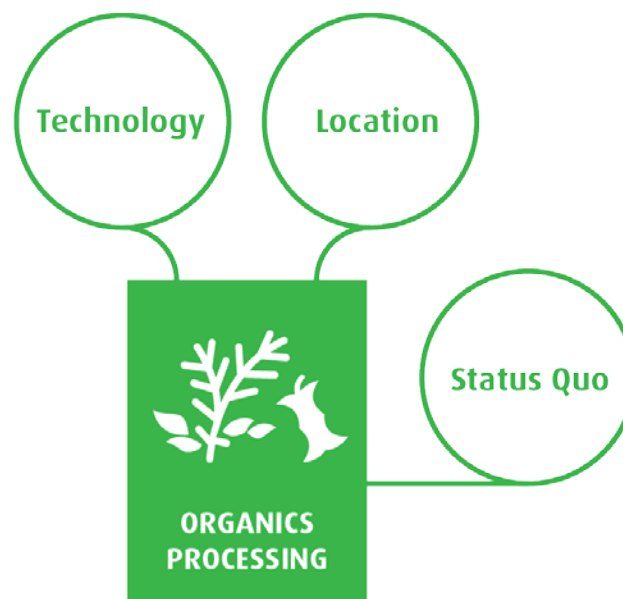


Resource Recovery Opportunities





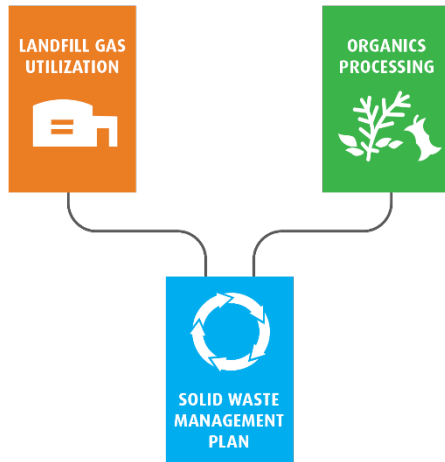
Climate Action and Environmental Stewardship

The CRD Board will encourage and implement bold action on climate change by enhancing its natural and built assets to achieve environmental resilience, food security and continued wellbeing of our current and future residents.



Related Initiatives

- *Declaration of a Climate Emergency*
- *Take a leadership role to pursue regional carbon neutrality by 2030*
- *Work with local governments to further reduce emissions from solid waste*
- *Explore additional opportunities for resource recovery*



Landfill Gas Utilization options

- Green Power - Electricity
- Green Gas - Renewable Natural Gas

Organics processing options

- Status quo – Out of region processing
- In/near region technology and location

Solid Waste Management Plan

- Regional plan for whole solid waste management system
- Public engagement



Expand current power plant

Convert to Renewable Natural Gas

Status Quo is not an option due to provincial requirements

Social

- Increasing green power requires expansion of facility at Hartland
- RNG option requires on and off-site construction

Environmental

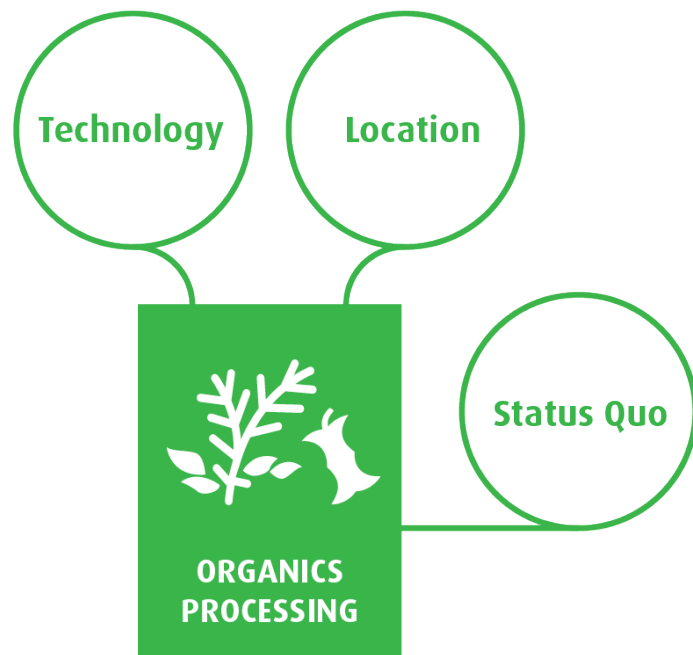
- Both support circular economy – managing all aspects of waste cycle
- RNG has ability to reduce greenhouse gases by displacing conventional natural gas
- RNG can support fuel-switching operations and support carbon neutrality

Financial

- Capital investment for expanding green power is \$4.5 million and RNG is \$23 million
- Currently, \$27.5 million in sustainability reserve
- RNG has much higher likelihood of attracting grants

Solid Waste Management Plan

- Either landfill gas utilization facility will inform SWMP



Composting vs. Anaerobic Digestion

Hartland Landfill vs. Private Location

Status Quo – Out of Region processing

Social

- *Anaerobic digestion has greater ability to minimize impacts to public*

Environmental

- *Diversion of organics saves landfill space, reduces GHGs and produces nutrient-rich soil amendment*
- *Both technologies can meet environmental protection regulations*
- *AD creates biogas that can be converted to RNG and reduce GHGs*

Financial

- *Capital investment for composting is \$2-8m and AD is \$25m-40m*
- *Operating costs for composting range from \$60-100/tonne and AD is \$100-135/tonne*
- *Higher costs of anaerobic digestion can be off set by significant revenues*

Solid Waste Management Plan

- *In-region organics facility will require amendment of SWMP*
- *Consultation planned for 2019*

Potential Green Gas Synergies

CRD

UVic Green Gas
Research Centre?



ORGANIC
MATERIAL



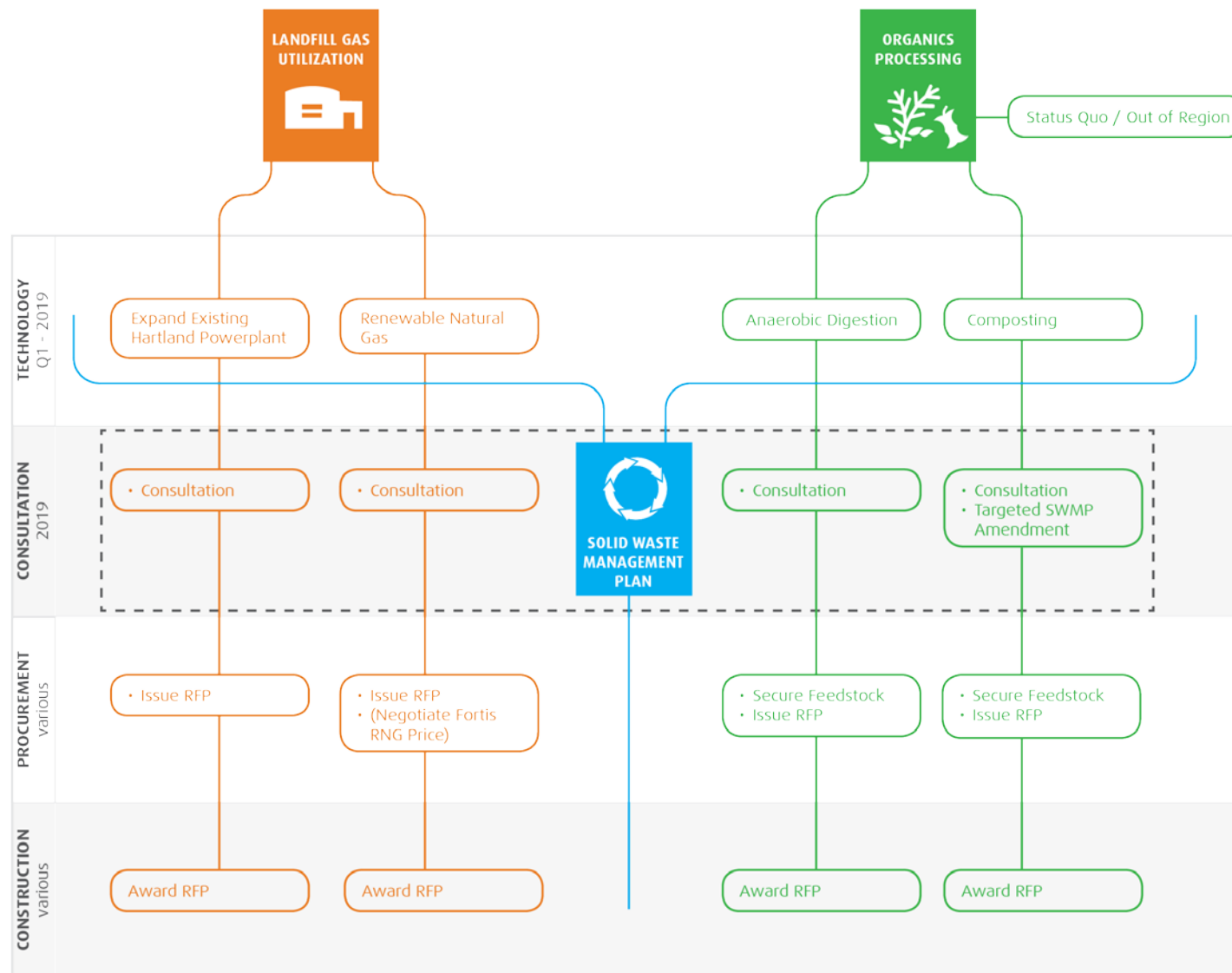
Anaerobic
Digestion



Renewable
Natural Gas



The Synergies



The Synergies - Consultation

CRD

LANDFILL GAS UTILIZATION



Expand Existing
Hartland Powerplant

Renewable Natural
Gas

ORGANICS PROCESSING



Anaerobic Digestion

Composting

CONSULTATION
2019

• Consultation

• Consultation



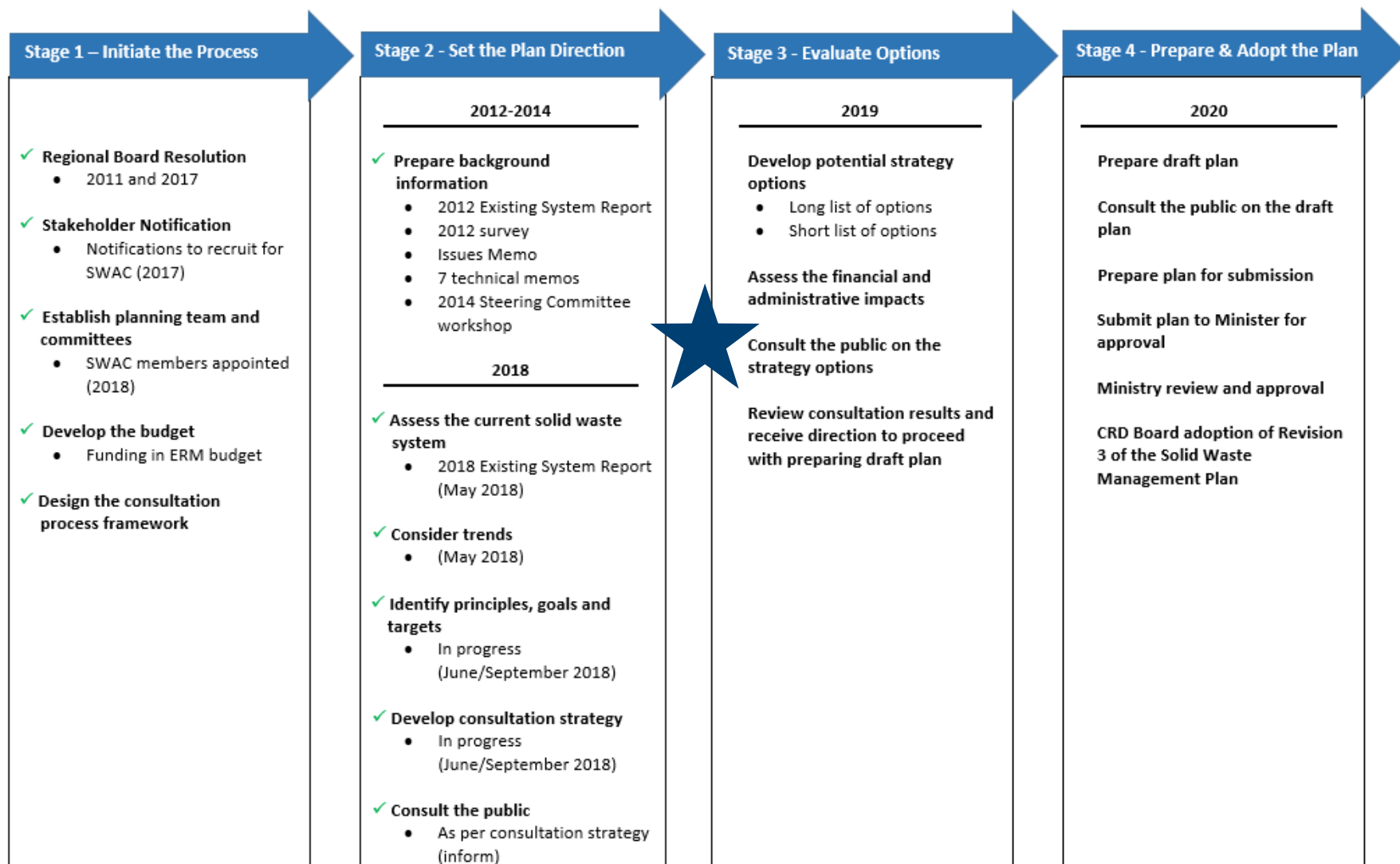
SOLID WASTE
MANAGEMENT
PLAN

• Consultation
• Feedstock

• Consultation
• Secure Feedstock
• Targeted SWMP
Amendment

Guide to Solid Waste Management Planning - Planning Process

CRD





Stage 3 - Evaluate Options

2019



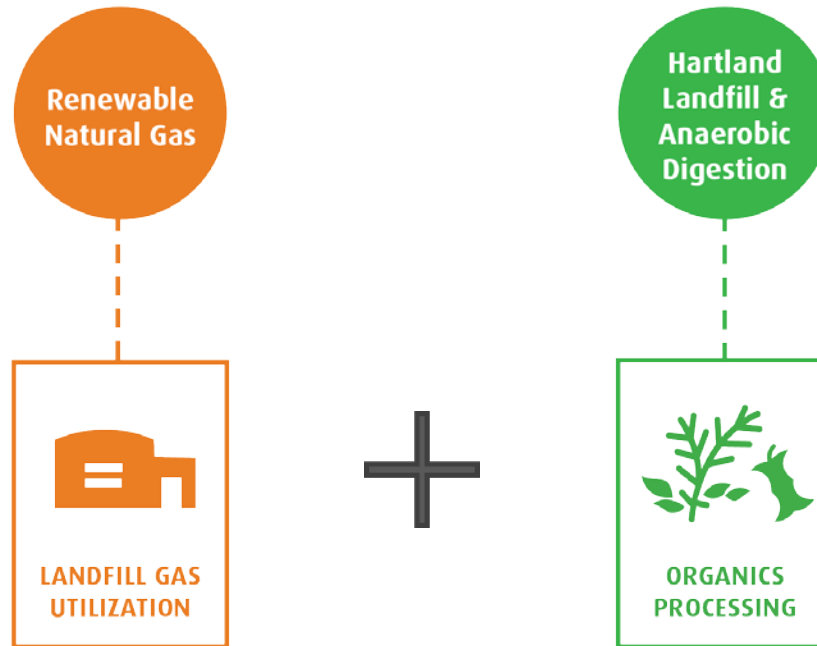
Develop potential strategy options

- Long list of options
- Short list of options

Assess the financial and administrative impacts

Consult the public on the strategy options

Review consultation results and receive direction to proceed with preparing draft plan



- Best environmental and financial outcomes
- Significant potential synergies between renewable natural gas and anaerobic digestion

That the Parks & Environment Committee recommend to the CRD Board:

Landfill Gas Utilization

1. That staff proceed with developing the Hartland RNG project to optimize Hartland Landfill gas utilization, including execution of the tasks listed under Next Steps.
2. That the staff report be referred to the Solid Waste Advisory Committee for feedback on recommendation and next steps; and
3. That the Environmental Resource Management Capital Budget of \$23 million for the Hartland RNG project be recommended for consideration in the 2019 budget approval process, subject to all funding sources being finalized.

Organics Processing

1. That staff proceed with the next steps of the process for developing an anaerobic digestion facility at Hartland Landfill;
2. That staff report be referred to the Solid Waste Advisory Committee for feedback on recommendation and next steps; and
3. That staff return to the Board with the results of the next steps prior to proceeding with procurement.