



Ministry of
Transportation
and Infrastructure



Risk Management of Contaminated Sites and Landfills within a Road Right-of-Way

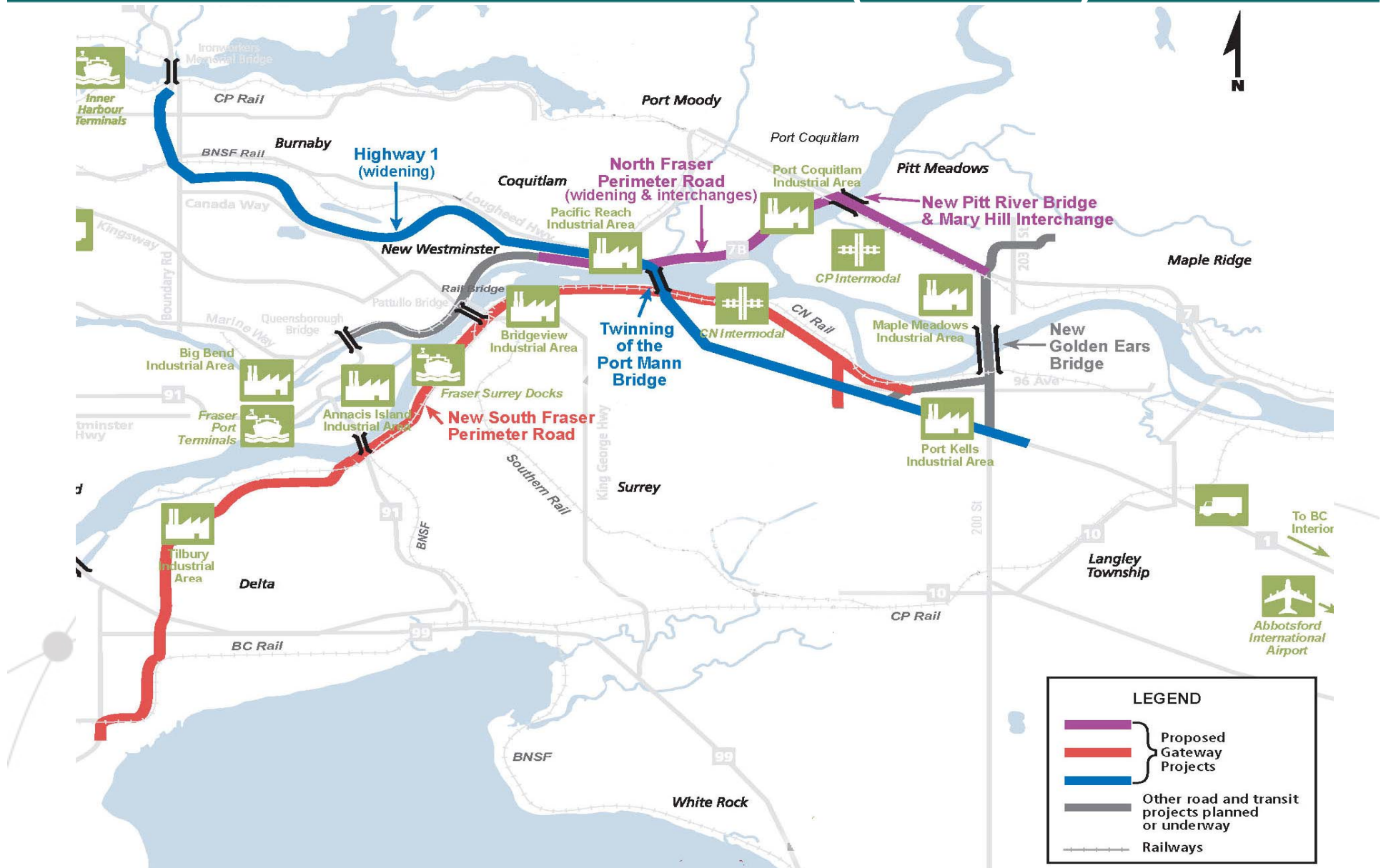
Presented to: 2011 Remediation Technologies Symposium, Banff, AB
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and: **Rosemary Barnewall**, Project Manager at BC Ministry of
Transportation and Infrastructure
Presented on: October 20, 2011

Not your typical project

- Unique Project Setting
- Hundreds of Property Assessments
- Road Construction over Landfill
- Alternative Landfill Permitting



Gateway Project: South Fraser Perimeter Road (SFPR)



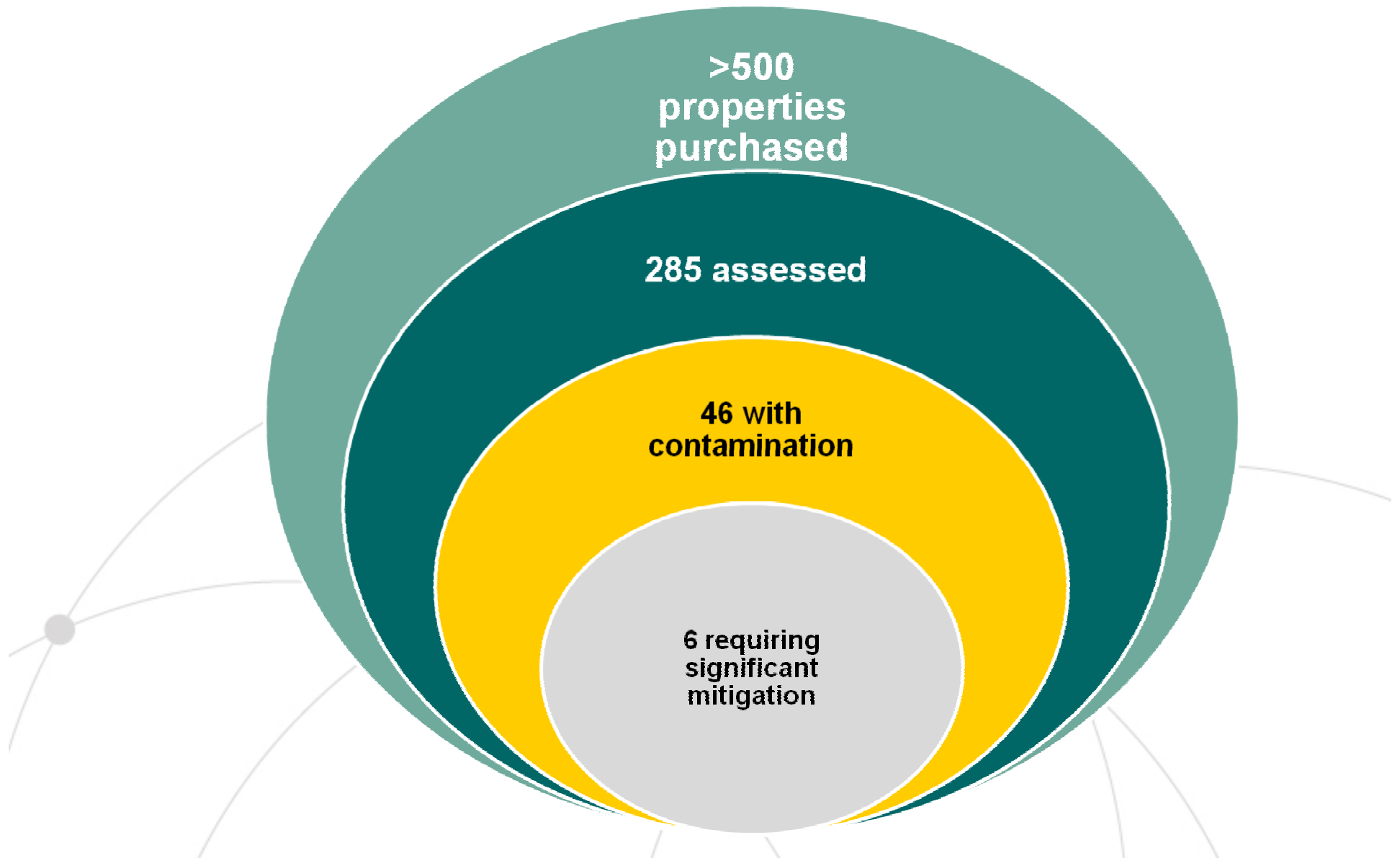
Stakeholders

- Ministry of Environment
 - Corporation of Delta / Surrey
 - First Nations
 - MetroVancouver
 - Burns Bog Conservation Society
 - Community at Large
 - Ministry of Transportation
 - Private Landowners..... *and more!*
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Physical Setting



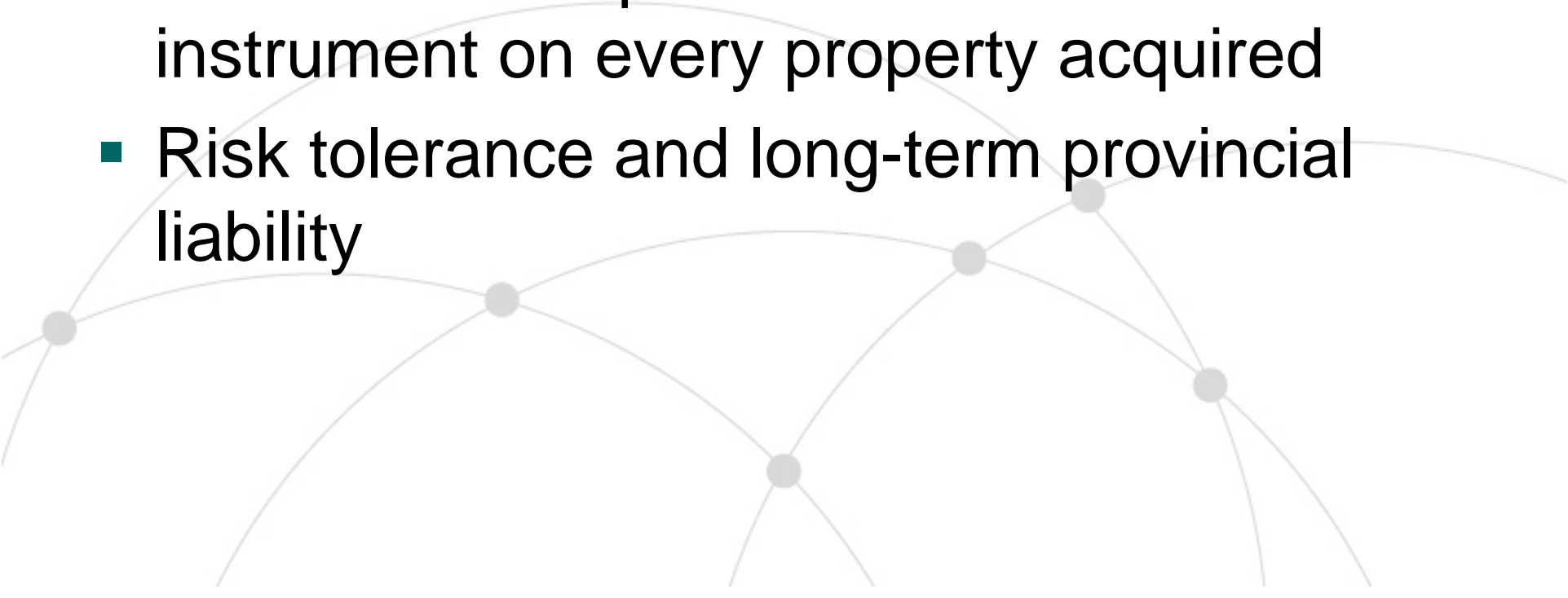
Contaminated Sites Assessment



Busy Neighborhood



Legal Instruments

- Municipal permits not required by MoT
 - No traditional triggers for legal instruments at the assessment stage
 - Not feasible to pursue an environmental instrument on every property acquired
 - Risk tolerance and long-term provincial liability
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A Timeline of Assessment Needs

Acquisition

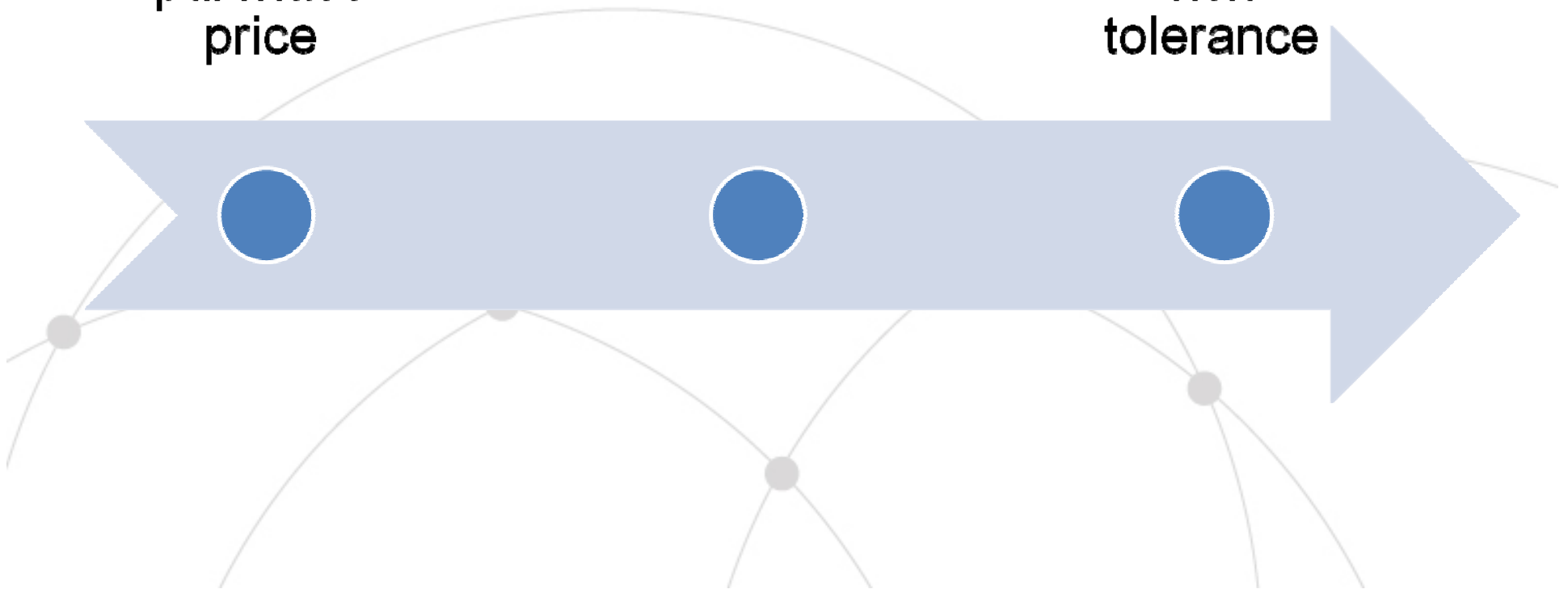
due diligence,
purchase price

Construction

worker health & safety,
construction in worst case area?

Surplus Property Sales

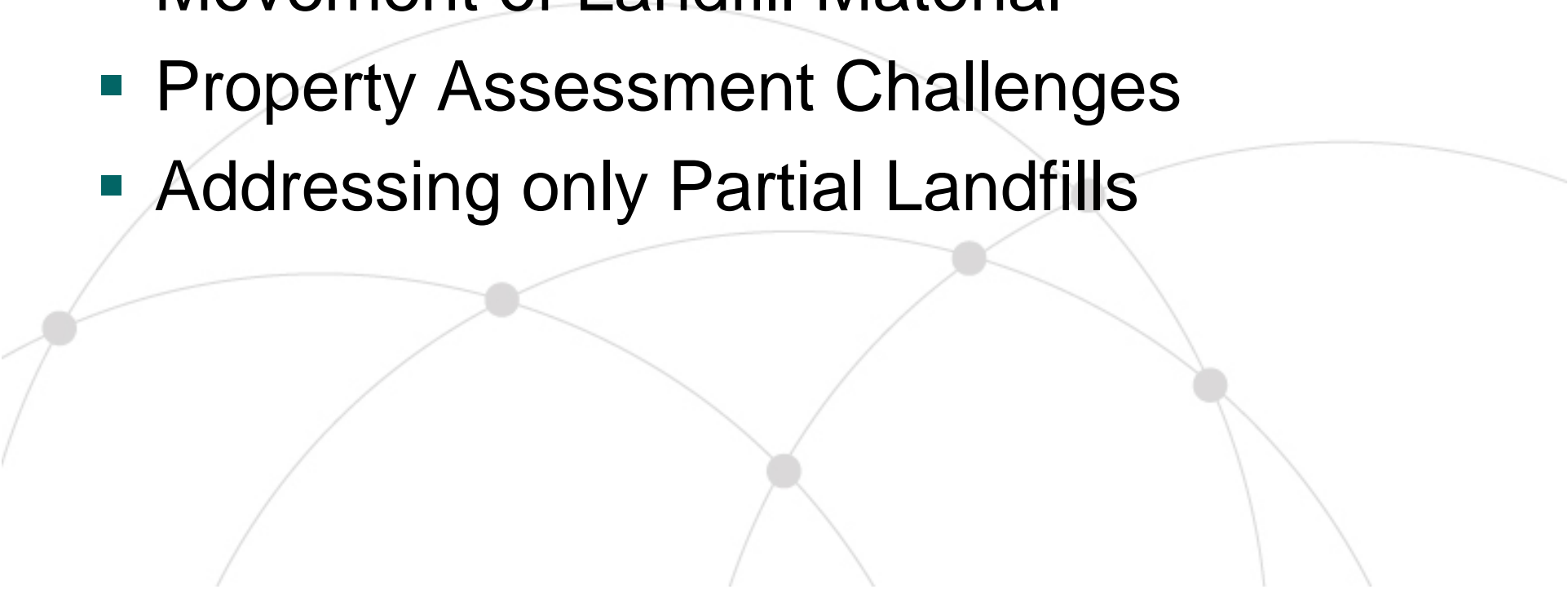
different risk tolerance



Landfill Project Site



Don't Build a Road over Landfills

- Higher Highway Construction Costs
 - Environmental and Fire Risks
 - Geotechnical/Settlement Issues
 - Movement of Landfill Material
 - Property Assessment Challenges
 - Addressing only Partial Landfills
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DO Build a Road over Landfills

- Closure of unpermitted landfills
- Greater use of under utilized industrial lands
- Avoid loss of other active industrial land
- Catalyst for other landfill closures



Catalyst for Neighbours



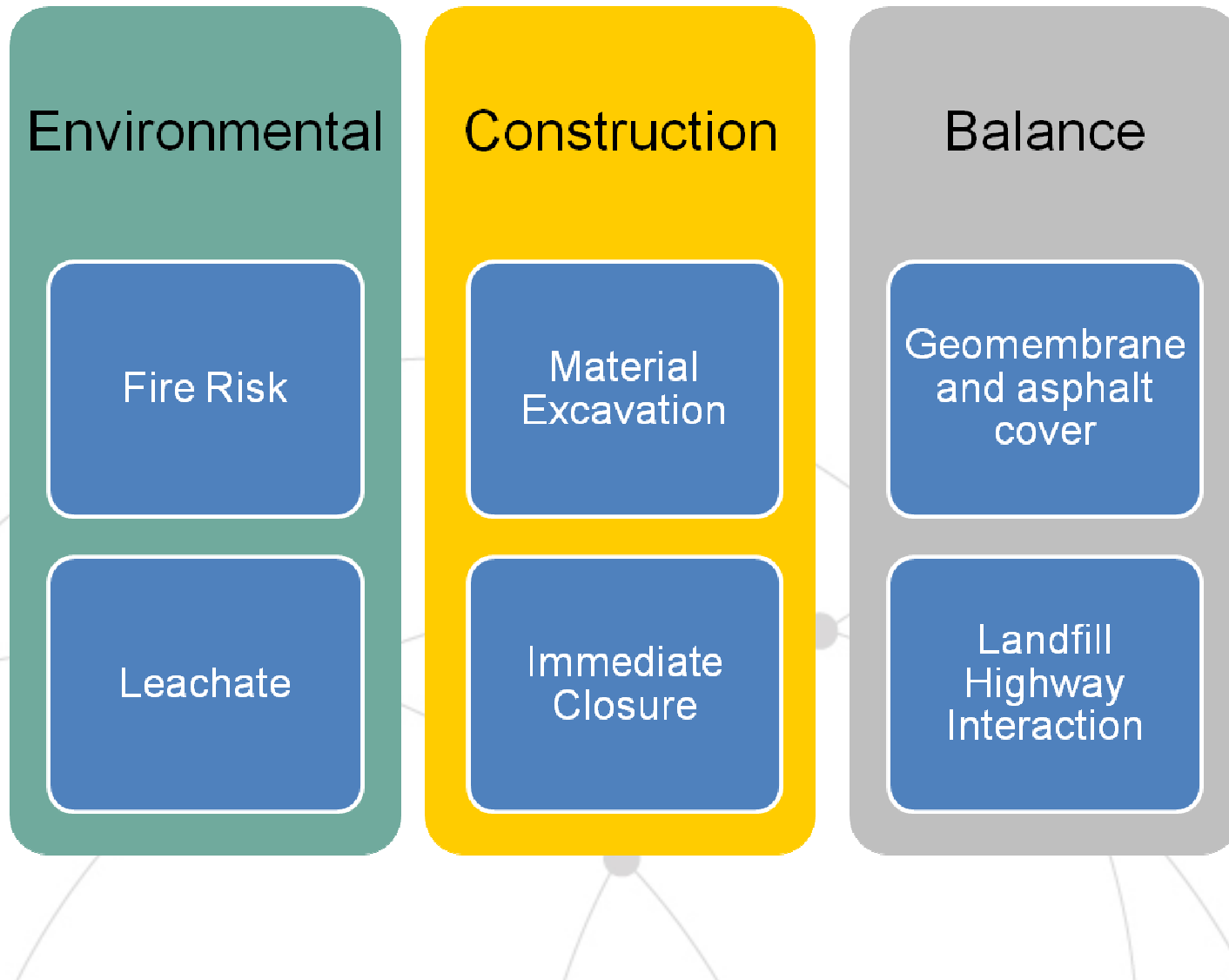
Waste Movement



Road Construction



Technical Considerations



Balancing Act



Closure under Landfill Permit

At least 25 years of:

- Groundwater, surface water, landfill gas, erosion, settlement monitoring
- Design/operation of pollution abatement works (gas, leachate)
- Annual reporting
- Annual post-closure cost estimates



CAPPED
LANDFILL


Closure under CSR

- Similar environmental protection
- Assessment of risks to human health and the environment
- Legal instrument that allows for re-development
- Environmental certainty increases property value and speeds up sale



**PROPERTY
RE-DEVELOPMENT**

Not your typical approach

- Talk to your regulator and stakeholders early and often! It is possible to deviate from guidance with strong technical rationale.
 - Understand risk tolerance
 - Creativity and innovation
 - Hemmera-MoT client relationship: know your client well
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Results



Questions? Thank You!

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