

Appendix B1: Comprehensive Education and Outreach Plan,
2016





Appendix B: Comprehensive Education and Outreach Plan

City and County Of Honolulu Storm Water Management Plan 2015

Final

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Group 70 International**

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Honolulu, Hawai'i



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Definitions and Acronyms

BMP	Best Management Practices
CBSM	Community-Based Social Marketing
CWB	Clean Water Branch
DFM	Department of Facility Maintenance
DOH	Hawai'i State Department of Health
DPP	Department of Planning and Permitting
FOG	Fats, Oils, and Grease
KBA	Kalihi Business Association
KCC	Kalihi Community of Christ
KKV	Kokua Kalihi Valley
NPDES	National Pollution Discharge Elimination System
QSP	Qualified SWPPP Practitioner
QSD	Qualified SWPPP Developer
SSBMPP	Site-Specific Construction BMP Plan
SWPPP	Storm Water Pollution Prevention Plan
TMDL	Total Maximum Daily Load
YBA	Young Buddhists Association
YMCA	Young Men's Christians Association

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- “Dump Smart It’s Not Just Water Stormwater Pollution Prevention Education and Outreach for Mobile Businesses. A pilot project implemented in Washington State’s Snohomish County, Kitsap County, Spokane County, City of Seattle, City of Wenatchee, City of Moses Lake and City of Kent,” Frause, June 2011.
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- “Summary of Recent Research in the Puget Sound Region: Assistance for Developing and Implementing Local Programs” Cunningham Environmental Consulting, 2011.
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1. Introduction

The purpose of the City's storm water education and outreach program is to affect behavioral changes that reduce or eliminate storm water pollutant contributions and adverse impacts. The City's National Pollution Discharge Elimination System (NPDES) permit in *Part D.1.a. Public Education and Outreach* details the role of outreach and audiences (see below). This Appendix contains the Comprehensive Education and Outreach Plan which provides implementation plans for the General Public and Targeted Groups.

“Part D.1.a. Public Education and Outreach

The Permittee shall further develop and implement a comprehensive education and involvement program to distribute educational materials to the community or conduct equivalent outreach activities about the impacts of storm water and illicit discharges and the steps that the public can take to reduce pollutants in storm water runoff. The program should create: changes in attitude, knowledge, and awareness; BMP implementation; pollutant load reduction; and changes in discharge and receiving water quality. The program shall target: locations of illicit discharges, decision-makers, industrial and commercial businesses, construction operators, homeowners, university students, and school children, and the general public. The SWMP shall include a written public education plan for how the Permittee will reach all targeted audiences and implement the permit requirements described below.

Part D.1.a.(1) Targeted Groups. *The Permittee shall address the following targeted groups in the public education plan with appropriate messages, and shall describe outreach activities and anticipated frequencies that each activity will be conducted over the permit term:*

- *City employees*
- *City consultants*
- *Construction industry*
- *Industrial facilities covered by the NPDES permit program*
- *Visitor industry such as hotels, condominiums, and restaurants in Waikiki*
- *Commercial businesses such as landscape service and maintenance (e.g., to prevent the use of leaf blowers from blowing material into the drainage structures), automobile detailing, automobile repair and maintenance, retail gasoline outlets, and restaurants*
- *Businesses involved in fire sprinkler testing, fire department training, and exterior building washing operations*
- *Any other source that the Permittee determines may contribute a significant pollutant load to its MS4*

Part D.1.a.(2) General Public. *The Permittee shall include in the public education plan the following activities, with anticipated frequencies that each activity will be conducted over the permit term:*

- *Public Service Announcements (PSAs)*
- *Adopt-A-Stream Program*
- *School programs*
- *Distribution of brochures*
- *Participation in special events (e.g., Earth Day events) and exhibits*
- *Web site*
- *Pesticides, herbicides, and fertilizer use program*
- *Water conservation*
- *Proper disposal of grass clippings, leaves, and other green waste*
- *Proper disposal of household hazardous waste*

Part D.1.a.(3) Evaluation Methods. *The Permittee shall evaluate the progress of the public education program based on the following:*

- *An annual survey of Oahu residents to measure both behavior and knowledge relating to storm water. The surveys can be conducted in person at events, on the phone, or using Web-based survey tools. The results of the survey shall be compared to past surveys.*
- *Number of brochures distributed*
- *Number of people trained*
- *Participation in events*
- *Volunteer hours*

The results of the evaluation shall be summarized in the Annual Report.”

2. General Audience Outreach

General audience outreach will focus on priority watersheds as established by a Watershed Reconnaissance Assessment. The priority watersheds will utilize Community-Based Social Marketing campaigns to affect behavioral changes. Ongoing general audience outreach will continue and includes Adopt-a-Stream, Adopt-a-Block and Storm Drain Marking programs that have been successful tools for involving and educating the public about polluted water runoff and stream degradation. The City and County Storm Water Quality website, informational materials, social media, and special events and exhibits will also be used and, along with the above programs, will be integrated into CBSM campaigns for priority areas.

a. Watershed Reconnaissance Assessment

A Watershed Reconnaissance Assessment is being conducted by the City to aid in identification and prioritization of locations for education and outreach and to affect positive changes in water quality. The survey will be conducted in phases over the first 2-3 years of the permit using available information and field work.

The first step is an initial prioritization and selection of watersheds which will receive further desktop assessment. The following criteria are being used:

- Watersheds with stream Total Maximum Daily Loads (TMDLs), Hawai'i State Department of Health (DOH) Clean Water Branch (CWB) priority watersheds, and emerging O'ahu priority areas from the 2014 DOH Integrated report and conversations with DOH CWB staff
- Trash "hot spots" from the Trash Reduction Study preliminary data (2014)
- The number of municipal separate storm water system City storm water outfalls. (This criterion incorporates urbanization and presence of City storm water system.)

The prioritized watersheds will receive further assessment. Data to be utilized includes the Department of Planning and Permitting (DPP) zoning, lot sizes and age of housing stock, US Census Data (e.g. homeowner vs. renter), DOH Onsite Sewage Disposal Systems locations, storm water sampling data, Department of Facility Maintenance (DFM) maintenance logs and reports, and environmental technical reports from the State, Federal and Local Government level. As Hawai'i State Department of Health 2016 Marine Water Quality Assessment Methodology (July 23, 2015) and Stream Water Quality Assessment (to be developed) are used to establish new Integrated Report TMDL priorities, the updated priorities will be used for further Watershed Reconnaissance Assessment prioritization.

Stakeholders will be identified for the priority watersheds. Watershed stakeholders may include homeowners associations, business partners and civic associations, government agencies, large private landowners, non-profit organizations, environmental stewardship groups, local churches, schools and other community groups. Potential stakeholder roles and responsibilities in restoring a specific area and improving water quality will be considered for outreach partnering opportunities.

The desktop assessment and stakeholder identification will be completed in phases, and after most watersheds have been assessed, field investigations will be conducted to survey neighborhoods using methodology that draws upon the Center for Neighborhood Protection's Unified Subwatershed Site Reconnaissance, A User's Manual (March 2004). To the extent possible, community stakeholders will be engaged in the assessment process. The stakeholder involvement and field investigation will result in identification of locations and behaviors affecting water quality for which outreach efforts can be developed.

b. Community-Based Social Marketing

The City's past public general and targeted audience storm water outreach efforts (e.g. storm drain stenciling) have focused on increasing knowledge and awareness to motivate individual changes in behavior and lessen impacts to surface waters. Human behavioral studies have shown that this type of information-based approach has limited effectiveness in producing behavioral change because motivations for behavioral change vary amongst communities and types of behaviors.

In an effort to affect behavioral changes, the City is planning a Community-Based Social Marketing (CBSM) approach for education and outreach during the five-year permit period. The CBSM approach provides assessment of motivations in a target community for key behavioral changes. These motivations are then incorporated into development of an outreach campaign to influence measurable changes in key behaviors. This section provides details on implementing this approach.

The most widely used process for conducting CBSM is described in *Fostering Sustainable Behavior* (2013) by Doug McKenzie-Mohr, the founder of community-based social marketing. The five steps are described below and summarized in Figure 1.



Figure 1 Steps in Community-Based Social Marketing

Step 1 Select Behavior

A wide array of behaviors could be encouraged to improve storm water quality. The first step is to determine which behaviors should be promoted. Factors to be considered in selecting behaviors are: 1) probability that a behavior will be implemented, 2) behavioral impact in pollutant reduction, and 3) level to which the behavior is already occurring (also referred to as penetration).

Step 2 Identify Barriers and Benefits

This step moves into identifying the reasons that people engage (benefits) or don't engage (barriers) in selected behavior(s). While there may be ideas or hypotheses about the reasons, it is important to be informed with data, as this is the underpinning of strategy development (Step 3).

Step 2 typically begins with literature searches (trade magazines, agency reports, academic databases, and CBSM websites) to find out what has been learned about the behaviors by others. Following the literature review, where possible, observations take place with people engaging in the behaviors to be promoted and those to be discouraged. Many times a single behavior is made up of clusters of sub-actions which should be considered separately to better understand the barriers to the desired behavior. Different methods can be used to explore the details of behavioral sub-actions and barriers such as randomly chosen focus groups and intercept surveys (surveys done when a person is "intercepted" in a public space and asked a set of survey questions).

Step 3 Develop Strategy

Developing a strategy, or action plan, for affecting change involves taking information from the first two steps. A strategy should both 1) provide understanding how to both reduce barriers and increase benefits for the behavior to be encouraged, and 2) increase barriers and reduce benefits for behaviors to be discouraged. Examples of how tools can be matched to the barriers are shown in Table 1. For example, if it is discovered that a barrier to a particular behavior is lack of motivation, commitment, norms or incentive tools should be used in strategy development. Once a strategy has been selected, it should be tested to see if positive feedback is received.

Table 1 Matching Barriers to Tools

BARRIERS	TOOLS
Lack of Motivation	Commitment Norms Incentives
Forget to Act	Prompts
Lack of Social Pressure	Norms
Lack of Knowledge	Communication Social Diffusion
Structural Barriers	Convenience

Step 4 Pilot Campaign

The pilot campaign step provides an opportunity to test a strategy before implementing it more broadly. Strategy effectiveness should be assessed as part of the pilot campaign. Baseline data on behaviors should be collected prior to the pilot rollout. In addition, a control neighborhood or community should be selected for comparison and measurement of behavioral changes. Also, during this step, the return on campaign investment should be calculated. This provides an assessment of resource (cost and time) effectiveness before expending more resources.

Piloting is not a single event, and retesting and changes may be needed until the pilot is successful. A period of assessing and adjusting prepares the campaign for the next step of broader implementation.

Step 5 Broadly Implement and Evaluate Campaign

Once a successful campaign has been developed and employed, the next step will be to implement it more broadly. For general audience outreach, broader implementation means additional neighborhoods. An additional pilot and evaluation period will be needed to assess effectiveness before launching in a new neighborhood. For targeted outreach to businesses, evaluation is key to assessing the effectiveness of the campaign. For both general and targeted outreach, baseline data should be collected prior to campaign rollouts.

c. Kalihi Neighborhood Example

The Kalihi watershed and neighborhoods along Kalihi and Kamaikai Streams were selected as the first area for implementation of CBSM. The stream water quality is poor and abuse of the City storm water drainage system is high. These factors make it a desirable area to direct focus of a CBSM program. Overcoming the challenges in initiating behavioral changes in Kalihi will help in developing programs for other priority neighborhoods on O‘ahu. The following is a brief description of Kalihi, available data, and stakeholders who might have a role in implementing watershed improvement projects.

This area includes the neighborhoods surrounding Kalihi streams known as Kamehameha Park, Kalihi Valley Park, Upper Kalihi Valley, Kamaikai and Kalihi-Pālama. These neighborhoods constitute nearly 6 square miles located within the US census tracts of Upper Kalihi Valley, Kamaikai Street, Kalena Drive, Kalihi Valley Park, Gulick Avenue-Likelike, Kam IV Road, and Kalihi Waena (Figure 2).

The 2010 demographics for these US Census areas include a total population of 31,403, total number of households at 7,046, and a median household income of \$65,700. Over 23% of residents lack a high school education. Approximately 52% of the residential units are renter occupied and 48% of the units are owner occupied. Land use in the project area is predominately residential with single family dwellings (R-10, R-7.5, R-5 and R-3.5 zoning) and some multi-family dwellings (A-2 zoning). There are also park and open space (P-2 zoning) and some commercial uses (B-2 and BMX-3 zoning).

Community leaders and possible partnering organizations have been identified and initial exploratory meetings conducted. Figure 3 lists the organizations, with brief descriptions of their missions and key programs. Partnerships with these organizations will be essential in moving forward implementation of CBSM.

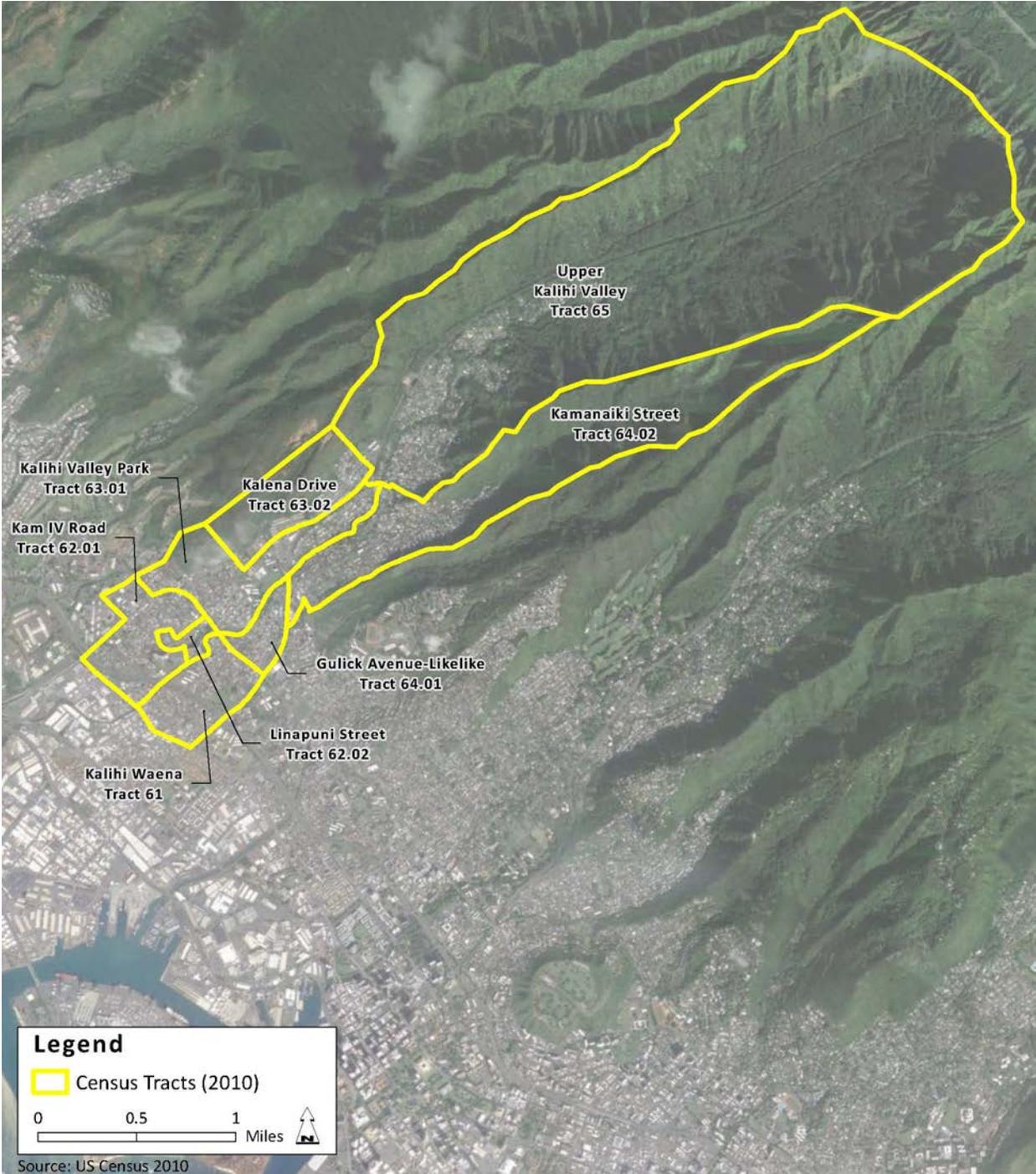


Figure 2 Kalihi Census Tracts

Kokua Kalihi Valley (KKV) Comprehensive Family Services – works to foster health in the broadest sense. KKV is creating a healthier Kalihi Valley through an inclusive community in which neighbors help to heal neighbors, and people see themselves as a part of a larger whole, connected to each other, to their culture and to their shared land. KKV services over 10, 000 low income Asian and Pacific Island immigrants. Key programs: the Roots Project - an ‘āina-to-table initiative; Ho‘oulu ‘Āina (Kalihi Valley Nature Preserve) - environmental education.

Ho‘ola Mokauea Island – works to engage students in the history and protection of Mokauea and its ahupua‘a.

Kalihi Kai Canoe Club – a local canoe club with programs for kids to adults.

Bishop Museum - recognized throughout the world for its cultural collections, research projects, consulting services and public educational programs. Serving and representing the interests of Native Hawaiians is a primary purpose of the Museum. Key programs: education and exhibits.

Kalihi Business Association - The KBA promotes business growth and development - and building relationships in the community. It has undertaken many projects that help make Kalihi a better place to live, work, and play. The KBA provides comments and feedback to City, State, and Federal agencies on how their programs or proposed projects may affect the community.

Kalihi YMCA - Kalihi Y is known for their strong community outreach and teen programs including STRIVE and Ho‘okupa‘a Teen Leadership Program. Key programs: service club, healthier communities initiative, positive youth development program, operation Weed and Seed.

The Towers at Kuhio Park – High rise tax-credit living, offers on-site services including a Fitness Center, Satellite Health Clinic, Early Head Start Program, Teen Center, After School Programs for all ages, a Health Maintenance Senior Exercise Program, and more.

State of Hawai‘i Hawai‘i Public Housing Authority – provide Kalihi Valley Homes public housing

Kalihi Community of Christ (KCC) - In neighborhoods, schools, workplaces and organizations, KCC shares the peace of Jesus Christ by caring for all people and for the earth itself.

Kalihi Union Church – Participated in a stream cleaning project from the foot bridge at Kalihi Waena Elementary to The Towers at Kuhio Park.

Roman Catholic Churches: Our Lady of the Mount, St. John the Baptist, and St. Anthony –participates on environmental justice issues such as clean air and water, land use and global climate change.

Jikoen Hongwanji – Jr. Young Buddhists Association (YBA) program. Club activities include addressing social issues through a Buddhist perspective, community service projects, and activities with the United Honolulu Jr. YBA.

Preschools – Kama‘āina Kids, KCAA preschools

Local Schools K-12 - Kalihi Elementary, Linapuni Elementary, Kalihi Waena Elementary, Fern Elementary, Kaewai Elementary, Dole Intermediate, St. John Baptist Catholic School

Parents and Children Together – Community Teen Program, Family Centers at The Towers at Kuhio Park & Kuhio Homes

Community Ambassadors and Currently Elected Officials

Figure 3 Potential Kalihi Community Partners

d. Community-Based Social Marketing in Kalihi

Applying CBSM in Kalihi will entail gathering data (Steps 1 and 2), developing an appropriate strategy (Step 3), and repeated assessment and adjustment (Step 4) prior to full implementation (Step 5). These plans for using these steps to develop a CBSM campaign for the Kalihi neighborhood are detailed below.

Step 1 Select Behavior

The 2013 City and County Storm Water Survey queried residents on which behaviors they are already engaged in (penetration) and then to what degree they might be willing to adopt specific behaviors to improve water quality (probability). These will need to be reviewed and checked using random sample surveys, and observations for more specific data for the Kalihi area. Estimates of pollutant reduction resulting from the behavioral change will be based on available data, literature searches, and observations. Possible behaviors to target are listed in Table 2 below.

Table 2 *Potential Behaviors to Target*

BEHAVIOR	POLLUTANT
Hosing down dirt or oil from sidewalk/gutter	Sediment/Hydrocarbons
Storing exposed soil	Sediment
Bare spots in landscaping	Sediment
Green waste disposal (yard waste)	Sediment/Nutrients
Downspout discharge	Sediment/Nutrients
Rubbish in street/sidewalk	Sediment/Nutrients/Trash
Use of chemical fertilizer on lawn	Nutrients
Fertilizer application during or before rain events	Nutrients
Dirty wash water into storm drain	Nutrients/Chemicals
Improper chemical disposal into storm drain	Chemicals
Littering	Trash

Step 1 Select Behavior is estimated to take 3-6 months.

Step 2 Identify Barriers and Benefits

After selection of a targeted behavior, reasons that people engage (benefits) and don't engage (barriers) in the selected behavior(s) will be identified. Literature reviews, observations, focus groups, and/or intercept surveys with selected partner organizations in Figure 3 will be used.

Time estimate for this step is 3-6 months.

Step 3 Develop Strategy

The campaign strategy will be developed using data collected in Steps 1 and 2. The literature for campaign development will support identification of tools to match with particular types of behaviors. These tools will need to be adapted to the Hawai'i context and specifically for the Kalihi community.

Time estimate for *Step 3 Develop Strategy* is 3-6 months.

Step 4 Pilot Campaign

The campaign will be piloted to assess effectiveness and return on campaign investment. A control community for Kalihi will be selected for comparison of behavioral effects. As shown on the timeline in Figure 4, this step is scheduled for a 12-month period as campaign adjustments and testing will be needed before proceeding to Step 5.

The estimated time for *Step 4 Pilot Campaign* is 12 months.

Step 5 Pilot/Implementation in New Area

Once a successful strategy has been implemented in Kalihi, the campaign will be expanded to other selected neighborhoods. The campaign will be briefly piloted in the new area and adjusted before fully implementing it there.

Piloting and implementing new efforts in selected geographic areas will occur for the remainder of the permit periods up until 2020.

e. General Audience Community-Based Social Marketing Timeline

Figure 4 presents an overall timeline for launching the general audience CBSM campaign beginning in Fiscal Year 2015 and carrying forward to 2020.

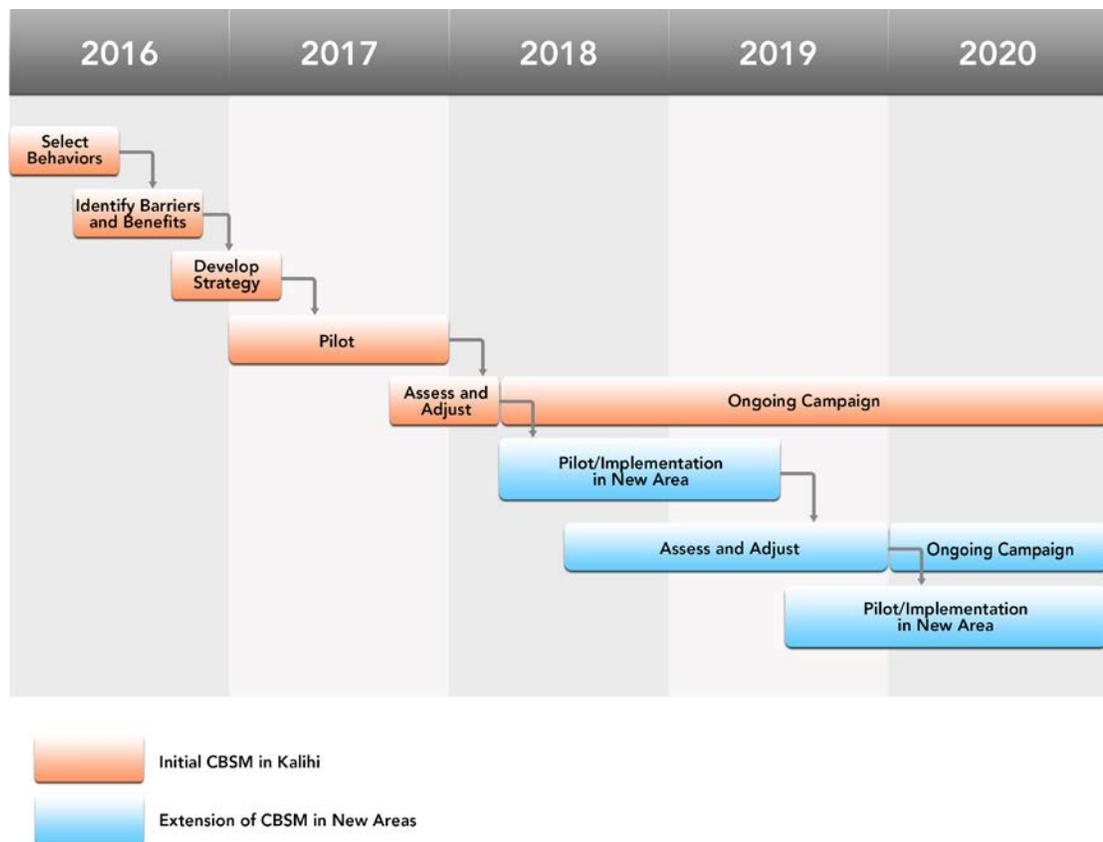


Figure 4 *Timeline for General Audience Community-Based Social Marketing*

3. Target Audience Outreach

The City's targeted audience outreach to the automotive industry, restaurants, property managers, landscapers, and the construction industry, will also utilize CBSM to affect behavioral shifts. Provided below is information to be used in development of CBSM campaigns for each sector.

The sector activities that can affect storm water quality are fairly well understood. City inspectors doing regular inspections and responding to Environmental Concerns Line reports provide direct observations of behaviors to be used in selecting a behavior (Step 1). For Step 2 Identify Barriers and Benefits, literature searches along with City knowledge, provides a starting point for focus groups discussion and 1-on-1 interviews. Benefits are referred to as motivators in this section. Step 3 Develop Strategy will use the data from the first two steps. Examples of strategies or campaigns are listed as *Related Outreach* in this section. Information for the sectors on barriers, motivators and related outreach (except for construction which draws upon local experiences) is from various Washington state jurisdictions that have used CBSM components and conducted focus groups and interviews. As with general outreach, targeted campaigns will need to be piloted, assessed and adjusted before broadly implementing across that particular sector (Steps 4 & 5).

a. Automotive Industry

Activities by the automotive industry, such as vehicle maintenance, repair, and parts cleaning, have the potential to pollute storm water runoff with heavy metals, oil, grease, automotive fluids, nutrients, and sediment. Storm water runoff can pick up and wash these pollutants into the City's storm drainage system, which flows directly into the streams and coastal waters. Fish, plants, and other aquatic life that live in the water can become poisoned by these pollutants and even die. People can also get sick from eating poisoned fish or drinking polluted water.

Stormwater Business Education Template: Focus Group Report of November 2010 prepared for Kitsap County, Washington used focus groups to learn more about businesses that typically handle automotive equipment and fluids. That report along with *Summary of Recent Research in the Puget Sound Region: Assistance for Developing and Implementing Local Programs* (2011) which describes elements of CBSM for the Cities of Bellevue and Redmond, are sources for automotive industry information below.

i. Behavioral Assumptions

- Fuel or oil leaking from vehicles parked on the property waiting for repair is inevitable.
- Some businesses lack a printed spill plan or training.
- Some businesses fail to use spill kits or the materials to clean up spills or fail to clean up spills as soon as they are noticed.
- Auto businesses may store some materials outside with protection from the rain.
- Car washing may not occur in an area where plumbing drains to a sanitary sewer.
- Vehicle maintenance may not occur where spills can be contained.

ii. Possible Barriers

Most of the barriers identified in a Kitsap County study were consistent with studies done for the Cities of Redmond and Bellevue. These barrier are assumed to be likely barriers for O'ahu automotive businesses (Table 3).

Table 3 Automotive Sector Barriers

STRONG BARRIERS
a. Not knowing what to do; lack of information on Best Management Practices (BMPs)
b. Belief that small amounts of runoff don't contribute to pollution
c. Lack of perceived responsibility
MEDIUM BARRIERS
d. Conflicting regulations
e. Changes cost too much
f. Takes too much time
g. Don't have equipment or facilities
h. Employees should be more responsible
i. Space constraints
WEAK BARRIERS
j. Not the business owner's responsibility
k. No approval from managers

iii. Possible Motivators

Possible motivators are listed in no particular order.

- Concern for the environment
- Awareness of human health hazard
- Leaving a legacy to future generations
- Knowing that actions can pollute drinking water
- Avoidance of fines or liability from spills
- Improving the health of local waters and fish

iv. Related Outreach from Other Municipalities

The types of materials favored by automotive study focus group participants included wall posters, spill kits, and on-site training. Focus groups also preferred posters with bold graphics, minimal text, and catchy taglines. Wall posters are used extensively, and the *Summary of Recent Research in the Puget Sound Region: Assistance for Developing and Implementing Local Programs* (2011) found them to be effective in increasing awareness and serving as a change agent. Spill kits were also rated as a popular item and can be effective in creating awareness of surface pollution and prevention. However, the spill kits are more expensive, and research should be done first to learn how many businesses may already have spill kits. Direct mailers were deemed ineffective as most would be thrown out.

b. Restaurants

Restaurants have been identified as a major source of storm water pollutants from leaking trash bins, wash water from cleaning dumpsters, and oil and grease spills. Additional pollutants can be generated when fats, oils, and grease (FOG) waste is not properly managed and clogs the sewer pipe, which may back up the sewer and cause a sewage spill into the storm water system. When it rains, storm water can wash trash and pollutants into the City's storm drainage system, which flows directly into streams and coastal waters.

The results from *2011 Restaurant Focus Groups* for Kitsap County provide a starting point for considering outreach types and methods. Separate focus groups were conducted with

restaurant owners and kitchen staff to better understand their issues, roles and perspectives on storm water management. Additional research will be needed to check these findings locally.

i. Behavioral Assumptions

- Washing mats, hood filters and equipment outdoors
- Dumping liquids in dumpsters
- Not keeping lids down on dumpsters
- Not storing used oil and grease in covered, leak-proof bins
- Dumping wash water outdoors where it flows into storm drains
- Grease barrels can be old, unclean and too small, resulting in outdoor spills
- Hosing down or pressure washing to clean the paved areas of food waste, grease and other undesirable detritus

ii. Possible Barriers

- Workforce that has not been educated about the connection between their cleanup practices and polluted runoff
- High staff turnover with a young mobile workforce
- Some restaurants do not have the space and adequately-sized sinks to clean up indoors
- Dumpsters overflow before garbage pickup, or the hauler creates problems by not putting the lids down or cleaning them out
- Restaurants are fast-paced and at the end of the shift, kitchen staff clean up in the quickest and most convenient way
- Kitchen staff and owners/managers don't believe that small amounts of runoff contribute to water pollution
- Possible language and cultural barriers

iii. Possible Motivators

- Wanting to keep drinking water clean (Kitchen Staff)
- Fining or giving penalties for poor outdoor practices (Kitchen Staff)
- Desiring to have a positive public image (Owners)
- Keeping clean any outdoor areas viewed by the public (Owners)
- Demonstrating corporate responsibility (Owners)
- Giving kitchen staff a reason to care about how they cleanup (Owners)

iv. Related Outreach from Other Municipalities

While not formally tested, the focus groups were queried about preferred materials and methods for receiving information on storm water management. These are listed below in order of preference by kitchen staff.

1. Stickers at Point of Use (hood vent, mop bucket & dumpster)

- Kitchen staff especially like having them were the information was needed.
- Preference was for bright, bold graphics; eye catching; minimal text. Specific stickers and posters were tested and kitchen staff liked the cartoon imagery (Figure 5) or a mimic of touch screen look.
- Yes/No is preferred over Do/Don't.



Figure 5 Restaurant Poster Example (Chapel Hill, North Carolina)

2. Posters

- Kitchen staff didn't think there was enough space near task locations to have the information where it is needed.
- Kitchen staff disliked the posters with lots of text and liked pictures.
- Owners tended to like the posters better than the staff but admitted that most kitchen staff would not take the time to read them.

Both owners and kitchen staff felt video training would not be effective. They already have many training videos and questioned the efficacy of them.

An additional suggestion was to work with haulers and grease collection companies to identify where improvement can be made – and the feasibility of adding stickers to dumpsters.

c. Property Managers

Property maintenance activities are essential to a facility's aesthetics and longevity. Storm water runoff from maintenance activities can carry dirt, oil, rubbish, and other contaminants into nearby streams and coastal waters. Polluted runoff can come from trash storage, chemical storage, paved areas, and landscaping. Property management activities of concern include swimming pool and water feature maintenance, pressure washing, painting, and landscape maintenance.

Businesses and property owners are responsible for storm water quality whether it is impacted by work performed in-house or contracted out. Outreach messages will need to be for both in-house work and contractor selection and oversight. The following information is taken from *Stormwater Business Education Template: Focus Group Report* (November 2010) and *Summary of Recent Research in the Puget Sound Region: Assistance for Developing and Implementing Local Programs* (2011). Interviews and focus groups with local property managers will be useful to better understand their issues and to inform outreach messaging and delivery. The *Stormwater Business Education Template* document noted that 1-on-1 interviews were as helpful in gathering information as focus groups which was in part due to the difficulty of gathering participants to a single location.

i. Behavioral Assumptions

- Hosing down dumpsters and pavement
- Leaving dumpster lids open for convenience
- Disposing of wash water and vehicle wash water to storm drain
- Washing mats or equipment outdoors
- Not covering or using secondary containment for outdoor storage of materials
- Over use or poor timing of fertilizers, pesticides, herbicides, and irrigation water
- Lack of spill kits and timely usage
- Pressure washing using soap and chemicals and lack of wash water containment

ii. Possible Barriers

- Not knowing what to do
- Belief that small amounts of runoff don't contribute to pollution
- Concern with costs
- Takes too much time
- Feel overwhelmed with existing regulations
- Inconvenient (e.g. keeping lids on dumpsters closed)
- Spill plans oriented towards keeping the indoor areas clean and safe
- Language and cultural barriers.

iii. Possible Motivators

- Saving them money or increasing profits
- Substantial fines for polluting storm water
- Knowing that their actions can make a difference in improving the health of local water bodies or drinking water
- Desire to "do the right thing"

iv. Related Outreach from Other Municipalities

- The top three rated outreach methods were spill buckets, posters and onsite training. See Section 3.a Automotive Industry for more on wall posters and spill kit outreach.
- Also positively reviewed were discount coupons for spill buckets and public recognition via newspaper, radio or website.
- Negatively viewed were warning tickets and direct mailers.
- A pledge program for landscapers and other mobile businesses might assist property managers in selecting contractors with knowledge of proper storm water disposal.

d. Landscapers

Landscaping activities such as mowing, tree trimming, pruning, and leaf blowing have the potential to pollute storm water runoff with grass clippings, tree branches, leaves, dirt, and fertilizers. Storm water runoff can wash these pollutants into the City's storm drainage system which flows into streams and coastal waters.

The behavioral assumptions are from City experiences and observation of landscapers. The possible barriers and motivators are from *Summary of Recent Research in the Puget Sound Region: Assistance for Developing and Implementing Local Programs* (2011) and the *Dump Smart It's Not Just Water Stormwater Pollution Prevention Education and Outreach for Mobile Businesses* (June 2011) as landscapers have similar characteristics to the mobile businesses profiled. This information serves as a starting point for tailoring messages for the Hawai'i context.

i. Behavioral Assumptions

- Blowing or hosing grass clippings, leaves, fruits, green cuttings and other yard waste into street gutters and storm drains
- Dumping of yard waste in streams or drainage channels
- Using non-native or high water use groundcovers when planting and replanting
- Applying fertilizers or pesticides even if rain is expected within 24 hours

ii. Possible Barriers

- Not knowing what to do; lack of information on BMPs
- Belief that small amounts of runoff don't contribute to pollution
- Small businesses operating on thin margins are resistant to making changes that will add to their costs
- Mistrust of government
- No single, central source for regulatory information
- Regulations are difficult to understand
- Language and cultural barriers
- No professional licensing is required and many do not have a state business license
- Many landscapers do not belong to an industry or trade group

iii. Possible Motivators

- Concern for the environment
- Awareness of human health hazard

- Substantial fines for polluting storm water
- Desire to “do the right thing”
- Saving them money or increasing profits
- Fining or giving penalties for poor outdoor practices
- Wanting to meet the needs of customers for green products and practices

iv. Related Outreach from Other Municipalities

Only one example of outreach to mobile businesses was identified. The Dump Smart It’s Not Just Water program used pledge cards which were filled out by mobile businesses who then received Dump Smart program logo “window clings” to put in their vehicle window to show their pledge. The Dump Smart website and newspaper ads announced businesses that had taken the Dump Smart Pledge, and the website was publicized to general audiences. The program was branded as separate from government agencies as many mobile business owners distrust government involvement.

e. Construction Sector

Construction sites can be a significant source of sediments and other pollutants if not managed properly. The City has done much over the past five years to minimize pollutants coming from construction activities and this analysis builds on past achievements.

There are multiple roles and responsibilities in construction sector which have differing outreach needs. Below is a list of some of the key roles:

- Engineers who make the plans for grubbing and grading
- Contractors doing the work on site and submitting subsequent plans to DOH for construction staging and spill prevention plans
- Owners who sign off on plans and have ultimate liability for any violations
- Inspectors who interpret the plans and conditions to assess if BMPs are being followed
- City and County regulators who review submitted Site-Specific Construction BMP Plan (SSBMPP) and comment on conformance to code, standards and regulations and approve when warranted.

i. Behavioral Assumptions

Engineers

- Develop the SSBMPP for >1 acre of disturbance and design includes a minimum number of BMPs
- Choose BMPs based on available data and research for Hawai‘i conditions

Contractors

- Typically install only BMPs listed in the SSBMPP
- May have limited knowledge on adaptive BMPs for different situations

Owners (or Developers)

- Delegate responsibility engineers and contractors

Inspectors

- Inspect site for implementation of construction BMPs as shown on the SSBMPP

Regulators

- Refine application of regulations to varying situation as regulations are applied over time.

ii. Possible Barriers

- Lack of adequate knowledge of erosion sources and BMPs (Engineers, Contractors, & Inspectors)
- Construction sites viewed as static instead of dynamic (All)
- Lack of sense of responsibility or understanding of the full spectrum of the process (Developers & Owners)

iii. Possible Motivators

- Savings in cost and time (Developers, Owners, Engineers & Contractors)
- Enforcement and lowered risk of punishment (Developers, Owners, Engineers & Contractors)

iv. Potential Outreach

- Education for engineers, contractors and inspectors on the need for adaptive management on construction sites due to frequently changing conditions (e.g. weather, construction phasing, staging) and different site conditions than originally understood
 - Encourage the use of minimum BMPs and supplemental BMPs in the SSBMPP.
 - Require supplies for supplemental BMPs to be available on site and BMPs implemented if specific conditions materialize (e.g. rainfall)
- Facilitate education, information exchange and coordination between City and State inspectors
 - Make available to each jurisdiction City SSBMPP and State Clean Water Branch Site Specific Construction Best Management Practice (SSCBMP Plan) which contains more detailed construction phasing and spill prevention plans
- Hold periodic forums with engineers, contractors, owners, inspectors, and regulators working in Hawai'i to communicate on issues with storm water quality compliance and regulatory interpretation involving the County.
 - Include State regulators at the forum.
 - Facilitate research of and share results of BMP effectiveness in Hawai'i conditions with engineers and contractors, inspectors and regulators
- Investigate the possibility of a certification process for Construction General Permit Qualified [Storm Water Pollution Prevention Plan] SWPPP Practitioner (QSP) and/or Qualified SWPPP Developer (QSD).
 - Provide expedited permits or permit fee discounts if qualified professionals are used.

f. Target Audience Outreach Timeline

Timeline for the various targeted outreach sectors is to be determined. Outreach to landscapers and property managers may be piloted in the Kalihi neighborhood along with the general audience outreach. The other targeted outreach will focus on areas of relevant concentration such as Waikīkī for restaurants, landscapers and property

managers and Kaka‘ako automotive industry outreach, where there are clusters of automotive businesses.