



INTRODUCTION

Dufferin County is located in south-central Ontario, Canada. Orangeville, the County seat, is located approximately 120 km northwest of Toronto. Dufferin County has an area of 1,442 km² (557 square miles) and a population of 50,130 (2000). There are three towns: Mono, Orangeville and Shelburne, and five rural townships: Amaranth, East Garafraxa, East Luther Grand Valley, Melancthon, and Mulmur. Over half of the County's population lives in Orangeville. Each local municipality is responsible for their own waste management services. However, the County of Dufferin has begun diversion from disposal efforts within the County through the implementation of the **DUFFERIN COMPOSTS!** Organic Waste Pilot Project.

The **DUFFERIN COMPOSTS!** Pilot Project ran for one year, from November 1st, 1999 to October 31st, 2000 and involved weekly collection of organic materials through a bag-based system. In total, approximately 2000 households were included in the pilot project from the communities of Grand Valley, Orangeville and Shelburne. In addition, three small restaurants and the Dufferin Oaks Retirement Home (operated by the County of Dufferin) also participated in the pilot program. A total of 431.73 metric tonnes of organic materials were collected and taken to the City of Guelph's Wet-Dry Facility for processing.

The roll-out of the pilot project began in September 1999 with the assembly and distribution of the household kits prepared for residents to familiarize themselves with the program. The education materials found in the household information kits can be found in Attachment 'A'. The Clorox Company of Canada Ltd. was a partner in this project, and donated most of the supplies required for the roll-out. With the assistance of Orangeville Minor Pee-wee AA Hockey, Shelburne Atom Rep Hockey and 2nd Grand Valley Brownies, all of the household kits (including a small kitchen collector, a year's supply of bags and educational materials) were delivered to approximately 2000 households by October 2, 1999. When delivering the kits to each household, the volunteers spoke briefly with the resident, to introduce the program and point out the Information Line phone number if there were any questions.

An Information Line was installed within the Project Office and staffed by part-time employees to receive calls regarding the composting project. Staff also called every participating household in the pilot areas to confirm that they received the unit and answer any questions. Door to door visits were undertaken for households with unlisted numbers and no answering machine in the first few weeks of the pilot project.

Three open houses were held - October 5th in Orangeville, 6th in Grand Valley, and 7th in Shelburne. The visitors had an opportunity to see a display of photos, maps, street lists, and a sample household kit. Attendees could also ask questions of County staff and get extra information on the pilot project. The number of people attending the open houses was low (between eight and twenty residents), however they were generally supportive and excited about participating in the pilot project.

Public relations efforts for this project included the initial delivery of the household kits and general advertising in local newspapers. The second phase (at the beginning of the pilot) included a newsletter called **DUFFERIN COMPOSTS!**, a Pre-survey and a



second advertisement. The key messages to the project participants at the implementation stage of the pilot were:

1. The pilot project starts November 1, 1999.
2. Bags must be to the curb by 7 a.m.
3. No limit on the number of green bags containing organics that each household can put to the curb.
4. Households must use the green bags for this program.
5. Participants can obtain more information or answers to their questions on this pilot project by calling the Information Line.

The communications used throughout the remainder of the pilot project included the **DUFFERIN COMPOSTS!** newsletters, highlighting key messages as well as addressing seasonal concerns such as pumpkins and holidays. The FAQ – Frequently Asked Questions section resulted from questions that were consistently raised by residents on the information line. Several advertisements were placed within the local newspapers. Please see Attachment ‘B’ for examples of the newsletters, advertisements used for project promotion, and the Communication Strategy that was drafted for the pilot project.

EVALUATION OF PROGRAM

The goals of the composting pilot project fall under three areas - Environmental Impact, Public Participation, and Behaviour and Attitude changes.

Environmental Impact – This indicator was measured by tracking the quantities of organics generated in each community. The contractor for the pilot project coordinated the weighing of the materials after collection in each community to obtain this data. The average tonnage per household assisted in the determination of the rate of diversion resulting from the organics program.

Public Participation – This indicator was measured by tracking household participation rates in each community. A household was considered as participating in the pilot program if they had an organic bag to the curbside at least once in the four-week period. The number of participating households in each community was used to generate over all participation rates in the organics program. This data was collected in four-week sections (equalling one cycle), with two cycles being completed for Shelburne and Grand Valley and one cycle being completed for Orangeville, out of the originally planned three cycles for each community (at the beginning, mid-point and end of the pilot). Due to staffing constraints, the full cycles were unable to be completed.

Behaviour and Attitude Changes – A Pre-Survey was distributed at the beginning of the pilot to assist in the measurement of behaviour and attitude changes. A Post-Survey followed up on these questions and determined if people felt differently about certain issues after one-year of participation in the pilot project. In addition, general analysis of the feedstock being delivered to the Wet-Dry Facility was an indicator of behaviour patterns.

Environmental Impact

The final tonnage over the full year of the **DUFFERIN COMPOSTS!** Pilot Project was 431.73 metric tonnes (431,730 kilograms) of organic materials that would have required disposal. The total Tonnage for the pilot can be found in Attachment ‘C’ – Accumulated Tonnage Data Statistics November 1999 – October 2000.

On average over the one-year pilot project, total tonnages were distributed across the three communities as listed below. This statistic accurately reflects the actual breakdown of number of households in the pilot project also shown in Table 1.

Table 1			
Community	Household Count	% of total Households Participating	Distribution of Tonnage
Grand Valley	519	27%	25%
Shelburne	586	30%	31%
Orangeville	822	43%	44%
Total	1927	100%	

Overall, the average tonnage per household per week is 4.0 Kg. The average tonnage per household per week by community is as follows:

1. 3.9 Kg in Grand Valley,
2. 4.0 Kg in Shelburne, and
3. 4.1 Kg in Orangeville.

The average tonnage per household per year is 208 Kg, or 0.208 tonnes. The average tonnage per household per year by community is as follows:

1. 202.80 Kg or 0.203 tonnes in Grand Valley
2. 208.00 Kg or 0.208 tonnes in Shelburne, and
3. 213.20 Kg or 0.213 tonnes in Orangeville.

Given this data, the diversion potential through an organics collection program for the communities of Grand Valley, Orangeville and Shelburne can be estimated. Attachment ‘D’ gives diversion statistics as calculated for the year 2000, with an ‘Organics Projected’ column for estimation of the amount of organics that could be diverted from the waste stream, given the average tonnes per household per year that were collected from the pilot areas in the three communities. Although the pilot project ended at the end of October, collection service to the pilot areas has been extended. The diversion statistics from the year 2000 include organics tonnages from November and December 2000.

Based on the projections for the three communities, it is estimated that an organics program could increase diversion by a minimum of 15 percent in each community. Grand Valley’s projection is estimated, as set garbage figures could not be obtained. Although this municipality collects blue box recyclables from each household in East Luther Grand Valley, garbage is only collected in the village settlement. Therefore the potential diversion from a full organics program in Grand Valley is only approximate.



An organics diversion program is one of the few remaining options for these communities to reduce the quantities of waste going to disposal. The minimum 15 percent increase in diversion rate will bring municipalities up to 40 per cent diversion. This is definitely a meaningful contribution to the Province of Ontario's goal of 50 per cent waste diversion.

Public Participation

Participation data was gathered for Shelburne and Grand Valley during the weeks of April 10 to May 1, 2000. The data gathered is presented in Attachment 'E' – Grand Valley and Shelburne Participation Report April - May 2000. Also included is Attachment 'F' Grand Valley and Shelburne Participation Report November 1999. Participation data was collected once in Orangeville during the weeks of November 29, 1999 to December 20, 1999. This data is included as Attachment 'G'.

The average Household (HH) participation in a week for each community is:

1. 46% of potential HH in Grand Valley,
2. 38% of potential HH in Shelburne, and
3. 44% of potential HH in Orangeville.

The averages for Grand Valley and Shelburne represent increase in average weekly participation over the first cycle of participation studied in November 1999 (41% and 29% respectively).

Cumulative Participation is a measure of all the potential HH that participated in a four-week cycle. The data is as follows:

1. 361 HH or 70% in Grand Valley,
2. 368 HH or 63% in Shelburne, and
3. 523 HH or 64% in Orangeville.

In the first cycle of participation studied, these communities had cumulative participation rates of 64% in Grand Valley and 54% in Shelburne.

The Overall Cumulative Participation number represents the participation rate in the communities over both study cycles. Over the course of the eight documented weeks, 78% of all potential HH in Grand Valley, and 72% of all potential HH in Shelburne have participated in the composting pilot project. A second cycle of participation data was not collected in Orangeville therefore no data is available for this indicator.

Each community in the pilot areas have a partial user pay system in place with different bag limits. Grand Valley has a 2-Bag limit, with stickers available for \$1.00 each for additional bags. Residents in Shelburne receive 104 stickers per year (working out to be approximately two bags per week), and must place a sticker on each bag of garbage put to the curb. Additional stickers are \$2.00 each. The Town of Orangeville has a 4-Bag limit, with additional stickers available for \$1.00 each. The hypothesis that the more stringent the user-pay system, the more a household will utilize the diversion programs offered, was not verified in this pilot. As seen in the cumulative participation rates presented above, although Grand Valley had a higher participation rate (70%) than



Orangeville (64%), Shelburne’s participation rate (63%) was just below Orangeville’s rate. In addition, the average tonnage per household per week collected through the organics pilot was relatively the same, with the highest in Orangeville with 4.1 Kg, compared to 4.0 Kg in Shelburne and 3.9 Kg in Grand Valley. Even though the two latter communities have a more stringent user pay system in place over Orangeville, there was little difference in the average tonnage per household, with slightly higher results in Orangeville.

Behaviour and Attitude Changes

Indicator 1 – Pre-Survey and Post Surveys

Pre-Survey results were very positive about collecting organics in Dufferin County. Below is a summary of the results of some of the key questions from the pre and post surveys. The full survey questions and results can be found in Attachments ‘H’ and ‘I’.

Pre-survey November, 1999	Post-survey November, 2000
No comparable question.	Did you participate in the organics collection pilot project? 99% Yes 1% No
How many large garbage bags of waste does your household produce a week? 50% 1-Bag 34% 2-Bags 10% 3-Bags 6% 4-Bags 0% 5-Bags or more	How many large bags of garbage does your household produce a week? 55% 1-Bag 34% 2-Bags 7% 3-Bags 2% 4-Bags 1% 5-Bags or more
No comparable question.	Did you notice the amount of garbage your household produces each week decrease as a result of the organics collection? 91% Yes 9% No
No comparable question.	How often did you place green bags of organic waste to the curb for collection? 89% Weekly 7% Bi-weekly 2% Monthly 1% Never
No comparable question.	How many bags of organic waste did your household put to the curb for collection? 40% 1-Bag 32% 2-Bags 9% 3-Bags 4% 4-Bags 14% 5-Bags or more
An organics collection program will be a great addition to waste reduction efforts in the County of Dufferin. 91% Agree 2% Disagree 7% Don’t know / No opinion	An organics collection program will be a great addition to waste reduction efforts in the County of Dufferin. 97% Agree 0% Disagree 3% Don’t Know / No opinion
We anticipate that separating our waste into organics, garbage and blue box items will not change the amount of time required to manage waste on a daily basis. 71% Agree 19% Disagree 10% Don’t know / No opinion	Our household found that separating our waste into organics, garbage and blue box items did not change the amount of time required to manage waste on a daily basis. 88% Agree 9% Disagree 3% Don’t Know / No opinion
Did the household kit delivered to your door provide enough information on this pilot	Did you receive enough information throughout the year on the pilot project?



project? 95% Yes 5% No	95% Yes 5% No
Address Known 12% Grand Valley 30% Orangeville 17% Shelburne	Address Known 32% Grand Valley 26% Orangeville 25% Shelburne
Comments 25% Made Comments 75% No Comments	Comments 62% Made Comments 38% No Comments

In the pre-survey, the majority of the comments by respondents were regarding acceptable items for the compost program. In the post-survey, the majority of the comments were requesting that the composting collection continue. A summary of the comments from the Pre-Survey are found in Attachment ‘J’ and Post-Survey in Attachment ‘K’.

Indicator 2 – Public Inquiries

The majority of all calls to the Information Line have been requests for more organics bags. This trend began in December 1999 with a few cautious participants that wanted to make sure they didn’t run out of bags. It continued through the end of the Pilot, as residents began to need more bags. This is a great indicator of the level of participation and support by some households. Bags were delivered to Shelburne and Grand Valley municipal offices in the early stages of the Pilot to make it convenient for participants to get more bags. For participants with mobility difficulties, bags were delivered directly to their house.

Indicator 3 – Feedstock

The tonnage increase in May demonstrated the number of households disposing of yard debris. The tonnages followed a typical trend of drastic increases in May and June with drops in the summer months, and an increase of tonnage in October. A tonnage summary graph is presented in Attachment ‘L’.

As a result of the increase in yard waste, the City of Guelph did have some concerns relating to the feedstock. Large tree and shrub prunings cannot be accepted by the facility. These types of materials when bagged clog up the equipment and create significant operational problems. An example of this situation was a bag of cedar hedge prunings that was very heavy and dense. The result was the emergency shutdown of the debagger equipment for repair.

**PROGRAM COSTS**

The total program costs have been organized into two categories: Start-up/Operating Costs, and Program Specific Costs. Start-up and Operating costs include support services such as the Compost Information Line and employee salaries. Program Specific costs include haulage and compost tipping services, promotion and education materials, program supplies, and any other costs that relate directly to the Pilot. A full breakdown of these figures can be found in Attachment ‘M’. In summary, the overall costs are:

Category	Cost
Start-up/Operating	\$ 83,034.58
Program Specific	\$132,413.90
TOTAL	\$215,448.48

Within the Program Specific costs are the Compost Tipping Fees charged by the Guelph Wet Facility. The participating municipalities paid tipping fees, while the County of Dufferin paid all other costs. Overall, a cost per household can be derived by dividing the total cost of the program with the total number of households in the pilot (1927). The cost per household is approximately \$111.81.

AREAS FOR CONSIDERATION / OBSERVATIONS

1. If the County of Dufferin decides to roll-out composting to all areas currently receiving garbage and/or recycling collection, the organics collection should occur on the same day as garbage/recycling collection (i.e. follow the same collection/holiday schedule in each community). For the duration of the pilot, collection of organics occurred on Mondays. Although the pilot areas in Orangeville and Shelburne received all waste collection services on Mondays, Grand Valley residents have their waste and recycling collection on Tuesdays. For the practicality of the collection efforts, Grand Valley residents were asked to put their organic waste to the curb on Mondays. In an extended program, organics and garbage/recycling collection days should occur on the same day for the convenience of the resident.
2. Orangeville and Shelburne should be the first communities to all receive collection. Many residents in these communities that were not part of the pilot project expressed their desire to participate and excitement over the possibility of being included in the future. These communities would be relatively easy to complete since many of the neighbours and friends are knowledgeable about the program.
3. The newsletter should be scheduled around the seasons (3 or four per year) to ensure relevant information is passed onto participants.
4. A calendar or date listing of some sort should be provided to residents yearly to ensure they are aware of holiday collection day changes.
5. The phone line should be staffed at all times. This will ensure a higher level of service to the residents.



6. A staff member needs to be available on the road whenever collection is occurring to assist residents.
7. The roll-out package does not necessarily have to include the kitchen collection container. Many residents called saying that they did not have room for another container and wanted to know what to do with it.
8. Participation monitoring should be completed once a season in the first year of program operation, and approximately once or twice a year thereafter. This monitoring should also include observations of set-out problems.
9. The 'Organics' Sticker for residents that use a garbage can to hold their organics bags for collection should be bigger. Sometimes it was not obvious to the drivers that a can contained organics, and the bags were missed.
10. Education material for the resident should indicate that organics bags should be placed on the opposite side of the driveway, away from regular garbage and recycling. This will help ensure the bags are in clear view for the drivers.
11. Information packages for residents should include/describe more acceptable and non-acceptable items, as well as include brief information about additional waste services (i.e. acceptable recyclable items in the Blue Box), in an effort to help residents separate the items correctly.



Attachment 'A' ~
Household Information Kit



Attachment 'B' ~
Pilot Project Communications



Attachment 'C' ~
Accumulated Tonnage Data Statistics



Attachment 'D' ~
Diversion Statistics



Attachment 'E'
Attachment 'F'
Attachment 'G'

*Participation Reports: Grand Valley,
Shelburne and Orangeville*



Attachment 'H'
Attachment 'I'

Pre Survey and Post Survey Reports



Attachment 'J'
Attachment 'K'

*Pre Survey and Post Survey
Summary of Comments and Questions*



Attachment 'L' ~
Tonnage Summary Graph



Attachment 'M' ~
Program Costs Summary



Attachment 'N' ~
Pilot Project Photographs