet apart are proposed. The internal roadway will form a U shape.

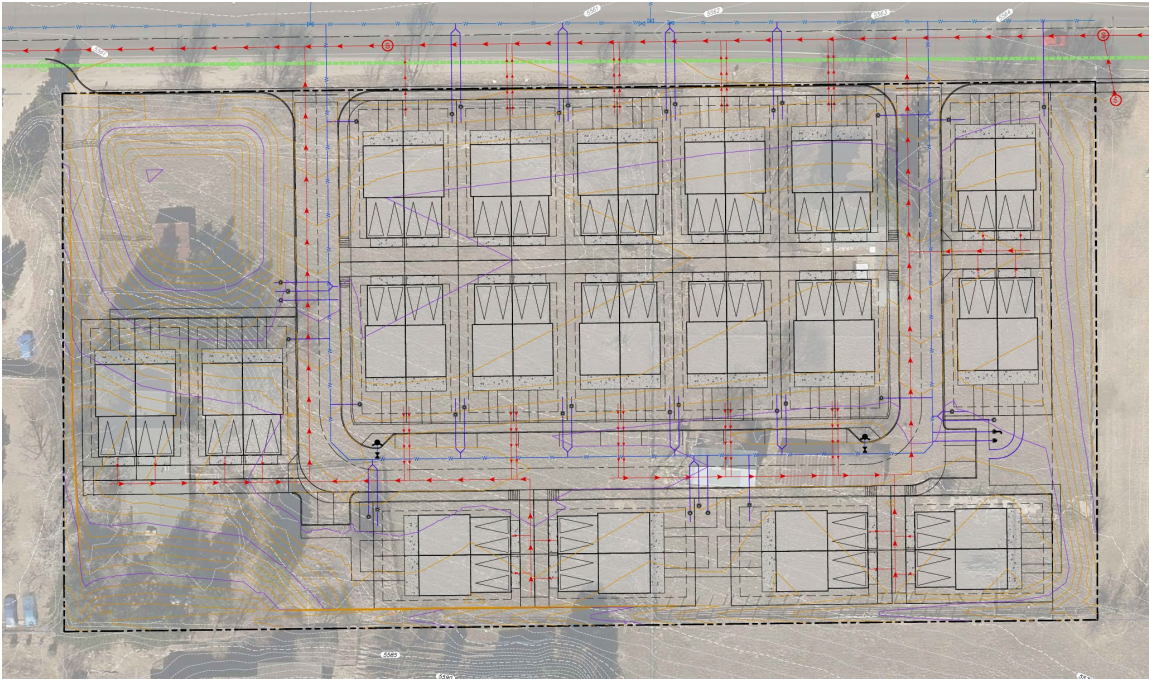


Figure 2 Site Plan and Access Locations

#### LAND USE and TRIP GENERATION

The property will be developed with 36 attached single-family homes. The trip generation rates are from the *ITE Trip Generation Manual, 11<sup>th</sup> Edition*. The following worksheet Table 1 provides the ADT and AM/PM Peak Hour traffic volumes.

Table 1

Trip Generation Worksheet										
ITE CODE	LAND USE	UNIT	QUANTITY	ADT	AM			PM		
					IN	OUT	TOTAL	IN	OUT	TOTAL
215	Single Family Attached	DU	36	7.20	0.15	0.33		0.33	0.25	
				259	5	12	17	12	9	21
Total Trips				259	5	12	17	12	9	21

In accordance with the COA Traffic Impact Study Guidelines, site plans with greater than 75 trips per hour or unusual conditions will qualify for a traffic study or an abbreviated study. This project will generate at its highest 21 trips per hour. Clearly it doesn't qualify for a traffic study or an abbreviated study. Consequently, this traffic letter provides sufficient analyses to determine that the impact of the project is negligible and that any further analysis is not warranted.





#### TRAFFIC DISTRIBUTION & ASSIGNMENT

The trip distribution is expected to be split 25 percent to the east and S. Lima St. and 75 percent to the west and the signalized intersection at S. Havana St. In the AM Peak hour 9 vph will leave headed to Havana and 3 vph to Lima. Incoming 4 vph from Havana and 1 from Lima. In the PM peak hour 9 vph incoming from Havana and 3 from Lima. Outgoing, 7 vph to Havana and 2 vph to Lima.

#### FUTURE TRAFFIC VOLUMES

Based on the CDOT OTIS 20-year growth factor, S. Havana St. will rise from 46,000 AADT to 48,760 AADT. No widening or improvements are necessary to manage the 20-year forecast volume. No growth other than what is generated by the project is expected on E. Jewell Ave.

#### PEAK HOUR INTERSECTION LEVEL OF SERVICE

ATC uses Synchro v.10 for operations analyses. The Synchro methodology is based on the 6<sup>th</sup> Edition of the Highway Capacity Manual (HCM). The HCM states that, *“LOS is used to translate complex numerical performance rating into a simple A-F system representative of the travelers’ perception of the quality of service provided by a facility or service. Practitioners and decision makers alike must understand that the LOS letter result hides much of the complexity of facility performance<sup>1</sup>.”* LOS is a letter rating from A to F. LOS A indicates free-flow traffic conditions and no delay at intersections. LOS F is heavy traffic congestion with significant delay. LOS is provided for the overall operations at signalized intersections. LOS D is generally the benchmark for acceptable signalized intersection operations during the weekday peak hours. The critical movement, not the overall, indicates the LOS rating for unsignalized intersections, which is generally a left turn out from the minor street approach. Caution must be used when evaluating the LOS at unsignalized intersections particularly when LOS F is shown. In case of LOS F, the HCM recommends that other evaluation methods should be considered such as the volume over capacity ratios, the 95<sup>th</sup> percentile queue length, and duration of LOS F to make the most effective traffic control decision<sup>2</sup>. LOS F at unsignalized intersections is typically normal during the weekday peak hours as the duration of the LOS F condition is relatively short.

In this case, however, the site generated volumes are too low to be evaluated meaningfully by the standard procedures including level of service impacts determined by the Synchro traffic operations model.

#### TRAFFIC CALMING

There are a considerable number of traffic calming techniques to address a myriad of traffic related problems including speeding, cut-through traffic, and pedestrian safety. Calming options to reduce speed include, but not limited to, automated speed radar signs, curb extensions, speed humps, roundabouts, chicanes, and raised crosswalks. These vary in effectiveness. Speed humps (cushions, tables, etc.) can be very effective, but also dangerous if not used properly. Automated speed radar signs are only marginally effective and unenforceable.

The city has a Neighborhood Traffic Calming Program that allows neighborhoods to apply for traffic calming program that aims to reduce speeding and cut-through traffic on residential streets and improve the neighborhood’s quality of life. The application requires a neighborhood

<sup>1</sup> HCM version 6, Chapter 5, pages 5-3 – 5-6.

<sup>2</sup> ditto



organization to list the exact location of the concern and to describe issues to be resolved such as speeding, cut-through traffic, problems crossing the street, drivers not obeying regulatory signs, etc. Once an application is received the city has a 10-step process to work with the neighbors, determine eligibility, get support from all affected neighbors, develop cost estimates, identify effectiveness, determine impact on traffic patterns, and identify funding for the implementation of the approved measure.

#### **CONCLUSIONS & RECOMMENDATIONS**

Based on the analysis, traffic from the site can be absorbed by the adjacent streets and intersections and not cause a safety or operational problem. The proposed access locations are the best engineering fit for the parcel's configuration and accessibility to the streets. Sidewalks and curb and gutter per city requirements are recommended on the property frontage.