



## SM ROCHA, LLC

TRAFFIC AND TRANSPORTATION CONSULTANTS

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June 8, 2022

Julie Margetich  
Covenant Real Estate Group  
2044 California Avenue  
Corona, CA 92881

**RE: Airport & Alameda Retail / Traffic Generation Analysis  
Aurora, Colorado**

Dear Julie,

SM ROCHA, LLC is pleased to provide traffic generation information for the development entitled Airport & Alameda Retail. This development is located near the intersection of S Airport Boulevard and E Alameda Parkway in Aurora, Colorado.

The intent of this analysis is to present traffic volumes likely generated by the proposed development, provide a traffic volume comparison to previous land use assumptions approved for the development site, and consider potential impacts to the adjacent roadway network. This analysis is also provided to address City pre-application comments regarding analysis of proposed drive-through lane queueing.

The following is a summary of analysis results.

### **Site Description and Access**

Land for the development is currently vacant and surrounded by a mix of residential, commercial, and open space land uses.

The proposed development is understood to be a part of the overall Buckley Yard commercial development area (Lot 1, Block 2) as previously analyzed within the prepared Buckley Yard Traffic Impact Study<sup>1</sup>. It is understood to entail the new construction of a mixed-use commercial building supporting approximately 2,500 square feet of fast-food restaurant with drive-through, 2,000 square feet of quick-serve restaurant, and 3,000 square feet of medical/dental office space. It is noted that these uses are conceptual in nature with definitive users not currently identified. However, pursuant to the limited building space available and adjacent proposed land uses, it is anticipated that businesses occupying the development site will be smaller name/off-brand users. As such the analysis performed is considered to be conservative with actual traffic impacts being less than indicated.

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<sup>1</sup> Traffic Impact Study: Buckley Yard, Kimley Horn, January 2021.

Primary access to the proposed development area is provided at the following locations: two right-in / right-out accesses onto S Airport Boulevard, one full-movement access onto E Alameda Drive, and one right-in / right-out access onto E Alameda Parkway. Accesses onto E Alameda Drive and E Alameda Parkway are anticipated to be connected via an internal private drive. Internal access specific to the proposed development (Lot 1, Block 2) includes two full-movement accesses located on the northern and southern site access drives between S Airport Boulevard and the internal private drive.

Additional access to the overall Buckley Yard development area is available; however, for analysis purposes it is not anticipated that development site-generated traffic will utilize these alternate access locations.

General site and access locations are shown on Figure 1. A conceptual site plan, as prepared by Wallace Design Collective, is shown on Figure 2. This plan is provided for illustrative purposes only.



Not to Scale



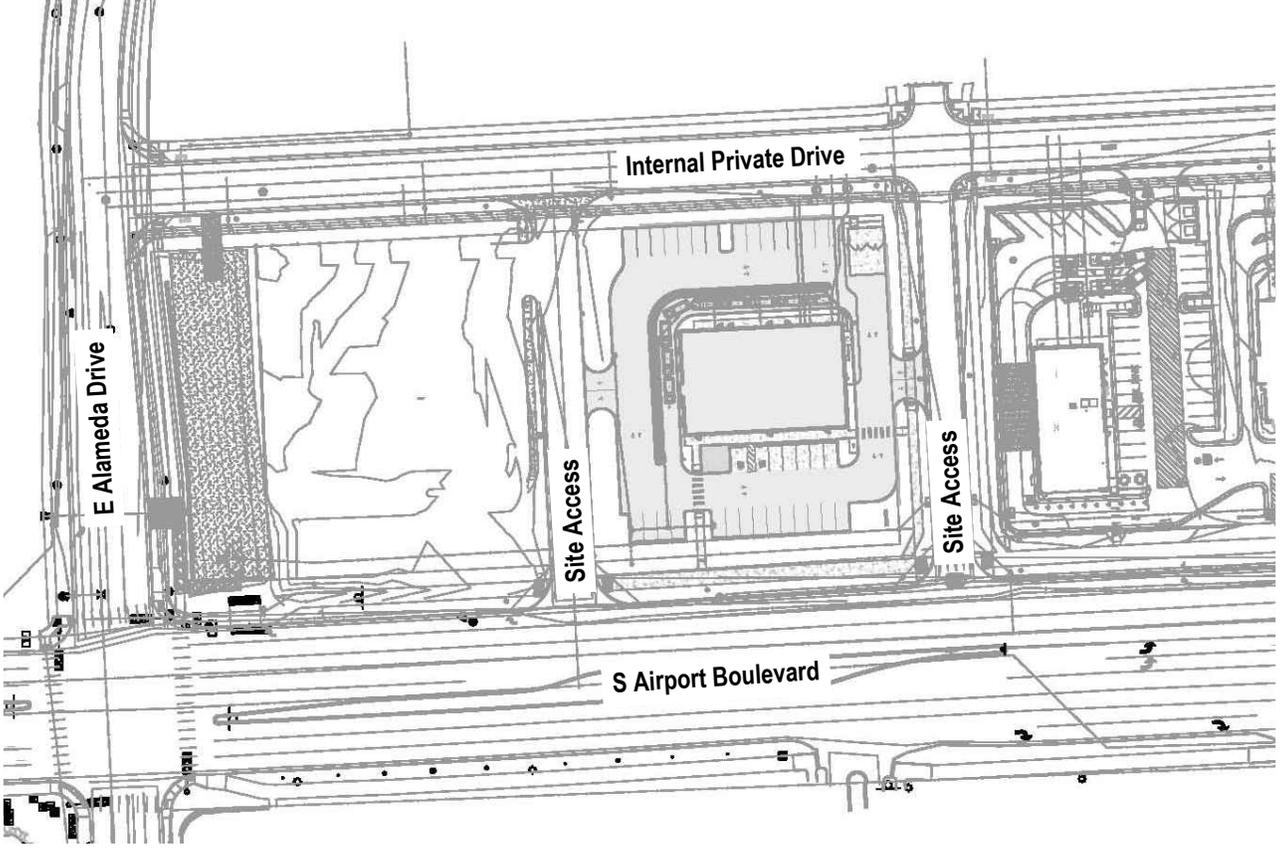
**AIRPORT & ALAMEDA RETAIL**  
Traffic Impact Study

**Figure 1**  
**SITE LOCATION**

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### Vehicle Trip Generation

Standard traffic generation characteristics compiled by the Institute of Transportation Engineers (ITE) in their report entitled Trip Generation Manual, 11<sup>th</sup> Edition, were applied to the proposed land uses in order to estimate the average daily traffic (ADT) and peak hour vehicle trips. A vehicle trip is defined as a one-way vehicle movement from point of origin to point of destination.

The approved traffic study for overall Buckley Yard Development (Lot 4) used trip generation rates from ITE’s Trip Generation Manual, 10<sup>th</sup> Edition and included “Fast-Food Restaurant with Drive-Through” land use in the same development area as currently proposed with this project.

Table 1 presents average trip generation rates for the proposed development area. Use of average trip generation rates presents a conservative analysis. ITE land use codes 720 (Medical-Dental Office), 932 (High Turnover (Sit-Down) Restaurant), and 934 (Fast-Food Restaurant with Drive-Through Window) were used for analysis because of their best fit to the proposed land uses.

**Table 1 – Trip Generation Rates**

ITE CODE	LAND USE	UNIT	TRIP GENERATION RATES						
			24 HOUR	AM PEAK HOUR			PM PEAK HOUR		
				ENTER	EXIT	TOTAL	ENTER	EXIT	TOTAL
720	Medical-Dental Office	KSF	36.00	2.45	0.65	3.10	1.18	2.75	3.93
932	High Turnover Restaurant	KSF	107.20	5.26	4.31	9.57	5.52	3.53	9.05
934	Fast-Food with Drive-Through	KSF	467.48	22.75	21.86	44.61	17.18	15.85	33.03

Key: KSF = Thousand Square Feet Gross Floor Area.

Note: All data and calculations above are subject to being rounded to nearest value.

Table 2 summarizes the projected ADT and peak hour traffic volumes likely generated by the land use area proposed and provides comparison to traffic volume estimates for the previously approved land use.

**Table 2 – Trip Generation Summary**

ITE CODE	LAND USE	SIZE	TOTAL TRIPS GENERATED						
			24 HOUR	AM PEAK HOUR			PM PEAK HOUR		
				ENTER	EXIT	TOTAL	ENTER	EXIT	TOTAL
<u>Site Development - Previously Assumed (Lot 4)*</u>									
934	Fast-Food Restaurant w/ DT	4.0 KSF	1,884	82	79	161	68	63	131
<i>Previously Assumed (Lot 4) Total:</i>			<i>1,884</i>	<i>82</i>	<i>79</i>	<i>161</i>	<i>68</i>	<i>63</i>	<i>131</i>
<u>Site Development - Proposed</u>									
720	Medical-Dental Office	3.0 KSF	108	7	2	9	4	8	12
932	High Turnover Restaurant	2.0 KSF	214	11	9	19	11	7	18
934	Fast-Food with Drive-Through	2.5 KSF	1,169	57	55	112	43	40	83
<i>Proposed Total:</i>			<i>1,491</i>	<i>75</i>	<i>65</i>	<i>140</i>	<i>58</i>	<i>55</i>	<i>112</i>
<b><i>Difference Total:</i></b>			<b><i>-393</i></b>	<b><i>-7</i></b>	<b><i>-14</i></b>	<b><i>-21</i></b>	<b><i>-10</i></b>	<b><i>-8</i></b>	<b><i>-18</i></b>

Key: \* = Trip Generation rates referenced from ITE 10th Edition.  
 Note: All data and calculations above are subject to being rounded to nearest value.

As Table 2 shows, the proposed development area has the potential to generate approximately 1,491 daily trips with 140 of those occurring during the morning peak hour and 112 during the afternoon peak hour. Table 2 further shows how proposed development traffic volumes do not exceed those previously approved in the Buckley Yard (Lot 4) traffic study.

**Adjustments to Trip Generation Rates**

A development of this type is likely to attract pass-by or diverted linked trips from the adjacent roadway system. ITE defines a pass-by trip as an intermediate stop on the way from an origin to a primary destination without a route diversion. Due to this behavior pass-by trips are not considered “new” traffic generated by the intermediate stop since the trips are already present on the roadway network enroute to their primary destination.

Pass-by trips are especially common to fast-food restaurants, drive-through coffee shops, and gas station land uses given the convenience provided by these businesses on the way to another primary destination such as a place of work or home. As example, published ITE pass-by and diverted link trip data indicates a trip generation reduction rate of between 49 percent and 50 percent during the peak traffic hours as typical to fast-food restaurants (ITE land use code 934).

Upon consideration of the proposed land use, and in order to remain consistent with the use of pass-by within the overall Buckley Yard Traffic Impact Study, reductions were applied pursuant to ITE data in order to account for the high probability of pass-by trip generation.

Table 6 illustrates projected average daily traffic (ADT), AM Peak Hour, and PM Peak Hour traffic volumes likely generated by the proposed development upon build-out with reductions applied due to pass-by trips. Average daily (24-Hour) pass-by trip percentages were estimated as the average between the AM and PM peak hour rates indicated by ITE.

**Table 3 – Trip Generation Summary with Pass-By Reduction**

ITE CODE	LAND USE	SIZE	TOTAL NEW TRIPS GENERATED						
			24 HOUR	AM PEAK HOUR			PM PEAK HOUR		
				ENTER	EXIT	TOTAL	ENTER	EXIT	TOTAL
<u>Site Development - Previously Assumed (Lot 4)*</u>									
		<i>Pass-By Trip Reduction:</i>	50%	49%	49%	49%	50%	50%	50%
934	Fast-Food Restaurant w/ DT	4.0 KSF	951	42	40	82	34	31	65
		<i>Previously Assumed (Lot 4) Total:</i>	951	42	40	82	34	31	65
<u>Site Development - Proposed</u>									
		<i>Pass-By Trip Reduction:</i>	0%	0%	0%	0%	0%	0%	0%
720	Medical-Dental Office	3.0 KSF	108	7	2	9	4	8	12
		<i>Pass-By Trip Reduction:</i>	22%	0%	0%	0%	43%	43%	43%
932	High Turnover Restaurant	2.0 KSF	168	11	9	19	6	4	10
		<i>Pass-By Trip Reduction:</i>	50%	49%	49%	49%	50%	50%	50%
934	Fast-Food with Drive-Through	2.5 KSF	590	29	28	57	21	20	41
		<i>Proposed Total:</i>	866	47	38	85	31	32	63
		<b><i>Difference Total:</i></b>	<b>-85</b>	<b>5</b>	<b>-2</b>	<b>3</b>	<b>-3</b>	<b>1</b>	<b>-2</b>

Key: \* = Trip Generation rates referenced from ITE 10th Edition.  
 Note: All data and calculations above are subject to being rounded to nearest value.

Upon build-out and with consideration of pass-by trip reductions, Table 3 indicates that the proposed fast-food restaurant portion of the development has the potential to generate approximately 866 new daily trips with 85 of those occurring during the morning peak hour and 63 during the afternoon peak hour. Compared to the previously assumed land use with pass-by reductions, the proposed development does not present any significant difference in trips generated.

**Vehicle Trip Generation Comparison & Development Impacts**

As Tables 2 and 3 show, the proposed development does not exceed traffic volumes approved for the area in comparison to previously projected volumes of the overall development area. These volumes are not likely to negatively impact operations of S Airport Boulevard, E Alameda Parkway, nor other adjacent roadways or intersections.

## Drive-Through Lane Queue Analysis

Vehicle storage associated with the proposed fast-food restaurant with drive-through land use was evaluated against applicable jurisdiction standards in comparison to the proposed storage capacity.

The proposed site plan currently shows a single drive-through lane condition with capacity for approximately 180 feet or 9 vehicles of total storage assuming a typical vehicle length of 20 feet. Drive-through lanes were measured from the drive-through lane entrance to the pick-up window.

Section 146-4, Table 4.6-7 of the City's Unified Development Ordinance<sup>2</sup> (UDO), requires a minimum drive-through storage length of 7 vehicles, or approximately 140 feet from the pick-up window for fast-food establishments. It is noted that of this queue, at least 4 vehicle spaces must be located before the order board.

A comparison of the above requirement with the proposed site plan concludes that adequate vehicle storage is provided on-site pursuant to the City UDO requirements. It is therefore not anticipated that any negative impacts due to drive-through queues will occur. In the rare event that queues were to exceed the available drive-through lane capacity, additional storage is also available within the parking lot drive aisle. These vehicle queues are not anticipated to interfere with proposed site accesses or internal site circulation.

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<sup>2</sup> Unified Development Ordinance, City of Aurora, August 2019.

## Conclusion

This analysis assessed traffic generation for the Airport & Alameda Retail development, provided a traffic volume comparison to previous land use assumptions approved for the development site, and considered potential impacts to the adjacent roadway network.

It is our professional opinion that the proposed site-generated traffic is expected to create no negative impact to traffic operations for the surrounding roadway network and existing site access and is in compliance with the Buckley Yard Development (Lot 4) Traffic Impact Study. All analysis results presented in the previously study remain valid.

We trust that our findings will assist in the planning and approval of the Airport & Alameda Retail development. Please contact us should further assistance be needed.

Sincerely,

**SM ROCHA, LLC**  
*Traffic and Transportation Consultants*



Stephen Simon, EIT  
Traffic Engineer



Fred Lantz, PE  
Traffic Engineer