

Trash Implementation Plan

Prepared for
City of Cotati

November 2018

WEST YOST

ASSOCIATES
Consulting Engineers

631-10-18-04

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Trash Implementation Plan

Prepared for

City of Cotati

Project No. 631-10-18-04

Project Manager: Colleen Hunt

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Date

QA/QC Review: Doug Moore, PE

11-29-2018

Date

Carlsbad

2173 Salk Avenue, Suite 250
Carlsbad, CA 92008
(760) 795-0365

Davis

2020 Research Park Drive, Suite 100
Davis, CA 95618
(530) 756-5905

Eugene

1650 W 11th Ave. Suite 1-A
Eugene, OR 97402
(541) 431-1280

Irvine

6 Venture, Suite 290
Irvine, CA 92618
(949) 517-9060

Phoenix

4505 E Chandler Boulevard, Suite 230
Phoenix, AZ 85048
(602) 337-6110

Pleasanton

6800 Koll Center Parkway, Suite 150
Pleasanton, CA 94566
(925) 426-2580

Portland

4949 Meadows Road, Suite 125
Lake Oswego, OR 97035
(503) 451-4500

Sacramento

8950 Cal Center Drive, Bldg. 1, Suite 363
Sacramento, CA 95826
(916) 306-2250

Santa Rosa

2235 Mercury Way, Suite 105
Santa Rosa, CA 95407
(707) 543-8506

Walnut Creek

1777 Botelho Drive, Suite 240
Walnut Creek, CA 94596
(925) 949-5800



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List of Acronyms and Abbreviations

| | |
|------------------|--|
| BASMAA | Bay Area Stormwater Management Agencies |
| BMPs | Best Management Practices |
| CASQA | California Stormwater Quality Association |
| City | City of Cotati |
| EOA | EOA, Inc. |
| FCS | Full capture systems |
| FCSE | Full capture system equivalency |
| GIS | Geographic Information System |
| LID | Low impact design |
| mm | millimeters |
| MS4 | Municipal Separate Storm Sewer System |
| NCRWQCB | North Coast Regional Water Quality Control Board |
| OVTA | On-land Visual Trash Assessment |
| PLUs | Priority land uses |
| SWRCB | State Water Resources Control Board |
| TAMLE | Trash Assessment Minimum Level of Effort |
| TIP | Trash Implementation Plan |
| Trash Provisions | Trash Provisions of the Water Quality Control Plan for Inland Surface Waters, Enclosed Bays, and Estuaries of California |



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List of Terms

| | |
|---------------------------------|---|
| Assessment Frame | All the streets and sidewalks available for possible assessment in priority land use areas. |
| Assessment Segment | Segment of priority land use in which on-land visual trash assessments are conducted. |
| Baseline Trash Generation Level | Annual amount of trash discharged through the storm water system to receiving water. Expressed as gallons per year. |
| Full Capture System | A treatment control, or series of treatment controls, including but not limited to a multi-benefit project or a low impact development control that traps all trash particles that are 5 millimeters or greater. |
| Full Capture System Equivalency | 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 priority land uses. |
| Institutional Controls | Non-structural best management practices that may include, but not be limited to, street sweeping, sidewalk trash bins, collection of trash, anti-litter education and outreach programs, producer take-back for packaging, and ordinances. |
| Low Impact Development | A treatment control that employs natural and constructed features that reduce the rate of stormwater, filter out pollutants, facilitate stormwater storage onsite, infiltrate stormwater into the ground to replenish groundwater supplies, or improve the quality of receiving groundwater and surface water. |
| Multi-benefit Project | A treatment control designed to achieve any of the benefits set forth in Section 10562, Subdivision (d) of the Water Code. Examples include projects designed to infiltrate, recharge, or store stormwater for beneficial reuse; developed or enhance habitat and open space through stormwater and non-stormwater management, and/or reduce stormwater and non-stormwater runoff volume. |
| On-land Visual Trash Assessment | A qualitative assessment protocol that categorically scores the levels of trash on streets and sidewalks. |
| Priority Land Uses | Those developed sites, facilities or land uses within the City's jurisdiction from which discharges of trash are regulated. |
| Track 1 | Install, operate, and maintain full capture systems for all storm drains that captures runoff from the priority lands uses. |
| Track 2 | Install, operate, and maintain any combination of full capture systems, multi-benefit projects, other treatment controls, and/or institutional controls in priority land uses. |
| Trash | All improperly discarded solid material from any production, manufacturing, or processing operation including, but not limited to, products, product packaging, or containers constructed of plastic, steel, aluminum, glass, paper, or other synthetic or natural materials. |
| Trash Generation Level Low | Effectively no trash can be observed on a city block or the equivalent. There may be some small pieces in the area, but they are not obvious at first glance and one individual could quickly pick them up. A low trash generation level is the goal of a stormwater trash control program and is considered equivalent to the performance of a full trash capture system. |



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| | |
|------------------------------------|---|
| Trash Generation Level Moderate | Predominantly free of trash except for a few pieces that are easily observed along a city block, or the equivalent. The trash could be collected by one or two individuals in a short period of time. |
| Trash Management Area | Sectioned areas of priority land uses created to efficiently plan for trash reduction control measures. |
| Trash Provisions | The water quality objective for trash as well as the prohibition of discharge and implementation requirement adopted by the State Water Resources Control Board. |
| Treatment Controls | Structural best management practices to either (a) remove pollutants and/or solids from stormwater runoff, wastewater or effluent, or (b) capture, infiltrate or reuse stormwater runoff, wastewater, or effluent. Treatment controls include full capture systems and low impact development controls. |



Trash Implementation Plan

1.0 INTRODUCTION

1.1 Setting

The City of Cotati (City) is located in central Sonoma County, approximately seven miles south of Santa Rosa, along the Highway 101 corridor. The City has a population of 7,455 and is comprised of residential, commercial and light industrial land use. The primary creeks in the City include, Copeland Creek, Cotati Creek, Washoe Creek, and the Laguna de Santa Rosa. The City's stormwater flows by gravity to nearly 30 discharge points on the Laguna de Santa Rosa.

1.2 Regulatory Background

In April of 2015, the State Water Resources Control Board (SWRCB) adopted the *Trash Provisions of the Water Quality Control Plan for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (Trash Provisions) to address the impacts of trash to the beneficial uses of surface waters. The Trash Provisions include a Prohibition of Discharge which states: *The discharge of trash to surface waters of the State or the deposition of trash where it may be discharged into surface waters of the State is prohibited.* The Trash Provisions define trash as:

All improperly discarded solid material from any production, manufacturing, or processing operation including, but not limited to, products, product packaging, or containers constructed of plastic, steel, aluminum, glass, paper, or other synthetic or natural materials.

Compliance with this discharge prohibition is achieved with successful implementation of trash control requirements of the Trash Provisions. These requirements are categorized as “Track 1” or “Track 2” compliance methods.

The Trash Provisions are applicable to all dischargers permitted pursuant to Section 402(p) of the Federal Clean Water Act, including municipal separate storm sewer system (MS4) permittees with regulatory authority over land use, including the City. The City has elected to comply with the Trash Provisions with the selection of Track 2.

On June 2, 2017, the North Coast Regional Water Quality Control Board (NCRWQCB) issued a 13383 Order requiring the City to develop an implementation plan to establish a Trash Implementation Plan (TIP) for compliance with implementing Track 2 of the Trash Provisions. The TIP is to include the following components:

- The combination of Full Capture Systems (FCS), Multi-Benefit Projects, other Treatment Controls, and/or Institutional Controls selected by the City and the rationale for the selection;
- How the combination of controls is designed to achieve full capture system equivalency (FCSE);
- How FCSE will be demonstrated; and
- If proposing to substitute equivalent alternative land used for priority land uses (PLUs), a justification demonstrating that the alternative land uses generate trash at rates that are equivalent to or greater than the PLUs for which they are being substituted.



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Additionally, the 13383 Order required the City to develop a jurisdictional map which identifies the following:

- All PLUs areas discharging to the MS4;
- The corresponding MS4 network, including the location of all storm drain inlets and collection areas that receive stormwater discharges from the identified PLUs areas;
- Proposed locations of all certified FCS and where any combination of controls will be implemented to achieve FCSE; and
- Proposed locations of equivalent alternative land uses for PLUs.

This document presents the City's TIP, developed as required by the 13383 Order and subject to the NCRWQCB's Executive Officer's approval.

1.3 Track 2 Compliance Approach

Compliance with Track 2 requires the City to install, operate, and maintain any combination of FCS, multi-benefit projects, other treatment controls, and/or institutional controls (collectively referred to as best management practices (BMPs)) in PLUs. The Trash Provisions define PLUs 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 sale 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).

Table 1 provides the total acreage of each PLU found in the City boundary.



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Table 1. Priority Land Uses

| Priority Land Use | Total Acres |
|--------------------------------|-----------------------------------|
| High Density Residential | 29.8 |
| Industrial | 55.3 |
| Industrial/Commercial | 60.4 |
| Commercial | 76.6 |
| Mixed Urban | 48.8 |
| Public Transportation Stations | 24 Bus Stops, SMART Train Station |

To meet the requirements of the Track 2 of the Trash Provisions and the 13383 Order, the City must plan, develop, and implement a combination of BMPs in PLUs that will result in 100 percent reduction in the discharge of trash to surface waters or the deposition of trash where it may be discharged into surface waters. There is a 10-year time frame to comply with this requirement. This TIP documents the City's planning efforts and overall strategy to comply with Track 2 of the Trash Provisions. The following approach was used in developing this plan:

- Conduct On-land Visual Trash Assessments (OVTA) in PLUs to determine areas of low, moderate, high and very high trash generation levels;
- Use the OVTA findings to inform the approach for proposing FCS and institutional control measures;
- Evaluate the City's current institutional controls and practices;
- Identify additional trash control measures needed to reduce trash generation rates to "low" trash generation;
- Identify areas for FCS installation in areas where the most significant reduction in trash is needed and propose locations for FCS installation were applicable; and
- Develop a methodology for how FCSE will be demonstrated, including developing a trash generation rate to use for future compliance determination.



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2.0 BASELINE TRASH GENERATION LEVELS

Baseline trash generation levels are needed to effectively plan for Track 2 compliance and provide a starting point for demonstrating trash load reductions as part of the FCSE demonstration requirement. As part of the planning effort, the City developed baseline trash generation rates using OVTAs. This section provides an overview of the protocols used for conducting OVTAs, a presentation of the results and a calculation of the City's baseline trash generation level.

2.1 Approach

City staff conducted OVTAs using the SWRCB's *Trash Assessment Minimum Level of Effort (TAMLE) for Establishing Baseline Trash Generation Levels*. The TAMLE approach is recommended by the SWRCB for establishing baseline trash generation levels and is based on the findings of a Proposition 84 study, *Tracking California's Trash*. Additionally, the protocol has been used throughout the San Francisco Bay Area by Phase I Permittees. A copy of the TAMLE protocol is included in Appendix A. The City used the TAMLE protocol to conduct two baseline assessments as described below.

2.2 Conducting Baseline Trash Generation Assessments

The City conducted two assessments in 40 percent of the assessment frame to establish baseline trash generation rates. The assessment frame for studying trash levels is all the streets and sidewalks that are in defined PLUs. Assessment segments were identified at random throughout the each of the PLUs. A total of 16 PLU assessments were developed, representing a total of 3.46 PLU street miles out of a possible 8.51 PLU street miles.

Bus stops were also assessed throughout the jurisdiction. This included assessing bus stops both within PLUs and in other parts of the jurisdiction. Out of 24 bus stops, seven bus stops were assessed.

Additionally, the City elected to conduct one reference assessment in a non-PLU area. The purpose of this assessment was to determine baseline conditions of non-PLUs in the City limits.

The assessment frame and assessment segments are presented in Figure 1.

The first assessment was conducted on March 28, 2018 and is considered a wet weather assessment. The second assessment was conducted on May 16, 2018 and is considered a dry weather assessment. The reference assessment was conducted on September 5, 2018. Assessments were conducted directly before street sweeping events and did not take place within 48 hours of a rain event.

Following the TAMLE protocols, all assessments were conducted by two trained staff walking each assessment site on the sidewalk observing the levels of trash present on the street, sidewalk, and adjacent land areas that could be transported to the MS4. In areas where no sidewalk was present, assessments were conducted from the car.



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A trash generation level was assigned to each assessment site using the following scale:

- **Low Trash: 0-5 gallons/acre/year.** Effectively no trash can be observed on a city block or the equivalent. There may be some small pieces in the area, but they are not obvious at first glance and one individual could quickly pick them up. A low trash generation level is the goal of a stormwater trash control program and is considered equivalent to the performance of a full trash capture system.
- **Moderate: 5-10 gallons/acre/year.** Predominantly free of trash except for a few pieces that are easily observed along a city block, or the equivalent. The trash could be collected by one or two individuals in a short period of time.
- **High: 10-50 gallons/acre/year.** Trash is widely/evenly distributed, and/or small accumulations are visible on the street, sidewalks, or inlets. It would take a more organized effort to remove the litter.
- **Very High: 50-150 gallons/acre/year.** Trash is continuously seen throughout the area, with large piles and a strong impression of lack of concern for litter in that area. There is often significant litter even along gutters that are swept.

Trash generation levels for each assessment site were recorded in a field book and pictures were taken at each site to best represent the trash generation level.

2.3 Results

After completing both assessments, the results from each assessment were compared. The designated trash level is assigned to each assessment site based on the higher trash level recorded. For example, if a trash level was recorded as low for the first assessment and high for the second assessment, the designated level would be high. The results of both assessments and the designated trash level for each assessment site is summarized in Table 2.



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Table 2. Assessment Results

| Assessment Site ID | PLU | 1 st Assessment Trash Level | 2 nd Assessment Trash Level | Designated Trash Level |
|--------------------|--|--|--|------------------------|
| 1-ORH 1 | Commercial | Moderate | Low | Moderate |
| 2-Blogett | Industrial/Commercial | Low | Low | Low |
| 3-ORH 2 | Industrial | Low | Low | Low |
| 4-Potal | Industrial | Low | Low | Low |
| 5-Wilfred | High Density Residential and Mixed Use | Low | Moderate | Moderate |
| 6-ORH 3 | Mixed Use | Low | Low | Low |
| 7-East School | High Density Residential | Low | Low | Low |
| 8-Valparaiso | High Density Residential | Low | Low | Low |
| 9-ORH 4 | Mixed Use | Moderate | Moderate | Moderate |
| 10-Marsh | High Density Residential /Commercial | Low | Low | Low |
| 11-East Cotati 1 | Commercial | Moderate | Moderate | Moderate |
| 11-East Cotati 2 | Commercial | Low | Low | Low |
| 12-LaSalle | Commercial | Moderate | Moderate | Moderate |
| 13-Santero 1 | Mixed Urban | Low | Low | Low |
| 13-Santero 2 | High Density Residential | Low | Moderate | Moderate |
| 13-Santero 3 | Industrial | Low | Low | Low |
| Bus Stops | Public Transportation | Low | Low | Low |

Appendix B includes detailed information about assessment sites and findings including photos representing trash levels for each assessment site.

Additionally, staff performed verification observations in all PLU areas not included in the assessments. This process included comparing assessment results to similar PLU areas to determine consistency throughout the jurisdiction. We found that commercial retail areas had moderate trash generation levels and all other PLUs consistently had low trash generation. Using the data from verification observations was also included in determining trash generation levels throughout all PLUs.

A Baseline Trash Generation Map has been created showing the final baseline trash generation level. The map is color coded based upon trash levels observed: Green = Low, Yellow = Moderate, Red = High, and Purple = Very High. To generate the map, trash generation levels were transferred to a Geographic Information System (GIS) map, showing assessment results based on the color codes. Trash generation colors are then transferred to adjacent parcels. The Baseline Trash Generation Map is provided as Figure 2.



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2.4 Baseline Trash Generation Rate

The estimated baseline rate (volume) of trash generated from PLU areas was calculated using the methodology developed in the study *Bay Area via the Baseline Trash Generation Rates for the San Francisco Bay Area* project (BASMAA 2014). Annual trash generation rates are expressed as the volume (in gallons) of trash generated per acre of land. Rates established by BASMAA are based on average trash loading rates for each trash generation level and are presented in Table 3.

| Trash Generation Level | Trash Generation Rate, gallons/acre/year |
|------------------------|--|
| Low | Equivalent to FCS |
| Moderate | 7.5 |
| High | 30 |
| Very High | 100 |

By multiplying these rates by the corresponding acres of each PLU area, the baseline trash rates are calculated for moderate, high and very high trash generation levels. The total baseline volume of trash generated from all PLU area represents the amount of trash that is discharged to a receiving water body prior to implementation of additional FCS or equivalent institutional controls. The baseline volume will be compared to trash levels calculated in future years to evaluate compliance towards achieving FCSE.

The City has calculated the baseline trash generation rate using the findings from the OVTAs and recorded trash generation levels. The calculated rate is 293 gallons of trash per year. The baseline trash generation rate calculation is shown in Table 4 below.

| Category | Low | Moderate | High | Very High | Totals |
|---|-----|----------|------|-----------|--------|
| Trash Generation Rate, gallons/acre/year | 0 | 7.5 | 30 | 100 | -- |
| PLU Area, acres | 236 | 39 | 0 | 0 | 275 |
| Annual Estimated Trash Generation Level, gallons/year | 0 | 293 | 0 | 0 | 293 |



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3.0 EXISTING INSTITUTIONAL CONTROLS

Institutional controls are defined in the Trash Provisions as “non-structural BMPs that may include, but not be limited to, street sweeping, sidewalk trash bins, collection of trash, anti-litter education and outreach programs, producer take-back for packaging, and ordinances.” This section of the TIP provides an overview of the City’s current institutional controls used to manage trash within the City’s jurisdiction.

3.1 Street Sweeping

The City has a contract with Recology to conduct weekly street sweeping on city roads. The street sweeping schedule includes sweeping on Thursdays and Fridays. All roads within the City’s PLUs are swept at least once a week. A portion of Redwood Drive, Old Redwood Highway, and “The Hub” are swept twice a week. Street sweeping provides a direct removal of trash from city streets and provides a significant contribution to preventing trash from entering the MS4 system.

3.2 Stormwater Ordinance Enforcement

On February 14, 2017, the City adopted Municipal Code Chapter 13.68: Storm Water Ordinance. The Ordinance includes the prohibition of illegal discharges to the City’s storm drain system. Specifically related to trash, the Ordinance states that:

No person shall throw, deposit, leave, keep or permit to be thrown, deposited, placed, left or maintained, any refuse, household hazardous wastes or other hazardous wastes, garbage, debris, other wastes, or other discarded or abandoned objects or articles in or upon any storm drain system or upon any public or private plot of land in the city so that the same might become a pollutant.

The City’s Municipal Code is the main regulatory tool the City has to establish the prohibition of pollutants into the storm drain system, including trash. The Ordinance includes authority for enforcing violations of the Ordinance including issuance of a notice of violation, cease and desist order, stop work order, or compliance order.

3.3 Public Education and Outreach

3.3.1 Water Education Program

Sonoma Water provides extensive education and outreach to students located within the Sonoma Water’s service area, including the City. The program reaches students from kindergarten through high school and includes a variety of information and topics including stormwater pollution prevention and anti-littering messages as it relates to water quality.

The program includes classroom and field instructions for the following grades: transitional kindergarten, kindergarten, Grade 3 through high school. Also included are classroom materials for all grades, teacher workshops, a ZunZun musical watershed assembly, distribution of the “Kid’s Scoop” publication, and a variety of water education activities.



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For the 2017/2018 school year, Sonoma Water's Water Education Program reached a total of 603 students within the City. The program includes delivering anti-littering messages to students of all ages. This is the main mechanism used to educate students about stormwater pollution and proper trash disposal in the City.

3.3.2 County Recycle Guide

Each year the Sonoma County Waste Management Agency publishes a community recycle guide. The guide is a comprehensive document providing the community with proper disposal methods of dozens of categories of waste including batteries, recyclables, toxics, medicine, compost, and general garbage. The guide provides information on what can be recycled and where to dispose of various types of waste. The guide is published and distributed throughout the County and is available on-line. Having a user-friendly resource that describe proper disposal methods helps the community dispose of waste properly and reduce littering.

3.3.3 Communication to Business Owners

As an ongoing effort to keep trash from entering the storm drain system, the City communicates cleanup requirements with business owners in areas with frequent trash accumulation. This includes in-person communication with business owners to inform them of their responsibilities to keep trash out of the storm drain system. In the past year, the City has have communicated with Lowes, Mr. Sparkles Car Wash, Chevron Gas Station and St. Josephs Church on trash management responsibilities. The outreach has been well received and business owners are receptive to taking responsibility for trash accumulation in the area of their businesses.

3.4 Trash Receptacles

The City currently has 90 trash receptacles available in public places. The trash receptacles are maintained by City Public Works. Receptacles are emptied two to three times a week. By providing the public with easy and convenient access to trash receptacles, the likelihood of littering decreases.

3.5 Ban on Single-use Plastic Carryout Bags

On February 19, 2014, the Sonoma County Waste Management Agency passed Ordinance No. 2014-2, banning single use plastic bags at all grocery and retail stores in Sonoma County. The Ordinance went into effect September 1, 2014. The main goal of the ban was to reduce litter, to keep plastic bags out of the local waterways, and encourage the use of reusable bags.

3.6 Storm Drain Inlet Maintenance

The City's stormwater maintenance program includes cleaning approximately 20 percent of the system once a year. The City focuses on cleaning high traffic areas. The remaining lines are clean on a rotating basis each year. The City owns a vac truck, which is used for storm drain cleaning. This control includes effective trash removal directly from the system.



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4.0 EXISTING TREATMENT CONTROLS

The Trash Provisions define treatment controls as “structural BMPs to either (a) remove pollutants and/or solids from stormwater runoff, wastewater or effluent, or (b) capture, infiltrate or reuse stormwater runoff, wastewater, or effluent. Treatment controls include FCS and low impact development (LID) controls.” Treatments controls also include multi-benefit projects.

FCS is defined as a treatment control, or series of treatment controls, including but not limited to a multi-benefit project or a LID control that traps all particles that are 5 millimeters (mm) or greater, and has a design treatment capacity that is either: (a) of not less than the peak flow rate, Q, resulting from a one-year, one-hour, storm in the subdrainage area, or (b) appropriately sized to, and designed to carry at least the same flow as the corresponding storm drain. Either treatment capacity is considered acceptable and it is not necessary to select the larger of the two.

Multi-benefit projects are defined as a treatment control designed to achieve any of the benefits set forth in Section 10562, Subdivision (d) of the Water Code. Examples include projects designed to infiltrate, recharge, or store stormwater for beneficial reuse; developed or enhance habitat and open space through stormwater and non-stormwater management, and/or reduce stormwater and non-stormwater runoff volume.

LID is defined as a treatment control that employs natural and constructed features that reduce the rate of stormwater, filter out pollutants, facilitate stormwater storage onsite, infiltrate stormwater into the ground to replenish groundwater supplies, or improve the quality of receiving groundwater and surface water.

This section of the report provides an overview of the existing treatment controls already implemented in the City’s jurisdiction.

4.1 Low Impact Development

Lowe’s Home Improvement store has several biolswales, which capture the one year, 24 hour storm event. It is unknown if the LID features at Lowe’s meet the design standard for trash capture, but the City plans to further review records to make that determination.



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5.0 PROPOSED CONTROL METHODS FOR TRASH LOAD REDUCTION

To comply with the requirements of Track 2 and the 13383 Order, the City has carefully reviewed options for implementing trash control measures. The City plans to meet the requirements of Track 2 as described below:

5.1 Low Trash Generation Areas

As discussed in Section 2.2, low trash generating level is the goal of a stormwater trash control program and is considered equivalent to the performance of a full trash capture system. Therefore, for all areas determined to be low trash generating, the City proposes to continue with implementation of current institutional controls as described in Section 3.0. These institutional controls demonstrate effectiveness in the low trash generating areas. In line with the San Francisco Bay Area approach, low trash generation areas will not be further assessed and are considered to meet the requirements of the Trash Provisions.

5.2 Moderate Trash Generation Areas

The City's efforts for compliance with the Trash Provisions will be to focus efforts in all moderate trash generation areas. Each area with a moderate trash generation rate has been assigned to a trash management area, as shown on Figure 3. Trash controls will be implemented in each trash management area as follows:

5.2.1 All Trash Management Areas

Institutional control measures will continue to be implemented in all trash management areas, as described in Section 3.0.

5.2.2 Trash Management Area 1

Trash Management Area 1 will be treated with certified FCSs. There is an existing bioswale and detention basin, which treats a majority of the drainage area of Trash Management Area 1. This site has LID features and although trash was observed at a moderate level, the LID features act to prevent the trash from entering the storm drain and subsequently the Laguna de Santa Rosa.

Additionally, the City will conduct outreach in Trash Management Areas 1 with Lowe's to engage them with voluntary trash cleanup as part of normal business practices. The City plans to institute an outreach campaign that will consist of meeting with a representative of Lowe's, providing outreach materials related to stormwater pollution prevention, trash, and trash management requirements and encourage the business to voluntarily promote anti-littering and pick up litter on a daily basis. For businesses that actively participate, the City will provide recognition on the City's stormwater web page.

5.2.3 Trash Management Areas 2 through 5

Trash Management Areas 2 through 5 will all be treated with certified FCSs. The City will need to conduct feasibility studies to select the type of device to install and the appropriate location to install them. If it is determined that an area cannot be effectively treated with a full capture device, the City will reevaluate options for compliance with the Trash Provisions in that location and submit an addendum of the TIP for NCRWQCB approval.



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Additionally, the City will conduct outreach in Trash Management Areas 2 through 5 with business managers to engage them with voluntary trash cleanup as part of normal business practices, as described in Section 5.2.3.

5.2.4 Trash Management Area 6

The City is proposing to enhance institutional controls in Trash Management Area 6 by engaging with the residents and community of Santero Way. The City will periodically distribute education and outreach materials encouraging the community to use proper trash disposal methods and will provide additional resources, such as the City's stormwater pollution prevention web page and Daily Acts Community Resilience Challenge (see Section 5.3).

5.3 Jurisdictional Wide Trash Control Measures

The City will enhance the current outreach and education program by creating a trash awareness web page. The web page will detail information on stormwater pollution prevention, impacts of trash on creeks and tips for residents and businesses to help reduce trash in the City. The web page will include the TIP and periodic updates on progress. The City will gauge effectiveness of the web page by tracking the number of web page visits and report the data in the Annual Report.

The City will work with Daily Acts to include anti-litter actions to their existing Community Resilience Challenge. Daily Acts is a sustainability focused non-profit organization that inspires action to create resilient communities by spreading the belief that every choice matters. The Community Resilience Challenge is an annual community mobilization campaign that encourages community members to take action save water, grow food, conserve energy, reduce waste, and build community. Individuals register their actions and are inspired to see them implemented. By working with Daily Acts, the City will add picking up litter and properly disposing of trash to the suggested list of actions (www.dailyacts.org). Daily Acts is well respected in Cotati and should be a successful measure to engage community action.

5.4 Future Priority Land Use Development and Redevelopment

The City will require all new and redevelopment projects within PLUs to treat the entire project with the installation of certified FCSs. Additionally, the City will develop a process to ensure proper operation and maintenance of the devices, similar to the process requiring maintenance at LID projects.

As required by the 13383 Order, the City has created a jurisdiction map, which identifies the locations which will be treated by FCSs and the areas treated by FCSE. The jurisdictional map is presented as Figure 4.



Trash Implementation Plan

6.0 TRASH LOAD REDUCTION EQUIVALENCY CREDITS

Implementation of treatment controls and institutional controls for Track 2 compliance with the Trash Provisions are focused on reducing trash that is conveyed from the MS4 to receiving waters. However, trash accumulation in water ways is attributed to other sources beyond MS4 conveyance including: direct littering, dumping, wind deposition, and homeless encampments. Trash accumulation in receiving water can have a direct impact on human health, fish and wildlife, recreational uses, and is aesthetically displeasing.

Cleanup events are an effective and efficient way to remove trash from receiving water. Cleanup events can be conducted by various groups and are often used to engage the community in creek stewardship. The City currently coordinates creek cleanup activities with Daily Acts. Daily Acts leads a volunteer based cleanup effort of Cotati Creek each September during Creek Week.

To recognize the value of these cleanups, the City is proposing to receive stormwater trash reduction credits by applying a reduction credit for creek cleanups. The City is proposing to offset at a 1:1 ratio, for a load reduction credit of up to 10 percent of the baseline trash loading rate in a given fiscal year. The City's trash generation rate is 293 gallons. Using the 1:1 ratio, the City is proposing to receive a 10 percent credit for removing 29 gallons of trash from receiving water each fiscal year.



Trash Implementation Plan

7.0 FULL CAPTURE SYSTEM EQUIVALENCY DEMONSTRATION

FCSE is defined as the trash load that would be reduced if FCS were installed, operated, and maintained for all storm drains that capture runoff from the relevant PLUs. The FCSE 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 the NCRWQCB. This section of the TIP outlines the City's proposed approach to demonstrating FCSE.

The City proposes to demonstrate FCSE by conducting one routine OVTA during TIP implementation, track progress, and report results. Assessments will use a similar protocol for OVTAs implemented for establishing baseline trash generation rates. This section provides the proposed methodology for continued OVTA to demonstrate FCSE.

7.1 OVTA Progress Assessment Program

The City has developed a proposed methodology for demonstrating FCSE based on the method developed by EOA, Inc. (EOA) and distributed by the California Stormwater Quality Association (CASQA), which is widely used and accepted in the San Francisco Bay Area. This approach defines FCSE as "the consistent achievement of low trash generation in a PLU (or equivalent alternative land area), as determined via OVTAs." Based on that definition, the City proposes to demonstrate FCSE by conducting regular OVTAs on Santero Way to monitor trash level improvements over time as BMPs are implemented. The establishment of consistent low trash generation will be considered equivalent to full capture. The methodology for demonstrating FCSE includes the following components:

- Account for FCSs. Areas treated by FCSs are not subject to needing FCSE demonstration and therefore are not included in the progress assessment program.
- After accounting for FCS, continued visual assessments are only needed in Trash Management Area 6.
- Conduct a minimum of three OVTA progress assessments at 13-Santero 2, each year.
- Conduct assessment immediately following street sweeping to study street sweeping effectiveness.
- Conduct assessment no sooner than 48 hours following more than 0.25 inches of rain in a 24-hour period.
- Conduct assessment by two trained assessors.
- Record and maintain data using CASQA's Trash Reduction Calculator.
- On an annual basis, calculate trash reductions and present progress toward Trash Provision goals by comparing baseline trash levels to subsequent trash levels. Calculations will be made by using the following equation:

$$[(\text{Baseline Trash Level} - \text{Current Trash Level}) / \text{Baseline Trash Level}] * 100 + \% \text{Offset Credit} = \% \text{Trash Reduction}$$

- Present findings in the City's Annual Reports for the stormwater program.



Trash Implementation Plan

The City is proposing that three consecutive low trash generation levels is the criteria to establish compliance with FCSE. Three consecutive low trash generation scores at the 13-Santero 2 assessment would move this area from moderate trash to low trash and establish the necessary trash load reduction for this trash management area. Upon three consecutive low trash generation scores, Trash Management Area 6 would be considered low trash, meeting FCSE and the City would therefore discontinue any additional progress assessments.



Trash Implementation Plan

8.0 IMPLEMENTATION AND SCHEDULE

This TIP is subject to NCRWQCB approval and will not be implemented until approval is received and requirements are incorporated into an amended or new MS4 Permit. According to the Trash Provisions, the City will have 10 years to fully implement the plan. The City is required to complete the implementation of the plan and meet all requirements of the Trash Provisions no later than December 2030. To develop the schedule, the City has identified steps necessary to implement trash controls measure to reduce trash by 10 percent a year over a 10-year time frame. To determine how to meet a reduction of trash loading by 10 percent each year, the percent of trash loading at each trash management area was calculated as shown in Table 5.

| Year | Trash Management Area | Trash Generation Rate, gallons/year | Trash Loading Rate, percent | Cumulative Trash Reduction, percent |
|------|-----------------------|-------------------------------------|-----------------------------|-------------------------------------|
| 1 | 1 | 92 | 31.6 | 31.6 |
| 4 | 3 | 35 | 11.9 | 43.5 |
| 5 | 4 | 28 | 9.6 | 53.1 |
| 6 | 2 | 23 | 7.7 | 60.8 |
| 7 | 5 | 79 | 27.0 | 87.8 |
| 8 | 6 | 36 | 12.3 | 100 |

Based on the percent trash loading in each trash management area, the following strategy is proposed to meet a reduction of trash loading by 10 percent a year:

- In Year 1, the City will install FCS in Trash Management Area 1, providing a 31.6 percent reduction in trash loading. Thus, the Year 1 measure will provide compliance of 10 percent a year for the first three years.
- In Years 2 and 3, the City will focus efforts on developing and implementing the outreach strategy. Outreach is anticipated to reduce trash loading by 12.3 percent, with the focus of trash reduction with this control measure in Trash Management Area 6.
- In Years 4 through 7 the focus will be on installing FCS in a different trash management area each year. With the current strategy, this will reduce trash loading by cumulatively by 43.5 percent in Year 4, 53.1 percent in Year 5, 60.8 percent in Year 6, and 87.8 percent in Year 7.
- With successful institutional control measure implementation in Trash Management Area 6 trash loading will be reduced by 12.3 percent. Thus, by Year 8 the City will meet the requirement to reduce trash loading by 100 percent.
- Implementation of outreach measures and FCS operation and maintenance will continue on an on-going basis and beyond the 10-year implementation schedule.



Trash Implementation Plan

9.0 ADAPTIVE MANAGEMENT

The TIP sets out the City's plan to comply with the requirements of the Trash Provisions over a 10-year time frame. During this time, the City may need to revise the TIP for various reasons including, but not limited to incorporating new data and information, revising the strategy of implementing institutional controls and treatment controls for increased effectiveness, or reevaluating areas for FCS opportunities. The City is proposing to the NCRWQCB to allow for adaptive management of the TIP so that revisions can be made to incorporate new information as appropriate. Revisions will be submitted to the NCRWQCB for approval and will not be implemented until approval is received.



Trash Implementation Plan

10.0 DISCLOSURES

This plan was developed in part using the methodologies developed by EOA and approved by the San Francisco Bay Area Water Quality Control Board. References to the methodology were distributed by CASQA at the Trash Full Capture Equivalency Using On-land Visual Trash Assessments training. The training was given to CASQA members, including West Yost Associate staff, Colleen Hunt, author of the TIP. Authorization has been provided to use the methodology developed by EOA for compliance with Track 2 of the Trash Provisions. It is the intent of the author to give full credit to EOA for the methodology of demonstrating full capture system equivalency described herein.



Trash Implementation Plan

11.0 REFERENCES

- BASMAA, 2014. *Bay Area via the Baseline Trash Generation Rates for the San Francisco Bay Area* project. Bay Area Stormwater Management Agencies Association.
- CASQA, 2018a. *Trash Full Capture Equivalency Using On-land Visual Trash Assessments Module 1-Preparing and Conducting Baseline OVTAs*. California Stormwater Quality Association.
- _____, 2018b. *Trash Full Capture Equivalency Using On-land Visual Trash Assessments Module 2 – Using OVTAs to Demonstrate Full Capture Equivalency*. California Stormwater Quality Association.
- EOA, 2015. *Visual On-land Trash Assessment Protocol for Stormwater*. EOA, Inc.
- _____, 2016. *Tracking California’s Trash Project*. EOA, Inc.
- _____, 2017. *Technical Memo #2 (Final Draft) Trash Reduction Framework and Full Capture Equivalency Approach*. EOA, Inc.
- SWRCB, 2015. *Appendix E: Final Part 1 Trash Provisions of the Water Quality Control Plan for Inland Surface Waters, Enclosed Bays and Estuaries of California*. State Water Resource Control Board.
- _____, 2017. *Recommended Trash Assessment Minimum Level of Effort for Establishing Baseline Trash Generation Levels*. State Water Resource Control Board.



Trash Implementation Plan

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Trash Implementation Plan

10.0 DISCLOSURES

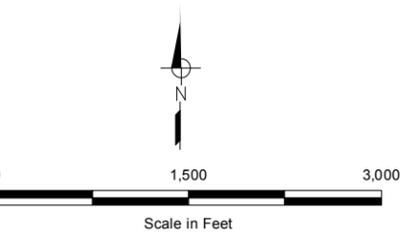
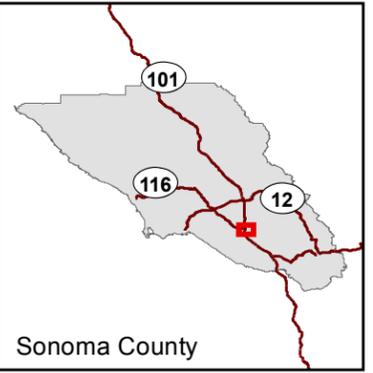
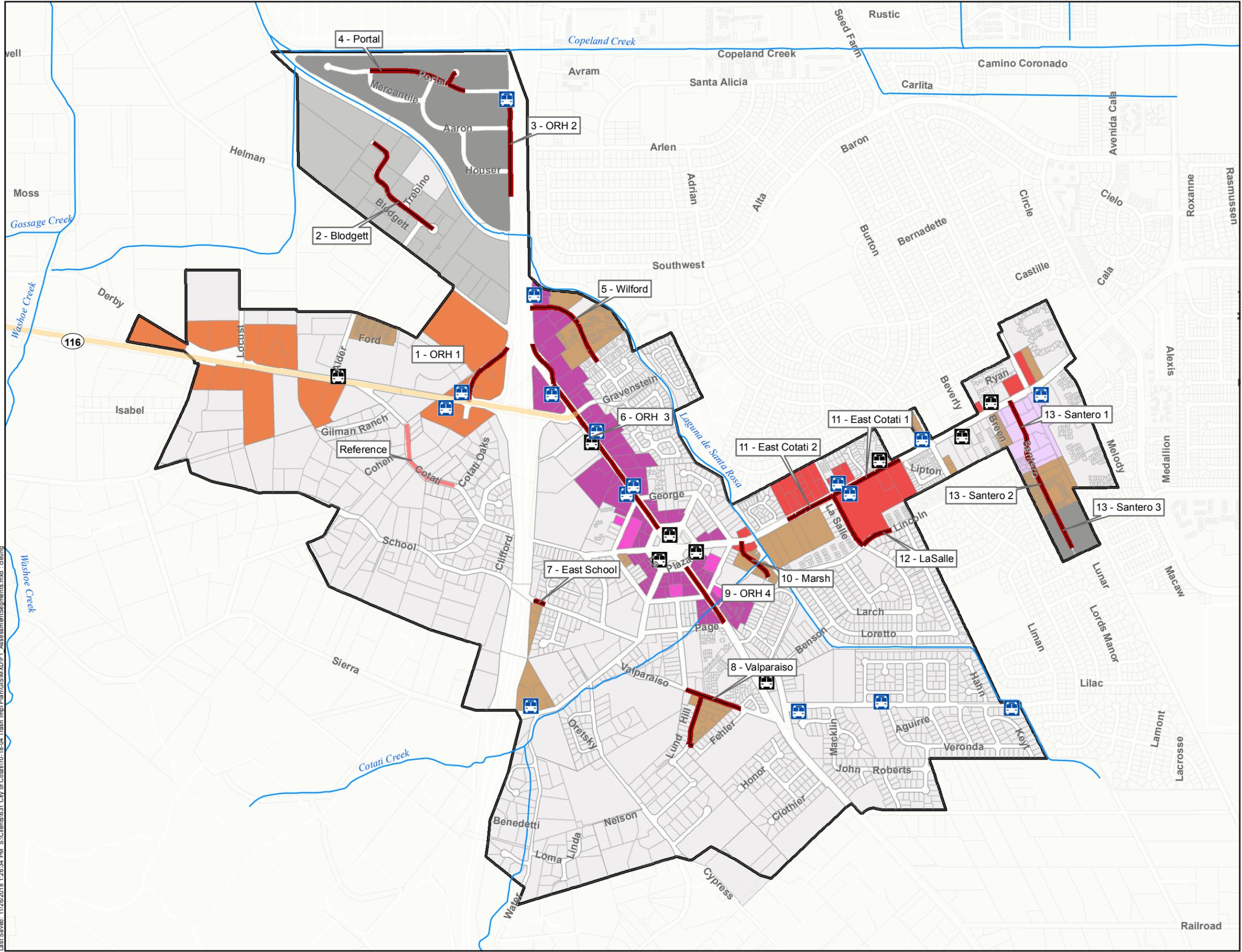
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11.0 REFERENCES

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- CASQA, 2018a. *Trash Full Capture Equivalency Using On-land Visual Trash Assessments Module 1-Preparing and Conducting Baseline OVTAs*. California Stormwater Quality Association.
- _____, 2018b. *Trash Full Capture Equivalency Using On-land Visual Trash Assessments Module 2 – Using OVTAs to Demonstrate Full Capture Equivalency*. California Stormwater Quality Association.
- EOA, 2015. *Visual On-land Trash Assessment Protocol for Stormwater*. EOA, Inc.
- _____, 2016. *Tracking California’s Trash Project*. EOA, Inc.
- _____, 2017. *Technical Memo #2 (Final Draft) Trash Reduction Framework and Full Capture Equivalency Approach*. EOA, Inc.
- SWRCB, 2015. *Appendix E: Final Part 1 Trash Provisions of the Water Quality Control Plan for Inland Surface Waters, Enclosed Bays and Estuaries of California*. State Water Resource Control Board.
- _____, 2017. *Recommended Trash Assessment Minimum Level of Effort for Establishing Baseline Trash Generation Levels*. State Water Resource Control Board.



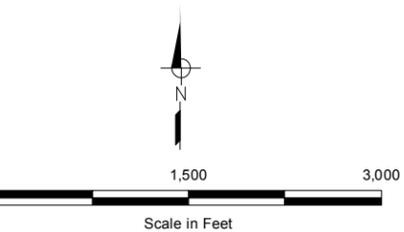
- Symbology**
- Priority Land Use Type**
- Downtown Commercial
 - Commercial, East Cotati Corridor
 - Commercial, Graventein Corridor
 - Commercial/Industrial District
 - General Industrial District
 - Neighborhood, Urban
 - Specific Plan, Downtown
 - Specific Plan, Santero Way
 - Cotati Boundary
 - Creeks
 - Assessed Streets
 - Reference Assessment
 - Caltrans Right-of-Way / Hwy 116
 - Bus Stops
 - BUS

 Bus Stops Assessed



Figure 1
Assessment Segments
 City of Cotati
 Trash Assessment

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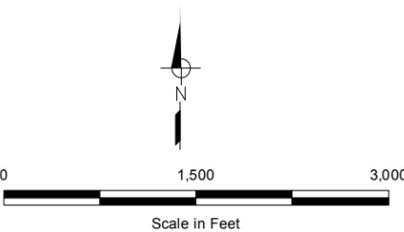
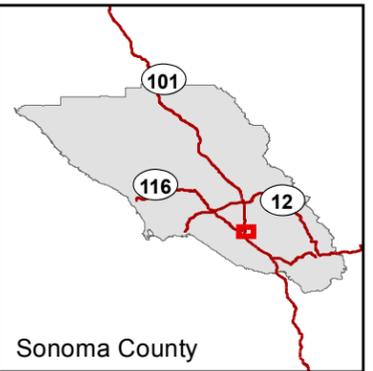
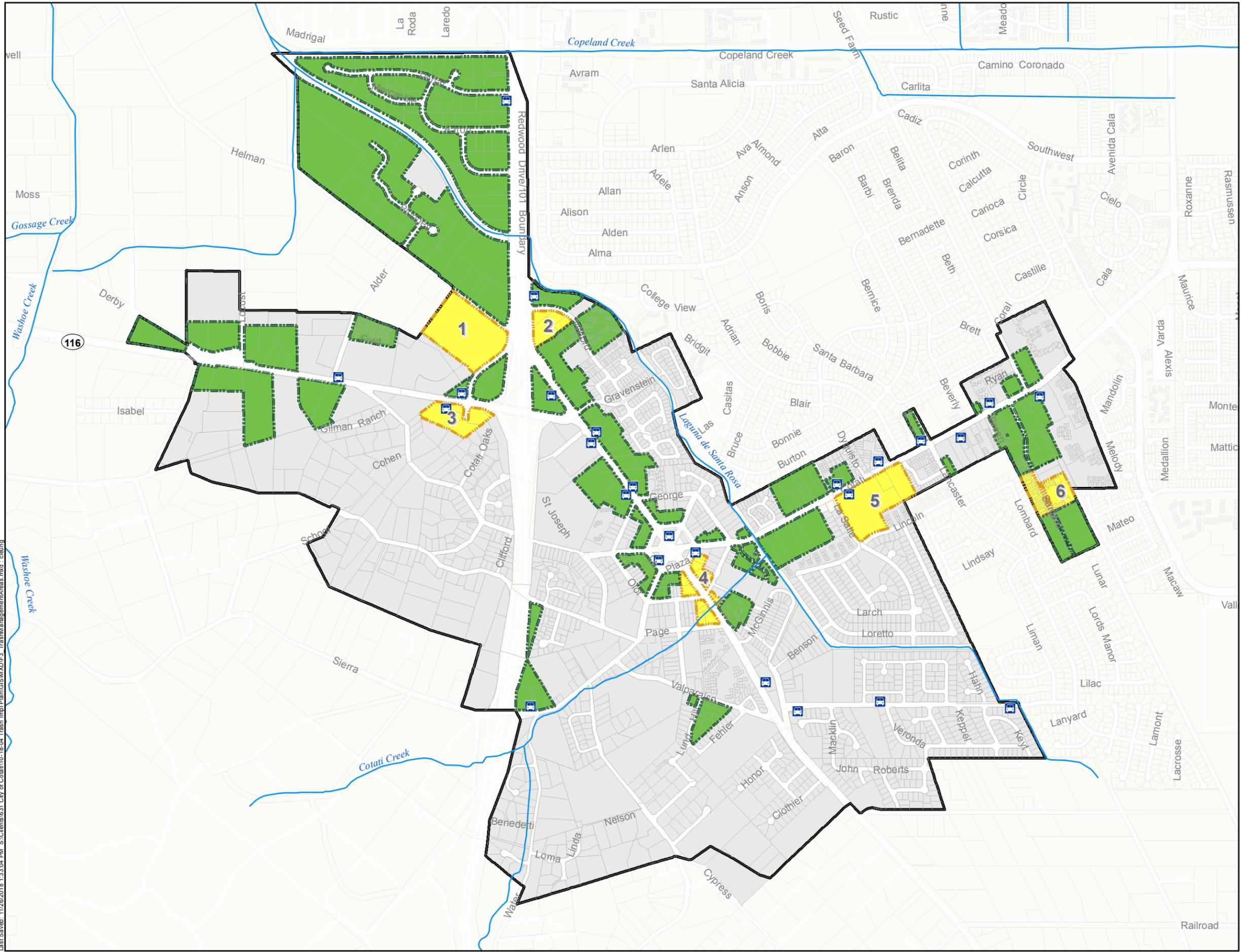


- Symbology**
- Trash Generation Category**
- Low
 - Moderate
 - Non-Priority Land Use
 - Cotati Boundary
 - Cotati Parcels
 - Bus Stops
 - Caltrans Right-of-Way
 - Creeks

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Figure 2
Baseline Trash Generation Map
 City of Cotati
 Trash Assessment

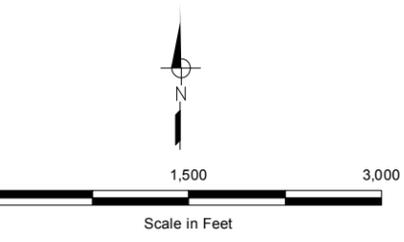
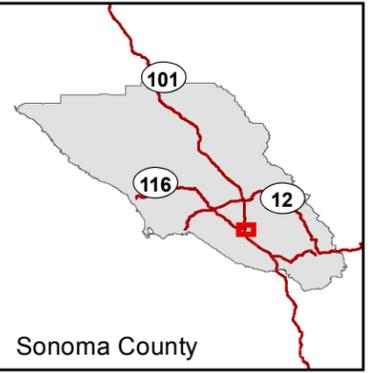
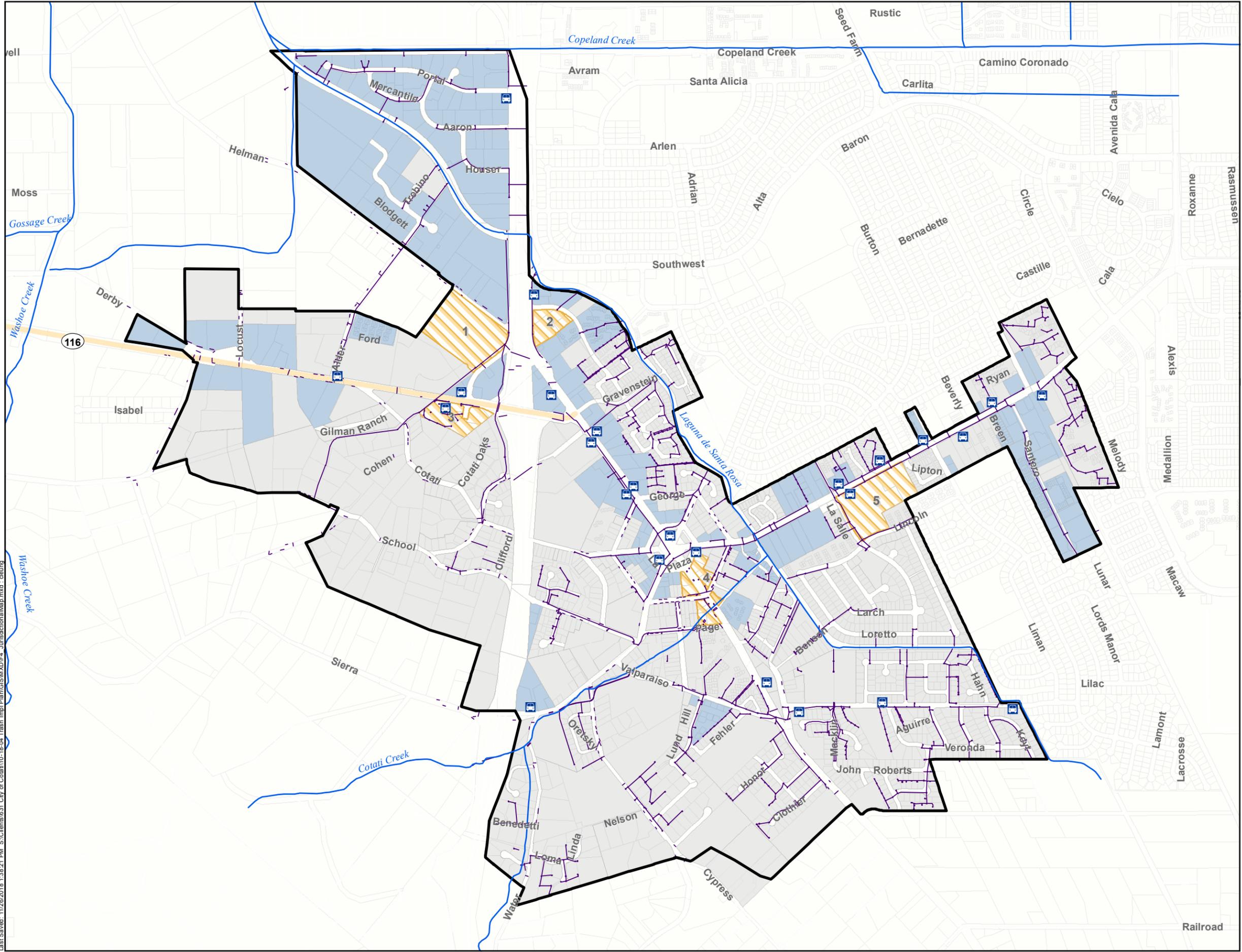


- Symbology**
- Trash Generation Category**
- Low
 - Moderate
 - Non-Priority Land Use
- Trash Management Areas**
- 1; 2; 3; 4; 5; 6
 - Low
 - Cotati Boundary
 - Cotati Parcels
 - Bus Stops
 - Creeks



Figure 3
Trash Management Areas
City of Cotati
Trash Assessment

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- Symbology**
- Cotati Boundary
 - Cotati Parcels
 - Proposed FCS
 - FCSE
 - Non-Priority Land Use
 - MS4 Network
 - Creeks
 - Caltrans Right-of-Way/Hwy 116
 - Bus Stops

- Notes:**
1. Proposed FCS are areas where full capture systems are suggested. FCSE are areas that have full capture system equivalency.
 2. The MS4 Network is the Municipal Separate Storm Sewer System.



Figure 4
Jurisdictional Map
 City of Cotati
 Trash Assessment

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APPENDIX A

TAMLE



Recommended Trash Assessment Minimum Level of Effort for Establishing Baseline Trash Generation Levels

The following trash assessment minimum level of effort (TAMLE) is recommended by the State Water Resources Control Board (State Water Board) for establishing baseline trash generation levels in Priority Land Uses and/or other land uses and locations. The TAMLE is based on the findings of a recent Proposition 84 study (Tracking California's Trash) completed in 2016 that was funded by the State Water Board. The recommended TAMLE utilizes Tracking California's Trash On-land Visual Trash Assessment protocols to establish qualitative estimates of the amount of trash generated on street segments, sidewalks and adjacent land areas, and transported into the MS4. The complete protocol can be found here:

<http://basmaa.org/Announcements/tracking-cas-trash-on-land-visual-assessments>

The protocol has been extensively and successfully used by San Francisco Bay Area Phase I municipalities to establish baseline trash generation maps that serve as the starting point for demonstrating trash reductions into the MS4. Trash generation categories (A-Low, B-Moderate, C-High, and D-Very High) based on the levels of trash observed during assessments are assigned to adjacent land areas (e.g., priority land use areas), which are then illustrated on baseline trash generation maps. Each trash generation category has a corresponding trash generation rate that was established during the Bay Area Trash Generation Rate Study (BASMAA 2014) and confirmed during the recent Tracking California's Trash project (BASMAA 2016).

Establishing Baseline Trash Generation Maps

Consistent with the 13383 Order, Phase II MS4 permittees (Permittees) are directed to submit maps illustrating priority land uses and/or other land uses and locations that drain into their MS4. Connections from within priority land use private property must also be identified. These areas serve as the locations where trash reductions are mandated by the Trash Amendments. Additionally, Permittees selecting Track 2 are also directed to identify baseline trash generation levels for each priority land use and/or other selected land uses and locations.

Equipment and Methods

The TAMLE methodology is relatively simple and inexpensive to use, but provides a level of precision needed to accurately depict baseline trash generation. The protocol requires a minimum of two field crew members, both for objectivity and safety, each trained in the use of the TAMLE protocol. Very limited equipment is needed (i.e., clipboard, pencils/pens, digital camera preferably with GPS capabilities, and field forms and maps). Bright clothing or safety vests are also recommended for field crew members.

MS4 permittees employ the following steps to establish baseline trash generation levels via TAMLEs:

Recommended Trash Assessment Minimum Level of Effort For Establishing Baseline Trash Generation Levels

1. Assemble equipment needed to conduct the assessment including the field form delineating the assessment area and review trash assessment category definitions presented in the protocol.¹
2. Once at the Priority Land Use area and other selected land use or locations to be assessed (hereinafter referred to as Assessment Area), safely walk at a normal pace on the sidewalk adjacent to the Assessment Area observing the levels of trash present on the street, sidewalk, and adjacent land areas that could be transported to the MS4. In areas where no sidewalk is present, assessments may be conducted by slowly driving adjacent to the Assessment Area and observing trash on the street and sidewalk.²
3. Collectively agree on the appropriate trash generation category to assign the Assessment Area and document the category observed on field data sheets and/or maps. Crew members should take at least one photograph per Assessment Area to document that the site was visited and to document the level of trash present.
4. Assessment results should be transferred to trash generation maps to illustrate baseline trash generation levels in the Assessment Areas. Color-coding maps based on the trash levels observed (Green=Low, Yellow=Moderate, Red=High, and Purple=Very High) during TAMLEs.

Frequency and Timing of Assessments

To accurately establish baseline trash generation levels for the Assessment Area, a minimum of two TAMLEs should be conducted on streets and sidewalks associated with each Assessment Area (BASMAA 2016). To the extent possible, assessments should be conducted during both the dry (April-September) and wet (October- March) seasons. So that baseline trash generation levels are not under-predicted, assessments should be conducted at timeframes when the greatest level of trash has accumulated on streets and sidewalks (e.g. directly before street-sweeping events). Additionally, in order to reduce the influence of recent rainfall-runoff events that may have washed street trash into storm drains, TAMLEs should only be conducted if less than 0.5 inches of rainfall has occurred in a 24 hour period, 48 hours prior to the assessment.

Estimated Resources Needed to Establish Baseline Generation Levels via TAMLEs

The extent of the Assessment Areas within each MS4 permittee's jurisdiction will govern the level of effort needed to establish the baseline trash generation levels using TAMLEs. The more Assessment Areas within a city/county, the more time and resources will be needed to conduct assessments and map the results. The following examples are based on the experience of MS4s in the San Francisco Bay Area and are given to provide rough estimates of the time that an MS4 permittee (small or moderate sized city) would need to expend to establish baseline trash generation levels in Assessment Areas using the TAMLE approach.

¹ Trash generation rates are: Low (0 – 5 gallons/acre/year); Moderate (5-10 gallons/acre/year); High (10-15 gallons/acre/year); and Very High (50-150 gallons/acre/year).

² This technique should only be used when automobiles are not parked on the street, which can obstruct the view of trash.

Recommended Trash Assessment Minimum Level of Effort
For Establishing Baseline Trash Generation Levels

| Task | Example #1 <i>Small-Sized Town/City (Pop = 12,500)</i> | Example #2 <i>Moderate-Sized City (Pop = 50,000)</i> |
|---|---|---|
| Assumptions | | |
| <i>PLU Area (acres)</i> | 150 | 1500 |
| <i>Assessment Length per PLU Area (feet per acre)</i> | 75 | 75 |
| <i>Hrs for two staff to conduct 1,000 ft assessment (including travel time)</i> | 0.5 | 0.5 |
| <i>Frequency of Assessment in each PLU Area</i> | 2 | 2 |
| Tasks | Staff Hours | Staff Hours |
| Preparation for Assessments | 5 | 20 |
| Conducting OVTAs (Two Staff Members) | 11 | 113 |
| Data Compilation/Management | 3 | 20 |
| Mapping Assessment Results | 24 | 40 |
| Total Estimated Staff Hours | 43 | 193 |

Citations

Bay Area Stormwater Management Agencies Association (BASMAA). 2014. *San Francisco Bay Area Stormwater Trash Generation Rates*. Prepared by EOA, Inc. May.

Bay Area Stormwater Management Agencies Association (BASMAA). 2016. Evaluation of the On-land Visual Assessment Protocol as a Method to Establish Baseline Levels of Trash and Detect Improvements in Stormwater Quality. Tracking California's Trash Project. State Water Resources Control Board Grant Agreement No. 12-420-550. Prepared by EOA, Inc. December.

APPENDIX B

Assessment Log

Assessment ID: 1-ORH 1

Final Trash Level Designation: Moderate

Land Use: Commercial

Assessment Length: 841 ft

Description: Segment 1 is located on Old Redwood Highway adjacent to the Lowe's parking lot. The area is considered commercial land use with long streets of sidewalk to populated crosswalks. The area contained abundant vegetation and swales that held trash.

Photo:



WET WEATHER

Date: 3/28/2018

Trash Generation Level: Moderate

DRY WEATHER

Date: 5/16/2018

Trash Generation Level: Low Trash

Assessment ID: 2-Blodgett

Final Trash Level Designation: Low Trash

Land Use: Industrial/Commercial

Assessment Length: 1,470 ft

Description: Segment 2 is located on Blodgett Street within an industrial and commercial land use. This area is composed of wide roads and only industrial office fronts were in view from the road.

Photo:



WET WEATHER

Date: 3/28/2018

Trash Generation Level: Low Trash

DRY WEATHER

Date: 5/16/2018

Trash Generation Level: Low Trash

Assessment ID: 3-ORH 2

Final Trash Level Designation: Low Trash

Land Use: Industrial

Assessment Length: 1,265 ft

Description: Segment 3 is on Old Redwood Highway and was adjacent to industrial land use as well as some commercial. Stores such as patio, paint, auto and outdoor shops were found in the area.

Photo:



WET WEATHER

Date: 3/28/2018

Trash Generation Level: Low Trash

DRY WEATHER

Date: 5/16/2018

Trash Generation Level: Low Trash

Assessment ID: 4-Portal

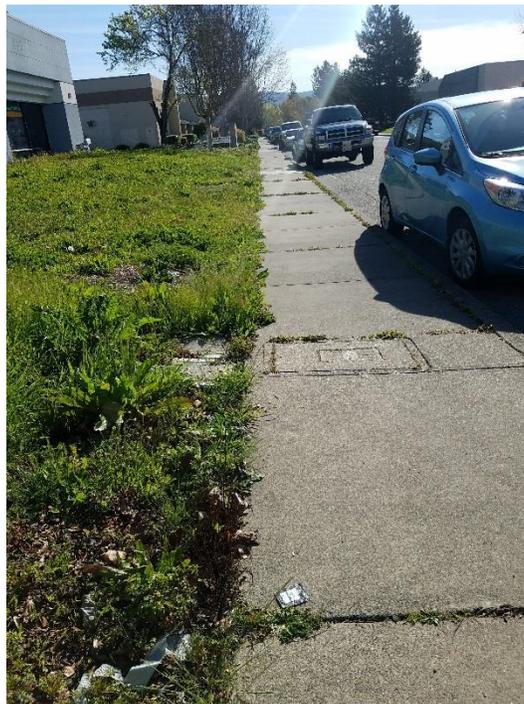
Final Trash Level Designation: Low Trash

Land Use: Industrial

Assessment Length: 1,364 ft

Description: Segment 4 is located on Portal Street and adjacent to industrial land use.

Photo:



WET WEATHER

Date: 3/28/2018

Trash Generation Level: Low Trash

DRY WEATHER

Date: 5/16/2018

Trash Generation Level: Low Trash

Assessment ID: 5-Wilfred

Final Trash Level Designation: Moderate

Land Use: **Commercial** High Density Residential and Mixed Use

Assessment Length: 1,157 ft

Description: Segment 5 is located on Wilfred Lane in high density residential and mixed use land use. The residential area is adjacent to a plaza that has restaurants, hardware stores, and a car wash.

Photo:



WET WEATHER

Date: 3/28/2018

Trash Generation Level: Low Trash

DRY WEATHER

Date: 5/16/2018

Trash Generation Level: Moderate

Assessment ID: 6-ORH 3

Final Trash Level Designation: Low Trash

Land Use: Mixed Use

Assessment Length: 2,712 ft

Description: Segment 6 is located on Old Redwood Highway and adjacent to mixed use land use. The area is comprised of restaurants, coffee shops, gas stations, single family homes, and vacant lots.

Photo:



WET WEATHER

Date: 3/28/2018

Trash Generation Level: Low Trash

DRY WEATHER

Date: 5/16/2018

Trash Generation Level: Low Trash

Assessment ID: 7-East School

Final Trash Level Designation: Low Trash

Land Use: High Density Residential

Assessment Length: 147 ft

Description: Segment 7 is located on East School Street in a high density residential land use. The houses in the area were one-story and two-story houses.

Photo:



WET WEATHER

Date: 3/28/2018

Trash Generation Level: Low Trash

DRY WEATHER

Date: 5/16/2018

Trash Generation Level: Low Trash

Assessment ID: 8-Valparaiso

Final Trash Level Designation: Low Trash

Land Use: High Density Residential

Assessment Length: 1,384 ft

Description: Segment 8 is located on Valparaiso Avenue in high density residential land use. The area was adjacent to open fields and many houses had tall bush fences.

Photo:



WET WEATHER

Date: 3/28/2018

Trash Generation Level: Low Trash

DRY WEATHER

Date: 5/16/2018

Trash Generation Level: Low Trash

Assessment ID: 9-ORH 4

Final Trash Level Designation: Moderate

Land Use: Mixed Use

Assessment Length: 812 ft

Description: Segment 9 is located on Old Redwood Highway in the Downtown area as mixed use land use. The area consists of restaurants, small markets, and shops with ample parking spots at 45 degree angles adjacent to businesses. Storm drains were located within a corner of the parking areas.

Photo:



WET WEATHER

Date: 3/28/2018

Trash Generation Level: Moderate

DRY WEATHER

Date: 5/16/2018

Trash Generation Level: Moderate

Assessment ID: 10-Marsh

Final Trash Level Designation: Low Trash

Land Use: High Density Residential/Commercial

Assessment Length: 574 ft

Description: Segment 10 is located on March Way where there is some commercial land use at the northern part of the street then high density residential land use as the street moves further south. As the street progresses, the houses change from apartments to single family houses.

Photo:



WET WEATHER

Date: 3/28/2018

Trash Generation Level: Low Trash

DRY WEATHER

Date: 5/16/2018

Trash Generation Level: Low Trash

Assessment ID: 11-East Cotati 1

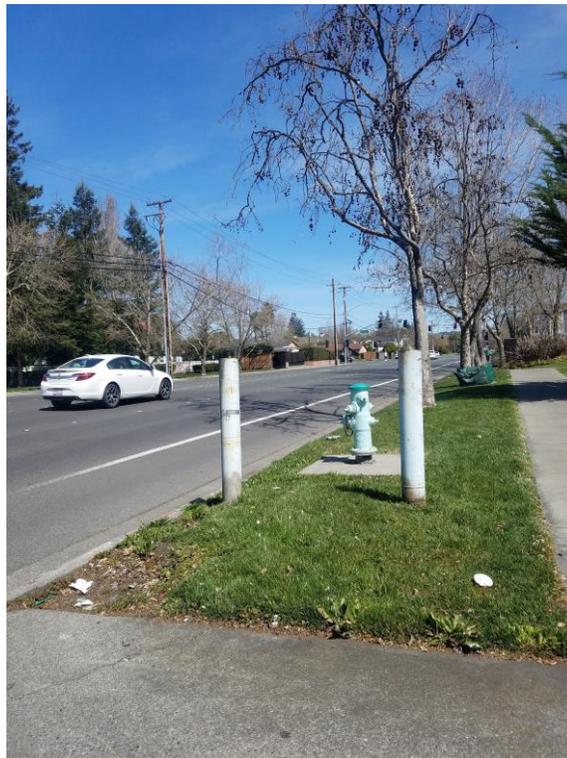
Final Trash Level Designation: Moderate

Land Use: Commercial

Assessment Length: 909 ft

Description: Segment 11.1 is located on East Cotati Avenue and in commercial land use. The area is adjacent to a shopping plaza that includes an Oliver's Market, Starbucks, and other businesses and restaurants.

Photo:



WET WEATHER

Date: 3/28/2018

Trash Generation Level: Moderate

DRY WEATHER

Date: 5/16/2018

Trash Generation Level: Moderate

Assessment ID: 11-East Cotati 2

Final Trash Level Designation: Low Trash

Land Use: Commercial

Assessment Length: 620 ft

Description: Segment 11.2 is located on East Cotati Avenue in commercial land use that composed of office buildings including an animal hospital and dentist office.

Photo:



WET WEATHER

Date: 3/28/2018

Trash Generation Level: Low Trash

DRY WEATHER

Date: 5/16/2018

Trash Generation Level: Low Trash

Assessment ID: 12-LaSalle

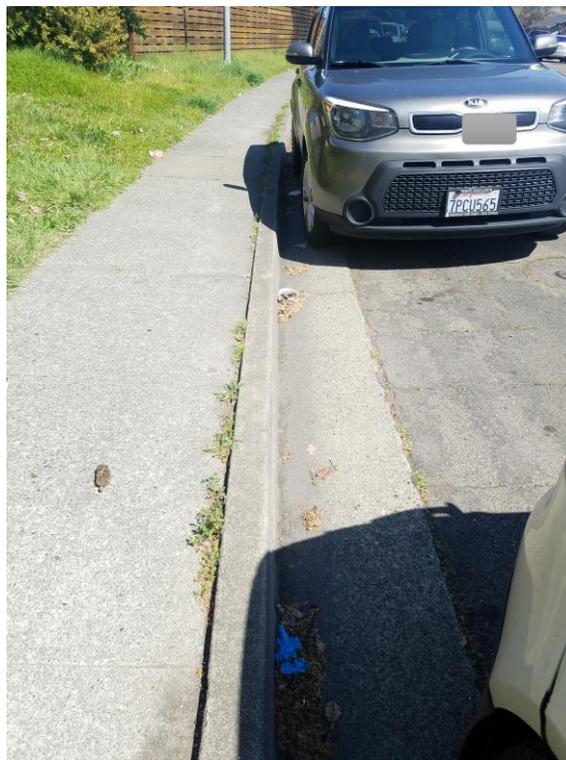
Final Trash Level Designation: Moderate

Land Use: Commercial

Assessment Length: 1,093 ft

Description: Segment 12 is located on La Salle Avenue and is in commercial land use. The street wraps around to the back of Oliver's Market and had ample parking. The street adjacent to the plaza was generally blocked off with trees, bushes, or fences.

Photo:



WET WEATHER

Date: 3/28/2018

Trash Generation Level: Moderate

DRY WEATHER

Date: 5/16/2018

Trash Generation Level: Moderate

Assessment ID: 13-Santero 1

Final Trash Level Designation: Low Trash

Land Use: Mixed Urban

Assessment Length: 700 ft

Description: Segment 13.1 is located on Santero Way and is adjacent to the train tracks for the SMART train. The other side of the road had a car wash and barren land.

Photo:



WET WEATHER

Date: 3/28/2018

Trash Generation Level: Low Trash

DRY WEATHER

Date: 5/16/2018

Trash Generation Level: Low Trash

Assessment ID: 13-Santero 2

Final Trash Level Designation: Moderate

Land Use: High Density Residential

Assessment Length: 766 ft

Description: Segment 13.2 is located on Santero Way in a high density residential land use. Most of the housing were two stories or more and looked newly built with a grass lawn in adjacent to ample parking and housing.

Photo:



WET WEATHER

Date: 3/28/2018

Trash Generation Level: Low Trash

DRY WEATHER

Date: 5/16/2018

Trash Generation Level: Moderate

Assessment ID: 13-Santero 3

Final Trash Level Designation: Low Trash

Land Use: Industrial

Assessment Length: 465 ft

Description: Segment 13 is located on the southernmost part of Santero Way and is adjacent to industrial land use. There are a few industrial buildings as well as a storage unit.

Photo:



WET WEATHER

Date: 3/28/2018

Trash Generation Level: Low Trash

DRY WEATHER

Date: 5/16/2018

Trash Generation Level: Low Trash

Assessment ID: Bus Stops

Final Trash Level Designation: Low Trash

Number of Bus Stops in the City: 24

Number of Bus Stops Assessed: 7

Main Route Description: Bus route move through populated streets.

Description: Bus stops were identified as having low trash generation. However, the bus stops within the commercial retail areas were identified as having moderate trash generation. The bus stops themselves did not seem to be the source of trash, but rather the correlation within the commercial retail areas. Buses traveled mainly along Old Redwood Highway and East Cotati Avenue. There is a bus route along Myrtle Avenue that was also accessed and leads to Rohnert Park.

Photo:



WET WEATHER

Date: 3/28/2018

Trash Generation Level: Low Trash

DRY WEATHER

Date: 5/16/2018

Trash Generation Level: Low Trash