



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).

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:

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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.

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.

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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.

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.