Introduction

• We are the largest recyclers of Expanded Polystyrene in Canada.
• Located on United Boulevard in Coquitlam.
• In operation since 2011
Expanded Polystyrene (EPS)
Styrofoam™
a trade name owned by Dow Corning
EPS Characteristics

• *EPS* foam 98% air.
• *EPS* is easily formable into any shape.
• *EPS* is structural.
• *EPS* has high insulation value.
• *EPS* is light and therefore cheap to ship.
Great for packaging
Expanded Polystyrene (EPS)
• Metro Vancouver produces 24,000 MT or 2,400,000 cubic meters pa.
• The photo is one hundred 53 ft trailers containing 1 MT each.
• This represents .4% of Metro Vancouver’s annual volume of EPS.
• We produce 240 times more than this per annum.
Do YOU Have a Waste Polystyrene Problem?

What do we do with it?
Poor candidate for landfill

- Does not bio-degrade
- Large and light
- Tipping fees are by weight not by volume
- ($80-$133 MT)
- Tipping fees by volume are the lowest of any commodity.
Good candidate for recycling

- Materials shown are of equal weight.
- 1 cubic meter loose = 10 kg.
- Same product condensed = .01 cubic meter or 1%
EPS into our facility

- 350 KG
- 150KG
EPS out of our facility

- Finished goods
- 20 MT
Comes back from China as:
Business Accomplishments

• In 2011, established recycling depot in Coquitlam.
• Great customer base.
• Process 90% of material for Multi Materials BC.
• Largest recycler of EPS in Canada
• Privately funded. No government subsidies.
• Achieved break-even
• In 2016, will divert 140,000 Cubic Meters of EPS (1400 x 53 foot trailers)
Other Accomplishments
17 Low Barrier jobs
Revenue model based on:

- Sale of finished material.
- Tipping fees.
Price of Recycled Material Based on the Price of Oil

• When we began
  o Price of oil was $109 a barrel and our price was $1050 per MT.

• Today
  o Price of oil is $49 a barrel and our price is $430 per MT.
Tipping Fee

- Charged by volume at $2.75 / cubic meter.
- Approx $550 per MT.
- We provide a convenient location.
- Fast turn around.
- Reputational benefit.
- Our clients want to do the right thing.
Alternative to Recycling

• Landfill
• Approx $133 per MT
• Many companies will do the right thing
• But many won’t if it costs more
Ready for a ban?

• Foam Only was established on the assumption that if EPS could be recycled that it would be banned in the same way as:
  • Plastic 1,2,4 & 5
  • Glass
  • Cardboard
  • Beverage containers

• We are ready.
The Local Opportunity:

• Currently divert 6% of EPS
  – 1,400 trucks per annum

• Goal divert 100% of EPS
  – 24,000 trucks
The Global Opportunity

• Bring this solution to other cities
  – Canada
  – US
  – Around the world

• Metro Van has an opportunity to lead
Our Request – Part 1

- Phase in a ban on tipping EPS in landfills.
- This would force generators to recycle and increase our volumes
- We would expand to meet demand.
Our Request – Part 2

• We currently have a pilot project at the United Boulevard Transfer Station at which EPS is collected from the public.
• We suggest that could be expanded to other Transfer Stations.
Thank you.
Questions?
Dean Drysdale / presentor
Direct 604 813-8270
Email: dean@chartwellstrategiescorp.com

Mark Obedzinski CEO
Direct 604-240-3552
Email: mark@foamonly.ca
Greater Vancouver Sewerage & Drainage District – Solid Waste Services

Andrew Marr, Director of Solid Waste Planning

SOLID WASTE SERVICES

Zero Waste Committee Meeting – October 13, 2016
2017 Solid Waste Budget Expenditures

<table>
<thead>
<tr>
<th></th>
<th>2016</th>
<th>2017</th>
<th>$ Change</th>
<th>% Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operations</td>
<td>$89.5</td>
<td>$88.0</td>
<td>($1.5)</td>
<td>(1.7%)</td>
</tr>
<tr>
<td>Debt service</td>
<td>1.3</td>
<td>1.5</td>
<td>0.2</td>
<td>16.8%</td>
</tr>
<tr>
<td>Contribution to Reserve</td>
<td>0.0</td>
<td>4.9</td>
<td>0.0</td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Total expenditures</strong></td>
<td><strong>$90.8</strong></td>
<td><strong>$94.4</strong></td>
<td><strong>$ 3.6</strong></td>
<td><strong>4.0%</strong></td>
</tr>
</tbody>
</table>
2017 Solid Waste Budget Operations

Solid Waste operations by business area
2017 total = $88.0 M
2017 Solid Waste Budget Overview

Total Solid Waste budget is $94.4 M which is a 4.0% increase over 2016

Budget Highlights

• Increase by $3.6 million

• $4.9 million contribution to reserve

• A reduction of $1.5 million (-1.7%) in the Total Operating Programs (excluding Debt Service and Contribution to Reserve)

• General Government Budget includes $0.65 million for regional waste prevention initiatives and campaigns and $0.37 million for the National Zero Waste Council
2017 Key Actions

Goal 1 - Minimize waste generation
• Waste reduction campaigns
• The Annual Zero Waste Conference
• National Zero Waste Council

Goal 2 - Maximize reuse, recycling & material recovery
• Education
• Consultation on new disposal bans: textiles and expanded polystyrene
• Consultation on review of Bylaw 181
• Dedicated recycling at Transfer Stations
• Non-ferrous metal recovery at Waste to Energy Facility (WTEF)
• Construction and demolition recycling capacity
<table>
<thead>
<tr>
<th>Regional Programs</th>
<th>GOAL</th>
<th>Resources</th>
<th>Wood</th>
<th>Behav' Change</th>
<th>Disposal Bans</th>
<th>Nat'l Collab'n</th>
<th>Access Recycling, energy recovery</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resources and Educational Support for 3Rs, Behaviour Change</td>
<td>$879K</td>
<td>1, 2</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Waste Composition Monitoring</td>
<td>$120K</td>
<td>1, 2</td>
<td>✔</td>
<td></td>
<td></td>
<td></td>
<td>✔</td>
</tr>
<tr>
<td>Benchmarking and Applied Research for 3Rs</td>
<td>$40K</td>
<td>1, 2</td>
<td>✔</td>
<td></td>
<td>✔</td>
<td></td>
<td>✔</td>
</tr>
<tr>
<td>Facility Consultations and Evaluations</td>
<td>$70K</td>
<td>2, 4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✔</td>
</tr>
<tr>
<td>Support for EPR and Disposal Bans</td>
<td>$312K</td>
<td>1, 2</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td></td>
<td>✔</td>
</tr>
<tr>
<td>Recycling of C&amp;D Wastes</td>
<td>$100K</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✔</td>
</tr>
<tr>
<td>Improved Recycling at Regional Facilities*</td>
<td>$70K</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✔</td>
</tr>
<tr>
<td>District Energy</td>
<td>$80K</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✔</td>
</tr>
</tbody>
</table>

**GOAL**

- **Organics**
- **Wood**
- **Behav' Change**
- **Disposal Bans**
- **Nat'l Collab'n**
- Access Recycling, energy recovery

**Waste Diversion Initiatives**

- **REDUCED GENERATION (-TPA BY 2020)** ⇒ ~200k
- **INCREASED DIVERSION (+TPA BY 2020)** ⇒ ~150k ~200k 150k
- **INCREASED DIVERSION (+% BY 2020)** ⇒ ~5% ~6% ~5%
2017 Key Actions

Goal 3 - Recover energy from waste stream after material recovery
  • District energy from WTEF
  • Options for new WTE capacity

Goal 4 - Dispose of all waste in landfill after recycling & energy recovery
  • Transition to new transfer station operator
  • Complete North Shore Transfer Station reconfiguration
  • Detail design and permitting of New Coquitlam Transfer Station
  • Continue development of a new Surrey Residential Drop-Off facility
2017 Solid Waste Budget Capital Program

2017 Capital Program is $26.7 M

2017 Major Capital Projects

• North Shore Transfer Station reconfiguration and structural modifications
• Coquitlam Transfer Station replacement
• Surrey Residential Drop-Off siting & design
• Various projects for the existing WTEF including crane replacement, new bottom ash conveyors and non-ferrous metal recovery
## 2017 Solid Waste Budget Household Impact

<table>
<thead>
<tr>
<th>($ millions)</th>
<th>2016</th>
<th>2017</th>
<th>Change</th>
<th>% Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>User fees (tipping fee)</td>
<td>$80.0</td>
<td>$85.4</td>
<td>$5.4</td>
<td>6.8%</td>
</tr>
<tr>
<td>Energy sales</td>
<td>5.7</td>
<td>5.7</td>
<td>0.0</td>
<td>0.0%</td>
</tr>
<tr>
<td>Other revenues</td>
<td>5.1</td>
<td>3.3</td>
<td>(1.8)</td>
<td>(35.3%)</td>
</tr>
<tr>
<td><strong>Total revenues</strong></td>
<td><strong>$90.8</strong></td>
<td><strong>$94.4</strong></td>
<td><strong>$3.6</strong></td>
<td><strong>4.0%</strong></td>
</tr>
</tbody>
</table>

### Tipping Fees /cubic metre

- **Up to 1 tonne**: $133 → $133
- **1 to 9 tonnes**: $112 → $112
- **Over 9 tonnes**: $80 → $80
- **Municipal**: 100 → $100

### Household cost

<table>
<thead>
<tr>
<th></th>
<th>2016</th>
<th>Proposed 2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Household cost</td>
<td>$56</td>
<td>$56</td>
</tr>
</tbody>
</table>

### Impact on average household*

- **($1)** → **$0**

  - Average household assumed to produce 0.56 metric tonne annually
Thank you
Goal 1 - Minimize waste generation
Support the delivery of Metro Vancouver’s regional waste prevention programs:
• Create Memories Not Garbage (prevention of seasonal gift wastes)
• Food isn’t Garbage (reduction and recycling of food wastes)
• Love Food Hate Waste (reduction of household food wastes)
• A regional abandoned waste campaign and
• The Annual Zero Waste Conference
• Support for the National Zero Waste Council and its national waste prevention agenda
• Development and implementation of a National Food Waste Reduction Strategy
• Work to improve the design of products & packaging
• Shared and coordinated Zero Waste communications, and Circular Economy education and promotion
Goal 2 - Maximize reuse, recycling & material recovery

• Conduct projects to update technical and educational resources for increasing regional waste diversion
• Update regional waste composition monitoring for municipal solid waste
• Consult on new disposal bans: textiles and expanded polystyrene
• Consult on review of Municipal Solid Waste and Recyclable Material Regulatory Bylaw No. 181, 1996 (Bylaw 181)
• Temporarily increase the number of disposal ban inspectors to focus on small vehicle loads that have high quantities of clean wood waste
• Implement municipally funded dedicated recycling systems at North Shore and Coquitlam Transfer Stations
• Determine options and costs to develop dedicated recycling areas at Surrey and Langley Transfer Stations in collaboration with municipalities served by those facilities
• Complete construction of non-ferrous metal recovery from bottom ash at the Waste to Energy Facility (WTEF)
• Review options to increase construction and demolition recycling capacity in the region
Goal 3 - Recover energy from waste stream after material recovery
• Evaluate options and business models for district energy delivery from the WTEF
• Evaluate options for new WTE capacity

Goal 4 - Dispose of all waste in landfill after recycling & energy recovery
• Transition to the new contractor (Emterra) for the operation and maintenance of the North Shore, Coquitlam and Surrey Transfer Stations
• Complete construction and commence operation of the North Shore Transfer Station reconfiguration project
• Secure contingency landfill disposal capacity
• Complete fly ash disposal procurement process
• Continue development of Coquitlam Transfer Station by preparing detail design and costing and obtain permitting for construction
• Continue development of a new Surrey Residential Drop-Off facility by continuing to work with the City of Surrey on siting and design
Proposed 2017 Tipping Fee Bylaw

Paul Henderson
GENERAL MANAGER, SOLID WASTE SERVICES

Zero Waste Committee, October 13, 2016
Consultation on Proposed Tipping Fee Bylaw Changes

• Consultation with member municipalities, industry and community organizations
• Workshop, webinar, meetings and on-line surveys
• Generally supportive of proposed changes
## Research on Food Waste Threshold Changes: Transfer Station Survey

<table>
<thead>
<tr>
<th>Survey Date</th>
<th>Number of Threshold Exceedances</th>
<th>Total Inspections</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>&gt;25%</td>
<td>&gt;10%</td>
</tr>
<tr>
<td>April 2015 (Pre-enforcement)</td>
<td>31</td>
<td>68</td>
</tr>
<tr>
<td>August 2016 (1 year after enforcement initiated)</td>
<td>6</td>
<td>10</td>
</tr>
<tr>
<td>CURRENT</td>
<td>PROPOSED</td>
<td></td>
</tr>
<tr>
<td>------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>Garbage Tipping Fees ($80 -133/tonne)</td>
<td>No change</td>
<td></td>
</tr>
<tr>
<td>25% food waste surcharge threshold</td>
<td>Decrease from 25% to 5% *</td>
<td></td>
</tr>
<tr>
<td>10% clean wood surcharge threshold</td>
<td>Decrease from 10% to 5% *</td>
<td></td>
</tr>
<tr>
<td>$50 single item surcharge</td>
<td>Increase from $50 to $65</td>
<td></td>
</tr>
<tr>
<td>Disposal Ban exemption on wax paper/cardboard</td>
<td>Remove exemption *</td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>Require containment of personal hygiene products for loads exceeding 10% *</td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>Surcharge unsecured loads *</td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>Ability to waive fees for volunteer clean-up projects on public lands</td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>Apportion costs to participating municipalities for dedicated recycling depots at North Shore and Coquitlam Transfer Stations</td>
<td></td>
</tr>
</tbody>
</table>

* Effective July 1, 2017. All other changes effective January 1, 2017.
Thank you