



2300 CURLEW ROAD, Suite 201
PALM HARBOR, FLORIDA 34683
PHONE (727) 789-9500
[AUTH#6139 LB7345]
WWW.AVIDGROUP.COM

Stacking Criteria and Analysis

1. The stacking areas shall have direct access to the service window, station, or pick-up/drop-off location.

The proposed use is a quick service oil change facility. The use does not have a traditional service window. The cars enter the bays from east to west. Once the customer approaches the entry to the bay, employees guide the vehicle into the bay with hand signals. Once in the bay the customer remains in the car and the services are purchased from a pay station inside the bay. The employee finalizes the purchase and then performs a 10-minute oil change. Once completed the customer is then guide out of the west side of the bay.

2. The stacking area shall not included space for any other circulation driveway, parking space, or maneuvering area.

Please see the site plan for clear delineation of maximum expected stacked vehicles. Stacked vehicles are not expected to block drive aisles, parking spaces or maneuvering areas.

3. An escape route from the stacking area for drive-ups is required

The site is proposing full circulation in both directions around the building. Cars will have ample space as an escape route.

4. An escape route for schools and day care facilities is highly recommended.

N/A

5. The stacking area shall be located and of sufficient length so that it will not block traffic circulation within the development during peak queuing periods.

The facility will house three automotive bays, with space for an additional car to be parked at the entrance of the bay for stacking, this allows for 6 cars to stack any given hour, 3 actively being serviced and 3 pending service.

6. An analysis showing the estimated normal peak queue lengths shall be provided with the site plan. The analysis shall be signed and sealed by a professional engineer registered in Florida.

Please see analysis on the next page.



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- 7. Adequate stacking storage to accommodate normal peak queues shall be provided on-site and shall not overflow onto adjacent streets.

The analysis below illustrates the site will have adequate stacking available for the use and not cause overflow into the street/public right of way.

- 8. Due to the great variability of the site conditions and the facility, the stacking location and length shall be reviewed and accepted by the Site Plan Review Committee.

Acknowledged.

Stacking Analysis

The following calculations are based on the peak hour trips acquired from the ITE Trip Generation Manual (11th Edition) and the previously provided Trip Generation Memo. Based on ITE code 941- Quick Lubrication Vehicle Shops the highest trips occur in the A.M. hours with 10.14 trips at peak times, as depicted in Table 1 below. As seen in Table 2 of the next page, the business model provides that oil change service is completed in 10 minutes, this time does not take into account an average of 4 minutes for ordering and finalizing transaction. Based on a time of 14 minutes on average to service a single vehicle, one bay can service 4.16 cars an hour, when divided by the total bays being provided of "3" the average number of vehicles waiting in line is 1.44 vehicles per bay per hour. The site plan depicts one car in the service bay and one car waiting.

Table 1

Description/ ITE Code		ITE Vehicle Trip Generation Rates								
		(peak hours are for peak hour of Generator traffic unless highlighted)								
		Weekday	AM	PM	Pass-By	AM In	AM Out	PM In	PM Out	
Quick Lubrication Vehicle Shop - 941		69.57	10.14	9.42	0%	50%	50%	46%	54%	
Units	Expected Units	Total Generated Trips			Total Distribution of Generated Trips					
		Daily	AM Hour	PM Hour	AM In	AM Out	Pass-By	PM In	PM Out	Pass-By
Independent Variable										
KSF ²	1.730	120	18	16	9	9	0	7	9	0



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Table 2

ON average, how many vehicles will be waiting in line? How long must the average customer wait before beginning their service		
Arrival Rate:	18	customers/hour
Average Service Time:	0.16	hours/customer
Service Time Std. dev.	0.08	hours/customer
Methodology:	$1.00 \text{ (hr)} / (.016+0.08) = 4.16 \text{ cars per bay per hour}$ $18 \text{ peak hour trips} / 4.16 \text{ Cars an Hour} = 4.33$ $4.33 / 3 \text{ Bays} = 1.44$	
Average Customers in Line Per Bay:	1.44	customers
Average Customer Wait:	14	minutes

Prepared by,
 AVID Group

Evan Futch, AICP
 Land Use Planner
 AICP Cert. #: 33810