

Commercial Car Wash Industry Survey Report

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Citizen's Advisory Working Committee**

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Executive Summary

In April 2001, the El Paso City Council recommended to the El Paso Water Utilities/PSB to investigate potential water use restrictions on the professional car wash industry in El Paso, Texas. In response to this request, the General Manager of the El Paso Water Utilities, Mr. Edmund Archuleta, asked that this report be made through the Public Service Board's Public Working Committee. This report will examine the following areas: 1. Water use and Conservation in the Commercial Car Wash Industry; 2. New Car Wash Reclamation; 3. Potential for retrofitting existing Commercial Car Washes; 4. Survey of El Paso Commercial Car Wash Industry; 5. Conclusions and Recommendations.

Water Use and Conservation in the Commercial Car Wash Industry

The steps in a Commercial Car Wash Process are 1. Pre-Soak, 2. Wash, and 3. Rocker - panel & undercarriage, 4. First Rinse, 5. Wax and Sealers, 6. Final Rinse, 7. Air Blowers and 8. Hand Drying. The nozzle size and water pressure is likely to be the most significant water conservation measure that can be taken.

Table 1 - Typical Fresh Water Usage in Conserving (Water Efficient) Car Washes

Freshwater use in GPV	Self-Service	In-Bay Automatic	Conveyor	
			Friction	Frictionless
No Reclaim	15	50-60	65.8	85.3
Separation Only	N/A	30*	34.8	70
Filtration	N/A	8	7.8 - 13.8	16.8 - 31.8

*The 30 gpv is an average arrived at in a water use study performed in Massachusetts (Clark, H., et.al., 1988).

New Car Wash Reclamation

Most reclaimed systems that have been installed are done for the following reasons: 1. Reduce fresh water consumption or sewer discharge, 2. Control water and sewer hookup costs, 3. Meet regulatory demands or some combination of these factors. Since the water cost in El Paso for a car wash varies from about 1 cent to 8.3 cents per vehicle, it is obvious that water savings will not payback enough to offset capital and operating costs of a new car wash reclaimed system. Therefore, the only basis for implementing reclaimed systems for saving water is to meet regulatory requirements for discharge limits to sewers or for mandatory conservation.

Potential for Retrofitting Existing Car Washes

Retrofitting existing professional car washes to include reclaimed systems can range in cost widely. There will be issues concerning adequate space, design, water reclamation equipment, plumbing and electrical. Only one car wash in El Paso was considering the installation of additional reclaimed equipment. The owner stated that it would cost \$28,000 for just the equipment alone, not including installation costs and additional operational and maintenance costs, which could be at least \$50,000.

Survey of El Paso Car Wash Industry

A total of 18 car wash systems were evaluated in the field. The evaluation consisted of interviewing the owner or manager, inspecting the car wash facility, determining the gallons per vehicle amount, and reporting the results.

Table 4 below shows the estimated gallons per vehicle required to wash a vehicle at home by a conservation (hose with shut-off valve) minded customer versus a non-conservation (hose running continuously) mode of operation versus the three types of commercial car washes. The hose flow rate, 10 gpm, for residential is based upon a 5/8" meter size at 50-psi pressure.

Table 4 - Residential versus Commercial Car Wash Use

Duration, minutes¹	Vehicle Size²	Hose Running GPV³ Residential	Hose with shutoff, GPV Residential	Self-Service GPV	Friction Conveyor or In-Bay Automatic GPV	Frictionless Conveyor or In-Bay Automatic GPV
4	Small	40	24	7.5 to 10	30 to 45	67.5 to 75
8	Average	80	48	15 to 20		
12	Large	120	72	25 to 30		

1. Duration of Car Wash Time is based upon the vast majority of customers observed at self-service car washes for each vehicle size.
2. The vehicle size has direct relationship on duration of time for a car wash.
3. The amount of water used at residence is based on a 5/8" size water service at 50-psi water pressure. Note: Higher water pressures will use higher flow rates.

Conclusions

The following conclusions can be made with reasonable certainty:

1. The self-service car washes use from 7.5 gallons to 30 gallons per vehicle (gpv) depending upon the size of the vehicle. The friction type conveyor or in-bay automatic car washes use from 30 to 45 gallons per vehicle regardless of the size of the vehicle. The frictionless type conveyor or in-bay automatic car washes use from 67.5 to 75 gallons per vehicle regardless of the size of the vehicle.
2. The conserving residential car washing use range (24 to 72 gpv) per vehicle was approximately the same range as conveyor or in-bay automatic car washes per vehicle (30 to 75 gpv) but more than the self-service car washes per vehicle (7.5 gpv to 30 gpv). Therefore, the average residential car washing (conserving and non-conserving customers) use per vehicle is likely to be two times higher than the average commercial car wash use per vehicle without any restrictions on commercial car washes.
3. All three types of El Paso Car Washes use approximately the same amount of water per vehicle as reported by the International Car Wash Association Survey Results.
4. Reclamation systems are not cost effective based on water and chemical savings but reclamation systems are usually installed based on discharge limits and/or regulatory

concerns about the need for more water conservation.

5. Of the three types of car wash operations in current practice, the **best practices' type is the self-service type** because it has: 1. The lowest gallons per vehicle use; 2. The lowest land space requirement; 3. The least landscape for watering; and 4. The least maintenance and operational cost. **However, from a customer standpoint, the "best practices" commercial car wash** may be the touchless, or frictionless car wash with full or complete services available but requires more water use per vehicle, more land area, more maintenance and operational cost, than the self service types.
6. There are 58 professional car washes listed in Table 5 taken from the El Paso Water Utilities database of which 35 are self-service and 23 are In-Bay automatics and Conveyor types. During 2001, these car washes were billed for **95,042 ccf of water or 71,091,416** gallons of water which represents **0.18%** of the total billed water. The total residential and commercial car wash use is about **0.8%** of the billed water consumption.
7. It is estimated that 2.1 million car washes are occurring annually at commercial car washes, which are about 35% of the total car washes. According to the national survey results, El Paso's commercial car wash impact is in the middle of the range from 30% to 40%.

Recommendations

The following recommendations are made with the intent that they are necessary and can be reasonably implemented by the El Paso Water Utilities and the Commercial Car Wash Industry:

Existing Condition

1. During non-emergency water supply periods, the existing three types of El Paso Car Washes use approximately the same amount of water per vehicle as reported by the International Car Wash Association Survey Results and average about 1/2 of the amount per vehicle as residential car washing.

New Construction Condition

2. Construction of all new commercial car washes should be limited to 50 gallons per vehicle before approval of service by the Public Service Board.

Stage 1 and 2 El Paso Water Utilities Drought Water Emergency Management Plan

3. During a Stage 1 or 2 of El Paso Water Utilities Drought Water Emergency Management Plan, there should be strict enforcement of the use of shut-off valves during a car wash by residential customers.
4. During a Stage 2, it is recommended that commercial and residential car washing voluntarily reduce their use up to 50% or to less than 30 gallons per vehicle.

Stage 3 El Paso Water Utilities Drought Water Emergency Management Plan

5. It is reasonable to ban residential car washing during Stage 3 because their average water use per vehicle is more than 2 times the recommended commercial car wash use during Stage 3.
6. During Stage 3, it is recommended that the maximum amount of water use per vehicle at a

commercial car wash should be less than 50 gallons per vehicle (without reclaimed water). It is anticipated that all self-service car washes would be able to meet this requirement. Friction In-Bay Automatics and Friction Conveyor Car Washes could reduce water consumption to less than the 50 gallons per vehicle limit with little or no changes but some frictionless Car Washes will have to make changes in nozzle sizes and washing times to comply.

7. During Stage 3, only commercial car washes using less than 50 gallons per vehicle should be able to operate, these car washes will be certified by the El Paso Water Utility's Conservation Department.
8. It is recommended that the necessary water savings during Stage 3 should be at least 50% of the total residential and commercial car wash use (**150+ million gallons per year or 410,000 gallons per day**).