Stormwater Action Monitoring

Project Title

Business Inspection Stormwater Source Control Effectiveness Study

Effectiveness Study

Lead Entity

City of Lakewood

Partner

Aspect Consulting LLC, Cardno Inc.

Collectively improving stormwater management

Stormwater Action Monitoring (SAM) is a collaborative, regional stormwater monitoring program that is funded by more than 90 Western Washington cities and counties, the ports of Seattle and Tacoma, and the Washington State Department of Transportation. SAM's goal is to improve stormwater management to reduce pollution, improve water quality, and reduce flooding. We do this by measuring stormwater impacts on the environment and evaluating the effectiveness of stormwater management actions.

Questions about SAM? Send an email to SAMinfo@ecy.wa.gov

Study goals

This study's goals were to compile and analyze data from permittees' business inspections to identify:



- Which types of businesses are inspected;
- What best management practices (BMPs) are implemented well;
- What BMPs need improvement;
- Which business types need follow-up inspections to achieve proper and consistent BMP use; and
- Other factors that make stormwater source control inspections effective.

Stormwater management problem

Businesses with activities that can potentially cause stormwater pollution need to understand the value and effective use of stormwater source control and treatment BMPs. Some business sectors with high potential to pollute also have substantial employee turnover and untrained staff. This can lead to a lapse in implementation and maintenance of BMPs, resulting in polluted runoff entering the stormwater system. Stormwater managers can more effectively use staff time for these pollution prevention efforts if they know types of businesses to inspect, inspection frequency, which BMPs are most likely to be issues, and the most needed technical assistance.

Project findings

The study gathered survey responses from municipal stormwater permittees in western Washington. More than 47,300 inspection records were analyzed from 40 jurisdictions, Ecology's Local Source Control Partnership (LSCP), and the Urban Waters Initiative. The 27 types of businesses in the records were grouped into six business categories. The three most frequently inspected categories where:

- **Auto/boat**: vehicle sales, repair, maintenance, transportation, and fueling;
- **Food/retail**: food stores, restaurants, food production, and hotels; and
- **Land usage**: construction, recreation, and landscaping.

Inspection frequencies ranged from eight to 16 months. The auto/boat category had the most frequent inspections and it also had the most follow-up inspections focused on BMPs for cleaning and washing and for storing and covering materials to prevent leakage, spills, or contact with precipitation.

Other issues repeatedly identified across many business types included BMPs for housekeeping, spill planning, and transfer of materials. Regular attention to proper BMP use and BMP maintenance during inspections will likely help reduce the potential for lapses in proper BMP implementation and increase overall environmental compliance.



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Recordkeeping by the permittees doing inspections is inconsistent due to the non-prescriptive approach in the municipal stormwater permits. The data from the LSCP were of consistent quality and completeness per the program requirements and easily evaluated.

Recommendations

Inspect businesses with outdoor activities and all those in the auto/boat, food/retail, industrial, and land usage categories. Assess the risk of pollution potential at each business and inspect high-risk businesses annually or every other year. Where issues are identified, revisit those businesses more often (monthly or quarterly) until the problem is resolved.

Standardize record-keeping. Collect these basic data during business source control inspections:

- Date and type of inspection (full inspection, screening, or follow-up);
- Specific types of operational, structural, and treatment BMPs in use;
- BMP maintenance records;
- Type of technical assistance provided during the inspection; and
- Reasons for lack of BMP implementation, *e.g.*, financial burden, need technical assistance, or maintenance issues.

Consider developing a system for inspectors to evaluate businesses' overall compliance. This could be done by scoring each specific BMP type as to its effective and proper use at the site on a numeric scale from 1 to 5.

Evaluate data collected under source control programs to learn from past efforts and advance stormwater source control efforts.

Do a follow-up study to determine the most optimum inspection frequencies for specific business types. This will also answer questions about barriers to BMP compliance, the most effective technical assistance in the LSCP program, and the optimum inspection frequencies for existing business inspection programs.

Why does this study matter?

Many types of businesses have the potential for illicit discharges and spills into municipal stormwater systems. This study informs stormwater managers about past inspection efforts and makes recommendations for ways to create or improve permittees' business inspection programs. The results help permittees and permit writers focus their efforts for the greatest potential impact: preventing stormwater pollution at its source.

What should we do with this information?

Stormwater managers should use the outcomes of this study to inform, refine, and improve the effectiveness of their source control efforts. This study can help permittees determine their staffing needs and priorities for where to inspect, how often to conduct inspections, and what to look for. Being prepared for possible spills is important, but so is proper materials storage and BMP maintenance. Municipal stormwater permittees who do not already have business inspection programs should consider prioritizing screening level inspections of the auto/boat, food/retail, industrial, and land usage types of businesses that exist in their jurisdictions. Permittees with existing inspection programs should consider optimizing inspection frequencies based on the findings of this study and their own records. The information can also be used to develop tailored education and outreach materials.

What will Ecology do with this information?

Based on the success of the Phase I permittees' business inspection programs and the LSCP technical assistance program, Ecology has proposed adding business source control inspections to Phase II permits. The recommendations from this study will help inform both a source control program requirement for the Phase II permit and future SAM studies to continue to improve the programs. Ecology encourages standardization of recordkeeping protocols for inspections. Future analyses will support data-driven adaptive management of permittees' Stormwater Management Programs. Ecology will continue to support the LSCP statewide and encourage coordination of LSCP technical assistance and any necessary follow-up or enforcement actions.

For more information

Go to ecology.wa.gov/SAM and search for SAM Business Source Control Survey.

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