

# Lansing K-12 School District: Chemical and Resource Management Services (CRMS) Case Study

## Summary

Nationwide, public K-12 school districts are being asked to meet increasing educational demands with diminishing financial resources. At the same time, high-profile hazardous material incidents in schools have made improved chemical management a top priority for leaders of school districts, state agencies, and the US EPA. While cleaning out years of accumulated laboratory chemicals is an urgent need, it is recognized that a long term management system is needed to ensure that the problem does not recur in the future.

The US EPA, with technical support from General Motors, sponsored a pilot project to evaluate whether a Chemical and Resource Management Services (CRMS) approach could address these needs for Lansing School District and others. Since districts must meet their primary educational mission with limited resources, a key objective was to obtain these services on a budget-neutral basis so that total spending on chemical and waste-related products and services would not increase.

In December 2005, Lansing selected Chemico Systems to provide a CRMS program for all District facilities. Chemico will provide all chemicals, as well as chemical and resource management services, for less than Lansing currently spends on chemicals and waste disposal alone. Based on the success demonstrated at Lansing, the US EPA and CSP believe the CRMS model can meet other school districts' needs, and are working to promote the model through further pilots and training materials.

## History and Background

Lansing School District in Lansing, Michigan ("Lansing" or the "District") was chosen as a pilot site due to the strong commitment by its management to improving student health and safety. Lansing is a large urban school district covering 55 square miles. The District has 16,270 students and approximately 2,800 employees housed in 40 facilities: 27 elementary schools, four middle schools, two specialty schools, three high schools (with four chemistry labs), one vehicle maintenance facility, one physical plant warehouse, and two administration buildings. Evaluating the potential for CRMS at Lansing was largely facilitated by the participation of a district energy manager who was available to act as the pilot program coordinator on a part-time basis.

As a result of past clean-out efforts, recent renovation of science lab facilities, and a hazardous materials disposal grant from the State of Michigan, most "legacy" chemicals were removed from District facilities by September 2005. To ensure unneeded chemical stocks do not recur in the future, Lansing sought a chemical management system that would track all chemicals purchased and ensure their safe handling, use, storage, and disposal in District facilities.

## Pilot Project Activities

CSP worked with Lansing to complete the following activities:

### 1. Collect Data and Analyze Baseline Costs

Through site visits and interviews with District personnel, CSP documented current processes and costs of chemical purchases and waste services. Most data originated from District purchase orders and department records.

To prepare the baseline analysis, CSP and the District assessed the total amount spent on chemicals and waste services in the 2003-2004 school year, and evaluated the associated management systems.

#### Chemical and Waste Spending

The baseline analysis determined the following current chemical purchase costs:

<b>Chemical Purchases</b>	<b>\$227,000</b>
<b>Classroom Chemicals</b>	<b>\$12,000</b>
<b>Facility Management Chemicals</b>	<b>\$215,000</b>
Carpentry	\$21,000
Custodial	\$97,000
Mechanical	\$61,000
Transportation Services	\$12,000
Food Service	\$18,000
Grounds	\$6,000

As expected, the District’s chemical consumption was much lower than traditional, industrial chemical management service (“CMS”) customers. CSP and the District therefore evaluated current waste management activities to determine if they could be combined with chemical management activities to provide enough costs from which a supplier could derive savings that would cover CRMS program costs.

The baseline analysis determined the following current waste disposal costs:

<b>Waste Disposal</b>	<b>\$102,000</b>
Trash	\$95,000
Hazardous Waste	~\$7,000

#### Chemical and Waste Management Systems

The District had limited formal chemical and waste management systems in place at the time. Chemical selection, approval, purchasing, tracking, inventory management and training generally occurred on an ad hoc basis. Actual waste and recycling volumes were not tracked, so the extent of potential savings was unknown. Recycling activities were limited and ad hoc, and no formal efforts had been made to reduce waste through “upstream” management.

## 2. Develop Management Program Objectives

Based on interviews with teachers and staff, CSP and the District identified the following CRMS program objectives.

- Provide oversight and control of the types of chemicals used and stored in District facilities
- Minimize amount and toxicity of chemicals entering District facilities
- Prevent any stockpiles of old or unused chemicals (e.g. establish procedures to ensure chemicals are not left behind when a science teacher leaves; assist in managing inventories related to janitorial, facility, and maintenance chemicals)
- Ensure teachers and staff have training and equipment necessary to ensure safe transport, handling, storage, and disposal of hazardous materials and waste
- Maintain compliance with local, state, and federal environmental and safety regulations, including MSDS access and regulatory reporting
- Deliver continuous improvement in all phases of the chemical lifecycle (i.e. procurement, delivery, inventory, waste, and data management) and resource use (reduce, reuse, recycle) to lower the total cost of ownership and improve safety

## 3. Document Program Requirements

CSP and Lansing developed and documented user needs and technical requirements for a chemical and waste management system that would meet program objectives. Requirements included:

- Provide oversight and control of the types of chemicals used and stored in District facilities
- Provide a detailed chemical and waste tracking, reporting, and invoicing system
- Optimize current garbage hauling and disposal service
- Coordinate periodic disposal of special/hazardous waste

## 4. Develop Strategic Plan

CSP incorporated key findings in a strategic plan for a best-in-class chemical and waste management system that any school system might adopt. The plan evaluated two alternatives:

- **Internal Enhancement:** applying additional District resources to improving current systems and processes
- **External Services:** contracting with an outside provider to deliver chemical and resource management services (CRMS). CRMS includes two components: Chemical Management Services (CMS) and Resource Management Services (RMS). CMS typically involves a long-term contract for provision of chemicals and assistance with associated management services (e.g. chemical tracking, regulatory compliance). RMS Providers not only haul waste and recycled goods, but also help adjust upstream activities (e.g.

procurement decisions, recycling campaigns) to reduce the amount of material entering the waste stream.

Lansing decided to pursue the “External Services” approach based on the following factors:

- Significant upfront and ongoing costs and teacher time would be required to develop internal capacity
- CMRS providers have a track record of delivering net savings to their customers
- An external provider could reduce risk by minimizing the amount of chemicals on-site via off-site storage and just-in-time delivery
- An external provider could provide specialized knowledge and expertise to deliver continuous improvement

## 5. Issue Request for Proposals

CSP and Lansing developed an RFP specifying the objectives and outcomes of a CRMS Program and identified potential suppliers from local and national markets.

## 6. Evaluate Proposals and Select Vendor

CSP helped Lansing develop the following criteria to evaluate proposals:

- Quality and creativity of proposal
- Level of services provided
- Cost to District
- Data management support provided
- Provider experience and qualifications
- Safety improvement / liability reduction

## Outcome

Six CRMS providers submitted bids in response to Lansing’s Request for Proposal. Based on the evaluation criteria noted above, the District selected Chemico Systems to purchase all chemicals and deliver chemical and resource management services. Starting in September 2006, Chemico will directly provide these services, while overseeing waste disposal activities delegated to a sub-contractor.

Critically, Chemico committed to deliver all chemicals and services at a lower price than Lansing’s historic spend on chemical purchases and waste disposal services. Additional savings generated through reduction of chemical use and waste volumes, or other continuous improvement initiatives, will be shared with the District.

## Conclusion

While program performance metrics are not yet available, it appears that the CRMS model can meet school district needs on a budget-neutral basis. On the basis of this finding, the EPA and CSP believe the CRMS model could help other school districts improve safety and cut costs. The EPA and CSP are working to promote the model nation-wide, piloting it with other districts, and developing training materials to help districts evaluate and implement CRMS on their own.

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