

E&E Project Summary Report

Project Name: Dufferin MRF Optical Sorting of Plastics

Project Number: 162

Lead Sponsor: City of Toronto/Gartner Lee

Total project cost: \$25,000

Priority Area: MRF Rationalization

Completed By: March 2006

E&E fund contribution: \$25,000

Project Overview:

I. Goals

1. To conduct a business case analysis of the feasibility of installing equipment for the optical sorting of plastics (PET and HDPE) at the City of Toronto's Dufferin MRF
2. To examine the footprint impacts of using optical sorting equipment for separating fibres at the Dufferin MRF

II. Accomplishments

- Information on the optical sorting equipment produced by the five major equipment suppliers was summarized and compared
- Possible equipment layouts were developed for two of the preferred equipment manufacturers.
- The consultants concluded that if the installation of optical sorting equipment displaced three manual sorters, and had no net effect on sorted product hit rate and purity, a payback period of 5-6 years could be expected. Stewardship Ontario and the City of Toronto estimate that the expected payback period is approximately 3.8 years depending on the future hours of operation and annual throughput.
- It was determined that due to the high fibre throughput and constrained conditions at the Dufferin MRF, using optical sorting technology on the fibre line would not be feasible without a major and costly overhaul of the facility's equipment.

III. Lessons Learned/Best Practice implications

- A business case can be made for the installation of optical sorting equipment for plastics if
 - the installation is in a high throughput facility;
 - the equipment is used to displace manual sorters on labour-intensive, high volume, high value materials;
 - the material presented to the optical sorter is well spaced out on the belt, with minimal contamination.
- While it is too soon to tell whether optical sorting constitutes a Best Practices, interest for this kind of automated technology is growing among a number of large programs. The actual operating data from this project will be useful to MIPC and Ontario recycling program operators to determine the opportunity for increased automation in Ontario MRFs.

IV. Limitations

A kick-off meeting with all project stakeholders could have been held to ensure that all interested parties agreed on the objectives of the study.

Resources & Tools

As a next step, the City of Toronto is preparing an application to the E&E Fund for Optical Sorting Equipment for Toronto's Dufferin MRF (PN 210). Toronto is requesting \$700,000 (50% funding) for engineering support and to purchase, install, operate and monitor plastics optical sorting equipment on the container line at the Dufferin MRF to pull off HDPE and PET.

