



Memorandum

To: Brianna Medema
City of Aurora, Colorado

From: Sean Delmore, PE, PTOE

Date: October 31, 2018

Re: Living Water Car Wash Traffic Letter
WSB Project No. 012509-000



The purpose of this Traffic Letter is to address the trip generation, site circulation, and queue analysis at the Living Water Car Wash site. The proposed Living Water Car Wash site is located in the northwest quadrant of the East Kentucky Drive/ South Havana Street intersection, City of Aurora, CO.

Trip Generation

The existing site is vacant, but there is an existing gas station site to the south of the vacant lot. The site will consist of one car wash tunnel (5,470 square-foot area) and eight vacuum stalls. The proposed car wash site will have access to the existing gas station, as shared-use trips are expected between the sites. The estimated PM peak hour trip generation is based on values from the *Institution of Transportation Engineers (ITE) Trip Generation Manual, 10th Edition*. The AM peak hour rate is assumed to be similar to the PM peak hour trip generation, and the peak hour rates are assumed to be 10% of the daily trip generation rate. **Table 1** shows the trip generation for the proposed site.

Table 1. Trip Generation

PROPOSED LAND USE AND TRIP GENERATION												
Site	Future Use	# of Units	Unit Type	ITE Code/Description	AM Trips			PM Trips			Weekday Trips	
					In	Out	Total	In	Out	Total		
Living Water Car Wash	Car Wash	1	Car Wash Tunnels	948- Automated Car Wash	39	39	78	39	39	78	775	
Trip Reduction (Passerby Trips)					(20)	(19)	(39)	(20)	(19)	(39)	(388)	
TOTAL					19	20	39	19	20	39	388	

The proposed car wash is expected to generate 775 daily trips; however, this number is reduced by 50% to account for passerby trips. 39 new trips are expected in the AM and PM peak hour, and 388 total daily trips are expected to be generated.

Site Circulation Plan

A site circulation plan of vehicular traffic is shown in **Figure 1**. Vehicles will follow a counter-clockwise path around the site and through the tunnel car wash.

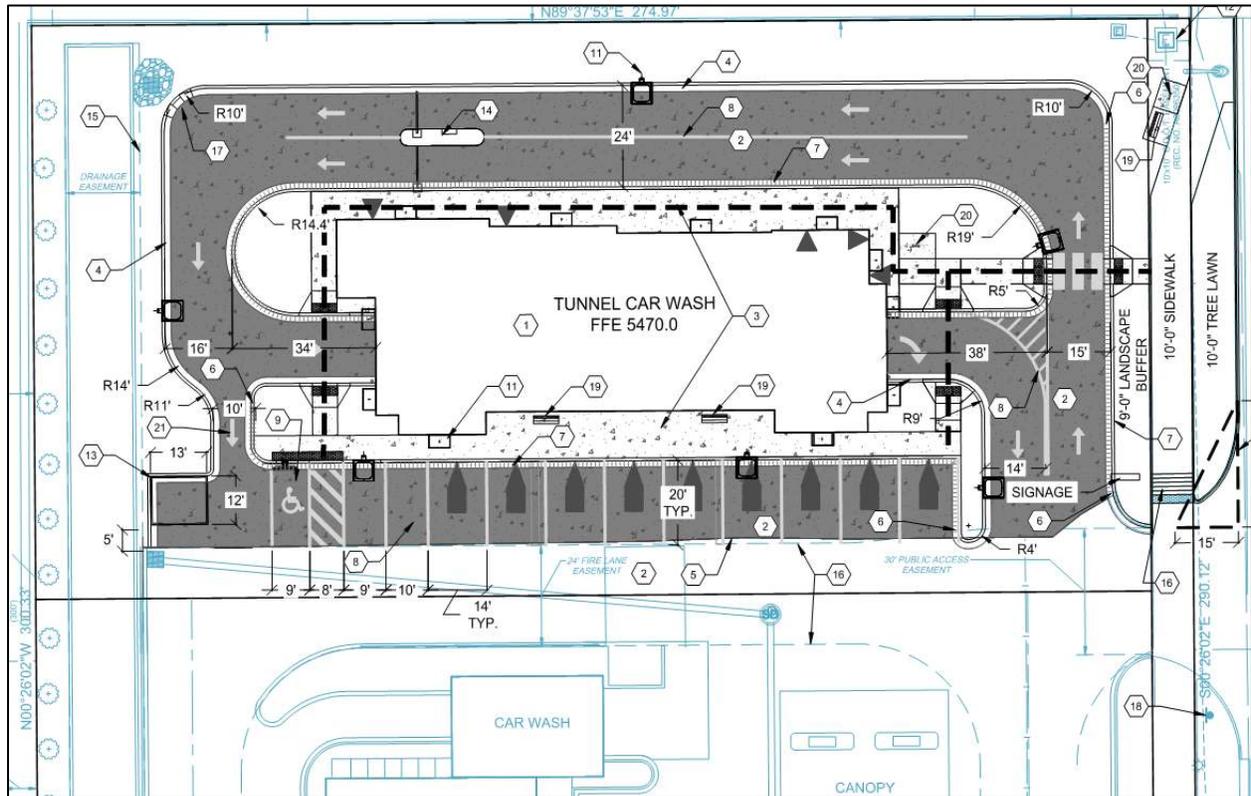


Figure 1. Site Circulation Plan

Queuing Analysis

Within the proposed development, a queuing analysis was completed for vehicles in line for the car wash. Two 12-foot lanes are provided for car wash, each approximately 180 feet in length from the car wash exit radius to the gate at the pay station. The recommended Design Queues presented in *the ITE Summer 2012, Drive-Through Queue Generation, 1st Edition* by Mike Spack is 140 feet or 7 vehicles. The proposed development provides approximately 320 feet or 16 vehicles for storage, which is higher than the recommended design queue for car washes.