



## MCSTOPPP E.9 and E.11 Countywide Mapping and Monitoring Report Final

In March of 2013 the countywide stormwater program developed the MCSTOPPP Countywide Compliance Project on behalf of Marin's twelve local stormwater programs. The project conducts the required fieldwork, water quality monitoring, data and project management, and detailed mapping tasks to comply with requirements in Sections E.9.a, E.9.b, E.9.c, E.11.a, and E.11.b of the Phase II Stormwater Municipal Permit. The project results were used to identify Priority Areas (E.9.a.(ii)(c)), select Priority Monitoring Outfalls (E.9.a.(ii)(d)), and develop procedures to proactively identify illicit discharges originating from Priority Areas (E.9.b.(ii)(e)).

### **Outfall Mapping and Monitoring**

The Outfall Mapping (E.9.a) and Field Sampling to Detect Illicit Discharges (E.9.c) portions of the project involved verifying and GPS mapping outfall locations within the permit boundary, photo documenting their condition, assessing each one for dry weather flow, conducting water quality monitoring or identifying the flow source where needed, and defining drainage areas and land uses contributing to each one.

- 2,332 outfalls assessed over a 21 month period
- 256 outfalls with dry weather flow (~11%)
- Zero exceedances of Action Level Concentrations
- Most outfalls were to tributaries from hillsides and Open Space running through culverts in low density residential land use areas
- Most outfalls with dry weather flow were tracked and identified as groundwater from hillside seepage, springs, or foundation drains and sump pumps in low density residential land use areas
- Of the few dry weather flows that were not groundwater, most were minor over-irrigation in low density residential land use areas (generally prior to fall 2014)
- Remaining episodic discharges that received outreach and education materials and were told to cease the discharge to the storm drain system at the time of the assessment:
  - Three residents washing cars in their driveway
  - Three broken/leaking water lines (leaks were already scheduled for repair with water districts at time of outreach)
  - Two properties power washing
  - Two residences with considerable over-irrigation
  - One construction site
- Drainages areas are defined as the land area directly contributing to the mapped MS4 storm drain network for each outfall. Larger scale drainage areas are delineated by the watershed boundaries for each major creek.
- Contributing land uses are divided into two main groups - commercial, industrial, and mixed use which are automatically defined as Priority Areas; and residential and parks/open space that only have Priority Areas based on other considerations.

## **Conclusions**

Most of the 2,332 outfalls assessed were in low density residential land use areas, with dry weather flows coming predominantly from various forms of hillside groundwater drainage. Less than a dozen discharges were found requiring outreach at the time of the assessment. In comparison, the local stormwater programs continually promote anonymous community illicit discharge reporting programs that prove far more effective at detecting, investigating, and eliminating episodic illicit discharges. There has also been a significant reduction in cases of over-irrigation while tracking dry weather flows since the summer of 2014. This is primarily due to the continual programs implemented by Marin's municipal water districts to promote drought resistant landscaping, reduce water use, offer water saving rebates, and restricting incidental irrigation runoff.

Based on these results, residential land use areas are not initially included as Priority Areas. Each local program will assess their residential areas annually using the criteria listed in E.9.a.(ii)(c) to determine if any additional Priority Areas will be included. The ongoing annual dry weather flow monitoring program will include assessments of Priority Monitoring Outfalls, and visual survey monitoring for any dry weather flows into catch basins in Priority Areas.

## **Deliverables**

- Outfall Assessment Field Sheet - Table of dry weather flow monitoring data and attributes for all mapped outfalls
- Spatial data layer for all outfalls including Priority Monitoring Outfalls as part of a complete map package (updated annually)
- Additional spatial data layers for Priority Areas, watershed boundaries, creeks and waterways, and jurisdictional permit boundaries.

## **Industrial and Commercial Facilities**

The countywide program obtained a list of facilities inspected by the County's Certified Unified Program Agency (CUPA) to develop the Illicit Discharge Source/Facility Inventory (E.9.b). A database was created from the inventory to record all of the necessary attributes from E.9.b.(ii)(a) for each of the industrial and commercial facilities fitting the Permit criteria. The businesses' status and address were verified using online resources and a limited amount of field verification.

All of the businesses within the Permit boundary, and their associated MS4 storm drains were then mapped using ArcMap 10.1. Business locations were mapped and given a ranked confidence level (Low, High). Most locations could be verified using Google Maps street view, web searches, and Assessor's Parcel data, and were ranked as 'High'. 'Low' designations were given where the location of the exact business within a larger building complex was unknown, or if the address could not be verified by other means. The associated receiving MS4 storm drain(s) for each business were then identified using a combination of aerial imagery from Google Maps, a hydro-flow line GIS layer developed by the County, and all available municipal

storm drain pipe data layers. Each mapped storm drain location was given a confidence level, and attribute rows were populated with information including Receiving Water Body, Storm Drain Structure (i.e. catch basin, pipe inlet, etc.), Latitude and Longitude, and Comments.

E.9.b.(ii)(c) - The businesses were compared to the list of facilities on the State Water Resources Control Board website currently under the Industrial General Permit, and a list of possible businesses needing coverage was developed.

E.9.b.(ii)(d) - The list and map of facilities will be updated annually through intra-agency database updates, and routine business inspections.

### **Conclusions**

The businesses on the Illicit Discharge Source/Facility Inventory are concentrated in the commercial, industrial, and mixed use land areas, often with many facilities draining to the same outfall. With their higher potential for illicit discharges and connections, and higher density of facilities geographically, commercial, industrial, and mixed use land use areas are designated as Priority Areas. Additionally, all outfalls that receive discharges from a business on the Illicit Discharge Source/Facility Inventory are designated as a Priority Monitoring Outfall, and included in the annual dry weather flow monitoring program.

Inspectors are trained to focus on all businesses and storm drains within Priority Areas for illicit discharges, including those not on the Illicit Discharge Source/Facility Inventory. MCSTOPPP continues to work with their partnering inspecting agencies to train staff, report all storm violations to local stormwater staff, and provide number of businesses inspected for annual reporting to the State Water Resources Control Board (SWRCB). The partnering agencies include the County's Certified Unified Program Agency (CUPA), Environmental Health Services (EHS), County Fire inspection programs, and the Central Marin Sanitary Agency (CMSA). MCSTOPPP staff conduct inspections at any facilities on the business inventory that are not already inspected by MCSTOPPP's partnering intra-agency inspectors.

### **Deliverables**

- Commercial/Industrial Facilities List - Table of specific businesses fitting the Permit criteria, and their corresponding data and attributes (updated annually)
- Spatial data layer for all inventoried businesses and corresponding MS4 storm drain(s) receiving discharges (updated annually)
- Annual business inspection trainings, updates, and/or refreshers for intra-agency and local program staff beginning in 2016

### **Municipal and County Owned or Operated Facilities**

The last part of the project was to create an Inventory of Permittee-Owned or Operated Facilities (E.11.a), and then create a Map of the Permittee-Owned or Operated Facilities (E.11.b). MCSTOPPP gathered facility lists from each of the local stormwater programs, added additional information where needed, and created a database to record all of the necessary

attributes. The facilities in this database were mapped using ArcMap 10.1 by selecting out parcels, and assigning attribute information on facility usage and drainage points from the facilities located in these parcels. Within the third year of the Permit, a comprehensive Facility Assessment (E.11.c) will be conducted at each facility to determine if it is a hotspot. Any changes to the facilities lists will be updated annually.

### **Conclusions**

Facilities determined to be a hotspot following the Facility Assessment are required to develop Stormwater Pollution Prevention Plans (SWPPPs), and conduct quarterly and annual inspections (including quarterly stormwater and non-stormwater discharges) based on their high potential to generate pollutant discharges. These facilities are included as Priority Areas, and assessed for Priority Monitoring Outfalls. Corporation yards have already been included as hotspots.

Non-hotspot Permittee-Owned or Operated Facilities are not included as Priority Areas unless the facility exhibits extenuating circumstances such as those listed in E.9.a.(ii)(c)

### **Deliverables**

- Municipally Owned or Operated Facilities List - Table of specific facilities fitting the Permit criteria, and their corresponding data and attributes (updated annually)
- Spatial data layer for all inventoried facilities and their corresponding discharge points (updated annually)
- Biennial workshops for local program staff beginning in 2015
- Online self-guided training module for new hires

### **Other Priority Area Considerations from E.9.a.(ii)(c)**

Local programs annually complete a MCSTOPPP distributed questionnaire to determine if any additional Priority Areas need to be added or removed. The municipality determines the Priority Area status based on criteria listed below. Not all types listed apply to each of the Marin stormwater programs.

Sanitary sewer infrastructure - The sanitary sewer agencies in Marin are under their own Discharge Permits and they prioritize the replacement of older infrastructure and areas with a history of overflows. Sanitary cross connections to the storm drain system result in immediate action from the sanitary agencies and Marin County Environmental Health Services (EHS) to shut off the water services until repairs are made. All sanitary overflows and discharges found by, or reported to the local stormwater programs are immediately referred to the appropriate sanitary agency and EHS. Sanitary sewer infrastructure prioritization does not pertain to most stormwater programs.

Industrial, commercial, and mixed use areas - These are the primary designated Priority Areas. These areas coincide with areas requiring coverage under the Trash Amendment and will further focus our goals for both illicit discharge detection and elimination, and trash reduction

requirements. These three land use types will remain Priority Areas throughout the permit period.

Areas with a history of past illicit discharges - Illicit discharges countywide are very episodic and typically occur in random locations for most municipalities. Potential additional areas will be based on the individual questionnaires.

Areas with a history of illegal dumping - Potential additional areas will be based on the individual questionnaires.

Areas with onsite sewage disposal systems – Most areas with septic systems are located in rural areas outside of the Permit boundary. Potential additional areas will be based on the individual questionnaires.

Areas upstream of sensitive waterbodies - MCSTOPPP considers all waterbodies in Marin to be sensitive, but not all areas upstream of waterbodies to be a priority. Other criteria listed above are analyzed to determine Priority Areas.

Areas that drain to outfalls greater than 36 inches that directly discharge to the ocean - Only one outfall in the permit area is greater than 36 inches and discharges to the ocean. It is located in a County Park on the Bolinas Mesa and discharges to the ocean in the Duxbury Area of Specific Biological Significance (ASBS). The area is covered under the Ocean Plan - Special Protections discharge and monitoring requirements.

Other areas that are likely to have illicit discharges - Potential additional areas will be based on the individual questionnaires.

### **Proactively Identifying Illicit Discharges in Priority Areas E.9.b.(ii)(e)**

The following annual activities will comprise MCSTOPPP's ongoing program to identify illicit discharges in Priority Areas:

Dry weather flow monitoring at Priority Monitoring Outfalls - Similar to the initial Outfall Mapping and Monitoring Project, MCSTOPPP staff will conduct the required fieldwork, water quality monitoring, and data and project management. Tasks include photo documenting condition of the outfalls, assessing each one for dry weather flow, tracking and identifying flow sources, and conducting water quality testing if an illicit discharge is suspected. No new GPS coordinates will be taken unless an outfall is moved or a new one is added.

Visual survey monitoring of Priority Areas - MCSTOPPP staff will conduct the required fieldwork, water quality monitoring, and data and project management in conjunction with the dry weather flow monitoring for Priority Monitoring Outfalls. The monitoring will consist of a visual inspection for any dry weather flows entering a catch basin in a Priority Area. MCSTOPPP Field staff will track and identify flows entering a catch basin, and conduct water quality testing if an

illicit discharge is suspected. All illicit discharges will be reported to local stormwater staff immediately.

Industrial/commercial inspections of inventoried facilities - MCSTOPPP staff will conduct, or will coordinate with routine business inspection agency partners to conduct, required inspections at businesses on the Illicit Discharge Source/Facility Inventory list. Additionally, inspectors from the County's Certified Unified Program Agency (CUPA), Environmental Health Services (EHS), and County Fire inspection programs, and the Central Marin Sanitary Agency (CMSA) will conduct inspections at other businesses in the Priority Areas and report any potential stormwater issues to local program staff.

Inspector and municipal staff illicit discharge identification training - MCSTOPPP provides required Illicit Discharge Detection and Elimination training, updates, and refresher courses to intra-agency, MCSTOPPP, and local program inspectors. Inspectors will be trained to focus on all businesses and storm drains within Priority Areas. MCSTOPPP also trains other municipal staff working in the field to identify illicit discharges and report them to local stormwater staff.

Anonymous community illicit discharge reporting programs - Marin residents are environmentally vigilant and aware, which make complaint-based illicit discharge reporting far more effective at detecting, investigating, and eliminating episodic illicit discharges than any other tool. The MCSTOPPP website and outreach materials provided at public outreach events promote "How to Report an Illicit Discharge" ([www.mcstoppp.com](http://www.mcstoppp.com)). Anonymous complaints can be made via web based form, email, phone, or in writing.