



Ensuring the Waters of the Great Lakes Basin Are
Healthy, Public, and Protected for All

June 2, 2023

Via Electronic Submission

Paul Novak, Chair
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Andrew Doctoroff, Commissioner
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Kimberly Webb, Commissioner
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Re: FLOW's Technical Questions for the Mackinac Straits Corridor Authority

Dear Honorable Commissioners of the Mackinac Straits Corridor Authority:

FLOW ("For Love of Water") appreciates the opportunity to submit public comment to the Michigan Straits Corridor Authority ("Authority") to help inform the Authority, local officials, and citizens and assist in the evaluation of the tunnel project at this early stage.

The Authority is fortunate to have Commissioner Andrew Doctoroff's considerable experience and expertise in overseeing large-scale infrastructure projects. His law review article, [*Infrastructure Project Oversight: Lessons Learned from the Gordie Howe International Bridge Project*](#), is illustrative of "the imperative of infrastructure oversight" and the importance of "watchful, responsive, and affirmatively engaged supervision of the actions and conduct of project" as well as the need to assure that the project's stakeholders are "communicating transparently, regularly, and candidly about issues as they arise."

Commissioner Doctoroff writes that stakeholders will "gauge 'success' by asking the following questions, among others:"

- Will the project be completed?
- Will the project be completed on time?
- Will the project be completed on budget?
- Will the project meet applicable quality and durability standards?
- Will the project serve its intended public purposes?

It is in this spirit that FLOW submits the series of questions to help further public understanding of the purpose, need, and challenges associated with the present status of the tunnel project. For each question, FLOW has provided background information in order to contextualize the questions and illustrate the importance of providing critical project information so that stakeholders can be better informed.

1. What is the most recent cost estimate for the proposed tunnel?

The original circa 2018 estimate of \$500 million was for construction of a tunnel with a 10-foot diameter. The proposed tunnel now has a 21-foot diameter requiring the excavation and proper disposition of more than four times the material. In addition, the September 15, 2021 testimony of Dr. Michael Mooney, MDOT/MSCA's geotechnical expert, in the MPSC contested proceeding, stated:

“The geotechnical investigation, including geophysical surveys, was able to characterize the depth of the deep river channel (Mackinac River), the thickness of the underlying glacial soils, and the depth to the underlying rock. The depth to rock was determined to be deeper than assumed during the Alternative study and the resulting vertical profile takes the tunnel deeper in order to remain fully within rock.”¹

This suggests there would be additional costs in constructing the tunnel at a greater depth. All interested parties should have a clear understanding of the cost of the project. Mr. Doctoroff also notes that a survey of infrastructure projects indicates that 90 percent were ultimately over budget. The increased tunnel diameter and the need to bore deeper than anticipated suggests much higher potential construction costs.

2. Now that the tunnel must be bored deeper than originally anticipated, has additional geotechnical work been undertaken? If not, why not?

MCL 254.324d sets forth all the duties, responsibilities, authorities, and powers related to a utility tunnel and transfers such to the MSCA Board. Subsection MCL 254.324d(3)(c) provides: *“That the proposed tunnel agreement requires gathering of geotechnical information before construction to ensure that construction of a utility tunnel is feasible.”*

3. Pursuant to paragraph 7.3 of the Tunnel Agreement, Enbridge was to complete the Geotechnical Investigations by December 31, 2019. Why were the proposed series of borings in the lakebed to determine rock quality not completed?

MCL 254.324d (4)(d) provides: *That the proposed tunnel agreement provides the Mackinac Straits corridor authority with a mechanism to ensure that a utility tunnel is built to sufficient technical specifications and maintained properly to ensure a long asset life and secondary containment for any leak or pollution from utilities using the tunnel.*

According to Brian O'Mara, a geo-technical tunnel expert with over 30 years of international experience,² Enbridge's Geotechnical Data Report (“GDR”) reveals that Enbridge completed only twenty borings over the 19,000 feet of open water, roughly one boring for every 950 feet. The recommended spacing for the adverse conditions (identified in the GDR) is 100 to 200 feet for hard rock tunnels and 50 to 100 feet for mixed face tunnels. The closest borings completed were spaced more than 300 feet apart and the maximum spacing between borings approached 1,800 feet or nine times (900 percent) farther than recommended. Based on the borehole identification numbers provided in the GDR and obvious spacing

¹ MPSC, Corrected Direct Testimony of Dr. Michael Mooney, September 15, 2021 p.19

<https://mi-psc.force.com/sfc/servlet.shepherd/version/download/068t000000TVPVGAAS>

² Brian J. O'Mara has more than 30 years of professional geo-environmental consulting experience that span the entire lifecycle of utility and infrastructure tunneling projects from concept through pre-design studies, construction, operation and decommissioning, including more than two dozen tunnels, shafts and other ancillary structures in seven states, including Michigan for public utilities and private industrial clients.

gaps between some borings, it is clear that Enbridge planned to complete eight additional open water borings. The GDR does not discuss why these borings were not completed.

- 4. Enbridge has indicated that the tunnel will be bored through bedrock. The geotechnical data indicate that the rock formations encountered during the borings indicate poor rock quality, requiring the tunnel to be bored deeper. Are there new technical specifications that address the need to bore at a greater depth? If so, what are the basis for these specifications?**

In situ rock mechanical properties are evaluated by application of rock classification systems. According to Mr. O'Mara, analysis of the rock coring logs reveals extremely poor rock quality. The bedrock is described as "fractured" more than 700 times and "extremely fractured" 366 times in the GDR. The bedrock is described as "extremely weathered" or "highly weathered" more than 200 times in the GDR. Based upon the Rock Classification Systems for Engineering Purposes (ASTM STP984-EB984), more than 75 percent of the rock cores collected beneath the Straits have "Very Poor" or "Poor" rock quality. Approximately 120 of the recorded values (more than 25 percent) were Zero, the absolute worst quality. As is often the case, the "Very Poor" to "Poor" Rock Quality Designation ("RQD") values were not limited to the uppermost bedrock. Many of these low values were observed to persist for tens or hundreds of feet and in some cases persisted to the end of the boring. Rock quality should improve with depth, but this is often not the case in the rock cores collected. Per the ASTM STP984 guidance, "...low RQD values should be considered a 'red flag' for further action."

- 5. The Geotechnical Data Report is a compendium of raw data. On projects of this kind, the data are necessarily interpreted through preparation of a Geotechnical Baseline Report ("GBR"), yet there is no GBR in the public record. Has a Geotechnical Baseline Report been prepared? If so, has it been provided to the construction contractors that are submitting bid proposals? Is it available to the public? If not, why not?**

Paragraph 7.6 of the Tunnel Agreement provides: *Throughout the course of engineering and design, Enbridge will grant designated representative(s) of the Authority access to project documents necessary for appropriate and timely review. In addition, on a monthly basis, or as otherwise agreed by the Parties, Enbridge will provide to the Authority a progress report of engineering and design activities.*

Paragraph 7.8 (a) of the Tunnel Agreement provides: *Enbridge will provide to the Independent Quality Assurance Contractor and any other designated representative(s) of the Authority, timely and reasonable access to all Tunnel construction documents necessary for standard of practice quality assurance.*

- 6. Is the tunnel project insurable? What is the plan in the event insurance is not commercially available?**

Under Article 10 of the Tunnel Agreement, *"Enbridge and its contractors performing work under this Agreement will procure and maintain or cause to be procured and maintain insurance policies... Each required policy will include the Authority and the State of Michigan as additional insureds to the extent commercially available in accordance with customary insurance practice."*

The world's primary insurers and reinsurers, who offer financial protection for large risks to first line insurance companies, are now concluding that insuring pipelines entail unacceptable risks and are actively withdrawing from underwriting pipeline companies. Swiss Re, Hanover Re, Allianz, and Munich Re, the

world's largest reinsurer, have all publicly announced they will no longer insure oil and gas pipelines.³ And to what has become a potentially costly embarrassment to the government of Canada, its acquisition of the Trans Mountain pipeline expansion project has been met with uniform opposition of the global insurance industry. Eighteen insurance companies lead by Zurich Insurance Group have indicated that they will no longer insure the Trans Mountain project.⁴

7. How does Enbridge justify the capital investment for the tunnel when it has asked FERC to truncate the depreciation period for its assets based upon recognition of the critical need to decarbonize the global economy? How long is the expected service life of the proposed tunnel in light of Enbridge's submittal to FERC?

Enbridge recognizes the implications of future regulatory policies aimed at reducing carbon emissions. On May 21, 2021 Enbridge notified the Federal Energy Regulatory Commission ("FERC") that it had completed a "technical update depreciation study to assess the remaining service lives of all its carrier property" and requested permission to "truncate" the depreciation period of its pipeline system based upon market forces that will limit the service life of its assets:

There are several factors, considerations and uncertainties which support the use of a December 31, 2040 truncation date. These include current and anticipated competition to the Enbridge Mainline, actions by state and local governments and the uncertainty arising from the recent acceleration in the pace of Federal (United States and Canada), state/provincial and local governments passing decarbonization legislation or adopting policies that may influence the market demand for pipelines. An example of the latter is found in the recent issuance by President Biden of an Executive Order Page 6 of 13 1313 titled: "Tackling the Climate Crisis at Home and Abroad"⁵, which unveiled detailed climate plans designed to meet his campaign promise that the United States achieves a 100% clean energy economy and net zero emissions no later than 2050.

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8. How will peak oil demand affect the economic viability of the tunnel project?

Energy economists predict that the increasing penetration of electric vehicles ("EVs") displacing vehicles powered by internal combustion engines will first slow, then dramatically reduce oil demand from the transportation sector. Global demand for transportation fuels was 75 million barrels per day ("bpd") in 2020. DNV predicts oil demand will peak at 86 million bpd in 2025 and decline thereafter.⁶ McKinsey

³ Reuters, ESG Watch: Insurers flex muscles ahead of COP27 by refusing to finance oil and gas, October 27, 2022 <https://www.reuters.com/business/sustainable-business/esg-watch-insurers-flex-muscles-ahead-cop27-by-refusing-finance-oil-gas-2022-10-27/#:~:text=Munich%20Re%2C%20the%20world's%20biggest.Allianz%20in%20exiting%20the%20sector>

⁴ ICT, Arch becomes eighteenth insurer to sever ties with Trans Mountain Tar Sands Pipeline, May 3, 2022 <https://ictnews.org/the-press-pool/arch-becomes-eighteenth-insurer-to-sever-ties-with-trans-mountain-tar-sands-pipeline>

⁵ Attachment A, Enbridge May 2021 Depreciation Study Update https://d3n8a8pro7vhm.cloudfront.net/oilandwaterdntmix/pages/26/attachments/original/1638974675/Enbridge_depreciation_study.pdf?1638974675

⁶ DNV Energy Transition Outlook 2022, The Fall of Fossil Fuels, <https://www.dnv.com/energy-transition-outlook/fall-of-fossil-fuels.html#:~:text=We%20predict%20a%20peak%20in,over%20the%20period%202035%E2%80%932050.>

forecasts peak oil demand driven by EV uptake occurring between 2024 and 2027.⁷ The International Energy Agency (“IEA”) indicates that if countries were to meet their decarbonization commitments, peak oil demand would occur next year.⁸

The world’s major auto manufacturers are transitioning away from ICE vehicles which will result in attenuated petroleum demand. Analysts indicate that the rate of EV penetration is now a classic sigmoid (“S”) curve with annual EV sales growth exceeding more than 50 percent.⁹ All major global OEMs are making clear that petroleum-free electric drivetrains will dominate their future manufacturing investments and that most future product offerings will not use transportation fuels.¹⁰ The IEA predicts that electric vehicles will reach 60 percent of all vehicles sales by 2030.¹¹ The 27 countries comprising the European Union have formally approved a law prohibiting the sale of gasoline and diesel powered vehicles after 2035.¹² Hainan island, a Chinese province, will ban the sale of gasoline and diesel powered cars by 2030 a likely harbinger of broader Chinese policy.¹³ So far, six states – California, Massachusetts, New York, Oregon, Washington, and New Jersey - will prohibit the sale of gasoline powered vehicles after 2035.¹⁴ Other states will likely follow, as eleven other states having vehicle emission standards that are based upon California’s vehicle emissions policy.¹⁵

The reduction in the use of transportation fuels accompanying vehicle electrification will have a corresponding negative effect on pipeline utilization and capacity needs, especially for Enbridge, the largest carrier of expensive, emission-intensive, oil derived from tar sands. With state and federal policies advancing EV adoption and accelerating the transition away from oil-based fuels, capital markets are now aggressively withdrawing investment in fossil fuels – with particular focus on oil derived from tar sands.

9. How is the MSCA assessing the future risk of explosion in the tunnel?

⁷ McKinsey, Global Energy Perspective 2022, <https://www.mckinsey.com/~media/McKinsey/Industries/Oil%20and%20Gas/Our%20Insights/Global%20Energy%20Perspective%202022/Global-Energy-Perspective-2022-Executive-Summary.pdf>

⁸ International Energy Agency, [World Energy Outlook 2022](https://www.iea.org/reports/world-energy-outlook-2022/outlook-for-liquid-fuels), Outlook for liquid fuels, Announced Pledges Scenario, <https://www.iea.org/reports/world-energy-outlook-2022/outlook-for-liquid-fuels>

⁹ F. Sioshansi, J. Webb, Transitioning from conventional to electric vehicles: The effect of cost and environmental drivers on peak oil demand, Science Direct, March 2019 <https://www.sciencedirect.com/science/article/abs/pii/S0313592618303643?via%3Dihub>

¹⁰ McKinsey & Company, Why the automotive future is electric, September 7, 2021 <https://www.mckinsey.com/industries/automotive-and-assembly/our-insights/why-the-automotive-future-is-electric>

¹¹ IEA, Technology Report, September 2022, By 2030 EVs represent more than 60% of vehicles sold globally, and require an adequate surge in chargers installed in buildings, <https://www.iea.org/reports/by-2030-evs-represent-more-than-60-of-vehicles-sold-globally-and-require-an-adequate-surge-in-chargers-installed-in-buildings>

¹² European Parliament News, Fit for 55: zero CO2 emissions for new cars and vans in 2035, February 14, 2023 <https://www.europarl.europa.eu/news/en/press-room/20230210IPR74715/fit-for-55-zero-co2-emissions-for-new-cars-and-vans-in-2035>

¹³ CBS News, Chinese province plans to ban the sale of gasoline-powered cars, August 24, 2022 <https://www.cbsnews.com/news/chinese-province-plans-to-ban-the-sale-of-gasoline-powered-cars/>

¹⁴ Kelley Blue Book, New Jersey Moves to Ban New Gasoline-Powered Car Sales After 2035, March 1, 2023 <https://www.kbb.com/car-news/new-jersey-moves-to-ban-new-gasoline-powered-car-sales-after-2035/>

¹⁵ ABC News, Court upholds Minnesota ‘Clean Car Rule’ tied to California, January 30, 2023 <https://abcnews.go.com/Business/wireStory/court-upholds-minnesota-clean-car-rule-tied-california-96775227>

The Michigan Public Service Commission (“MPSC”) has ordered Enbridge to provide information “necessary to enable the Commission to determine whether the potential risk of explosion in the tunnel may be further reduced or eliminated.”¹⁶

10. Has the Enbridge board of directors approved the construction and budget for the tunnel project? If not, why not?

Enbridge, Inc.’s General Guidelines for the Board states as follows:

*The Board reviews the goals and strategic plans of the Corporation, the objectives and policies within which it is managed, and then steps back and evaluates management performance. Reciprocally, the CEO keeps the Board fully informed in a timely and candid manner of the progress of the Corporation towards the achievement of its established goals and of all material deviations from the strategic plans, objectives and policies established by the Board.*¹⁷

11. What disclosures have been made to the Securities and Exchange Commission or FERC regarding the cost of the tunnel and the construction schedule?

Thank you for the opportunity to submit public comments.

Sincerely,



Liz Kirkwood
Executive Director

¹⁶ MPSC, July 7, 2022 Order, p. 45.

<https://mi-psc.force.com/sfc/servlet.shepherd/version/download/0688y000003Sdv8AAC>

¹⁷ Enbridge, Inc., General Guidelines for the Board

https://www.enbridge.com/~/_media/Enb/Documents/Investor%20Relations/CorporateGovernance/Guidelines-Board-of-Enbridge.pdf?la=en