

THE REGIONAL MUNICIPALITY OF YORK

Committee of the Whole
Environmental Services
September 19, 2013
Report of the
Commissioner of Environmental Services

FINALIZATION OF SM4RT LIVING SOLID WASTE MASTER PLAN AND IMPLEMENTATION PLAN

1. RECOMMENDATION

It is recommended that:

1. Council endorse the SM4RT Living Solid Waste Master Plan.

2. PURPOSE

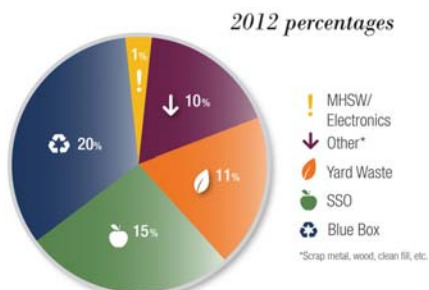
The purpose of this report is to seek Council endorsement of the completed SM4RT Living Solid Waste Master Plan and provide an overview of the first five years of implementation actions.

3. BACKGROUND

York Region has a demonstrated track record of leadership in delivery of waste management services

York Region has consistently ranked at the top of the Waste Diversion Ontario Diversion Rate in the Large Urban category over the last several years. In 2012, the unverified diversion rate for York Region was 57 per cent (Figure 2).

Figure 1
WDO Diversion Rates and Ranking



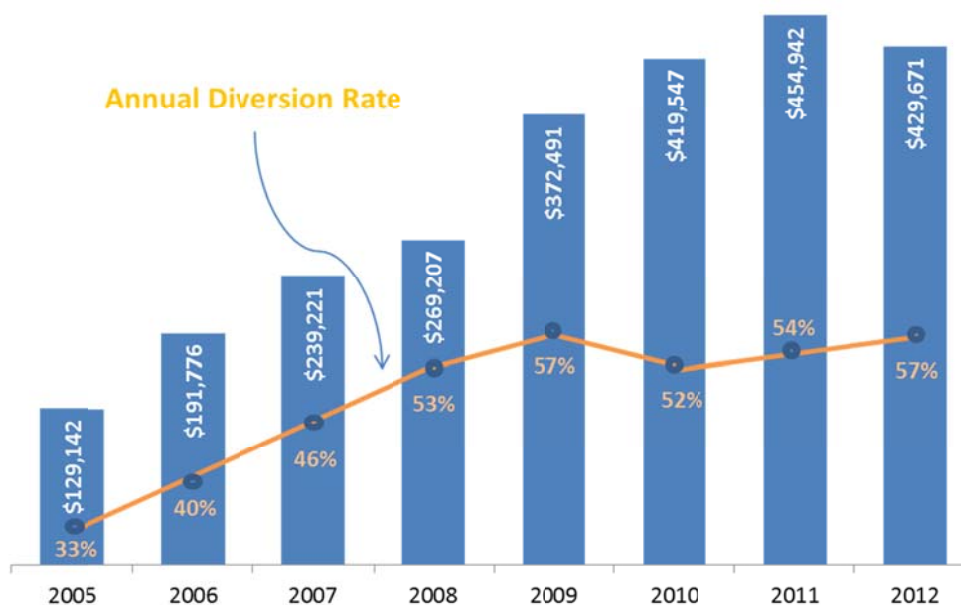
Year	WDO Diversion Rate	Ranking
2007	45.7%	#6
2008	53.0%	#1
2009	57.0%	#1
2010	52.2%	#2
2011	54.3%	#2
2012	57.2% (unverified)	N/A

Together with local municipal partners, York Region's Blue Box and Green Bin programs are one of the most successful in Ontario with participation of upwards of 80 per cent for both programs.

SM4RT Living Solid Waste Master Plan drives innovative reduction programs as waste diversion returns become more limited

York Region has demonstrated leadership in diversion since 2005. With each success in diversion, costs have continued to escalate with a diminishing rate of return on investment (Figure 3).

Figure 2
Average Operating Cost Per Point of WDO Diversion in York Region
from 2005 to 2012



The low hanging fruit in terms of diversion has been addressed, resulting in incremental gains since 2008. Adding new diversion programs and technologies will significantly increase costs to deliver waste management services in York Region and provide marginal return in diversion.

Decreasing waste generation will allow for 'infra-stretching' or the ability to extend the life of assets and cost effectively manage increasing demand associated with growth in York Region. With a decreased amount of waste, the Materials Recovery Facility and the

Durham York Energy Centre may be able to manage demand without expansion for longer than anticipated.

Waste reduction is the next frontier in waste management

Diversion performance has stalled in many municipalities across Ontario. With the release of the proposed *Waste Reduction Act*, the Province acknowledges the need to refocus on waste reduction rather than diversion. Ontario is lagging behind other jurisdictions in Canada and around the world when it comes to recycling waste, generating about 12 million tonnes of waste a year but diverting only 25 per cent from landfill. Furthermore, the recycling rate for the industrial, commercial and institutional sectors such as factories, shopping malls, universities is only 13 per cent. There is a need to focus on the measure of waste generation that emphasizes waste reduction and cost avoidance rather investing in new diversion programs with little return on investment and incremental environmental benefit.

SM4RT Living Solid Waste Master Plan sets course for waste management in York Region for the next 40 years

Employing the success of other long term infrastructure master plans, the Region along with the local municipalities embarked on a course in 2011 to develop a plan on how waste management services would meet Provincial growth targets. The first master plan for waste management in York Region, the Integrated Waste Management Master Plan or SM4RT Living Solid Waste Master Plan, was completed in Q3 2013 (Figure 1).

Figure 3
Phases of the Integrated Waste Management Master Plan



4. ANALYSIS AND OPTIONS

Policy, advocacy and partnerships will drive further gains in diversion and waste reduction to extend capacity of existing infrastructure

Mid to long term options and contracts for York Region's waste streams are currently in place with priority on recycling and recovery, as directed by Council. Having had success with this approach, the SM4RT Living Solid Waste Master Plan (see *Attachment 1*) is moving in the direction of zero waste with a focus on reduction and reuse opportunities over the next 40 years. Many of the options being investigated focus on policy, advocacy, influencing behaviour change and partnership development in response to stakeholder feedback. Putting emphasis on these areas will attempt to lower per capita waste generation with an increasing population and decrease reliance on new or expanded waste processing and disposal infrastructure.

Optimization of services is future focus in the SM4RT Living Solid Waste Master Plan

The strategy for the Community Environmental Centre network provides principles for further expansion. Smaller depot facilities may be considered as an alternative to full scale, capital intensive facilities in future network expansion dependant on serviced population and available land.

Future programming at the sites includes increasing collection of designated materials being considered under the Province's proposed Waste Reduction Strategy with extended producer responsibility based programs such as carpet. Onsite reuse components will be excluded from design of future Community Environmental Centre to drive customers to the ample reuse options established within their own communities. The revamp of the 'Bindicator' web search tool will provide residents with local program availability for return-to-retail and reuse/repurpose options within the community for resident convenience.

Leaf and yard waste processing continues to remain a contracted service. The Plan provides additional emphasis on backyard composting and linkages with the Long Term Water Conservation Strategy, such as grasscycling to reduce water use, are projected to provide small reductions in tonnes of waste requiring management.

The Blue Box strategy recommends no major investments in large infrastructure at the Materials Recovery Facility; however, there is possibility of capital expenditure for equipment upgrades and tip floor expansion. Uncertainty over extended producer responsibility and continued involvement of municipalities in delivering waste management services is a focus of advocacy as part of this strategy.

The Source Separated Organics strategy provides principles for evaluation of technology when investigating the option of a York Region-Dufferin County partnership facility. Currently, sufficient contract capacity is available for this stream until 2017. In February

2013, Council authorized the development of a procurement strategy with \$65 million currently allocated in the 10 year Capital Plan. The facility projected to begin design in 2016.

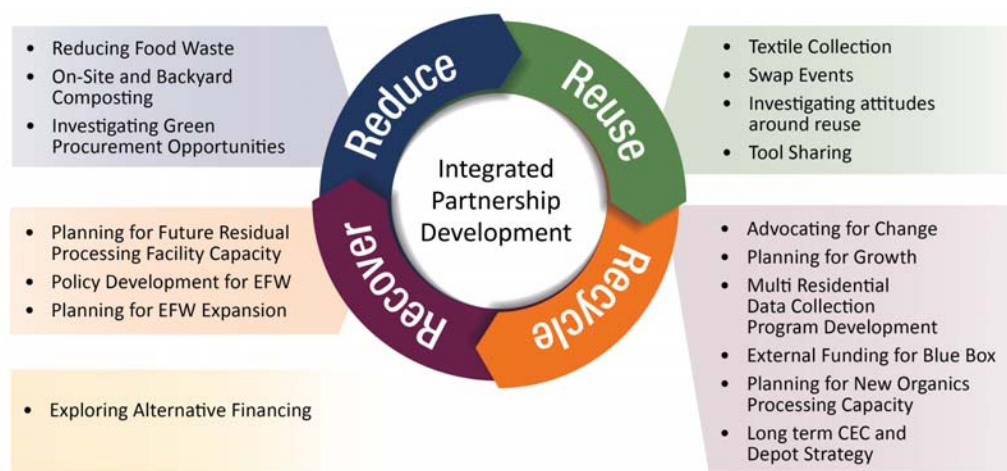
The expiration of the contract with Dongara in 2028 will provide the first opportunity to review additional residual waste processing or disposal options which focus on the 4th R, recovery. Investment in over-sizing key components in Durham York Energy Centre enables expansion to meet future disposal needs when required.

Implementation plan developed using comprehensive evaluation and integrating successful elements from other jurisdictions to deliver best in class waste management program

In Phases 1 and 2, best practices and possible program delivery options were identified. In Phase 3, strategies and series of pilots and programs were developed to address gaps identified in Phases 1 and 2. Consideration was given to life cycle and broader system impacts. This process narrowed several hundred possibilities in the research to 69 pilots and programs for consideration.

York Region staff, local municipal partners and the consultant team evaluated each initiative based on anticipated results as well as environmental, social and economic impacts. Consideration was also given to impacts on the 4Rs for each of the strategies. 17 different programs and pilots were selected and resourced for delivery in the first five years based on biggest impacts in terms of life cycle benefits balanced with 4Rs impacts (Figure 4).

Figure 4
Pilots Projects and Programs for First 5 years of Implementation of SM4RT Living Solid Waste Master Plan

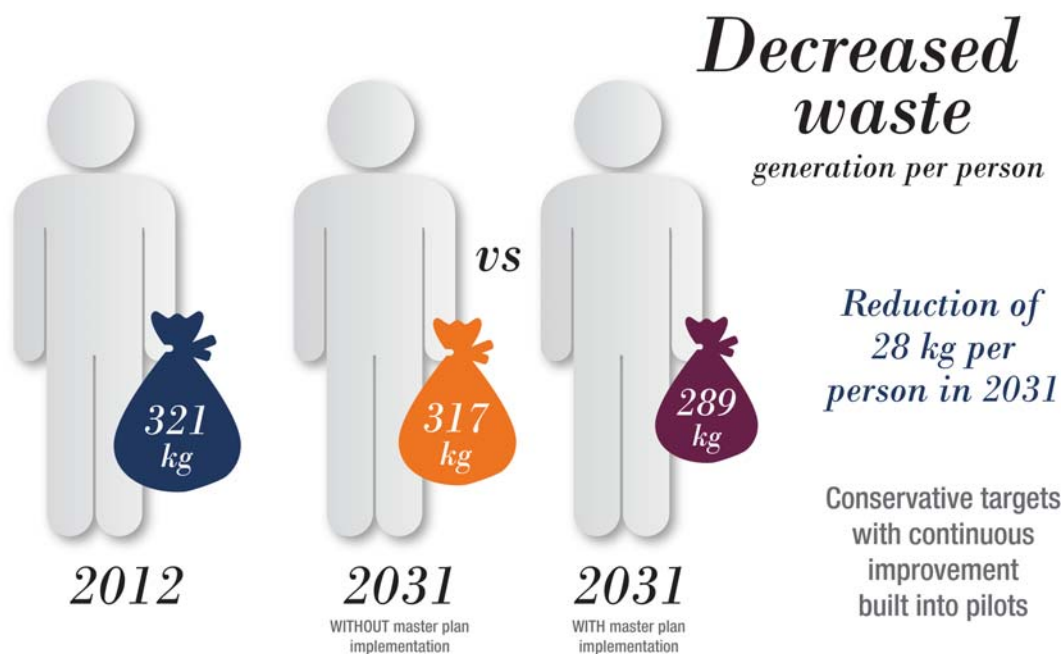


Pilot development includes programming based on success in other jurisdictions, particularly with food waste. Pilots will provide opportunity to fine tune programs on a small scale with opportunity to recalibrate. Emphasis is placed on understanding barriers to program success and participation. Working with community and industry partners will increase understanding of impacts and leverage common objectives in reduction.

Conservative targets with continuous improvement built into pilots result in projections demonstrating cumulative waste reduction of over 165,000 tonnes by 2031

Realizing the projected impacts of the SM4RT Living Solid Waste Master Plan relies on a balance between behavioural change and infrastructure. Some of the major reduction drivers are food waste reduction programs and reuse programs. Development of the SM4RT Living Solid Waste Master Plan focused on delivery initiatives with emphasis on the first 2 R's in the waste management hierarchy, reduction and reuse. The combination of initiatives for implementation is projected to drive reduction and waste generation from approximately 321 kg per person in 2012 to 289 kg per person in 2031, a reduction of approximately 10 per cent (Figure 5).

Figure 5
Projected Impact on Waste Generation and Costs from 2012 to 2031



Food waste reduction strategy drives greatest reduction potential and provides innovative linkages with Community and Health Services and community partners

Based on waste audits conducted for the United Kingdom's 'Love Food, Hate Waste' campaign, 'wasted food' or food that still remains unconsumed in packaging represents up to 20 per cent of the food waste component in a green bin stream. In 2012, the Value Chain Management Centre published a study on food wastage, indicating that up to 40 per cent of all food produced in Canada is wasted and over half of this is in the home. A significant opportunity exists to reduce the amount of food wasted in York Region based on similar successful programs. The 'Love Food, Hate Waste' campaign in the United Kingdom has reduced approximately 1.1 million tonnes of food waste, representing 18 per cent over three years. The SM4RT Living implementation plan is setting a conservative target in food waste reduction of 15 per cent or decreasing approximately 13,845 tonnes per year by 2031.

Tactics to deliver reduction are practical and tangible and include gauging awareness of the issue, developing targeted education and awareness campaign with community partners, such as the York Region Food Network, and monitoring program success. Other tactics include reinvigorating use of backyard composting, launching promotion and education campaigns with local municipal partners and developing community gardens.

A unique opportunity presents itself to partner with Community and Health Services on food related messaging that provides synergy and leverages existing programs and linkages in food safety, security and nutrition programs.

Planning for growth and intensification provides unique opportunity to redefine waste diversion in York Region for multi residential and mixed use developments

The Town of Richmond Hill created standards for delivery of waste management in new developments that will be incorporated as a requirement and triggered in the site plan review process. The development standards contain requirements that must be met to receive municipal collection, such as submission of a waste management plan to the Town, educational material for residents and appropriate spacing for bins. A generic 'model' standard template was produced for consideration by other municipal partners.

Input into the implementation plan has been solicited from both Community Planning and Long Range and Strategic Planning. Initiatives support three stream collection in the Official Plan in new buildings, retrofits of existing buildings as well as waste reduction pilots with options to consider on-site 'composting' pilots for multi residential and mixed use buildings that support and leverage the New Communities Guidelines, Centres and Corridors and Sustainable Development Through LEED programs.

Local municipal partners implementing pilots with community partnerships to deliver reduction and reuse programming

The Town of Richmond Hill and the City of Vaughan have committed to investigate the feasibility of pilot initiatives such as establishing convenient collection points for textiles in multi residential buildings with charitable partners. As part of the City of Markham's 'Roadmap to 80 Percent Diversion' strategy, a commitment to curbside residential textile collection delivered through partnerships with charitable organizations is in development. Local 'swap' events held in the Town of Georgina will be used as pilots to gather data for measuring impacts of these types of reuse events.

Pilots build support for industrial, commercial and institutional waste reduction and community connections

The focus of the delivery of waste management services in the Region is primarily residential. At the many stakeholder engagement opportunities, themes about ensuring program consistency as well as the need for emphasis on education and school programming were raised. As part of the first five years of implementation, opportunities to support the industrial, commercial and institutional sectors will be explored.

A particular emphasis will be placed on building relationships with the school boards in York Region. Pilots will support development of Markham's 'Zero Waste Schools' program and potential expansion on a broader scale across the Region as well as exploring community gardens and expansion of waste management curriculum.

Considerable work has been accomplished by Property Services to develop and deliver waste programs at the Administrative Centre. Work will continue to support and assess feasibility to enhance and expand Regional policies with respect to green procurement, waste management and diversion. Facilities Management has committed to working towards '3RCertified Accreditation' through the Recycling Council of Ontario to continue to demonstrate commitment to sustainability.

Stakeholder Advisory Committee will continue to provide valuable insights and opinions on Plan implementation as well as opportunities for partnership and pilots

The Stakeholder Advisory Committee is currently comprised of York Region business and non-profit organizations. Representatives on the Stakeholder Advisory Committee include:

- York District School Board
- York Catholic District School Board
- Georgina Chamber of Commerce
- Magna International Inc.
- Walmart
- Cathy's Crawly Composters
- Recycling Council of Ontario
- York Region Environmental Alliance
- Goodwill
- Habitat for Humanity
- Retail Council of Canada
- Tim Horton's
- Ministry of the Environment
- Ontario Restaurant and Hotel

- Greater Toronto Homebuilders Association
- Vaughan CARES
- York Region Economic Development Management Association
- Canada's Wonderland
- PAC Next

The Committee has provided feedback during each phase of SM4RT Living Solid Waste Master Plan development. Relationship building with these partners, including Economic Development, will support delivery of pilots and the message of waste reduction. The Stakeholder Advisory Committee role will be refined to continue to play a critical role as the litmus test for many of the pilots and results throughout implementation.

Proposed *Waste Reduction Act* highlights success and continued need for strong municipal advocacy program

As recently as early June 2013, York Region and other municipal partners have witnessed the benefits that a strong advocacy role provides. The release of the proposed *Waste Reduction Act* from the Province highlights and enshrines some of the key messages that municipalities in Ontario have historically advocated in waste management. Continued role in delivery of integrated waste management programming to residents and return on program investments are two critical items that the proposed legislation promises to deliver.

As part of the implementation, a formalized approach to advocacy is being developed around various municipal waste management issues. This includes increased and sustained involvement and presence from York Region staff to raise the profile of York Region programs and positions. Specific focus areas include advocacy related to industry, regulators, brand owners and retailers related to ensuring municipal compensation under extended and individual producer responsibility.

'Balanced Scorecard' will provide annual review of waste management service delivery

A 'balanced scorecard', to be comprised of a number of metrics on key elements of the waste management system such as individual program performance, will take a broader look to consider the system as a whole and areas for performance improvements. 'Results based accountability' metrics in addition to diversion measures will begin to address the value of waste management services to the community, waste reduction, waste avoidance, delivery of services through partnerships and environmental impacts.

To ensure York Region and its local municipal partners maintain their leadership position while these new metrics are being developed, work will continue to develop comparisons with other municipal programs based on publicly available information reported in Ontario. Reporting to all required outlets for funding, such as Waste Diversion Ontario Datacall, will continue until new Provincial programs and measures are released.

An advocacy role through a sub-committee of the Regional Public Works Commissioners of Ontario will work with the Province to look at new metrics to measure waste management success across Ontario.

SM4RT Living Solid Waste Master Plan to be updated every four years to follow terms of Council with first update planned for 2018/2019

As is consistent with other master plans in the Region, key elements of the SM4RT Living Solid Waste Master Plan will be updated at regular intervals. The SM4RT Living Solid Waste Master Plan will be updated every four years to follow the term and direction of Council. At each update, there will be opportunity to evaluate pilots and metrics and recalibrate if required to continuously improve and build on lessons learned and successes realized.

Link to key Council-approved plans

The SM4RT Living Solid Waste Master Plan is linked to and consistent with other Regional strategies. As part of the process of developing this master plan, staff identified linkages and common deliverables between the SM4RT Living Solid Waste Master Plan and the following plans:

- Vision 2051
- 2011 to 2015 Strategic Plan
- New Communities Guidelines – promoting waste diversion programs
- Regional Official Plan – three stream collection and increasing diversion of construction and demolition waste
- Immigration Settlement Strategy – reaching new Canadians through York Region Immigration Portal
- Making Ends Meet in York Region – decreasing food wastage and increasing food security access
- Community Investment Strategy – Community Food Hubs and Smart Eating Program
- Healthy Living and Health Protection – York Region Food Charter, food production and preparation, food waste and climate change

Staff is ensuring that recommendations are consistent across all strategies and have taken advantage of opportunities to cross promote.

Specifically, the Plan supports the following goals from the 2011 to 2015 Strategic Plan:

- Reduction in solid waste generation per capita
- Increased diversion from landfill

5. FINANCIAL IMPLICATIONS

Operating and Capital investments required for 2014 already included in 2014 Outlook approved as part of 2013 Budget

Budget estimates for the master plan are approximately \$800,000 per year between 2014 to 2018. For 2014, no additional budget is being requested beyond the forecast part of the 2013 approved budget. Key expenditures include:

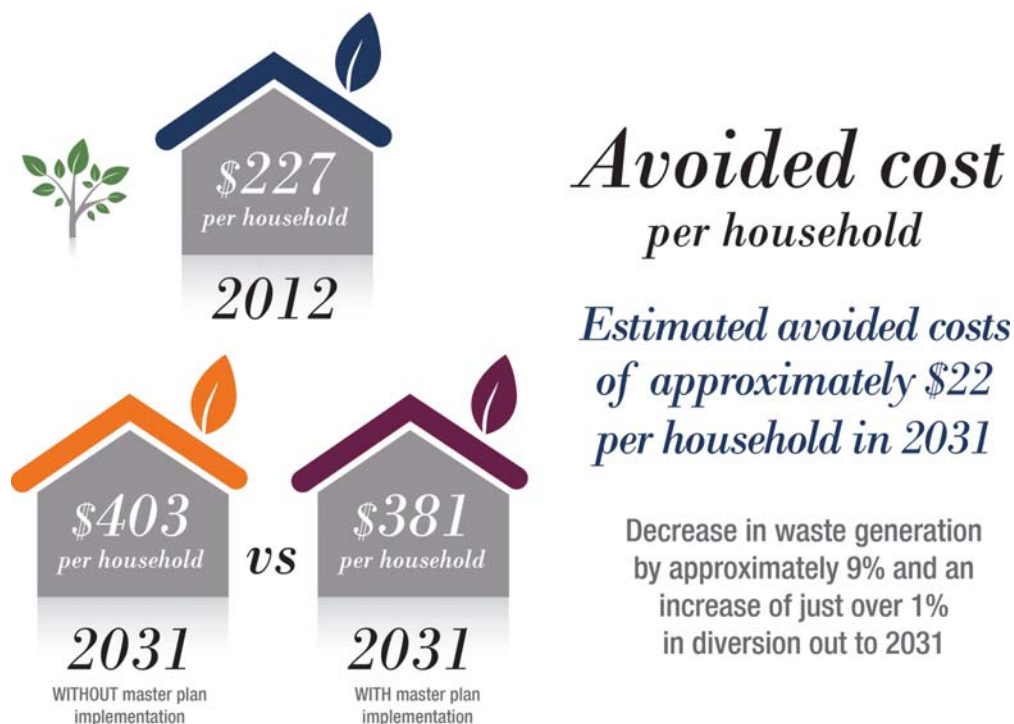
- Evaluation of feasibility to move Regional waste management costs from the tax levy to a rate
- Multi residential baseline data collection and database development
- Food waste reduction strategy and onsite composting pilot opportunities
- Funding selected community partners to implement key elements of the Plan such as the York Region Food Network links to the food waste strategy

Four additional staff are being requested between 2014 and 2018 to implement the first five years of the Plan. The main drivers for the staff requests are development and delivery of new programs, particularly for food waste and reuse.

Implementation of the SM4RT Living Solid Waste Master Plan projected to offset increased costs of waste management services through demand reduction

In 2013, the cost of waste management per household was approximately \$227. It is important to note that the cost of delivering waste management services will continue to increase with inflationary and other growth and budget pressures. It is forecasted that the implementation of the SM4RT Living Solid Waste Master Plan will offset this increase and provide an overall avoided future cost of approximately \$22 to a homeowner in 2031 (Figure 6). These avoided costs are realized through tonnage reductions and the associated lower requirement for waste processing and disposal.

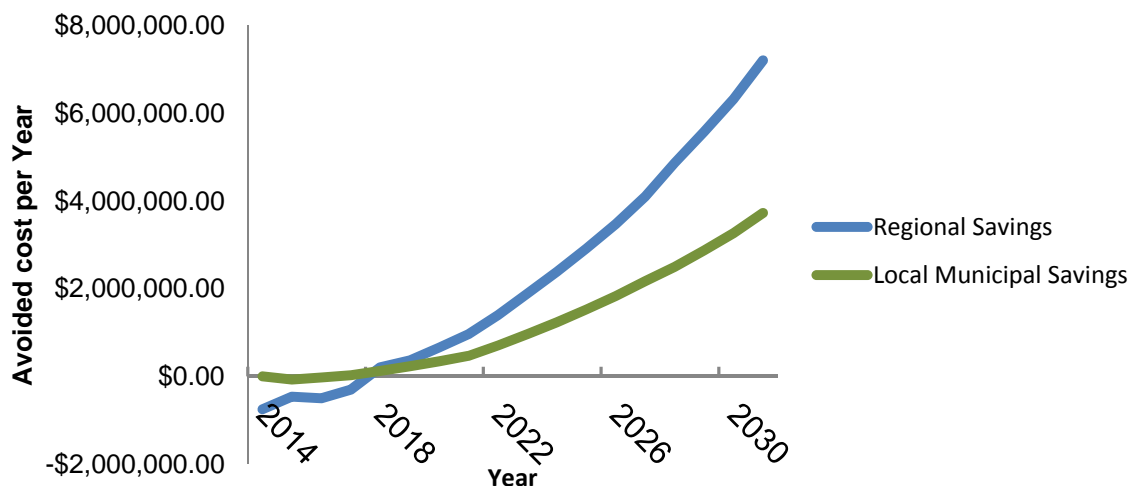
Figure 6
Projected Per Household Cost in 2031



\$11M in avoided costs annually by 2031 projected with \$7.2M at the Regional level and \$3.8M at the local level

The first five years of implementation of the SM4RT Living Solid Waste Master Plan is projected to cost approximately \$3 million in total (Figure 7). The initial investment in the first five years and sustained investment over the life of the Plan is projected to begin a return on investment by approximately 2018.

Figure 7
Return on Investment for SM4RT Living Solid Waste Master Plan Implementation



Currently, there is no requirement for additional funding for the SM4RT Living Solid Waste Master Plan initiatives at the local level, beyond the programs committed within existing municipal partners' workplans and budgets. The small investment noted at the beginning of Plan implementation relates to potential increase in the capture rate that may be experienced with increased focus on waste management programs with residents.

Dependant on the structure of the collection contract (e.g. pay by the tonne or by household) and the mix of fixed versus variable costs, some avoided costs may not be realized at the local level. The Region will work with interested local partners on future collection contracts to realize the greatest benefits and drive reduction at the curb.

Ten year capital plan remains stable with no recommendations for new infrastructure

The research and analysis conducted throughout the development of the SM4RT Living Solid Waste Master Plan confirms the 10-year capital forecast is robust and stable. The 2014 forecast is approximately \$177 million to support waste services and includes:

- Approximately \$65 million (or 37 per cent of the 10-year plan) for funding of a source separated organics processing facility
- \$30 million to increase diversion capacity
- \$20 million for expansion of the Community Environmental Centre network
- \$8 million to upgrade waste management facilities

Alternative financing options for waste management will be reviewed and examined with local municipal partners over the five year implementation plan

Opportunities and options for alternative financing of waste management services at the Regional level will continue to be investigated over the first five year implementation phase. Consultation with local municipal partners will be ongoing throughout the study to ensure continued collaboration and consideration of local issues and perspectives. Program recommendations include further study of other jurisdictions, various options for applying a Regional waste management rate and a full cost accounting study.

6. LOCAL MUNICIPAL IMPACT

Development of the SM4RT Living Solid Waste Master Plan has been an intensive collaborative effort amongst the ten municipal partners

Since development of the SM4RT Living Solid Waste Master Plan was initiated in 2010, more than 25 meetings have taken place with local municipal partners and Regional staff. Senior level management at both the Region and local municipalities dedicated time to develop the Plan and have been intimately involved in reviewing Plan material and documents throughout all the phases.

Presentation and reports were provided to local municipal councils by partners on Phase 1 and the majority of local municipal partners provided local Council updates on Phase 2.

Implementation plan is ‘pull not push’ strategy and enables local autonomy

Phase 3 reports were reviewed by local municipal partners from April until July 2013. The proposed implementation plan was reviewed at a Project Team meeting in April 2013. Feedback was received, discussed and incorporated into final version.

The implementation plan, through the Integrated Partnership Model, strikes a balance that allows for local autonomy, while supporting common objectives and work already underway in each community. Local municipal partners have identified roles in the implementation plan where feasible (Figure 8). Success of the pilots will be presented to all ten municipal partners and decisions to implement will be based on sound evidence and local feasibility.

Figure 8
Local Municipal Partner Initiatives in first five years of SM4RT Living Implementation

 <ul style="list-style-type: none"> • Mandatory material separation by-law • Unlimited clear bags for residue • Expanded textile/carpet diversion program • Zero Waste for Schools program • Reuse depot for renovation materials • Curbside electronics and battery collection ban 	 <ul style="list-style-type: none"> • Supporting composting pilots at community gardens • Waste electronics collection in apartment buildings • Textile collection in apartment buildings with charitable partners
 <ul style="list-style-type: none"> • Development standards for waste management • Three-stream collection at parks and public events • Electronics collection in apartment buildings • Recycling bins at community mailboxes • Pet waste digester at dog park (methane capture for energy) • Tracking and audits in apartment buildings 	<div style="display: flex; justify-content: space-around; align-items: center;">     </div> <ul style="list-style-type: none"> • Food waste campaign ads on collection vehicles • Investigating adoption of waste management development standards • Curbside 'swap' events and data collection • Increase use and production of community gardens • Zero waste in school programs • Textile/electronics collection in apartment buildings

Active engagement builds foundation for Integrated Partnership and continued systematic approach to waste management

The Integrated Partnership will continue as part of the implementation of the SM4RT Living Solid Waste Master Plan. The group will focus on management and use of the 'Decision Making Framework' and associated responsibilities, strategic policy issues discussion and promotion and education protocol development. On an annual basis, collaborative business planning will take place to evaluate potential program changes, SM4RT Living Solid Waste Master Plan progress and pilots, updates for the 'balanced scorecard' and tonnage forecasts.

Local municipal partners to take SM4RT Living Master Plan implementation to local councils in Q3 2013 for endorsement

Region and local municipal staff will present the implementation of the SM4RT Living Master Plan at local councils through Q4 2013.

7. CONCLUSION

Strategic internal partnerships and community partnerships will leverage resources to deliver common objectives in an efficient and innovative program delivery model

Local municipal partners have played a significant role in the development of the SM4RT Living Solid Waste Master Plan and have taken an active role in implementation where it meets the needs of their communities. This new approach strikes a balance between common objectives across the Region with local autonomy. The finalized SM4RT Living Solid Waste Master Plan will be presented to local municipal councils throughout Q4 2013.

Council endorsement of innovative, long term SM4RT Living Solid Waste Master Plan drives waste reduction and reuse over the next 40 years, resulting in cost avoidance and sustainable waste management

For 2014, no additional funding is requested beyond the forecast part of the 2013 approved budget. \$11 million in avoided costs annually are projected by 2031 with \$7.2 million at the Regional level and \$3.8 million at the local level. Ten year capital plan remains stable with no recommendations for new infrastructure beyond current forecasting. To deliver best in class waste management program, four additional staff resources are required to deliver key priority projects between 2014 and 2018.

Building on research and consultation in Phases 1 and 2, Phase 3 work has been completed on the SM4RT Living Solid Waste Master Plan. The Plan will be updated every four years to coincide with terms of Council, with the first update in 2018/2019. A 'balanced scorecard' will be presented annually to provide an update on the progress of the implementation.

Life cycle impact analysis was conducted on all recommended initiatives from Phase 3 work. Initiatives that have highest impact in terms of life cycle benefits balanced with 4Rs impacts were selected and resourced to develop the recommended implementation plan. The five year implementation plan includes priority initiatives to drive long-term performance.

For more information on this report, please contact Laura McDowell, Director, Environmental Promotion and Protection at Ext. 5077.

The Senior Management Group has reviewed this report.

Recommended by:

Approved for Submission:

Erin Mahoney, M. Eng.
Commissioner of Environmental Services

Bruce Macgregor
Chief Administrative Officer

August 8, 2013

Attachment

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