

# Joint Oregon-Washington Legislative Action Committee

## Letter: Tunnel would be safer than bridge

By Bob Ortblad, Seattle

The Columbian, published: August 24, 2021

On Sunday, Feb. 14, 2021, Antonio Amaro Lopez on his way home from work plunged off the Interstate 205 Bridge into the Columbia River. Antonio was driving less than 50 mph, hit an ice patch, skidded and jumped a Jersey barrier.

Ice and the bridge's 2.7 percent downgrade extended his stopping distance more than 10 times. The I-205 Bridge is curved, so Antonio slid across four lanes before hitting a snow ramp that launched his SUV over a Jersey barrier into the river.

Go Safe Labs ranked the I-205 Bridge as the eighth most accident-prone site in the country, with an accident every three days.

A new I-5 Columbia River bridge will be even more dangerous. The 10-year-old \$200 million Columbia River Crossing bridge design has a 4 percent downgrade, curvature similar to the I-205 Bridge, a shaded northern exposure that will retain black ice, and sight distances much shorter than stopping distances in foggy, wet or icy conditions.

The Interstate Bridge Replacement Program administration is eager to recycle the Columbia River Crossing bridge design. The IBR has spent

hundreds of thousands of dollars on bridge engineering consultants to discount the possibility of a much safer river crossing design: an immersed tube tunnel.

*Attachment supporting graphics*



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***BLACK  
ICE***



Vancouver WA  
365 days  
-172 frost free days  
193 possible black ice days



8<sup>th</sup> most dangerous \*

2.7% grade

One accident every three days  
124 accidents in 2019



SUV hit a patch of ice  
plunges into the  
Columbia River  
Feb. 2021

\*Go Safe Labs

Review of 2019 Accident Data



# **BLACK ICE**

Freezing  
Fog  
Snow  
Rain

-4% grade

Curvature

Shaded northern exposure

Limited sight distance



**CRC High Bridge**



*Black Ice*



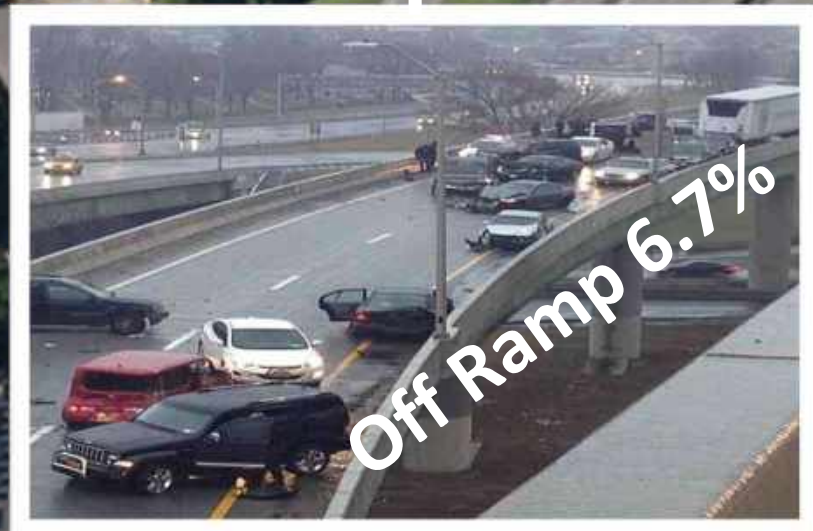
-4% grade

Curvature

Shaded northern exposure

Limited sight distance

CRC High Bridge



Off Ramp 6.7%



**BLACK  
ICE**

Northern  
exposure

## ***PORTLAND BLACK ICE***

Black Ice – six month of potential frost & black ice

Deceptive – bare south slope, but glazed north slope

Grade – 4% down slope, hundreds-of-yards stopping distance

Curved bridge – vehicles slide across lanes to guardrail

Sight distance before crest of bridge is much shorter than stopping distance



New Bridge  
steepest interstate bridge



South Side  
of Bridge

North Side  
of Bridge

**Unsafe** – sight  
distance less than  
stopping distance

Required stopping distance

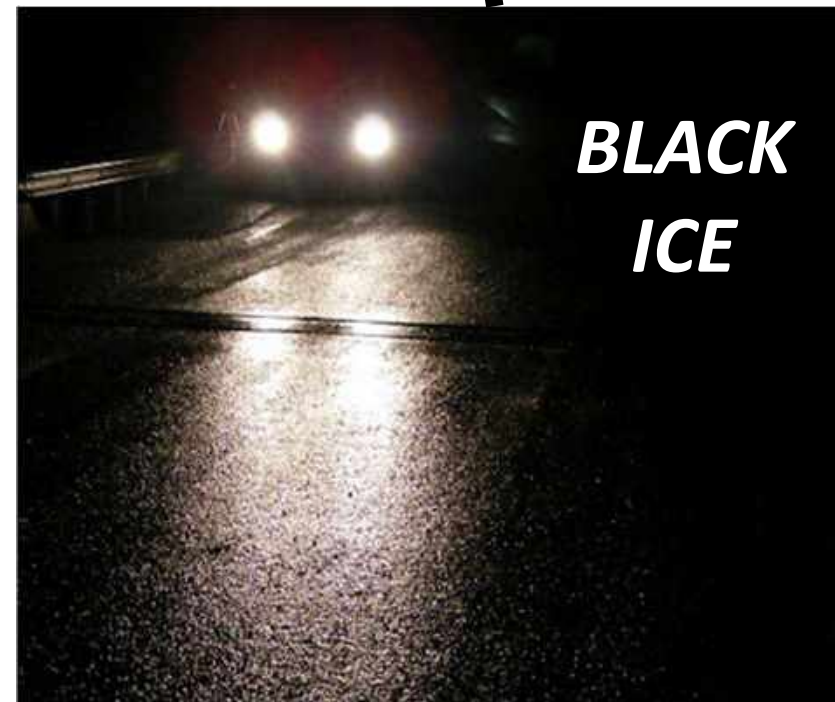
Sight distance

Vertical curve  
radius

Hazard

-4%

Winter sun rays  
melts southern  
exposure



Numbers show Glenn Jackson Bridge a hot spot for accidents

<https://katu.com/news/local/numbers-show-glenn-jackson-bridge-a-hot-spot-for-accidents>



Family fears loved one crashed off I-205 bridge during winter storm

<https://www.kgw.com/article/news/local/portland-oregon-crash-glenn-jackson-bridge-ice-storm/283-d41bcc69-2b8d-459c-b9c7-e27ddb6fef36>

ODOT report  
“crossed four lanes of traffic  
and struck the barrier”



Antonio Amaro Lopez



# BLACK ICE

- VERY HARD TO SEE
- SLICK CONDITIONS
- ESPECIALLY ON BRIDGES/OVERPASSES



# *Fog*



# *Wind*

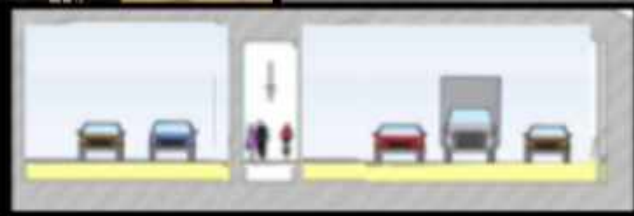


# *Rain*

# *Hydroplaning*

Wind, Fog,  
Rain & Snow

# Immersed Tube Tunnel Weather Protected



Trelleborg - How to build an immersed tunnel  
<https://www.youtube.com/watch?v=2Xkyyc9PIQA>

Trip through Tingstad Tunnel, Gothenburg  
<https://www.youtube.com/watch?v=KoEBbmecd88>

Trip through Marieholm Tunnel before its Dec. 16 opening, Gothenburg  
<https://www.youtube.com/watch?v=BT9s2Pf9Wms&feature=youtu.be>

Construction of the Marieholm Tunnel, Gothenburg  
<https://www.youtube.com/watch?v=2kcAIBFCz8w&feature=youtu.be>

Launch of the Marieholm Tunnel elements, Gothenburg  
<https://www.youtube.com/watch?v=JC4mRlgwXUO>

Elizabeth River Tunnel, Norfolk, VA.  
<https://www.youtube.com/watch?v=NsNBdPFMuQY>

George Massey Crossing Tunnel Concept, Vancouver, Canada  
<https://www.youtube.com/watch?v=8At88ti-yFA>

Immersion Tunnel Coatzacoalcos by Volker Construction International, Mexico  
<https://www.youtube.com/watch?v=VFWkoZMja0k>

DERSA - Santos Guarujá Immersed Tunnel Project, Brazil  
<https://www.youtube.com/watch?v=du8KZob7Pkw>

Busan-Geoje Fixed Link in South Korea  
<https://www.youtube.com/watch?v=-aykpUulHJo>



**Immersed Tube Tunnel  
better than a  
New High Bridge**