

Appendix O: Overall Program Effectiveness Evaluation

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Effectiveness Evaluation for the Stormwater Management Program

Introduction

This appendix provides the Overall Program Effectiveness Evaluation (Effectiveness Evaluation), which is conducted to determine whether various programs and/or activities are resulting in desired programmatic and/or environmental outcomes.

Consistent with the Conformed National Pollutant Discharge Elimination Program (NPDES) Permit requirements, the Effectiveness Evaluation includes the following:

- a) Assessment of program effectiveness in achieving permit requirements and measurable objectives (provided throughout Appendix O).
- b) Assessment of program effectiveness in protecting and restoring water quality and beneficial uses (Monitoring and Discharge Characterization).
- c) Identification of quantifiable effectiveness measurements for each best management practice (BMP), including measurements that link BMP implementation with improvement of water quality and beneficial use conditions (BMP Development and Implementation).
- d) Identification of how Caltrans will propose revisions to the Stormwater Management Plan (SWMP) to optimize BMP effectiveness when effectiveness assessments identify BMPs or programs that are ineffective or need improvement (BMP Development and Implementation).

In future Annual Reports, Caltrans will functionally update the program Effectiveness Evaluation approach to ensure consistency with the 2012 Permit requirements, the SWMP (approved July 20, 2016), and/or the CASQA *Strategic Approach to Planning for and Assessing the Effectiveness of Stormwater Programs*, as needed.

A summary of the Effectiveness Evaluation that was conducted for fiscal year 2017-2018 is provided in Table O-1. Caltrans has conducted effectiveness evaluations for each program element at Outcome Levels 1 through 4, as applicable. Outcome Levels 5 and 6 may be assessed as part of future Annual Reports.

Table O-1: Effectiveness Evaluation Summary for the Stormwater Program

Program Element	Effectiveness Evaluation Outcome Levels ¹					
	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6
	Stormwater Program Activities	Barriers and Bridges to Action	Target Audience Actions	Source Contributions	MS4 Contributions	Receiving Water Conditions
Management and Organization	C	N/A	N/A	N/A	N/A	N/A
Monitoring and Discharge Characterization	C	N/A	N/A	N/A	A	A
BMP Development and Implementation	C	N/A	N/A	N/A	A	A
Project Planning and Design	C	N/A	C	N/A	N/A	N/A
Construction	C	C	C	N/A	N/A	N/A
Compliance with the Industrial General Permit	N/A	N/A	N/A	N/A	N/A	N/A
Maintenance Program Activities and Facilities Operations	C	C	C	C	N/A	N/A
Non-Departmental Activities	C	N	N/A	N/A	N/A	N/A
Non-Stormwater Activities/Discharges	A	N	N	N/A	N/A	N/A
Training	C	C	A	N/A	N/A	N/A
Public Education and Outreach	C	A	A	C	N/A	N/A
Measurable Objectives	C	N/A	N/A	N/A	N/A	N/A
Region-Specific Activities	C	N	N	A	N/A	A
Reporting	C	N	N/A	N/A	N/A	N/A

C – An effectiveness evaluation was conducted during fiscal year 2017-2018

A – It is anticipated that an effectiveness evaluation may be conducted in future Annual Reports

N – An effectiveness evaluation is not currently anticipated

N/A – This outcome level is not applicable

¹ The Effectiveness Evaluation Outcome Levels are defined in Section 14 of the Annual Report.

Goals

During the previous permit term, Caltrans developed goals for the Maintenance Program Activities and Facilities Operations and Training program elements. These goals remained the same during the 2017-2018 reporting period. For future Annual Reports, the goals may be modified.

During the reporting period, Caltrans met three of its goals and made progress towards meeting its other goals.

Maintenance Program Activities and Facilities Operations

- The Division of Maintenance has an ongoing program to inspect slopes for erosion. The Division has a self-imposed goal to inspect approximately 20% of the slopes in each District annually, depending on weather conditions and work load priorities. Statewide, the program inspected 7,614 miles of 44,971 shoulder miles (16.9%). Only six of the twelve Districts inspected more than 20% of the slopes within their Districts, therefore **this goal was only partially met (six of 12 Districts)**.
- The enhanced storm drain inlet inspection and cleaning program has a goal to inspect 20% of the drain inlets in San Diego, Orange, and Los Angeles and Ventura counties (Districts 11, 12 and 7, respectively). Districts 7 and 12 inspected more than 20% of the drain inlets in the enhanced program. Although District 11 inspected 3% of their drain inlets, overall, Caltrans inspected 27% of the storm drain inlets in the enhanced program. As a result, **this goal was met**.
- The goal of the Maintenance Division compliance monitoring is to inspect 10 activities and 20% of the facilities statewide each year as part of its self-audit program. During 2017-2018, an average of 11.6 activities in each District and 28% of the maintenance facilities were inspected. Thus, the goal of inspecting 20% of the facilities each year was met. Additionally, the goal of 10 maintenance activity compliance reviews per District was achieved during this reporting period except for District 9. Only eight reviews were conducted in District 9.
- Caltrans is developing a new internal goal for chemical use (i.e., pesticide) reduction.

Training

- The training program has a goal to train 20% of the Caltrans staff involved in stormwater activities during each fiscal year. During the reporting period, **four of the six divisions met this goal**. Specifically, 100% of NPDES staff, 1% of Right-of-Way staff, 100% of Encroachment Permit staff, 72% of Design staff, 11% of Construction staff, and 51% of Maintenance staff were trained during the fiscal year.
- The training program also has a long-range goal to train the entire stormwater program staff over a five-year term. **This goal was met** by the NPDES, Encroachment, Construction, and Maintenance divisions.

Evaluation of Major Program Elements

The following sections summarize the results of the specific effectiveness evaluations, organized by program element. Since the SWMP was approved on July 20, 2016, the reporting may transition to, or be modified based on, the final Measurable Objectives. This information will be reported in future Annual Reports.

Management and Organization

The effectiveness evaluation that was conducted for Management and Organization, as well as potential evaluations that may be conducted in future Annual Reports, is summarized in Table O-2. Additional detail for each component of the evaluation is shown below.

Table O-2: Effectiveness Evaluation Summary for Management and Organization

	Effectiveness Evaluation Outcome Levels					
	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6
	Stormwater Program Activities	Barriers and Bridges to Action	Target Audience Actions	Source Contributions	MS4 Contributions	Receiving Water Conditions
Municipal Coordination Activities	C – # Meetings Held	N/A	N/A	N/A	N/A	N/A
Fiscal Analysis	C – Expenditures	N/A	N/A	N/A	N/A	N/A

C – An effectiveness evaluation was conducted during fiscal year 2017-2018

A – It is anticipated that an effectiveness evaluation may be conducted in future Annual Reports

N – An effectiveness evaluation is not currently anticipated

N/A – This outcome level is not applicable

Municipal Coordination Activities

Caltrans coordinated with local agencies to effectively and consistently communicate stormwater issues, track key technical issues, and implement the Stormwater Management Program and Total Maximum Daily Loads (TMDLs) [L1].

- There were over 164 meetings attended by District staff with local NPDES programs. The Districts met with municipalities, flood control districts, Regional Water Quality Control Boards (RWQCBs), and/or other entities to discuss issues related to:
 - Construction projects and permit compliance (Districts 5, 6);
 - Enforcement (District 11);
 - Fiscal planning (Districts 4 and 5);
 - Municipal permit coordination (Districts 2, 4, 5, 6, 7, 8, 9, 11 and 12);
 - Public education and staff training (District 5); and
 - TMDL development and implementation (Districts 7, 8 and 11).

Fiscal Analysis

Caltrans maintained funding to implement the stormwater program. The fiscal analysis provided information regarding the budget for each program element and the allocation of funds to each District. The historical annual stormwater expenditures are provided in Figure O-1[L1].

- The total expenditures for the 2017-2018 fiscal year were approximately \$106.2 million. Since fiscal year 2003-2004, the funding expenditures have more than tripled to implement the growing needs of the stormwater program and meet the increasing requirements of TMDLs. Since fiscal year 2014-2015, the average expenditures per year have been approximately \$100 million.

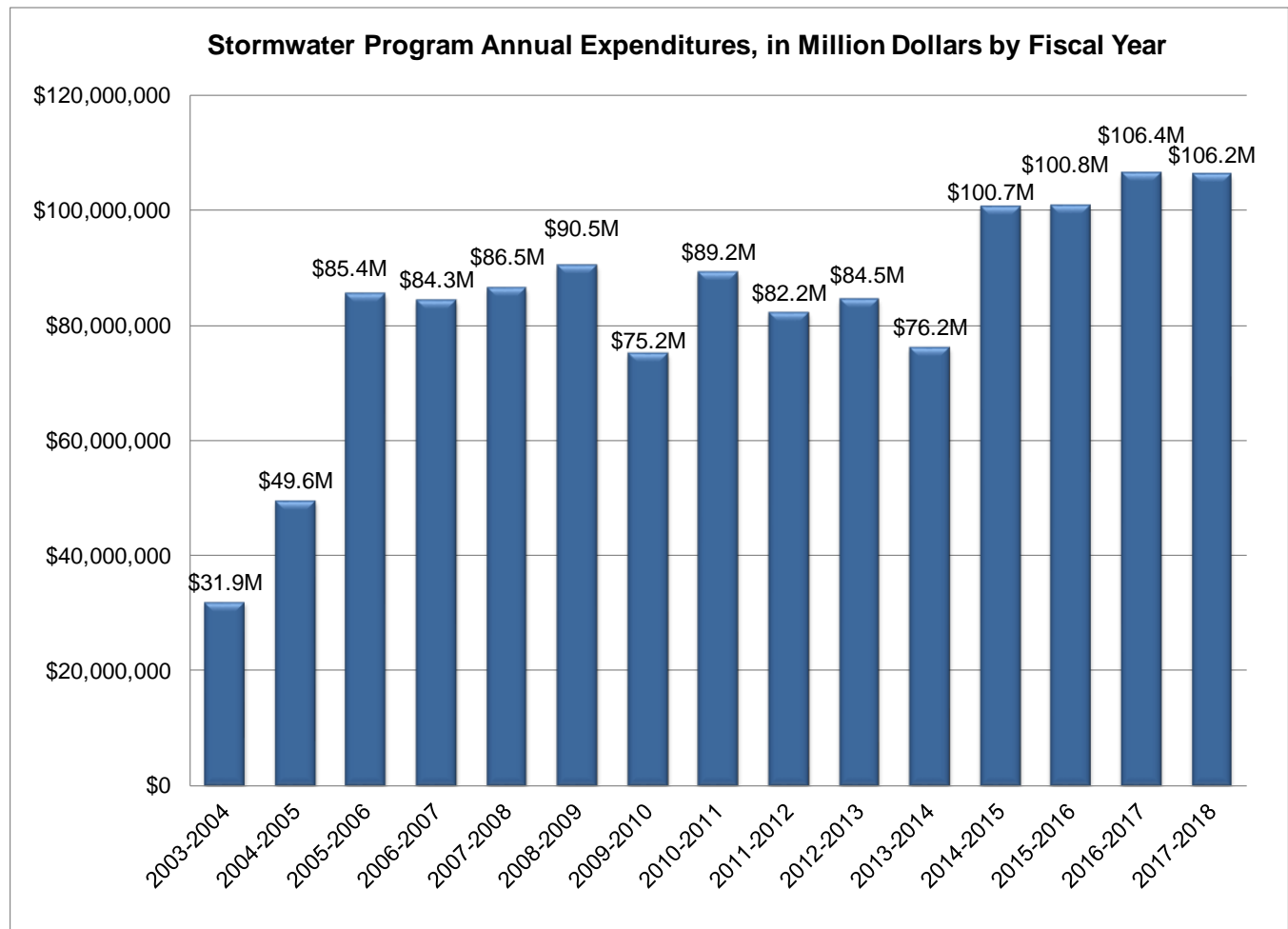


Figure O-1: Stormwater Program Annual Expenditures, in Million Dollars by Fiscal Year

Monitoring and Discharge Characterization Program

The effectiveness evaluation that was conducted for the Monitoring and Discharge Characterization Program, as well as potential evaluations that may be conducted in future Annual Reports, is summarized in Table O-3. Additional detail for each component of the evaluation is shown below.

Table O-3: Effectiveness Evaluation Summary for Monitoring and Discharge Characterization Program

	Effectiveness Evaluation Outcome Levels					
	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6
	Stormwater Program Activities	Barriers and Bridges to Action	Target Audience Actions	Source Contributions	MS4 Contributions	Receiving Water Conditions
Tier 1 and 2 Site Monitoring	C – Conducted/ Participated in Studies	N/A	N/A	N/A	A	A
Other Water Quality Monitoring	C – Conducted Monitoring	N/A	N/A	N/A	A	A

C – An effectiveness evaluation was conducted during fiscal year 2017-2018

A – It is anticipated that an effectiveness evaluation may be conducted in future Annual Reports

N – An effectiveness evaluation is not currently anticipated

N/A – This outcome level is not applicable

Caltrans collects information on the performance of stormwater controls and the characterization of discharges from Caltrans' operations, facilities, and storm drain systems. The information is analyzed to refine the program, assess the effectiveness of the SWMP, and establish the need for new and/or improved BMPs.

Tier 1 and 2 Site Monitoring

Caltrans performed water quality monitoring at 48 Areas of Special Biological Significance (ASBS), including 47 core monitoring sites and 1 ASBS ocean receiving water sites. Additionally, 6 cooperative monitoring agreements, 10 BMP pilot monitoring sites, as well as 38 sites within adopted TMDL watersheds that were monitored during the fiscal year 2017-2018 wet season for a total of 102 sites. The State Water Resources Control Board (SWRCB) has allowed Caltrans to suspend monitoring at five ASBS sites where the minimum number of events have been collected, and on July 27, 2017, the SWRCB issued a letter to Caltrans approving the ceasing of monitoring activities in ASBS 33. ASBS project seasonal flow was estimated at all Tier 1 sites. Monitoring at Tier 2 sites is only required when the number of Tier 1 sites is less than 100. Tier 2 sites were not monitored during the reporting period since Caltrans selected and monitored more than 100 Tier 1 sites [L1].

Other Water Quality Monitoring

Other water quality monitoring efforts include independently funded projects, as well as collaborative efforts with other stakeholders, such as municipalities, the SWRCB and RWQCBs, and stormwater quality researchers. During the 2017-2018 fiscal year, Caltrans conducted monitoring with other stakeholders under six cooperative agreements in TMDL watersheds [L1].

BMP Development and Implementation

The effectiveness evaluation that was conducted for BMP Development and Implementation, as well as potential evaluations that may be conducted in future Annual Reports, is summarized in Table O-4. Additional detail for each component of the evaluation is shown below.

Table O-4: Effectiveness Evaluation Summary for BMP Development and Implementation

	Effectiveness Evaluation Outcome Levels					
	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6
	Stormwater Program Activities	Barriers and Bridges to Action	Target Audience Actions	Source Contributions	MS4 Contributions	Receiving Water Conditions
Post-Construction Treatment BMPs Tracking System and Maintenance	C – Guidance and Standard Plan Updates; BMPs Tracked and Maintained	N/A	N/A	N/A	N/A	N/A
Evaluate and Investigate New BMPs through Pilot Studies	C – Implementation and Tracking of Studies	N/A	N/A	N/A	A	A

C – An effectiveness evaluation was conducted during fiscal year 2017-2018

A – It is anticipated that an effectiveness evaluation may be conducted in future Annual Reports

N – An effectiveness evaluation is not currently anticipated

N/A – This outcome level is not applicable

Post-Construction Treatment BMPs Tracking System and Maintenance

The Caltrans Stormwater Management Program is nationally recognized as a leader in designing stormwater BMPs for highway and roadway projects. The design guidance includes project plans and specifications for treatment BMPs, pollution prevention BMPs, and construction BMPs. This information is updated on an ongoing basis and disseminated to the staff involved in the incorporation of the BMPs into projects to ensure that all requirements and guidance are followed [L1].

Construction personnel coordinate with maintenance personnel to facilitate transfer of treatment BMPs to the Division of Maintenance using a handoff form. The Division of Maintenance's IMMS tracks maintenance records for treatment BMPs as provided by the Districts. Long-term operation and maintenance activities are maintained according to Caltrans maintenance guidance [L1].

In the 2017-2018 fiscal year, the number of BMPs inspected and maintained was tracked in the Caltrans Treatment BMP Database. Out of 3,250 BMPs in the inventory, 1,985 (61%) were inspected and/or maintained during the 2017-2018 fiscal year. Between 2014-2015 (when data tracking began) and 2017-2018, an average of 61% of the BMPs have been inspected and/or maintained annually (Figure O-2) [L1].

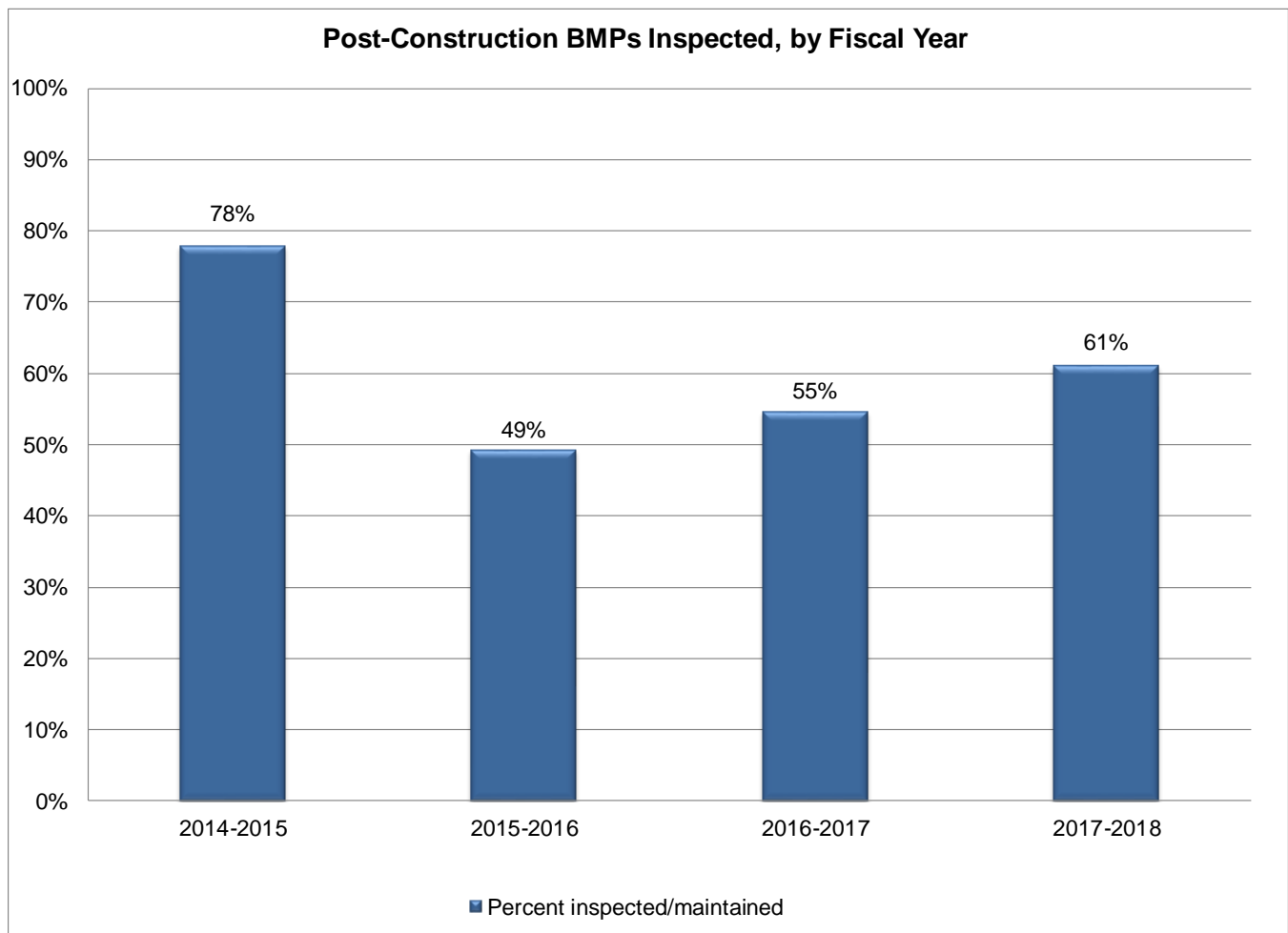


Figure O-2: Percent of Post-Construction BMPs Inspected and/or Maintained, by Fiscal Year

Evaluate and Investigate New BMPs through Pilot Studies

Caltrans continued to track new and/or emerging post-construction stormwater treatment technologies. During the reporting period, a below-grade infiltration BMP was reviewed, and there was an update to the Stormwater Treatment BMP Technology Report. The *Treatment BMP Technology Report, October 2018*, (CTSW-RT-18-999) is an attachment to this Annual Report (CD attachment).

The *Stormwater Monitoring and BMP Development Status Report: Fiscal Year 2017-18 Update* (CTSW-RT-18-350.01.02) is an attachment to this Annual Report (CD attachment). This report provides an update on the status of stormwater treatment technology studies, source control studies (including erosion control studies), and stormwater quality characterization for the 2017-2018 fiscal year. Three new BMPs have been adopted for inclusion in the Caltrans approved BMP list: open graded friction course, bioretention, and Austin media filter with alternative media. The next update to the SWMP will include these new BMPs.

Caltrans has evaluated and investigated new BMPs through pilot studies, as described below [L1, L4].

- **State Route 73 Bioretention Study:** The purpose of this study is to evaluate the pollutant removal effectiveness of a bioretention facility on State Route 73. Monitoring for this study started in fiscal year 2006-2007 and was discontinued in the 2008-2009 fiscal year. Monitoring recommenced in fiscal year 2013-2014 and continued through fiscal year 2016-2017. Upon completion of monitoring, Caltrans will develop a study report.

- San Francisco/Oakland Bay Bridge Bioretention Study: The purpose of this study was to evaluate the pollutant removal effectiveness of two bioretention facilities at the San Francisco/Oakland Bay Bridge. Through this study, additional information on hydrology, maintenance, effects of salinity, vegetation, and mosquito/vector control was also gathered. Monitoring commenced in fiscal year 2009-2010. Results of the study indicated good removal of many constituents. Removal of some pollutants depended on suspended sediment concentration (SSC). Findings were also specific to this site due to atypical saltwater intrusion. Caltrans submitted the final study report to the San Francisco Bay Regional Water Quality Control Board (Regional Water Board) in November 2014. In June 2016, the San Francisco Bay Regional Water Board concurred that the bioretention monitoring requirements were met.
- Tahoe Sand Vaults Retrofit Pilot Study: The purpose of this ongoing study is to determine load reductions of new filter media configurations in Austin-type vaults (horizontal flow through the media, as opposed to the traditional vertical flow configuration of media filters). The results of this study will be compared to those predicted by the Tahoe Pollutant Load Reduction Model (PLRM) for potential TMDL compliance. Monitoring commenced in fiscal year 2012-2013 and is scheduled to continue until fiscal year 2017-2018. Upon completion of monitoring, Caltrans will develop a study report.
- District 3 Linear Filtration Pilot Study: The purpose of this study is to evaluate the performance of various linear filtration designs in terms of concentration, volume, and load reduction. The project commenced in fiscal year 2014-2015 and will continue through fiscal year 2017-2018.

Other LID pilot BMPs installed in District 3 include a media filter drain, bioretention trench, and linear sand filter.
- District 7 Linear Filtration Pilot Study: The purpose of this study is to evaluate the performance of various linear filtration designs in terms of concentration, volume, and load reduction. The project commenced in fiscal year 2014-2015 and will continue through fiscal year 2018-2019.

Other pilot projects in District 7 include a media filter drain and two linear sand filters.
- Chollas Creek BMP Retrofit Project: The purpose of this study is to evaluate the performance of modular infiltration trenches and bio-infiltration swales in terms of reducing pollutant concentrations associated with the Chollas Creek TMDL waste load allocations (WLAs). The project commenced in fiscal year 2015-2016.

Project Planning and Design

The effectiveness evaluation that was conducted for Project Planning and Design, as well as potential evaluations that may be conducted in future Annual Reports, is summarized in Table O-5. Additional detail for each component of the evaluation is shown below.

Table O-5: Effectiveness Evaluation Summary for Project Planning and Design

	Effectiveness Evaluation Outcome Levels					
	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6
	Stormwater Program Activities	Barriers and Bridges to Action	Target Audience Actions	Source Contributions	MS4 Contributions	Receiving Water Conditions
Design Best Management Practices	C – Identified Design and Treatment BMPs for Incorporation	N/A	N/A	N/A	N/A	N/A
Treatment BMPs Planned for Projects	C – Treatment BMPs Planned for Incorporation into Projects	N/A	A	N/A	N/A	N/A
Design Self-Audit Program	C – Activities Completed	N/A	C – Evaluation of Storm Water Data Report (SWDR) Completion	N/A	N/A	N/A

C – An effectiveness evaluation was conducted during fiscal year 2017-2018

A – It is anticipated that an effectiveness evaluation may be conducted in future Annual Reports

N – An effectiveness evaluation is not currently anticipated

N/A – This outcome level is not applicable

Design Best Management Practices

Caltrans has identified both design pollution prevention BMPs (design BMPs) and treatment BMPs that need to be considered and incorporated into the design of new highway facilities or the reconstruction and expansion of existing facilities. Caltrans is currently updating the treatment BMP design guidance documents [L1].

Treatment BMPs Planned for Projects

- Caltrans staff use the Department's guidance documents and incorporate treatment BMPs into the projects when technically feasible per document requirements. Treatment BMPs are consistently built on project sites within the Caltrans right-of-way [L1].
- During the reporting period, 545 treatment BMPs were planned for incorporation into 172 projects (Figure O-3). The types of BMPs identified primarily included biofiltration swales, infiltration devices, biofiltration strips, and media filters. Biofiltration swales have consistently been some of the most common treatment BMPs, while other types have fluctuated in application in past years.

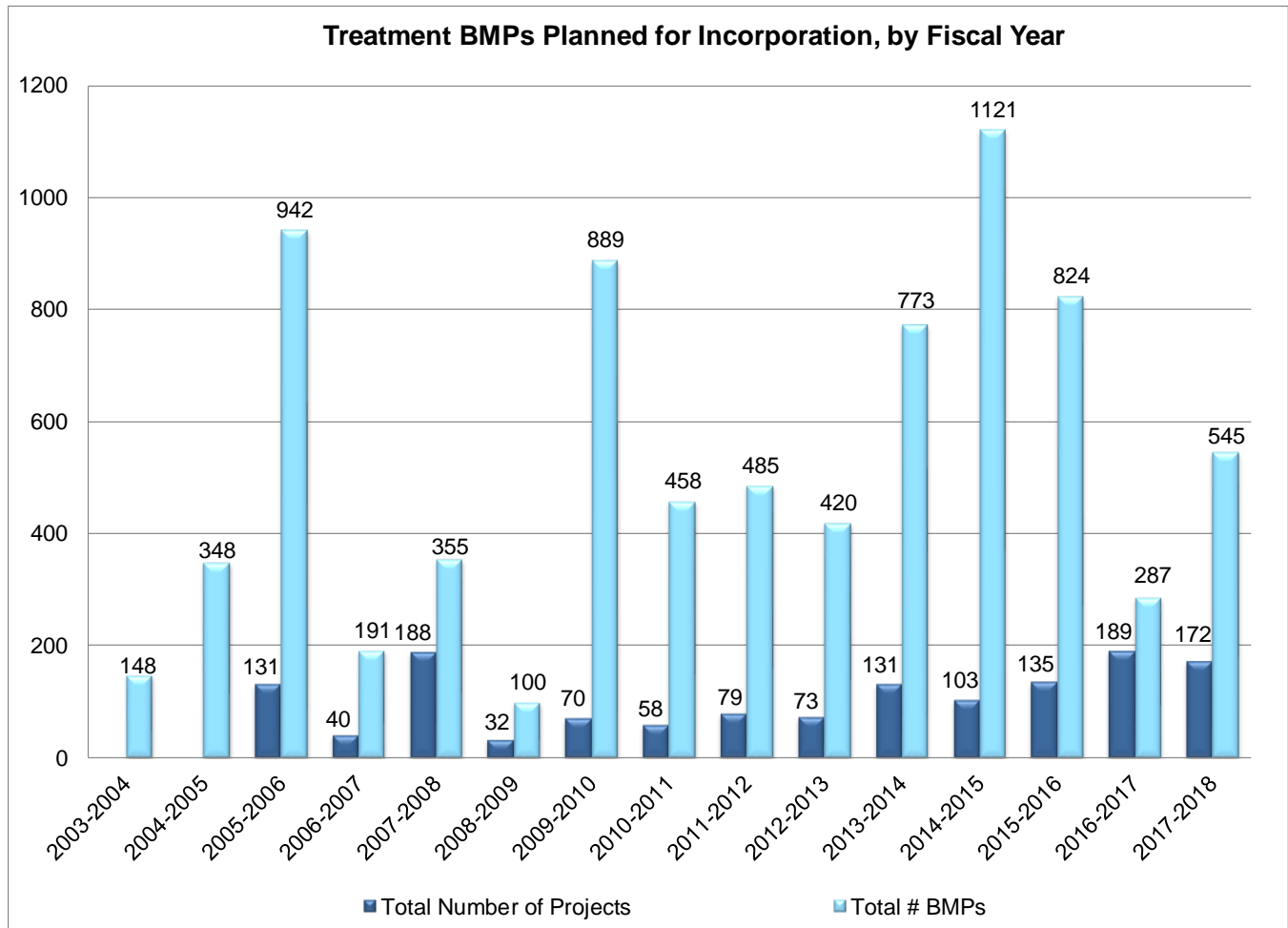


Figure O-3: Treatment BMPs Planned for Incorporation, by Fiscal Year

Design Self-Audit Program

Caltrans developed and implemented a self-audit program of reviews, documented in the *Final Evaluation of Storm Water Data Reports for Fiscal Year 2017/2018*, May 2018. The Design Compliance Monitoring Program uses the SWDR as a tool for documenting conformance with the design pollution prevention and treatment BMP requirements of the 2012 Permit and the SWMP. In the past, these reviews have been used to determine if improvements are needed in the design guidance and training classes. Past evaluations have consistently resulted in only minor guidance and training changes, indicating that the overall quality of SWDRs has been good. In the 2017-2018 fiscal year, the Compliance Report focused on the number of SWDRs received compared with the number of active Caltrans projects requiring SWDRs (answering the question “Does every project have a signed SWDR at every project milestone as required by the SWMP and PPDG?”). In 2016-2017, the audit criteria were expanded to PID and PAED project phases. The SWDRs evaluated for this report were prepared during the 2017-2018 fiscal year [L1].

A self-audit was performed on 661 major projects from 2017-2018, of which 96 were removed/excluded as not requiring SWDRs. The audit results stated that statewide, 87% of the projects reviewed had valid, signed SWDRs and thus were being properly reported [L3]. Clarification regarding which types of project do not require a SWDR was recommended, as well as more regular communication with other Caltrans functions. The results show that major project SWDRs are being prepared for the PS&E project phase, although not always for planning project phases in some Districts (Figure O-4).

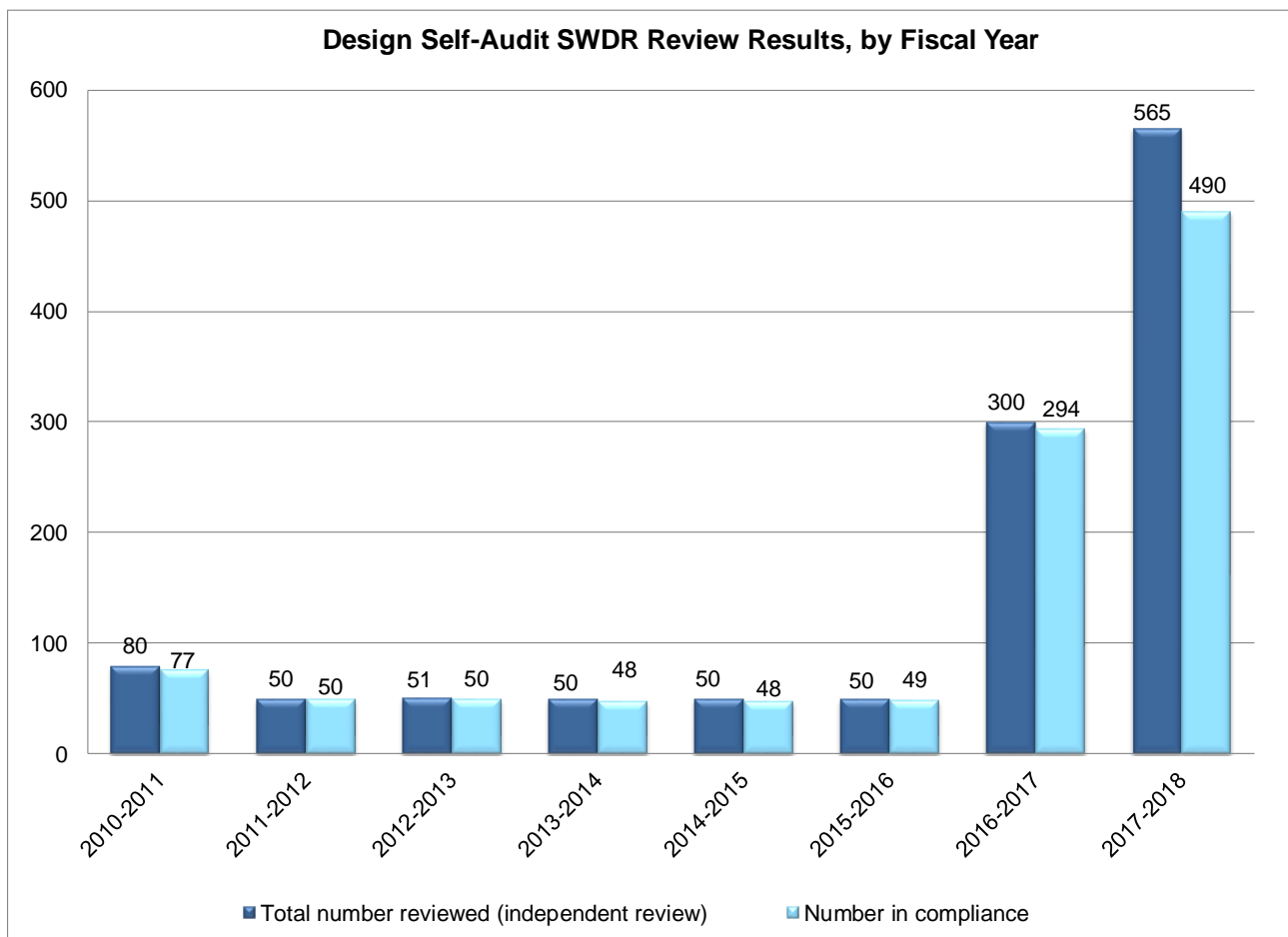


Figure O-4: Design Self-Audit SWDR Review Results, by Fiscal Year

Construction

The effectiveness evaluation that was conducted for Construction, as well as potential evaluations that may be conducted in future Annual Reports, is summarized in Table O-6. Additional detail for each component of the evaluation is shown below.

Table O-6: Effectiveness Evaluation Summary for Construction

	Effectiveness Evaluation Outcome Levels					
	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6
	Stormwater Program Activities	Barriers and Bridges to Action	Target Audience Actions	Source Contributions	MS4 Contributions	Receiving Water Conditions
Implementation of Construction General Permit	C – PRDs filed in SMARTS; SWPPP Onsite	N/A	N/A	N/A	N/A	N/A
Construction Enforcement Actions Response	C – Enforcement Actions Reported	A	A	N/A	N/A	N/A
Construction Self-Audit Compliance Monitoring	C – Compliance Evaluation Completed	C – Awareness of Compliance Actions	C – Performing Compliance Actions	N/A	N/A	N/A
Construction BMPs	C – Forms Modified	A	N	N/A	N/A	N/A

C – An effectiveness evaluation was conducted during fiscal year 2017-2018

A – It is anticipated that an effectiveness evaluation may be conducted in future Annual Reports

N – An effectiveness evaluation is not currently anticipated

N/A – This outcome level is not applicable

Implementation of Construction General Permit

The 2012 Permit defers to the reporting requirements of the Statewide Construction General Permit (CGP) for reporting stormwater discharges associated with construction activities. The CGP requires dischargers, including Caltrans, to electronically file Permit Registration Documents (PRDs) with the SWRCB via SMARTS. All construction projects with one acre or more disturbed soil area fully implemented the CGP requirements by filing PRDs in SMARTS during 2017-2018. Out of 334 active construction sites, all 329 sites (100%) requiring a SWPPP had one on site during 2017-2018 (Figure O-5). In addition, all 5 construction sites (100%) requiring a WPCP had a Plan (Figure O-6) [L1].

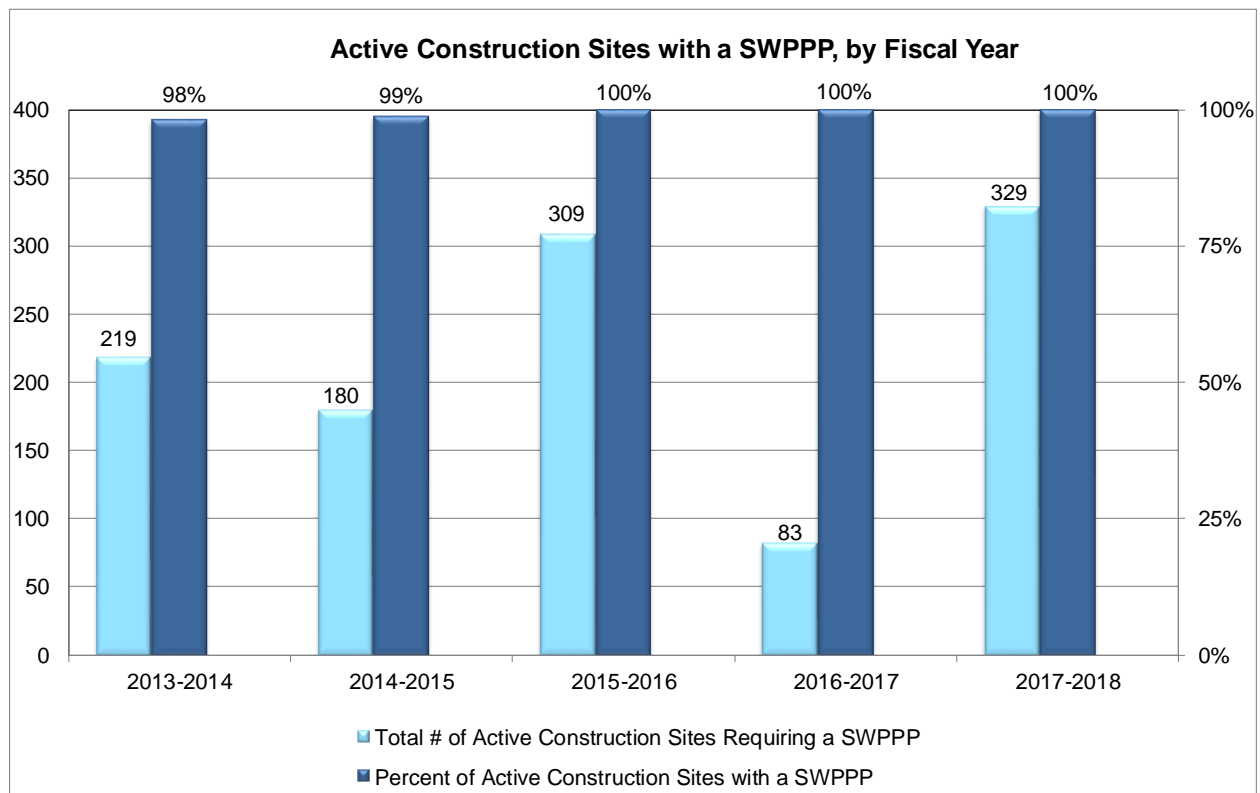


Figure O-5: Active Construction Sites with a SWPPP (Active SWPPPs)

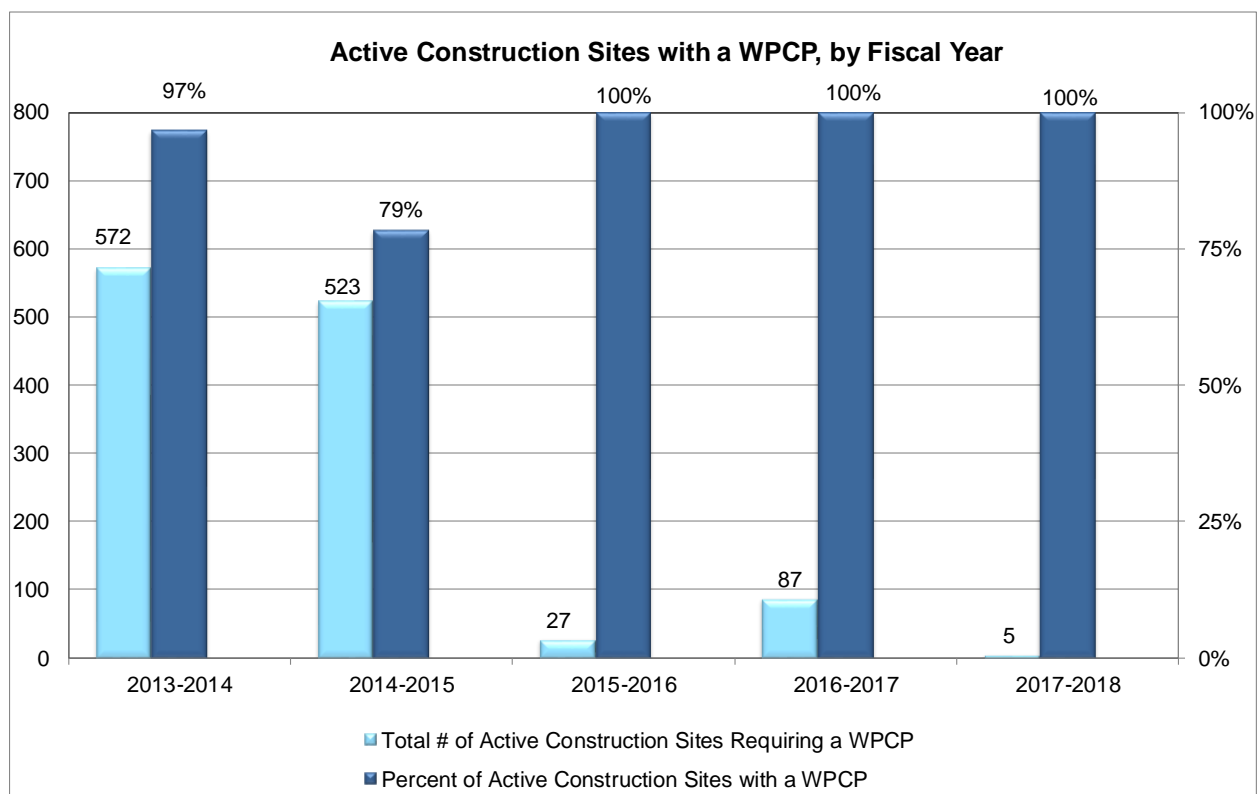


Figure O-6: Active Construction Sites with a WPCP (Active SWPPPs)

Construction Enforcement Actions Response

During fiscal year 2017-2018, there were no enforcement actions issued to Caltrans for construction activities conducted by third parties under Caltrans Encroachment Permits. Caltrans continuously strives to improve its enforcement action tracking procedures and closely monitors all Districts and projects for enforcement activity. [L1]

Construction Self-Audit Compliance Monitoring

In April 2015, Caltrans adopted a revised approach to assess the appropriate level of stormwater pollution control at construction projects. This revised approach is described in the Construction Compliance Evaluation Plan (CCEP) (CTSW-PL-16-999) (April 2016). The CCEP process includes the following activities to evaluate the implementation of stormwater pollution prevention measures at construction projects:

- Developing and maintaining a list of construction projects for review;
- Providing 24-hour notification of an Independent Quality Assurance (IQA) site review to the RE, Senior RE, Construction Manager, and District Construction Stormwater Coordinator (DCSWC);
- Conducting the site review;
- Completing the Construction Review Report; and
- Initiating the Corrective Action process.

A total of 180 sites were reviewed statewide during fiscal year 2017-2018 [L1].

For detailed information on the CCEP and IQA review process, consult the *Year-End Performance Report, A Summary of Construction Compliance Reviews – July 1, 2017 – June 30, 2018* (CTSW-RT-18-366.04.3), September 2018, included as an attachment to this Annual Report (CD attachment).

Of the 180 reviews conducted, the following was noted (Figure O-7):

- The reviews resulted in 99 administrative and 1,485 field BMP findings (deficiencies), for a total of 1,584 findings.
- Very few administrative findings were noted during the IQA reviews, averaging one for every two IQA review. The category with the highest number of administrative findings was training (56.0% of the total administrative findings) and there were no administrated findings for SMARTs, Active Treatment Systems, or the Tahoe Permit.
- Field BMP findings from the IQA reviews averaged approximately seven per IQA review. The BMP categories with the most field BMP findings were Materials and Waste Management Controls (54% of the total BMP findings) and Sediment Control (24% of the total BMP findings). Wind Erosion Control comprised only 1% of the field BMP findings.
- The four field BMP types that had the most findings were, in descending order: 1) Solid Waste Management, 2) Material Delivery and Storage, 3) Stabilized Construction Entrance and 4) Stockpile Management.
- By District, the types and categories of findings were consistent with those found in the previous three years of the Self-Audit Program, however the number of findings per site decreased in 2017-2018 (Figure O-8). Fifty-eight percent of Districts had fewer field BMP findings in 2017-2018 than 2016-2017, and 75% had fewer than in 2015-2016.
- Overall, the total number of findings per site reviewed has decreased between 2014-2015 and 2017-2018 (Figure O-9). This indicates that awareness and appropriate implementation of the necessary BMPs among construction personnel has increased [L2, L3].

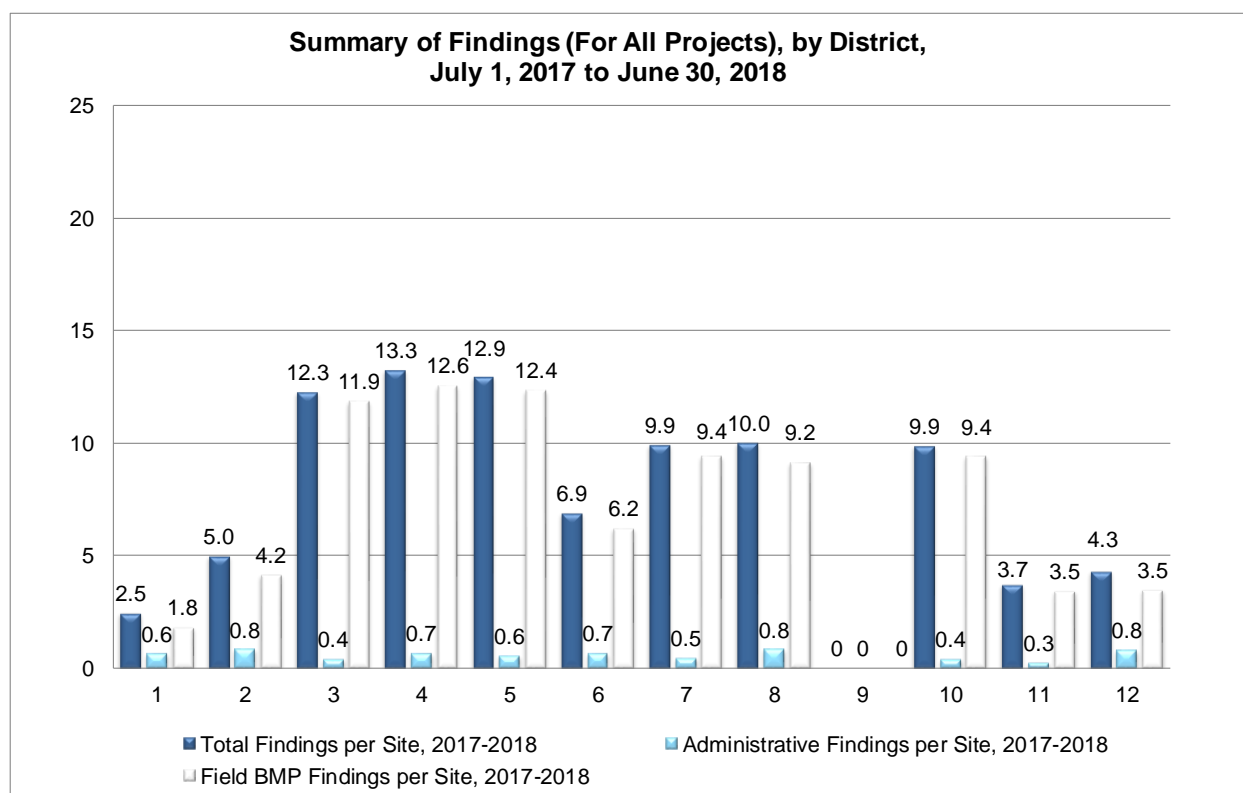


Figure O-7: Summary of Findings (For All Projects), by District, July 1, 2017 to June 30, 2018

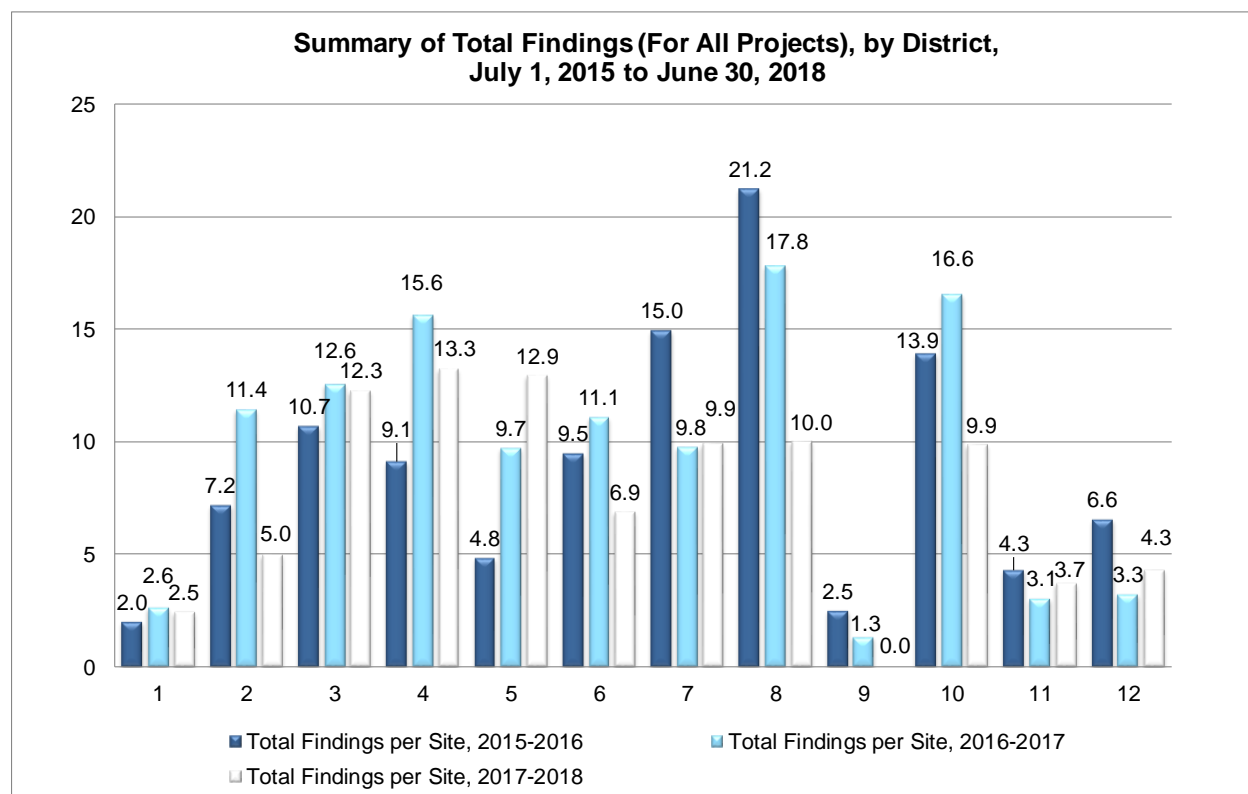


Figure O-8: Summary of Total Findings (For All Projects), by District, July 1, 2015 to June 30, 2018

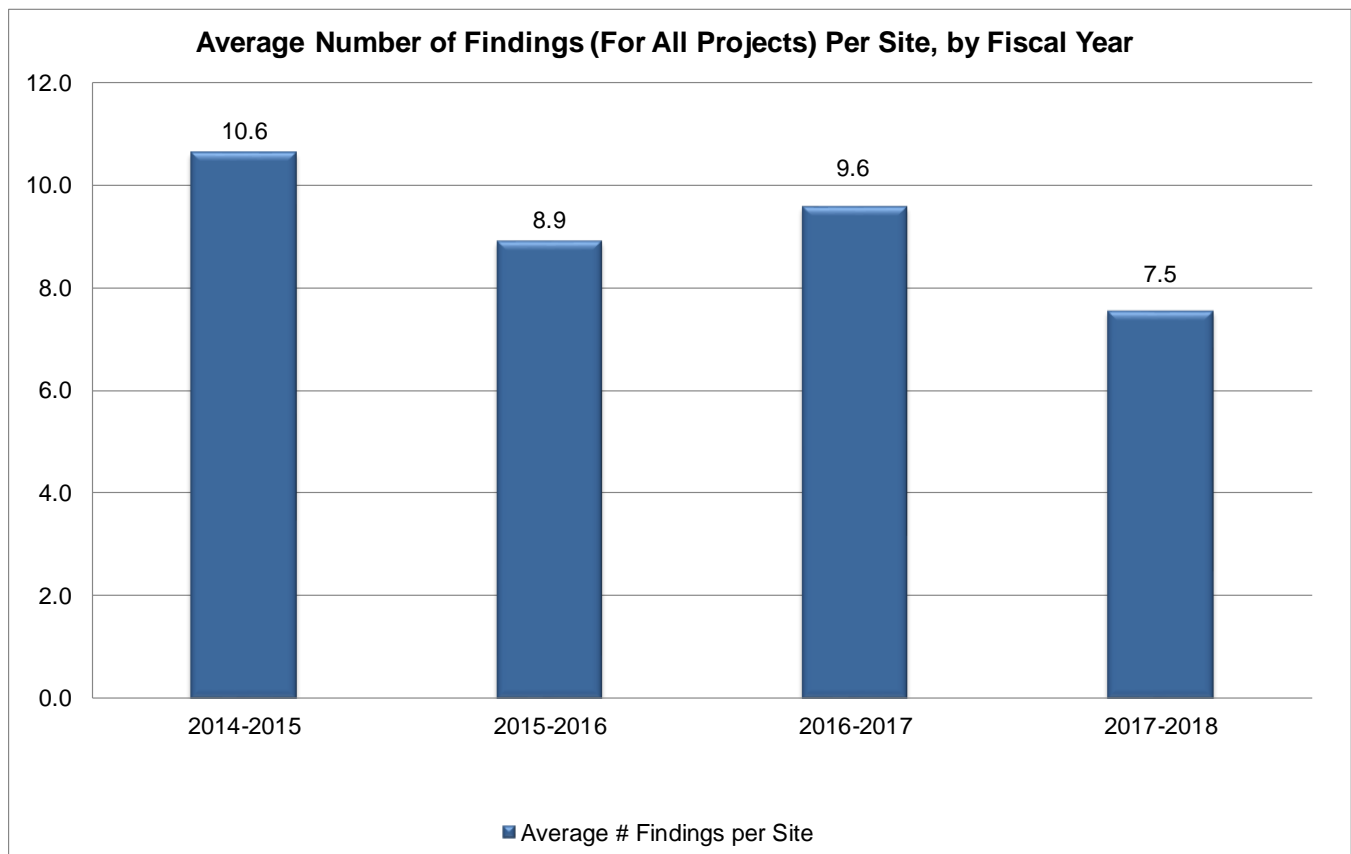


Figure O-9: Average of Total Findings (For All Projects) Per Site

Construction BMPs

The Division of Construction modified the stormwater compliance monitoring and inspection forms that had been in use since the current CGP went into effect on July 1, 2010, to streamline documentation of contractor inspection and monitoring required for compliance with the CGP, Caltrans Conformed NPDES Permit, and contact specifications [L1].

No new construction site BMPs were approved for use on Caltrans projects during 2017-2018.

Compliance with the Industrial General Permit

Caltrans' stormwater discharges are regulated by the Caltrans Conformed NPDES Permit, and it is not typically necessary to apply for coverage under the Industrial IGP. During the 2017-2018 reporting period, Caltrans evaluated its maintenance facilities to determine whether they require coverage under the IGP and updated its Facilities Prevention Plans as appropriate. Caltrans had no activities subject to the IGP and did not apply for coverage under the IGP during the reporting period.

Maintenance Program Activities and Facilities Operations

To determine the effectiveness of the Maintenance Program Activities and Facilities Operations, an effectiveness evaluation of the program data was conducted as a part of the Annual Report.

Program Goals

During the previous permit term, several goals were identified for the Maintenance Program. They include the following:

- The Division of Maintenance has an ongoing program to inspect slopes for erosion. The division has a self-imposed goal to inspect approximately 20% of the slopes in each District annually depending on weather conditions and work load priorities.
- The enhanced storm drain inlet inspection and cleaning program has a goal to inspect 20% of the drain inlets in San Diego, Orange, and Los Angeles and Ventura Counties (Districts 11, 12 and 7, respectively).
- Caltrans is developing a new internal chemical use reduction goal.
- The goal of the Maintenance compliance monitoring is to inspect 10 activities and 20% of the facilities statewide each year. In addition, each activity and facility should be inspected at least once during the current Permit term.

The effectiveness evaluation that was conducted for Maintenance Program Activities and Facilities Operations, as well as potential evaluations that may be conducted in future Annual Reports, is summarized in Table O-7. Additional detail for each component of the evaluation is shown below.

Table O-7: Effectiveness Evaluation Summary for Maintenance Program Activities and Facilities Operations

	Effectiveness Evaluation Outcome Levels					
	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6
	Stormwater Program Activities	Barriers and Bridges to Action	Target Audience Actions	Source Contributions	MS4 Contributions	Receiving Water Conditions
Illegal Connections/ Illicit Discharges (IC/IDs)	C – # Incidents and Results	C – Awareness of Need to Eliminate IC/IDs	C – Resolution of Incidents	N/A	N/A	N/A
Herbicide, Pesticide, and Fertilizer Applications	C – Plans Completed	N	N	A	N/A	N/A
Maintenance Self Audit Compliance Monitoring	C – Evaluation Completed	C – Awareness of BMPs	C – BMP Implementation	N/A	N/A	N/A
Enhanced Storm Drain Inspection and Cleaning Activities	C – # Inlets Inspected and Cleaned	N/A	N/A	A	N/A	N/A
Slope Inspections	C – % Slopes Inspected	N/A	N/A	N/A	N/A	N/A
Trash and Litter Removal Activities	A	A	A	C – Trash and Litter Removed	N/A	N/A

Table O-7: Effectiveness Evaluation Summary for Maintenance Program Activities and Facilities Operations

	Effectiveness Evaluation Outcome Levels					
	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6
	Stormwater Program Activities	Barriers and Bridges to Action	Target Audience Actions	Source Contributions	MS4 Contributions	Receiving Water Conditions
Drain Inlets/Culverts Inspected and Cleaned	C – Developed Maps and Database; # Inlets Inspected and Cleaned	N/A	N/A	C – Materials Removed	N/A	N/A

C – An effectiveness evaluation was conducted during fiscal year 2017-2018

A – It is anticipated that an effectiveness evaluation may be conducted in future Annual Reports

N – An effectiveness evaluation is not currently anticipated

N/A – This outcome level is not applicable

Illegal Connections/Illicit Discharges

Caltrans continued to implement the IC/ID program. The IC/ID tracking system was improved in response to the October 2010 Administrative Order issued by the U.S. EPA. Improvements included updating Detection and Elimination BMPs, revising the tracking of incidents, and developing a system to receive tips and complaints on IC/IDs from the public. Illicit connections and illegal dumping were documented, and notification letters were sent to the responsible parties [L1, L2, L3].

- During the 2017-2018 reporting period, 22 of the 24 IC/ID discharges were resolved. Issues encountered included a water line break, excess irrigation water, fuel island washing, unauthorized toilet, and various other IC/IDs.
- Two incidents are in the process of being resolved. The unresolved incidents are being investigated and monitored.
- No incidents were referred to other agencies that had jurisdiction.
- A higher percentage of incidents were resolved during the 2017-2018 fiscal year (92%) compared to the average of the previous seven years (53%) (Figure O-10).

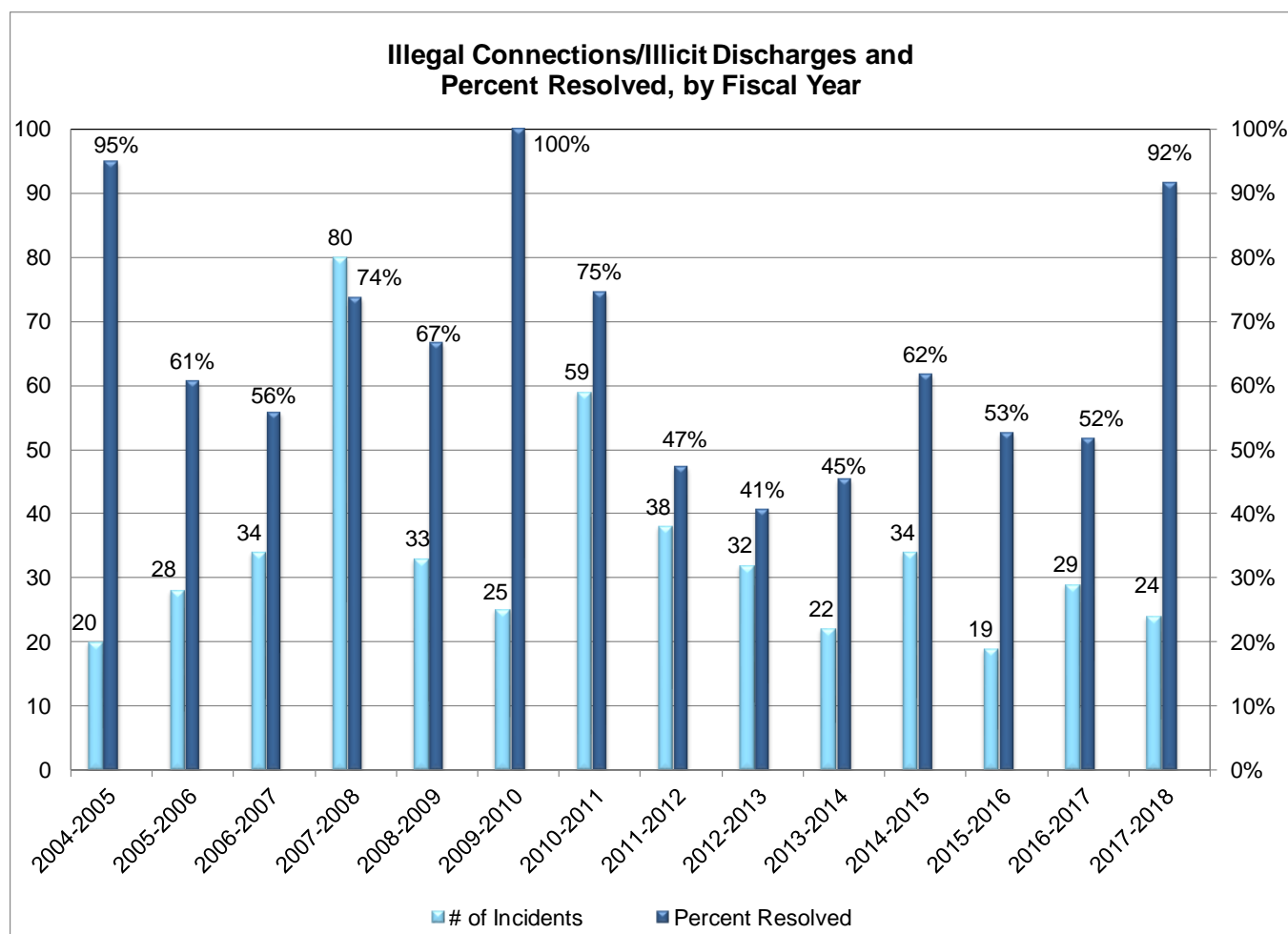


Figure O-10: Illegal Connections/Illicit Discharges and Percent Resolved, by Fiscal Year

Herbicide, Pesticide, and Fertilizer Applications

Each year, the Division of Maintenance prepares, for each District, Vegetation Control Plans that designate the vegetation control methods to be used in right-of-way areas. Caltrans continues to track and record monthly pesticide usage to the California Department of Pesticide Regulation while investigating better and more effective treatment strategies using the seven elements identified in the Integrated Vegetation Management (IVM) Program [L1].

A summary of the amount of active ingredient applied by the Landscaping Program in 2017-2018 follows.

- During 2017-2018, Caltrans applied approximately 239,502 pounds of chemical active ingredient to over 57,000 acres. This represents an increase of 16% in total chemical applied compared to 2016-2017 (Figure O-11).
- Since 2010-2011 (when Caltrans began tracking the acreage to which herbicide was applied), the amount of chemical active ingredient applied per acre has remained below 5 pounds per acre (Figure O-11).

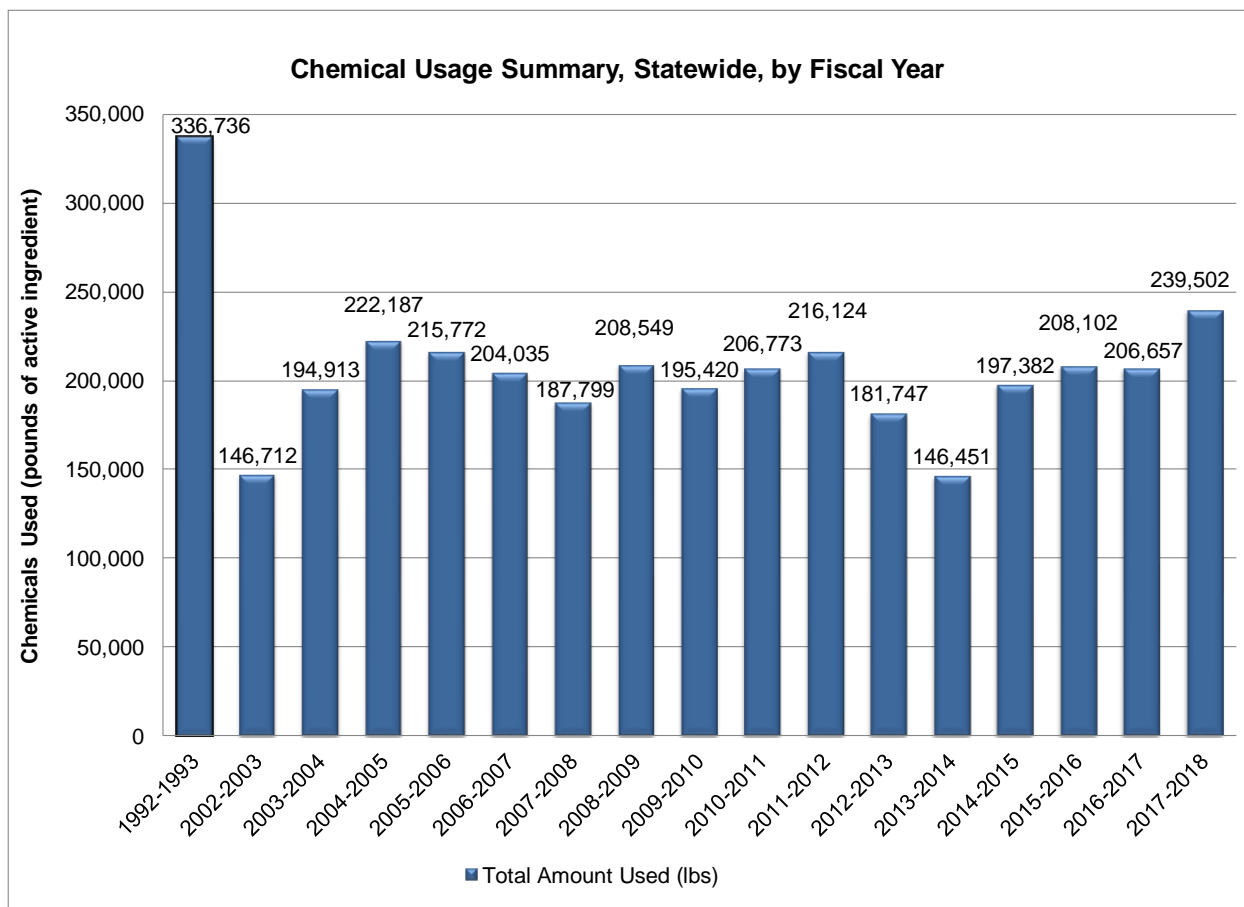


Figure O-11: Chemical Usage Summary, Statewide, by Fiscal Year

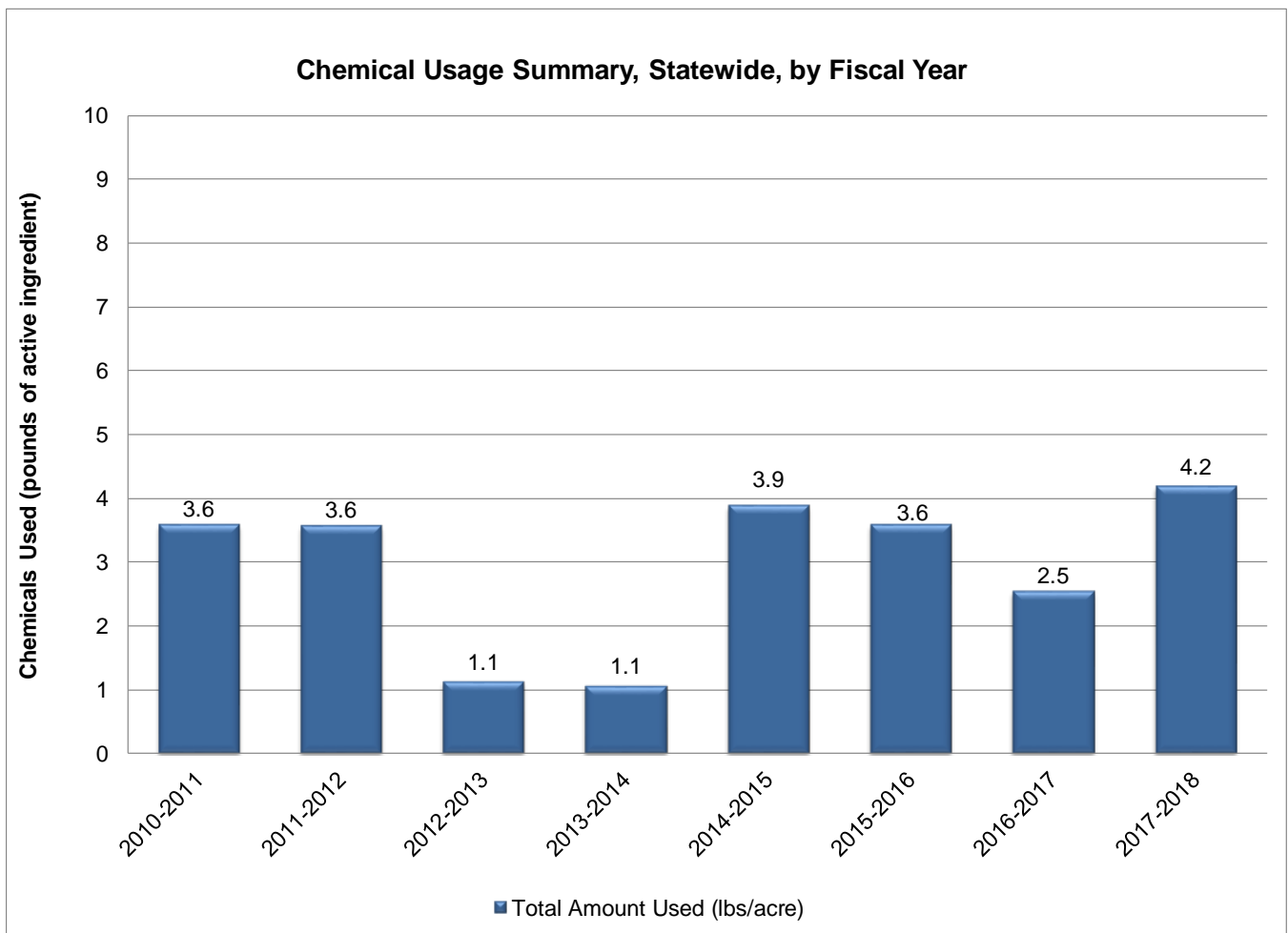


Figure O-12: Chemical Usage Summary per Acre, Statewide, by Fiscal Year

- During 2017-2018, five of the twelve Districts (Districts 3, 5, 5, 8, and 12) applied less chemical active ingredient than the previous year (2016-2017). The other Districts increased their application during 2017-2018 primarily due to unseasonal precipitation followed by warmer days that stimulated sporadic weed germination, the need for bare strips to mitigate increased wildfire concerns, or increased acreage to be managed that was previously under construction (Figure O-13).

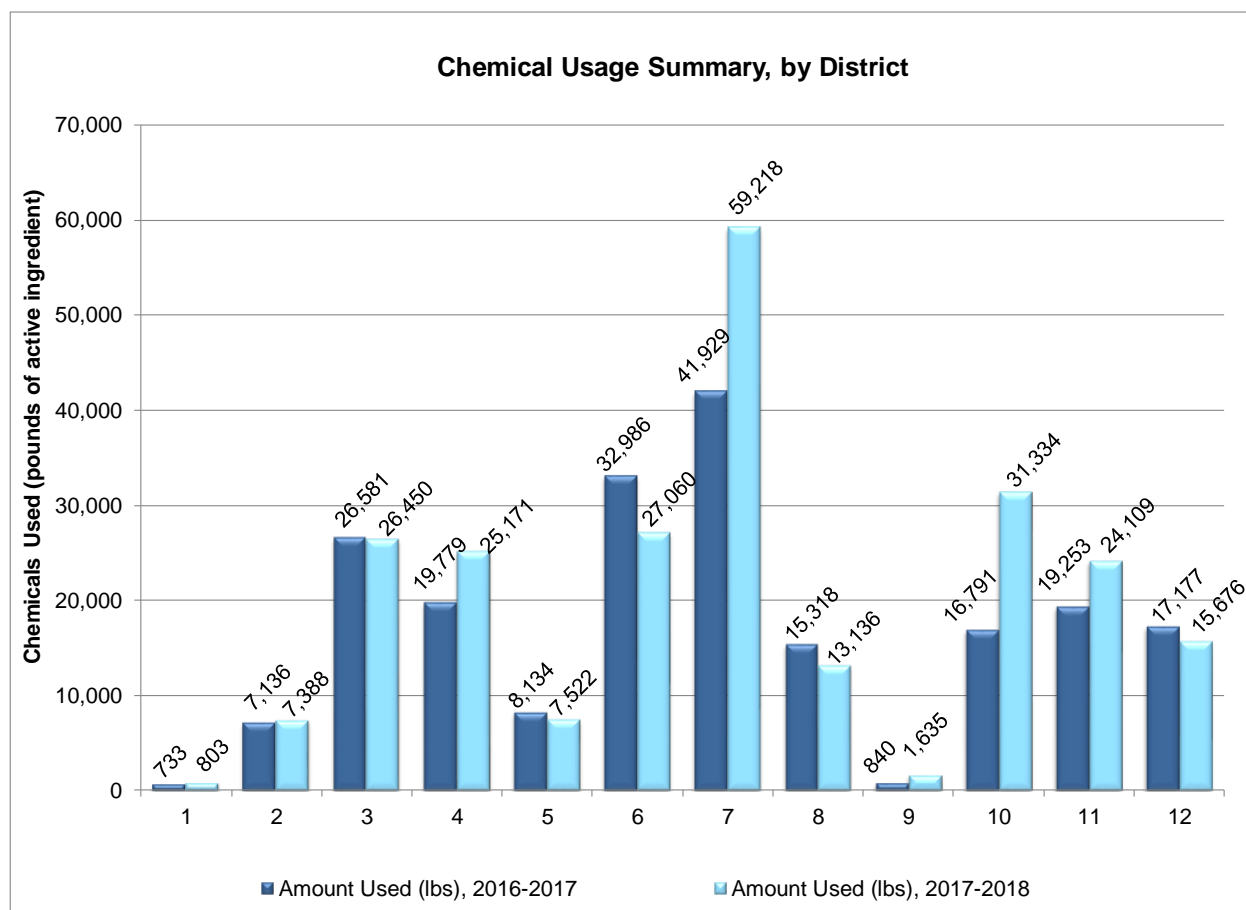


Figure O-13: Chemical Usage Summary, by District

Maintenance Self-Audit Compliance Monitoring

Caltrans developed a self-audit program to serve as a quality assurance mechanism to ensure effective implementation of the Facility Pollution Prevention Program. In 2017-2018, a consultant reviewed maintenance facilities and activities for compliance with the requirements of the SWMP and Conformed NPDES Permit [L1].

Caltrans' goal is to inspect a minimum of 10 maintenance activities per District and a minimum of 20% of maintenance facilities per year. The results of the inspections are as follows:

- Caltrans conducted inspections in each District for 238 facilities (28% of the 864 facilities statewide) and at least 10 maintenance activities per District (139 activities total). Thus, the goal of inspecting 20% of the facilities each year was met. Additionally, the goal of 10 maintenance activity compliance reviews per District was achieved during this reporting period except for District 9. Only eight reviews were conducted in District 9.

The inspections generally indicated that staff at the facilities are aware of the BMPs that were necessary onsite and are implementing them appropriately [L2, L3].

- The letter facility rating data indicates that 50% (120 of 238 facilities inspected) were rated “A” (overall administrative BMP compliance and documentation is current and available) and 24% (58 facilities) were rated “B” (overall administrative BMP compliance and documentation moderately implemented). Twenty-five percent (60 facilities) were rated “C” (overall administrative documentation inadequate).
- Since 2008-2009, the number of A ratings has been increasing until, in 2014-2015, it surpassed the number of B ratings and has comprised the highest percentage (i.e., greater than or equal to 50% of all ratings) through 2017-2018 (Figure O-14).

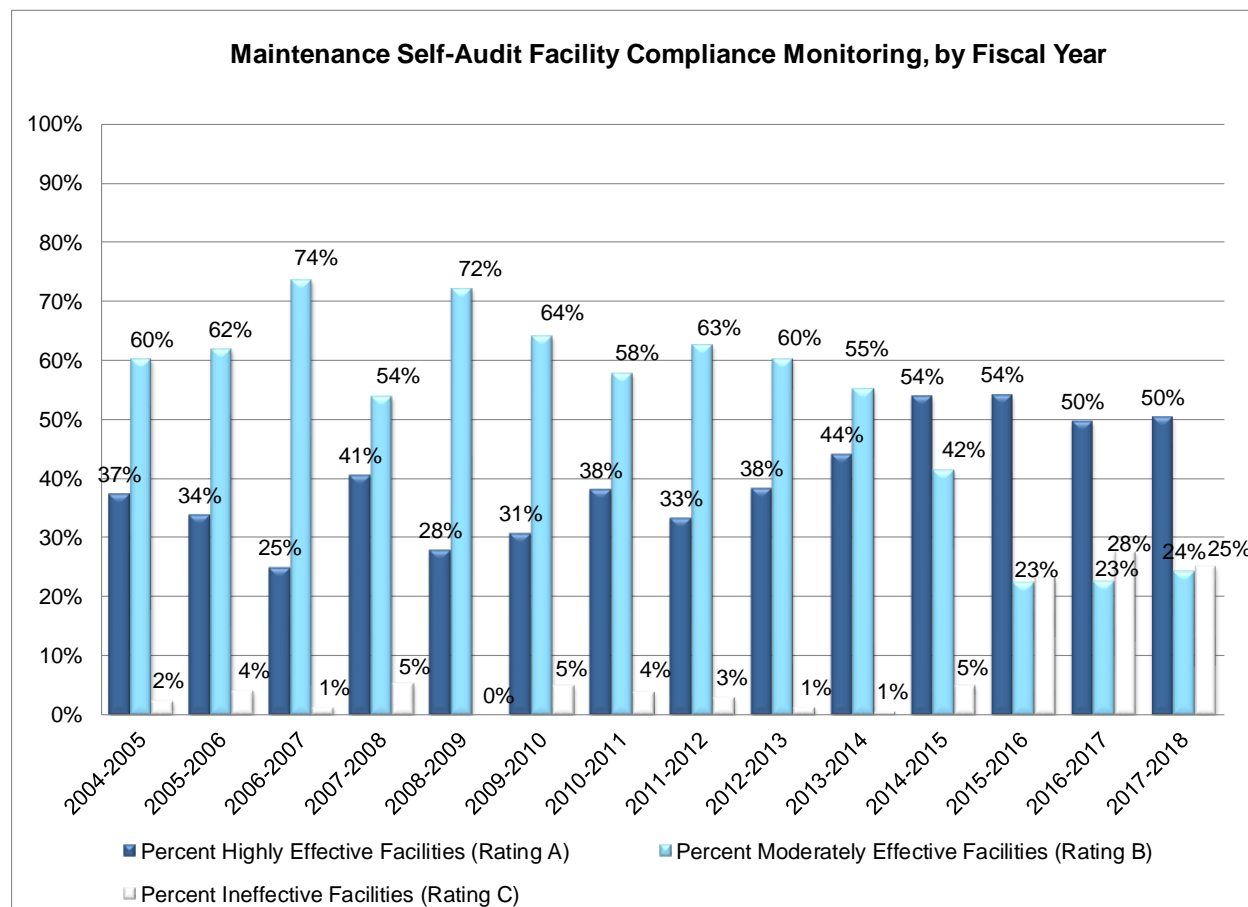


Figure O-14: Maintenance Self-Audit Facility Compliance Monitoring, by Fiscal Year

Compliance inspections were conducted for BMPs that are applied during maintenance activities; 62 maintenance activities are identified within the Maintenance Staff Guide. At least 10 individual maintenance activities were inspected in each District except District 9 in 2017-2018 (average 11.6 per District), for a total of 139 inspections [L1].

The inspections indicated that staff in the field are generally aware of the BMPs that were necessary and are implementing them appropriately [L2, L3].

- All but one of the 139 activities (99.3%) received a rating of 1 (BMPs implemented and effective) or 2 (BMPs implemented but less than 100% effective).
- One activity received a rating of 3 (BMPs not implemented), while no activities received a rating of 4 (release from facility to outside the Caltrans right-of-way).
- No activities received a rating of 5 (discharge from facility to surface water) (Figure O-15).

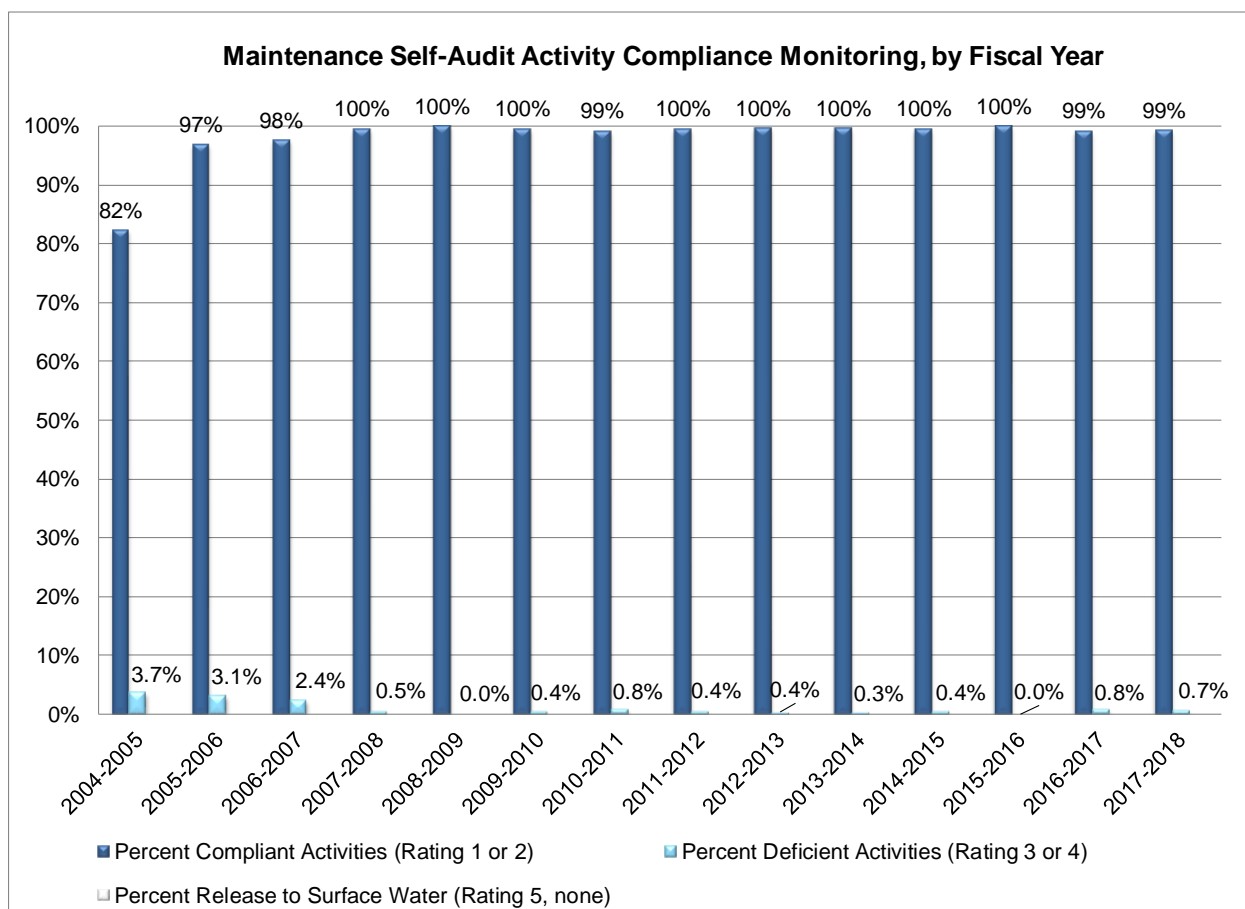


Figure O-15: Maintenance Self-Audit Activity Compliance Monitoring, by Fiscal Year

Enhanced Storm Drain Inspection and Cleaning Activities

Caltrans implemented its enhanced annual storm drain inlet inspection and cleaning program in the Los Angeles and Ventura (District 7), San Diego (District 11), and Orange (District 12) Counties. The goal is to inspect 20% of the storm drain inlets in these counties each year.

- Overall, in 2017-2018, the enhanced program resulted in 27% of the storm drain inlets being inspected (18,102 out of 67,632 total inlets) and, of those 18,102, about 58% being cleaned (10,456); thus, the general goal to inspect 20% of the storm drain inlets was met (Figure O-16, Figure O-17) [L1].

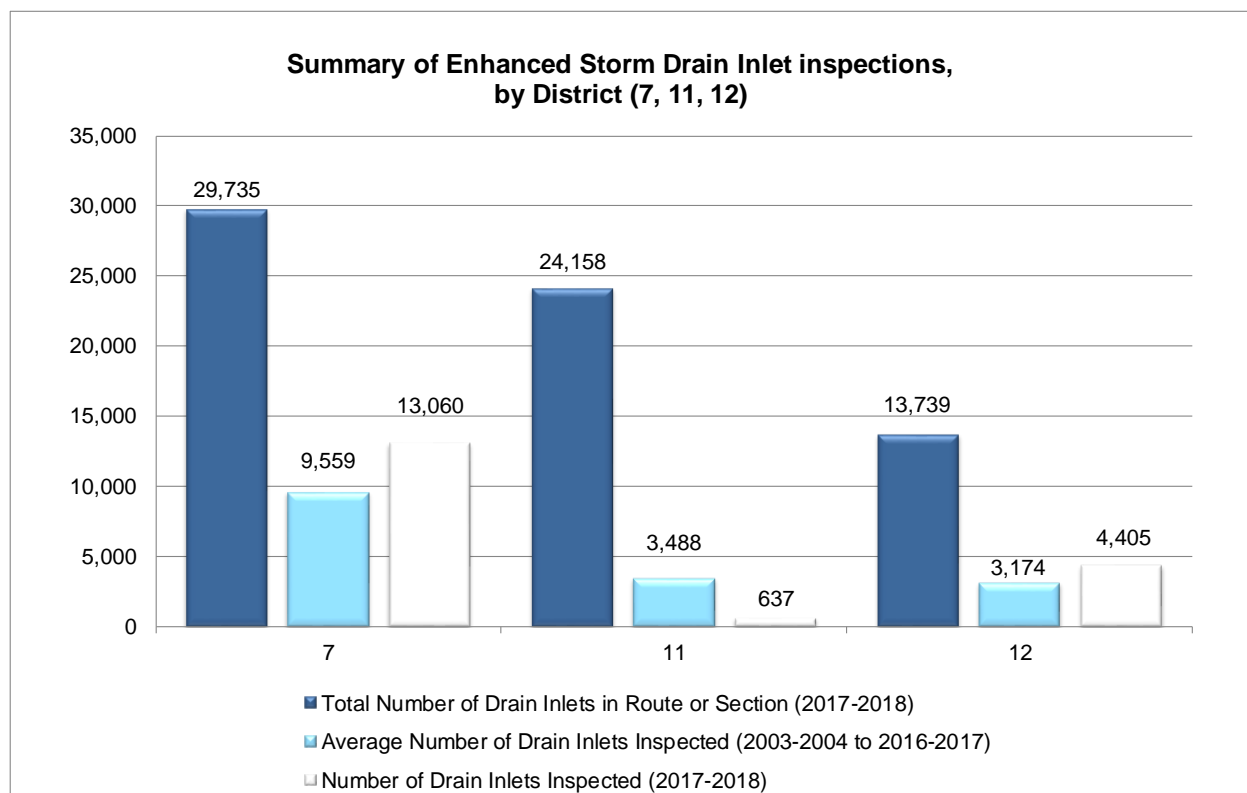


Figure O-16: Summary of Enhanced Storm Drain Inlet Inspections, by District (7, 11, 12)

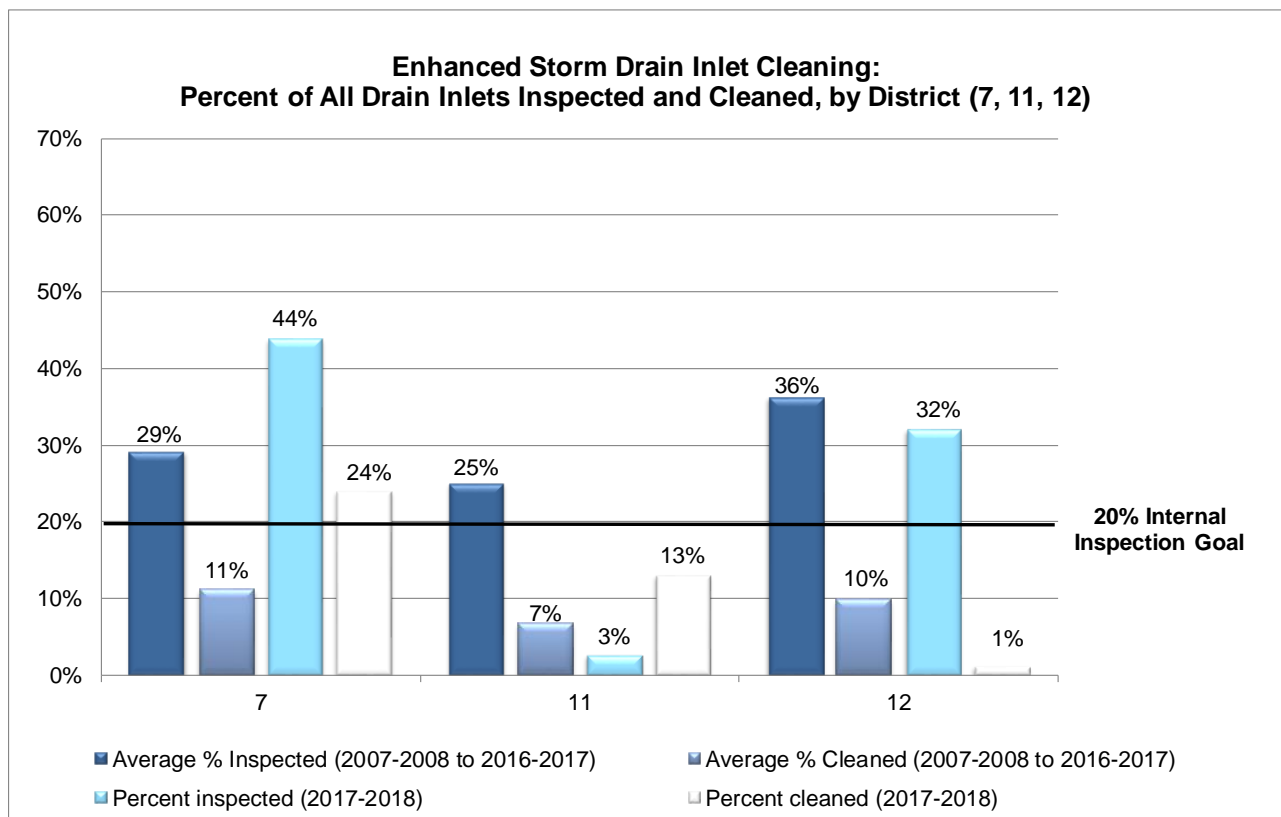


Figure O-17: Enhanced Storm Drain Inlet Cleaning: Percent of All Drain Inlets Inspected and Cleaned, by District (7, 11, 12)

Slope Inspections

Caltrans' Division of Maintenance has an ongoing program to inspect slopes for erosion. The division has a self-imposed goal to inspect approximately 20% of the slopes in each District annually, depending on weather conditions and work load priorities. The objective is to meet the SWMP requirement within the five-year period, even though there may be fluctuations in the actual percentage of inspections completed. (Figure O-18, Figure O-19) [L1].

- During the reporting period, 16.9% of the slopes were inspected (7,614 out of 44,971 total shoulder miles). A total of 103 major and 296 minor slope problems were identified along the 7,614 shoulder miles inspected.
- Six Districts (Districts 2, 3, 4, 5, 7 and 10) indicated that 20% or more of the total shoulder miles were inspected.
- Six Districts indicated that less than 20% of the total shoulder miles were inspected.
- For those slopes that had problems, the Districts repaired the problems by installing additional BMPs, grading and stabilizing slopes, backfilling erosion, and clearing the highway.

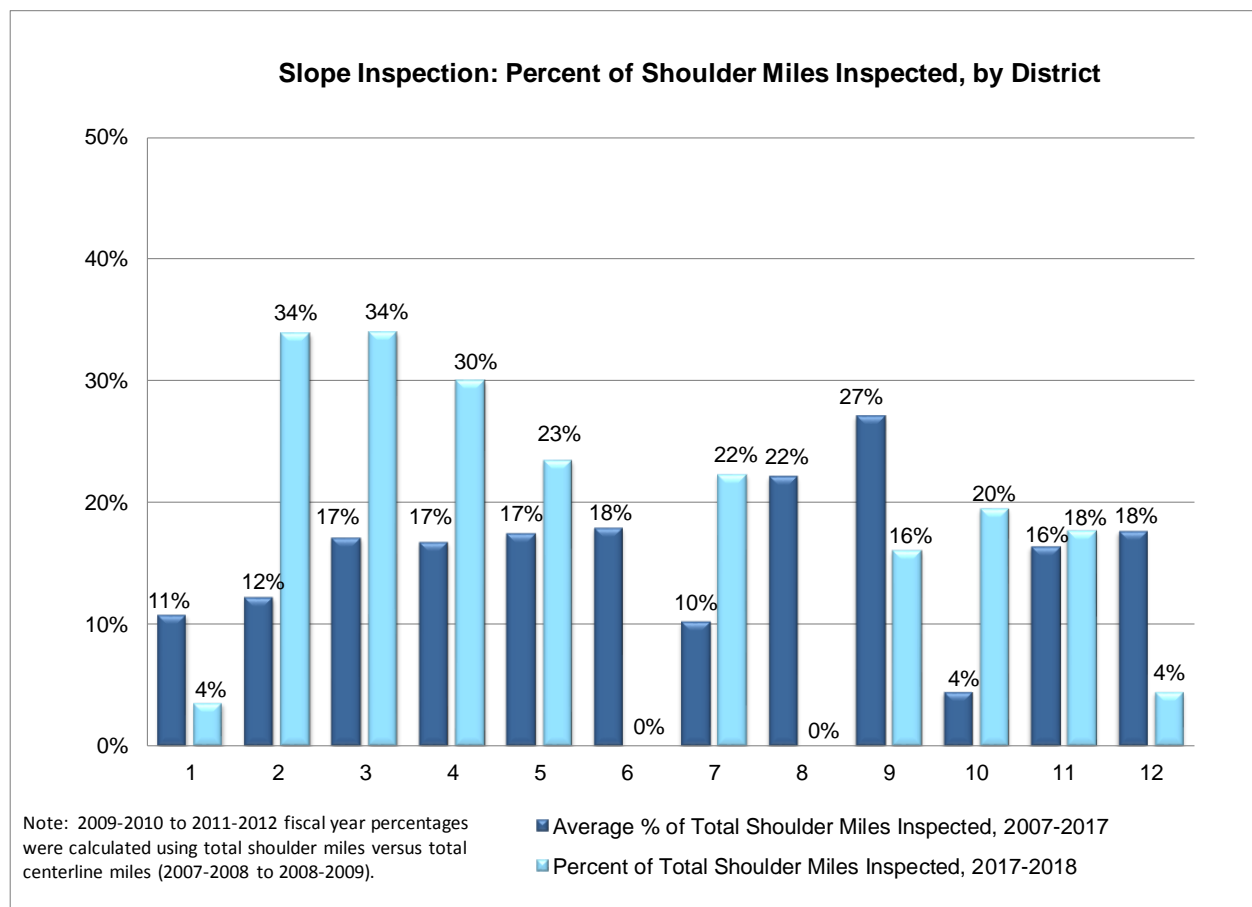


Figure O-18: Slope Inspection: Percent of Shoulder Miles Inspected, by District

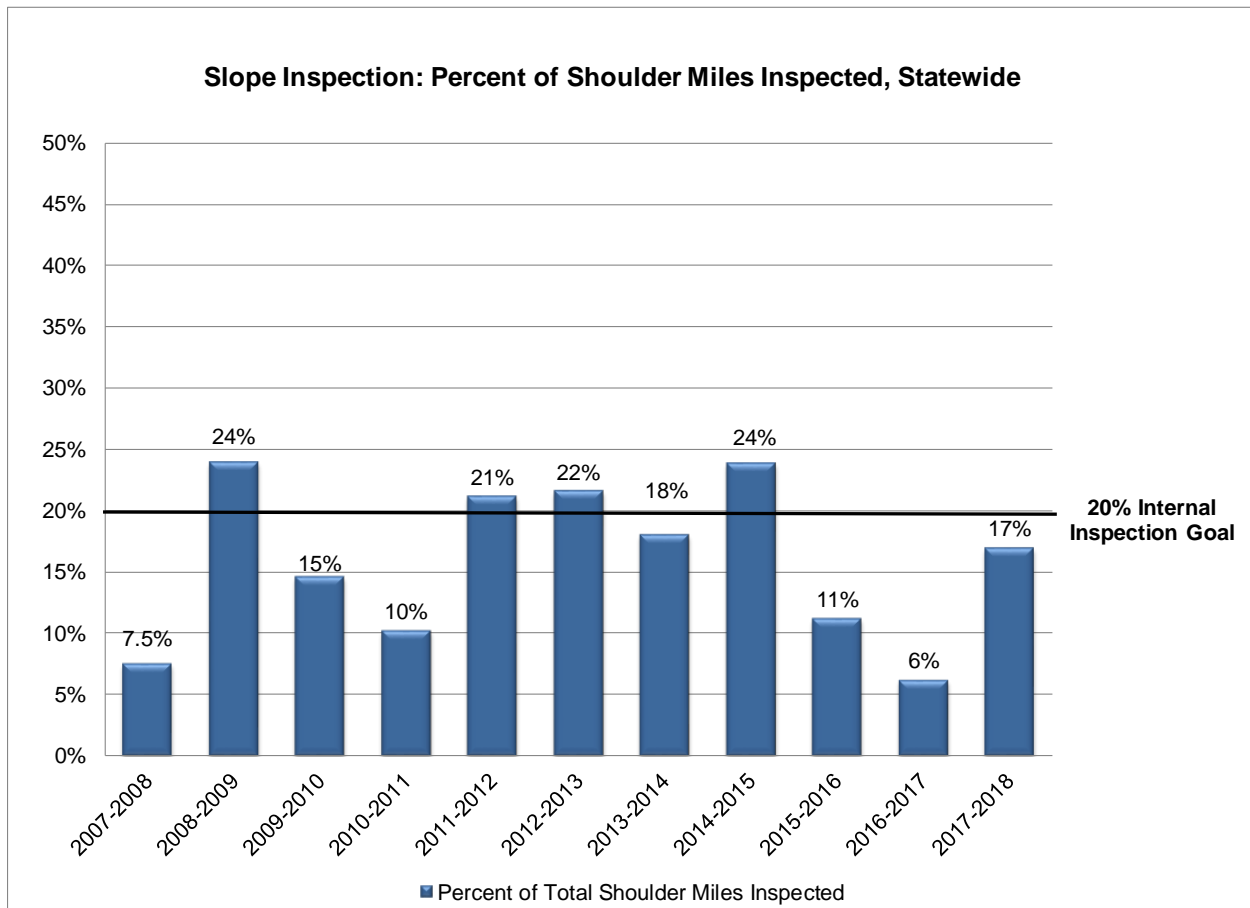


Figure O-19: Slope Inspection: Percent of Shoulder Miles Inspected, Statewide

Trash and Litter Removal Activities

A total of 403,093 cubic yards of trash and litter was removed in 2017-2018 through the following activities (Figure O-20) [L4]:

- Storm Drain Maintenance (31,523 cubic yards)
- Road Sweeping (84,279 cubic yards)
- District Crew/CCC Collection (208,464 cubic yards)
- Caltrans Parolee Program (52,697 cubic yards)
- Caltrans Adopt-A-Highway Program (13,117 cubic yards)
- Public Education (13,013 cubic yards) from public participation at events such as the California Statewide Litter Collection, Enforcement and Beautification Day event, the “Keep California Beautiful” campaign, and Caltrans’ “Protect Every Drop” campaign.

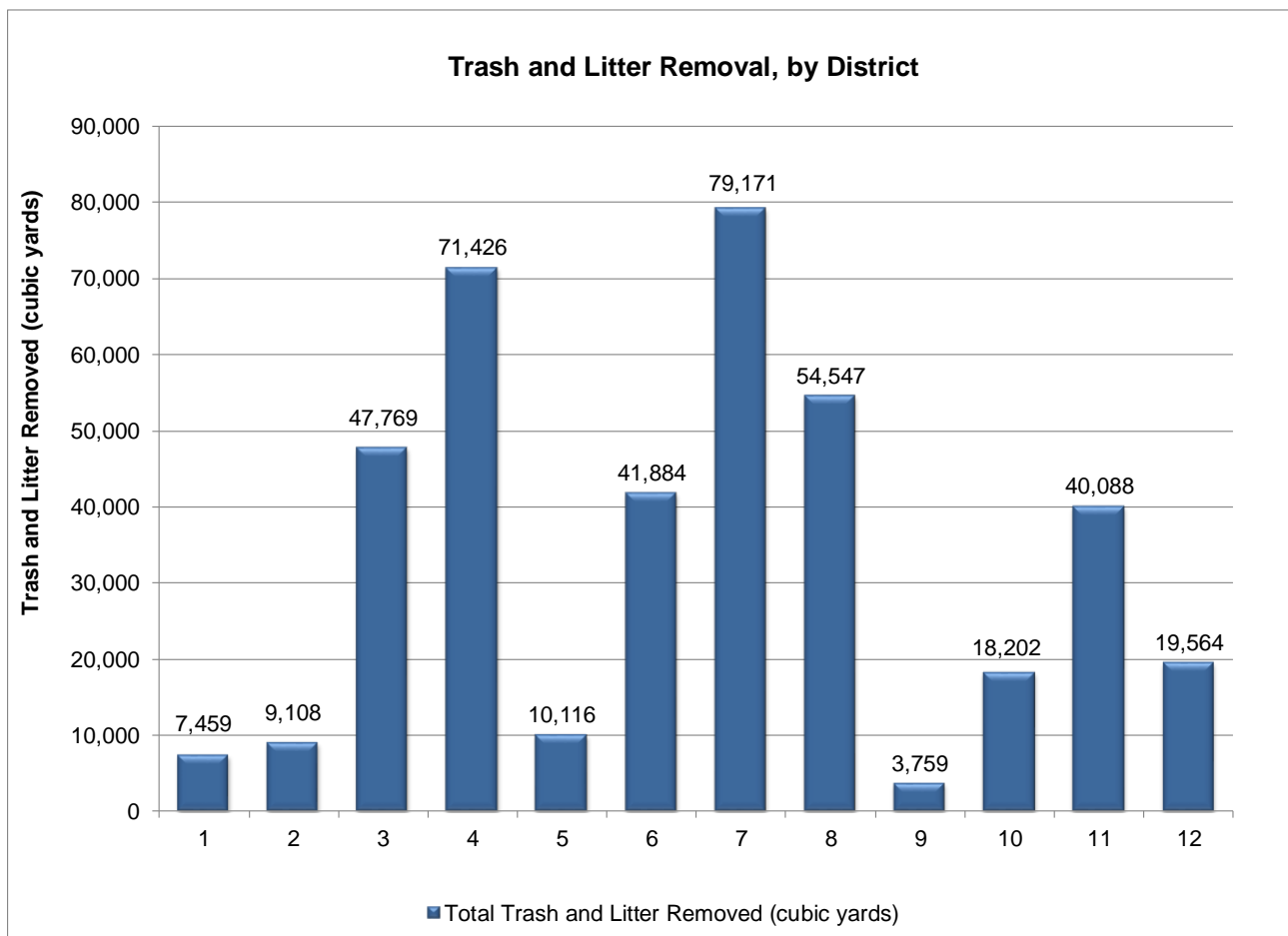


Figure O-20: Trash and Litter Removal, by District

Drain Inlets/Culverts Inspected and Cleaned

Caltrans developed maps and a related route database for each District. As a result, the Maintenance Supervisors were able to review the routes and prioritize the drain inspection and cleaning areas [L1].

Caltrans implemented their baseline drainage facility inspection and cleaning program throughout the state. Statewide, 140,947 of the 396,525 drain inlets were inspected in 2017-2018 (36% of the total) (Figure O-21, Figure O-22, Figure O-23) [L1].

- All but one District (7) indicated that at least 20% of their drain inlets were inspected.
- Eight Districts indicated that they inspected more drain inlets than the average of the previous periods (2003-2017).

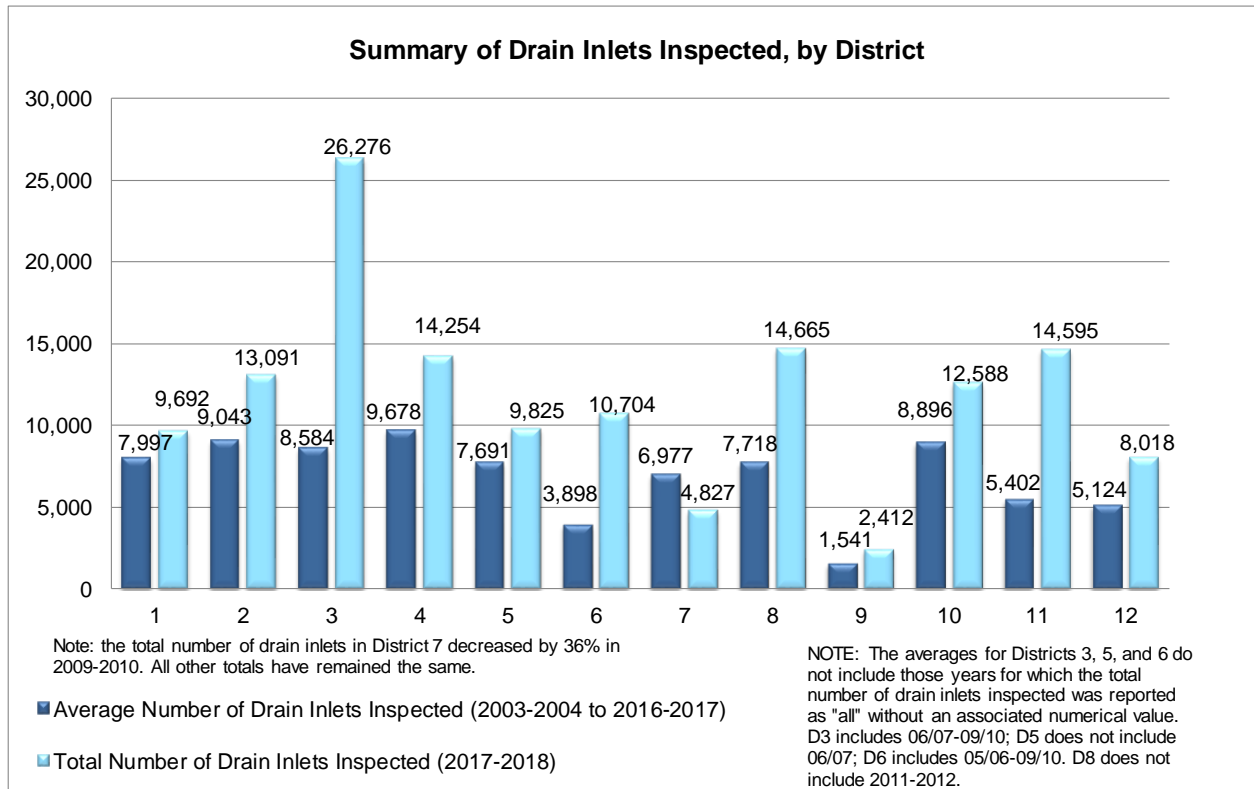


Figure O-21: Summary of Drain Inlets Inspected, by District

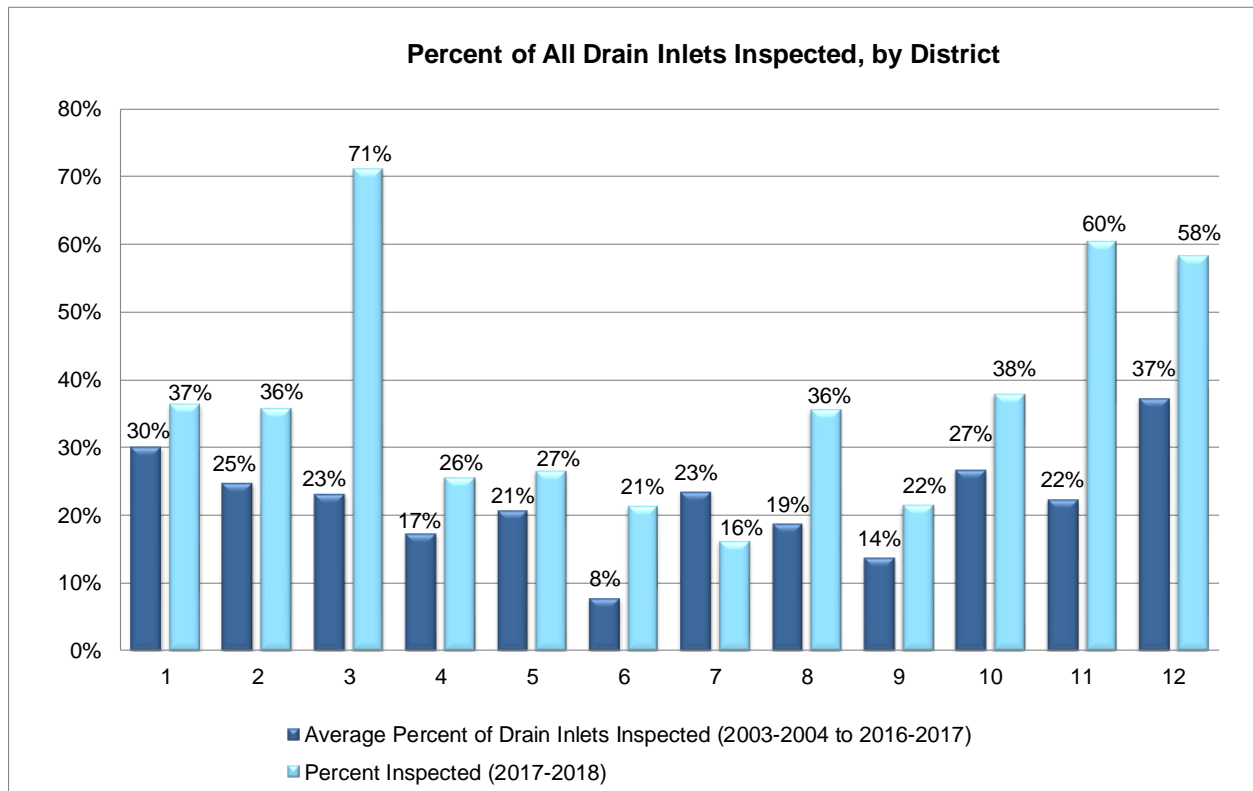


Figure O-22: Percent of All Drain Inlets Inspected, by District

Statewide, of the 396,525 total drain inlets, 140,947 (36%) were inspected and 105,212 (75% of those inspected) had accumulated sediment and were cleaned during 2017-2018 (Figure O-23). Some of the drain inlets might have been cleaned more than once during the reporting period [L1, L4].

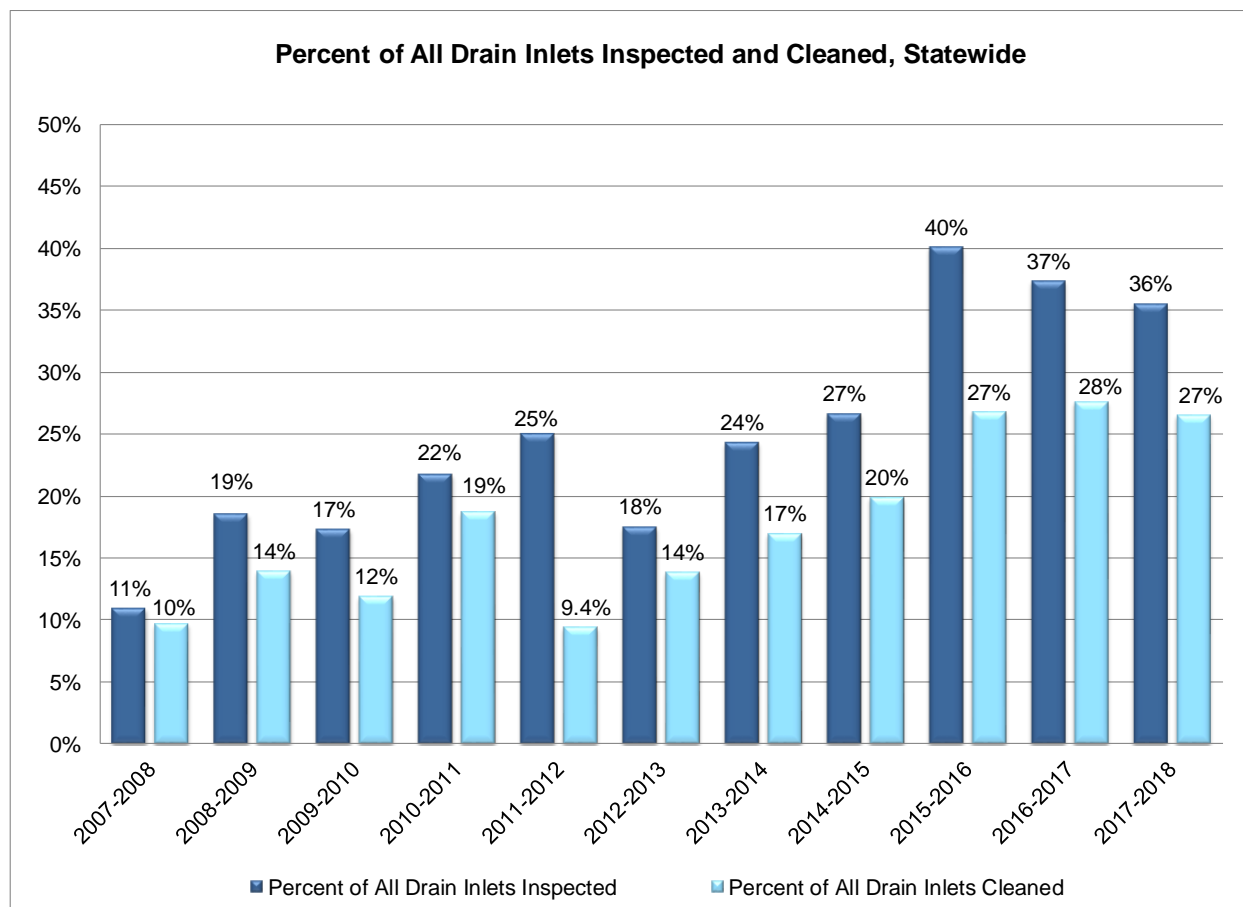


Figure O-23: Percent of All Drain Inlets Inspected and Cleaned, Statewide

Non-Departmental Activities

The effectiveness evaluation that was conducted for Non-Departmental Activities, as well as potential evaluations that may be conducted in future Annual Reports, is summarized in Table O-8. Additional detail for each component of the evaluation is shown below.

Table O-8: Effectiveness Evaluation Summary for Non-Departmental Activities

	Effectiveness Evaluation Outcome Levels					
	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6
	Stormwater Program Activities	Barriers and Bridges to Action	Target Audience Actions	Source Contributions	MS4 Contributions	Receiving Water Conditions
Airspace Leases	C – # Leases with Stormwater Language	N	N/A	N/A	N/A	N/A

C – An effectiveness evaluation was conducted during fiscal year 2017-2018

A – It is anticipated that an effectiveness evaluation may be conducted in future Annual Reports

N – An effectiveness evaluation is not currently anticipated

N/A – This outcome level is not applicable

Airspace Leases

Airspace leases are legal documents defining areas within the state highway right-of-way that can safely accommodate privately managed uses, and they outline terms agreed upon at the time of their execution. Caltrans ensured that new or renewed airspace leases included the necessary stormwater language for compliance with the SWMP. In 2017-2018, Caltrans incorporated stormwater language into a total of 79% of the airspace leases statewide (379 out of 481 airspace leases). This is an increase from previous years (Figure O-24) [L1].

- District 9 indicated that they have no airspace leases.
- Districts 1, 6 and 8 indicated that they have incorporated stormwater language into 100% of their airspace leases.
- Districts 2, 3, 4 and 7 indicated that they have incorporated stormwater language into 75% or more of their airspace leases.
- Districts 10 and 11 indicated that they have incorporated stormwater language into 50% or more of their airspace leases.
- Only Districts 5 and 12 indicated that they have incorporated stormwater language into less than 50% of their airspace leases.

Caltrans will continue to revise airspace leases to include stormwater management requirements as the leases are renewed.

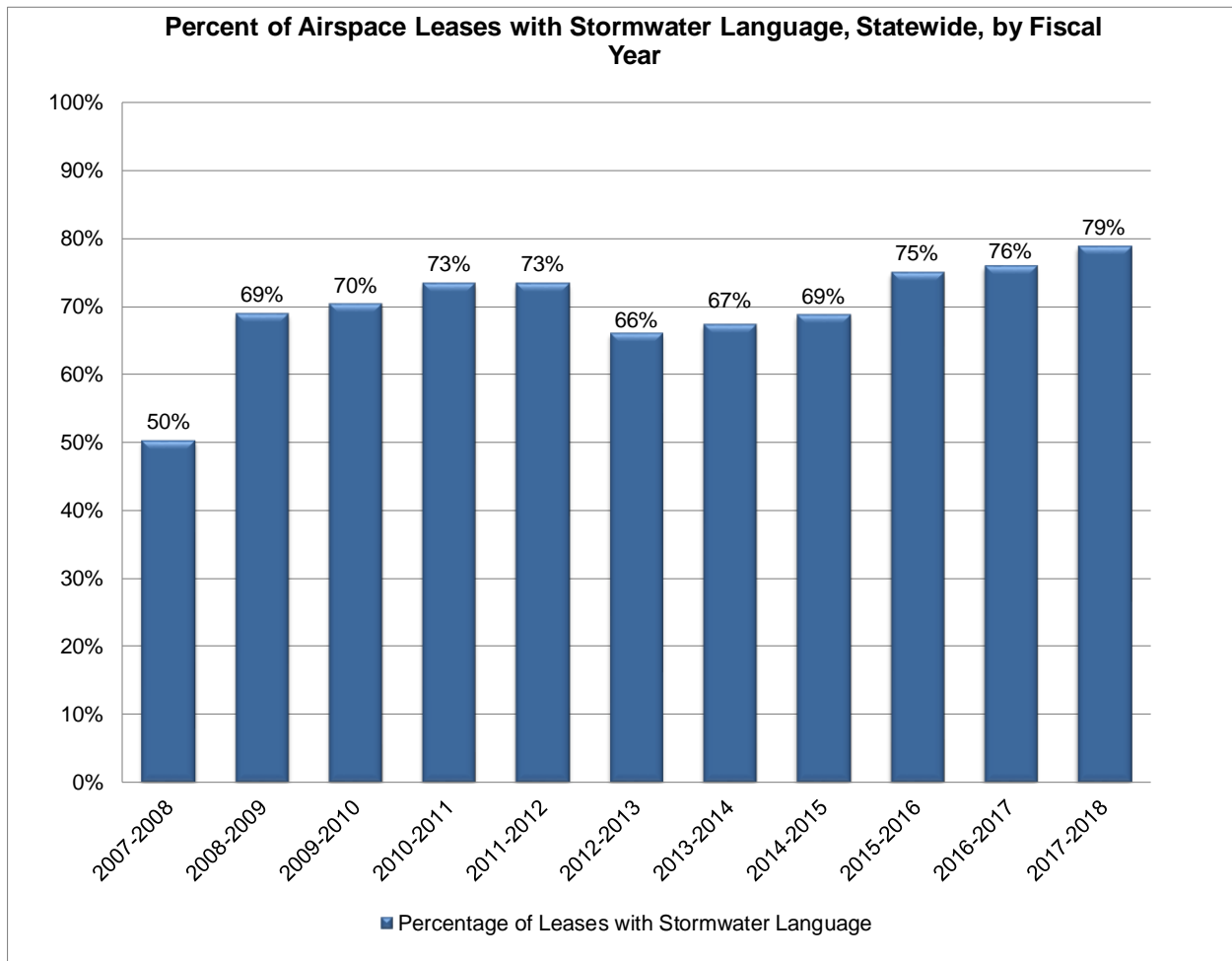


Figure O-24: Percent of Airspace Leases with Stormwater Language, Statewide, by Fiscal Year

Non-Stormwater Activities/Discharges

The effectiveness evaluation that was conducted for Non-Stormwater Activities/Discharges, as well as potential evaluations that may be conducted in future Annual Reports, is summarized in Table O-9. Additional detail for each component of the evaluation is shown below.

Table O-9: Effectiveness Evaluation Summary for Non-Stormwater Activities/Discharges

	Effectiveness Evaluation Outcome Levels					
	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6
	Stormwater Program Activities	Barriers and Bridges to Action	Target Audience Actions	Source Contributions	MS4 Contributions	Receiving Water Conditions
Exempt and Conditionally Exempt Non-Stormwater Discharges	A	N	N	N/A	N/A	N/A

C – An effectiveness evaluation was conducted during fiscal year 2017-2018

A – It is anticipated that an effectiveness evaluation may be conducted in future Annual Reports

N – An effectiveness evaluation is not currently anticipated

N/A – This outcome level is not applicable

Exempt and Conditionally Exempt Non-Stormwater Discharges

The State Board and Caltrans reviewed the list of exempt and conditionally exempt non-stormwater discharges and their requirements as the SWMP was developed. No additional exempt or conditionally exempt discharges were proposed by Caltrans during the reporting period.

Training

The effectiveness evaluation that was conducted for Training, as well as potential evaluations that may be conducted in future Annual Reports, is summarized in Table O-10. Additional detail for each component of the evaluation is shown below.

Table O-10: Effectiveness Evaluation Summary for Training

	Effectiveness Evaluation Outcome Levels					
	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6
	Stormwater Program Activities	Barriers and Bridges to Action	Target Audience Actions	Source Contributions	MS4 Contributions	Receiving Water Conditions
Training	C – # Training Courses Held and # Attendees	C – Awareness of Key Issues	A	N/A	N/A	N/A

C – An effectiveness evaluation was conducted during fiscal year 2017-2018

A – It is anticipated that an effectiveness evaluation may be conducted in future Annual Reports

N – An effectiveness evaluation is not currently anticipated

N/A – This outcome level is not applicable

Training

The division-specific training efforts in 2017-2018 include the following [L1, L2]:

NPDES

- A total of 13 training courses were provided to 51 employees (approximately 100% of 50 staff), in addition to available online courses (the number of staff trained through online courses was not tracked). See Appendix L for courses provided to NPDES program staff.
- Over the last five years, 100% of the employees have been trained or re-trained (some multiple times), meeting the five-year target of 100% (Figure O-25).
- No trainings were reported for NPDES prior to 2013-2014, because the staff in this division were being trained with another division, pending development of division-specific training.

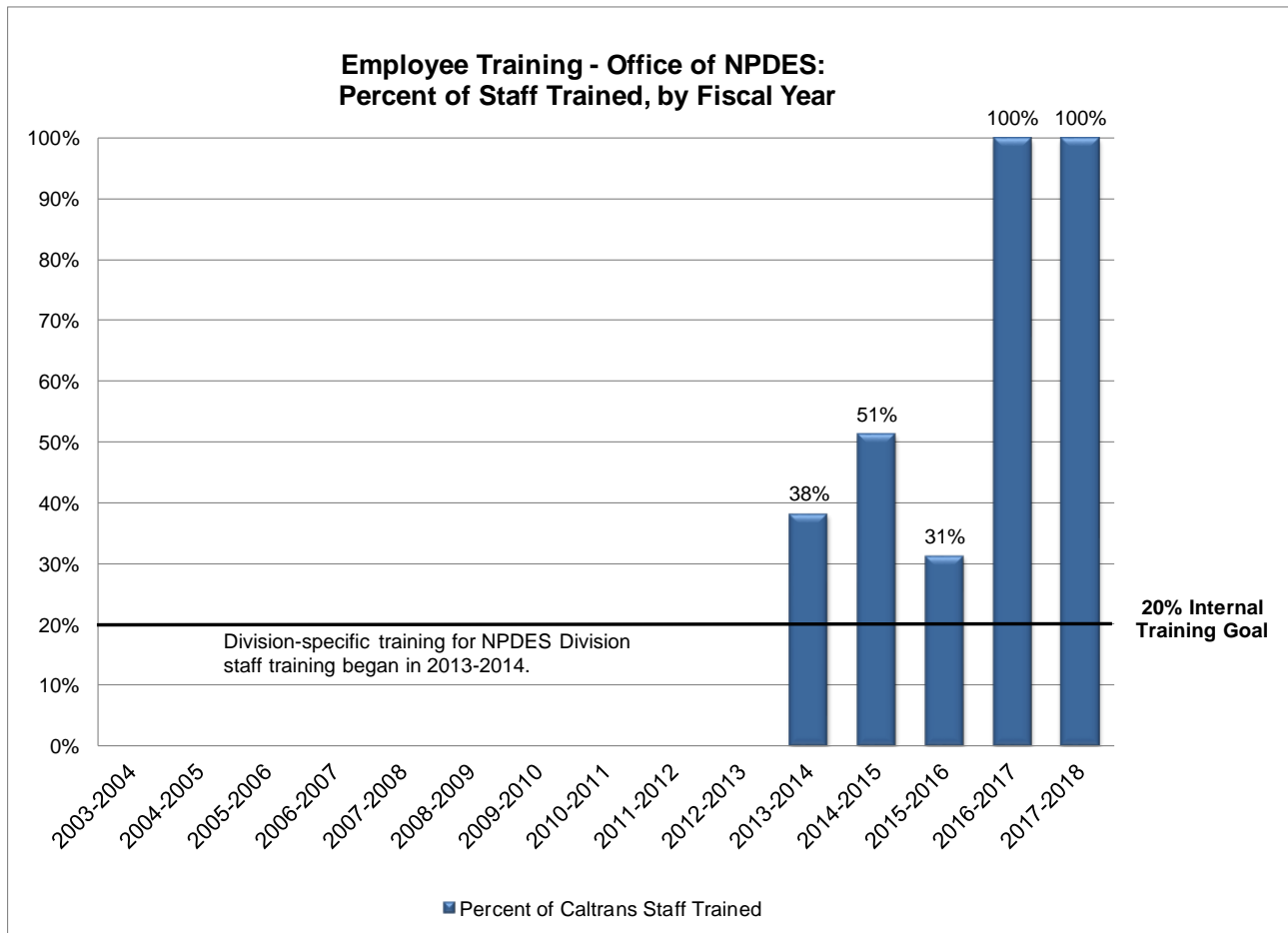


Figure O-25: Employee Training – NPDES: Percent of Staff Trained, by Fiscal Year

Right-of-Way Program

- One training course was given to 3 employees (1% of 246 staff). See Appendix L for courses provided to right-of-way program staff.
- Over the last five years, approximately 72% of the employees have been trained or re-trained (some multiple times) (Figure O-26).
- No trainings were reported for this division prior to 2013-2014 because the staff in this division were being trained with another division, pending development of division-specific training.

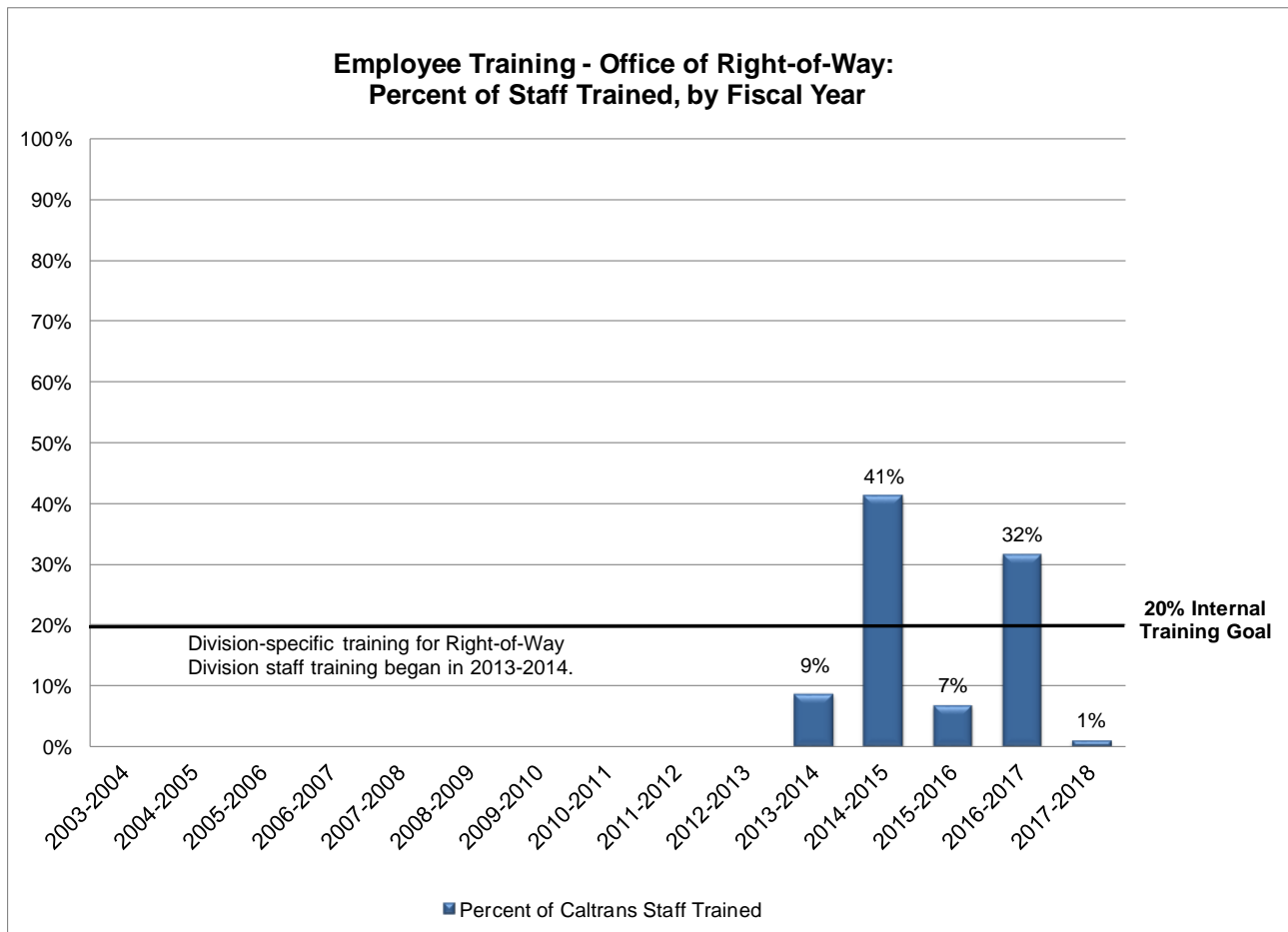


Figure O-26: Employee Training – Right-of-Way: Percent of Staff Trained, by Fiscal Year

Encroachment Permit Office

- A total of 56 training courses were provided to 309 employees (>100% of 135 staff). See Appendix L for courses provided to encroachment program staff.
- Over the last five years, 100% of the employees have been trained or re-trained (some multiple times), meeting the five-year target of 100% (Figure O-27).
- No trainings were reported for this division prior to 2011-2012 because the staff in this division were being trained with another division, pending development of division-specific training.

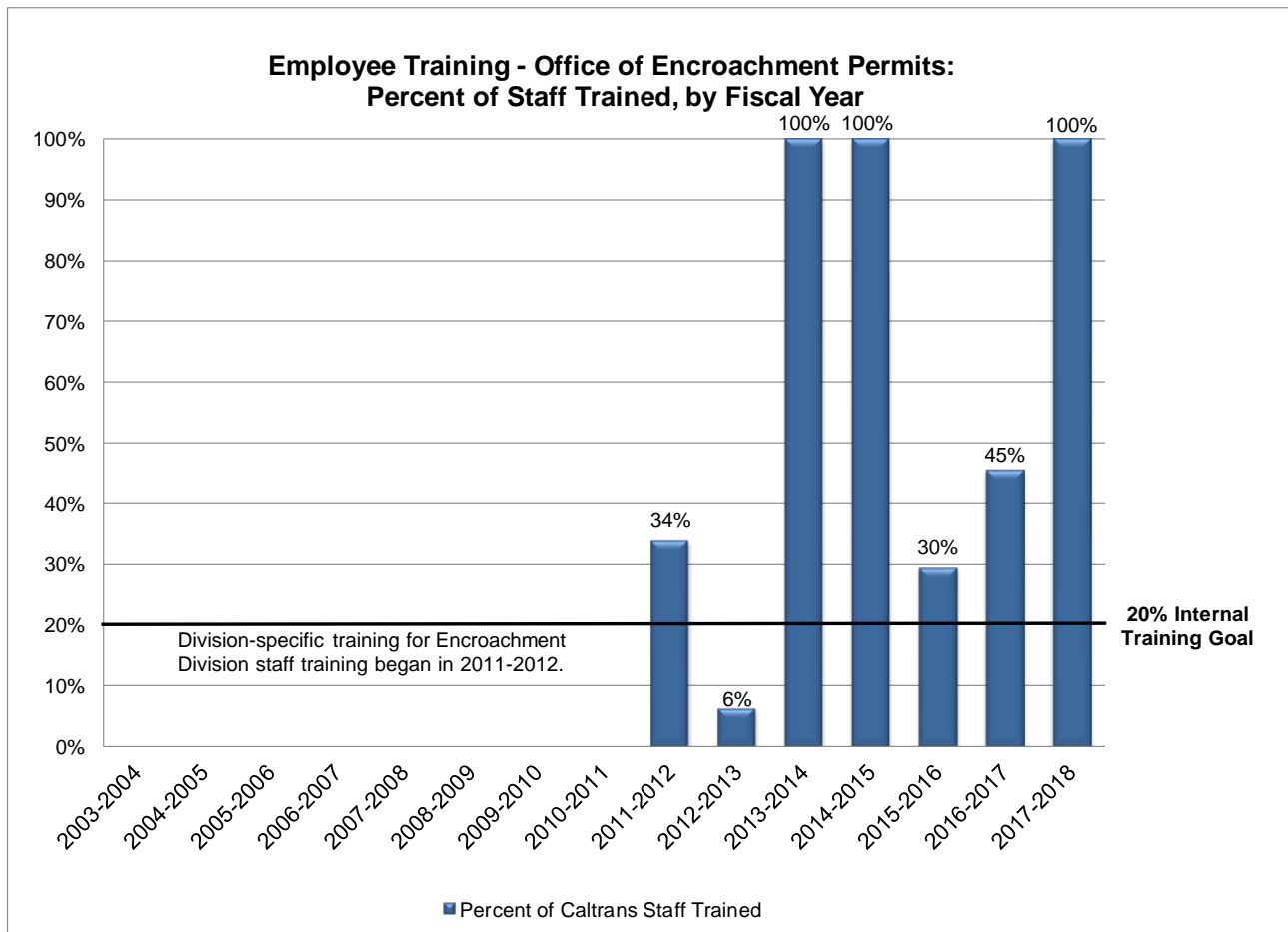


Figure O-27: Employee Training – Encroachment Permits: Percent of Staff Trained, by Fiscal Year

Design

- Seventeen training courses were provided to 313 employees in the Planning and Design division (approximately 72% of 432 staff), in addition to available online courses (the number of staff trained through online courses was not tracked). See Appendix L for courses provided to design program staff.
- Over the last five years, 78% of the employees have been trained (some multiple times) (Figure O-28).

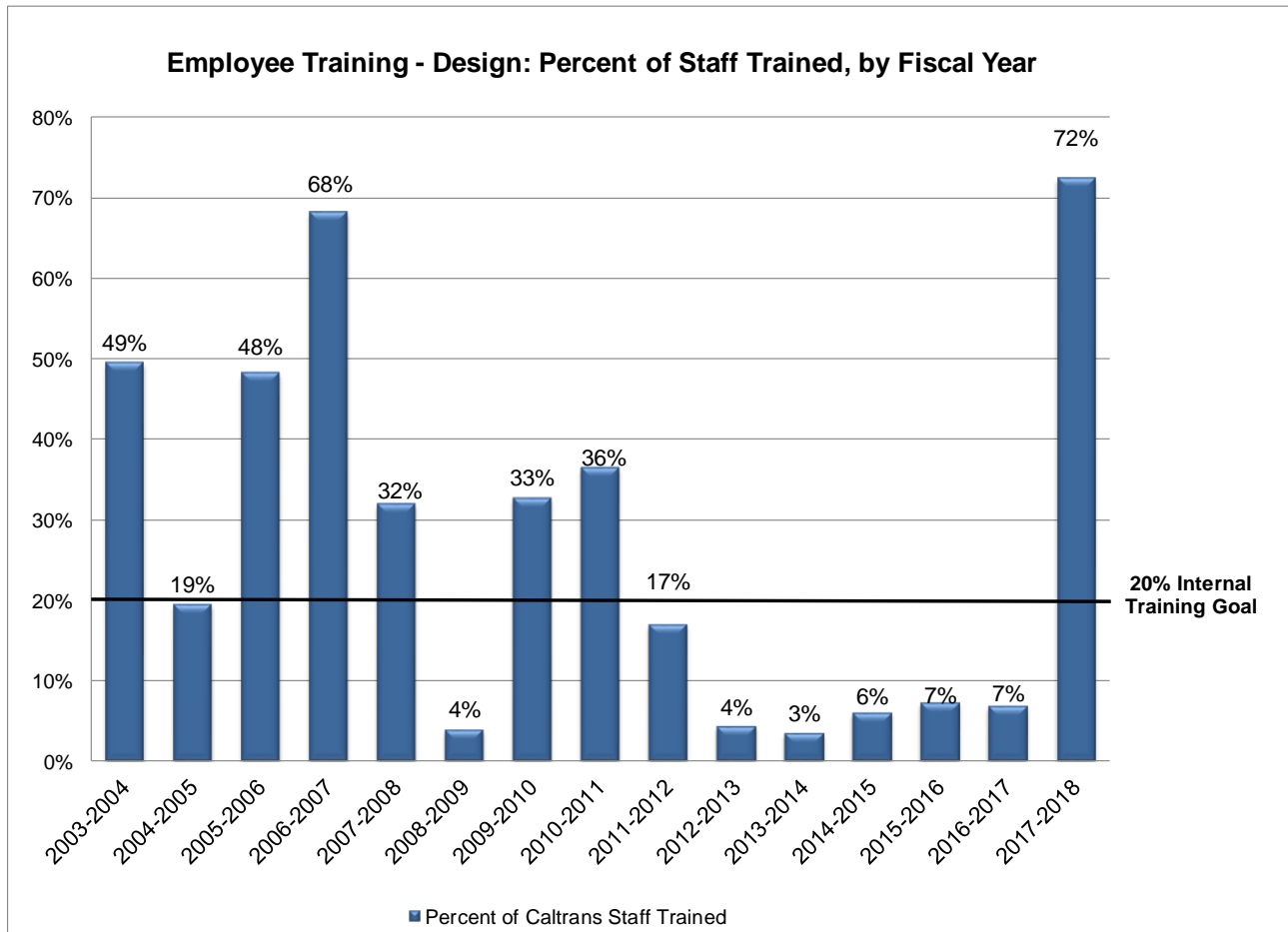


Figure O-28: Employee Training – Design: Percent of Staff Trained, by Fiscal Year

Construction

- Twelve training courses were provided to 163 employees (11% of 1,437 staff), in addition to available online courses (the number of staff trained through online courses is not tracked). See Appendix L for courses provided to construction program employees.
- Over the last five years, 100% of the employees have been trained (some multiple times), meeting the five-year target of 100% (Figure O-29).
- Construction contractor training activities were also provided for 480 contract employees.

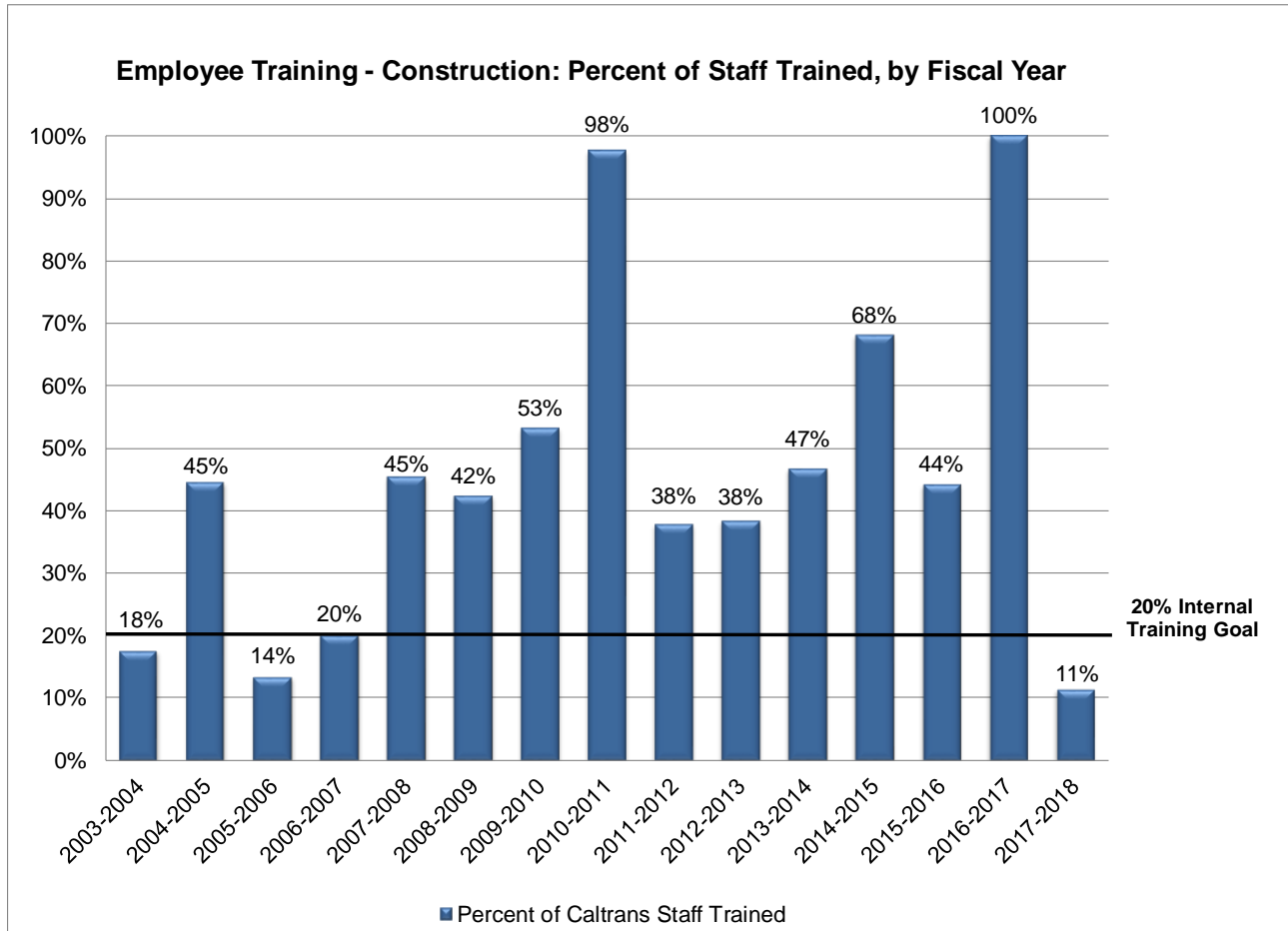


Figure O-29: Employee Training – Construction: Percent of Staff Trained, by Fiscal Year

Maintenance

- A total of 186 training courses were provided to 2,049 employees (51% of 4,055 staff). See Appendix L for courses provided to maintenance program staff.
- Over the last five years, 100% of the employees have been trained (some multiple times), meeting the five-year target of 100% (Figure O-30).

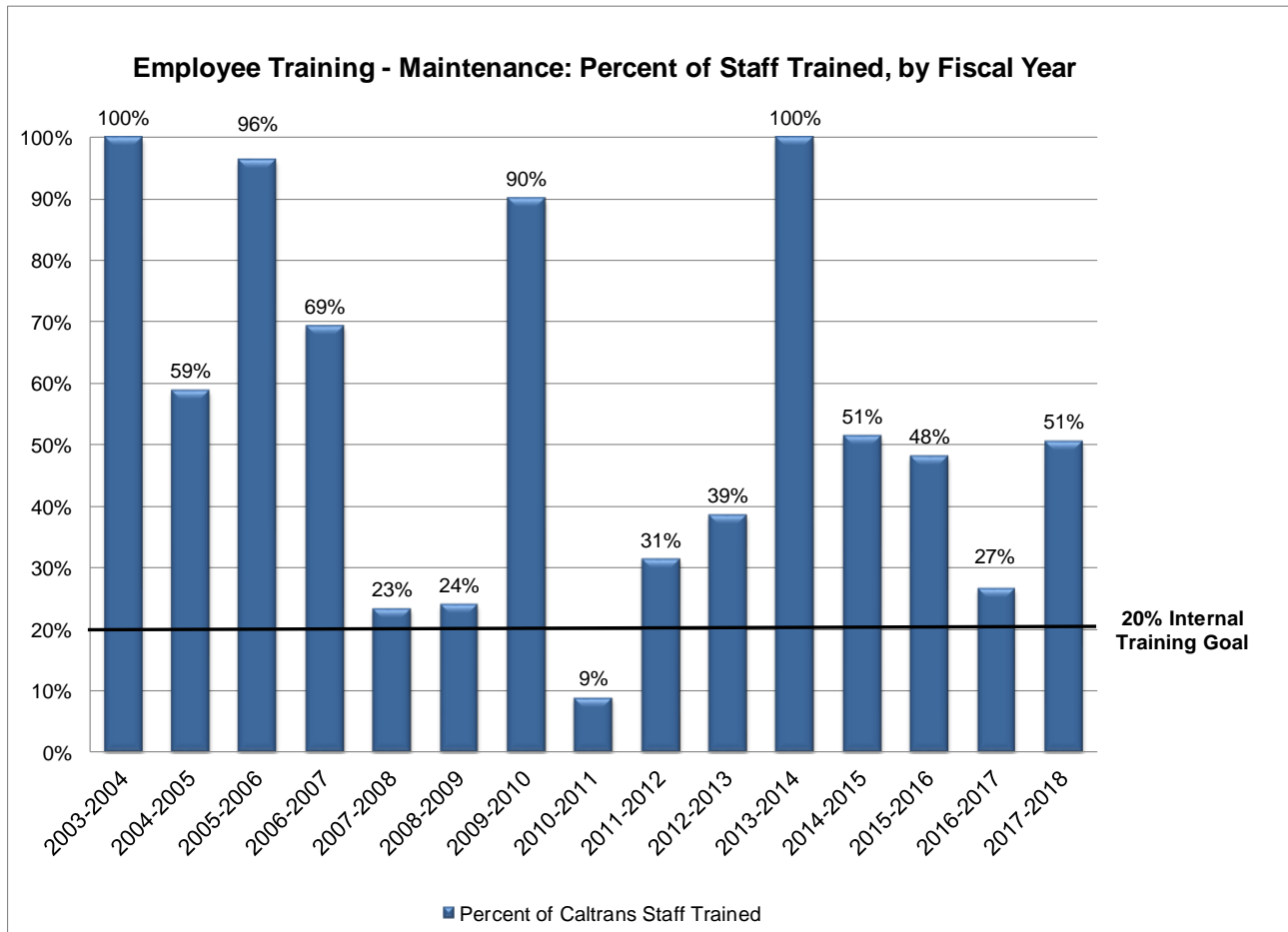


Figure O-30: Employee Training – Maintenance: Percent of Staff Trained, by Fiscal Year

Public Education and Outreach

The effectiveness evaluation that was conducted for Public Education and Outreach, as well as potential evaluations that may be conducted in future Annual Reports, is summarized in Table O-11. Additional detail for each component of the evaluation is shown below.

Table O-11: Effectiveness Evaluation Summary for Public Education and Outreach

	Effectiveness Evaluation Outcome Levels					
	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6
	Stormwater Program Activities	Barriers and Bridges to Action	Target Audience Actions	Source Contributions	MS4 Contributions	Receiving Water Conditions
Public Education	C – Outreach Conducted and Impressions Made	A	A	C – Materials Removed, Adopt-A-Highway Program	N/A	N/A

C – An effectiveness evaluation was conducted during fiscal year 2017-2018

A – It is anticipated that an effectiveness evaluation may be conducted in future Annual Reports

N – An effectiveness evaluation is not currently anticipated

N/A – This outcome level is not applicable

Public Education

Caltrans has developed and is implementing an effective public education and outreach program that provides key stormwater messages. The efforts include the following [L1]:

- Caltrans coordinated the public education/information outreach efforts with the Districts, as well as other state, federal, county, city, and local agency programs.
- Caltrans has continued promoting its “Protect Every Drop” campaign, initiated in February 2016, which seeks to educate Californians about the sources and pathways of stormwater pollution and to encourage consumer behavior that reduces pollutants to improve water quality in our streams, rivers, lakes, and coastal waters. The campaign addresses three key actions that the public can take, including properly disposing of trash and other items containing pollutants, covering truckloads that may fall or blow off during travel, and performing routine vehicle and tire maintenance to reduce pollution from vehicles. The campaign also addresses other pollutants, such as pesticides and bacteria found in highway stormwater that may originate from non-highway sources. Caltrans developed a website (www.protecteverydrop.com) to provide information on the campaign.

In 2017-2018, Protect Every Drop co-led a coastal cleanup event with the Contra Costa Clean Water Program in April, and copies of the campaign’s Clean Water Activity book were distributed to children.

- Caltrans co-sponsors CASQA’s Water Quality NewsFlash, a bi-weekly regulatory update.

The Districts supplemented the statewide efforts and implemented the program at the local level [L1].

- All Districts assisted in implementing the anti-litter campaigns through public education and the Adopt-A-Highway program.
- Ten Districts conducted other outreach on a local level, including outreach to schools, presentations on career days/fairs, bring-your-child-to-work days, participation in community events, and/or participation in clean-up days.

A total of 13,117 cubic yards of trash and litter were removed in 2017-2018 by the Caltrans Adopt-A-Highway Program and 13,013 cubic yards by other public education programs such as the California Statewide Litter Collection, Enforcement, and Beautification Day event, and the “Keep California Beautiful” campaign [L4].

Measurable Objectives

The effectiveness evaluation that was conducted for Measurable Objectives, as well as potential evaluations that may be conducted in future Annual Reports, is summarized in Table O-12. Additional detail for each component of the evaluation is shown below.

Table O-12: Effectiveness Evaluation Summary for Measurable Objectives

	Effectiveness Evaluation Outcome Levels					
	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6
	Stormwater Program Activities	Barriers and Bridges to Action	Target Audience Actions	Source Contributions	MS4 Contributions	Receiving Water Conditions
Measurable Objectives	C – Objectives completed	N/A	N/A	N/A	N/A	N/A

C – An effectiveness evaluation was conducted during fiscal year 2017-2018

A – It is anticipated that an effectiveness evaluation may be conducted in future Annual Reports

N – An effectiveness evaluation is not currently anticipated

N/A – This outcome level is not applicable

Measurable Objectives

Caltrans developed its Draft SWMP to comply with the 2012 Permit requirements. The Draft SWMP included a total of 73 Measurable Objectives. The State Water Board approved the revised SWMP on July 20, 2016. Caltrans made progress in implementing and/or completing many of the Measurable Objectives. A summary of implementation taken during the 2017-2018 reporting period is provided below (Figure O-) [L1].

“Develop the Program” Measurable Objectives

Caltrans has developed and is implementing the Measurable Objectives to “Develop the Program.”

- Eighteen objectives were completed, including seventeen Year 1, Year 2, and Year 3 objectives and one annual objective.
- Two annual and ongoing objectives are in progress.

“Implement the Program” Measurable Objectives

Caltrans has developed and is implementing the Measurable Objectives to “Implement the Program.”

- Seven objectives were completed, including the two Year 2 objectives and five annual objectives.
- Six annual, ongoing, and biennial objectives are in progress.

“Evaluate the Program” Measurable Objectives

Caltrans has developed and is implementing the Measurable Objectives to “Evaluate the Program.”

- Twenty-one objectives were completed, including seven Year 1, Year 2, Year 4, and Year 5 objectives and 14 annual objectives.
- Nineteen Year 5, annual, ongoing, biennial, and “as needed” objectives are in progress.

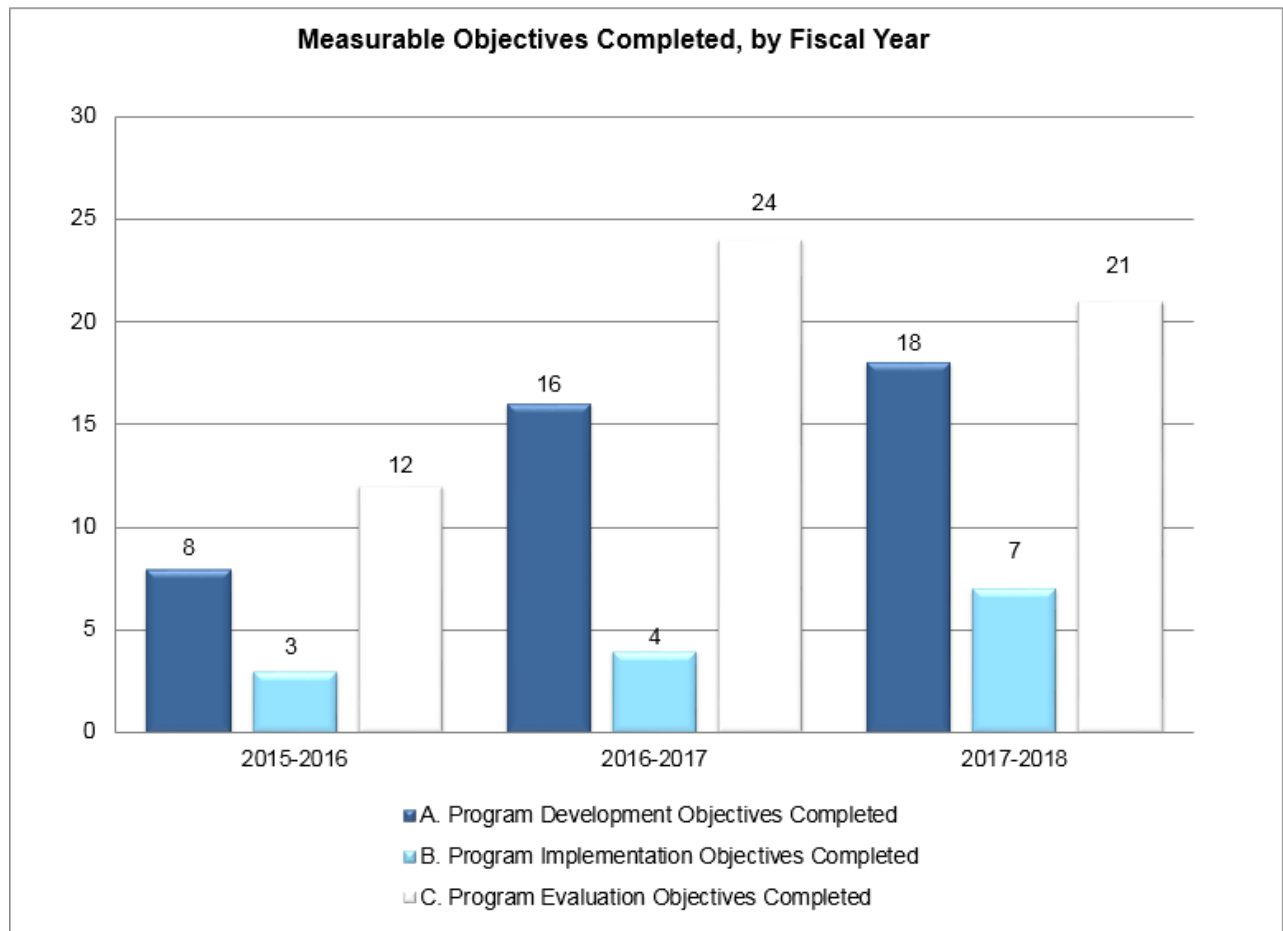


Figure O-33: Number of Measurable Objectives Completed, by Fiscal Year

Region Specific Activities

The effectiveness evaluation that was conducted for Region Specific Activities, as well as potential evaluations that may be conducted in future Annual Reports, is summarized in Table O-12. Additional detail for each component of the evaluation is provided below.

Table O-12: Effectiveness Evaluation Summary for Region Specific Activities

	Effectiveness Evaluation Outcome Levels					
	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6
	Stormwater Program Activities	Barriers and Bridges to Action	Target Audience Actions	Source Contributions	MS4 Contributions	Receiving Water Conditions
TMDL Requirements	C – Participation in the Development and Implementation of TMDLs	N	N	A	N/A	*A

C – An effectiveness evaluation was conducted during fiscal year 2017-2018

A – It is anticipated that an effectiveness evaluation may be conducted in future Annual Reports

N – An effectiveness evaluation is not currently anticipated

N/A – This outcome level is not applicable

* This outcome level may only be assessed using Caltrans' data in conjunction with other available stakeholder datasets.

TMDL Requirements

On May 20, 2014, the State Board released an amendment to the Caltrans Conformed NPDES Permit focusing on TMDL requirements. The revised sections included the Order, Fact Sheet, and Attachments IV, V, VIII, and IX. In response to comments received, the State Board released a revised amendment on May 9, 2014, followed by a change sheet and subsequent adoption hearing on May 20, 2014, after which all revisions were approved. The Caltrans Conformed NPDES Permit revisions are pending approval at the Office of Administrative Law (OAL).

During the reporting period, Caltrans monitored 38 site locations within adopted TMDL watersheds throughout the state to comply with the requirement to monitor water quality at a minimum of 100 Tier 1 sites. Monitoring details and results are included in the Monitoring Results Report due on October 1, 2018.

Caltrans submitted the Comprehensive TMDL Monitoring Plan to the State Board on January 1, 2015. State Board staff provided review and comment within the reporting period, and Caltrans submitted a revised plan to State Board staff in June 2016. The State Board approved the plan in February 2017 [L1].

North Coast Region

Caltrans prepared an inventory of excess sources of sediment and threatened discharges in the North Coast Region that was submitted to the North Coast Regional Board on September 19, 2014. Field verification was completed, and the revised inventory was submitted to the SWRCB in December 2015. Caltrans prepared an updated sediment inventory for 2016-2017 by incorporating sediment removal activities reported by the Division of Maintenance and slope stabilization activities reported by District NPDES Coordinators. This inventory must be field verified before its submittal to the Regional Board [L1].

Caltrans protected and restored riparian vegetation on a project-by-project basis in the North Coast Region. If vegetation removal required a permit from the Regional Board, a permit was obtained, and its requirements were implemented [L1].

San Francisco Bay Region

The Caltrans Trash Load Reduction Workplan for the San Francisco Bay Region was resubmitted to the RWQCB on June 25, 2016. Caltrans received a Notice of Violation (NOV) from the San Francisco Bay Regional Water Quality Control Board on December 14, 2016, for failing to demonstrate timely implementation of trash control measures. Caltrans and the RWQCB held several meetings in 2017 to discuss the implementation strategy. On February 28, 2017, Caltrans submitted a response to the NOV. Caltrans began a Phase I feasibility study in November 2016, assessing 50 miles of high/very high trash-generating areas to determine retrofit opportunities for multi-benefit treatment devices. Caltrans has been working with local permittees to identify opportunities for cooperative implementation, including funding projects in the City of Richmond (treating 234 acres/70 Caltrans ROW acres), the City of Atherton (2,875 acres/24 Caltrans ROW acres), and the City of South San Francisco (6,300 acres/408 acres). Caltrans has begun a pilot study to investigate the use of netting trash capture devices along the I-880 [L1].

- Caltrans implemented a five-year program to inspect and monitor pump stations in the San Francisco Bay Region for dissolved oxygen pursuant to Caltrans Conformed NPDES Permit, Attachment V (Region Specific Requirements).
- During the 2014-2015 fiscal year, Caltrans monitored 18 pump stations within Region 4 to collect DO data. None of the pump stations had DO levels below 3 mg/L, and most pumping activities were due to localized ground water discharge.
- During fiscal year 2015-2016, Caltrans again monitored 18 pump stations, one of which had a DO level below 3 mg/L in the dry weather discharge. Again, most pumping activities were due to localized ground water discharge.
- During fiscal year 2016-2017, Caltrans monitored 14 pump stations, none of which had a DO level below 3 mg/L in the dry water discharge.
- During fiscal year 2017-2018, Caltrans monitored 12 pump stations, none of which had a DO level below 3 mg/L in the dry weather discharge.

Between 2014-2015 and 2017-2018, all 62 pump stations in District 4 were monitored, and none had a DO level below 3 mg/L in the dry weather discharge. Five years of monitoring activity were completed in four years; therefore, the last and final report was produced in 2017-2018 [L1].

Central Valley Region

Erosion control and BMP implementation activities were performed in the Clear Lake Watershed during 2017-2018.

In 1986, Clear Lake was added to the Clean Water Act Section 303(d) List of Impaired Water Bodies due to the nuisance of algal blooms. On June 23, 2006, the Central Valley Regional Water Quality Control Board amended the Basin Plan, which included the elements of a TMDL for Clear Lake that established numeric allocations to reduce the amount of phosphorus. Caltrans was given a waste load allocation of 100 kg per year. The goal of the pollutant control program is to reduce phosphorus loads from entering Clear Lake.

In 2008, Central Valley Water Board staff approved an implementation plan to install monitoring stations at Caltrans facilities near the lake. Based on monitoring results and the implemented management measures, Caltrans concluded that the annual rate of phosphorus/sediment discharged from its rights of way to Clear Lake fulfilled the TMDL waste load allocation. Therefore, Caltrans has met its waste load allocation for the Clear Lake watershed. The Central Valley RWQCB agreed to Caltrans' determination of its compliance. [L1]

Lahontan Region

For projects that met the criteria specified in Provision E.2.d of the permit (Project Planning and Design), the Lahontan Region numeric sizing criteria for stormwater treatment control BMPs in the Truckee River, East Fork Carson River, West Fork Carson River, and Mammoth Creek Hydrologic Units were applicable. This information is discussed in the Stormwater Data Report prepared for the project.

Reporting

The effectiveness evaluation that was conducted for Reporting, as well as potential evaluations that may be conducted in future Annual Reports, is summarized in Table O-13. Additional detail for each component of the evaluation is provided in subsequent sections.

Table O-13: Effectiveness Evaluation Summary for Reporting

	Effectiveness Evaluation Outcome Levels					
	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6
	Stormwater Program Activities	Barriers and Bridges to Action	Target Audience Actions	Source Contributions	MS4 Contributions	Receiving Water Conditions
District Work Plans	C – DWPs Implemented	N	N/A	N/A	N/A	N/A
Total Maximum Daily Load Status Review Report	C – TMDLs Implemented	N	N/A	N/A	N/A	N/A

C – An effectiveness evaluation was conducted during fiscal year 2017-2018

A – It is anticipated that an effectiveness evaluation may be conducted in future Annual Reports

N – An effectiveness evaluation is not currently anticipated

N/A – This outcome level is not applicable

District Work Plans

Caltrans effectively identifies and addresses regional issues by developing, submitting, and implementing District Work Plans (DWPs) on an annual basis [L1].

- During fiscal year 2017-2018, the Districts completed and worked on the activities summarized in the DWPs published in October 2016 to comply with the Conformed NPDES Permit and the SWMP.

Total Maximum Daily Load Status Review Report

Caltrans participated with local and state agencies on specific TMDL elements in the nine RWQCB jurisdictions. Its participation included conducting stakeholder coordination meetings and workshops, developing and implementing monitoring programs, implementing BMPs, and developing and implementing the TMDL Implementation Plan.

- Caltrans continued its efforts to reduce pollutant discharges to receiving waters through ongoing compliance activities and by implementing a consistent statewide approach to address Permit Attachment IV requirements for the named pollutants.
- To meet the TMDL and special requirements identified within Caltrans Conformed NPDES Permit Attachment IV, Caltrans implemented a combination of strategies, including capital construction, improvement of current institutional practices, and participation in regional control efforts.
- In addition, Caltrans maximized opportunities to incorporate treatment control devices as part of capital roadway improvement projects, or standalone retrofit projects. The TMDL Status Review Report provides details and is located on the CD as an attachment.

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