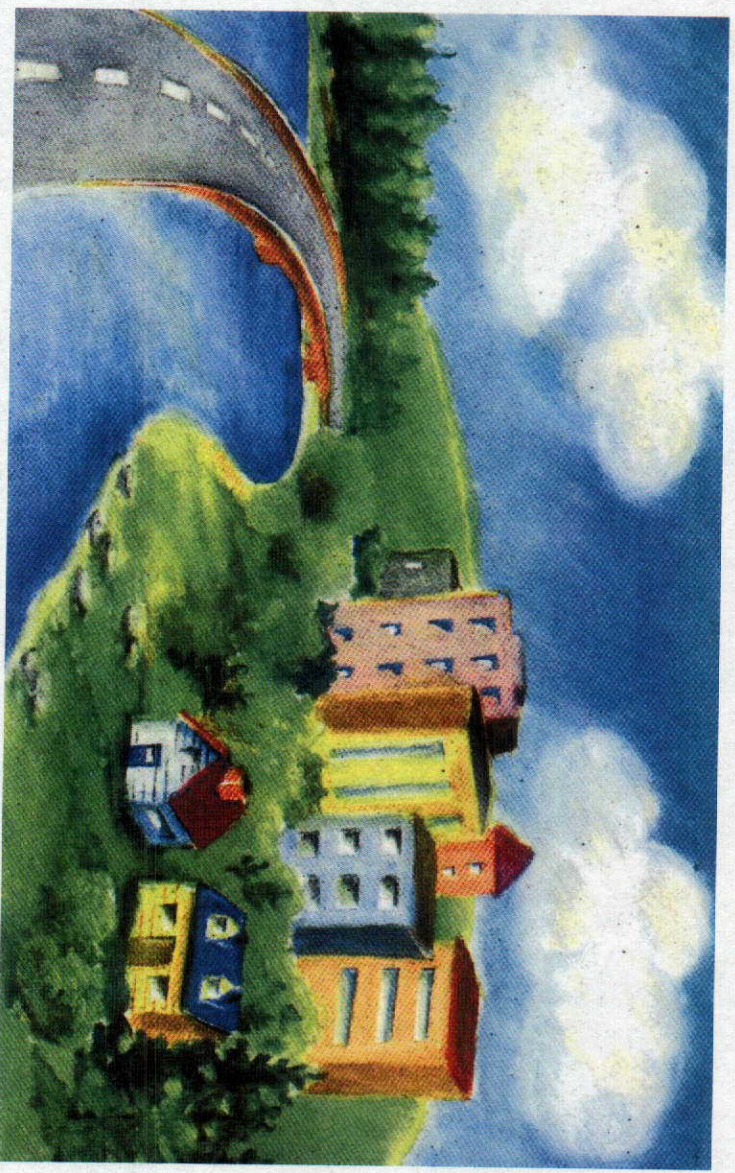


Bob m Kenney
Presentation
June 9, 2008

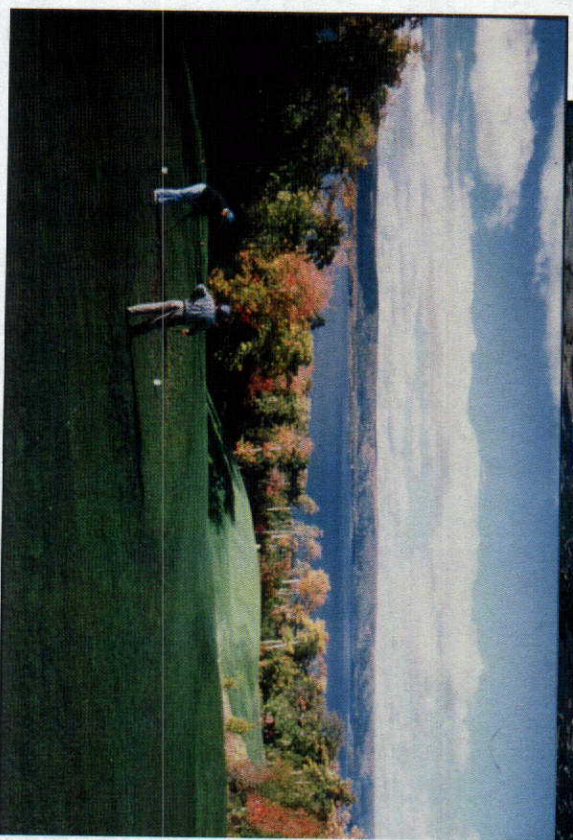
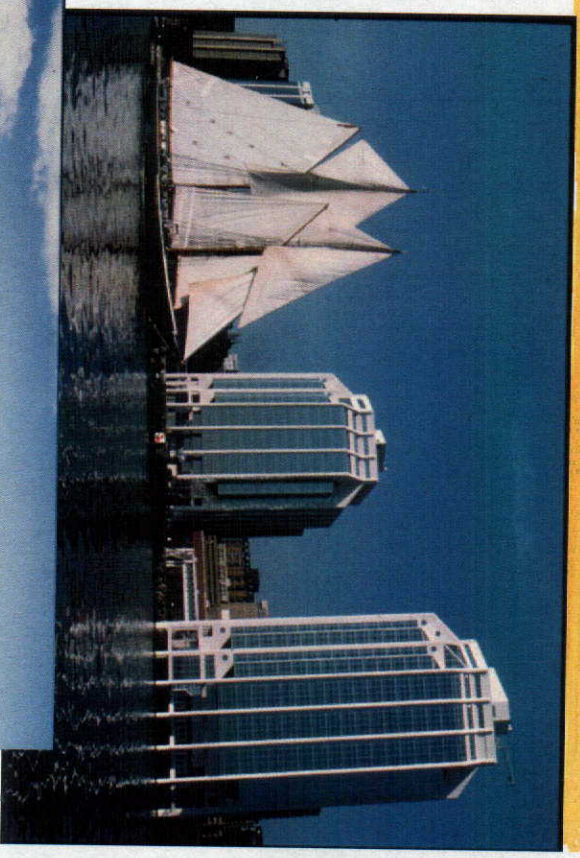
Nova Scotia



Too Good To Waste

Nova Scotia at a Glance

- ⌘ 940,000 people
- ⌘ 55 municipalities
- ⌘ 7 Solid Waste Resource Management Regions
- ⌘ HRM 41% of Pop. (384,000)
- ⌘ CBRM has 11% of pop (105,000)
- ⌘ Remainder is towns and rural areas



Solid Waste in Nova Scotia

- ⌘ Hundreds of disposal sites in early 70's
- ⌘ In 1989 Nova Scotians produced 740 kg/person/year (residential, IC&I and C&D)
- ⌘ 20 open burning sites still existing in 1996



What Led Us To Change?

- ⌘ Bruntland Commission coined Sustainable Development - United Nations
- ⌘ Symbolism New York garbage scow
- ⌘ Other media attention in late 80's and early 90's
 - ☑ Including landfill siting failures and controversies (NIMBY)
- ⌘ Can. Council of Ministers of the Env. (CCME)
 - ☑ Canadian Goal (50% diversion - based upon disposal tonnages)
- ⌘ Public Consultation - Community Involvement
 - ☑ N.S. solid waste discussion paper - 1994
 - ☑ Public consultation report - 1995
 - ☑ Strategy - Nov. 1995/96
 - ☑ New N.S. Environment Act and Regulations - 1995/96
- ⌘ Lunenburg Example

Solid Waste-Resource Management Strategy

4 main goals

- ⌘ 50% by 2000
 - ☑ Reached that goal. Now have a new goal
- ⌘ Increased disposal standards
 - ☑ Closed 15 MSW landfills in 2005
- ⌘ Regional cooperation
 - ☑ Moderately successful
- ⌘ Economic opportunities
 - ☑ More jobs, more sustainable economy

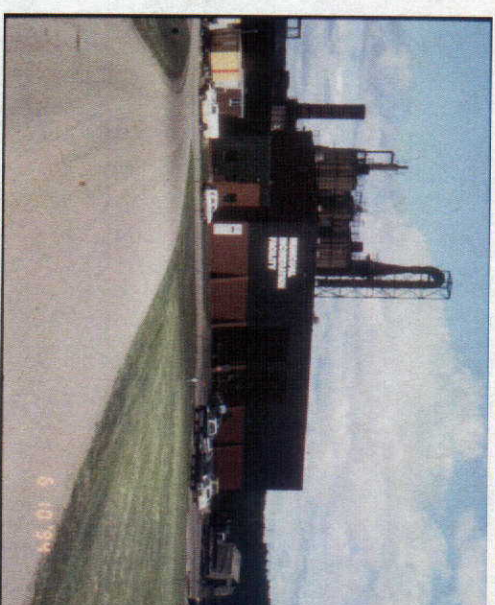
Disposal Bans

- # beverage containers
- # corrugated cardboard
- # newspaper
- # steel/tin food containers
- # glass food containers
- # most HDPE and some LDPE plastics
- # Used tires, waste paint, auto batteries and ethylene glycol
- # **compostable organic materials** (Nov. 98)
 - ☑ Leaf and yard waste
 - ☑ Food waste
- # Computers, TV's and printers (Feb. 2008)
- # Telephones, DVD's, scanners, stereos, etc. (Feb. 2009)



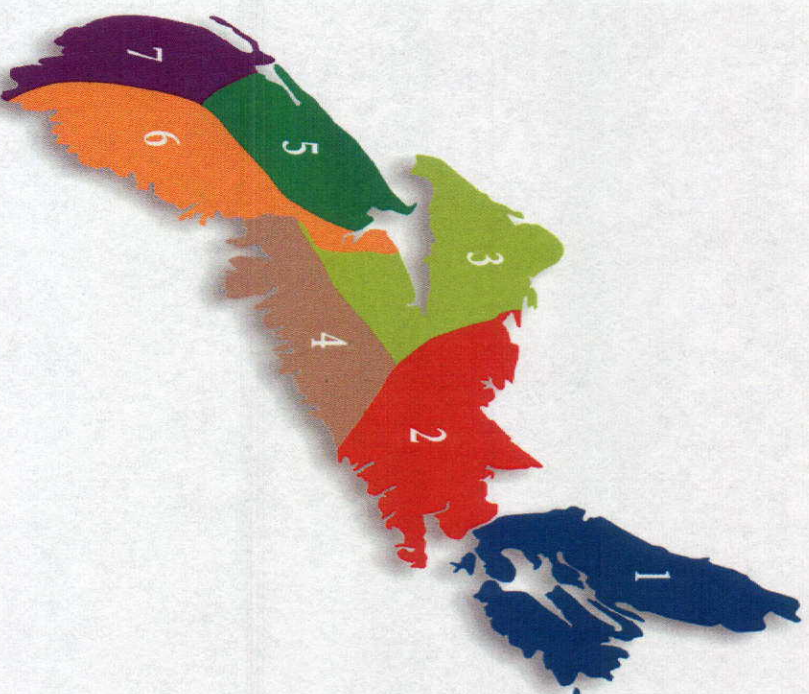
Why Disposal Bans?

- ⌘ Environmental reasons
 - ☑ Leachate
 - ☑ Air emissions
 - ☑ Animals
 - ☑ Contaminants
- ⌘ More valuable as a resource
- ⌘ Public demand/consultation
- ⌘ Disposal site siting
- ⌘ Sustainable development
- ⌘ Create jobs
- ⌘ Reach 50%



Results to Date

- ⌘ Thousands of derelict vehicles collected
- ⌘ Disposal rate 45% lower than the Canadian average (Stats. Can.)
- ⌘ Curbside recycling rate 68% higher than the Canadian average (Stats Can.)
 - ☑ Does not include the effects of clear bag program
- ⌘ Nova Scotian businesses export knowledge
- ⌘ Recent study calculates the Province saves a minimum of \$31 million/year
 - ☑ Increased employment
 - ☑ Environmental benefits
 - ☑ Extended landfill life
 - ☑ Increased exports/avoided compensation/tourism



Results to Date

- ⌘ All open burning has ceased
- ⌘ 100% of residents have curbside recycling
- ⌘ 80 depots for bev. cont.
 - ☑ Beverage containers and paint
- ⌘ 33 Drop-Off Locations for E-Waste
- ⌘ 90% of residents have curbside organic pickup
 - ☑ 100% of businesses have access to central composting facilities
- ⌘ All regions are participating in backyard composting programs
- ⌘ 3,200 jobs, over 1,200 new jobs
- ⌘ Significant reduction in beverage container litter





- ⌘ Resource Recovery Fund Board established by Province
- ⌘ Not-for-Profit organization governed by a Board of Directors
 - ☑ Many directors from the business sector
- ⌘ Administers Portions of the Solid Waste-Resource Management Strategy in Nova Scotia

RRFB Nova Scotia Mandates

⌘ Administer

- beverage container
- tire
- paint and
- Electronics

⌘ Develop education and awareness programs

- Regional Coordinators, school visits, business visits, publications, etc.
- Provide education funding to municipalities

⌘ Help fund municipal diversion programs

- Over \$13 million revenues generated from beverage container and tire programs
- \$6.5 million/yr – \$24/tonne diverted
- Municipal capital funding

⌘ Promote value-added manufacturing

- New businesses that divert waste from disposal
- R&D funding

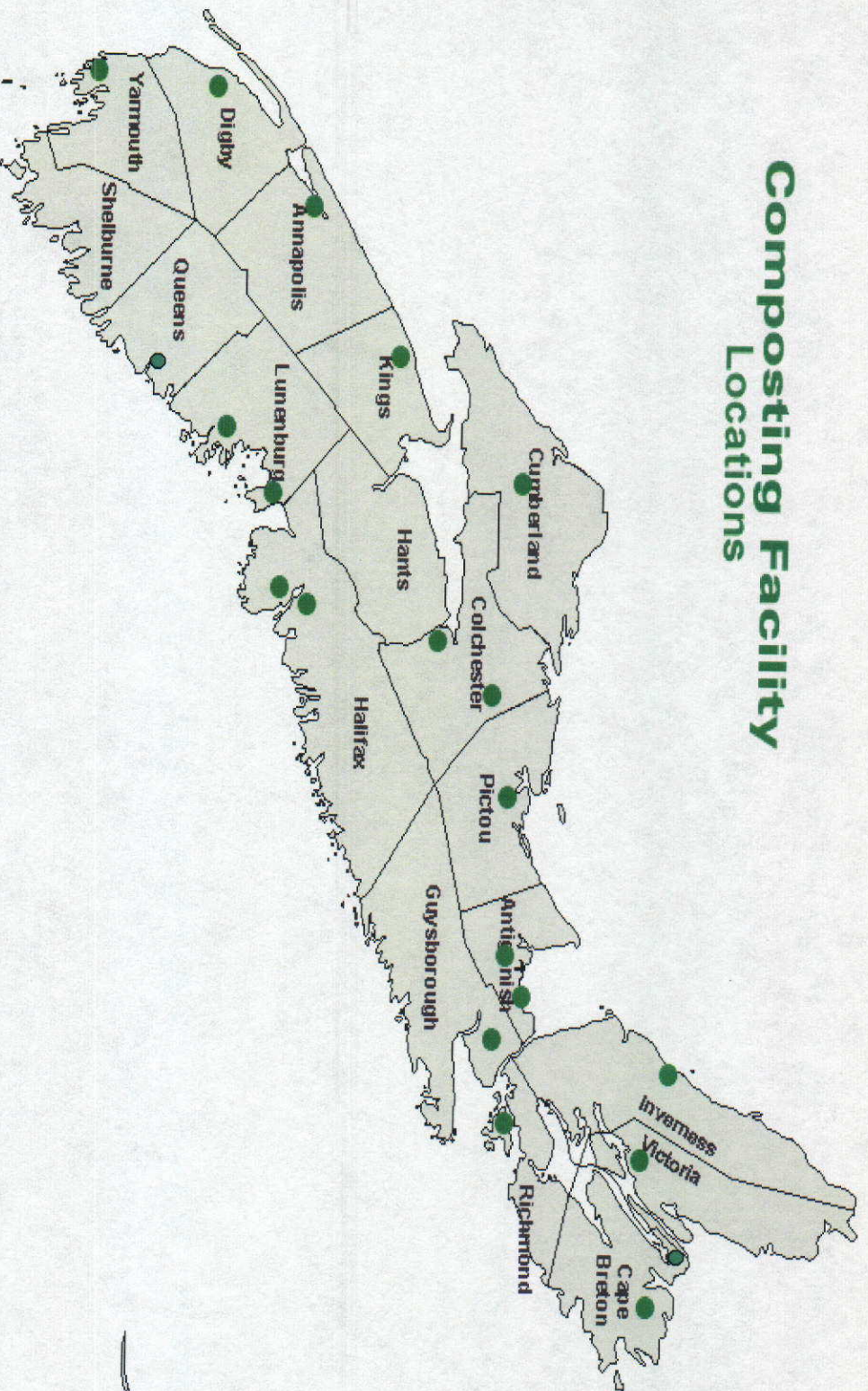
What does this mean to municipalities?

- ⌘ Facilities / infrastructure
 - ☑ Recycling infrastructure
 - ☑ Composting infrastructure
 - ☑ Backyard Composting
- ⌘ Education
- ⌘ Implementation
- ⌘ Enforcement
- ⌘ Siting



21 Composting Facilities in Nova Scotia

Composting Facility Locations



Municipal Infrastructure



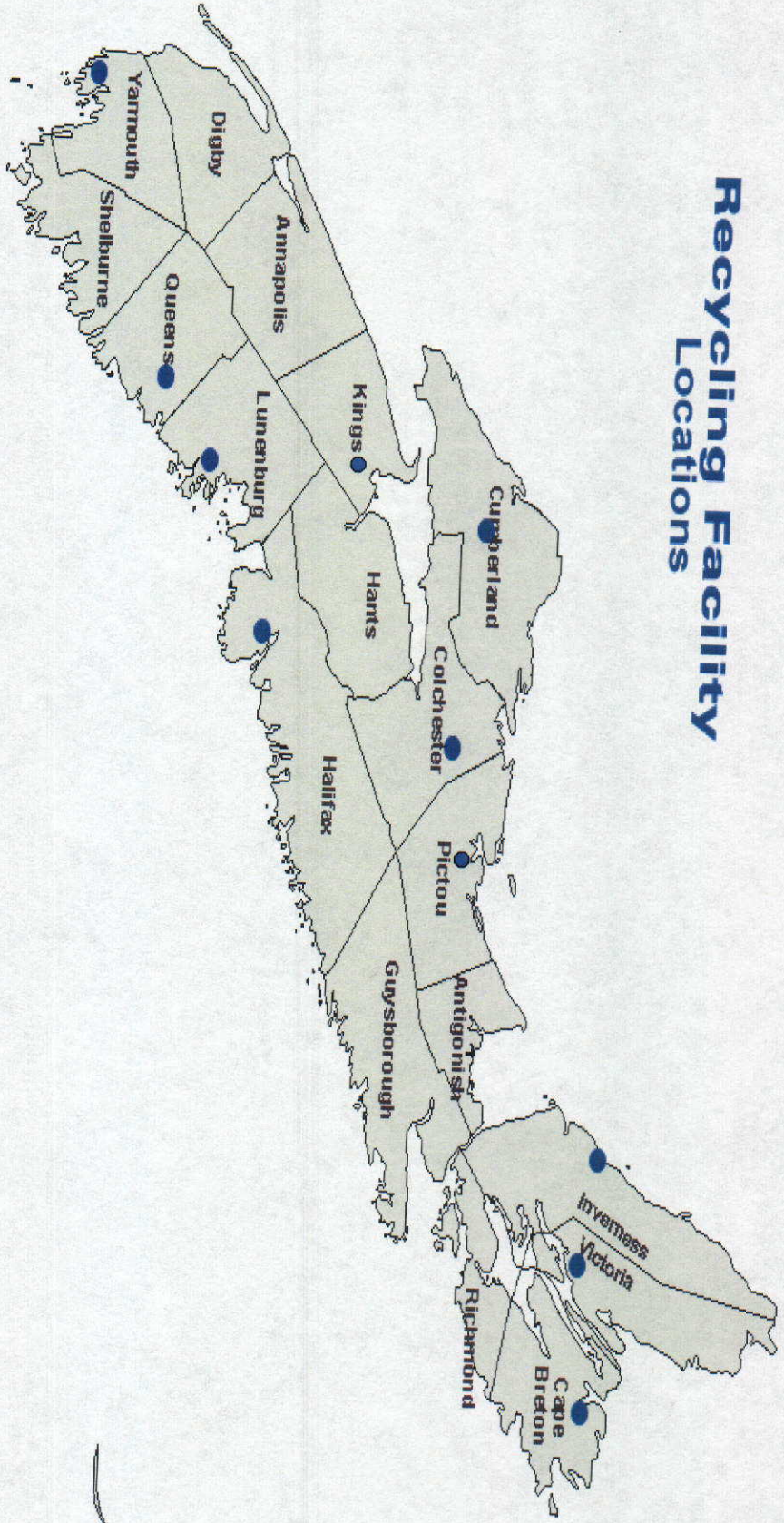
Halifax Region



11 Recycling Facilities in Nova Scotia

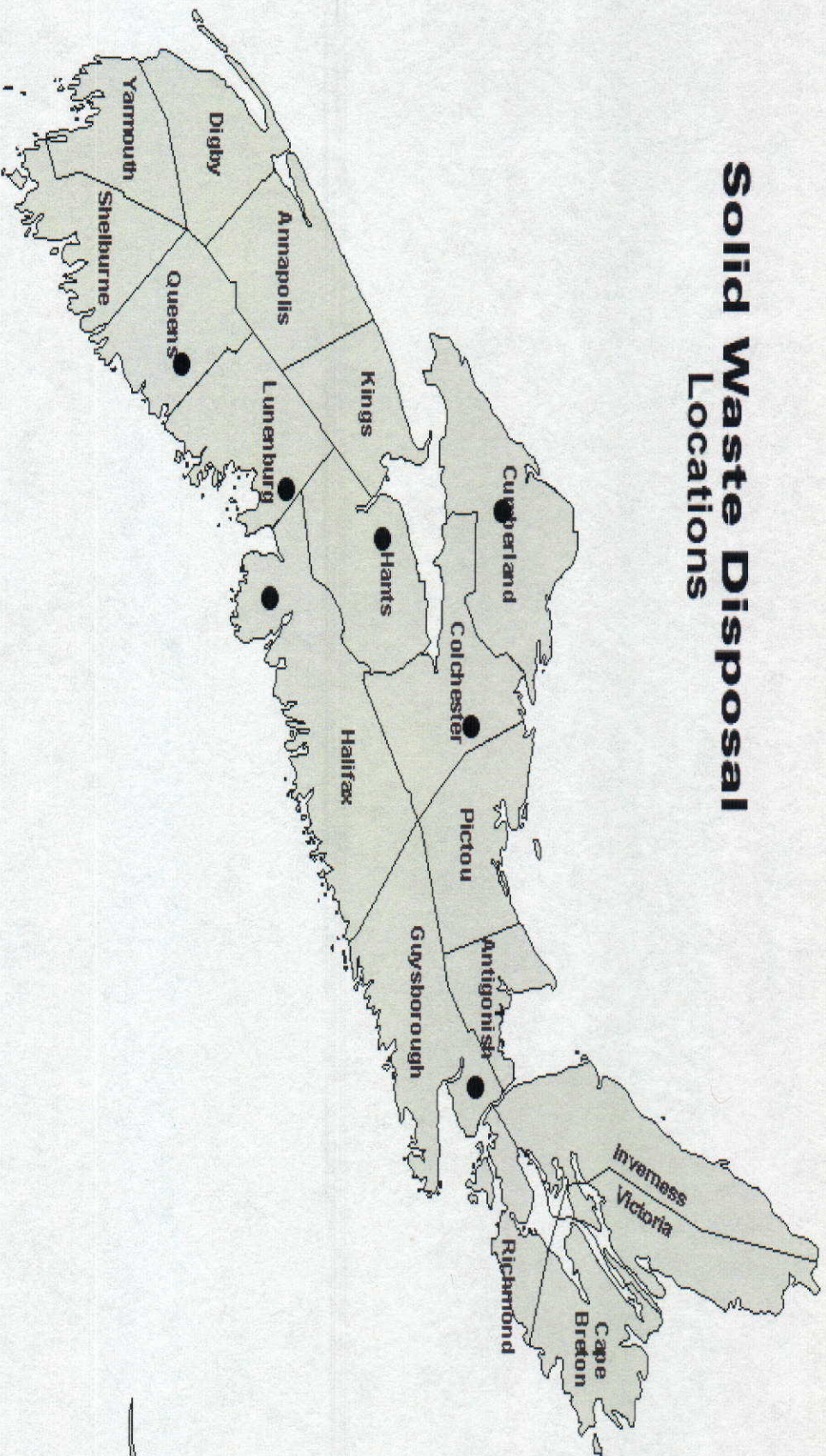
Nova Scotia (3 manage 80% of materials – Other private, mostly fibre sites)

Recycling Facility Locations



7 MSW Landfills in Nova Scotia

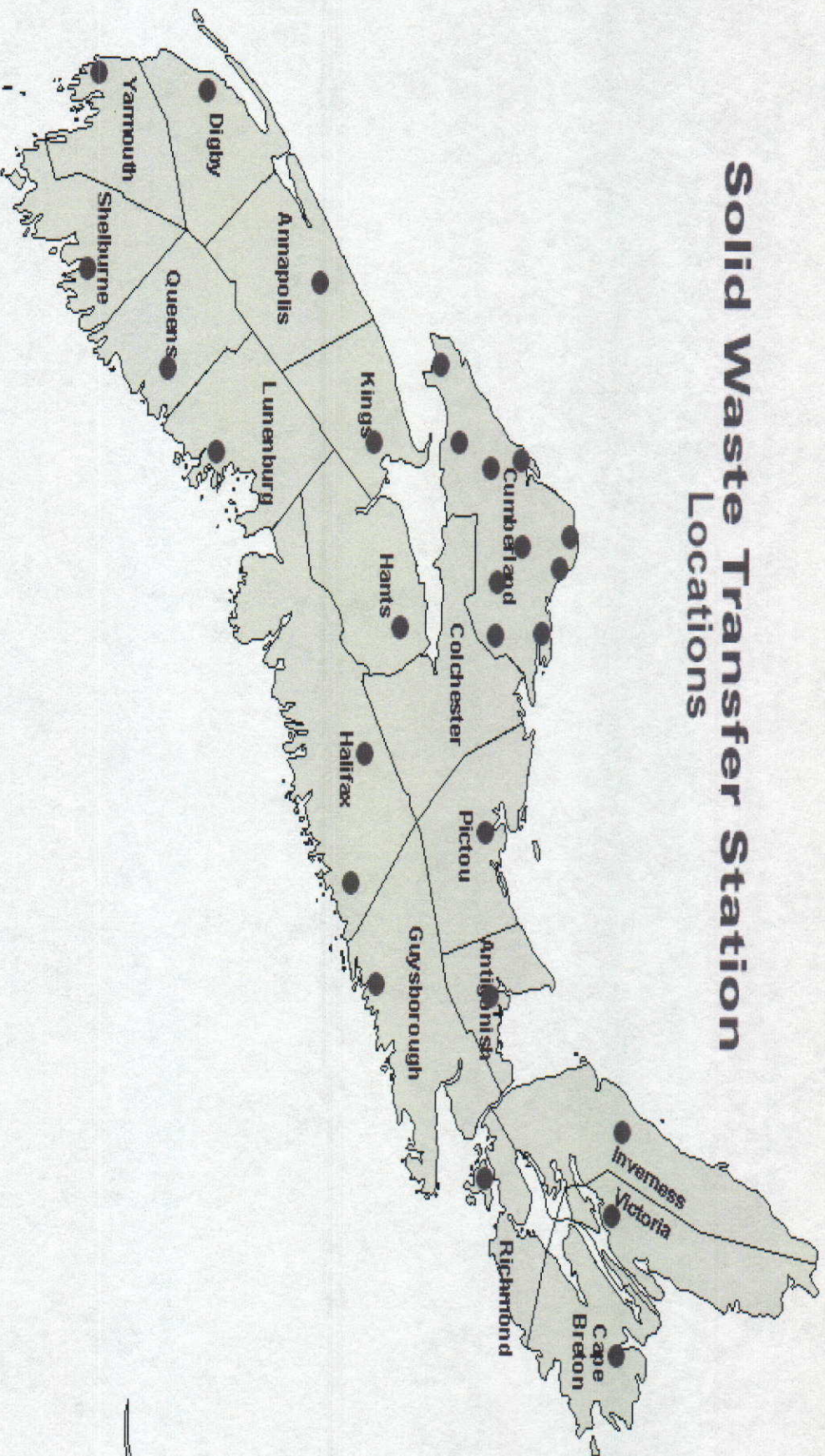
Solid Waste Disposal Locations





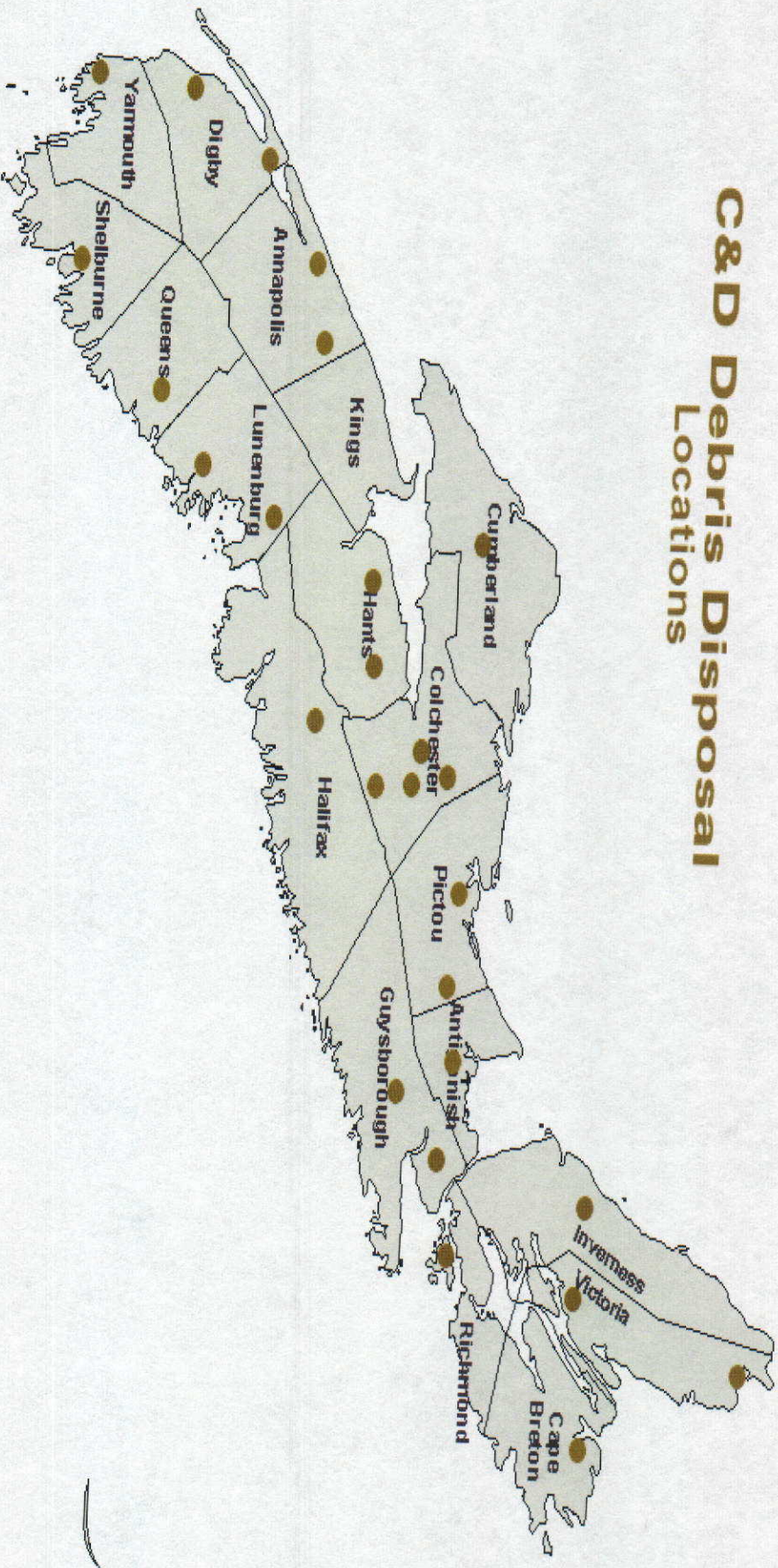
27 Transfer Stations in Nova Scotia

Solid Waste Transfer Station Locations



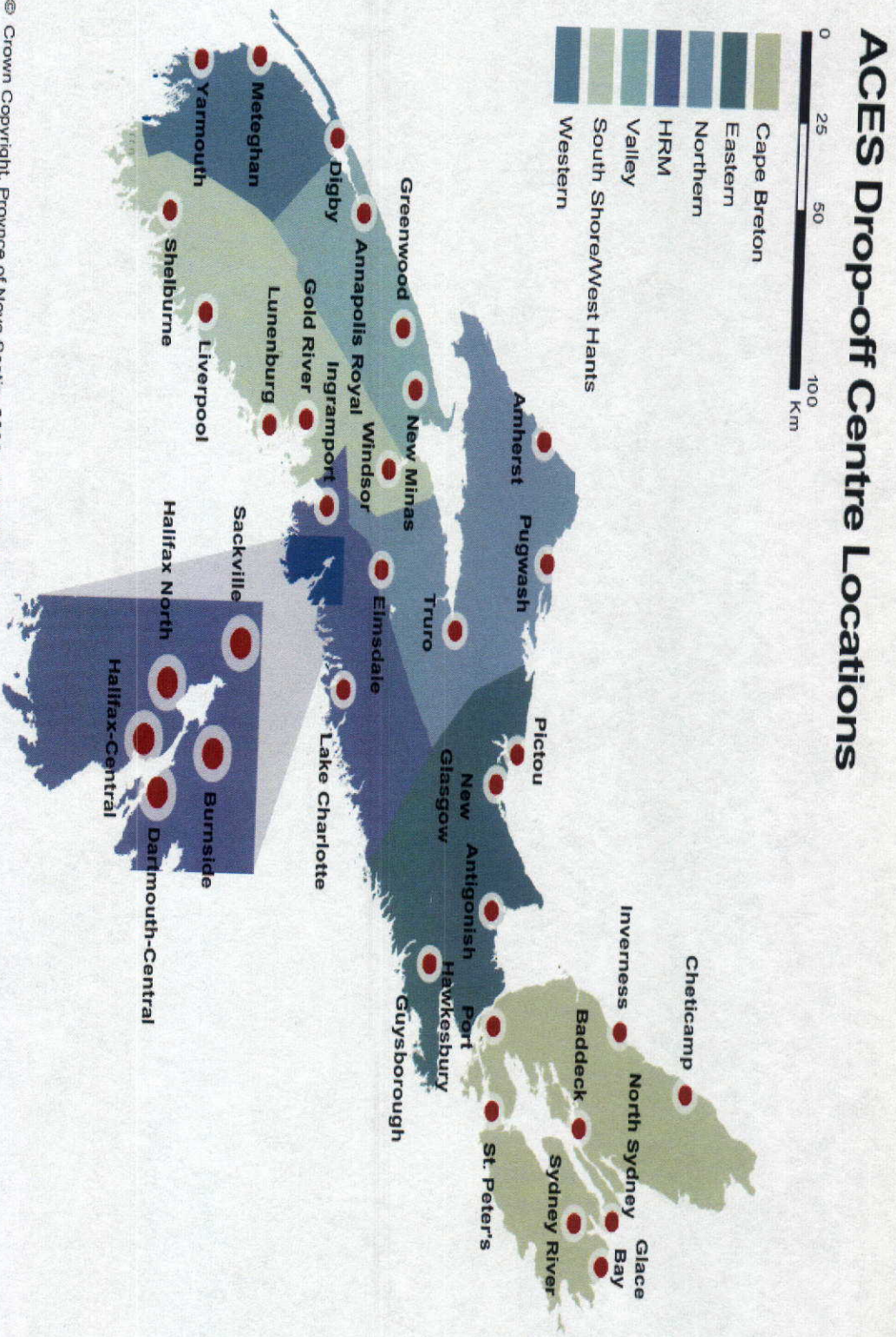
27 C&D Debris Disposal Sites in Nova Scotia

C&D Debris Disposal Locations



33 E-Waste Drop-Off Locations

Most are EnviroDepots



What Does it Mean to Residents

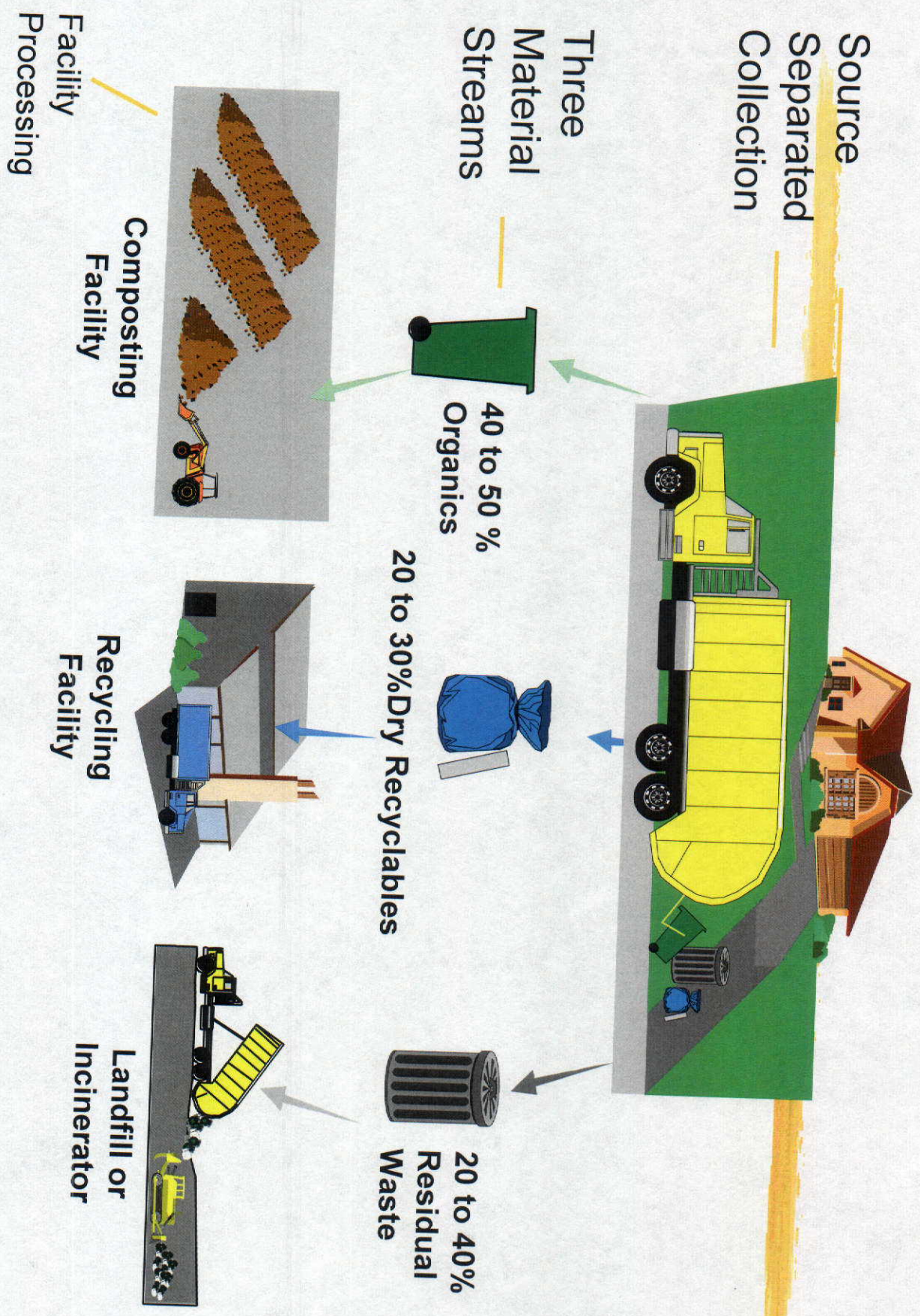
- ⌘ Change
- ⌘ Little more effort
- ☑ Garbage
- ⌘ Cart location
- ⌘ Changed collection schedules



What does this mean to residents?



MAXIMUM WASTE DIVERSION SYSTEM



What does it mean to the IC&I Sector

- ⌘ waste-resource planning
- ⌘ negotiating contract with hauler or work with municipality
- ⌘ staff training
- ⌘ separate waste
- ⌘ monitor performance and costs
- ⌘ storage and space considerations
- ⌘ summertime considerations



What does this mean to ICI?



Challenges

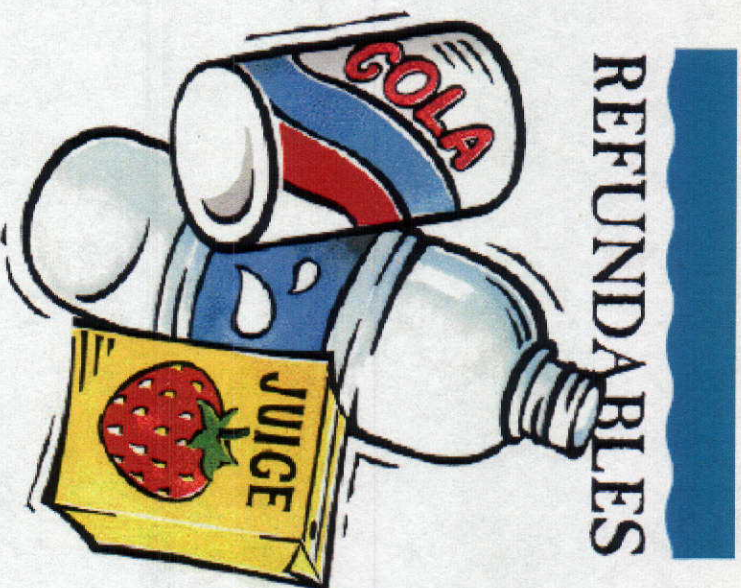
- ⌘ Industry Stewardship
- ⌘ Compost issues
- ⌘ Public areas
- ⌘ Metrics: Measuring progress and identifying successes and challenges
 - ⌘ Multiple Unit Residents
 - ⌘ Illegal dumping
 - ⌘ Costs
 - ⌘ Enforcement - level the playing field
 - ⌘ The Yuck Factor - Organics
 - ⌘ Education and long term participation

Industry Stewardship

- ⌘ Beverage containers
- ⌘ Tire recycling systems
- ⌘ Dairy voluntary stewardship agreement
- ⌘ Sharps (needles, syringes, etc.)
- ⌘ Paint Program
- ⌘ Newsprint
- ⌘ Telephone directories
- ⌘ Used oil
- ⌘ Outdated drugs
- ⌘ Electronic waste, Phase 1
- ⌘ Electronic waste, Phase 2 (February 2009)

Beverage Container Product Stewardship

- ⌘ Regulated
- ⌘ 10 cent deposit on all beverage containers except for milk
 - ☑ Includes juices, water, nutritional drinks, meal replacements, etc.
- ⌘ 5 cent refunded upon return to Enviro-Depot
- ⌘ Full return on refillables
- ⌘ 78% return rate
- ⌘ Revenues used:
 - ☑ Diversion credits to municipalities
 - ☑ Education
 - ☑ Fund municipal and private sector capital equipment
 - ☑ R&D

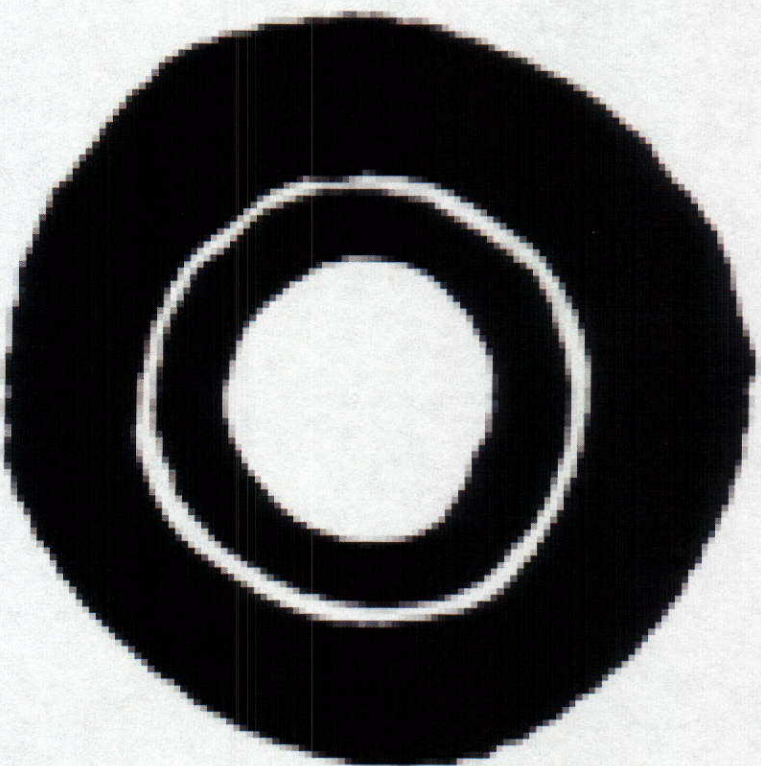


Soft drink cans & bottles
Juice containers
Plastic water bottles



Tire Product Stewardship

- ⌘ Regulated
- ⌘ \$3.00 fee upon purchase of most tires
- ⌘ \$9.00 fee on larger tires
- ⌘ Fee has not changed in 12 years
- ⌘ Tires collected from retailers
- ⌘ All stockpiles have been cleaned up
- ⌘ Management in transition



Dairy Producer Stewardship

- ⌘ Voluntary
- ⌘ The province calculate gross costs to recycle milk containers curbside (per tonne)
- ⌘ Industry pays >\$380 tonne direct to municipalities
- ⌘ Side panel advertisement on the 2 litre milk carton

This carton is
**Recyclable Everywhere
in Nova Scotia!**

Please Remember to:

- Rinse and Recycle
- Place at the curb in your blue or clear bag



ATLANTIC
PROVINCE
MUNICIPALITY

NOVASCOTIA
Environment and Labour

Recycling Questions?
1 · 877 · 313 · 7732
Call RRFB Nova Scotia

Residential Sharps (needles, syringes, lancets) Producer Stewardship

- ⌘ Voluntary
- ⌘ Sharps were showing up at recycling facilities
- ⌘ Sharps manufacturers pay for sharps containers
- ⌘ Pharmacies distribute containers
- ⌘ Sharps users return full containers
- ⌘ Pharmacy delivers containers to the local municipal disposal facility



Paint Recycling in Nova Scotia

- ⌘ Regulated
- ⌘ Paint 'Brand Owners' pay RRFB to collect and recycle their used paint
- ⌘ New recycled paint sold in stores throughout province



A Cleaner and Healthier Environment – We Can Do It!



Newspaper Producer Stewardship

⌘ Voluntary

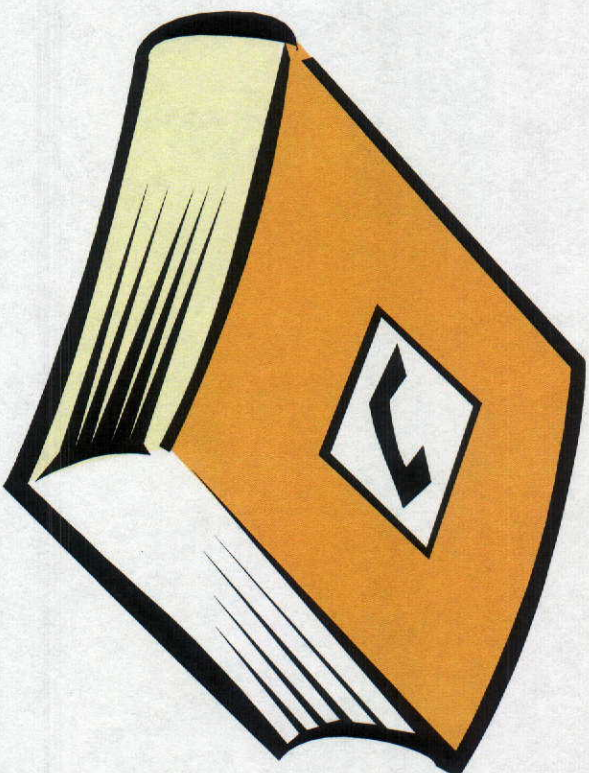
⌘ All newspapers contribute
\$10 of in-kind advertisement
space for every tonne of
paper generated



Telephone Directories

Producer Stewardship

- ⌘ Voluntary
- ⌘ Contribute at least one page per directory for recycling promotion by municipalities
- ⌘ Ads under Recycling
- ⌘ Everyone has a directory
- ⌘ Great communications tool



Used Oil and Outdated Drugs

⌘ Used Oil

- Regulated
- Returned to garages

⌘ Used Drugs

- Voluntary
- Returned to pharmacies

Electronics Recycling

- ⌘ Regulated
- ⌘ Brand owners required to develop system
- ⌘ Partnered with RRFB
- ⌘ Department approved their plan
- ⌘ Industry retail fee
- ⌘ Phase I – Feb 2008
 - ☑ Computers and monitors
 - ☑ TV's
 - ☑ Printers
- ⌘ Phase II – Feb 2009
 - ☑ Fax machines, telephones, cellphones, VCR's, DVD's, scanners, etc.



C&D Recycling / Reuse / Diversion

- ⌘ Clean wood
- ⌘ Coated woods
- ⌘ Metal
- ⌘ Gyproc
- ⌘ Roofing materials



Gyproc

- ⌘ Current R&D project
- ⌘ Adding gyproc to compost
- ⌘ Always open to other projects
 - ☒ Clean gyproc to soil



Roofing Materials

- ⌘ Chipped on site and used as road amendment
- ⌘ Chipped and mixed with other materials for cover
- ⌘ Lunenburg rails to trails project
- ⌘ Processed into
 - ☑ Asphalt flake for use as an alternate fuel
 - ☑ Asphalt grit for use in the production of asphalt pavement



Chester Landfill C&D Area



> 340,000 Tonnes of Waste

Diverted in Nova Scotia / Year

- ⌘ >100,000 tonnes of organic material/yr
- ⌘ >100,000 tonnes of C&D/yr
- ⌘ 50,000 tonnes of containers and paper delivered to municipal recycling facilities
- ⌘ 65,000 tonnes of other private fibre diversion/yr
 - ☑ Cardboard, office paper and other fibres.
- ⌘ 25,000 tonnes of tires, bev. containers, paint and electronic waste
- ⌘ Another 450,000 tonnes to go
- ⌘ Does not include the tonnage of
 - ☑ steel recycled through scrap metal and salvage yards
 - ☑ leaf and yard waste, brush from parks and recreation departments
 - ☑ clean fill (concrete, brick, rubble, etc.),
 - ☑ other materials managed privately
 - ☑ e.g. pallets,
 - ☑ clothing/rags (estimated to be over 10,000 tonnes/yr)

New Disposal/Diversion Goal

⌘ 300 kg/person/yr disposal

⌘ Will reach the goal through three mechanisms:

☑ Stewardship programs

☑ R & D

☑ Best Management Practices

Stewardship

- ⌘ Stewardship outlined in Environment Act and recent EGSPA
 - ☑ Beverage containers and paint (producer not involved)
 - ☑ E-waste program (producer program)
- ⌘ Extended producer responsibility (EPR) is one form of Stewardship
- ⌘ Working with municipalities to prioritize stewardship list
 - ☑ HHW/HSW
 - ☑ C&D
 - ☑ Mattresses and furniture
 - ☑ Packaging (CCME, EPR Task Group)

R&D

- ⌘ Cumberland County Expanded Curbside Recycling Pilot
 - ☑ Scrap metal, empty paint and aerosol cans
- ⌘ Gyproc/drywall
 - ☑ Adding clean drywall to compost
- ⌘ Shingles
 - ☑ Adding to provincial roads
- ⌘ Working on projects for mattresses, furniture, textiles, composite wood, propane tanks, etc.
- ⌘ Would like to include collection efficiencies and other R&D programs to maximize diversion and minimize costs

Best Management Practices

- ⌘ Programs that maximize diversion and minimize costs
 - ☒ Clear bags
 - ☒ 30 of 55 municipalities
 - ☒ Recycling and composting up 35 to 40%
 - ☒ Separate metal curbside collection
 - ☒ Biweekly and twice/yr collection
 - ☒ Tipping (disposal) fees
 - ☒ Implementing (none in 1988)
 - Business sector increased diversion of clean fill, pallets, high grade fibres, etc
 - ☒ Variable for source separated C&D
 - ☒ IC&I 'subsidy' for recyclables and organics in certain circumstances i.e apartment buildings, condos
 - ☒ Education programs
 - ☒ Business rewards programs
 - ☒ Nova Scotia Recycles Schools Contest (RRFB)
 - ☒ Municipal compliance programs
 - ☒ Municipal by-laws
 - ☒ HRM's 75% diversion requirement for C&D
 - ☒ Additional bans, demolition permits

Issues/challenges

⌘ Compost quality

- ☑ Improving over time
- ☑ Designer Compost
- ☑ Biodegradable/
compostable bags

⌘ Public space source

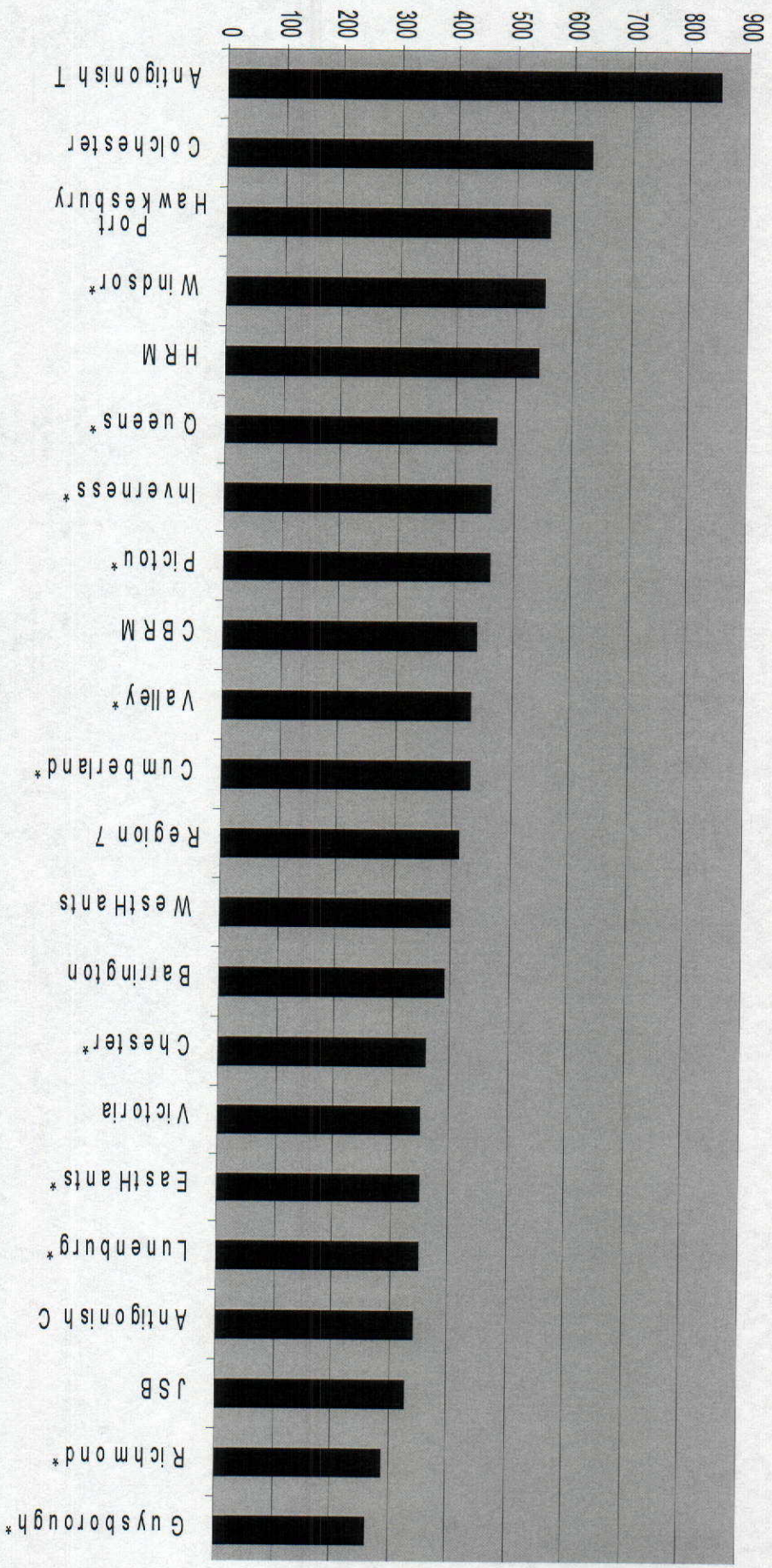
separation

- ☑ Creating provincial
standards for colour,
shape opening and
signage



Metrics

Kilograms of Garbage Disposed per Person
Includes the Residential, I&I and C&D Sectors



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Antigoniash C
Guysborough*

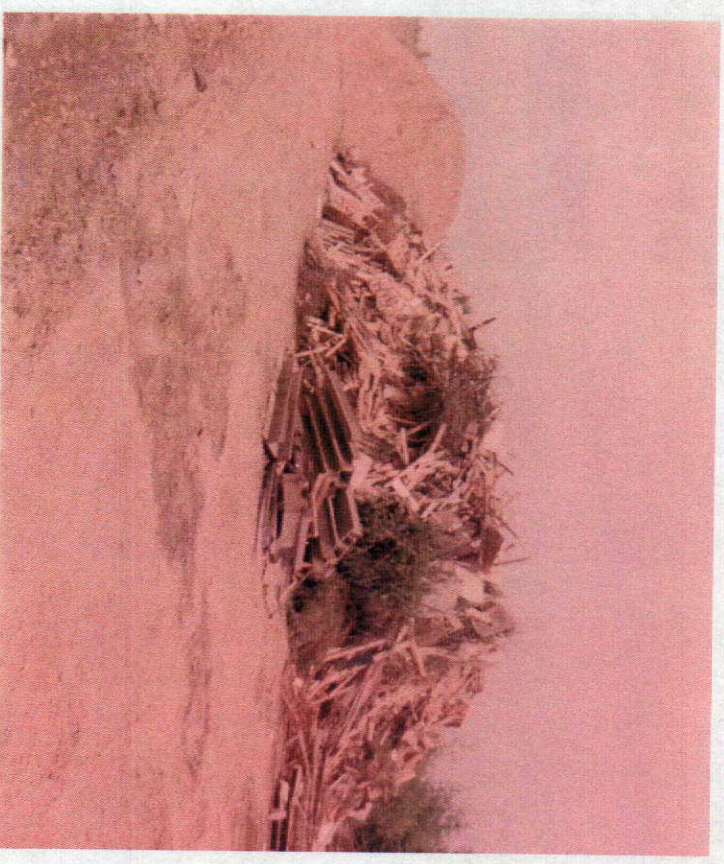
Conclusion

- ⌘ Still significant opportunity to add value to wasted resources
 - ☑ In many ways we are just beginning to tap into our diversion potential
- ⌘ Will waste generation continue to increase at 1% a year?
- ⌘ More R&D into new products and processes
- ⌘ More clear bag programs or bag limits/partial user pay
- ⌘ More Stewardship
- ⌘ More procurement initiatives (private and public)
- ⌘ More cooperation to achieve mutual goals
 - ☑ Standardized recycling lists, provincial communications (e.g. TV commercials), etc.
- ⌘ High commodity prices, particularly for energy
 - ☑ Interest in alternate fuels e.g. wood waste, processed shingles, biofuels, etc.
 - ☑ Higher prices for material sales
- ⌘ An improved environment and economy



Clean Wood

- ⌘ Not regulated by NSE
- ⌘ No coatings (no paint, varnishes, etc.) or other waste
- ⌘ Off-site for fuel
- ⌘ Mulched/chipped for on-site beautification
- ⌘ Bulking agent for compost



Coated Woods

- ⌘ On site road amendment (traction)
- ⌘ Sometimes mixed with gyproc or other material for cover
- ⌘ Erosion control
- ⌘ Potential R&D project to compost composite wood
 - ☑ E.g. plywood, particle board, etc.
- ⌘ Seeking other R&D projects to potentially divert this material
- ⌘ Hopefully biofuels technology will address some of this material



Metal

- ⌘ Sent off-site for recycling
- ⌘ CFC removal
- ⌘ Less showing up curbside



Mixed C&D

- ⌘ Often chipped and used as cover
- ⌘ Can count as diversion
- ☑ There are restrictions

