



Project Description

Engineering

UCI Samuel

The FAB 4 and RK Engineering will collaborate to study trip generation rates, queuing and vacuum/parking area counts at various express car washes locations in Orange County. With the gathered data, The FAB 4 will design and prepare a conceptual site plan for a new express car wash in Santa Ana. Factors in consideration included project size, zoning, queuing/parking demand. Finally, a Traffic Impact Study (TIS) will be prepared to evaluate the impacts of the project.

Site Location



Figure 1: Project Area Legend: (1) and (2) Study areas intersection affected by project



Figure 2: Zoomed Version of Existing Location (Project Area highlighted)

Address: 1821 N Grand Avenue, Santa Ana CA 92705 (Approximately 1-acre site)

Design Constraints and Parameters

The Site Plan must be designed:

around existing shopping center, entrances and exits \succ to accommodate the average vehicular turning radius and remain accessible for waste disposal vehicles The City of Santa Ana dictates the dimension of the parking areas ► Vacuum Space: 12ft wide

► Other parking Space: 9ft wide

Length for both: 18ft

Considered expanding the site

 \succ to maximize queuing and vacuum spaces



Small

Large

Express Car Wash Site Design and Traffic Impact Analysis The FAB 4 (T2)

Kimberly Cervantes | Michael Torres | An Quoc Tran | Prethy Zaman

Fieldwork: Traffic Counts

In order to design an optimum site plan, The FAB 4 conducted traffic counts: (1) Inbound/Outbound Number of trips (2) Number of Vehicles queue behind the pay station and tunnel entrance (3) Number of vehicles parked at the vacuum/drying stations. Sample Site chosen was Zaroo Express Santa Ana because it was the roughly the same size as our project and was located in the same city.



Design Alternative Elements

	Alternative #1	Alternative #2	Alternative #3
Site	2 Entrances/exits with 20+ angled spaces for vacuuming and parking	2 Entrances/exits located in the NW corner with 15+ spaces for vacuuming and parking	2 Entrances with one exit. Tunnel located in the West side.
Site	1 Entrance/exit with 20+ spaces for vacuums and parking	2 Entrances with one exit located in the NS corner with 15+ spaces for vacuuming and parking	1 Entrance with 2 exits. Office Space located next to the vacuuming area.

Plan for Next Phase

Finalize Conceptual Site Plans Develop trip distribution to further analyze traffic impacts Apply simulation model to further assess new demand and Level of Service (LOS) Cost Estimates

References:

(1) H2Go Express Car Wash – \$6 | 5 Minutes | Eco-Friendly. (n.d.). Retrieved from https://www.h2goexpress.com/?utm_source=H2Go Express Car Wash&utm_campaign=cc0c13019e-Lower_Pricing_Unlimited_Pass_11_2012&utm_medium=email (2) Site selection: Critical in building a carwash. (2018, June 21). Retrieved from https://www.carwash.com/site-selection-critical-in-buildinga-carwash/

08251
188.000 Residential Area



Recommended Alternatives



Small Site

Key Features: \succ One entrance and exit > 20+ angled parking/vacuum spaces

Large Site

Key Features: \succ One entrance and exit Escape Drive (exit) ►20+ angled parking/vacuum spaces

General Information



Winter Design Review 2019 Project Manager: Kimberly Cervantes (<u>kkcervan@uci.edu</u>) Faculty Mentor: Michael McNally Client Consultant: RK Engineering Robert Kahn (<u>rk@rkengineer.com</u>) Bryan Estrada (<u>be@rkengineer.com</u>)