

**ERS250 FINAL REPORT:**

**Feasibility Analysis & Proposed Recycling  
Program Implementation for Private  
Multifamily Dwellings:**

**Albert Gardens, Waterloo, Ontario**

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## EXECUTIVE SUMMARY

Under Ontario Provincial Legislation a functional source separation program must be in place. The Albert Gardens community, located in northern Waterloo, is one of several privately owned and managed multi-family dwellings without an active recycling program. Seven years prior to the undertaking of this study a member of the community had taken the initiative to implement a recycling program. Due to a lack of participation and community awareness the project was deemed unsuccessful by Guild Property Management, and upon approval from the region of Waterloo, it was removed. There is presently no recycling program in the area although some residents have taken the initiative to cart recyclables to neighboring complexes rather than include them with regular household waste. The objective of this study was to raise community awareness and potentially public participation through the implementation of a recycling system.

Following a literature review, expert interviews, resident surveys and several waste audits a definite need for a recycling program was articulated. The region was contacted regarding re-routing and bin/cart pick-up, however, Guild Property Management intervened and halted implementation pending further examination; the potential threat of a necessity for on-going monitoring which the research team was unable to provide for a time of greater than three weeks.

Consequently, implementation was unsuccessful although research objectives shifted toward a more educational role. Recycling public education packages were distributed with thank-you/project update letters to the community in hopes of increasing comprehension and awareness.

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## INTRODUCTION

### ***BACKGROUND INFORMATION***

Under Ontario provincial regulation #103 Multi-Unit Residential Buildings,  
Section 10:

(1) The owner of a building that contains six or more dwelling units shall implement a source separation program for the waste generated at the building.

(2) In subsection (1),

"owner" includes a condominium corporation created under the Condominium Act.

(3) This section applies only in respect of a building located within a local municipality that has a population of at least 5,000.

The Albert Gardens neighborhood, in the Region of Waterloo, is a privately owned and managed community that does not presently have a functional public recycling program. A local resident had initiated a **blue box** [recycling] **program** approximately seven years ago but due to poor management and lack of participation the program was deemed unsuccessful by the property owners, following direction from the property management group. Upon approval from the Region of Waterloo, residents were directed to include recyclables with regular household waste.

Please refer to the Glossary for all bolded terms.

Guild Property Management, based in Walkerton, manages several properties in Waterloo region with successful recycling program. One, Willow Creek, is within 5 km of Albert Gardens. Nonetheless, the Albert Gardens community remains one of several privately-owned multi-unit residential areas not provided with an active recycling program, although completely funded by the Region of Waterloo.

Albert Gardens, a privately owned neighborhood known by Guild Property Management as lot 40, is a cul-de-sac community consisting of forty-two units. Located 639-649 Albert Street in northern Waterloo, Ontario, Albert Gardens houses greater than sixty residents.

Please refer to Appendix I for a map of the area.

### ***RATIONALE***

Motivations for the implementation of waste reduction initiatives in this area stem from a need to address a lack of enforcement of waste separation programs under present legislation. The necessity for further research is due to a need to set city-wide standards, in addition to provincial regulation, with respect to recycling. The average lifetime of a landfill is approximately thirty years. Recently, the Cambridge landfill was closed. Waterloo's Erb Street landfill is rapidly approaching capacity, and without effective waste reduction measures, alternative areas for disposal will need be sought. Waste separation programs are presently in place, and available to all communities in Ontario. If only particular areas recycle the effectiveness of such programs is minimized, as is the full appreciation of their impacts in the resolution of excess waste disposal. With a city-wide standard in place every resident has the ability to participate in a public recycling program, illustrating an important step toward preservation of the environment through waste reduction. To ultimately ensure ecosystem integrity, it is essential that privately-owned neighborhoods not be exempt from public efforts geared towards sustainable management of waste products, for human and environmental well-being.

## SYSTEM and CONCEPTUAL FRAMEWORK

### ***SYSTEM DESCRIPTION***

This research study is targeted to provide a concise examination of limitations facing implementation and enforcement of active waste separation programs for all stakeholders, as well as any others utilizing WATgreen information sources. Target audiences specifically include the Albert Gardens residential community, the Municipality of Waterloo, the provincial Government of Ontario, residents in communities lacking recycling programs, Waste Management employees for the Region of Waterloo, and all Ontario taxpayers. The issue is significant to the actors, and to the entire Earth community, as it affects everyone through environmental deterioration. Effects of waste reduction initiative implementation, even and especially on a private level, are notably significant to national resolution of excessive waste disposal as approaching the system from a grassroots level can more efficiently generate change in this area.

Information gained both prior to and during the study was triangulated for verification and to increase reliability. Specific components were a literature review, "expert" interviews, and community inputs. During the development of a conceptual framework, literature was reviewed regarding previous study designs, recycling policy, waste reduction measures and public support of recycling programs. Government publications, such as the Environmental Protection Act, as well as local and municipal policies and by-laws were used to outline restrictions presently in place.

[Please refer to the Works Cited page for references]

The Albert Gardens research project is based on an integrated framework combining inductive and deductive methods in a broader structure. The study follows an ecosystem approach, where an environmental issue is investigated through an integrated framework (combination of exploratory, descriptive, relative and explanatory) to draw on wisdom and experience of social and biophysical sciences, as well as an understanding of the system. Actors affecting the potential sustainability of our waste systems include: government regulations, residents (and their concern for a recycling program, the position of private residence owners and managers, as well as increasing public demand for re-evaluation of public involvement concerning environmental preservation (particularly regarding recycling).

Figure 1. illustrates the human actor system.

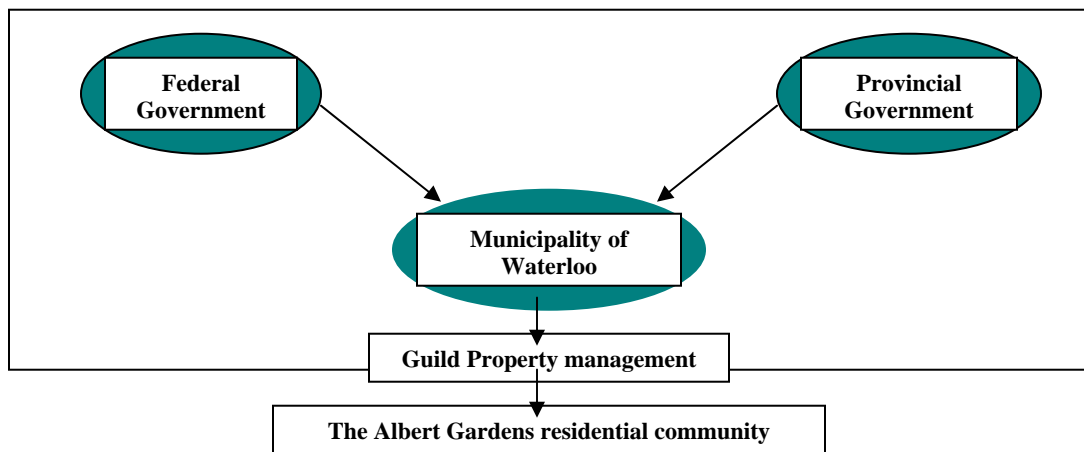


Figure 1. The Human Actor System

Federal and Provincial governments influence regulation at the local level through legislation. Private property owners and managers are bound by these standards, and the residential community bound to the owners, managers, and consequently the standards, by contract.

A physical systems diagram (Figure 2.) visually illustrates the present system outputs.

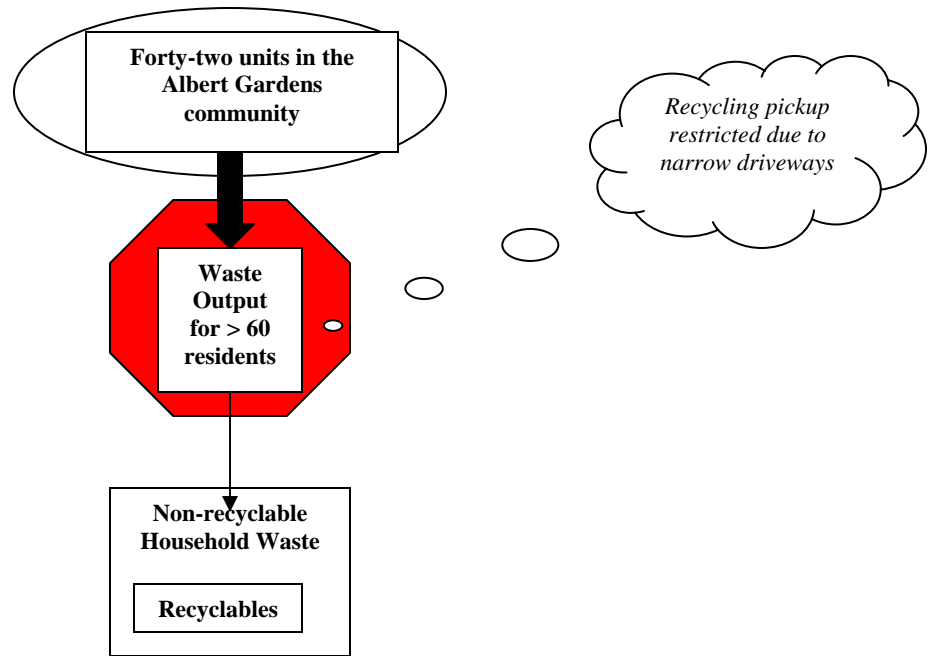


Figure 2. Physical Systems Diagram

All community waste is presently being disposal of with regular household waste. A significant portion of this material is recyclable. Property management initially claimed that narrow streets restricted access, however, each unit is accessible to a garbage truck.

Various components of the above mentioned systems were examined by means of academic journal research, governmental publications regarding recycling in residential areas, an Albert Gardens resident survey, attempted interviews with land owners and property management, and interviews with Kim Kitigawa (the regional cart co-ordinator) and Patti Cook (waste management co-ordinator). The gathering of information from various sources enables a more accurate assessment of the feasibility of a recycling program in the area.

## ***BASELINE CONDITIONS***

Geographical boundaries restrict the studied area to the Albert Gardens community (as outlined in appendix I) in the Region of Waterloo. At present, no action is being taken to implement an active recycling program in the area. The temporary, previous program was implemented by a senior male member of the community approximately seven years ago, and there has been no active recycling program in place since. The lack of initiative by the property management group, region of Waterloo, in addition to narrow driveways pose potential limitations to successful implementation. However, the restriction due to physically limiting narrow driveways, as articulated by Guild Property Management, is questionable as garbage trucks of roughly the same size are able to access the area.

The full scope of the study was undertaken in a twelve-week timeframe, September to November 2002, with no available budget.

## **RESEARCH OBJECTIVES**

Excessive waste contributions from private areas such as Albert Gardens illustrate the need for waste reduction. Escalating pressure exerted on the environment in terms of excessive waste at landfill sites is a growing issue on a local, national and international scale. The negative impacts of landfill sites, such as additional greenhouse gas inputs into the atmosphere, are continually contributing to the degradation of planetary **equilibrium**. It is necessary to develop a standard with respect to public recycling in order to reduce the amount of garbage in landfills. Raising public awareness on the issue by emphasizing **environmental preservation** is necessary. By launching

community based projects we can increase public awareness on environmental concerns by establishing a personal level of interest. Generally, Waste reduction initiatives are the focal points of **grassroots** work.

The objective of the research study was to introduce a successful waste separation program via the implementation of a recycling program in the Albert Garden community, in the Region of Waterloo. Though the course of the study objectives were expanded to outline limitations facing such an implementation. In addition, objectives included an increase in community awareness of recycling both through the provision of public education information, by distributing promotional material provided by the Region of Waterloo, and through the attempted implementation of a recycling program.

### ***PROBLEM STATEMENT***

Limitations regarding the implementation of a successful recycling program predominately arise from a lack of comprehension regarding the significance and mechanics of waste reduction initiatives. The purpose of this study was to analyze waste reduction initiatives and, to analyze the feasibility of implementing a recycling program and to identify specific community concerns, using an integrated conceptual framework through an ecosystem approach based on qualitative and quantitative data. Specific aims were to raise community awareness, and implement a recycling program in a privately owned neighborhood, in Waterloo region, our local community.

## METHODS

In order to analyze the feasibility of implementing a recycling program in the Albert Gardens community the study will include a collection of information from local residents, professionals in **sustainable** management fields, a waste audit of the particular area, and publicly available information relating to the study. Ethics clearance was granted from the University of Waterloo, Department of Research Ethics [Please refer to Appendix II].

### ***DATA COLLECTION***

Tools used in data collection were adapted based on the initial response, and the dynamic nature of the study was affected by the selection throughout. Some bias is noted as the study was completed solely by four 2A Environment and Resource Studies Students. The phenomena of interest was the lack of a legally required recycling program, completely funded by the region of Waterloo. In order to investigate it efficiently we used non-probabilistic purposive sampling, looking for homogeneity in that all were members of the Albert Gardens community.

### **WASTE AUDIT**

Quantitative data was collected by means waste audits. Four waste surveys were completed on Mondays over eight weeks. Specific dates of the waste audits are: September 23, October 28, November 4 and November 12, 2002. Please refer to Appendix III to view waste audit record forms.

## **LITERATURE REVIEW**

A literature review was completed in order to provide qualitative background data. Journal articles and government publications, provincial and municipal, were reviewed in order to clarify legal ties and requirements. Public education information was examined to judge the availability and comprehensiveness of awareness literature to the public. Finally, regular articles and web sources were explored to develop an idea of level of common understanding of the topic. [Please refer to Works Cited for references].

## **EXPERT INTERVIEWS**

Further qualitative information was gathered through expert surveys. Kim Kitigawa, the regional cart co-ordinator participated in a telephone interview, and Patti Cook, waste management co-ordinator, in a one-on-one. Interview questions may be found in Appendix IV.

An interview was attempted with both the property owners and property management and both declined as proclaiming neither had the authority as decision-makers. Proposed interview questions may also be found in Appendix IV.

Following some run-around with the stakeholders the region agreed to provide an initial assessment of the area. For reasons not articulated to the research group, this assessment was not completed.

## **COMMUNITY INPUTS**

Qualitative and quantitative data was collected from distributed questionnaires, combining open and closed questions. Prior to survey distribution a letter of introduction was sent out to introduce the community to the study and research team. One week later all four team members visited the community, as indicated in the first letter, and handed out surveys door-to-door in order to clarify any questions or concerns. Residents

were directed to either leave the survey in their own mailbox for pickup, or to drop it off at a team members' (residing in Albert Gardens) in a timeframe of three days. Three weeks following survey pick up, thank-you/project update letters were distributed with attached public education material, as provided by the Region of Waterloo. A complete residents package can be reviewed in Appendix V.

### ***DATA ANALYSIS and ANALYTICAL PROCEDURES***

An ideographic analysis was used to evaluate results.

### **WASTE AUDITS**

From the waste audits graphs were completed to outline an average waste count. The average amount of household waste disposed on a weekly basis was used to outline weekly waste contributions to the Erb Street landfill.

### **COMMUNITY RESPONSE**

Community responses were analyzed in terms of: the number of people per household and the number of households, how much waste was generated per household on a weekly basis, an estimation of the amount of recyclables included in household waste, judging resident knowledge of recycling, and preference for either carts or bins. Room for comments regarding specific community concerns was also noted for potential resolution by the research team.

### ***RATIONALE FOR QUALITATIVE AND QUANTITATIVE OBSERVATIONS***

A dichotomous approach was used combining qualitative, inductive methods to outline the truth of reality (constructionist), and quantitative, emphasizing numerical precision (hypothetico-deductive) (Palys, 2002).

The internal validity may have been affected through: history, residents previously had a program in place and it was removed due to judgement by Guild

Property Management in combination with the Region of Waterloo; and testing, as studies of this type generate a somewhat defensive response leading to an exaggerated articulation of recycling participation.

### ***RATIONALE FOR PROCEDURES***

Waste audits were used to generate quantitative data as information could be accumulated by an objective research observer, unidentified to the community, in order not to be affected by consequent potential adjustments to regular practices.

The literature review outlined background information necessary to gauge areas requiring further study and general public awareness and comprehension regarding waste reduction initiatives.

Expert interviews were used to illustrate educated opinions both regarding current practices, and to evaluate the potential success of research objectives.

Resident surveys were completed to judge the communities wants in addition to accumulating information regarding the excess of waste disposal. Group members delivered the self-administered questionnaires in order to clarify or resolve any concerns. Residents were then instructed to leave surveys in a location of their choosing, within three days, for their convenience... potentially to increase the response rate. Public education material was then distributed with the thank-you/project update letters, upon the shifting of objectives to a more educational role.

## **RESULTS**

### ***LITERATURE REVIEW***

According to the City of Waterloo (1994), the City is not responsible for weekly pick up of recyclable materials on properties with an excess of 6 "households" on the

premises. This is the case in Albert Gardens, which has considerably more dwellings therefore the undertaking of a recycling program is the responsibility of the owners of the property. After consulting previous studies and programs, as well as government documents, it seems that implementing a recycling program is possible. Previous studies by Kinnaman et al (2000) and Yang (1995) show that education and awareness are as important as the actual pickup of recyclables when considering a successful program. In addition to recycling carts being provided to the property, information on recyclable goods must also be provided. According to Werner et al (1998), people who are aware of the environment and economic issues related to recycling are more likely to exercise extra care in the recycling process, in addition to decreasing their overall waste outputs. The aforementioned idea is a reoccurring theme in almost all the literature that was studied. Almost all of the cases studied reported that waste reduction goes hand in hand with recycling. Information regarding composting and overall reduction in residential waste should be provided to the residents of Albert Gardens. Data from the waste audit performed on the property can be analyzed for amount of recyclable/ reducible waste, and compared to that given by previous studies; in particular Nestor (1994), and Yang (1995). Following implementation, waste reduction measures are available to be undertaken.

### ***Waste Audits***

Waste audits were performed 4 times over an eight-week period commencing September 23<sup>rd</sup> and ending November 12<sup>th</sup>. Since the sampling period was so short, it is extremely hard to make correlations between the amounts of trash

being thrown out by residents in the Albert Gardens community. Other useful data such as waste audits performed in other communities similar to Albert Gardens, but having a recycling program in place were not available for comparison. Figure 1.1 represents the information obtained through the waste audits that were performed.

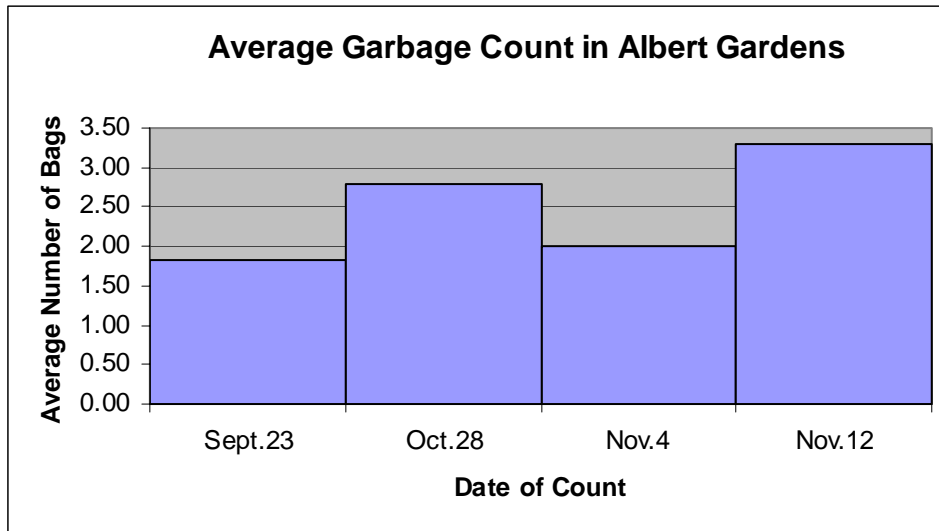


Figure 1.1 Data collected from waste audits on four separate occasions in the Albert Gardens Community.

### ***Resident Questionnaires***

Please refer to Appendix VI for a summary of survey results.

Questionnaires were distributed to every inhabited property within the community; 42 dwellings. Although resident interest was perceived as being exceptionally high during the distribution of the questionnaires, the group received 18 completed surveys making the response rate 42%, which is considered normal according to Palys.

The first critical piece of information that was needed was the actual number of residents within the Albert Gardens community. The group realized that a 100% return rate of the questionnaires was highly unrealistic, but nevertheless, an idea of how many residents per household was needed. The distribution seemed to be relatively even, without a large skew. The majority of respondents had 2-4 people per household, 4 people being the most common. This data was useful for correlation between number of people per household and amount of garbage generated.

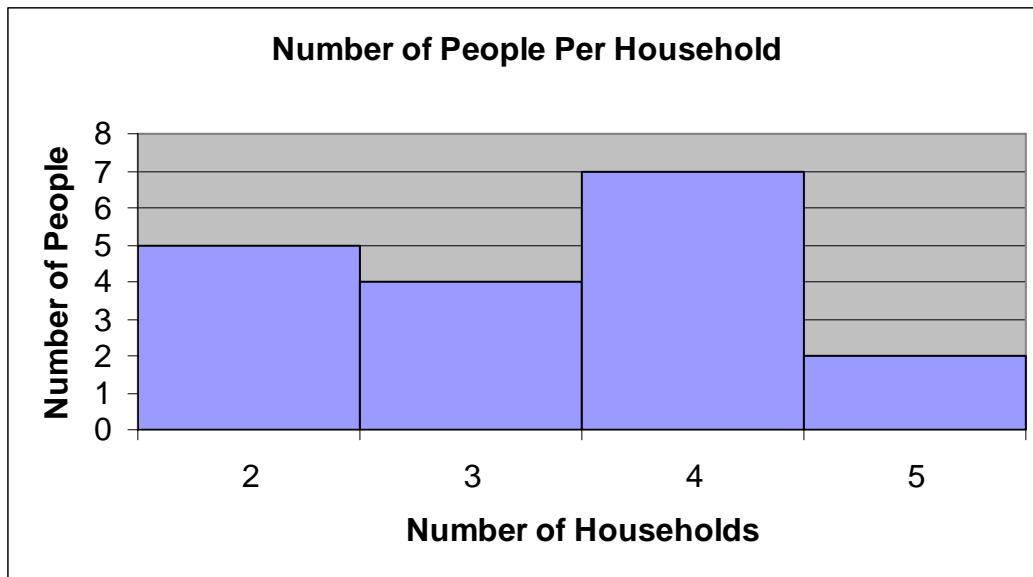


Figure 1.2 Number of people per household. Data based on respondent questionnaires.

Data collected via the questionnaires includes bags of garbage produced per household per week. It was found that the majority of households produce 2-3 bags of garbage per week. No household produced 0 bags and a maximum of 4 bags was produced by 3 households.

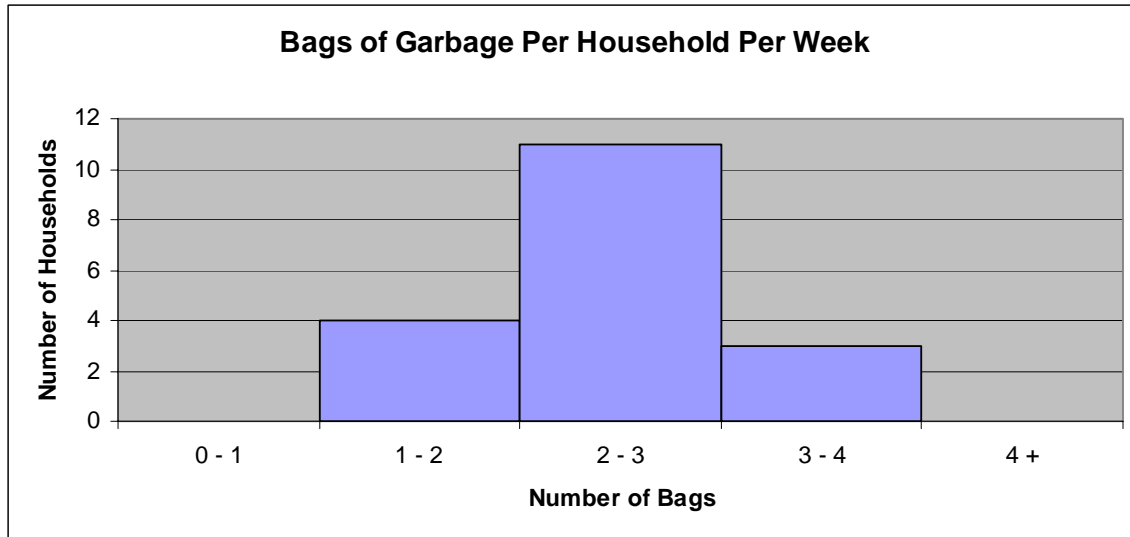


Figure 1.3 Number of bags of garbage produced per household per week. Data based on completed resident Questionnaires.

To get an idea of how much recyclable waste was being thrown out as garbage by the residents of Albert Gardens, the group found that the majority of people in the community estimated that 50-60% of their garbage is recyclable. However the results vary and they are left skewed. It should also be taken into consideration that one response to this open ended question was "a good majority" which cannot be statistically represented. Therefore the questionnaire count for this particular question was only 17.

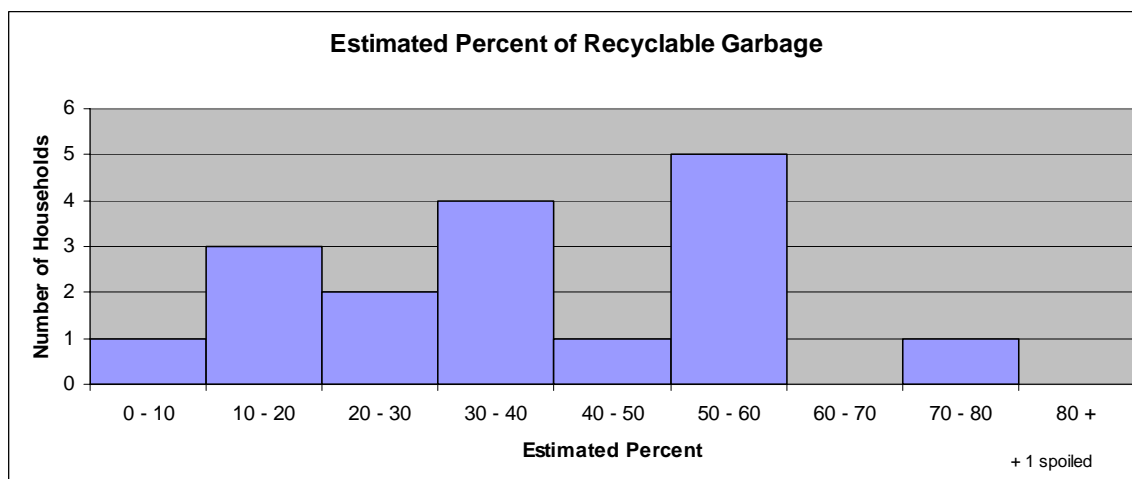


Figure 1.4 Estimated percentage of recyclable garbage being land filled in the Albert Gardens Community. Data based on Questionnaire response.

The group felt it was important that the community was educated about recycling. In order for a recycling program to work, the residents must understand what materials are recyclable, how to properly separate and prepare recycled materials, and the method of recycling, which was later determined to be cart recycling, as described below. Analysis of the completed questionnaires revealed that a great majority, (71%) of the respondents felt they had good general knowledge of recyclables. 17% of respondents were unsure and 6% had poor knowledge. This data was valuable because information regarding recycling was distributed to the community so that all residents will have good general knowledge of recycling for the future.

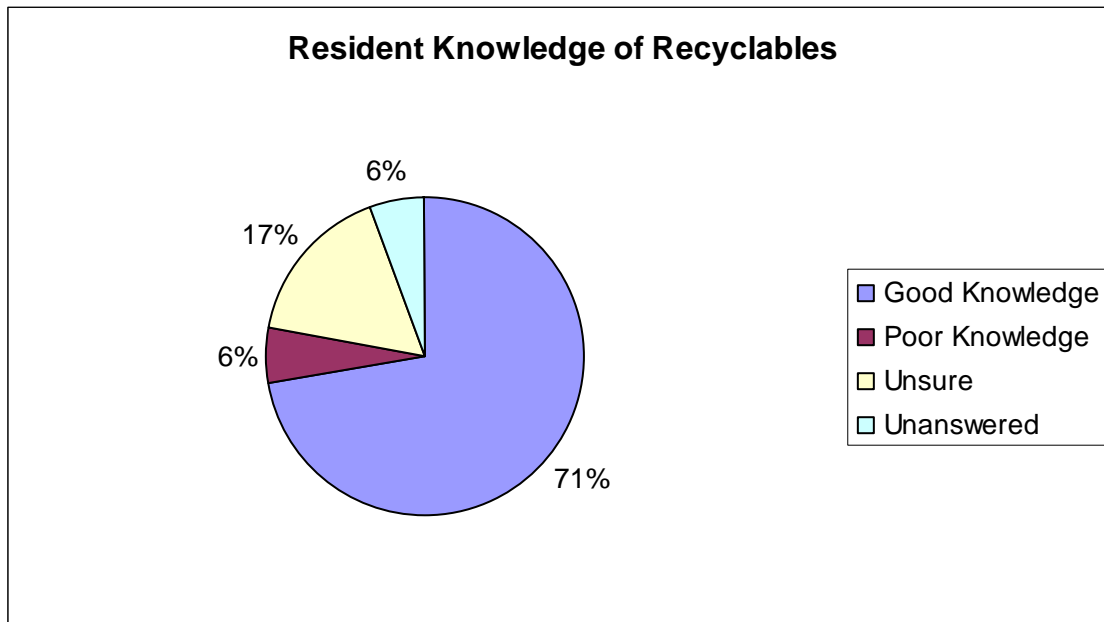


Figure 1.5 Respondent knowledge of recyclables. Based on data collected from questionnaires.

Two possible methods of pickup were feasible for the Albert Gardens community, being either bins or carts. The community was asked which they preferred; 50% preferred bins, 22% preferred carts and 28% had no preference. With the guidance of the Region of Waterloo, it was decided that a cart recycling program would be the best method for the Albert Gardens community, due to the area of the community and the number of residents.

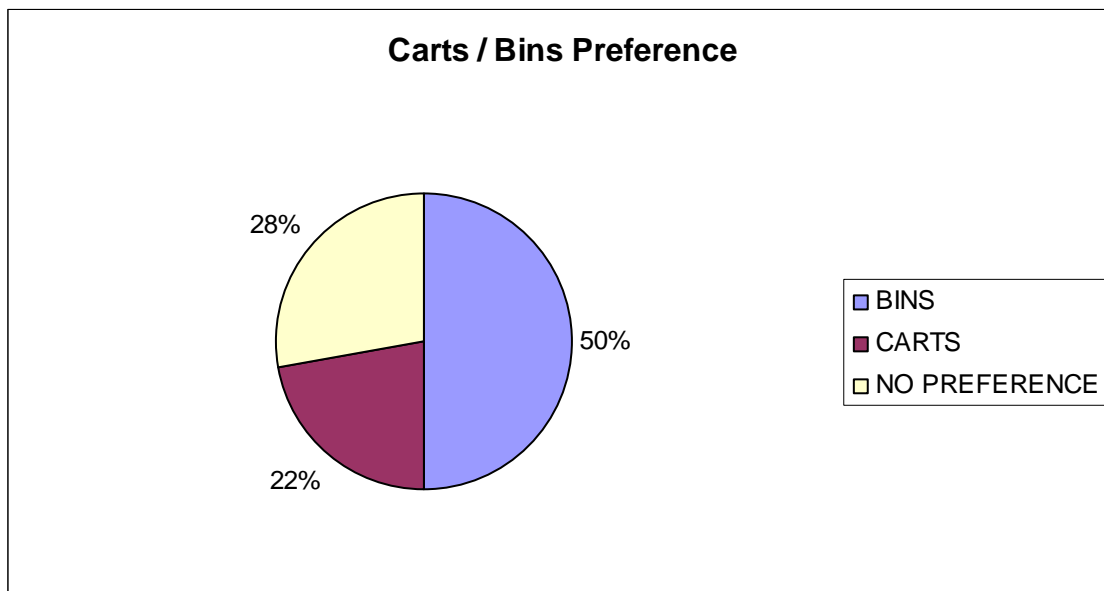


Figure 1.6 Respondent preference as to which method of recycling. Based on data collected from questionnaires.

## Discussion

Without a recycling program currently in the Albert Gardens community, many new residents have often wondered why. As part of the ERS 250 Greening the Campus and Community, WATgreen project, our group decided to tackle the unsustainable practice of putting all waste into the household garbage.

Our methods began with a general survey of the property. Richard, who currently lives in one of the units in Albert Gardens had an advantage to our group project. Photographs were taken, and aerial maps were looked at. Resourceful people to ask regarding the history of Albert Gardens included a few neighbours who have resided in Albert Gardens for at least ten years.

Waste counts were done on random days of our three-month timeframe. Limitations of this research can show errors, as number of bags was sometimes estimated as not all residents use garbage bags. A garbage can counted for two bags, and three shopping bags counted as one. In cases where large items such as a mattress was put in the garbage, visual compensation for the number of garbage bags was used.

Surveys were then handed out to the Albert Gardens community with a recruitment letter approved by ethics. A second set of recruitment letters was handed out with the surveys because of errors with the first batch of recruitment letters. Problems encountered with the surveys included the unclear definitions of "carts" and "bins". They should have been written as "community carts" or "personal bins". Also, when the survey asked for a percent of garbage they feel is recyclable, it would have been useful for residents to say one number [ex. 30%] rather than a range [20 – 30%]. However, these surveys were originally designed for person-to-person surveys as any unclear questions can be clarified on the spot.

Our group decided to hand out the surveys in person but allow the residents themselves, return completed surveys to their mailbox, or Richard's mailbox. This decision was made to ensure the anonymity of participants, however the response rate for those who left completed surveys in their mailbox was substantially higher than those who left them at Richard's mailbox. Out of the 18 completed surveys, two were in Richard's mailbox. Payls suggested that we could expect no more than a 40% return rate on mail-out surveys; our group had a 43% return rate (Palys 147).

Our group made continuous efforts to implement an active recycling program in Albert Gardens since conducted research clearly showed respondents of our door-to-door survey favoured a recycling program. With the numerous phone calls, interviews, feasibility studies, and research of both the Albert Gardens community and the Region of Waterloo's recycling system, we were ready to implement a 'pilot' recycling program. Without much success to persuade the property owners to allow a pilot project commence, our focus of attention turned to the Region of Waterloo's recycling system.

Negotiating with Guild Property Management seemed positive at first, where we were invited to a community meeting to discuss the matter. Superintendent Ian asked us to fax him a copy of our proposal, as our group was unable to attend their meeting. A resident of Albert Gardens who attended the meeting notified us there was a high support for a recycling program, as the notion was brought up. A follow-up telephone call to Superintendent Ian told us

that Guild Property Management is not prepared to make any decisions regarding a recycling program at that time. He told us, however our proposal will be brought up in future meetings with Guild Property Management as a recycling program is a less important issue on their agenda.

Without active communication between the Region of Waterloo, and Guild Property Management regarding a recycling program, our group's decision was to send this information to local media to publicize the flaws and loopholes we discovered in the Region of Waterloo's recycling system. Neglecting the benefits and cost-cutting factors of Albert Gardens, the community of Albert Gardens will continue to use unsustainable practices of placing valuable recyclable materials into the household garbage until Guild Property Management removes this notion off the backburners.

### ***Limitations***

The greatest limitation faced by our group was the limited amount of time required for the completion of the project. There was not sufficient time to complete enough interviews and meetings. The ultimate decision of the property owners not to implement the recycling plan may have been appealed and eventually overturned if more time was allowed. Another rather frustrating limitation experienced by the group was the lack of support and co-operation from the property owners. The group invested much time and effort into the implementation of the recycling program, just to see the property owners place the issue on the 'backburner' since it is not a priority at the present time. Other

limitations have to deal with the collection and response of the questionnaires. The questionnaires were collected from each respondent's mailbox, and although we did not mark each questionnaire, or ask for any names, the group could link each household to their responses. Although the aforementioned was not done by the group, it was realized that it could be possible, and therefore the questionnaires were not 100% anonymous, as was originally envisioned by the group. Finally, the questions that were distributed were open ended, which makes comparisons difficult because of the range of responses, and people being more likely to submit answers that tend to be biased because the group introduced themselves as environmental students, therefore in order to look more environmentally friendly, the responses may have been biased.

### ***Strengths***

Strengths in the study include a good questionnaire response rate. Data collected from the community was very useful and was incorporated into many aspects of the implementation process. Another asset to this study was the interest in a recycling program from the residents of the community. From briefly speaking to a member of each household during the questionnaire distribution process, almost everyone showed interest in such a recycling program if implemented. Another great asset to this study was the support and cooperation from the Region of Waterloo. Several interviews and discussions with employees at the Region were necessary for the study, and these helped the group a great deal. Even after implementation was denied by the property owners, the Region was

still of assistance to us for possible future implementation. Finally, the implementation of this program was free of charge. The group's time and effort into the study was free, as were the carts, pamphlets and re-routing of the collection truck by the Region.

## CONCLUSION and RECOMMENDATIONS

There were many barriers which restricted the implementation of a recycling program in Albert Gardens. Although there was great community support for a recycling program it seems that residents needs are not the primary concern for property owners. Despite data presented to Guild Property Management regarding the feasibility of such a program they placed it on the "back-burner". The issue of the recycling program must now be addressed by their Board of Directors at another meeting which is supposedly going to be held sometime in the future. It has been made clear that this program is not a priority for Guild Property Management. Lack of recycling enforcement may be a contributing factor to this situation.

The Region of Waterloo is primarily responsible for recycling in this region. Although this governmental organization is funded by tax payer dollars they have not been of assistance to Albert Gardens residents regarding the implementation of a recycling program. The concerns of the residents have been presented to the Region along with the fact that Guild Property Management is in violation of Ontario Regulation #103. Initially, the Region seemed quite interested in the issue but then made empty promises to look after the issue right away. The Region does not have the authority to force Guild Property Management to implement a recycling program but it is their

responsibility to contact the Ministry of Environment so that they, at the provincial level, can take legal action. All of these actors must work collaboratively in order to arrive at a satisfying resolution.

As can be concluded, the implementation of an active recycling program in Albert Gardens proved to be a complicated task with many restrictions and limitations. Most importantly, we did not have the time to wait for the appropriate decisions to be made at the various levels within the Region of Waterloo and within Guild Property Management. The criteria for implementing a multi-stakeholder endeavour such as this one is very time consuming. As a consequence of this the thesis for the project was somewhat shifted.

Through our various limitations it was concluded that the implementation of a recycling program at this point was not feasible. We shifted our goal to incorporate a more educational role. The objective became simply to raise awareness to the fact that there was sustainability issue in Albert Gardens. We acknowledged the residents needs but taking their concerns to both the Region of Waterloo and Guild Property Management. The residents were also given educational material related to recycling in order to empower them further. All of the major actors in this complicated system were addressed and informed of the need for a recycling program in Albert Gardens. It is our hope that future Environment and Resource Studies students will adopt this project and take it a step further.

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## **The Research Team**

The research team consists of four 2nd year Environment and Resource Studies students attending the University of Waterloo. Although this is the first formal research project for the group a variety of courses including Research Methods, Issue Analysis and Problem Solving for Environmental Studies, Sustainable Environmental and Resource Systems, and Approaches to Environmental Decision Making, has given us the necessary background knowledge to engage in a project of this type.

## **Budget**

An available budget of \$0 limits the study. Expenses endured by the research team, such as transportation and photocopying, will be covered personally by the team members. It is not anticipated that these costs will reach unreasonable levels.

## **GLOSSARY**

**Blue box program:** a recycling program in the Region of Waterloo where pickups occur once a week in a fashion similar to garbage pickups. The only plastics municipalities are mandated to re recycle are see-through polyethylene terephthalate (PET) bottles (i.e. pop bottles).

**Environment:** the surrounding factors which influence life (both abiotic and biotic).

**Equilibrium:** a state or situation in which opposing forces or factors balance each other out and stability is attained (Encarta Dictionary Online)

**Grassroots:** the ordinary people in a community or the ordinary members of an organization, as opposed to the leadership (Encarta Dictionary Online)

**Preservation:** the maintenance of the environment in a natural, sustainable way.

**Sustainable:** maintaining an ecological balance in an environment (Encarta Dictionary Online)

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