Roundtable May 9, 2015
Resource Recovery

Table 2

Approach	Benefits	Concerns	Conditions for acceptance
Conventional (meets min standards)		• Treats sewage as waste	
Leading Edge (beyond minimum, higher environmental standards		• Treats sewage as a resource.	

Introductory comments

Conventional = sewage as waste, resources wasted

In some point we will need to go tertiary, why not go there now?

We need some form of resource recovery

Recognition that resource recovery does not come free - cost

Conditions for acceptance:

- Single plant or multiple is an overriding theme.
- Whatever we decide should be flexible and should include resource recovery (the whole concept should be flexible, adapt to local requirements, market demands
- We should focus on a flexible vs rigid approach
- If resource recovery, what type?
- Need to ensure an understanding of the benefits of resource recovery
- Each community should decide what it wants based on local environment, culture, etc
- Technology should be affordable – resource recovery will cost money. How much economic benefit can the recovery bring? What are the benefits of resource recovery? There can be limits. Reality of resource recovery is that it can be very expensive. Building several plants can also be expensive. Question: Has a proper economic analysis been done on this?

- Dockside Green not just a sewage treatment plant.
- Do we build 10 Dockside Greens? Who pays for it?
- Customize the plant for the community
- Need to treat to a level so not to be harmful to the environment
- Don't necessarily reuse treated water in peoples houses, make it into a wetland with walking trails (reduce pipes and facility technology) – use water locally in wetland
    - Use water in different ways: parks, etc
    - Diverse uses for water, not just one thing
- The environment is key, the technological process must not harm the environment, and must reflect the values of community
- The technology must remove substances of concern (microbeads, chemicals, bacteria) antibiotics are also introduced into waste water
- Whatever we do must take advantage of pipes and infrastructure, we have different catchment areas in our region, must work within this infrastructure situation. Ignoring it means a loss of money/opportunity
- Creating opportunity: Sechelt has water recovery for agriculture, what can we use water for locally: what are the community social and economic opportunities?
- Economic opportunities: plants can be a magnet for economic activity – use heat or energy – this can be an economic resource – how much money can this generate?
- Flexible and modular, ability to adapt. Size of the site factors into this.
- Modular and flexible to accommodate growth – set aside land adjacent to primary site for future growth
- One large plant is less flexible. In event of earthquake no flexibility. Multiple sites good if one facility has to go offline
- Looking at core area, system wide approach is required; this could include a series of smaller plants, or plants of various sizes. Facilities should have individual flexibility. A number of different facilities with different purposes, characteristics and abilities that represent a wider approach – not one size fits all. Need to be future proof (building for today with an eye on the future)
- Resource recovery has to respond to market demand. Can the resource be used? Can it be sold? (Value of water is going up?)
- Resource recovery needs to respond to emerging technologies as well – solar and energy storage for example – incorporate put a bank of solar arrays and batteries – technological flexibility
- Key: modular, flexible and scalable
- Modular and scalable in short term to look after long term

- How will we use the **biosolids**: must not produce ghg, or pollute, must not be used on land – can be used as an additive to concrete – flaring releases methane – on the other hand if you gasify you can reuse it as a gas to heat buildings and facilities
- Consider other waste management streams (eg. household garbage. This is called integrated resource recovery (biosolids, compost, garbage). Vancouver is going through this issue currently.
- To be affordable it has to be flexible info the future
- Big costs are debt and operating costs – full life cycle costs for the project required
- Factor in remediation costs in life cycle (bigger picture than just capital costs)

Statement of preference:

Flexible, diverse use of water, responsive to demand, modular, integrated

Table 3

Scenario 1 - Conventional

Benefits

easier to secure wide public acceptance - well known
greater comfort based on proven use - more acceptable by political decision makers - less short term risk.
public not focused on longer term - public like what they know
a great deal of apathy - all conventional systems are different - under 40's have no clear mindset/perspective on what is achievable.
* all benefits as listed above are the concerns - no benefits - could lead to a poor decision.
conventional system may be easier to tie into existing systems - a system developed to operate to a higher standard of treatment could be less easily integrated.
perceived to be less expense -
uninformed perspective that there would be less risk involved -
on one level - doing anything is a benefit.

Concerns

concern that we will miss the opportunity - the more I know the less I know - that the solution will not respond to changing environmental conditions, social conditions - a web of conditions
Can't just approach in a narrow way - must be able to "do the right thing" for next generation living.

If we make the wrong "short term focused" decision - poor investment - the less we do the lower the value. Must account for longer term circumstance and contingencies.

That we have not created a high level of public awareness and support for an ideal solution.
The appropriate life cycle cost/benefit analysis be undertaken.

Under a conventional system, individuals haven't developed a high enough level of public responsibility.

There needs to be a stronger public education process

Flush Mr.Floatie - this is what happens to him under this situation - conventional vs leading edge

Relying on ignorance -
No drive to improve any part of the system - improvements in public awareness and use of resources such as water would be overlooked - need to change the dominant narrative.
Conventional system has a shorter lifespan -

Will not address future needs - community expansion - 20 years of growth and change will render the system obsolete

will not keep up with environmental standards.

cross cutting issue - overall lack of accountability
need to build social license - public responsibility to care for the future.
could be cheap to buy and expensive to run - must factor into operating cost

Conventional - seems to suggest “one plant” solution. Need to clarify.

Scenario 2 - Leading Edge

Benefits
Longterm Solution
Adaptability to changing conditions and circumstance - building on the European system.
Europe has a record which can be referenced - Singapore strong example.
Modular build to deal with each phase of the treatment - expandable - distributed
less tendency to “one size fits all”
Phased development will create optimized solution - allow for customize growth - Langford is growing - View Royal not so much.
Conservation of resources - greater personal responsibility
Maximize resource recovery - recharge aquifers
Concerns raised to this point would be addressed by leading edge technologies
Could trigger investment to create a “3xbottom line” approach
Crosscutting - public ownership desired

Concerns
leading edge implies distributed which could deepen NIMBY
regional inequity contingent on siting. If one municipality assumes responsibility for siting - should they receive the disproportionate number of benefits? Is there a inter community cost benefit
Could we be tied down by “leading edge” technology - stuck with a system that costs more but cannot be adaptable. Different brand of stuck.
Initially more expensive - education for the politicians and public - clear indication of benefits needs to be canvassed.
Obsolescence

Conditions for Acceptance

<u>Conventional</u>
Conventional with the opportunity for water recovery….
If conventional means it will only respond to the regulatory requirement 2020 - Not acceptable.
Publicly built, owned and operated.
more work on the part of municipalities to reduce load

Leading Edge
maximize resource recovery and elimination of heavy metals *****
localized benefits
Publicly owned and operated ***
Funding agreements need to be secured
need to have complete transparency
adaptability - scaled to meet changing circumstance **
Crosscutting - community integration - trucking **
Built to respond to the highest level of global environmental standards
Tertiary treatment - replenish water
reclamation of bio-solids
wood pellets
energy production
heat use

Costing can only be understood through thorough lifecycle anlyasis
Phased in menu approach

Seashelt Scenario - leapfrogging - phased in over 20 years

Victoria must solve the Infrastructure and flow - cost issues as a baseline to fixing the bigger problem - equity issue.

Younger demographic need to be engaged in this discussion - where are the 40-somethings?

Table 3 - Further discussion

If we frame conventional as - meeting reg standard - not acceptable.

We discussed standards to include global standards - not just Canadian *****

Conventional could only be acceptable if recovery and resource gen was possible

Safe - withstand climate and other changes

Tertiary treatment ***

Governance

Awareness - need to find some way to engage younger citizens - more targeted and proactive

Inflow and infiltration issue - beyond NIMBY - equity, holistic - ***

Decision making process - need to fully understand lifecycle - 3x bottom line

modular - phased-in demonstrated ability to achieve performance outcomes - scalability

Table 4

It was noted that the matrix supplied was misleading. The discussion should be simply: Do we want resource recovery?

Concerns

- Micro plastics
- PCB's
- Antibiotic Resistant Organisms/ Superbugs
- No land application of solids
- Gasification – aerosolizing contaminants.
- GHG and climate change
- Previous plan had resource recovery as an add-on, not integrated into the design.
- Safety
- The proposed plan has a budget of $782M with $16M in operating costs – it won't address stormwater overflow

Conditions for Acceptance

- What thresholds can we accept in terms of environmental pollution? The real reason we're doing it is for environmental concerns. But it makes it more palatable to say we'll recover resources. Why do we have to feel like we're selling the notion when what is important is the environment?
- Make conscious decisions for complete destruction of superbugs
- Make sure the systems we endorse are economically viable AND limit the emission of pollutants that damage people's health
- Approach needs to be tailored to the inputs – is it just wastewater? Kitchen scraps? Municipal waste?
- Transparency: Make the public aware of what pollutants are produced by the system
- You get to a point diminishing returns
- Cost benefit between piping $380M vs gasification $50M
- Process should ensure reduction of GHG's
- Pollution we make here, we keep and treat here – don't spread it on other people's land
- No discharge of pollutants into the marine or air
- Advanced treatment
- Willing to have the increase in taxes-want it to do the best we can
- Don't go for bottom line in cost and compromise the environment
- Don't sacrifice your future for short term plan
- Solution that is adaptable/scalable
- Overall revenues should exceed the operating costs
- Heat recovery for greenhouses to support food growing
- Food security
- Outputs: heat, electricity, water
- Wetlands in office towers?
- Take water out of system before it goes to the facility?
- Habitat restoration with reclaimed water is a resource
- Treatment of extremely hazardous materials
- One participant stated need for plasma incineration
- Another participant was concerned about the use of the term incineration – should be gasification
- Created a scale of highest pollution to lowest: Landfill – land distribution – anaeriobic – incineration – gasification – varying perspectives on the order of these processes

Table 5

- Don't think conventional vs leading edge isn't hugely useful because you have to know more about specific technology.
- Perhaps if you see conventional as viewing wastewater as waste and leading edge sees wastewater as a resource.
- No way to accept conventional technology because it doesn't recover enough. Also concerned that it doesn't take out toxins from the recovered resources. ******
- Want the highest level of resource recovery - best possible environmental benefits - – MUST RECOVER WATER.***
- Continuum – don't know where the line is. Cost vs. level of treatment. How much benefit does the extra treatment provide? Answer may change the level of cost willing to take on.
- Discussion: Smaller plant can deal with specialized tasks (one small plant that deals with hospital waste, another one that deals with industrial waste, another one that deals with landfill leachate) – shouldn't be necessary because of source control. Perhaps we need to have higher policing of source control.
- Seeing the plant as a community resource – should add back to the community. Must be integrated into the community they are in. Create Educational element, provide park space or wetlands, etc. – can become a tourist attraction.*
- Location of the plant: okay in my community – if it is beautiful and adds benefit. *
- Distributed system more resilient to climate change. – less likely to have all systems to be knocked out at once – more redundancy than one plant. Even if it costs more at first it will cost less over the long-term. Needs to plan for possible disaster.
- Need to look at building this for 50 to 100 years and consider disaster response. Containing the damage – not necessarily about continuing to treat. You can only engineer to a certain point. There is a cost benefit issue to emergency management.
- Is there the possibility that it would be more difficult to find those sites – can that be offset by the size of the plants. – footprint (size of site will determine the technology - no two plants will be the same – if you use the same technology at multiple sites training of personal is easier, however depending on the size and the site you might need different tech).
- Biosolids – need to treat the contaminants within the Find a technology that could be used as either smaller distributed plant. – proven technology for biosolid treatment – proven means somebody has been using this tech for at least a decade (with similar environmental conditions to the island). Biosolid treatment in my community a concern. Must not smell. Make sure that the air is clean – vital.* But might be willing

to step back from that 10 years proven if there is redundant filtration system and mitigation for any other issues that might come up.*

- Gasification – issues is that it is a relatively new technology and may not be considered proven – administrative hurdles. Still might be better for us. No emissions, biochar. Very environmentally friendly, can make money, less harmful that biosolids and composting. Heavy metals are a concern but they appear to stay in the char and don't leach out like digested biosolids.*

- Happy to extend the timeline and risk losing the money to get something better and potentially cheaper. We should stop rushing headlong into this. We are in a good spot to reconsider our options - some disagreement – get it done. Start soon but make it scalable and modular. Thing of the long game – 50 to 100 year solution.

- Legislated deadline – We have to consider this when we address the timeline.

- Have to have full resource recovery right from the start. – don't start with something less to meet a timeline. **

Overall discussion:

- Not enough knowledge about the problems of solids treatment. Missing educational component. Treating water seems more understood.

- Whatever we choose must lead towards a healthy earth ecology – not just about the water but also the earth and the air.

- Concern about Vandalism – security should be on the site.

- Difficulties that we are facing we don't have a set amount of money. We are discussing values. What do we want out of our treatment facility? We have to decide what we want and then the engineers will tell us how they can build it and what it will cost. Once that happens perhaps we change our minds but we have to start from what we want.

- Different municipalities might have different needs. By having different plants for different municipalities we can tailor the solution to each municipality.

- How do we increase the amount of discussion in the community – not just all the same thing. Need to reframe the narrative to look at opportunity rather than NIMBY issues. What are the opportunities? Greenhouse? Increased property values? How do we change the perception? Media thrive on conflict. Need to get the information out through social media so that we are able to get to the younger generation. Get a video out there. Something that can go viral about poop.

- What should be driving the decision is what is best for the environment but not about the money. Might be true but there are many people who think that money is most important. We need to be able to include them in this discussion – frame to show how cost can be addressed with a higher level of treatment. Must focus on values doesn't necessarily mean that costs are not considered – modular systems doesn't have a gigantic scary cost up front.

- This is bigger than one municipality but rather as a region. This is an environmental issues. This must stop being a municipal discussion and become a regional discussion.

- Like the term Westside Solutions – different way to frame the conversation. Now we need to integrate Westside with Eastside.

- Want to say instead of NIMBY change to PIMBY – Please in my back yard.