

Yakima Car Wash Wastewater Education and Outreach (E&O) Effectiveness Study



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Study Goal

The goal of the study was to evaluate the effectiveness of an education and outreach (E&O) program. The evaluation was used to meet a Municipal Separate Storm Sewer System (MS4) Permit (Permit)-required evaluation of a stormwater management program element (S8 Monitoring and Assessment) and of an E&O program (S5.B.1.b). To meet the permit requirements, a new E&O program was developed for the City of Yakima. The E&O program was developed to increase residents' awareness about the impacts of car wash wastewater on water bodies and to promote behavior change, specifically, using car washing best management practices (BMPs) can reduce that impact. This focus was selected because City staff have observed residents washing their cars outside of their home and allowing car wash wastewater to reach the storm drain. Runoff entering the storm drain is typically not treated before discharging to water bodies and can contain pollutant loadings that are detrimental to water quality and aquatic life. The effectiveness of the E&O program developed to address this issue was based upon whether a change in awareness and adoption of targeted behaviors (adoption of preferred car washing BMPs) by the City of Yakima residents was measured during the study.

Study Description

The City of Yakima developed the E&O program to target car washing behaviors of residents who drive one or more vehicles (target audience). The study took place in the City of Yakima as shown in Figure 1 and data was collected from residents throughout Yakima County. Three neighborhoods were targeted for the study (target neighborhoods) because car washing behaviors had been observed at the residences by City staff. The targeted neighborhoods received post cards and doorknockers (brochures) to advertise the survey and increase awareness of preferred car washing BMPs, respectively. These neighborhoods were also selected to collect observational drive-by data.

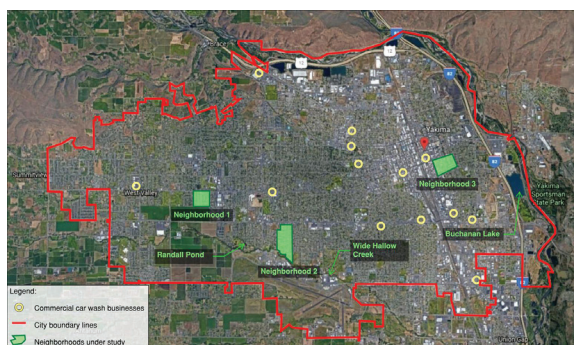


Figure 1: City boundary and approximate locations of three target neighborhoods.

Measurement of awareness and adoption of targeted behaviors occurred by comparing survey data collected before and after the E&O program was implemented in Yakima. Survey responses provided insight of residents' understanding of the impacts of car wash wastewater discharges to water bodies, use of preferred car washing BMPs and non-environmentally friendly practices, and barriers preventing the BMPs from being adopted. The survey was developed and made available to residents through SurveyMonkey® from August 2021 to the end of October 2021 and the E&O program was deployed in mid-August to early October 2021. Responses to a specific question in the survey were used to determine whether respondents had seen the E&O program materials (defined as after implementation of the E&O program) or not seen the E&O program materials (defined as before implementation of the E&O program).

Observational data and commercial car wash usage data were collected to verify the results of the survey. Staff attempted to gather observational data via drive-by visits through three target neighborhoods on two weekends prior to the survey being made available (late July 2021) and on two weekends near the end of the survey (late October 2021). During the drive-by visits, insufficient observations were collected to verify the results of the survey. In an attempt to supplement the observational data, commercial car wash locations in Yakima were contacted to request car wash usage data, to determine if residents were using commercial car washes more frequently (one of the preferred car washing BMPs) and out of the five businesses contacted, one responded.

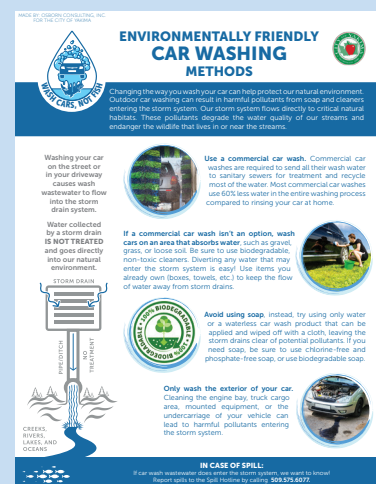


Figure 2: Flyer



Figure 3: Social Media Survey

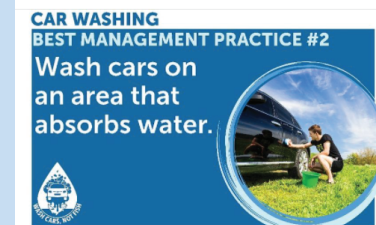
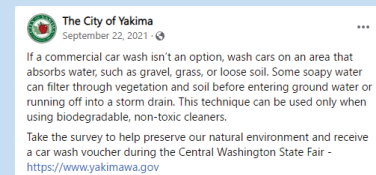


Figure 4: City of Yakima Social Media Post

E&O Program Description

The E&O program implemented during the study included distributing E&O materials to three specific neighborhoods, at the Central Washington State Fair, and through social media. The E&O materials included flyers (Figure 2 on page 1), public relations via social media (Figure 3 and Figure 4 on page 1), postcards, doorknockers (brochures), tote bags, hand sanitizer pens, and towels. The materials were used to inform residents about preferred car washing BMPs and advertise the online survey. The preferred car washing BMPs included use a commercial car wash; wash car on grass or gravel; use biodegradable or environmentally friendly soap; and contain soap spills immediately or call spill control hotline in the event of a soap spill.

Results and Recommendations

Measure adoption of targeted behaviors by the target audience

A statistically significant change in awareness or adoption of targeted behavior was not measured during the study, except for a decrease in use of commercial car washes and a decrease in awareness of at-home car washing BMPs. The decrease in use of commercial car washes may be attributed to a national market trend caused by COVID-19 impacts. Insufficient data was able to be collected in the City of Yakima to determine whether the national trend was occurring in Yakima. The decrease in use of commercial car washes, along with the decrease in awareness of at-home car washing BMPs is likely due to the lower than expected number of survey responses received. The survey responses received are a representative subset (sample) of the target audience (City of Yakima residents), and a higher sample size corresponds with a higher confidence that the survey responses received accurately represent the target audience. The decrease in use of commercial car washes and awareness of at-home car washing BMPs likely indicates there was a difference between the samples collected before and after the E&O program (one or both of the samples may not have fully captured the awareness and adoption by the target audience) and does not necessarily indicate that there was an actual decrease in awareness or adoption.

Develop recommendations based on the study findings and use the recommendations to revise and implement a modified E&O program

Based on the results of the study, recommendations have been developed to direct on-going E&O efforts in future years. The recommendations focused on increasing the reach of the E&O program to the general public, increasing the reach of the E&O program to Spanish-speaking communities, improving the E&O program messaging and materials, and improving general survey response rate if surveys are used to collect data in future years. These improvements are intended to increase the awareness and adoption of preferred car washing BMPs, as well as improve the confidence/quantity of any data collected. Two of the recommendations for the project are included in Table 1 below.

Table 1: Two Project Recommendations

| Recommendation | Methods |
|--|--|
| Send E&O materials with utility bill. | E&O materials could be included as an insert with the utility bill, or link to a website with electronic versions of the E&O materials. |
| Post E&O materials to webpage to serve as reference material for the general public. | E&O materials, such as the brochure or flyer, could be posted on the City's website or another organization's website to reach a wider audience. |

THE FACTS

Changing the way you wash your car can help protect our natural environment.

Outdoor car washing has the potential to result in high loads of nutrients, dirt, metals, and hydrocarbons as the detergent-rich water used to wash the grime off our cars flows down the driveway and the street and into the storm drain.

These pollutants degrade the water quality of our streams and endanger the wildlife that lives in or near the streams.



Figure 5: Excerpt from Brochure

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