

Alberni-Clayoquot Regional District

ORGANICS DIVERSION STRATEGY

Solid Waste Plan Monitoring Advisory Committee

Alberni Valley

October 29, 2015



Carey McIver & Associates Ltd.

Meeting Agenda

- 1. Call to Order**
- 2. Adoption of Minutes – August 27, 2015**
- 3. Organics Diversion Strategy – Review and Approval**
 - Issues and Opportunities
 - Actions
 - Costs
 - Implementation Schedule
- 4. Other**
 - Date of Next Meeting
- 5. Adjournment**





WHY DIVERT ORGANICS?

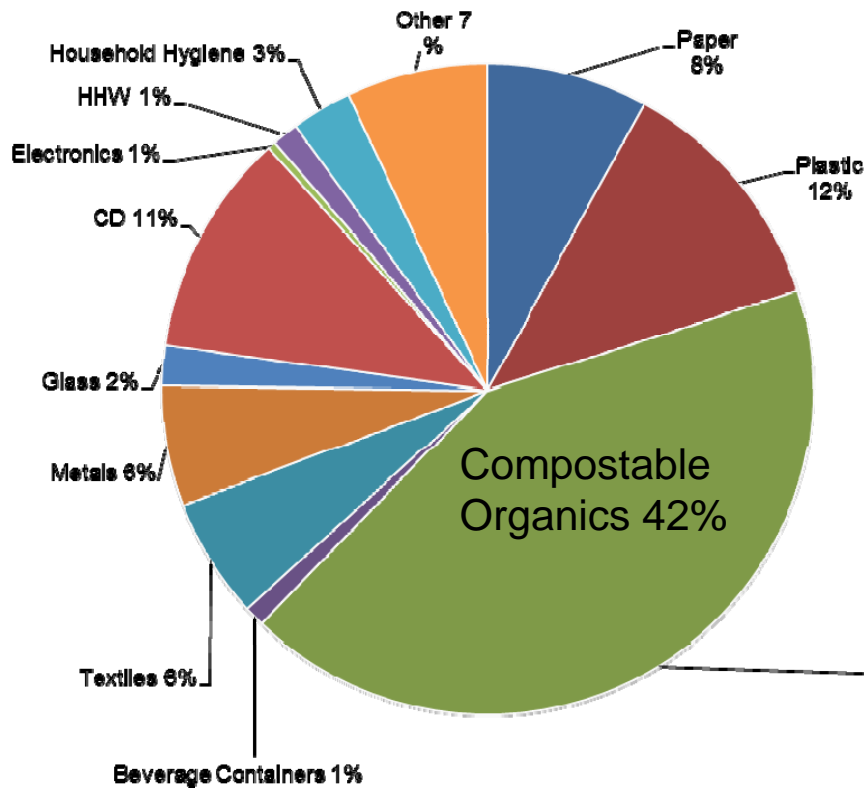
Alberni Valley Organics Diversion Strategy

What do we mean by organics?

- Food Waste
 - Backyard Compostable
 - fruits, vegetables
 - Backyard Non-compostable
 - Meat, bones, breads, non-liquid dairy, fats
- Yard & Garden Waste
 - Small yard waste
 - Leaves, branches, grass clippings
- Clean Wood



Why divert organics? – It's big!



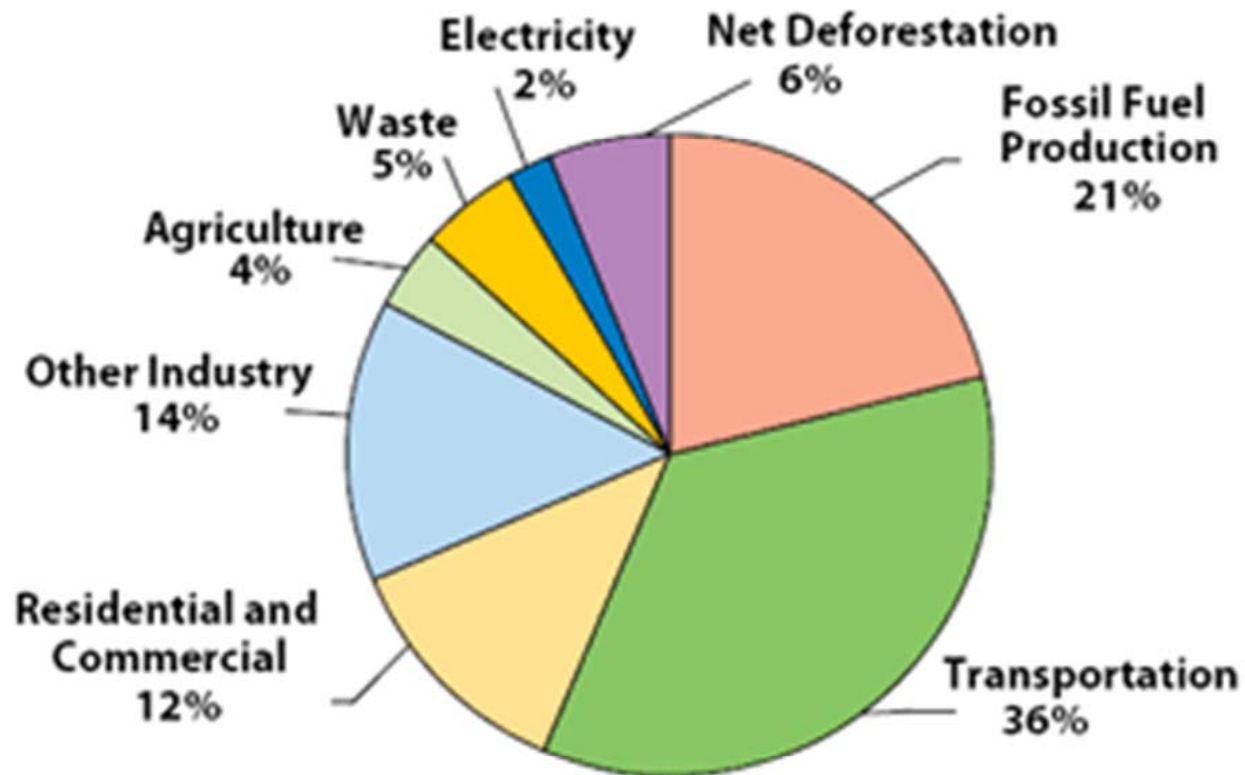
RDN 2004 Waste Composition Study

- Organics are largest component of waste stream
- Roughly 35-40%
- Disposal results in loss of nutrients and energy
- Composting can create a resource for communities



Landfill Disposal Creates GHG's

B.C. Greenhouse Gas Emissions (2006)



BC Ministry of Environment Policy

Service Targets

- 75% of BC's population covered by organic waste disposal restrictions by 2020



Landfill Gas Regulation

- Effective January, 2009
- Mandatory capture of LFG at landfills over threshold
- Install and maintain collection system – January 2016



WHO IS DIVERTING ORGANICS IN BC?

Alberni Valley Organics Diversion Strategy

Who is diverting organics in BC?

➤ 66% of BC population lived in regional districts with organics disposal ban in 2015

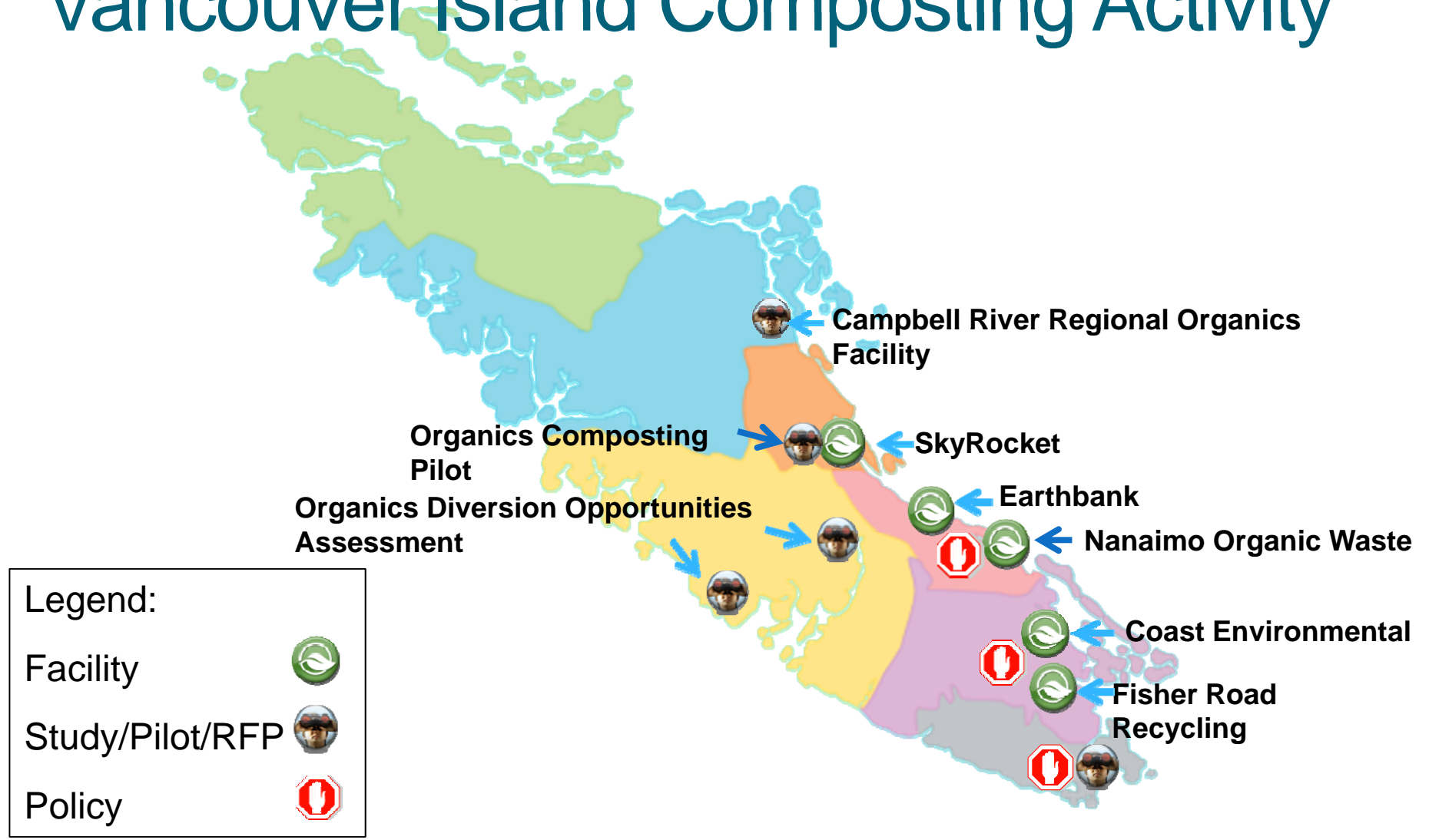
- Regional District of Nanaimo
- Cowichan Valley Regional District
- Capital Regional District
- Metro Vancouver



■ Disposal Bans 66% ■ No Bans 34%



Vancouver Island Composting Activity





WHAT ARE THE CONDITIONS FOR SUCCESS?

Alberni Valley Organics Diversion Strategy

What are the conditions for success?

Processing Capacity at a Reasonable Cost:

1. Processing Capacity

- Does local capacity already exist?
- Is new capacity cost-effective?
- Is out-of-district capacity available?

2. Bulking Amendments

- Is there an adequate source of yard and/or wood waste?
- Do customers currently pay for yard/wood waste disposal?

3. Processing Fee

- Is the processing fee competitive with landfill disposal?
- Do you need to purchase bulking amendments?
- Can you charge for bulking amendments?



Processing Capacity – Fisher Road



Capacity: >15,000 tonnes per year
Tipping Fee: ~ \$95

Coast Chemainus



Capacity: >15,000 tonnes per year
Tipping Fee: ~ \$95



Nanaimo Organic Waste



Capacity: >20,000 tonnes per year
Tipping Fee: ~ \$120

New Processing Capacity



CRD:

Kitchen Scraps: \$110

Yard Waste: \$59

Wood Waste: \$110

Comox Valley Regional District Pilot



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Adequate Source of Bulking Amendments

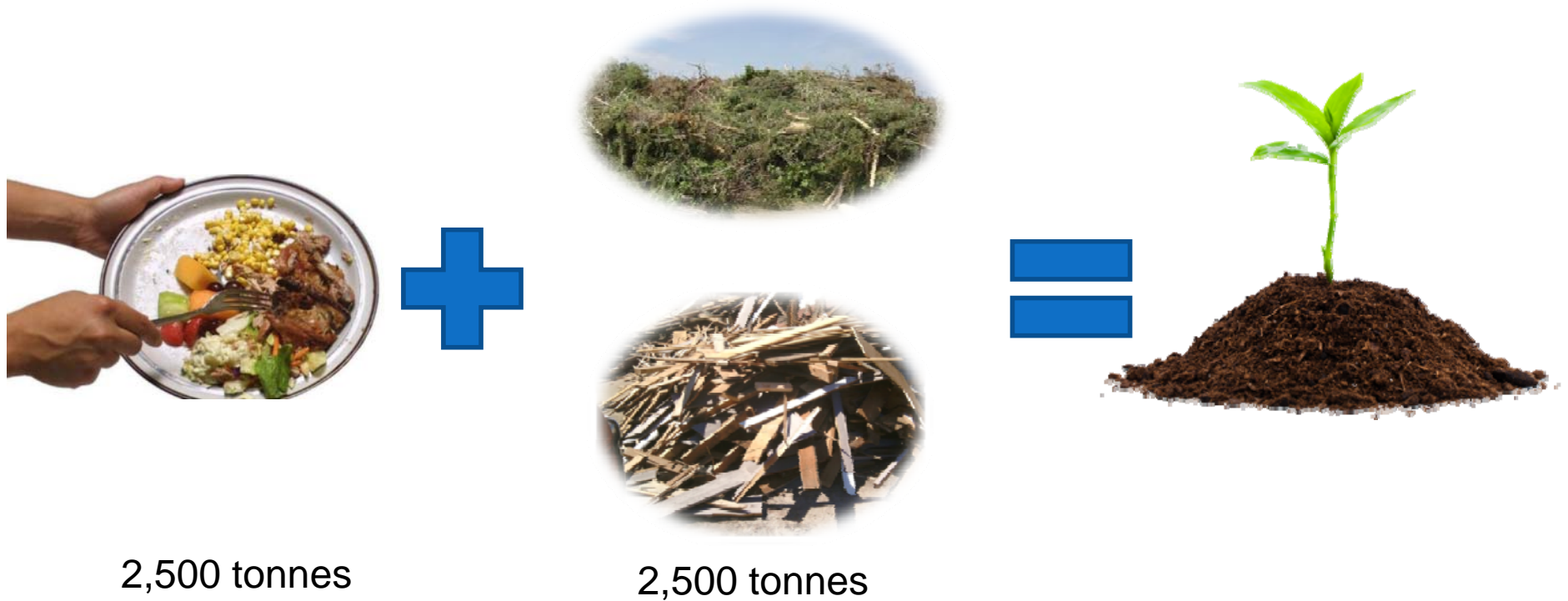




PROCESSING FACILITY COSTS & FINANCING

Alberni Valley Organics Diversion Strategy

ICI and Residential Organics Processing



Annual Capacity = 5,000 Tonnes

	Private	Partnership		Public	
		No Grant	50% Grant	No Grant	50% Grant
Assumptions					
Rate	8%	4%	4%	4%	4%
Amortization (Years)	20	20	20	20	20
Capital Cost	\$ 2,000,000	\$ 2,000,000	\$ 1,000,000	\$ 2,000,000	\$ 1,000,000
Capital Costs					
Annual Capital Costs	\$ 200,746	\$ 145,435	\$ 71,718	\$ 145,435	\$ 71,718
Tonnes	5,000	5,000	5,000	5,000	5,000
Annual Cost Per Tonne	\$ 40	\$ 29	\$ 15	\$ 29	\$ 15
Operating Costs					
Annual Operating Costs	\$ 450,000	\$ 450,000	\$ 450,000	\$ 450,000	\$ 450,000
Tonnes	5,000	5,000	5,000	5,000	5,000
Annual Cost Per Tonne	\$ 90	\$ 90	\$ 90	\$ 90	\$ 90
Total Annual Costs					
Capital & Operating	\$ 650,746	\$ 595,435	\$ 521,718	\$ 595,435	\$ 521,718
Tonnes	5,000	5,000	5,000	5,000	5,000
Total Cost Per Tonne	\$ 130	\$ 119	\$ 104	\$ 119	\$ 104



Residential Organics Processing



750 tonnes

750 tonnes



1,500 tonnes



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Annual Capacity = 1,500 Tonnes

	Private	Partnership		Public	
		No Grant	50% Grant	No Grant	50% Grant
Assumptions					
Rate	8%	4%	4%	4%	4%
Amortization (years)	20	20	20	20	20
Capital Cost	\$ 600,000	\$ 600,000	\$ 300,000	\$ 600,000	\$ 300,000
Capital Costs					
Annual Capital Costs	\$ 60,224	\$ 43,631	\$ 21,815	\$ 43,631	\$ 21,815
Tonnes	1,500	1,500	1,500	1,500	1,500
Annual Cost Per Tonne	\$ 40	\$ 29	\$ 15	\$ 29	\$ 15
Operating Costs					
Annual Operating Costs	\$ 150,000	\$ 150,000	\$ 150,000	\$ 150,000	\$ 150,000
Tonnes	1,500	1,500	1,500	1,500	1,500
Annual Cost Per Tonne	\$ 100	\$ 100	\$ 100	\$ 100	\$ 100
Total Annual Cost					
Capital & Operating	\$ 210,224	\$ 193,631	\$ 171,815	\$ 193,631	\$ 171,815
Tonnes	1,500	1,500	1,500	1,500	1,500
Total Cost Per Tonne	\$ 140	\$ 129	\$ 115	\$ 129	\$ 115



Adequate Source of Bulking Amendments



Tipping Fee Estimates

Material	ICI & Residential 5,000 tonnes per year			Port Alberni Residential 1,500 tonnes per year		
	Tonnes	Fee	Revenue	Tonnes	Fee	Revenue
Option 1 -						
Food Waste & Compostable Paper	2,500	\$ 104	\$ 260,000	750	\$ 115	\$ 86,250
Amendments (yard/wood waste)	2,500	\$ 104	\$ 260,000	750	\$ 115	\$ 86,250
			\$ 520,000			\$ 172,500
Option 2						
Food Waste & Compostable Paper	2,500	\$ 158	\$ 395,000	750	\$ 180	\$ 135,000
Amendments (yard/wood waste)	2,500	\$ 50	\$ 125,000	750	\$ 50	\$ 37,500
			\$ 520,000			\$ 172,500
Option 3						
Food Waste & Compostable Paper	2,500	\$ 208	\$ 520,000	750	\$ 230	\$ 172,500
Amendments (yard / wood waste)	2,500	\$ -	\$ -	750	\$ -	\$ -
			\$ 520,000			\$ 172,500



Impact on Tipping Fees

Assumptions	Option 1 750 tpy	Option 2 3,000 tpy
Revenue Loss	\$ 71,250	\$ 285,000
Residual Waste (tonnes)	16,250	14,000
Fee Increase (per tonne)	\$ 4	\$ 20
New Tipping Fee	\$ 99	\$ 115



Tipping Fee Comparison 2015



Estimated Collection Costs – Port Alberni

Scenario	Frequency	Costs				Increase \$
		Collection	Carts	Tip Fees	Total	
Status Quo	Garbage weekly	\$ 58	\$ 8	\$ 42	\$ 108	
	Recycling bi-weekly	\$ -	\$ -	\$ -	\$ -	
Total		\$ 58	\$ 8	\$ 42	\$ 108	
Scenario 1	Garbage bi-weekly	\$ 29	\$ 8	\$ 27	\$ 64	
	Recycling bi-weekly	\$ -	\$ -	\$ -	\$ -	
	Food weekly	\$ 58	\$ 9	\$ 20	\$ 87	
Total		\$ 87	\$ 17	\$ 47	\$ 151	\$ 43
Scenario 2	Garbage bi-weekly	\$ 29	\$ 8	\$ 27	\$ 64	
	Recycling bi-weekly	\$ -	\$ -	\$ -	\$ -	
	Food + Yard weekly	\$ 58	\$ 9	\$ 29	\$ 96	
Total		\$ 87	\$ 17	\$ 56	\$ 160	\$ 52
Scenario 3	Garbage bi-weekly	\$ 29	\$ 8	\$ 27	\$ 64	
	Recycling bi-weekly	\$ -	\$ -	\$ -	\$ -	
	Food & Yard bi-weekly	\$ 29	\$ 9	\$ 29	\$ 67	
Total		\$ 58	\$ 17	\$ 56	\$ 131	\$ 23



Sustainability of Organics Diversion

Environmental

- Reduces GHG emissions
- Preserves landfill capacity
- Reduces landfill leachate
- Must be collected from ICI and residential

Social

- Protects human health
- Mitigates against climate change
- Reduces landfill safety risks
- Creates a local resource

Economic

- Reduces costs to manage LFG
- Increase collection and processing costs
- Need to secure bulking amendment at a cost



ORGANICS DIVERSION STRATEGY

Alberni Valley Organics Diversion Opportunities
Assessment

Reduction Program

	Action	Cost Estimate	Schedule
1.	Using communication tools developed by Metro Vancouver and the BC Ministry of Environment (MOE), implement a Food Waste Reduction Campaign.	\$10,000	2016
2.	Expand the current subsidized backyard composter program to include enhanced education activities such as a compost coaching and Bear Smart program to reduce the amount of food waste requiring collection and disposal	\$10,000	2016



Process Amendments

	Action	Cost Estimate	Schedule
3.	Undertake a study of wood waste generation and disposal practices in the residential and commercial sectors (as per SWMP).	\$5,000	2016
4.	Assess current yard waste generation and disposal practices in the residential and commercial sectors.	Included above	2016



LFG Collection or Compost Facility

	Action	Cost Estimate	Schedule
5.	Finalize conceptual cost estimates to construct and operate an LFG collection system at the Alberni Valley Landfill.	McGill Engineering	2015
6.	Undertake a cost-benefit analysis of organics composting versus LFG collection to reduce greenhouse gas emissions.	\$10,000	2016
	<ul style="list-style-type: none">➤ McGill capital cost estimate \$5.5 million➤ McGill operating cost estimate \$5.6 million over 70 years = \$80,000 per year		



Pilot Projects

	Action	Cost Estimate	Schedule
7.	Following implementation of a reduction program, design and prepare cost estimates to undertake two small pilot projects.	\$3,000	2016
	<ul style="list-style-type: none">• One collects food waste weekly and garbage bi-weekly• One collects food and yard waste weekly with garbage bi-weekly		



Processing Facility - Location

	Action	Cost Estimate	Schedule
8.	Meet with City of Port Alberni to identify potential government owned properties that could be suitable for an organics composting facility.	ACRD Staff	2016
9.	Identify potential opportunities and costs to transfer organics to existing or new Vancouver Island processing facilities including conceptual design of a transfer facility at the Alberni Valley Landfill.	\$10,000	2016



ICI Disposal Ban/Communication

	Action	Cost Estimate	Schedule
10.	Consider implementing a ban on organics from the ICI sector if cost-effective opportunities exist to transfer organics to existing or new Vancouver Island processing facilities.	\$10,000	2016
11.	Develop a comprehensive communications program to provide information on the organics diversion strategy to local politicians, the public, and the business community.	\$5,000	2015



Staffing Implications

	Action	Cost Estimate	Schedule
12.	Hire one additional staff position to coordinate the organics diversion strategy and subsequent diversion programs	\$70,000	2016



QUESTIONS/COMMENTS?

Alberni Valley Organics Diversion Strategy