Eastern Washington Stormwater Effectiveness Studies

Final Report

Mobile Contractor Illicit Discharge Education & Outreach Effectiveness Study

Study Classification:

☐ Structural BMP ☐ Operational BMP ✓ Education & Outreach

Study Objective:

✓ Evaluate Effectiveness ☐ Compare Effectiveness

Prepared By:

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January 30, 2020

Final Report Public Information

The final report will be available on the regional Wenatchee Valley Stormwater Technical Advisory Committee webpage hosted by the City of Wenatchee, www.wenatcheewa.gov/wvstac.

Final Report Author and Contact Information

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G19 Certification and Signature for Stormwater Management Program Effectiveness Studies, Eastern Washington Phase II Municipal Stormwater Permit, Section/Paragraph: S8.A.1: Effectiveness Study Final Report

I certify under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that Qualified Personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for willful violations.

Jessica M Shaw — 1/30/2020

Jessica Shaw, Environmental Manager — Date

1.0 Background

Under the National Pollutant Discharge Elimination System permits for municipal stormwater discharges, stormwater pollution prevention education and outreach programs are important elements to educate businesses on best management practices and illicit. Mobile contractors face many challenges in collecting, transporting, and disposing of wastewater compared to other types of businesses. In 2016, a survey of eastern Washington Phase II communities found that illicit discharge complaints were primarily generated from four types of mobile businesses: painting contractors, carpet cleaners, concrete contractors, and food vendors. Given the variety of mobile business and subsequently the different types of waste and wastewater management needs, designing a program to meet the specific issues and types of wastewater generated is challenging.

In 2010, the Dump Smart program, a stormwater education and outreach program designed for mobile contractors, was implemented in the urban area of six eastern Washington communities, including four jurisdictions in the Wenatchee Valley. The goal of this study was to assess the effectiveness of the Dump Smart education and outreach program in eastern Washington specifically for carpet cleaning contractors. Carpet cleaning businesses in jurisdictions that participated in the Dump Smart education and outreach program were surveyed as well as businesses in areas that did not participate in the Dump Smart program. A separate survey of mobile contractor education and outreach and illicit discharges was also conducted with the test and control jurisdictions.

The effectiveness of the program was evaluated based on the number of businesses who were disposing of wastewater in accordance with the "Dump Smart Tips for Properly Handling Waste Water when Carpet Cleaning" and how many businesses were carrying spill kits. Responses from the test population were compared to the control population to determine if there was any significant difference in the wastewater disposal practices and spill preparedness between the two groups.

2.0 Study Method

Action Research was hired to conduct the surveys and provide the statistical analysis of the results. All of the survey data was collected by the consultant. The standard operating procedures, pre-notification mailings, and surveys used in this study can be found in Appendix A.

2.1 Pilot Surveys

Between February 13, 2019 and April 18, 2019, the pilot study was conducted in Pullman, Washington to validate the surveys. The City of Wenatchee provided the contact information for the local jurisdiction and the list of carpet cleaning contractors in Pullman, WA to Action Research. The list was created by searching for carpet cleaning contractors on the internet.

The jurisdiction survey was conducted by Action Research through an email with a link to the survey. To avoid being mistaken as a fraudulent email, the City of Wenatchee provided a pre-notification email to the City of Pullman advising that the consultant would be sending the

jurisdiction survey via email. This was the only modification to the jurisdiction survey standard operating procedure documented in the Mobile Contractor Illicit Discharge Education and Outreach Effectiveness Study Quality Assurance Project Plan, Approved 10/30/2018 (QAPP). Upon review of the pilot jurisdiction survey data, no additional changes were made to the standard operating procedure nor the jurisdiction survey.

Action Research collected business survey data by phone in accordance with the standard operating procedure provided in the QAPP. Following completion of the pilot business survey, no changes were made to the survey. For the business survey standard operating procedure, however, a pre-notification mailing was added. During the pilot study, one of the business owners requested an email from the City of Wenatchee verifying the study before they would disclose information.

2.2 Test and Control Area Surveys

Action Research used the same procedure and survey as in the pilot study to complete the jurisdiction surveys between March 12, 2019 and April 16, 2019. The jurisdiction contact list was again provided by the City of Wenatchee. The City sent out a pre-notification email on March 12, 2019 and Action Research followed up with another email on March 14, 2019 that included a link to the survey. The jurisdictions that received the survey included City of Wenatchee, City of East Wenatchee, Chelan County, and Douglas County in the test area and City of Kennewick, City of Richland, and City of West Richland in the control area. All of the jurisdictions completed the survey.

For the business surveys, the City of Wenatchee prepared a list of mobile contractors in the test area and the control area through an internet search. In the test area, which included Wenatchee, East Wenatchee, Chelan County, and Douglas County, 35 mobile carpet cleaning businesses were identified. In the control area, which included Kennewick, Richland, and West Richland, 48 businesses were found. Next, the City of Wenatchee and Action Research prepared a pre-notification postcard that was mailed on June 12, 2019 to all of the businesses. Action Research conducted the phone surveys between June 21, 2019 and July 24, 2019. During the phone surveys, Action Research notified the City of Wenatchee that 17 of the business phone numbers were either disconnected or incorrect. City staff reviewed the original list and verified phone numbers. If alternate or corrected numbers were found, Action Research attempted to contact the business again. Survey responses from nine businesses in the test area and seven businesses in the control area were collected.

3.0 Results

Action Research summarized the results of the jurisdiction and business surveys in a report. The final data package including the report and data collected during the surveys was received from the consultant on August 26, 2019. The Action Research report and survey data can be found in Appendix B.

3.1 Jurisdiction Results

All seven of the jurisdictions completed the survey. The results from the survey can be found in the following two tables.

3.1.1 Jurisdiction Survey Responses

Jurisdiction:	In general, what education and outreach programs have your jurisdiction implemented for illicit discharge prevention?	For Mobile Businesses, what education and outreach programs have your jurisdiction implemented for illicit discharge prevention?	Have any education and outreach efforts targeted carpet cleaning businesses specifically?	Are illicit discharge records from your jurisdiction available from 2007-2017?	Are illicit discharge records from your jurisdiction available from 2011-2017?
City of East Wenatchee	IDDE training for staff, outreach materials for public via radio advertisements, etc.	When an illicit discharge is found, the responsible party is issued a handout that outlines proper wastewater disposal procedures.	No	No	Yes
City of Richland	We contract with Franklin Conservation District to conduct education and outreach at various community events and to implement the Drain Rangers program in area schools. At each of these events and lessons there is a portion of information dedicated to IDDE.	None specifically target mobile businesses. However, our pre-treatment team at the wastewater treatment plant also hands out brochures to businesses that addresses stormwater and illicit discharge issues.	No	No	No
City of Wenatchee	For residential customers, the E&O programs included BMPs for car washing, pet waste, lawn maintenance, snow & ice management, and pool discharges. For commerical business, the E&O program has included mobile contractor waste disposal, erosion & sediment control, construction BMPs, pool discharges, automotive operations, portable toilets, and car washing. General IDDE information was provided to all customers.	The City has implemented the Dump Smart program since 2011.	Yes	Yes	No
City of West Richland	As of right now, we have a booth at the fair, Home and Garden Show. We also have information on our website and the WRMC.	As of right now, we have a booth at the fair, Home and Garden Show. We also have information on our website and the WRMC.	No	No	No
City of Kennewick	Annual training for City employees, website spill reporting hot line, flyers, booths at fair grounds, home and garden show, Drain Rangers program in schools, discussions at developer meetings.	Direct phone calls to carpet cleaners.	Yes	No	No
Chelan County	Mailings, advertisements, booth at Home Shows, direct contact, website information, handouts at businesses	Same as above.	No	No	No
Douglas County	Flyers and newspaper information provided to the public. Training for County staff on identifying and responding to illicit discharges.	Commercial business BMP fliers (cooperatively with the WVSTAC -Wenatchee Valley Stormwater Technical Advisory Committee)	Yes	Yes	
City of Pullman	Our IDDE outreach programs include: Stormwater best management practices media distributed via website, news media, radio PSAs and personal interaction with customers. 681 students reached in 2018 via elementary education programming. Adopt-a-Stream program with 16 stream segments. Annual Pullman Stream Cleanup, in 2018 – 252 community members in attendance. Stainless steel storm drain medallions installed in key basins.	None specifically	No	Yes	

3.1.2 Illicit Discharge Incidents Attributed to Mobile Carpet Cleaning Businesses

Jurisdiction	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
City of East Wenatchee			1	0	0	0	0	0	0	0	1
City of Richland						0	0	1	0	0	0
City of Wenatchee			1	1	0	1	1	1	0	2	2
City of West Richland			0	0	0	0	0	0	0	0	0
City of Kennewick											
Chelan County	0	0	0	0	0	0	0	0	0	0	0
Douglas County	0	0	0	0	0	0	0	0	0	0	0
Totals	0	0	2	1	0	1	1	2	0	2	2

3.2 Business Results

Business Survey Attempt Results

	Test (35 Businesses Called)	Control (48 Businesses Called)
Completed survey	9	7
Uses low moisture method, no water	1	
Human contact, not completed	3	4
Voicemail only, eligible	9	3
Voicemail only, unknown eligibility	4	4
Central switchboard		1
Refusal	2	3
Cleaning company but not carpets	2	3
Sells carpet		1
No longer in business	1	1
Wrong number		7
Bad/disconnected number	4	9
Duplicate records		5

How long has your business been in area?

	Test	Control
Less than 1 year	2	2
From 1 to 5 years	1	
From 6 to 10 years	2	1
Over 10 years	3	4
Unknown	1	

How many people work for your business (locally)?

	Test	Control
From 1 to 5 people	7	3
From 6 to 10 people		1
From 11 to 19 people	1	2
20 or more people	1	1

What is the farthest you typically travel for a job?

	Test	Control
From 1 to 10 miles		
From 11 to 30 miles	3	1
From 31 to 50 miles	3	2
Over 50 miles	3	4

How many carpet cleaning vehicles do you have at your business?

	Test	Control
1 vehicle	7	2
2 or 3 vehicles	2	3
4 or 5 vehicles		1
More than 5 vehicles		1

Do all of the vehicles have a spill kit in them?

	Test	Control
Yes	7	6
No	1	1
Not sure	1	

Note: All vehicles had collection tanks for the wastewater generated.

Do you dispose of the wastewater on the job site, off the job site, or both?

	Test	Control
On-site	1	
Off-site	3	5
Both	5	2

On-site Disposal locations

Each location in the following tables was mentioned by a different business.

Test
Disposes of in storm grates near client's location
Depends on the site
If appropriate, grass area or house drain
Rarely at client's location, only if they have appropriate means of disposal
With permission, at client's location if they have a gravel or dirt area
When far from home base, client's location sewer system or RV dump

Control
Rarely, only if site has proper disposal means
If allowed, into client's sewer system

Off-site disposal locations

Each location in the following tables was mentioned by a different business.

Test
A friend has a large property outside the city - disposes into a landscaped canyon area
Drain at business location
House drain
With permission, at local carwash
Normal sewer drop, filtered to remove fuzz
Shop drain

Control
Filtered sewage connection at facility
At business dump station
RV park
Filtered drain at shop
Local dump site
RV drain at business
Has a large gravel pit - fibers are filtered out with screens

Have you heard of the Dump Smart program?

One business in the test group had heard of the Dump Smart program.

What is the best method to send information to you?

	Test	Control
Mail	8	2
Email	2	6
Newsletter		
Other: Flyer	1	
Other: Telephone call		1

4.0 Discussion and Recommendations

The data was collected in accordance with the quality control procedures set forth in the QAPP and was determined to be acceptable. The audit and data verification reports can be found in Appendix C.

4.1 Discussion of Results

Of the 83 test and control businesses, only 16 businesses completed the survey. With the limited number of results, the standard analysis for statistical differences could not be performed. A key factor in the low results was the difficulty in contacting the mobile carpet cleaners. Of the original list of 83 businesses, there were 20 wrong or bad/disconnected phone numbers. Six of the businesses did not clean carpets and two were out of business. While double-checking the list of phone numbers, it was found that different websites had different numbers for the same business. Pictures of carpet cleaning vans also displayed different phone numbers than what was advertised on their websites.

Despite the low number of results, the business survey did yield information about carpet cleaning businesses in the test and control areas and the effectiveness of the Dump Smart program. Most of the business (13 out of 16) responded that they had a spill kit in all of their vehicles. The data collected on wastewater disposal practices was not as straightforward. For the on-site disposal locations in the test area, two businesses responded that they discharged the wastewater on the ground and one business responded that they discharged to the "storm grate." The Dump Smart Program education material guided carpet cleaners to discharge wastewater to sewer or a septic system and states "Never dump waste water on the street, or down storm drains, ditches, or other drainage pathways." In the control area, one business stated that they were discharging to sewer, and it was unclear where the other business was disposing of the wastewater. With regards to the off-site disposal locations, the businesses in both the test and control area were primarily discharging to drains. It was unclear in at least three of the responses whether the drain was connected to a municipal stormwater system or sewer. Four of the businesses responded that they were filtering their wastewater before disposal, which is consistent with the guidelines in the Dump Smart tips.

The results of the question regarding the best methods to reach the businesses indicated that mail and email were the preferred method. Only one business indicated that a phone call was the preferred method. The Dump Smart program was implemented through mailings. For future program evaluations, mail or email surveys may be more effective than the phone survey.

The jurisdiction survey was collected to provide supporting information for comparing the test area and control area business survey results. Since the business survey did not produce enough results for a comparison, the data was not used.

4.2 Recommendations for the Dump Smart Education & Outreach Program

More education and outreach on the proper disposal methods for carpet cleaning wastewater appears to be needed in the test area. Based on this study, the recommended improvements to the Dump Smart Education and Outreach Program include:

- Edits to the literature to clarify disposal practices, especially concerning discharging wastewater on the ground.
- Consider limiting the number of tips and focusing on no more than three issues. The current tip sheet includes three tips for waste disposal and six tips for spill prevention and cleanup.
- Provide jurisdiction contact information on the tip sheet.
- Convert the tip sheet into a magnet or sticker that could be placed inside the van to prompt employees to use the correct disposal methods and evaluate other types of stickers in lieu of the Dump Smart window cling to recognize the company's implementation of best management practices.

5.0 Study Participation

The purpose of this section is to document and recognize the Eastern Washington jurisdictions that participated in this study.

5.1 Eastern Washington Jurisdiction Participation Summary

Jurisdiction Name	Participant	Financial Supporter	Lead Entity
City of Wenatchee	X	X	X
City of East Wenatchee	X	X	
Chelan County	X	X	
Douglas County	X	X	
City of Kennewick	X		
City of Pullman	X		
City of West Richland	X		
City of Richland	X		
City of Spokane Valley	X		

Appendix A

Study Surveys and Standard Operating Procedures

Carpet Cleaning Business Survey SOP – Revised Post-Pilot Survey

Step 1: Lead agency assembles list of carpet cleaning businesses in study area through internet search and provide list to third party consultant.

Step 2: Lead agency sends a postcard notice to businesses that a phone survey will be conducted.

Step 3: Consultant assigns a code to each of the businesses to protect anonymity of the business.

Step 4: Consultant administers survey by calling carpet cleaning businesses with telephone numbers provided by internet search. One person collects all of the survey data.

Step 5: Consultant reads survey questions and documents answers.

Business Survey

1	What type of business is this?	Franchise		Owner/Operator	
2	How long has your business been in the area? (years)	< 1	1-5	6-10	>10
3	How many people work for your business (locally)?	1-5	6-10	11-19	20+
4	What is the farthest you typically travel for a job? (miles)	1-10	11-30	31-50	50+
5	How many carpet cleaning vehicles do you have at your location?	1	2-3	4-5	>5
6a	Do all of the vehicles have a spill kit in them?	YES		NO	
6b	Do all of the vehicles have collection tanks for the wastewater from carpet cleaning?	YES		NO	
7	Do you dispose of the wastewater on the job site, off the job site, or both?	ON-SITE	OFF-SITE	BOTH	
8a	[IF ON-SITE] How or where do you dispose of the wastewater? [GO TO Q9]	[RECORD RESPONSE]			
8b	[IF OFF-SITE] How or where do you dispose of the wastewater? [GO TO Q9]	[RECORD RESPONSE]			
8a1	[IF BOTH] How or where do you dispose of the wastewater when disposing on-site?	[RECORD RESPONSE]			
8b1	[IF BOTH] How or where do you dispose of the wastewater when disposing off-site?	[RECORD RESPONSE]			
9	Do you use any other disposal methods or locations?	YES		NO	
9a	[IF YES] What or where would that be?	[RECORD RESPONSE]			
10	Have you heard of the Dump Smart Program?	YES		NO	
	The City would like to send you information about the Dump Smart Program.				
11	What is the best method to send information to you?	Mail	E-mail	Newsletter	Other
11a	[IF OTHER] What would that be?				

Action Research
3630 Ocean Ranch Blvd.
Oceanside, CA 92056

UPCOMING SURVEY

Dear Business Owner/Operator,

The Cities of Wenatchee, East Wenatchee, Kennewick, Richland, and West Richland, along with Chelan and Douglas Counties are currently working together to evaluate a recent program for businesses like yours.

Within the next week, you will receive a call from our research partner, **Action Research**, to complete a short telephone survey. As one of only 100 businesses selected to participate, your responses are very important, and will be used to improve future programs. Action Research is conducting this survey to ensure your responses are confidential and that your business is not tied to those answers.

When you receive this call, please take a few minutes of your time to help in this important research. Thank you in advance for your assistance!

Jurisdiction Survey

Step 1: Establish list of participating jurisdictions and appropriate contact information.

Step 2: One person from the Lead Jurisdiction will send survey form document via e-mail to participating jurisdictions.

Step 3: Participating jurisdictions will return survey via e-mail to data collector for lead jurisdiction.

Step 4: Data collector will compile survey forms into a Microsoft Excel file saved in the Shared Files of the City server.

Jurisdiction Survey

Today's date:
Jurisdiction:
Name:
Title:
In general, what education and outreach programs have your jurisdiction implemented for illicit discharge prevention?
For Mobile Businesses, what education and outreach programs have your jurisdiction implemented for illicit discharge prevention?
Have any education and outreach efforts targeted carpet cleaning businesses specifically?
Are illicit discharge records from your jurisdiction available from 2007-2017?
Are illicit discharge records from your jurisdiction available from 2011-2017?
Please attach your illicit discharges document.

Jessica Shaw

From: Dani Ballard <ballard@actionresearch-inc.com>
Sent: Friday, February 15, 2019 2:00 PM
To: Sprouse, Shilo
Cc: Lori Large; Jessica Shaw
Subject: RE: Mobile Contractor Illicit Discharge E&O Study Jurisdiction Survey Advance Notification

Hello Shilo,

As Jessica mentioned, we are working on the Mobile Contractor Illicit Discharge Education and Outreach effectiveness study being led by the City of Wenatchee. Below is a link to the Illicit Discharge Survey, which will only take 3 or 4 minutes for you to complete - at your convenience. If you have any questions or have any difficulty with the survey itself, please contact me either by email or telephone at 760.722.4011.

https://www.research.net/r/IllicitDischargeSurvey

Thank you,

Dani

Dani Ballard
Research Associate

Action Research
direct: (760) 722-4011 | **main:** (760) 722-4000
California: 3630 Ocean Ranch Blvd. | Oceanside, CA 92056

www.ActionResearch-inc.com | ballard@actionresearch-inc.com

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From: Sprouse, Shilo <shilo.sprouse@pullman-wa.gov>
Sent: Thursday, February 14, 2019 7:59 AM
To: Jessica Shaw <JShaw@WenatcheeWA.Gov>
Cc: Dani Ballard <ballard@actionresearch-inc.com>; Lori Large <large@actionresearch-inc.com>
Subject: RE: Mobile Contractor Illicit Discharge E&O Study Jurisdiction Survey Advance Notification

Sounds good. Thanks for the heads up.

Shilo Sprouse
Program Manager
Stormwater Services
509-338-3140

From: Jessica Shaw <JShaw@WenatcheeWA.Gov>
Sent: Wednesday, February 13, 2019 3:35 PM
To: Sprouse, Shilo <shilo.sprouse@pullman-wa.gov>

Cc: Dani Ballard <ballard@actionresearch-inc.com>; Lori Large <large@actionresearch-inc.com>
Subject: Mobile Contractor Illicit Discharge E&O Study Jurisdiction Survey Advance Notification

Hello Shilo,
Thank you for agreeing to participate in the Mobile Contractor Illicit Discharge Education and Outreach effectiveness study. As you know, the City of Wenatchee is leading this study to evaluate the illicit discharge education and outreach program called Dump Smart.
Within the next day or two you will receive an email from our partner, Action Research, providing you with the survey link. As part of this evaluation, the City is asking for records from your jurisdiction for 2007 through 2017, or for 2011 through 2017 if the earlier years' records are not available, listing the number of confirmed illicit discharges from carpet cleaners by year. Please provide this information in a separate document. The survey will show you how to attach it to your completed survey - *pdf*, *doc*, *docx*, *png*, *jpg*, *jpeg*, and *gif* files are supported.
Thank you,
Jessica

Jessica Shaw
Environmental Manager
Public Works Department

City of Wenatchee

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Appendix B

Action Research Report and Survey Data

To: **City of Wenatchee**
Jessica Shaw

From: **Action Research**
Dani Ballard, Lori Large

Date: July 23, 2019

Mobile Contractor Illicit Discharge Education and Effectiveness Study

Business Calls Results

Background

The City of Wenatchee Public Works Department is seeking evaluation of their education and outreach program called Dump Smart.

Methodology

The City of Wenatchee provided Action Research with an initial list of ten mobile carpet cleaning businesses and their telephone numbers to pilot test the interview survey. After the pilot testing showed no revisions to the survey were warranted, a larger list of businesses and telephone numbers was provided. This list was divided into two groups based on geographic location: the test group of 35 businesses, and the control group of 48 businesses. Calls were made to these businesses to collect information as to their size, length of time in the area, number of carpet cleaning vehicles, and wastewater disposal practices.

At least four attempts were made on different days and at different times to reach someone at each business. If more than one number was provided for a business, both numbers were called. Voice mail messages were left on second and third attempts. Data were collected following the revised survey SOP; see Appendix A..

The following table presents the final disposition for each business listed.

	Pilot	Test	Control
Completed survey	1	9	7
Uses low moisture method, no water		1	
Human contact, not completed	2	3	4
Voicemail only, eligible	2	9	3
Voicemail only, unknown eligibility	1	4	4
Central switchboard			1
Refusal		2	3
Cleaning company but not carpets	1	2	3
Sells carpet			1
No longer in business		1	1
Wrong number	1		7
Bad/disconnected number	2	4	9
Duplicate records			5

Findings

A total of sixteen telephone interviews were conducted with mobile carpet cleaners in addition to the one pilot area interview. Nine of the interviews were with businesses in the test group and seven were from businesses in the control group. The majority of these businesses were owner-operated, with only three of the seventeen (18%) being part of a larger franchise, one in the test group and two in the control group. Removing bad/disconnected and wrong numbers, as well as those who were ineligible (i.e., not carpet cleaners) resulted in a combined (pilot, test, control) positive response rate of 34%.

Due to the small sample size in each group, numbers are presented as opposed to percentages to avoid misinterpretation of the data. Also, due to the small sample size, standard analyses for statistical differences could not be performed.

How long has your business been in the area?

	Pilot	Test	Control
Less than 1 year		2	2
From 1 to 5 years		1	
From 6 to 10 years		2	1
Over 10 years	1	3	4
Unknown		1	

How many people work for your business (locally)?

	Pilot	Test	Control
From 1 to 5 people	1	7	3
From 6 to 10 people			1
From 11 to 19 people		1	2
20 or more people		1	1

What is the farthest you typically travel for a job?

	Pilot	Test	Control
From 1 to 10 miles			
From 11 to 30 miles	1	3	1
From 31 to 50 miles		3	2
Over 50 miles		3	4

How many carpet cleaning vehicles do you have at your business?

	Pilot	Test	Control
1 vehicle		7	2
2 or 3 vehicles	1	2	3
4 or 5 vehicles			1
More than 5 vehicles			1

Do all of the vehicles have a spill kit in them?

	Pilot	Test	Control
Yes	1	7	6
No		1	1
Not sure		1	

Note: All vehicles had collection tanks for the wastewater generated.

Do you dispose of the wastewater on the job site, off the job site, or both?

	Pilot	Test	Control
On-site		1	
Off-site	1	3	5
Both		5	2

On-site Disposal locations

Each location in the following tables was mentioned by a different business.

Test
Disposes of in storm grates near client's location
Depends on the site
If appropriate, grass area or house drain
Rarely at client's location, only if they have appropriate means of disposal
With permission, at client's location if they have a gravel or dirt area
When far from home base, client's location sewer system or RV dump

Control
Rarely, only if site has proper disposal means
If allowed, into client's sewer system

Off-site disposal locations

Each location in the following tables was mentioned by a different business.

Pilot
Nearby RV Park

Test
A friend has a large property outside the city - disposes into a landscaped canyon area
Drain at business location
House drain
With permission, at local carwash
Normal sewer drop, filtered to remove fuzz
Shop drain

Control
Filtered sewage connection at facility
At business dump station
RV park
Filtered drain at shop
Local dump site
RV drain at business
Has a large gravel pit - fibers are filtered out with screens

Have you heard of the Dump Smart program?

One business in the test group had heard of the Dump Smart program.

What is the best method to send information to you?

	Pilot	Test	Control
Mail		8	2
Email	1	2	6
Newsletter			
Other: Flyer		1	
Other: Telephone call			1

Jurisdiction Survey Results

Jurisdiction	In general, what education and outreach programs have your jurisdiction implemented for illicit discharge prevention?	For Mobile Businesses, what education and outreach programs have your jurisdiction implemented for illicit discharge prevention?	Have any education and outreach efforts targeted carpet cleaning businesses specifically?	Are illicit discharge records from your jurisdiction available from 2007-2017?	Are illicit discharge records from your jurisdiction available from 2011-2017?
City of Pullman (Pilot Area) Shilo C. Sprouse Stormwater Services Program Manager	Our IDDE outreach programs include: Stormwater best management practices media distributed via website, news media, radio PSAs and personal interaction with customers. 681 students reached in 2018 via elementary education programming. Adopt-a-Stream program with 16 stream segments. Annual Pullman Stream Cleanup, in 2018 – 252 community members in attendance. Stainless steel storm drain medallions installed in key basins.	None specifically	No	Yes	
City of Kennewick Martin Nelson Utilities Engineer	Annual training for City employees, website spill reporting hot line, flyers, booths at fair grounds, home and garden show, Drain Rangers program in schools, discussions at developer meetings.	Direct phone calls to carpet cleaners.	Yes	No	No
City of Richland Brian Pope Civil Engineer I	We contract with Franklin Conservation District to conduct education and outreach at various community events and to implement the Drain Rangers program in area schools. At each of these events and lessons there is a portion of information dedicated to IDDE.	None specifically target mobile businesses. However, our pre-treatment team at the wastewater treatment plant also hands out brochures to businesses that addresses stormwater and illicit discharge issues.	No	No	No
City of West Richland Danielle Mullins Civil Engineer III	As of right now, we have a booth at the fair, Home and Garden Show. We also have information on our website and the WRMC.	As of right now, we have a booth at the fair, Home and Garden Show. We also have information on our website and the WRMC.	No	No	No
City of East Wenatchee Tom Wachholder Project Development Mgr.	IDDE training for staff, outreach materials for public via radio advertisements, etc.	When an illicit discharge is found, the responsible party is issued a handout that outlines proper wastewater disposal procedures.	No	No	Yes

Jurisdiction	In general, what education and outreach programs have your jurisdiction implemented for illicit discharge prevention?	For Mobile Businesses, what education and outreach programs have your jurisdiction implemented for illicit discharge prevention?	Have any education and outreach efforts targeted carpet cleaning businesses specifically?	Are illicit discharge records from your jurisdiction available from 2007-2017?	Are illicit discharge records from your jurisdiction available from 2011-2017?
City of Wenatchee Jessica Shaw Environmental Manager	For residential customers, the E&O programs included BMPs for car washing, pet waste, lawn maintenance, snow & ice management, and pool discharges. For commercial business, the E&O program has included mobile contractor waste disposal, erosion & sediment control, construction BMPs, pool discharges, automotive operations, portable toilets, and car washing. General IDDE information was provided to all customers.	The City has implemented the Dump Smart program since 2011.	Yes	Yes	No
Chelan County Jason Detamore Environmental Manager	Mailings, advertisements, booth at Home Shows, direct contact, website information, handouts at businesses	Same as above.	No	No	No
Douglas County Jennifer Lange Engineering Program Mgr.	Flyers and newspaper information provided to the public. Training for County staff on identifying and responding to illicit discharges.	Commercial business BMP fliers (cooperatively with the WVSTAC - Wenatchee Valley Stormwater Technical Advisory Committee)	Yes	Yes	

The following table lists the illicit discharge incidents attributed to mobile carpet cleaning businesses, compiled from records submitted by each jurisdiction.

Jurisdiction	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
City of Pullman		0	0	0	0	0	0	0	0	0	0
City of Kennewick											
City of Richland						0	0	1	0	0	0
City of West Richland			0	0	0	0	0	0	0	0	0
City of East Wenatchee			1	0	0	0	0	0	0	0	1
City of Wenatchee			1	1	0	1	1	1	0	2	2
Chelan County	0	0	0	0	0	0	0	0	0	0	0
Douglas County	0	0	0	0	0	0	0	0	0	0	0
Totals	0	0	2	1	0	1	1	2	0	2	2

Appendix A

Carpet Cleaning Business Survey SOP – Revised Post-Pilot Survey

Step 1: Lead agency assembles list of carpet cleaning businesses in study area through internet search and provide list to third party consultant.

Step 2: Lead agency sends a postcard notice to businesses that a phone survey will be conducted.

Step 3: Consultant assigns a code to each of the businesses to protect anonymity of the business.

Step 4: Consultant administers survey by calling carpet cleaning businesses with telephone numbers provided by internet search. One person collects all of the survey data.

Step 5: Consultant reads survey questions and documents answers.

Wenatchee Business Calls Data Entry Codebook

Variable	Variable Label	Values
ID_Num	Survey ID number	ID from call sheet
Type	What group?	1 = Test 2 = Control
Q1	What type of business is this?	1 = Franchise 2 = Owner/operator 99 = Blank/missing
Q2	How long has your business been in the area? (years)	1 = Less than 1 2 = From 1 to 5 3 = From 6 to 10 4 = Over 10 99 = Blank/missing
Q3	How many people work for your business (locally)?	1 = Between 1 and 5 2 = Between 6 and 10 3 = Between 11 and 19 4 = 20 or more 99 = Blank/missing
Q4	What is the farthest you typically travel for a job (miles)	1 = Between 1 and 10 2 = Between 11 and 30 3 = Between 31 and 50 4 = Over 50 99 = Blank/missing
Q5	How many carpet cleaning vehicles to you have at your location?	1 = 1 2 = 2 or 3 3 = 4 or 5 4 = More than 5 99 = Blank/Missing
Q6a	Do all of the vehicles have a spill kit in them?	1 = Yes 2 = No 99 = Blank/missing
Q6b	Do all of the vehicles have collection tanks for the wastewater from carpet cleaning?	
Q7	Do you dispose of the wastewater on the job site, off the job site, or both?	1 = On-site 2 = Off-site 3 = Both 99 = Blank/missing

Variable	Variable Label	Values
Q8a	[IF ON-SITE] How or where do you dispose of the wastewater? [GO TO Q9]	[RECORD RESPONSE]
Q8b	[IF OFF-SITE] How or where do you dispose of the wastewater? [GO TO Q9]	[RECORD RESPONSE]
Q8a1	[IF BOTH] How or where do you dispose of the wastewater when disposing on-site? [GO TO Q9]	[RECORD RESPONSE]
Q8b1	[IF BOTH] How or where do you dispose of the wastewater when disposing off-site? [GO TO Q9]	[RECORD RESPONSE]
Q9	Do you use any other disposal methods or locations?	1 = Yes 2 = No 99 = Blank/missing
Q9a	[IF YES] What or where would that be?	[RECORD RESPONSE]
Q10	Have you heard of the Dump Smart Program?	1 = Yes 2 = No 99 = Blank/missing
	The City would like to send you information about the Dump Smart Program. What is the best method to send information to you?	
Q11_Mail	- Mail	0 = Not chosen 1 = Chosen
Q11_Email	- Email	
Q11_Newsletter	- Newsletter	
Q11_ Other	- Other	
Q11a	Other method specified	[RECORD RESPONSE]
Comments	Comments	[RECORD RESPONSE]

City of Wenatchee Business Survey

ID #: 101		Business:				Check if survey completed	✓
Phone:				Alt Phone:		Check if refusal survey completed	
Call #	Date	Time	Dispo	Init	Notes	Check if retired	
1	6-21	1145			call back at 10-15 min		
2	6-21	1200			completed		
3							
4							
5							
6							
7							
8							
9							
10							

ID #: 102		Business:				Check if survey completed	
Phone:				Alt Phone:		Check if refusal survey completed	
Call #	Date	Time	Dispo	Init	Notes	Check if retired	✓
1	6-21	1147			vm ✓		
2	7-1	305			left msg · vm		
3	7-17	1122			vm left message		
4	7-22	345			vm		
5							
6							
7							
8							
9							
10							

ID #: 103		Business:				Check if survey completed	
Phone:				Alt Phone:		Check if refusal survey completed	
Call #	Date	Time	Dispo	Init	Notes	Check if retired	✓
1	6-21	1148			disconnected		
2	7-17	1124			vm		
3	7-22	346			Am - business - left message		
4	7-24	1030			vm		
5							
6							
7							
8							
9							
10							

City of Wenatchee Business Survey

ID #: 104	Business:				Check if survey completed	
Phone:			Alt Phone:		Check if refusal survey completed	
Call #	Date	Time	Dispo	Init	Notes	Check if retired ✓
1	6-21	1150			call back monday after 11	
2	7-1	307			mailbox full	
3	7-17	1016			mailbox full	
4	7-22	350			mailbox full	
5						
6						
7						
8						
9						
10						

ID #: 105	Business:				Check if survey completed	
Phone:			Alt Phone:		Check if refusal survey completed	
Call #	Date	Time	Dispo	Init	Notes	Check if retired ✓
1	6-21	1151			George has retired from this business	
2						
3						
4						
5						
6						
7						
8						
9						
10						

ID #: 106	Business:				Check if survey completed	
Phone:			Alt Phone:		Check if refusal survey completed	
Call #	Date	Time	Dispo	Init	Notes	Check if retired ✓
1	6-21	1152			all circuits are busy recording multiple rings → fast busy call can not be completed	
2	7-1	309				
3	7-22	351				
4	7-24	1033			same	
5						
6						
7						
8						
9						
10						

City of Wenatchee Business Survey

ID #: 107		Business:				Check if survey completed	
Phone:				Alt Phone:		Check if refusal survey completed	
Call #	Date	Time	Dispo	Init	Notes	Check if retired	✓
1	6-21	1153			VM ✓		
2	7-1	311			VM left message		
3	7-17	1127			VM left message		
4	7-22	353			VM		
5							
6							
7							
8							
9							
10							

ID #: 108		Business:				Check if survey completed	
Phone				Alt Phone:		Check if refusal survey completed	
Call #	Date	Time	Dispo	Init	Notes	Check if retired	✓
1	6-21	1155			not interested		
2							
3							
4							
5							
6							
7							
8							
9							
10							

ID #: 109		Business:				Check if survey completed	✓
Phone:				Alt Phone:		Check if refusal survey completed	
Call #	Date	Time	Dispo	Init	Notes	Check if retired	
1	6-21	1157			VM ✓		
2	7-1	313			VM - left message		
3	7-17	1128			Completed		
4							
5							
6							
7							
8							
9							
10							

City of Wenatchee Business Survey

ID #: 110		Business:				Check if survey completed	
Phone:				Alt Phone:		Check if refusal survey completed	
Call #	Date	Time	Dispo	Init	Notes	Check if retired	✓
1	6-21	1157			vm ✓		
2	7-1	314			vm left message		
3	7-17	1137			vm left message		
4	7-22	353			vm		
5							
6							
7							
8							
9							
10							

ID #: 111		Business:				Check if survey completed	
Phone:				Alt Phone:		Check if refusal survey completed	
Call #	Date	Time	Dispo	Init	Notes	Check if retired	✓
1	6-21	1159			vm ✓		
2	7-1	317			vm left message		
3	7-17	1139			Erica → call back for map		
4	7-22	354			vm		
5							
6							
7							
8							
9							
10							

ID #: 112		Business:				Check if survey completed	
Phone:				Alt Phone:		Check if refusal survey completed	
Call #	Date	Time	Dispo	Init	Notes	Check if retired	✓
1	6-21	1209			vm ✓		
2	7-1	318			vm left message		
3	7-17	1141			vm left message		
4	7-22	396			vm		
5							
6							
7							
8							
9							
10							

City of Wenatchee Business Survey

ID #: 113		Business:				Check if survey completed	✓
Phone:				Alt Phone:		Check if refusal survey completed	
Call #	Date	Time	Dispo	Init	Notes	Check if retired	
1	6.21	1211			completed		
2							
3							
4							
5							
6							
7							
8							
9							
10							

ID #: 114		Business:				Check if survey completed	
Phone:				Alt Phone:		Check if refusal survey completed	
Call #	Date	Time	Dispo	Init	Notes	Check if retired	✓
1	6.21	1218			[illegible] vm		
2	7.1	320			vm left message		
3	7.12	1142			vm left message		
4	7.22	358			vm		
5							
6							
7							
8							
9							
10							

ID #: 115		Business				Check if survey completed	✓
Phone:				Alt Phone:		Check if refusal survey completed	
Call #	Date	Time	Dispo	Init	Notes	Check if retired	
1	6.21	1222			vm		
2	7.1	321			vm left message		
3	7.12	1143			completed		
4							
5							
6							
7							
8							
9							
10							

City of Wenatchee Business Survey

ID #: 116		Business:				Check if survey completed	
Phone:				Alt Phone:		Check if refusal survey completed	
Call #	Date	Time	Dispo	Init	Notes	Check if retired	✓
1	6-21	1224			automated vm system		
2	7-1	323			Vm left message		
3	7-17	1159			Vm left message		
4	7-22	359			automated vm		
5							
6							
7							
8							
9							
10							

ID #: 117		Business:				Check if survey completed	
Phone:				Alt Phone:		Check if refusal survey completed	
Call #	Date	Time	Dispo	Init	Notes	Check if retired	✓
1	6-21	1226			window cleaning - not carpet		
2							
3							
4							
5							
6							
7							
8							
9							
10							

ID #: 118		Business:				Check if survey completed	
Phone:				Alt Phone:		Check if refusal survey completed	
Call #	Date	Time	Dispo	Init	Notes	Check if retired	✓
1	6-21	1235			owner out of office - only one person in office - didn't have time		
2							
3	7-1	326			left message w/ Corrine		
4	7-17	1200			refused		
5							
6							
7							
8							
9							
10							

City of Wenatchee Business Survey

ID #: 119	Business:					Check if survey completed	
Phone:				Alt Phone:		Check if refusal survey completed	
Call #	Date	Time	Dispo	Init	Notes	Check if retired	✓
1	6-21	1237			vm ✓		
2	7-1	327			vm left message		
3	7-17	1202			vm left message		
4	7-22	359			vm		
5							
6							
7							
8							
9							
10							

ID #: 120	Business:					Check if survey completed	✓
Phone:				Alt Phone:		Check if refusal survey completed	
Call #	Date	Time	Dispo	Init	Notes	Check if retired	
1	6-21	1238			automated message system		
2							
3							
4					called back to main # - completed		
5							
6							
7							
8							
9							
10							

ID #: 121	Business:					Check if survey completed	
Phone:				Alt Phone:		Check if refusal survey completed	
Call #	Date	Time	Dispo	Init	Notes	Check if retired	✓
1	6-21	1240			automated voice message		
2	7-1	328			vm left message		
3	7-17	1203			vm left message		
4	7-22	401			vm ✓		
5							
6							
7							
8							
9							
10							

City of Wenatchee Business Survey

ID #: 122		Business:				Check if survey completed	✓
Phone:				Alt Phone:		Check if refusal survey completed	
Call #	Date	Time	Dispo	Init	Notes	Check if retired	
1	6·21	1248			completed		
2							
3							
4							
5							
6							
7							
8							
9							
10							

ID #: 123		Business:				Check if survey completed	
Phone:				Alt Phone:		Check if refusal survey completed	
Call #	Date	Time	Dispo	Init	Notes	Check if retired	✓
1	6·21	100			vm ✓		
2	7·1	331			vm left message		
3	7·17	1204			vm left message		
4	7·22	413			vm		
5							
6							
7							
8							
9							
10							

ID #: 124		Business:				Check if survey completed	
Phone:				Alt Phone:		Check if refusal survey completed	
Call #	Date	Time	Dispo	Init	Notes	Check if retired	✓
1	6·21	105			vm		
2	7·1	333			don't do carpets		
3							
4							
5							
6							
7							
8							
9							
10							

City of Wenatchee Business Survey

ID #: 125		Business:				Check if survey completed	
Phone:				Alt Phone:		Check if refusal survey completed	
Call #	Date	Time	Dispo	Init	Notes	Check if retired	✓
1	6-21	1:11			cannot be completed as dialed		
2							
3	7-29	1035			same		
4							
5							
6							
7							
8							
9							
10							

ID #: 126		Business:				Check if survey completed	
Phone:				Alt Phone:		Check if refusal survey completed	
Call #	Date	Time	Dispo	Init	Notes	Check if retired	✓
1	6-21	113			VM - unknown		
2	7-1	334			VM left message		
3	7-17	1205			VM left message		
4	7-22	404			VM		
5							
6							
7							
8							
9							
10							

ID #: 127		Business:				Check if survey completed	
Phone:				Alt Phone:		Check if refusal survey completed	
Call #	Date	Time	Dispo	Init	Notes	Check if retired	✓
1	6-21	115			VM - unknown		
2	7-1	335			VM left message		
3	7-17	1206			VM left message		
4	7-22	406			VM		
5							
6							
7							
8							
9							
10							

City of Wenatchee Business Survey

ID #: 128		Business:				Check if survey completed	
Phone:				Alt Phone:		Check if refusal survey completed	
Call #	Date	Time	Dispo	Init	Notes	Check if retired	✓
1	6.21	115			not accepting calls @ this time		
2	7.1	336			same		
3	7.17	1207			same		
4	7-22	406			same		
5							
6							
7							
8							
9							
10							

ID #: 129		Business:				Check if survey completed	
Phone:				Alt Phone:		Check if refusal survey completed	
Call #	Date	Time	Dispo	Init	Notes	Check if retired	✓
1	6.21	118			VM - unknown		
2	7-1	336			VM left message		
3		1209			VM left message		
4	7-22	406			VM		
5							
6							
7							
8							
9							
10							

ID #: 130		Business:				Check if survey completed	✓
Phone:				Alt Phone:		Check if refusal survey completed	
Call #	Date	Time	Dispo	Init	Notes	Check if retired	
1	6.21	121			VM		
2	7-1	338			VM left message		
3	7-17	1210			completed		
4							
5							
6							
7							
8							
9							
10							

City of Wenatchee Business Survey

ID #: 131	Business:					Check if survey completed	✓
Phone:			Alt Phone:			Check if refusal survey completed	
Call #	Date	Time	Dispo	Init	Notes	Check if retired	
1	6·21	125			uses tankless - low moisture		
2							
3							
4							
5							
6							
7							
8							
9							
10							

ID #: 132	Business:					Check if survey completed	✓
Phone:			Alt Phone:			Check if refusal survey completed	
Call #	Date	Time	Dispo	Init	Notes	Check if retired	
1	6·21	129			completed		
2							
3							
4							
5							
6							
7							
8							
9							
10							

ID #: 133	Business:					Check if survey completed	
Phone:			Alt Phone:			Check if refusal survey completed	
Call #	Date	Time	Dispo	Init	Notes	Check if retired	✓
1	6·21	137			disconnected		
2							
3							
4							
5							
6							
7							
8							
9							
10							

City of Wenatchee Business Survey

ID #: 134	Business					Check if survey completed	
Phone:				Alt Phone:		Check if refusal survey completed	
Call #	Date	Time	Dispo	Init	Notes	Check if retired	✓
1	6-21	139			driving to job - try back @ 2nd #		
2	6-21	140			VM @ 2nd #		
3	7-1	339			VM - left message		
4	7-17	1216			VM		
5	7-22	467			VM		
6							
7							
8							
9							
10							

ID #: 135	Business:					Check if survey completed	✓
Phone:				Alt Phone:		Check if refusal survey completed	
Call #	Date	Time	Dispo	Init	Notes	Check if retired	
1	6-21	141			call back in 30 min		
2	6-21	220			VM		
3	7-1	340			call any time tomorrow		
4	7-2	1046			completed		
5							
6							
7							
8							
9							
10							

ID #:	Business:					Check if survey completed	
Phone:				Alt Phone:		Check if refusal survey completed	
Call #	Date	Time	Dispo	Init	Notes	Check if retired	
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							

City of Wenatchee Business Survey

ID #: 201		Business:				Check if survey completed	
Phone:				Alt Phone:		Check if refusal survey completed	
Call #	Date	Time	Dispo	Init	Notes	Check if retired	✓
1	6.21	155			wrong # - delivery service		
2							
3							
4							
5							
6							
7							
8							
9							
10							

ID #: 202		Business:				Check if survey completed	✓
Phone:				Alt Phone:		Check if refusal survey completed	
Call #	Date	Time	Dispo	Init	Notes	Check if retired	
1	6.21	157			call back monday		
2	6.24	400			completed		
3							
4							
5							
6							
7							
8							
9							
10							

ID #: 203		Business				Check if survey completed	
Phone:				Alt Phone:		Check if refusal survey completed	
Call #	Date	Time	Dispo	Init	Notes	Check if retired	✓
1	6.21	200			disconnected		
2							
3							
4							
5							
6							
7							
8							
9							
10							

City of Wenatchee Business Survey

ID #: 204		Business:				Check if survey completed	
Phone:				Alt Phone:		Check if refusal survey completed	
Call #	Date	Time	Dispo	Init	Notes	Check if retired	✓
1	6.21	203			no longer in business		
2							
3							
4							
5							
6							
7							
8							
9							
10							

ID #: 205		Business				Check if survey completed	
Phone:				Alt Phone:		Check if refusal survey completed	
Call #	Date	Time	Dispo	Init	Notes	Check if retired	✓
1	6.21	205			voicemail		
2							
3							
4					ID 216 duplicate		
5							
6							
7							
8							
9							
10							

ID #: 206		Business:				Check if survey completed	
Phone:				Alt Phone:		Check if refusal survey completed	
Call #	Date	Time	Dispo	Init	Notes	Check if retired	✓
1	6.21	211			voicemail - personal		
2	7.17	1218			VM - new number		
3	7.22	410			VM - left message		
4	724	1040			VM		
5							
6							
7							
8							
9							
10							

City of Wenatchee Business Survey

ID #: 207		Business:				Check if survey completed	
Phone				Alt Phone:		Check if refusal survey completed	
Call #	Date	Time	Dispo	Init	Notes	Check if retired	✓
1	6.21	212			call back later this afternoon		
2	6.21	355			call after 5 if possible next week		
3	7.1	406			VM - left message		
4	7.17	1219			VM left message		
5	7.22	411			VM		
6							
7							
8							
9							
10							

ID #: 208		Business:				Check if survey completed	
Phone				Alt Phone:		Check if refusal survey completed	
Call #	Date	Time	Dispo	Init	Notes	Check if retired	✓
1	6.21	214			disconnected		
2							
3							
4							
5							
6							
7							
8							
9							
10							

ID #: 209		Business:				Check if survey completed	
Phone:				Alt Phone:		Check if refusal survey completed	
Call #	Date	Time	Dispo	Init	Notes	Check if retired	✓
1	6.21	219			disconnected		
2							
3							
4							
5							
6							
7							
8							
9							
10							

City of Wenatchee Business Survey

ID #: 210		Business:				Check if survey completed	
Phone:				Alt Phone:		Check if refusal survey completed	
Call #	Date	Time	Dispo	Init	Notes	Check if retired	✓
1	6-21	217			VM ✓		
2	7-1	407			VM left message		
3	7-17	1220			VM left message		
4	7-22	411			VM		
5							
6							
7							
8							
9							
10							

ID #: 211		Business:				Check if survey completed	
Phone:				Alt Phone:		Check if refusal survey completed	
Call #	Date	Time	Dispo	Init	Notes	Check if retired	✓
1	6-21	219			VM		
2	7-1	408			call back tomorrow Am		
3	7-2	1020			VM left message		
4	7-17	1221			VM		
5							
6							
7							
8							
9							
10							

ID #: 212		Business:				Check if survey completed	
Phone:				Alt Phone:		Check if refusal survey completed	
Call #	Date	Time	Dispo	Init	Notes	Check if retired	✓
1	6-21	225			call center - owner/mgr not on site no one available at this number		
2							
3							
4							
5							
6							
7							
8							
9							
10							

City of Wenatchee Business Survey

ID #: 213		Business:				Check if survey completed	
Phone:				Alt Phone:		Check if refusal survey completed	
Call #	Date	Time	Dispo	Init	Notes	Check if retired	✓
1	6·21	320			vm		
2							
3					gentleman called back - they no longer clean carpets		
4							
5							
6							
7							
8							
9							
10							

ID #: 214		Business:				Check if survey completed	
Phone:				Alt Phone:		Check if refusal survey completed	
Call #	Date	Time	Dispo	Init	Notes	Check if retired	✓
1	6·21	322			vm - unknown		
2	7-1	413			vm left message		
3	7-17	1225			vm left message		
4	7-22	411			vm		
5							
6							
7							
8							
9							
10							

ID #: 215		Business:				Check if survey completed	
Phone:				Alt Phone:		Check if refusal survey completed	
Call #	Date	Time	Dispo	Init	Notes	Check if retired	✓
1	6·21	324			vm - is not available - can't leave msg		
2	7-1	419			same		
3	7-17	1229			same		
4	7-22	412			same		
5							
6							
7							
8							
9							
10							

City of Wenatchee Business Survey

ID #: 216	Business:					Check if survey completed	✓
Phone:				Alt Phone:		Check if refusal survey completed	
Call #	Date	Time	Dispo	Init	Notes	Check if retired	
1	6-21	325			VM		
2	7-1	416			VM - left message		
3	7-17	1226			completed		
4							
5							
6							
7							
8							
9							
10							

ID #: 217	Business:					Check if survey completed	
Phone:				Alt Phone:		Check if refusal survey completed	
Call #	Date	Time	Dispo	Init	Notes	Check if retired	✓
1	6-21	332			no answer		
2	7-1	418			they sell carpets		
3							
4							
5							
6							
7							
8							
9							
10							

ID #: 218	Business:					Check if survey completed	✓
Phone:				Alt Phone:		Check if refusal survey completed	
Call #	Date	Time	Dispo	Init	Notes	Check if retired	
1	6-21	335			complete		
2							
3							
4							
5							
6							
7							
8							
9							
10							

City of Wenatchee Business Survey

ID #: 219	Business:					Check if survey completed	
Phone:				Alt Phone:		Check if refusal survey completed	
Call #	Date	Time	Dispo	Init	Notes	Check if retired	✓
1	6-21	340			wrong #		
2							
3							
4							
5							
6							
7							
8							
9							
10							

ID #: 220	Business					Check if survey completed	
Phone:				Alt Phone:		Check if refusal survey completed	
Call #	Date	Time	Dispo	Init	Notes	Check if retired	✓
1	6-21	342			no carpets		
2							
3							
4							
5							
6							
7							
8							
9							
10							

ID #: 221	Business:					Check if survey completed	
Phone:				Alt Phone:		Check if refusal survey completed	
Call #	Date	Time	Dispo	Init	Notes	Check if retired	✓
1	6-21	347			vm		
2	7-1	421			call tomorrow		
3	7-2	1028			left message w/ receptionist		
4	7-17	1235			vm left message		
5	7-22	415			vm		
6							
7							
8							
9							
10							

City of Wenatchee Business Survey

ID #: 222		Business:				Check if survey completed	✓
Phone:				Alt Phone:		Check if refusal survey completed	
Call #	Date	Time	Dispo	Init	Notes	Check if retired	
1	6-21	348			try back Monday		
2	6-24	415			completed		
3							
4							
5							
6							
7							
8							
9							
10							

ID #: 223		Business:				Check if survey completed	
Phone:				Alt Phone:		Check if refusal survey completed	
Call #	Date	Time	Dispo	Init	Notes	Check if retired	✓
1	6-21	350			cannot be completed as dialed		
2	7-1	1030			same		
3	7-22	419			same		
4							
5							
6							
7							
8							
9							
10							

ID #: 224		Business:				Check if survey completed	
Phone:				Alt Phone:		Check if refusal survey completed	
Call #	Date	Time	Dispo	Init	Notes	Check if retired	✓
1	6-21	352			receptionist - call back for Tracy		
2	7-1	428			call tomorrow		
3	7-2	1032			refused		
4							
5							
6							
7							
8							
9							
10							

City of Wenatchee Business Survey

ID #: 225	Business:			Check if survey completed	
Phone:		Alt Phone:		Check if refusal survey completed	
Call #	Date	Time	Dispo	Init	Notes	Check if retired	✓
1	6-21	401			goes to central service
2					
3					duplicate of #123
4					
5					
6					
7					
8					
9					
10					

ID #: 226	Business:			Check if survey completed	
Phone:		Alt Phone:		Check if refusal survey completed	
Call #	Date	Time	Dispo	Init	Notes	Check if retired	✓
1	6-21	404			goes to central service
2					
3					duplicate of #225
4					
5					
6					
7					
8					
9					
10					

ID #: 227	Business:			Check if survey completed	
Phone:		Alt Phone:		Check if refusal survey completed	
Call #	Date	Time	Dispo	Init	Notes	Check if retired	✓
1	6-21	407			wrong # that a business
2					
3					
4					
5					
6					
7					
8					
9					
10					

City of Wenatchee Business Survey

ID #: 228		Business:				Check if survey completed	
Phone:				Alt Phone:		Check if refusal survey completed	
Call #	Date	Time	Dispo	Init	Notes	Check if retired	✓
1	6-21	411			wrong #		
2							
3							
4							
5							
6							
7							
8							
9							
10							

ID #: 229		Business:				Check if survey completed	
Phone:				Alt Phone:		Check if refusal survey completed	
Call #	Date	Time	Dispo	Init	Notes	Check if retired	✓
1	6-21	413			fast busy		
2	7-1	432			fast busy		
3							
4							
5							
6							
7							
8							
9							
10							

ID #: 230		Business:				Check if survey completed	
Phone:				Alt Phone:		Check if refusal survey completed	
Call #	Date	Time	Dispo	Init	Notes	Check if retired	✓
1	6-21	414			VM not set up		
2	7-1	434			no carpets - just upholstery		
3							
4							
5							
6							
7							
8							
9							
10							

City of Wenatchee Business Survey

ID #: 231		Business:				Check if survey completed	
Phone:				Alt Phone:		Check if refusal survey completed	
Call #	Date	Time	Dispo	Init	Notes	Check if retired	✓
1	6-21	416			VM - unknown		
2	7-1	435			VM - left message		
3	7-17	1240			VM - left message		
4	7-22				VM		
5							
6							
7							
8							
9							
10							

ID #: 232		Business:				Check if survey completed	
Phone:				Alt Phone:		Check if refusal survey completed	
Call #	Date	Time	Dispo	Init	Notes	Check if retired	✓
1	6-21	418			wrong # not a business		
2							
3							
4							
5							
6							
7							
8							
9							
10							

ID #: 233		Business:				Check if survey completed	
Phone:				Alt Phone:		Check if refusal survey completed	
Call #	Date	Time	Dispo	Init	Notes	Check if retired	✓
1	6-21	422			dead line		
2	7-24	1043			same		
3							
4							
5							
6							
7							
8							
9							
10							

City of Wenatchee Business Survey

ID #: 234		Business.				Check if survey completed	
Phone:				Alt Phone:		Check if refusal survey completed	
Call #	Date	Time	Dispo	Init	Notes	Check if retired	✓
1	6-21	424			not set up to receive calls		
2	7-22	421			same		
3	7-24	1044			same		
4							
5							
6							
7							
8							
9							
10							

ID #: 235		Business:				Check if survey completed	
Phone:				Alt Phone:		Check if refusal survey completed	
Call #	Date	Time	Dispo	Init	Notes	Check if retired	✓
1	6 21	426			plumbing company		
2							
3							
4							
5							
6							
7							
8							
9							
10							

ID #: 236		Business:				Check if survey completed	
Phone:				Alt Phone:		Check if refusal survey completed	
Call #	Date	Time	Dispo	Init	Notes	Check if retired	✓
1	6 21	430			no answer - no vm		
2	7-1	436			same		
3	7 22	423			same		
4	7 24	1045			same		
5							
6							
7							
8							
9							
10							

City of Wenatchee Business Survey

ID #: 237	Business:			Check if survey completed	
Phone:		Alt Phone:		Check if refusal survey completed	
				Check if retired	✓

Call #	Date	Time	Dispo	Init	Notes
1	6-21	431			Vm
2	7-1	437			Vm left message
3	7-17	1241			Vm left message
4	7-22	423			Vm
5					
6					
7					
8					
9					
10					

ID #: 238	Business:			Check if survey completed	✓
Phone:		Alt Phone: 509-585-9000		Check if refusal survey completed	
				Check if retired	

Call #	Date	Time	Dispo	Init	Notes
1	6-21	433			none available now - call back
2	7-1	445			completed
3					
4					
5					
6					
7					
8					
9					
10					

ID #: 239	Business:			Check if survey completed	
Phone:		Alt Phone:		Check if refusal survey completed	
				Check if retired	✓

Call #	Date	Time	Dispo	Init	Notes
1	6-21	435			duplicate of #238
2					
3					
4					
5					
6					
7					
8					
9					
10					

City of Wenatchee Business Survey

ID #: 240		Business:				Check if survey completed	
Phone:				Alt Phone:		Check if refusal survey completed	
Call #	Date	Time	Dispo	Init	Notes	Check if retired	✓
1	6-21	436			customer service line		
2							
3							
4							
5							
6							
7							
8							
9							
10							

ID #: 241		Business:				Check if survey completed	
Phone:				Alt Phone:		Check if refusal survey completed	
Call #	Date	Time	Dispo	Init	Notes	Check if retired	✓
1	6-21	438			duplicate of #240		
2							
3							
4							
5							
6							
7							
8							
9							
10							

ID #: 242		Business:				Check if survey completed	
Phone:				Alt Phone:		Check if refusal survey completed	
Call #	Date	Time	Dispo	Init	Notes	Check if retired	✓
1	6-21	439			automated message - not available - no vm		
2							
3	7-2	1054			same		
4	7-22	424			same		
5	724	1050			same		
6							
7							
8							
9							
10							

City of Wenatchee Business Survey

ID #: 243		Business:				Check if survey completed	
Phone:				Alt Phone:		Check if refusal survey completed	
Call #	Date	Time	Dispo	Init	Notes	Check if retired	✓
1	6-21	441			wrong # - personal cell		
2							
3							
4							
5							
6							
7							
8							
9							
10							

ID #: 244		Business:				Check if survey completed	
Phone:				Alt Phone:		Check if refusal survey completed	
Call #	Date	Time	Dispo	Init	Notes	Check if retired	✓
1	6-21	444			phone does not accept incoming calls		
2	7-17	1242			same		
3	7-24	1052			same		
4							
5							
6							
7							
8							
9							
10							

ID #: 245		Business:				Check if survey completed	
Phone:				Alt Phone:		Check if refusal survey completed	
Call #	Date	Time	Dispo	Init	Notes	Check if retired	✓
1	6-21	445			VM		
2	7-1	441			VM left message		
3	7-14	1243			VM left message		
4	7-22	428			VM		
5							
6							
7							
8							
9							
10							

City of Wenatchee Business Survey

ID #: 246		Business:				Check if survey completed	✓
Phone:				Alt Phone:		Check if refusal survey completed	
Call #	Date	Time	Dispo	Init	Notes	Check if retired	
1	6/21	447			completed		
2							
3							
4							
5							
6							
7							
8							
9							
10							

ID #: 247		Business:				Check if survey completed	
Phone:				Alt Phone:		Check if refusal survey completed	
Call #	Date	Time	Dispo	Init	Notes	Check if retired	✓
1	6/21	453			customer service line		
2							
3							
4							
5							
6							
7							
8							
9							
10							

ID #: 248		Business:				Check if survey completed	
Phone:				Alt Phone:		Check if refusal survey completed	
Call #	Date	Time	Dispo	Init	Notes	Check if retired	2 ✓
1	6/21	458			VM		
2	7-1	443			refused		
3							
4							
5							
6							
7							
8							
9							
10							

Appendix C

Audit and Data Verification Reports

Audit Number 1				
Completed following pilot test of survey				
Date	4-30-19	**Auditor**	Jessica Shaw	

Audit Task	**Yes**	**No**	**N/A**	**Comments**
List of communities and businesses is complete and consistent target population criteria	✓			Please see attached documentation.
Business survey is written at 6th grade level or lower.	✓			
Survey data was collected by the consultant	✓			
Business survey data was blind coded prior to receipt	✓			
SOP for business survey was followed	✓			
SOP for jurisdiction survey was followed	✓			

Auditor Signature	Jessica M Shaw

Jessica Shaw

From: Dani Ballard <ballard@actionresearch-inc.com>
Sent: Tuesday, April 23, 2019 10:04 AM
To: Jessica Shaw
Cc: Lori Large
Subject: Audit Number 1

Follow Up Flag: Follow up
Flag Status: Flagged

Jessica,

To comply with Audit Number 1:

Survey data was collected by the consultant	✓ Yes
Business survey data was blind coded	✓ Yes
SOP for business survey was followed	✓ Yes, no adjustments were needed
SOP for jurisdiction survey was followed	✓ Yes, no adjustments were needed

Let me know if you need anything else.

Thank you,

Dani

Dani Ballard
Research Associate

Action Research
direct: (760) 722-4011 | **main:** (760) 722-4000
California: 3630 Ocean Ranch Blvd. | Oceanside, CA 92056
www.ActionResearch-inc.com | ballard@actionresearch-inc.com

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Jessica Shaw

From: Dani Ballard <ballard@actionresearch-inc.com>
Sent: Tuesday, April 23, 2019 9:53 AM
To: Jessica Shaw
Cc: Lori Large
Subject: Business Pilot Survey Data
Attachments: Wenatchee_BusinessPilot_Data.xlsx

Follow Up Flag: Follow up
Flag Status: Completed

Hi Jessica,

It was nice talking to you all yesterday. I have attached the data from the business pilot complete, with the survey questions on a separate sheet. The final question of the survey asks the preferred method of receiving information. Any email addresses given by the respondents will be provided in a separate file at the conclusion of the data collection period to comply with the confidentiality of the respondents.

Lori and I will work on language for the notification postcards and answering machine messages and get that to you later in the week.

Let me know if you have any questions.

Thanks,

Dani

Dani Ballard
Research Associate

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California: 3630 Ocean Ranch Blvd. | Oceanside, CA 92056
www.ActionResearch-inc.com | ballard@actionresearch-inc.com

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Jessica Shaw

From: Jessica Shaw
Sent: Tuesday, April 9, 2019 9:39 AM
To: TWachholder@east-wenatchee.com
Cc: Dani Ballard
Subject: Mobile Contractor Illicit Discharge E&O Study Jurisdiction Survey Advance Notification

Hello,
Thank you for agreeing to participate in the Mobile Contractor Illicit Discharge Education and Outreach effectiveness study. As you know, the City of Wenatchee is leading this study to evaluate the illicit discharge education and outreach program called Dump Smart.
Within the next day or two you will receive an email from our partner, Action Research, providing you with the survey link. As part of this evaluation, the City is asking for records from your jurisdiction for 2007 through 2017, or for 2011 through 2017 if the earlier years' records are not available, listing the number of confirmed illicit discharges from carpet cleaners by year. Please provide this information in a separate document. The survey will show you how to attach it to your completed survey - *pdf*, *doc*, *docx*, *png*, *jpg*, *jpeg*, and *gif* files are supported.
Thank you,
Jessica

Jessica Shaw
Environmental Manager
Public Works Department

City of Wenatchee

1350 McKittrick St • Wenatchee, WA 98801
Telephone: (509) 888-3225 • Fax: (509) 888-3201
Email: jshaw@wenatcheewa.gov Web: www.wenatcheewa.gov

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Jessica Shaw

From: Dani Ballard <ballard@actionresearch-inc.com>
Sent: Tuesday, March 26, 2019 3:21 PM
To: Jessica Shaw
Cc: Lori Large
Subject: Jurisdiction Survey Data

Follow Up Flag: Follow up
Flag Status: Completed

Hi Jessica,

I wanted to give you an update on the Jurisdiction survey data.

Emails containing the survey link were sent out on March 14th to the six remaining jurisdictions (Pullman having been previously completed).

- City of Pullman, Shilo Sprouse: Survey completed, illicit discharge records for 2009-2018 received
- City of Wenatchee, Jessica Shaw: Survey completed, illicit discharge records for 2013-2018 received
- Chelan County, Jason Detamore: Survey completed, he let me know via email that they have had no illicit discharges from mobile carpet cleaners in the past decade
- City of East Wenatchee, Clayton Verellen: No response
- Douglas County, Jennifer Lange: Survey completed, stated illicit discharge records were available for 2007-2017, but no document was attached
- City of Kennewick, Bruce Mills: Survey completed by Martin Nelson, stated illicit records were not available
- City of West Richland, Danielle Mullins: Survey completed, stated illicit records were not available
- City of Richland, Brian Pope: Only entered his jurisdiction, name, and title - none of the questions were answered

I wanted to get your thoughts as to whether I should reach out to those who did not provide illicit discharge records or stated that the records were not available.

Thank you!

Dani

Dani Ballard
Research Associate

Action Research
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California: 3630 Ocean Ranch Blvd. | Oceanside, CA 92056

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Jessica Shaw

From: Lori Large <large@actionresearch-inc.com>
Sent: Wednesday, March 6, 2019 3:16 PM
To: Jessica Shaw
Cc: Dani Ballard
Subject: RE: Next Conference Call for the Mobile Contractor Survey

Follow Up Flag: Follow up
Flag Status: Completed

Hello Jessica,

We have gone through the SOP and we don't have any exceptions to the protocol. We have systems set up to comply with each step and will send any documentation (survey training PPT), as appropriate. Dani will have control of all the survey data collection and will likely make most of the calls to the businesses; however, the initial calls will be made by an additional person.

For the business survey, our assessment of the grade reading level came in at 4th grade reading level.

We'll get back to you by Friday with the launch date for the rest of the jurisdiction surveys and the piloting of the business survey. Let me know if you have additional questions or comments.

Lori
Phone (760) 722-4002 | Fax (760) 722-4005
www.actionresearch-inc.com

From: Jessica Shaw <JShaw@WenatcheeWA.Gov>
Sent: Tuesday, March 5, 2019 4:53 PM
To: Lori Large <large@actionresearch-inc.com>
Cc: Dani Ballard <ballard@actionresearch-inc.com>
Subject: RE: Next Conference Call for the Mobile Contractor Survey

Hi Lori,
The end of the month will work for the next conference call. In the meantime, I wanted to make sure that the project was following the quality assurance project plan. I was reviewing the audit and standard operating procedure sections of the QAPP in preparation for the first audit following the pilot testing. I have attached the two appendices for reference. So here are a couple questions I had:

- I noticed that the preliminary business survey is not at the 6th grade reading level that we set as a measurement performance criteria in the QAPP. Do you think we should adjust the language before or after the pilot test?
- Do the standard operating procedures need to be revised?

Thank you!

Have a good evening,
Jessica

Jessica Shaw

Environmental Manager
Public Works Department

City of Wenatchee

1350 McKittrick St • Wenatchee, WA 98801
Telephone: (509) 888-3225• Fax: (509) 888-3201
Email: jshaw@wenatcheewa.gov Web: www.wenatcheewa.gov

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From: Lori Large <large@actionresearch-inc.com>
Sent: Monday, March 4, 2019 1:37 PM
To: Jessica Shaw <JShaw@WenatcheeWA.Gov>; Dani Ballard <ballard@actionresearch-inc.com>
Subject: RE: Next Conference Call for the Mobile Contractor Survey

Hi Jessica,

I think one toward the end of the month would be good. We will be moving on the rest of the jurisdiction surveys in the next couple of weeks, so after that makes sense to me.
I can update you with the launch date and then we can set up a call – we should have something to talk about after the launch date. Does that work?

Lori
Phone (760) 722-4002 | Fax (760) 722-4005
www.actionresearch-inc.com

From: Jessica Shaw <JShaw@WenatcheeWA.Gov>
Sent: Monday, March 4, 2019 9:34 AM
To: Dani Ballard <ballard@actionresearch-inc.com>; Lori Large <large@actionresearch-inc.com>
Subject: Next Conference Call for the Mobile Contractor Survey

Hi,
Just touching base to find out when you think we will need to have another conference call. Thank you!
Have a great day,
Jessica

Jessica Shaw
Environmental Manager
Public Works Department

City of Wenatchee

1350 McKittrick St • Wenatchee, WA 98801
Telephone: (509) 888-3225• Fax: (509) 888-3201
Email: jshaw@wenatcheewa.gov Web: www.wenatcheewa.gov

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Audit Number 2					
Completed during the survey data collection					
Date	6/25/19	**Auditor**	Jessica Shaw		
Audit Task		**Yes**	**No**	**N/A**	**Comments**
The survey data is being collected by the consultant		✓			Please see attached documentation
Business survey data was blind coded prior to receipt		✓			
SOP for business survey was followed		✓			Postcard ~~was~~ was sent prior to survey as a mitigation approach.
SOP for jurisdiction survey was followed		✓			
Auditor Signature	Jessica M Shaw				

Jessica Shaw

From: Dani Ballard <ballard@actionresearch-inc.com>
Sent: Monday, June 24, 2019 4:07 PM
To: Jessica Shaw
Cc: Lori Large
Subject: Business Calls Status

Follow Up Flag: Follow up
Flag Status: Flagged

CAUTION: This email originated from outside of the City of Wenatchee. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Hi Jessica,

We have called all the numbers on the business list at least once, resulting in the following numbers:

Completed surveys	9
Refusal	1
Disconnected/bad/wrong numbers	17
No longer in business	2
Businesses that don't do carpets	3
Voice mails	45
Asked to be called back	6

As you can see, half of the numbers went to voice mail. A number of these seem to be personal cell phones, but we will call all of them again and messages will be left in the hope that we will get return calls. The six who asked to be called back seemed interested, we just caught them at a bad time.

I will keep you updated as additional attempts are made to reach someone at the 51 numbers that remain on the list.

Thank you!

Dani

Dani Ballard
Research Associate

Action Research
direct: (760) 722-4011 | **main:** (760) 722-4000
California: 3630 Ocean Ranch Blvd. | Oceanside, CA 92056
www.ActionResearch-inc.com | ballard@actionresearch-inc.com

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Audit Number 3				
Completed during the review of the final report				
Date	11-20-19	**Auditor**	Jessica Shaw	

Audit Task	**Yes**	**No**	**N/A**	**Comments**
The SOPs for the survey was followed for the jurisdictions	✓			Please refer to final report from Action Research 8/26/19
The SOPs for the survey was followed for the businesses	✓			
The SOPs for the survey was followed for the control area	✓			
All of the business data was collected by the consultant	✓			
The survey data from the businesses was blind coded before receipt	✓			
The responses from the target population were compared to the control population using a predefined confidence integral and statistical power			✓	

Auditor Signature	Jessica M Shaw