Trash Reduction Implementation Plan
Phase I (2019-2022)
for the
City of Salinas, California

In compliance with:
Water Code Section 13383 Order
Statewide Trash Amendments
Region 3, Phase I MS4

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Executive Summary

With a population of over 160,000, the City is a Phase I municipality with a Municipal Separate Storm Sewer System (MS4) permitted by the Central Coast Water Board (CCWB; Region 3). The City has chosen Track 2 to comply with the CA State Trash Amendments and, as such, is required to submit a Trash Reduction Implementation Plan to the CCWB to meet the requirements of the 13383 Order, dated June 1, 2017, issued by the CCWB to the City of Salinas.

This Trash Reduction Implementation Plan provides:

- all required jurisdictional maps including trash priority land use (PLU) areas, MS4 storm drain networks, and current municipal trash levels based on available data
- strategy and rationale for implementation of combined structural and non-structural trash controls and how they are expected to achieve compliance with the State Trash Amendments
- summary of methods for monitoring, tracking and reporting annual progress to the CCWB
- strategy for Caltrans coordination
- strategy to implement City-wide litter control and illegal dumping programs
- proposed implementation phases and progress milestones

The City of Salinas is taking an adaptive, phased, spatially explicit approach to development of its Trash Reduction Implementation Plan. This approach includes three phases of implementation over the 10-year period with compliance achieved no later than December 2, 2030. The first phase will extend from January 2019 through December 2021 (Phase I).

The City is tracking and reporting progress toward compliance with the CA State Trash Amendments using the 2Nform stormwater management platform (www.2Nform.com). City progress is tracked in acres of priority land use (PLU) area treated, with full compliance achieved when 100% of the City's 6,536 PLU acres are effectively treated by either installation of functional full trash capture systems (FCS) OR demonstration that the PLU area is likely devoid of mobile trash (i.e., full trash capture system equivalency (FCSE)). Demonstration of effective trash controls within the City are verified by field-based rapid trash assessment methods and the results are documented and stored within 2Nform. City progress is communicated via interactive maps and graphs that synthesize and aggregate the data collected (see Appendix A for details). Based on available data, as of December 15, 2018 the City has treated 28% (1,852 acres) of its 6,536 PLU acres.

The City applied the trash visual assessment methods to document the trash condition within all 170 acres of open channels and their adjacent riparian areas within the City MS4 boundary. The City completed the first full assessment of open channel trash conditions in Summer 2018 and used these data to target over 25hrs of volunteer clean-up in Fall 2018. All volunteers were briefed on the City trash control goals and trained on use of the ZeroTrash app so that they could contribute valuable trash assessment data to the City database. Post clean up assessments documented this initial effort increased over 9 open channel acres to be trash free. Over time the mapped open channel trash condition data will provide insight to 1) guide dry season open channel trash clean-up efforts given available resources and 2) provided spatially explicit receiving water trash distribution data that can be analyzed in a drainage context and compared to the City trash control progress achieved within the contributing urban drainages.

All open channel trash condition data is currently available in a public web map portal and will be integrated into the 2Nform Trash Module in 2019 to automate the drainage scale analyses.

The City's primary Phase I trash control strategies are:

1. Continued implementation of successful controls:

    Over 1,700 acres (26%) of the City PLU areas are likely low litter with over 71% certainty (i.e., meeting the State Water Board definition of full trash capture system equivalency; FCSE). Given that the City has only been conducting visual trash assessments for slightly longer than a year, continued assessments of these low litter locations will increase the City's certainty that successful litter controls persist. Going forward, the City has chosen a statistical certainty threshold of 80% by which areas that are likely low litter will be claimed as 'treated' or FCSE.

    The open channel dry season trash condition assessments will be used to monitor, track and evaluate changes in the distribution and density of open channel trash in a drainage context. Urban runoff remains one significant source of trash to city waterways, but in many locations homeless encampments and illegal dumping sources will need to be addressed. Documentation and analysis of geospatial trends will improve the City's understanding of the primary sources of trash to specific open channels within the City MS4 boundary and aid in identifying effective solutions.

2. Explore feasible and cost-effective opportunities to retrofit existing structural BMPs to meet the definition of full capture trash systems (FCS):

    The City has performed an initial screening of existing structural BMPs that meet the State Water Board definition of a FCS[1]. As functional FCS units, these 62 BMPs equate to 249 treated PLU acres (4%). These FCS units are included in the current documentation of City progress (December 2018). All existing FCS units will be regularly inspected and results documented using 2Nform field protocols (Appendix A). The results will inform when maintenance actions are needed to ensure continued functionality and associated PLU area treatment.

3. The existing Salinas Pump Station will be evaluated to determine and document if it meets the State's definition of a FCS.

4. Explore feasibility and cost of installing and maintaining new FCS:

    Strategic evaluations will begin with end of urban drainage and single urban catchment outfall opportunities where a functional FCS could treat large priority land use (PLU) areas. Feasible opportunities will progress through planning, with design initiated as funding is available.

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[1] The City will also explore opportunities to define and document definitions and credit for structural controls that can achieve partial trash capture. These structures may or may not provide additional water quality benefits as structural BMPs.

5. Coordinate with CalTrans to optimize opportunities for effective trash controls within the City of Salinas boundaries:

> Opportunities may include a pay-for-performance partnership, collaborative full trash capture system planning, design and implementation, or other cost-effective solutions. The City will evaluate the possibility of utilizing the CalTrans State Highway Operation and Protection Program (SHOPP) that provides financial contributions to local municipalities for construction of stormwater treatment projects. CalTrans receives Compliance Units applicable to their NPDES permit requirements for each contribution made.

6. Continue implementation of multi-stakeholder collaboration process:

> Continue collaborative process to optimize existing resources and expand coordination among several City, County and community programs to implement innovative community-based trash control solutions. Three pilot urban drainages that are known litter hot spots with high density PLU areas have been selected as the initial areas of focus (pilot projects) for application of new trash control strategies. These strategies may include, but are not limited to, strategic education and outreach at schools, targeted residential incentives, community clean ups, potential increased resident dumpster access, parking controls, waste and litter recovery coordination, trash pickup employment, etc. Within the pilot drainages, visual trash assessments using 2Nform protocols (Appendix A) will be conducted regularly to provide data to inform the effectiveness of the trash control strategies applied and used to adapt the strategies throughout the first phase of the City trash reduction implementation plan.

Based on the above strategies, the City has set an initial goal to treat over 3,900 PLU acres (60%) by the completion of Phase I; September 30, 2021. The City will provide the CCWB annual progress reporting as part of the City's MS4 Permit Annual Report.

By January 1, 2022, the City will provide the CCWB with a Phase II Trash Reduction Implementation Plan that will summarize the findings and recommendations based on the outcomes from Phase I; this report will also lay out the strategies and progress targets for years 2022-2024.

Purpose

The California State Trash Amendments and the City's NPDES Permit Requirements prohibit the discharge of trash larger than 5 millimeters to state waters from municipal stormwater systems. All California MS4 NPDES discharge permit holders include requirements to demonstrate compliance with the State Trash Amendments at some stated future date in their respective MS4 permits or supplemental Central Coast Water Board orders.

The City of Salinas must achieve this water quality standard by prohibiting trash discharge to surface waters of the State no later than December 2, 2030. To meet the requirements of the State's Trash Amendments, Salinas has elected Track 2. The City will work to implement actions and demonstrate progress towards 100% trash full capture through both the installation and maintenance of functional full trash capture systems[2] to treat PLU areas and full trash capture system equivalency (FCSE)[3] through demonstration of specific PLU areas likely being devoid of mobile trash based on available data.

With the selection of Track 2, the City of Salinas has completed all required components per the Central Coast Water Board (CCWB) 13383 Technical Report Order, which include maps identified in Figure 1 and this Trash Reduction Implementation Plan.

Trash Priority Land Use Areas (PLUs)

Trash Priority Land Use Areas (PLUs) are defined as urban locations that are at high risk for trash generation. State defined PLU areas include the following urban areas:

- High-density residential: all land uses with at least ten (10) developed dwelling units/acre.
- Industrial: land uses where the primary activities on the developed parcels involve product manufacture, storage, or distribution (e.g., manufacturing businesses, warehouses, equipment storage lots, junkyards, wholesale businesses, distribution centers, or building material sales yards).
- Commercial: land uses where the primary activities on the developed parcels involve the sale or transfer of goods or services to consumers (e.g., business or professional buildings, shops, restaurants, theaters, vehicle repair shops, etc.)
- Mixed urban: land uses where high-density residential, industrial, and/or commercial land uses predominate collectively (i.e., are intermixed).
- Public transportation stations: facilities or sites where public transit agencies' vehicles load or unload passengers or goods (e.g., bus stations and stops).

Permittees are also able to add any additional urban locations known to be susceptible to high trash generation. The City of Salinas expanded upon the State defined areas to include all schools, areas with "High" or "Very High" trash results during baseline trash visual assessments, and any other areas known to be susceptible to trash generation. As of December 15, 2018, the City of Salinas has 6,536 acres of Trash PLU areas (Figure 2). The City's PLU map may be viewed on the **2Nform Trash Module** in the "Trash Land

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[2] A trash full capture system (FCS) is a treatment control that traps all particles 5 mm or greater and can treat the 1yr, 1hr storm event.

[3] Full trash capture system equivalency (FCSE) is demonstrated using repeated visual trash assessments where the results indicate the area is litter free with statistical certainty equal to or above the threshold defined by the user.

Use (PLU)" layer. A tabular summary of PLU acreage within each Salinas catchment can be viewed in the Inputs tab of the **Reporting and Planning Module** tool.
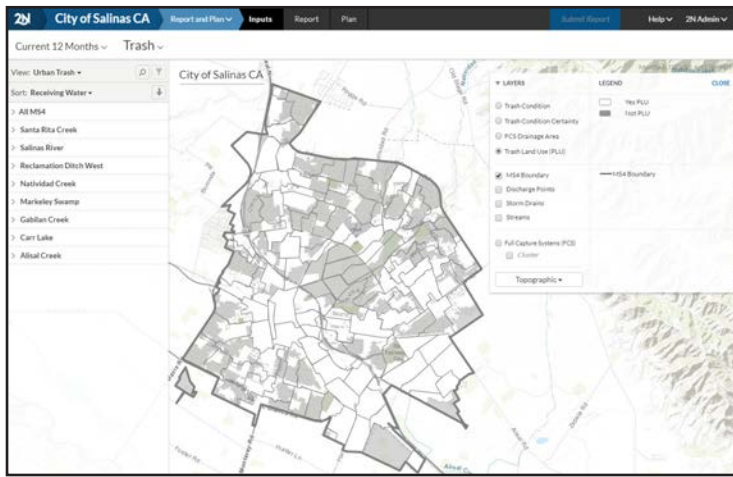
Trash Priority Land Use Areas

Trash priority land use areas (PLU) are defined as urban locations that are at high risk for trash generation.
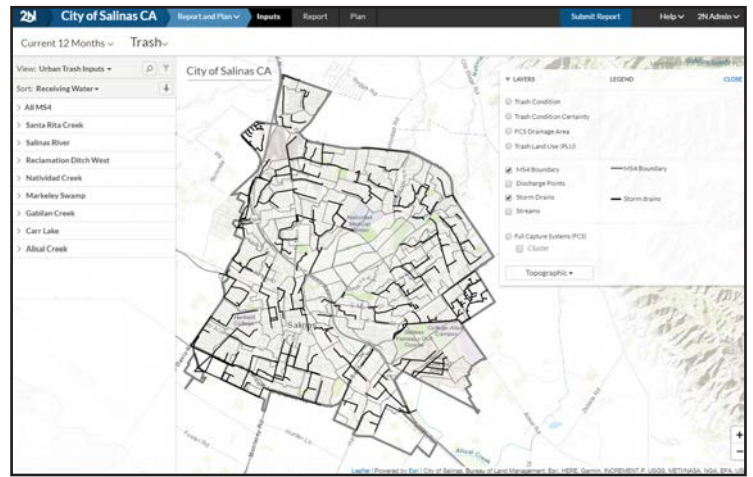
MS4 Storm Drain Network

The MS4 storm drain network shows all storm drain lines that correspond to the City of Salinas' MS4 permit area.
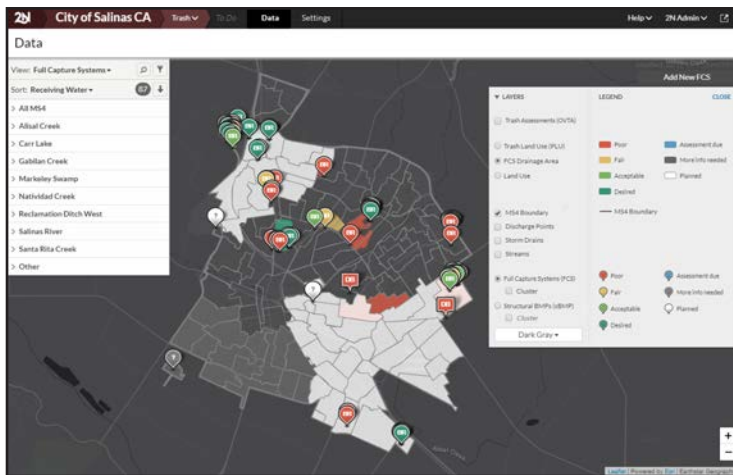
Proposed Locations for FCS

Proposed locations of Full Capture Systems (FCS) are shown as white icons, while their corresponding drainage areas are shown in white. Additional information on the proposed FCS locations is available in Figure 5.

Trash Levels

Trash levels are the spatially weighted average condition based on the 2Nform processing of available visual assessment data. Additional information on trash levels is available in Appendix A.

Required jurisdictional maps for City of Salinas and their location in the 2Nform platform.

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The City of Salinas Trash Priority Areas (PLU) shown in the 2Nform Report and Plan Module.

TOTAL PLU = 6,536 ACRES

CITY OF SALINAS TRASH PRIORITY LAND USE AREAS (PLU)

FIGURE 2

City of Salinas CA

Report and Plan ⌄ | **Inputs** | Report | Plan | Submit Report | Help ⌄ | 2N Admin ⌄

Current 12 Months ⌄   **Trash** ⌄

City of Salinas CA

View: Urban Trash ▾

Sort: Receiving Water ▾

⌄ All MS4

⌄ Santa Rita Creek

⌄ Salinas River

⌄ Reclamation Ditch West

⌄ Natividad Creek

⌄ Markeley Swamp

⌄ Gabilan Creek

⌄ Carr Lake

⌄ Alisal Creek

▼ LAYERS

- ○ Trash Condition
- ○ Trash Condition Certainty
- ○ FCS Drainage Area
- ◉ Trash Land Use (PLU)
- ☑ MS4 Boundary
- ☐ Discharge Points
- ☐ Storm Drains
- ☐ Streams
- ○ Full Capture Systems (FCS)
- ☐ Cluster

Topographic ▾

LEGEND

☑ Yes PLU
☐ Not PLU

── MS4 Boundary

CLOSE

Trash Reduction Implementation Plan

Adaptive Phased Implementation Approach

The City's adaptive approach will consist of three discrete phases of implementation (Table 1). Phase I of the City of Salinas Trash Reduction Implementation Plan will focus on specific strategies outlined herein. At the onset of each phase the City will review opportunities and challenges and use available information to set an objective target to achieve by the completion of the phase.

At the end of each phase of implementation, the City will evaluate its progress, compare progress made to expected milestones, and adaptively manage its trash reduction strategies for the successive phase (Table 1). This approach will demonstrate to the CCWB that the City is implementing actions, evaluating the effectiveness of these actions using data collected, learning from that data, and adapting its strategy as needed.

Table 1: City of Salinas Trash Reduction Implementation Plan Phase Schedule.

Phase	Start	End	Plan Due Date for Next Phase
I	1/2/2019*	9/30/2021	January 1, 2022
II	10/1/2021	9/30/2024	January 1, 2025
III	10/1/2024	9/30/2028	*January 1, 2029*
IV◊	*10/1/2028*	*12/2/2030*	--

City of Salinas Trash Reduction Implementation Plan Phase Schedule

__Date__ of Phase I Implementation Plan submission to Central Coast Water Board
◊__Phase IV__ if needed

Spatially Explicit Approach

The City of Salinas is taking a spatially explicit approach to its trash reduction implementation plan to track progress toward meeting the 2030 deadline.

The City of Salinas will rely upon location-specific data to document and demonstrate to the CCWB effective PLU area treatment. The map-based results within the 2Nform Trash Module allow the City to easily communicate information regarding specific locations and associated supporting evidence as to how full trash capture has been achieved at these locations. Using the 2Nform Trash Module[4], the City will document the location, ID, status, type, treated drainage area and other relevant design specs of all full trash capture systems (FCS) within the City. Standardized field assessments will be conducted on user-defined intervals for each device to document FCS effectiveness and identify when FCS maintenance is needed and/or has been performed. These simple assessments will be performed by trained interns (or equivalent) and the results will be used to populate the City's 2Nform Trash Module "to do" list to optimize

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[4] See Appendix A for 2Nform Trash Module methodology.

the maintenance crew priorities and workflows and provide necessary information for potential capital improvement projects (CIPs).

The City will work to implement broad City-wide strategies as well as specific drainage-focused efforts to reduce the amount of litter generated and increase the rate of litter recovery to minimize the threat of litter transport in stormwater. Using trained interns and other partners, 2Nform "to do" lists will aid the City staff to ensure trash visual assessments are conducted at strategic times and locations to inform program priorities and effectiveness of actions taken. Using available visual trash assessment data, the City will use a statistical certainty threshold of 80% to define that a PLU area with an average condition of low trash has met the State definition of full trash capture system equivalency (FCSE). The visual trash assessment data will also be used to identify where litter hot spots throughout the City remain and locate where litter controls have been effective as indicated by locations that are determined to be low litter with elevated statistical certainty.

Urban Trash Control Implementation Strategy: Phase I

Phase I Strategies

Phase I of the City's implementation strategy leverages current data and information to focus existing resources on cost-effective trash reduction solutions through a detailed review of existing and potential new infrastructure, cross-agency collaboration, and spatially focused efforts in pilot areas.

Phase I of the Salinas Implementation Strategy utilizes the following strategies:

1. Continuation of existing successful controls
2. Evaluate existing structural BMPs to meet FCS definition
3. Explore feasibility of new FCS installation
4. Coordination with Caltrans wherever possible
5. Implementation of focused pilot implementation efforts

The following section outlines the combination of these identified trash control strategies and the rationale for selection of each.

1. Continuation of successful controls

The City has existing trash controls in place such as street sweeping, solid waste collection services, education and outreach, and other marketing-based community efforts. The City will continue to conduct visual trash assessments at strategic intervals to increase the certainty of litter-free locations, identify and track litter hot spots, and continue to expand available data and understanding of trash distribution within the City limits.

Priority trash areas that meet full capture system equivalency (FCSE) serve as evidence of successful trash controls in the given area, providing Salinas with an institutional understanding of what practices are effective and worthy of expansion to other litter prone areas. The continuation of successful controls, demonstrated by improved visual assessment results, allow the City to adaptively manage trash reduction strategies in its priority areas, while evolving its efforts over time to maximize effectiveness in as many other areas as possible.

The City of Salinas has currently achieved 28% progress towards full trash capture with 1,852 acres of PLU areas treated by existing trash controls. Current mapped progress is shown in Figure 3. Many of these currently "Treated" areas via low litter are private residential neighborhoods with regular street sweeping and full access to the curb. These areas will continue to be assessed, and if they persist as "LOW" litter, the City's certainty in their FCSE achievement will continue to increase. Existing trash control efforts will continue to ensure progress in these areas is sustained.

2. Evaluate existing structural BMPs to meet FCS definition

Since 2017, the City of Salinas has inventoried and assessed over 300 structural BMPs within the 2Nform platform (Structural BMP Module). By the State's definition, many of these existing structural BMPs currently qualify as Trash Full Capture Systems (FCS). In 2Nform, the City can easily append an existing structural BMP to also qualify as a FCS. This FCS inventory includes the FCS type, spatially explicit delineation of the FCS' treated drainage area, user-defined FCS assessment interval, and relevant specification documentation to justify FCS determination. As part of its Phase I strategy, the City uses the
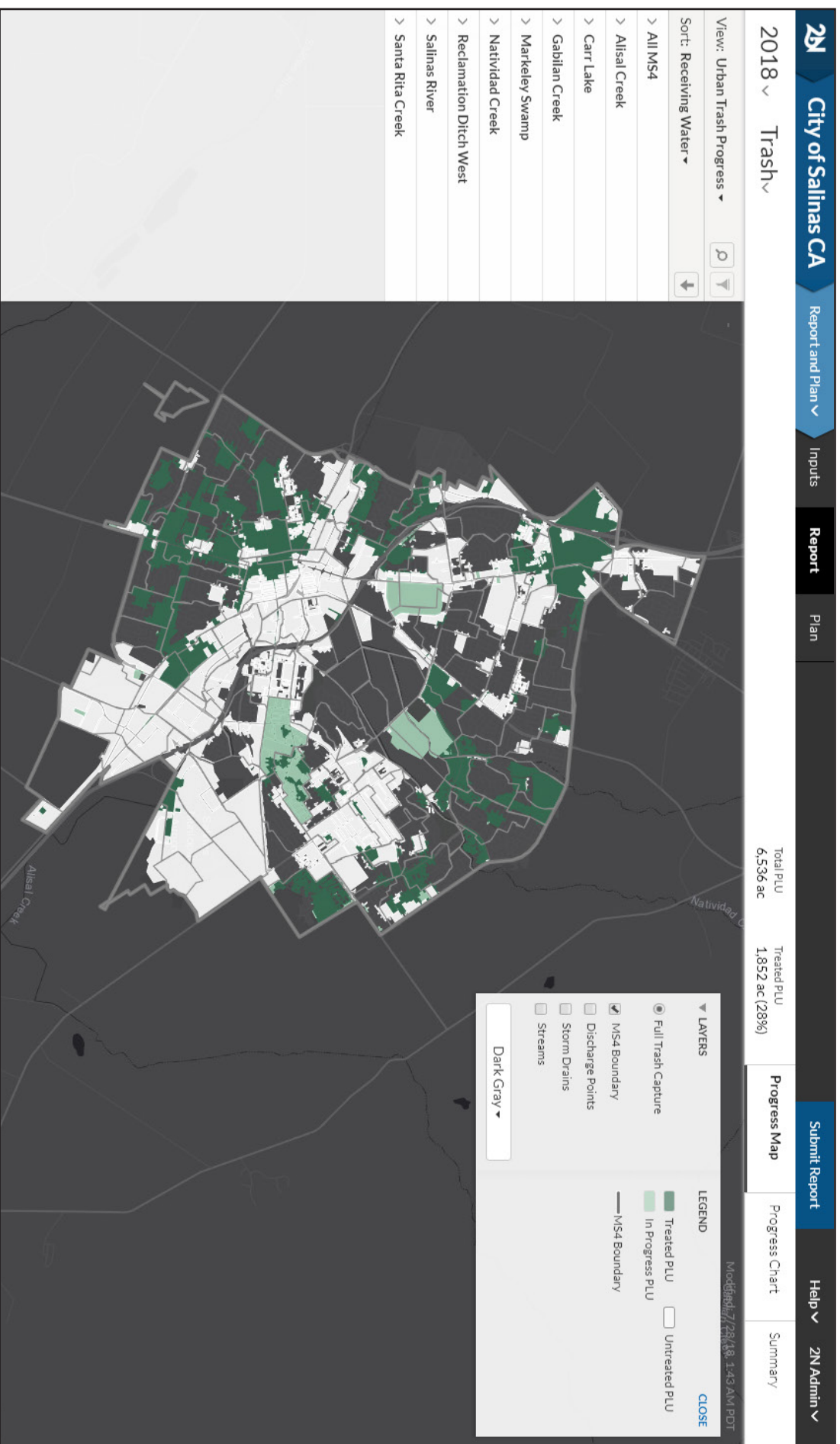
The City of Salinas Trash Progress shown in the 2Nform Report and Plan Module (as of December 15, 2018).

TOTAL TREATED PLU = 1,852 ACRES
(28%)

FIGURE 3

CITY OF SALINAS FCSE PROGRESS

City of Salinas CA

Report and Plan ∨   Inputs   **Report**   Plan   Submit Report   Help ∨   2N Admin ∨

2018 ∨   Trash ∨

View: Urban Trash Progress ▾

Sort: Receiving Water ▾

> All MS4
> Alisal Creek
> Carr Lake
> Gabilan Creek
> Markeley Swamp
> Natividad Creek
> Reclamation Ditch West
> Salinas River
> Santa Rita Creek

Total PLU
6,536 ac

Treated PLU
1,852 ac (28%)

Progress Map   Progress Chart   Summary

Modified 7/28/18 1:43 AM PDT

▼ LAYERS
◉ Full Trash Capture
☑ MS4 Boundary
☐ Discharge Points
☐ Storm Drains
☐ Streams

Dark Gray ▾

CLOSE

LEGEND
☐ Treated PLU   ☐ Untreated PLU
☐ In Progress PLU
— MS4 Boundary

Alisal Creek   Natividad C.

Trash Module to conduct FCS inspections per defined intervals and perform maintenance as needed to ensure sustained functionality of Full Capture Systems.

Prior to December 15, 2018, the City inventoried and assessed 84 of its 317 structural BMPs as Full Capture Systems. Results of these assessments and FCS feasibility of remaining structural BMPs are shown in Table 2 below. The City's current FCS inventory and assessment data, as well as potential FCS and their respective drainage areas, is viewable in the 2Nform Trash Module (Figure 1).

Table 2: Assessment summary of City structural BMPs as full capture systems as of December 15, 2018.

FCS Status	# of BMPs	Acres PLU Area
Completed Assessments (as of December 15, 2018)		
Functioning	62	248.6
Needs Maintenance	22	305.4
Planned Assessments		
	153	287*
Not Feasible for FCS		
	80	--
Pump Station		
	--	632
Total	**317**	**1,472** $^\Diamond$

represents total drainage area (PLU area to be determined upon inventory)
$\Diamond$ *some areas may overlap causing the total to be lower than estimated*

The City has adopted the following strategies to maximize progress from existing structural BMPs:

Completed Assessments
The City will continue routine maintenance and assessments of all inventoried FCS. The City will prioritize maintenance for the 22 FCS that were determined by prior assessments as needing maintenance, and once completed, the respective 305 PLU treated acres will be credited in 2Nform.

Planned Assessments
The City will inspect the remaining 153 structural BMPs that have potential to meet the FCS definition in their current configuration by June 2019 (estimated). Appropriate documentation will be compiled, and maintenance activities prioritized and performed as needed, and as City budget allows, throughout Phase I. Any maintenance activities not accomplished in Phase 1 will become high priority items in Phase 2.

As the City inventories the remaining structural BMPs, they may find that some do not currently qualify as FCS in their existing state but could qualify after retrofits. These retrofits may include increasing ponding or treatment capacity, addition of a 5mm screen or other modifications. The City will evaluate these opportunities as they are identified and determine feasibility, cost, and potential PLU area treatment opportunity.

Partial Trash Capture
The City will also explore opportunities to define and document definitions and credit for structural controls that can achieve partial trash capture by meeting some but not all of the State Water Board's

criteria for FCS. These structures may or may not provide additional water quality benefits as structural BMPs.

3. Salinas Pump Station

The City of Salinas Pump Station is a custom built certified Full Trash Capture System. Custom designed by Kristar Enterprises, Inc. in 2014, the Pump Station FCS is sized to treat the 1-yr/1-hr storm and includes a screen to trap all particles over 5mm in size. The Pump Station receives urban runoff from 1,664 acres draining to the Salinas River, which includes 632.1 acres of PLU area. The Salinas Pump Station design plans and available specifications will be compiled and evaluated to document alignment of this device with the State definition of FCS.

Baseline visual assessments determined that 82% of the Pump Station's PLU drainage area has achieved FCSE. Inventory and assessment of the Pump Station as a FCS in 2Nform will eliminate the need for continued visual assessments in the Salinas River drainage and will treat the remaining 18% (114.2) acres of currently untreated PLU area in the drainage (Figure 4).

4. Explore feasibility of new FCS

Additional larger scale retrofit opportunities, or the construction and installation of entirely new FCS units, present a significant opportunity to gain progress towards 100% trash full capture. These opportunities, however, will require in-depth feasibility analyses, design plans, capital and maintenance costs estimates and secured funding.

Evaluation Strategy

The City will use Phase I to conduct an initial screening of locations where new FCS could treat significant PLU areas, such as urban drainage outfalls or terminal catchment discharge points. The City will review their PLU areas, litter hot spot map, catchment rankings based on untreated PLU areas, and stormwater infrastructure to identify such locations as opportunities for potential new FCS implementation. At these high priority locations, implementation of a FCS could effectively treat entire catchments or urban drainages with routine annual maintenance. This would allow the City to be prepared, should non-structural controls become less effective, without spending resources towards design plans unnecessarily.

Phase I Priorities for New FCS

Initial screenings have identified the Alisal Creek and Markeley Swamp receiving water drainages as top priorities for potential FCS implementation. These drainages both have high PLU acres with the majority untreated (FIGURE 5). FCS implementation at the identified end-of drainage locations would allow the City to gain significant progress towards 100% Full Capture while also significantly reducing the level of effort required to implement successful litter control programs.

In Phase I, the City will conduct field investigations to identify the most practical and feasible FCS sites in the identified drainages and, as appropriate, undertake planning, design, and implementation as funding sources arise.

5. Coordination with Caltrans

Municipal coordination with Caltrans is mandated in both the City of Salinas and Caltrans Phase I permits. Successful coordination allows both parties to expand resources, increase accessibility, and facilitate the optimization of existing resources.
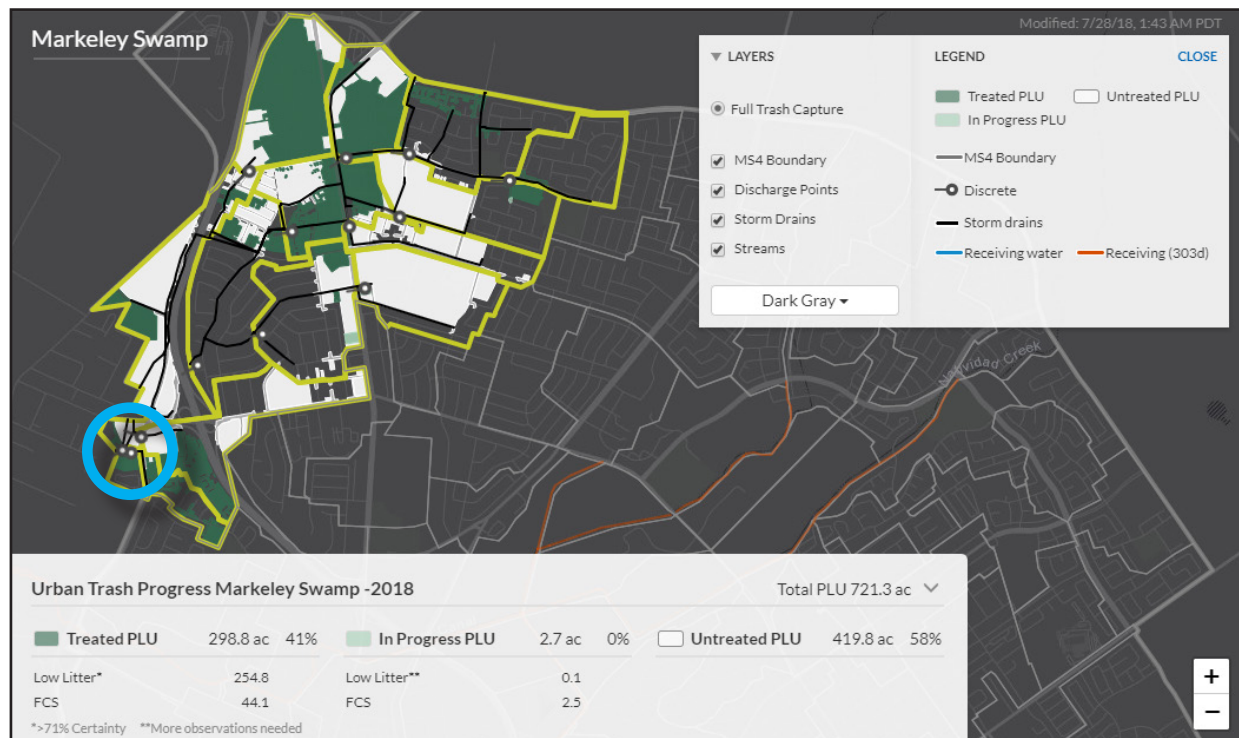
Salinas River drainage area PLU (632 acres) all drains to the Pump Station.

Pump Station is located next to the Salinas Animal Shelter.

Pump Station grates. See Appendix C for Pump Station design plans.

Alisal Creek

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▼ LAYERS

◉ Full Trash Capture

☑ MS4 Boundary
☑ Discharge Points
☑ Storm Drains
☑ Streams

Dark Gray ▾

LEGEND   CLOSE

▩ Treated PLU ▢ Untreated PLU
  In Progress PLU

— MS4 Boundary
—○ Discrete
— Storm drains
— Receiving water — Receiving (303d)

Alisal Creek

Urban Trash Progress Alisal Creek -2018   Total PLU 2,337.4 ac ⌄

	Treated PLU	185.4 ac	8%		In Progress PLU	20.6 ac	1%	Untreated PLU	2,131.4 ac	91%
Low Litter*		153.5		Low Litter**		7.6				
FCS		31.9		FCS		13.0				

*>71% Certainty **More observations needed

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Markeley Swamp

Modified: 7/28/18, 1:43 AM PDT

▼ LAYERS

◉ Full Trash Capture

☑ MS4 Boundary
☑ Discharge Points
☑ Storm Drains
☑ Streams

Dark Gray ▾

LEGEND   CLOSE

▩ Treated PLU ▢ Untreated PLU
  In Progress PLU

— MS4 Boundary
—○ Discrete
— Storm drains
— Receiving water — Receiving (303d)

Natividad Creek

Urban Trash Progress Markeley Swamp -2018   Total PLU 721.3 ac ⌄

	Treated PLU	298.8 ac	41%		In Progress PLU	2.7 ac	0%	Untreated PLU	419.8 ac	58%
Low Litter*		254.8		Low Litter**		0.1				
FCS		44.1		FCS		2.5				

*>71% Certainty **More observations needed

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The City has identified the Alisal Creek drainage (2,337.4 acres) and Markeley Swamp drainage (721.3 acres) as opportunities for future FCS implementation. FCS implemented at the end of the drainages could treat 100% of the drainage's PLU area. City staff will conduct field investigations to determine FCS feasibility in these areas.

Caltrans Responsibility

Caltrans is responsible for picking up litter (including homeless encampment litter) in its ROWs and along its corridors, and its priority should be litter/trash close to storm drains and waterways (FIGURE 6). Chapter 1 of Division 1 of the CA Streets and Highways code[5] cites the following Caltrans Requirements relevant to the City of Salinas' trash reduction efforts:

> 91.5. (a) The department [Caltrans] may enter into an agreement to accept funds, materials, equipment, or services from any person for maintenance or roadside enhancement, including the cleanup and abatement of litter, of a section of a state highway. The department and the sponsoring person may specify in the agreement the level of maintenance that will be performed.

> 91.6. The department shall, within its maintenance programs relating to litter cleanup and abatement, assign a high priority to litter deposited along state highway segments adjoining storm drains, streams, rivers, waterways, beaches, the ocean, and other environmentally sensitive areas. The department may use litter traps in drains and any other effective technology in carrying out these responsibilities.

> 73. The commission shall not relinquish to any county or city any portion of any state highway that has been superseded by relocation until the department has placed the highway, as defined in Section 23, in a state of good repair. This requirement shall not obligate the department for widening, new construction, or major reconstruction, except as the commission may direct. A state of good repair requires maintenance, as defined in Section 27, including litter removal, weed control, and tree and shrub trimming to the time of relinquishment.

Coordination Efforts

The City and Caltrans have begun coordination discussions. Regional Caltrans staff participated in the Advisory Committee to Salinas' multi-stakeholder collaboration workshops to develop trash reduction strategies in the City's chosen pilot areas. At these monthly Advisory Committee meetings, Caltrans staff were participating members in the development of the Salinas trash control strategy vision documented herein.

Through the continuation of Caltrans engagement, the City aims to explore cooperative maintenance agreements or pay-for-performance standards that allow Caltrans to financially support the City's implementation while the City expands trash control strategies to include Caltrans areas within the City's MS4 boundary. The establishment of these agreements is a Phase I priority that, once finalized, will increase the City's implementation budget and decrease the level of effort required by Caltrans staff.

6. Multi-Stakeholder Collaboration Process

In early Spring 2018, with the support of 2NDNATURE and Applied Survey Research (ASR), the City of Salinas sought to develop a strategic results-based plan based on innovation and partnership. 2NDNATURE, ASR and the Salinas Stormwater Program Manager formed the Consultant Team in charge of organizing and facilitating the trash reduction strategy meetings to brainstorm potential strategies for the City's Implementation Plan. Ideas were facilitated by an Advisory Committee of diverse local experts

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[5] Streets and Highways Code; Division 1. State Highways; Chapter 1. Administration; Article 3. The Department of Transportation.https://leginfo.legislature.ca.gov/faces/codes_displayText.xhtml?lawCode=SHC&division=1.&title=&part=&chapter=1.&article=3.
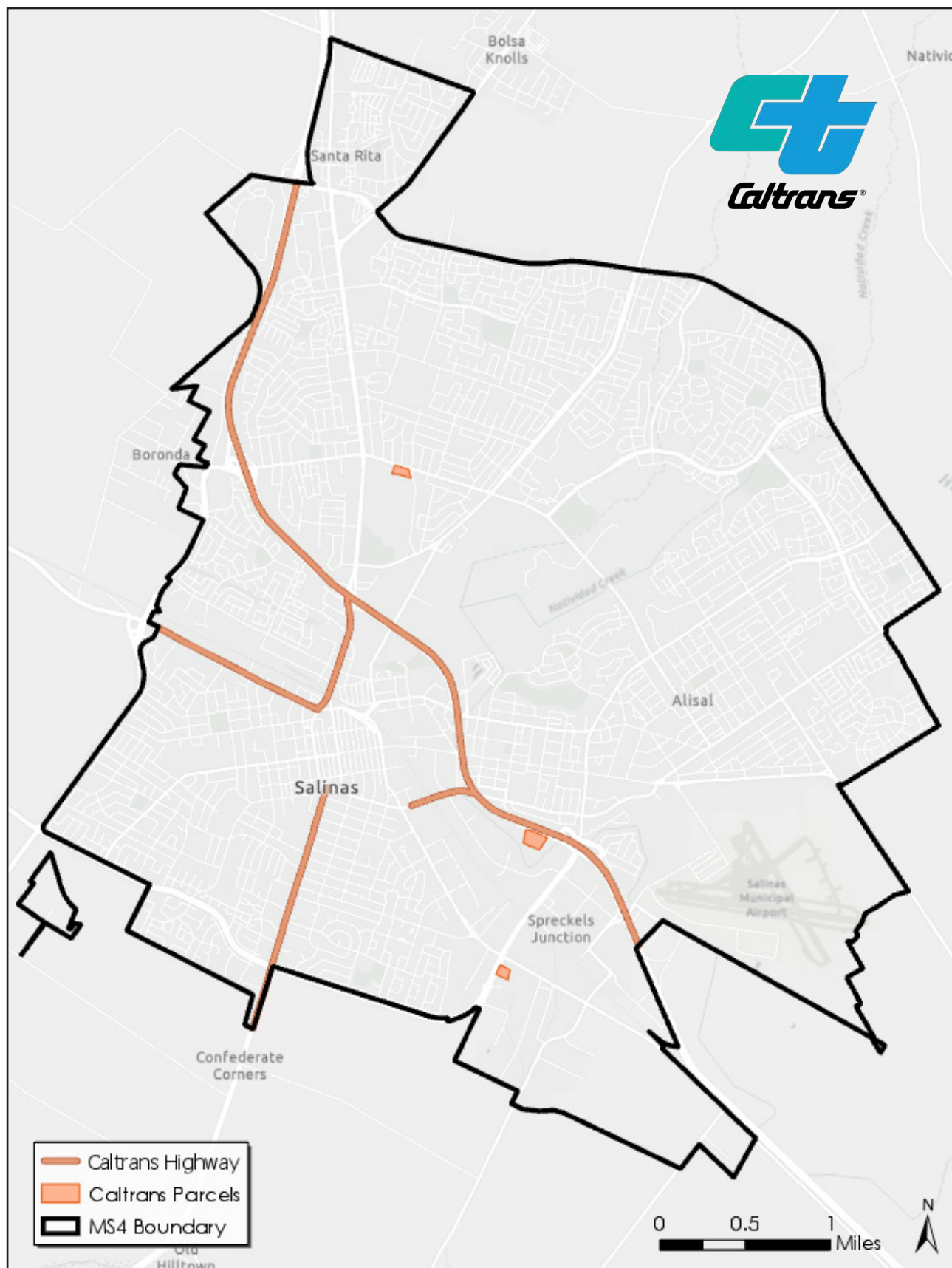
Caltrans highway and parcel ownership within the City of Salinas (266 acres),

Caltrans Highway
Caltrans Parcels
MS4 Boundary

0   0.5   1
Miles

N

from the City, County, School Districts, Solid Waste Authority, a professional Social Marketing Firm, local NGOs, local business owners and more. Over 70 people participated in one or more Advisory Meetings representing over 40 organizations (Figure 7).

The Advisory Committee convened for monthly 3-hour workshops at the Salinas City Hall, each of which focused on collaborative development of solutions for each of the three specific pilot areas. The format of each in-person session included an initial presentation by the Consultant Team to review the State Trash Amendments and the proposed pilot area concept. This was followed by a guided discussion about the current challenges, opportunities, and barriers to trash reduction in the given pilot areas. Workshops included breakout sessions where smaller groups were encouraged to brainstorm trash control incentives and enforcement strategies. These small-group discussions were each moderated by a member of the Consultant Team and allowed the solicitation of feedback from all members of the Advisory Committee. Local community experts, neighborhood leaders, and participants with intimate knowledge and investment in the pilot area communities were empowered to share their experiences and use their understanding of local issues to guide the development of the City's trash reduction strategy.

The breakout sessions were followed by a whole-group debrief of findings and prioritization of top strategies. Detailed meeting notes were recorded by the Consultant Team to ensure the capture of all Advisory Committee input. These direct interdisciplinary collaborative discussions opened lines of communication that had historically been complex and gridlocked, facilitated new relationships, and improved understanding for all involved stakeholders. These findings highlighted the primary strategy to increase communication and coordination among groups with parallel and synergistic missions to optimize existing resources.

A Design Team of key experts from the Advisory Committee joined the Consultant Team on biweekly conference calls to digest and unpack the results of the Advisory Committee Meetings. The Design Team vetted, evaluated and consolidated trash reduction strategies before presenting them to the Advisory Committee for review. By directly involving the stakeholders and the public in the process of evaluating existing trash reduction efforts and available resources, the City and the community were able to consolidate and coordinate to maximize the efficiency and effectiveness of existing actions.

The development of these strategies was driven by local knowledge and expertise and supported by the City trash assessment data within 2Nform. At the start of each meeting, the meeting facilitator explained the City objective of turning white PLU areas green (Figure 3). Existing trash condition maps were presented to the group to illustrate current knowledge of litter hots spots throughout the city. Similarly, the existing trash condition maps were presented to the group prior to group discussions to provide context and ground the discussions in the identification and documentation of the litter problem in each pilot area. The framing of the issues with real data improved trust in the process and ability to track and measure improvements in the future. All advisory committee members were encouraged to download the ZeroTrash app (Figure 8) and utilize it to document any trash issues witnessed during daily activities. To date, there are over 100 trash data points from that group; the potential for public contributions was realized. This should expand City litter data coverage, increase the understanding of current conditions, and expand the ability to measure improvements should future strategies be effective.

Three pilot areas (Acosta Plaza, Chinatown and the Westridge and Northridge Shopping Malls) were chosen based on available trash data and local knowledge of trash reduction opportunities. Each of the

Team	Name	Title/Affiliation
Advisory	Abbie Beane	Managing Director, Offset Project
Advisory	Adriana Robles	Engineer/Development Engineering, CoS
Advisory	Alejandro Chavez	Executive Director, Salinas United Business Administration
Advisory	Alvin VoTran	Environmental Health Specialist, County of Monterey Solid Waste Services
Advisory	Belen Aceves	CSUMB Student Learning Center
Advisory	Bridget Hoover	Water Quality Protection Program Director, Monterey Bay National Marine Sanctuary
Advisory	Brent Buche	Deputy General Manager, MCWRA
Advisory	Carolyn Hinman	Student, CSUMB
Advisory	Cheryl Camany	Family Resource Center, Salinas City Elementary School District
Advisory	Constantine Kontaxis	CalTrans
Advisory	Daniel Fernandez	Professor, CSUMB School of Natural Sciences
Advisory	Darren Fort	Maintenance Supervisor, Salinas City Elementary School District
Advisory	Dick Ayers	Litterati
Advisory	Elisa Wilfong	Program Director, Hayward Youth Trash Capture and Watershed Education Project
Advisory	Eric Daniels	PG&E, Chinatown
Advisory	Francisco Castillo	Director of Public Affairs, Union Pacific
Advisory	George Anzo	Director of Maintenance and Operations, Alisal Union School District
Advisory	Janna Faulk	Recycling Coordinator, SVSWA
Advisory	Jeff Kirshner	Litterati
Advisory	Jennifer Rojero	Litterati
Advisory	Jill Allen	Environmental Health Specialist, County of Monterey Solid Waste Services
Advisory	Jim Bogart	President, Grower Shipper Association
Advisory	Joel Hernandez	Center for Community Advocacy
Advisory	Jonathan Moore	Associate Planner, City of Salinas
Advisory	Kathy Young	Out of the Woods, Chinatown
Advisory	Ken Cusson	Victory Mission, Chinatown
Advisory	Kristen Cushman	Executive Director, Offset Project
Advisory	Larry Hirahara	Buddhist Temple, Chinatown
Advisory	Lisa Brinton	Senior Planner, Community Development, City of Salinas
Advisory	Lisa Emanuelson	Volunteer Monitoring Coordinator, Monterey Bay National Marine Sanctuary
Advisory	Lorenzo Sanchez	Code Enforcement Officer, City of Salinas
Advisory	Luis Ochoa	Housing Division, Community Development, City of Salinas
Advisory	Manny Amador	Environmental Outreach Coordinator, Offset Project
Advisory	Maria Cambron	Downtown Streets Team
Advisory	Maris Sidenstecker	Save the Whales

Team	Name	Title/Affiliation
Advisory	Mayra Aguilar	Administrative Assistant, Salinas United Business Administration
Advisory	Monica Gumilan	Land User Organizer, Building Healthy Communities
Advisory	Norm Groot	Executive Director, Monterey County Farm Bureau
Advisory	Pam Motoike	CSUMB Student Learning Center
Advisory	Pete Riegelhuth	Landscape Associate, CalTrans Region 5
Advisory	Rafael Zavala	School Climate & Culture Administrator, Salinas City Elementary School District
Advisory	Rene De La Fuente	Student, CSUMB
Advisory	Robert Banales	Student, CSUMB
Advisory	Ruben Cortez	Business and Property Owner, Chinatown
Advisory	Sean Bothwell	Policy Director, California Coastkeeper Alliance
Advisory	Shawnte Greenway	Engineering Tech, WWE, CoS
Advisory	Spencer Critchley	Creative Director, Boots Road Group LLC
Consultant	Chloe Madill	Senior Scientist, 2NDNATURE
Consultant	Heidi Niggemeyer	Stormwater Program Manager, CoS
Consultant	John Connery	Senior Research Analyst, Applied Survey Research
Consultant	Nicole Beck	CEO, 2NDNATURE
Consultant	Susan Brutschy	President, Applied Survey Research
Design	Ana Ambriz	Neighborhood Services Coordinator, CoS
Design	Anastacia Wyatt	Planning Manager, CoS
Design	Brian Frus	WWE Division Manager, CoS
Design	Chris Richardson	Chief Program Officer, Downtown Streets Team
Design	Christina Urquidez	Community Relations Manager, Republic Services
Design	David Lewellen	Environmental Compliance/Street Sweeping Crew Supervisor, CoS
Design	Gary Gabriel	Wastewater Manager, CoS
Design	Greg Pensinger	Project Manager, Downtown Streets Team
Design	Jim Sandoval	City Engineer/Asst Director of Public Works, CoS
Design	John Sorensen	Facilities Maintenance Crew Supervisor, CoS
Design	Lucas Aledo	Public Works, City of Salinas
Design	Mandy Brooks	Resource Recovery Manager, SVSWA
Design	Mike Garner	Public Works Maintenance, City of Salinas
Design	Ray Lerma	Maintenance Crew Supervisor, CoS
Design	Steve McCaffrey	General Manager, Republic Services
Design	Tom Harty	Stormwater Program Manager, Monterey County Water Resource Agency
Design	Joe Albertoni	Street Maintenance Manager/Acting Maintenance Division Manager, CoS

List of meeting attendees and participants for the Salinas Trash Reduction Advisory Committee.

Collect trash data with the
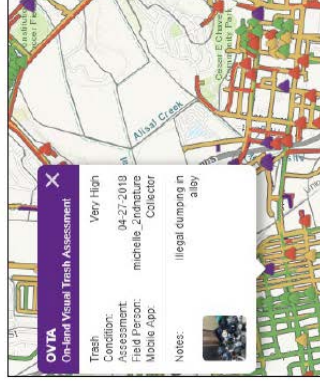
ZERO TRASH APP

Steps to get started:

1. Download the free **"Survey123 for ArcGIS"** app. (No need to sign in!)

2. Go to **www.zerotrash.2nform.com** and choose to open the survey in the Survey123 app.

3. Follow the in-app guidance and start collecting litter data!

THANK YOU!

2NDNATURE

Let's collect trash data!

1. Open "ZERO TRASH APP" from the **"Survey123 for ArcGIS"** app.

2. In a 1,000 ft² area, look for all the MOBILE trash.

3. What container would you need to pick up all the MOBILE trash in your 1,000 ft² area?

PIE TIN	**LOW**
SHOEBOX	**MODERATE**
5 GALLON BUCKET	**HIGH**
SOMETHING BIGGER!	**VERY HIGH**

ZeroTrash app handout provided to the Advisory Committee and various volunteer groups to encourage public trash data collection.

three pilot areas is a group of discrete hydrologically connected urban catchments with a high relative pollutant load ranking. Because all rainfall within each catchment, and therefore within each pilot area, flows to a single outlet, any trash and water quality monitoring occurs in a controlled environment in which results can be directly measured (Figure 9). This spatially explicit approach allows the City to not only maximize resources in these discreet areas, but also establish a causal relationship between the trash reduction efforts and visual trash assessment results (Figure 9).

Acosta Plaza

Acosta Plaza is a 343-acre commercial and residential area in East Salinas that falls within City Council District 1 and District 2 (Figure 10). The pilot area includes small commercial corridors along N Sanborn Road, single family homes between Garner St. and Del Monte Ave, and high-density apartment complexes along Acosta Plaza Rd. The pilot area includes Sanchez Elementary School, Martin Luther King Jr. Academy and Alisal High School. The low income, high density area experiences trash issues from pedestrian litter near the commercial areas and schools, potentially insufficient trash receptacles in residential areas (due to overcrowding), and illegal dumping. The pollutant loading to receiving waters from the Acosta Plaza pilot area is a high priority. In addition, the drainage outfall is currently being monitored for continuous hydrology and pollutant loads (Figure 10). The volume and pollutant benefits expected can be modelled, and once improvements are implemented, the benefits can be measured with a high degree of certainty.

Alisal Vibrancy Plan

Acosta Plaza also falls within the planning area of the Alisal Vibrancy Plan. This community-driven plan is focused on East Salinas and is being used to "communicate the collective vision of those who live and work in the Alisal and implement community-created solutions for strengthening its neighborhoods." The plan also aims to "improve the quality of life for East Salinas families by creating a more vibrant, equitable and healthy community in a way that builds upon the social and cultural wealth of the Alisal." The goals of this plan, although not trash reduction-specific, have similar outcomes related to beautification and sustainability, and the strong community engagement aspects are similar to the type of engagement that is desired by this Trash Reduction Implementation Plan. The Senior Planner for the Alisal Vibrancy Plan participated as a member of the Advisory Committee and will continue to be a key partner throughout implementation of this plan.

### Current Trash Reduction Efforts and Challenges

The City of Salinas performs street sweeping in the Acosta Plaza pilot area every other week, but sweepers are inefficient and limited in their coverage. The extremely high-density population in the area leads to an abnormal surplus of vehicles along the residential streets. This consistent parking density blocks gutters and sidewalks from getting cleaned, drastically reducing street sweeping effectiveness. Many of the homes in the area are serviced by Republic Services and do have regular trash pickup, but the size of the receptacles is often insufficient to contain the volume of trash being generated from these high-density homes.

WaterNow Alliance Accelerator Program

In June of 2018, the City of Salinas was accepted to the WaterNow Alliance's *Project Accelerator Program* which provides Salinas with 3-6 months of technical and program assistance to help jumpstart sustainable local water projects. The City proposed a project in the Acosta Plaza drainage area to identify funding opportunities to implement a cost-effective, spatially intensive demonstration of sustainable multi-benefit stormwater practices. The goal of the project is to demonstrate what is possible on a small
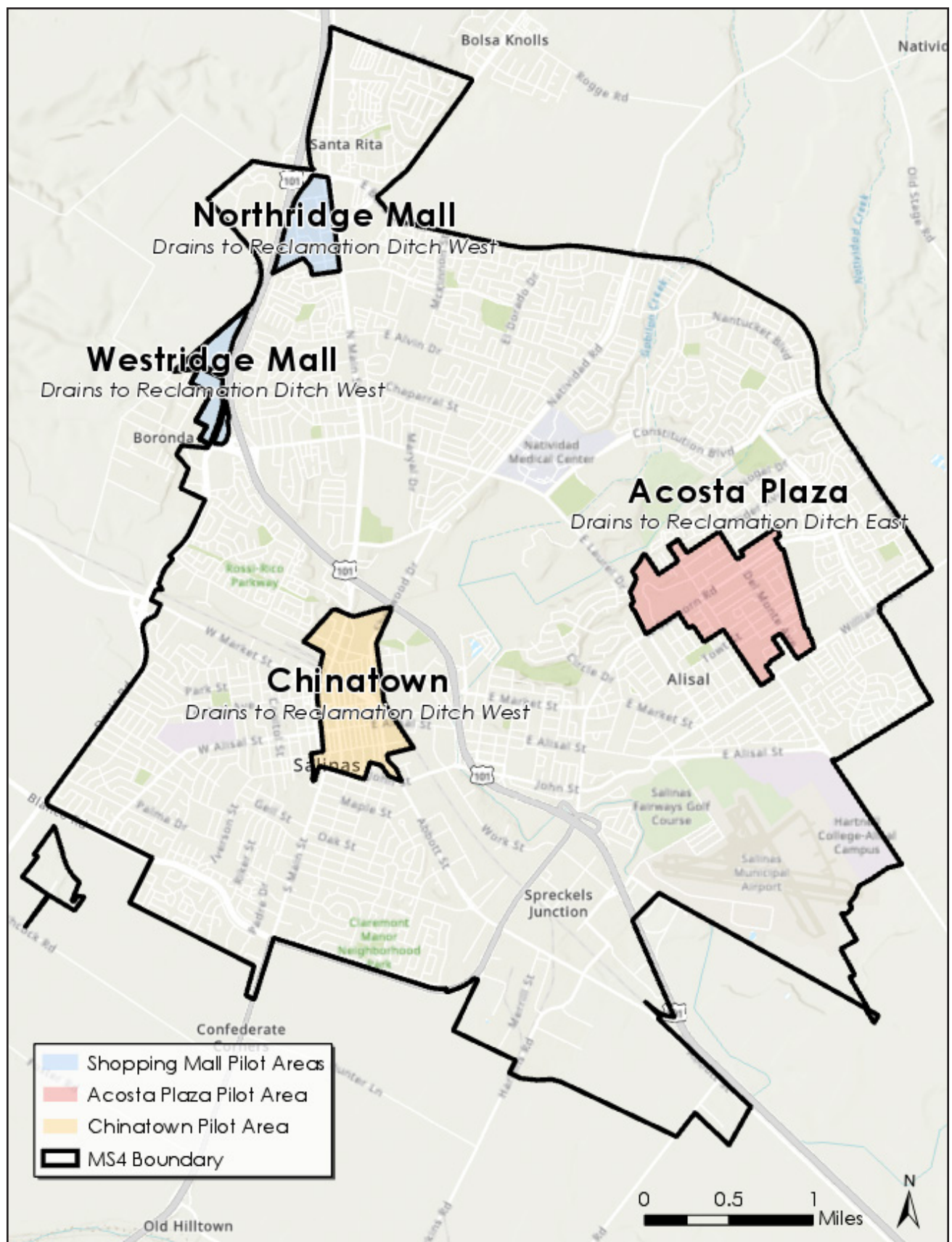
City of Salinas trash implementation plan pilot areas.
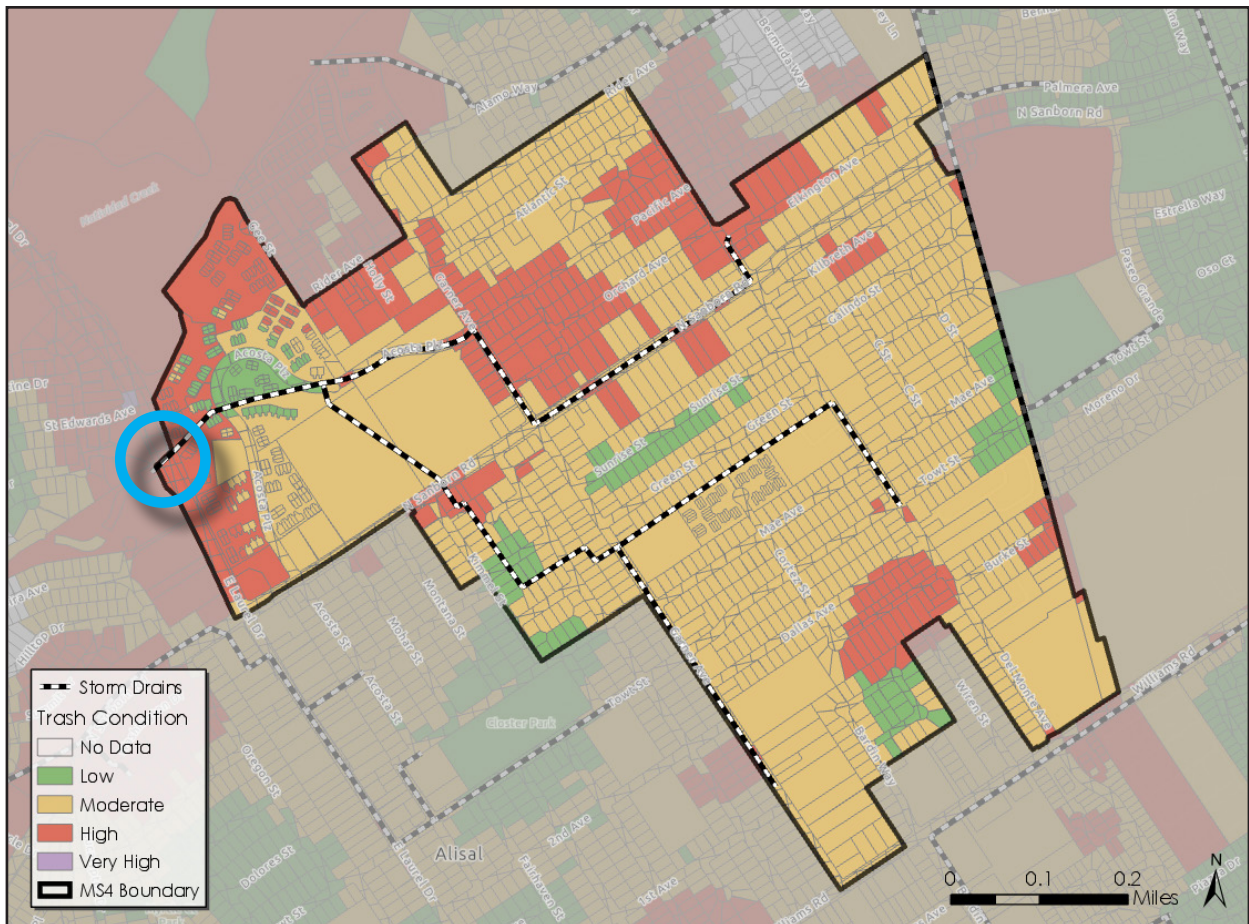
Acosta Plaza pilot area trash condition results (as of December 15, 2018) and the drainage area terminal outfall (drains to Carr Lake).

Acosta Plaza terminal outfall structure shown with attached passive sampling water quality equipment (left) used for contintuous monitoring of hydrology and pollutant loads (photo taken 5/1/18).

Same terminal outfall on First Flush 2017 (11/2/17) after 0.13in of rain. More than 130 gallons of trash were collected.

Note: grate shown is to block access to culvert, not for the purpose of trash capture.

controlled spatial scale by coordinating resources, implementing cost-effective solutions and engaging the community. Salinas has an opportunity to create a conceptual demonstration of cost-effective implementation of integrated solutions to reduce trash, urban pollutants and stormwater runoff to demonstrate cost-effective multi-benefit returns. Coordination and collaboration across municipal departments and with the community can optimize existing resource allocations to better meet many multi-benefit objectives, including trash reduction per the CA Trash Amendments.

Chinatown

Chinatown is a 213-acre commercial and industrial area in Central Salinas that falls within City Council District 3 and District 4 (Figure 11). This pilot area is one of the most, if not *the* most, littered areas in Salinas. The southwestern area of the Chinatown catchment includes the City of Salinas Downtown Commercial Core (Main St.), but the litter issues lie predominantly in the southeastern area (Front St.) and all areas north of the Union Pacific Railroad. These areas are hot spots for illegal dumping and homeless encampments.

Chinatown Revitalization Plan

Chinatown falls within the planning area of the Chinatown Revitalization Plan. This community-driven plan is focused on Chinatown with the goal of "continuing the revitalization of this critical neighborhood located near the Intermodal Transportation Center (ITC) and Salinas Downtown." The plan addresses the "housing, access, mobility, and socioeconomic needs of the neighborhood," which tangentially includes cleaner, safer areas devoid of litter and illegally dumped materials. While City staff and Revitalization Plan partners focus on the proactive management of neighborhood land and resources, the City hopes to combine efforts in Chinatown to achieve the trash reduction goals as outlined in this implementation plan. The Revitalization Plan team continues to host annual block parties and other community events in Chinatown that offer significant opportunities for community outreach and social messaging. The lead staff for the Chinatown Revitalization Plan participated as members of the Advisory Committee and will continue to be key partners throughout the implementation of this plan.

Current Trash Reduction Efforts and Challenges

Despite the persistent severity of trash issues in Chinatown, the City of Salinas has historically expended considerable resources on trash reduction in this area. The City conducts regular street sweeping in Chinatown every Wednesday, but sweepers are inefficient and limited in their coverage. Cars, tents, and homeless encampments block gutters and sidewalks from getting cleaned, despite consistent signage posted by the City.

Additionally, the City of Salinas spends $14,000 every month on routine cleanups, during which the streets in the Chinatown core are cleared. Debris, bulk trash and other items are disposed during these cleanups. At intermittent periods, Republic Services places dumpsters in Chinatown (2 x 6 yard receptacles, 2 x 1 yard receptacle). In the past, these receptacles were consistently overflowing, misused by businesses outside of Chinatown, and surrounded by litter and bulk items. Republic Services cannot pick up trash off the ground so all overflow remains. Currently these receptacles have been removed until other options are found.

To address the sheer volume of trash produced in Chinatown, City Staff have provided trash bags and buckets to the homeless population, who also have access to local homeless services agencies that provide the community with available bathrooms and limited bunks and meals. These efforts have been met with limited success, as both homeless and non-homeless community members consistently treat Chinatown
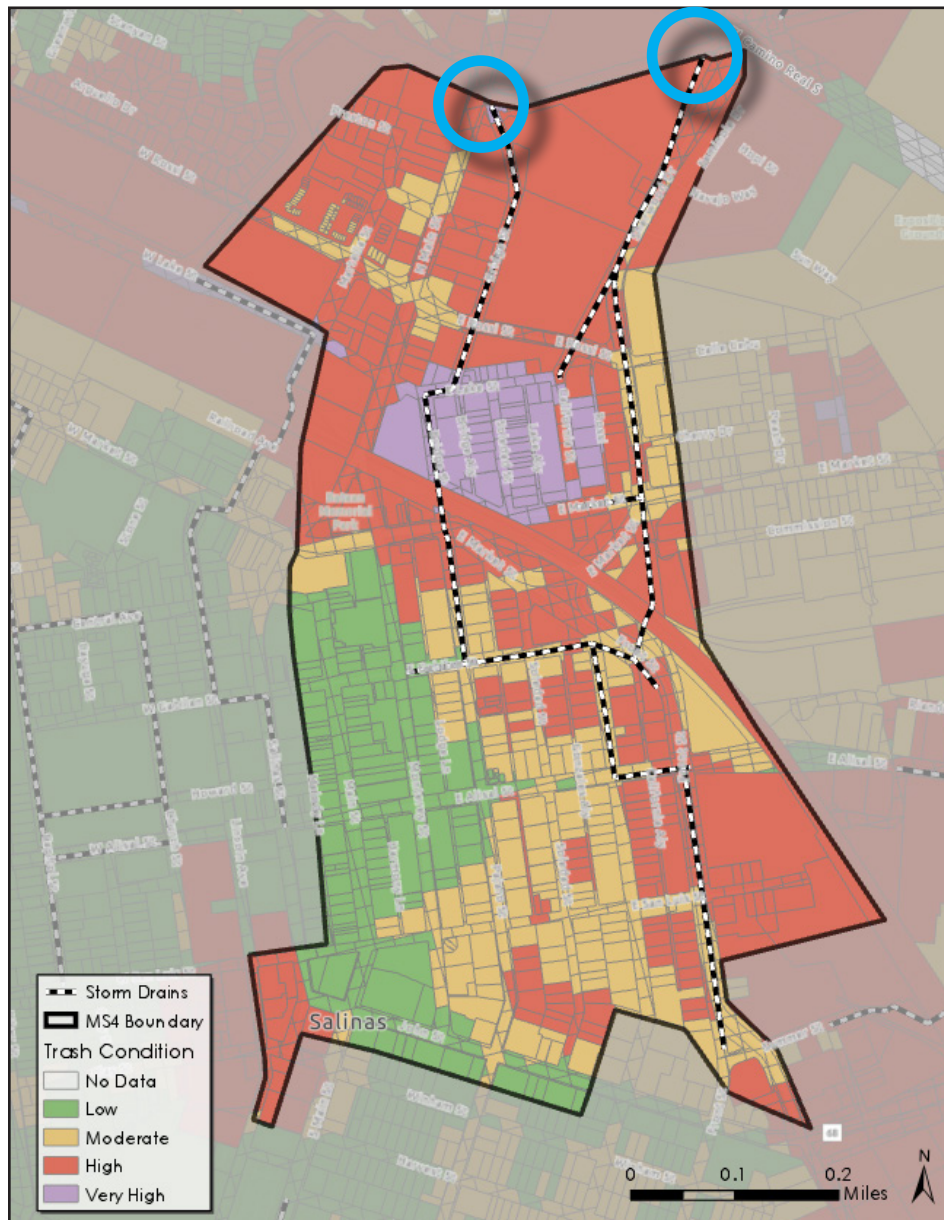
Chinatown pilot area trash condition results (as of December 15, 2018) and the drainage area terminal outfall (drains to Reclamation Ditch West).

as a "dumping ground," regularly leaving bulk furniture items, bagged household trash, clothing and other trash or donatable items in Chinatown. There have also been reports of private individuals and private small business paying the homeless community to dispose of or dump their trash in Chinatown.

The Shopping Malls: Northridge and Westridge Malls

Northridge and Westridge Malls are two commercial shopping centers in Northern Salinas that fall within City Council District 5 (Figure 12). The City of Salinas selected these malls not only as pilot areas for location-specific trash reduction strategies, but also to establish a standard protocol for trash reduction efforts with private landowners and as a City-wide education and outreach opportunity. Northridge Mall is 93.2 acres and includes 80+ retail stores and 18+ food establishments. Westridge Mall is 68.5 acres and includes 10+ large high traffic department stores and 8+ food establishments.

Current Trash Reduction Efforts and Challenges

Most of the litter at Northridge Mall is suspected to come from shoppers and pedestrian litter. Westridge Mall is unique in that it has a significant population living in RV's and mobile homes in the parking lot. Most of the litter in Westridge Mall is suspected to come from shoppers, pedestrian litter, and the parking lot RV community.

Although Northridge and Westridge Malls do not have the highest volume or severity of trash compared to the rest of Salinas, they represent a common institutional constraint to City litter reduction. Since the malls are privately owned, the City is not able to deploy its staff onsite for street sweeping or litter cleanup efforts. This lack of access requires increased collaboration that is currently lacking.

Pilot Area Strategies

The multi-stakeholder collaboration process, with focus on the three pilot areas, fostered an interdisciplinary approach to litter prevention and intervention and resulted in the generation of the following trash reduction strategies. Strategies are organized by tier, representing the relative priority of each strategy. Tier I strategies will be the primary strategies upon which progress in the pilot areas will be measured. Tier II and III strategies will be deployed on an as-needed basis, but all Phase I efforts will be diverted to Tier I strategies.

Tier Definitions

Tier I strategies are top priorities for Phase I. The City will actively pursue funding and begin planning for the implementation of Tier I strategies in Phase I. Tier II strategies are secondary priorities for Phase I. The City will actively pursue funding and begin planning for Tier II strategies, but may not reach implementation in Phase I. Available resources will only be used for Tier II strategies if the concurrent planning and implementation of all Tier I strategies is feasible. Tier III strategies are the lowest priorities for Phase I. The City will work to further discussion and consideration of Tier III strategies but will likely not actively pursue funding or reach implementation during Phase I. Available resources will only be used for Tier III strategies if the concurrent planning and implementation of all Tier I and Tier II strategies are feasible.

The City acknowledges that additional or new information may facilitate edits to strategy specifics and may render some of the following strategies infeasible or a higher or lower priority than original expected.

Legend:
- Storm Drains
- MS4 Boundary

Trash Condition
- No Data
- Low
- Moderate
- High
- Very High

MS210

0   0.1   0.2
Miles

N

Shopping mall pilot area trash condition results (as of December 15, 2018) and the drainage area terminal outfall (drains to Markeley Swamp).

Table 3: Strategy matrix for trash reduction in City pilot areas with Tier 1 strategies being the highest priorities.

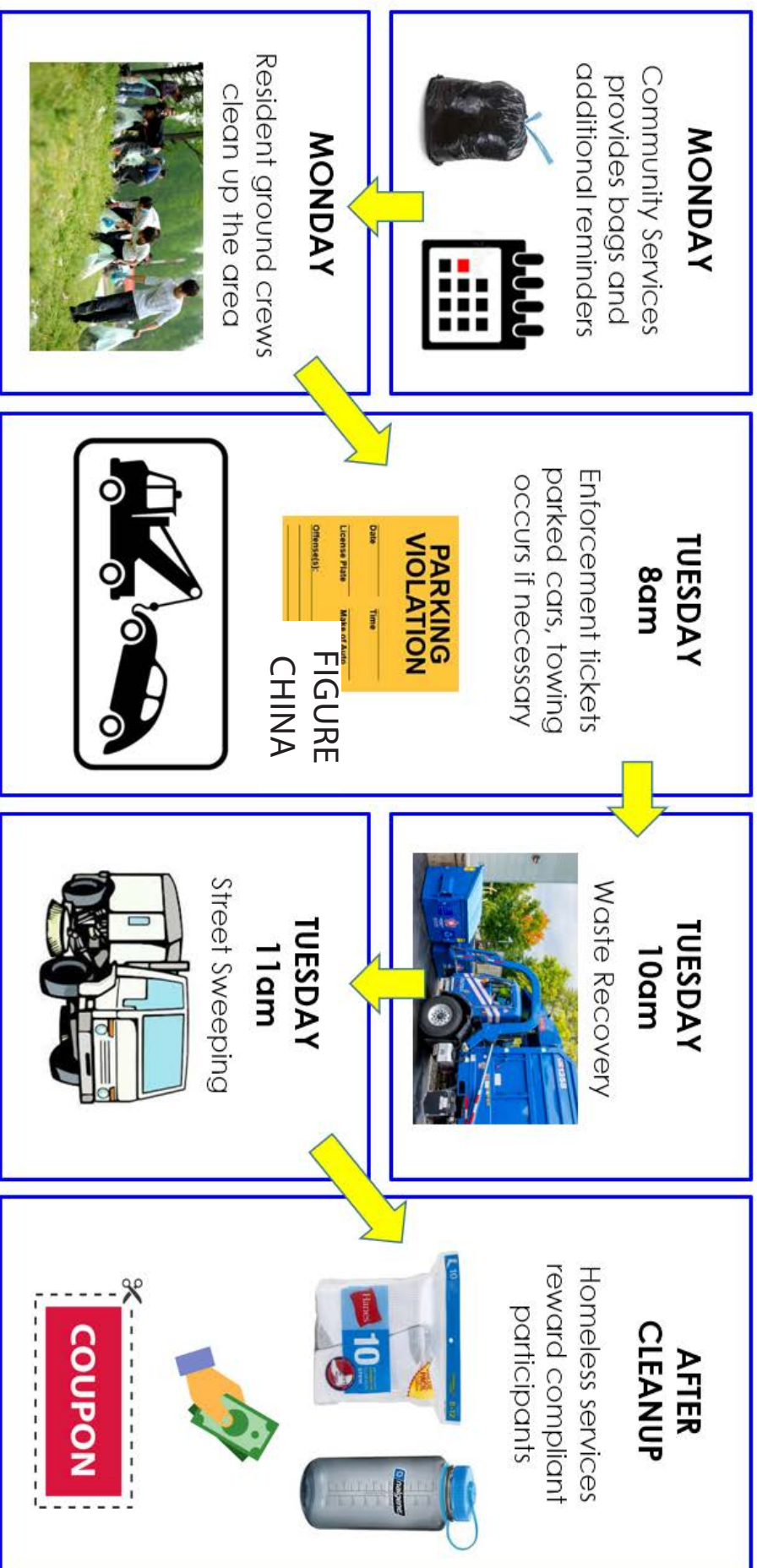| Strategy	Acosta Plaza	Chinatown	Shopping Malls
Coordinated litter recovery & control program	Tier I	Tier I	
Parking controls	Tier I	Tier I	
Downtown Streets Team	Tier II	Tier I	
Increase enforcement and surveillance	Tier II	Tier I	Tier II
Coordination with business owners			Tier I
Incorporate trash controls in infrastructure and GI projects	Tier II	Tier II	Tier II
Increase and incentivize volunteer litter clean-up days	Tier II	Tier II	Tier II
Waste management outreach	Tier II		Tier II
Facilities for RV community			Tier II
Increase outdoor receptacles by food markets and businesses	Tier III		Tier III
Litter data contest	Tier III		Tier III
Increase resident dumpster availability	Tier III		

Coordinated Litter Recovery and Control Program

While both Acosta Plaza and Chinatown currently have City of Salinas street sweeping and Republic Services trash pickup, the efforts are not aligned and are not reaching their potential for effectiveness in these pilot areas. Through extensive Advisory Committee and Design Team discussions, the City of Salinas is evaluating the possibility of alignment and coordination of its existing resources to optimize trash reduction effectiveness (Figure 13). Within year 1 of Phase I, the City will work to schedule additional collaborative meetings with key partners to review the logistics of the coordinated litter recovery and control program implementation.

This purposed program includes increased parking controls to allow for the alignment of City of Salinas street sweeping and Republic Services trash pickup. With better parking controls, the streets should ideally be free of cars, tents and other obstacles, allowing the sweeper to gain full curb access. Alignment of street sweeping and trash pickup so that they occur on the same day not only maximizes the use of the vacated streets, but also reduces the burden on the community to vacate the streets and allows the sweeper to effectively pick up any litter left behind by trash pickup.

On top of this logistical adjustment, the City will incorporate additional existing resources in local school programs, homeless services and social marketing through Boots Road Group. Before the weekly or biweekly trash pickup and street sweeping, the City will work with Boots Road Group and Parking enforcement to advertise the event. Signage, fliers and other media regarding this new program will be shared to give warning to residents and increase visibility and community engagement. Additional outreach will be conducted in partnership with the Alisal Vibrancy Plan and the Chinatown Revitalization Plan. Efforts will be focused in schools to encourage students to participate and to engage parents and

GET THE WORD OUT!

Signage, Flyers, News, Block Party, etc.
CASH FOR TRASH!

POST AHEAD OF TIME!

No parking or camping!
Tuesday 7am - noon

MONDAY

Community Services provides bags and additional reminders

MONDAY

Resident ground crews clean up the area

TUESDAY 8am

Enforcement tickets parked cars, towing occurs if necessary

FIGURE CHINA

PARKING VIOLATION
Date
License Plate   Time
Offense(s):   Make of Auto

TUESDAY 10am

Waste Recovery

TUESDAY 11am

Street Sweeping

AFTER CLEANUP

Homeless services reward compliant participants

COUPON

Example outline of the coordinated litter recovery and control program to optimize existing resources in pilot areas.

extended family[6]. Block parties and community events are additional opportunities for outreach regarding the trash reduction program. In days leading up to implementation of the program, homeless and community services will provide trash bags and additional reminders to residents that trash is to be gathered in preparation for the upcoming cleanup day. Resident ground crews, including school classes, after school programs, community groups, the Downtown Streets Team, etc., will gather litter and bulk items to clean up the area in preparation.

The morning of the program, parking enforcement will ticket and potentially tow non-compliant vehicles, as necessary. A phased approach to this enforcement will be adopted to effectively transition to stricter enforcement without aggravating the residents and creating adversarial relationships. This enforcement decreases the parking density during the set street sweeping and trash pickup hours. With the curbs clear, Republic Services can come through for trash pickup, servicing not only the local businesses but also the residential apartment complex dumpsters in Acosta Plaza and any additional bagged refuse collected by residents and volunteers. If deemed feasible, the City of Salinas street sweepers will follow the trash pickup trucks to capture any left-behind litter. Increased curb access and removal of trash and bulk items maximize resource effectiveness.

After Republic Services and the City have serviced the area, volunteer community groups, homeless services and the City of Salinas may assist in the provision of rewards to local participants. These rewards may be similar to the incentivized cleanup programs the City develops with the supports of Boots Road Group.

- *Involved Groups*: City of Salinas Public Works, Republic Services, Parking Enforcement, Downtown Streets Team, Alisal Vibrancy Plan, Local School Groups, Community/Volunteer Organizations, Chinatown Revitalization Plan, Homeless Services
- *Estimated Costs:* Coordination costs

Parking Controls

The City will work to increase parking controls in pilot areas to clear streets of all obstacles (cars, tents, etc.) and allow street sweepers to gain full curb access. Enforcement of parking controls will be phased in, beginning with warnings issued to non-compliant vehicles. Enforcement will increase to citations and eventual towing as needed. These controls are expected to greatly improve sweeper effectiveness and therefore reduce litter on the landscape that is usually blocked by parked or abandoned vehicles.

- *Involved Groups*: City of Salinas Public Works, Parking Enforcement
- *Estimated Costs:* Coordination costs, potential capital costs for signage. Costs potentially offset by ticketing.

Downtown Streets Team

The primary desired strategy to address the trash issues in Chinatown is the deployment of the Downtown Streets Team in Salinas. Founded in 2005 and named a "Best Management Practice" in the 2018 Homelessness Task Force Report, Downtown Streets Team is a nonprofit that addresses homelessness by not only providing solutions to homeless men and women, but also challenging them to take an active role in their recovery. The homeless volunteer with Downtown Streets Team on beautification projects

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[6] See section "City Wide Strategies – Incentive Programs" for more information.

within their respective communities and in return, receive necessities including a stipend, vital health services and case management.

The program offers a "ladder of success" system where team members can continue to improve their skills and move up the ladder, while gaining additional work responsibilities with the potential for promotion to managerial levels. Team members are also encouraged to share their stories with the community at schools, churches or business associations, which helps to shift the negative perceptions of homeless people. The eventual goal is to transition team members to full-time employment over the course of a year.

Downtown Streets Team currently operates in eight Bay Area communities (San Francisco, San Jose, Palo Alto, Santa Cruz, Hayward, Novato, San Rafael and Sunnyvale) and serves over 750 homeless men and women every week. In addition, through its beautification efforts, the nonprofit has removed over 2.8 million gallons of debris in the last year alone. Funding differs in each community, but sources can include Public Works/Parks and Recreation departments, CDBG (economic development and human services), environmental agencies (water districts, environmental services departments, EPA), corporate sponsorships and Business Improvement Districts, along with county and city funding.

The Downtown Streets Team is included in the optimization of existing resources plan, as volunteer cleanup members, and could also be deployed in various hot spot areas outside of Chinatown to provide additional cleanup services. More consistent cleanups in both residential and commercial core areas not only reduce the trash on the landscape, but also further deter pedestrian and community littering through general beautification. Increasing the frequency and intensity of trash cleanups reduces the time that trash has to accumulate and helps sustain litter reduction progress.

The City of Salinas is currently pursuing funding to bring the Downtown Streets Team to the City of Salinas to assist in both homelessness and trash reduction efforts.

- *Involved Groups*: City of Salinas, Downtown Streets Team
- *Estimated Costs:* Approximately $300,000 per year

Increased Enforcement / Surveillance

The community's current perception of the City's illegal dumping enforcement is that enforcement is weak and non-threatening. The current lack of perceived consequences encourages members of the community (both homeless and non) to illegally dump frequently and with total disregard for posted signs and established community guidelines. The Victory Mission in Chinatown, for example, has an additional dumpster available to the community that they regularly monitor, and have recorded multiple license plate numbers of illegal dumpers. Despite efforts to confront and engage with these identified illegal dumpers, the Victory Mission staff has been largely unsuccessful, as the offenders will simply move to another unmonitored area of Chinatown to dump.

Increased enforcement by City of Salinas Police or Code Enforcement brings real consequences to fruition, increasing the perception and severity of punishment against illegal dumping offenders. Generally, increased surveillance around the Chinatown area specifically could decrease the amount of unmonitored areas, further decreasing illegal dumping opportunities. Additional enforcement of community

receptacles, empty lots and known illegal dumping hot spots could similarly dissuade community members from illegally dumping.

- *Involved Groups*: City of Salinas, Code Enforcement, Police
- *Estimated Costs:* Staff costs, enforcement costs. Costs could be offset by ticket payment.

Coordination with Business Owners

In order to develop protocols for collaboration with private landowners, the City will contact the owner or land manager(s) of the shopping malls to set up an in-person meeting or conference call with City Staff to clarify their maintenance agreements regarding the mall parking lots to ensure that the private land owners are keeping up with their established requirements. These collaborative meetings will help to identify the best lines of communication between business managers, mall owners, and the City of Salinas, and will set the precedent for future relationships and expectations.

- *Involved Groups*: City of Salinas, Private landowners
- *Estimated Costs:* Coordination / staff time

Incorporate Trash Controls in Infrastructure and GI Projects

The City currently has standards in place for all new and re-development projects to accommodate the treatment of pollutants such as runoff volume and pollutants (TSS, etc.). In Phase I, the City may begin to investigate methods to include trash as a priority pollutant, so that considerations for trash capture, FCSE, street sweeping accessibility, re-pavement and other trash-related design standards can be prioritized and implemented for all future development or re-development. Coordination with City planning departments and development and management staff will be required should the City decide to pursue this pilot strategy in Phase I.

- *Involved Groups*: City of Salinas Public Works, City Development and Planning Departments
- *Estimated Costs:* Coordination / staff time, potential capital costs

Increase and Incentivize Volunteer Litter Clean-Up Days

Existing receptacles are constantly overflowing despite regular servicing and monthly cleanups seem to only temporarily reduce trash volumes. The City may explore the potential for an increase in Republic Services pickup days as well as community cleanups and City staff cleanups may reduce the time in between servicing that allows trash to accumulate on the landscape. The City's trash franchise agreement is currently in negotiation, so the resolution may affect the feasibility of this strategy.

Volunteer groups conduct regular cleanups within the City, but these events are not often advertised as incentive opportunities. Volunteer outreach is planned to include advertisements of incentives to be earned such as community service hours for students, free dumping vouchers, and additional free or reduced-cost goods and services. The incentivization of these events will increase the volunteer workforce and will allow for an increase in the frequency, efficiency and coverage of volunteer clean up events.

- *Involved Groups:* Republic Services, City of Salinas, Volunteer Organizations
- *Estimated Costs:* Cleanup costs, servicing costs, coordination costs. Costs may be included in Downtown Streets Team cost and/or existing Republic Services contract with the City.

Waste Management Outreach

To maximize project visibility and take advantage of the high foot traffic through the malls, the City of Salinas will work to develop a waste management demonstration within the malls. This personalized form of outreach will engage shoppers and diners, educate mall goers on proper trash and recycling protocols, share information about the City of Salinas trash reduction efforts, and potentially begin to shift social norms surrounding pedestrian litter at the malls. These demonstrations could also serve as opportunities to engage the community in discussions about existing trash, recycling and organic waste disposal protocols and how they could be improved. Support for these efforts could come from local schools or community groups. This demonstration could be presented by a classroom or school group as part of a project or contest to maximize engagement and resources and minimize costs.

Also given the high number of food vendors at Northridge and Westridge Mall, it is important to address the businesses directly to ensure proper source control measures are known and implemented, where feasible. This outreach may take the form of meetings between the City of Salinas and food vendors directly or could come directly from the Mall managers after coordination meetings with the City of Salinas. Source control efforts such as limited access to or bans of paper and single use products (plastic bags, sauce packets, napkins, straws, etc.) may reduce the amount of pedestrian litter not only around the food locations, but throughout the mall parking lots, in neighboring areas, and potentially throughout Salinas.

- *Involved Groups*: Mall landowners, City of Salinas, food vendors Republic Services, Local Schools, Community/Volunteer Groups
- *Estimated Costs:* capital and coordination costs

Facilities for RV Community

Both Chinatown and Westridge Mall host significant RV communities, where many people are living in cars and other vehicles. These vehicles are often not equipped with appropriate restrooms and, if equipped, are rarely sufficiently serviced. This leads to the potential dumping of human waste, which poses a serious health risk to the community and the receiving waters. Facilities and/or services may be provided to these community members in return for cooperation and appropriate maintenance of their parking area. This could come in the form of vouchers for free dumping, increased advertisement and enforcement of permanent bathrooms in the area, or a mobile RV dumping station.

- *Involved Groups:* City of Salinas, Republic Services, Homeless services
- *Estimated Costs:* capital and maintenance costs for mobile dumping, enforcement costs

Increase Outdoor Receptacles by Food Markets and Businesses

During visual trash assessments, considerable litter was found on sidewalks, parking lots and roads adjacent to both small-scale and large-scale food vendors. The City may use Phase I to begin discussions with Republic Services and private businesses to discuss the potential provision and servicing of additional outdoor receptacles in areas where the public is likely to purchase and consume food products with disposable packaging (fast food restaurants, gas stations, grocery stores, other food markets, etc.). Primary pedestrian corridors are also hot spots for litter generation. Provision of additional receptacles in these areas may encourage proper disposal of pedestrian and food-related litter.

At Northridge Mall, there were no available waste receptacles in the parking lot, while at Westridge Mall, receptacles exist, but many are overflowing and surrounded by litter. The City may also explore the potential for provision of adequate receptacles in parking lots and sidewalks, as well as adequate cleaning to prevent overflows may make trash disposal as easy and accessible as possible.

- *Involved Groups*: Mall landowners, City of Salinas, Republic Services, local business/property owners
- *Estimated Costs:* capital and maintenance costs

Litter Data Contest

2NDNATURE developed a public version of the trash visual assessment mobile application – ZeroTrash app (Figure 8). This app is free and available for public use, with built in guidance to generate data comparable to that collected via the 2Nform platform. As part of the citizen engagement through the malls and schools, the City will work with Community Groups and Schools to create a litter data contest, incentivizing citizens to collect data, understand the consequences of their litter disposal actions, and be an engaged participant in the City's trash reduction progress. Data collected informs the City regarding the current trash condition and helps to identify both hot spot priorities and areas where progress has been made.

- *Involved Groups*: Mall landowners, City of Salinas, Local Schools, Community/Volunteer Groups, Boots Road Group
- *Estimated Costs:* coordination costs

Increase Resident Dumpster Availability

Many high-density residential homes and apartments in the Acosta Plaza pilot area do not have sufficient trash receptacles. Residents often do not want to report a higher number of home occupants and do not want or cannot afford to pay extra to upgrade their trash service. Provision of adequate receptacles in densely populated residential areas and along commercial sidewalks, as well as adequate litter pickup to prevent overflows may make putting trash in collection receptacles easier and more. Additionally, the apartment complexes along Acosta Plaza Road are operated by a Homeowner's Association, which requires each unit to have its own trash service. These small receptacles are often insufficient and prone to overflow. The City may consider collaboration with the HOA and Republic Services to discuss the provision of larger dumpsters for the complex, if possible. Provision of additional community dumpsters may also be discussed, but careful consideration for location and access is necessary to prevent the resource from being abused and attracting additional litter and illegal dumping.

Baseline visual trash assessments demonstrated that both shopping malls had considerable litter in the parking lot areas. At Northridge Mall, there were no available waste receptacles in the parking lot, while at Westridge Mall, receptacles exist but many are overflowing and surrounded by litter. Provision of adequate receptacles in parking lots and sidewalks, as well as adequate cleaning to prevent overflows, may also be explored by the City, in collaboration with Republic Services and the private landowners.

Republic Services intermittently has dumpsters deployed in Chinatown. These receptacles are consistently overflowing and surrounded by litter and bulk items. The City may explore opportunities for the provision of long-term or additional receptacles, as well as adequate cleaning to prevent overflows. The reduction in accumulated trash in the area would potentially reduce the amount of

additional waste that is thrown on the ground and/or illegally dumped by outside vendors or residents.

- *Involved Groups*: HOA, Mall landowners, City of Salinas, Republic Services, local business/property owners, homeless services
- *Estimated Costs:* capital and maintenance costs, potential enforcement costs

City Wide Strategies

Despite the pilot areas being the primary focus for Phase I implementation, the City has identified additional city-wide goals to reduce illegal dumping and urban litter and address trash generation from homeless encampments. The holistic strategies to address these issues are expected to be more effective in a greater city-wide implementation effort, where the trash reduction efforts can be expended throughout the city, and the benefits will likely occur not only within the pilot areas, but also throughout and potentially beyond city limits.

These city-wide campaign strategies to reduce illegal dumping and urban litter and address trash generation from homeless encampments include:

Illegal Dumping Reduction Campaign

Illegal dumping was identified as a city-wide issue in Salinas. Members of the Monterey County Illegal Dumping and Litter Abatement Task Force (IDALATF) provided data on reported illegal dumping areas, and the City of Salinas utilized existing data of illegal dumping cleanup areas to determine that the problem was expansive and could only be addressed by a holistic county-wide effort.

Through research and Advisory Committee discussions, the leading causes of illegal dumping in Salinas were determined to be a combination of the following factors: low awareness or perceived lack of illegal dumping consequences, cost avoidance and inaccessibility to legal dumping opportunities.

To address the social perception of non-enforcement, the illegal dumping reduction campaign will center around an increased city-wide enforcement of illegal dumping, which may be supported through increased signage and surveillance (as discussed more intensively in the pilot area strategies). Increased severity and likelihood of illegal dumping enforcement is paired with social marketing campaigns to adjust social norms around illegal dumping and provide information on free or low-cost alternatives to illegal dumping. These alternatives may come in the form of vouchers or other incentive-based programs to reduce the cost barrier to legal dumping.

Inaccessibility to legal dumping opportunities was highlighted as a primary cause of illegal dumping. Advisory Committee discussions identified that most of the community has 6-day workweeks, with Sunday commonly being their only off day. The Sun Street Transfer Station is the most convenient option for disposal of household solid waste or recyclables in the City, yet it is closed for business on Sundays. The nearest disposal facility open on Sundays is over 20 miles away in Gonzales. The City will pursue further collaboration with the Sun Street Transfer Station or other waste management facilities to adjust scheduling such that the disposal facility can be open on Sundays. This may develop as a short-term test effort, but regardless, is expected to bring in additional revenue to the transfer station and reduce the frequency and intensity of illegal dumping in the City.

Visual trash assessment data greatly informs this strategy, as the continuous collection of trash data helps to identify illegal dumping hot spots and allows City staff to target areas for cleanups and beautification, which has been shown to reduce the likelihood and frequency of illegal dumping.

Support for these efforts comes from the City of Salinas Public Works and Community Development Departments, City of Salinas Law Enforcement, Republic Services, Salinas Valley Recycles and Boots Road Group.

Incentive Programs

Programs to incentivize "good behavior" (less littering and illegal dumping, more trash pickups, etc.) are a valuable, cost effective way to reduce urban litter in the City of Salinas. The incentive programs complement increased enforcement efforts and may increase community participation in various trash reduction efforts.

The success of the CRV programs to incentivize recycling prompted Advisory Committee discussions on a similar program focused on urban litter. A "Cash for Trash" program, or a similar way to "pay" for trash may be a promising solution to increase both the number of participants and the volume of trash collected. This payment may not be cash, but could alternatively be a voucher for reduced or free dumping fees, meal tickets, gift cards, etc. Additionally, participants in organized community cleanup events could be rewarded with similar vouchers, or their participation could be a way to excuse parking tickets or other small fees or fines.

The City faces considerable illegal dumping issues along the edges of agricultural fields in Salinas. This may be due to the large transient farming workforce. To incentivize alternative behavior, disposal vouchers may be provided in farm worker paystubs worth their value upon redemption at legal dumping locations, limiting overhead costs and increasing the potential number of vouchers handed out.

Since the malls attract significant foot traffic from community members throughout the City of Salinas, they serve as a platform through which the City and Boots Road Group can target their messaging to reach wide audiences. Advertising for the cleanup program at the malls themselves would help increase program visibility and participation. Assuming significant participation in these cleanup events, the City should see a decrease in urban litter and increased engagement with the ZeroTrash app.

Support for these efforts comes from the City of Salinas Public Works Department, Republic Services, Salinas Valley Recycles, Homeless Services, local schools and community groups and Boots Road Group.

Education and Community Outreach with Boots Road Group

To reduce illegal dumping and urban litter generation, the City will engage with the community as part of the illegal dumping campaign and incentive programs discussed above.

Outreach through schools is a highly effective avenue to incentivize students, their families and the greater community to engage with these City-wide campaigns and participate in various trash reduction incentive programs. City of Salinas' trash reduction efforts could include implementation of school cleanup programs, environmental education programs and other incentive programs (including vouchers or ticket alternatives). The City included the Stormwater Manager for the City of Hayward on the Advisory Committee, and her immersive trash-focused education program, funded through EPA grants, was discussed at length. These materials and curriculum are available for implementation in the City of Salinas.

Social messaging development is integral for all illegal dumping signage, incentive program outreach, and local education programs. The City of Salinas has an existing relationship with Boots Road Group, a professional social marketing firm, and continues to utilize their resources to develop educational and community outreach campaigns. Advisory Committee discussions and local demographics advised that all social messaging should be bilingual, and likely in the form of print, radio, and video advertising. Content for all messaging will be developed through collaboration of the City of Salinas, Boots Road Group and other relevant participants.

Address Transient Encampments with DST

Transient encampments are a significant source of trash in Salinas and are a priority in order for the City to achieve substantial trash reduction progress. The Chinatown pilot area was chosen intentionally for this reason, as it is the City's greatest hot spot for transient and homeless encampments. With a direct focus on the "worst case," the City hopes to identify and optimize strategies in the context of the transient issue that can be expanded to other areas beyond Chinatown where they may likely be met with equal or greater success.

If funding is available, incorporating the Downtown Streets Team, as identified in Chinatown pilot area strategy, may be the City's primary strategy to address the issue of litter from transient encampments. Hiring the professional Downtown Streets Team staff may allow the City to safely and effectively infiltrate transient populations and encampments to encourage and facilitate more trash-conscious behavior. The City of Salinas is currently pursuing funding to bring the Downtown Streets Team to the City of Salinas to assist in both homelessness and trash reduction efforts.

Tracking Open Channel Trash

The City of Salinas understands the challenges associated with the elimination of trash and litter from open channels[7] and believes a cost-effective inspection strategy that provides real-time mapped results will greatly improve the ability to focus clean ups in locations where trash or litter has accumulated. Greater spatial and temporal coverage of trash assessment data increases the City's ability to identify

> *The City defines **"open channels"** as surface water conveyance systems that include all receiving waters within the MS4 and their adjacent riparian areas, typically including top of bank.*

trash sources, quickly deploy cleanup resources, and better adjust trash control programs to increase effectiveness. Over time the mapped open channel trash condition data will provide insight to 1) guide dry season open channel trash clean-up efforts given available resources and 2) provided spatially explicit receiving water trash distribution data that can be analyzed in a drainage context and compared to the City urban trash control progress achieved within the contributing urban drainages.

Current Permit Protocols

The City of Salinas' current permit protocols in section P.3 require the City to implement trash reduction BMPs throughout the City, work collaboratively with MCWRA regarding trash in and around the Reclamation Ditch, and conduct assessments of four 100 ft reaches of different creeks/ditch each year. The intent was to introduce an open channel trash threshold to be applied at four sites on the Rec Ditch, Gabilan and Natividad Creeks by Y2. See map below for the locations of these sites. Each site comprises about a 200 ft wide area (per San Francisco RTAM protocol) in each of the highlighted areas.

Table P.3. Trash Assessment Sites and Locations

Site	Location
1	Reclamation Ditch between Market St. and its confluence with Natividad Creek
2	Reclamation Ditch between Victor St and N. Davis Rd.
3	Gabilan Creek between Constitution Blvd. and E. Laurel Dr.
4	Natividad Creek between Garner Ave. and E. Laurel Dr.
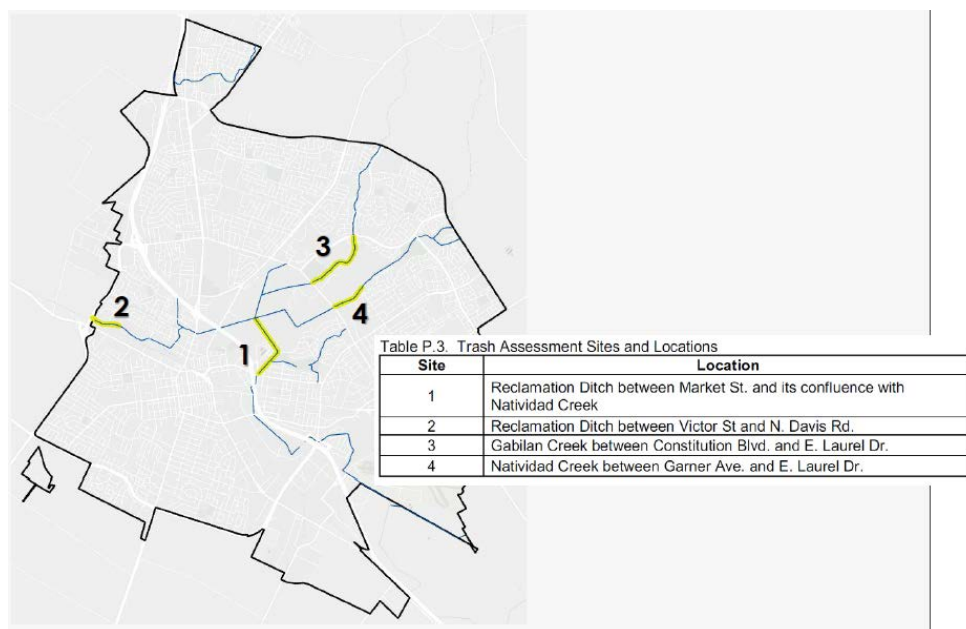
As written, this section of the permit (P.3) conflates open channel conditions with trash generation in a way the Trash Amendments avoid, at least for now. P.3 fails to provide information regarding the sources

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[7]The City defines "open channels" as surface water conveyance systems that include all receiving waters within the MS4 and their adjacent riparian areas, typically including top of bank.

or distributed conditions of litter within municipal riparian areas and having been implemented prior to adoption of the State Trash Amendments, resulted in inconsistent terminology and requirements. Section P.3 is overly complex and poorly constructed, and there is no reasonable method available for the City to adequately quantify "an amount of trash equivalent to that generated by 20% of all commercial and industrial land area in the City" (permit language in P.3).

Proposed Alternative Approach

Utilizing the 2Nform platform, trash reductions (via number of PLU acres turning green) can be assessed and a percent reduction can be determined; the actual amount of trash generated for the commercial and industrial areas is impossible to quantify. Per the City's Trash Reduction Implementation Plan, target milestones (% reduction) have been proposed within this Plan to demonstrate urban trash control progress, throughout the City including commercial and industrial areas. The City would like to pursue the establishment of similar open channel reduction targets in FY19/20 once the City has more information on the current open channel trash conditions.

The process provided below outlines the City's approach to open channel trash assessments, following the intent of the Salinas permit trash provisions requiring the City to:

1. Conduct annual inspections that document and map trash density and distribution within open channels
2. Implement actions to reduce sources of trash and litter in open channels and increase dry season efforts to recover trash accumulated in open channels given available resources
3. Develop a methodology to assess the effectiveness of trash control actions and track progress

Through close collaboration with the Central Coast Water Board, the City of Salinas can demonstrate its ability to comply with all Trash Permit Requirements (both the State Trash Amendments and the 2012 NPDES Permit requirements) using the same format of the 2Nform Trash Module to monitor, track, evaluate, and report progress. The City has expanded the monitoring and reporting methods and procedures designed for the urban landscape (i.e. 2Nform Trash Module) to apply to open channels. The City defines open channels as surface water conveyance systems that include all receiving waters within the MS4 and their adjacent riparian areas typically including top of bank. The process includes the following actions that were completed for the first time in Summer/Fall 2018:

1. Map all open channels and adjacent riparian areas within the MS4 and designate those areas under MCWRA jurisdiction. Summarize total open channel or riparian area in acres (Figure 14A). Open channel areas were clipped from the City's urban MS4 landscape to prevent any overlap or duplication of total MS4 acreage.
2. Conduct visual trash assessments using 2Nform mobile applications in all City-owned open channel and riparian areas (Figure 14B).
3. Apply the 2Nform spatial extrapolation processing methods to document and map open channel trash condition based on available data (Figure 14C). The post processed results are summarized by the acreage distribution in Figure 14D.
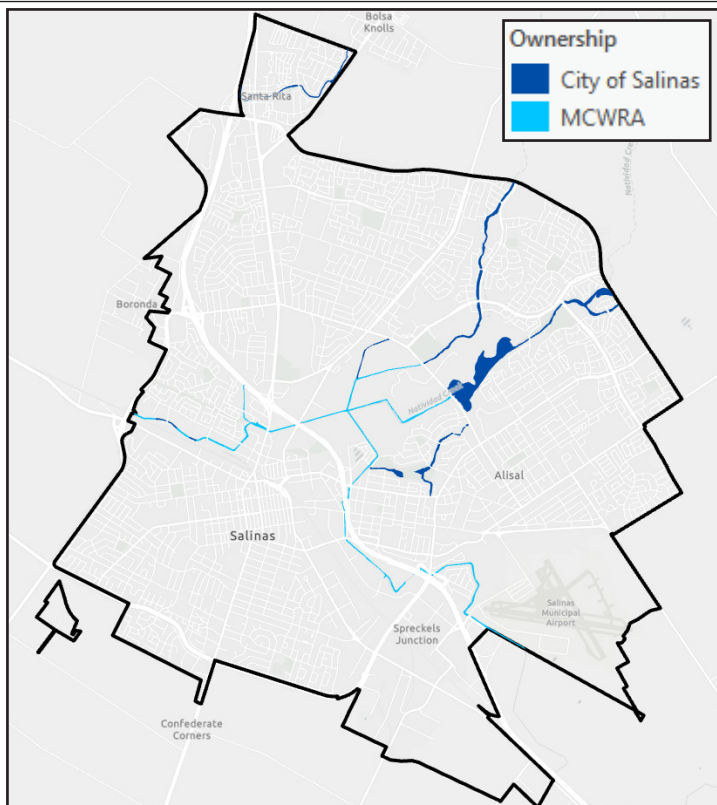
A. Open channel area ownership in the City of Salinas. City of Salinas owns 121 acres (71%), while Monterey County Water Resource Agency owns 49 acres (29%).
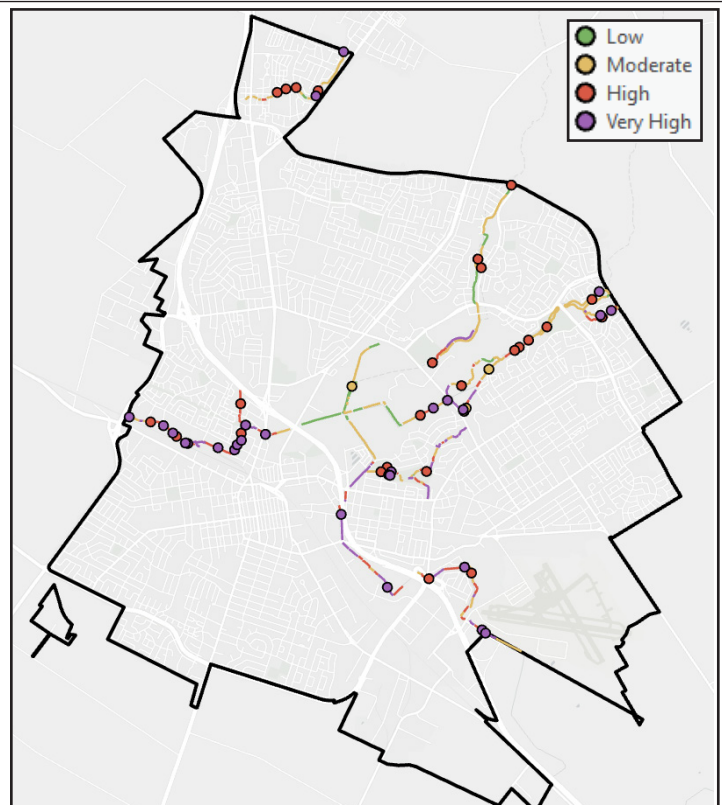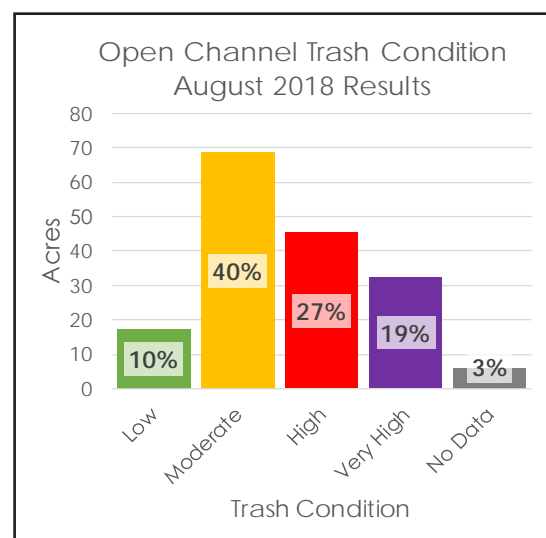
B. Raw data collected August 2018.

Total Open Channel Area =
170 acres
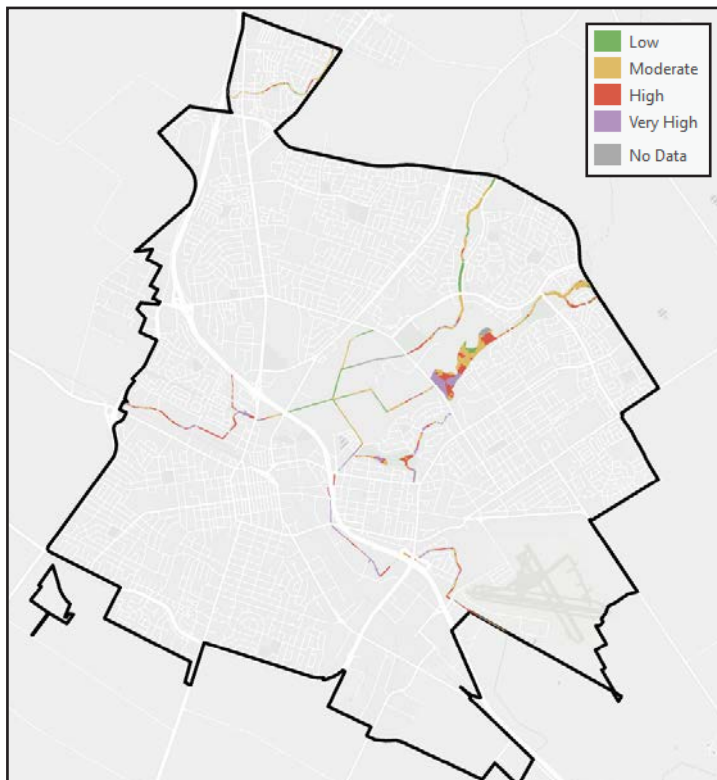
C. Results processed from raw data using 2Nform Trash Module analysis.

D. Open channel acreage distribution by trash condition based on August 2018 results.

The City will perform open channel assessments of all 170 acres of open channel areas each summer and use these data in three specific ways:

1. Inform where the greatest amount of trash is located within open channels to guide coordinated dry season volunteer and staff clean ups. Cleaned areas will be reassessed to document the open channel trash condition at the end of each water year and the cleanup progress achieved from coordinated open channel localized clean-up efforts.

2. Over time the persistence of high trash levels in specific open channel locations will better inform the City where to focus additional resources on reducing riparian homeless encampments, illegal dumping and elevated urban drainage trash loading during stormwater runoff events.

3. If the City's urban litter control strategies are effective, the amount of trash delivered to, and retrained within, the open channels via stormflows should be reduced. Over time the spatial distribution and temporal changes in open channel trash condition can be used to evaluate the overall effectiveness of both the urban and open channel trash control programs. Open channel contributing drainage areas are delineated within 2Nform allowing the ability to investigate the hydrogeographic cause and effect linkage between documented successful urban controls in specific drainages (i.e. increasing treated PLU areas) and the observed open channel trash condition changes.

It is expected that the City will have to remove a lot of legacy litter and debris from the riparian areas in the next few years, but over time, if the City/MCWRA and Caltrans litter control strategies on the urban landscape are effective, the trash condition of the riparian areas should improve. The open channel trash data and results will be integrated into 2Nform in 2019.

2018 Clean Ups

In August 2018, the City inspected all open channels and produced mapped condition results that informed where the City should target cleanups in October 2018 (Figure 14C). Areas were prioritized by accessibility and trash condition severity so that volunteer groups were able to collect as much trash as possible in a safe manner. In the fall of 2018, 47 of volunteers led by various non-profit organizations, such as Save the Whales and Return of the Natives, removed trash and litter from priority locations and repeated the trash visual assessments in the field documenting the cleaned open channel areas. Collectively the group conducted cleanups of approximately 38 open channel acres[8]. The volunteer groups and leaders have been trained to use the 2Nform ZeroTrash mobile trash assessment application to conduct open channel trash assessments after each cleanup event. These groups coordinate clean up events regularly throughout Salinas and are a great source of community trash ground controls as well as documentation of the post-clean up litter free assessment data. As effective urban trash controls are implemented, the level of effort to clean open channels is expected to decrease, allowing a greater coverage of clean ups. It is impractical to clean all open channels each year, but the City's goal is to use volunteer cleanup crews to gain at least a 20% increase in LOW trash areas each year. The annual inspection and clean-up process in open channels will continue to work to achieve this goal.

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[8] Due to safety and accessibility limitations, the volunteer cleanup crews were not able to remove all trash from every area where cleanups were conducted. Over 15 acres were able to be cleaned to a LOW condition.

City of Salinas Trash Reduction Goals; Phase I

Phase I will begin January 1st , 2019, and extend through September 30th, 2021, as outlined in Table 1.

Urban Trash Reduction Progress Goals

The City has set the Phase I progress goal at 60% PLU acres treated (~3,900 acres of 6,536). The City's current efforts (with no additional strategy or implementation) have achieved 28% progress. With the continuation of successful controls, evaluation of existing FCS, coordination with Caltrans, focused implementation in the pilot areas, as well as using City-wide strategies to address illegal dumping and transient encampments, the City expects an additional 32% of progress to be made in Phase I based on the sub-goals outlined below:

Table 4: City of Salinas Phase I Progress Goals for Urban Trash Reduction.

Strategy	Additional Treated PLU Area	Additional Progress
	ac	%
Maintain all existing FCS	306	5%
Inventory Pump Station as FCS	112	2%
Inventory additional existing BMPs as FCS	144	2%
Treat 100% Shopping Mall pilot area	110	2%
Treat 75% Chinatown pilot area	134	2%
Treat 75% Acosta Plaza pilot area	235	4%
Additional progress outside of pilot areas	1,000	15%
Existing Progress (December 15, 2018)	*1,852*	*28%*
TOTAL PHASE I EXPECTED PROGRESS	**3,893**	**60%**

Open Channel Trash Reduction Progress Goals

The 2018 open channel trash condition includes approximately 27 acres (16%) of low trash acres. The City has set a goal to increase this to at least 35% or ~60 acres of trash free open channel area by 2021. With the continuation of successful controls, strategically executed annual volunteer cleanups, removal of legacy litter, and implementation of urban trash controls, the City expects an additional 20% of progress is practical as summarized in Table 5.

Table 5: City of Salinas Phase I Progress Goals for Open Channel Trash Reduction.

Strategy	Additional Treated PLU Area	Additional Progress
	ac	%
Volunteer trash pickups	17	10%
City removal of legacy litter and homeless encampment removal	9	5%
Additional progress from urban trash controls	9	5%
Existing Progress (December 15, 2018)	*27*	*16%*
TOTAL PHASE I EXPECTED PROGRESS	**>60**	**>35%**

Preparation for Phase II of Implementation

Phase I effort will end September 30, 2021. At the end of Phase I of implementation, the City will evaluate the success of trash reduction strategies in each pilot project and within the MS4 as a whole. The City will consider achievement of or progress towards predetermined objectives, and, if necessary, will iteratively adapt the strategies to increase effectiveness.

Phase II priority catchments will be chosen as new pilot areas for the second round of expanded trash reduction strategy implementation. The City of Salinas will determine which successful strategies from Phase I pilot projects may be effective in Phase II priority areas, and will determine how they can best be adapted for successful implementation. Full Capture System opportunities will be considered in the Phase II pilot areas, including potential sites and preliminary planning including needs for feasibility studies, design, and engineering for new or retrofitted FCS', should Plan B be required in Phase II.

Objectives for Phase II will be set based on Phase I progress and assumptions with Phase II strategies and opportunities. The Phase II Implementation Plan will include findings and recommendations from Phase I.

Schedule and Milestones

The City of Salinas Phase Schedule and interim milestones are as follows in the table below. Note that these progress goals may adjust based on progress made in previous phases. The City acknowledges that these goals, although based on informed calculations, may not be achievable in the phase-specific timelines. There will likely be unpredictable road blocks, like funding, as well as unforeseen advantages. As part of the City's adaptive implementation strategy, an additional Implementation Plan update, including any updated schedules and milestones will be drafted and provided to the CCWB for transparency. All progress will be consistently tracked in 2Nform. The City also reserves the right to employ a Phase IV, if necessary, to achieve 100% PLU area treatment no later than December 2, 2030.

Table 6: City of Salinas Trash Reduction Implementation Plan Phase Schedule and Milestones

Phase	Date	Start	End	Urban Trash Reduction Goal (% progress)	Open Channel Trash Reduction Goal (% progress)
Progress as of December 2018				28%	16%
I	January 2, 2019*	1/2/2019	9/30/2021	60%	35%
II	September 1, 2021	10/1/2021	9/30/2024	TBD	TBD
III	September 1, 2024	10/1/2024	9/30/2028	TBD	TBD
IV$^\lozenge$	September 1 2028	10/1/2028	12/2/2030	100%	100%

*Date of Implementation Plan submission to Regional Water Board
◊Phase IV if needed

Glossary

GENERAL

Adaptive Management	Adaptive management is a structured, iterative process of robust decision making in the face of uncertainty, with an aim to reduce uncertainty and improve resource management over time by learning from management outcomes.
MS4 - Municipal Separate Storm Sewer System	Municipal Separate Storm Sewer System (MS4) includes ditches, curbs, gutters, storm sewers, and similar means of collecting or conveying urban derived stormwater runoff that do not connect with a wastewater collection system or treatment plant. An MS4 is typically operated by a public agency such as a city, county, municipal utility district, transportation district, or state or federal agency. MS4s operate under a NPDES stormwater discharge permit to satisfy the water quality requirements of the Clean Water Act.
NPDES – National Pollutant Discharge Elimination System	National Pollutant Discharge Elimination System (NPDES) permit program regulates water pollution through the regulation of municipal and industrial wastewater non-point sources that discharge pollutants into the waters of the US.
Open Channel	The City defines open channels as any surface water conveyance systems that include all receiving waters within the MS4 and their adjacent riparian areas, typically including top of bank.
Receiving Water	The waters to which the MS4 catchments and outfalls drain. The National Hydrography Dataset (NHD) is the recommended layer to define the receiving waters within the MS4. Receiving waters identified in the NHD are developed by and available from the USGS (http://nhd.usgs.gov/).
Urban Catchment	A contiguous planning unit that represents the hydrologic routing of urban lands within the MS4.
Urban Drainage	A hydrologic area comprised of a series of MS4 catchments that drain to one discharge point. A MS4 may have multiple urban drainages draining to a receiving water. Stormwater TELR applies urban drainages to determine routing to a centralized BMP.

2NFORM SOFTWARE

2Nform	A purpose-built stormwater software solution for MS4s to conduct smart inspections, communicate environmental benefits and simplify regulatory compliance. 2Nform is comprised of multiple data collection and management modules that inform the work flow of stormwater managers and supporting staff and summarize annual progress under the MS4 permit in compliant annual reporting formats.
Inventory	The process of locating a structure, landscape feature or project and providing feature-specific information critical to tracking and estimating performance.
Reporting & Planning Module	2Nform's Reporting & Planning Module is a web-based data management, analytics and reporting tool that synthesizes the other module information and assessment results. Users view quantified progress towards compliance milestones in maps, tables and charts, submit annual reports to regulators, and create planning scenarios to compare the benefits associated with future water quality improvement actions.

Structural BMP	Structural BMPs are any structure designed to treat urban stormwater from a known drainage area for a given size design storm. Structural BMPs accept, attenuate, and treat urban stormwater and are implemented to reduce pollutant loads in stormwater by reducing runoff volumes or reducing pollutant concentrations or both. BMP RAM defines 15 distinct structural BMP types categorized by the processes relied upon for water quality improvements and relative treatment capacity.
Structural BMP Module	2Nform's Structural BMP Module is a comprehensive and repeatable field inspection and data management tool to simplify how municipalities inspect, track and report compliance with MS4 permit requirements related to structural BMPs. BMP RAM is a customized repeatable assessment method to rapidly document structural BMP effectiveness and determine maintenance urgency.
Trash Module	2Nform's Trash Module is a comprehensive and repeatable field inspection and data management tool to simplify how municipalities inspect, track and report compliance with urban trash control regulations. Customized repeatable assessment methods allow user to rapidly document the effectiveness of structural and non-structural trash controls as well as identify litter hot spots where additional actions are required.

STRUCTURE FEATURES

Treatment Capacity	Storage capacity (cu-ft) below the bypass outlet, designed for water quality treatment.

TRASH AMENDMENTS

100% Trash Full Capture	The goal of the California State Trash Amendments requires permittees to eliminate trash (5mm or larger) discharges to receiving waters by 2030 from all trash priority land use areas (PLUs). Full trash capture can be achieved through either structural or non-structural trash controls with the MS4 required to collect data and demonstrate progress toward this goal.
California State Trash Amendments or Trash Provisions	On April 7, 2015, the State Water Board adopted an Amendment to the Water Quality Control Plan for Ocean Waters of California (Ocean Plan) to Control Trash and Part 1 Trash Provisions of the Water Quality Control Plan for Inland Surface Waters, Enclosed Bays, and Estuaries of California (ISWEBE Plan). Together, they are collectively referred to as "the Trash Amendments". The Trash Amendments do the following: (1) establish a narrative water quality objective for trash, (2) corresponding applicability, (3) establish a prohibition on the discharge of trash, (4) provide implementation requirements for permitted storm water and other discharges, (5) set a time schedule for compliance, and (6) provide a framework for monitoring and reporting requirements. Following adoption, the Trash Amendments were submitted to both the California Office of Administrative Law (OAL) and the U.S. Environmental Protection Agency (U.S. EPA) for review and approval. The OAL approved the Trash Amendments on December 2, 2015. The U.S.EPA approved the Trash Amendments on January 12, 2016. All California municipal separate storm sewer (MS4) discharge permit holders include requirements to demonstrate compliance with the State Trash Amendments at some stated future date in their respective MS4 permits or supplemental State Water Board orders, generally within the next decade.
Track 2	Permittees intend to eliminate urban litter discharge to local receiving waters by treating all trash priority land use (PLU) areas using a combination of structural (trash full capture system; FCS) and non-structural controls such as effective street sweeping programs, community clean-ups, litter prevention campaigns, etc. Track 2 permittees require a method to demonstrate and report areas treated by non-structural controls are indeed effective (i.e., trash full capture system equivalency; FCSE).
Trash Full Capture	Demonstration that an urban area is not a source of trash to stormwater entrainment and delivery to receiving waters. This can be achieved either through treatment by a functioning trash full capture system (FCS) or demonstration of no litter accumulation susceptible to stormwater transport should a rain event occur (termed trash full capture system equivalency; FCSE).

Trash Full Capture System (FCS)	A trash full capture system (FCS) is a treatment control that traps all particles 5 mm or greater and can treat the 1yr, 1hr storm event.
	The Water Board maintains a list of approved trash full capture systems found here: https://www.waterboards.ca.gov/water_issues/programs/stormwater/docs/trash_implementation/a1_certified_fcd_rev_27jun18.pdf
Trash Full Capture System Equivalency (FCSE)	Full trash capture system equivalency (FCSE) is demonstrated using repeated visual trash assessments where the results indicate the area is litter free with statistical certainty equal to or above the threshold defined by the user.
Trash Priority Land Use (PLU)	Urban trash priority land uses (PLU) are defined as urban locations that are at high risk for trash generation. Permittees define these areas based on state guidance, local knowledge, and visual assessments of trash accumulation.

2NFORM TRASH MODULE

In Progress PLU Area	During a reporting year, trash priority land use (PLU) areas are "In Progress" at achieving trash full capture if:
	• treated by a FCS where maintenance is required, or an assessment is past due
	OR
	• low litter but the statistical certainty is below the user defined threshold. In this instance, additional assessments are recommended and may boost statistical certainty.
	When the permittee locks its annual records, any PLU areas that remain "in progress" are not included in the quantification of annual progress.
Treated PLU Area	A treated priority land use (PLU) area has achieved trash full capture by either:
	• Existing within the treated drainage area of a functional FCS, or
	• Average trash condition is low litter with an associated certainty that equals or exceeds the user defined certainty threshold.
	When the permittee locks its annual records, the current treated PLU is equal to annual progress.

TRASH FULL CAPTURE SYSTEMS (FCS)

FCS Assessment	A comprehensive and repeatable field observation methodology to simplify how municipalities inventory, assess effectiveness, and determine maintenance intervals of structural Full Trash Capture Systems (FCS). The standardized 0-5 scoring and mapped results are used to simply communicate the relative effectiveness of any FCS. The area draining to an FCS has achieved full trash capture if the FCS score is > 2.0 (i.e. functional).
FCS Assessment Interval	The user-defined interval (in months) at which an FCS should be inspected. The FCS assessment interval is tracked in 2Nform and used to alert municipal staff when specific FCS assessments are due.
FCS Drainage Area	The FCS drainage area is the total area that drains to a trash full capture system (FCS). Users delineate the treated drainage area when the FCS is inventoried through the selection of polygons that drain to the FCS, and this selection should be field verified during final inspections when the FCS is installed or constructed.

FCS Type	A full trash capture system must capture and retain material contained in stormwater flows up to the 1yr/1hr storm for material 5mm and larger. The types are defined based on structural configuration and the hydraulics relied upon to capture trash. There are fourteen distinct types of structural full trash capture systems, belonging to one of two groups: multi-benefit treatment systems or trash treatment control devices.
Functional FCS	A FCS with a current FCS score > 2.0, indicating it is effectively treating its respective treated drainage area for the 1yr, 1hr storm for mater ≥ 5mm.

TRASH VISUAL ASSESSMENTS

Low Litter	Based on available visual trash assessment data and associated results, an area may be determined to be low litter or essentially devoid of mobile trash. 2Nform assertions of low litter areas include a measure of statistical certainty based on the available dataset. There may be a few small pieces of trash in the area, but they are not obvious at first glance.
Trash Condition	Trash condition represents the litter density expressed as one of four categories: low, moderate, high or very high. Visual trash assessments determine trash condition at time of observation and 2Nform analytics predict the likely trash condition based on the available visual trash assessment dataset.
Trash Condition Certainty	Trash condition certainty is the statistical certainty of the expected trash condition based on the available data. Certainty is influenced by the number of observations available and variability of the results.
Urban Trash Assessment	A repeatable field observation methodology to assess trash condition within the urban landscape. Urban trash assessments can be performed along routes traveled via car, bike or walking or at specific locations representing approximately 1,000 ft^2.
Stream Trash Assessment	A repeatable field observation methodology to assess trash condition within along a stream or open channel. Stream trash assessments can be performed along walking routes or at specific locations representing approximately 1,000 ft^2.

Appendix A. Trash Tracking and Reporting Methods

2NFORM Trash Module

Technical Document v1.0 - October 2018

2NDNATURE

2Nform Trash Module
Technical Document v1.0

www.2Nform.com

October 2018

Technical elements developed by:

Recommended citation:

2NDNATURE 2018. 2Nform Trash Module Technical Document v1.0. October 2018.

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Background

The 2Nform Trash Module v1 was collectively vetted with a selection of municipal stormwater managers and their regulatory representatives at the Central Coast Water Board to identify priority technical and data management refinements to better balance municipal workflow needs and information required to evaluate regulatory compliance. The 2Nform Trash Module technical approach and data management platform will continually be improved and maintained to meet the needs of stormwater managers, funders, regulators and the community, within the concise mission defined for the tool. User feedback is encouraged to ensure useful and feasible Trash Module improvements are identified toward a simple, practical and user-friendly tool, fully integrated with the 2NFORM Stormwater Software Suite. We thank the following municipalities for their continued testing and feedback as their staff uses the 2Nform Trash Module to report and plan their stormwater improvement programs. The information is invaluable.

City of Capitola	City of Paso Robles
City of Carmel-by-the-Sea	City of Pismo Beach
City of Del Rey Oaks	City of Salinas
City of Gilroy	City of Sand City
City of Gonzales	City of Santa Cruz
City of Hollister	City of Scotts Valley
City of King	City of Seaside
City of Lompoc	City of Soledad
City of Monterey	City of Watsonville
City of Morgan Hill	County of Monterey
City of Morro Bay	County of Santa Cruz
City of Pacific Grove	MRSWMP

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1 EXECUTIVE SUMMARY

This document overviews the methods to track and report progress with Trash Amendments to the Water Quality Control Plan for Ocean Waters (Ocean Plan) and the Water Quality Control Plan for Inland Surface Waters, Enclosed Bays, and Estuaries (ISWEBE Plan) using the [2Nform](#) Trash Module. The purpose of the Trash Amendments is to reduce trash entering California receiving waters to protect aquatic life and public health beneficial uses, and reduce environmental impacts associated with trash. Municipalities are expected to achieve 100% reduction within 10 years of their respective effective date and no later than 2030.

The 2Nform Trash Module provides municipalities a comprehensive monitoring, tracking, evaluation and reporting system to simplify compliance with the Trash Amendments for both Track 1 (installation of structural full trash capture systems (FCS)) and Track 2 (combined institutional controls and full capture systems (FCS)). The 2Nform Trash Module turns data into actionable information with integration of efficient data capture, documentation, and location-specific effectiveness tracking of structural and non-structural trash control strategies. Municipal progress is quantified as acres of trash priority land use (PLU) area where effective trash controls can be verified by field-based rapid assessment methods. Municipal progress is easily communicated via interactive maps and graphs that synthesize the data collected to illustrate spatial and temporal patterns of urban litter throughout a city. Several outputs from the 2Nform Trash Module directly inform development of municipal Trash Implementation Plans and adaptation of their strategic trash control plans over time. Extensive user guidance and support of the standardized field methods and software system are available to 2Nform users. Annual submission of read-only access to municipal records, results and summaries can be granted to the respective regulatory authority at the click of a button.

General user workflow in 2Nform Trash Module:

1. The municipal starting point, or trash baseline, is the mapped acres of designated PLU area that includes both parcels and roads. Municipal progress is quantified in acres where effective treatment of PLU areas is demonstrated. Full compliance with the Trash Amendments is achieved when 100% of the municipal PLU area have been effectively treated. PLU area can be treated either by the implementation and maintenance of a functional structural trash full capture system (FCS) or through repeated visual assessments with high certainty that areas are likely litter free and meet Full Trash Capture System Equivalency (FCSE). The 2Nform Trash Module combines the results of FCS and FCSE to track total areas "Treated" by either method.

2. Locations, types and drainage areas of existing FCSs that meet the State Water Board definitions are inventoried. Rapid field assessments are conducted on regular intervals as defined by the user to inspect and verify FCS function. PLU areas treated by a functioning FCS are mapped and the area is allocated as progress towards 100% PLU treated goal.

3. If the municipality employs various programmatic or institutional trash controls, regular visual trash assessments are performed to assess the trash condition to demonstrate FCSE. When the municipality can assert the likely trash condition of a PLU area is LOW trash (i.e., devoid of litter) above a user-defined level of certainty, the area is allocated as progress towards 100% PLU treated.

4. At any time, the municipality can evaluate its progress towards meeting the Trash Amendment goal of treating 100% of its PLU areas. At the end of the reporting year, the municipality locks their results and grants read-only access to their respective regulator.

2 PURPOSE

The **California State Trash Amendments** [1] (2015) prohibit the discharge of trash larger than 5 millimeters to state waters from stormwater systems. All California **Municipal Separate Storm Sewer Systems (MS4)** discharge permit holders include requirements to demonstrate compliance with the State Trash Amendments at some future date stated in their respective MS4 permits or supplemental State Water Board orders. While specific deadlines vary, all CA MS4 permittees must meet this goal within 10 years of the effective permit data and no later than 2030.

Several MS4 permittees across the State subscribe to 2Nform stormwater software suite to simplify compliance with their MS4 permit requirements. 2Nform (www.2Nform.com) is a geospatial stormwater data management and reporting system purpose-built to aid municipalities in conducting inspections, planning and managing stormwater assets, implementing effective programs and providing annual reports to their respective regulatory agency.

The 2Nform Trash Module has been created for direct use by MS4 permittees to efficiently and effectively plan, implement, track and report compliance with the CA Trash Amendments. The 2Nform Trash Module can be used to support MS4s who elect to meet the Trash Amendment requirements by either **Track 1** or **Track 2**. This document outlines the approach, methods and reporting formats by which progress achieved by either functional **full trash capture systems (FCS)** and **full trash capture system equivalency (FCSE)** will be tracked and reported on an annual basis.

3 APPROACH

The 2Nform approach and guiding principles for municipalities to demonstrate compliance with the Trash Amendments are consistent with all tools across the platform. Data collection is made as efficient as possible with mobile apps and cloud-based storage that maintains transparency with detailed documentation of all data processing steps. The algorithms used to quantify compliance and calculate statistics from spatial data are built to be as simple as possible and to generate meaningful outputs for all potential users of the results. The Trash Module embraces an intuitive map-centered design to improve user-experience and keep the spatial location front and center for effective implementation of trash control strategies and other related programmatic questions.

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[1] First instance of terms defined in the Glossary are **bolded**.

The following steps outline the process of using the 2Nform Trash Module:

1. Delineate **trash priority land use (PLU)** areas that define the trash prone areas within the MS4 boundary where trash reductions will be focused.
2. Collect field data throughout the city to refine PLUs, establish baseline trash generation levels, and inform development of a Trash Implementation Plan.
3. Implement structural and/or non-structural controls.
4. Collect field data to assess the effectiveness of trash management actions of specific PLU areas that include both structural and non-structural controls.
5. Standardized analyses and decision rules identify where treatment of PLU areas has been achieved.
6. Communicate annual results to regulator.

> Municipal progress toward **100% Full Trash Capture** is measured in acres of MS4 PLU area treated at any point in time.

MS4 records in 2Nform are location specific, and relevant data is efficiently collected to document municipal progress towards reducing urban trash loading to local receiving waters. All data collected in the field using the 2Nform mobile applications is stored in the cloud-based 2Nform geodatabase and is immediately accessible within the permittees' 2Nform account. Municipal users can add, edit and delete data within their account throughout the current reporting year. Once the permittee locks annual records for submission to the regulator, the user data cannot be modified. Authorized regulators have read-only access to locked and submitted permittee records.

Below we summarize the data and information that can be compiled by a permittee and how that data is managed, analyzed and presented to the regulator via the 2Nform Trash Module. Detailed 2Nform Trash Module technical documentation, user guidance and customer support are available to all users and not the intent of this document.

TRASH PRIORITY LAND USE AREAS

Through the process defined by CA State Water Board, MS4 permittees are expected to identify and map areas within their jurisdiction prone to trash generation (e.g., trash PLU maps). Various methods to identify these areas include, but are not limited to, designation of specific trash prone land use types by the State (e.g., certain industrial, commercial, high density residential, etc.), local knowledge of litter hot spots and results of visual trash assessment surveys.

Each MS4 permittee is required to submit their PLU map to the regulatory agency denoting what areas are prone to trash generation. 2Nform subscribers provide their maps to 2NDNATURE with priority parcels indicated. All priority parcels are buffered to include the adjacent roads within a 300 ft radius. The MS4-specific PLU map is uploaded to the municipal 2Nform account and the total acreage of the PLU area is calculated (Figure 1).
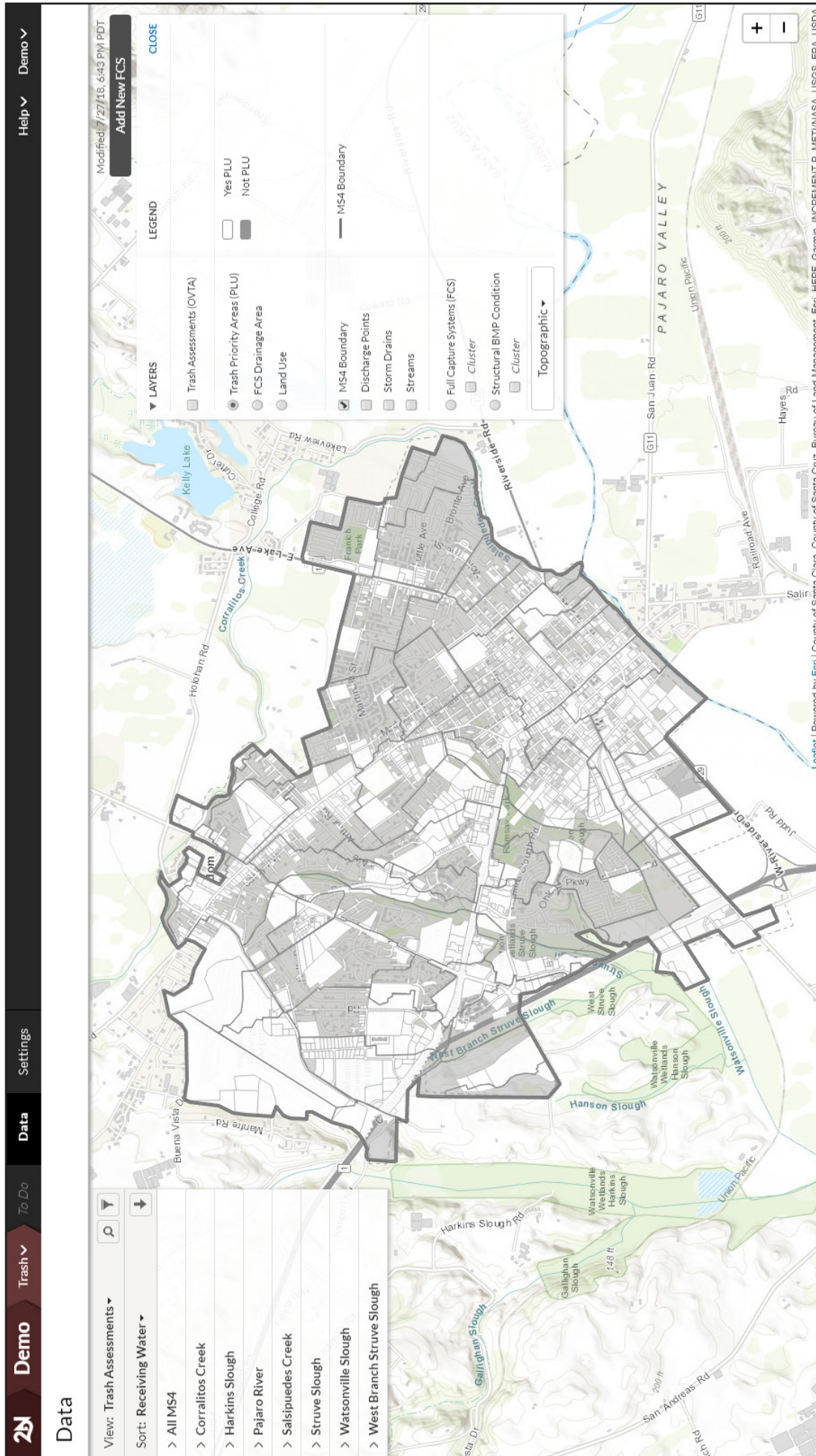
Trash Priority Areas (PLU) shown in the 2Nform Trash Module.

TOTAL PLU = 2,370 ACRES

2NFORM MAP OF TRASH PRIORITY LAND USE AREAS (PLU)

FIGURE 1

DATA COLLECTION AND MANAGEMENT

2Nform Trash Module users collect and manage data relevant to FCS and FCSE with data stored in the cloud making them readily accessible from the field or desktop.

FULL TRASH CAPTURE SYSTEMS

Permittees use spatial tools within the 2Nform Trash Module to generate, maintain and report information for any FCS located within their permitted area. For both Track 1 and Track 2 permittees, the following attributes are captured.

- Location, installation date, **FCS drainage area** and associated PLU area, type, justification and documentation of meeting State FCS definition.
- Assessment records documenting FCS is maintained in a functional condition.

FCS INVENTORY

FCS **inventory** in 2Nform includes the user identified location and unique ID (Figure 2A, 2B). When users locate FCS units using the 2Nform field apps or desktop mapping, the Trash Module automatically records APN, **urban catchment**, MS4 and other relevant location information. This process connects FCSs with all relevant urban hydrographic and land use information already in the 2Nform system.

FCS DRAINAGE AREA

Users define the FCS drainage area via the selection of polygons draining to the FCS (Figure 2C). Drainage area delineation should be conducted or verified in the field using the mobile application to ensure the most accurate data. The geospatial platform records total drainage acreage and total PLU acreage based on selection.

FCS TYPE AND JUSTIFICATION

For each FCS, the user completes a standard form to document and justify that the structure qualifies per the State Water Board criteria (Figure 3). FCS types are consistent with State Board definitions, where **multi-benefit treatment systems** and **trash treatment control devices** are further defined using the 2Nform **BMP RAM structural BMP** typology (2NDNATURE 2018a). The FCS specific information and documentation is stored and readily available.

FCS CONDITION ASSESSMENT

Users are required to enter a **FCS assessment interval** (see Figure 3). The interval informs the permittees 'Trash /To Do List' to assist with planning **FCS assessments** (Figure 4A). FCS assessments are conducted by field personnel using the 2Nform Trash Module standardized FCS data entry forms tailored to **FCS exposure** and the presence of a 5mm spaced **visible screen** (Table 1). Trash RAM **field observations** are easy to conduct, and user protocols are well defined to ensure the generation of consistent **FCS condition** results across multiple field personnel observing the same FCS (Figure 4B).
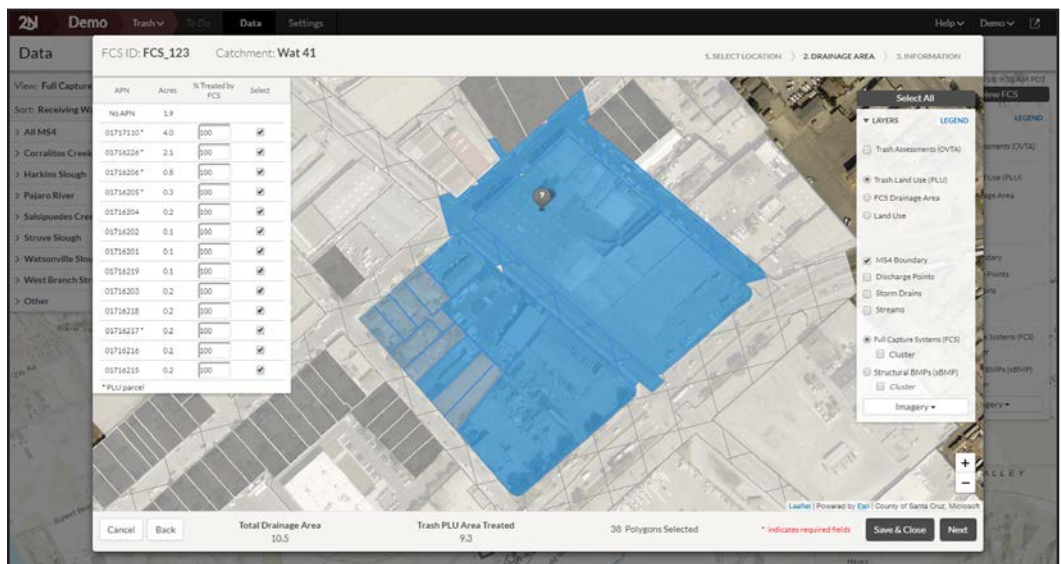
A. Add a new trash full capture system in the 2Nform trash module.
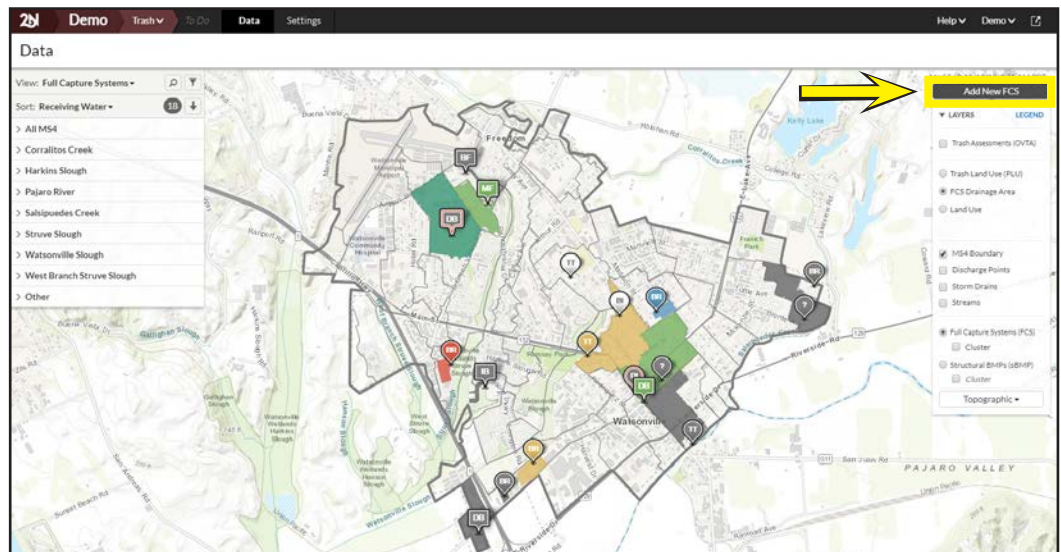
B. User enters unique FCS ID and after selecting FCS location, the geospatial platform will automatically record APN, urban catchment, MS4 and other relevant location information.
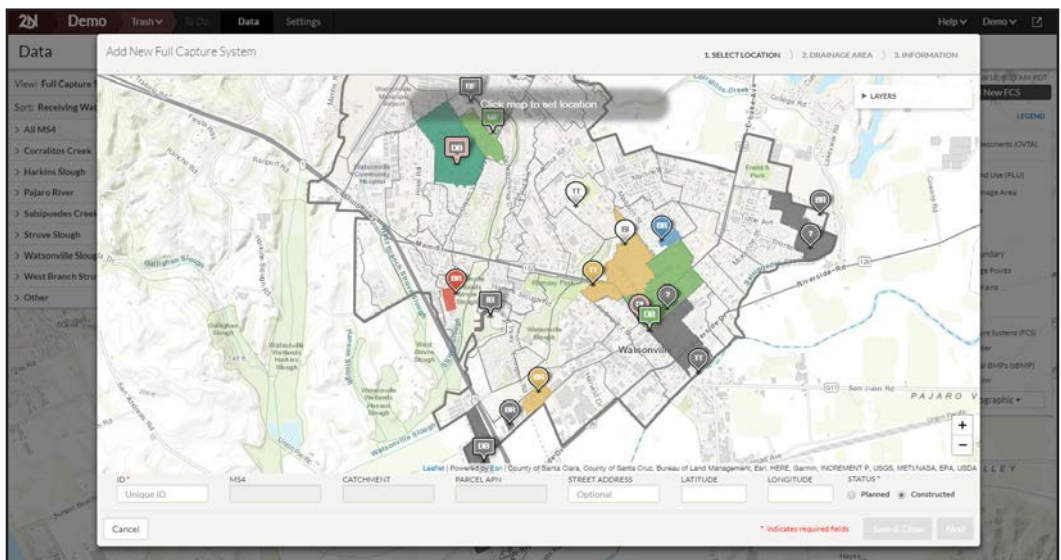
C. User delineates FCS drainage area by selecting polygons that are treated by the FCS. User can specify the percent of individual parcels that are treated (if less than 100%), and the platform automatically calculates total area treated and priority area treated by the inventoried FCS.

Full capture system inventory data entry form in the 2Nform trash module.

Trash full capture system (FCS) typology is consistent with State Water Board definitions and BMP RAM structural BMP types (2NDNATURE 2018).

A. Full capture system customized to-do
list to assist permittees work flow.

B. FCS assessment form for an open air
system with a visible 5mm screen.

Assessments Due

TIME SINCE LAST INSPECTION EXCEEDS THE ASSESSMENT
FREQUENCY INPUT BY USER OR FCS HAS NEVER BEEN ASSESSED.

Needs Maintenance

ASSESSMENTS INDICATE THE FCS IS NOT FUNCTIONING
(RED; FCS SCORE <2.0) OR NEEDS MAINTENANCE (YELLOW;
FCS SCORE < 3.0).

Needs More Information

THE INVENTORY STEP HAS NOT BEEN COMPLETED. REQUIRED
FIELDS ARE MISSING.

C. Mapped full capture systems icon definitions.

DESIGNED BY

Observations are recorded using GPS-enabled mobile devices to ensure the observation records are immediately saved to the 2Nform geodatabase. Results are mapped using standardized icons with icons that required user action identified in Figure 4C.

Table 1. FCS observation(s) based on system accessibility and presence of visible 5mm screen.

FCS Exposure	Visible 5mm Screen	Field Observations
Open	Yes	Screen Clog Screen Damage Pieces of Trash Trash Volume & Mobility
Open	No	Pieces of Trash Trash Volume & Mobility
Closed	Yes	Screen Clog Screen Damage Percent Full
Closed	No	Percent Full

TRASH FULL CAPTURE SYSTEM EQUIVALENCY

Per the Trash Amendments, if Track 2 permitees can demonstrate that PLU areas have been successfully treated by non-structural solutions such as litter control programs, effective street sweeping, community clean ups, etc., thereby asserting the area is likely devoid of litter, the permittee will can claim FCSE achievement.

Permittees use 2Nform Trash Module to generate, maintain and report the following information to demonstrate achievement of FCSE within their permitted area.

- Raw visual trash assessment records
- FCSE results, based on the analysis of visual trash assessment data within PLU areas

VISUAL TRASH ASSESSMENTS

2Nform visual trash assessment methods align with the On-Land Visual Trash Assessment (OVTA) developed in the San Francisco Bay Area (EOA, Inc., 2016, 2017) by adopting the same four distinct categories to quantify trash density (volume/area) (Figure 5). However, the 2Nform Trash Module differs in terms of the recommended sampling design, use of mobile data collection apps, comprehensive geospatial data management, and advanced data analytics. The 2Nform mobile trash app allows users to track visual trash assessments as they walk, bike or drive throughout their assessment area or drop visual assessment points to demark the relative amount of trash in a defined 1,000 ft^2 area. The increased efficiency of the 2Nform mobile applications allows for greater spatial and temporal assessment coverage. 2NDNATURE therefore encourages users to collect as many "rounds" of data as possible, distributing their data collection efforts throughout the year to collect representative data and increase certainty.

All data collected using the 2Nform mobile trash app is immediately available within the users' 2Nform account.

Table 1. Definitions of trash levels defined by the On-land Visual Trash Assessment protocol.

Trash Level	Definition
A Not Littered	• Effectively no trash is observed in the assessment area. • There may be some trash in the area, but it is not obvious at first glance. • One individual could easily clean up all the trash observed while walking at normal pace. • No additional trash reduction measures are needed in the assessment area.
B Slightly Littered	• Predominantly free of trash, except for a few littered areas. • Some trash is noticeable at first glance. • The trash observed could be collected by one or two individuals, but would require walking at a slower than normal pace. • Additional trash reduction measures are needed in the assessment area.
C Littered	• Predominantly littered, except for a few clean areas. • Trash is widely/evenly distributed and/or small accumulations are noticeable on the streets and sidewalks. • It would take multiple people to remove all trash from the area, frequently requiring individuals to stop walking to remove the trash. • Roughly 4 times as much trash as a "B" level.
D Very Littered	• Trash is continuously seen throughout the assessment area and there is a strong impression of lack of concern for litter. • Large piles of trash may be observed. • It would take a large number of people during an organized effort to remove all trash from the area, consistently requiring individuals to stop to remove the trash. • Roughly 3 times as much trash as a "C" level.

A. EOA defined OVTA scoring categories and visual assessment description (EOA, Inc., 2017).

Table 1.1. Trash generation categories and associated "best/midpoint" rates and ranges (gallons/acre yr^{-1}).

Category	Low	Moderate	High	Very High
Trash Generation Rate (gallons/acre yr^{-1})	2.5 (0-5)	7.5 (5-10)	30 (10-50)	100 (50-150)

B. EOA defined trash generation categories and corresponding midpoints and ranges (EOA, Inc., 2016).

C. EOA photo examples of OVTA scoring categories (EOA, Inc., 2017).

DATA ANALYSIS

FCS CONDITION

The FCS assessment results are used in the context of the FCS type and specifications to generate a consistent determination of relative FCS condition. FCS condition is expressed as a 0.0 to 5.0 (±0.1) **FCS score** for each observation with 5.0 indicating the desired condition for each specific FCS. The FCS assessment scoring rubric is detailed below in Table 2. An FCS with a RAM score ≤ 2.0 is assumed to no longer meet the State definition of full trash capture and requires maintenance to restore its condition and associated trash capture performance (see Figure 4).

> A **functional FCS** has a current FCS score >2.0 and is effectively treating its respective drainage area for the 1yr/1hr storm for material ≥ 5mm. A non-functional FCS has a current FCS score ≤ 2.0 (Table 2).

Table 2. FCS score relative to FCS condition and relative maintenance urgency.

FCS Score	Condition	Maintenance Urgency	Description
0.0 - 1.0	Failure	REQUIRED	Little to no downgradient trash reduction. Downgradient water quality may be adversely affected due to failure of FCS function. Maintenance required immediately.
>1.0 - 2.0	Below acceptable		FCS trash reduction potential is below acceptable condition. Maintenance is required prior to next runoff event.
>2.0 - <3.0	Fair	MODERATE	Acceptable downgradient trash reduction, but FCS condition is closer to failure than desired condition. Perform maintenance if time and resources permit.
3.0 - <4.0	Acceptable	LOW	Acceptable downgradient trash reduction. No immediate maintenance recommended.
4.0 - 5.0	Desired	NONE	FCS providing desired trash reduction. No maintenance actions needed.

TRASH FULL CAPTURE SYSTEM EQUIVALENCY

The raw urban trash assessment dataset is systematically analyzed to produce a likely trash condition and associated statistical **trash condition certainty** for all PLU areas. To achieve trash full capture system equivalency (FCSE), PLU areas must have an average condition of LOW trash for observations collected during the year under consideration (Figure 5) with an associated certainty above the user-defined acceptable threshold. The 2Nform data analysis process is as follows:

Spatial processing (automated in 2Nform):

1. Spatially weighted average trash condition is calculated for all **Landsat ARD grid cells** within the MS4 boundary on monthly time steps for data collected as both points and lines. The Landsat ARD grid cells are utilized as a practical solution to (1) create uniform spatial scales for more precise

calculations and (2) retain data collected on non-parcel MS4 right of ways. Monthly time steps are enforced to reduce temporal autocorrelation and to encourage users to distribute their "rounds" of data collection efforts throughout the year.

2. Nearest neighbor interpolation is used to fill adjacent grid cells within a 105m radius.
3. Grid cell values are applied to the MS4 parcel scale by calculating spatially weighted trash condition of grid cells within each parcel boundary. Parcel-specific data is included in the spatial weighting calculations. Non-parcel MS4 right of ways remain on the grid scale so that all areas of the MS4 are accounted for.

Temporal processing (automated in 2Nform):

1. Average annual trash condition is calculated for all permitted areas (both parcels and MS4 right of way grid cells) for each month of record (Figure 6). *Note that unsampled areas beyond the spatial extrapolation extent are indicated as no data.*
2. Statistical certainty of the current average condition is calculated for each area, based on the number of observations and trash condition variability during the preceding two reporting years (Figure 7). Certainty is quantified in a Bayesian statistical framework using site-specific data to define variance and number of observations. *Note that unsampled areas are indicated as no data.*

TRASH CONDITION CERTAINTY THRESHOLD

Track 2 permittees define a trash condition certainty threshold by which they will determine areas have achieved FCSE (Figure 8). The permittee's existing visual trash assessment dataset and the designated certainty threshold selected will determine if an area with an average trash condition of LOW litter has achieved full trash capture equivalency (i.e., calculated statistical certainty meets or exceeds defined certainty threshold).

> **Trash full capture system equivalency** is defined as any area where the average condition is LOW litter for the year under consideration with statistical certainty equal to or above the certainty threshold defined by the user. *Permittees should confirm their selected certainty threshold with their respective regulator prior to locking and submitting annual 2Nform records.*

4 QUANTIFYING TRASH REDUCTION PROGRESS

The goal defined in the CA State Trash Amendments is for MS4 permittees to achieve full compliance with the urban trash discharge prohibitions to local receiving waters no later than 2030 (SWRCB, 2015). Using 2Nform to support their planning, tracking and reporting, the trash reduction goal for each permittee is demonstrated achievement of full trash capture of all areas indicated in their respective PLU map (see Figure 1) by either structural or non-structural controls. Any road or parcel area asserted to have achieved full trash capture has supporting assessment data stored and easily viewable within the users 2Nform account by both the permittee and regulator upon municipal submission.

> **Track 1** permittees will rely solely upon the installation and maintenance of FCS to achieve their 100% trash reduction goal.
>
> **Track 2** permittees will achieve full trash capture by combined implementation of effective structural and non-structural trash controls.
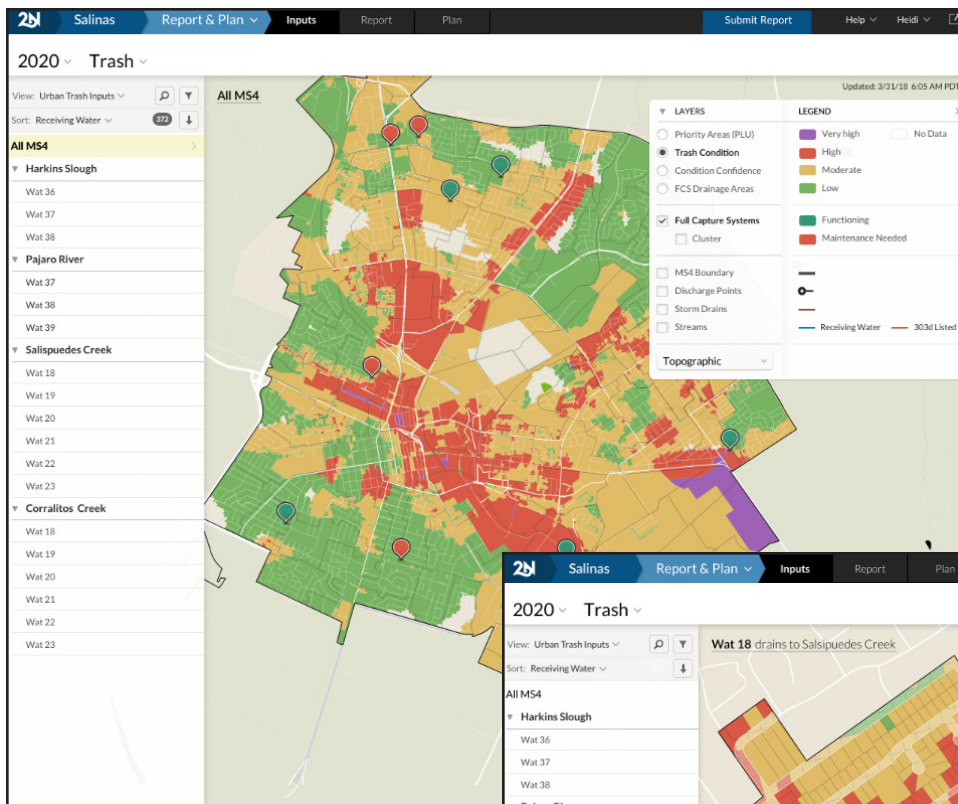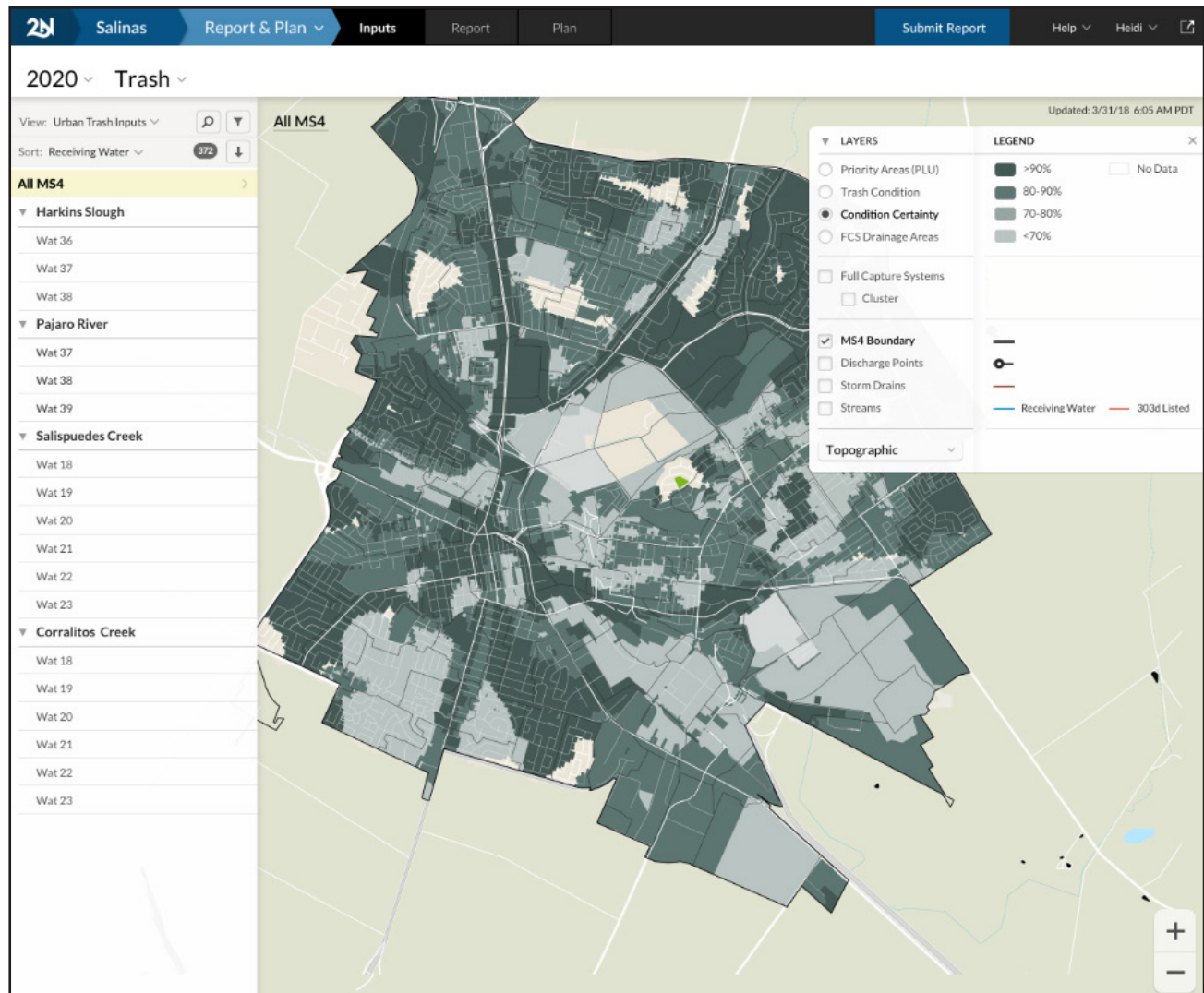
All MS4 trash condition. As new visual assessment data is collected, trash condition results update automatically in 2Nform.

Catchment trash condition. Each polygon's trash condition history is stored and available in 2Nform.
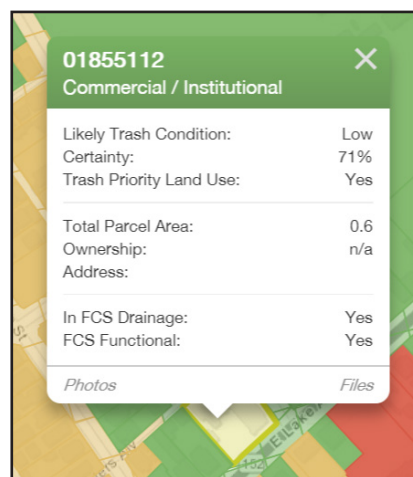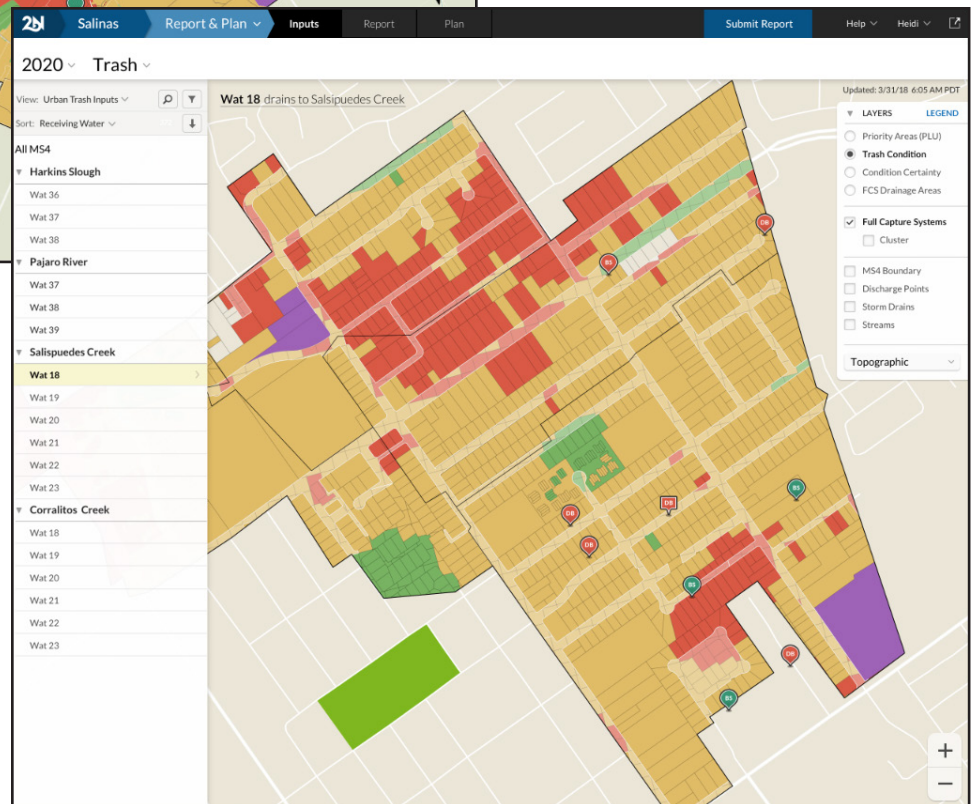
Polygon popup from trash condition inputs map. Popup includes APN, land use, likely trash condition, certainty, PLU designation and acreage.

All MS4 trash condition certainty. As new visual assessment data is collected, trash condition certainty results update automatically in 2Nform.
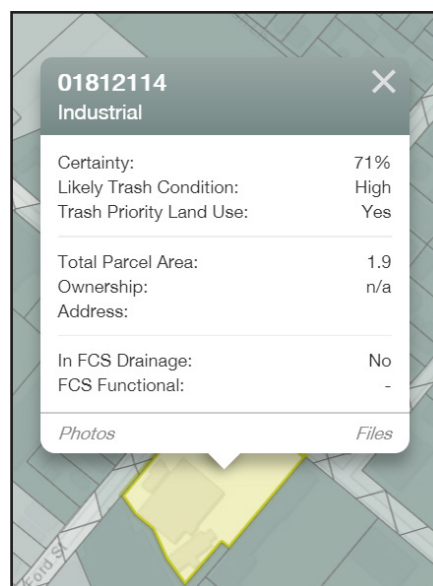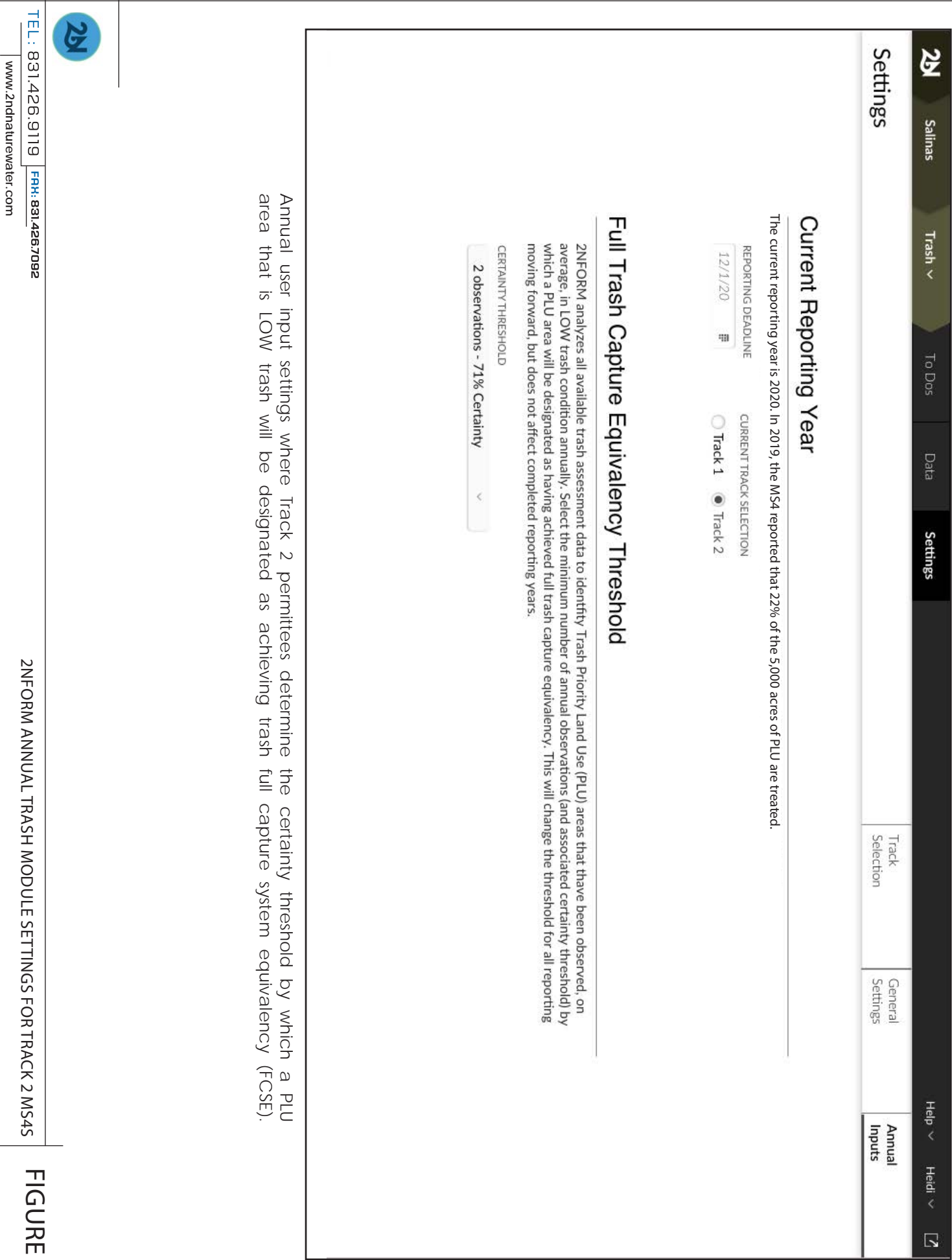

Polygon popup from trash condition certainty map. Popup includes APN, land use, likely trash condition, certainty, PLU designation and acreage.

Settings

Current Reporting Year

The current reporting year is 2020. In 2019, the MS4 reported that 22% of the 5,000 acres of PLU are treated.

REPORTING DEADLINE

| 12/1/20 | 🗓 |

CURRENT TRACK SELECTION

○ Track 1   ● Track 2

Full Trash Capture Equivalency Threshold

2NFORM analyzes all available trash assessment data to identify Trash Priority Land Use (PLU) areas that thave been observed, on average, in LOW trash condition annually. Select the minimum number of annual observations (and associated certainty threshold) by which a PLU area will be designated as having achieved full trash capture equivalency. This will change the threshold for all reporting moving forward, but does not affect completed reporting years.

CERTAINTY THRESHOLD

| 2 observations - 71% Certainty | ∨ |

Annual user input settings where Track 2 permittees determine the certainty threshold by which a PLU area that is LOW trash will be designated as achieving trash full capture system equivalency (FCSE).

As desired, permittees may document and track interim milestones and full trash capture achievement targets (% treated by specific years) within 2Nform as part of their trash implementation plan.

BASELINE

The starting value from which trash control progress will be measured is the total parcel and road acreage as defined in the permittee trash priority land use (PLU) area map (see Figure 1). Permittees may upload refined PLU maps that add trash priority acres to their baseline acreage. All tracking of progress will be conducted according to the most recent baseline designation.

FULL TRASH CAPTURE

Based on available data, each PLU area is determined to be in 1 of 3 states relative to the threat of trash delivery to the downstream receiving waters (Table 3):
- Treated
- In Progress
- Untreated

TREATED PLU

A **treated PLU** area has achieved full trash capture by either existing within the drainage area of a functional FCS or the average trash condition being assessed as with a statistical certainty equal to or in exceedance of the user-defined certainty threshold. Municipal progress toward achieving **100% trash full capture** is measured as the % of PLU treated.

All treated PLU areas are automatically designated as in progress at the beginning of the next reporting year. At least one observation is needed to ensure the LOW trash condition average is maintained.

Table 3. *Decision rules for determining if a PLU area has achieved full trash capture (i.e. treated), is in progress, or is untreated. The certainty threshold is set manually by the user.*

		Full Trash Capture System Equivalency (visual trash assessment results)		
		LOW litter certainty ≥ threshold	**LOW litter** certainty < threshold	**Not LOW**
Full Trash Capture System (FCS)	Functioning	**Treated**	**Treated**	**Treated**
	Not functioning, Assessment due	**Treated**	In Progress	In Progress
	Not in FCS drainage	**Treated**	In Progress	Untreated

IN PROGRESS PLU

During the current reporting year, PLU areas in progress toward full trash capture achievement are tracked. **In progress PLU** areas either (1) exist within the drainage area of an FCS that is not functioning, OR (2) the area is not draining to an FCS and average trash condition is LOW but the statistical certainty is below the user-defined certainty threshold.

In progress PLU areas are defined during the current reporting year to assist permittees in identifying PLU areas that can achieve full trash capture with the least amount of effort. When the permittee locks their annual records, any in progress PLU areas are not included in the total treated PLU area, or % progress for the respective reporting year.

FULL CAPTURE SYSTEMS

Trash priority land use areas within the drainage area of an existing FCS are deemed in progress if:

- The FCS inventory step is not complete.
- An FCS assessment is due.
- The most recent FCS score ≤ 2.0.

The user's 2Nform Trash To Do list identifies any FCS units with the above issues (see Figure 4). Once the issue has been addressed and the FCS is reassessed and shown to be functional, the associated PLU areas within the FCS drainage will be designated as treated.

### *FULL CAPTURE SYSTEM EQUIVALENCY*

During the current reporting year, areas that are *not* draining to an FCS are designated in progress if they have an average trash condition of LOW but an associated statistical certainty below the user-defined threshold. LOW trash areas that are in progress will be included in the user's Trash To Do list (Figure 9). Additional assessments that support the LOW trash designation will increase the statistical certainty of the average trash condition and once the certainty exceeds the user defined threshold, the area will be designated as treated.

UNTREATED PLU

A PLU area is untreated if it is not located in an FCS drainage area and does not have visual assessment data to suggest it is low litter.
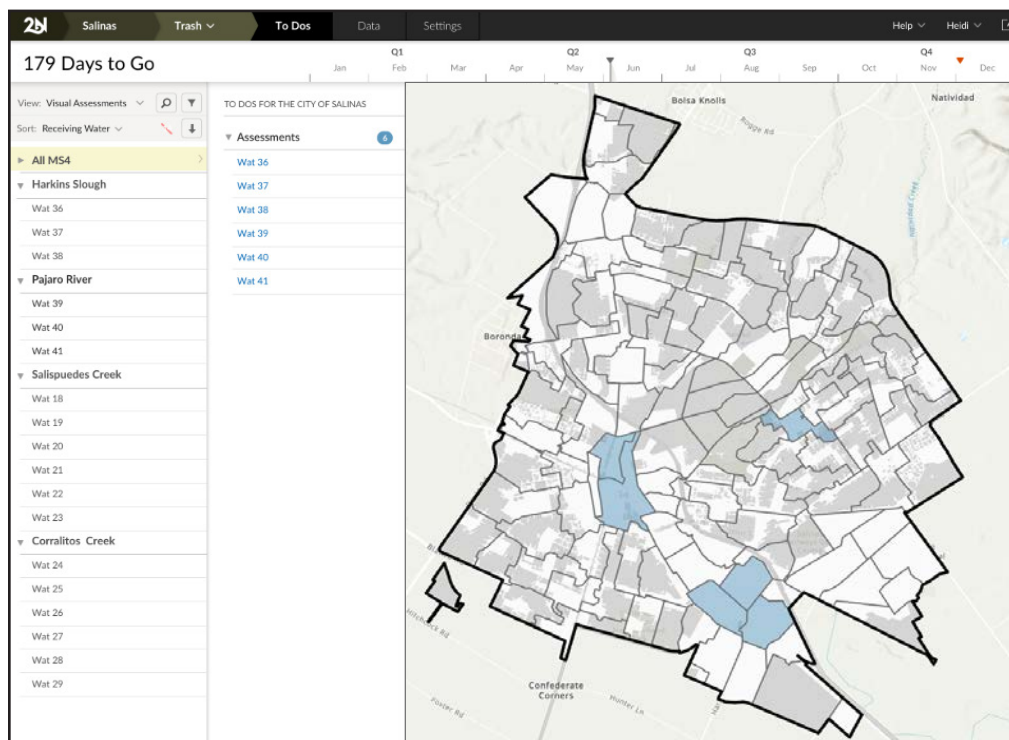
MS4 view of 2Nform trash module to-do list for visual assessments.
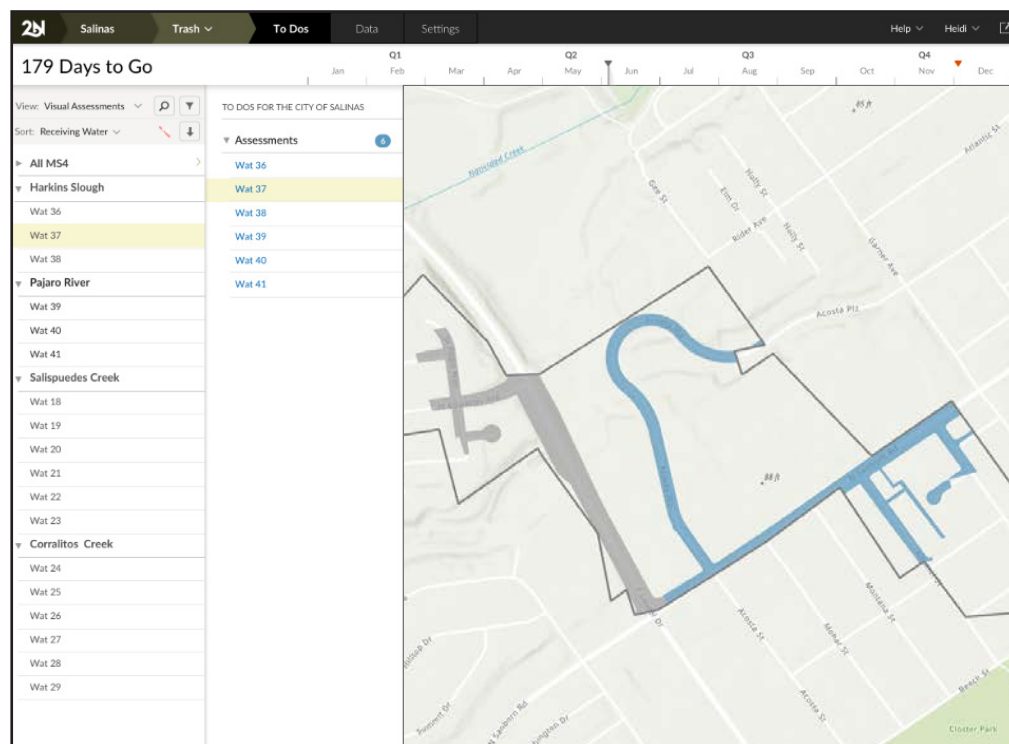
Catchment view of 2Nform trash module to-do list for visual assessments.

5 ANNUAL PROGRESS AND REPORTING

2Nform Report and Plan tab includes the annual municipal trash progress using maps, tables, graphics and simple summaries.

PROGRESS MAP

The 2Nform progress map shows the final summary of trash priority areas that are treated, in progress, or remain untreated (Figure 10). Progress map results combine FCSE (low litter) and FCS results. Results can be viewed at various spatial scales including the MS4 scale, receiving water scale, and urban catchment scale. Smaller spatial scales can be useful for targeting specific watersheds or pilot areas and can be useful for prioritization and communication.

PROGRESS CHART

The progress chart shows the mapped summary results in chart formats; stacked bar charts show progress towards 100% full trash capture over time, while pie charts designate the relative contributions by FCS and urban trash assessments (Figure 11A). Progress charts can also be viewed at various spatial scales including MS4, receiving water and urban catchment.
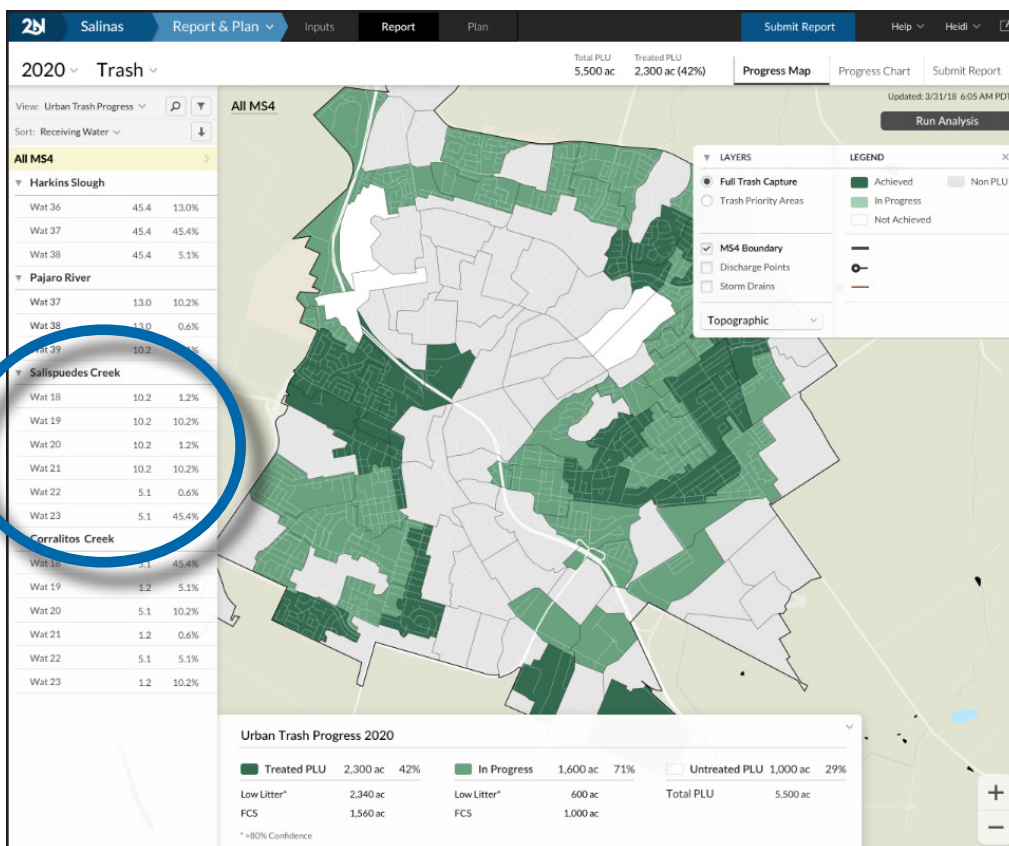
SUMMARY

The 2Nform Trash Module includes a summary of the MS4 program's trash status and progress, providing easy communication to the regulator, community, city council members and more (Figure 11B).

## SUBMIT REPORT

Permittee users can add, edit and delete data within their account during the current reporting year. Once users are satisfied with their data and results, users can submit their report to lock their data records. Permittees locked annual records cannot be modified. Regulatory users only have read-only access to submitted records from each permittee once the records have been locked.

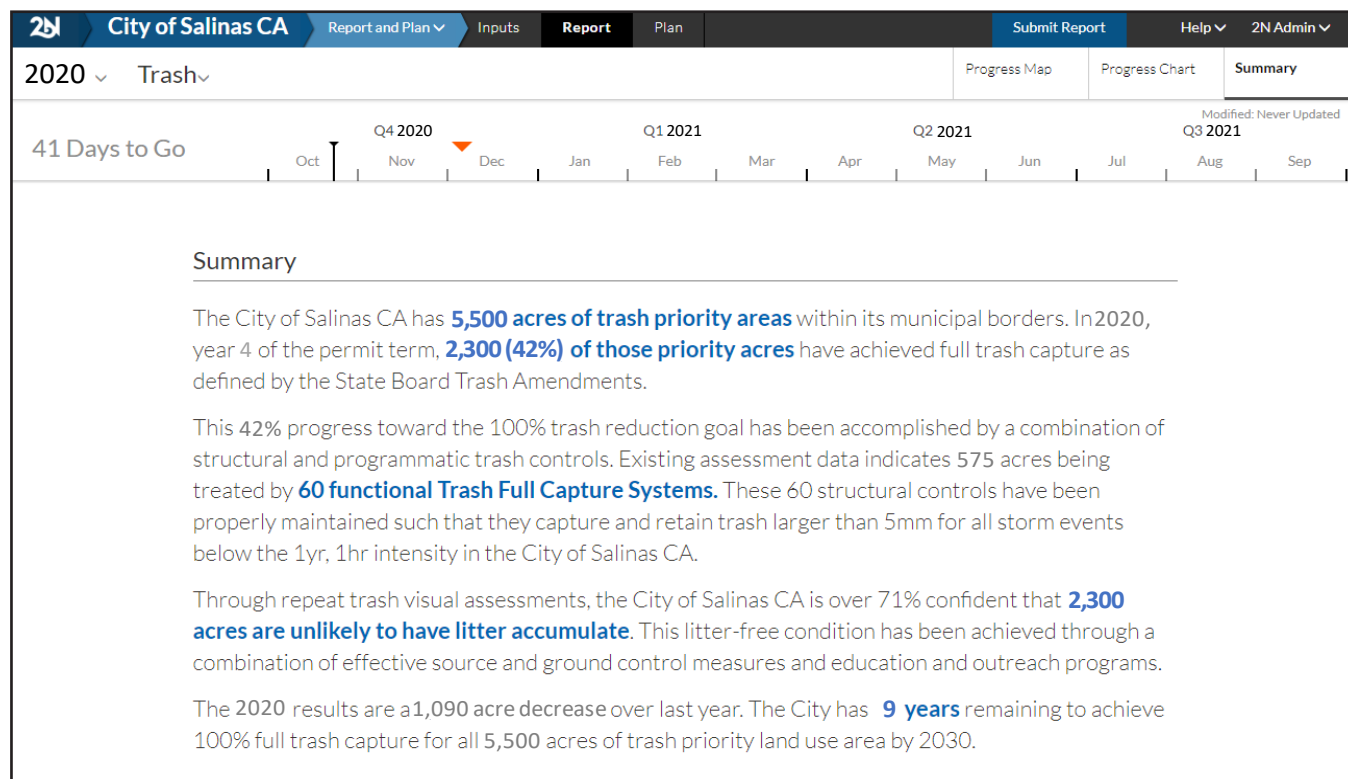*Use the table to view and sort PLU acres and % PLU treated by catchment.*

Trash module annual progress at the municipal scale and catchment scale.
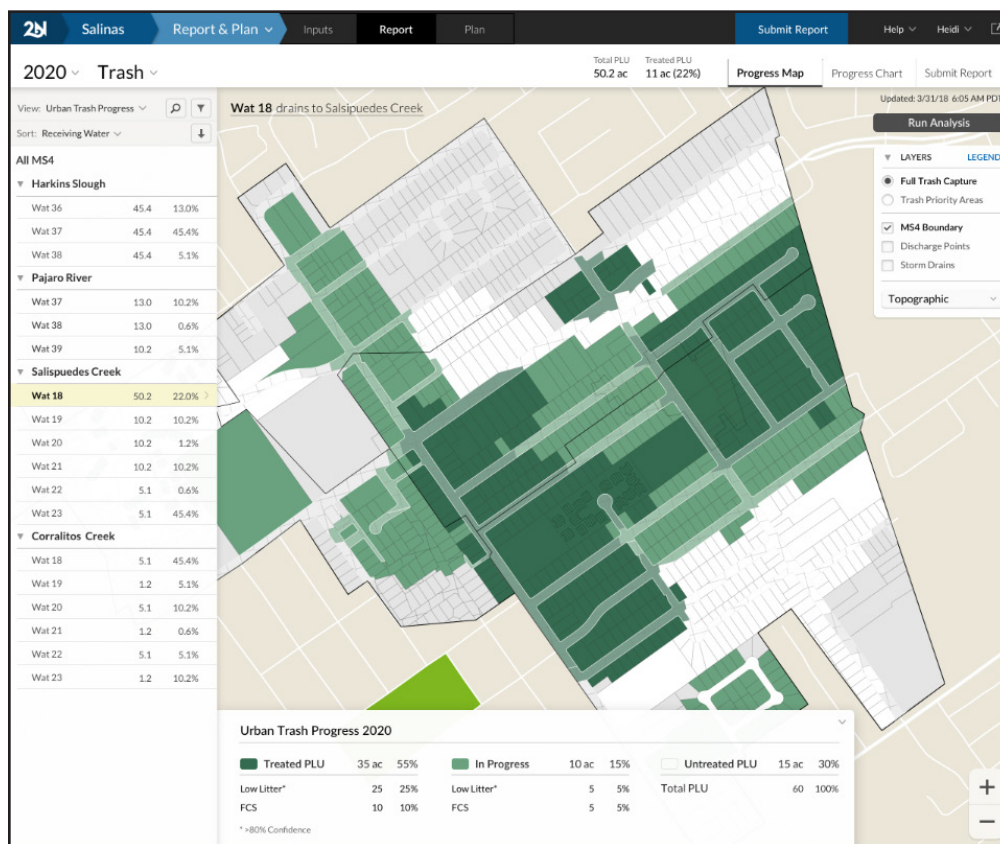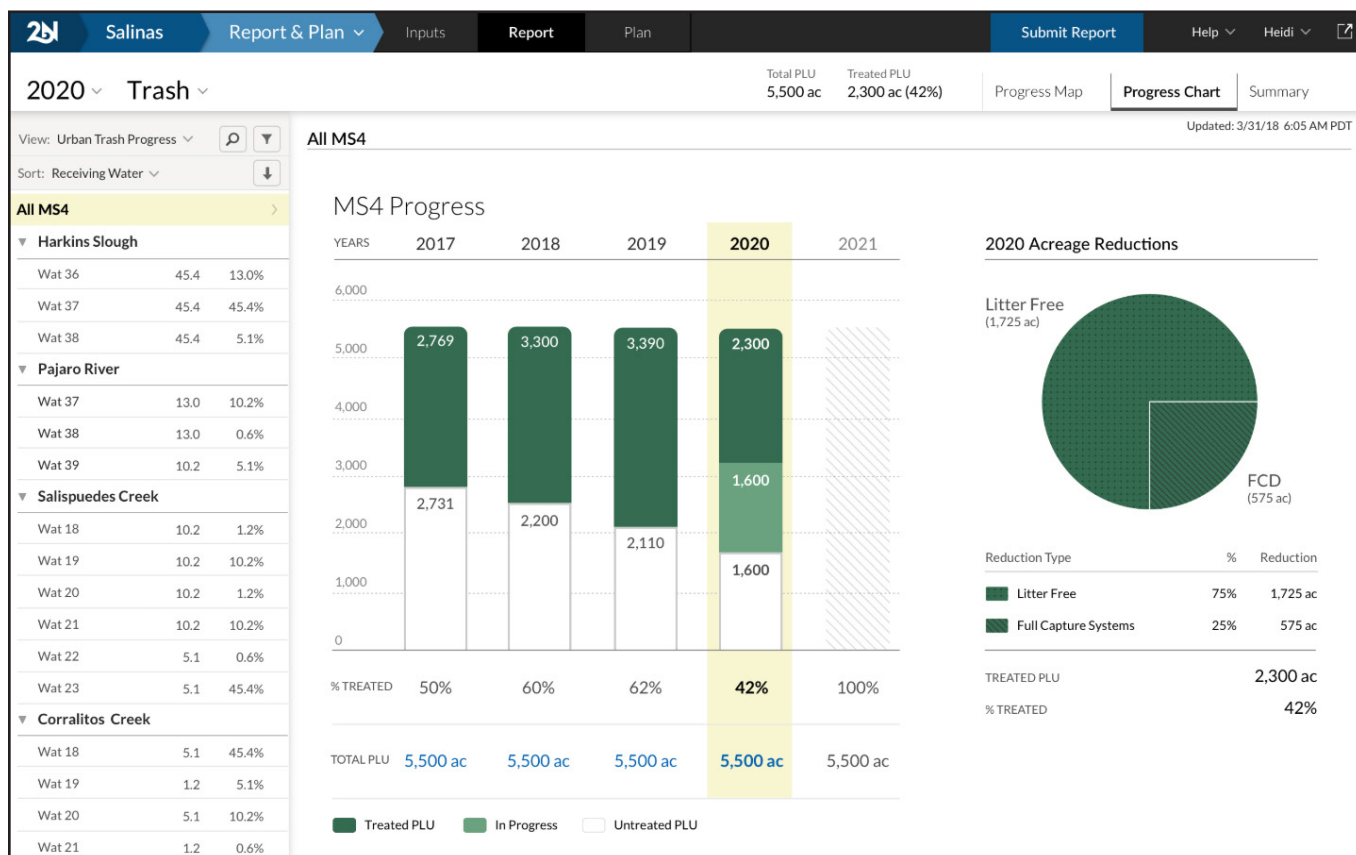
A. Trash Module annual progress chart at the municipal scale.

B. Trash module annual summary.

6 GLOSSARY

GENERAL

Landsat ARD grid	The 30m grid cell used in the 2Nform Trash Module Analysis is equivalent to 1 pixel in the US Landsat Analysis Ready Data (ARD) dataset, which uses a common tiling scheme (i.e., US Landsat ARD grid) developed by the USGS to process over 40 years of satellite imagery.
MS4 - Municipal Separate Storm Sewer System	Municipal Separate Storm Sewer System (MS4) includes ditches, curbs, gutters, storm sewers, and similar means of collecting or conveying urban derived stormwater runoff that do not connect with a wastewater collection system or treatment plant. An MS4 is typically operated by a public agency such as a city, county, municipal utility district, transportation district, or state or federal agency. MS4s operate under a NPDES stormwater discharge permit to satisfy the water quality requirements of the Clean Water Act.
NPDES – National Pollutant Discharge Eliminate System	National Pollutant Discharge Elimination System (NPDES) permit program regulates water pollution through the regulation of municipal and industrial wastewater non-point sources that discharge pollutants into the waters of the US.
Receiving Water	The waters to which the MS4 catchments and outfalls drain. The National Hydrography Dataset (NHD) is the recommended layer to define the receiving waters within the MS4. Receiving waters identified in the NHD are developed by and available from the USGS (http://nhd.usgs.gov/).
Urban Catchment	A contiguous planning unit that represents the hydrologic routing of urban lands within the MS4.
Urban Drainage	A hydrologic area comprised of a series of MS4 catchments that drain to one discharge point. A MS4 may have multiple urban drainages draining to a receiving water. Stormwater TELR applies urban drainages to determine routing to a centralized BMP.

2NFORM SOFTWARE

2Nform	A purpose-built stormwater software solution for MS4s to conduct smart inspections, communicate environmental benefits and simplify regulatory compliance. 2Nform is comprised of multiple data collection and management modules that inform the work flow of stormwater managers and supporting staff and summarize annual progress under the MS4 permit in compliant annual reporting formats.
BMP RAM	The Structural BMP Maintenance Rapid Assessment Methodology (BMP RAM) is a comprehensive and repeatable field observation methodology to simplify how municipalities inventory, assess effectiveness, and determine maintenance intervals of structural BMPs. The standardized 0-5 scoring and mapped results are used to simply communicate the relative effectiveness of any stormwater structural BMP. BMP RAM results inform swTELR estimates of catchment runoff and pollutant load reduction estimates.
Benchmark	The desired and achievable condition of any structure or landscape feature, equivalent to a RAM score of 5.0. In most instances, benchmark condition may be observed and measured shortly following construction or immediately following appropriate maintenance actions.
Construction Module	2Nform's Construction Module is a comprehensive and repeatable field inspection and data management tool to simplify how municipalities inspect, track and report compliance with construction regulations, including those subject to the Construction General Permit.

Conveyance Structure	A structure designed to convey stormwater downgradient in a manner than mitigates, and does not induce, localized flooding. Most structural BMPs convey stormwater and treat stormwater by reducing runoff volumes or reducing pollutant concentrations, or both. Drop inlets and trash traps are conveyance structures, but not structural BMPs.
Field Observations	The protocols performed in the field to populate the field data entry form. Observations vary by where they are being conducted (structure, landscape feature and project) and the intent (performance assessment, maintenance urgency, or inspection checklist).
Inventory	The process of locating a structure, landscape feature or project and providing feature-specific information critical to tracking and estimating performance.
Low Impact Development Module	2Nform's Low Impact Development (LID) Module is a comprehensive and repeatable field inspection and data management tool to simplify how municipalities inspect, track and report compliance with regulations that require low impact development integration in urban development and redevelopment projects.
Parcel RAM	The Parcel Rapid Assessment Methodology (Parcel RAM) is a repeatable field observation methodology to assess and objectively verify parcel condition. Parcel condition is the observable relative water quality threat of a parcel at time of observations should a runoff event occur. Effectively implemented nonstructural and structural BMPs can improve parcel condition. In swTELR, these modeled conditions reduce runoff generated from parcels.
Reporting & Planning Module	2Nform's Reporting & Planning Module is a web-based data management, analytics and reporting tool that synthesizes the other module information and assessment results. Users view quantified progress towards compliance milestones in maps, tables and charts, submit annual reports to regulators, and create planning scenarios to compare the benefits associated with future water quality improvement actions.
Road RAM	The Road Rapid Assessment Methodology (Road RAM) is a repeatable field observation method to assess and objectively determine the relative downslope water quality threat from a paved or unpaved road.
Structural BMP	Structural BMPs are any structure designed to treat urban stormwater from a known drainage area for a given size design storm. Structural BMPs accept, attenuate, and treat urban stormwater and are implemented to reduce pollutant loads in stormwater by reducing runoff volumes or reducing pollutant concentrations or both. BMP RAM defines 15 distinct structural BMP types categorized by the processes relied upon for water quality improvements and relative treatment capacity.
Structural BMP Module	2Nform's Structural BMP Module is a comprehensive and repeatable field inspection and data management tool to simplify how municipalities inspect, track and report compliance with MS4 permit requirements related to structural BMPs. BMP RAM is a customized repeatable assessment method to rapidly document structural BMP effectiveness and determine maintenance urgency.
swTELR	The stormwater **Tool to Estimate Load Reductions** is a purpose built urban hydrology and pollutant loading model that quantifies the cumulative pollutant load reductions to receiving waters from structural and non-structural urban stormwater BMPs.
Threshold	The condition of any structure or landscape feature at which it is no longer acceptable from a water quality treatment perspective. The threshold value equates to a RAM score of 2.0. Typically, threshold values for field observations are stored as default values relative to benchmark values.
Trash Module	2Nform's Trash Module is a comprehensive and repeatable field inspection and data management tool to simplify how municipalities inspect, track and report compliance with urban trash control regulations. Customized repeatable assessment methods allow user to rapidly document the effectiveness of structural and non-structural trash controls as well as identify litter hot spots where additional actions are required.

STRUCTURE FEATURES

Bypass Outlet	The outlet at which stormwater exits when the storage capacity of the structure is exceeded. Bypassed volumes are not treated and therefore no water quality benefit is associated with these flows.
Centralized	A large-scale structure treating a large urban drainage with multiple land uses and ownership. Centralized structures are typically, but not always, publicly owned and maintained. Centralized structural BMPs include bed filter, detention basins, dry basins, infiltration basins, media filters, treatment vaults, and wet basins. Centralized FCS include bed filter, detention basins, dry basins, infiltration basins, media filters, treatment vaults, and trash traps.
Decentralized	A small-scale structure designed typically to treat smaller impervious areas. Decentralized structures often accept runoff from a single land use drainage area and are associated with (re)development and roadside projects. Decentralized structural BMPs include biofiltration, bioretention, bioswale, filtration device, infiltration feature, pervious pavement, sediment trap, and settling basin. Decentralized FCS include biofiltration, bioretention, drop inlet, filtration device, infiltration feature, sediment trap, and settling basin.
Footprint	Surface area (sq-ft) of a designed structure that will typically be inundated; approximately the area at the average design depth.
Treatment Capacity	Storage capacity (cu-ft) below the bypass outlet, designed for water quality treatment.

TRASH AMENDMENTS

100% Trash Full Capture	The goal of the California State Trash Amendments requires permittees to eliminate trash (5mm or larger) discharges to receiving waters by 2030 from all trash priority land use areas (PLUs). Full trash capture can be achieved through either structural or non-structural trash controls with the MS4 required to collect data and demonstrate progress toward this goal.
1yr, 1hr Storm Event	The rainfall depth accumulated during a 1-hour period expected to occur once per year on average. This is the design storm used in the CA state definitions of trash full capture systems (FCS). NOAA provides precipitation frequency estimates for various durations and average recurrence intervals (years) for anywhere in the United States (https://hdsc.nws.noaa.gov/hdsc/pfds/).
California State Trash Amendments or Trash Provisions	On April 7, 2015, the State Water Board adopted an Amendment to the Water Quality Control Plan for Ocean Waters of California (Ocean Plan) to Control Trash and Part 1 Trash Provisions of the Water Quality Control Plan for Inland Surface Waters, Enclosed Bays, and Estuaries of California (ISWEBE Plan). Together, they are collectively referred to as "the Trash Amendments". The Trash Amendments do the following: (1) establish a narrative water quality objective for trash, (2) corresponding applicability, (3) establish a prohibition on the discharge of trash, (4) provide implementation requirements for permitted storm water and other discharges, (5) set a time schedule for compliance, and (6) provide a framework for monitoring and reporting requirements. Following adoption, the Trash Amendments were submitted to both the California Office of Administrative Law (OAL) and the U.S. Environmental Protection Agency (U.S. EPA) for review and approval. The OAL approved the Trash Amendments on December 2, 2015. The U.S.EPA approved the Trash Amendments on January 12, 2016. All California municipal separate storm sewer (MS4) discharge permit holders include requirements to demonstrate compliance with the State Trash Amendments at some stated future date in their respective MS4 permits or supplemental State Water Board orders, generally within the next decade.

Multi-benefit Treatment System	One of two FCS groupings. A non-proprietary **structural BMP** that was not purposely designed and installed to meet the CA Water Board definition of FCS and rather installed to reduce volumes and/or other urban pollutants. However, either in its original configuration or through retrofit actions the structure does trap all debris 5mm in size up to the 1yr/1hr storm. During the FCS inventory process, users upload documentation to justify the designation of the structural BMP as a FCS. These may include the following 2Nform structural BMP types: bed filter, biofiltration, bioretention, detention basin, dry basin, infiltration basin, infiltration feature, and settling basin.
Track 1	Permittees intend to eliminate urban litter discharge to local receiving waters by treating all trash priority land use (PLU) areas using structural controls (trash full capture systems; FCS) that treat the 1yr/ 1hr storm intensity for material greater than 5mm in size.
Track 2	Permittees intend to eliminate urban litter discharge to local receiving waters by treating all trash priority land use (PLU) areas using a combination of structural (trash full capture system; FCS) and non-structural controls such as effective street sweeping programs, community clean-ups, litter prevention campaigns, etc. Track 2 permittees require a method to demonstrate and report areas treated by non-structural controls are indeed effective (i.e., trash full capture system equivalency; FCSE).
Trash Full Capture	Demonstration that an urban area is not a source of trash to stormwater entrainment and delivery to receiving waters. This can be achieved either through treatment by a functioning trash full capture system (FCS) or demonstration of no litter accumulation susceptible to stormwater transport should a rain event occur (termed trash full capture system equivalency; FCSE).
Trash Full Capture System (FCS)	A trash full capture system (FCS) is a treatment control that traps all particles 5 mm or greater and can treat the 1yr, 1hr storm event. The Water Board maintains a list of approved trash full capture systems found here: https://www.waterboards.ca.gov/water_issues/programs/stormwater/docs/trash_implementation/a1_certified_fcd_rev_27jun18.pdf
Trash Full Capture System Equivalency (FCSE)	Full trash capture system equivalency (FCSE) is demonstrated using repeated visual trash assessments where the results indicate the area is litter free with statistical certainty equal to or above the threshold defined by the user.
Trash Priority Land Use (PLU)	Urban trash priority land uses (PLU) are defined as urban locations that are at high risk for trash generation. Permittees define these areas based on state guidance, local knowledge, and visual assessments of trash accumulation.
Trash Treatment Control Device	One of two FCS groupings A proprietary structure purposely designed and installed specifically to trap all debris 5mm in size up to the 1yr/1hr storm. A trash treatment device MAY capture, treat, or transform other pollutants beyond trash. The CA Water Board maintains a Certified Full Capture System List of approved proprietary trash treatment devices and during the FCS inventory process users upload manufacture and design information relevant to the specific FCS. These may include the following 2Nform structural BMP types: filtration device, media filter, treatment vault, sediment trap, as well as the two conveyance structures: drop inlet and trash trap.

2Nform Trash Module

In Progress PLU	During a reporting year, trash priority land use (PLU) areas are "In Progress" at achieving trash full capture if: • treated by a FCS where maintenance is required, or an assessment is past due OR • low litter but the statistical certainty is below the user defined threshold. In this instance, additional assessments are recommended and may boost statistical certainty. When the permittee locks their annual records, any PLU areas that remain "in progress" are not included in the quantification of annual progress.
Treated PLU	A treated priority land use (PLU) area has achieved trash full capture by either: • Existing within the treated drainage area of a functional FCS, or • Average trash condition is low litter with an associated certainty that equals or exceeds the user defined certainty threshold. When the permittee locks their annual records, the current treated PLU is equal to annual progress.

Trash Full Capture Systems (FCS)

FCS Assessment	A comprehensive and repeatable field observation methodology to simplify how municipalities inventory, assess effectiveness, and determine maintenance intervals of structural Full Trash Capture Systems (FCS). The standardized 0-5 scoring and mapped results are used to simply communicate the relative effectiveness of any FCS. The area draining to an FCS has achieved full trash capture if the FCS score is > 2.0 (i.e. functional).
FCS Assessment Interval	The user-defined interval (in months) at which an FCS should be inspected. The FCS assessment interval is tracked in 2Nform and used to alert municipal staff when specific FCS assessments are due.
FCS Drainage Area	The FCS drainage area is the total area that drains to a trash full capture system (FCS). Users delineate the treated drainage area when the FCS is inventoried through the selection of polygons that drain to the FCS, and this selection should be field verified during final inspections when the FCS is installed or constructed.
FCS Exposure	Trash full capture system (FCS) exposure (open or closed) influences both the susceptibility of captured trash to mobilize outside of the device in subsequent wind or runoff events observations as well as the field personnel access to conduct specific observations. • **Open**: Location where trash is captured is open to the air and potentially susceptible to wind transport. Observations of the trash density and distribution within the FCS are easy. • **Closed**: Location where the trash is capture is contained and closed. Trash could not be mobilized by wind. May or may not be contained within confined space.
FCS Function	A FCS hydraulic design and function will capture and retain 5mm debris up to the 1yr/1hr storm in one of two ways. Either: • **Volume-based retention**: the retention <u>volume</u> of the structure meets or exceeds the volume delivered during the 1yr/1hr storm and that all treated effluent is free of debris ≥ 5mm. OR • **Flow-based treatment**: the rate of stormwater <u>flow</u> though the FCS can accommodate up to the 1yr/1hr storm intensity and all treated effluent is free of debris ≥ 5mm.
FCS Grouping	Categorization of trash full capture systems (FCS) designated by the state to distinguish between proprietary devices (i.e., trash treatment control devices) and non-proprietary structural BMPs (i.e., multi-benefit treatment systems).

FCS Score	The trash full capture system (FCS) score is a 0-5 (± 0.1) value that represents the relative maintenance urgency of the FCS at the time of observation. The FCS score is a weighted integration of field observation results based on the FCS inventory inputs. An FCS score of 5.0 is the achievable condition or benchmark. An FCS score of 2.0 is a trigger that maintenance or repairs are required to restore the FCS to a functional state.
FCS Type	A full trash capture system must capture and retain material contained in stormwater flows up to the 1yr/1hr storm for material 5mm and larger. The types are defined based on structural configuration and the hydraulics relied upon to capture trash. There are fourteen distinct types of structural full trash capture systems, belonging to one of two groups: multi-benefit treatment systems or trash treatment control devices.
Functional FCS	A FCS with a current FCS score > 2.0, indicating it is effectively treating its respective treated drainage area for the 1yr, 1hr storm for mater ≥ 5mm.
Visible Screen	A 5mm screen installed within a FCS that can be directly inspected by field personnel.

TRASH VISUAL ASSESSMENTS

Low Litter	Based on available visual trash assessment data and associated results, an area may be determined to be low litter or essentially devoid of mobile trash. 2Nform assertions of low litter areas include a measure of statistical certainty based on the available dataset. There may be a few small pieces of trash in the area, but they are not obvious at first glance.
Trash Condition	Trash condition represents the litter density expressed as one of four categories: low, moderate, high or very high. Visual trash assessments determine trash condition at time of observation and 2Nform analytics predict the likely trash condition based on the available visual trash assessment dataset.
Trash Condition Certainty	Trash condition certainty is the statistical certainty of the expected trash condition based on the available data. Certainty is influenced by the number of observations available and variability of the results.
Urban Trash Assessment	A repeatable field observation methodology to assess trash condition within the urban landscape. Urban trash assessments can be performed along routes traveled via car, bike or walking or at specific locations representing approximately 1,000 ft^2.
Stream Trash Assessment	A repeatable field observation methodology to assess trash condition within along a stream or open channel. Stream trash assessments can be performed along walking routes or at specific locations representing approximately 1,000 ft^2.

7 REFERENCES

2NDNATURE 2018a. Best Management Practices Rapid Assessment Methodology (BMP RAM) Technical Document v 4.1. March 2018.

EOA, Inc., 2017. On-land Visual Trash Assessment Protocol for Stormwater; Protocol A – Street & Sidewalk Survey. Version 2.0. September 2017.

EOA, Inc., 2016. Tracking California's Trash Program: Evaluation of the On-land Visual Assessment Protocol as a Method to Establish Baseline Levels of Trash and Detect Improvements in Stormwater Quality. Prepared for the Bay Area Stormwater Management Agencies Association. December 2016.

State Water Resources Control Board, Division of Water Quality. 2015. Amendment to the Water Quality Control Plan for the Ocean Waters of California to Control Trash and Part 1 Trash Provisions of the Water Quality Control Plan for Inland Surface Waters, Enclosed Bays, and Estuaries of California. Final Staff Report for Trash Amendments. April 7, 2015.
https://www.waterboards.ca.gov/water_issues/programs/trash_control/documentation.html

Appendix B. Water Code 13383 Order from State Water Board

June 1, 2017

Gary Petersen
Public Works Director
200 Lincoln Avenue
Salinas, CA 93901
Email: garyp@ci.salinas.ca.us

VIA ELECTRONIC AND CERTIFIED MAIL
Certified Mail No. 7016 1370 0001 7675 8111

Dear Mr. Petersen

WATER CODE SECTION 13383 ORDER TO SUBMIT METHOD TO COMPLY WITH STATEWIDE TRASH AMENDMENTS; REQUIREMENTS FOR CITY OF SALINAS PHASE I MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4)

On April 7, 2015, the California State Water Resources Control Board (State Water Board) adopted Resolution No. 2015-0019, amending the *Water Quality Control Plan for Ocean Waters of California* (Ocean Plan) and the *Water Quality Control Plan for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (ISWEBE Plan) to address the impacts of trash to the surface waters of California (referred to hereafter as the Trash Amendments).[1] Throughout the State, trash is typically generated on land and transported to surface water, predominantly through MS4 discharges. These discharges from the City of Salinas' MS4 are regulated through the Salinas Phase I MS4 Permit[2] pursuant to section 402(p) of the Federal Clean Water Act.

The Trash Amendments establish a statewide narrative water quality objective and implementation requirements to control trash, and include a prohibition against the discharge of trash to ocean waters, inland surface waters, enclosed bays, and estuaries in California. Within 18 months of the effective date of the Trash Amendments (i.e., by June 2, 2017), Regional Water Quality Control Boards must modify, re-issue, or adopt applicable MS4 permits, or issue an order pursuant to Water Code section 13383 to implement the Trash Amendments. This is required for each MS4 with regulatory authority over Priority Land Uses that has been issued a National Pollutant Discharge Elimination System (NPDES) permit by the Regional Water Quality Control Board.

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[1] Amendment to the Water Quality Control Plan for Ocean Waters of California to Control Trash (Ocean Plan) and Part 1 Trash Provisions of the Water Quality Control Plan for Inland Surface Waters, Enclosed Bays, And Estuaries Of California (ISWEBE Plan) to be adopted by the State Water Board. Documents may be downloaded from our website at http://www.waterboards.ca.gov/water_issues/programs/trash_control/documentation.shtml .

[2] Order No. R3-2012-0005 NPDES No. CA0049981, National Pollutant Discharge Elimination System (NPDES) Permit and Waste Discharge Requirements for City of Salinas Municipal Storm Water Discharges.

On May 3, 2012, the Central Coast Water Board adopted the Salinas Phase I MS4 Permit. The Central Coast Water Board intends to incorporate the requirements of the Trash Amendments into the Salinas Phase I MS4 Permit upon its reissuance but does not anticipate amending the Permit within the time frame specified by the Trash Amendments, i.e., before June 2, 2017. Therefore, as specified in the Trash Amendments[3] and as further authorized by Clean Water Act section 308(a) and 40 Code of Federal Regulations part 122.41(h), the Central Coast Water Board is requiring the City of Salinas (City) to take the initial steps in planning for implementation of the Trash Amendments through this Order, per Water Code section 13383. The implementation plan submitted in response to this Order is subject to approval by the Central Coast Water Board.

To comply with the Trash Amendments, the City is required to implement either of the following measures: [4]

1. Track 1: Install, operate, and maintain certified Full Capture Systems for all storm drains that capture runoff from the Priority Land Uses in the jurisdiction; or

2. Track 2: Install, operate, and maintain any combination of certified Full Capture Systems, Multi-Benefit Projects, other Treatment Controls, and/or Institutional Controls (equivalent Full Capture Systems Best Management Practices) within the City's jurisdiction. The City shall demonstrate that such combination achieves Full Capture System equivalency.[5] It is, however, the State Water Board's expectation that MS4 Permittees will elect to install Full Capture Systems where such installation is not cost-prohibitive.

The Trash Amendments define land uses and locations that are to be controlled for trash discharges by MS4 permittees:

A. *Priority Land Uses*: Those developed sites, facilities, or land uses (i.e. not simply zoned land uses) within a MS4 permittee's jurisdiction from which discharges of trash are regulated by the Ocean Plan or ISWEBE Plan as follows:
   - *High-density residential*: all land uses with at least ten (10) developed dwelling units/acre.
   - *Industrial*: land uses where the primary activities on the developed parcels involve product manufacture, storage, or distribution (e.g., manufacturing businesses, warehouses, equipment storage lots, junkyards, wholesale businesses, distribution centers, or building material sales yards).
   - *Commercial*: land uses where the primary activities on the developed parcels involve the sale or transfer of goods or services to consumers (e.g., business or professional buildings, shops, restaurants, theaters, vehicle repair shops, etc.).

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[3] Chapter IV.A.5.a(1)B of the ISWEBE Plan and Chapter III.L.4.a(1)B of the Ocean Plan.

[4] Chapter IV.A.3.a of the ISWEBE Plan and Chapter III.L.2.a of the Ocean Plan.

[5] Full Capture System equivalency is the trash load that would be reduced if Full Capture Systems were installed, operated, and maintained for all storm drains that capture runoff from the relevant areas of land (Priority Land Uses, significant trash generating areas, facilities or sites regulated by NPDES permits for discharges of storm water associated with industrial activity, or specific land uses or areas that generate substantial amounts of trash, as applicable). The Full Capture System equivalency is a trash load reduction target that the permittee quantifies by using an approach, and technically acceptable and defensible assumptions and methods for applying the approach, subject to the approval of permitting authority. Chapter IV.A.3.a.(2) of the ISWEBE Plan and Chapter III.L.2.a.(2) of the Ocean Plan.

- *Mixed urban*: land uses where high-density residential, industrial, and/or commercial land uses predominate collectively (i.e., are intermixed).
- *Public transportation stations*: facilities or sites where public transit agencies' vehicles load or unload passengers or goods (e.g., bus stations and stops).

B. *Equivalent Alternative Land Uses*: The City may request the Central Coast Water Board allow it to substitute a land use identified above with an alternate land use within the City's jurisdiction that generates trash at rates equivalent to or greater than the Priority Land Use being substituted. Comparative trash generation rates shall be established through the reporting of quantification measures such as street sweeping and catch basin cleanup records; mapping; visual trash presence surveys; or other information as required by the Central Coast Water Board. One method, the Visual Trash Assessment Approach;[6] is an acceptable methodology for reliably establishing baseline trash levels and detecting reductions in trash in MS4 discharges over time.

C. *Coordination with California Department of Transportation (Caltrans)*. The Trash Amendments (Ocean Plan Chapter III.L.2.b and ISWEBE Plan Chapter IV.A.3.b) require that Caltrans and MS4 permittees coordinate their efforts to install, operate, and maintain Full Capture Systems, multi-benefit projects, other treatment controls, and/or institutional controls in significant trash generating areas and/or Priority Land Uses.

D. *Specific Land Uses or Locations Determined by the Central Coast Water Board*: The Trash Amendments (Ocean Plan Chapter III.L.2.d and ISWEBE Plan Chapter IV.A.3.d) provide the Central Coast Water Board with the authority to determine that specific land uses or locations generate substantial amounts of trash in addition to the Priority Land Uses defined above. In the event the Central Coast Water Board makes that determination, the Central Coast Water Board may require the City to comply with the requirements of the Trash Amendments with respect to such land uses or locations.

The current Salinas Phase I MS4 Permit requires the City to develop and implement effective structural and non-structural BMPs, to adopt a trash reduction ordinance to reduce trash discharges to the MS4, and to remove trash that has entered the MS4. The Permit requires the City to prioritize areas for trash reduction based on an area's potential for trash discharges to the MS4 and to designate High Priority areas.

The City's Trash Reduction Plan includes an implementation schedule and the City has developed a trash reduction tracking methodology to quantify trash load reductions from the BMPs it implements. The City has to conduct and consider the results of trash assessments in its selection of BMPs. The Trash Reduction Plan focuses on High Priority areas and includes installation of trash capture devices. The Plan incorporates Trash Reduction BMPs and establishes short-term and long-term objectives for:
   a. Trash capture at the stormwater pump station to the Salinas River;
   b. Trash capture at catch basins and other inlets to the MS4;
   c. Trash capture at flood management facilities, including detention basins; and

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[6] The Visual Trash Assessment Approach was evaluated as part of the Tracking California's Trash project conducted by the Bay Area Stormwater Management Agencies Association (BASMAA). The evaluation concluded that if visual assessments were conducted consistent with the protocol, the method could reliably establish baseline trash levels and detect progress in reducing trash in MS4 discharges over time. The State Water Board, in partnership with the California Stormwater Quality Association (CASQA), intends to develop and provide training to MS4 permittees on the Visual Trash Assessment Approach to further assist in the assessment of trash within their jurisdictions.

  d. Trash and litter control in municipally-owned and maintained streets and sidewalks in downtown commercial and shopping districts.

Central Coast Water Board staff recognizes that having completed trash-related requirements in the Salinas Phase I MS4 Permit, the City has some elements in place for implementing requirements of the Trash Amendments. These elements include Priority Land Use area maps; an up-to-date storm sewer system map; in-stream trash assessments downstream of Priority Land Use areas; and trash generation data from the City's municipal storm sewer maintenance program. However, further effort is necessary in order to comply with the Trash Amendments.

This Order is issued to implement federal law. The water quality objective established by the Trash Amendments serves as a water quality standard federally mandated under Clean Water Act section 303(c) and the federal regulations (33 U.S.C. § 1312, 40 C.F.R. § 131.). This water quality standard was specifically approved by USEPA following adoption by the State Water Board and approval by the Office of Administrative Law. This Order requests information necessary for the City to plan for implementation of actions to achieve the water quality standard for trash. Further, the water quality standard expected to be achieved pursuant to the Trash Amendments may allow each water body impaired by trash and already on the Clean Water Act section 303(d) list to be removed from the list, or each water body subsequently determined to be impaired by trash to not be placed on the list, obviating the need for the development of a total maximum daily load (TMDL) for trash for each of those water bodies (33 U.S.C. § 1313(d); 40 C.F.R. § 130.7). In those cases, the specific actions that will be proposed by the City in response to this Order substitute for some or all of the actions that would otherwise be required consistent with any waste load allocations in a trash TMDL (40 C.F.R. § 122.44, subd. (d)(1)(vii)(B)). Accordingly, this Order is issued to implement federal law. Consistent with the Trash Amendments, the Order nevertheless allows the City flexibility in the specific actions they propose to meet the federal requirements.

It is hereby ordered, pursuant to California Water Code section 13383, the City must comply with the following directives:

1. **Written Notices.** The City of Salinas must submit to the Central Coast Water Board, **no later than three (3) months from the date of this Order, by September 1, 2017,** a written notice stating whether the City will implement Track 1 or Track 2 to comply with the trash discharge prohibition in the Ocean Plan and ISWEBE Plan.

2. By **September 1, 2017,** submit a preliminary jurisdictional map(s) identifying the following:
    i.   Priority Land Use areas discharging to the MS4; and
    ii. The corresponding MS4 network that conveys discharges from Priority Land Use areas.
3. **Track 1 Only:** By **January 2, 2019,** submit an updated jurisdictional map identifying the following:
    a. All Priority Land Use areas discharging to the MS4 network;
    b. The corresponding MS4 network;

      c. Proposed locations of all certified Full Capture Systems[7] and,

      d. Proposed equivalent alternative land uses, documentation demonstrating that the substitution of equivalent alternative land uses has been approved by the Central Coast Water Board Executive Officer, and corresponding storm drainage network, if applicable.

4. **Track 2 Only:** By **January 2, 2019,** submit the following:

    a. An updated jurisdictional map identifying the following:

        i. All Priority Land Use areas and selected locations, other than the Priority Land Use areas, discharging to the MS4 network;

        ii. The corresponding MS4 network; and

        iii. Proposed locations of all certified Full Capture Systems and where any combination of controls will be implemented that will achieve Full Capture Equivalency;

        iv. Trash levels, using the methodology described in Visual Trash Assessment Approach or other equivalent trash assessment methodology, for all Priority Land Uses, and for other selected locations or land uses within the MS4s' jurisdiction if proposing to implement any combination of controls in locations other than Priority Land Uses; and

    b. An Implementation Plan that includes the following:

        i. The combination of controls[8] selected by the City and the rationale for each selection;

        ii. How the combination of controls is designed to achieve Full Capture System equivalency;

        iii. How Full Capture System equivalency will be demonstrated;

        iv. How the trash implementation plans will be monitored and assessed in Annual Reports;

        v. Requests by the City, if any, for authorization to substitute a Priority Land Use described in above with an Equivalent Alternate Land Use that generates rates of trash equivalent to, or greater than, the Priority Land Use being substituted. The City must provide data or information which establishes that trash generation rates from the Alternate Land Use(s) are greater than the Priority Land Use(s) being substituted; and

        vi. A compliance time schedule based on the shortest practicable time to achieve full compliance with the trash discharge prohibition, including interim milestones (such as average load reductions of ten percent per year) and a final compliance date. Full compliance shall occur within ten (10) years of the effective date of the first implementing permit and in no case later than fifteen (15) years from the effective date of the Trash Provisions (i.e. no later than December 2, 2030).

5. **Coordination with Caltrans.** The City must submit, **no later than 18 months from the date of this Order, by January 2, 2019**, a description of how it will coordinate its efforts to install, operate, and maintain Full Capture Systems, multi-benefit projects, and other controls with Caltrans in significant trash generating areas and/or Priority Land Uses, as applicable.

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[7] List of Certified Full Capture Systems: http://www.waterboards.ca.gov/water_issues/programs/trash_control/

6. **Transient Encampments.** The City must submit, **no later than 18 months from the date of this Order, January 2, 2019**, a description of how trash generated from transient encampments will be addressed.

7. All documents submitted to the Central Coast Water Board must be signed and certified.
   a. All reports required by this Order must be signed as follows by either a principal executive or ranking elected official.
   b. Any person signing a document required by this Order must make the following certification:

"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 gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the 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 knowing violations."

Failure to comply with the requirement to submit the Technical Reports made pursuant to Water Code section 13267, subdivision (b), may result in administrative civil liability pursuant to Water Code section 13268 for up to $1,000 per day. Pursuant to Section 13385 of the Water Code, a violation of a Water Code Section 13383 requirement may subject you to civil liability of up to $10,000 per day for each day in which the violation occurs.

Please direct questions or comments pertaining to this Order request to Michael Godwin at 805-549-3886 or via email at michaeld.godwin@waterboards.ca.gov, or Dominic Roques at 805-542-4780.

Sincerely,

John M. Robertson
Digitally signed by John M. Robertson
Date: 2017.06.01 12:37:09 -07'00'

John M. Robertson
Executive Officer

Cc (by email)
Heidi Niggemeyer, City of Salinas	heidin@ci.salinas.ca.us
Jim Sandoval, City of Salinas	jims@ci.salinas.ca.us
Chris Callihan, City of Salinas	chrisc@ci.salinas.ca.us
Dominic Roques, Central Coast Water Board	dominic.roques@waterboards.ca.gov
Mike Godwin, Central Coast Water Board	michaeld.godwin@waterboards.ca.gov

R:\RB3\Shared\SW\Facilities\Monterey\Muni\Salinas\TRASH\13383_Trash_Amendment_TO_Salinas_final.docx

Appendix C. Pump Station Full Capture System Design Plans

	Last Saved By:	Last Saved Date:
Drawing	Jmckinley	Tuesday, April 08, 2014 5:11:08 PM
Model	Jmckinley	Tuesday, April 08, 2014 5:10:00 PM

D

[10'10.0"]
130.00in

[1'2.0"]
14.00in

[9'0.0"]
108.00in

[8'11.6"]
107.60in

A   A

B   B

[30'10.0"]
370.00in

[25'0.0"]
300.00in

[9'0.0"]
108.00in

[8'0.0"]
96.00in

[2'4.0"]
28.00in

[7'0.0"]
84.00in

[2'2.0"]
26.00in

[1'10.0"]
22.00in

[5'0.8"]
60.81in

C

[7'6.0"]
90.00in

[9.0in]
9.00in

[2'4.0"]
28.00in

[7'6.0"]
90.00in

[1'2.0"]
14.00in

[2'7.1"]
31.13in

14°

[16'4.0"]
196.00in

[15'0.0"]
180.00in

30°

[14'3.5"]
171.50in

[8'5.3"]
101.25in

[5'0.0"]
60.05in

B

[8'6.0"]
102.00in

[3.0in]
3.00in

[9'0.2"]
108.20in

[1'4.0"]
16.00in

[1'2.0"]
14.00in

SECTION A-A
SCALE 1 : 90

[1'2.0"]
14.00in

[6'10.0"]
82.00in

30°

4.00

[3'6.0"]
42.00in

[8'2.0"]
98.00in

14°

[7'6.0"]
90.00in

[5'0.0"]
60.0in

A

6.00

DETAIL C
SCALE 1 : 30

NOTES U.O.N.
1. USE MINIMUM BEND RADIUS.
2. USE MINIMUM BEND RELIEF.
3. DIMENSIONS O.D. APEX INTERSECTION U.O.N.
4. REMOVE BURRS AND SHARP EDGES.

C

[3'6.0"]
42.00in

[2'4.0"]
28.00in
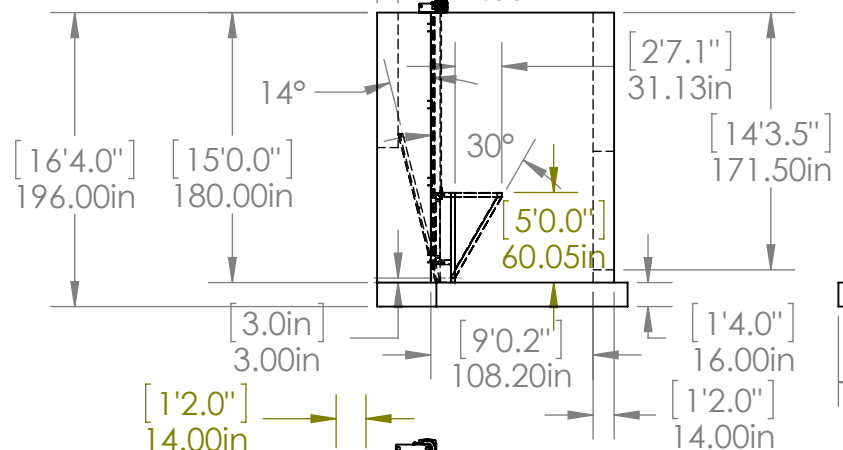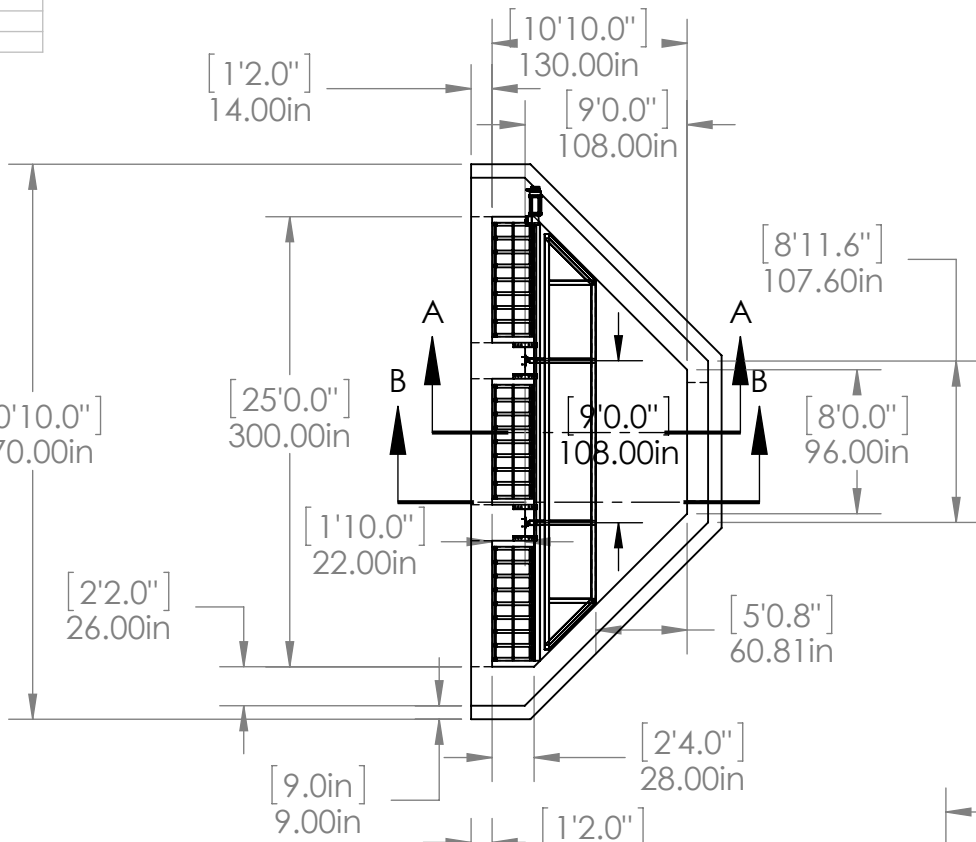
SECTION B-B
SCALE 1 : 90

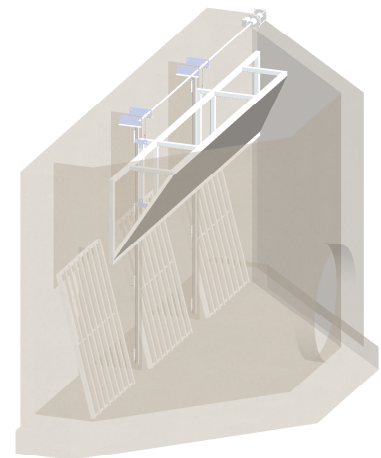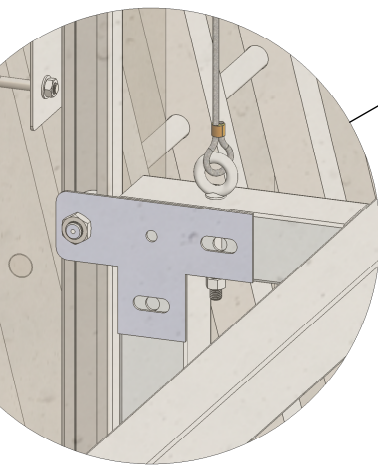| DESCRIPTION		DATE	APPROVED' BY	REVISED BY

29'4.0"
352.00in

30'10.0"
370.00in
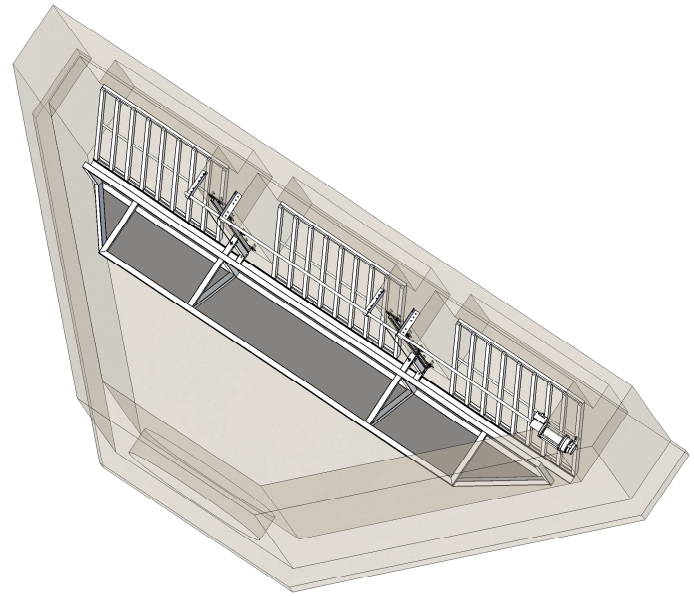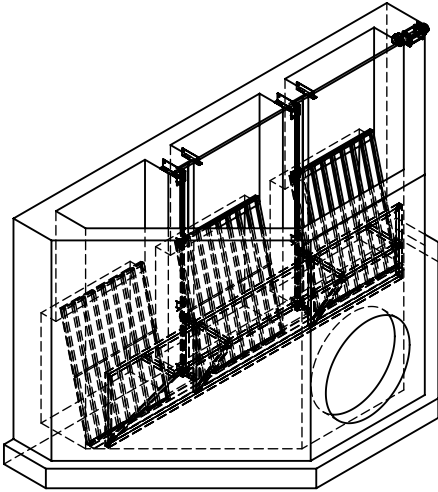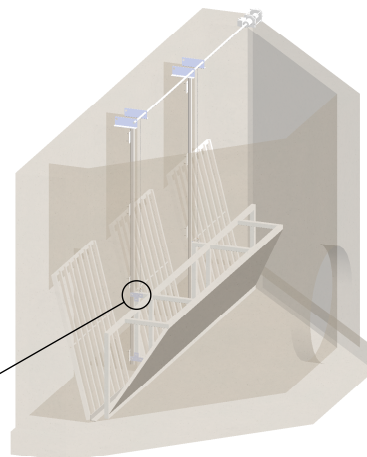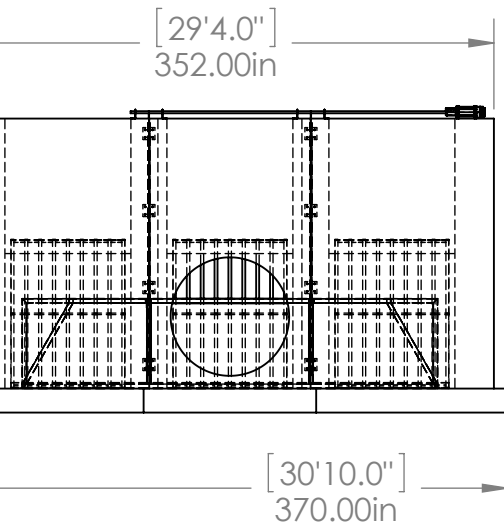
Lowered Bottom
Position
Trash Capture
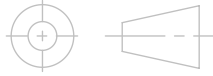
Raised 11ft
Position
Trash Capture

DETAIL F
SCALE 1 : 8

THIRD ANGLE PROJECTION

KriStar Enterprises, Inc.
360 Sutton Place, Santa Rosa, CA 95407
Ph: 800.579.8819, Fax: 707.524.8186,
www.kristar.com

CUSTOMER:

UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL: ±1/32
ANGULAR: ± 1.0 DEG
HOLE ± .003
.X : .060
.XX : .030
.XXX : .020

DESIGN

DRAWN

APPROVED

MATERIAL:
-

FINISH:

DESCRIPTION:
Custom Salinas Trash Capture
Pump Station

PART NUMBER:

REV

SK-0781

P01

DO NOT SCALE DRAWING

SCALE: 1:128

WEIGHT:

SHEET 1 OF 1

SCALE: 1:128