Executive Summary

The Solid Waste Management Master Plan (SWMMP) - a 25-year strategy approved by Council in 2008 - set a path to achieve new waste minimization, diversion and disposal targets, and identified short and long term programs designed to achieve the targets.

A review of the City's 2008 SWMMP provides recommendations that build on Guelph’s leadership in waste minimization and diversion for a sustainable, service focused and economically viable future.

The review was conducted by City staff with the assistance of GENIVAR and a Public Steering Committee made up of Guelph residents and representatives from the University of Guelph, the business community and the City's Environmental Advisory Committee.

The Steering Committee and Project Team assessed the progress of the SWMMP over the past five years and guided the strategic direction for the next 20 year planning period, identifying waste minimization and diversion initiatives that will enhance or introduce waste programs and services across the community.

Findings from the review indicate that Guelph is doing well with respect to existing waste diversion and reduction programs and targets, when compared with communities across Ontario, the United States and Europe. The City has made significant progress with the recommendations of the 2008 SWMMP. Since implementing the plan, the City's residential diversion rate has increased 30 per cent to 68 per cent in 2012, exceeding the first two targets set in the 2008 SWMMP. In 2012, the City of Guelph achieved the highest diversion in the province at 68%, well above the provincial average of 47%. The City also diverted the highest percentage of residential organic waste at 32% and had the lowest residential waste generation rate and residential disposal rate when compared to similar Ontario municipalities (source: Waste Diversion Ontario Municipal Datacall).

Community engagement was an important and integral part of the review process. Feedback from over 680 residents and stakeholders was obtained through various engagement opportunities, including open houses, focus groups and surveys. After extensive community consultation and on-going input from the Steering Committee, the review team identified potential waste reduction and diversion options that build on Guelph's success and take current and future needs into consideration.

The 2014 SWMMP’s recommendations reflect the current and future needs of a growing community, waste management and diversion trends, and potential economic, environmental and social factors, ensuring our ability to deliver effective waste management programs and services for Guelph. While the City is responsible for delivering programs and services directly related to waste management, we all need to be accountable for the waste we generate. The 2014 plan provides 29 recommendations for waste minimization, diversion and disposal that fall into the following categories: municipal; residential; multi-residential; industrial, commercial and institutional; and, construction and demolition. Key recommendations include:

Municipal
- Explore alternative methods for recovery of designated materials
- Promote “waste less” principles and policies, share and reuse initiatives
- Transfer responsibility for public space waste collection throughout the City to Solid Waste Resources
- Explore alternatives to landfill

Residential
- Establish a Food Waste Reduction Campaign
- Reinstate the twice per year curbside yard waste collection service
- Implement a Grasscycling Program
- Outreach for residential waste minimization and diversion programs

Multi-residential
- Outreach for multi-residential waste minimization and diversion programs
Explore expanding the development approval process to promote waste diversion in multi-residential properties
Expand the type of collection services provided to multi-residential properties

Industrial, Commercial, and Institutional
Provide assistance to industrial, commercial and institutional (IC&I) establishments

Construction and Demolition
Develop a construction and demolition (C&D) waste diversion strategy

After consideration of public input, future trends in waste management and the recommendations established in the review, the Steering Committee reaffirmed the previously established waste diversion target of 70% by 2021. A schedule for the recommendations was developed as part of the process, outlining proposed start and end dates for a variety of the activities. Program implementation and target achievement will be reviewed again in 2018 and 2023.

The 2014 plan further enhances Guelph’s efforts to achieve its waste diversion goals and Zero Waste philosophy.
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1. Introduction

In December 2012, the City of Guelph retained GENIVAR Inc. (now WSP Canada Inc.) to conduct a review of its 2008 Solid Waste Management Master Plan (SWMMP) – a guiding document that provides strategic direction for Guelph’s waste management by exploring a wide range of waste minimization, diversion and disposal options.

The SWMMP Review was conducted with the assistance of City staff and a Public Steering Committee made up of Guelph residents and representatives from the University of Guelph, the business community and the City’s Environmental Advisory Committee.

The Steering Committee and Project Team assessed the progress of the SWMMP over the past five years and guided the strategic direction for the next 20 year planning period, identifying waste minimization and diversion initiatives that will enhance or introduce waste programs and services across the community.

The project focused on development of initiatives to drive future waste minimization and diversion that will help the City meet the Plan’s waste diversion target. The Plan’s recommendations need to reflect the current and future needs of our growing community, waste management and diversion trends, and potential economic, environmental and social factors, ensuring our ability to deliver effective waste management programs and services for Guelph.

The Review process included extensive public consultation opportunities, including open houses, surveys, and focus groups. The feedback, guidance, and opinions of residents and community stakeholders was critical in identifying what was works well, what needs improvement, and ultimately guiding the new direction of the SWMMP.

The review process which started in the spring of 2013 included gathering feedback and ideas from the community, evaluating the current waste system and programs, assessing Guelph's future needs, identifying new waste management trends and the costs and effectiveness of new approaches, researching and exploring options and opportunities to increase diversion, and refining of alternatives with the Public Steering Committee and City staff.

A review of the City's 2008 SWMMP provides recommendations that build on Guelph’s leadership in waste minimization and diversion for a sustainable, service focused and economically viable future.

1.1 The Review Process

The review process undertaken by the GENIVAR team was divided into four separate components as follows:

- **Current State** – a review of the current state of waste management and diversion in Guelph; examining the current and projected changes in population and household count; current waste management and diversion operations and programs, and a performance review of the 2008 SWMMP recommendations;
- **Future State** – an overview of the future impacts on waste management and diversion; examining projected changes in housing types and provincial policies driving these changes, and the impact to waste management operations; identifying trends in waste management that are being driven by provincial and federal policies and directives, and new waste diversion trends and practices.
- **Public Consultation** – an extensive public consultation process, which examines the various engagement opportunities undertaken to gain feedback and input from Guelph’s residential, business and institutional community; and
- **Options and Opportunities** – an evaluation of new waste diversion options and opportunities to drive Guelph’s future waste management and diversion operations.
1.2 Waste Diversion Goals and Targets

The City of Guelph has taken a leadership approach in promoting waste diversion within its community. In 2008, the City became one of a handful of communities in North America to adopt a Zero Waste philosophy. In adopting this philosophy, the community recognizes that a Zero Waste philosophy does not literally mean no waste to landfill; instead, it is more of a philosophy which sets an aspirational goal of zero waste to landfill and uses this aspirational goal to set the necessary framework to head in the right direction. A zero waste approach attempts to invoke paradigm shifts in the manner in which society manages its waste by changing our focus on waste as disposable and instead envisioning waste as a resource.

In recognition of the Zero Waste philosophy, in 2008 the City of Guelph adopted ambitious waste diversion targets in three phases:

- 55% waste diversion by 2011;
- 65% waste diversion by 2016; and
- 70% waste diversion by 2021.

To date, the City has achieved 68% diversion in 2012 and surpassed the first two waste diversion targets and is well on its way to achieving the third.

The increased diversion rate is a result of a number of City initiatives including the opening of the Organic Waste Processing Facility; recycling of construction and demolition materials; electronic waste recycling, and the commitment and diligent sorting by residents.

2. Current State

The main objective of the current state review was to highlight the present day status of City waste operations and outline the service baseline prior to moving ahead with the review. The status of the 2008 SWMMP recommendations was also checked. The review also looked at some comparator communities for the purpose of gauging Guelph’s progress with respect to waste diversion. The Current State Report, which can be viewed in Appendix A, highlights the first stage in the review process, and provided information in three key areas:

- Baseline: a review of the community profile and a description of the current waste management system programs and policies;
- Performance: a review of the current status of the 2008 SWMMP recommendations; and,
- Relative Performance: an examination and performance comparison of Guelph’s waste management and diversion performance to other communities across Ontario, the United States and Europe.

Along with the future state review outlined later in this report, the current state review provided a focus for the investigation into potential waste diversion options available to the City.

2.1 Community Profile

Guelph’s economy is based on the agri-food business and features a diversified industrial base including life science, information technology, environmental enterprise, automotive and advanced high-technology industries.

According to Statistics Canada, in 2011, the population of the City of Guelph was 121,688. By 2031, Guelph is expected to have a population of 169,000, which is roughly the size of Burlington, Ontario.
today. Unlike other communities, the City of Guelph is comprised largely of two person (47%) and three person (23%) households, accounting for 70% of the City’s population. The majority of the population (55%) are between the ages of 25 to 64 with 68% of the population residing in single-family homes (includes detached, semi-detached and duplexes).

This profile is expected to change somewhat as the City follows the Ontario Government’s Places to Grow Act (2005). The Places to Grow Act, followed by the release of the Growth Plan for the Greater Golden Horseshoe (June 2008) requires that by 2015 and each year after, a minimum of 40% of all residential development occurring annually within each upper and single-tier municipality (such as Guelph) will be within the built-up area. The City of Guelph is one of the identified municipalities where a minimum density target and jobs per hectare must be achieved in the Urban Growth Centre.

As part of Guelph’s local growth management strategy the City has recommended that within the ‘Built-Up’ area of the City, residential intensification opportunities will be identified in the Downtown ‘Urban Growth Centre’ and the ‘nodes and corridors’ density should be optimized to:

- Increase residential population in the downtown core;
- Ensure a high level of liveability;
- Achieve, where appropriate, mixed-use neighbourhoods; and,
- Increase the diversity of housing.

Consequently, the impact of the Ontario Government’s policies on Guelph’s housing in the future will continue to move towards greater intensification of multi-residential and mixed-use buildings. An opportunity exists to increase the collection and management of waste from multi-residential settings. This provides a focus for the City, in effect defining the next potential major frontier for waste diversion methods, approaches and programs.

### 2.2 Programs and Policies

The City of Guelph has developed a robust waste diversion system offering a wide range of waste diversion services to the community. Due in part to the exceptional services and strong community support and commitment to diligent sorting, the City has already surpassed the first two waste diversion targets set by the SWMMP (55% by 2011 and 65% by 2016) achieving a 68% diversion rate in 2012. The City has well-established curbside and drop-off programs, which target single family, multi-residential, commercial and construction and demolition waste.

In 2008, the City adopted a Zero Waste philosophy and has worked to ensure that waste prevention and diversion take precedence over waste disposal. In addition to exceeding the 2016 target, the City has accomplished the following goals since 2008:

- Opened a new organics waste processing facility;
- Initiated diversion programs for construction and demolition (C&D) wastes;
- Established a free drop-off for electronic waste;
- Upgraded sorting technology at the City’s Material Recovery Facility (MRF) to enhance recycling;
- Added new By-law provisions for waste diversion in multi-residential properties and at special events and assisted event organizers with implementing three stream sorting systems;
- Introduced three stream sorting at City facilities; and,
- Implemented a Bike Reuse Centre to keep bikes out of landfill.

**Residents**

The City of Guelph is in transition from a bag-based collection system for garbage, recyclables and organics to a cart-based system. The carts are collected using automated collection vehicles which has reduced operating costs and greenhouse gases. Residents receive 80 litre green carts for organics and
can choose from four sizes of carts (80, 120, 240 and 360 litre) for garbage and recycling. Collection and processing services are paid through the property tax system.

**Multi-Residential**

All multi-residential (MR) properties within the City of Guelph have access to garbage, recycling and organic collection services, provided they adhere to the requirements of the Waste Management By-law, which includes sorting waste into three streams and using City carts or approved bags. Currently MR properties can choose garbage and recycling carts ranging in size from 80, 120, 240 and 360 litres and for organics MR properties have a choice of 80, 120 and 240 litre carts.

As of January 2012, the City’s Waste Management By-law requires that new MR developments and redevelopments separate their organics, recyclables and garbage (regardless of who collects the property’s waste).

**Public Spaces**

Public space recycling remains the responsibility of several different departments, depending on the location of the service; for example, recycling in parks and community centres is the responsibility of Parks and Recreation and recycling at transit stops is the responsibility of Guelph Transit. Only recently, Solid Waste Resources assumed responsibility for weekday collection of the downtown public space containers. This multi-departmental approach has resulted in an inefficient use of resources and a lower level of promotion of recycling in public spaces. Opportunities remain available for improved recycling in public spaces.

**Industrial, Commercial and Institutional (IC&I)**

The City provides service to downtown businesses and any other business that set out garbage, recycling and organics to the curb in accordance with provincial legislation and the City’s By-law requirements.

**Servicing Third Parties**

The City provides processing and transfer/disposal services to third party public and private sector clients, including processing organics from the Region of Waterloo, processing recyclables from private sector companies and accepting private sector waste at the Guelph transfer station. In some cases, private sector waste represents a large portion of the City’s business conducted at the Waste Resource Innovation Centre (WRIC).

In 2014, the revenue budget for Solid Waste Resources is $12,547,500, which covers approximately 55% of the total approved gross expenditures. As a result of the offsetting revenues, only 45% ($10,366,598 out of $22,914,098) of the total annual costs to provide all solid waste services to the taxpayer is funded through property taxes. This value equates to $207.47 per household (based on the 49,966 household count in 2013), or $3.99 per week.

**Disposal and Landfill Gas**

Guelph’s Eastview Landfill was closed in 2003. Since then the City has been shipping its garbage to an outside landfill, (Green Lane), located near St.Thomas, Ontario. At the end of October 2013, the City of Guelph’s contract with Green Lane expired and has been replaced with a new ten year contract with Waste Management Inc. to haul and dispose of the City’s waste at Waste Management’s owned and operated Twin Creeks Landfill located in Watford, Ontario.

In April 2014, since the initial completion of the Current State Report, the City has approved a contract to process up to 28,000 additional tonnes of recyclables from Detroit, Michigan at Guelph’s Material Recovery Facility (MRF). In addition, a separate contract has been approved with Recyclable Material Marketing to haul and dispose of up to 22,500 tonnes of residual waste at Detroit Renewable Energy, an energy-from-waste facility in Detroit. The latter change is reflected in Figure 1, below.

A summary of all the City’ services is shown in Figure 1.
Figure 1: Waste Management Services for the City of Guelph

- **MRF**
  - Owner and Operator: City of Guelph
  - Recyclables collected at curb by City of Guelph staff and at the Public Drop-Off
  - Delivered by outside sources

- **Organics Facility**
  - Owner: City of Guelph
  - Operator: AIM Environmental
  - Organics collected at curb by City of Guelph staff
  - Delivered by outside sources

- **Transfer Station**
  - Owner and Operator: City of Guelph
  - Garbage collected at curb by City of Guelph staff and at the Public Drop-Off
  - Disposed at WM Twin Creeks Landfill
  - Disposed at Detroit Renewable Energy

- **WRIC Drop-off**
  - Owner and Operator: City of Guelph
  - Leaf & Yard Waste: Collected at curb by City of Guelph staff and at the Public Drop-Off
  - Leaf & Yard Waste: Delivered by outside sources
  - Construction & Demolition Waste: Collected at the Public Drop-Off
  - Construction & Demolition Waste: Delivered by outside sources
  - WEEE: Collected at the Public Drop-Off
  - Scrap Metal: Collected at the Public Drop-Off
  - Tires: Collected at the Public Drop-Off
  - Textiles: Collected at the Public Drop-Off
  - MHSW: Collected at the Public Drop-Off
  - Bikes: Collected at the Public Drop-Off
  - Diverted to End Market Processor
  - Proper End Market Recycling or Disposal
  - Reuse
2.3 Review of 2008 SWMMP Recommendations

In 2008, the Solid Waste Management Master Plan identified 41 recommended actions for the City of Guelph to implement to help it move towards its ultimate goal of 70% diversion of waste from landfill by 2021. Since that time the City has implemented a variety of waste reduction and diversion programs and policies that originated from the 2008 SWMMP recommendations. City staff has monitored the progress of the recommendations, providing status reports to City Council. The most recent Information Report provided to Council on the SWMMP Update in November 2012, showed a dashboard to depict the stage of progress for each of the 41 recommendations. Progress against the recommendations is either “complete”, “in progress”, or at “initial stages” and a brief explanation is offered to highlight the status of each of the 41 recommendations.

Figure 2 provides the most recent update on the dashboard. Overall the City is making significant progress with respect to the 41 recommendations of the 2008 study, especially given the fact that this is five years into a 25 year plan. In fact, to date, the City has implemented 60% (24) of the recommendations. Of the remaining 17 recommendations that have yet to be implemented, City staff has initiated activity and the recommendations are either in progress (14) or at the initial stage (3). As part of this SWMMP review, these 17 recommendations were reviewed for possible amendment, elimination or replacement due to changing circumstances and priorities and then incorporated into the final recommended options associated with the review and evaluation process where appropriate. A summary of the 17 recommendations reviewed can be viewed in Appendix J.

Figure 2: 2008 SWMMP Recommendations Dashboard

<table>
<thead>
<tr>
<th>2008 Solid Waste Management Master Plan Recommendations Dashboard</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Complete</td>
</tr>
<tr>
<td>- In progress</td>
</tr>
<tr>
<td>- At initial stages</td>
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<tr>
<td>Waste Minimization</td>
</tr>
<tr>
<td>- Adopt a Zero Waste Philosophy</td>
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<tr>
<td>- Implement a per capita waste reduction program</td>
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<tr>
<td>- Enhance &amp; rejuvenate promotion and education (P&amp;E) programs with efforts to target local businesses, community groups and schools</td>
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<tr>
<td>- Promote and encourage waste minimization legislation programs (federally and provincially)</td>
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<tr>
<td>- Develop and adopt a municipal green procurement policy</td>
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<tr>
<td>- Pilot a plastic film minimization program</td>
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<tr>
<td>Multi-Residential Recycling</td>
</tr>
<tr>
<td>- Contact/survey existing local waste hauling companies to gauge current participation in recycling by the multi-residential sector</td>
</tr>
<tr>
<td>- Gather information available from the province regarding multi-residential audit/tonnage data as a benchmark against future pilot project data</td>
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<tr>
<td>- Implement a Multi-Residential Pilot Study</td>
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<tr>
<td>- Identify target locations/property managers/owners for P&amp;E sweep to promote increased recycling</td>
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<td>- Create/amend By-law(s) to enforce recycling in conjunction with a dedicated multi-residential coordinator</td>
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<tr>
<td>- Modify the building permit process to enforce recycling in new multi-residential developments</td>
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<tr>
<td>- Assess incentives for recycling including rebates, lower permit fees and other available options</td>
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<tr>
<td>Reuse Centre Programming</td>
</tr>
<tr>
<td>- Promote use of all existing facilities and programs</td>
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<tr>
<td>- Investigate partnership opportunities with an existing reuse organization to develop a drop-off reuse facility at the WRIC</td>
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<tr>
<td>- Conduct research to determine weight diverted through reuse programs and facilities and the potential for claiming this diversion with Waste Diversion Ontario</td>
</tr>
</tbody>
</table>
## 2008 Solid Waste Management Master Plan Recommendations Dashboard

- Complete
- In progress
- At initial stages

### Open Space Recycling & Special Events
- Meet interdepartmentally to assess centralized waste/recycling collection in parks and public open spaces
- Conduct a public open space (park, trail, arena and street side) pilot study with an emphasis on collecting high value recyclables (aluminum cans and plastic bottles)
- Assess requirements for city-wide distribution of waste recycling containers
- Target park, sports field, trail and other users to promote the use of open space recycling containers
- Identify partnership opportunities with Guelph businesses or organizations to encourage sponsorship and stewardship
- Meet with representatives from the Downtown Board of Management to develop sustainable street side recycling program
- Mandate recycling and composting with Special Event permits
- Develop promotional and educational materials for event planners and facility users
- Assess capacity to provide city collection of sorted materials from events

### Promotion and Advertising
- Refocus and redevelop the waste management P&E campaign, build in new messages and re-invigorate municipal residents. Community based social marketing approaches should be considered
- Develop a recognition program to highlight and share the best management practices as demonstrated by organizations and individuals in the city

### Construction and Demolition (C&D) Waste
- Mandate recycling through building/demolition permits
- Develop partnerships and/or pilot studies with local builders
- Continue to assess opportunities to recycle commingled construction and demolition materials
- Evaluate variable tipping fees to encourage recycling of shingles, drywall, wood
- Obtain a Certificate of Approval amendment to store C&D waste at the WRIC

### Industrial, Commercial & Institutional Waste (IC&I)
- Assess opportunities to liaise with various associations for recycling opportunities
- Update the recycling/disposal manual for the IC&I sector
- Provide recognition to high performers in the IC&I sector and facilitate shared ideas within that sector for waste minimization and diversion programming

### High Performance Recycling
- The list of items for the blue bag should be revised and refined to include newspaper, cardboard, fine paper, glass, plastics, aluminum and steel beverage and food containers only
- The City should regularly review the list of materials in the blue bag
- The City's current enforcement program should be maintained

### Waste Disposal
- Waste disposal option including contractual arrangements (municipal or private sector) should be considered further
- Municipal partnerships for disposal should be explored and municipalities contacted
- Criteria in future disposal contracting arrangements should include an evaluation of the environmental impact of available disposal sites/facilities with consideration given to leachate management, gas management and utilization, energy consumption, energy production at minimum as a basis to compare disposal options
2.4 Performance Comparison

The City of Guelph compares very favourably when considering waste diversion efforts and successes with similar sized Ontario communities and other leading North American jurisdictions.

In the case of Ontario, in 2012, the City of Guelph achieved the highest diversion in the province at 68%, well above the provincial average of 47%. The City also diverted the highest percentage of residential organic waste at 32% (source: Waste Diversion Ontario (WDO) Municipal Datacall).

A comparison was also conducted for Ontario communities that are part of the “Medium Urban” category as defined by the WDO Municipal Datacall. In addition to Guelph, the other municipalities in this grouping are the cities of Barrie, Brantford, Peterborough, Sarnia, Sault Ste. Marie and Thunder Bay. Using these municipal comparators, it was revealed that Guelph residents generate less waste per capita and dispose of the least amount of waste, which is largely attributable to the strength of residents’ commitment to three stream sorting and participation in the City’s organics collection program. While the City offers a comprehensive recycling program, with an extensive list of recyclable materials, opportunities still exist to capture a larger percentage of the recyclable material available to the program.

Effort was taken to compare the City of Guelph’s waste diversion activities with other leading American communities. The comparison was based on a recent report released in the United States comparing the status of recycling programs in 37 US programs based on a rating as being either “Complete”, “Intermediate” or “No/Early Stage”. The report provided a definition of what constituted “Complete”. Municipalities in the “Complete” category include San Francisco, San Jose, Seattle, Austin, Oakland and Portland as they were achieving residential waste diversion rates ranging from 63% to 80%. Guelph was viewed as achieving a similar ranking, with a residential diversion rate of 68% placing it in the middle of the top US achievers.

Attempts to compare the City of Guelph with European communities are limited as the classifications of the types of activities that fall under the definition of waste diversion vary considerably. Furthermore, the drivers of waste diversion vary from European countries and Ontario. Therefore, international comparisons are inconclusive since there are a number of contextual variables that make comparisons difficult. Jurisdictions reporting extremely high disposal avoidance do so by classifying energy-from-waste as a diversion strategy, which is not the case in Ontario. Waste Diversion Ontario does not recognize energy-from-waste as a form of diversion. When this aspect is removed from the equation, it can generally be said that the City, in terms of mechanical recycling and organics collection, is competitive in terms of waste diversion programs provided by other jurisdictions. There are, however, some major differences between Guelph and the high diversion achievers. Many of these communities have introduced Pay-As-You-Throw (PAYT) programs (such as a variable cart sustainable financing system) and have a wide range of policies that mandate the implementation of waste diversion activities by the industrial, commercial and institutional (IC&I), and construction and demolition (C&D) sectors including packaging bans, variable disposal rates and mandatory diversion targets. Furthermore, municipal facilities must adhere to aggressive waste diversion policies (such as ambitious Green Procurement policies and mandating diversion targets for new municipal facility construction).

3. Future State

The Future State review was an examination of growth, trends and expectations that will shape waste program development into the future. Key areas examined included, investigating the impacts of projected population growth rates and housing changes on the City of Guelph’s waste generation rates to the year 2031. Also examined are waste management and diversion trends that may impact future waste
disposal and diversion policies, programs and operations in the City of Guelph. Projecting waste generation rates can help plan future waste disposal and waste diversion infrastructure, policy and program needs and opportunities. The Future State Report can be viewed in Appendix B.

3.1 2012 Residential Waste Diversion Results

Based on generation rates reported in the 2011 WDO Generally Accepted Principles (GAP) summaries, Ontario communities are averaging just shy of one tonne (999 kg) of waste annually per residential (single family and multi-residential combined) household. Table 1 shows this breakdown for Guelph residents, who generate slightly less waste (~2% less) than the Ontario average.

Table 1: 2012 Waste Generation per Household

<table>
<thead>
<tr>
<th></th>
<th>Total Weight per Household</th>
<th>Percentage</th>
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<tbody>
<tr>
<td></td>
<td>(kilograms)</td>
<td>(tonnes)</td>
</tr>
<tr>
<td>Total Recycled or Reused</td>
<td>275</td>
<td>12,148</td>
</tr>
<tr>
<td>Total Organics Composted</td>
<td>313</td>
<td>13,833</td>
</tr>
<tr>
<td>Total Diverted</td>
<td>670</td>
<td>29,642</td>
</tr>
<tr>
<td>Total Landfilled</td>
<td>319</td>
<td>14,117</td>
</tr>
<tr>
<td>Total Waste</td>
<td>989</td>
<td>43,760</td>
</tr>
</tbody>
</table>

3.2 Projected City Growth

The City expects a steady increase in population growth that will reach 165,000 by 2031, with the employment force keeping pace, resulting in 30,000 or more additional jobs.

As identified in the Current State report, provincial growth pattern polices will encourage greater development of multi-residential and mixed-use buildings in the future. Much of this development is expected to take place in Guelph’s built-up areas, through infilling or retrofits to existing buildings or redevelopment of existing structures to fit the needs of the growing community. While future housing will continue to be dominated by single family dwellings (includes detached, semi-detached and duplexes), the City is expected to see the portion of high density multi-residential apartment buildings to increase from the current 11% housing stock to 30% by 2031. The change is illustrated in Figure 3.

Figure 3: Changes in Housing Type 2011 to 2031

<table>
<thead>
<tr>
<th></th>
<th>2011</th>
<th>2031</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Density</td>
<td>50%</td>
<td>20%</td>
</tr>
<tr>
<td>Medium Density</td>
<td>30%</td>
<td>40%</td>
</tr>
<tr>
<td>High Density</td>
<td>20%</td>
<td>40%</td>
</tr>
</tbody>
</table>

The challenge facing Solid Waste Resources will be to maintain high diversion rates as the portion of high density multi-residential housing increases. Typically, waste diversion rates for multi-residential households fall significantly below those for single-family homes. Building proper collection systems into
the design of the multi-residential buildings will continue to play an important role in helping to drive diversion.

### 3.3 Waste Audit Data and Waste Generation Estimates

For planning purposes, it is important to project future waste generation rates in order to help forecast future waste disposal and waste diversion infrastructure, policy and program needs and opportunities. Using information from waste audits, Table 2 identifies the total amount of organic and recyclable materials available for diversion from the single family and multi-residential sectors combined from 2011 to 2031, in five year intervals. It is important to understand that this is not necessarily what will actually be diverted, as this will depend on the effectiveness of the waste diversion programs in place to divert the material and the willingness of residents to participate in those programs. The numbers are based on what materials can be currently diverted through the City’s blue cart and organic cart programs.

**Table 2: Single Family and Multi-Residential Waste Generation Projections**

<table>
<thead>
<tr>
<th></th>
<th>2011 (tonnes)</th>
<th>2016 (tonnes)</th>
<th>2021 (tonnes)</th>
<th>2026 (tonnes)</th>
<th>2031 (tonnes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blue Cart (recyclables available)</td>
<td>20,384</td>
<td>21,848</td>
<td>23,312</td>
<td>24,776</td>
<td>26,240</td>
</tr>
<tr>
<td>Green Cart (organics available)</td>
<td>16,012</td>
<td>17,359</td>
<td>18,706</td>
<td>20,052</td>
<td>21,399</td>
</tr>
<tr>
<td>Residuals Grey Cart (garbage)</td>
<td>9,068</td>
<td>10,060</td>
<td>11,052</td>
<td>12,044</td>
<td>13,036</td>
</tr>
<tr>
<td>Household Hazardous Waste</td>
<td>288</td>
<td>314</td>
<td>340</td>
<td>366</td>
<td>392</td>
</tr>
<tr>
<td><strong>Total Waste Generation</strong></td>
<td><strong>45,752</strong></td>
<td><strong>49,580</strong></td>
<td><strong>53,409</strong></td>
<td><strong>57,238</strong></td>
<td><strong>61,067</strong></td>
</tr>
</tbody>
</table>

### 3.4 Trends in Waste Management

Based on the waste generation expectations and trends noted in this review, the City of Guelph can begin the process of developing a road map that leads to a future that includes the following:

- A growing population and a changing housing mix that will include more multi-residential households and multi-use buildings;
- A lighter recycling stream that creates a diversion paradox: the management of recyclable items by volume will continue to rise but the traditional measure of success, namely weight and more specifically the “diversion rate” as calculated by dividing diverted tonnage by total tonnage, may not adequately indicate the extent or success of the effort;
- Potentially more funding for waste diversion programs while, at the same time, potentially less control of the waste diversion programs as provincially mandated stewards exercise operational control through funding;
- A need to target discrete and specific elements of the waste stream, including those within the industrial, commercial and institutional (IC&I) sector; and,
- A need to control cost by driving behavioural changes that reduce a dependence on facilities and fleet by reducing waste through personal decision making and communal programs.

These trends, and the waste diversion objectives of the City, provide the basis for the development of recommendations and program options examined for the SWMMP Review.

### 4. Stakeholder Consultation

The SWMMP Review process included extensive public consultation opportunities through a wide variety of approaches to gain input and feedback from Guelph’s citizens. The feedback, guidance, and opinions of residents and community stakeholders was critical in identifying what works well, what needs improvement, and ultimately guiding the new direction of the SWMMP. Input has been gathered through surveys, focus groups, open houses, online comments and emails.

The SWMMP process was driven by a Steering Committee, comprised of seven members made up of Guelph residents and representatives from the University of Guelph, the business community and the
City's Environmental Advisory Committee. The goal of the Steering Committee was to guide the review process and provide direction and input in the evaluation of waste diversion options and opportunities to lead the future planning and development of the City of Guelph's waste management minimization and diversion programs and policies. The Steering Committee met eight times over the course of the review process and provided invaluable ongoing support.

In the first stages of the review process, input and feedback from the public was gathered throughout the summer and fall of 2013, and activities included a telephone survey, an online survey, an initial first Open House, and focus groups, as follows:

- Two different survey approaches were employed to gain insight from Guelph citizens about their views and opinions about Guelph's existing waste diversion programs and future waste diversion needs and opportunities. In September 2013, the City commissioned a statistically significant telephone survey to 400 randomly selected Guelph households. To ensure that all Guelph citizens had a similar opportunity to provide input, the same survey questions were made available through an online survey that was located on Guelph’s dedicated SWMMP webpage. The on-line survey was available from September 12 to October 31, 2013 and was completed by 209 respondents. The SWMMP Survey Results can be viewed in Appendix D.

- The first public Open House for the Solid Waste Management Master Plan (SWMMP) Review was held on Thursday, September 12, 2013 at the Cutten Fields, in Guelph, Ontario. Over the course of the evening, at least twenty-eight (28) people attended, based on the attendance sheet. Of these, nineteen (19) completed an Exit Survey. The Open House intended to introduce participants to the goals of the SWMMP review, get initial feedback on their opinions about Guelph's future waste diversion endeavours, showcase Guelph's waste diversion successes and introduce additional opportunities to further engage in the process. The Open House #1 Summary Report can be viewed in Appendix E.

- Further public consultation was completed through a series of stakeholder focus groups held in the fall of 2013. Groups were determined in consultation with the Steering Committee, City staff and the consulting team. Based on the findings from the current state review, Guelph is doing well with respect to existing waste diversion and reduction programs and targets. As a result, it was determined that the focus groups should be used to help define the next potential frontier for waste diversion methods, approaches and programs. The groups targeted for the focus group workshops were:
  - Residential (single family household residents receiving City waste services);
  - Multi-residential (residents and stakeholders from the multi-residential sector, including, property managers of condominiums and rental properties, and interest groups); and
  - Commercial, Downtown and Institutional (business owners and representatives from the downtown business association and institutional sector).

The focus group workshops obtained information from participants about their perceptions, needs and issues, leading to discussions about potential strategies that they would like to see considered as part of the SWMMP Review process. A fourth workshop, a follow-up workshop for the Multi-residential group, was held in February of 2014. The Summary of Focus Group Workshops can be viewed in Appendix G and H.

The information collected throughout the first stages of the public engagement and consultation program was used by the Steering Committee and project team to consider future waste management options for the City of Guelph. By the end of the initial consultation, a total of 667 “points of contact” had been made prior to Open House #2 that informed the process. As mentioned earlier, 400 residents were reached via a telephone survey, 209 responded to an online survey and a further 28 people attended Open House #1. The City also received email and online comments from 12 residents via the SWMMP website and 18 individuals participated in the focus group workshops.

5. Options and Opportunities

With the review of the current state of Guelph’s waste management system and future waste diversion trends completed, as well as, the first stages of the public engagement and consultation program
undertaken, the next step needed to bridge the present with the future, was the research and examination of a wide range of options and opportunities for waste diversion and programming. The review of waste diversion options coupled with the evaluation process identified a number of promising opportunities for the City of Guelph. The culmination of the work completed is provided in the Options and Opportunities Report which can be viewed in Appendix C.

Initially, a preliminary long list of waste diversion opportunities contained 95 options to increase or promote waste diversion which have been implemented or piloted in North American and European jurisdictions. Information was gathered from personal experience; Stewardship Ontario Effectiveness and Efficiency (E&E) Fund reports; Waste Diversion Ontario Continuous Improvement Fund (CIF) reports on program upgrades, sustainable financing, and multi-residential recycling; waste plans and program assessments recently completed by the project team; and published technical papers. Research was supported by discussions with City staff, to identify additional sources, ideas and input to the research process. Suggestions from members of the public and input from the Steering Committee were also incorporated into the long list of options.

The long list of options was reviewed with City staff on December 12, 2013. The purpose of this meeting was to review the list and add, combine, remove or expand any of the options prior to meeting with the Steering Committee. During the discussion:

- A few options were dropped from further consideration because the City had implemented the approach, or was in the process of implementing a similar variation;
- Many were combined, usually because they were similar and could be considered as a single approach which had a number of variations; and,
- Some were removed because they were strategies that could not be directly controlled by the City or were not part of the City’s mandate.

Following the December 12 meeting, the project team updated the long list accordingly. The initial long list was reduced to a short list of 22 options that were brought forward to the Steering Committee for further consideration. A further 16 options were advised to be forwarded as recommendations for various reasons including:

- The option or activity could not be fully explored within the context of a strategic report and will require the development of a detailed list of sub-options and conditions that require a business plan and possible exploration through a formal process;
- Some of the activities have already been budgeted and the options serve as implementation advice; and,
- Several were considered to constitute general advice that the Steering Committee felt appropriate for discussion in the report.

The remaining 22 short list options were evaluated by the Steering Committee to determine their value in Guelph’s waste management and diversion system. The Steering Committee convened on January 13, 2014 to review and evaluate the short list of options. In order to accomplish the evaluation, the project team, in consultation with the City and the Steering Committee, developed a set of screening criteria for use during the Evaluation of Options discussion. There were five points used for the screening criteria:

- **Effectiveness of Approach**: includes the concept of “proven results” and is used in the context of how likely the option would produce expected results, such as increased participation or more diversion. A high score was expected to have demonstrated results or be considered effective, based on the experience of staff and the consultants.
- **Community acceptance**: meaning the degree to which the option is, or is perceived to be, something that will be well received in the community, which will include all affected members of the community: residential, multi-residential and IC&I. A high score means that the option is expected to be well received by all members of the community.
- **Economically Feasible**: consideration was given to both capital and operating costs (at a high conceptual level), considering those costs in relation to the other options. Where it is clear that the option will require a significant capital outlay, then it was scored in the lower range. If there is an ongoing operational cost component or contractual obligation that is not a major capital...
expense but has budget impact, this was scored in the medium range. Items that can be accommodated with minimum effort or cost were scored in the high range.

- **Accessible to the Public**: covers an assessment of general availability and ease of use to the general public. The option was weighed against current programs and determined if it would be likely to be more, or less, accessible than current programs.

- **Ease of Implementation**: referring to how the City would roll-out the option, either with current staff or the hiring of additional staff. In general, the easier it seems to be to implement, the higher the score.

The Steering Committee meeting in January took place over a six hour session that was dedicated to the option evaluation. The consensus building process resulted in the list being reduced to twelve (12) promising options that required further evaluation by the project team in order to quantify their respective diversion potential and cost. On the basis of the preliminary screening a number of options were forwarded for further evaluation. This list contained twelve (12) potential approaches for which additional research was required. The main purpose of the added research was to further define cost and diversion potential associated for each option.

The options and recommendations were presented to Guelph citizens at the second Open House on February 20, 2014 at the Delta Hotel. The second Open House introduced the waste minimization and diversion recommendations and options to the public. Attendees at Open House #2 were asked to provide comment and feedback on the recommendations and short listed options. Their input was solicited by using a ‘dot’ system to indicate preferences. On one of the final storyboards, attendees were asked to affix a coloured ‘dot’ to the proposed actions presented on the boards that, in general, identify:

- green: would like the City to move forward with the option;
- yellow: the option is worth considering but represents a lower priority or should be acted on after priority options have been completed; and,
- red: do not want the City to move forward with the option.

Over the course of the evening, at least fifteen (15) people attended, based on the attendance sheet. The overall response at Open House #2 did not result in feedback that would lead to the elimination of any of the proposed options, and instead confirmed that all recommendations and options would move forward for final consideration by the Steering Committee and the project team. The Open House #2 Summary Report can be viewed in Appendix F. This report also summarizes the online comments and emails received from the public throughout the public engagement and consultation process.

Following Open House #2 the Steering Committee met with the project team to provide input into the priority and timing of the options that would be incorporated as recommendations into the 2014 SWMMP Final Report. One (1) additional option was re-evaluated based on the strong public support indicated on the surveys resulting in twenty-nine (29) recommendations. Overall, the various components of the public engagement and stakeholder consultation process worked effectively to gain insight, direction and support to guide the development of future waste diversion strategies for the City of Guelph. In general, the residents and stakeholders that provided input into the process were forward thinking and expressed consciousness of environmental sustainability and fiscal responsibility.

### 6. Recommendations and Future Goals

After extensive community consultation and on-going input from the Steering Committee, the review team identified potential waste reduction and diversion options that build on Guelph's success and take current and future needs into consideration. The review process included gathering feedback and ideas from the community, evaluating the current waste system and programs, assessing Guelph's future needs, identifying new waste management trends and the costs and effectiveness of new approaches, and exploring options and opportunities to increase diversion. In the end, twenty-nine (29) recommendations were determined to be moved forward for consideration by the Steering Committee and the Project Team.
6.1 Recommendations

The 2014 SWMMP’s recommendations reflect the current and future needs of a growing community, waste management and diversion trends, and potential economic, environmental and social factors, ensuring our ability to deliver effective waste management programs and services for Guelph. While the City is responsible for delivering programs and services directly related to waste management, we all need to be accountable for the waste we generate.

The twenty-nine (29) recommendations for waste minimization, diversion and disposal fall into the following five categories:

- Municipal (options that generally have either a broader range than each of the four individual categories that follow, or are internal to the City itself);
- Residential;
- Multi-residential;
- Industrial, Commercial and Institutional; and,
- Construction and Demolition.

Municipal

- Explore alternative methods for recovery of designated materials: Such alternative methods could include collection events, special mobile services, additional curbside collection opportunities or depots, bulky item program expansion, or other departmental environmental initiatives. The service could target materials not currently collected for diversion at the curbside, which may include construction and demolition materials, electronics, and household hazardous or special waste.

- Examine diversion of additional materials at the public drop-off depot: City staff will continue to explore adding new divertible materials at its public drop-off depot at the Waste Resource Innovation Centre (WRIC). Some suggestions from the public include expansion of construction and demolition materials (carpet, window glass, vinyl siding), mattresses, furniture, organic collection and plastic film.

- Investigate establishment of a reuse centre at the public drop-off depot: Consider the development of a multi-purpose drop-off centre to augment the drop-off depot at the WRIC. The City would possibly partner with community benefit organizations to manage reusable goods, such as C&D materials, gently used goods, and textiles. Opportunities may also include partnering with an educational institution or program to provide fix/repair materials for apprenticeship training.

- Promote “waste less” principles and policies: Help residents, through education, to make purchasing decisions that reduce waste. The concept of reducing waste over time can be promoted through a variety of strategies and policy instruments including pre-cycling, smart shopping, extended producer responsibility, and eco-labelling on retail shelves. Residents will be given information to help them think about excess packaging, purchasing in bulk, reducing food waste, reusing containers and bags and other initiatives that help reduce waste at the source.

- Conduct a comprehensive audit review and response program to better understand waste generation and diversion opportunities: A four season waste audit in the single family and multi-residential sectors and the public drop off will help the City to better understand issues of waste generation, contamination of materials, and diversion opportunities. As part of the study, set-outs and capacity monitoring could be undertaken to study participation rates in the different material streams (recyclables, organics, garbage). The City may also include audits of residue from WRIC site activities such as the Material Recovery Facility and Organic Waste Processing Facility.

- Explore share and reuse initiatives: Work with community groups and/or organizations to establish initiatives that promote waste reduction and reuse, such as an art exchange centre, tool share libraries, fix-it clubs, swapping/share events and little free libraries. These may be neighbourhood and/or city wide initiatives.

- Analyze expansion of downtown core public space recycling: Work with the downtown residential and business sector to complete a study determining the most effective recycling approaches, containers, and promotion and education materials.

- Continue to enforce proper waste sorting practices: The collection crews have the authority to not collect material that contains improperly sorted or non-collectable materials such as construction and
demolition materials and household hazardous waste. Consider adding more materials to the non-collectable waste list (e.g. materials that could have a number of convenient alternative collection programs, such as depots and Take It Back programs).

- **Explore alternatives to landfill:** At appropriate times in agreements and waste disposal contract cycles, explore alternatives to landfill, including Energy-from-Waste (EFW) technologies that would support the Community Energy Plan.

- **Finalize the City’s Green Procurement Policy:** Explore bringing forward the Green Procurement Policy as part of the amendments to the Procurement Bylaw.

- **Explore Pay-As-You-Throw (PAYT):** With this option, all or part of waste management costs are covered by a subscription rate rather than through taxes. PAYT encourages residents to diligently focus on waste reduction and diversion, and promotes a fair and equitable cost for the service received. Properties pay according to the amount of garbage set out for disposal as opposed to a “flat” rate. In 2012, 64 Ontario municipalities were using a PAYT system. The City could also examine a range of policies such as exploring a hybrid approach which might involve:
  - Subscription rates based on the size or number of the garbage (grey) carts beyond the standard and invoiced similar to a utility;
  - A tiered garbage rate system with preference to those properties that have implemented successful recycling and organic programs and meet waste diversion targets;
  - PAYT also enables opportunities for properties interested in receiving specialized or preferential service levels, such as increased collection frequency, or staging containers so they are accessible for collection; and,
  - PAYT also provides an opportunity to provide collection service to interested non-residential parties for a cost-recovery fee, such as, organics collection, or front end bin service.

- **Adopt municipal household disposal rate target:** Establish a goal to reduce the residential annual waste disposal based on a weight or volume per capita; progress could be monitored against a fixed target. For example, Nova Scotia (300 kg/capita) and Alberta (500 kg/capita) use this approach

- **Develop waste diversion targets for municipally operated buildings:** Lead by example and expand waste reduction and diversion programs for municipally operated buildings. For example, the City of Markham has taken a phased approach beginning with a goal of zero waste in its City Hall and Administration building.

- **Explore Public-Private Partnerships (P3) to increase waste diversion:** Where opportunities present themselves, explore innovative waste diversion partnerships with the private sector or other municipalities. Potential benefits include promoting local innovation and stimulating a local green economy. For example, the City of Edmonton has a partnership with Greys Recycling in which Edmonton supplies paper from City facilities and Greys Recycling converts it back to paper, which the City then purchases.

- **Investigate an additional public drop-off centre:** Investigate an additional public drop-off centre at a location in the City to augment the current location at the Waste Resource Innovation Centre to improve customer service levels and accommodate growth in the City. Consider expanding household hazardous waste to include small quantity generator waste from businesses.

- **Transfer responsibility for public space waste collection throughout the City to Solid Waste Resources:** Transfer responsibility and resources for waste collection in public spaces to Solid Waste Resources to support the goals of the SWMMP. Target areas would include City facilities, parks, outdoor spaces and transit stop locations, enabling expansion for recycling and organic diversion opportunities. Establish a formal policy requiring that any waste generated by City operations and contracts is transferred, processed or disposed through the Waste Resource Innovation Centre (e.g., construction and demolition materials, recyclables, shredded paper, clean fill, brush, and other materials acceptable for diversion). Internalize waste collection at all remaining City facilities (e.g. Victoria Road, West End, etc.).
Residential

- **Establish a food waste reduction campaign:** Establish a food waste reduction campaign to promote reduction and avoid unnecessary waste generation and preserve resources associated with food production, packaging and transport. The campaign could introduce activities to help residents reduce and avoid unnecessary food waste such as purchasing food as needed, using leftovers, understanding due dates, etc. Similar campaigns are operating in the United Kingdom (Love Food, Hate Waste campaign) and the United States (Too Good to Waste campaign).

- **Develop an enhanced promotion and education program:** Expand the current promotion and education program and focus on engagement and outreach strategies, which may include a range of opportunities such as:
  - Enhancing the on-line local business Take It Back directory;
  - Developing waste exchange programs enabling residents to donate and exchange reusable goods;
  - Implementing incentive and reward programs;
  - Introducing campaigns targeting diversion or problematic materials;
  - Information promoting available Extended Producer Responsibility (EPR) opportunities;
  - Developing a waste application available to residents that will provide useful information about Guelph's collection schedules, notices and waste diversion opportunities; and,
  - Using infographics to relay information.

- **Re-instate the twice per year curbside yard waste collection service:** City staff would develop a 2015 operating budget expansion for Council to consider re-instituting the twice per year curbside yard waste collection service.

- **Implement grasscycling program:** Educate residents about the benefits of leaving grass clippings on the lawn. Benefits include reducing collection and processing requirements while maintaining resident soil quality. Remove grass clippings as an acceptable material for curbside collection. Many other Ontario communities have similar policies including: Toronto, Markham, Oakville and Niagara Region.

- **Outreach for residential waste minimization and diversion programs:** Outreach uses tools that directly engage the resident in an action to foster and maintain waste reduction and diversion behavioural change. Examples of outreach activities may include:
  - Community Animators, Green Teams, Master Composter or Recycler volunteers;
  - Friendly “best recycling neighbourhood” challenges; and,
  - Engaging the public with staff or volunteers at community events.

Multi-residential

- **Enhance and target promotion and education (P&E) campaigns for the multi-residential sector:** City to launch an enhanced P&E campaign targeting the multi-residential sector. Activities may include:
  - Enhancing the dedicated website for superintendents/property managers and tenants to explain the how, why, and what of waste diversion;
  - P&E materials that can be printed and used in the building; and,
  - Develop tool kits and handbooks.

- **Develop an enhanced database for multi-residential properties:** Continue to build a multi-residential database to manage and monitor multi-residential waste programs.
Outreach for multi-residential waste minimization and diversion programs: Develop outreach activities to encourage waste reduction and diversion at multi-residential properties. Examples of outreach programs may include:

- Establish a multi-residential waste diversion working group that includes property managers, superintendents, landlords, condominium owners, tenants and City staff to discuss challenges and solutions to increasing waste diversion;
- Employing students to go door-to-door to explain waste diversion;
- Provide training to property management, landlords, and superintendents on how to maximize waste reduction and diversion on their property;
- Ask residents and owners to sign a pledge and place sticker on door showing support for waste diversion;
- Establish property waste reduction challenges;
- Use trained volunteers as building champions or ambassadors to promote waste diversion;
- Request property owners and managers to develop waste management plans; and,
- Request property owners and managers to provide feedback to residents about waste diversion progress, such as a “recycling barometer”, property initiatives or concerns about contamination, etc.

Expand the development approval process to promote waste diversion in multi-residential properties: The goal is to ensure that new multi-residential properties are designed to facilitate three-stream waste collection. Some Ontario communities with similar permitting processes include Toronto, Markham and Hamilton. To achieve this, the City review process may consider the following waste diversion opportunities:

- Formalize guidelines for the approval process that ensures waste diversion is as convenient as garbage (e.g., three chutes, automated separation equipment and on-floor sorting stations); and,
- Require deposits by New Building owners to ensure that an effective waste diversion program is established and maintained – letters of credit are returned after two years.

Expand the type of collection services provided to multi-residential properties: Review types of collection service offered to multi-residential properties willing to source separate into three streams: organics, recycling and garbage. Implementation may require specialized vehicles to service medium and high density multi-residential properties, or a front-end bin cost recovery service for City operated facilities and other interested parties. City staff will bring forward a report to Council outlining recommendations and costs associated with expanding the type of collection service offered to multi-residential properties.

Industrial, Commercial and Institutional

Provide assistance to industrial, commercial and institutional (IC&I) establishments: There are many creative options to provide assistance to the IC&I sector to help them develop more effective waste diversion programs. Services may be provided through partnering opportunities, contracted services, funding from organizations, or on a cost recovery basis. For example, communities offering assistance to IC&I establishments include: Calgary (AB), Seattle (WA), Vancouver (BC) and Oakland (CA). Services may include:

- Developing waste reduction training and/or provide waste diversion consultation, such as in the case of the downtown area, or on an individual business basis;
- Developing a Green Business Recognition Program or support/partner with existing Community Business Recognition programs;
- Exploring a business case for conducting waste audits or waste audit planning and/or training;

Why target the IC&I and C&D sectors?
The IC&I and C&D sectors together produce about 60% of a community’s total solid waste. These waste streams are very homogeneous and provide great diversion opportunities.

The majority of the IC&I sector’s waste stream consists of organics, paper, cardboard and beverage containers. Similarly, the C&D sector’s waste stream consists of wood, drywall, paper and asphalt roofing materials.

There is great opportunity for communities to assist these sectors in developing waste diversion programs.
Establishing IC&I sector working groups on waste diversion;
- Supporting the development of Eco-Industrial zones or networks, where local business coordinate complementary exchanges of useful products and by-products to avoid waste and add value to their process; and,
- Enhanced/targeted P&E and outreach campaigns for business sector.

Construction and Demolition

**Explore requirements as part of the permit process for new building construction and demolition (C&D) that would result in waste diversion:** The City would explore a number of requirements as part of the permit process for new building construction and demolition that would result in waste diversion. May include:
- Municipal construction and demolition project must submit a waste diversion plan;
- Mandatory waste diversion targets for all new municipal construction, demolition and renovations;
- Mandate that all C&D materials associated with municipal construction must be diverted to a C&D recycling facility;
- Feebates in which buildings that achieve a certain waste diversion and other green targets receive rebates back from the municipality during construction;
- Establish policies such as fast tracking permits for achieving waste diversion targets during construction or issuing occupancy permit upon receipt of waste diversion invoices; and,
- Refundable deposit programs require that all construction projects (usually above a specified size) pay a deposit as part of the building permit.

**Develop a construction and demolition (C&D) waste diversion strategy:** Offer assistance to C&D businesses to promote and help them develop more effective waste diversion programs. For example, communities offering assistance to C&D businesses include: Seattle (WA), Vancouver (BC) and Chicago (IL). Services may include:
- Establishing on-site waste reduction and diversion programs;
- Developing waste reduction training and/or providing waste diversion consultations;
- Providing assistance to help educate contractors about waste diversion in green building design standards; and,
- Establishing a C&D sector working group to facilitate discussions with C&D representatives to address common waste reduction and diversion challenges.

### 6.1 Proposed Schedule

The SWMMP has been guided by the basic principle that the scope of study focuses on waste management and diversion programs operated and financed by the City. This principle has enabled the study team to focus on feasible options and opportunities that can be directly implemented by the City. In general, the recommended options described below, fall into three categories:
- Direct implementation by City staff, which may include a need to hire additional people and dedicate funds to new or enhanced activities;
- Indirect implementation by the City after exploring options, including cost impacts, through the waste collection procurement process; and,
- Adoption by the City of policies intended to drive waste diversion.

Based on the timing of initiatives already underway, as well as, consideration of the input from the Steering Committee that took into account the context of the response to the options presented at Open House #2, as well as the overall input of comments, surveys and stakeholder discussions throughout the process, the project team developed the schedule outlined in Figure 4. An enlarged project outline can be viewed in Appendix I.
### Figure 4: Solid Waste Management Master Plan Proposed Implementation Schedule

<table>
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<tr>
<th>TASK</th>
<th>Recommendation Name and Description</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
</tr>
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<tr>
<td>1.0</td>
<td>Explore alternative methods for recovery of designated materials</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.1</td>
<td>City to explore alternative methods to provide recovery service for a range of disposable materials such as construction and demolition waste, electronics, batteries, household hazardous waste, and textiles. Alternatives may include collection events, special mobile services, additional curbside collection opportunities, deposits, bulky item program expansions, other departmental environmental initiatives.</td>
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<tr>
<td>2.0</td>
<td>Examine diversion of additional materials at the public drop-off depot</td>
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</tr>
<tr>
<td>2.1</td>
<td>Conduct a review to expand the number of materials diverted at the drop-off depot, e.g., expansion of construction and demolition materials (carpet, window glass, vinyl siding), mattresses, furniture, organic collection, plastic film</td>
<td></td>
<td></td>
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<tr>
<td>3.0</td>
<td>Investigate establishment of a reuse centre at the public drop-off depot</td>
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<td></td>
</tr>
<tr>
<td>3.1</td>
<td>The City would possibly partner with community benefit organizations to manage reusable goods, such as GDB materials, gently used goods, textiles</td>
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<td>3.2</td>
<td>Opportunities may also include partnering with an educational institution or program to provide fix/repair materials for apprenticeship training</td>
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<td>4.0</td>
<td>Promote “waste less” principles and policies</td>
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<td>4.1</td>
<td>Residents would be provided further education in making purchasing decisions that promote waste reduction and reuse through a variety of policy instruments (e.g., recycling, smart shopping, extended producer responsibility, eco-labeling on retail shelves)</td>
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<td>5.0</td>
<td>Conduct a comprehensive audit review</td>
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<td>5.1</td>
<td>Conduct a four-year waste audit for single family, multi-residential properties, and the public drop-off to better understand issues of waste generation, contamination of materials, and diversion opportunities. May include set out and capacity monitoring as part of the study. Results from WRF site activities such as the Material Recovery Facility and Organic Waste Processing Facility may also be valuable</td>
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<td>6.0</td>
<td>Explore share and reuse initiatives</td>
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<td>6.1</td>
<td>Work with community groups and/or organizations to establish initiatives that promote waste reduction and reuse, such as an art exchange centre, food share libraries, fix-it clubs, swapping/share events and little free libraries. These may be neighbourhood initiatives and/or city-wide initiatives</td>
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<td>7.0</td>
<td>Analyze expansion of downtown core public space recycling</td>
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<td>7.1</td>
<td>Work with the downtown residential and business sector to complete a study determining the most effective recycling approach, containers, promotion and educational materials.</td>
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<td>8.0</td>
<td>Continue to enforce proper waste sorting practices</td>
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<td>8.1</td>
<td>The collection crew has the authority to not collect material that contains improperly sorted or non-collectable materials such as construction and demolition materials and household hazardous waste</td>
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<td>8.2</td>
<td>Consider adding more materials to the non-collectable waste (e.g., materials that have a number of convenient alternative collection programs, such as depots and Take It Black programs)</td>
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<td>9.0</td>
<td>Explore alternatives to landfill</td>
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<td>9.1</td>
<td>Explore alternatives to landfill at appropriate times in agreements and waste disposal contract cycles including technologies that would support the Community Energy Plan</td>
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<td>10.0</td>
<td>Finalize the City’s Green Procurement Policy</td>
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<td>10.1</td>
<td>Explore bringing forward the Green Procurement Policy as part of the amendments to the Procurement Bylaw</td>
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<td>11.0</td>
<td>Explore Pay-As-You-Throw</td>
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<td>11.1</td>
<td>All or part of waste management costs are covered by a subscription rate rather than through taxes; properties pay according to the amount of garbage set out for disposal as opposed to a “flat” rate. Promotes a fair and equitable cost for the service received. City would also examine a range of policies such as exploring a hybrid approach which might involve:</td>
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<td>11.1</td>
<td>subscription rates based on the size or number of grey garbage carts beyond the standard and invoiced similarly to a utility</td>
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<td>11.2</td>
<td>a tiered garbage rate system with preference to those properties that have implemented successful recycling and organic programs and meet waste diversion targets</td>
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<td>11.3</td>
<td>enables opportunities for properties interested in receiving specialized or professional service levels (e.g., increased collection frequency, staging containers so they are accessible for collection)</td>
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<td>11.4</td>
<td>providing collection service to interested non-residential parties for a cost-recovery fee, such as, organic collection, front end bin service, etc.</td>
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<td>12.0</td>
<td>Adopt municipal household disposal rate target</td>
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<td>12.1</td>
<td>Investigate establishing a goal to reduce the residential annual waste disposal based on a weight or volume per capita, progress could be monitored against a fixed target</td>
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<td>13.0</td>
<td>Develop waste diversion targets for municipally operated buildings</td>
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<td>13.1</td>
<td>Expand waste reduction and diversion programs for municipally operated buildings, City would lead by example</td>
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<td>14.0</td>
<td>Explore Public-Private Partnerships (P3) to increase waste diversion</td>
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<td>14.1</td>
<td>Explore innovative waste diversion partnerships with the private sector or other municipalities as opportunities arise. Benefits include promoting local innovation and stimulating a local green economy. Example - Edmonton's partnership with Greys Recycling in which Edmonton supplies paper from city facilities and Greys Recycling converts it back to paper which the City purchases</td>
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<td>15.0</td>
<td>Investigate an additional public drop off centre</td>
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<td>15.1</td>
<td>Investigate an additional public drop off centre at a location in the City to augment the current location at the Waste Resource Innovation Centre to improve customer service levels and accommodate growth in the City. Consider expanding household hazardous waste to include small-quantity generator waste from businesses</td>
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<td>16.0</td>
<td>Transfer responsibility for public space waste collection throughout the City to Solid Waste Resources</td>
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<td>16.1</td>
<td>Intensify waste collection at all remaining city facilities (e.g. Victoria Road, West End, etc.)</td>
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<td>Q2</td>
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<tr>
<td>16.2</td>
<td>Transfer responsibility and resources for waste collection in public spaces to Solid Waste Resources. Target areas would include parking, outdoor spaces and transit stops, locations enabling expansion for recycling and organic opportunities</td>
<td>Q2</td>
<td>Q3</td>
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<tr>
<td>16.3</td>
<td>Establish a formal policy that any waste generated by City operations and contracts is transferred, processed or disposed through the Waste Resource Innovation Centre (e.g., construction and demolition materials, recyclables, shredded paper, clean fill, brush, and other materials acceptable for diversion).</td>
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<td>17.0</td>
<td>Establish a food waste reduction campaign</td>
<td>Q3</td>
<td>Q1</td>
<td>Q2</td>
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<td>17.1</td>
<td>Establish a food waste reduction campaign to promote reduction and avoid unnecessary waste generation and preserve resources associated with food production, packaging and transport</td>
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<td>Q2</td>
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<tr>
<td>18.0</td>
<td>Develop an enhanced promotion and education program</td>
<td>Q1</td>
<td>Q2</td>
<td>Q3</td>
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<td>18.1</td>
<td>- Introducing the on-line local business directory (Take It Black Directory).</td>
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<tr>
<td>18.2</td>
<td>- Developing waste exchange programs enabling residents to donate and exchange reusable goods</td>
<td>Q1</td>
<td>Q2</td>
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<tr>
<td>18.3</td>
<td>- Implementing incentive and reward programs</td>
<td>Q1</td>
<td>Q2</td>
<td>Q3</td>
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<tr>
<td>18.4</td>
<td>- Introducing targeted diversion or problematic materials causing contamination campaigns</td>
<td>Q1</td>
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<tr>
<td>18.5</td>
<td>- Information promoting available EPR opportunities</td>
<td>Q1</td>
<td>Q2</td>
<td>Q3</td>
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<tr>
<td>18.6</td>
<td>- Developing a waste application available to residents that will provide useful information about Guelph's collection schedules, notices and waste diversion opportunities</td>
<td>Q1</td>
<td>Q2</td>
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<tr>
<td>18.7</td>
<td>- Use of infographics to relay information</td>
<td>Q1</td>
<td>Q2</td>
<td>Q3</td>
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<tr>
<td>19.0</td>
<td>Develop a 2018 operating budget expansion for Council to consider twice per year curbside yard waste collection service</td>
<td>Q1</td>
<td>Q2</td>
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<td>20.0</td>
<td>Implement grasscycling program</td>
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<td>20.1</td>
<td>Educate residents about the benefits of leaving grass clippings on the lawn, reduces collection and processing requirements while maintaining soil quality</td>
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<td>Q2</td>
<td>Q3</td>
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<td>20.2</td>
<td>Remove grass clippings as an acceptable material for curbside collection</td>
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<tr>
<td>21.0</td>
<td>Outreach for residential waste minimization and diversion programs</td>
<td>Q1</td>
<td>Q2</td>
<td>Q3</td>
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<td>21.1</td>
<td>- Community Animators, Green Teams and Master Composter or Recycler volunteers</td>
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<tr>
<td>21.2</td>
<td>- Friendly &quot;best recycling neighbourhood&quot; challenge</td>
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<td>21.3</td>
<td>- Engaging the public with staff or volunteers at community events</td>
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<tr>
<td>22.0</td>
<td>Enhance and target promotion and education (P&amp;E) campaigns for the multi-residential sector</td>
<td>Q1</td>
<td>Q2</td>
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<td>22.1</td>
<td>City to launch an enhanced P&amp;E campaign targeting the multi-residential sector. Activities may include:</td>
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<td>22.2</td>
<td>- Enhance the dedicated website for superintendents/property managers and tenants to explain the how, why, and what of waste diversion</td>
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<td>22.3</td>
<td>- P&amp;E materials that can be printed and used in the building</td>
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<td>23.0</td>
<td>Develop an enhanced database for multi-residential properties</td>
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<td>23.1</td>
<td>Continue to build a multi-residential database to manage and monitor multi-residential waste programs</td>
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<tr>
<td>24.0</td>
<td>Outreach for multi-residential waste minimization and diversion programs</td>
<td>Q1</td>
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<td>24.1</td>
<td>Outreach uses tools that directly engage the resident in an action to foster and maintain behaviour change. Develop outreach program to encourage waste reduction and diversion at multi-residential properties. Outreach activities may include:</td>
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<td>24.2</td>
<td>- Establish a multi-residential waste diversion working group that includes property managers, superintendents, landlords, condominium owners, tenants and City staff to discuss challenges and solutions to increasing waste diversion</td>
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<td>24.3</td>
<td>- Use students to go door-to-door to explain waste diversion</td>
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<td>24.4</td>
<td>- Ask residents and owners to sign a pledge and place sticker on door showing support for waste diversion</td>
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<td>24.5</td>
<td>- Establish property waste reduction challenge</td>
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<td>24.6</td>
<td>- Use trained volunteers as building champions or ambassadors to promote waste diversion in buildings</td>
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<td>24.7</td>
<td>- Request property owners and managers to develop waste management plans</td>
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<td>24.8</td>
<td>- Request property owners and managers to provide feedback to residents about waste diversion programs, such as a &quot;recycling banquet&quot;, property initiatives or concerns about contamination, etc.</td>
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<td>24.9</td>
<td>- Provide training to property management, landlords and superintendents on how to maximize waste reduction and diversion on their property</td>
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<td>25.0</td>
<td>Expand development approval process to promote waste diversion in multi-residential properties</td>
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<td>25.1</td>
<td>• Ensure new multi-residential properties are designed to facilitate three stream waste diversion</td>
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<td>- Formalize guideline for the site approval process that ensures waste diversion is as convenient as garbage (e.g., three chutes, automated separation equipment and on-floor sorting stations)</td>
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<td>25.2</td>
<td>• Require deposits by new building owners to ensure that an effective waste diversion program is established and maintained - letter of credits are returned after two years</td>
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<td>26.0</td>
<td>Explore types of collection services provided to multi-residential properties</td>
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<td>26.1</td>
<td>• Review types of collection services offered to multi-residential properties willing to source separate into three streams; May require reconfiguring the collection fleet with specialized vehicles for medium and high density multi-residential properties</td>
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<td>26.2</td>
<td>• Staff to bring forward a report to Council outlining recommendations and costs associated with expanding the type of collection service offered to multi-residential properties</td>
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<td>26.3</td>
<td>• May include a front-end bin collection recovery service to City operated facilities and other interested parties</td>
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<td>27.0</td>
<td>Provide assistance to industrial, commercial and institutional (I&amp;C) establishments</td>
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<td>27.1</td>
<td>• City staff to explore creative options to provide assistance to the I&amp;C sector to help them develop more effective waste diversion programs. Services may be provided through partnering opportunities, contracted services, funding from organizations, or on a cost recovery basis. Services may include</td>
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<tr>
<td>27.2</td>
<td>- provide assistance to businesses and institutions to promote waste reduction and diversion in their establishments</td>
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<td>27.3</td>
<td>- develop waste reduction training and/or provide waste diversion consultation, such as in the case of the downtown area, or on an individual business basis</td>
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<td>27.4</td>
<td>- develop a Green Business Recognition Program or support/partner with existing Community Business Recognition programs</td>
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<td>27.5</td>
<td>- engage a business case for conducting waste audits or waste audit planning and/or training</td>
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<td>27.6</td>
<td>- establish I&amp;C sector working groups on waste diversion</td>
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<td>27.7</td>
<td>- support the development of Eco-Industrial zones or networks, where local business coordinate complementary exchanges of useful products and by-products to avoid waste and add value to their processes; and</td>
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<td>27.8</td>
<td>- enhanced/target PME and outreach campaigns for business sector</td>
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<td>28.0</td>
<td>Explore requirements as part of the permit process for new building construction and demolition (C&amp;D) that would result in waste diversion</td>
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<td>28.1</td>
<td>• The City would explore a number of requirements as part of the permit process for new building construction and demolition that would result in waste diversion. May include</td>
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<tr>
<td>28.2</td>
<td>- mandatory waste diversion targets for all new municipal construction, demolition and renovations</td>
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<td>28.3</td>
<td>- mandate that all C&amp;D materials associated with municipal construction must be diverted to a C&amp;D recycling facility</td>
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<td>28.4</td>
<td>- freebies in which buildings that achieve a certain waste diversion and other green targets receive rebates from the municipality during construction</td>
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<td>28.5</td>
<td>- establish policies such as fast tracking permits for achieving waste diversion targets during construction or issuing occupancy permit upon receipt of waste diversion invoices</td>
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<td>28.6</td>
<td>- refundable deposit programs require that all construction projects (usually above a specified size) pay a deposit as part of the building permit</td>
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<td>29.0</td>
<td>Develop a construction and demolition (C&amp;D) waste diversion strategy</td>
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<td>29.1</td>
<td>• Offer assistance to C&amp;D businesses to promote and help them develop more effective waste diversion programs. Services may include</td>
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<td>29.2</td>
<td>- develop waste reduction training and/or provide waste diversion consultation</td>
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<tr>
<td>29.3</td>
<td>- provide assistance to help educate developers about waste diversion in green building design standards</td>
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<td>29.4</td>
<td>- establish a C&amp;D sector working group to facilitate discussions to address common waste reduction and diversion challenges</td>
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</table>
6.2  Waste Diversion Target

As part of the community and engagement consultation process, residents were asked via the telephone survey, the online survey and at the second open house the following question as worded below.

Five years ago, the City of Guelph set a waste diversion target of 70%, to be reached by 2021. Last year, Guelph achieved a diversion rate of 68%. Knowing this, how strongly do you agree or disagree with the following?

<table>
<thead>
<tr>
<th>Disagree</th>
<th>Somewhat Agree</th>
<th>Strongly Agree</th>
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<tbody>
<tr>
<td>The waste diversion target should be greater than 70%.</td>
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<tr>
<td>The 70% waste diversion target should be moved ahead to an earlier year.</td>
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Overall, there was strong public interest in either increasing the target and/or moving the 70% target ahead. However, the combined impact of the strategies recommended as part of this review were only projected to bring the City up to the 70% level based on the performance information available to the project team.

The Steering Committee and project team gave consideration to this interest and the proposed strategies and, in the end, decided to reaffirm the current target and timeline at 70% by 2021, at least until the next five year review in 2018.

There were a number of reasons that were taken into consideration:

- **Uncertainty:** With the Province still deliberating the outcome of Bill 91, which if implemented may have an impact on program funding, control (industry stewards) and reporting, it was felt that changes to the targets would be made without the benefit of knowing what the future legislative structure and funding partnership model might look like. In addition, while the impact of Extended Producer Responsibility or Individual Producer Responsibility has positive impacts for municipalities for funding and, in general, may provide additional options for waste diversion, it remains to be seen the extent to which these approaches will bypass the municipal system and impact the waste diversion percentage;

- **Impact of multi-residential recycling:** The recommendations of the review, if adopted, will increase the overall capture rates of recyclable material, and that supports the overall objective of this review. There may, however, be a temporary negative impact to the City’s diversion rate since the diversion rate formula uses total waste as the denominator. The overall diversion rate from multi-residential establishments, based on research done during the review, tend to be lower than single family and, as a result, the increase in the proportionate amount of collection from multi-residential may actually impede further increases in the diversion rate. It is felt that more information about the timing of implementation of multi-residential collections, and a better sense of actual recovery, is required before reviewing the percentage-based diversion targets; and,

- **Trends:** Factored into the decision is a lack of control of the packaging that makes up the waste stream, including the continued trend to lighter recyclables, and a recent trend where a number of municipalities with well-established programs saw a decrease in their recycling rate (WDO, 2012) with some even showing a decrease in their overall diversion rate. Until the trends that are causing these declines are better understood, it is felt that the City’s diversion targets still represent a challenge.

7.  Summary and Conclusions

The City of Guelph has demonstrated leadership in promoting waste diversion and sustainable living. The City has already surpassed its 2016 waste diversion target of 65% and is well on its way to conquering its target of 70% waste diversion by 2021. In 2014, Guelph had the distinction of becoming the first recipient of the Ron Lance Memorial Award for achieving the highest residential waste diversion rate in an Ontario community in 2012.
Guelph has successfully tackled the “low hanging fruit” of municipal waste diversion by establishing a robust curbside recycling and organics diversion program augmented with a comprehensive drop off depot program at its Waste Resource Innovation Centre. It can now turn its attention and efforts towards the more challenging areas of multi-residential waste diversion and waste diversion in the broader community (e.g. businesses, schools, public spaces).

This review process examined new waste diversion directions for the City to pursue as well as opportunities for fine-tuning existing program activities. A review and evaluation process that necessitated the dedicated involvement of staff and the Steering Committee, and the forward thinking input from the public, resulted in the development of twenty nine (29) recommendations to direct the City of Guelph’s future waste management and diversion efforts. The recommendations cover a broad range of sectors including municipal; single-family and multi-residential; industrial, commercial and institutional (IC&I); and, construction and demolition (C&D).

In order to turn the recommendations into actions, City staff developed a proposed implementation schedule that has been incorporated into this report.

The 2014 plan further enhances Guelph’s efforts to achieve its waste diversion goals and Zero Waste philosophy.