



RESEARCH SERVICES SECTION

TECHNICAL SUMMARY

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PROJECT COST:

\$21,493



Street sweeping is an important factor in picking up pollutants and debris that would otherwise be washed into local water sources.



Putting Research into Practice: Resource for Implementing a Street Sweeping Best Practice

What Was the Need?

Street sweeping is vitally important to roadway appearance and maintenance, air and water quality, and safety. Streets are the chief collection and removal points for trash; atmospheric and vehicle-related pollution; and debris from lawn and boulevard vegetation, off-site construction, and roadway wear and tear.

Over time, new street sweeping technologies have been developed to deal with changes in environmental regulations and the kinds of discarded items and pollutants prevalent on modern roadways. The proliferation of these technologies provides localities with an often overwhelming number of choices in the kinds of available street sweeping equipment. Local agencies needed a guide to the available options and a decision-making process and policies for creating the most efficient street sweeping operations for their areas. Public works directors also needed enough information to present city councils with budget justifications for what is often a costly municipal service.

What Was Our Goal?

The objective of this implementation effort was to synthesize recent research and develop an easy-to-use technical resource guide summarizing street sweeping practices most suitable for use by Minnesota local agencies. This document would provide content for statewide training through the Minnesota Local Technical Assistance Program.

What Did We Implement?

This project synthesized research identified by Mn/DOT experts as most useful for application in Minnesota. This included three street sweeping reports prepared for [Ramsey-Washington Metro Watershed District](#) to help improve water quality within its jurisdiction:

- “[Report 1: State of the Practice](#),” which analyzes recent literature and industry expertise on street sweeping methods and equipment
- “[Report 2: Survey Questionnaire Results and Conclusions](#),” which summarizes and analyzes 120 responses to a Web-based survey of 16 questions sent to public works practitioners in local governments across Minnesota, other states and Canadian provinces
- “[Report 3: Policy Development and Future Implementation Options for Water Quality Improvement](#),” which discusses and incorporates conclusions from the first two reports and makes recommendations for the local government units of Ramsey-Washington Metro Watershed District

Another local reference document drawn upon for this project was the “[1994 Metropolitan Council’s Best Practices for Street Sweeping](#),” which identifies 66 best practices in street sweeping by public works departments in the Twin Cities metropolitan area.

How Did We Do It?

Investigators performed an extensive literature search, and a technical advisory panel of experts was formed to identify street sweeping research studies and reports applicable to most areas of Minnesota. Investigators synthesized this research to develop a draft outline for street sweeping best practices. After review by the panel, this outline was

continued

“Public works directors need information that is detailed, quick to access and applicable for presentation to elected officials. This information was not available for those wanting to improve their street sweeping programs.”

–Michael Marti,
Principal, SRF Consulting
Group

“Local agencies often lack the budget to effectively address every need, requiring them to find a machine that can best fulfill their most pressing needs most efficiently. This project helps in making those choices.”

–Tom Colbert,
Director of Public Works,
City of Eagan, Minnesota

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The training covered sweeper selection: While higher efficiency regenerative air (see above) and vacuum street sweepers cost more initially than mechanical sweepers, their expected service life is longer.

used to create information sheets and other materials on implementing or enhancing a street sweeping program. These were used for training by the Minnesota Circuit Training and Assistance Program, the mobile arm of the Local Technical Assistance Program.

What Was the Impact?

This project produced guidance about topics such as best management practices, types of sweepers, reasons for sweeping, and sweeping and roadway function. This information is designed to help local engineers and operations supervisors select street sweepers and frequencies of sweeping appropriate to their budget, existing equipment, type and quantity of roadway material generated in their areas, environmental regulations and reasons for sweeping. These reasons could include air quality, water quality, safety, roadway appearance (trash and debris removal) and roadway maintenance cleanup.

Investigators recommended implementing a street sweeping program that involves making use of higher-efficiency technologies, such as regenerative air and vacuum sweepers, for picking up finer particles affecting air and water quality. Because the older mechanical sweepers prevalent in Minnesota are more suited to picking up larger debris (such as leaves), agencies may wish to use older and newer technologies in tandem.

Project materials were distributed to city and county engineers as a resource guide for improving their street sweeping programs, were used for training by the [Minnesota Local Technical Assistance Program](#), and were presented at public works conferences and annual meetings of both city and county engineers.

What's Next?

As street sweeping technology continues to advance, information about best practices will need to be updated. Manufacturers are increasingly moving toward sweepers that do not make use of water, including mechanical sweepers that can pick up both fine particles and larger debris.

This Technical Summary pertains to LRRB's Research Implementation Committee's product 2008RIC06, "Resource for Implementing a Street Sweeping Best Practice," published February 2008. The full report can be accessed at <http://www.lrrb.org/PDF/2008RIC06.pdf>.

The research being implemented via this project can be found primarily in three reports prepared for the Ramsey-Washington Metro Watershed District and published June 2005: "Street Sweeping Report 1: State of the Practice," "Street Sweeping Report 2: Survey Questionnaire Results and Conclusions," and "Street Sweeping Report 3: Policy Development and Future Implementation Options for Water Quality Improvement." These reports can be accessed at the publications page of <http://www.rwmwd.org/>.