Minute No. 654
Report – Standing Policy Committee on Infrastructure Renewal and Public Works – October 3, 2011

Item No. 1 Garbage and Recycling Master Plan

COUNCIL DECISION:

Council concurred in the recommendation of the Standing Policy Committee on Infrastructure Renewal and Public Works, as amended, and adopted the following:

1. That in order to achieve a greater than 50% waste diversion rate, the Comprehensive Integrated Waste Management Strategy, consisting of the following recommendations, be approved for implementation starting in 2012:

   Garbage Collection System

   1. That all single family residential premises served with manual and AutoBin collection be served with the automated garbage cart system consisting of one 240-litre cart collection per cycle, consistent with the existing automated garbage cart collection system in the northwest area of the city.

   2. That replacement garbage carts for lost carts be provided to residents at cost.

   3. That bulky waste service be provided at a charge of $5.00 per item, up to a maximum of 10 items per collection.

   4. That surplus waste be collected consistent with the bulky waste charge ($5.00 per pickup of up to 3 standard size garbage bags).

   5. That the abandoned waste collection service continue.

   6. That collection system changes be initiated in 2012.

   Diversion (including Recycling)

   7. That all single family residential premises be served with the automated recycling cart system, consisting of one 240-litre cart collection per cycle.

   8. That replacement recycling carts for lost carts be provided to residents at cost.

   9. That additional or larger recycling carts be provided to residents at cost, with no limit on collection volume, where quantities justify.

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DECISION MAKING HISTORY (continued):

10. That near term and longer term recycling processing capacity be secured to accommodate the growth in recycling.

11. That, subject to Recommendation No. 1, a leaf and yard waste collection program using approved compostable bags and/or hard-wall containers (e.g., old garbage cans) be implemented for 7 months per year on a bi-weekly collection basis and the existing Leaf-It Depots be closed in 2013.

12. That a source separated organics (kitchen organics) trial be conducted for residential households in 2014, subject to approval of capital budgets, and based on the results, recommendations be brought forward regarding a full-scale program with an implementation by 2017.

13. That, based on results of the source separated organics trial program and subject to capital budget approval, a full scale source separated organics program be implemented.

14. That all organics collected through the above programs be composted at composting facilities to be developed at Brady Road Landfill site, subject to capital budget approval.

15. That, subject to the approval of capital budgets, beginning in 2013, up to 4 Community Resource Recovery Centres (CRRCs) be developed in strategic locations, with initial sites at Brady Road Landfill and in the north area of the city (location to be determined), and that an access fee of $5.00 be applied for all material except those covered under other programs, such as household hazardous waste, electronic waste or recycling.

16. That non-profit organizations and product stewards be considered for partnership at CRRCs to divert material rather than disposing of it.

17. That discussions with the multifamily residential sector be ongoing for future program improvements including, but not limited to, improved recycling and possible future source separated organics.

<u>Brady Road Landfill/Brady Road Resource Management Facility</u>

18. That the focus of Brady Road Landfill area be changed from waste burial to resource recovery, and therefore be renamed as the Brady Road Resource Management Facility.

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DECISION MAKING HISTORY (continued):

Implementation Requirements and Ongoing

19. That staffing for 2012 to carry out the foregoing programs per Table 6 – Proposed Staff Plan be approved in advance of approval of the 2012 Operating Budget.

20. That the program costs be funded through a combination of property tax support and a user fee collected on the water bill, with property taxes supporting the diversion programs and the user fee funding the balance of garbage collection costs.

21. That a user fee charge of $4.17 per single-family dwelling unit per month, as defined by the Solid Waste By-law No. 1340/76 of seven or less dwellings per property, billed quarterly ($12.50/3 months) on the water bill, be approved, to be implemented no earlier than October 1, 2012, and that a waste diversion reserve fund be established where all surplus monies collected through this user fee be dedicated to waste diversion programs.

22. That a first charge on the 2012 Capital Budget be authorized in an amount of $16.6 million in accordance with Subsection 288(2) of The City of Winnipeg Charter to allow timely contract award for the development and purchase of automated recycling and garbage carts for delivery in 2012 as recommended in No. 1 and No. 7 above and that the related financing requirements be referred to the 2012 Capital Budget Process, broken down as follows:

    A. $9.35 million for recycling carts in the Solid Waste Utility's 2012 Provision for Implementation of the Waste Management Strategy capital project and

    B. $7.25 million for a new 2012 capital project - Provision for Implementation of the Waste Management Strategy – Automated Garbage Carts in the General Revenue Fund.

23. That a first charge on the 2012 Capital Budget be authorized in an amount of $400,000 in accordance with Subsection 288(2) of The City of Winnipeg Charter to allow for timely contract award for the development and implementation of the billing system changes as recommended in No. 20 for the Solid Waste Utility's 2012 Provision for Implementation of the Waste Management Strategy capital project and that the related financing requirements be referred to the 2012 Capital Budget process.

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DECISION MAKING HISTORY (continued):

24. That authority be delegated to the Chief Administrative Officer , in order to shorten the time-period for approval of contracts critical for 2012 implementation such as, garbage collection services estimated at $7,300,000, recycling collection services estimated at $4,700,000 and yard waste collection services estimated at $2,500,000 per year to allow time for the successful bidder(s) to order equipment

25. That a communication plan, as well as a promotion and education and enforcement plan, be developed to support these recommendations as well as existing programs.

26. That the Solid Waste By-law No. 1340/76 be updated with recommendations from the master plan and be approved by City Council no later than September 2012.

27. That small commercial establishments eligible for garbage collection service under the Solid Waste By-law No. 1340/76, be charged the same user fee as single-family dwelling units and therefore be eligible for the same waste diversion services.

28. That the Winnipeg Public Service publish an annual report on the status of the Master Plan.

29. That discussions with industrial, commercial and institutional sectors, and construction and demolition sectors be ongoing for future program improvements.

30. That a Waste and Diversion Advisory Committee of knowledgeable volunteer citizens (similar to the Active Transportation Advisory Committee) be created to work with the Public Service to provide advice and recommendations for the completion, implementation, and continual improvement of the Garbage and Recycling Master Plan."

2. That the Proper Officers be authorized to do all things necessary to implement the intent of the foregoing.

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DECISION MAKING HISTORY:

Moved by Councillor Vandal,
That the recommendation of the Standing Policy Committee on Infrastructure Renewal and Public Works be adopted.

Moved by Councillor Vandal,
That Rule 7(1) of the Procedure By-law be suspended to allow Council sit beyond 12:00 o'clock noon to complete its agenda.

Carried

Moved by Councillor Gerbasi,
Seconded by Councillor Vandal,

That the item be amended by adding a new recommendation 1.30 which states:

"30. Be it resolved that a Waste and Diversion Advisory Committee of knowledgeable volunteer citizens (similar to the Active Transportation Advisory Committee) be created to work with the Public Service to provide advice and recommendations for the completion, implementation, and continual improvement of the Garbage and Recycling Master Plan."

Carried

Moved by Councillor Eadie,
Seconded Councillor Smith,

That the item be amended by deleting recommendations 1.21 and 1.27 and replacing them with the following:

"21. A. That user fee charges per single-family residential dwelling unit, as defined by the Solid Waste By-law No. 1340/76 of seven or less dwellings per property, be billed as follows:

i) $2.09 per month collected quarterly on the water bill at $6.25 for 3 months on properties having assessment values of 0 to $199,999,

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DECISION MAKING HISTORY (continued):

ii) $4.17 per month collected quarterly on the water bill at $12.50 for 3 months on properties having assessment values of $200,000 to $399,999,

iii) $6.25 per month collected quarterly on the water bill at $18.75 for 3 months on properties having assessment values of $400,000 and greater,

be approved, to be implemented no earlier than October 1, 2012; and

B. the property assessment values used to indicate what a single-family residential unit will pay quarterly be updated every five years to reflect changing assessment values; and

C. a waste diversion reserve fund be established where all surplus monies collected through this user fee be dedicated to waste diversion programs; and

D. changes in the garbage user fee must be approved by a two thirds vote of City Council."

"27. That small commercial establishments eligible for garbage collection service under the Solid Waste By-law No. 1340/76, be charged the same user fee as single-family residential dwelling units with assessment values $400,000 and greater and therefore be eligible for the same waste diversion services."

The amendment proposed by Councillors Eadie and Smith was put.

Councillor Swandel called for the yeas and nays, which were as follows:

Yea: Councillors Eadie, Pagtakhan, Smith and Wyatt 4

Nay: His Worship Mayor Katz, Councillors Browaty, Fielding, Gerbasi, Havixbeck, Orlikow, Sharma, Steen, Swandel, Vandal and Nordman. 11

and the amendment was declared lost.

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DECISION MAKING HISTORY (continued):

The motion for the adoption of the item, as amended, was put.

Councillor Eadie called for the yeas and nays, which were as follows:

Yea: His Worship Mayor Katz, Councillors Fielding, Gerbasi, Havixbeck, Orlikow, Sharma, Steen, Swandel, Vandal, Wyatt and Nordman. 11

Nay: Councillors Browaty, Eadie, Pagtakhan, and Smith. 4

and the motion was declared carried.

EXECUTIVE POLICY COMMITTEE RECOMMENDATION:

On October 12, 2011, due to a tie vote, the Executive Policy Committee submitted the matter to Council without recommendation.

Also, on October 12, 2011, the Executive Policy Committee received from Councillor R. Eadie, Mynarski Ward, a copy of his presentation, in opposition to the proposed fees outlined in Garbage and Recycling Master Plan.

STANDING COMMITTEE RECOMMENDATION:

On October 3, 2011, the Standing Policy Committee on Infrastructure Renewal and Public Works concurred in the recommendation of the Winnipeg Public Service with the following amendments:

- Add the following words at the end of Recommendation 12:
  "with an implementation by 2017"

- Add the following words at the end of Recommendation 15:
  "for all material except those covered under other programs, such as household hazardous waste, electronic waste or recycling"

- Add the following words at the end of Recommendation 21:
  "and that a waste diversion reserve fund be established where all surplus monies collected through this user fee be dedicated to waste diversion programs"

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DECISION MAKING HISTORY (continued):

STANDING COMMITTEE RECOMMENDATION (continued):

- Add the following words at the end of Recommendation 25:
  "as well as existing programs",

and submitted the matter to the Executive Policy Committee and Council.

Also, on October 3, 2011, the Standing Policy Committee on Infrastructure Renewal and Public Works received from Peter Miller and Harvey Stevens, Green Action Centre, a presentation dated October 3, 2011 titled "Green Action Centre Comments" in support of the Garbage and Recycling Master Plan.

ADMINISTRATIVE REPORT

Title: **Comprehensive Integrated Waste Management Strategy (*Garbage and Recycling Master Plan*)**

Critical Path: **Standing Policy Committee on Infrastructure Renewal and Public Works – Executive Policy Committee – Council**

AUTHORIZATION

Author	Department Head	CFO	CAO
D.E. Drohomerski, C.E.T. Manager of Solid Waste Services	B. D. MacBride, P. Eng Director of Water and Waste	M Ruta Chief Financial Officer	D Joshi Chief Operating Officer

RECOMMENDATIONS

That in order to achieve a greater than 50% waste diversion rate, Council approves the Comprehensive Integrated Waste Management Strategy, consisting of the following recommendations, for implementation starting in 2012.

Garbage collection system

1. That all single family residential premises served with manual and AutoBin collection be served with the automated garbage cart system consisting of one 240-litre cart collection per cycle, consistent with the existing automated garbage cart collection system in the northwest area of the city.
2. That replacement garbage carts for lost carts be provided to residents at cost.
3. That bulky waste service be provided at a charge of $5.00 per item, up to a maximum of ten items per collection.
4. That surplus waste be collected consistent with the bulky waste charge ($5.00 per pickup of up to three standard size garbage bags).
5. That the abandoned waste collection service continue.
6. That collection system changes be initiated in 2012.

Diversion (including Recycling)

7. That all single family residential premises be served with the automated recycling cart system, consisting of one 240-litre cart collection per cycle.
8. That replacement recycling carts for lost carts be provided to residents at cost.
9. That additional or larger recycling carts be provided to residents at cost, with no limit on collection volume, where quantities justify.
10. That near term and longer term recycling processing capacity be secured to accommodate the growth in recycling.
11. That, subject to recommendation #1 above, a leaf and yard waste collection program using approved compostable bags and/or hard-wall containers (e.g., old garbage cans) be implemented for seven months per year on a biweekly collection basis and the existing Leaf-It depots be closed in 2013.
12. That a source separated organics (kitchen organics) trial be conducted for residential households in 2014, subject to approval of capital budgets, and based on the results, recommendations be brought forward regarding a full-scale program.
13. That, based on results of the source separated organics trial program and subject to capital budget approval, a full scale source separated organics program be implemented.
14. That all organics collected through the above programs be composted at composting facilities to be developed at Brady Road landfill site, subject to capital budget approval.
15. That, subject to the approval of capital budgets, beginning in 2013, up to four Community Resource Recovery Centres (CRRCs) be developed in strategic locations, with initial sites at Brady Road Landfill and in the north area of the city (location to be determined), and that an access fee of $5.00 be applied.
16. That non-profit organizations and product stewards be considered for partnership at CRRCs to divert material rather than disposing of it.
17. That discussions with the multifamily residential sector be ongoing for future program improvements including, but not limited to, improved recycling and possible future source separated organics.

Brady Road Landfill/Brady Road Resource Management Facility

18. That the focus of Brady Road Landfill area be changed from waste burial to resource recovery, and therefore be renamed as the Brady Road Resource Management Facility.

Implementation Requirements and Ongoing

19. That staffing for 2012 to carry out the foregoing programs per Table 6 – Proposed Staff Plan be approved in advance of approval of the 2012 operating budget.
20. That the program costs be funded through a combination of property tax support and a user fee collected on the water bill, with property taxes supporting the diversion programs and the user fee funding the balance of garbage collection costs.
21. That Council approve a user fee charge of $4.17 per single-family dwelling unit per month, as defined by the Solid Waste Bylaw of seven or less dwellings per property, billed quarterly ($12.50/3 months) on the water bill, to be implemented no earlier than October 1, 2012.
22. That Council authorize a first charge on the 2012 Capital Budget in an amount of $16.6 million in accordance with Subsection 288(2) of the City of Winnipeg Charter to allow timely contract award for the development and purchase of automated recycling and garbage carts for delivery in 2012 as recommended in #1 and #7 above and that the related financing requirements be referred to the 2012 Capital Budget Process, broken down as follows:
    C. $9.35 million for recycling carts in the Solid Waste Utility's 2012 *Provision for Implementation of the Waste Management Strategy* capital project and
    D. $7.25 million for a new 2012 capital project - *Provision for Implementation of the Waste Management Strategy – Automated Garbage Carts* in the General Revenue Fund.
23. That Council authorize a first charge on the 2012 Capital Budget in an amount of $400,000 in accordance with Subsection 288(2) of the City of Winnipeg Charter to allow for timely contract award for the development and implementation of the billing system changes as recommended in #20 for the Solid Waste Utility's 2012 Provision for Implementation of the Waste Management Strategy capital project and that the related financing requirements be referred to the 2012 Capital Budget process.
24. That Council delegate authority to the CAO, in order to shorten the time-period for approval of contracts critical for 2012 implementation such as, garbage collection services estimated at $7,300,000, recycling collection services estimated at $4,700,000 and yard waste collection services estimated at $2,500,000 per year to allow time for the successful bidder(s) to order equipment.
25. That a communication plan, as well as a promotion and education and enforcement plan, be developed to support these recommendations.

26. That the Solid Waste By-law be updated with recommendations from the master plan and be approved by City Council no later than September 2012.
27. That small commercial establishments eligible for garbage collection service under the Solid Waste By-law, be charged the same user fee as single-family dwelling units and therefore be eligible for the same waste diversion services.
28. That the Public Service publish an annual report on the status of the master plan.
29. That discussions with industrial, commercial and institutional sectors, and construction and demolition sectors be ongoing for future program improvements.
30. That the Public Service be authorized to do all things necessary to implement the foregoing.

REASON FOR THE REPORT

Solid Waste Services Division was instructed by Council on June 23, 2010 to undertake a Comprehensive Integrated Waste Management Plan.

OurWinnipeg identifies the need to carry out a comprehensive waste management strategy to integrate and optimize the service level and efficiency of all facets of the solid waste management system, while minimizing environmental impacts.

Under the Environment Act Licence # 2890, the City must submit to the Province of Manitoba, by December 31, 2011, a proposal for an environmental license for the Brady Road Landfill. Separate reports will be submitted to Council regarding the Brady landfill rezoning and Environment Act licencing application

IMPLICATIONS OF THE RECOMMENDATIONS

In 2009, Winnipeggers landfilled in excess of 340,000 tonnes of material per year and recycled and composted approximately 54,000 tonnes of material, for a diversion rate of about 15%. The recommendations in this plan will increase the diversion rate to 35% by 2016 and greater than 50% by 2020 and thereafter. The components in this plan must be considered as a system and not individual pieces in order to achieve the diversion rates noted above.

Benefits:
The plan has a number of economic, social and environmental benefits for the community and residents.

Economic benefits:

- Uniform service levels will give cost savings due to efficiencies in service delivery.
- Improvements to bulky waste fee structure and elimination of AutoBins is predicted to reduce the cost of collecting illegally abandoned waste.
- Less waste burial reduces long term perpetual care liabilities.
- New programs will provide economic opportunities for business and not-for-profit sector.

Social benefits:

- Improved programs give residents greater access to environmental programs (e.g., leaf and yard waste collection, community resource recovery centres, kitchen waste collection, improved recycling services).
- The community resource recovery centres will give residents greater access to diversion opportunities.
- The program design will help reduce illegal dumping and improve fairness by providing uniform services and fees throughout the city.
- Will provide more opportunities for green environmental business for resource recovery.
- The cart system will provide improved control for vermin, odours and wind-blown litter, and significantly reduce collection worker injuries.
- Removal of the AutoBin system is expected to reduce incidents of vandalism, fire and graffiti, and improve the appearance of neighbourhoods negatively impacted by these issues associated with AutoBins.

Environmental benefits:

- Significantly increased garbage diversion rates and reduced burial requirements.
- As a result of less burial requirements and closure of the residential tipping face at the Brady Road Landfill, there will be less odour, leachate production, improved safety and reduced operating costs.
- Will add to the lifespan of Brady Road Landfill, preserving capacity for the future.
- The plan estimates a significant overall reduction in greenhouse gas production as shown in table 5.

Process:

The vision and plan for the future of garbage and recycling services in Winnipeg was built through a three-phase, six-month public participation process.

Stakeholder Advisory Committee:
A Stakeholder Advisory Committee (SAC) met regularly to assist the City of Winnipeg by providing feedback and advice, and providing comments for the master plan. The SAC was made up of representatives from various community, industry, academic, consumer, provincial and environmental sectors. An external facilitator was used to conduct meetings.

Consultant:
Stantec Consulting Ltd. (Stantec) was retained to provide technical expertise on the master plan and environmental licensing for the City. Stantec, with expertise in environmental assessment, strategic analysis and planning in solid waste service provision, has developed municipal waste plans, solid waste system strategies, and environmental licensing for communities including County of Simcoe, City of Hamilton and the Region of York.

Other Communities:
As part of the research for this master plan, other similar sized cities in Canada and the US were consulted regarding waste management practices and integrated waste management plans.

Public Participation Process:

Phase 1 - Confirmed the guiding principles and determined the scope of the project. Guiding principles supported recommendations of equal service, improved programming and improved waste diversion. A waste expo was hosted at the Winnipeg Convention Centre.

Phase 2 - Options were provided to the public (via open houses, web and surveys) who gave feedback on which diversion and service types would be preferred. The Department conducted 11 open houses and four roundtable sessions throughout Winnipeg. Overall, Winnipeggers were supportive of the options that are being recommended.

Phase 3 - The public was informed through the website of the survey results and the consultant's executive summary and full report with recommendations, which have been submitted to Council. The executive summary is attached in Appendix B and is available at www.garbage.speakupwinnipeg.com.

In total, more than 2,500 people have participated in some form of the public participation process outlined above. There were over 10,000 unique visitors to SpeakUpWinnipeg.com and the online YouTube video channel garnered over 2,500 views.

Brady Road Landfill Environmental Licence – Incorporated in the above phases, the Brady Licensing and Garbage and Recycling Master Plan process were integrated to develop a system which emphasizes diversion and reduces reliance on waste burial.

Ongoing Processes
Discussions have started with representatives from the multi-family sector, industrial, commercial and institutional sectors, and construction and demolition sectors. This process is ongoing to further explore best practices to increase diversion in these sectors.

An initial scan of civic waste management practices was conducted. Further research on materials and diversion practices is needed in order to develop a targeted civic waste diversion strategy.

Garbage Collection Recommendations

The recommendations in this plan are intended to achieve a waste diversion target by 2020 of at least 50% from residential waste. To support stated diversion goals and programs, volume limits on garbage and increased diversion opportunities are necessary. Environmentally, this is the preferred solution, since limiting size of containers requires diversion, reduces burial of waste and supports the environmental licensing process as discussed later in this report. The City operates four different collection services for single-family residential, and a two-tiered bulky waste collection service. This is inequitable and more costly than providing uniform service. Based on the public participation process, administrative considerations and feedback from political sources, uniform garbage services are favoured. The garbage carts would help reduce litter, as carts are equipped with lids that prevent wind-blown litter and are resistant to vectors (disease carriers).

The integrated system of garbage carts, recycling carts, leaf and yard waste, and CRRCs should be implemented together, as they are interdependent programming elements for diversion. These programs should be implemented together starting in 2012. Implementation timing is critical, as service contracts are expiring and being extended at additional cost, and there is a risk of service disruptions, due to the reduced reliability of aging service vehicles in the extended contracts.

<u>Uniform level of service with automated cart collection</u>

It is recommended that:
- automated cart collection be implemented city-wide, replacing the current mix of collection (i.e., manual, AutoBin, wheelbarrow cart collection),
- each home be provided with one 240-litre cart (equal to three regular size garbage bags),
- residents could upgrade their service (e.g., larger size cart, extra cart) for an annual fee,

- residents could request a surplus waste collection on those occasions when they have more garbage than will fit in the cart, at a charge of $5 per volume equivalent to a standard garbage cart (up to three regular size garbage bags),
- replacement carts would be available to residents at cost.

Providing a uniform level of service will promote efficiency and service equity. Carts with a 240-litre capacity (holds about three standard garbage bags) are recommended, as they promote waste diversion with a suitable volume limit. In a recent survey:

- 91% of respondents stated that they throw out three standard garbage bags or less
- over half of respondents support the use of carts.
- of the people who responded at open houses, 79% support the use of carts.

Carts are also favoured because they are thought to be the most acceptable container choice when converting four different types of service to a consistent volume-limited service. The northwest section of Winnipeg already has 43,000 automated 240-litre carts that were successfully introduced in 2010. Consideration was also given to the fact that manual garbage collection increases worker-related injuries.

Neighbourhoods with AutoBin service have the lowest recycling rates of all service types in the city and highest per household waste generation rates, and there are significant issues with illegal dumping or abandoned waste, graffiti, vandalism and fires. In addition, AutoBin service vehicle manufacturing is obsolete. Nearly two-thirds (64%) of respondents in the AutoBin area indicated support for removing AutoBins.

As with garbage containers today, property owners would be responsible for:

- keeping the cart clean and in good repair
- storing the cart in a safe place
- removing the cart from the street or lane as soon as possible after collection
- replacing the cart if it is stolen or damaged.

The net cost of the change to automated garbage collection is estimated to save $500,000 per year over the current system including amortization of the carts over the warranty period of ten years.

Bulky waste

It is recommended that:

- up to ten items would be collected per pickup with a $5.00 per item charge
- the charge would apply to all customers requesting the service

Bulky waste is an additional service provided by the City to residential dwellings and is defined as household items such as mattresses, furniture and appliances that are heavier than 34 kg or longer than 1.5 metres in length. A uniform per-item charge of $5.00 is expected to encourage diversion, create consistent collection services and discourage abandoned waste.

Surplus Waste

It is recommended that:

- Up to three standard sized garbage bags be collected for a $5.00 charge
- Residents would contact 311 to request a surplus waste pickup

While 91% of residents indicate they throw out three bags of garbage or less per week, equal to a regular sized garbage cart, some residents have stated they occasionally need to dispose of additional waste as a result of holidays, events, etc. The surplus waste service allows for the disposal of up to three additional bags of waste for a $5.00 fee, equal to a bulky waste fee. The service would be requested in the same way as bulky waste, that is, by contacting 311 to request the service and have the fee added to their water bill.

Abandoned waste

It is recommended that the City continue its current practice of collecting abandoned waste from residential areas. It is expected that the amount of abandoned waste will diminish with the removal of AutoBins, changes to the bulky waste fee structure and the provision of other diversion programs.

Diversion Recommendations

The recommendations in this plan are intended to achieve a waste diversion target by 2020 of at least 50% from residential waste. As with garbage collection, implementation timing is critical as service contracts are expiring and being extended at additional cost. Since a goal of this plan is to increase diversion, garbage volumes will be restricted; this will require additional diversion opportunities such as enhanced recycling and organics collection. The integrated system of garbage carts, recycling carts, leaf and yard waste, and Community Resource Recovery Centres (CRRCs) should be implemented together, as they are interdependent programming elements for diversion. For these reasons, programs should be implemented starting in 2012.

Since waste volume is being limited, additional diversion capacity will be necessary in three key areas: self-hauled waste recycling and organics collection. Experience with the northwest sector of Winnipeg, which has already been successfully converted to a cart-based collection system, supports these conclusions.

Automated Recycling Cart Collection

It is recommended that:

- automated cart collection be implemented city-wide, replacing manual blue box collection
- each home be provided with one 240-litre cart (equal to four standard size blue boxes)
- residents could choose larger size carts or extra carts at cost (there would be no additional charge to service the carts)
- replacement carts would be available to residents at cost

The 240-litre cart size is consistent with most municipalities in Canada that offer this service. In a recent survey, over 6 out of10 respondents (63%) approve of the use of automated recycling carts. The estimated cost for each container is $50, and would be provided at no cost to the resident. Multi-Material Stewardship Manitoba (MMSM) is responsible to pay 80% of the net cost of an efficient municipal recycling program. Capital costs, such as recycling carts, are included in the funding agreement with municipalities.

As with blue boxes today, property owners would be responsible for:

- keeping the cart clean and in good repair
- storing the cart in a safe place
- removing the cart from the street or lane as soon as possible after collection
- replacing the cart if it is stolen or damaged

The current blue box program provides manual collection service to approximately 187,000 single-family dwellings. In the past six years, an increasing number of customers have been using more than one blue box, as well as boxes that are larger than the standard size blue box, demonstrating a need for increased recycling container capacity. Multi-family dwellings are already serviced by an automated container collection system.

Many cities in Canada have switched single-family dwelling collection to an automated cart collection, offering more container capacity and less work-related injuries. An additional benefit of the recycling carts would be to help keep streets clean, as carts are equipped with lids that prevent wind-blown litter and protect the materials from the elements, helping maintain higher product value.

With the implementation of automated recycling cart collection, it is anticipated that an additional 30,000 tonnes per year (8% of overall residential waste) would be diverted from the landfill by the end of 2017 and includes increased participation, as well as an increase in dwellings in Winnipeg.

Materials Processing Capacity

It is recommended that:
- additional processing capacity be secured by mid-2012
- long-term processing capacity through a new facility be secured before 2016

Existing processing capacity is strained and near-term processing capacity needs to be acquired through a procurement process. The existing processing contract expires in 2017, and, due to the long lead times required to construct a new materials recovery facility, longer term recycling processing capacity needs to be developed and secured well in advance. In the latter case, there are a variety of procurement strategies available. Multi-Material Stewardship Manitoba (MMSM) is responsible to pay 80% of the net cost of an efficient municipal recycling program. Program costs are included in the funding agreement between MMSM and municipalities.

Yard Waste Organics Diversion

It is recommended that:
- biweekly manual curbside collection of yard waste be implemented every two weeks from April to November
- residents be required to package their yard waste in approved compostable bags or hard walled containers (e.g., old garbage cans)
- the seasonal Leaf It drop off depots be discontinued
- the seasonal Chip In drop off depots remain

With the introduction of automated garbage cart collection, residents will be limited to the volume in their garbage cart each collection. A seasonal yard waste collection program would allow residents to dispose of yard waste. A recent survey indicates that over two-thirds (69%) of residents dispose of organic waste in regular garbage. More than 7 out of 10 respondents (73%) indicated support for biweekly collection of yard waste from April to November.

Manual collection of yard waste is most practical, since there is a wide fluctuation in yard waste generated at each household, and garbage cart volumes could be regularly exceeded at certain times of the year. The City would work with retailers to ensure sufficient quantities of compostable bags are available, as plastic bags would not be collected.

The material would be composted in a special area at the Brady Road Landfill, to be built at a cost of $2 million. With the increase in organic material collected, the yard waste composting facility at Brady Road would require extensive upgrading to manage the larger volume of material anticipated. The finished compost material is a valuable landfill cover material and soil amendment for landscaping needs by City departments. Marketing of finished compost would be investigated once quality and quantity was proven.

Once the curbside yard waste collection is in place, there would no longer be a need for the seasonal drop-off depots (Leaf It With Us). Yard waste could also be dropped off at one of the Community Resource Recovery Centres.

With expanded leaf and yard waste collection, it is anticipated that an additional 21,000 tonnes per year (6% of residential waste) would be diverted from the landfill. Keeping yard waste out of the landfill has several benefits, including reduced greenhouse gas production, improved landfill stability, reduced leachate and odour, and reduced disposal requirements.

Community Resource Recovery Centres

It is recommended that:

- up to four centres would be established where residents could drop off material that could be processed and reused, resold or recycled (e.g., construction and demolition material, household items)
- there would be a $5.00 access fee to support operating costs

Initially, in order to provide sufficient service, one site would be set up at Brady Road Landfill, with another site in the north part of the city. Eventually, two additional centres would be established in the east and west areas.

Based on consultations, a strong majority (91%) of Winnipeg residents support establishing Community Resource Recovery Centres (CRRCs). The implementation of CRRCs would further increase waste diversion, by focusing on the recovery of materials dropped off by residents. Residents would be allowed to drop off items including, but not limited to, reusable items and household items, as well as construction and demolition materials, and associated residual waste. These materials would be separated and further processed for reuse, resale or recycling.

It is expected that industry stewards (e.g., household hazardous waste, electronic waste) and non-profit organizations could participate, by potentially hosting on-site depots for various materials.

Each CRRC could divert up to 10,000 tonnes of material per year per site (3% of residential waste stream).

Source Separated Organics (Kitchen Waste) – Pilot Program

It is recommended that:
- automated kitchen waste cart collection be implemented in a trial area
- each home in the trial area be provided with one green cart to hold kitchen organic waste (e.g., fruit and vegetable scraps, coffee grounds)

Based on consultations, nearly two-thirds (63%) of Winnipeg residents indicate support for a curbside kitchen waste organics program. This reflects the same findings of the Our Winnipeg consultation process. A pilot program would explore public acceptability, cost, communications and collection related issues which would facilitate the development of a city-wide program. In the trial area, yard waste would continue to be collected in compostable bags. This material would be processed at the enhanced Yard Waste Composting Facility at Brady Road Landfill.

Based on the results of the pilot program recommendations will be brought forward for a full scale program. Estimated construction costs of an organics processing facility ranges from $45 million to $65 million depending on the technology. A variety of procurement strategies will be explored. Cost of organics collection carts for the full scale program is estimated to be $11.4 million.

This is the single-most long term measure to achieve the greater than 50% diversion target of the plan. Because of the significant volume and the nature of this material, proper processing including odour mitigation is a key objective and translates into significant cost.

Brady Road Landfill

It is recommended that:
- the Brady Road Landfill area be renamed the Brady Road Resource Management Facility

Upon approval of this report, steps will be taken to:
- rezone the site to accommodate diverse uses
- prepare an Environment Act proposal for licensing of the Brady Road Landfill site to reflect the uses outlined in the master plan

The lands set aside for the Brady Road Landfill offer opportunities for hosting different components of the proposed diversion program, which will significantly reduce the amount of waste requiring burial, with corresponding reductions in landfill gas and leachate production. For example, as indicated earlier in this report, residential quantities requiring burial will be reduced by approximately 35% in the near term and over 50% in the longer term. This emphasis on waste diversion supports the overall licensing process for the Brady Road Landfill, by way of predicted reduced environmental impacts from reduced rates of waste burial.

Shifting site usage from burial to diversion can be accomplished through near and longer term initiatives, such as:

- Community Resource Recovery Centre (significant advantages to allowing only one tipping face at the burial area)
- yard waste composting
- kitchen waste composting
- materials recovery facility
- industrial, commercial and institutional, and construction and demolition materials depot
- "Green Business Park" for commercial/industrial resource recovery, product development and sales
- landfill gas collection, processing and utilization
- diversion research and business development centre
- biofuels facility
- biosolids composting facility (being examined separately from this Master Plan work)

Other non-diversion, non-burial related activities could include:

- public park and sports field
- community gardens
- leachate pre-treatment/treatment facility, including engineered wetlands

Implementation Requirements

Timing

Implementation timing is critical and service contracts are coming due or have been extended at additional cost. The blue box collection, manual east area and AutoBin collection contracts will require extension until no later than the end of 2012, when the new system is expected to be fully implemented.

Funding

The current system is funded through a combination of tipping fees, tax support, extended producer responsibility funding (MMSM), material sales, user fees and grants. To fund changes in the program, additional revenue of $8 million to $10 million a year is required. It is recommended that the source of this additional revenue be funded through a combination of property tax support and a user fee collected on the water bill, with property taxes supporting the diversion programs and the user fee funding the balance of garbage collection costs. The user fee charge would be $4.17 per single-family dwelling unit per month, billed quarterly ($12.50/3 months) on the water bill. A single-family dwelling unit is defined by the Solid Waste Bylaw of seven or less dwellings per address. A question in a recent Omnibus survey indicates that 62% of respondents are supportive of paying such a fee (see table on the following page).

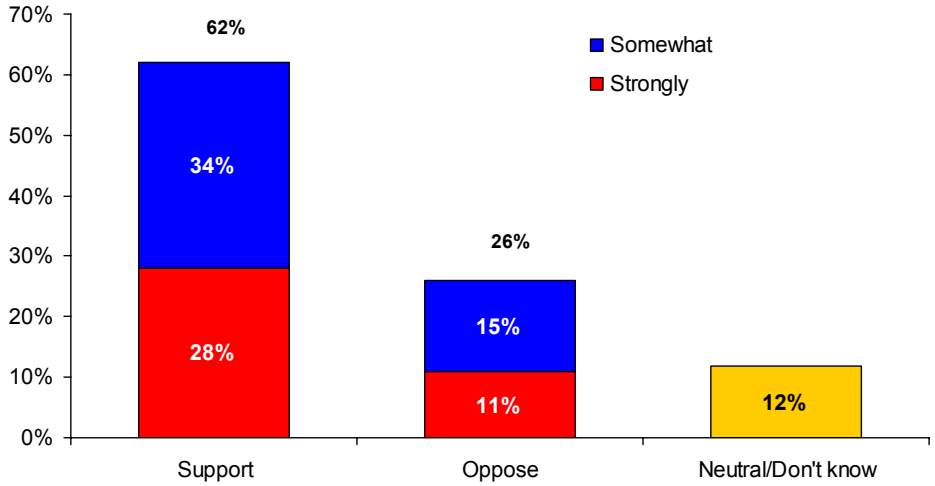
Diversion programs would be supported by property taxes. Other forms of user fees and tax support were examined but discounted as sources for the additional revenue. This form of user fee is used in other cities, as it is a fair way of charging for the services provided. With the significant diversion opportunities included in this plan, additional funding support through the Provincial Waste Reduction and Recycling Support (WRARS) fund will be discussed with the Province.

Implementation of this plan will bring Winnipeg on par with many other major cities in North America. The many social and environmental benefits are listed on page 5 under the "Benefits" section earlier in this report.

In June 2011, residents were polled to determine level of support for a user fee for the additional services being proposed. The question and results are below.

June 2011 Omnibus Results question:

"*The City of Winnipeg is looking at making changes to how residential garbage is managed. The changes would expand services to recycle and recover materials from the waste stream and to collect and compost leaf and yard waste. They also involve providing equitable collection services across the City and improvements at the Brady Road landfill. These changes could result in an annual fee of $40-50 per household per year (less than $1 per week). How supportive would you be of such a fee, if it means it would help implement programs like improved recycling and curb side leaf & yard waste collection?" (n=504)*



Staffing

Additional temporary and permanent staff will be required to implement the recommendations in the master plan, to support improved programming. See Table 6 for Proposed Staff Plan. Longer term staff requirements to support future programs, such as additional CRRCs and source separated organics, will be determined based on implementation requirements. Consulting services will be required to support program implementation, including the Brady Road Landfill master plan. The Community By-law Enforcement Services Division of the Community Services Department will be adding temporary positions to provide enforcement of the Liveability and Solid Waste by-laws during the implementation of collection changes. It is expected that these positions will be required for 2012 and 2013. The funding for these positions is included in this Plan.

Reporting

Routine monitoring and reporting of plan implementation should be carried out, including an annual status review. One indicator to include in reporting is a per-capita waste generation rate. It is recommended that the Public Service publish an annual report on the status of the master plan

Promotion, education and enforcement

It is recommended that a communication plan, as well as an education and enforcement plan, be developed to support these recommendations. Adequate promotion, education and enforcement are required to increase new program awareness and proper participation, especially in the area of waste diversion. Best practices show that successful diversion programs rely on sufficiently funded education and enforcement campaigns. An enforcement function will also be required to help encourage compliance and discourage abandoned waste.

Program Summary

The following tables and chart summarize the implications of the recommendations in this report:

Table 1 – Summary of Proposed Capital Investment 2012 - 2019

Capital Projects	Near Term Forecast					Long Term Forecast		
	2012	2013	2014	2015	2016	2017	2018	2019
Organics (Yard Waste) Composting Facility	2,000,000	-	-	-	-	-	-	-
Provision of Automated Recycling Collection Carts	9,350,000	-	-	-	-	-	-	-
Provision of Automated Refuse Collection Carts	7,250,000	-	-	-	-	-	-	-
Consulting Support for System Transition	400,000	200,000	200,000	-	-			
Community Resource Recovery Facilities (South and North)	-	2,700,000	3,400,000	-	-	-	-	-
Material Recycling Facility	-	-	20,000,000	-	-	-	-	-
Source Separated Organics	-	-	400,000	-		* $65,000,000	-	-
Provision of Automated Organics Collection Carts						11,400,000		
Community Resource Recovery Facilities (West and East)	-	-	-	-			$ 3,400,000	$ 3,400,000
Total Capital Projects	**$ 19,000,000**	**$ 2,900,000**	**$ 24,000,000**	**$ -**	**$ -**	**$ 11,400,000**	**$ 3,400,000**	**$ 3,400,000**
Total Strategy	$ 64,100,000		**Total Near Term**	$45,900,000		**Total Long Term**	$ 18,200,000	

Note: All above noted items are included in the 2012 Capital Estimates submission for the Water and Waste Department as debt financed projects.

**** Estimated construction costs of an organics processing facility ranges from $45 million to $65 million depending on the technology. A variety of procurement strategies will be explored.***

Table 2 – Financial Impact on the Solid Waste Utility and Garbage Collection Operating Budgets for 2012 – 2016 (incremental to the 2012 and 2013 Adopted in Principle Operating Budgets)

Operating Budget	Near Term Forecast 2012	2013	2014	2015	2016
Revenue					
Sale of Recyclables [3]	$ (780,250)	$ (3,185,000)	$ (3,313,000)	$ (3,377,000)	$ (3,377,000)
CRRC User Fee [4]	-	(655,000)	(857,500)	(1,310,000)	(1,310,000)
Bulky Waste Fee [1]	(302,000)	(724,000)	(724,000)	(724,000)	(724,000)
Garbage Collection User Fee [2]	(2,355,250)	(9,421,000)	(9,421,000)	(9,421,000)	(9,421,000)
Total Projected Revenue	**$ (3,437,500)**	**$ (13,985,000)**	**$ (14,315,500)**	**$ (14,832,000)**	**$ (14,832,000)**
Expense					
Recycling [3]	985,650	3,879,600	3,879,600	3,879,600	3,879,600
CRRC Operating Costs [4]	-	738,500	2,356,500	3,236,000	3,236,000
Garbage Collection [5]	68,000	136,000	136,000	136,000	136,000
Implementation and Transition [6]	300,000	300,000			
Promotion and Education [7]	713,000	633,000	723,000	643,000	733,000
Organics Diversion [8]	870,850	4,478,000	4,478,000	4,478,000	4,478,000
Administration [9]	500,000	500,000	500,000	500,000	500,000
Amortization of Capital	-	3,319,900	2,242,400	1,959,400	1,869,400
Total Projected Expense	**$ 3,437,500**	**$ 13,985,000**	**$ 14,315,500**	**$ 14,832,000**	**$ 14,832,000**
Net Cost/(Benefit)	$ -	$ -	$ -	$ -	$ -

Key Assumptions

1 $50.00 fee per year, per single family dwelling unit, for 188,420 units. As described in recommendation #21
2 $5.00 per item fee as described in recommendation #3 and #4
3 Increase in recycling tonnage of approximately 50%. Costs net of stewardship grant and sale of recyclables
4 Large scale community depots as described in recommendation # 15; costs net of $5.00 fee
5 Increase in costs for cart purchases, offset by lower collection costs
6 Temporary resources required for cart and yard waste implementation in 2012 and 2013
7 Includes increased program promotion and education on new and existing programs
8 Leaf and yard waste collection and processing as described in recommendation #11
9 Includes billing support and new program management support

Table 3 – Proposed Implementation Schedule - Near Term Residential Component of Plan

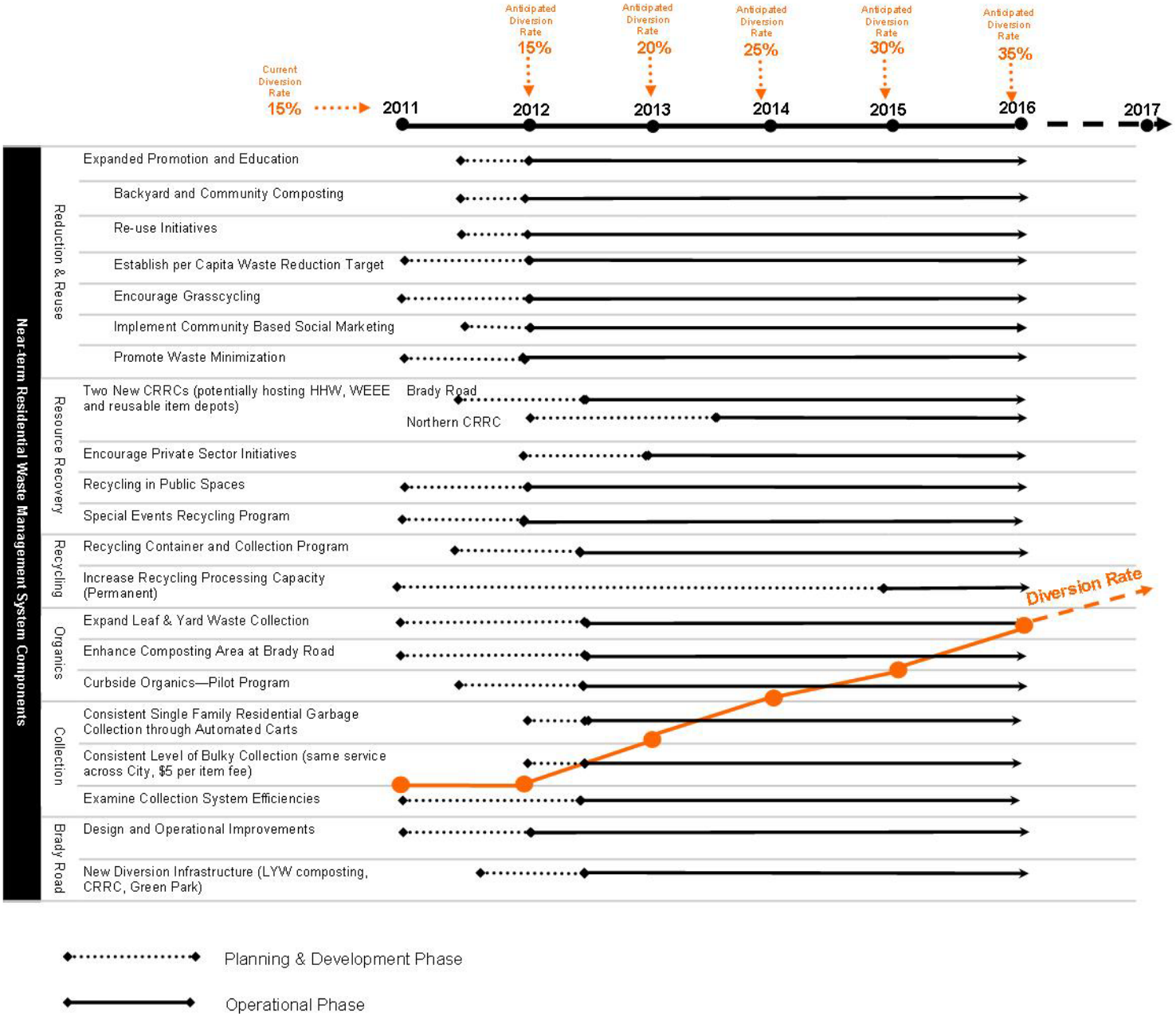


Table 4 – Proposed Implementation Schedule - Longer Term Residential Component of Plan

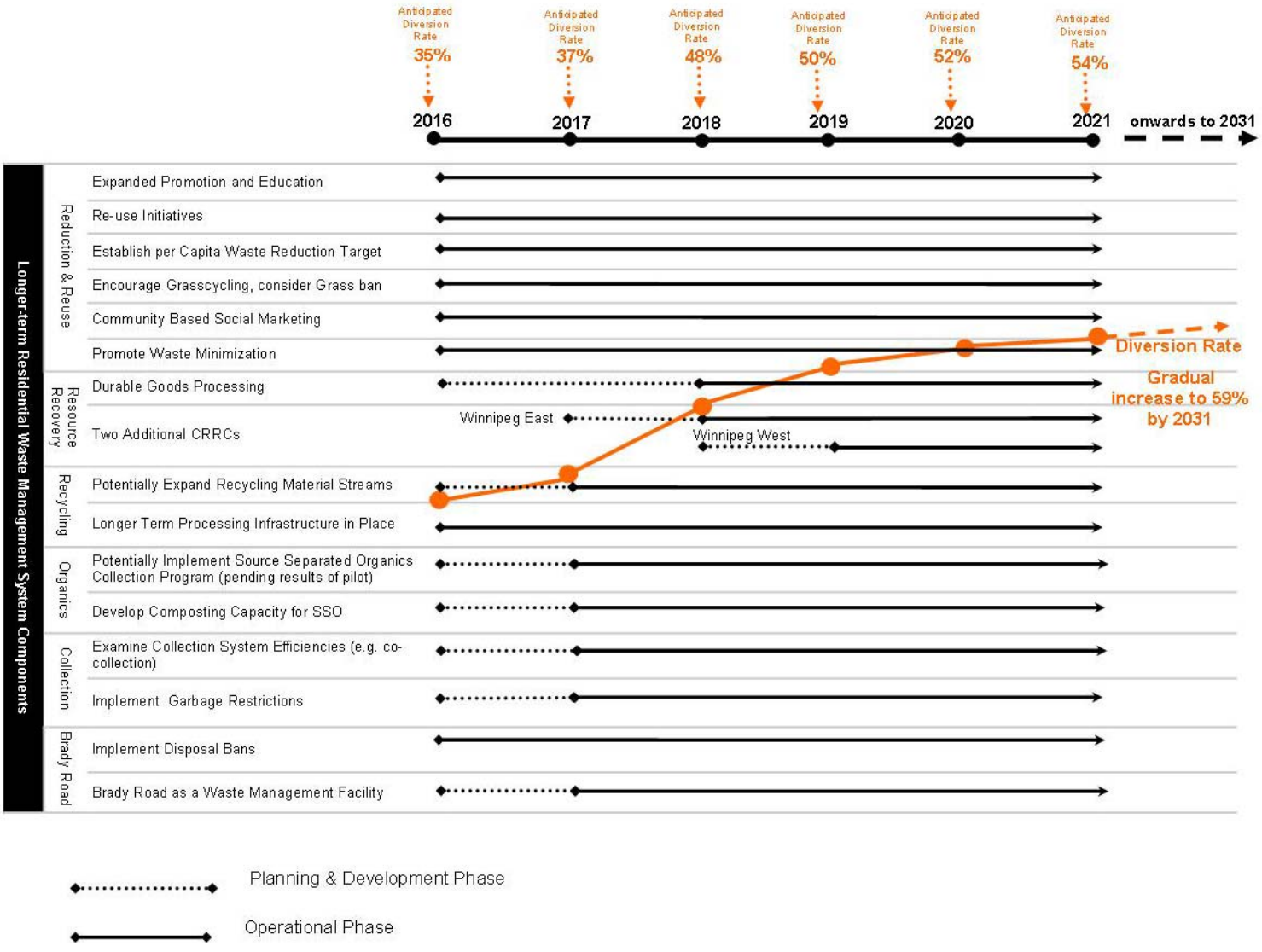


Table 5 – Estimated Avoided GHG Emissions Associated with Incremental Increased Waste Diversion

Waste Sector	Avoided Annual Emissions (Tonnes) Co2e *Near Term (2016)*	Avoided Annual Emissions (Tonnes) Co2e *Longer Term (2031)*	Total
Residential	-250,000	-182,000	-432,000
ICI and C&D	-50,000	-87,000	-137,000
TOTAL	-300,000	-269,000	-569,000

Table 6 – Proposed Staff Plan

2012:
2 Public Education and Marketing 1 By-law Constable dedicated to Solid Waste Services Division 2 Project Coordinators 1 Compliance and Reporting Officer – part of Brady Licencing 1 Technologist III Environmental (to support programs at Brady Landfill) 1 Technologist III Collection 8 Technical Assistants (summer students) – for implementation of carts
2013
1 Technologist III Compost 3 Operator III – for CRRC at Brady Landfill
2014 and beyond (for Stand Alone CRRC – per facility)
3 Foreman/supervisor positions 2 Operator III 6 customer service agents Above assumes facility is open 7 days per week, min 10 hours per day

HISTORY

On March 9, 2010 the Standing Policy Committee on Infrastructure Renewal and Public Works referred the February 24, 2010 Council Motion, pertaining to developing a city-wide waste reduction plan in consultation with the public, to the Winnipeg Public Service for report back.

On May 23, 2001, Council adopted a modified Waste Minimization Strategy that has resulted in a comprehensive multi-family residential recycling program, expanded plastics recycling, a rate for small commercial bin service, recycling from community centers and sidewalk recycling.

On June 19, 1996, Council adopted the Waste Minimization Strategy for the City of Winnipeg. The approved strategy (unfunded) involved expanding recycling to multi-family residences, composting, fall leaf pickup, significant education and support of waste minimization, the phasing in of a ban of recyclables, leaf and yard waste from garbage once diversions are in place, lift limits and/or a bag/charge system, as well as consideration of bi-weekly garbage collection. Pursuant thereto, the Administration was requested to bring forward a specific action plan from the strategy document, including financial implications and an implementation strategy. Subsequently, the City's ability to fund the Waste minimization Strategy was affected by a significant loss of annual revenue resulting from the opening of the BFI/R.M. of Rosser landfill.

FINANCIAL IMPACT

Financial Impact Statement **Date:** August 3, 2011

Project Name: **First Year of Program** **2012**

Comprehensive Integrated Waste Management Strategy

	2012	2013	2014	2015	2016	Total
Capital						
Capital Expenditures Required	19,000,000	2,900,000	14,000,000	10,000,000		$ 45,900,000
Less: Existing Budgeted Costs - 2012 Forecast Adopted in Principle	19,000,000	2,900,000	3,600,000	-		$ 25,500,000
Additional Capital Budget Required	$ -	$ -	$ 10,400,000	$ 10,000,000	$ -	$ 20,400,000
Funding Sources:						
Debt - Internal						
Debt - External			10,400,000	10,000,000		
Grants (Enter Description Here)						
Reserves, Equity, Surplus						
Other - Enter Description Here						
Total Funding	$ -	$ -	$ 10,400,000	$ 10,000,000		
Total Additional Capital Budget Required	$ 20,400,000					
Total Additional Debt Required	$ 20,400,000					
Current Expenditures/Revenues						
Direct Costs	$ 2,657,250	$ 10,145,000	$ 10,145,000	$ 10,145,000	$ 10,145,000	
Less: Incremental Revenue/Recovery	2,657,250	10,145,000	10,145,000	10,145,000	10,145,000	
Net Cost/(Benefit)	$ -	$ -	$ -	$ -		
Less: Existing Budget Amounts						
Net Budget Adjustment Required	$ -	$ -	$ -	$ -		

Additional Comments: Existing Budgeted Capital Costs are on a cash flow basis and based on 2012 adopted in principle numbers in the 2011 Capital Budget. Budget authorization details are contained in Table 1. A first call on the 2012 proposed budget is required in the amount of $17 million.

Details of the incremental operating costs and revenue/recovery are contained in Table 2. The increased revenues offset the increased expenditures so the impact on the 2012 operating budget adopted in principle are negligible.

The revenue generated from the proposed fees for garbage collection will fund the enhanced waste management program. The 2012 adopted in principle mill rate support for garbage collection will be maintained.

Future budgets for the Solid Waste Utility and Garbage Collection will be adjusted based upon Council's decision with no change to the 2012 adopted in principle mill-rate support for Garbage Collection.

"Original signed by L. Szkwarek, C.G.A."
Lucy Szkwarek, C.G.A.
Acting Manager of Finance and Administration

CONSULTATION

In preparing this report there was consultation with:

1.1.1 Internal

Assessment and Taxation
Community Service - Community By-Law
Community Service – Community Resource Coordinators
Winnipeg Fire and Paramedic Service
Winnipeg Police Service
Planning, Property & Development - Planning and Land Use
Planning, Property & Development – Environmental Coordinator
Planning, Property & Development – Parks Planning
Planning, Property & Development – Universal Design Coordinator
Corporate Finance
Corporate Support Services – Legal Services
Corporate Support Services – 311
Public Works- Parks and Open Spaces
Public Works- Streets Maintenance

1.1.2 Stakeholder Advisory Committee

Government of Manitoba: Climate and Green Initiatives
Government of Manitoba: Waste Reduction/ Pollution Prevention
Consumers Association of Canada- Manitoba
Green Action Centre
Waste Management Canada Inc.
Multi-Material Stewardship Manitoba
University of Manitoba
EcoPIA – Ecological People in Action, University of Winnipeg
Mayor's Environmental Advisory Committee
Professional Property Managers Association
St Johns Residents' Association/Citizen Representative
Citizen Representative

1.1.3 External

Manitoba Conservation
Multi-Material Stewardship Manitoba
Professional Property Management Association
Canadian Green Building Council-Manitoba Chapter
Green Action Centre

Unitarian Church – Green Action Committee
Manitoba League of Persons with Disabilities
University of Manitoba Centre on Aging
Centre for Disability Studies Manitoba
Spence Neighbourhood Association
Dufferin Residents Association
Faraday Residents Association
Mynarski Residents Association
Canadian Beverage Container Recycling Association
Red River College
Ma Mawi Wi Chi Itata Centre

1.1.4 Industry

BFI Canada Inc.
Emterra Group
IPL Ltd.
Norseman Plastics Ltd.
CH2MHill
Edmonton Waste Management Centre of Excellence
Johnson Waste Management Ltd.
Waste Management Canada, Inc.
Cascade Inc.
Wood Anchor

SUBMITTED BY

Department: Water and Waste
Division: Solid Waste Services
Prepared by: D. Drohomerski, T. Kuluk, T. Sims
Date: September 23, 2011
File No. G101

Appendix A
Comprehensive Integrated Waste Management Plan Summary Table

Garbage Collection Service Recommendations

Service – Single Family Homes	Benefits to Residents, the Community and the Environment	Public Feedback
Garbage Collection **Current Status** ▪ A mix of manual, AutoBin, wheelbarrow cart collection, and automated garbage cart collection in the northwest area **Recommendation** ▪ Implement automated cart collection in remaining areas of the city, replacing manual, AutoBin, and wheelbarrow cart collection ▪ Deliver one 240-litre cart to each home (equal to 3 regular size garbage containers) ▪ Offer larger size carts or extra carts to residents for an annual fee ▪ Offer collection service at a cost when residents have more garbage than will fit in the cart ▪ Offer replacement carts at cost	▪ Uniform level of service across the city ▪ Cost savings in the long term because automated collection is more efficient than manual collection ▪ Safer work environment for garbage collectors ▪ Standard size container for collection ▪ Carts are extremely durable ▪ Limited cart size encourages residents to recycle and compost ▪ Fewer litter, odour and pest problems because the carts have lids ▪ Uniform community look on collection day ▪ Discourages unlimited garbage ▪ Reduces arson, illegal dumping and graffiti which are prone to areas with shared AutoBin service	▪ 91% of survey respondents indicate they throw out 3 standard size garbage bags or less each collection ▪ 52% of survey respondents support the automated garbage cart collection system ▪ 64% of survey respondents support removing AutoBins
Bulky Waste Collection **Current Status** ▪ Upon request, collect up to 6 items (e.g., appliances, mattresses, furniture) for a $20 collection charge ▪ No charge zone in the inner city **Recommendation** ▪ Upon request, collect up to 10 items with a $5.00 per item charge for all customers ▪ Eliminate the inner city “no charge” zone	▪ Uniform level of service across the city ▪ Discourages abandoned waste ▪ Increases diversion (reuse and recycling) ▪ Offers more convenient and reasonable collection of single items that won’t fit in a garbage cart (e.g., mattress, couch)	

Service – Single Family Homes	Benefits to Residents, the Community and the Environment	Public Feedback
Recycling Collection **Current Status** ▪ Manual curbside collection of blue boxes **Recommendation** ▪ Implement automated cart collection, replacing blue box collection ▪ Deliver one 240-litre cart to each home (equal to 4 standard size blue boxes) ▪ Offer larger size carts or extra carts to residents at cost ▪ Offer replacement carts at cost	▪ A safer and more efficient system for collectors ▪ Reduces litter and keeps the material dry which improves its value when sold ▪ Economical in the long term since higher revenue from more recyclable material will cover the cost of buying the carts ▪ Has the potential to recycle up to 30,000 additional tones per year ▪ Reduces greenhouse gas emissions and saves landfill capacity ▪ Carts are extremely durable	▪ 63% of survey respondents support automated recycling cart collection
Leaf and Yard Waste Collection Program **Current Status** ▪ 2 curbside collection dates in May and 2 in October only for residents in the northwest area serviced by automated garbage cart collection ▪ 10 seasonal depots throughout the city **Recommendation** ▪ Biweekly manual curbside collection every 2 weeks from April to November ▪ Residents would be required to package their yard waste in approved compostable bags or hard walled containers (e.g., old garbage cans) ▪ The material would be composted in a special area at the Brady Road Landfill	▪ Has the potential to keep an additional 21,000 tonnes of residential waste out of the landfill each year ▪ Once the quality and quantity has been proven, the finished compost could be marketed ▪ Reduces greenhouse gas emissions and saves landfill capacity	▪ 73% of survey respondents support biweekly collection of yard waste

Service – Single Family Homes	Benefits to Residents, the Community and the Environment	Public Feedback
Biweekly Kitchen Organic Waste Collection Trial ▪ One green cart holding kitchen organic waste (e.g., fruit and vegetable scraps, coffee grounds) would be delivered to each home in the trial area	▪ A city-wide program has the potential to keep an additional 41,000 tonnes of residential waste out of the landfill each year ▪ Reduces leachate ▪ Improves landfill stability ▪ Reduces greenhouse gas emissions and saves landfill capacity ▪ Once the quality and quantity has been proven, the finished compost could be marketed ▪	▪ 63% of survey respondents support collection of kitchen waste organics
Community Resource Recovery Centres ▪ Establish up to 4 centres where residents could drop off material that could be processed and reused, resold or recycled (e.g., construction and demolition material, household items) ▪ There would be a $5.00 fee per site visit to support operating cost ▪ Initially, one site would be set up at Brady Road Landfill along with another site in the north part of the city ▪ Eventually a centre would be set up in the east area and the west area	▪ Each centre has the potential to keep 5,000 - 10,000 tonnes of material out of the landfill each year ▪ The Centre at Brady Road Landfill will allow the residential tipping face to close, with a resulting reduction in operating costs, leachate, litter and odour ▪ Residents in the north area of the city would have a convenient location to drop off their reusable items	▪ 91% of survey respondents support establishing Community Resource Recovery Centres

Appendix B
Comprehensive Integrated Waste Management Plan Executive Summary- Stantec May 2011


ES Final August 29

Executive Summary

BACKGROUND

The City of Winnipeg (the City) has retained Stantec Consulting Ltd. (Stantec) to work with the City Staff and Elected Officials, the Stakeholder Advisory Committee, and other stakeholders, to develop a Comprehensive Integrated Waste Management Plan (CIWMP) that will establish a long-term approach to manage the City's waste.

The purpose of the CIWMP will be to provide direction for the City's waste management system through recommendations to improve current waste diversion programs, to make progress towards zero waste and to address waste processing and disposal needs for the next twenty years. The goals and objectives for the CIWMP are discussed in Appendix A.

This report documents the recommended waste management system for the near term (implemented within the first 5 years) and longer term (in effect within 10 years). The twenty year planning timeline for the CIWMP covers the period from 2011 (Year 1) to 2031 (Year 20).

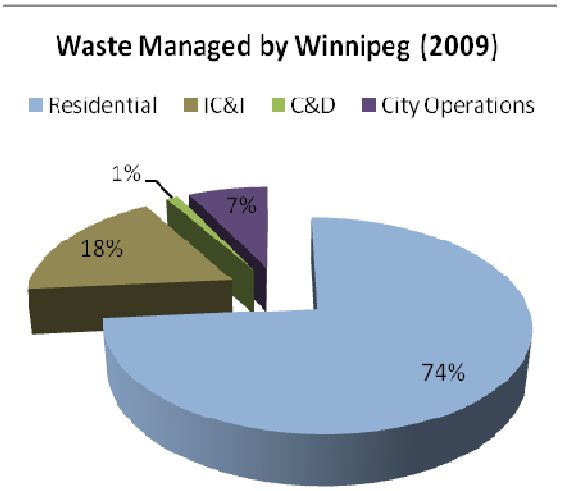
The CIWMP builds upon the current waste management system in the City (described in detail in Appendix B), which includes:

- Promotion and education for current City programs.
- Single stream recycling collection through curbside blue boxes, apartment recycling carts, depot collection and open space recycling containers.
- Leaf & yard waste collection and composting (including four (4) special collections for northwest Winnipeg residents and drop-off depots).
- Other diversion efforts such as Christmas tree chipping, promotion of backyard composting, grass-cycling, and 'Giveaway Weekends' for reusable items.
- A depot for scrap metal, automotive batteries, bicycles, tires, propane tanks, and appliances at the Brady Road landfill.
- Collection of garbage through a variety of methods across Winnipeg including automated carts, manual collection of garbage bags, Autobin or communal bin collection in back-lane collection areas, bin collection for multifamily dwellings, bulky waste collection and abandoned waste collection.
- Disposal of waste collected by the City and waste that is hauled to the landfill by City residents or commercial generators at the Brady Road Landfill.

The primary focus of the CIWMP is the residential waste management system, as residential waste makes up the majority of waste material managed by the City. City programs and facilities also manage some waste generated by the Industrial, Commercial, and Institutional (IC&I) sector, Construction and Demolition (C&D) sector and waste generated by City Operations.

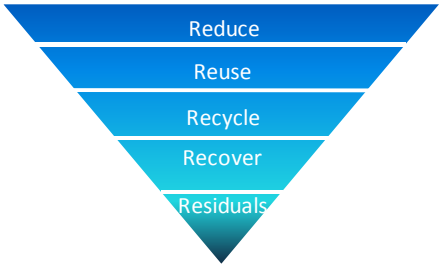
The following table and chart, summarizes the current (2009) breakdown of the waste streams managed by the City. Information available regarding 2009 tonnages, indicates that the City was achieving 15% diversion of residential waste considering all residential waste streams (curbside and non-curbside) managed by the City. It should be noted however that the non-curbside materials managed at Brady Road are estimated and may include non-residential tonnages.

Summary of Waste Managed by Winnipeg in 2009 (tonnes)	
Residential	341,542
IC&I	83,099
C&D	5,310
City Operations	34,369
Total Tonnes of Waste Managed in 2009	**464,320**
2009 Tonnage Records indicate that the City diverted 53,800 tonnes of residential waste, achieving approximately 15% residential diversion through all programs (collection and depots).	



FORMULATION OF THE INTEGRATED WASTE MANAGEMENT SYSTEM

The enhanced integrated waste management system developed for the City of Winnipeg reflects input from public involvement, the general principles of zero waste and a waste hierarchy that encourages and promotes efficient use of resources and waste[1] minimization, so that the primary waste management emphasis in Winnipeg switches from disposal to diversion. The components of the enhanced integrated waste management system as discussed in this section were presented and discussed in detail within the "Draft Task E Report, Identification of Waste Management Options" (Appendix C).



[1] The Federation of Canadian Municipalities, defined 'Zero Waste Communities' as:
A community that "has made a long-term commitment to reducing waste through measures such as extended producer responsibility programs, economic instruments to encourage waste reduction, green procurement and product design that includes end-of-life-management.

The enhanced integrated waste management system:

- Will improve Winnipeg's diversion rate by improving existing programs or adding new programs that address gaps in the existing waste management system;
- Uses a sequential approach which focuses on programs that offer cost effective improvements to the diversion rate in the near-term, while programs to be implemented in the longer term concentrate on restricting garbage and targeting additional materials for diversion such as source separated organics.
- Integrates a robust communications and education program to support overall program change and to encourage continuous dialogue with residents of Winnipeg. Program success is contingent upon the combined efforts of the City in providing service and the residents in effectively using these services.
- Strives for a balance between: a) environmental protection through increased diversion and decreased GHG emissions; b) program costs understanding that City residents are affected by the costs associated with all program changes; and c) social considerations understanding that waste management is a service fundamental to the needs of the community.

THE RECOMMENDED RESIDENTIAL WASTE MANAGEMENT SYSTEM

The following summary tables present the recommended near and longer term residential waste management system. Programs referred to as 'near term' would be implemented and in effect within the first five years of approval of the Strategy. Programs referred to as 'longer term' will take more time to implement and would generally be in effect within 10 years.

The cost assumptions for most components of the system discussed below are conservative trending to the higher end of potential cost ranges presented in the Task E Options Report (Appendix C).

The recommended near term residential system was developed by:

- Considering the initiatives that are possible for the City to implement within the next five years, given that for many of these initiatives additional infrastructure is required (e.g. composting, Community Resource Recovery Centres (CRRCs));
- Identifying how best to address the key problems/opportunities identified during the development of the goals and objectives for the CIWMP (e.g. need for a uniform system of collection from single family households);
- Considering program changes which would be accepted by the community, reflecting the dialogue with the public through the consultation process that has taken place since November 2010.

Comparative evaluation during development of the near and longer term residential system was only undertaken for system components where there were clear options such as alternative methods of collecting recyclables or garbage. In all other cases, the formulation of systems was based upon considering the most reasonable timeframe for implementation of the key initiatives.

Near Term Residential Waste Management System (Over Next Five Years)

1. Reduction and Reuse

Prevents waste generation through behavioural change. Required to 're-think' wasteful behaviour.

Recommendations:	
Expanded Promotion & Education:	• Increase scope of activities and per household expenditures to support new programs. • Is the primary means of addressing reduction and reuse program elements. • Includes support for school programs developed by the Province.
Backyard and Community Composting	• Support and promote backyard and community composting.
Re-use Initiatives	• Work with existing community stakeholders and organizations • Develop City of Winnipeg 'Re-use' Guide, including 'take it back' options • Support Community Re-use Events • Develop drop-off locations for re-usable items at CRRCs, pending interest from community organizations to manage the material.
Per Capita Waste Reduction Target	• Set initial target: recommend a minimum of 1% per annum decrease in per capita waste generation (around 5 kg per person per year) • Promote the Per Capita waste reduction target. • Implement bi-annual residential audits to measure progress towards target and progress with other diversion plan components.
Grass-cycling	• Expand current promotion of grass-cycling. Share information on cost and environmental impacts of grass disposal with residents.
Community Based Social Marketing	• Use Community Based Social Marketing approach to support any desired changes in behavlour. This would include the implementation of significant program components such as the: - Transition to Uniform Garbage Collection - City-wide Leaf and Yard Waste Collection - Implementation of Community Resource Recovery Centre(s) (CRRC)
Support/Promotion of Waste Minimization Legislation/Programs	• Cooperate with the Province and Producers, supporting the development of Extended Producer Responsibility to other material streams

Potential Costs: **Capital:** Cost for re-use areas included in CRRC costs. **Net Annual Operating:** average $700,000 Increase	**Additional Staff Requirements:** • 2 Promotion & Education Staff
General Timelines: • Largely in effect by the end of 2013.	**Environmental Benefits compared to Status Quo:** • Diverts up to 7,000 additional tpy (2% Increase in Diversion) • Reduces GHG emissions and saves landfill capacity

Near Term Residential Waste Management System (Over Next Five Years)

2. Resource Recovery

Focus on recovery of materials through non-curbside programs.

Recommendations:

Community Resource Recovery Centres (CRRCs)	• Develop two facilities, one at Brady Road and another in the northern portion of Winnipeg. Focus: to manage and divert materials not normally managed at the curb. • Develop drop-off locations for re-usable items, pending interest from community organizations to manage the material. • Cooperate with stewards of provincial programs to potentially host depots for various materials (e.g. HHW and electronic waste) at the CRRC's including household hazardous waste and electronic waste. Responsibility for funding and management would rest with Stewards.
Encourage Private Sector Initiatives	• Engage local marketplace to market materials recovered by CRRCs
Recycling in Public Spaces	• Engage in discussions with CBCRA and MMSM regarding implementation of program. • Continue work to audit garbage composition to determine potential range of material types and quantities for diversion. • Assess best types of containers and location in conjunction with other City departments. • Implement program in coordination with CBCRA.
Special Events Recycling Program	• Engage in discussions with CBCRA and potentially MMSM regarding implementation of program. • Undertake a pilot study to assess collection methods and City specific messaging in partnership with the organizers of one or more major events, CBCRA and MMSM.

Potential Costs: **Capital:** $2.7 million Brady Road CRRC (mid-2013) $3.4 million Northern CRRC (late 2014) **Total: $6.1 million** **Net Annual Operating Costs (including revenues and amortized capital) (as of 2015):** **Total: $1.7 million Increase**	**Additional Staff Requirements:** • Brady Road CRRC: Up to 7.5 FTE included under Brady Road staff noted below. • Northern CRRC: Up to 11 FTE, including both operating staff and drivers
General Timelines: • Brady Road CRRC, operating by mid-2013 • Northern CRRC, operating by late 2014	**Environmental Benefits compared to Status Quo:** • Diverts up to 17,000 tpy (5% Increase in Diversion) • Reduces GHG emissions and saves landfill capacity

3. Recycling

Builds on current program, by focusing on the capture and recycling of more materials.

Recommendations:

Recycling Collection Program	• Move to automated curbside collection of Blue Carts. • Replace containers at existing seven recycling depots to facilitate continued operation. • Pilot program for improvements in MFD recycling.
Increase Processing Capacity	• Address short-term requirements for increased processing capacity. • Develop new longer term capacity for increased tonnes of materials before 2017.

Near Term Residential Waste Management System (Over Next Five Years)

Potential Costs (as of 2012, 2014):
Capital:
Recycling Carts: $9.35 million
Recycling Depots: $353,000
Processing: potentially $20.7 million for new MRF (2014)

Annual Operating (as of 2013):
Collection: $4.7 million
Depot: $63,000
Annual Cost of Carts: $1.5 million
Total Projected Collection Cost: $6.3 million
Less 2011 Collection Cost: $5.5 million
Change in Collection Costs from 2011: $800,000

Processing: $8 million
Revenues: ($7.2 million)
Total Projected Net Processing Cost: $750,000
Less 2011 Net Processing Cost: $390,000
Plus Est. Change in MMSM Funding: ($290,000)
Change in Processing Costs from 2011: $70,000

Total: approximately $870,000 increase

Additional Staff Requirements:
- Supported by existing recycling administration staff.

General Timelines:
- Cart Collection program phased in starting mid 2012
- Short-term additional processing capacity secured by mid 2012
- Long-term processing capacity secured before 2017

Environmental Benefits compared to Status Quo:
- Diverts up to 30,000 tpy (8% Increase in Diversion)
- Reduces GHG emissions and saves landfill capacity

4. Organics Diversion

Expands upon current leaf & yard diversion program, focusing on a material stream that is easy to manage and that should be diverted from disposal.

Recommendations:

Expand Leaf & Yard Collection	• Provide bi-weekly leaf and yard waste collection across Winnipeg from April to November. Materials would be set out in paper bags or approved hard wall containers.
Enhance Composting Area at Brady Road	• Develop upgraded leaf and yard waste composting facility at Brady Road, capable of managing up to 21,000 tpy of material.
Curbside Organics – Pilot Program	• Implement a trial curbside collection program (e.g. Green Bin) for household kitchen organics.

Potential Costs (as of 2012):
Capital (LYW Composting): $2.2 million
Annual Operating (as of 2013):
LYW Collection: $2.8 million
LYW Composting: $1.1 million
Amortized Capital: $0.2 million
SSO Pilot: $0.4 million
Total: $4.5 million Increase

Additional Staff Requirements:
- Collection support: included under garbage collection below.
- 1 Technologist III LYW Compost

Near Term Residential Waste Management System (Over Next Five Years)

General Timelines:	**Environmental Benefits compared to Status Quo:**
• Expanded leaf & yard collection in place by mid-2012 • Leaf and yard composting site operational by mid-2012 • Curbside SSO pilot in place by mid-2013	• Diverts up to 21,000 additional tpy (6% Increase in Diversion) • Reduces GHG emissions and saves landfill capacity

5. Garbage Collection

Transition to uniform collection program for single family households, phasing out Autobin and manual garbage collection.

Recommendations:	
Consistent level of single family garbage collection City-wide	• Run automated cart demonstration in a group of Autobin zones, to test communication plan to support roll-out across Winnipeg. • Phase in automated cart collection of garbage for remaining areas of Winnipeg.
Consistent level of bulky collection	• Implement a minimum charge per bulky item (e.g. $5 per item) and for excess set-outs.
Examine collection system efficiencies	• Rationalize collection cycle and areas as part of new collection contract(s)

Potential Costs:	**Additional Staff Requirements:**
Capital (automated carts, as of 2012): $7.2 million **Annual Operating:** Collection: $6.5 million Annual Cost of Carts: $1.1 million Total Projected Cost: $7.6 million Less Collection cost (2011 Budget): $7.5 million Net Change in Collection Costs: Increase of $100,000 Plus Increase in fees from Bulky Collection: ($700,000) **Total: ($600,000) decrease**	Collection Support: • 1 Technologist III Collection • 4.5 Technical Assistants - Temporary
General Timelines:	**Environmental Benefits compared to Status Quo:**
• Pilot in Autobin areas fall 2011 • Uniform service for garbage and bulky collection phased starting in mid-2012	• Supports increased diversion for above programs. • Supports GHG emission reductions for above programs. • Proposed collection approach has most efficient fleet compared to other SFD collection options, reducing fleet emissions.

6. Brady Road

Transition Brady Road Landfill to a resource management facility where the bulk of materials received are diverted, not buried.

Recommendations:	
Design and operational improvements	• Redirection of residential traffic from tipping face to CRRC. • Operational improvements to active tipping face.

Near Term Residential Waste Management System (Over Next Five Years)	
	• Improvements in leachate and landfill gas management.
New diversion infrastructure	• Rebrand Brady Road as being a "Resource Management Centre" • Develop CRRC as discussed above. • LYW composting discussed above. • Potential site for new Materials Recovery Facility (MRF) and Centralized Compost Facility. • "Green Park" for private enterprise which would encourage the development of industrial and/or commercial enterprises to establish diversion efforts on site to focus on recovering value from various waste streams.
Potential Costs: **Capital: noted above** **Annual Operating: noted above**	**Additional Staff Requirements (including CRRC and LYW facility):** • 7.5 FTE for CRRC • 1 FTE for LYW Composting
General Timelines: • CRRC in place by 2013 • LYW facility in place by 2012 • Other facilities potentially by 2016/2017	**Environmental Benefits:** • Supports increased diversion for above programs • Reduces GHG emissions and saves landfill capacity

Near-Term Residential System Summary

Total New Capital:	Approximately $45.9 million
Total Additional Annual Operating Cost (including amortised capital, net of known revenues, including all potential permanent staff and compared to 2011 budget):	Up to $7.3 million
Additional Diversion (Compared to Status Quo):	75,000 tpy
Increase in Residential Diversion rate:	Increase of 20%

Program	Component	Capital Cost	Change in Net Annual Operating Cost (Compared to 2011 Budget)	Diversion increase
Reduction and Reuse		Included in CRRC costs	Average of $700,000	2%
Resource Recovery		$6.1 million	Up to $1.7 million	5%
Recycling	Collection	$9.35 million	$700,000	8%
	Depots	$350,000	$100,000	
	Processing	$20.7 million	$70,000	
Organics Recovery	Collection	$0	$2.8 million	6%
	Processing	$2.2 million	$1.7 million (includes SSO pilot)	
Garbage		$7.2 million	($600,000)	Supports increased diversion
Additional Staff (not included in above totals) and external implementation support			Up to $630,000	Supports program implementation
Total		**$45.9 million**	**Up to $7.3 million**	**20%**

Note: numbers may not add correctly due to rounding.

The following figure illustrates the proposed implementation schedule for the near term residential system and the correlation between program implementation and increases in diversion.

Proposed Implementation Schedule for the Near Term Residential System



Longer-Term Residential Waste Management System

The longer term residential system expands upon the near term system through program improvements and targeting additional material streams. Incremental program improvements are proposed to build on the success of the near term programs and to encourage further progress in diversion. New programs are identified that target additional material streams for diversion (e.g. source separated organics) within a reasonable timeframe that allows for the success of the near term programs to be assessed (e.g. success in collecting and processing LYW) and new infrastructure to be developed (e.g. processing capacity for organics).

Longer-Term Residential Waste Management System (in place within 10 years)

1. Reduction and Reuse

Prevents waste generation through behavioural change. Required to 're-think' wasteful behaviour.

Recommendations:

Continue with approach applied in the near term implemented largely through expanded promotion and education including:

- Promotion of backyard and community composting,
- Re-use initiatives,
- Per capita waste reduction target,
- Encouraging grasscycling, potential implementation of a grass ban,
- Implementing community based social marketing approaches, and,
- Promotion of waste minimization.

Potential Costs:

- Annual Operating: $700,000 continues, increasing over time based on increase in households served

General Timelines:	**Environmental Benefits compared to Status Quo:**
• On-going	• Diverts up to 12,000 additional tpy (3% Increase in Diversion) • Reduces GHG emissions and saves landfill capacity

2. Resource Recovery

Identify additional sources of material for diversion.

Recommendations:

Durable (Bulky) Goods Processing	• Conduct audits of bulky items at curb and CRRCs. • Determine potential for local partnerships for operations and local markets for recovered materials. • Consider processing centre at Brady Road and possible other CCRCs or direct bulky material for shredding/grinding and recovery of metals.
Two New Community Resource Recovery Centre(s)	• Pending performance of first CRRC's and community demand, develop two additional CRRCs in the eastern and western areas of Winnipeg.

Potential Costs:
Capital: $3.4 million or more per additional CRRC.
Net Annual Operating Costs (incl. revenues and amortized capital) per CRRC: $750,000 per additional CRRC
Costs for Durable (bulky goods) processing to be determined.

General Timelines:	**Environmental Benefits compared to Status Quo:**
• Both new CRRCs operational by end 2019.	• Diverts up to 43,000 additional tpy (10% Increase in Diversion) • Reduces GHG emissions and saves landfill capacity

Longer-Term Residential Waste Management System (in place within 10 years)

3. Recycling

Further expand recycling program.

Recommendations:

Expand range of recyclable materials collected.	• Continue to assess markets for potential expanded material streams. Dialogue with MMSM regarding potential additional material types. • Ensure sufficient capacity to manage additional materials at longer-term MRF.

Potential Costs:
Cost to collect and process expanded range of recyclable materials is to be determined.

General Timelines:	Environmental Benefits compared to Status Quo:
• Ongoing: assess changes in potential materials markets • By 2017, sufficient processing capacity available	• Diverts up to 40,000 additional tpy (9% Increase in Diversion) compared to the Status Quo • Reduces GHG emissions and saves landfill capacity

4. Organics

Confirm implementation of a City-wide source separated organics (SSO) collection and processing program.

Recommendations:

Develop and implement organics collection and processing system	• Pending outcome of Near Term pilot, implement weekly organics collection, using a 'Green Bin' for single family residential households. • Collection approaches for multi-family households are to be determined.

Potential Costs:
Capital:

- Organics Processing: Ranges from $45 million to $65 million depending on technology. Could be included in per tonne operating contract cost.
- Organics Carts: in the order of $11 million based on current pricing.

Annual Operating:

- Collection cost: in the order of $4.2 million annually for single family households. $1.7 million annually for organic carts.
- Processing cost: in range of $130 per tonne for SSO (contract cost including capital). $10 million annually

Note: allocation of tonnages between LYW and SSO programs will affect overall processing costs.

General Timelines:	Environmental Benefits compared to Status Quo:
• 2013/2014: organics pilot • 2017: earliest date for organics program implementation	• Diverts up to 97,000 additional tpy (22% Increase in Diversion) • Reduces GHG emissions and saves landfill capacity

5. Garbage Collection

As new diversion programs are implemented (e.g. organics diversion), implement further restrictions on garbage collection.

Recommendations:

Examine collection system efficiencies	• Coordinate and optimize collection to enable co-collection of materials and/or other collection system efficiencies.
Implement garbage	• Consider bi-weekly garbage collection or other measures to encourage use of diversion programs.

Longer-Term Residential Waste Management System (in place within 10 years)	
restrictions	
Potential Costs: Potential to decrease single family garbage collection costs by $1.7 million per year through bi-weekly garbage collection compared to current collection costs.	
General Timelines: • Implement concurrently with SSO collection (2017 earliest date for implementation)	**Environmental Benefits compared to Status Quo:** • Supports increased diversion for above programs.

6. Brady Road

Continue to shift focus of Brady Road from Disposal to Resource Management.

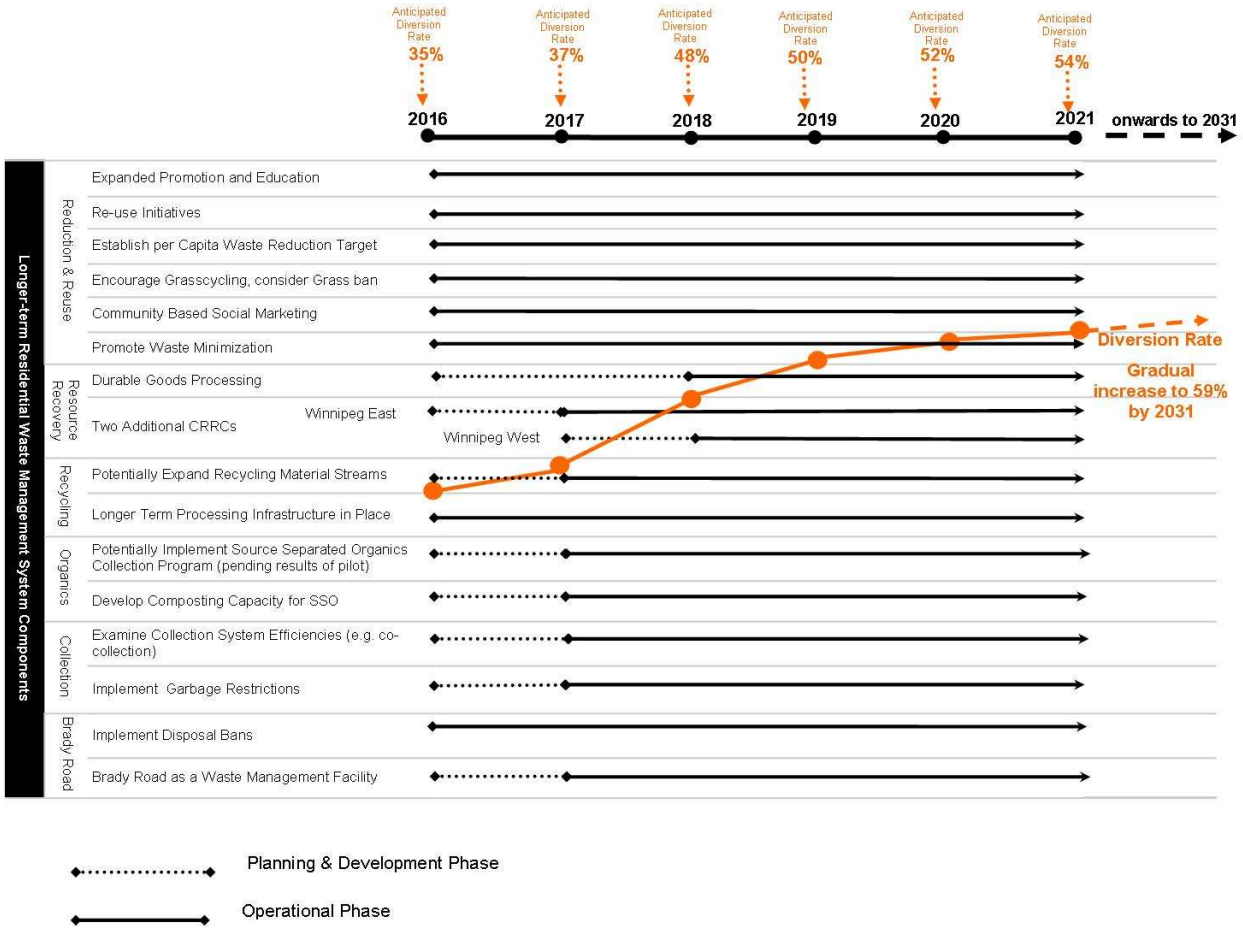
Recommendations:	
Implement Disposal Bans	• As programs are implemented to divert materials, ban them from disposal at Brady Road. 'Ban' implemented through punitive tipping fees.
Brady Road as a Regional Waste Management Facility	• Dialogue with the Province, Capital Region Rural Municipalities, Towns and Cities interested in sharing services offered at Brady Road (both diversion and disposal).
Potential Costs: **Capital:** Some capital expense may be incurred – to be determined. Should be financed on cost recovery model. **Annual Operating:** Additional labour required to implement ban – cost recovery through tipping fees.	
General Timelines: • Implement Disposal Bans for materials when mature diversion plans are in effect • Pursue Regional role for Brady Road facilities when diversion infrastructure is in place	**Environmental Benefits:** • Supports diversion through other programs

Longer Term Residential System Summary

Total New Capital:	Full range to be determined
Total Additional Annual Operating Cost (including amortised capital, net of known revenues, including potential change in staffing complement and compared to 2011 budget):	Up to $23 million
Additional Diversion (compared to Status Quo):	192,000 tpy
Increase in Residential Diversion rate:	Up to 59%

The following figure illustrates of the proposed implementation schedule for the longer term residential system. It also shows the correlation between program implementation and projected increases in diversion.

Proposed Implementation of the Longer Term Residential System



The recommended residential system does not include options that either do not fit within the system based on other recommended components, or where the viability of pursuit of the option was uncertain.

Certain disincentives applicable to garbage collection, such as bag limits or a transition to clear bags, were not considered as reasonable longer term system components given the near term recommendation to transition the residential sector to automated carts. Once an automated cart system is in effect, it would be difficult to change back to a bag-based collection system. There are other disincentives related to garbage collection that are viable with a cart based system as included in the longer term system recommendations noted above.

Alternative technologies such as conventional and emerging waste to energy approaches were not carried into the residential system. The Brady Road landfill has significant remaining capacity, and the life of the landfill would be extended through implementation of the recommended diversion programs. There is also a significant difference in waste disposal costs between continued operation of Brady Road and the reported costs for alternative technologies. Reported capital costs for alternative technologies that are used to recover energy and materials from the solid waste stream that remains after diversion, range from $775 to $1,300 per annual design tonne. Reported net operating costs (costs less revenues) for these technologies range from $75 to well over $100 per annual design tonne. The potential role of alternative technologies can be reassessed over the longer term through the CIWMP review process, which would allow for new developments or concepts to be reviewed.

CONCEPTUAL IC&I AND C&D SYSTEM

The City provides curbside collection services to a small portion of the IC&I sector and accepts IC&I and C&D waste at the Brady Road Landfill. In addition, waste generated by City operations is also managed at the Brady Road Landfill.

It is estimated that in total, 350,000 tonnes of IC&I waste and 125,000 tonnes of C&D waste is generated each year within Winnipeg. C&D material quantities are difficult to estimate as they are often generated periodically based on construction starts and as much of this material is not tracked. The majority of the IC&I and C&D materials are managed at private sector facilities and operations outside of the City's system. It is estimated that the City manages around 20% of the IC&I and C&D waste generated. The options considered for diversion of IC&I and C&D materials acknowledge that the majority of these materials are managed outside the City's system. The City can encourage and support diversion but is not in the position to control the level of diversion by these sectors.

The potential near and longer term IC&I and C&D system components that have been identified below form the basis of a diversion concept that would be complementary to the residential system, and would support the transition of Brady Road from a disposal to a resource management facility. These program components would not compete with the private sector system that manages the majority of IC&I and C&D materials, rather they would serve to complete the IC&I and C&D system by providing equivalent support for waste avoidance and resource recovery as is planned for the residential sector.

Potential Near Term IC&I and C&D Waste Management System (Over Next Five Years)	
Conceptual Programs:	
Development of Green Procurement Guide	• Develop a Green Procurement Guide specific to the IC&I and C&D sectors.
Support for Commercial Re-use Programs	• Develop a waste exchange website.
On-going Diversion	• On-going dialogue with the IC&I sector concerning waste diversion. • Voluntary certification program for businesses that meet specific waste reduction and

Potential Near Term IC&I and C&D Waste Management System (Over Next Five Years)	
Dialogue with IC&I Sector	diversion standards set by the City.
Encourage LEED ® Standards	• In the near term, encourage new facilities built within City boundaries over a certain size to achieve LEED® certification.
Strategic Partnerships	• Provide assistance to and support for entrepreneurs by providing a location for developing new diversion facilities.
IC&I and C&D Materials Depot at Brady Road Landfill	• Develop an area for the diversion of IC&I and C&D materials at Brady Road Landfill; could be in the form of a re-use area (specifically for C&D materials) and a recycling station for divertible materials. Could be integrated with the Brady Road CRRC.
Research Partnerships with Post-Secondary Institutions	• Research partnerships with local post-secondary institutions to investigate different methods to re-use different materials and establish end markets for hard to recycle materials.
Expand IC&I Curbside Recycling	• Expand curbside recycling collection eligibility for small businesses.
Support and/or Expand School Recycling and Curriculum	• Support in-school recycling. • Cooperate with both Multi Material Stewardship Manitoba (MMSM) and the School Boards to develop appropriate curriculum for students.
Differential Tipping Fees	• Variable tipping fees on incoming IC&I and C&D loads depending upon the type of acceptable recyclable material in the load and whether materials are separated or mixed.

Conceptual Near Term IC&I and C&D System Summary

Total Additional Capital:	up to $4.5 million
Annual Operating Cost (some additional costs and revenues to be determined, should aim for full cost recovery from system users, initiatives designed on cost-recovery basis):	up to $2.5 million
Potential Diversion (if just targeting current generators using the City's system):	24,000 tpy
Increase in IC&I Diversion rate (compared to Status Quo):	Up to 31% of IC&I managed by the City
Increase in C&D Diversion rate (compared to Status Quo):	Up to 25% of C&D managed by the City

The concept for the longer term IC&I and C&D system expands upon the near term system, including additional measures to discourage waste disposal.

Potential Longer Term IC&I and C&D Waste Management System	
Conceptual Programs:	
Incentives and Social Marketing	• Expansion of P&E and social marketing to the IC&I and C&D sectors as appropriate.
City Advocates for IC&I Diversion Regulations/Policies	• Dialogue with Province regarding potential IC&I diversion regulations/policies
Mandatory Diversion By-law	• Implement a mandatory diversion by-law for IC&I and C&D generators that use the City's system for collection, processing, or disposal. • Could see changes to building code that would require diversion of C&D materials coupled with LEED
Process Commercial Food Waste	• Provide capacity to process and divert commercial food waste provided there is a residential SSO program.
Disposal Ban	• Prohibit the disposal of designated materials at the point of disposal at Brady Road Landfill. Loads of material exceeding permitted levels of banned material would be rejected or subject to a surcharge ▪ Would require change in operation of Brady Road Landfill including load inspections and additional area for diverting banned materials.
Expand "Green Park" for Private Enterprise	• The City should actively seek opportunities to engage the private sector in order to expand the Green Park.

Conceptual Longer Term IC&I and C&D System Summary

Full Costs: :	To be determined – Programs to operate on a cost recovery basis
Potential Diversion from Current Generators using the City's system:	Up to 76,000 tpy of IC&I and C&D waste currently managed by the City
Increase in IC&I and C&D Diversion rate (compared to Status Quo):	Up to 80%

DIVERSION PERFORMANCE AND PROJECTIONS – RESIDENTIAL DIVERSION

Based on the recommended system, it is expected that in the near term the City's residential diversion rate can be increased from 15% to approximately 35%. Note: these diversion rates reflect the full system used to manage residential materials (curbside and non-curbside programs). The following table summarizes the increase in tonnage recovered for each major component of the recommended near term residential system.

Near-Term Increase in Residential Tonnes Recovered

Component	Estimated Increase in Diversion (compared to 2009)	Estimated Increase in Tonnage Recovered (rounded)
Reduction & Reuse	2%	7,000
Resource Recovery	5%	17,000
Recycling	8%	30,000
Organics	6%	21,000
Collection	Supports Above Programs	n/a
Brady Road	Supports Above Programs	n/a
Total	**20%**	**75,000**

Note: numbers may not add correctly due to rounding.

Based on the recommended system, it is expected that in the longer term the City's residential diversion rate can be increased to approximately 59%. This projected diversion rate assumes full implementation of all of the recommended system components.

Municipalities that are currently achieving similar diversion rates (including the Halifax Regional Municipality, and the Region's of Halton and York), have implemented waste management systems very similar to that proposed for Winnipeg.

The following table summarizes the estimated increase in tonnage recovered for each major component of the longer term residential system.

Longer Term Increase in Residential Tonnes Recovered

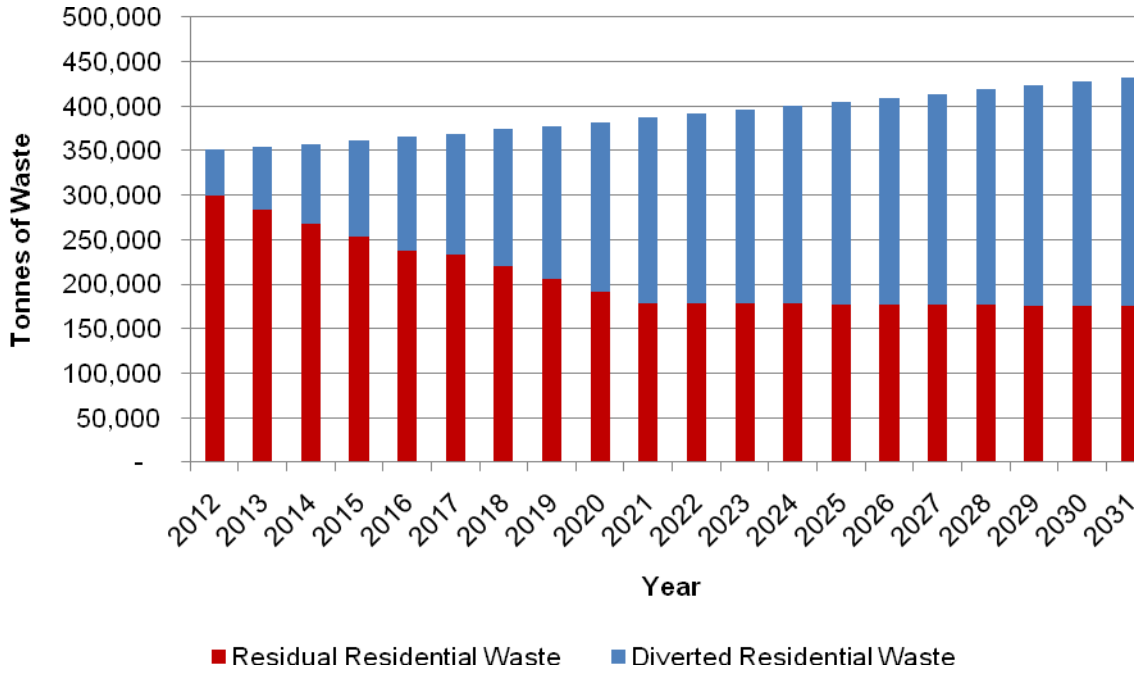
Component	Estimated Increase in Diversion (compared to 2009)	Estimated Increase in Tonnage Recovered (rounded)
Reduction & Reuse	3%	12,000
Resource Recovery	10%	43,000
Recycling	9%	40,000
Organics	22%	97,000
Collection	Supports Above Programs	n/a
Brady Road	Supports Above Programs	n/a
Total	**44%**	**192,000**

Several environmental benefits will be realized at Brady Road Landfill due to the implementation of the recommended options over the planning period, including:

- The life of Brady Road will be extended as less airspace will be consumed. It is estimated that landfill airspace consumption could be reduced by 50% by 2031.
- Brady Road will be more stable as less biodegradable material will be landfilled.
- Less GHG emissions, odour, and nuisance effects will be appreciated because less biodegradable material will be landfilled.
- The potential for harmful leachate production will be reduced.
- One tipping face will be able to be closed, reducing various impacts from landfill operations (odour, litter etc.).

Overall, the recommended system would result in a substantial increase in residential diversion over the 20 year planning period, as demonstrated in the figure below.

Estimated Residential Residual Waste Disposed and Waste Diverted Year-by-Year over the Planning Period (2012-2031)



FINANCING THE CIWMP

The following table summarizes the total expenditures and revenues identified in the 2011 solid waste budget. Major revenue sources within the solid waste budget include tipping fees, sale of recyclables and recycling program support funding through MMSM.

The net cost for waste management services ($18 million after other revenue sources) is funded through the levy (property taxes). Based on the 2011 budget and allocation of the budget based on the tax rates, the portion allocated to the various sectors in Winnipeg, and average SFD property values, the 2011 waste services levy per SFD was on average $59 per household.

Total 2011 Budget Expenditures	$ 45 million
Total 2011 Budget Revenues	($27) million
Net System Cost	$18 million
2011 Solid Waste Portion of the Levy per Average Single Family Dwelling	$59

On a preliminary basis, it is anticipated that implementation of the recommended residential system could increase program costs in the near term by up to $24 per residential household as of 2015 if all of the additional costs were allocated to the residential sector in Winnipeg. If the increase in program costs were allocated just to the SFD sector which would be the prime beneficiary of the changes in service, the cost increase would be $37 per SFD.

Residential program costs could increase by up to $73 per residential household or up to $113 per SFD in the longer term (year 2019), if the increase in longer term system costs were allocated only to the residential sector in Winnipeg. Potential changes in program costs to reflect the recommended IC&I and C&D diversion initiatives are not included in this analysis as the preferred approach would be to seek full cost recovery from the users of the IC&I and C&D components of the system.

The potential change in residential program costs over the near and longer term, are summarized briefly below. The changes in costs are discussed in terms of allocation to single family dwellings, in that the majority of new program components affect the programs offered to SFDs. The near term costs identified are those for 2014, as 2012 and 2013 represent transition years; many of recommended program components would be phased-in beginning mid-2012 through to mid-2013. 2014 represents the first full year in which the majority of the recommended near term system would be in effect.

	Potential Increase in Net Expenditures	Increase if allocated only to Single Family Residential Dwellings	Total Net Expenditures (if increase allocated to Single Family Residential Dwellings)
Current (2011)	2011 Solid Waste Portion of the Levy per Average SFD		$59
Near Term (2014)	$7 Million	$37.	$96
Longer Term (2021)	$23 Million	$113.00	$169.00

Two options for recovery of net system costs have been assessed as part of the planning process. Others were initially considered (e.g. charge per bag of waste), however, they were not reasonable to carry forward given that it is recommended that the City move to a uniform residential collection system that collects garbage in automated carts. The remaining options are discussed below.

In addition to examining mechanisms to recover net system costs, the potential for reserve fund development was also examined. A solid waste reserve fund could be established through a number of mechanisms, for the purpose of funding future capital costs for waste management. This would reduce the year –to-year fluctuation in taxes and could reduce the overall costs of implementing the recommended system through reducing borrowing costs.

Examining the potential capital budgets identified to support the transition to an enhanced waste management system, indicates that there are a number of periodic capital investments that could be financed through reserves. In the order of $20 million, would finance the cost of organic carts or replacement of the kitchen. For both options for net cost recovery, there are means of setting aside reserves these are also discussed below.

Concept 1: Continue to Finance Net Costs (after all other revenues) through the Solid Waste Portion of the Levy. Additional tax support of up to $7.3 million (year 2015) annually in the near term.

Currently, the net costs of waste management (i.e. the net cost of $18 million in the 2011 budget), is recovered through municipal taxes (otherwise referred to as the levy). Based on review of the 2011 short-form taxation information provided by the City, in the order of 59% of the overall amount levied in 2011 will be recovered from the single family residential portion of the tax base. In regards to the allocation of the 2011 net waste management costs, this would involve recovery of $10.6 million from single family residential property owners.

The following table briefly summarizes the allocation of 2011 waste costs to the residential tax base, and the estimated proportion of 2011 costs included within the solid waste portion of the levy for an average single family dwelling including an annual contribution to reserves of approximately $1.9 million annually (resulting in a cumulative reserves of $20 million as of 2021). Assuming that there is no change in the mill rate or portioned assessment, it is estimated that the potential change in the levy for a typical single family dwelling to recover waste management costs as of 2014 would increase by approximately $29, a 2% increase in the overall levy for a typical household.

Municipal Taxes Allocated per Typical Household

Average Home Assessment (2010)	$207,548
Portioned at 45%	$93,396.60
Calculated Levy 2011	$1,429
Solid Waste Portion of the Levy (2011)	**$59**
Calculated tax impact - Increase in Waste Management Costs (2014)	**$29**
Waste Management Cost per Typical Household (2014)	**$89**
Percent Increase in overall Levy	2%

Should the City choose to recover the net costs of the recommended system from the solid waste portion of the levy, this would:

- Recover the net costs of the system from the entire tax base, from all sectors, such that the single family residential sector would be levied in the order of 60% of the net change in program costs.
- Not be directly reflective of the costs of providing services to each sector, as this would allocate a portion of the additional program costs to the multi-family sector, institutions and other portions of the property tax base.
- Allocate the program costs to the residential sector using a process that is reflective of property value, not the cost of providing service to each residential property. Thus, residents in a higher value property would generally pay more than the actual cost of providing service to that property, while residents in lower value properties would generally pay less than the cost of providing waste services to that property.
- Result in an increase in the solid waste portion of the levy of up $7.3 million as of 2016, an increase of 50% in the waste portion of the levy compared to 2011. Overall, the increase in waste management expenditures is estimated to increase the overall levy by 2% compared to 2011.
- Would involve setting aside approximately $1.9 million to reserves, resulting in an accumulation after 10 years of approximately $20 million, which could be used to fund future capital investment.

Concept 2: Applying a "Flat Rate" per Single Family Residential Household to recover a portion of system costs. Charge each single-family residential premise a flat rate reflective of the cost of garbage collection and including provisions for reserve fund development.

Another approach would be to recover the majority of the change in program costs directly from the residential sector, through the application of a 'flat rate'.

In most jurisdictions that use a "Flat Rate", it is used to recover a portion of the solid waste system costs. Generally it is used to recover costs for garbage collection and disposal from the residential sector, so that the residential sector pays a cost that is reflective of the cost of providing garbage collection service and disposing of the waste.

In many jurisdictions this "Flat Rate" is presented as a 'pay as you throw' approach for cart collection, as it reflects the annual cost for collection of a standard-sized cart for garbage. Households that choose additional carts or larger sized carts than the standard, would pay a higher rate for garbage collection.

In regards to implementation of a "Flat Rate" in the City of Winnipeg to finance the CIWMP:

- The projected cost of garbage collection for the single family sector would reach up to $7.6 million during the near-term period. If a flat rate were used to recover the cost of garbage collection from this sector, it would be in the order of $40 per household.

- The projected cost of garbage collection for the multi-family residential sector would be in the order of $3.4 million during the near-term period, and would be allocated to that sector based on portioned assessment.
- The cost for diversion would remain on the tax supported portion of the budget. The philosophy is that all sectors of the City benefit from increased diversion, through the savings of landfill capacity and the avoided impacts to the environment.
- If a flat rate were set to recover the cost of single family residential garbage collection, there would be no increase in the Levy as a result of implementing the recommended CIWMP in the near term.
- Setting the rate at an amount higher than the projected cost of garbage collection, would provide an alternative means of generating reserve funds that would be used to finance future changes to the waste management system.

  Setting the rate at $50 per household for the first five years of the implementation period and an escalated rate in the next five years (2017 to 2021) to reflect implementation of organics collection, could generate reserves of approximately $20 million over the first 10 years of implementing the plan.

The following table briefly summarizes the allocation of projected waste costs to the residential tax base, and the estimated proportion of 2014 costs included within the levy for an average single family dwelling, assuming that there is no change in the mill rate or portioned assessment. It is estimated that the potential change in waste management costs for a typical single family dwelling to recover waste management costs as of 2014 would increase by approximately $37, a 3% increase in the overall levy for a typical SFD. Under this scenario, the solid waste portion of the levy would decrease, as the levy would not be used to recover the cost of collection from SFD and as the cost of collection from multi-family households would be allocated just to that sector.

Municipal Taxes Allocated per Typical Household

Average Home Assessment (2010)	$207,548
Portioned at 45%	$93,396.60
Calculated Levy 2011	$1,429
Solid Waste Portion of the Levy (2011)	**$59**
Estimated Solid Waste Portion of the Levy (2014) (net expenditures for all services except for garbage collection)	$46
Flat Rate: Annual Waste Management Charge for Collection (2014)	$50
Waste Management Cost per Typical Household (2014)	**$96**
Percent Increase in cost per Household (Levy plus Flat Rate)	3%

Financing the CIWMP through a “Flat Rate” offers the following advantages, and thus is recommended as the most reasonable financing approach for the City:

- It allocates the costs for garbage collection services provided to the residential sector, to this sector of the tax base which received and benefits the most from this service.

- It allocates the costs for diversion services to the full tax base, which all benefit from the reduced consumption of airspace at the Brady Road landfill and avoided impacts to the environment.
- It would result in an increase of approximately $37 annually for a typical residential household (around 10 cents per day), while financing significant improvements in service offered to the residential sector including provision of two new collection carts to the majority of residential households as well as two new diversion facilities.
- Based on setting the rate at $50 in the near term and increasing over the longer term, it would generate reserve funds of around $20 million, which could be used to finance new infrastructure such as new composting or recycling facilities.

IMPLEMENTATION OF THE CIWMP

Organization and Staffing Complement

The current staffing complement of the Solid Waste Services at the City of Winnipeg includes in the order of 48 full time equivalents (FTEs), and is reflective of the current status of the waste management system. The current staffing complement, particularly in regards to administration, promotion & education and operational program support is low for a City of this size in Canada and is considerably less than the staff complement fulfilling these roles in municipalities with programs similar to those proposed for the City. The difference in staffing complement is primarily in that these jurisdictions have a larger complement of planning & implementation staff allocated to assessing current program performance and supporting change, and dedicated communications specialists to support the promotion and education programs.

In order to implement the recommended system in the near term the City will require additional resources including:

- A dedicated implementation team that includes Solid Waste administrative and program management staff. Given the complexity and scope of the plan, external support through consultation services is recommended. This will be of critical importance to support the bid opportunities for the potential new MRF and composting facility, where detailed technical specifications will be required.
- Operational staff to manage and operate a number of the new facilities included in the system. Note: the estimates below do not include a full staff complement for City management of any new MRF or centralized composting facility, as it is more likely that the City would contract the operation of these facilities.
- Administrative staff and by-law enforcement staff, to administer and support the new programs.
- Dedicated communications resources, to support the proposed promotion and education and community based social marketing components.

The permanent staffing increase would be in the order of 24.5 positions. Four and a 1/2 (4.5) temporary positions have been identified to support implementation of new programs in 2012 /

2013. Any longer term staffing needs would be reported on separately prior to completion of near term projects and after detailed planning for the longer term projects is completed.

Administration:	Brady Road and New Facilities at the landfill (CRRC, LYW composting etc.):
• 2 Communication Assistants • 1 By-law Constable dedicated to Solid Waste Services Division. • 1 Technical Assistant – Compliance and Reporting • 1 Project Engineer - Coordinator	• 1 Technologist III – LYW composting • 1 Technologist III – CRRC • 1 Technologist II - CRRC • 3 Operator IV - CRRC • 2.5 Technical Assistant - CRRC
Stand-alone CRRC (per facility):	**Collection:**
• 1 Technologist III – CRRC • 1 Technologist II - CRRC • 3 Operator IV - CRRC • 6 Technical Assistant - CRRC	• 1 Technologist III • 4.5 Technical Assistants - Temporary

Monitoring and Reporting

The monitoring of system performance is an important aspect of ensuring the proper functioning of the overall waste management system and ensuring CIWMP goals are achieved. The CIWMP recommends that the City monitor system performance through regular waste auditing (i.e. residential, bulky waste, material brought to CRRCs, City operations waste).In addition to auditing there are a number of other indicators that can be measured and tracked.

It is recommended that the results of monitoring initiatives be reported on a regular basis internally within the City and externally to outside stakeholders. Primarily, this would take the form of an annual report on the CIWMP. This annual report should provide an overview of the applicable objectives for that year and documentation on how the City reached these goals. It should also include a list of issues that arose during the year and how these issues were mitigated. Finally, the report should include a section regarding the planned CIMWP implementation activities for the following year.

It is also recommended that City conduct periodic reviews and updates to the CIWMP at various times throughout the planning period (2011-2031). The recommended schedule for the review of the CIWMP is based on accommodating a reasonable cycle of contracts and the election cycle of council as follows: Review 1, 2016; Review 2, 2020; Review 3, 2024; Review 4, 2028; Review 5, 2031.

Communications, Promotion & Education

Communications are a vital component of the CIWMP implementation plan. A communications plan will ensure a coordinated approach for the implementation of the reduction, diversion and disposal initiatives. Without a communications plan, messages may be released to the public in a piecemeal fashion, which will not have as great of an effect as a coordinated outreach

program. Effective communications plans contain four primary elements: design, funding, deployment, and monitoring and evaluation.[2] Once a campaign is designed and funded, its deployment should use a mix of media including strategies such as radio or TV, calendars, websites, public relations, and other interactive methods including social marketing approaches. Sustained programs, with year-round exposure are identified as a best practice and are preferable to one-time blitz campaigns.

SUMMARY OF RECOMMENDATIONS

The recommendations identified in the CIWMP can be summarized as follows:

1. Implement improvements to the residential waste management system in the near-term to increase diversion to 35% with an increase in net waste management costs of up to $7.3 million that includes: expanded promotion and education programs; drop-off centres to recover resources from the waste stream; improvements to recycling collection; expanded leaf & yard waste collection and processing; a uniform approach to collecting garbage; and, improvements at the Brady Road landfill.
2. Consider further expansion of the residential diversion program in the longer-term to increase diversion to 59%, with an increase in net waste management costs of up to $23 million, that includes additional resource recovery centres and diversion of kitchen organics.
3. Consider near and longer term IC&I and C&D diversion programs that are complementary to the residential system, and support the transition of Brady Road from a disposal to a resource management facility.
4. Finance the CIWMP through a 'Flat Rate' per single family residential household set at $50 annually for the first few years of implementation, which would be sufficient to cover the net change in waste management costs in the near term and that would be used to set aside reserves to fund future changes.
5. Adjust the staffing complement for solid waste services, to administer, support and operate the programs included in the CIWMP.
6. Regularly report on progress in implementing the CIWMP and review the plan at least every five (5) years.
7. Support implementation of the CIWMP with a comprehensive approach for communications, promotion and education that includes social marketing.

[2] KPMG, R.W. Beck. 2007. *Blue Box Program Enhancement and Best Practices Assessment Project – Volume 1*.