Cariboo Regional District

CARIBOO REGIONAL DISTRICT

Solid Waste Management Plan Update

Tera Grady, Supervisor of Solid Waste Management
January 17, 2023

building communities together

Introductions

- Tera Grady
  - Supervisor of CRD Solid Waste Management
  - Forestry and mining background
  - Supervised the completion and implementation of the current Solid Waste Management Plan
- Tamara Shulman
  - Senior waste reduction planner supporting CRD Solid Waste Management Plan Update
  - Has successfully completed several regional district solid waste management plan updates and other relevant planning projects.

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OVERVIEW

- Solid Waste Management Planning
- Step 1 Initiating the Plan Update
- Step 2 Set the Plan Direction
  - Guiding Principles
  - Analyzing the System
  - Consult the Public
- Step 3 Evaluate the options – Eight options identified
  - Diversion Centers
  - Landfill Bans
  - New Curbside Collection Service
  - Commercial Recycling
  - User Pay
  - Food Waste Diversion
  - Multifamily Building Recycling
  - Upgrades to Rural Sites

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Solid Waste Management Planning

- SWMP Updates are required by the province
  - Ministry of Environment and Climate Change Strategy (ENV) requires Regional Districts to update Solid Waste Management Plans (Plan) every ten years
  - The CRD's last Plan was approved in 2013
- Regional Districts are required to set waste reduction targets and track disposal rates
  - CRD submits annual tracking to the Province
  - Plans are to include waste reduction targets
  - Provincial target is 350 kg/person/year target for the province as a whole

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ENV Guidance Document Step 1

Step 1: Initiate the Planning Process	
Initiate the plan update	▪ Regional district Board resolution to initiate the planning process ▪ Identify the plan area ▪ Identify scope of work ▪ Notify interested parties and the ministry
Establish planning team and committees	▪ Establish the planning team ▪ Establish advisory committee(s)
Design consultation plan	▪ Design the consultation process ▪ Public advisory committee provides input into the design of the public consultation process ▪ Ensure public consultation requirements will be addressed
Develop the budget	▪ Develop budget for planning process

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ENV Guidance Document Step 2

Step 2: Set the Plan Direction	
Identify principles, goals and targets	▪ Establish locally relevant guiding principles, goals and targets that are complementary to provincial principles, goals and targets
Prepare background information	▪ Assemble information on the region's population and growth, and pertinent social and economic trends
Assess the current solid waste system	▪ Describe and analyze the current waste management system
Consider trends that are impacting solid waste management	▪ Look at industry trends ▪ Consider local factors that are impacting solid waste management ▪ Identify challenges and opportunities
Consult the public	▪ Seek input from advisory committees and other interested parties

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Guiding Principles: ENV Guidance

1. Promote Zero Waste Approaches and Support a Circular Economy
2. Promote the First 3 Rs (Reduce, Reuse and Recycle)
3. Maximize Beneficial Use of Waste Materials and Manage Residuals Appropriately
4. Support Polluter and User-Pay Approaches and Manage Incentives to Maximize Behaviour Outcomes
5. Prevent Organics and Recyclables from Going into the Garbage Wherever Practical
6. Collaborate With Other Regional Districts Wherever Practical
7. Develop Collaborative Partnerships with Interested Parties to Achieve Regional Targets Set in Plans

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CRD's SWMP Guiding Principles

1. Promoting zero waste approaches and supporting local circular economy opportunities.
2. Minimize greenhouse gas emissions and protect the Cariboo's natural environment.
3. Implement the 5-Rs hierarchy through new programs, extended producer responsibility, education, and partnerships to achieve regional targets.
4. Manage residuals responsibly and prioritize hazardous substances diversion from landfill.
5. Move towards user-pay approach while recognizing rural limitations.
6. Maintain a cost-effective system while optimizing diversion and local jobs.

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Analyzing the System: Waste Metrics

- $8.8 M annual operating expenses (includes City of Quesnel Landfill)
- 63,307 population (2021 Stat Canada)
- 41,882 tonnes landfilled waste per year (2020)
  - 657 kg per person per year (down from 775 kg in 2011)
  - $212 per tonne
- 15,869 tonnes diverted (avg. 2019/2020 of PPP, wood waste & concrete)
  - 249 kg per person per year
- Total annual tonnes GENERATED = 57,761
  - $154 per tonne

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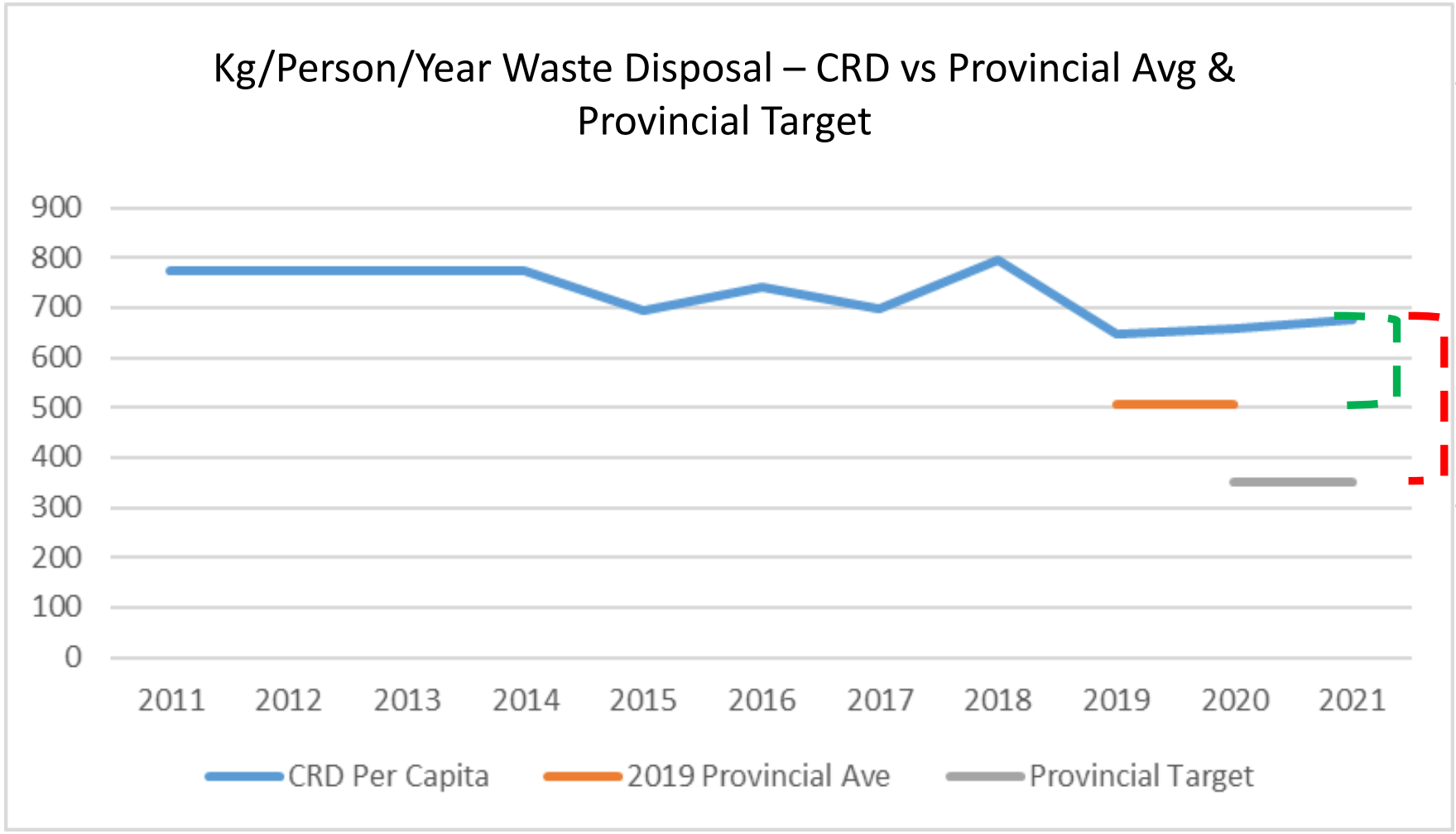
Analyzing the System: ENV Targets



- Reaching Provincial Avg would require 157 kg/person/year reduction from current kg/person/year
- Reaching MOE target would require 307 kg/person/year reduction

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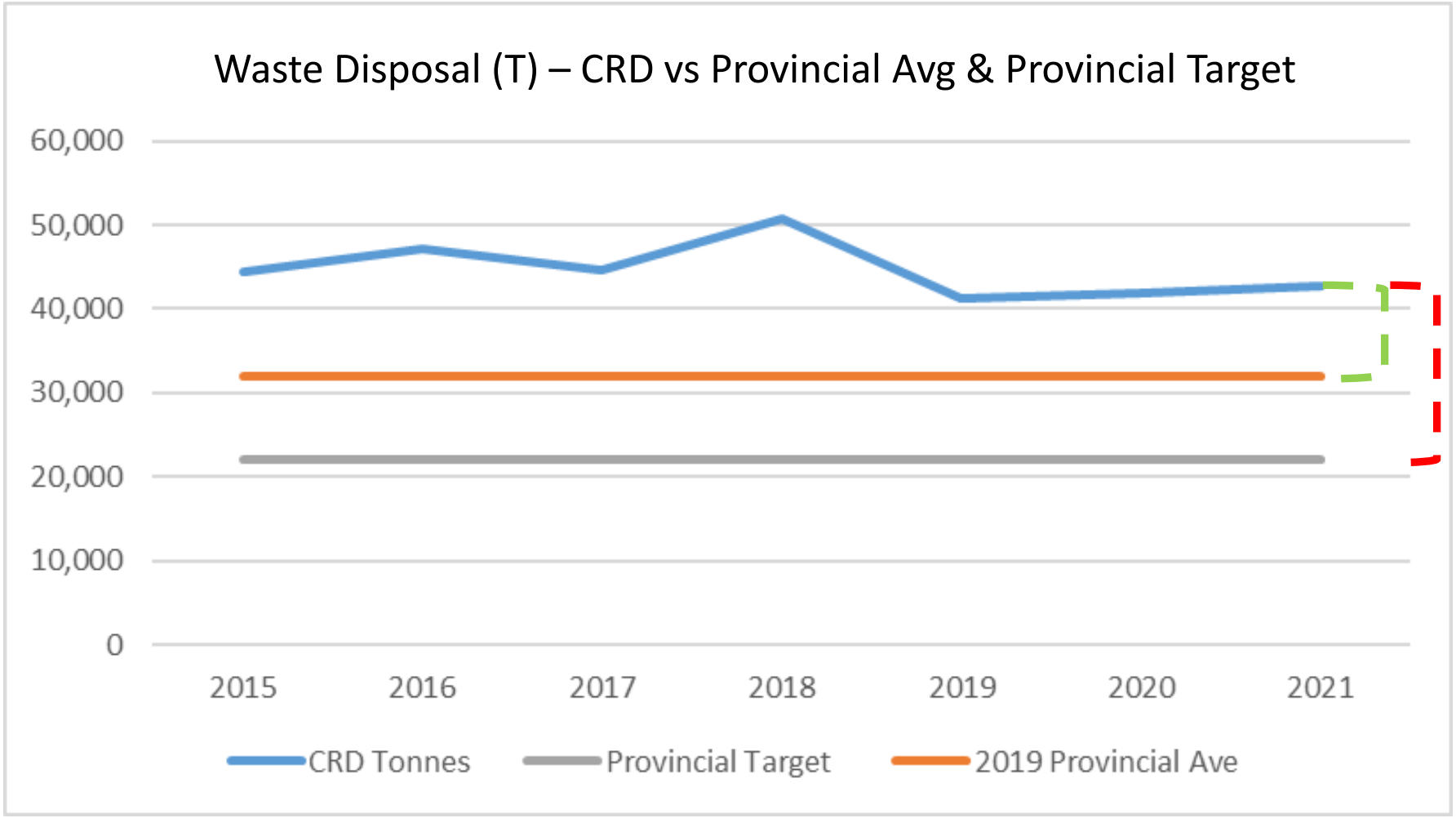
Analyzing the System: ENV Targets



- Reaching Provincial Avg would require 9,711 tonnes per year reduction from current levels
- Reaching MOE target would require 19,496 tonnes per year reduction from current levels

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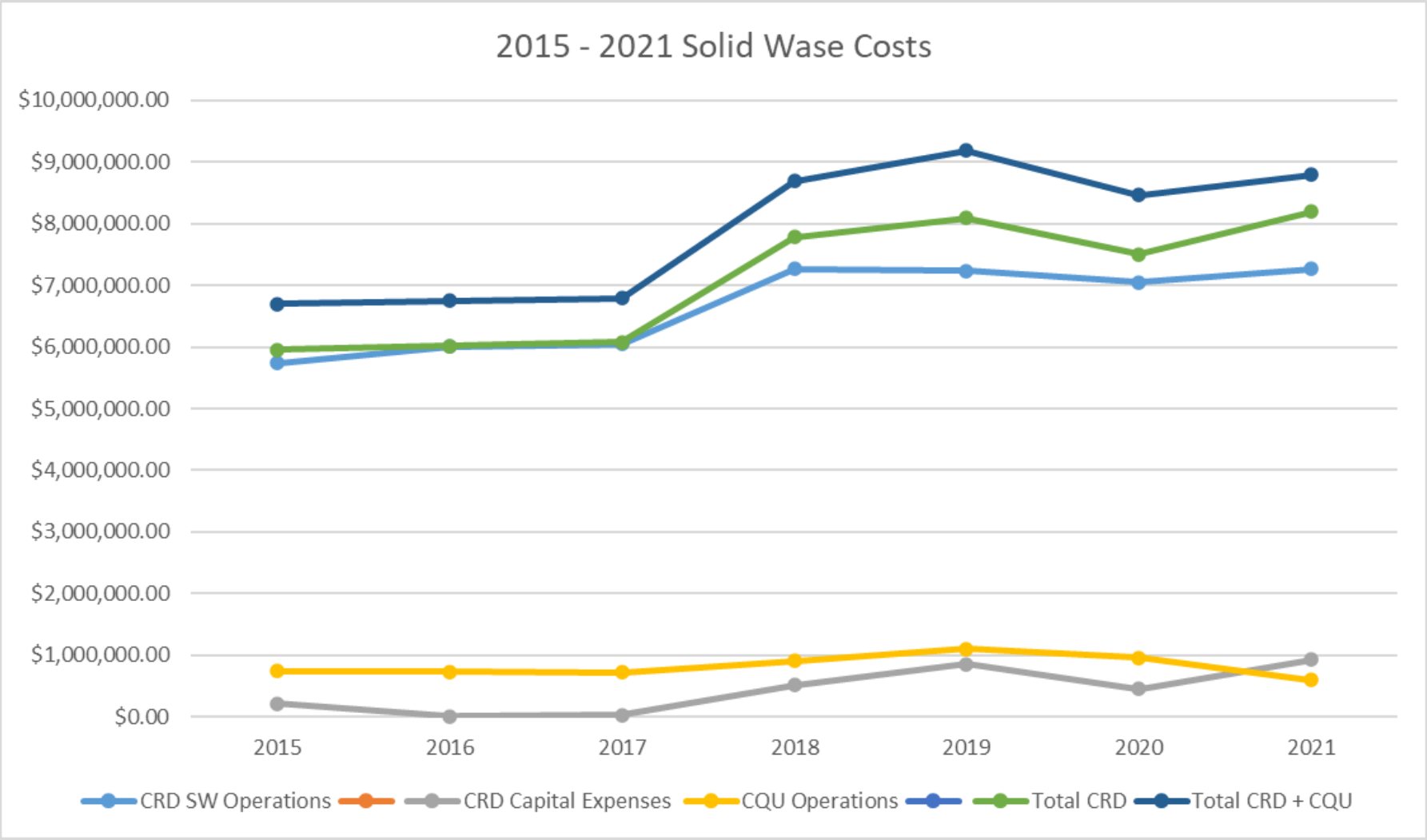
Analyzing the System: Costs



System Costs

Jump in operating costs due to an increase in transfer to reserves for future expenditures

(Does not include surplus funds)

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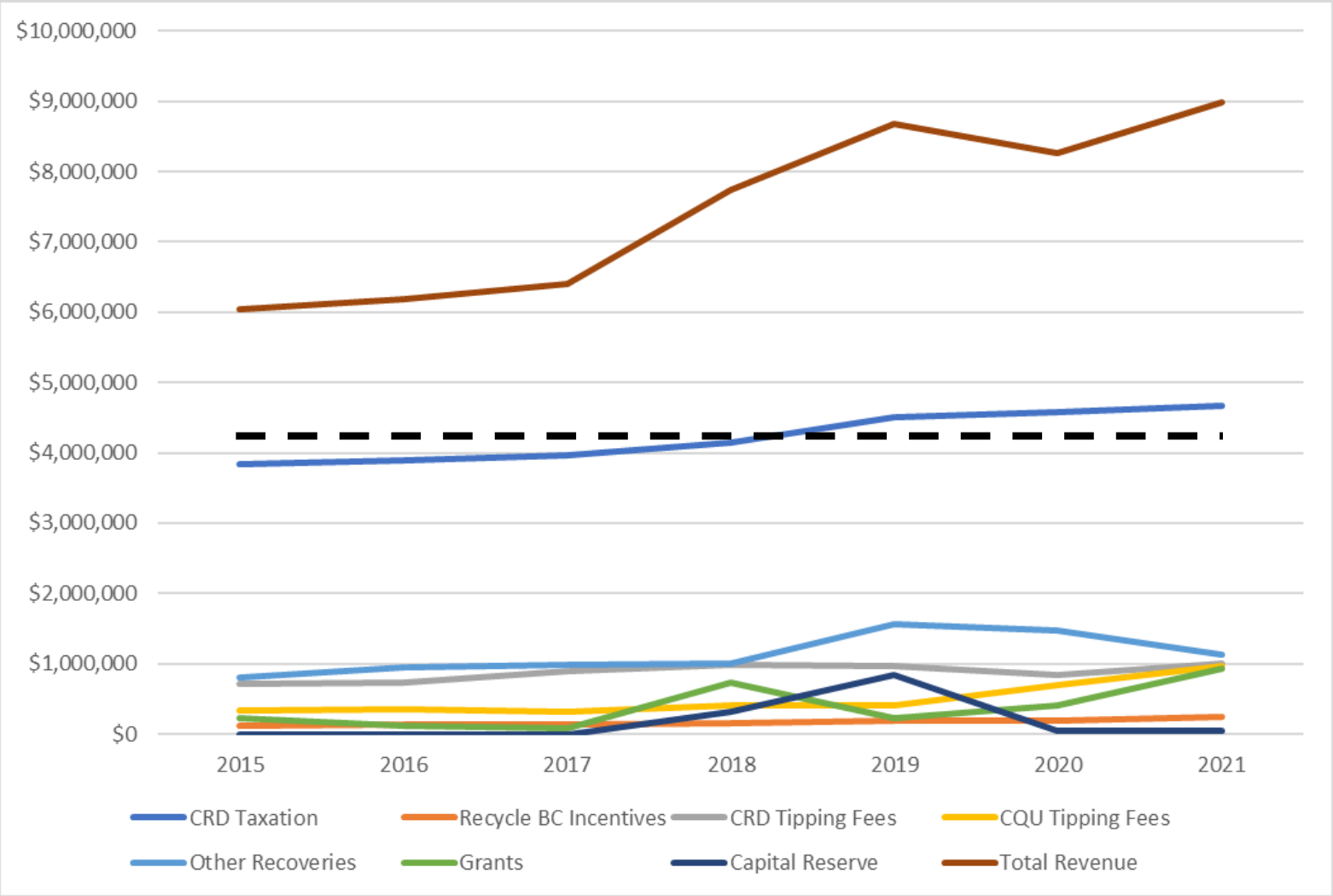
Analyzing the System: Funding



System Revenue

Total revenue must meet the costs

- On average Taxation has covered 57% of costs over the last 7 years

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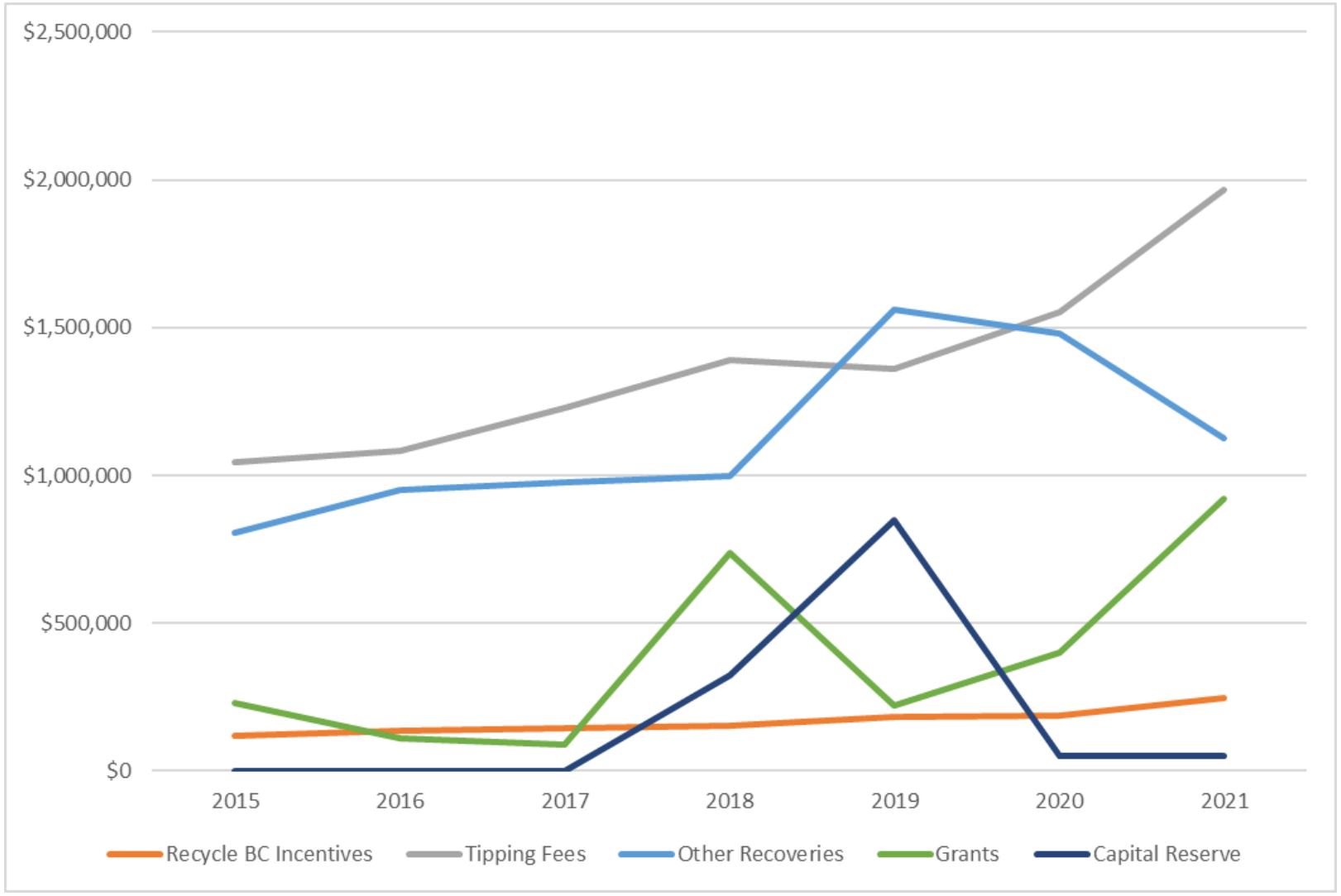
Analyzing the System: Funding



System Revenue Averages

- Tipping Fees ~ 18%
- Other Recoveries ~ 15%
  - Red cross funding
  - Sale of scrap metal, wood chips, batteries, used oil
  - FN agreements
  - CWL contribution to system
- Grants ~ 5%
- Capital Reserves ~3%
- RBC Incentives ~2%

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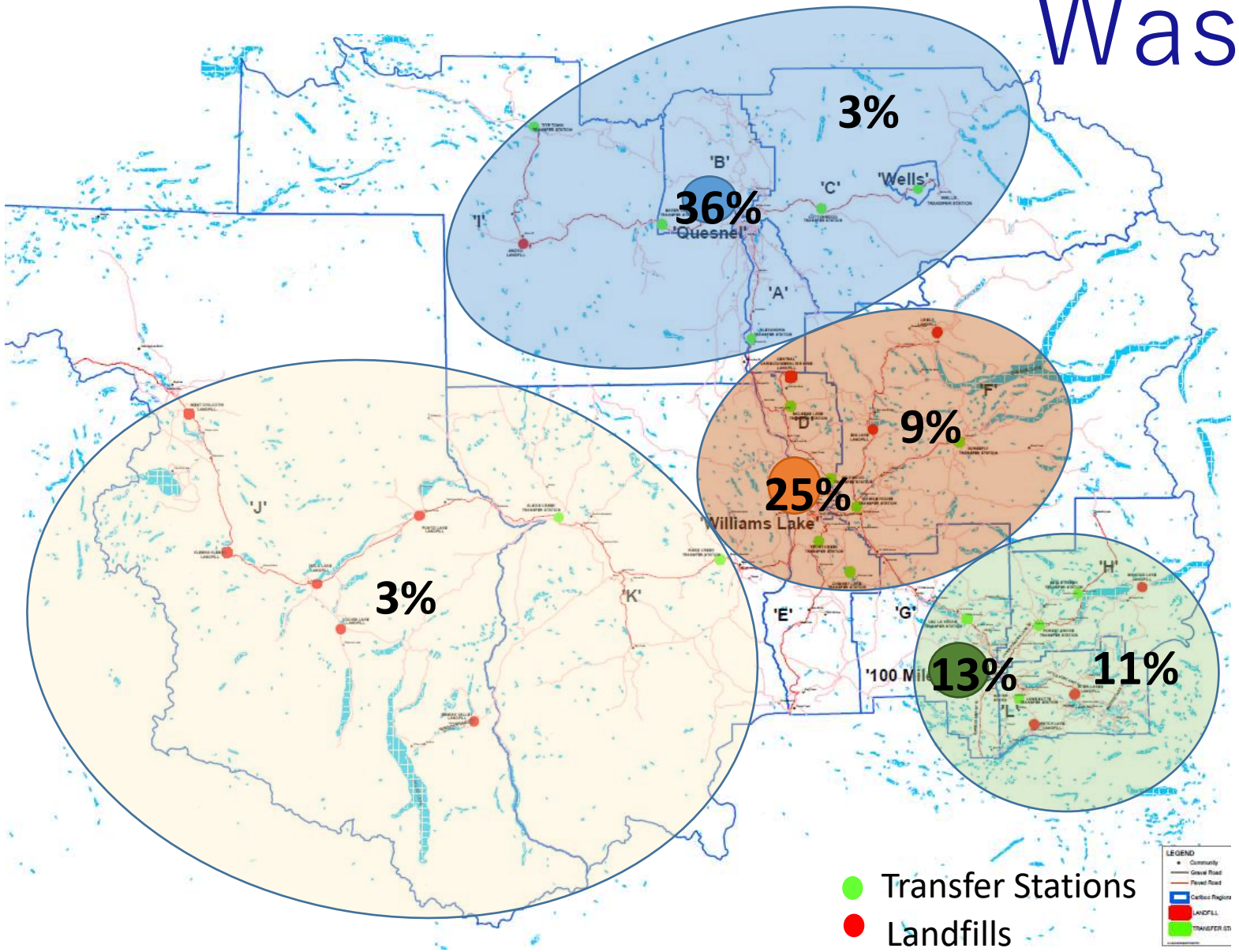
Waste Generation



North Cariboo: 39 %

Direct Haul: 36%

CRD Rural sites: 3%

Central Cariboo: 34%

Direct Haul: 25%

CRD Rural sites: 9%

South Cariboo: 24%

Direct Haul: 13%

CRD Rural sites: 11%

Chilcotin: 3%

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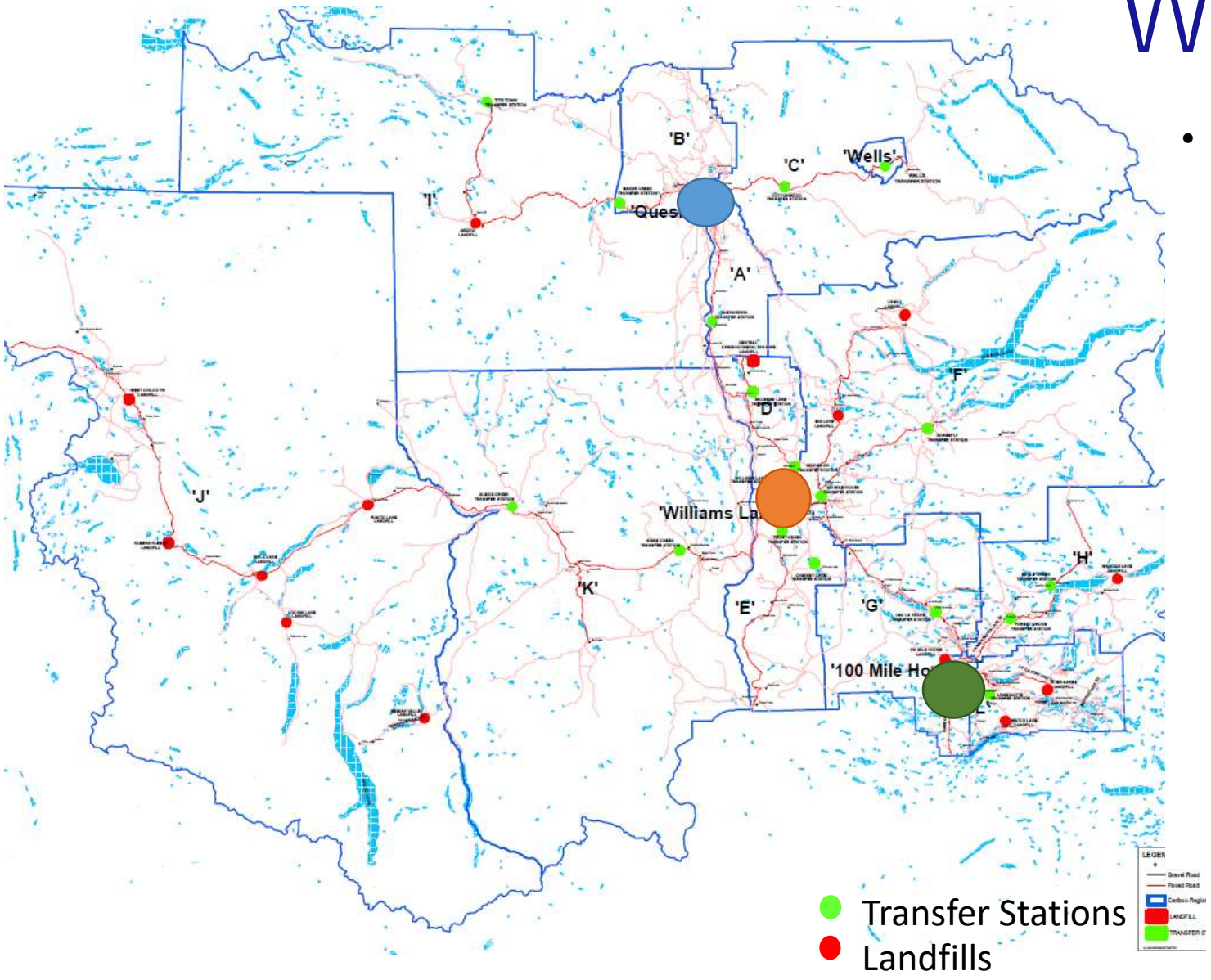
Waste Generation



- **74% of overall waste is hauled directly to one of three controlled regional facilities**
  - Municipal commercial generated waste
  - Municipal residential curbside collection
  - Municipal and "fringe" CRD resident self-haul of waste
  - Some First Nations community waste

City of Quesnel Landfill (36%)

Central Cariboo TS/GIB LF (25%)

100 Mile Landfill (13%)

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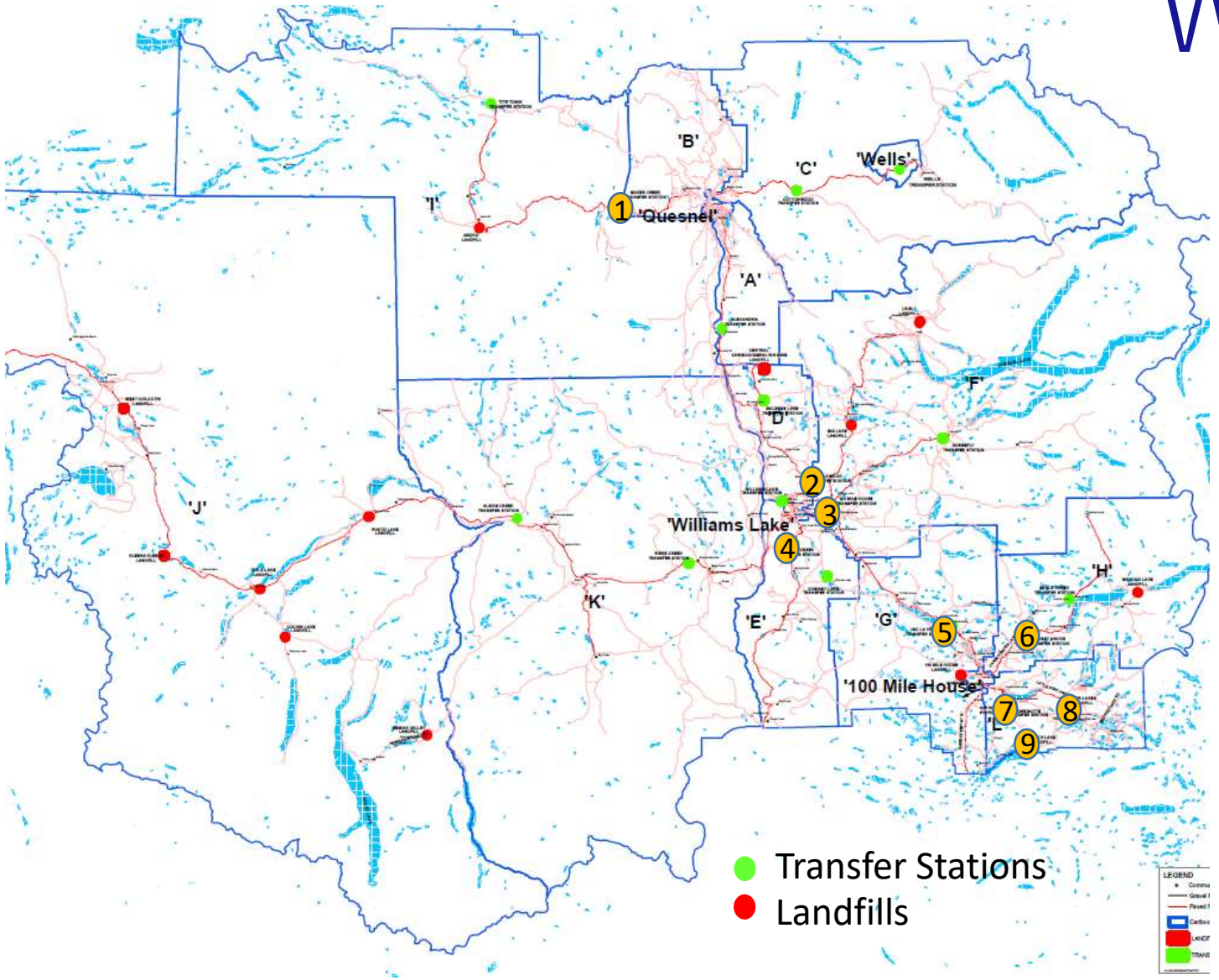
Waste Generation



- **17% of overall waste dropped at one of nine controlled rural sites**
  - Minor commercial (small business) waste
  - Rural CRD residential waste
  - Small number of First Nations community waste

1 - Baker Creek TS
2 - Wildwood TS
3 - 150 Mile TS
4 - Frost Creek TS
5 - Lac La Hache TS
6 - Forest Grove TS
7 - Lone Butte TS
8 - Interlakes LF
9 - Watch Lake LF

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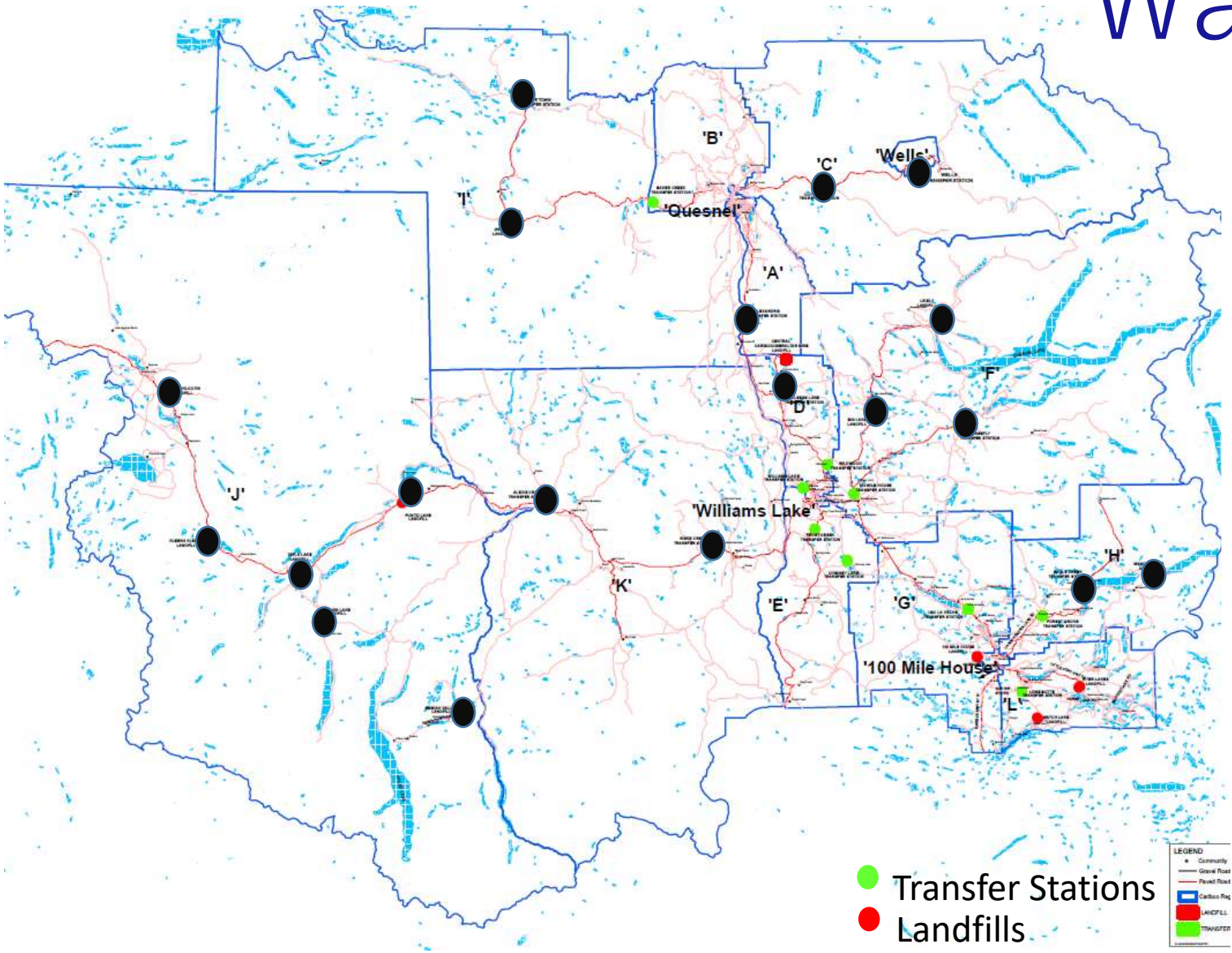
Waste Generation



- **9% of overall waste generated from 20 non-controlled rural sites**
  - Rural or remote CRD resident waste
  - Rural or remote First Nations community waste

Titetown TS
Nazko LF
Alexis Creek TS
Cottonwood TS
Alexandria TS
McLeese TS
Big LakeTS
West Chilcotin LF
Kleena Kleene LF
Riske Creek TS
Puntzi LF
Nemiah LF
Likely LF
Wells TS
Tatla LF
Cochin LF
Horsefly TS
Mahood LF
Eagle Cr. TS
Chimney TS

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Analyzing the System: Waste Composition

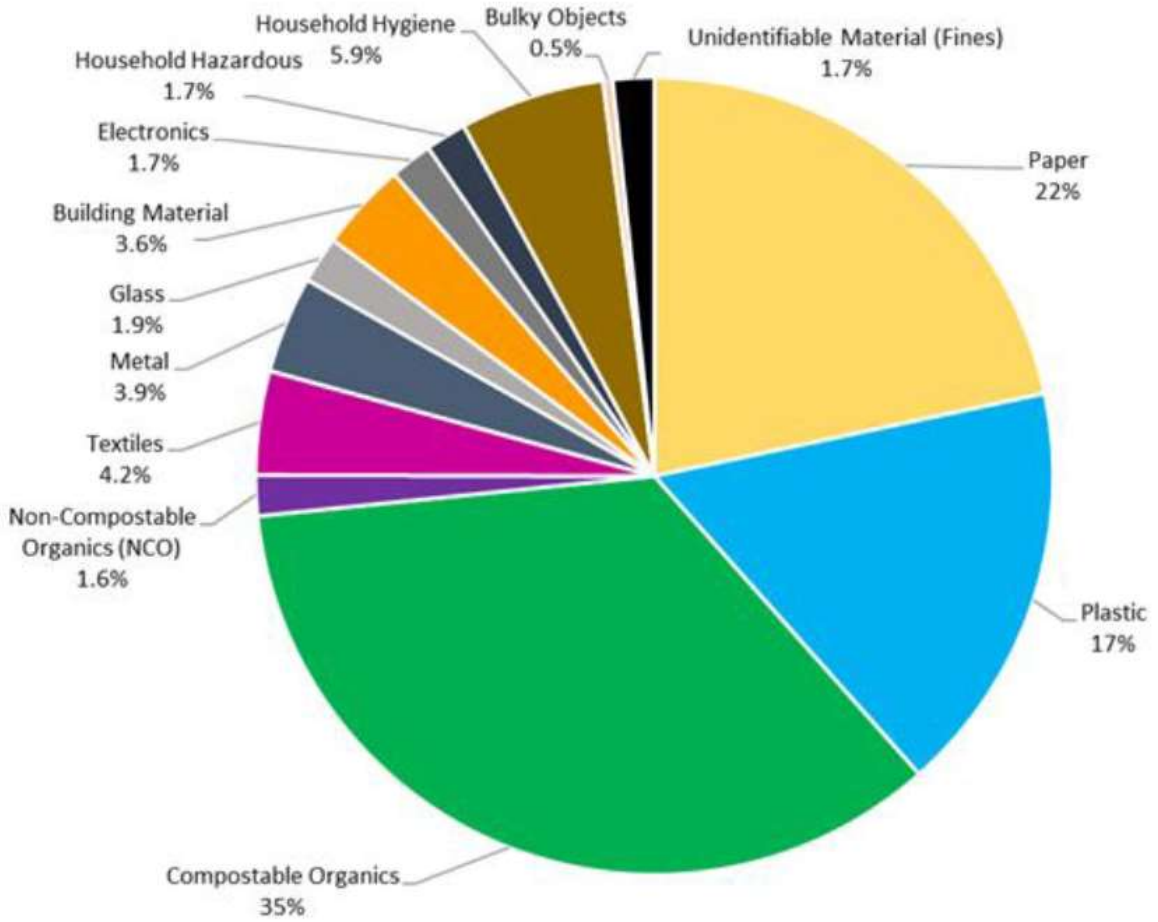

Figure 4-8: Waste Composition for All Sectors Combined

- Results of the 2019 waste audit

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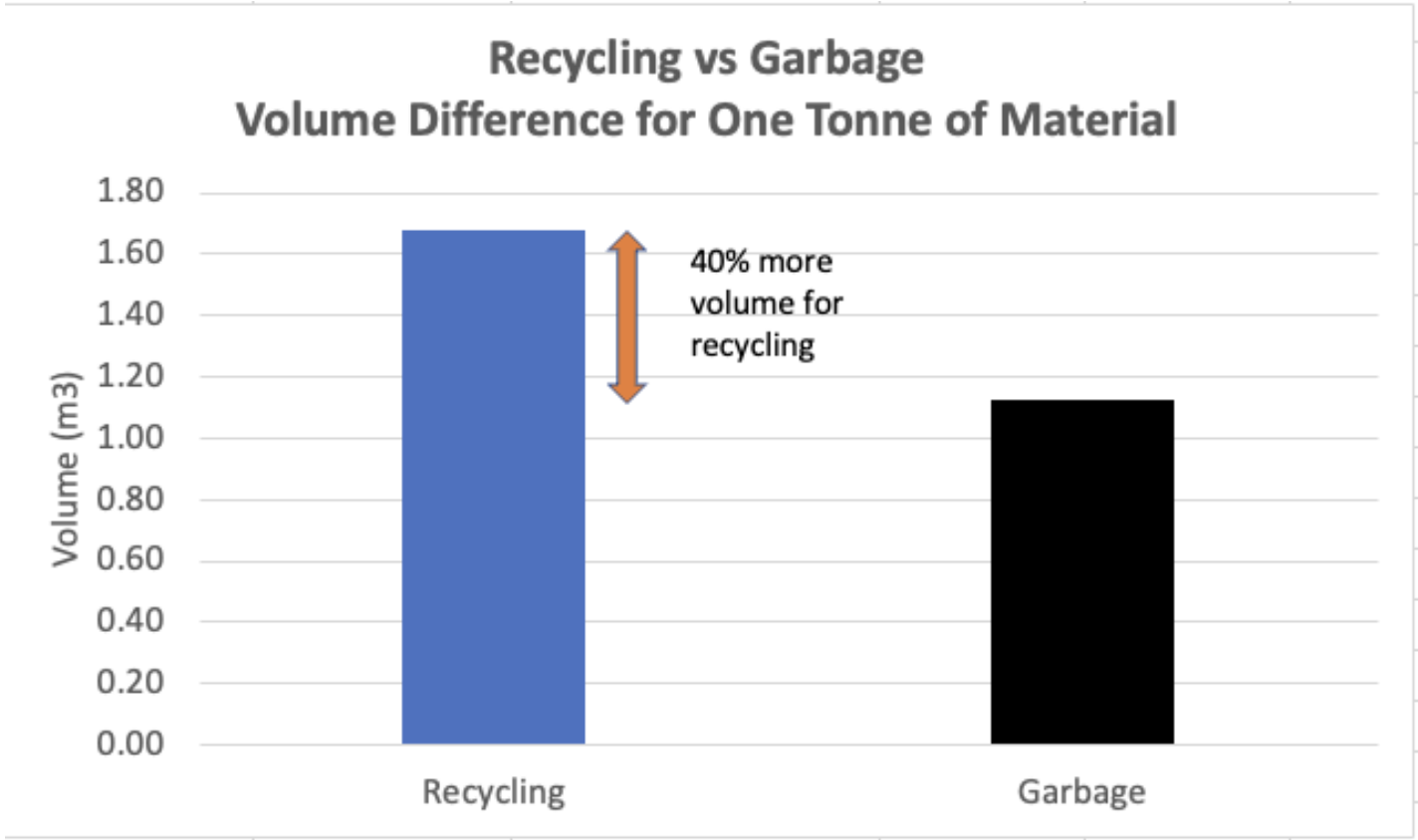
Analyzing the System: Waste Composition

- Recycling takes another 40% volume compared to garbage



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Let's Talk Less Trash Public Meeting

Solid Waste Management Plan Update 2021

June 8, 2021

building communities together

Presentation Outline

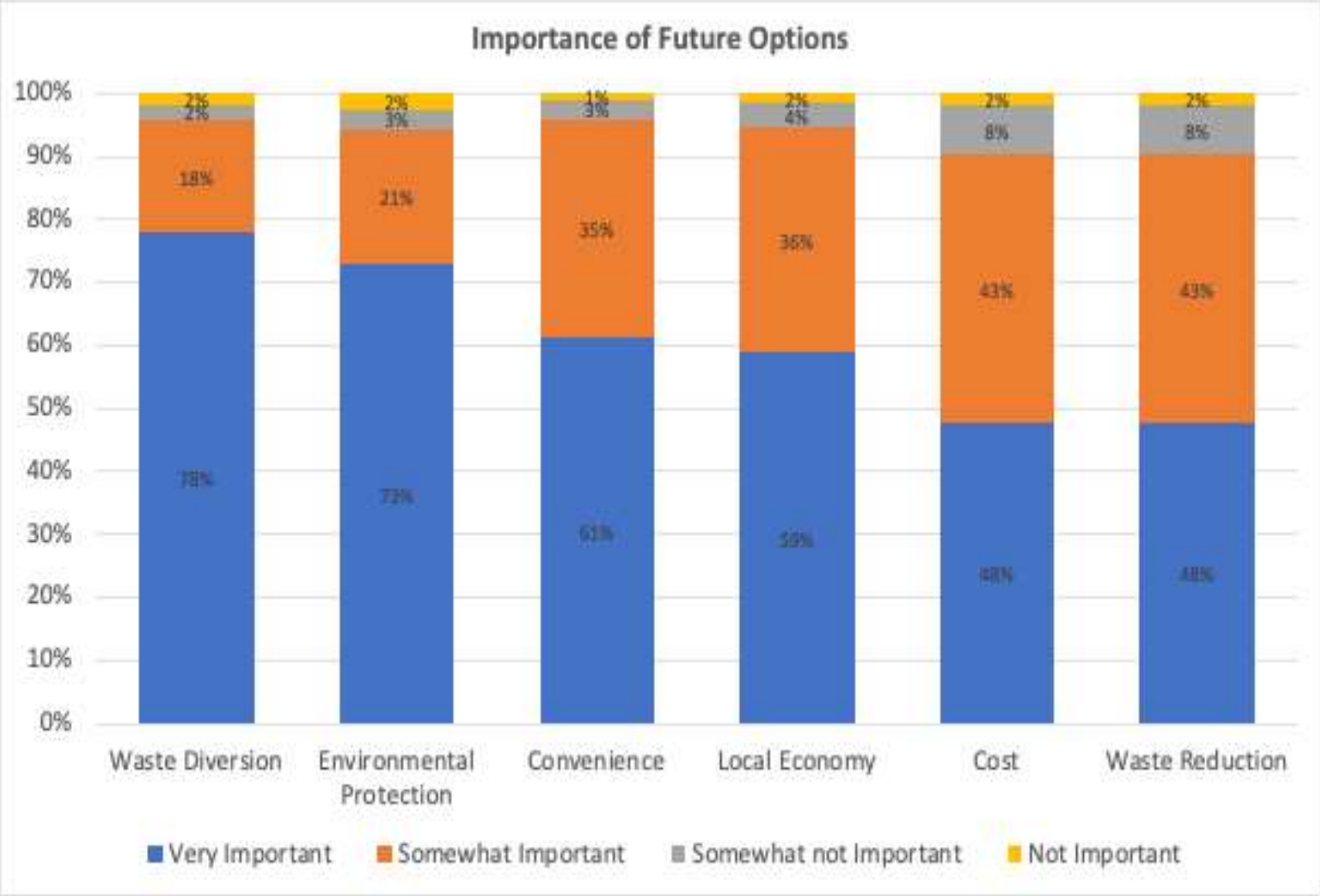
- Solid Waste Management Plan Update
- CRD's Current Solid Waste System
- Diversion Drivers
- Discussion and Questions

Our questions for you:

What future services are you interested in?

How do you think we can increase diversion in the Cariboo?

Consult the Public: Values Ranking



'Very Important' ranking order:

1. 78% Waste Diversion
2. 73% Env Protection
3. 61% Convenience
4. 59% Local Economy
5. 48% Cost
6. 48% Waste Reduction

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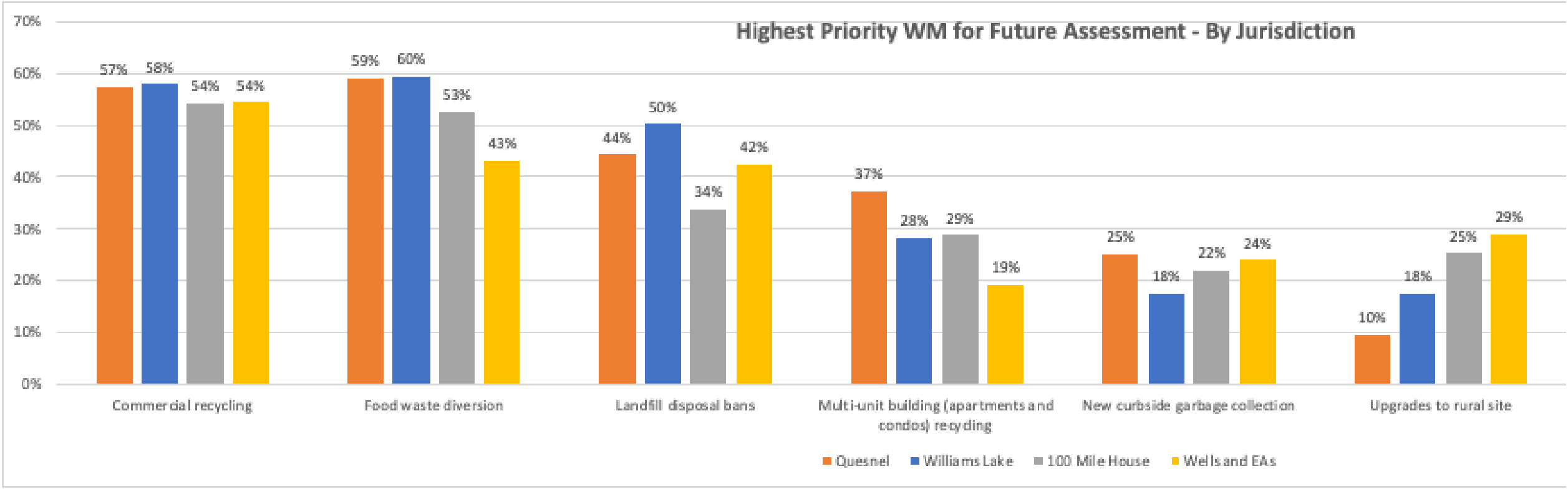
Consult the Public: Future Options



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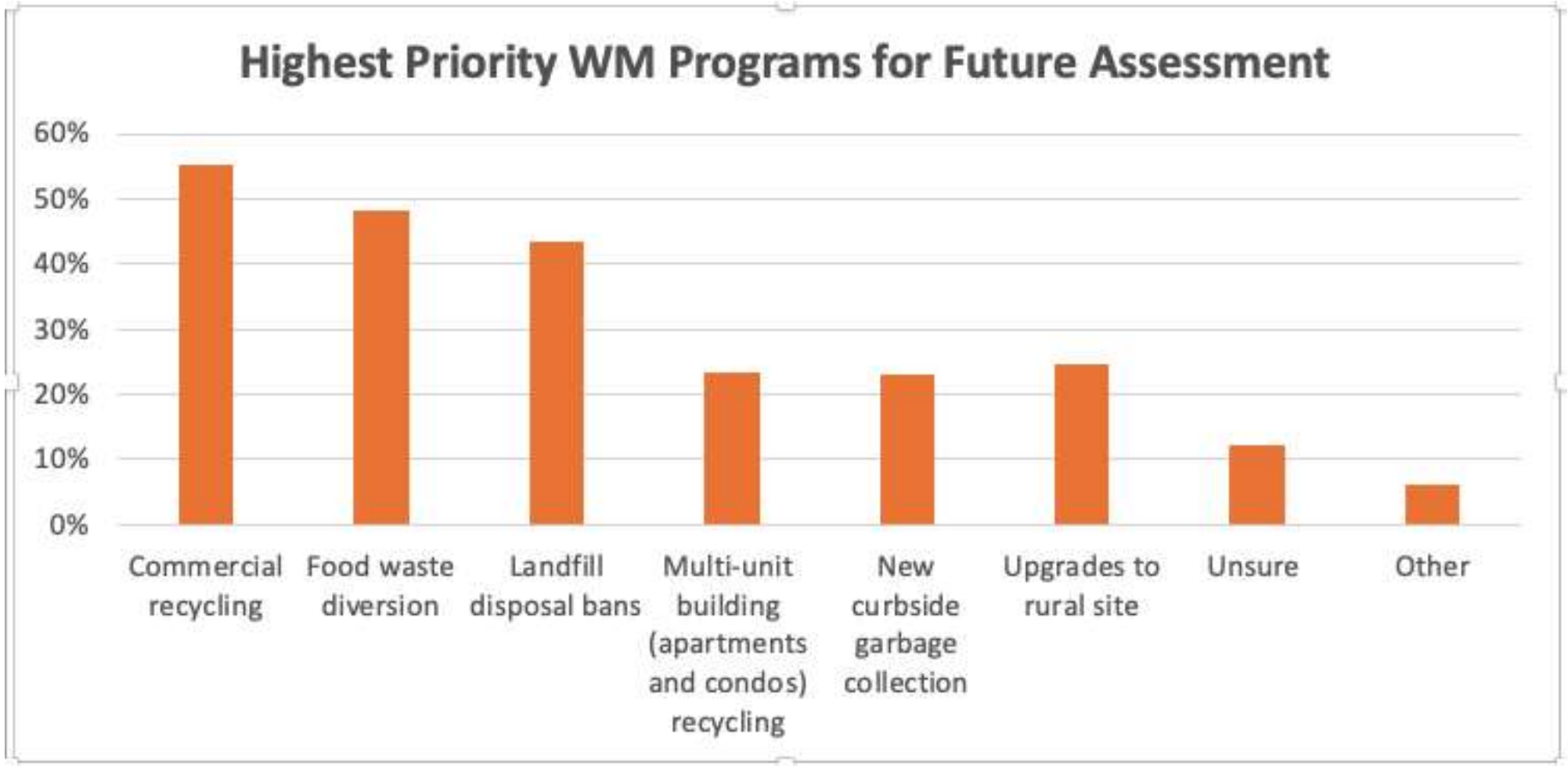
Consult the Public: Future Options



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ENV Guidance Document Step 3

Step 3: Evaluate Options	
Develop potential strategies	▪ Identify a full range of possible strategies to achieve the targets ▪ Consider the practicality and benefits / challenges of these strategies
Assess the financial and administrative impacts	▪ Consider the financial and administration impacts of the solid waste management system, including the new proposals
Consult the public on the strategy options	▪ Conduct a public consultation process that allows ample opportunity to provide input

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Evaluate Options: Diversion Centers

Program Components

- Recycling, reuse, repair, upcycling
  - Household items
  - Building and construction materials
- Commercial recycling management
- Organics drop off and/or composting site
- Drop off for estate sales, and items generated by residents who are moving
- Education and/or office space

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Evaluate Options: Diversion Centers

Considerations

- Private recycling and thrift stores
- Opportunity for partnerships with non-profits or provincial agencies for management and staffing
- Location

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Evaluate Options: Diversion Centers

Costs

- Will be significant
- Will depend on the location and size of property
- Higher if a new building is required
- Existing building may need major renovations

Revenue

- Fees could be charged for drop off (especially if full user pay is implemented at regional sites) and for pick up to help off set costs

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Evaluate Options: Diversion Centers

Diversion potential

- Would assist with the diversion targets for majority of options being considered
- Currently share sheds, re-use centers and thrift stores can not keep up with the volume of items residents are generating
- Significant amounts of metal, wood waste, electronics, plastics and recyclables are still being landfilled

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Landfill Disposal Bans

Program Components

- Consultation and engagement
- Education
- Staff inspections
- Fines (surcharges) based on threshold (contamination level)

Considerations

- All controlled sites (ideally)
- Unintended consequences
  - Increase use of non-controlled sites
  - Increased conflict between staff and site users

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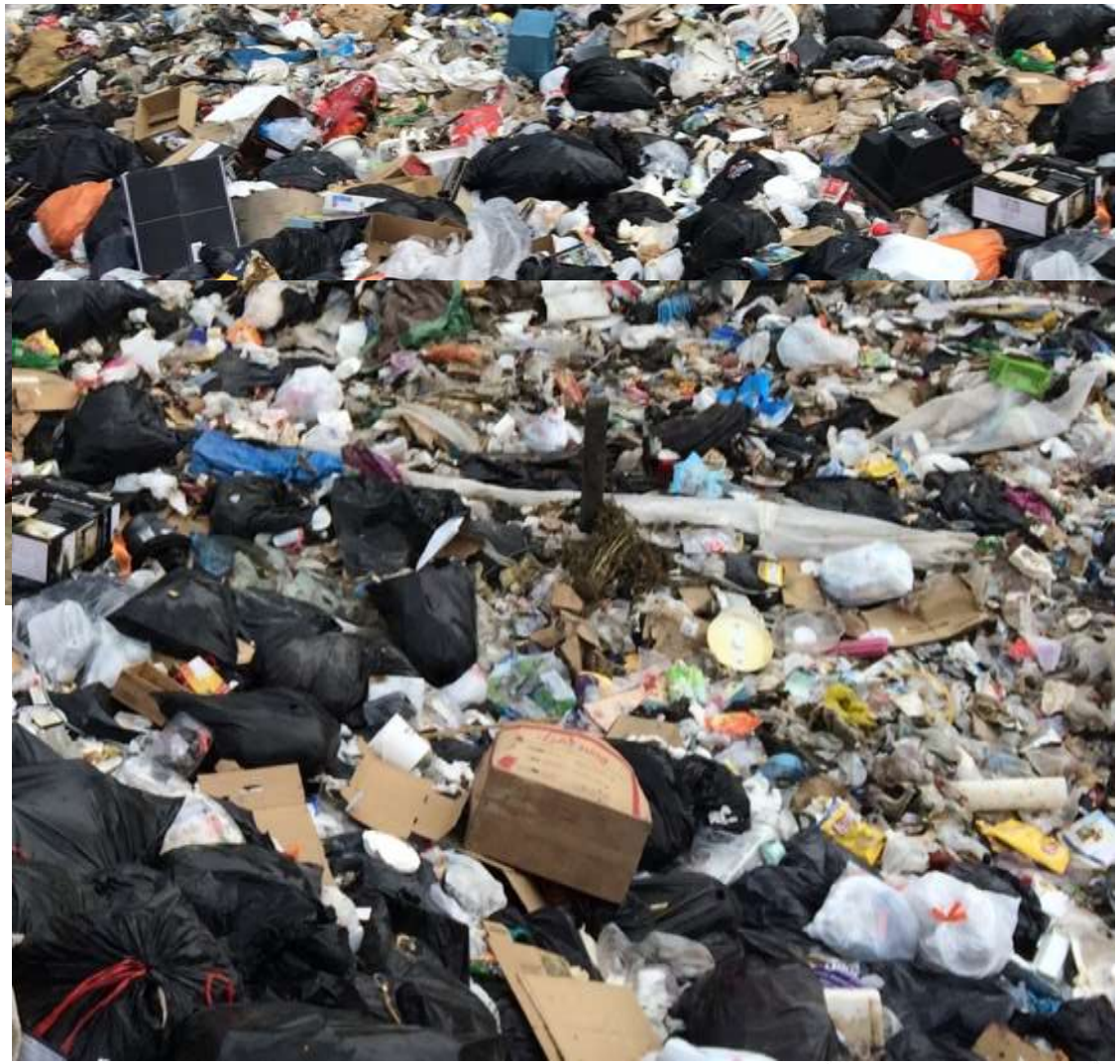
Landfill Disposal Bans

Costs

- Additional staff member at each controlled facility
  - $234,000/year (3 regional sites only)
  - $936,000/year (all 12 controlled sites)

Revenue

- Fines based on threshold
- As compliance increases revenue decreases



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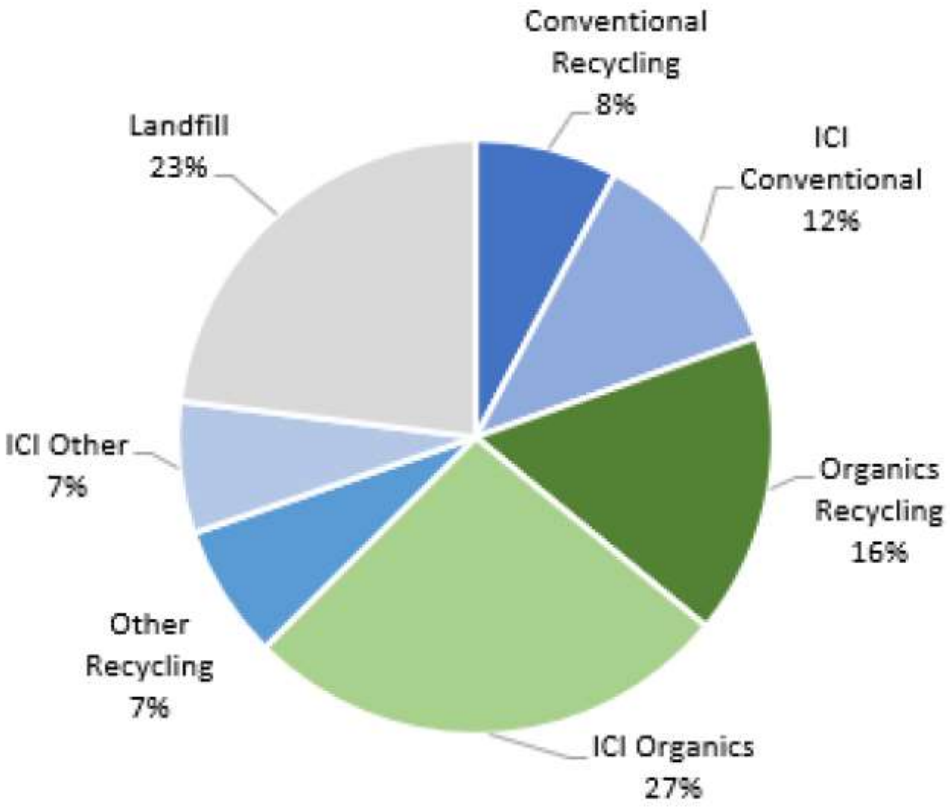
Landfill Disposal Bans

Diversion Potential

- 2019 waste audit found that 77 % (or 21,768 tonnes in 2020) of municipal solid waste could be diverted from landfills across the region.
- 100% diversion is not attainable, even with disposal bans for each category in place.
- 50% (10,884 tonnes in 2020) diversion would be considered a huge success.
- Requires access to commercial recycling, organics composting, and a diversion center to manage the diverted materials.



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Curbside Garbage Collection

- Program Components
  - Determine CRD areas that meet Recycle BC's adjacency criteria:
    - Density of 0.42 households per hectare
    - Within 5 km of an existing curbside collection route
  - Residents within the selected areas would fund the garbage collection, Recycle BC will supply an incentive towards the cost of recycling collection
  - Could consider organics collection in the future
- Considerations
  - Do residents want this service?
  - Snow plowing issues for homes on main highways?
  - CRD scale data exercise indicates a reduction in GHG emissions (by 50%)

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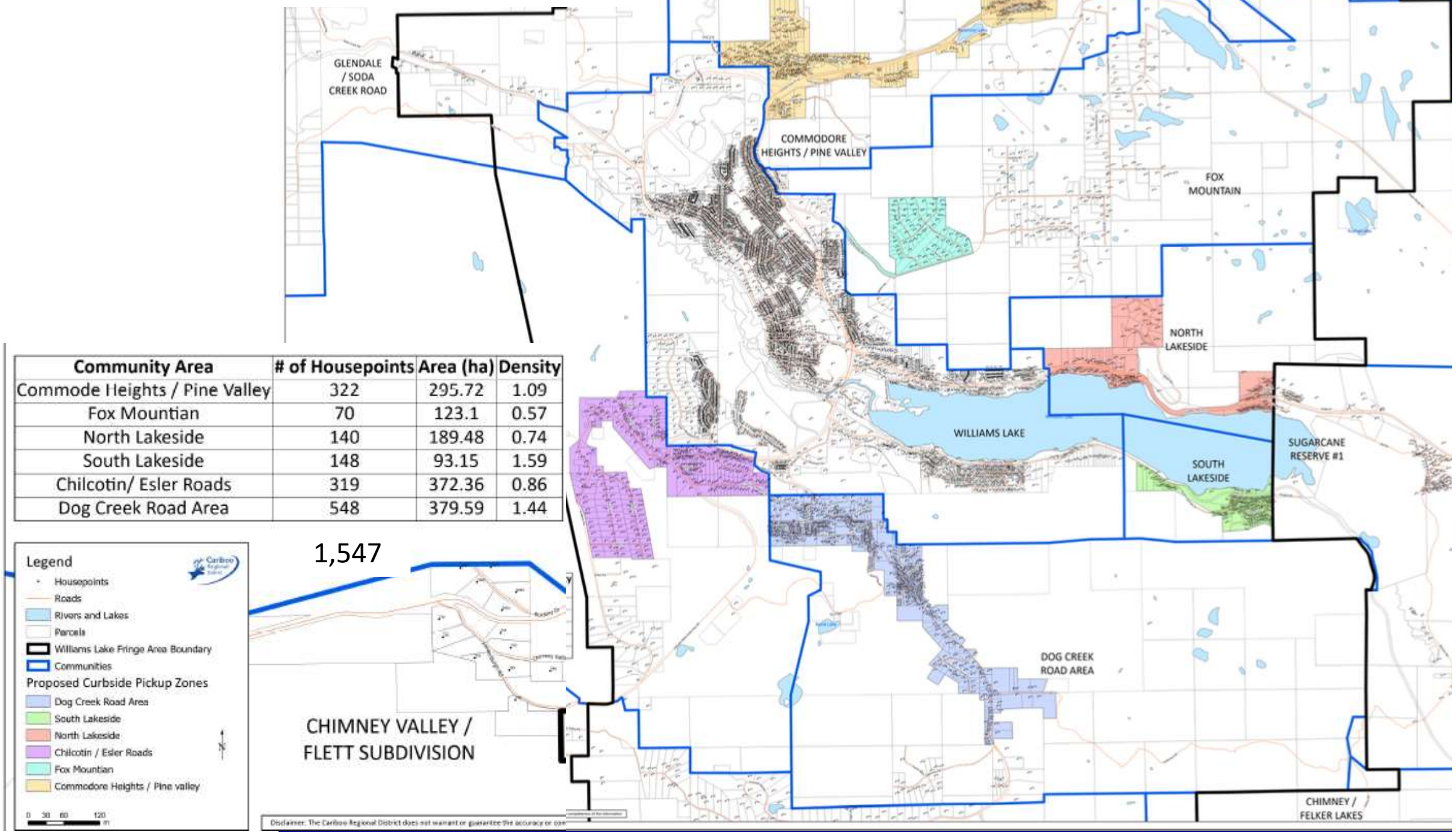
Proposed Williams Lake 'Fringe' Collection Areas

Community Area	# of Housepoints	Area (ha)	Density
Commode Heights / Pine Valley	322	295.72	1.09
Fox Mountian	70	123.1	0.57
North Lakeside	140	189.48	0.74
South Lakeside	148	93.15	1.59
Chilcotin/ Esler Roads	319	372.36	0.86
Dog Creek Road Area	548	379.59	1.44

1,547



Curbside Garbage Collection

Costs

- Totes, one for garbage, on for recycling (potential for organics)
  - Grant funding likely available for recycling and organics totes
- Bulk of collection costs, will be contracted collection
- Program management including recycling quality control
- Estimate annual household cost between $174 and $240

Revenue

- A tipping fee of $3.50 to $5.00 per hh/month could be incorporated into the service fee, especially if all controlled refuse sites move to user pay (included in estimate above)

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Curbside Garbage Collection

Diversion Potential

- There is curbside collection potential for 7,082 CRD households
- Assume that not all of these homes are currently recycling, therefore should be new diversion
- Greatest diversion would be achieved with three stream collection (garbage, recycling and organics)

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Commercial Recycling

Program Components

- Requires collection, processing (baler), storage, shipping, marketing
- Promotion and education

Considerations

- If costs to recycle are higher than landfill disposal, participation will be limited
- May need to be subsidized
- May need disposal ban in order to enforce
- No private options as there is no profit to be made

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Commercial Recycling

Costs

- Recycle BC's 2021 cost to recycle was $476/tonne (down from $623/tonne in 2020)
- Most efficient system would include partnerships with local processors

Revenue

- Some revenue may be generated by cardboard, but would not cover the overall costs to manage it
- All other recyclable materials do not generate revenue

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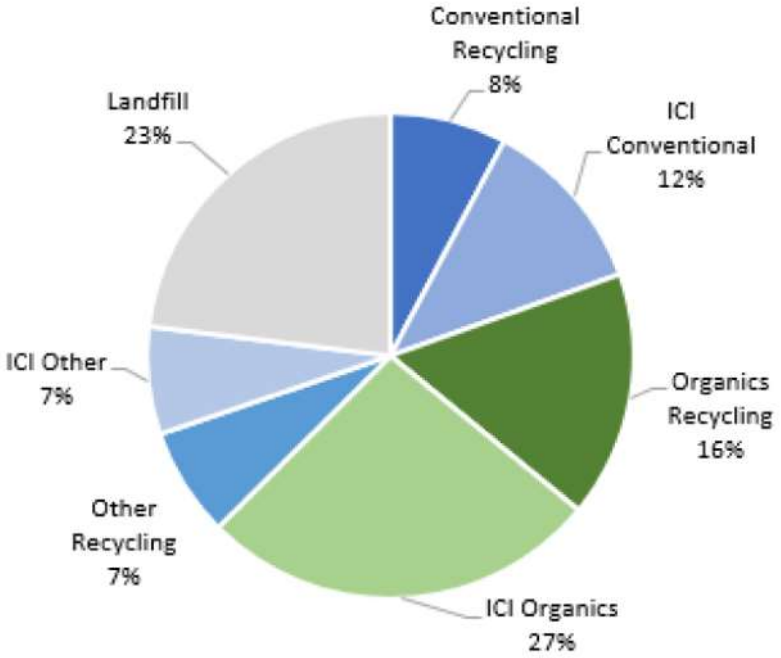
Commercial Recycling

Diversion potential

- 2019 waste audit found that 19% (or ~5,370 tonnes in 2020) of annual waste was ICI-generated recyclables
- Pilot would be needed to determine how much could be diverted on an annual basis



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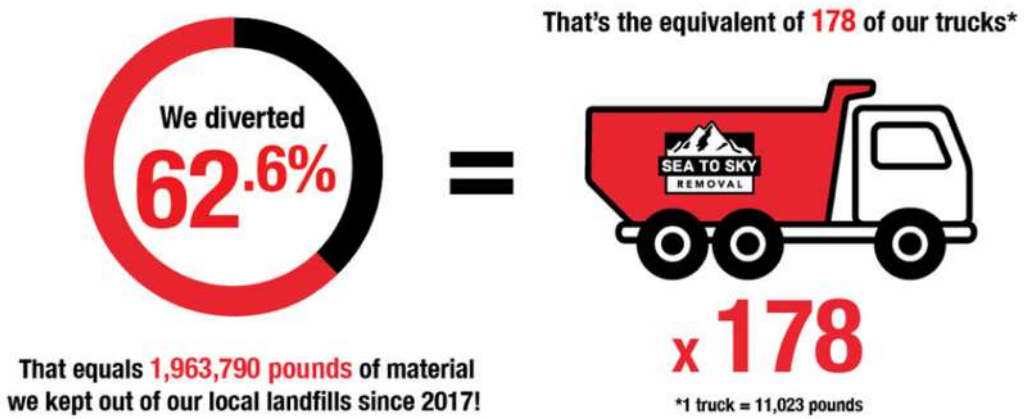
Commercial Recycling

- Conduct a small-scale business recycling pilot (several businesses) and one construction recycling pilot
  - Generation tracking
    - What still goes to garbage?
  - Existing diversion
    - What's getting recycled?
  - Potential additional diversion
    - What can be recycled? And how?
  - Capture rates
  - Contamination levels
  - Cost assessment

Sea to Sky Removal



Onsite recycling signage

User Pay

- Program Components
  - Charge for waste generated, rather than just through taxation based on property value
- Considerations
  - Inconvenience factor
  - Scale lineups
  - Controlled rural sites
    - Do not have infrastructure to charge
  - Non controlled sites
    - If not controlled could see increase in use and illegal dumping

User Pay – progress during the SWMP

Central Facilities - Updates since 2011

Central Facility	Site Expenses 2021	Revenue 2012	Revenue 2021	Percentage Increase since 2012 (%)	Contributing Factors
Quesnel LF	$1.2 M	$112,280	$970,737	865%	Transition commercial to third party collection with tipping fees Mixed loads switch to tipping fee (including privately hauled residential)
WL CCTS / Gibraltar	$1.9 M	$398,995	$772,563	223%	Gradual increase in commercial tipping fees
100 Mile CCTS	$500,000	$97,109	$216,851	194%	Gradual increase in commercial tipping fees

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User Pay – going beyond current system

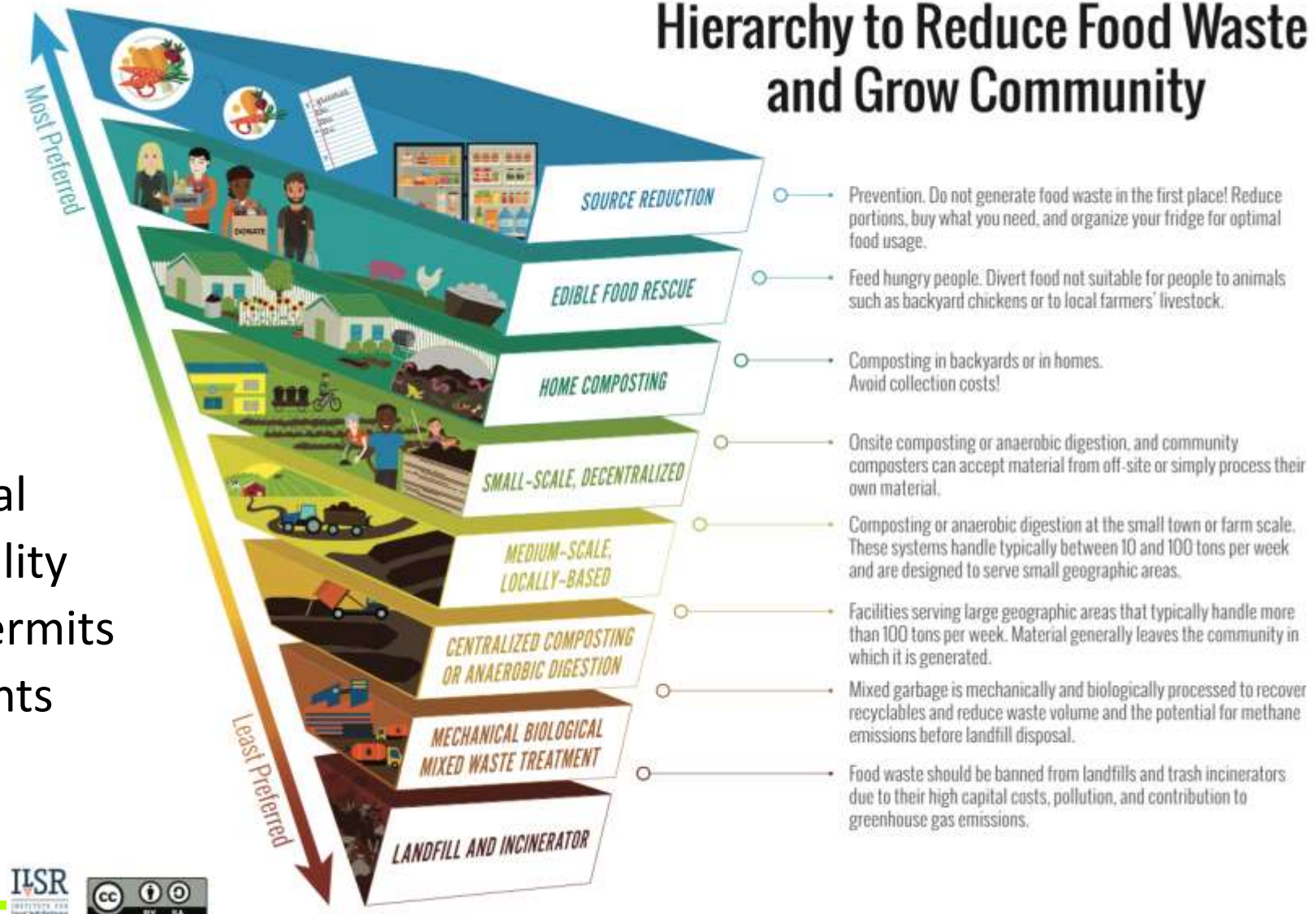
- Costs
  - Minimal new costs at three regional sites
  - Controlled rural sites
    - star link, education/ promotion
    - software/licensing – estimate $100,000 first year, then $50,000/year
  - Non controlled sites – transition to controlled sites, cost dependent on hours of operation
- Revenue
  - Regional sites, per scale crossing?
    - CCTS 48,710 residential transactions in 2020 $2/transaction = $97,420
  - Non scaled sites
    - Per load?
    - Per bag?

User Pay

- Diversion potential
  - Provides an incentive for residents and business to divert waste from landfills
  - No easy way to project how much diversion could be achieved
  - If all or most rural sites are not controlled, some diverted material from regional sties could end up at non-controlled sites
    - This has occurred with mattresses in the Quesnel area

Food Waste Prevention and Diversion

- Program Components
  - Promotion & Education
  - Collection
  - Processing
- Considerations
  - Economies of Scale
  - Residential and commercial
  - Private vs LG operated facility
  - Facility location/zoning/permits
  - Grant Funding Requirements



Food Waste Prevention and Diversion

- Costs
  - Huge cost range, depending on compost option selected
  - Collection/hauling costs in addition to operating costs
  - If available, a private facility would likely be most cost effective
- Revenue
  - Commercial organics tipping fees, best if less than municipal solid waste fees, to provide an incentive to separate and manage seperatly

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Composting Options

Community Three Bin System

Open windrow (Yellow Knife)

Open windrow with passive aeration (Grand Forks, image Vermont)

Covered windrow using Gore System (Alberni Clayoquot, Sechelt)

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Food Waste Prevention and Diversion

- Diversion potential
  - “Compostable Organics” makes up 35% of the CRD waste stream
  - Unrealistic to expect 100% capture
    - Grocery store generated organic waste is often still in packaging
    - Participation rates range from 40 to 65% in other jurisdictions
  - 40 to 50% (14 to 17.5% of overall) is realistic diversion to achieve
  - The more energy invested in promotion, support and audits the higher the diversion potential

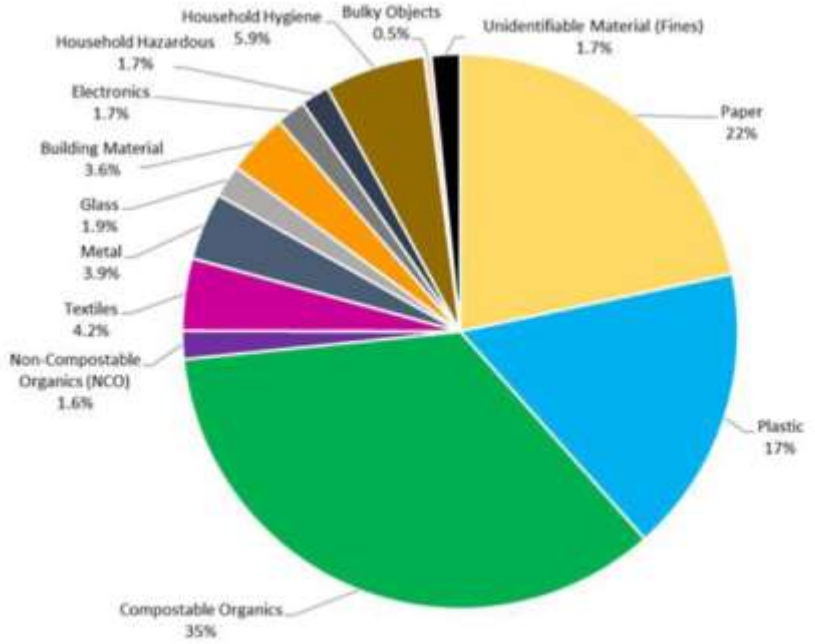

Figure 4-8: Waste Composition for All Sectors Combined

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Multi-unit Building Recycling

- Program Components
  - Recycle BC Contract for collection
  - Property managers provide location and bins
  - Promotion & Education
  - Audits
- Considerations
  - Mandatory Bylaw for all Multi Family Buildings, or leave it as optional?
  - Support for promotion, education and audits?
  - If organics diversion moves forward, could be the best time to initiate PPP collection in all buildings

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Multi-unit Building Recycling

- Costs
  - Collection/hauling subsidized/covered by Recycle BC incentives
  - Promotion, education and audit costs will be significant, and on-going, especially if tenant turn over is high
  - Front load bins vs totes
- Revenue
  - No “revenue” generated, but all material diverted from the landfill reduces overall solid waste costs

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Multi-unit Building Recycling

- Diversion potential
  - Based on current collection rates it is calculated that if all Multi-unit Buildings in Williams Lake had recycling, about 70 tonnes of PPP could be diverted per year.
  - Small amount (less than 1% of overall CRD waste generated) but every tonne diverted is a step in the right direction
  - PPP is light-weight when compared to other household waste, but takes up more volume

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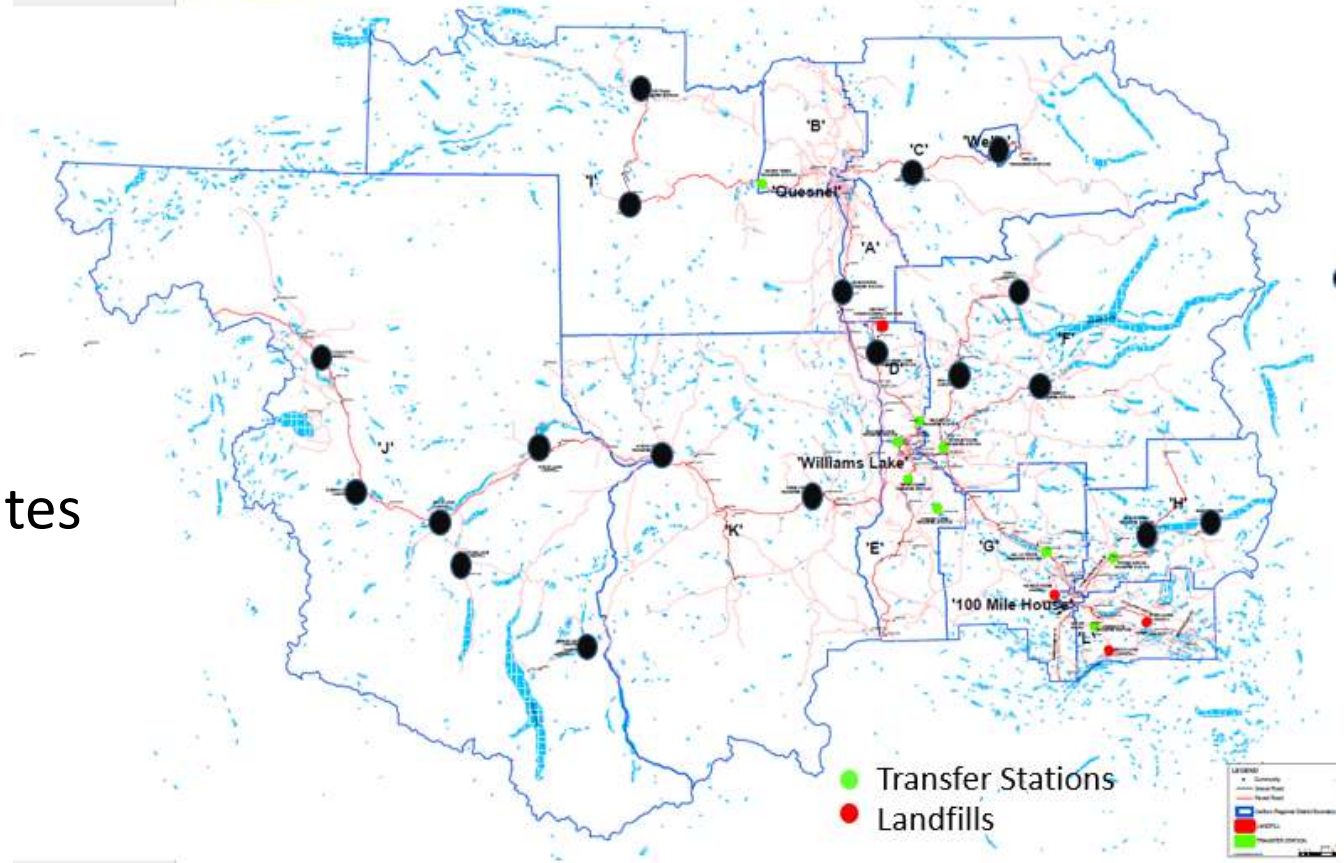
Upgrades to Rural Sites

- Program Components
  - Controlled access
  - Power where possible
  - Cell service were possible
- Considerations
  - Amount of waste generated at sites
  - Realistic hours of operation
  - Safety
  - Political will
  - If curbside services may be provided to current users



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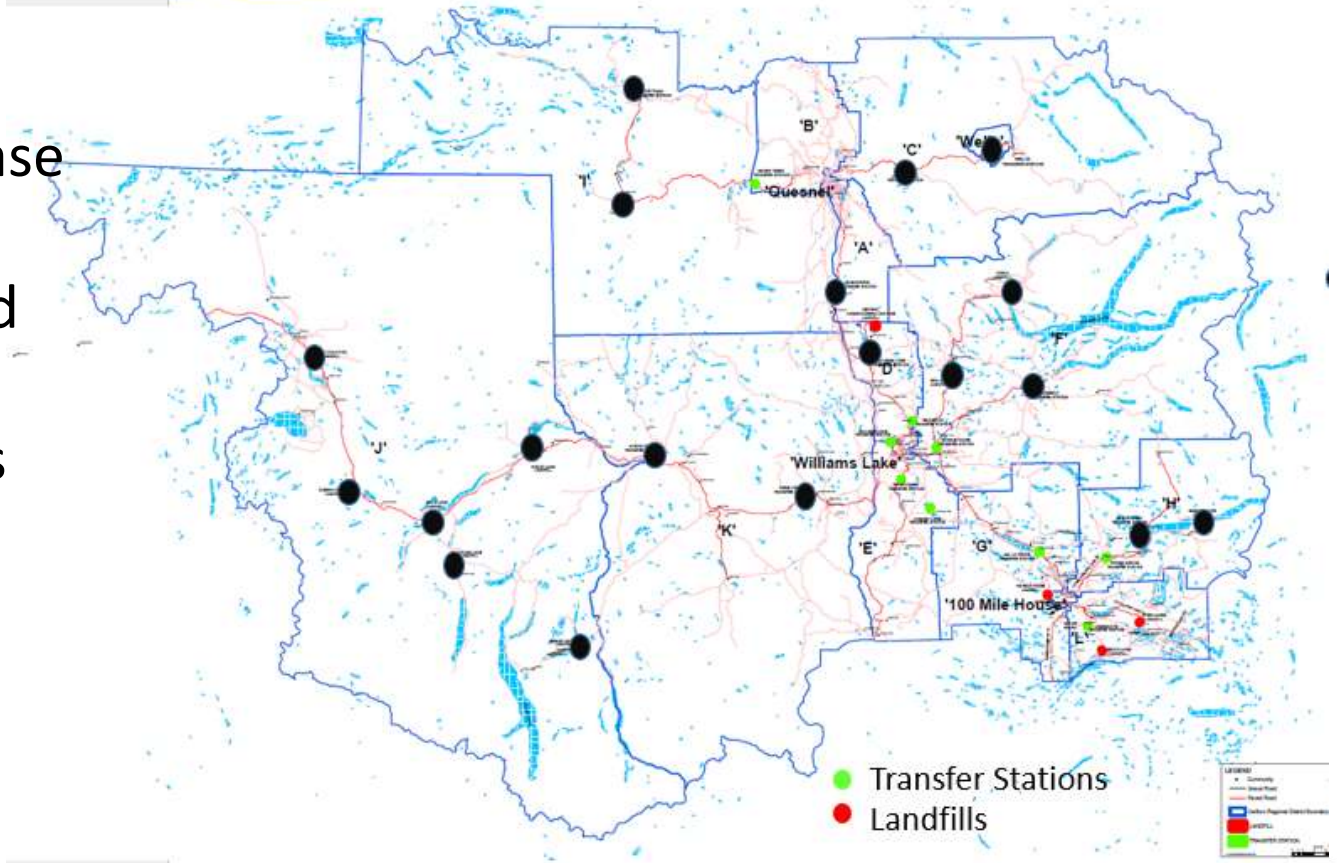
Upgrades to Rural Sites

- Costs
  - Controlling all sites would increase the current budget by $2 M
  - Power to sites with access would amount to $600,000
  - Starlink an option for internet vs cell service
- Revenue
  - Tipping fees could be charged if investments were made



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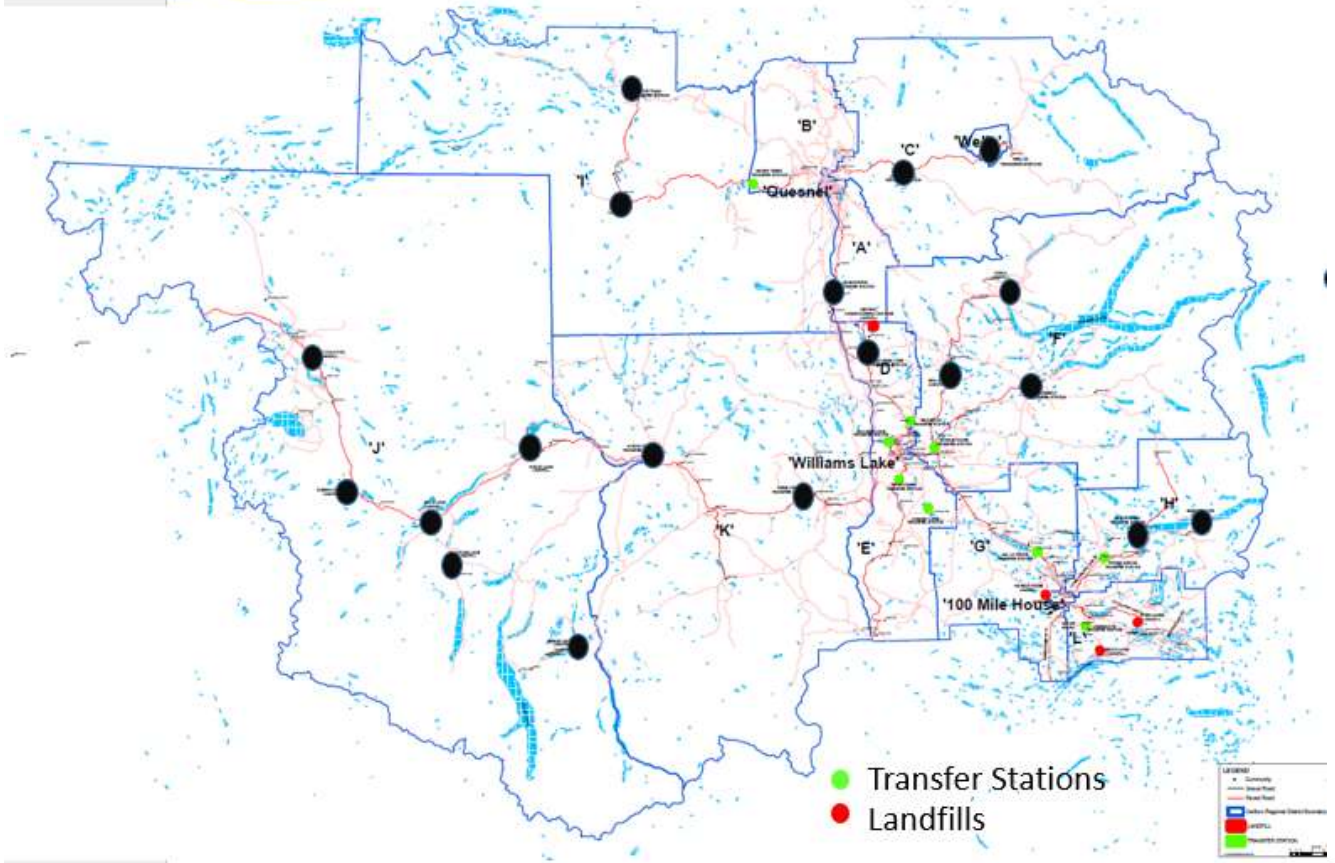
Upgrades to Rural Sites

- Diversion potential
  - Only 9% of all CRD waste is generated at the 20 rural/remote sites
  - Controlled access with disposal bans in place would increase diversion, but at a very high cost



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ENV 2016 Landfill Criteria

- In 2016 the BC Ministry of Environment published the second edition of the "Landfill Criteria For Municipal Solid Waste"
- The 2016 Landfill Criteria specifies criteria for New landfills in BC.
- The first edition of the landfill criteria allowed for non-plastic lined landfills, the second edition does not; all new landfills and any lateral expansions of existing landfills must be designed with engineered synthetic liners and secondary clay liners.
- However, the 2016 document does provides exemptions for landfills that:

☑ Receive less than 5,000 tonnes of waste per year, and total waste capacity of the landfill site is less than 100,000 tonnes

☑ Are in very remote areas (more than 100 km from an engineered landfill site),

☑ Receive less than 500 mm of precipitation per year

? Show evidence of no existing groundwater contamination from the landfill

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Planning Process

- Step 4
  - Winter 2022/2023
    - Prepare completed components of draft plan
    - Municipal Meetings
  - Spring 2023
    - Consult the public (phase 2)
    - Prepare plan for submission
  - Summer/Fall 2023
    - Submit plan to Ministry for approval
    - Ministry review and approval
    - Board adoption

Cariboo Regional District