MISSION STATEMENT: TO PROVIDE A SAFE, HEALTHFUL AND SOUND ECONOMIC ENVIRONMENT, PROGRESSIVELY ENHANCING OUR QUALITY OF LIFE

COUNCIL MEETING AGENDA
CITY COUNCIL – CITY OF ONTARIO OREGON
TUESDAY, SEPTEMBER 15, 2020, 6:00 PM, MT

Pursuant to the Public Meetings Laws and Rules within the Oregon Revised Statutes, the City Council has the authority, ability, and standing to take action on any items on the Agenda, or add items to the Agenda, during the Study Session or Regular Meeting, as long as all public meeting notice requirements have been met.

1) CALL TO ORDER

Roll Call: Freddy Rodriguez _____ Marty Justus _____ Ramon Palomo _____ Dan Capron _____
Michael Braden _____ Norm Crume _____ Mayor Riley Hill _____

2) PLEDGE OF ALLEGIANCE

This Agenda was posted on September 11, 2020. Copies of the Agenda are available from the City Hall Customer Service Counter and on the city's website at www.ontariooregon.org.

3) MOTION TO ADOPT THE AGENDA

4) PUBLIC COMMENTS Citizens may address the Council; however, Council may not be able to provide an immediate answer or response. Out of respect to the Council and others in attendance, please limit your comment to three (3) minutes. Please state your name and city of residence for the record.

5) CONSENT AGENDA

A) Minutes:
08-06-2020 City Council Meeting
08-18-2020 City Council Meeting

6) NEW BUSINESS

A) Resolution #2020-135: Sewer Service Rates for Car Washes

7) DISCUSSION ITEMS

A) Resuming Utility Shutoff Discussion
B) Merchant McIntyre Grant Services
C) Ontario Fire Department and Ontario Rural Fire Protection District
D) Corona virus Relief Fund Budget

8) HAND-OUTS

A) Check Register August 1 - Sept. 9, 2020
B) Minutes: County Court - 08-26-2020; 09-02-2020

9) CORRESPONDENCE, COMMENTS AND EX-OFFICIO REPORTS

10) EXECUTIVE SESSION

A) ORS 192.660(2)(h)
B) ORS 192.660(2)(d)

11) ADJOURN

The City Council may recess/adjourn to Executive Session under ORS 192.660(2) as follows: (a) Employment of Public Officers, Employees, or Agents; (b) Discipline of Public Officers, Employees, or Agents; (d) Labor Negotiations; (e) Real Property Transactions; (f) Exempt Public Records; (g) Trade Negotiations; (h) Litigation /Consult with Legal Counsel; (i) Performance Evaluation of Public Officers and Employees; (j) Trade Negotiations; and/or (l) Labor Negotiations.

The City of Ontario does not discriminate in providing access to its programs, services and activities on the basis of race, color, religion, ancestry, national origin, political affiliation, sex, age, marital status, physical or mental disability, or any other inappropriate reason prohibited by law or policy of the state or federal government. Should a person need special accommodations or interpretation services, contact the City at 889-7684 at least one working day prior to the need for services and every reasonable effort to accommodate the need will be made.

CITY COUNCIL WORK SESSION MINUTES
August 6, 2020

The scheduled Work Session of the Ontario City Council was called to order by Mayor Riley Hill at 6:00 p.m. on Thursday, August 6, 2020, in the Council Chambers of City Hall. Council members present in person or attended via telephone were Riley Hill, Dan Capron, Norm Crume, Michael Braden, Freddy Rodriguez, and Ramon Palomo. Marty Justus was out.

Members of staff present in person or via telephone were Adam Brown, Tori Barnett, Dan Cummings, Terry Leighton, Peter Hall, Steven Romero, Kari Ott, Dan Beaubien, Dallas Brockett, and Rick Reyna.

The meeting was recorded, and copies are available at City Hall.

Mayor Hill led everyone in the Pledge of Allegiance.

AGENDA

This Agenda was posted on August 4, 2020. Copies of the Agenda are available from the City Hall Customer Service Counter and on the city's website www.ontariooregon.org.

CRUME moved, CAPRON seconded, **TO ADOPT THE AGENDA AS AMENDED.** Roll call vote: Rodriguez-yes; Justus-out; Palomo-yes; Capron-yes; Braden-yes; Crume-yes; Hill-yes. Motion carried 6/0/1.

CONSENT AGENDA

CRUME moved, CAPRON seconded, **TO ADOPT THE CONSENT AGENDA, WHICH INCLUDED THE WORK SESSION MEETING MINUTES OF JULY 9, 2020.** Roll call vote: Rodriguez-yes; Justus-out; Palomo-yes; Capron-yes; Braden-yes; Crume-yes; Hill-yes. Motion carried 6/0/1.

PUBLIC COMMENT

Chris Artiach, Ontario: He just received approval for the first, annual Local Law Enforcement Torch Run, Special Olympics – Idaho, and now it was going to change to Eastern Oregon. On Saturday, October 3rd, at Scotch Pines Golf Course, he wanted to hold a golf tournament for local law enforcement agencies from Idaho and Eastern Oregon. He wanted to bring about unification. He was going to approach the marijuana dispensaries and associates and have them assist with the other businesses in the community to sponsor and donate to this golf tournament. He had gold medal sponsors already for $2,500 or more, and silver sponsors for $1,500, and bronze medals for $750. The tournament would be 4-man best ball and each team could either pick their own players, and it should be of police offices, dispensary workers, and an athlete from the Special Olympics. His goal was to make this one community, so they'd need to be one team. All he saw now was only vision, but no unification, with a whole lot of he said, she said situations. His goal was to make this an annual event to bring the community together. He intended to have a live auction, a long-drive contest, putting contest, closest-to-the-hole contest, live music, and plenty of food. He was there extending an invitation to them all to participate. All these communities needed to come together, and this seemed like a good first step. Thank you.

OLD BUSINESS

Code Enforcement: Update and Complaint Status

Steven Romero, Police Chief, presented. At the previous Council meeting, it had been discussed the potential options on how to move forward with Code Enforcement abatement policies, how abatements were conducted, who was used for abatement. It was his understanding that the Council, the City Manager, and the Police Chief would have some additional discussions regarding what they'd like to see out of Code Enforcement in the future.

Currently, he had tasked Code Enforcement with doing an analysis of the current practices and policies, include local and state ordinances, to draft a new proposal and methodology on how to operate Code Enforcement abatement actions. He received a preliminary draft of new abatement guidelines and recommendations. That report had been forwarded to the City Manager. He hoped to provide a clean, final draft to the Council, for review very soon. He believed some of the recommendations included adjusting the fines, putting a ceiling on fines, who was used for the abatement actions, and a matrix on how to gauge appropriate civil penalties on the violators. As the Council was aware, there were chronic violators, first-time violators, and hardship violators. They could not use a cookie-cutter approach. Each scenario had to be reviewed on an individual basis to make a good determination on getting that property into compliance, and how to achieve long-term compliance to avoid dealing with the same properties over and over.

Staff had restructured the violation table as to what constituted the three different levels of violations for ordinance violations, which were low-risk, moderate-risk, and high-risk. There was a matrix being developed to determine what the risk factor was based on the violations and those would then be matched to the appropriate civil penalty amount, based on the conditions that existed, and that was scalable, which should make the decision a bit easier for the Council as to what direction to move. This draft incorporated the local and state regulations, but they were also basing it off the City of Salem model.

Last month there were 278 open cases. About 75% of those cases had remained open for a substantial amount of time, which was a month or longer. He tasked the two Code Enforcement Officers with finding a solution on how to reduce the amount of open cases without ignoring the problem. He encouraged them to experiment with different approaches for conducting abatement actions against properties. They were driving in mapped areas, taking pictures, and taking information. Another approach had been to split the city in half, with one Officer working one section while the other worked the other section, to see how much ground could be covered. One focused on identifying and documenting the problem, and the other focused on cleaning up the problem. The biggest success had been in using the old approach of communication. It was his belief that this month, the city had collected $12,000 in civil penalties on properties that had been habitually difficult to bring into compliance or pay their penalties. In addition, another $11,000 had been collected over the past two weeks. This was due to the Officers reaching out and making contact, working with people on the abatement problems. Properties were being cleaned up and penalties were being paid. It was a work in progress, but they would develop the perfect model.

Councilor Capron stated he had reported a couple issues in his own neighborhood, and they had both been taken care of, so he wanted to personally thank Officers Brockett and Reyna for whatever they did to make that happen.

NEW BUSINESS

Bid Award: Taxiway and Hold Apron Construction at Ontario Airport

Dan Beaubien, Airport Manager, presented.

CAPRON moved, CRUME seconded, **THE CITY COUNCIL PRE-APPROVE THE CONSTRUCTION BID FOR BEUS CONSTRUCTION AS PRESENTED, PENDING FAA FUNDING.** Roll call vote: Rodriguez-yes; Justus-out; Palomo-yes; Capron-yes; Braden-yes; Crume-yes; Hill-yes. Motion carried 6/0/1.

DEPARTMENT HEAD UPDATES

Financial Monthly Report *(Attached)*
Kari Ott, Finance Director, presented.

Public Works Quarterly Report *(Attached)*
Kevin Mullin, Jacobs Operations Specialist, presented.

DISCUSSION ITEMS

Cultural Designs *(Attached)*
Adam Brown, City Manager, presented. Consensus (4/2/1) to move forward with the design as presented. Councilor Crume and Mayor Hill against. Councilor Justus out.

Lagoons Dredging and Side Spreader
Kevin Mullins, Jacobs Operations Specialist, stated as they moved forward, they were recommending amending the bid to ask for the inclusion of spreading in the bid price, and that the purchase of the spreader be tabled.

Virtualization and Recording of Council Meetings
Adam Brown, City Manager, presented. Staff had been experimenting with recording over the previous meetings, and he had been on several conference calls just this past week because that was the new order of business due to Covid. Staff would like to automate the audio/visual system in the Council Chambers, and he wanted to use the contractor that had been doing the audio/visual work for staff over the past two meetings. He'd like to have him assist in the design and build of a new system. There was a pot of money from the state that was used for Covid-related items, and it would run around $40K to replace the existing system and make it all automated. The city could not afford to have a videographer on site every time, but the money being worked with had $330K, so there was enough.

Stepping away from the audio/visual issue for a moment, within that pot of money, they could also help businesses. There were businesses on the buffer line of 50% which was the number to be eligible to apply for programs and assistance, and some were just a bit under that threshold, so there was a group that was going to meet and create a program from that same pot of money to assist those businesses there were just on the cusp of making the eligibility cutoff.

However, for the current issue at hand, the audio/visual, he was seeking approval to move forward with replacing the equipment. The funds had to be expended by December 31, 2020, or they were returned to Washington. This would constitute a new contract that would be brought before Council for approval.

Geof Hill, (currently videoing the meeting) stated the environment they were working with was completely different in that there were multiple live microphones all at the same time. Every mic was functioning simultaneously. When a call came in, in order for the Council to hear it, he had to manually mute that, but on Zoom that was automatic. Ideally, everyone would be wearing earphones, but they were not going to do that. They had to come up with a balance between what came out of the speakers when the call came in and what was heard. He was manually muting it so it didn't echo. Regarding the remote callers, the reason they were not seen was because they were not turning their cameras on. As he sat there in master control, the only person who had the camera on was the Finance Director. It worked okay, but on her side, he could see the stats and see what the bandwidth was doing, and she didn't have sufficient bandwidth so the Council would hear the audio artifacting. But if she had a cleaner signal, kt would have come in nice and clear. Everyone else had their cameras turned off. The city could do nothing about those who called in but could only provide the best from City Hall. However, they could work to improve the system for staff. For the public at large, they couldn't do anything for them.

Consensus (6/0/1) to move forward with the project, not to exceed the $330K. Councilor Justus out.

HAND-OUTS

Department Stats: *(Attached)*
Fire & Rescue Jul 2020
Public Works Jul 2020
Police Jul 2020
Code Enforcement Jun 2020
Code Enforcement Jul 2020
Code Enforcement 2nd Quarter

Minutes: *(Attached)*
County Court 07-15-2020

CORRESPONDENCE, COMMENTS AND EX-OFFICIO REPORTS

Councilor Crume reported that he and the City Manager had attended the last Airport Committee meeting, and the majority of the talk was over the fuel delivery issue. It became a heated discussion among a few members, or one member, really, and rightfully so. He was able to express a situation that his normal daily business put him in to where having one fueling station was not going to work. It was made clear to all of them. The FBO agreed and stated that he wanted no part of dealing with fueling the ag operation because he couldn't. It was up to the Council to develop a new formula on what to do. It might end up being what was already in place in that anybody that was going to pump fuel out there would have to have all the safety requirements, along with a contract with the city stating they were taking care of all those things and would be paying flowage fees. The City Manager created a mini committee with the people out there who were involved, and with the people running the aerial application businesses, which would begin next month. They'd put it all together and bring it back for discussion and recommendation. The arguments brought everything into the open, so it really was beneficial.

ADJOURN

CAPRON moved, RODRIGUEZ seconded, **THAT THE MEETING BE ADJOURNED**. Roll call vote: Rodriguez-yes; Justus-out; Palomo-yes; Capron-yes; Braden-yes; Crume-yes; Hill-yes. Motion carried 6/0/1.

ACCEPTED: **ATTEST**

_____ _____
Riley J. Hill, Mayor Tori Barnett, MMC, City Recorder

CITY COUNCIL MEETING MINUTES
August 18, 2020

The scheduled meeting of the Ontario City Council was called to order by Mayor Riley Hill at 6:00 p.m. on Tuesday, August 18, 2020, in the Council Chambers of City Hall. Council members present in person or via telephone were Riley Hill, Dan Capron, Norm Crume, Michael Braden, Marty Justus, and Freddy Rodriguez. Ramon Palomo joined the meeting at 6:04 p.m.

Members of staff present in person or via telephone were Adam Brown, Tori Barnett, Peter Hall, Terry Leighton, Kari Ott, Dan Cummings, and Steven Romero, and Larry Sullivan.

Mayor Hill led everyone in the Pledge of Allegiance.

AGENDA

This Agenda was posted on August 14, 2020. Copies of the Agenda are available from the City Hall Customer Service Counter and on the city's website www.ontariooregon.org.

CRUME moved, CAPRON seconded, **TO ADOPT THE AGENDA AS PRESENTED.** Roll call vote: Crume-yes; Rodriguez-yes; Palomo-out; Justus-yes; Capron-yes; Braden-yes; Hill-yes. Motion carried 6/0/1.

Councilor Ramon Palomo joined the meeting at 6:04 p.m.

PUBLIC COMMENT

Chris Artiach, Ontario, stated: *Like I told you guys before, I want to do stuff for my community and on my own. I told you about having a golf tournament that's coming up with Special Olympics and our local law enforcement agencies. I've done something that hasn't been done with Special Olympics. I got to unite two states to make one team. Not only now is it Special Olympics, Idaho, now it's Special Olympics, Idaho/Eastern Oregon. For my golf tournament, I got to bring in a national organization to help with that, and that is the Law Enforcement Torch Run for Special Olympics. They'd be helping us. I need to highlight Eastern Oregon because we have to go to Idaho, unfortunately, I have to win Olympic medals for Idaho, and I can't do it for Eastern Oregon. I'd like to invite you guys to all be a part of it, to help me show these people Eastern Oregon. Me and the Chief are actually trying to do something even better than that. We want to have a citywide for all the different places in the city, state works, government, a golf tournament just for them, for Eastern Oregon, here, in our community, not only to join us, to highlight the only golf course we have in this area since we don't' have our other one, and maybe help them out a little bit. Just have fun and play golf! Thank you.*

CONSENT AGENDA

CAPRON moved, JUSTUS seconded, **TO APPROVE THE CONSENT AGENDA, WHICH INCLUDED THE COUNCIL MEETING MINUTES OF JULY 21, 2020; THE MICRO LOAN/GRANT – ONTARIO POKER ROOM; AND HANGAR LEASE TRANSFER: KATARIINA TEUFEL AND VILLE LIERAMA (373 ALPHA).** Roll call vote: Crume-yes; Rodriguez-yes; Palomo-yes; Justus-yes; Capron-yes; Braden-yes; Hill-yes. Motion carried 7/0/0.

NEW BUSINESS

Resolution #2020-133: Appropriating Funding for the Emergency Purchase of Radio Equipment
Kari Ott, Finance Director, presented.

CAPRON moved, PALOMO seconded, **THE CITY COUNCIL APPROVE RESOLUTION #2020-133: A RESOLUTION APPROPRIATING FUNDING FOR THE EMERGENCY PURCHASE OF RADIO EQUIPMENT.** Roll call vote: Crume-yes; Rodriguez-yes; Palomo-yes; Justus-yes; Capron-yes; Braden-yes; Hill-yes. Motion carried 7/0/0.

PUBLIC HEARING

Ordinance #2778-2020: An Ordinance Amending the City of Ontario Comprehensive Plan and Zoning Map and Annexation and Rezone of a Parcel of Land from UGA Commercial to City Light Industrial (I-1) being located at 833 SW 30th Street, on Second and Final Reading by Title Only
It being the date advertised for public hearing on the matter of Ordinance #2778-2020, the Hearing was declared open. There were no objections to the city's jurisdiction to hear the action, no abstentions, ex-parte contact, and one declarations of conflict of interest.

Councilor Justus declared a Conflict of Interest and stepped down from the Council dais.

Dan Cummings, Community Development Director, presented.

The Hearing was opened for public testimony. Opponents: None. Proponents: None. There being no Proponent and no Opponent testimony, the Hearing was closed.

CRUME moved, CAPRON seconded, **THAT THE CITY COUNCIL ACCEPTS THE RECOMMENDATION OF THE PLANNING COMMISSION AND THE FINDINGS OF FACTS AS OUTLINED IN THE ATTACHMENT #1 APPLICATION NARRATIVE FOR THE ANNEXATION OF THE SUBJECT PROPERTIES INTO THE CITY OF ONTARIO, AND THE REQUEST FOR REZONE OF THE SUBJECT PROPERTIES FROM UGA COMMERCIAL TO CITY LIGHT INDUSTRIAL (I-1), AS SET FORTH IN ACTION 2020-06-23 CPAMD, THAT THE CITY COUNCIL APPROVE ORDINANCE #2778-2020 AN ORDINANCE AMENDING THE CITY OF ONTARIO COMPREHENSIVE PLAN AND ZONING MAP AND ANNEXATION AND REZONE OF A PARCEL OF LAND FROM UGA COMMERCIAL TO CITY LIGHT INDUSTRIAL (I-1) BEING LOCATED AT 833 SW 30TH STREET, OWNER IS 883SW30TH, LLC, PLANNING ACTION 2020-06-23 CPAMD, ON SECOND AND FINAL READING BY TITLE ONLY.** Roll call vote: Crume-yes; Rodriguez-no; Palomo-yes; Justus-abstain; Capron-yes; Braden-yes; Hill-yes. Motion carried 4/1/0/1.

Councilor Justus returned to his seat at the Council dais.

HAND-OUTS

Check Register: *(Attached)*
Jul → Aug 13, 2020

Minutes: (*Attached)*
County Court: 07-20-2020; 08-05-2020

CORRESPONDENCE, COMMENTS, AND EX-OFFICIO REPORTS

- Adam Brown stated he was seeking representation from the Council, someone with experience with home development needs, to assist on the Housing Needs Analysis. Staff thought either the Mayor or Councilor Justus would be an asset.

  Mayor Hill stated he would be willing to look at the parameters, provided it wouldn't create a conflict.

Councilor Justus stated he'd be happy to work with the Mayor on the project.

- Adam Brown: stated the Rural Fire Board led to arbitration yesterday. The Judge remanded it back to mediation on Monday. The Judge asked that the city be represented because the city has the contract with the Rural Fire Department. The Judge felt it wouldn't be fair to have that conversation without city representation. The City Attorney stated it would be could if the Council gave authority to the City manager to represent the City of Ontario in this mediation. It wouldn't be a voting roll; it would be talking about the city's expenses and possible future expenses going forward with the Rural District and SRCI.

  Mayor Hill asked if Mr. Brown would put together, or with the help of the Fire Chief, what the city's expenses were?

  Mr. Brown stated yes, he and the Chief would look into the costs moving forward, anticipating both reoccurring personnel costs and capital costs.

  Council consensus to have the City Manager represent the City of Ontario during this action.

- Mayor Hill stated the $2.5M for BLM – what was that status?

  Mr. Brown stated he reached out to the Denver BLM office, who was controlling the funds, and he was waiting to hear back from them. He would continue to call until he received an answer. He also spoke with the local office in Vale, as well as the regional office, and also initiated conversations with the state. There was a meeting set for Wednesday to discuss the financing program for the project. It went well with the rezoning for the half street that they would be responsible for. Airport Way was going to end with the development if it was on the eastside.

- Councilor Rodriguez stated he hadn't hear anyone speak about it since Covid started, and it had been discussed, but it was pretty much statistically proven that the Malheur County population of 30,000, which was still the county in Oregon, he believed, that had the highest percentage of weekly positive cases, was not necessarily comparable to the highest county in Idaho, which was Canyon County, a population of 230,000. Malheur County was a fraction of that, and they were still under in the average of weekly positive Covid cases. He wasn't a mathematician, but it was clear that based on those calculations, on those statistics, that we were concentrating those numbers in our community, which was causing Malheur County to have a larger number of positives. Even the top county here was still beating their top county and it was very clear that we were concentrating their numbers here. The argument that some businesses had in the beginning about "our business isn't bringing people here for that"; yes, it's very clear that it is. Being that the conversation was ended before, it definitely needed to be a conversation moving forward about they could talk about something, anything, the Council could do, not just sitting on their hands, while the county, the state, the neighboring state and counties, was causing Malheur County's number to go up. Everyone understood Malheur County was in Phase I, and from the conversations he was having with constituents, it was imminent that Malheur County would be going into a complete shut-down, just like Umatilla was. If that happened, out local businesses and everybody would be hurting. He wanted to have the conversation now about what could be implemented now, to coincide with the letter the Health Director Sarah Poe sent to Governor Brown about doing things differently to stop reverting to a complete shutdown. As leaders of this community, the Council could also enter that conversation to see what they could do, to ensure the city wasn't forced into a shutdown, where everybody in commerce in this city would suffer, including locally owned businesses. If they had a discussion about maybe making the big box businesses that were bringing in customers from the lower Treasure Valley, they should have a conversation that could potentially slow down the access or the exposure traffic that they were seeing. During the initial complete shutdown, Walmart and Home Depot were still bringing people in. He knew some of the dispensary owners talked about that and asked about the big box stores. He agreed with that. It wasn't just the dispensaries, although they did have large numbers, and potentially larger numbers from the lower Treasure Valley, Walmart and Home Depot and places like that were bringing in large numbers. The Council could not keep ignoring that because this are would continue to spiral down just like Umatilla. The Council needed to be proactive, not reactive.

Mayor Hill added that 71% of the prison employees lived in Idaho.

ADJOURN

CRUME moved, CAPRON seconded, **THAT THE MEETING BE ADJOURNED**. Roll call vote: Crume-yes; Rodriguez-yes; Palomo-yes; Justus-yes; Capron-yes; Braden-yes; Hill-yes. Motion carried 7/0/0.

ACCEPTED:

_____
Riley J. Hill, Mayor

ATTEST

_____
Tori Barnett, MMC, City Recorder

AGENDA REPORT
NEW BUSINESS
September 15, 2020

TO: Mayor and City Council

FROM: Kari Ott, Finance Director

THROUGH: Adam J. Brown, City Manager

SUBJECT: RESOLUTION #2020-135: SEWER SERVICE RATES FOR CAR WASHES

DATE: August 27, 2020

PROPOSED MOTION:

I MOVE THE CITY COUNCIL APPROVE RESOLUTION #2020-135: A RESOLUTION SETTING SEPARATE SEWER SERVICE RATES FOR CAR WASHES.

SUMMARY:

Attached is Resolution #2020-135.

BACKGROUND:

Bluebird Car Wash approached the city about the monthly sewer service rates. The car wash owners discussed the car wash setup in depth and believe that a large amount of water evaporates or is carried out in vehicles and never goes down into the sewer system. A study prepared by the International Carwash Association was provided. The study provided data that showed a conveyor car wash has a 16.7% evaporation and carryout loss of water. Bluebird requested that car wash businesses get a decrease in sewer service rates by 16.7%. The studies are attached for review.

CURRENT SITUATION:

City staff reviewed the request and believe there is validity to this request. A resolution is attached to reduce the sewer rates by 16.7% for car washes. This would only apply to carwashes located within Ontario city limits and would need a separate water meter for the carwash only. The base rate will remain the same.

ANALYSIS:

A. **STRATEGIC PLAN** No direct effect on strategic plan.

B. **FINANCIAL** This decrease in sewer service rates will decrease sewer revenue by approximately $13,000 annually.

C. **TIMING** Per Council discretion, if this resolution is approved quickly, the rate structure could be changed before the next billing cycle.

D. **POLICY/LEGAL** The passage of a fee is subject to ORS 294. 160(1) which provides: "The governing body of a city, county or other unit of local government shall provide an opportunity for interested persons to comment on the enactment of any ordinance or resolution prescribing a new fee or a fee increase or an increase in the rate or other manner in which the amount of a fee is determined or calculated."

ALTERNATIVES:

The Council could chose not to approve this resolution and that would leave the car wash sewer service charges the same as other sewer service rates.

RECOMMENDATION:

Staff recommends the City Council approve Resolution #2020-135.

ATTACHMENTS:

1. 2002 Car Wash Study
2. 2018 Car Wash Study
3. RES 2020-135_CC_Resolution Setting Sewer Rates for Car Washes_9 2020

WATER USE IN THE PROFESSIONAL CAR WASH INDUSTRY

A Report for the International Carwash Association

Written by
Chris Brown, Water Conservation Consultant

Published by
International Carwash Association, Inc.

Published September 2002

Executive Summary

The International Carwash Association has dedicated much of its effort to evaluating the impact of our industry on the environment. To better educate individuals on the influence of professional car washing, we have conducted a series of studies as part of our strategic plan to provide industry leadership.

In an effort to clarify water consumption and water conservation measures in professional car washes, the International Carwash Association commissioned a study of techniques used to conserve and reclaim water in the car wash industry and to define those techniques in a standardized manner. In 1999, the "Water Conservation in the Professional Car Wash Industry" report was published. It described the water use and conservation techniques for self-service, in-bay automatic, and conveyor car washes. The results of that examination were designed to advance the discussion of water usage, conservation and reclaim in the professional car wash industry.

This year the International Carwash Association has completed a two-year study that is designed to assess both water usage including the impact of evaporation and carryout, and wastewater quality including solid waste. The principal objective of this study is to determine the volume difference between fresh water consumed and the wastewater discharged while quantifying the average water consumption per vehicle by professional car washes.

Data collected from in-bay automatic car washes, self-service car washes and conveyor car washes in three different climatic locations were chosen to determine if regional differences in climate had a significant impact on water use or water losses due to differences in evaporation and carryout.

It is imperative that our businesses take proactive measures in both quantity and quality of water usage. Water regulators can use the data to determine relative water savings that can be successfully implemented by commercial car washes utilizing water reclaim systems. This data also can assist in calculations for sewage rates based upon a percentage of fresh water consumed.

This study is made available to all of those in our industry who can benefit from its conclusions. The International Carwash Association is an 'industry driven, membership organization' whose goals include providing for the continued success of all participants in the car care community. If you have any questions about the contents of this report, please contact the International Carwash Association via the Website, www.carcarecentral.com.

Table of Contents

INTRODUCTION

This report was produced for the International Carwash Association (ICA) as part of a consulting agreement to implement a study of car wash water use and wastewater quality. The first section examines water use and losses due to evaporation and carryout. A second section presents findings on wastewater quality and solid waste.

The main goals of this study were to quantify the average water consumption per vehicle washed, as well as to determine the volume difference between the fresh water consumed and the wastewater discharged by professional in-bay automatic car washes, self serve car washes, and conveyor car washes. The use of reclaim systems to conserve water is also considered. This study is based upon data gathered in the field as recommended in the International Carwash Association's Water Conservation Study[1] which examined water use and conservation techniques in the professional car wash industry. The previous study found water use data available primarily from manufacturers' specifications and little or no data from field studies. This report serves to compile information gathered from the work performed at individual sites in Boston, Massachusetts, Orlando, Florida, and Phoenix, Arizona for comparison and comment[2]. Three different geographic locations were chosen to determine if regional differences in climate had a significant impact upon water use or water losses due to differences in evaporation and carryout.

Facing the need to implement water conservation or drought restrictions, regulators can use the data presented to determine the contribution to water use cutbacks that can be successfully implemented by professional car washes. It can also assist in water rate calculations for sewage rates based upon a percentage of fresh water consumed. The information presented can be used to determine the relative water savings found in the study from installing and operating a water reclaim system.

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1 Brown, C., Water Conservation in the Professional Car Wash Industry, International Carwash Association, 2000.

2 Data collection was performed by Oak Engineers, Newburyport, Massachusetts for the Boston and Orlando regions in 2001. Black and Veatch, Phoenix, Arizona collected data on In-bay and Self-serve sites in the Phoenix area in 2000. Data regarding conveyor washes in the Phoenix area was collected in 1996, and reported by Jane Ploesser of Phoenix Water Department.

STUDY GOALS

The study collected data related to three basic questions: the amount of water consumed per vehicle, the water loss to evaporation and carryout, and potential water saving measures including reclaim. The second section of this report summarizes the results of waste water quality and solid waste data.

Water consumption. Each one of the study sites was audited for water use by cycle and for the total gallons used per vehicle for each of the wash types. Numerous previous studies, including the *Water Use Conservation in Carwashes* study (Brown, 1999), have used consumption estimates based upon manufacturers' specifications. This study compares water use by carwash type and region based upon fieldwork. An earlier study of conveyor carwashes in Phoenix, AZ was performed by Black and Veatch (Kobrick, 1997).

Evaporation and Carryout. Data was also collected to determine the amount of water lost through evaporation and carryout. Carryout includes water that leaves the car wash adhering to the surface of the car, or is blown from the car wash bay by wind. The location, local climate, orientation to wind, size of bay, water pressure and nozzle size and orientation will all effect evaporation and carryout losses. Water loss that occurs from evaporation and carryout reduces sewer flows from the facility. This is important in locales where sewer rates are based upon a factor representing the percentage return of freshwater to the sewer system for treatment. This study measured actual return flows versus freshwater inflows over a week at each of the study sites and compared them to determine evaporation and carryout losses.

Conservation and Reclaim. The water audits performed at each site identified potential conservation measures. Car wash operators have reduced their water use per vehicle washed by adjusting nozzle size, water pressure, and leak detection and repair. The audits identified potential conservation measures at each site, and provided economic data for operators considering installing such measures. The conservation potential of water reclaim was evaluated by measuring water use in those sites where reclaim systems were installed and operating as compared to those which were freshwater use only.

CAR WASH CLASSIFICATION AND WATER PROCESSES

The International Carwash Association characterizes the Professional Car Wash industry as those commercial services providing automotive vehicle washing service to the general public. Car washes types are divided into three broad categories: conveyor, in-bay automatic and self-service. Numerous manufacturers provide equipment to the professional car wash industry, bringing a certain variation to water use, since there are no industry-wide standards for water flow.

There are two types of Conveyor Car Washes: Full-service and Exterior only. The professional full-service wash cleans the exterior and interior and the customer waits outside the car while the wash proceeds. During the professional exterior only wash, the driver stays in the car while it is being washed and no interior cleaning services are performed. The car moves on a conveyor belt through a tunnel during both types of washes. In addition to the division based on level of service, there are two basic technologies for the wash cycle, friction or frictionless. The friction conveyor uses equipment that makes contact with the vehicle, while the frictionless conveyor uses high-pressure nozzles for a touch-free wash. The various cycles of the wash, from wash to rinse and application of various finish products, are accomplished by a series of automatic arches with spray nozzles or cleaning equipment which are activated as the car passes through.

In-Bay Automatic Car Washes are mostly found at gas stations and coin-operated car washes. The driver pulls into the bay and parks the vehicle, which remains stationary while a machine moves back and forth over the vehicle to clean it. Professional in-bay car washes use soft cloth or similar material, or friction-less automatic washers. The current generation of in-bay car washes have moved to mostly friction-less, using spray nozzles mounted on an arm to perform all aspects of the wash. Each cycle uses either fresh or reclaim water, and may use different cleaning solutions or finish products.

The Self-Service Car Wash allows the consumers to wash the car themselves. The customer purchases an initial amount of wash time for a minimum price. A device dispenses water and cleanser at varying amounts and pressures. Often a low-pressure brush is offered to assist in the wash cycle.

This section will briefly describe the stages of a professional car wash process, and some of the different services available based upon the type of car wash.

Steps in a Professional Car Wash Process:

Pre-soak - An automated nozzle or hand held spray. Not found in all car washes.

Wash - High-pressure spray or cloth material with detergent solution.

Rocker panel/undercarriage - Cloth material or high pressure sprays on sides and bottom of vehicle. In a conveyor these may be operated on independent arms or carriages that spray upward from below or beside the vehicle.

First Rinse - High-pressure water rinse.

Wax/Sealers/Polishes - An optional surface finish is sprayed on the vehicle.

Final Rinse - Low-pressure rinse with fresh or membrane-filtered/deionized water –is sprayed on the vehicle.

Air Blowers - Air is blown over the vehicle to remove water and assist in drying.

Hand Drying - The vehicle is wiped down with towels or chamois cloths. In full-service and exterior washes these are then laundered in washing machines on-site.

In a conveyor car wash, separate spray arches and/or cloth material equipment perform these steps. In the in-bay automatic, there is a set of nozzles though which all processes are performed, except in some cases where cloth material may be used for the wash cycle.

In self-service car washes there may be a brush for the wash cycle, but most functions are performed through a hand-held wand.

Spot free rinses are offered in many car washes due to the presence of dissolved materials in the water supply. Minerals and other ions, which have been dissolved, are removed by de-ionization or reverse osmosis. De-ionization (DI) is performed by running the water through beds of cations and anions, which bind the dissolved ions, and produce filtered water. Reverse Osmosis

(RO) works by using pressure to force water containing solutes through a semi-permeable membrane. Pure water results on the side of the membrane supplying the spot free rinse, while the reject side is disposed as brine or “reject” water. Reject water from the RO unit may be put back through the wash reclaim system in a closed loop system or used in landscaping or other non-potable uses in the professional car wash. Spot free rinses are more common in In-Bay and Self Service car washes, as full service conveyor washes offer towel drying, which precludes the need for spot free water.

METHODOLOGY

At each car wash site an audit was performed, and a minimum of one week's cumulative flows of freshwater and effluent were collected. The same general methodology was followed for all car washes. Specific additional measurements were taken when applicable. For example with conveyor carwashes, washing machine loads' contribution to both inflow and effluent were measured and accounted for in the calculations of water use per vehicle, evaporation and carryout. The following sections detail the methods used to collect and analyze the data.

Water Audits.

Sites were selected with the goal of accurately measuring both inflow and outflow. All plumbing that shared the water source meter with the car wash was identified and if possible, operation was discontinued during the time of measurement. If shut off was not possible, water uses were also measured as part of the audit. All ancillary processes were audited, such as towel washing, and domestic uses on site. In several instances, where the plumbing for the car wash was clearly separate from all other uses at a site and easily accessible, a dedicated meter was installed on the freshwater source line to the car wash. In some cases the central supply plumbing for the car wash was routed under a floor or through a wall in such a way that dedicated meters were not possible for all sites.

Flow rates and duration were measured for each cycle of a car wash. For conveyers this required identifying water use on separate components throughout the wash. For In Bay automatics this required measuring flow rates from the same set of nozzles, but operating in different cycles. The water pressure for each cycle was also measured. In addition to measuring flow rates for each cycle, overall water use for each car was also measured by turning off all water uses within a car wash, and running several cars through the wash, measuring total flow through the master meter or dedicated meter for each vehicle. In those car washes with Reclaim systems the audit identified flow rates and durations for all cycles using reclaim water.

In Self-service operations, water use flow rates per cycle can be determined, but duration is controlled by individual customers' decisions to change from one cycle to another, for example from a soap cycle to a rinse cycle. The audit included measuring the flow rates for each cycle. An additional obstacle to accurate flow rate monitoring was the scrub brush present at most sites.

The fibers diffused the flow through the brush, and the air bubbles entrained in the soapy water increased the apparent volume of the flow. The flow rates for soap cycles through the brush were determined by allowing the soapy water to collect in a bucket over a known period of time, and then waiting until the air bubbles burst to measure the quantity. To determine average flow rate over time, all processes other than the wash were shut off, and the total flow measured through the meter was compared to the time purchased by the customers to provide a flow rate in gallons per minute (gpm).

To determine an average use per vehicle in Self Service operations, two sites were selected and a team of observers timed with stop watches the actual duration that customers spent using the equipment. From this an average time per self-serve wash was calculated and this was multiplied by the gpm flow rate to determine water use per wash. This method was used rather than traffic counters since the researchers noted during an audit of one site that some traffic entered the car wash and drove through the bays without stopping to use the equipment.

Where the car wash used reverse osmosis equipment, the amount of water lost to reject water was measured and the total amount was added back to the water used during the wash process. Reverse osmosis works by forcing water through a membrane so that only pure water ends up on the filtered side of membrane while the remaining water, with increased salinity, flows to the sanitary sewer. The filtered water is referred to as “product,” while the more saline water is referred to as “reject” or “brine.” The Product/reject ratio and its impact on water use was evaluated as part of the study.

Evaporation and Carryout

Evaporation and carryout was calculated by comparing the freshwater inflows to car wash with the discharge flows to the sanitary sewer system. All identified water uses within a facility were accounted for in the calculation. For example, domestic water uses on some sites were on the same meter with the car wash, but sewer flows from the car wash were discrete from sanitary flows from the toilet.

Measuring sewer return flows is difficult and expensive on a permanent basis. In car washes the potential for suspended solids provides additional difficulty. While a permanent flume may be

possible, the expense of a retrofit to existing plumbing is usually not justified by the benefit. To measure water lost to evaporation and carryout it was necessary to install meters on a temporary basis in car washes in which there was adequate room to install the meter assembly.

In the Boston and Orlando studies, wastewater metering was accomplished by using positive displacement meters for car washes with low flows and paddle wheel meters for car washes with higher flow rates. Table 1 shows the type of meter used and the number of sites where it was used. Meters were installed in the final manhole for discharge to the sanitary sewer. Meter assemblies were plumbed into a straight-line pipe to minimize flow turbulence. A 45-degree fitting was installed at the end of each assembly to ensure the meter was receiving full pipe flow at all times. This configuration was used in order to accommodate traffic flow while the metering was being done. In the study performed in Phoenix, the outfall to the sewer was blocked and effluent was pumped through a meter to the sewer clean out. All Phoenix sites were metered with a one-inch disc meter. This method was not used in Boston and Orlando due to the fact that the manholes were typically located in the path of vehicles leaving the car wash bays, and metering equipment would have been at risk.

TABLE 1.1
DISCHARGE METERS BY SITE

Meter Type	Meter Size	Sites
Disc	¾”	BS1, BS3, BI4, OS1, OS2, OS4, OI1, OI2, OI3, OC3
Disc	1”	OI4
Paddle Wheel	1”	BS4, OC2
Paddle Wheel	1 1/2”	BI1, BI2, BI3, BC1, BC2, BC3, BC4, OS3

Periodic meter readings were taken for at least one week at each site. Vehicle wash counts were obtained from the car wash owner for each site. In-bay and conveyor car washes kept car wash counts on programmable logic controllers (PLCs).

Car wash counts, water consumption and wastewater discharge were monitored periodically throughout the week-long metering period at each site. These counts were compared to

freshwater use during the metering period and the average water use per vehicle was compared to the values determined through the audit.

Self-serve car washes provided a unique challenge. Since controllers count the number of minutes used, not the number of cars which are washed, another method of counting cars and establishing a relationship between time spent washing cars and water used per vehicle washed was necessary. In Phoenix, traffic counters were used, but in Boston a visual survey was performed. In a preliminary audit of a self serve facility in Boston, customers were observed using the change machine, or other vending services on site, and driving through the bays without purchasing a car wash. It was determined that a visual survey with stopwatch would be a more accurate method of determining the average time and gallons per vehicle washed. Two technicians sat at a distance from the bays and unannounced to the customers recorded the start and finish times for each wash over 5.25 hours on a Saturday at two of the more busy sites. Water meter readings were taken before and after the survey. The average time per wash was calculated from the data collected, and divided into the total minutes that the car wash operated over the monitoring period to determine the number of cars washed at each of the Boston and Orlando sites.

An analysis of variance was performed on several of the factors that affect water use. Regional differences in water use, differences in evaporation and carryout rates by type of professional car wash, and the variance in freshwater water use between car washes with reclaim versus non-reclaim car washes were all analyzed[3].

[3] Minitab for Windows, Version 10 software was used for statistical analysis.

SITES

For the purpose of this report, the various sites which were studied, are designated by location, type and number. For example a site located in the Boston area will be designated B, Orlando with an O and Phoenix with a P. The second designator is the site type, with a C for Conveyor, I for In-Bay and S for Self-serve. The separate sites in each location and type were then randomly designated with a number, so that the final designation follows the format, BC1 to BC4, OI1 to OI4, and PS1 to PS3, and so on for all 32 sites studied. This section contains a brief description of each site studied.

BC1: Car Wash BC1 was a full-service conveyor car wash with a tunnel 120 ft in length. The car wash operates from 8:00 am to 6:00 pm, Monday though Saturday, weather permitting, and stays open until 7:00 pm two nights per week. The facility is staffed during the day with approximately 25 employees. The facility has a gasoline station and a convenience store on site. The facility was constructed in the 1950's and car wash components have been upgraded and replaced as needed since.

The BC1 facility is supplied fresh water from both a private well and a municipal water supply. During the study, the well was turned off and all water to the car wash came through the municipal meter. Other water uses on the municipal meter included two restrooms for employees, washing machines for towels, and a water fountain. The convenience store was on a separate meter.

Car wash customers of BC1 have several options, including wash packages (the Works, Super Wash and Protector Package) or can purchase a basic wash package with add-on options such as clear coat sealant, undercarriage wash and rust inhibitor, triple foam protectant, and polish protectant. The conveyor uses magnetic sensors to determine overall car length and timing of car wash arches and fixtures. The employees prepare cars for the tunnel with prep wash using handheld equipment and spray guns. Water use volumes ranged from 23.2 gallons on a basic wash for a small car to 42.8 gallons for the works on a full size car. Total fresh water consumed was 43,295 gallons to wash 1607 cars for an average water use of 26.9 gpv.

The tunnel had 15 different wash elements including five different cloth equipment or "mitter"

components. Three undercarriage components, four soap and finish products applications, along with a pre-rinse arch, a side panel spray and a final rinse Rain Arch made up the components of the wash. The largest single water use of components measured was the Rain Arch for the final rinse, which used approximately 6 gpv in 20 seconds. The high-pressure undercarriage "Gatling-gun" assembly in this facility was operated at 700 psi, approximately 400-500 psi below manufacturers recommended operating pressure, thus it used approximately 1 gpm per nozzle.

BC2: Car Wash BC2 was a conveyor car wash with a tunnel 100 ft in length and a 5-bay Self-serve car wash. The Self-serve was also evaluated and is addressed later as site BS4. The BC2 facility car wash operates from 7:30 am to 7:00 pm, Monday though Saturday and 8:00 am to 6:00 pm on Sundays, weather permitting. The facility is staffed during with approximately 1 to 3 employees per shift. The facility was constructed in 1990.

The BC2 facility is supplied fresh water from a municipal water supply. Water for the car wash was supplied through a municipal meter. Other water uses on the municipal meter included an employee restroom, a pressure washer for bay wash down and a garden hose. The same municipal water meter served all ancillary uses. Reclaim water was used in the chassis bath, an undercarriage wash phase.

Car wash customers of BC2 had several options, including wash packages (Ultra Wash, The Works, Super Wash No. 2 and Super Wash No. 1) or could purchase a basic wash package with add-on options such as hand preparation, 'wheel brite', chassis bath, poly clean conditioner, poly sealant and undercarriage rust inhibitor. The conveyor uses magnetic sensors to determine overall car length and timing of car wash arches and fixtures. Water use volumes ranged from 33.6 gallons on a basic wash for a mid-size sedan to 37.4 gallons for an Ultra wash on a mid-size sedan. Total fresh water consumed was 24,826 gallons to wash 782 vehicles for an average water use of 31.7 gpv.

The tunnel had 16 different wash elements including four different cloth equipment or "mitter" components. Eight different components apply detergents or finish products, four of which were optional applications that could be selected by the customer.
The remaining four components included two high-pressure rinse cycles, a chassis bath and a spot free rinse, with de-ionized water. The largest single water use of components measured was

the High-pressure rinse, which used approximately 9 gpv in 30 seconds.

BC3: Car Wash BC3 was a full-service conveyor car wash with a tunnel 130 ft in length. The BC3 facility car wash operates from 7:00am to 9:00pm, Monday though Saturday and 7:00 am to 5:00 pm on Sundays, weather permitting. The facility is staffed during with approximately three employees per shift. The facility was constructed in the mid-1960s, current management purchased the facility in 1984 and the facility was upgraded and components replaced as needed. Sites BC3 and BC4 were owned by the same company, differences in equipment and water use were noted.

The BC3 facility is supplied fresh water from a municipal water supply. Wastewater is collected in a central trench drain and discharges to a sedimentation tank which in turn discharges to a reclaim tank system. The reclaim/sedimentation tanks are baffled and have submerged discharge orifices to permit oil/water separation. Reclaim tanks are treated periodically with chlorine by employees for odor. No other filtration or treatment is performed. Fresh water for the car wash was supplied through a municipal meter. Other water uses on the municipal meter included two restrooms for employees, which were separately metered from the car wash.

Car wash customers of BC3 had several options, including wash packages (Supershiner, Superwash, or The Works) or could purchase an exterior wash package with add-on options such as clear coat protect, sealer wax, blue polish wax, red polish wax, whitewall and wheel cleaner, rust inhibitor and undercarriage wash. The conveyor uses magnetic sensors to determine overall car length and timing of car wash arches and fixtures. The employees prepare cars for the tunnel with prep wash using handheld brushes and spray guns. Two of the components, which used reclaim water, Mitter No 1 and the Wrap Brush were on from the time a vehicle entered the tunnel until a car wash employee manually turned them off. This added an estimated 16 to 25 gallons per wash of reclaim usage per vehicle. Fresh water use volumes on individually observed washes ranged from 10.5 gallons for a Supershiner wash on a compact to 13.5 gallons on an exterior wash on a truck. Reclaim water usage ranged from 24 gallons on the Supershiner to 33 gallons on the exterior wash with all options chosen. Total fresh water consumed over the one-week period was 13,853 gallons to wash 848 vehicles for an average freshwater use of 16.3 gpv. The average freshwater use over the period of measurement was approximately 20% higher than the largest amount measured during the audit. Some explanations include the possibility of a

leak, the refilling of system holding tanks and/or prep tubs, and bay washdowns. No visible leaks were observed.

The tunnel had 19 different wash elements including eight which used reclaim water. Of the total there were five different cloth equipment or "mitter" components. Seven different components applied detergents or finish products, five of which were optional applications based upon the package selected by the customer, and one of which, the Tire Cleaner, used reclaim water. A spot free rinse, with de-ionized water, and a hand-prep Wheel Cleaner were the additional components to use fresh water. Reclaim water supplied the Hand-Prep spray gun and the following eight components: Rocker Panel, Mitter No 1, Tire Cleaner, Wrap Brush No. 1, Window Brush, Undercarriage, Flex Wraps, and Mitter Rinse No 2. Five of the components, specifically the prep arch, side brush, Mitter Rinse No 1, Mitter No 3 and Final Rinse were shut down and did not operate during the audit period. Had they been operating, water usage at BC3 would have been anticipated to be higher than measured. The cloth curtain strips in Mitter No. 3 appeared to be wetted by the passage of already wet vehicles through the tunnel.

The largest single water use of components measured in BC3 were the two components that used reclaim water, Mitter No 1 and the Wrap Brush, which were on continuously throughout each wash as mentioned above for an estimated 16 to 25 gallons per wash of reclaim usage. The largest freshwater use measured was the spot-free rinse at approximately 3.2 gpv.

BC4: Car Wash BC4 was a full-service conveyor car wash with a tunnel 120 ft in length. The BC4 facility car wash operates from 7:00 am to 7:00 pm, Monday though Friday, 7:00 am to 6:00 pm Saturday, and 7:00 am to 5:00 pm on Sunday, weather permitting. The facility is staffed during these times with approximately two to three employees per shift. The facility was constructed in the mid-1970s, current management purchased the facility in 1984 and the facility was upgraded and components replaced as needed.

The BC4 facility is supplied fresh water from a municipal water supply. Wastewater is collected in a central trench drain an discharges to a sedimentation tank which in turn discharges to a reclaim tank system. The reclaim/sedimentation tanks are baffled and have submerged discharge orifices to permit oil/water separation. Reclaim tanks are treated periodically with chlorine by

employees for odor. No other filtration or treatment is performed. Fresh water for the car wash was supplied through a municipal meter. Other water uses on the municipal meter included two restrooms for employees, which were separately metered from the car wash.

Car wash customers of BC4 had several options, including wash packages (Supershiner, Superwash, or The Works) or could purchase an exterior wash package with add-on options such as clear coat protect, sealer wax, blue polish wax, red polish wax, whitewall and wheel cleaner, rust inhibitor and undercarriage wash. The conveyor uses magnetic sensors to determine overall car length and timing of car wash arches and fixtures. The employees prepare cars for the tunnel with prep wash using handheld brushes and spray guns. Two of the components that used reclaim water, Mitter No 1 and the Wrap Brush were on from the time a vehicle entered the tunnel until a car wash employee manually turned them off. This added an estimated 16 to 24 gallons per wash of reclaim usage per vehicle. Fresh water use volumes on individually observed washes ranged from 7.1 gallons for a Regular wash to 23.2 gallons on Supershiner wash. Reclaim water usage ranged from 16.8 gallons on the exterior wash to 19.3 gallons on the Supershiner. Total fresh water consumed over the one week period was 25,154 gallons to wash 955 vehicles for an average freshwater use of 26.3 gpv. The average freshwater use over the period of measurement was approximately 12% higher than the largest amount measured during the audit. Some explanations include the possibility of a leak, the refilling of system holding tanks and/or prep tubs, and bay washdowns. No visible leaks were observed.

The tunnel had 21 different wash elements, seven of which used reclaim water. Of the total there were four different cloth equipment or “mitter” components. Eight different components applied detergents or finish products, six of which were optional applications based upon the package selected by the customer. These components all used freshwater. A spot free rinse, with de-ionized water, a final rinse, and a hand-prep Wheel Cleaner, were the additional components to use fresh water. Reclaim water supplied the Hand-Prep spray gun and the following seven components: Rocker Panel, Mitter No 2 and 3, Wrap Brush, Undercarriage, Mitter Rinse and Side Brush Rinse. Three of the components, specifically the prep arch, side brush, and Mitter No 1 were shut down and did not operate during the audit period. Had they been operating, water usage at BC4 would have been anticipated to be higher than measured. The cloth curtain strips in Mitter No. 1 appeared to be wetted by the passage of already wet vehicles through the tunnel.

The largest single water use of components measured in BC4 were the two components that used reclaim water, Mitter No 1 and the Wrap Brush, which were on continuously throughout each wash as mentioned above for an estimated 16 to 24 gallons per wash of reclaim usage. The largest freshwater use measured was the Wax Clear Coat finish at approximately 5.8 gpv. This component was available as a part of the Supershine Package, or as an option with the Regular Wash. The DI spot free rinse, was used on all vehicles, and used approximately 2.9 gpv.

BI1: Car wash facility BI1 was an In-bay automatic with one bay attached to a gasoline station. The BI1 facility car wash operates from 7:00 am to 9:00 pm, Monday though Friday, 7:00 am to 7:00 pm Saturday and Sunday. Gas station employees are on site, but not responsible for the operation and maintenance of the car wash facility. The facility is maintained by off site staff. One or two employees per shift staff the gas station. The facility was remodeled in 1995. The car wash equipment was approximately two years old at the time of the study.

The BI1 facility is supplied fresh water from a municipal water supply. The carwash equipment includes 40 nozzles placed on a moving arch with spinning arms, and an undercarriage wash system at the entrance to the bay. Fresh water for the car wash was supplied through a municipal meter. Other water uses on the municipal meter included an employee restroom, a garden hose, drinking water fountain, residential-style washing machine. All ancillary water uses were accounted for in the water audit.

Car wash customers of BI1 had three options, including wash packages, The Works, Shine & Protect, and Super Shine, which used 55, 52, and 24 gpv respectively. Total fresh water consumed over the one-week period was 22,444 gallons to wash 513 vehicles for an average freshwater use of 43.8 gpv. The average freshwater use over the period of measurement was approximately 15% higher than weighted average of washes purchased during the audit. There were 40 nozzles located on the arch and spinning arms, and seven nozzles associated with the undercarriage wash. Different wash phase used different nozzle combinations; the phases included five different options that included a detergent or finish product, and a high-pressure rinse. The high-pressure rinse, at 30 gpv was the highest amount of water used in the wash and was utilized for The Works and the Shine & Protect Packages. The Super Shine package combined an application of clear coat protectant with the high-pressure rinse phase, for a measured use of 18 gpv. A weep system exists, but was not in use due to the time of year.

BI2: Car wash facility BI2 was an In-bay automatic with two bays attached to an oil change service. The BI2 facility car wash operates 24 hours a day, seven days a week. Oil service employees are on site, but not responsible for the operation and maintenance of the car wash facility. The facility is maintained by off site staff. The oil change service is open 8:00 am to 6:00 pm Monday through Saturday, with two to six employees per shift. The facility was constructed in 2000. The car wash equipment in one bay was purchased in 1998 and previously used at another site, the equipment in the second bay was new at the time of construction, or approximately one-year old at the time of the audit.

The BI2 facility is supplied fresh water from a municipal water supply. The carwash equipment includes a mobile arm with 18 nozzles mounted on a ceiling gantry. The machine moves above the vehicle, and all wash phases are applied through the same nozzles, with a brief period in which the arm drains of soaps or finish products between wash phases. An undercarriage wash system was located at the entrance to the bay. Fresh water for the car wash was supplied through a municipal meter. Other water uses on the municipal meter included a semi-public restroom, drinking water fountain, a slop sink. All ancillary water uses were accounted for in the water audit.

Car wash customers of BI2 had three options, including wash packages, VIP, Deluxe, and Super, which used 52.4, 37.5, and 24.9 gpv respectively. Total fresh water consumed in the car wash over an 18-day period was 105,301 gallons to wash 2,885 vehicles for an average freshwater use of 36.5 gpv. The average freshwater use over the period of measurement was approximately 4% lower than the weighted average of washes purchased during the period. There were 18 nozzles located on the arm, and 11 nozzles associated with the undercarriage wash. Different wash phases used all nozzles, and the arm was drained of excess product at the end of each application phase. The phases included four different options that included a detergent or finish product, and a high-pressure rinse. The Under Carriage Wash, at 12.6 gpv used the largest amount of water of any phase in the wash.

BI3: Car wash facility BI3 was an In-bay automatic with one bay attached to a service station and convenience store. The BI3 facility car wash operates 24 hours a day, seven days a week. Convenience store employees are on site, but not responsible for the operation and maintenance

of the car wash facility. The facility is maintained by off site staff. The service station and convenience store is open 24 hours a day, seven days a week. The facility was constructed in 1999. The equipment was new at the time of construction, or approximately two years old at the time of the audit.

The BI3 facility is supplied fresh water from a municipal water supply. The carwash equipment includes a mobile arm with 15 nozzles mounted on a ceiling gantry. The machine moves above the vehicle, and all wash phases are applied through the same nozzles, with a brief period in which the arm drains of soaps or finish products between wash phases. An undercarriage wash system was located at the entrance to the bay. Fresh water for the car wash was supplied through a municipal meter. Other water uses on the municipal meter included a garden hose. The convenience store and service station were on a separate meter.

Car wash customers of BI3 had three options, including wash packages, The Works, Deluxe, and Super, which used 60.2, 33.6, and 27.6 gpv respectively. Total fresh water consumed in the car wash over a one-week period was 41,417 gallons with an average freshwater use of 47.1 gpv. There were 15 nozzles located on the arm, and 11 nozzles associated with the undercarriage wash. Different wash phases used all nozzles, and the arm was drained of excess product at the end of each application phase. The phases included four different options that included a detergent or finish product, and a high-pressure rinse. The Clear Coat Protectant, applied at high pressure in The Works package, at 21.0 gpv used the largest amount of water of any phase in the wash.

BI4: Car wash facility BI4 was an In-bay automatic with one bay attached to a gasoline station, a donut shop and a convenience store. The BI4 facility car wash operates 24 hours a day, seven days a week. Gas station employees are on site, but not responsible for the operation and maintenance of the car wash facility. One or two employees per shift staff the gas station. The facility was constructed in 1988. The car wash equipment was approximately two years old at the time of the study.

The BI4 facility is supplied fresh water from a well. The water is re-used through an on-site closed loop reclaim system. The carwash equipment includes 40 nozzles placed on a moving arch with spinning arms, and an undercarriage wash system at the entrance to the bay.

A dedicated meter was placed upon the freshwater inflow to determine fresh water use in the car wash. All water uses at the donut shop, convenience store and service station were on a municipal meter. No other water uses other than the car wash were on the well.

Car wash customers of BI4 had three options, including wash packages, The Works, Shine & Protect, and Super Shine, which used 35.4, 28.0, and 23.6 gpv of freshwater respectively. Total fresh water consumed over the one-week period was 5,283 gallons to wash 170 vehicles for an average freshwater use of 31.1 gpv. The average freshwater use over the period of measurement was approximately 1% lower than weighted average of washes purchased during the audit. There were 40 nozzles located on the arch and spinning arms, and 17 nozzles associated with the undercarriage wash. Different wash phases used different nozzle combinations; the phases included five different options that included a detergent or finish product, and a high-pressure rinse. The clear coat protectant, at 23.5 gpv was the highest amount of water used in the wash for The Works and the Shine & Protect Packages. The Super Shine package clear coat protectant application was also the single largest water use, but at half the duration of the longer wash packages, it used 18 gpv. The car wash used RO for the spot free rinse, the product to waste ratio for the RO system was 6:1.

BS1: Car wash facility BS1 was a self-serve facility with eight bays. The BS1 facility car wash is open 24 hours a day, seven days a week. An attendant is on site from 10:00 am to 3:00 pm seven days a week. The facility was constructed in 1978. The BS1 facility is supplied fresh water from a municipal water supply through a municipal meter. Other water uses on the municipal meter included an employee restroom, and a garden hose. All ancillary water uses were accounted for in the water audit.

Car wash customers of BS1 had two options, use of a spray gun or a foam brush. The spray gun was measured at high and low pressure, which used 2.0, and 1.0 gpm respectively. The foam brush used 0.1 gpm. Total fresh water consumed in the car wash over a one-week period was 9,163 gallons to wash approximately 751 vehicles for an average freshwater use of 12.2 gpv. The facility offers a spot free rinse, which utilizes a DI system. A cold weather weep system was present at the site, but was not in use due to average daily temperatures at the time of the audit.

BS2: Car wash facility BS2 was a self-serve facility with five bays, and an attached conveyor.

Only the Self-serve facility was audited for this report. The BS1 facility car wash is open 24 hours a day, seven days a week. No one is specifically employed for the self-serve facility alone. However, an attendant is on site at the conveyor from 7:00 am to 6:00 pm seven days a week. The facility was constructed in 1986. The BS2 facility is supplied fresh water from a municipal water supply through a municipal meter. The Conveyor and the self-serve facilities have separate freshwater meters, but share the DI water used for spot free rinse. The process water from the DI system to the conveyor had a meter, and the difference between freshwater into the DI system and the amount going to the conveyor was determined to have been used in the self-serve facility.

Car wash customers of BS2 had two options, use of a spray gun or a foam brush. The spray gun was measured at high and low pressure, which used 3.5, and 1.0 gpm respectively. The foam brush used 0.4 gpm. Total fresh water consumed in the car wash over a four-day period was 3,130 gallons to wash approximately 198 vehicles for an average freshwater use of 15.8 gpv. A cold weather weep system which recycled water was present at the site, but was not in use due to average daily temperatures at the time of the audit.

BS3: Car wash facility BS3 was a self-serve facility with six bays, and an attached conveyor. Only the Self-serve facility was audited for this report. The BS3 facility car wash is open 24 hours a day, seven days a week. No one is specifically employed for the self-serve facility alone. However, an attendant is on site at the conveyor from 7:00 am to 6:00 pm seven days a week. The facility was constructed in 1985. The BS3 facility is supplied fresh water from a municipal water supply through a municipal meter. Other water uses on the municipal meter included an employee restroom, a slop sink, and a garden hose. All ancillary water uses were accounted for in the water audit.

Car wash customers of BS3 had two options, use of a spray gun or a foam brush. The spray gun was measured at high and low pressure, which used 3.8, and 1.5 gpm respectively. The foam brush used 1.3 gpm. Total fresh water consumed in the car wash over a 14-day period was 23,335 gallons to wash approximately 1,349 vehicles for an average freshwater use of 17.3 gpv. A cold weather weep system which recirculated water was present at the site, but was not in use due to average daily temperatures at the time of the audit.

BS4: Car wash facility BS4 was a self-serve facility with five bays, and an attached conveyor.

The conveyor facility was audited for this report and is listed above as BC2. The BS4 facility car wash is open 24 hours a day, seven days a week. No one is specifically employed for the self-serve facility alone. However, an attendant is on site at the conveyor 7:30 am to 7:00 pm Monday through Saturday, and 8:00 am to 6:00 pm Sunday. The facility was constructed in 1965. The BS4 facility is supplied fresh water from a municipal water supply through a municipal meter separate from the conveyor facility. Other water uses on the municipal meter at the self-serve included a garden hose. All ancillary water uses were accounted for in the water audit.

Car wash customers of BS4 had two options, use of a spray gun or a foam brush. The spray gun was measured at high and low pressure, which used 3.8, and 0.3 gpm respectively. The foam brush used 0.1 gpm. Total fresh water consumed in the car wash over a 14-day period was 9,897 gallons to wash approximately 655 vehicles for an average freshwater use of 15.1 gpv. A cold weather weep system which recirculated water was present at the site, but was not in use due to average daily temperatures at the time of the audit.

OC1: Car Wash OC1 was a full-service conveyor car wash with a tunnel 105 ft in length. The car wash operates from 8:00 am to 6:00 pm hours Monday though Saturday, and 10 am to 4 pm Sunday, weather permitting. The facility was constructed in the 1987 and car wash components have been upgraded and replaced as needed since. The same company owns and operates OC1 and OC2. Minor differences in equipment are noted, as is length of tunnel, and probably explain the differences in water uses between the two sites.

The OC1 facility is supplied fresh water from a municipal water supply through a municipal meter. Other water uses on the municipal meter included a residential-sized washing machine and carpet shampooers in the detail area, and one open-tub washing machine. Waste water is collected in a central trench drain and drains by gravity to a sedimentation tank, and from there to an oil/water separation tank. The facility has a reclaim system and draws water from reclaim tanks, which is filtered before being reused in the car wash.

Car wash customers of OC1 have several options, including wash packages (Ultimate Wash, Super Wash, Deluxe Wash, Full-Service Wash or Exterior Wash) or can purchase a Full-Service Wash or Exterior Wash package with add-on options such as clear coat sealant, undercarriage wash and various cleaning solutions and finish products. The conveyor uses magnetic sensors to

determine overall car length and timing of car wash arches and fixtures. The employees prepare cars for the tunnel with prep wash using handheld brushes and spray guns. Freshwater use volumes was measured at 10 gpv for all packages, and were measured at 47.7 gpv including reclaim water. The variability was not quantified for the use of hand prep spray gun, as this would change with each vehicle depending upon size of vehicle and perceived need for prep work. Total fresh water consumed over seven days was 60,132 gallons to wash 1,205 cars for an average water use of 49.9 gpv. The difference between the freshwater use as measured during the audit of components versus the seven day period of overall water use measurements suggest that either vehicle counts were significantly lower than reported, or perhaps that freshwater was used in some components that were reported as reclaim water.

The tunnel had 11 different wash elements including four different cloth equipment or "mitter" components. An undercarriage, a rocker panel & tire cleaner, three soap and finish products applications, along with a pre-rinse arch, and a final rinse made up the remaining components of the wash. The only components reported to use fresh water were the hand prep high-pressure spray, and 'wheel brite' applications and the final clear coat finishes. The final rinse, which reportedly used filtered reclaim water, was the highest single water-using component at 12.0 gpv.

OC2: Car Wash OC2 was a conveyor car wash with a tunnel 120 ft in length, convenience store, car detailer, and oil change and gasoline service station. The OC2 facility car wash operates from 7:00 am to 8:00 pm, Monday though Friday and 8:00 am to 8:00 pm on Saturdays and Sundays, weather permitting. The facility is staffed during with of 15 employees per day. The facility was constructed in 1989. The same company owns and operates OC1 and OC2. Minor differences in equipment are noted, as is length of tunnel, and probably explain the differences in water uses between the two sites.

The OC2 facility is supplied fresh water from a municipal water supply. Water for the car wash was supplied through a municipal meter. Other water uses on the municipal meter included an employee restroom, convenience store, car detailer, and oil change and gasoline service station. As part of this study a dedicated water meter was installed on the inflow to the car wash to measure all car wash water uses. Wastewater was collected in a central trench drain and drains by gravity to a sedimentation tank and from there to an oil/water separation tank. The facility has a reclaim system and draws water from reclaim tanks, which s filtered before being reused in the

car wash. Reclaim water was used in a number of the components.

Car wash customers of OC2 had several options, including wash packages (VIP Wash, Supreme Wash, Special Wash or Express Ultra Wash) or could purchase an Express Ultra Wash package with add-on options such as Brite Kote, Chassis Bath Underwash, Clear Coat Protectant, Diamond Glaze Foam & Shine. The conveyor uses magnetic sensors to determine overall car length and timing of car wash arches and fixtures. Freshwater use volumes ranged from at 11.5 to 13.2 gpv for the Express Ultra Wash and the VIP Wash respectively. Total water use including reclaim was measured from 60.3 gpv for the Express Ultra Wash to 64.6 gpv for the VIP Wash. The variability was not quantified for the use of hand prep spray gun, as this would change with each vehicle depending upon size of vehicle and perceived need for prep work. Total fresh water consumed over the week of metering was 50,850 gallons to wash 1,375 vehicles for an average freshwater use of 37.0 gpv.

The OC2 tunnel had 16 different wash elements including three different brush or "mitter" components. Nine different components apply detergents or finish products, three of which were optional applications, which could be selected by the customer. The remaining six components included three pressure rinse cycles, including one with a drying agent, a rocker panel & wheel cleaner, a chassis bath and a spot free rinse, with RO (Reverse Osmosis) water. The RO system produced a product to reject ratio of 3:1. The pre-soak arch was disabled during the study and pre-soak was accomplished by hand. The largest single water use of components measured was the high-pressure rinse, which used reclaim water at approximately 30 gpv in 35 seconds.

OC3: Car Wash OC3 was a full-service conveyor car wash with a tunnel 70 ft in length, convenience store, oil change and gasoline service station. The carwash facility is open 24 hours a day, seven days a week. The facility is maintained by off site staff. One or two employees per shift are present at the convenience store and gas station. The facility was constructed in 2001.

The OC3 facility is supplied fresh water from a municipal water supply. Wastewater is collected in a central trench drain an discharges to a reclaim tank system, with three compartments for sedimentation and have submerged discharge orifices to permit oil/water separation. Reclaim water is filtered prior to use. Fresh water for the car wash was supplied through a municipal meter. Other water uses on the municipal meter include the convenience store, oil change and

gasoline service station. A dedicated meter was installed upon the car wash portion of the facility to measure only water used in the wash.

Car wash customers of OC3 had a choice of three wash packages, Ultra Wash, Plus Wash, or Express Wash, which used 32.2, 31.1, and 17.3 gpv of freshwater respectively. The conveyor used magnetic sensors to determine overall car length and timing of car wash arches and fixtures. Reclaim water usage ranged from 34.1 gallons on the Express Wash to 43.3 gallons on the Ultra Wash. Total fresh water consumed over the ten-day metering period was 17,125 gallons to wash 1,139 vehicles for an average freshwater use of 15.9 gpv. The average freshwater use over the period of measurement was approximately 22% lower than the lowest amount of freshwater, including RO waste (20.5 gpv), which was measured during the site audit. A possible explanation could include a miscount of vehicles washed or that more of the wash phases use reclaim water than the site employees indicated

The tunnel had 12 different wash elements including five that used reclaim water. Of the total there were three different cloth equipment or "mitter" components. Six different components applied detergents or finish products, four of which were optional applications based upon the package selected by the customer, and one of which, the Under Body Wash, used reclaim water.

The spot free rinse used RO water. Reclaim water supplied the following five components: Mitter No 1 and No 2, Wrap Brush, Panel Brush, Under Body Wash.

The largest single water use of components measured in BC3 was Mitter No 1 that used 10 gpv of reclaim water. The largest freshwater uses measured were the Clear Coat sealer and the Foam Brite wash which both used approximately 9.8 gpv.

OI1: Car wash facility OI1 was an In-bay automatic with one bay attached to a convenience store and gasoline station. The OI1 facility car wash is open 24 hours a day, seven days a week. Employees of the gas station and convenience store are on site, but not responsible for the operation and maintenance of the car wash facility. The facility is maintained by off site staff. One or two employees per shift are present at the convenience store and gas station. The facility was constructed in 1997. The car wash equipment was new at the time of construction. The OI1 and OI2 facilities both use equipment from the same manufacturer and are managed by the same

company.

The OI1 facility is supplied fresh water from a municipal water supply. Fresh water for the car wash was supplied through a municipal meter. Wastewater is collected in a two trench drains at either end of the bay and discharges to a reclaim system tank. The reclaim/sedimentation tank is separated into compartments and has submerged discharge orifices to permit oil/water separation. Reclaim water is aerated by pumping across the floor of the wash bay. Other water uses on the municipal meter included the convenience store and gasoline station. A dedicated meter was installed upon the car wash portion of the facility to measure only water used in the wash.

The carwash equipment includes a mobile arm with 53 nozzles mounted on a ceiling gantry. The machine moves above the vehicle while the arm pivots, and all wash phases are applied from the moveable arm. Separate manifolds contain the rinse and soap application nozzles, which reduces resource usage. An undercarriage wash system was located at the entrance to the bay. The wash utilized an RO system for the spot free rinse phase. The RO product to brine ratio was 2:1.

Car wash customers of OI1 had three options, including wash packages, Works Wash, Deluxe, and Express Wash, which used 21.2, 16.1, and 11.0 gpv of freshwater respectively. Total fresh water consumed over the nine-day metering period was 11,253 gallons to wash 587 vehicles for an average freshwater use of 19.2 gpv. The average freshwater use over the period of measurement was approximately 6% lower than weighted average of washes purchased during the audit. There were 53 nozzles located on the pivot arm, and four of six operating nozzles associated with the undercarriage wash. Different wash phases used different nozzle combinations; the phases included five different options that included a detergent or finish product, and a high-pressure rinse phase, which used reclaim water. The Works package received an additional freshwater rinse. The high-pressure rinse, at 38.8 gpv was the largest amount of water per phase used in the wash.

OI2: Car wash facility OI2 was an In-bay automatic with one bay attached to a convenience store and gasoline station. The OI2 facility car wash is open 24 hours a day, seven days a week. Employees of the gas station and convenience store are on site, but not responsible for the operation and maintenance of the car wash facility. The facility is maintained by off site staff. One or two employees per shift are present at the convenience store and gas station. The facility

was constructed in 1999. The car wash equipment was new at the time of construction.

The OI2 facility is supplied fresh water from a municipal water supply. Fresh water for the car wash was supplied through a municipal meter. Wastewater is collected in ~~a~~ two trench drains at either end of the bay and discharges to a reclaim system tank. The reclaim/sedimentation tank is separated into compartments and has submerged discharge orifices to permit oil/water separation. Reclaim water is aerated by pumping across the floor of the wash bay. Other water uses on the municipal meter included the convenience store and gasoline station. A dedicated meter was installed upon the car wash portion of the facility to measure only water used in the wash.

The carwash equipment includes a mobile arm with 53 nozzles mounted on a ceiling gantry. The machine moves above the vehicle while the arm pivots, and all wash phases are applied from the moveable arm. Separate manifolds contain the rinse and soap application nozzles, which reduces resource usage. An undercarriage wash system was located at the entrance to the bay. The wash utilized an RO system for the spot free rinse phase. The RO product to brine ratio was 2:1.

Car wash customers of OI1 had three options, including wash packages, Works Wash, Deluxe, and Express Wash, which used 21.2, 16.1, and 11.0 gpv of freshwater respectively. The weighted average of freshwater use was 19.6 gpv. Reclaim water use ranged from 38.0 to 52.7 gpv for the Express to Works Washes respectively. Total fresh water consumed over the eight-day metering period was 19,799 gallons but an apparent failure of the vehicle count equipment prevented an accurate vehicle count. There were 53 nozzles located on the pivot arm, and six operating nozzles associated with the undercarriage wash. Different wash phases used different nozzle combinations; the phases included five different options that included a detergent or finish product, and a high-pressure rinse phase, which used reclaim water. The Works package received an additional freshwater rinse. The high-pressure rinse, at 38.0 gpv of Reclaim water, was the largest amount of water per phase used in the wash.

OI3: Car wash facility OI3 was an In-bay automatic with one bay attached to a service station and convenience store. The OI3 facility car wash operates 24 hours a day, seven days a week. Convenience store employees are on site, but not responsible for the operation and maintenance of the car wash facility. The facility is maintained by off site staff. The service station and

convenience store is open 24 hours a day, seven days a week. The facility appeared to be less than ten years old, but on-site personnel were unable to verify this information. The same manufacturer constructed the carwash equipment at sites OI3 and OI4.

The OI3 facility is supplied fresh water from a municipal water supply. The carwash equipment includes a mobile arm with 18 nozzles mounted on a ceiling gantry. The machine moves above the vehicle, and all wash phases are applied through the same nozzles, with a brief period in which the arm drains of soaps or finish products between wash phases. An undercarriage wash system was located at the entrance to the bay. Fresh water for the car wash was supplied through a municipal meter. Wastewater is collected in a rectangular drain in the center of the bay and discharges to a reclaim system tank. The reclaim/sedimentation tank is separated into compartments and has submerged discharge orifices to permit oil/water separation. Reclaim water is aerated by circulating the water from the reclaim system to the third compartment of the tank. Other fresh water uses on the municipal meter included the convenience store and gasoline station. A dedicated meter was installed upon the car wash portion of the facility to measure only water used in the wash. The wash utilized an RO system for the spot free rinse phase.
The RO product to brine ratio was 2:1.

Car wash customers of OI3 had three options, including wash packages, The Works, Deluxe, and Express, which used 26.9, 20.9, and 17.3 gpv respectively. Total fresh water consumed in the car wash over a one-week period was 4,211 gallons with an average freshwater use of 30.3 gpv. The use of Reclaim water ranged from 27.4 to 31.9 gpv for the Express to Works packages respectively. The average freshwater use over the period of measurement was approximately 28% higher than weighted average of washes purchased during the audit. One possible explanation for the discrepancy is a leak, and although no leak was noted, low evaporation and carryout percentages at this site (6.9%) suggest a leak directly into the discharge pit is possible.

There were 18 nozzles located on the arm, and 11 nozzles associated with the undercarriage and rocker panel wash. The undercarriage and rocker panel wash phase was only included in the Works package, and used reclaim water. Different wash phases used all nozzles in the arm, and the arm was drained of excess product at the end of each application phase. The phases included three different options that included a detergent or finish product, a high-pressure rinse and a spot free rinse. The high-pressure rinse, applied in the Express Package, at 20.1 gpv used the largest

amount of reclaim water of any phase in the wash. The high-pressure clear coat application used the most amount of water for any freshwater phase at 13.1 gpv; it was applied in the Works and Deluxe packages.

OI4: Car wash facility OI4 was an In-bay automatic with one bay attached to a service station and convenience store. The OI4 facility car wash operates 24 hours a day, seven days a week. Convenience store employees are on site, but not responsible for the operation and maintenance of the car wash facility. The facility is maintained by off site staff. The service station and convenience store is open 24 hours a day, seven days a week. The facility appeared to be less than ten years old, but on-site personnel were unable to verify this information.

The OI4 facility is supplied fresh water from a municipal water supply. The carwash equipment includes a mobile arm with 18 nozzles mounted on a ceiling gantry. The machine moves above the vehicle, and all wash phases are applied through the same nozzles, with a brief period in which the arm drains of soaps or finish products between wash phases. An undercarriage wash system was located at the entrance to the bay. Fresh water for the car wash was supplied through a municipal meter. Wastewater is collected in a rectangular drain in the center of the bay and discharges to a reclaim system tank. The reclaim/sedimentation tank is separated into compartments and has submerged discharge orifices to permit oil/water separation. Two other drainage trenches are present outside either end of the bay. Water that discharges to these trenches drains to the landscaped area immediately south of the facility. Other fresh water uses on the municipal meter included the convenience store and gasoline station. At the conclusion of the metering period estimated water uses from the convenience store were deducted from total water use.

Car wash customers of OI4 had three options, including wash packages, The Works, Deluxe, and Express, which used 35.1, 21.9, and 21.9 gpv respectively. The weighted average use for 269 car washes performed over the week of metering was 29.3 gpv. The use of Reclaim water ranged from 20.5 to 27.1 gpv for the Express to Works packages respectively. The average freshwater use over the period of measurement was approximately 33% higher than weighted average of washes purchased during the audit. Possible explanations for the discrepancy include a leak, although no leak was noted; incorrect information regarding water use in the attached store; or incorrect information regarding the use of the reclaim system. Evaporation and carryout

percentage at this site (17.7%) is within the expected range, so a leak is unlikely. The wash utilized an RO system for the spot free rinse phase. The RO product to brine ratio was 2:1.

There were 18 nozzles located on the arm, and 11 nozzles associated with the undercarriage and rocker panel wash. The undercarriage and rocker panel wash phase was only included in the Works package, and used reclaim water. Different wash phases used all nozzles in the arm, and the arm was drained of excess product at the end of each application phase. The phases included three different options that included a detergent or finish product, a high-pressure rinse and a spot free rinse. The high-pressure rinse, applied in The Express package, at 21.9 gpv used the largest amount of reclaim water of any phase in the wash. The high-pressure clear coat application used the most amount of water for any freshwater phase at 12.1 gpv; it was applied in the Works and Deluxe packages.

OS1: Car wash facility OS1 was a self-serve facility with six bays, and an attached In-bay automatic. Only the Self-serve facility was audited for this report. The OS3 facility car wash is open 24 hours a day, seven days a week. An attendant is periodically on site to perform maintenance, bay wash downs, money collection and customer service. The facility was constructed in 1989. The OS1 facility is supplied fresh water from a municipal water supply through a municipal meter. Other water uses on the municipal meter included a public restroom, a slop sink, a garden hose, a water softener, and a carpet shampooer, which is manually filled with approximately 5 gallons per week. All ancillary water uses were accounted for in the water audit. All Self-serve facilities included in this study in the Orlando area were owned and managed by the same company.

Car wash customers of OS1 had two options, use of a spray gun or a foam brush. The spray gun was measured at high and low pressure, which used 2.5, and 0.5 gpm respectively. The foam brush used 0.1 gpm. Total fresh water consumed in the car wash over an one week period was 6,827 gallons to wash approximately 384 vehicles for an average freshwater use of 17.8 gpv. The facility offers a spot free rinse, which utilizes a RO system. The product to reject ratio was 1:3.

OS2: Car wash facility OS2 was a self-serve facility with five bays, and an attached In-bay automatic. Only the Self-serve facility was audited for this report. The OS3 facility car wash is

open 24 hours a day, seven days a week. An attendant is periodically on site to perform maintenance, bay wash downs, money collection and customer service. The facility was constructed in 1989. The OS2 facility is supplied fresh water from a municipal water supply through a municipal meter. Other water uses on the municipal meter included an employee restroom, a slop sink, a garden hose, a water softener, and a carpet shampooer, which is manually filled with approximately 5 gallons per week. All ancillary water uses were accounted for in the water audit.

Car wash customers of OS2 had two options, use of a spray gun or a foam brush. The spray gun was measured at high and low pressure, which used 3.5, and 0.5 gpm respectively. The foam brush used 0.1 gpm. Total fresh water consumed in the car wash over an one week period was 4,410 gallons to wash approximately 245 vehicles for an average freshwater use of 18.0 gpv. The facility offers a spot free rinse, which utilizes a RO system. The product to reject ratio was 1:3.

OS3: Car wash facility OS3 was a self-serve facility with six bays, and an attached In-bay automatic. Only the Self-serve facility was audited for this report. The OS3 facility car wash is open 24 hours a day, seven days a week. An attendant is periodically on site to perform maintenance, bay wash downs, money collection and customer service. The facility was constructed in 1989. The OS3 facility is supplied fresh water from a municipal water supply through a municipal meter. Other water uses on the municipal meter included an employee restroom, a slop sink, a garden hose, a water softener, and a carpet shampooer, which is manually filled with approximately 5 gallons per week. All ancillary water uses were accounted for in the water audit.

Car wash customers of OS3 had two options, use of a spray gun or a foam brush. The spray gun was measured at high and low pressure, which used 3.3, and 0.3 gpm respectively. The foam brush used 0.1 gpm. Total fresh water consumed in the car wash over a one-week period was 3,955 gallons to wash approximately 275 vehicles for an average freshwater use of 14.4 gpv. The facility offers a spot free rinse, which utilizes a RO system. The product to reject ratio was 3:1. Due to nightly blockage of the effluent meter with landscaping material, evaporation and carryout values are not available from this site.

OS4: Car wash facility OS4 was a self-serve facility with five bays, and an attached In-bay automatic. Only the Self-service facility was audited for this report. The OS4 facility car wash is open 24 hours a day, seven days a week. An attendant is periodically on site to perform maintenance, bay wash downs, money collection and customer service. The facility was constructed in 1990. The OS4 facility is supplied fresh water from a municipal water supply through a municipal meter. Other water uses on the municipal meter included an employee restroom, a slop sink, a garden hose, a water softener, and a carpet shampooer, which is manually filled with approximately 5 gallons per week. All ancillary water uses were accounted for in the water audit.

Car wash customers of OS4 had two options, use of a spray gun or a foam brush. The spray gun was measured at high and low pressure, which used 2.0, and 0.5 gpm respectively. The foam brush used 0.2 gpm. Total fresh water consumed in the car wash over a one-week period was 7,195 gallons to wash approximately 416 vehicles for an average freshwater use of 17.3 gpv. The facility offers a spot free rinse, which utilizes a RO system. The product to reject ratio was 1.3:3.

PC1: Site PC1 was a conveyor that employed approximately 17 people on weekdays and 29 people on weekends. The facility had minimal non-car wash related water uses, including a soda fountain, two water fountains, restroom facilities for employees and customers, a garden hose, and a three bay oil and lubrication shop. All ancillary uses were accounted for in the audit.

The PC1 Facility was supplied freshwater from a municipal water supply. It had a reclaim system. Reclaim water was pumped from the final compartment of the oil/water separation tank and used in the prep arch.

Total fresh water consumed over the week of metering was 58,422 gallons to wash 2,471 vehicles for an average freshwater use of 28.4 gpv. An additional 16.7 gpv reclaim water was used in the prep arch.

PC2: Site PC2 was a conveyor that employed approximately 20 people on weekdays and 25 people on weekends. The facility had minimal non-car wash related water uses, including two water fountains, restroom facilities for employees and customers, a garden hose, and a small evaporative misting system. All ancillary uses were accounted for in the audit.

The PC2 Facility was supplied freshwater from a municipal water supply. It had plumbing for a reclaim system that was not in use. Total fresh water consumed over the week of metering was 77,105 gallons to wash 1,211 vehicles for an average freshwater use of 63.7 gpv.

PC3: Site PC3 was a conveyor that employed approximately 17 people on weekdays and 21 people on weekends. The facility had minimal non-car wash related water uses, including a soda fountain, two water fountains, restroom facilities for employees and customers, a garden hose, and a small evaporative misting system and a three bay oil and lubrication shop. All ancillary uses were accounted for in the audit.

The PC3 Facility was supplied freshwater from a municipal water supply. It had plumbing for a reclaim system that was not in use. Total fresh water consumed over the week of metering was 87,108 gallons to wash 2,317 vehicles for an average freshwater use of 39.3 gpv.

PI1: Site PI1 consists of one in-bay automatic and five self-service wash bays. The Self Serve bays are reported separately as PS1. During the one-week observation period, the in-bay automatic washed 178 vehicles. No employees are located on-site, although one person is employed throughout the week for site cleaning. The facility has minimal associated uses including a water vending machine and water fountain, which are open to the public. A restroom and sink are located in the maintenance building, which is open only to maintenance staff.

Two oil and grease separators are located on the site; one for the in-bay automatic, and one for the self serve wash bays. The In-bay facility had five cycles with two wash cycles, a finish cycle and two rinse cycles. The high-pressure rinse used the largest amount of water of any cycle at 70.4 gpv. The spot free rinse cycle used an RO system with a 3:3.5 ratio of brine to product water. The total freshwater use per vehicle was 111.5 gpv.

PI2: Site PI2 was similar to Site PI1 with both an in-bay automatic and multiple self-service wash bays. However, the in-bay automatic was the only car-washing feature studied at this site. The in-bay automatic washed 190 vehicles during the week of metering.

The car wash is attended by the owner during the day and is left unattended during the night. No

other persons are employed at this site. This site has no water uses for customer service or convenience. However, for the purposes of this report the self-service wash bay consumption was treated as an ancillary use. Two oil and grease interceptors are located on the site, one for the in-bay automatic and one for the self serve wash bays.

Eight different cycles applied water in PI2 of which four included detergents or cleaning products, one included a finish product, and three were rinse cycles. The final rinse cycle was a spot free rinse using RO with a 2:1 reject to product ratio. The high-pressure rinse cycle used the highest amount of water at 25.8 gpv, and total water use was 74.1 gpv.

PI3: Site PI3 was an in-bay automatic car wash attached to a gas station and convenience store. The in-bay automatic equipment washed 558 vehicles washed during the week of metering.

The in-bay automatic is an unattended portion of the facility located directly behind the convenience store. Two cashiers are on duty 24 hours a day in the convenience store and an additional two people are on duty between 7:00 a.m. and 7:00 p.m. in a small kitchen area. This site has an array of associated uses including convenience store (fast food restaurant, drink machines), public restrooms, and landscape irrigation. An overall audit of the water uses at this site indicates approximately 45% of the total site consumption was attributable to the associated uses.

The car wash portion of the site consists of a single in-bay automatic. Water reclamation is in operation at this site. Water is drawn from the last compartment of the interceptor and pumped back into the system for use in the high-pressure rinse cycles. Five of the wash cycles used fresh water of which two cycles included detergents or cleaning products, and one cycle included a finish product. The spot free rinse was an RO system with a 2:1 brine to product ratio, and used the largest amount of freshwater per vehicle at 16.5gpv. The average freshwater use per vehicle was 28.9gpv. Reclaim provided approximately 63 gpv, or 69 percent of water used.

PS1: Site PS1 consists of one in-bay automatic and five self-serve wash bays. The In Bay is reported separately as PI1. Customers were able to use a spray wand or foam brush in each of the bays. No employees are located on-site, although one person is employed throughout the week for site cleaning. The facility has minimal associated uses including a water vending machine

and water fountain, which are open to the public. A restroom and sink are located in the maintenance building, which is open only to maintenance staff.

During the one-week monitoring period the total number of vehicles washed in the self-serve wash bays at PS1 was 934. The estimated water use was 12.1 gpv.

PS2: Site PS2 consists of four self serve bays equipped with spray wands and foam brushes operated by the adjacent automotive shop, although a separate water meter supplies water to the car wash The number of vehicles washed during this week was 1008. The self serve wash is itself an unstaffed facility, although two people are employed throughout the week by the automotive shop for site cleaning at both facilities. This site has no associated uses for customer service or convenience. These facilities are all located in the adjacent automotive shop waiting room, which is on a separate meter. A single oil and grease interceptor is located on-site. The estimated water use was 12.8 gpv.

PS3: Site PS3 consists of five self serve bays equipped with spray wands and foam brushes. The number of vehicles washed during the week of metering was 658. The self-service wash is an unattended facility. One person is employed throughout the week for site maintenance and cleaning. This site has no associated uses for customer service or convenience. A single oil and grease interceptor is located on-site. The estimated water use was 12.0 gpv.

RESULTS AND DISCUSSION

The results of the three-region study show clear differences with respect to the amount of water consumed per vehicle, and the water lost to evaporation and carryout by car wash type. Table 2 shows average values for freshwater consumption and evaporation and carryout for the three types of professional car washes. The results and discussion begin with a comparison of water consumption and evaporation and carryout losses by car wash type. Regional comparisons and then differences within each region were also examined. A discussion of the water savings obtained by those car washes, which installed reclaim systems, follows along with the potential for additional water conservation and financial benefits.

Consumption

In all three regions the in-bay automatic car washes consumed more fresh water per average car wash at 43.3 gallons per vehicle (gpv). Phoenix showed the highest water use per vehicle wash in all categories except for self-serve. In part, that was due to the lack of car washes with reclaim systems in the Phoenix sample. The water savings and overall water use by carwashes with reclaim systems will be discussed in a subsequent section. One of the Phoenix sites, PI1, had unusually high water use per vehicle at 111.5 gpv. No visible leaks were found, and the owner/operator had made modifications to the car wash design that probably increased the gpv of the site. Orlando's low gpv average is 47.9 gpv below Phoenix and was likely the result of all of the Orlando In-Bay sites using reclaim.

TABLE 1.2
AVERAGE FRESH WATER CONSUMPTION AND LOSS BY CAR WASH TYPE

	Gallons per Vehicle			**Evaporation & Carryout (%)**		
	O	**B**	**P**	**O**	**B**	**P**
Self-Serve	16.0	15.2	12.3	22.9	33.2	19.8
In-Bay	24.6	40.0	72.5	29.8	28.6	32.8
Conveyor	34.3	26.7	43.8	15.1	16.1	16.7
O = Orlando; B = Boston; P = Phoenix						

Average values for fresh water consumption across all car wash types in Boston and Orlando

were 27.2 ± 12 gpv and 24.5 ± 11 gpv respectively. While average water consumption for the nine sites appears significantly higher in Phoenix at 42.5 ± 32 gpv. The greater variability in the water consumption found in Phoenix sites provided overlap in the water use data and prevented statistical separation of the three regions (n = 32, p =0.19). Evaporation and Carryout values were more closely clustered with the range of 25.3 ± 17 percent in Boston to 23.1 ± 14 percent in Phoenix (n=29, p = 0.95). Orlando sites averaged 23.3 ± 22 percent evaporation and carryout losses. Regional climate differences did not appear to be a principle factor in water use or loss in this study.

It is worth noting the large variation in the sample, represented by the standard deviations in the samples that were calculated. It may be that increasing sample sizes will increase the statistical confidence in the mean values reported for each of the car wash types and locations. However, since car wash equipment varies by manufacturer, maintenance schedules and operator preferences, the observed variation may continue to be quite high.

Type of car wash equipment used was the most significant factor in differences in water consumption analyzed for this report. Self-serves were the lowest fresh water users at 15.0 ± 3 gpv, while In Bay automatics used the greatest amount of fresh water at 42.9 ± 26 gpv. Conveyors were closer to the In-Bay automatics at 34.0 ± 15 gpv. The probability of these differences being random was less than one percent.

The customer can purchase most In-Bay automatic washes without leaving their vehicle. The customer chooses their wash option and pays. The equipment is provided by the manufacturer and is designed to run optimally at certain speeds and pressure settings. The owner/operator may make adjustments to water pressure, and nozzle size, but of the three types, changes that affect water consumption rates are most constrained by the equipment design.

Conveyor car washes give owner/operators greater flexibility in choosing the pressure settings and nozzles sizes for each cycle of the car wash. The speed at which the conveyor moves cars through the tunnel can also be adjusted. Minor adjustments may lead to large changes in water consumption per individual wash. Water use by arches or fixtures with spray nozzles may be adjusted by changing nozzle sizes or adjusting pressures. Cloth equipment, or “mitters” need less water once they are completely wet and the car wash has been running for a period of time. These

cloth features within conveyor carwashes are among the lowest water using cycles of the conveyor car washes. In some of the sites nozzles designed to wet the brushes were left off, and the water on the car was allowed to wet the cloth equipment or mitter. Car wash personnel performed prep work with handheld spray wands and/or brushes in 9 of the 10 conveyors evaluated. This also contributed to variability of water use per vehicle in the conveyor car washes.

The self-service operations were the lowest with 15.0 gpv average. The lower gpv average for Self-serves in Phoenix was likely the result of using automatic traffic counters rather than timing actual washes. Automatic traffic counters tally every vehicle that drives over them regardless of whether the vehicle is washed. Since self-service PLCs count minutes of wash time rather than number of washes, the higher vehicle counts resulted in lower gpv totals. As mentioned in the methodology section, the visual observation of vehicles driving through bays in the Boston area without purchasing wash time led to the use of visual surveys to determine average time spent per wash. Over a 5.25 hour period, 97 cars were observed being washed for approximately 7.25 ± 0.8 minutes. The total minutes of wash time was then divided by the average time per wash to produce the number of cars washed for Boston and Orlando sites. Gallons per vehicle averages were calculated by comparing total metered fresh water use to total time elapsed on the PLC during the metering period and multiplying the result by the average wash time (metered fresh water/time x 7.25 minutes/wash = freshwater use per wash).

Previous studies, based upon manufacturers estimates, have suggested that conveyor car washes will have higher average water use than this study found.[4] The kinds of adjustments in water use described in the sites studied probably explains the somewhat lower than expected water consumption rates. Despite being lower than expected, the Boxplot on page 43 shows that the previous estimates, while high, still fall within the boundary of valid estimates for conveyor water use.

Evaporation & Carryout

Unlike water use, evaporation and carryout did not vary significantly by type of car wash

[4] Brown, C., Water Conservation in the Professional Car Wash Industry, International Carwash Association, 2000.

evaluated (n=30, p=0.18). Total evaporation across all locations was 17.6 ± 5% for Conveyors, 30.2 ± 24% for In-Bays, and 25.3 ± 14% for Self-serves. While the separation in values was not statistically significant, the apparent gap between conveyor car washes, measured 12% and 8% below In-bays and Self-serves respectively, and the other two car wash types may be explained by the use of towel drying in conveyor car washes. In those conveyor car washes that offer towel drying, a greater percentage of water may be captured and returned to the sanitary sewer since wet towels are washed and wrung dry before being returned to use. All wash water from the towel washing machines is discharged through the wastewater separation tanks and to the sanitary sewer. The length of the tunnel is also a factor and if sufficient space is allowed between the end of the last water use and the end of the tunnel this will reduce the amount of windblown water that is lost as mist.

It is clear from the Boxplot on page 41 that the variation in the values found in In-bays and Self serves was not found in the Conveyors. The fact that average and median values are tightly grouped suggests that the true value of Evaporation and Carryout losses for professional car washes should lie close to 20%. Graphs on pages 44 to 46 show the relative use of freshwater and discharge normalized to one week based upon the study in the three regions.

Another factor affecting evaporation and carryout is the use of blowers to dry the vehicle at the end of the rinse cycle. Differences between equipment type, power, orientation and number apertures could help explain some of the variation in the evaporation and carryout values. Drying equipment was not evaluated as part of this study. It was visually noted, however, that blow dryers inside In-Bays were installed at the end of the bays next to the exit, while some conveyors had a stretch of tunnel beyond the dryer, in which windblown water could be captured and returned to the car wash tanks. In-Bays offer drying as an optional service, which also increases the variability of the sample, since customer choice results in the use or lack thereof the equipment.

Two of the eleven self-serve sites (OS3 and BS4) were not able to complete the effluent metering to the sewage system due to repeated blockages of the meters with debris. The meter failures here point out an ongoing problem that self-serve operators acknowledge. When the facility is open 24

hours a day without staff present, anything washed off in the bay, for example; engine components, trailers filled with landscaping material, or mud off vehicles, can become entrained in the effluent from the wash bay. In both cases, materials such as plastic bottle caps, sticks or wood chips were found suspended in the waste stream, and fouling the effluent meters.

Reclaim and Conservation Eleven sites studied had some form of reclaim system**.** Reclaim was used in different cycles in the different car washes, thus increasing the variability of the sample. Reclaim as a percentage of total water used in the wash ranged from 82.2 percent at site OI1 to 9 percent at site BC2. Site BC2, however, only used reclaim water in one of its wash phases, the least aggressive of the approaches found. Most of the sites which had reclaim used the reclaim water in three to five of the wash phases, the greater number of those being in the conveyors.

Table 1.3 shows average freshwater use per wash, total gallons of water used in maximum wash including reclaim water, and ranges of percent reclaim use across wash options. Average freshwater use for all sites using reclaim was 28.4 gpv, which represented 49.4 percent of the water used. The range of reclaim as a percent recognizes that choices in optional wash packages can increase or decrease the ratio of freshwater to reclaim used by a carwash. In those car washes with Reclaim systems, the audit identified flow rates and durations for all cycles using reclaim water as well as those utilizing freshwater. Those sites which had the highest percentage of reclaim used the reclaim water in more phases, and in high-pressure wash phases, indicating a greater level of filtration. There was no significant difference in evaporation and carryout between sites that had reclaim systems and those that did not.

TABLE 1.3
RECLAIM SYSTEMS CONTRIBUTION TO WATER USE EFFICIENCY
AT NINE SITES IN BOSTON AND ORLANDO

SITE	AVG GPV FRESHWATER	TOTAL WITH RECLAIM (GPV)	MIN RECLAIM RANGE	MAX RECLAIM RANGE
BC2	34.0	37.4	9%	10%
BC3	16.3	34.8	53%	69%
BC4	26.3	42.4	38%	46%
BI4	31.1	66.5	44%	53%
OC2	37	54.9	33%	62%
OC3	15.9	78.7	55%	74%
OI1	19.2	77.5	69%	82%
OI2	19.6	74.1	67%	71%
OI3	30.3	58.8	54%	61%
OI4	54.7	62.2	12%	44%
PI1	28.3	45.0	37%	63%

For the sites that did not have a reclaim system, potential water savings and cost/benefits of a reclaim system were analyzed. The type of reclaim system analyzed was based upon an actual system on the market in the Boston area. Equipment costs were estimated at $15,000 and installation costs were estimated at $20,000, which includes an underground holding tank and associated piping. The assumed life expectancy of the system was 10 years, and the capital costs were calculated over that time period financed at eight percent interest. The water savings estimates used in the cost/benefit analysis for each site were based configuration of each site, and the appropriateness of use of reclaim water. Water use data and associated costs were obtained from actual water use records for the facility.

Self-serve sites did not appear to be cost effective candidates for reclaim systems. High capital costs and lower potential water savings due to the initially low water consumption per vehicle resulted in negative return on investment. In-bay sites also did not appear to benefit as much as conveyor sites, with average lower annual water costs due to lower usage. Water utilities may decide that lower water usage represented by car washes using reclaim systems are worth providing economic incentives to promote the installation of reclaim systems. The economic value of a reclaim system will depend upon site-specific data including the price of water and the total water usage of the site. As the charts in the appendix show, overall usage varied widely among the car wash facilities that were studied. The cities of Seattle, Washington, and San Antonio, Texas have provided economic incentives to car washes willing to install reclaim systems in order for the city as a whole to benefit from reduced demand.

Specific conservation measures were also examined as part of the study. Again, the relatively low water usage of self-serve facilities resulted in suggestions for reducing the size of nozzles, with minor but measurable savings as a result. In-bay automatics had the highest water use in high-pressure phases indicating that pressure management may be a productive means of reducing water use with minor adjustment to the system. In-bay automatics also showed a consistent tendency to continue moving the spray arm or arch beyond the end of the compact vehicles. Adjusting equipment to measure the actual length of the vehicle being washed could result in significant savings. In some of the In-bay designs, where the same set of nozzles are used for wash, finish and rinse phases, more careful adjustment of the timing of phases and the depressurization/draining of the arm could also produce measurable savings. The multiple manifolds used in the carwash equipment in OI1 and OI2 allowed for water with soap or finish products to stay in the manifold from vehicle car wash to the next, thus saving resources.

The conveyors included in the study showed significant savings by use of lowered pressure settings on high pressure phase, and by shutting off some of the arches or nozzles within the tunnel. Additional savings could be realized by the use of positive shut-off valves in the arches, resulting in water staying in the arch when the equipment is de-pressurized between washes.

CONCLUSIONS:

This study brought to light a number of facts about the professional car wash industry, water use and losses to evaporation and carryout through the use of field data. Previous studies have cited manufacturers estimates and anecdotal evidence for water use by car wash equipment. This study is the first multi-regional study based completely upon field data. As expected, field data showed variation, but confirmed that the manufacturers' estimates cited in earlier studies were within the bound of values found in the field.

Audit techniques which focus on water consumption by individual cars washed appeared to provide more reliable information than those focused on water consumption over a period of time or water consumption by individual components within the wash. The design of some In-Bay and Conveyor equipment with spray nozzles mounted on rapidly moving arms made the collection of data on individual components difficult if not impossible in several circumstances.

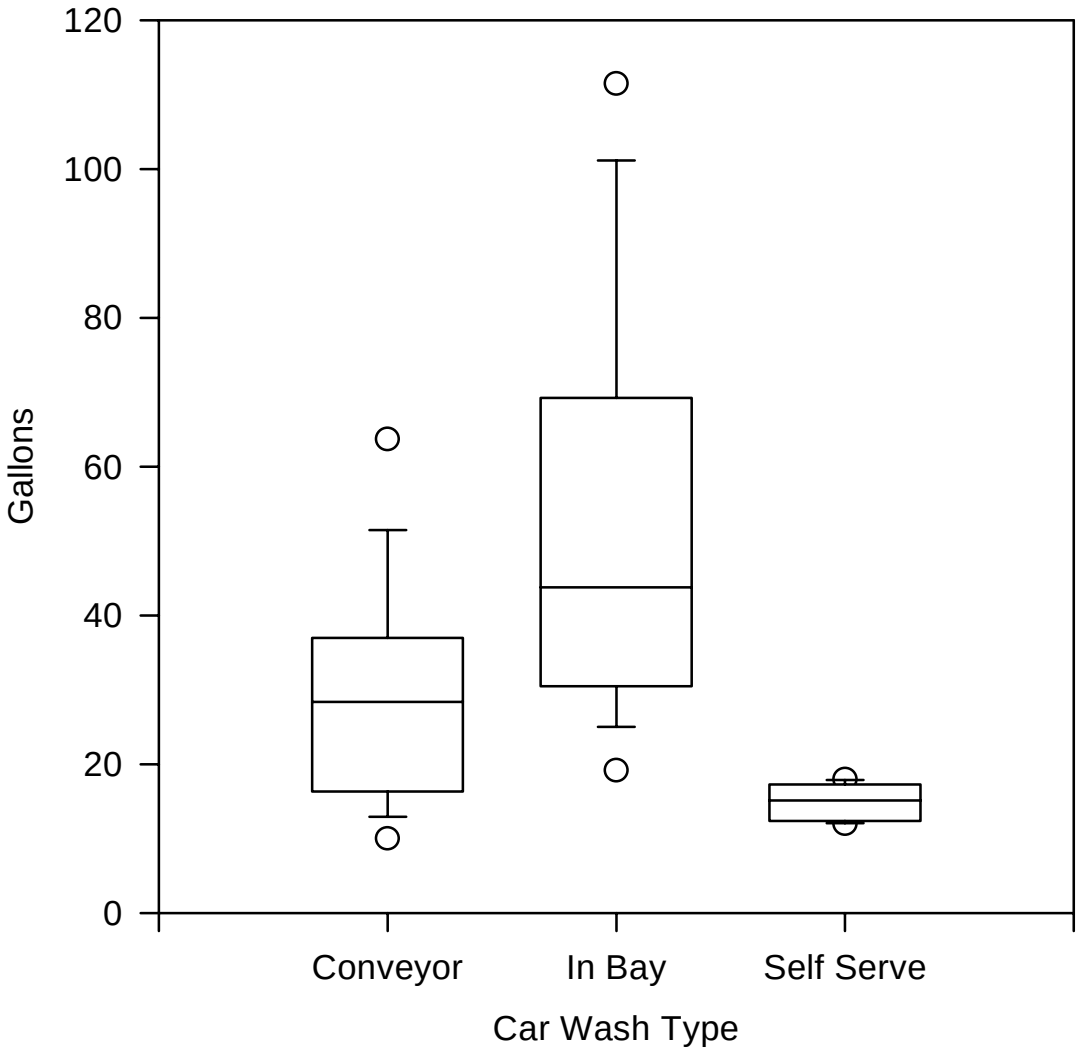
Regional differences in water consumption do not appear significant based upon climate. This indicates that the water losses due to carryout appear to be a greater part of the total losses due to evaporation and carryout.

Evaporation and carryout combined appeared to be consistent across regional boundaries and differences and the mean value of the total sample was 24.0 ± 17.4%. Larger sample sizes may provide for statistical separation in water use by region, but the significant variability in the sample also indicates that individual difference in car wash equipment design, operation and maintenance are likely to be more important than differences in climate.

Water conservation can be promoted by encouraging the use of reclaim and by educating owner/operators to the savings that can be obtained through adjustment and maintenance of equipment. Incentive programs by local utilities facing longer term water shortages may help car wash operators make the investment in reclaim equipment. Recognition of water conserving car washes through certification program like those in Austin and San Antonio, Texas and the newly framed statewide program in Florida, can help water planning agencies and utilities to gain year-round savings in partnership with professional car wash operators.

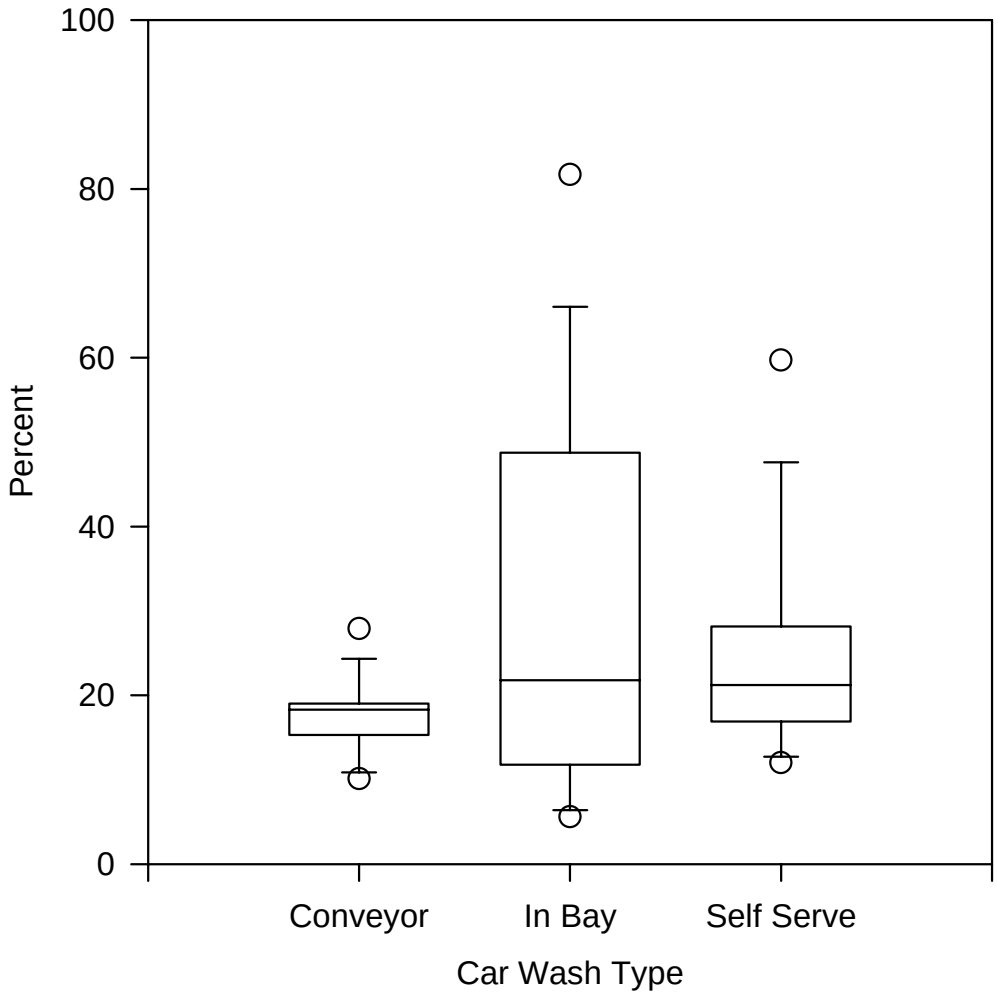
The temporary measurement of wastewater flows from a professional car wash is hampered by the traditional plumbing design of the sewer outfall. Non-intrusive meters such as ultrasonic meters or magnetic meters are commonly used in the water industry to measure flows with entrained materials are large amounts of particulates. These types of meters require a stretch of unbroken pipe to which the meter can be attached. Most sewer outfall pipe at car washes is buried under asphalt or concrete, under the floor of the bays or the parking lot. Future design of car washes should consider leaving a stretch of outfall pipe with access through a meter box sufficiently large enough to install temporary non-invasive metering equipment. This would ease the job of a car wash owner/operator wishing to demonstrate the water losses at their facility from evaporation and carryout.

Water Consumption by Type of Carwash (gpv)

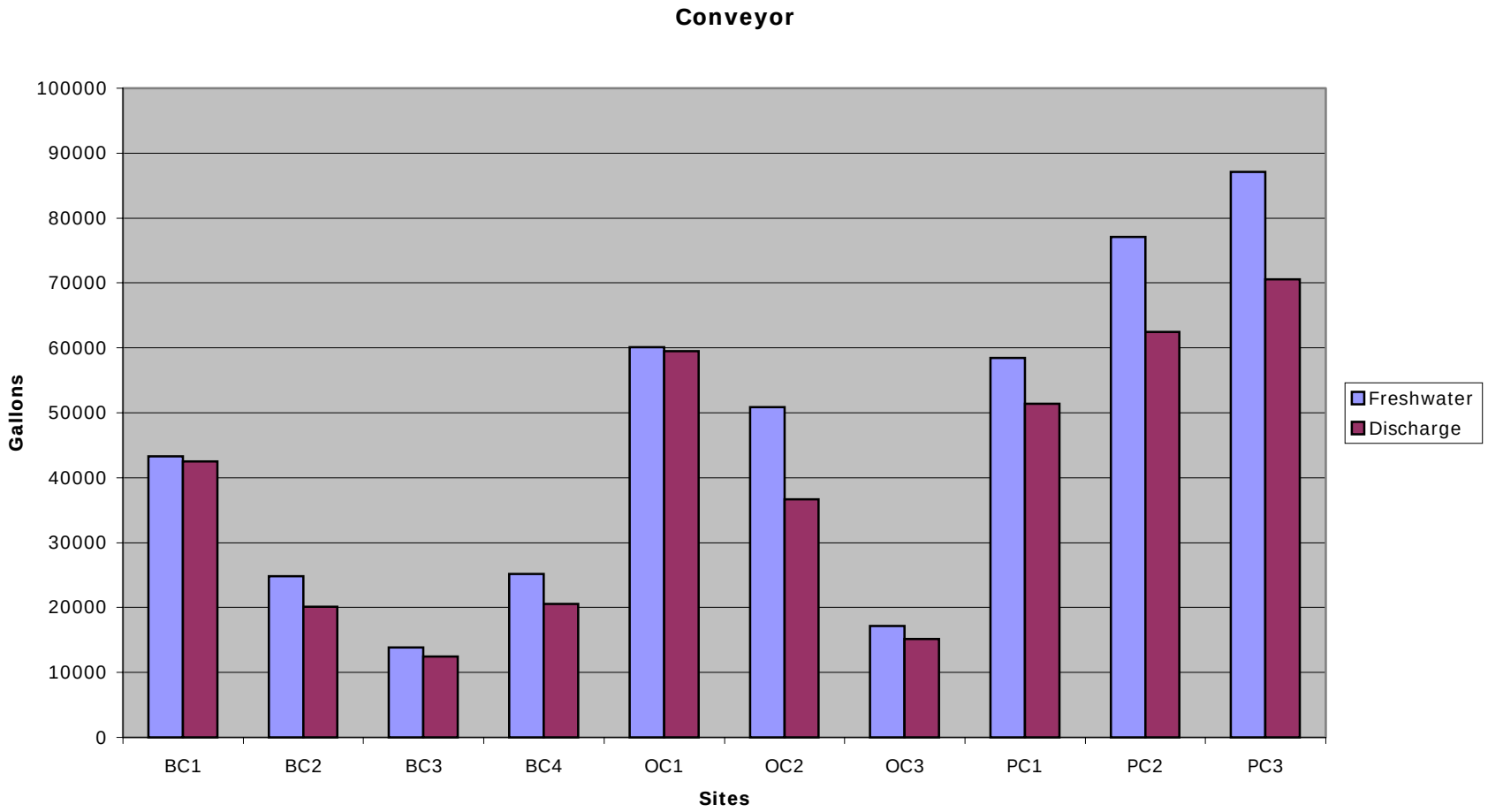


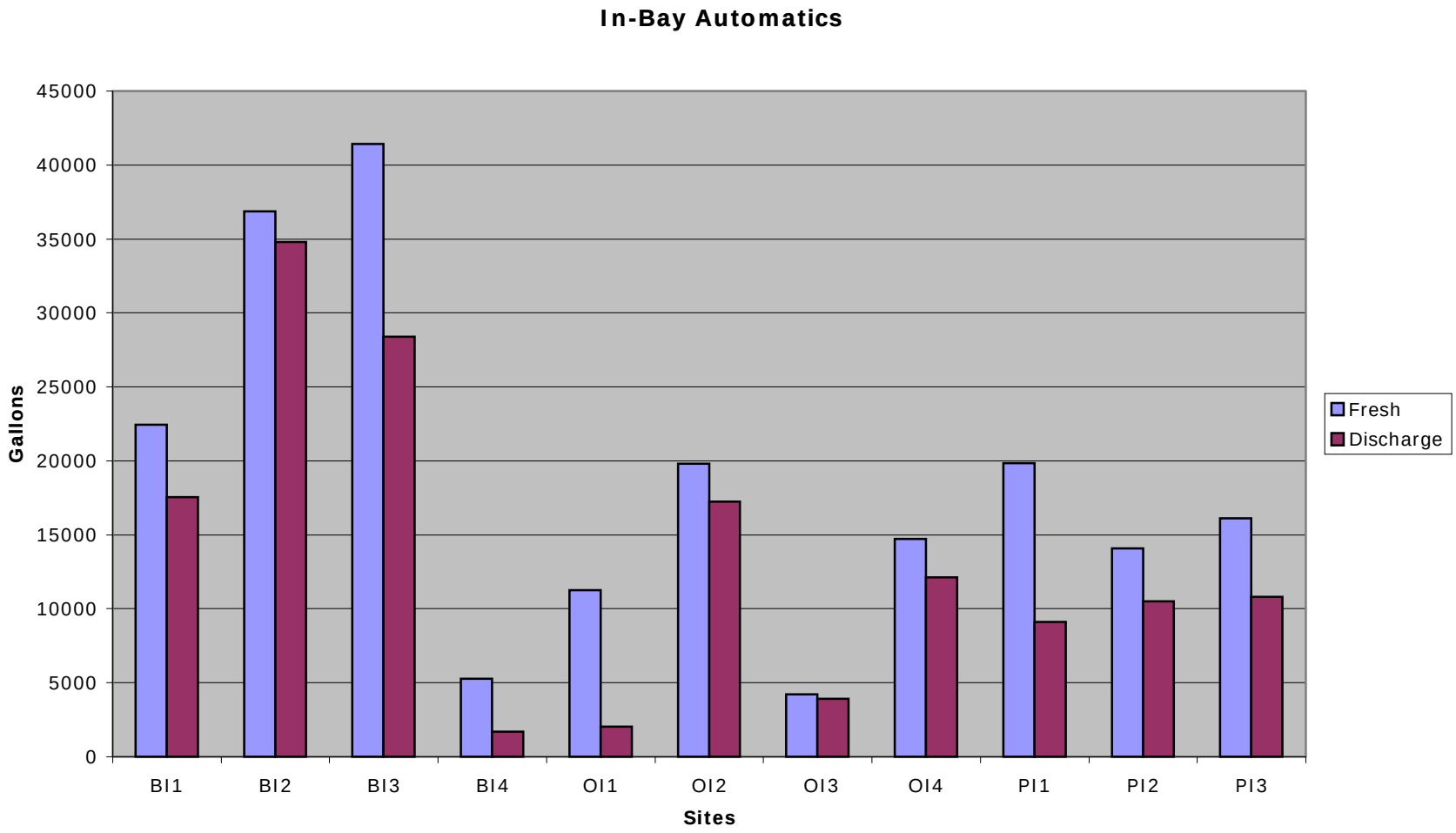
The Boxplots of water consumption data shown above show the center point of each data set, as the midline represents. The relative variability of the data can be seen by the size of the box which shows the most reasonable range of acceptable estimates for the true mean value. The outer fences show the furthest data points from the center, which could still be considered reasonable estimates of values. The circles represent outliers, which suggests that values lower than 15 gpv or higher than 60 gpv are not reasonable to expect in conveyor car washes, and values of less than 20 gpv or higher than 102 gpv are not reasonable in In-bays. The self-service data was so tightly bunched around the 15 gpv mean that it has neither fences nor outliers in the dataset.

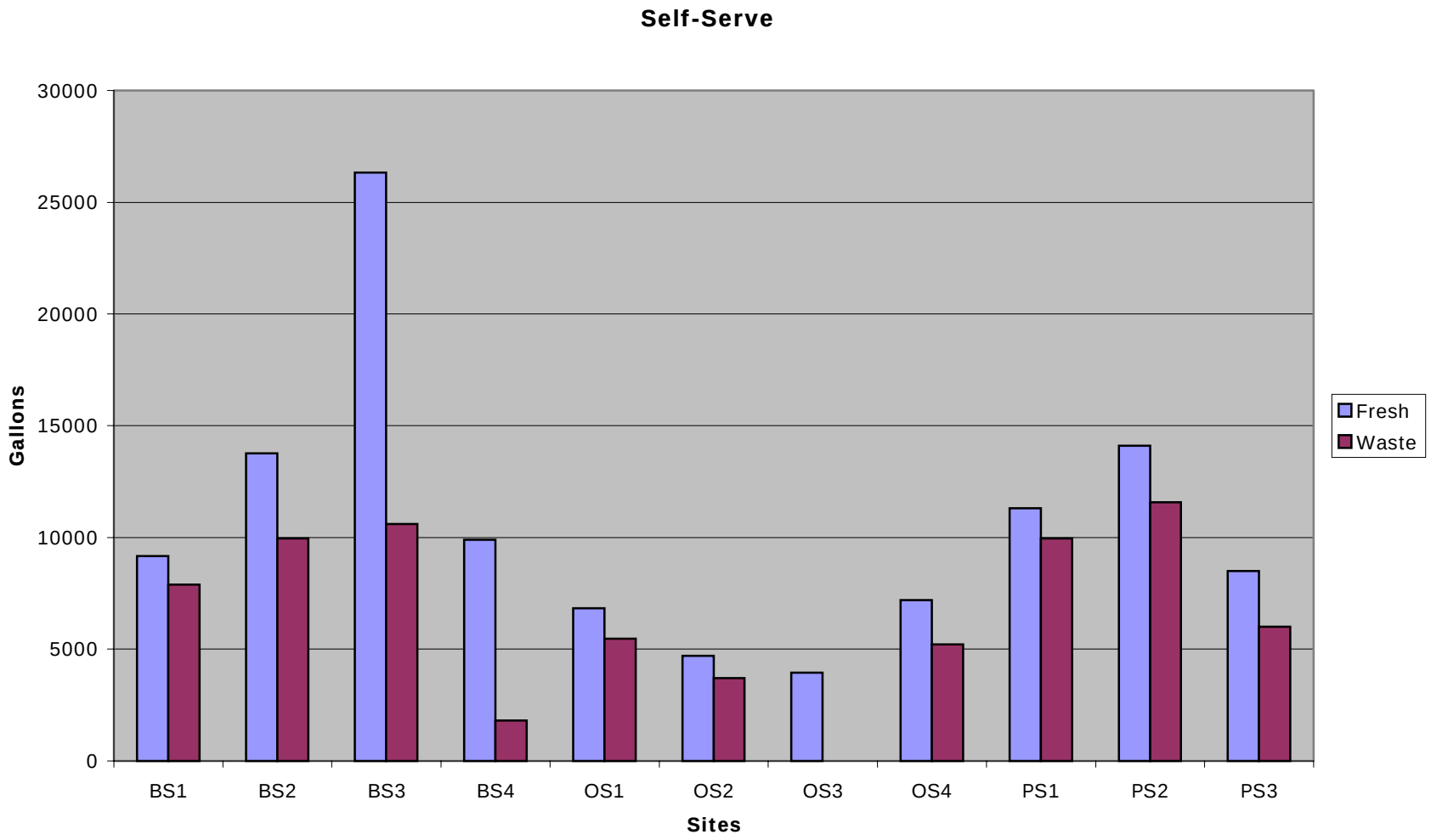
Evaporation and Carryout by Carwash Type (%)



This Boxplot shows the mid points and variation in evaporation and carryout data. As mentioned earlier the median values of all three types of car washes are very similar. There was greater variation in the In-Bay and Self-serve datasets, than in the conveyors. The data suggests that values above 80% for In-Bays and 60% for Self serves are outliers. Reasonable estimates fall below 50% and above 15 % for in-bays, with reasonable estimates being much more closely grouped around 20 to 25% for conveyors and Self-serves. The lower circles on the plots for all three wash types and the upper circle on the conveyor are probably not outliers since they are so close to median values.



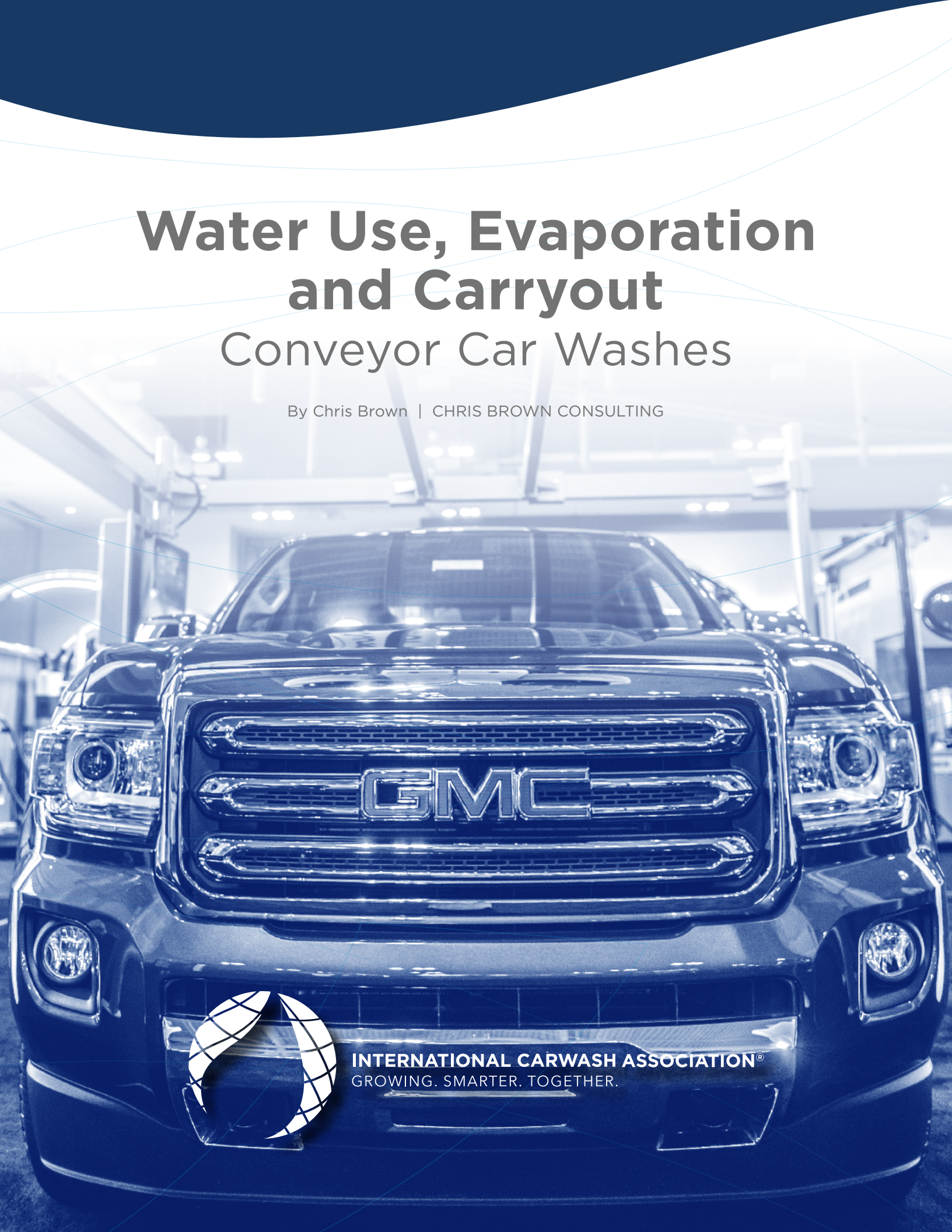




Water Use, Evaporation and Carryout

Conveyor Car Washes

By Chris Brown | CHRIS BROWN CONSULTING



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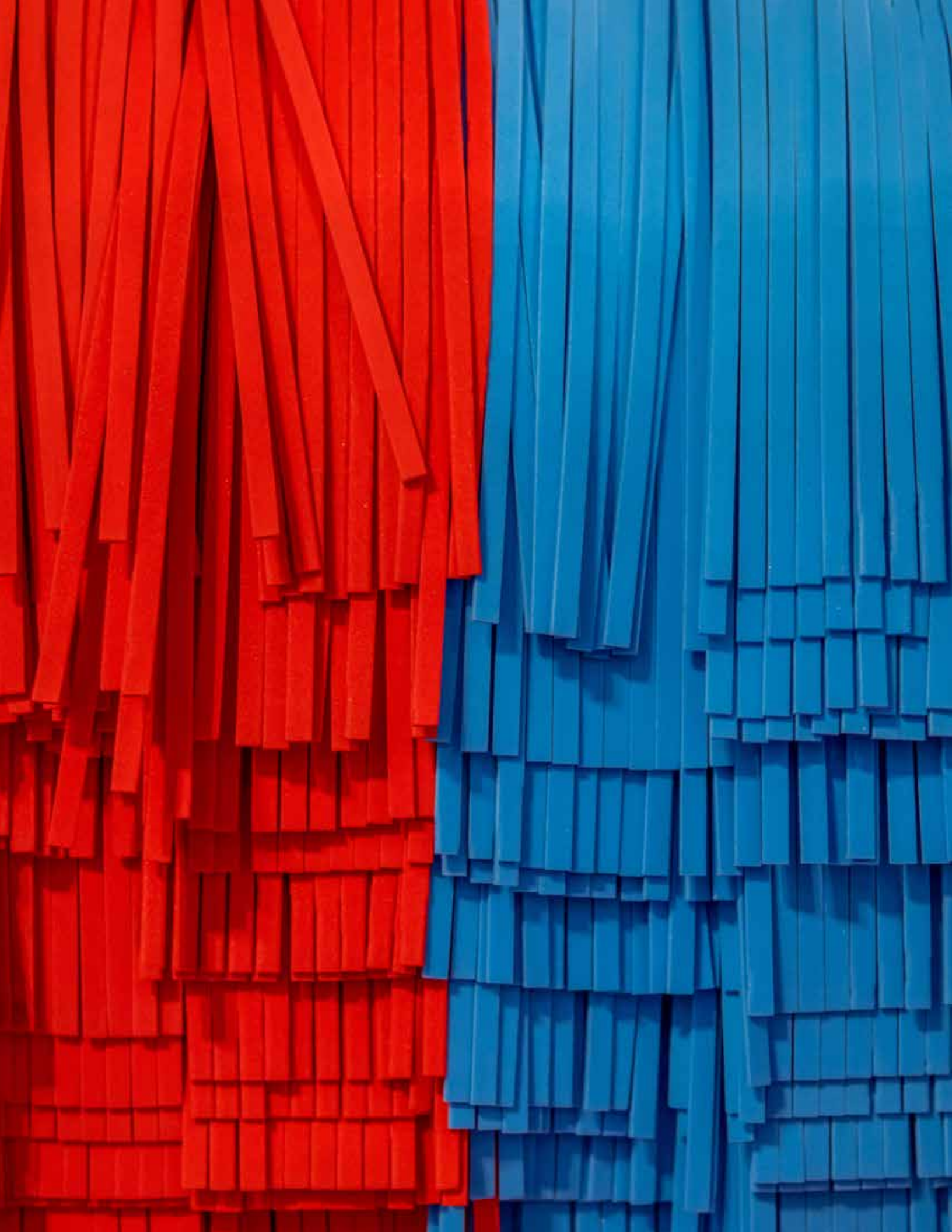

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ACKNOWLEDGEMENTS

The author would like to thank the following people for their assistance: Jack Anthony, Mike Black, Christina Castro, Gary Dennis, Ed Hitchcock, Tom Lye, Kelly Maria, Claire Moore, Jim Mulholland, David Pelaez, Aron Silver, and Frank Taubenkraut. They individually and as a group contributed toward the context and current state of professional automobile cleaning industry addressed in this report.

INTRODUCTION

This study was performed on behalf of the International Carwash Association (ICA) for the purpose of providing a current look at water use, evaporation and carryout, and the use of reclaim water in professional vehicle washes. A study conducted in 2002 by the ICA[1] was the first field study done on professional car washes and has not yet been repeated. Since that time, car wash technology has changed, with several improvements to improve water efficiency. These improvements help provide financial benefits to the car wash owner/operator, assist in meeting regulatory requirements and allow the industry to improve its environmental profile. Specific requirements to meet limits in water consumption have also helped drive the use of reclaim systems in car washes, as well as a state law in California requiring the use of reclaim in car washes constructed after 2013.[2]

The data was collected at a dozen commercial car wash facilities in located in Northern California during the period of May 1 to November 1, 2017. Water use was monitored for a minimum of one week at each of six conveyor and six in-bay facilities. The results of the research at conveyor sites showed freshwater use at 30 gallons per vehicle, which could be used by operators as a benchmark for evaluating their overall efficiency. The In-Bay automatics were more variable due largely to onsite differences in operations, but there was a clear trend towards lower water use per vehicle for those which used reclaim water in more cycles within the wash.

The report is organized into an Executive Summary, a chapter each on Conveyor Car Washes and In-Bay Automatic Car Washes, recommendations, and appendices for the benefit of the ICA and its constituents. The two chapters on conveyors and in-bay automatics are intended for public use at the sole discretion of the ICA.

The facility management at each location was provided a report on their individual site results.

1 Water Use in the Professional Car Wash, International Carwash Association, Brown, C.,2002

2 AB-2230 Recycled Water: Car Washes, https://leginfo.legislature.ca.gov, California, 2012

EXECUTIVE SUMMARY

The purpose of the study was to take a snapshot of water use, evaporation and carryout (E&C) in two types of common car wash models, conveyors and in-bay automatics, fifteen years after the original ICA study. The study focused on calculating the amount and percentage of E&C to determine the amount of fresh water used that is discharged to the sewer. Reclaim water use was measured to determine the amount used per vehicle. Car wash freshwater use on average was expected to be lower than the previous study, where new equipment has been installed. This hypothesis was based on improved efficiency of new car wash systems, especially in in-bay automatic facilities, and the growth in the use of reclaim water systems in both the conveyor and in-bay models.

Over the years since the 2002 car wash water use study was published, a number of car wash operators have used it to show that not all potable water used in the wash process returns to the sanitary sewer for treatment to reduce their sewer bill. It is ICA's hope that the information in this report can be useful in demonstrating that a material amount of fresh water is not returned to sanitary sewers.

Since 2002, the use of reclaim systems in car washes has expanded, and the success of companies selling package reclaim systems, which are installed as a unit with all necessary filters and pumps, has resulted in the presumption that reclaim percentages have risen and are more consistent across the industry. It was evident in the original study that the reclaim systems being used at that time included a number of unique configurations built on-site at the facility, which contributed to the variation in the reclaim percentages observed.

Fresh water use averaged 30.0 +/-6.3 GPV at the conveyor washes in the study, and 44.8 +/- 15.7 GPV at the in-bay automatics.

Reclaim systems were installed at all the sites included in this study. The average amount of reclaim water used in conveyors ranged from 1.9 to 4.9 gallons of reclaim per gallon of freshwater. The range in in-bay automatics was found between .06 to .63 gallons of reclaim per gallon of freshwater.

Evaporation and carryout was measured at an average of:

- 6.3 GPV or 21.4 percent, at the conveyor washes in the study, and
- 8.7 GPV or 20.6 percent, at the in-bay automatics.

Water Use, Evaporation and Carryout

Conveyor Car Washes

The amounts found for E&C at Conveyor washes in this study are similar to the values (5.6 GPV) found in the 2002 study; while those at in-bay automatics were lower than the earlier study (13.2 GPV). In both cases the values measured in 2017 fell within the ranges of E&C found at the sites in 2002. Water Use, Evaporation and Carryout in Conveyor Car Washes

INTRODUCTION

This study was carried out on behalf of the International Carwash Association during the summer of 2017. Six conveyor car washes located in northern California volunteered the use of their facilities for the collection of data. At each facility potable water use and wastewater discharges were monitored and measured by use of meters. The use of reclaim water was evaluated based on the plumbing and timing of individual fixtures within each wash. On average the freshwater use was 30 gallons per vehicle and the evaporation and carryout was 6.3 gallons. In other words, 21percent of fresh water used was not returned to the sanitary sewer system.

Conveyor car washes refer to professional vehicle washes in which the car is pulled underneath a series of arches with sprays or soft wash cloth materials that remove dirt from the vehicle. They are also sometimes called tunnels.

Previous studies have shown that washes with the cloth fixtures, known as mitters, brushes or curtains, use less water than those that only have sprays. All of the six washes in this study had soft cloth fixtures as illustrated in Table C1. The washes studied were also exterior-only washes where the customer sits in the vehicle with the transmission in neutral while it is pulled through the tunnel. The individual facilities are designated by the letters CA to CF for the purpose of this report.

The use of reclaim systems by the car washes reduced the overall use of freshwater. The number of nozzles, water pressure, and timing were considered in estimating reclaim versus freshwater flow. For every gallon of freshwater applied, 2.9 GPV of reclaim water was used on average. This means that only 26 percent of the water used in during each car wash was, on average, fresh. Ratios are presented in this study as a means of demonstrating the range of gallons saved by use of reclaim.

METHODOLOGY

To begin each study a Doppler meter was inserted in the final discharge pipe from the car wash separation tank to the sanitary sewer system. The facilities' basic water uses in addition to the car wash were identified and accounted for so that only water going to the car wash was counted (e.g. rest rooms or irrigation). Metered water supply from the local municipal utility was tracked and compared to the discharge from the car wash.

Evaporation and Carryout was calculated by averaging the total freshwater purchased per vehicle versus the wastewater discharged per vehicle during the study period.

Reclaim values were determined by accounting for the number and type of water uses supplied by freshwater, reclaim water, and spot-free water. Spot-free reject discharge was also accounted for as a part of the reclaim stream, since all of the sites put the reject water into use within the wash to replace freshwater. Values are presented in ratios of gallons of reclaim to freshwater, as both are a separate inputs into the wash.

DISCUSSION

Freshwater use in the conveyor car washes studied was limited to the applications which require foams or additives for the finish of the car, or as the supply for the final rinse. In most cases deionization equipment or reverse osmosis is used for a spot-free rinse and foam applications. In this study, all of the sites had reverse osmosis equipment except one, site CB. Most of the water used in the wash for wetting of the vehicle, high pressure passes, initial rinses, and washing of the vehicle from the doors down is reclaim water, although it is important to note that each car wash facility has unique plumbing configurations and specific choices in the type and quantity of filtration dictate the final use of reclaim in each wash.

The following is a general list of processes found in a conveyor car wash. The specific wash may have slightly different configurations, but the list below is generally adequate for describing the steps that are found.

Water Using Steps In A Professional Conveyor Car Wash Process		
Pre-soak	An automated nozzle or hand held spray.	It was present in all of the washes in this study. It is not found in all car washes.
Wash	High-pressure spray or cloth material with detergent solution.	According to industry reports, almost all conveyors now use cloth features.
Rocker panel/ undercarriage	Cloth material or high pressure sprays on sides and bottom of vehicle.	In a conveyor these may be operated on independent arms or carriages that spray upward from below or beside the vehicle. All sites used reclaim water.
First Rinse	Typically a high-pressure water rinse	Can use reclaim or freshwater. Not spot-free.
Wax/Sealers/Polishes	An optional surface finish is sprayed on the vehicle.	Typically freshwater, although in some cases, spot-free reject water, or higly treated reclaim water will be used.
Final Rinse	Low-pressure rinse	Spot-free rinse with fresh or membrane-filtered/deionized water.

Most of the facilities used Reverse Osmosis (RO) to produce spot-free water to use in the final rinse cycle. The water is referred to as Spot-free water because dissolved (TDS) and suspended (TSS) minerals which could have left spots on the clean vehicle finishes, have been removed1. In some cases, the water was pretreated with water softeners or deionization. This softened water was used in some of the wash solutions as well. Facility CB did not use an RO system to treat the freshwater for the final rinse as the TDS of its municipal source water was already low.

Reject water from the reverse osmosis systems was not wasted, but directed into the reclaim tanks where it could be used in the stages of the wash as part of the reclaim water. The tank where water flows from the wash trench for clarification and initial pumping to the reclaim system is referred to as the separation tank. In facility CA, the RO reject water was directed to a number of different pump tanks which fed the cleaning applications. As a result of replacing freshwater for use in these applications, this facility had the highest amount of reclaim per vehicle washed.

All of the sites used similar separation tank designs, common to commercial car washes, and pumped water from a partition in the separation tank which was located after the settling of grits and solids, and below the level at which oil would float. Separation of oil and grit is accomplished through the position of baffle walls and or pipes between tank sections which slow the water down and allow only water from which the grit has settled, and oil has floated above the flow path, to move forward to where it is pumped for reclaim. Excess water in this system is discharged to the sanitary sewer system.

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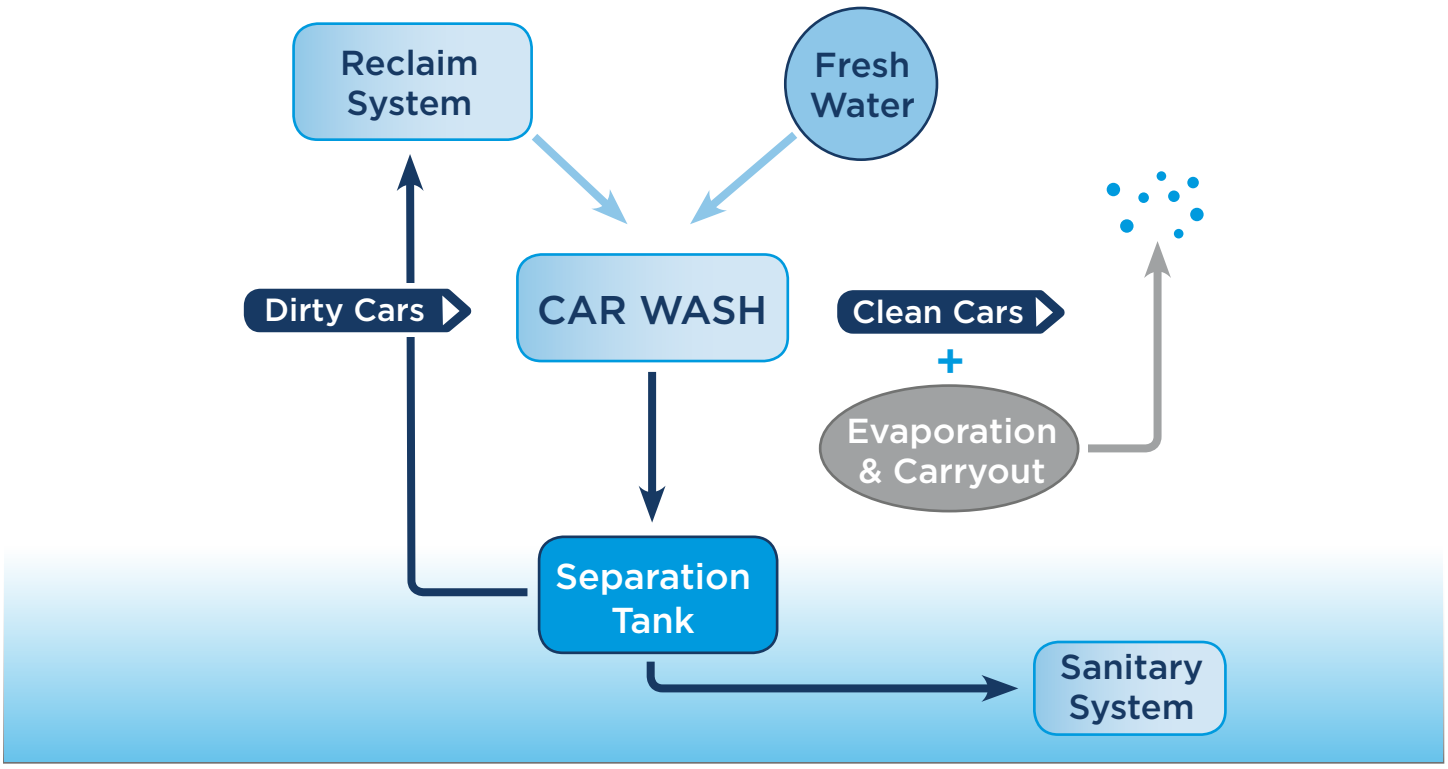
[1] Total dissolved solids (TDS), and total suspended solids (TSS) are the formal terms for measuring the solids which are carried in water. See the glossary for full definitions.

Figure C 1 Water Uses in a Professional Car Wash



EVAPORATION AND CARRYOUT

In a professional car wash the consumptive use of water is referred to as Evaporation and Carryout (E&C). This includes water which evaporates, is blown out of the wash as a mist, or is carried out on the surface of the car. This amount of water is not directly measurable, but must be estimated based upon values which can be measured. The calculation for determining Evaporation and Carryout is water input - water outflow + change in storage. In this study the change in storage was not considered relevant because the R/O storage tanks included sensors to ensure they were topped up at the end of each day, and the separation tanks from which reclaim water is pulled and effluent is discharged were all full at the beginning and end of the study period.

The Evaporation and Carryout values from the six washes studied are reported in Table C1.

Table C1
Freshwater Use, Evaporation and Carryout in Conveyor Car Washes (California, 2017)

Car Wash	Freshwater GPV	GPV E & C	Percent E&C
CA	27.4	6.1	22.2
CB	23.3	5.7	24.5
CC	31.1	5.0	16.0
CD	23.7	6.1	25.9
CE	37.9	6.3	16.6
CF	36.5	8.5	23.3
Average	30.0	6.3	21.4
StDev	6.3	1.2	4.15

These values fall within the range reported in the 2002 ICA Study, Water Use and Wastewater in the Professional Car Wash. The average fresh water use per vehicle is lower than that found in the Orlando and Phoenix area samples, but 3.3 GPV higher than that found in the Boston area washes. The difference is well within the standard deviation of the California sample, except for the Phoenix sample which was higher. The one way this group does appear to be different is a slightly higher average E&C as measured by percentage. Again, as with the freshwater use, and the E&C in GPV, the variation in the sample overlaps the findings in the earlier study. The earlier study, in comparing the three regions, found no significant statistical separation based upon climate.

These results reinforce the conclusion that Evaporation and Carryout is driven primarily by the structure of the conveyor wash, both by the length of tunnel, and number of blowers at the end of the tunnel blowing water back into the tunnel trench area where it can be reclaimed.

Table C2
Conveyor Car Wash Values (2002 ICA Study)

	Freshwater GPV	GPV E & C	Percent E&C
Orlando	34.3	5.2	15.1
Boston Area	26.7	4.3	16.1
Phoenix	43.8	7.3	16.7

RECLAIM AND CONSERVATION

All of the conveyor car washes in this sample used reclaim systems to reuse water in the wash, reducing their demand for freshwater. The principle advantage of using reclaim in a conveyor car wash is conservation of freshwater resources. If not for the reclaim system, all wash cycles would be supplied by freshwater, and the gallons per vehicle would be much higher.

The washes in the sample all used some sort of basket filter to remove larger suspended particles. Additional filtration was used to remove smaller sized suspended solids. After going through the reclaim system, reclaim water was pumped to a pump tanks or tanks within the wash depending upon the internal plumbing and the uses of reclaimed water within the wash. The washes in this sample all used manifolds to distribute fresh and reclaim water from their source to multiple uses in the wash. These may run simultaneously when multiple cars are entrained. Due to the proximity of each water feature, and the length of a vehicle, the front will trigger the start of one process while its rear is still being washed under the previous process. In this study we found that reclaim gallons per vehicle represented a range of 1.9 to 4.9 gallons of reclaimed water for every gallon of fresh water. Ratios are presented as a means of demonstrating the range of gallons saved by use of reclaim.

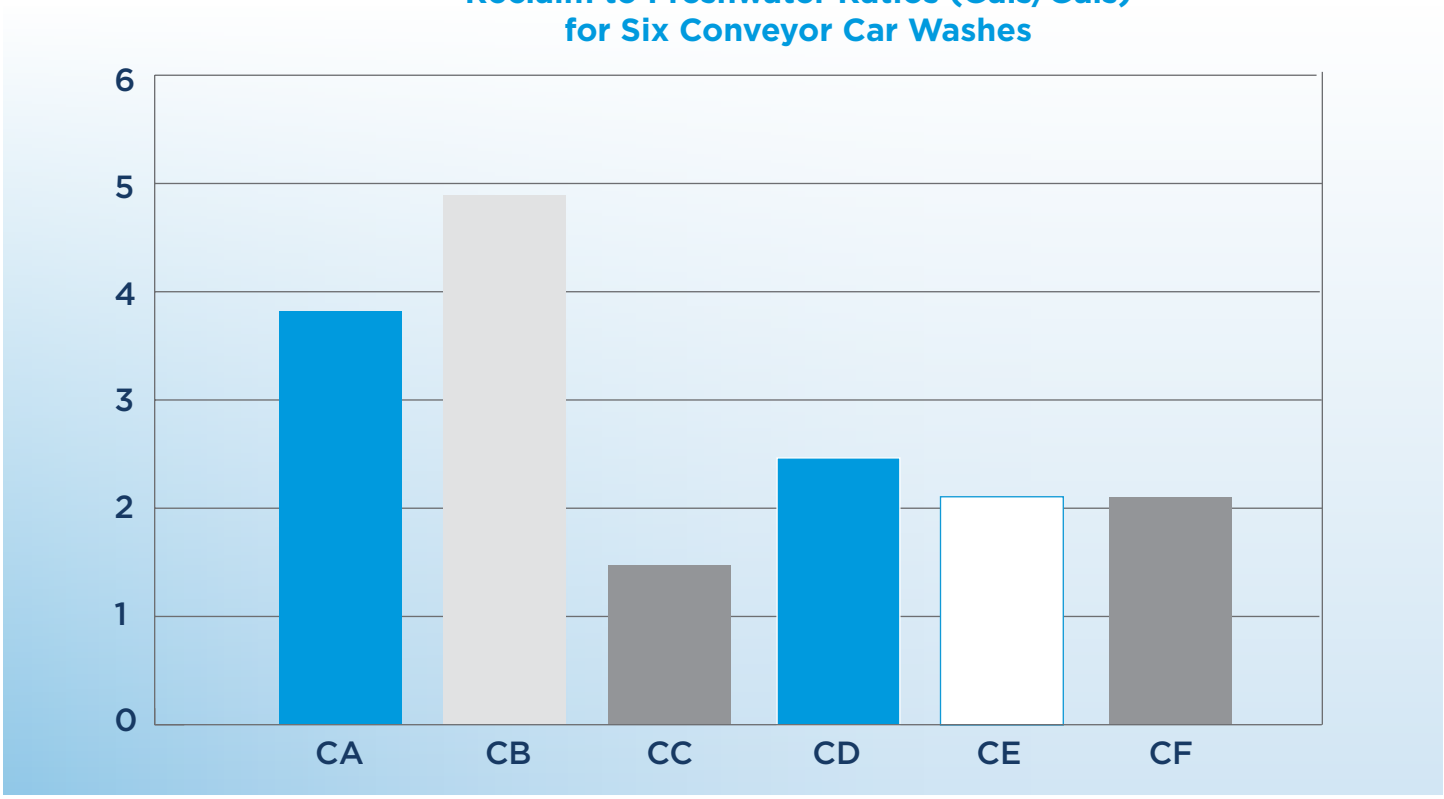
As a result of this configuration, once they've been used in the wash, reclaim and freshwater are practically inseparable within the conveyor wash and drain to the same trench. Thus some reclaim water may be circulated repeatedly through the wash before being discharged, or carried out of the wash. Also, some freshwater in the final rinse is almost certainly part of the evaporation and carryout on each vehicle.

Figure 1 above illustrates the water use and flows in a car wash. From the figure it will be noted that the waste water which flows to the local wastewater treatment plant is from the same tank that the reclaim water is pulled from, and to which freshwater, already used at least once in the wash, also drains. There is no practical way to separate the fresh from the reclaim water once it has drained to the trench. Since reclaim water ends up back in the same tank it came from, any particular molecule could be repeatedly reused.

As a result, this study measures and reports the reclaim water as the number of gallons per gallon of freshwater used per vehicle. This avoids the confusion caused by different methods of calculating percentage as a reclaim versus freshwater, or reclaim as a percentage of all water used.

E&C are calculated as a percentage of the freshwater used in the wash. When reclaim is presented as percentage, it is as fraction of the total of both reclaim and freshwater applied per wash. This explains why percentages do not add up to 100 percent.

Reclaim to Freshwater Ratios (Gals/Gals) for Six Conveyor Car Washes



This sample had significantly higher amounts of reclaim per vehicle washed than the 2002 Study. Less than one half of the sites evaluated in 2002 used Reclaim water. Of those that did, the average value was about one gallon of reclaim used for every gallon of freshwater used.

IMPLEMENTING RECLAIM IN THE PROFESSIONAL CAR WASH

To successfully use reclaim water in a car wash, the owner needs to ensure that the reclaim system provides customer satisfaction, economic benefits and protects the environment.

A car wash reclaim system needs to meet the following goals of:

- Reliability
- Water quality
- Water savings
- Lower sewer bills
- Maintenance time and costs
- Meeting environmental goals

A key consideration in areas which have had, or are anticipating, droughts is reducing the potential for business interruptions due to water rationing.

The first thing to consider in choosing the correct type of reclaim system for a car wash is the amount of water and number of wash applications that the operator intends to use reclaim water to replace freshwater.

Limitations on reclaim are based on the filtration and water treatment equipment or the plumbing in the facility. All reclaim systems require regular maintenance, and are equipped with freshwater bypass valves. Some bypass valves are designed for automatic activation to protect the reclaim pumps from pressure transients, or to assist in maintenance. If the valve is left open it will reduce the amount of reclaim water.

The smaller the particles which are removed by filtration, the more wash applications in which reclaim can be used. Filters which remove all particles above 5 microns are considered sufficient for use in all applications except the spot-free rinse. If a filter allows particles greater than 25 microns to pass, the system operator will likely choose to use it only on passes from the wheels down in order to reduce the risk of impact on vehicle finishes.

Different filter types are used in car wash reclaim systems. These include cyclonic filters, to remove particles by weight, and bag, basket or sand filters to remove floating or suspended particles. They may be used in sequence in order to reduce maintenance time and costs, by using multiple filter types to remove the larger particles first.

In addition to removing sediment, the operator will need some form of odor control due to organics which are entrained in the car wash process. Odor control can be achieved by chemical additives or by aerating the water. Aeration techniques include recirculating the reclaim water, air sparging, and the use of ozone.

REJECT WATER FROM REVERSE OSMOSIS

In addition to reusing water after it has been through the wash cycle, there is an opportunity save water from the spot-free rinse process. If a facility is equipped with a reverse osmosis unit to produce spot-free water, some amount of water will be rejected.

There are several opportunities for reusing this reject water in a car wash. It can be directed to:

- the separation tank along with the reclaim water, and reused in reclaim cycles;
- the landscape to replace municipal water, as long as the plants are not sensitive to salts; or
- the pump tanks in the wash for cycles which are prior to the spot-free rinse, including wash applications which use solutions as long as the chemistry is tested and is compatible.

Reusing reject water instead of directing it to the sanitary sewer means less potable water is purchased and used in the wash.

CONCLUSION - CONVEYORS

Despite the length and large number of water using processes in a typical conveyor car wash, freshwater use per vehicle is relatively low. This is due both to the speed of the conveyor, and the use of Reclaim or RO reject recovery. At the facilities evaluated in this study vehicles were in and out of the wash process in less than two minutes, and most nozzles switched on and off in about 20 seconds. Most of the sprays, whether freshwater or reclaim, were low pressure applications, since all the washes used soft cloth friction as part of the cleaning process and many of the nozzles were used to wet the mitters or curtains. As noted above, the majority of the water used in this sample was reclaim water.

Evaporation and carryout was in the same range as earlier study, but represented a higher than average percentage of freshwater inputs because the average water use per vehicle was lower. This suggests that car wash operators seeking credit on their sanitary sewer rate charges for water which does not flow to the sanitary sewer may wish to report such flows in gallons per vehicle rather than as a percentage. This study found E&C at Conveyors, on average to be 6.3 GPV. This would require sharing the number of vehicles washed per billing period with the local water treatment utility.

Glossary

Spot-Free Rinse: Spot-free rinses are offered in many car washes due to the presence of dissolved materials in the water supply which will leave small spots on the finish of the vehicle as it dries. Minerals and other ions, which have been dissolved, are removed by de-ionization or reverse osmosis.

Reclaim: Reclaim is the term used in the professional car wash industry for water recycling systems designed to treat and reuse car wash water. The first step is clarification using the separation or sedimentation tank to remove heavier grit and oil from the water. The reclaim system then removes smaller particles down to 5 microns in diameter, and the water is treated for odor control through one of a number of systems including aeration, ozone, or use of a disinfection product.

Freshwater: Freshwater is the term used for potable water supply. In case of self-supplied facilities using a well, the groundwater may be used directly with additional treatment to potable standard. Typically freshwater refers to the potable water purchased from a local water purveyor.

Reverse Osmosis: Reverse Osmosis (RO) works by using pressure to force water containing solutes through a semi-permeable membrane. Pure water results on the side of the membrane supplying the spot-free rinse, while the reject side is disposed or reclaimed.

Reject water: Reject water is the term used for the water which is left after a RO system forces water through the membrane for use in the spot-free rinse. This water is higher in total dissolved solids than the freshwater supply, but often pure enough for use in other wash processes, or by combining with the wash water in the separation tank, can be used as a supply for the reclaim system.

Process water: Process water or product water is the pure water forced through a semipermeable barrier which is produced by a RO system for use in the spot-free rinse.

Total Dissolved Solids (TDS): A measure of the combined content of all inorganic and organic substances contained in a liquid in: molecular, ionized or micro-granular suspended form. Generally the operational definition is that the solids must be small enough to survive filtration through a filter with two-micrometer pores.

Total Suspended Solids (TSS): A water quality parameter that is defined as the quantity of material suspended in a known volume of water that is trappable in a filter.

INTERNATIONAL CARWASH ASSOCIATION®
GROWING. SMARTER. TOGETHER.

RESOLUTION 2020-135

A RESOLUTION SETTING SEPARATE SEWER SERVICE RATES FOR CAR WASHES

WHEREAS, It is the policy of the City of Ontario to require the ascertainment and recovery of certain City costs from Fees and charges levied therefore in providing City services and regulations; and,

WHEREAS, The sewer service rate charged to car washes doesn't appear to be in proportion to the actual contribution to the total wastewater treatment system; and,

WHEREAS, 16.7% of carryout and evaporation of water was identified in the 2002 and 2018 International Carwash Association's study: and

WHEREAS, This rate would only be charged when the carwash is located within city limits and a separate water meter is in place for the carwash only; and

WHEREAS, This fee resolution implements City Code Section 8-9-2 which allows the Council to set by resolution the sewer service rates for monthly sewer service to be charged by the City.

NOW THEREFORE, BE IT HEREBY RESOLVED by the Ontario City Council as follows:

1) The City Council approves the following fee schedule for sewer service rates under City Code Section 8-9-2 as it relates to car wash sewer usage:

Base Inside City Limits	**Monthly Rate Inside City Limits**	**Per**
$6.64	$5.06	1,000 gallons

2) Annually when all sewer service rates are reviewed and possibly adjusted, the carwash study will be evaluated for any changes. Carwash sewer service rates will increase proportionally with other sewer rate increases.

EFFECTIVE DATE: Effective immediately upon passage.

PASSED AND ADOPTED by the City Council of the City of Ontario this 15th day of September, 2020, by the following vote:

AYES:

NAYES:

ABSENT:

APPROVED by the Mayor this 15th day of September, 2020.

ATTEST:

_____
Riley J. Hill, Mayor

_____
Tori Barnett, MMC, City Recorder

City Contract Includes		Cost	Percent Attributable		Weighted Cost
Facilities					
Buliding Maint & Repair (Fire)	$	1,000	11.3%	$	113.00
Apartment 3 Utilities	$	265	11.3%	$	29.92
Station 2 Utilities	$	221	35.0%	$	77.45
City Hall Utilities	$	18,909	20.0%	$	3,781.81
Total	$	20,395		$	4,002.18
Training					
Professional Development (Fire)	$	5,789	11.3%	$	654.16
Training Supplies (Fire)	$	1,195	11.3%	$	135.04
Total	$	6,984		$	789.19
Ancillary Support					
Admin Personnel Services	$	450,645	2.2%	$	9,914.19
Oster Contract Services	$	225,740	2.2%	$	4,966.28
Jacobs	$	39,733	2.2%	$	874.13
Total	$	716,118		$	15,754.60
Personnel					
Deferred Comp	$	1,800	11.3%	$	203.40
Haz Mat Wages	$	15,000	11.3%	$	1,695.00
Medical Insurance Co-Pay	$	220,562	11.3%	$	24,923.51
Overtime	$	60,000	11.3%	$	6,780.00
Part-Time Employees	$	80,375	11.3%	$	9,082.38
Retirement	$	227,438	11.3%	$	25,700.49
Retirement-EE Share	$	38,423	11.3%	$	4,341.80
Social Security	$	60,180	11.3%	$	6,800.34
Vacation/Sick Buyout	$	14,809	11.3%	$	1,673.42
Wages and Salaries	$	770,046	11.3%	$	87,015.20
Workmans Comp	$	23,452	11.3%	$	2,650.08
Total	$	1,512,085		$	170,865.61
Equipment					
SCBA Mask w/ Voice Box	$	6,660	11.3%	$	752.58
SCBA Bag w/ D Ring	$	900	11.3%	$	101.70
Turnout Coat	$	39,600	11.3%	$	4,474.80
Turnout Pants	$	36,000	11.3%	$	4,068.00
Suspenders	$	1,260	11.3%	$	142.38
Rubber Boots	$	5,400	11.3%	$	610.20
Structural Gloves	$	3,060	11.3%	$	345.78
Nomax Hood	$	3,240	11.3%	$	366.12
Helmet	$	10,260	11.3%	$	1,159.38
Spanner Wrench	$	540	90.0%	$	486.00
Web Belt	$	900	90.0%	$	810.00
Flashlight	$	2,124	90.0%	$	1,911.60
Wildland Brush Shirt	$	5,040	90.0%	$	4,536.00
Wildland brush Pants	$	7,198	90.0%	$	6,478.38
Wildland Bag	$	1,440	90.0%	$	1,295.68
Wildland Gloves	$	1,260	90.0%	$	1,134.00
Wildland Helmet	$	1,944	90.0%	$	1,749.60
Wildland Shield/Mask	$	2,340	90.0%	$	2,106.00

Wildland Boots	$	9,900	90.0%	$	8,910.00
Wildland Belt	$	900	90.0%	$	810.00
Goggles	$	648	90.0%	$	583.20
Canteen	$	432	90.0%	$	388.80
Wildland Radio Vest	$	1,620	90.0%	$	1,458.00
Safety Vest	$	540	11.3%	$	61.02
Duty Uniform Shirt	$	575	11.3%	$	64.98
Duty Uniform Pants	$	1,265	11.3%	$	142.95
Duty Uniform Boots	$	6,900	11.3%	$	779.70
Duty Uniform Nametag	$	575	11.3%	$	64.98
T-Shirts	$	1,260	11.3%	$	142.38
Radio w/ Charger	$	-	11.3%	$	-
Pager w/ Charger	$	-	11.3%	$	-
Carry Case	$	11,160	11.3%	$	1,261.08
Total	$	164,941		$	47,195.27

Insurance- Fixed Assets					
City Hall/Fire Station	$	3,634	20.0%	$	726.86
City Hall Maintenance/Storage	$	1,097	14.3%	$	156.76
Fire Station #2	$	474	100.0%	$	473.90
Total	$	5,205		$	1,357.51

Insurance- Vehicles					
2009 Kenworth Rescue 1	$	1,082	11.3%	$	122.24
1987 Seagraves Ladder Truck	$	1,389	20.0%	$	277.77
2005 Kenworth Tanker Pumper	$	1,082	100.0%	$	1,081.80
2014 Ram 5500	$	618	100.0%	$	617.57
2009 Dodge Ram 5500	$	521	100.0%	$	521.33
2010 International Pumper Truck	$	1,082	100.0%	$	1,081.80
2003 Ford Expedition	$	441	11.3%	$	49.81
2015 Ram 3500 ST	$	545	60.0%	$	327.05
2020 Big Tex Utility Trailer	$	79	90.0%	$	70.78
Total	$	6,838		$	4,150.16

Insurance- Mobile Equipment					
Equipment in 2009 Kenworth	$	1,260	11.3%	$	142.34
Equipment in 1987 Seagraves	$	786	20.0%	$	157.23
Equipment in 2005 Kenworth	$	778	100.0%	$	778.08
Equipment in 2014 Ram	$	444	100.0%	$	443.53
Equipment in 2009 Dodge	$	477	100.0%	$	477.15
Equipment in 2015 Ram	$	168	60.0%	$	100.95
Equipment in 2003 Expedition	$	160	11.3%	$	18.09
2019 Polaris Ranger UTV	$	87	90.0%	$	78.43
Generac Generator	$	21	11.3%	$	2.37
Lucas 3 Chest Compression System	$	105	11.3%	$	11.84
ICOM Radios Receiver Equipment	$	76	11.3%	$	8.56
Motorola Pagers Receiver Equipment	$	89	11.3%	$	10.03
Total	$	4,450		$	2,228.59

Grand Total Cost for Rural District	$	2,437,016		$	246,343
Monthly Rural Cost				$	20,529
Capital Cost					$5,058
Total Monthly Rural District Cost				$	25,586

Grant Total Annual Rural District with Capital		$ 307,035
Current Rural Contract		$111,572
Current Rural Contract Per Month		$9,298
City subsidizing rural district per month		$16,289
City subsidizing rural district per year		$195,463

Accounts Payable

Checks by Date - Summary by Check Date

User: kari.ott
Printed: 9/9/2020 1:51 PM

Check No	Vendor No	Vendor Name	Check Date	Check Amount
126320	&260	Four Rivers Cultural Center	08/04/2020	27,044.53
126321	539200	Ontario Area Chamber of Commerce	08/04/2020	19,497.89
			Total for 8/4/2020:	46,542.42
126322	005000	A-1 Key and Lock Service	08/14/2020	1,299.00
126323	T110	Coley's Glass Company, LLC	08/14/2020	1,255.76
126324	22427	Murrysmith, Inc.	08/14/2020	4,354.00
126325	879138	Stantec Consulting Services, Inc.	08/14/2020	1,306.75
126326	626400	Campo & Poole Distributing, LLC	08/14/2020	5,607.92
126327	879133	Community in Action	08/14/2020	21,696.00
126328	879465	Ergon Asphalt & Emulsions, Inc.	08/14/2020	15,004.35
126329	382005	Interpath Laboratory, Inc.	08/14/2020	1,231.64
126330	528405	Oster Professional Group, LLC	08/14/2020	49,086.76
126331	842030	Warrington Construction	08/14/2020	507,113.10
126332	863995	White Cloud Communications-Boise, Inc.	08/14/2020	1,980.15
126333	879058	A Plus Awards	08/14/2020	30.00
126334	033300	Argus Observer	08/14/2020	74.88
126335	130624	B & W Car Wash	08/14/2020	24.00
126336	879336	Boise River Fence, Inc.	08/14/2020	1,850.00
126337	210200	CMi Software Corp	08/14/2020	17,900.00
126338	216000	D & B Supply Company	08/14/2020	264.96
126339	879247	Day Wireless Systems	08/14/2020	8,714.46
126340	247940	Dooley Enterprises, Inc.	08/14/2020	4,573.50
126341	634311	Frazier Aviation, LLC	08/14/2020	425.00
126342	336088	Grossenbacher Brothers, Inc.	08/14/2020	820.50
126343	879486	D.Geoffrey Hill	08/14/2020	2,000.00
126344	360015	Home Depot Credit Services	08/14/2020	48.48
126345	878915	Jacobs	08/14/2020	23,201.22
126346	436000	Lindsay Eco Water	08/14/2020	14.00
126347	451593	Malheur Council on Aging & Community S	08/14/2020	10,000.00
126348	456402	Malheur County Clerk	08/14/2020	107.00
126349	477523	Municode	08/14/2020	455.59
126350	602320	NAPA Auto Parts	08/14/2020	29.95
126351	500400	Norco, Inc.	08/14/2020	44.28
126352	516494	State of Oregon Department of Transportati	08/14/2020	5,476.49
126353	232058	State of Oregon Dept of Administrative Ser	08/14/2020	1,000.00
126354	879012	State of Oregon Dept of Public Safety Stanc	08/14/2020	80.00
126355	642093	Red's Automotive Repair, Inc.	08/14/2020	1,392.96
126356	879425	Springbrook Holding Co.,LLC	08/14/2020	24,170.00
126357	702100	Staples Credit Plan	08/14/2020	47.75
126358	879146	Toshiba Financial Services	08/14/2020	1,721.89
126359	878992	Wolfcom Enterprises	08/14/2020	815.48
126360	774001	Wtechlink	08/14/2020	300.00
126361	879487	Aubrees	08/14/2020	2,500.00
126362	879487	Aubrees	08/14/2020	2,500.00

Check No	Vendor No	Vendor Name	Check Date	Check Amount
			Total for 8/14/2020:	720,517.82
126363	260409	Eastern Oregon Animal Health, LLC	08/19/2020	635.00
126364	420000	John Deere Financial	08/19/2020	159.61
126367	033300	Argus Observer	08/19/2020	306.72
126368	879309	Civil Air Patrol Magazine	08/19/2020	45.00
126369	520400	Dorman's, Inc.	08/19/2020	56.65
126370	270205	Emergency Responder Services, Inc.	08/19/2020	523.00
126371	879486	D.Geoffrey Hill	08/19/2020	1,000.00
126372	363999	Holcomb Construction, Inc.	08/19/2020	45,077.50
126373	370401	International Code Council, Inc.	08/19/2020	145.00
126374	878915	Jacobs	08/19/2020	449,726.35
126375	420000	John Deere Financial	08/19/2020	144.96
126376	879191	Kristy's Custom Sewing	08/19/2020	12.00
126377	441140	Looks Nu, Inc.	08/19/2020	290.00
126378	242083	State of Oregon Department of Transportati	08/19/2020	1.15
126379	642093	Red's Automotive Repair, Inc.	08/19/2020	80.00
126380	879425	Springbrook Holding Co.,LLC	08/19/2020	1,008.00
126381	702008	Staples Business Credit	08/19/2020	248.71
126382	&357	Larry A. Sullivan	08/19/2020	6,302.50
126383	738002	Symbol Arts, LLC	08/19/2020	60.00
126384	879212	Uniforms 2 Gear	08/19/2020	690.49
126385	842040	Warrington Irrigation, Inc.	08/19/2020	128.40
126386	879151	Waste-Pro	08/19/2020	40.05
126387	878992	Wolfcom Enterprises	08/19/2020	944.96
			Total for 8/19/2020:	507,626.05
ACH	PRFED	PAYROLL TAXES	08/21/2020	160.82
ACH	PRORTAX2	OREGON DEPARTMENT OF REVENUE	08/21/2020	1.05
ACH	PRPERS	OREGON PERS	08/21/2020	408.07
126388	037600	AT&T	08/21/2020	23.00
126389	UB*11784	MARIA BARBA	08/21/2020	22.83
126390	144000	Cascade Natural Gas Corporation	08/21/2020	32.67
126391	637830	Century Link	08/21/2020	480.51
126392	637828	Century Link Communications, LLC	08/21/2020	152.08
126393	UB*11788	CURTIS & MARCELLA CLOUGH	08/21/2020	22.03
126394	UB*11787	COREENA DEITER	08/21/2020	84.82
126395	376000	Idaho Power	08/21/2020	3,112.73
126396	UB*11786	SCOT KINNEEN M/R	08/21/2020	88.61
126397	879244	Jon Laurenson	08/21/2020	125.00
126398	596071	Ontario Volunteer Firefighters Association	08/21/2020	10.00
126399	UB*11783	PAUL PRATT	08/21/2020	80.56
126400	879388	Steven Romero	08/21/2020	68.00
126401	130950	Sparklight Business	08/21/2020	375.92
126402	738001	James Swank	08/21/2020	51.99
126403	288897	Verizon	08/21/2020	2,011.65
126404	UB*11785	ATILIO VILCAPOMA-PEREZ	08/21/2020	123.26
126405	072400	Dave Walters	08/21/2020	62.54
126406	879488	Weedology	08/21/2020	220.00
126407	879489	Ontario Poker Room & Social Club	08/21/2020	4,500.00
126408	879489	Ontario Poker Room & Social Club	08/21/2020	4,500.00
126409	879490	Law Enforcement Technologies	08/21/2020	1,143.50
126410	642093	Red's Automotive Repair, Inc.	08/21/2020	63.36
126411	T770949	David Thompson	08/21/2020	10,000.00
126412	878931	Tire Factory of Ontario	08/21/2020	1,382.00

Check No	Vendor No	Vendor Name	Check Date	Check Amount
126413	788402	TransUnion Risk & Alternative Data Soluti	08/21/2020	50.00
126414	879212	Uniforms 2 Gear	08/21/2020	229.12
			Total for 8/21/2020:	29,586.12
ACH	PRAFLAC	AMERICAN FAMILY LIFE ASSURANCE	08/31/2020	774.22
ACH	PRAMERF	AMERICAN FUNDS GROUP	08/31/2020	225.00
ACH	PRCCIS	E B S TRUST	08/31/2020	72,865.83
ACH	PRCOLONI	COLONIAL LIFE	08/31/2020	1,210.25
ACH	PRFED	PAYROLL TAXES	08/31/2020	69,004.68
ACH	PRICMA	I C M A RETIREMENT TRUST 457	08/31/2020	300.00
ACH	PRNATW	NATIONWIDE RETIREMENT SOLUTIO	08/31/2020	400.00
ACH	PRORJU	OREGON DEPARTMENT OF JUSTICE	08/31/2020	732.00
ACH	PRORTAX2	OREGON DEPARTMENT OF REVENUE	08/31/2020	273.99
ACH	PRORTAXE	OREGON DEPARTMENT OF REVENUE	08/31/2020	20,475.57
ACH	PROSGP	OREGON SAVINGS & GROWTH PLAN	08/31/2020	3,016.49
ACH	PRPERS	OREGON PERS	08/31/2020	96,692.17
126417	PRLINC	LINCOLN NATIONAL LIFE INS CO	08/31/2020	600.00
126418	PRSFIRE	UMPQUA BANK	08/31/2020	360.00
			Total for 8/31/2020:	266,930.20
126419	637830	Century Link	09/01/2020	776.17
126420	376000	Idaho Power	09/01/2020	2,414.47
126421	879417	LS Networks	09/01/2020	1,119.96
126422	572000	Ontario Sanitary Service, Inc.	09/01/2020	313.06
126423	288897	Verizon	09/01/2020	1,892.26
			Total for 9/1/2020:	6,515.92
126424	&260	Four Rivers Cultural Center	09/02/2020	20,228.01
126425	539200	Ontario Area Chamber of Commerce	09/02/2020	15,824.43
			Total for 9/2/2020:	36,052.44
126426	879449	Baum Smith, LLC	09/04/2020	1,325.00
126427	183201	CK3, LLC	09/04/2020	3,452.50
126428	634311	Frazier Aviation, LLC	09/04/2020	425.00
126429	879485	Hewlett Packard Enterprise Company	09/04/2020	8,919.37
126430	879329	JEM Auto Glass	09/04/2020	200.00
126431	408200	J-U-B Engineers, Inc.	09/04/2020	20,348.38
126432	422140	Kinney Industries, Inc.	09/04/2020	731.21
126433	602320	NAPA Auto Parts	09/04/2020	104.73
126434	716380	State of Oregon Corporate Division-Notary	09/04/2020	40.00
126435	614087	PORAC LDF	09/04/2020	375.00
126436	642093	Red's Automotive Repair, Inc.	09/04/2020	59.08
126437	879146	Toshiba Financial Services	09/04/2020	1,721.89
126438	879459	Trademark Design & Fabrication	09/04/2020	24,000.00
126439	788402	TransUnion Risk & Alternative Data Soluti	09/04/2020	50.00
126440	842030	Warrington Construction	09/04/2020	1,500.00
126441	774001	Wtechlink	09/04/2020	300.00
126442	879442	Adam Clinton	09/04/2020	260.50
126443	UB*11770	RAMON/YESENIA GUTIERREZ	09/04/2020	67.79
126444	UB*11790	HERBAL SALVATION	09/04/2020	12.31
126445	879461	Palmer House Rose Garden	09/04/2020	2,500.00
126446	UB*11789	ADAM RAMIREZ	09/04/2020	95.13

Check No	Vendor No	Vendor Name	Check Date	Check Amount
126447	879441	Allen Thompson	09/04/2020	10,000.00
126448	879311	Treasure Valley Community College	09/04/2020	2,000.00
			Total for 9/4/2020:	78,487.89
			Report Total (140 checks):	1,692,258.86

MALHEUR COUNTY COURT MINUTES

August 26, 2020

The regularly scheduled meeting of the County Court was called to order by Judge Dan Joyce at 9:00 a.m. in the County Court Office of the Malheur County Courthouse with Commissioner Larry Wilson present and Commissioner Don Hodge present telephonically. Staff present was Administrative Officer Lorinda DuBois. Various members of the public, media and staff were present electronically. Notice of the meeting was posted on the County website and emailed to the Argus Observer, Malheur Enterprise, and those persons who have requested notice. The meeting was audio recorded. The agenda is recorded as instrument #2020-3057

COURT MINUTES

Commissioner Wilson moved to approve Court Minutes of August 12, 2020 as written. Commissioner Hodge seconded and the motion passed unanimously.

IGA - RESIDENTIAL HOUSING REHABILITATION PROGRAM

Commissioner Wilson moved to approve Intergovernmental Agreement in Support of a Community Development Block Grant (CDBG) from the 2020 Community Development Block Grant Program Administered by the Oregon Business Development Department, Infrastructure Finance Authority to sponsor the Harney Malheur Residential Housing Rehabilitation Program. Commissioner Hodge seconded and the motion passed unanimously. (Commissioner Hodge disclosed that he is on the board for Community in Action.) The City of Nyssa will be the lead agency and will be responsible for applying, receiving, and administering the CDBG award and will enter into a sub-recipient agreement with the Community in Action to manage the housing rehabilitation program. A copy of the IGA will be returned for recording.

EMPLOYMENT AGREEMENT - HEALTH DEPARTMENT

Commissioner Hodge moved to approve Temporary Employment Agreement for Medical Consultation Related to COVID-19 with Dr. Sarah Laiosa. Commissioner Wilson seconded and the motion passed unanimously. The agreement expires December 31, 2020. See instrument #2020-3062

EMPLOYMENT AGREEMENT - HEALTH DEPARTMENT

Commissioner Wilson moved to approve Malheur County Health Department Temporary Employment Agreement - COVID 19 Funding with Tana Waller. Commissioner Hodge seconded and the motion passed unanimously. Ms. Waller recently retired and will assist with COVID-19 related services 20 hours per week through December 31, 2020. See instrument # 2020-3060

SUPPLEMENTAL BUDGET

Commissioner Wilson moved to approve Resolution No. R20-34: In the Matter of Fiscal Year 2020/2021 Supplemental Budget by Resolution Under Local Budget Law ORS 294.471. Commissioner Hodge seconded and the motion passed unanimously. The purpose of the supplemental budget is to allocate additional Cash on Hand funds that were not anticipated when the adopted budget was prepared; the funds are to be used for COVID-19 projects at the Courthouse and in the Jail. See instrument #2020-3061

AGREEMENT - NEY

Commissioner Wilson moved to approve Third Agreement for Temporary Environmental Health Specialist Services - Restaurant Inspections with Melissa Ney. Commissioner Hodge seconded and the motion passed unanimously. Ms. Ney will perform inspections in Malheur County and Baker County; additionally Ms. Ney will educate restaurant operators on COVID-19 precautions and restrictions and ensure that COVID-19 restrictions imposed by the State and applicable County are being met. The agreement terminates December 31, 2020. See instrument #2020-3059

RESOLUTION - EXTENDING RESTRICTIONS TO THE SIZE OF OF LOCAL SOCIAL GATHERINGS (COVID-19)

Commissioner Hodge moved to approve Resolution R20-36 - In the Matter of: Resolution to Extend Resolution R20-27 and R20-32 Through December 31, 2020 - Restricting the Size of Local Social Gatherings. Commissioner Wilson seconded and the motion passed unanimously. The social gathering measures restricting the size of local social gatherings set forth in Resolution R20-27 are extended through December 31, 2020. See instrument #2020-3058

COMMENTS - COMMISSIONER WILSON

Commissioner Wilson explained he was attempting to contact Idaho county commissioners to discuss possible COVID-19 strategies and requested that Judge Joyce and Commissioner Hodge contact any of the Idaho county commissioners that they may know.

IGA - CITY OF ONTARIO

Ontario City Manager Adam Brown explained that Community Development Block Grant funds are available through Business Oregon to provide grant assistance programs for small businesses and microenterprises impacted by COVID-19. The City will be the lead applicant and partner with Euvalcree to administer the grants. The grants will be accessible to businesses within Malheur County. The term of the IGA is 36 months and may be terminated by any party with 30 days notice. Commissioner Wilson moved to approve the Intergovernmental Agreement with the verbal agreement from Mr. Brown that the City will provide the County regular updates and accountings on the grant programs. Commissioner Hodge seconded and the motion passed unanimously. See instrument # 22020-3067

Mr. Brown complimented the County's emergency management team.

COURT ADJOURNMENT

Judge Joyce adjourned the meeting.

MALHEUR COUNTY COURT MINUTES

September 2, 2020

The regularly scheduled meeting of the County Court was called to order by Judge Dan Joyce at 9:00 a.m. in the County Court Office of the Malheur County Courthouse with Commissioner Don Hodge present and Commissioner Larry Wilson present telephonically. Staff present was Administrative Officer Lorinda DuBois. Various members of the public, media and staff were present electronically. Notice of the meeting was posted on the County website and emailed to the Argus Observer, Malheur Enterprise, and those persons who have requested notice. The meeting was audio recorded. The agenda is recorded as instrument # 2020-3165

PUBLIC HEARING - SUPPLEMENTAL BUDGET

Judge Joyce opened the public hearing for consideration of supplemental budget Resolution R20-35. Notice of the hearing was published in the Argus Observer. A public hearing was required as the supplemental budget will adjust the current budget fund by 10% or more of the expenditures of that fund. No public comments were received. Judge Joyce closed the hearing. Commissioner Hodge moved to approve Resolution R20-35: In the Matter of Fiscal Year 2020/2021 Supplemental Budget by Resolution Under Local Budget Law ORS 294.471. Commissioner Wilson seconded and the motion passed unanimously. The purpose of the supplemental budget is to allocate Cash on Hand funds in the County Fair Fund that were not anticipated when the adopted budget was prepared; the funds are to be used for improvements on the Fairgrounds. See instrument # 2020-3166

COURT MINUTES

Commissioner Hodge moved to approve Court Minutes of August 26, 2020 as written. Commissioner Wilson seconded and the motion passed unanimously.

CROSSING PERMIT

Commissioner Hodge moved to approve Crossing Permit #33-20 to Track Utilities LLC for work along Alameda Drive #863 between Nyssa and Ontario; man holes and hand holes will be installed. Commissioner Wilson seconded and the motion passed unanimously. The original permit will be kept on file at the Road Department.

PROCLAMATION - RECOVERY MONTH

Various members of the Malheur County Drug Free Communities Coalition were present electronically for the signing of the Proclamation declaring September 2020 as Mental Health, Substance Use, and Problem Gambling Recovery Month. Jennifer Shaffer read the proclamation:

MALHEUR COUNTY PROCLAMATION

Mental health, substance use and problem gambling disorders affect all communities nationwide. With commitment and support, our family members, friends, colleagues, and community members with these disorders can achieve healthy lifestyles and lead rewarding lives in recovery. By seeking help, people who experience mental health, substance use and/or problem gambling disorders can embark on a new path toward improved health and overall wellness. The focus of our local theme for *Recovery Month* for September 2020 is *"Hands Around the Community for Recovery: We Are in This Together!"* To celebrate their journey, we recognize the challenges of recovery and we support them! We realize the need to share resources and build networks that support recovery in all forms, as we are all part of the solution. *Recovery Month and Hands Around the Community for Recovery* spreads the message that behavioral health is essential to one's overall health and wellness, and that prevention works, treatment is effective, and people do recover.

The impact of mental health and substance use disorders is apparent in our country, with 9.2 million adults having had a co-occurring mental illness and substance use disorder in 2018. Oregon ranks first among all states for adults with substance use disorders and third in the nation for youth with substance use disorders. Additionally, an estimated 83,800 adult Oregonians have moderate or severe gambling disorders. These conditions in one way or another affect us all. Through *Recovery Month*, people become more aware and able to recognize the signs of mental health, substance use, and problem gambling disorders, which can help guide more people into needed treatment. Managing the effects of these conditions can help people achieve healthy lifestyles, both physically and emotionally.

The *Recovery Month* observance continues to work to improve the lives of those affected by mental health, substance use or problem gambling disorders by raising awareness of these diseases and educating communities about the prevention, treatment, and recovery resources that are available. For the above reasons, we are asking the citizens of Malheur County to join us in celebrating this September as *Recovery Month*.

We, as Malheur County Court**,** do hereby proclaim the month of September 2020 as

MENTAL HEALTH, SUBSTANCE USE, AND PROBLEM GAMBLING

RECOVERY MONTH

in Malheur County, we call upon our community to observe this month with compelling programs and events that support this year's observance.

Commissioner Hodge moved to declare September 2020 as Mental Health, Substance Use, and Problem Gambling Recovery Month. Commissioner Wilson seconded and the motion passed unanimously.

The annual Hands Around the Park event will not be held this year due to COVID-19; Hands Around the Community for Recovery will be celebrated instead with chalk art taking place on various city sidewalks.

EASTERN OREGON EARLY LEARNING HUB - UPDATED BYLAWS

Kelly Poe, Director of Eastern Oregon Early Learning Hubexplained that the bylaws for the Hub have been amended and that each county (Malheur, Baker, and Wallowa) will be asked to approve the amended bylaws. The goals and objectives of the Hub align with the Raise Up Oregon campaign. The Court had reviewed the the proposed changes and had no questions for Ms. Poe. Commissioner Hodge moved to approve the amended Eastern Oregon Early Learning Hub Bylaws. Commissioner Wilson seconded and the motion passed unanimously. A copy will be returned for recording.

2020 CENSUS

Commissioner Hodge and Judge Joyce encouraged the community to complete their 2020 Census.

COURT ADJOURNMENT

Judge Joyce adjourned the meeting.