



Trash Monitoring Plan

Prepared by:

California Department of Transportation

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July 2024

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07/19/2024

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Acronyms and Abbreviations

| | |
|----------------------|---|
| BMP | Best Management Practice |
| Caltrans | California Department of Transportation |
| CDO | Cease and Desist Order |
| CSR | customer service request |
| FCSE | Full Capture System Equivalency |
| FY | fiscal year |
| IMMS | Integrated Maintenance Management System |
| LOS | level of service |
| Manager | Caltrans District Maintenance Manager |
| MS4 | municipal separate storm sewer system |
| NPDES | National Pollutant Discharge Elimination System |
| OVTA | On-Land Visual Trash Assessment |
| Permit | Statewide Caltrans NPDES Permit |
| Regional Water Board | Regional Water Quality Control Board |
| ROW | right-of-way |
| SHS | State Highway System |
| State Water Board | State Water Resources Control Board |
| STGA | Significant Trash-Generating Area |
| Systems | full trash capture systems |
| TAM | Trash Assessment Methodology |
| TMP | Trash Monitoring Plan |

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1.0 Background

1.1 Purpose

The purpose of this Trash Monitoring Plan (TMP) is to describe the California Department of Transportation's (Caltrans) compliance framework to comply with the Statewide Caltrans National Pollutant Discharge Elimination System (NPDES) Permit (Order 2022-0033-DWQ) (Permit) Attachment E Trash Implementation Requirements and the Trash Assessment Methodology (TAM) approved by the State Water Resources Control Board (State Water Board) Executive Director on January 22, 2024. As required by the Permit, the TMP is due by July 22, 2024, 6 months after the TAM approval date.

The Permit, which became effective January 1, 2023, regulates the discharge of stormwater from the Caltrans statewide Municipal Separate Storm Sewer System (MS4). The Permit includes requirements for Caltrans to develop a TAM and a subsequent TMP to implement the TAM.

In accordance with Section E7.5 of Attachment E, Caltrans is requesting approval from the State Water Board Executive Director of alternative Interim Milestones. Section 4.1 of the TMP provides the details of this request. Caltrans seeks approval to receive partial credit for trash reduction in addition to receiving credits for installing full capture systems and demonstrating Full Capture System Equivalency (FCSE) associated with institutional and other treatment controls.

1.2 Caltrans Statewide Permit Compliance

The TAM addresses the requirements in the Permit Section E9. Caltrans is using the On-Land Visual Trash Assessment (OVTA) methodology to identify Significant Trash Generating Areas (STGAs) in urban areas and a Trash Model for the non-urban areas which uses trash removal thresholds as tracked by Caltrans Integrated Maintenance Management System (IMMS). The TAM also describes trash discharge studies that seek to demonstrate whether vegetative and enhanced maintenance measure trash controls meet FCSE for at least some portion of Caltrans STGAs and/or to identify where further studies, engineering controls, or other compliance opportunities are needed for the remaining STGAs to meet full FCSE.

The TMP addresses the requirements in the Permit Section E.11. The TMP provides the details to implement the TAM, report the results of the studies, and report trash reduction results to meet the Permit Benchmarks and final compliance deadline.

Table 1 provides the Permit's Attachment E requirements and the sections of the TMP and TAM that address each requirement.

Table 1: Attachment E NPDES Permit References

| Permit Reference | Permit Requirement Description | Trash Monitoring Plan Section | Trash Assessment Methodology Section |
|-------------------------|--|--|---|
| E11.1.1 | Implementation of the TAM | Section 2.0: Trash Assessment Methodology Implementation Section 3.0: Trash Assessment Results Section 4.0: Compliance with Interim and Final Milestones | Section 3.0: Trash Assessment Schedule Section 4.0: Urban MS4 Assessment Section 5.0: Future Urban ROW Trash Assessment |
| E11.1.2 | Compliance with Interim Milestones in the Order | Section 4.0: Compliance with Interim and Final Milestones | Section 10.0: Interim Trash Reduction Milestones |
| E11.1.3 | Quantification and reporting methods for the actual annual trash reduction | Section 6.0: Annual Trash Reduction | Section 12.0: Annual Trash Reduction |
| E11.1.4 | Effectiveness of implemented full capture systems, other treatment controls, and/or institutional controls | Section 7.0: Effectiveness of Trash Controls | Section 9.0: Full Trash Capture Equivalency |
| E11.1.5 | Compliance with full capture system equivalency | Section 5.0: Full Capture System Equivalency | Section 9.0: Full Trash Capture Equivalency |
| E11.1.6 | Maintenance of the full capture systems, other treatment controls, and/or institutional controls | Section 8.0: Maintenance | N/A |
| E11.1.7 | Compared quantity of trash discharged from Caltrans' MS4 from the previous year | Section 9.0: Annual Trash Discharge Reduction Comparison | Section 11.0: Baseline Trash Volume Section 12.0: Annual Trash Reduction |
| E11.1.8 | Quantity of trash in the receiving waters, compared from the previous year | Section 10: Quantity of Trash in Receiving Waters | N/A |

| Permit Reference | Permit Requirement Description | Trash Monitoring Plan Section | Trash Assessment Methodology Section |
|-------------------------|---|--|---|
| E11.2.1 | Geographic information system-mapped locations and drainage areas of all STGAs | Section 3.3: Caltrans 2024 STGA Inventory Section 4.2 Trash Assessment & Compliance Dashboard | Section 2.4: Geospatial Information System (GIS) STGA Mapping |
| E11.2.2 | Geographic information system-mapped locations of all implemented full capture systems, other treatment controls, and/or institutional controls | Section 3.3: Caltrans 2024 STGA Inventory Section 4.2 Trash Assessment & Compliance Dashboard | Section 7.0 Maintenance Trash Dashboard Model |
| E11.2.3 | Estimated trash generation in all STGAs based upon trash assessments | Section 6.0: Annual Trash Reduction Section 9.0: Annual Trash Discharge Reduction Comparison | Section 11.0: Baseline Trash Volume Section 12.0: Annual Trash Reduction |
| E11.2.4 | Identification of each implemented full capture systems, other treatment controls, and/or institutional controls. | Section 3.3: Caltrans 2024 STGA Inventory Section 4.2 Trash Assessment & Compliance Dashboard | Section 7.0 Maintenance Trash Dashboard Model |

2.0 Trash Assessment Methodology Implementation

2.1 Trash Assessment by Geographic Area

The TAM describes the approved trash assessment methodologies Caltrans may use to complete the Statewide STGA inventory. Caltrans utilized the OVTA method within urban MS4 rights-of-way (ROWs), consistent with Section 4.0 of the TAM, and the Trash Dashboard Model method, consistent with Section 7.0 of the TAM, in non-urban ROW to identify STGAs. Caltrans determines trash assessments using a geographically defined approach. The protocols and methods identified herein are consistent with the requirements of the Permit and Attachments B-D of the TAM.

2.2 Full Capture System Equivalency

The TAM's trash discharge studies include a total of 59 urban and 30 non-urban locations selected to establish a maintenance activity performance standard that reduce trash discharges to the storm drain system at an equivalent level of that of certified full trash capture systems (Systems).

The TMP uses three terms to define the various stages of trash accumulation, generation, and discharge which will be also used in future annual reports. The following definitions are provided to avoid clarity of terminology:

1. Trash Accumulation - the volume of trash that accumulates on highways, streets, interchange areas, sidewalks, rest areas, and park and rides that has the potential to be transported to stormwater conveyance systems via stormwater runoff.
2. Trash Generation - the volume of trash that enters storm drain inlets and has the potential to be discharged from stormwater conveyance systems to receiving water bodies based on OVTA rates.
3. Trash Control Discharge - the volume of trash that enters storm drain inlets and has the potential to be discharged from stormwater conveyance systems to receiving water bodies after deployment of institutional controls.

The studies include the installation of Systems, OVTAs, and measurement of trash volumes within the Systems. The volume of trash within the Systems represents the discharge volume after the implementation of vegetation and enhanced maintenance controls. Depending upon the results of the trash discharge studies, installation of Systems at additional locations may be needed to demonstrate FCSE. The State and Regional Water Boards will be consulted both during and after completion of the studies to discuss the progress and outcomes of the studies and whether additional locations or other study refinements are warranted.

Additional background details and progress of the ongoing trash discharge studies can be found in Section 5.2, *Trash Discharge Studies*.

2.3 TAM Implementation Status

Table 2 describes Caltrans' trash assessment and FCSE trash discharge study deliverable status for urban and non-urban areas. Urban areas are defined as all segments of Caltrans ROW that discharge to regulated MS4s. All other segments of the Caltrans ROW are considered non-urban areas.

Table 2 has been adapted from Table 1 of the TAM and demonstrates that Caltrans is on schedule in fulfilling trash assessment deliverable commitments.

Table 2: Trash Assessment Methodology and Schedule by Area Types

| Urban Areas | | | Non-Urban Areas | | |
|------------------------|---|----------------------|--------------------------|---|----------------------|
| Date Range | Assessment Methodology | Status | Date Range | Assessment Methodology | Status |
| 2018–2019 | OVTAs conducted at 849 centerline miles of high traffic urbanized areas | <u>Complete</u> | Sept 2023– Dec 2023 | IMMS Trash Dashboard Development | <u>Complete</u> |
| Mar 2020– Nov 2023 | Vegetation Control Study | <u>Complete</u> | Dec 2023– Apr 2024 | Initial IMMS Ratings of 12,053 centerline miles as automated through the Trash Dashboard Model | <u>Complete</u> |
| Dec 2023– June 2024 | OVTAs conducted at 2,115 centerline miles of urban areas not previously assessed | <u>Complete</u> | Apr 2024– Dec 2024 | Confirmation OVTAs conducted at 500 centerline miles of low, moderate, high, or very high segments | <u>In Progress</u> |
| Mar 2023– July 2026 | Paved Area Trash Discharge Study that includes 45 high traffic locations within the jurisdictions of the Los Angeles and San Francisco Regional Water Board | <u>In Progress</u> | Mar 2023– July 2025 | Paved Area Trash Discharge Study that includes 30 locations (including 10 high-traffic locations between regulated MS4s) within the jurisdictions of the North Coast and San Francisco Water Boards. | <u>In Progress</u> |
| - | CSR = customer service request; LOS = level of service | | April 2024– June 2026 | Final IMMS Desktop Rating reconciliation of 12,053 centerline miles as automated through the Trash Dashboard Model; refined through discharge studies and IMMS optimization. | <u>In Progress</u> |
| 2026, 2028, 2030 | Biannual LOS, or OVTA, visual trash assessment of moderate, high, and very high STGA where full capture equivalency has been attained. Biannual trash dashboard or CSR indicator assessments of low trash generating areas | <u>Future Effort</u> | 2026, 2028, 2030 | Biannual LOS, or OVTA, visual trash assessment of moderate, high, and very high STGA where full capture equivalency has been attained. Biannual trash dashboard or CSR indicator assessments of low trash generating areas | <u>Future Effort</u> |

3.0 Trash Assessment Results

Caltrans has completed trash assessments for 100% of its ROW as of May 2024. This has increased the total STGA acreage by 24,570 acres from 16,445 acres to 41,015 acres.

3.1 Urban Area Trash Assessments

Caltrans visually assessed 2,115 urban centerline miles in 2024, augmenting the 849 urban centerline miles that were assessed in 2019, to complete trash assessments to identify STGAs for urban ROW within or adjacent to any regulated MS4 (Phase I and Phase II Permittee jurisdictions) in accordance with Section 4.0 and Attachment C of the TAM.

3.1.1 Urban Area STGA Delineation

Caltrans follows the OVRTA methodology (modified for driving in the high-speed freeway ROW) of assigning a trash rating for every 0.5 mile segment. For each segment that has a moderate, high, or very high trash rating, Caltrans calculates the STGA acreage by multiplying the number of lanes and shoulders by their width.

In accordance with Section 4.3 of the TAM, Caltrans is required to refine its STGA acreage calculations for better accuracy. Caltrans determined that the 2019 acreage calculation was overbroad. For example, the 2019 calculation assumed the entire Caltrans ROW on either side of a freeway cut comprised the STGA. As it has been observed that substantial amounts of trash deposition do not travel more than 20 feet laterally along the main freeway lanes, STGA delineation has been confined to the first 20 feet for accurate representation of trash accumulation areas. Conversely, it has been observed that ramps at intersections and interchanges accumulate trash for the entire area up to the jurisdictional boundary as a result of stop-controlled vehicle movements and pedestrian interaction, therefore, the entire ramp areas are designated as STGAs.

The STGA acreage was calculated using the following:

- Directional Hwy Segment Length = 2,640 feet (0.5 mile)
- Lane width = 12 feet
- Shoulder width = 8 feet
- Roadside width = 20 feet
- 1 Acre = 43,560 square feet

Directional highway acreage estimates = {Length of Segment * [(#lanes*12' width) + ((#shoulders*8' width) + (Roadside Width))] / 43,560}*

Ramps are assigned the same trash accumulation rating as the main lane assessment and each is assigned an area of 8.5 acres. Caltrans evaluated 700 ramps in the San Francisco Bay Area and determined that more than 90% of those ramps are within 2 acres above or below the average 8.5 acres. Over the next several years, Caltrans will identify the ramps that are 2 acres above or below the average and modify the STGA

ramp acreage accordingly with a more precise estimate. If the above results in an increase or decrease in STGAs, that will be reflected in an updated STGA table.

Caltrans reviewed the acreage for the existing inventory of park and ride locations and found that the area of each was approximately 500 square feet per parking space. This was converted to STGA acreage.

The STGA acreage for rest areas was calculated using feature-specific polygons in GIS (i.e., exact).

See Tables 4 and 5 in Section 3.3, *Caltrans 2024 STGA Inventory*, for the 2024 Caltrans STGA inventory by Caltrans District and Regional Water Board.

3.1.2 System Treatment Area

When deploying Systems, compliance acreage will be calculated from the total Tributary Drainage Area (TDA) that a System receives that may include comingled flows from the STGA, non-STGA Caltrans ROW, and/or areas outside of the Caltrans ROW. Compliance credits, however, is only related to flows from the STGA area.

3.1.2.1 Maintenance Manager OVTA Rating Review

Caltrans Headquarters held meetings with District Maintenance Managers and/or designated supervisors (District Managers) in May of 2024 to provide additional field verification quality assurance refinements and review and verification of OVTA results to ensure accurately of identified STGAs.

District Managers travel highways, ramps, and collector systems weekly to inspect and observe overall conditions and to detect hazards, including the presence of trash. These inspections are an integral part of maintenance resource planning and deployment. District Managers observe overall conditions to ensure conformance with the established maintenance levels.

As a result of the District Manager meetings, 688 additional directional miles were identified as STGAs resulting in a 3,355 acres STGA increase. These STGAs are included in the 41,015 acres STGA inventory.

3.1.2.2 2019 STGA Confirmation

Prior to deployment of any trash controls for STGAs identified as part of the 2019 Trash

Implementation Plan,¹ each District Manager, or designee² will inspect each area to verify the current trash accumulation rating, using OVTA or Level of Service to accurately deploy the treatment controls relative to trash generation.

Consistent with the OVTA methodology, District Managers will conduct these inspections approximately midway between trash removal activities which is consistent with the OVTA methodology.

3.2 Non-Urban Area Trash Assessments

Caltrans is taking a three-Phase process to identify and confirm STGAs in non-urban ROWs.

3.2.1 Phase I: Trash Dashboard Rating Model

Caltrans has completed the Phase I assessment of all non-urban ROW using the Trash Dashboard Model to identify STGAs for 12,053 centerline miles in accordance with Section 6.0 and Attachment G of the TAM.

Caltrans has assigned non-urban trash ratings by establishing annual trash removal thresholds as correlated to known CDO control sites across low-, moderate, high, and very high-rated sites; as outlined in Attachment G of the TAM. The Trash Dashboard Model integrates quantitative maintenance data records to automate the trash ratings from maintenance work orders that track trash production. See Tables 4 and 5 in Section 3.3 for the 2024 Caltrans STGA inventory by Caltrans District and Regional Water Board.

3.2.2 Phase II: OVTA Confirmation Study

As part of Phase II, Caltrans will conduct confirmation OVTAs for 500 representative centerline miles of non-urbanized high traffic highways that have been assigned a low rating from the Maintenance Trash Dashboard Model. OVTAs will be conducted in accordance with TAM Attachment C “Caltrans Driving On-Land Visual Trash Assessment Protocol” and compared to the model output. The geographically diverse locations where confirmation OVTA will be performed are included in Attachment G of the TAM and in Table 3.

¹

https://www.waterboards.ca.gov/water_issues/programs/stormwater/docs/caltrans/trash_implement_plan_20181130.pdf

² Designee is defined as a Maintenance Area Superintendent, Headquarter Stormwater Manager, or District Stormwater Manager.

Table 3: Trash Model – OVTA Correlation Findings

| District / Region | County | Route | # Lanes | From | To | Miles / OVTA Segments | Average Annual Daily Traffic | Receiving Water | Trash Model Rating | | 2024 Confirmation OVTA |
|-------------------|----------------------|-------|---------|-------------|------------|-----------------------|------------------------------|-------------------------------|--------------------|-------|------------------------|
| | | | | | | | | | Rating | Miles | |
| D2 R3 | Shasta | 5 | 4 | Shasta Lake | Fisher | 25 / 50 | 10,000 – 22,000 | Trinity River | Low | 38 | PENDING |
| | | | | | | | | | Moderate | - | |
| | | | | | | | | | High | - | |
| | | | | | | | | | Very High | - | |
| D1 R1 | Mendocino / Humboldt | 101 | 4 | Ukiah | Fortuna | 100 / 200 | 8,000 – 10,000 | Russian River / Eel River | Low | 139 | PENDING |
| | | | | | | | | | Moderate | - | |
| | | | | | | | | | High | - | |
| | | | | | | | | | Very High | - | |
| D4 R2 | Sonoma | 101 | 6 | SR-37 | Santa Rosa | 25 / 50 | 80,000 – 140,000 | Estero de San Antonio | Low | 8 | PENDING |
| | | | | | | | | | Moderate | - | |
| | | | | | | | | | High | - | |
| | | | | | | | | | Very High | - | |
| D4 R2 | Sonoma Napa | 37 | 4 | SR-101 | SR-29 | 25 / 50 | 34,000 – 39,000 | San Pablo Bay | Low | 6 | PENDING |
| | | | | | | | | | Moderate | 7 | |
| | | | | | | | | | High | - | |
| | | | | | | | | | Very High | - | |
| D4, D10 R2, R5 | Contra Costa | 4 | 2 | Vasco Road | I-5 | 25 / 50 | 15,000 – 30,000 | San Joaquin Delta | Low | 13 | PENDING |
| | | | | | | | | | Moderate | - | |
| | | | | | | | | | High | - | |
| | | | | | | | | | Very High | 7 | |
| D8 R6 | San Bernadino | 15 | 6 | Barstow | State Line | 100 / 200 | 39,000 – 49,000 | Mojave / Minor Surface Waters | Low | 113 | PENDING |
| | | | | | | | | | Moderate | - | |
| | | | | | | | | | High | - | |
| | | | | | | | | | Very High | - | |
| D9 | Inyo | 395 | 2 | Big | Sonora | 100 / 200 | 4,000 – | Bishop | Low | 121 | |

| District / Region | County | Route | # Lanes | From | To | Miles / OVTA Segments | Average Annual Daily Traffic | Receiving Water | Trash Model Rating | | 2024 Confirmation OVTA |
|-------------------|----------|-------|---------|-----------------------|--------------|-----------------------|------------------------------|---|--------------------|-------|------------------------|
| | | | | | | | | | Rating | Miles | |
| R6 | Mono | | | Pine | Junction | | 15,000 | Creek | Moderate | - | PENDING |
| | | | | | | | | | High | - | |
| | | | | | | | | | Very High | - | |
| | | | | | | | | | Low | 82 | |
| D11 R9 | Imperial | 8 | 4 | SR-79 Desca nso | El Centro | 100 / 200 | 17,000 – 23,000 | Morena Reservoir / Alamo River | Moderate | - | PENDING |
| | | | | | | | | | High | - | |
| | | | | | | | | | Very High | - | |
| | | | | | | | | | Low | 82 | |

If the OVTA correlation study verifies moderate and/or low trash ratings, it will be assumed that the Trash Dashboard Model ratings are verified and other moderate and/or low rated locations are also correct, as further described in Section 9.2 and Attachments F and G of the TAM. If the data does not verify moderate or low trash ratings, Caltrans will evaluate a number of options which may include:

- Evaluate the data, including results from the Phase III non-urban trash discharge study to determine if there are specific trends or circumstances that may be used for a limited number of STGAs;
- Propose to modify the Trash Dashboard Model trash production thresholds; and/or
- Develop an alternative science-based approach.

This deliverable will start in July 2024 with results reported back to the State Water Board by December 31, 2024.

3.2.3 Phase III: Non-Urban Trash Discharge Study

Caltrans temporarily installed 30 inlet-based Systems to determine the amount of trash that is discharged from the non-urban ROW to substantiate the Trash Dashboard Model trash ratings. Sites were selected based on assumed trash ratings from Caltrans IMMS records and site safety and accessibility considerations. The following describes the site selection criteria.

- Twenty assumed low-rated non-urban highway locations within the jurisdiction of the North Coast Water Board. Caltrans started monitoring the monthly amount of trash trapped by the Systems in November 2023 and will continue through the 2025-2026 wet season; and
- Ten assumed low- and moderate-rated non-urban locations within the jurisdiction of the San Francisco Bay, Central Valley, and San Diego Water Boards with high traffic volumes similar to nearby urban freeways. Caltrans started monitoring the monthly amount of trash trapped by Systems in February 2024 and will continue through the 2025-2026 wet season.

If the study verifies a high-level of confidence that the trash discharge volumes substantiate the trash production-based Trash Dashboard Model ratings, coupled with the findings from the confirmation OVTAs in Phase II, it will be assumed that the other similarly rated locations are also accurate. If the data does not verify moderate or low trash ratings, Caltrans will evaluate a number of options which may include:

- Calibration of the Trash Model trash production thresholds
- Develop an alternative science-based approach

The non-urban trash discharge study results to date can be found in Table 10.

This study started in November of 2023 and results will be reported to State Water Board by July 31, 2026.

3.2.4 Non-Urban STGA Delineation

The Trash Dashboard Model assigns trash ratings along highways within county corridors. Caltrans converts these corridors to acres to define the areas where trash accumulates within the Caltrans ROW. The STGA acreage was calculated from the number of lanes and shoulders and dimensions that account for right-of-way areas where trash accumulates.

As it has been observed that substantial amounts of trash deposition do not travel more than 10 feet laterally along the main freeway lanes, STGA delineation has been confined to the first 10 feet for accurate representation of trash accumulation areas. The difference in lateral offset compared to the urban setting can be attributed reduced trash loading and regeneration from less traffic volumes, population, and lack of commercial land uses; coupled with a higher density of roadside vegetation that confines the accumulation area. Conversely, it has been observed that ramps at intersections and interchanges accumulate trash for the entire area up to the jurisdictional boundary as a result of stop-controlled vehicle movements and pedestrian interaction, therefore, the entire ramp areas are designated as STGAs.

The STGA acreage was calculated using the following:

- Directional Hwy Segment Length = 2,640 feet (0.5 mile)
- Lane width = 12 feet
- Shoulder width = 8 feet
- Roadside width = 10 feet
- 1 Acre = 43,560 square feet

Directional highway acreage estimates = {Length of Segment * [(#lanes*12' width) + ((#shoulders*8' width) + (Roadside Width))] / 43,560}*

Ramps are assigned the same rating as the main lane trash accumulation assessment, however, a unique conversion rate of 8.5 acres per ramp was used. Caltrans evaluated 700 ramp acreage data in the San Francisco Bay Area and determined that 90%+ of those ramps are within 2 acres above or below the average 8.5 acres. Over time, Caltrans will identify the ramps that are 2 acres above or below the average and modify the STGA ramp acreage accordingly with a more precise estimate. If the above results in an increase in STGAs, that will be reflected in an updated STGA table.

3.3 Caltrans 2024 STGA Inventory

Caltrans is responsible for conducting trash assessments, in accordance with the approved TAM, to determine statewide locations where trash accumulates in significant amounts and documenting the resulting STGAs in a GIS-based web map. The resulting STGAs from OVTAs from the urban areas and Trash Dashboard Model in the non-urban areas, is being managed by Caltrans Headquarters Division of Environmental Analysis and compiled into a GIS-based web viewer that will be available for public consumption in July 2024. The virtual maps are available for view by accessing the following URL: <https://experience.arcgis.com/experience/543e95ec5eed4339a4733a890de4697c/>

Tables 4 and 5 identify the statewide STGA inventory by Caltrans District, Regional Water Board, geographic area, and rating type.

Table 4: 2024 STGA by Caltrans District

| Caltrans District | Water Board Region(s) | Non-Urban | Urban | Moderate | High | Very High | Total Acreage |
|-------------------|-----------------------|--------------|---------------|---------------|---------------|------------|---------------|
| 1 | 1, 5 | 106 | 0 | 106 | 0 | 0 | 106 |
| 2 | 1, 5, 6 | 434 | 454 | 882 | 6 | 0 | 888 |
| 3 | 5, 6 | 870 | 3,245 | 1,967 | 2,128 | 20 | 4,115 |
| 4 | 1, 3, 5 | 204 | 430 | 488 | 94 | 53 | 634 |
| 5 | 3, 5 | 319 | 2,533 | 1,908 | 944 | 0 | 2,852 |
| 6 | 3, 5, 6 | 2,428 | 1,420 | 3,028 | 780 | 40 | 3,848 |
| 7 | 3, 4, 5, 6 | 0 | 6,292 | 3,967 | 2,286 | 39 | 6,292 |
| 8 | 6, 7, 8, 9 | 417 | 7,475 | 3,633 | 4,234 | 25 | 7,891 |
| 9 | 6 | 0 | 0 | 0 | 0 | 0 | 0 |
| 10 | 5, 6 | 192 | 2,457 | 1,137 | 1,473 | 38 | 2,649 |
| 11 | 7, 9 | 338 | 6,801 | 3,032 | 4,051 | 57 | 7,140 |
| 12 | 4, 8, 9 | 0 | 4,601 | 1,855 | 2,695 | 51 | 4,601 |
| Totals | -- | 5,307 | 35,709 | 22,003 | 18,689 | 323 | 41,015 |

Note: Table excludes acreage under San Francisco Bay Water Board CDO and Los Angeles Water Board Total Maximum Daily Load (TMDL) enforcement actions.

Table 5: 2024 STGA by Regional Water Board

| Water Board Region | Caltrans District(s) | Non-Urban | Urban | Moderate | High | Very High | Total Acreage |
|--------------------|-------------------------|--------------|---------------|---------------|---------------|------------|---------------|
| 1 | 1, 2, 4 | 381 | 100 | 446 | 35 | 0 | 481 |
| 2 | 5 | 0 | 0 | 0 | 0 | 0 | 0 |
| 3 | 4, 5, 6, 7 | 351 | 2,761 | 2,134 | 978 | 0 | 3,112 |
| 4 | 7, 12 | 0 | 6,160 | 3,944 | 2,178 | 39 | 6,160 |
| 5 | 1, 2, 3, 4, 5, 6, 7, 10 | 3,500 | 7,678 | 6,615 | 4,412 | 151 | 11,179 |
| 6 | 2, 3, 6, 7, 8, 9, 10 | 320 | 549 | 435 | 435 | 0 | 869 |
| 7 | 8, 11 | 443 | 907 | 1,253 | 97 | 0 | 1,350 |
| 8 | 8, 12 | 0 | 9,976 | 3,806 | 6,095 | 76 | 9,976 |
| 9 | 8, 11, 12 | 312 | 7,576 | 3,371 | 4,461 | 57 | 7,888 |
| Totals | -- | 5,307 | 35,709 | 22,003 | 18,689 | 323 | 41,015 |

Note: Table excludes acreage under San Francisco Bay Water Board CDO and Los Angeles Water Board TMDL enforcement actions.

Caltrans also maintains an STGA inventory by ROW type such as highway, ramp, park and ride, and rest areas and are available upon request. See Table 4 of the TAM for a partial inventory. An updated inventory can be provided upon request.

3.3.1 Treatment Control Compliance Tracking

Caltrans Systems are not limited to the STGA boundaries and, in most cases, include run-off from non-STGA Caltrans ROW and runoff from areas outside of the Caltrans ROW. Caltrans engineer's follow section 800 of the Highway Design Manual³ to ensure hydraulic design criteria are met for the State Water Board 1-year, 1-hour peak flow for the entire comingled flow. Caltrans will claim compliance credit from flows generated from within the STGAs.

3.3.2 Future Assessments of Low and Moderate Rated Areas

Caltrans will perform periodic assessments of low- and moderate-rated areas using the following tools to identify deviations in trash generation over time:

1. Trash Dashboard to monitor IMMS work order trash collection and production data; and
2. Trash-related CSR data.

The Trash Dashboard and CSR indicators will assist in informing Caltrans:

- Where to focus trash collection resources to reduce trash discharges.
- Determine the actual amount of trash discharged
- Evaluate the spatial distribution and temporal changes in trash generation to evaluate the overall effectiveness of non-urban trash control programs.
- Determine if visual assessments are required to identify additional STGAs or reclassify moderate to low.

3.3.3 Special Event Considerations

A planned special event requires operational strategies for managing event-generated and background traffic on the day of the event within the affected local (venue site) and regional area. For such planned events, District Managers prepare a traffic management plan that (1) indicates how traffic, parking, and pedestrian operations will be managed on the day of the event, (2) coordinates and mitigates transportation impacts, (3) adapts to traffic demand scenarios, demand management plan, and contingencies, and mitigates the temporary trash accumulation related to the special

³ <https://dot.ca.gov/programs/design/manual-highway-design-manual-hdm>

event.

The traffic management plan is prepared in coordination multiple agencies as the impacts of the special event generally impact pedestrian and traffic corridors of multiple jurisdictions. Each District Manager, will be directly involved in special event planning to mitigate and control the temporary influence on trash accumulation.

4.0 Compliance with Interim Milestones and Final Compliance Date

Caltrans will implement and submit compliance credit acreage associated with deployment of Systems institutional controls, and other treatment controls to meet interim and final trash control milestones.

The trash reduction milestones are the following (Table 6):

1. By December 2, 2025, achieve full capture equivalency at 35% or more of the 2019 total—16,445 STGAs identified, or 5,756 acres. (please note, the Permit specifically limits the first milestone to the 16,445 STGAs identified in the 2019 TAM)
2. By December 2, 2028, achieve full capture equivalency at 70% or more of the updated total 2024—41,015 STGAs identified, or 28,711 acres.
3. By December 2, 2030, achieve full capture equivalency at 100% of the updated 2024—41,015 acres of STGAs.

Table 6: STGA Targets by Milestone

| Caltrans District | 35% | 70% | 100% |
|-------------------|--------------|---------------|---------------|
| 1 | 0 | 74 | 106 |
| 2 | 0 | 622 | 888 |
| 3 | 680 | 2,880 | 4,115 |
| 4 | 11 | 444 | 634 |
| 5 | 263 | 1,996 | 2,852 |
| 6 | 51 | 2,694 | 3,848 |
| 7 | 663 | 4,404 | 6,292 |
| 8 | 1,542 | 5,524 | 7,891 |
| 9 | 0 | 0 | 0 |
| 10 | 275 | 1,854 | 2,649 |
| 11 | 1,341 | 4,998 | 7,140 |
| 12 | 930 | 3,221 | 4,601 |
| Totals | 5,756 | 28,711 | 41,015 |

4.1 Alternative Trash Reduction Milestone Request

In accordance with Section E7.5 of the Permit, Caltrans may submit alternative Interim Milestones for State Water Board Executive Director review and consideration of approval. Caltrans is submitting an alternative Interim Milestone request as part of this TMP. If approved, Caltrans' alternative Interim Milestones will supersede the First and Second Milestones. Without approval of alternative Interim Milestones, the Department must comply with the existing Interim Milestones.

Caltrans is requesting approval of a methodology to receive partial credit for trash reduction as a result of institutional controls instead of the current First and Second Interim Milestones that are related to acreage that has achieved FSCE. Caltrans is not requesting any change to the Interim Milestone dates or compliance percentage. Caltrans acknowledges that it must achieve no trash discharge (meaning a low discharge rating) of 100% of its STGAs by December 2, 2030.

Sections E8 and E11.1.7 of the Caltrans MS4 permit require Caltrans annually report trash reduction as compared to the previous year. In addition, Section E.7 requires Caltrans to report progress toward Interim Milestones. The partial crediting framework that Caltrans is proposing is consistent with the Trash generation rates developed through the BASMAA Baseline Trash Generation Rates Project (OVTA rates)⁴ and the San Francisco Regional Water Board Municipal Regional Stormwater NPDES Permit⁵ (Order No. R2-2022-0018, as amended).

4.1.1 Partial Trash Reduction Credit Framework

Caltrans trash discharge studies, as required by the TAM, are assessing the benefit of institutional control measures (vegetation and enhanced maintenance measures) in reducing the amount of trash discharged to receiving waters. These studies are ongoing and should be complete by fiscal year (FY) 2025-2026. Once all the study data are collected and analyzed and if the data show a positive trash reduction correlation, Caltrans believes that the results of the studies will demonstrate that institutional controls within STGAs decrease the trash discharge volumes for other STGAs in the ROW. For example, STGAs with very high trash accumulation ratings may show discharge volumes, as correlated to OVTA rates, equivalent to that of a high or moderate rating, which represents a significant reduction in trash discharge. If this is adequately demonstrated, Caltrans will utilize the mid-point value of the OVTA rates in Table 7 to account for partial trash reduction crediting.

⁴ https://basmaa.org/wp-content/uploads/2021/01/tct-ovta-report_final-with-appendices.pdf

⁵

https://www.waterboards.ca.gov/sanfranciscobay/board_decisions/adopted_orders/2022/R2-2022-0018.pdf

Table 7: Trash Generation midpoint ranges (gallons/acre/year)

| 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) |

Figure 1 and Table 8 show the partial credit calculation by subtracting the trash generation rate after application of the institutional control (vegetation or enhanced maintenance) from the trash generation before the control was implemented.

Figure 1: Trash Reduction Credit Calculation



Table 8: Partial Trash Reduction Credit Calculation due to Change in Trash Discharge Rating

| OVTA Trash Accumulation Rate (Gallons/Acre/Year) | OVTA Trash Generation Rate after Institutional Control (Gallons/Acre/Year) | Partial Trash Reduction Crediting (Accumulation – Discharge) (Gallons/Acre/Year) |
|--|--|--|
| Very High 100 | High 30 | 70 |
| Very High 100 | Moderate 7.5 | 92.5 |
| High 30 | Moderate 7.5 | 22.5 |

Should the proposal be accepted by the State Water Board Executive Director, Caltrans acknowledges that partial trash reduction credits must be submitted and justified in each annual report and is subject to Regional Water Board approval. Prior to submitting each annual report, Caltrans will work with each affected Regional Water Board staff.

Although Caltrans is proposing to revise the milestones to include percent trash reduction, Caltrans will separately provide the percent acreage that has achieved full capture equivalency.

4.2 Trash Assessment & Compliance Dashboard

Caltrans is taking a spatially explicit approach to demonstrate compliance with both

interim benchmarks and final compliance. The Trash Dashboard uses volume based IMMS trash production data to identify STGAs in the non-urban setting. STGAs are assigned based on annual trash production thresholds outlined in Attachment G of the TAM. In addition, the Trash Dashboard will identify STGA and Los Angeles Water Board trash control Total Maximum Daily Load watershed locations and the corresponding compliance actions including the deployment of Systems and FCSE institutional and other treatment controls (maintenance trash collection, vegetation control, and encampment prevention). The Trash Dashboard facilitates the compilation of multi-layered data necessary to understand STGAs and to prioritize and maximize the deployment of capital-intensive Systems.

The Trash Dashboard is a powerful geospatial stormwater data management and reporting system purpose-built to aid Caltrans in automating non-urban STGA ratings; documenting the results of the urban OVTAs; integrating IMMS System inspection cleaning work orders, and tracking FCSE maintenance trash collection frequency and volumes for planning and managing stormwater assets to aid in annual compliance data reporting.

4.3 Structural Control Prioritization Considerations

District Managers are responsible for compliance efforts and are actively prioritizing the deployment of Systems or FCSE institutional controls to prevent the discharge of trash to receiving surface waters of the State or the deposition of trash where it may be discharged into surface waters of the State.

4.4 Full Capture System Equivalence Assessments

Starting in 2026, Caltrans will perform biannual assessments of all STGAs that have been claimed as FCSE to ensure sustained compliance over time. Desktop and/or visual assessments, as warranted, will indicate if institutional controls are sufficiently addressing deviations in trash generation through the final compliance date and beyond. By 2026, the trash discharge studies will have concluded if a maintenance standard has been established for areas that qualify for FCSE. The trash dashboard automates IMMS maintenance records on a monthly basis and will be available for review to determine if the minimum maintenance compliance standard is sustained.

The approved TAM allows Caltrans to elect to substitute LOS or IMMS Trash Dashboard data for OVTAs at some or all locations for the biannual trash assessments, as described in section 4.2 and Attachment D of the TAM. If Caltrans elects to substitute LOS or IMMS Trash Dashboard data for OVTA, Caltrans will notify the State Water Board of the locations to request State Water Board's concurrence.

5.0 Full Capture System Equivalency

5.1 Overview

Caltrans is required to periodically visually assess its ROWs to ensure it is controlling trash from STGAs. Caltrans will continue its efforts, started in 2020, to develop a more scientifically sound, objective, and data-driven approach to demonstrate FCSE. Below is a summary of what has been completed and what is currently planned.

5.2 Trash Discharge Studies

Caltrans is currently monitoring 89 locations (45 urban, 14 vegetative, and 30 non-urban) to establish a maintenance activity performance standard that reduce trash discharges to the MS4 at an equivalent level to that of a System. Monitoring is being conducted monthly during the wet season and once during the summer to measure trash discharge volumes and perform OVTAs.

The Trash Discharge Studies will determine the volume of trash entering the MS4 measured in gallons/acre/year. A design study (Attachment F of the TAM) has been developed and includes details on:

- Establishing maintenance frequency;
- Measuring the volume of trash entering the Systems;
- Substantiating FCSE from STGAs by correlating the trash discharge volumes to a maintenance standard when discharge volume is less than 5 gallons/acre/year; and
- Identifying trash accumulation OVTA rating where ROW locations require additional maintenance to achieve FCSE, or as an alternative, deployment of a System or use of results for partial trash reduction crediting.

Trash discharge volumes will be monitored for 3 years. The trash discharge rate will be measured for each site and the results compared to the OVTA threshold rate of 5 gallons/acre/year associated with low trash generation. This trash discharge study will substantiate enhanced maintenance measure compliance credits that Caltrans will claim toward the attainment of trash control milestones.

Enhanced maintenance measures consist of the increased current maintenance frequency efforts and associated QA/QC, as defined by the trash discharge study, as compared to the prior maintenance frequency efforts in place when the 2017 Water Code Section 13383 Order was issued to Caltrans to comply with the Trash Provisions.

Caltrans maintenance efforts have been focused on trash collection efforts as demonstrated by the year over year increase in trash removal production.

The findings of the study will be documented in a report scheduled to be completed in July 2026.

5.2.1 Urban ROW Trash Discharge Volumes

When the Urban Area Trash Discharge Study is complete, Caltrans will analyze the data (the amount of trash collected in the Systems) to determine (1) the effectiveness of maintenance in preventing trash from discharging, and (2) the corresponding trash discharge rating. If the outcome of the data analysis indicates a strong relationship between a maintenance standard in a STGA equivalent to a low OVTA discharge rate, Caltrans will apply the Study results to similar STGAs for compliance credit with Water Board approval. If the data does not demonstrate a strong relationship between maintenance in STGAs to low OVTA trash discharge rate, Caltrans will evaluate a number of options which may include:

- Evaluate the data to determine if there are specific trends or circumstances that may be used for a limited number of STGAs; and
- Develop an alternative compliance proposal such as partial crediting.

The outcome of the study will determine:

1. If the maintenance standard meets FCSE for STGAs;
2. If the maintenance standard meets partial trash reduction credits for STGAs;

The following 59 Systems are being monitored that include:

1. 20 temporary inlet-based Systems within the jurisdiction of the San Francisco Bay Water Board;
2. Five trash net Systems within the jurisdiction of the San Francisco Bay Water Board;
3. 20 temporary inlet-based Systems within the jurisdiction Los Angeles Water Board; and
4. 14 temporary inlet-based Systems in vegetated areas within the jurisdiction San Francisco Bay Water Board.

Caltrans has also defined the frequency and trash collection production metrics for ongoing enhanced maintenance actions at these locations. The locations will not be in vegetated locations which is being studied separately. To maximize the cost-effectiveness of the Study, Caltrans is clustering the locations in two high traffic volume areas in the Los Angeles and San Francisco Bay Areas.

5.2.1.1 Results to Date

Between August and October of 2023, the 40 inlet-based Systems in the San Francisco and Los Angeles metropolitan areas have been deployed and at least 5 months of data collected (Table 9). Real time OVTAs during monitoring events reveal deviations from the 2019 baseline trash accumulation ratings used to select an equal distribution of rated trash sites. Variations in trash accumulation ratings are expected over time as a result of the dynamic nature of regeneration and timing of maintenance activities.

Table 9: Baseline vs Realtime Monitoring OVTA Rating Comparison

| OVTA Trash Accumulation Rating | # Sites (Baseline) | # Sites (During Monitoring) |
|---------------------------------------|---------------------------|------------------------------------|
| Low | 10 | 2 |
| Moderate | 10 | 15 |
| High | 10 | 14 |
| Very High | 10 | 9 |

In addition to the temporary inlet-based Systems, five trash net Systems are also being monitored, with the first data point capturing the 2022–23 wet season.

Table 10 shows the phased rollout of Systems being monitored as part of the Urban area trash discharge study.

Table 10: System Deployment relative to Wet Season

| System | 2022/23 Wet Season | 2023/24 Wet Season | 2024/25 Wet Season | 2025/26 Wet Season |
|--------------------------------------|---------------------------|---------------------------|---------------------------|---------------------------|
| Trash Nets | X | X | X | X |
| Temporary Inlet-Based Inserts | | X | X | X |
| Capture Housing | | | X | X |
| Outfall Monitoring | | | TBD | TBD |

Findings from all data obtained to date reveal that some STGAs discharge trash volumes less than 5 gallons/acre/year, suggesting maintenance measures are effective at meeting FCSE. As monitoring continues over the next 2 wet seasons, data will be accumulated and analyzed to determine if statistically sound compliance trends are correlated to the maintenance standard.

Site specific trash discharge volume monitoring results to date are presented in Tables 11 through 13 below.

Table 11: 2022/23 wet Season Trash Net System Discharge Volume

| Trash Net IMMS ID | Description | Trash Accumulation Rating | Average Annual Trash Collection | Trash Net Installation Date | Date Monitored | Trash Captured (Gallons) | Drainage Area (Acres) | Trash Discharge Volume (Gal/Acre/Year) |
|-------------------|------------------------------|---------------------------|---------------------------------|-----------------------------|----------------|--------------------------|-----------------------|--|
| SWALA580-W039178 | WB I-580 TO NB SR-13 | Very High | 188 CY | March 2022 | March 2023 | 10 | 2.09 | 4.78 |
| SWALA580-EO31689 | EB I-580 @ 164 th | Moderate/High | 188 CY | March 2022 | March 2023 | 1 | 4.61 | 0.25 |
| SWALA580-W039880 | WB I-580 @ MacArthur | Moderate | 188 CY | March 2022 | April 2023 | 3 | 6.2 | 0.48 |
| SWALA880-S007278 | SB 880 @ Mowry | Moderate | 146 CY | 2020 | March 2023 | 0.25 | 10.7 | 0.02 |
| SWALA880-S006312 | SB 880 @ Stevenson | Moderate/High | 146 CY | March 2022 | April 2023 | 13.5 | 5.37 | 0.59 |

Table 12: 2023/24 Wet Season Trash Net System Discharge Volume

| Trash Net IMMS ID | Description | Trash Accumulation Rating | Average Annual Trash Collection | Trash Net Installation Date | Date Monitored | Trash Captured (Gallons) | Drainage Area (Acres) | Trash Discharge Volume (Gal/Acre/Year) |
|-------------------|------------------------------|---------------------------|---------------------------------|-----------------------------|----------------|--------------------------|-----------------------|--|
| SWALA580-W039178 | WB I-580 TO NB SR-13 | Very High | TBD CY | March 2022 | May 2024 | 50 | 2.09 | 20.50 |
| SWALA580-EO31689 | EB I-580 @ 164 th | Moderate/High | TBD CY | March 2022 | May 2024 | 1 | 4.61 | 0.19 |
| SWALA580-W039880 | WB I-580 @ MacArthur | Moderate | TBD CY | March 2022 | May 2024 | 10.5 | 6.2 | 1.56 |
| SWALA880-S007278 | SB 880 @ Mowry | Moderate | TBD CY | 2020 | May 2024 | 0.11 | 10.7 | 0.01 |
| SWALA880-S006312 | SB 880 @ Stevenson | Moderate/High | TBD CY | March 2022 | May 2024 | 0 | 5.37 | 0.00 |

Table 13: 2023/24 Wet Season Urban Trash Discharge Volume Results

| Caltrans ID | Caltrans District | Water Board Region | County | Route | Receiving Water | Site Installation Date | Site TDA (acres) | Effective Baseline Trash Rating (Pre-study rating) | Average Study OVTA Rating | Discharge (gal/ac/yr) |
|------------------|-------------------|--------------------|--------|-------|-----------------|------------------------|------------------|--|---------------------------|-----------------------|
| D4-ALA-580W-14.8 | 4 | 2 | ALA | 580 | | 9/7/2023 | 0.65 | Moderate | Moderate | 0.98 |
| D4-ALA-680N-01.7 | 4 | 2 | ALA | 680 | | 9/6/2023 | 2.64 | Low | Moderate | 0.42 |
| D4-ALA-80W-4.80 | 4 | 2 | ALA | 80 | | 11/9/2023 | 0.58 | Very High | High | 40.19 |
| D4-ALA-880N-17.9 | 4 | 2 | ALA | 880 | | 11/9/2023 | 0.56 | High | Very High | 12.90 |
| D4-ALA-880N-30.5 | 4 | 2 | ALA | 880 | | 9/6/2023 | 0.07 | High | High | 76.64 |
| D4-ALA-880S-22.8 | 4 | 2 | ALA | 880 | | 9/6/2023 | 0.27 | Very High | High | 5.52 |
| D4-ALA-880S-23.6 | 4 | 2 | ALA | 880 | | 9/7/2023 | 0.66 | Very High | High | 7.58 |
| D4-CC-4E-19.4 | 4 | 2 | CC | 4 | | 9/7/2023 | 1.71 | Moderate | High | 0.91 |
| D4-CC-4E-20.1 | 4 | 2 | CC | 4 | | 9/6/2023 | 0.18 | High | Moderate | 26.17 |
| D4-CC-680N-10.1 | 4 | 2 | CC | 680 | | 9/7/2023 | 0.02 | Low | Low | 9.18 |
| D4-CC-680N-12.1 | 4 | 2 | CC | 680 | | 9/7/2023 | 1.30 | Low | Moderate | 1.37 |
| D4-CC-680S-01.5 | 4 | 2 | CC | 680 | | 9/7/2023 | 0.43 | Moderate | Moderate | 1.48 |
| D4-CC-80E-0.92 | 4 | 2 | CC | 80 | | 9/6/2023 | 0.30 | Very High | High | 14.15 |
| D4-CC-80W-0.26 | 4 | 2 | CC | 80 | | 9/6/2023 | 0.37 | High | Moderate | 2.01 |
| D4-CC-80W-06.6 | 4 | 2 | CC | 80 | | 9/6/2023 | 0.20 | High | Very High | 9.45 |
| D4-CC-80W-4.34 | 4 | 2 | CC | 80 | | 9/6/2023 | 0.34 | Moderate | Very High | 40.56 |
| D4-SCL-280S-4.64 | 4 | 2 | SCL | 280 | | 9/6/2023 | 0.61 | High | Low | 4.49 |
| D4-SCL-680N-05.1 | 4 | 2 | SCL | 680 | | 9/7/2023 | 1.16 | Low | High | 0.40 |
| D4-SCL-85N-09.3 | 4 | 2 | SCL | 85 | | 9/7/2023 | 0.23 | Moderate | High | 4.26 |
| D4-SCL-85N-12.1 | 4 | 2 | SCL | 85 | | 9/7/2023 | 0.61 | Low | Low | 3.12 |

| Caltrans ID | Caltrans District | Water Board Region | County | Route | Receiving Water | Site Installation Date | Site TDA (acres) | Effective Baseline Trash Rating (Pre-study rating) | Average Study OVTA Rating | Discharge (gal/ac/yr) |
|-----------------|-------------------|--------------------|--------|-------|-----------------|------------------------|------------------|--|---------------------------|-----------------------|
| D7-LA-101N-10.7 | 7 | 4 | LA | 101 | | 11/28/2023 | 0.94 | Very High | High | 8.25 |
| D7-LA-10E-40.7 | 7 | 4 | LA | 10 | | 10/11/2023 | 0.58 | Low | Moderate | 26.81 |
| D7-LA-10W-32.8 | 7 | 4 | LA | 10 | | 11/28/2023 | 0.74 | High | Moderate | 2.59 |
| D7-LA-10W-37.4 | 7 | 4 | LA | 10 | | 10/11/2023 | 3.57 | Very High | Moderate | 1.19 |
| D7-LA-110N-17.6 | 7 | 4 | LA | 110 | | 9/14/2023 | 0.87 | Moderate | High | 149.27 |
| D7-LA-110S-08.9 | 7 | 4 | LA | 110 | | 10/11/2023 | 1.05 | High | Moderate | 4.31 |
| D7-LA-110S-12.1 | 7 | 4 | LA | 110 | | 10/30/2023 | 0.30 | Low | High | 39.91 |
| D7-LA-405S-08.6 | 7 | 4 | LA | 405 | | 10/11/2023 | 0.70 | Moderate | Moderate | 8.00 |
| D7-LA-405S-24.4 | 7 | 4 | LA | 405 | | 9/14/2023 | 1.61 | Low | Moderate | 1.57 |
| D7-LA-405S-26.1 | 7 | 4 | LA | 405 | | 11/28/2023 | 0.76 | Low | Moderate | 8.11 |
| D7-LA-5N-15.2 | 7 | 4 | LA | 5 | | 9/14/2023 | 0.44 | Very High | High | 36.87 |
| D7-LA-5S-15.8 | 7 | 4 | LA | 5 | | 10/30/2023 | 0.61 | Very High | High | 6.79 |
| D7-LA-605N-14.0 | 7 | 4 | LA | 605 | | 12/18/2023 | 2.46 | NA | Very High | 3.09 |
| D7-LA-605N-6.13 | 7 | 4 | LA | 605 | | 10/30/2023 | 3.38 | High | Very High | 5.01 |
| D7-LA-605S-07.4 | 7 | 4 | LA | 605 | | 10/11/2023 | 1.49 | High | Low | 4.44 |
| D7-LA-60E-28.8 | 7 | 4 | LA | 60 | | 10/11/2023 | 1.07 | High | Moderate | 7.39 |
| D7-LA-710N-10.2 | 7 | 4 | LA | 710 | | 11/28/2023 | 0.07 | Moderate | High | 175.07 |
| D7-LA-710N-16.0 | 7 | 4 | LA | 710 | | 11/28/2023 | 0.36 | Very High | High | 8.41 |
| D7-LA-710N-18.4 | 7 | 4 | LA | 710 | | 11/28/2023 | 0.39 | Moderate | High | 6.38 |
| D7-LA-710S-20.2 | 7 | 4 | LA | 710 | | 11/28/2023 | 0.45 | Moderate | Very High | 28.28 |

5.2.1.2 Urban Study Refinements

The State Water Board and San Francisco Bay Regional Water Board staff have concurred with Caltrans proposal to extend the Urban trash discharge study by 1 year through the 2025–26 wet season, which will bolster the data set being used to draw conclusions.

As monitoring data is received and assessed for trends, the following study refinements are under consideration:

1. Based on real-time trash accumulation OVTA results performed during monitoring events, consider if additional study locations are required to ensure an adequate dataset to perform analysis to define/establish defensible conclusions.
2. Add new monitoring sites with newly installed Systems and / or temporary inlet-based Systems at drainage low point segments to compare if there is a difference in discharge volume compared to segments that are on-grade. State Water Board and affected Regional Water Board staff will be notified on the number and locations of newly installed Systems for concurrence.
3. Subject to agreement from the adjacent municipalities, add up to three new monitoring sites with temporary end-of-pipe outfall net Systems that will be installed, monitored, and maintained by the adjacent municipalities.
4. Replace site D4-CCC-680N-M1 with a suitable alternative due to a lack of hydraulic connectivity. The replacement site will be documented in the study and State Water Board and affected Regional Water Board staff will be notified.
5. Extend monitoring of very high and high rated trash accumulation sites for the purpose of pursuing partial trash reduction credit, which is contingent upon State Water Board Executive Director approval of an alternative interim trash reduction milestone framework as outlined in Section 4.1, *Alternative Trash Reduction Milestone Request*.
6. Determine if additional moderate-rated trash accumulation sites are needed to substantiate FCSE, and/or partial trash reduction credits, associated with specific corridor characteristics.

Caltrans will notify the State Water Board of any Urban trash discharge study refinements to request concurrence.

5.2.2 Non-Urban ROW Trash Discharge Volume

Thirty drainage inlet locations are being studied within the jurisdictions of the North Coast, San Francisco Bay, Central Valley, and San Diego Water Boards. The locations have been deployed in non-urban ROWs with a variety of annual per mile trash collection rates.

The objectives of this portion of the trash discharge study are to:

1. Substantiate the non-urban trash ratings from the maintenance trash collection Trash Dashboard Model; and
2. Confirm if non-urban trash ratings may be influenced by high-traffic areas in between urban MS4s.

5.2.2.1 Results to Date

Between October and November of 2023, 20 Systems have been deployed and at least 2 months of data collected. OVTAs during monitoring events reveal that approximately two sites that were deployed based assumed low trash accumulation rating actually have a moderate trash accumulation rating (Table 14).

Table 14: 2023/24 Wet Season Non-Urban Trash Discharge Volume Results

| Caltrans ID | Caltrans District | Water Board Region | County | Route | Receiving Water | Site Installation Date | Site TDA (acres) | Effective Baseline Trash Rating (Pre-study rating) | Average Study OVTA Rating | Discharge (gal/ac/yr) |
|------------------|-------------------|--------------------|--------|-------|-----------------|------------------------|------------------|--|---------------------------|-----------------------|
| D1-HUM-101N-86.4 | 1 | 1 | HUM | 101 | | 12/14/2023 | 0.16 | NA | Low | 0.12 |
| D1-HUM-101S-89.4 | 1 | 1 | HUM | 101 | | 12/14/2023 | 0.01 | NA | Moderate | 60.43 |
| D1-LAK-20W-35.5 | 1 | 5 | LAK | 20 | | 2/14/2024 | 0.66 | NA | Low | 0.15 |
| D1-LAK-29S-22.1 | 1 | 5 | LAK | 29 | | 2/14/2024 | 1.66 | NA | Low | 0.03 |
| D1-LAK-29S-42.6 | 1 | 5 | LAK | 29 | | 2/14/2024 | 0.57 | Low | Low | 0.16 |
| D2-TEH-5N-28.4 | 2 | 5 | TEH | 5 | | 11/3/2023 | 0.19 | Low | Low | 1.20 |
| D2-TEH-5N-36.5 | 2 | 5 | TEH | 5 | | 11/3/2023 | 1.60 | NA | Low | 1.52 |
| D2-TEH-5N-39.4 | 2 | 5 | TEH | 5 | | 12/13/2023 | 0.73 | NA | Low | 1.17 |
| D2-TEH-5S-23.7 | 2 | 5 | TEH | 5 | | 12/13/2023 | 1.38 | NA | Low | 0.84 |
| D2-TEH-5S-27.5 | 2 | 5 | TEH | 5 | | 5/7/2024 | 0.81 | NA | | |
| D2-TEH-5S-32.1 | 2 | 5 | TEH | 5 | | 11/3/2023 | 3.19 | NA | Low | 0.51 |
| D2-TEH-5S-36.4 | 2 | 5 | TEH | 5 | | 11/3/2023 | 0.58 | Low | Low | 1.25 |
| D3-BUT-149N-02.2 | 3 | 5 | BUT | 149 | | 12/13/2023 | 0.01 | NA | Low | 3.65 |
| D3-SUT-70N-08.0 | 3 | 5 | SUT | 70 | | 11/2/2023 | 0.08 | NA | Low | 5.24 |
| D3-YOL-113N-12.6 | 3 | 5 | YOL | 113 | | 11/2/2023 | 0.03 | NA | Low | 0.00 |
| D3-YUB-20E-04.1 | 3 | 5 | YUB | 20 | | 2/13/2024 | 0.76 | NA | Moderate | 2.83 |
| D3-YUB-70N-15.9 | 3 | 5 | YUB | 70 | | 11/2/2023 | 0.14 | NA | Low | 2.61 |
| D3-YUB-70N-16.2 | 3 | 5 | YUB | 70 | | 11/2/2023 | 0.09 | NA | Low | 4.38 |
| D3-YUB-70N-21.6 | 3 | 5 | YUB | 70 | | 11/2/2023 | 0.11 | NA | Low | 0.14 |
| D3-YUB-70N-35.4 | 3 | 5 | YUB | 70 | | 12/13/2023 | 0.47 | NA | Low | 0.46 |

Table 15: 2023/24 Wet Season High-Traffic Non-Urban Trash Discharge Volume Results

| Caltrans ID | Caltrans District | Water Board Region | County | Route | Receiving Water | Site Installation Date | Site TDA (acres) | Effective Baseline Trash Rating (Pre-study rating) | Average Study OVTA Rating | Discharge (gal/ac/yr) |
|-------------------|-------------------|--------------------|--------|-------|-----------------|------------------------|------------------|--|---------------------------|-----------------------|
| D4-ALA-680N-R09.8 | 4 | 2 | ALA | 680 | | 2/14/2024 | 1.45 | NA | Low | 2.03 |
| D4-SOL-12E-02.2 | 4 | 5 | SOL | 12 | | 2/14/2024 | 0.43 | NA | Low | 0.73 |
| D4-SOL-80W-9.4 | 4 | 5 | SOL | 80 | | 3/20/2024 | 4.11 | NA | Moderate | 0.22 |
| D4-SON-101N-02.5 | 4 | 1 | SON | 101 | | 2/14/2024 | 0.27 | NA | Low | 1.89 |
| D4-SON-101N-10.6 | 4 | 1 | SON | 101 | | 2/14/2024 | 0.33 | NA | Low | 1.04 |
| D6-FRE-99N-30.6 | 6 | 5 | FRE | 99 | | 1/26/2024 | 0.14 | NA | Moderate | 1.24 |
| D6-FRE-99S-R01.9 | 6 | 5 | FRE | 99 | | 1/26/2024 | 0.46 | NA | High | 1.05 |
| D7-LA-605N-14.0 | 7 | 4 | LA | 605 | | 12/18/2023 | 2.46 | NA | Very High | 3.09 |
| D11-SD-15N-R34.4 | 11 | 9 | SD | 15 | | 1/26/2024 | 0.99 | NA | Moderate | 0.73 |
| D11-SD-15S-R40.4 | 11 | 9 | SD | 15 | | 1/26/2024 | 1.19 | NA | Moderate | 0.59 |

5.2.2.2 Non-Urban Study Refinements

As monitoring data is received and assessed for trends, the following study refinements are under consideration:

1. After conclusion of the 2024–25 wet season, Caltrans will consider if on-going monitoring is necessary to obtain additional trash discharge volume data to validate of the Trash Model rating output.
2. Replace site D1-HUM-101S-NA with a suitable alternative due to a lack of hydraulic connectivity. The replacement site will be documented in the study and State Water Board staff will be notified.

Caltrans will notify the State Water Board of any other non-urban trash discharge Study refinements to request concurrence.

5.3 Vegetation Control Discharge Study

Caltrans completed a 3-year Vegetation Control Discharge Study (*Evaluation of Vegetation Effect on Discharge of Trash, 2024*) at 14 drainage inlet locations situated in vegetated areas between 2020 to 2023. FCSE was established for moderate trash accumulation STGAs by routinely measuring how much trash volume physically entering the drainage inlets, as captured by Systems. The results showed that all 14 inlets discharged less than 5 gallons/acre/year of trash, for every data point collected over the 3-year study, when stormwater was conveyed through vegetation.

Evaluation of the data analysis indicates a strong correlation between vegetation controlling trash from moderate rated trash accumulation areas to a low discharge volume of less than 5 gallons/acre/year. Caltrans will be submitting trash control compliance credits from similar STGAs for State and Regional Water Boards approval consideration, through protocols outlined in the June 2024 final study and summarized below.

Qualifying compliance areas are calculated using a semi-automated delineation model leveraging the best available spatial information and aerial imagery. 30% of the model compliance area output are reviewed through a Quality Assurance / Quality Control assessment that confirms the following items:

1. Where vegetation occurs in the ROW
2. How surface water flows throughout the ROW
3. The quantity and location of trash accumulation in the ROW
4. The location of the storm inlets in the ROW that receive surface water runoff

Alongside the QA/QC process, assessors identify areas requiring engineering controls, such as fiber rolls, silt fences, gravel bag berms, and silt fence, to increase FCSE confidence. Caltrans has also committed to trash removal annually before the wet season and before any mowing activities. Because the study did not evaluate the relationship between vegetation controlling trash from high and very high rated trash accumulation areas to discharge volume, Caltrans is expanding the study an additional

2 years to evaluate trash discharge, as already approved by State and San Francisco Bay Water Board staff.

Table 16 shows the discharge volumes for each site, and over each year, demonstrating that the existing vegetation within the Caltrans ROW controls trash discharge to the FCSE standard. This conclusion is based on the measured trash discharge rates from all study areas meeting the Low trash generation category with a discharge volume rate between 0 and 5 gallons of trash generated per acre per year.

Table 16: Vegetative-Areas Trash Discharge Volume Results

| Site | OVTA Trash Accumulation STGA Rating | 2020-21 Trash Discharge (gallons/acre/year) | 2021-22 Trash Discharge (gallons/acre/year) | 2022-23 Trash Discharge (gallons/acre/year) |
|------|-------------------------------------|---|---|---|
| 1 | Moderate | 0.26 | 0.03 | 2.90 |
| 2 | Moderate | 0.28 | 0.15 | 0.67 |
| 3 | Moderate | 3.37 | 0.77 | 1.45 |
| 4 | Moderate | 1.20 | 1.08 | 1.17 |
| 5 | Moderate | 0.45 | 0.08 | 0.27 |
| 6 | Moderate | 0.70 | 0.00 | 0.06 |
| 7 | Moderate | 3.73 | 0.07 | 2.12 |
| 8 | Moderate | 0.00 | 0.00 | 0.00 |
| 9 | Moderate | 0.59 | 0.07 | 0.12 |
| 10 | Moderate | 0.24 | 0.16 | 0.57 |
| 11 | High | 0.00 | 0.00 | 0.00 |
| 12 | High | 0.17 | 0.35 | <i>No longer in service</i> |
| 13 | High | 0.01 | 0.06 | 1.48 |
| 14 | High | 0.34 | 0.19 | 0.27 |

Caltrans is committed to ensuring FCSE, in consultation with State and Regional Water Boards, through quality assurance and field verification and deployment of engineering controls at discharge inlets, if necessary.

Finally, a routine maintenance schedule will be identified to ensure that the visual nuisance of trash in Caltrans ROW, controlled by vegetation, is removed annually prior to the wet season and prior to mowing, to reduce the potential for discharge of trash in excess of 5 gallons/acre/year into the storm drain system.

6.0 Annual Trash Reduction

Baseline trash loading rates are quantified on a trash volume per acre basis. Trash reduction is the decrease in trash discharge after implementation of treatment controls.

Reductions in amount of trash discharged via stormwater conveyances to meet full capture equivalency is the goal of the trash control efforts.

6.1 Urban Area Loading

The State Water Board provided grant funding to BASMAA to conduct a study to determine the trash generation rates that are typical for urban settings. The result of the study was the OVTA. The OVTA converts visual observation of trash accumulation to approximate amounts of trash generation.

The degree and effectiveness of trash control measures such as manual trash collection, highway sweeping, and vegetation control affect the levels of trash observed in storm drains and Caltrans trash discharge volume studies described in Section 5.2 are currently underway for potential use as a FCSE compliance tool.

Baseline trash generation volumes established by BASMAA⁶ for each trash rating (very high, high, moderate, and low; Table 17) will be used to determine annual trash reduction in urban and non-urban areas as Systems and Institutional trash controls are deployed.

Table 17: OVTA Trash Generation Volume by Accumulation Rating

| | Trash Generation Volume (Gal/Acre/Year) |
|------------------|--|
| Low | < 5 |
| Moderate | 5.1 - 10 |
| High | 10.1 - 50 |
| Very High | 50.1 – 150+ |

6.2 Annual Report

The Permit requires that a Trash Annual Report is prepared by November 30. The report describes the implementation progress during the previous fiscal year reporting period of July 1 through June 30. As a part of the Annual Report, Caltrans will perform an annual assessment of the amount of trash reduction achieved through Systems,

⁶ https://basmaa.org/wp-content/uploads/2021/01/tct-ovta-report_final-with-appendices.pdf (basmaa.org)

other treatment controls, and institutional controls.

6.2.1 Full Capture Systems

Caltrans intends to deploy the following State Water Board Certified Full Capture Systems:

- Caltrans Gross Solids Removal System
- Caltrans Trash Nets
- Caltrans Capture Housing System
- Caltrans Linear Radial Gross Solid System

Four Categorically Certified Multi-Benefit Trash Treatment Systems which include:

- Bioretention
- Detention Basins
- Infiltration Trench or Basin
- Media Filters

As Systems are installed, the trash reduction from these Systems will be calculated by multiplying the OVTA trash generation rate(s) to the area (in acres) that flow to the device to zero.

6.2.2 Full Capture System Equivalency

As FCSE institutional controls, such as vegetation control and maintenance measures, are implemented and claimed toward compliance, the trash reduction will be calculated by comparing the difference between the OVTA trash generation rate(s) for each STGA in acres from the trash generation after trash control measures have been implemented. See section 4.2 for the proposed partial credit framework being submitted to the State Water Board Executive Director for approval.

7.0 Effectiveness of Trash Controls

Caltrans complies with trash control requirements through deployment of Systems along with institutional controls and other treatment controls that meet FCSE. As required by Section 11.1.4 of Attachment E, Caltrans must demonstrate the continued effectiveness of these controls. Effectiveness of Systems will be monitored over time through maintenance observations of Systems and minimum maintenance standards developed out of the trash discharge studies for institutional controls.

7.1 State Water Board Certified Systems

State Water Board certification ensures Systems meets the stringent qualifications set by the Trash Provisions to remove trash down to 5 mm in size for a 1-year 1 -hour event. System effectiveness is contingent upon routine maintenance to sustain the device's efficacy in capturing trash.

7.1.1 Full Capture System Pilot

A pilot is underway to evaluate three Hydrodynamic Separators and one multi-Gross Solids Removal Device to determine maintenance safety and hydraulic functionality in the freeway setting. Should the pilot yield a successful outcome, Caltrans will submit applications to receive certification of the Systems. If certified, Caltrans intends to include them with the Systems identified above for use in meeting trash control compliance objectives.

7.2 Institutional Control Effectiveness

To measure the effectiveness of maintenance efforts, Caltrans may elect to use either LOS or OVTA in accordance with Attachment's C and D of the TAM. As outlined in Section 5.2, Caltrans is currently evaluating the effectiveness of trash maintenance removal efforts in preventing trash from entering storm drain inlets to determine if FCSE can be achieved in high-traffic urban freeways.

7.2.1 Caltrans Enhanced Maintenance Measures Effectiveness

District Managers are responsible for protecting public safety and preserve Caltrans highways by maintaining and repairing the system. This includes everything from regularly scheduled trash removal activities to emergency response to illicit trash dumping.

The following trash collection activities are utilized by District Managers to control trash and address public complaints submitted through the CSR website:

1. Comprehensive Trash Collection (scheduled crews for entire corridors)
2. Freeway Trash Sweeping (Mechanized sweepers scheduled for entire corridors)
3. Trash Incident Response (continuous corridor attention to known regeneration areas and / or public service requests)
4. Encampment-related trash collection and removal

5. Adopt-A-Highway volunteer trash collection.

Caltrans Headquarters compares the above trash control activities instituted in 2017 with the enhanced trash control activities being implemented today and going forward. Caltrans Headquarters monitors the enhanced maintenance measures to ensure continuity.

7.2.2 Locally Delegated Maintenance Agreement Effectiveness

Caltrans provides funding through locally delegated maintenance agreements to collaborate with local agencies for trash cleanup in Caltrans ROW. The Streets and Highways Code permits delegation of the Caltrans powers and jurisdiction over any portion of state highways within a city or county. When a city or county is delegated any maintenance work on a conventional state highway, a maintenance agreement is processed. The agreement specifies, by total dollar amount per route and the frequency of maintenance that Caltrans has determined as appropriate for the delegated work. Caltrans maintains strict oversight of these delegated maintenance activities. Caltrans may receive trash reduction credits for these delegated activities but only for the trash generated from the STGAs.

7.3 Other Treatment Controls Effectiveness

7.3.1 Vegetation Control Effectiveness

Caltrans completed a 3-year study that evaluated the effectiveness of vegetation in controlling trash and reducing the potential to discharge into storm drain inlets in excess of 5 gallons/acre/year, thereby demonstrating FCSE as discussed in Section 5.3, *Vegetation Control Discharge Study*.

Once approved, Caltrans will be using a semi-automated compliance credit delineation protocol by leveraging the best available spatial information and aerial imagery to identify STGAs that flow through vegetation, controlling trash before it reaches the storm drain system, so that it can be routinely collected by maintenance forces prior to the wet season.

7.3.2 Encampment Removal and Deterrent Effectiveness

Although the Permit does not establish a crediting system for homeless encampment cleanup activities, Section E.9.3.c of Attachment E requires Caltrans to include an assessment of known homeless encampments within the Department's right-of-way. In addition, Attachment D, page D-10, section D5.5 #1 of the Permit requires Caltrans to implement its Homeless Encampment Policy.⁷

⁷ "The Department's Homeless Encampment Policy (Chapter 1, section 1.07.3(B) of Department's Maintenance Manual)".

Caltrans' role with respect to encampments is to collaborate with partners to help connect people living along Caltrans' transportation network with critical services and shelter; coordinate cleaning of trash and debris from encampment sites; respond to emergencies at encampments to inspect for potential damage to Caltrans' infrastructure; and restore and protect the ROW after people have been relocated.

While Caltrans cannot relocate people into shelters or provide social services on its own, Caltrans is committed to assisting local partners in their efforts to assist people living on state property. The California Highway Patrol is the law enforcement agency responsible for addressing allegations of criminal activity on state property. Encampment removals without a coordinated relocation effort across state and local agencies will likely result in people returning to the same location, moving to adjacent city or county property, or being dispersed into the community, without resolving the core issues.

Attachment D, page D-10, section D5.5 #1 of the Caltrans Statewide Municipal Permit requires Caltrans to implement its Homeless Encampment Policy.

Hardened restriction and wrought iron fencing is being placed in areas where encampments have been removed to prevent re-encampments to control the source of trash from encampments. The combined approach to connect people experiencing homelessness to social services, encampment removal, and deterrent to prevent re-encampments have eliminated the source of trash, allowing STGAs to come into trash control compliance as validated through LOS and/or OVTA. To ensure fencing continues to be effective, Caltrans performs annual inspections of sites claimed as achieving FCSE. These visual assessments confirm that the deterrent fencing is intact and the areas within the fencing are being maintained at a low trash discharge rate.

There has been a greater level of intentional participation and support between Caltrans, local governments, state agencies, and non-governmental organizations to address the humanitarian crisis facing people experiencing homelessness. Caltrans is actively engaged with all counties statewide, facilitating interagency alignment with Caltrans and municipal regional stormwater permit requirements. Caltrans continues to partner with the California Interagency Council on Homelessness in its work to end homelessness through encampment resolution grants. Caltrans is taking a holistic and compassionate approach to responding to encampment cleanups, trash service, and removals. The District Encampment Coordinator role has been created to serve as a liaison to municipal partners. The coordinators will help implement solutions that resolve the core issues in connecting the community experiencing homelessness to social services for transition housing, vaccine distribution, department of health services, and other needs.

8.0 Maintenance of Trash Controls

Caltrans IMMS is a database used to record maintenance trash collection information by activity-specific work orders. IMMS data is used to determine trends across the ROW, such as known areas with consistent trash generation, that require heightened resources.

8.1 Full Capture Systems and Other Physical Treatment Control Maintenance

Caltrans inspects all installed Systems and other physical trash treatment controls at least once every year. Caltrans has developed and utilizes a watershed-based database to track and inventory maintenance of installed Systems and other physical trash treatment controls. A summary of the tracking system data is included in the Annual Report along with a report on maintenance activities for installed Systems and other physical trash treatment controls. The tracking system collects activity data in the following four categories:

- Inspection of installed Systems and other physical trash treatment controls to ensure they continue to meet the 1-year 1-hour Trash Provisions design requirement (IMMS activity code F70020)
- Cleaning of installed Systems and other physical trash treatment controls (IMMS activity code F70050).
 - This activity tracks the quantity of trash, sediment, and debris removed from the installed Systems and other physical trash treatment controls in cubic yards.
- Repairing of installed Systems and other physical trash treatment controls (IMMS activity code F70110).

All Caltrans Systems are designed to capture at least the trash loading for an entire year. These systems are maintained annually to ensure that trash capture and hydraulic capacity are maintained. As part of the HDS and Multi-Gross Solid Removal Device pilot, Caltrans headquarters will contract maintenance with outside contractors which will include quarterly inspections to determine site specific cleaning frequency. Caltrans headquarters will determine if a higher maintenance frequency is required for Systems based upon the pilot maintenance report by evaluating the trash volume and hydraulic capacity of these Systems.

8.2 Institutional Control (Manual Trash Collection) Tracking

The following trash collection activities are utilized by District Managers to meet stormwater regulatory mandates and address public complaints of visual nuisance submitted through the CSR website:

- Boots on Ground Trash Collection (IMMS Activity D40051 & D40151)
- Roving Road Patrol (IMMS Activity D40050 / D40150)
- Freeway Sweeping (IMMS Activity D30051 / D30050)
- Encampment Related Trash Collection (IMMS Activity D42051 / D42050)

- Encampment Removal (Tracked Separately)
- Adopt-A-Highway Volunteerism (IMMS Activity D41050 / D41051)

District Managers utilize their field inspections along with the quarterly LOS scores to adaptively manage resources to maximize trash removal for all trash, including trash, regardless of size. Trash removal is tracked in IMMS and measured in units of cubic yards.

8.3 Vegetation Treatment Control Maintenance

Routine maintenance is routinely scheduled to ensure that the visual nuisance of trash in Caltrans ROW, trapped by vegetation, is removed in a timely manner to reduce the potential for the discharge of trash in excess of 5 gallons/acre/year for trash 5mm or greater into the storm drain conveyance systems.

Caltrans controls grasses and weeds in landscape areas to ensure visibility for safety, provide fire-risk management, protect pavement surfaces, control noxious weeds, clear drainage facilities, and for aesthetics. It is Caltrans policy to control grass and weeds in a landscape area using integrated vegetation management. Mechanical control is a type of integrated vegetation management process. There could be locations designated in landscape areas that should not be controlled by mowing or other types of mechanical devices. Most of these areas are identified as sensitive areas on the District Vegetation Control Plan.

As required by Section C3.5.3.1 of the Permit, Caltrans removes trash by hand in vegetated areas prior to vegetation removal or control operations. There are two types of vegetation removal or control operations:

- Mechanical method for grass and weed control with a tractor mounted mower only (E10040).
- Manual method for grass and weed control such hand pulling, hoeing or hand trimming (E11040).

The IMMS tracking system work order data is available to the State Water Board or Regional Water Boards upon request.

9.0 Annual Trash Discharge Reduction Comparison

To calculate annual trash discharge reduction, Caltrans will use OVTA trash generation rates to establish the discharge loading from the updated 2024 inventory. The next step will be to determine the existing inventory of Systems, institutional controls, and other treatment controls and the associated acres of STGAs that meet compliance requirements. Each year, the new inventory of trash control implementation measures will be added to the equation to determine the cumulative progress and to compare against the previous year's progress.

Percentage discharge reduction from 2024 from Very High generation areas reduced to High, Moderate, and Low; High generation areas reduced to Moderate and Low; and Moderate trash generation areas reduced to Low trash generation category to meet the required total percent reduction (% Reduction) shall be calculated based on the following formula:

$$\% \text{ Reduction} = 100 [(12AVH(2024) + 4AH(2024) + AM(2024)) - (12AVH + 4Ah + AM)] / (12AVH2024 + 4AH2024 + AM2024)$$

where:

AVH(2024) = total amount of the 2024 very high trash generation category acres

AH(2024) = total amount of the 2024 high trash generation category acres

AM(204) = total amount of the 2024 moderate trash generation category acres

AVH = total amount of very high trash generation category acres remaining in the reporting year after implementation of Systems, institutional controls, and other treatment controls.

AH = total amount of high trash generation category acres remaining in the reporting year after implementation of Systems, institutional controls, and other treatment controls.

AM = total amount of moderate trash generation category acres remaining in the reporting year after implementation of Systems, institutional controls, and other treatment controls.

12 = Very High to Moderate trash generation weighing ratio

4 = High to Moderate OVTA trash generation weighing ratio

100 = fraction to percentage conversion factor

10.0 Quantity of Trash in Receiving Waters

The Trash Provisions require Caltrans to report whether trash in the receiving waters has decreased from the previous year. Receiving water monitoring is unlikely to demonstrate the Caltrans' compliance with the Order because Caltrans is generally one of many sources of trash in any watershed. The Order does not stipulate receiving water monitoring. It instead requires Caltrans to report any receiving water monitoring that it may voluntarily conduct.

Caltrans currently has no plan to perform receiving water monitoring, however, is actively seeking partnerships with municipal and non-governmental organization partners on opportunities to collaborate.

Caltrans is in discussions with the Bay Area Municipal Stormwater Collaborative to determine if there is an opportunity to participate in the Trash Monitoring Workgroup Regional Trash Monitoring Plan for Municipal Stormwater Outfall Monitoring that the public agencies are conducting to comply with the Municipal Regional Stormwater NPDES Permit (Order No. R2-2022-0018) issued by the San Francisco Bay Water Board.