

Infrastructure Baseline and Feasibility Study

July 7, 2022

Presentation by

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Agenda

1. Infrastructure in South Bruce

2. Planning Infrastructure

3. Servicing the Centre of Expertise and DGR Site

4. Peer Review Summary and Conclusions

Infrastructure Baseline and Feasibility Study

How will infrastructure in South Bruce need to expand to accommodate future growth?

How will growth from the Project affect infrastructure expansion?

What infrastructure is needed to service the Project?

Infrastructure includes

- **Potable Water Supply**
- **Wastewater Collection & Treatment**
- **Solid Waste Management**
- **Gas, Power & Telecommunications**

The Infrastructure Baseline and Feasibility Study (I22) is a joint NWMO/South Bruce study and available for download at <https://www.southbruce.ca/en/municipal-government/studies-and-reports.aspx>

Infrastructure in South Bruce



Infrastructure Baseline and Feasibility Study

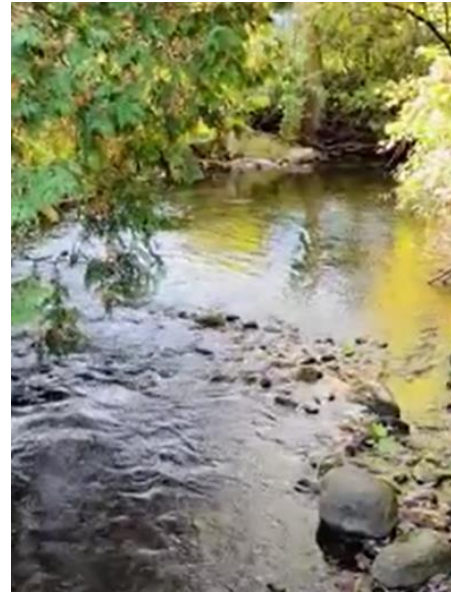
The Infrastructure Baseline and Feasibility Study considered:



Potable Water Supply



Wastewater Collection & Treatment



Stormwater Management



Solid Waste Management



Gas, Power & Telecommunications

Infrastructure in South Bruce

Infrastructure is provided by the Municipality, Bruce County and local utility providers:

	Mildmay	Teeswater	Formosa	Rural Areas
Potable Water Supply Municipal wells, drinking water treatment and watermains	Municipality	Municipality	None	None
Wastewater Wastewater Treatment Plants (WWTPs), sewage pumping stations and sewer forcemains	Municipality	Municipality	Municipality	None
Stormwater Catch basins, storm sewers that outlet to local rivers and stormwater management ponds	Municipality, with Bruce County responsible for drainage infrastructure on County Roads			
Power	Westario Power	Westario Power	Hydro One	Hydro One
Natural Gas	Enbridge	Enbridge	Enbridge	None
Telecommunications	Wightman	Wightman & Rogers	Wightman	Wightman

Planning Infrastructure

Municipalities and utilities expand or improve infrastructure to:

- Facilitate population and residential dwelling growth
- Facilitate business and employment growth
- Comply with higher regulatory standards, improve resiliency and improve redundancy



Water and Wastewater Infrastructure

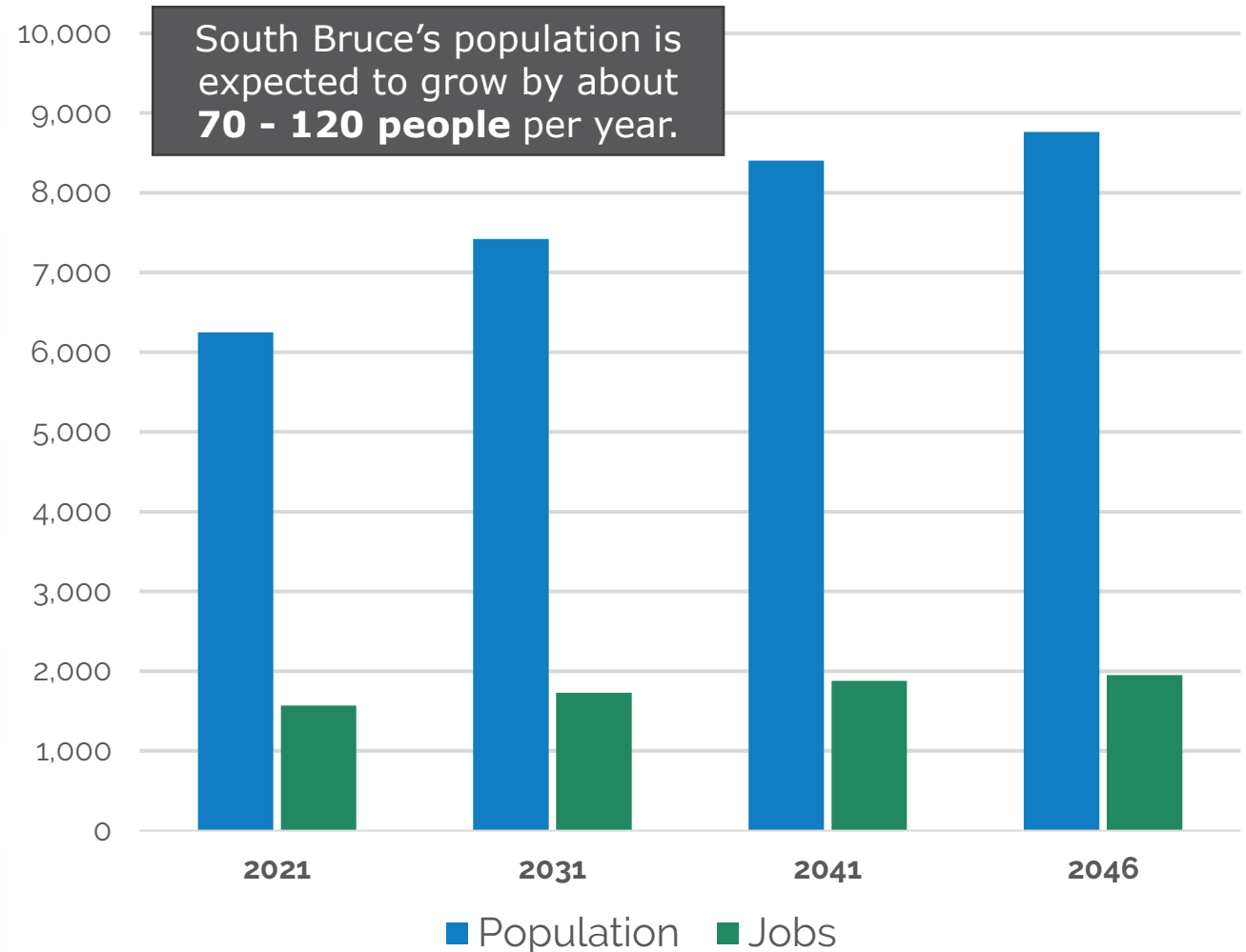


Impact of Baseline Population Growth

Infrastructure System	Approximate Capacity Remaining
Mildmay's drinking water system	2+ years
Mildmay Sewage Pumping Station	Approaching capacity
Mildmay WWTP	10 years
Teeswater drinking water system	8-10 years*
Teeswater Sewage Pumping Station	5-10 years
Teeswater/Formosa WWTP	20-25 years*
Stormwater	Expanded incrementally with development

Lack of municipal water in Formosa may limit development

*Estimates for the Teeswater drinking water system and WWTP take planned upgrades into account



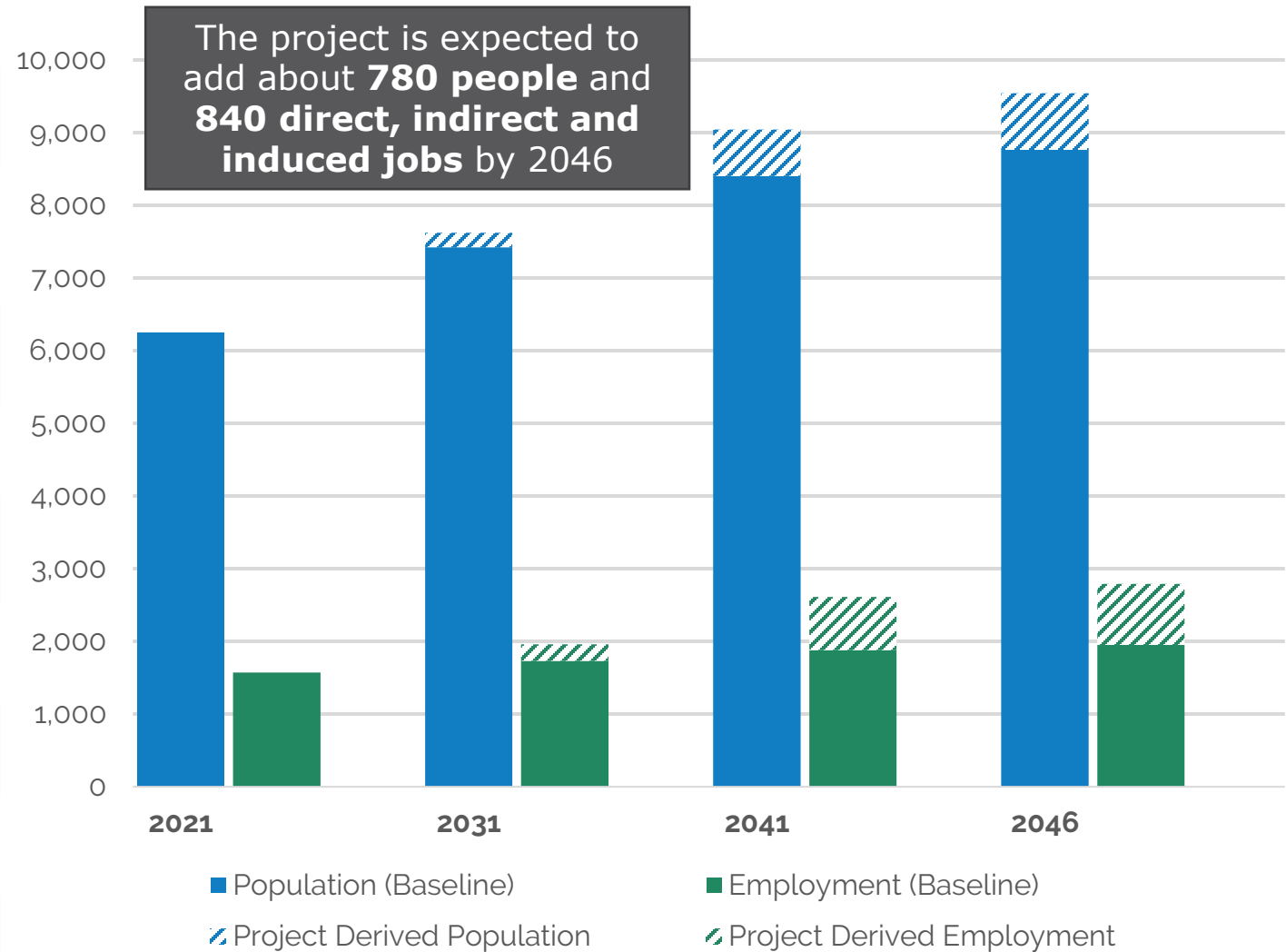
Water and Wastewater Infrastructure



Impact of Project Derived Growth

Infrastructure System	Approximate Capacity Remaining
Mildmay's drinking water system	Can be sized to accommodate Project-related growth
Mildmay Sewage Pumping Station	May need to be expanded sooner
Mildmay WWTP	Sufficient capacity
Teeswater drinking water system	May need to be expanded sooner
Teeswater Sewage Pumping Station	May need to be expanded sooner
Teeswater WWTP	Sufficient capacity
Stormwater	Will continue to be expanded incrementally

Lack of municipal water in Formosa may limit development



Solid Waste Management



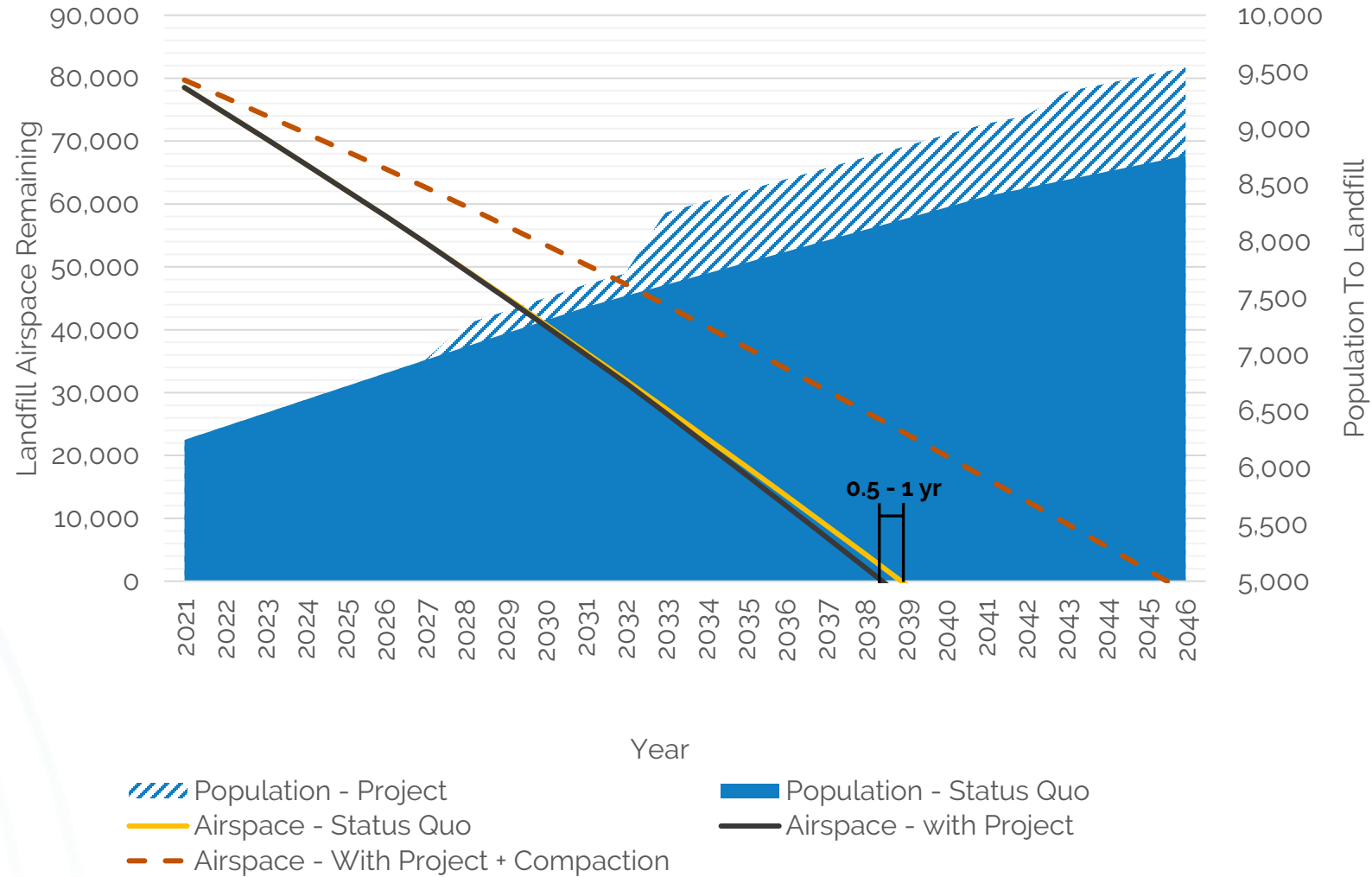
South Bruce has two operating landfills with **20 years** of combined site life remaining

Project-related population growth would shorten landfill site life by about 1 year

Landfill capacity not affected by employment growth because commercial waste is collected by private waste management services and disposed at landfills outside of South Bruce.

South Bruce will be increasing waste compaction density, which will extend the site life of the landfills by 6-7 years with the Project (2038 to 2045)

Combined Landfill Airspace Depletion with Population Growth



Solid Waste Management



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Gas, Power and Telecommunications



Power

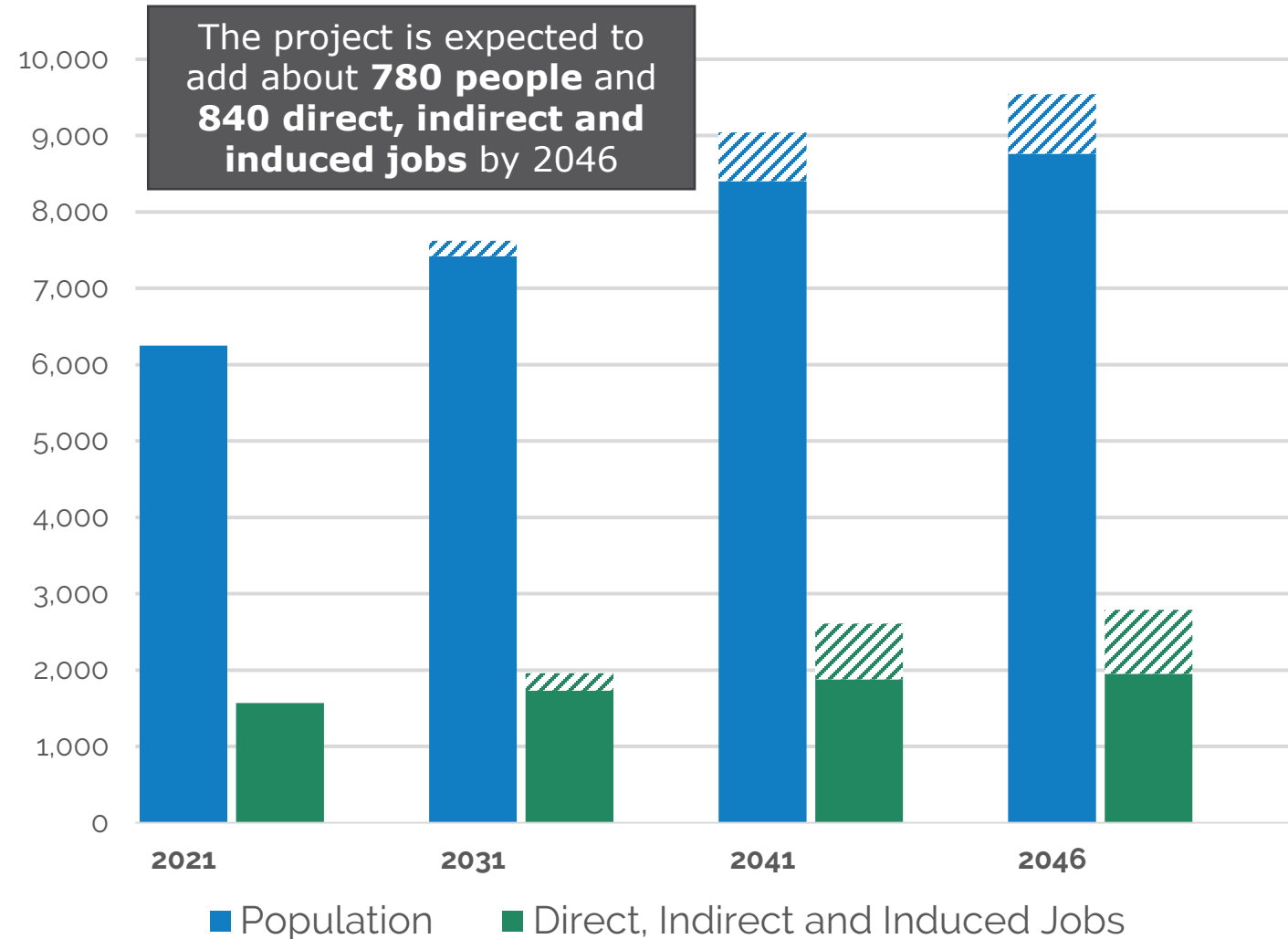
- Hydro One anticipates no challenges in servicing all Project related residential and business development.
- New larger developments require 5+ years planning

Natural Gas

- Enbridge will continue with regular rate customer growth connections

Telecommunications

- Fibre provided or being extended by Wightman and Rogers to Mildmay, Teeswater and Formosa
- Wightman would have ample capacity to provide high speed internet access for new development within settlement areas



Other Considerations

- Significant investment required for water and wastewater infrastructure expansions
- Infrastructure should be sized to accommodate growth, while being financially sustainable. There is a planning challenge given variation in baseline population projections.
- Master Plan with regular updates recommended to provide a holistic view of future infrastructure servicing plan.
- Consider infrastructure designs for near-term infrastructure expansions (Mildmay drinking water system and sewage pumping station) that provide greater flexibility such as twin forcemains.
- Climate change should be considered during planning of climate-vulnerable infrastructure.



Servicing the Centre of Expertise and DGR Site



Servicing the Centre of Expertise

The Centre of Expertise would require normal building services:

- Serviced by municipal water and wastewater system
- Limited water requirements - equivalent of 32 new residents
- Will require local power, gas and telecommunication upgrades



Servicing Needs of the DGR Site

Water and Wastewater

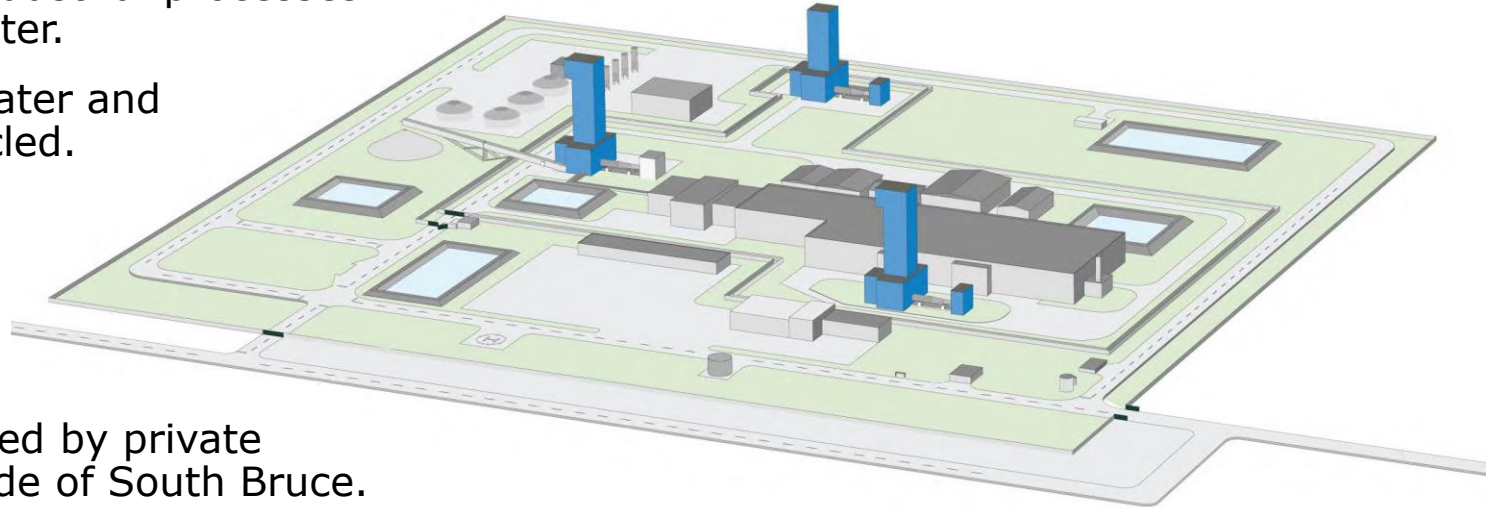
- About 185 m³/day of water required for industrial processes including fire suppression, and potable water.
- Wastewater would include used potable water and service water. Some service water is recycled.
- Stormwater will be managed on-site for quality and quantity and discharged to nearby natural watercourse.

Waste Management

- Solid waste and recycling would be collected by private waste service provider and disposed outside of South Bruce.

Power, Gas and Telecommunications

- Power supply requirements are significant (20-40 MW servicing), requiring a new line from the high voltage grid and long term planning.
- If required, natural gas may be provided by Enbridge or EPCOR.
- Buried fibre optic would be extended to Site, which would provide high speed service to residents and businesses along route.



Options for Servicing the DGR Site

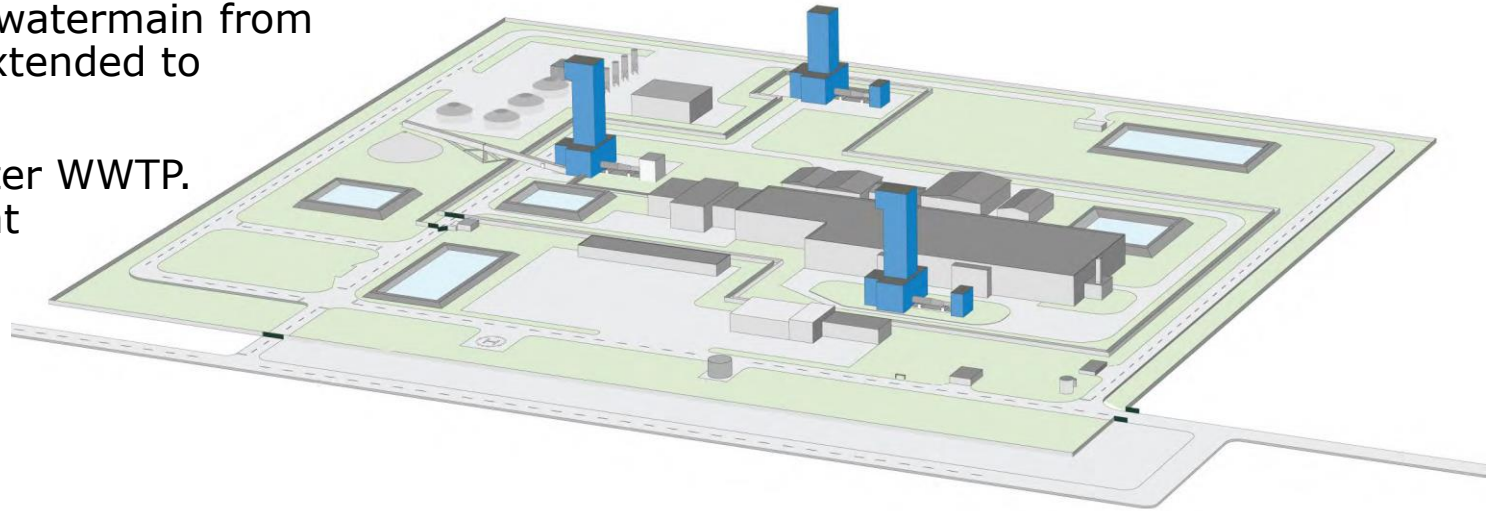
Municipal Servicing Options

- Potable water could be conveyed via new watermain from Teeswater. Could allow for service to be extended to properties along route.
- Wastewater could be conveyed to Teeswater WWTP. Wastewater would meet the WWTP influent standards and bylaw requirements.

Onsite Servicing Options

- Process and fire suppression water will be sourced from onsite well.
- Potable water could be sourced from onsite well.
- Wastewater could be treated and discharged onsite.

Further analysis required to identify preferred servicing options



Peer Review Results and Conclusions

A decorative graphic on the right side of the slide, consisting of numerous thin, curved lines that create a sense of motion and depth, resembling a stylized wave or a series of concentric arcs.

Collaborative Peer Review

NWMO led study with
peer review by South
Bruce consultants

Infrastructure Baseline and Feasibility Study (I22), Morrison Hershfield Ltd.

Peer reviews conducted by R.J. Burnside & Associates Ltd.

- Current study focused on need and timing for infrastructure expansion based on population and residential dwelling growth.
- Additional study recommended for identifying need for expansion based on industrial, commercial and institutional growth resulting from indirect and induced employment growth.
- Further evaluation of feasibility and potential benefits of servicing Project Site with potable water and sanitary wastewater recommended.
- Evaluate feasibility of potential supply of municipal water to properties along watermain route.
- Recommend to South Bruce to proceed with preparation of Infrastructure Master Plan.

Summary

- Study addresses guiding principles related to infrastructure strategy and upgrades (#29), as well as socio-economic impacts (#10), workforce (#18), housing (#27), and community services (#32).
- Infrastructure is a significant investment and needs to take into account potential growth.
- An Infrastructure Master Plan, including consideration of development charges, is required to provide a holistic plan for servicing anticipated growth and a roadmap for water, wastewater, stormwater infrastructure expansions.
- Additional study required to identify impacts of indirect and induced employment growth on water and wastewater infrastructure.
- Additional review is needed to determine most appropriate water and wastewater servicing for the Project Site.

Questions?

