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# A REVIEW OF CLIMATE CHANGE ADAPTATION STRATEGIES FOR TRANSLINK

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Prepared for the South Coast British Columbia Transportation Authority (TransLink)

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This project was conducted under the mentorship of TransLink staff. The opinions and recommendations in this report and any errors are those of the author and do not necessarily reflect the views of TransLink or the University of British Columbia.

## EXECUTIVE SUMMARY

Climate change and extreme weather events will continue to have negative impacts on public transit, the economy and the lives of people. Due to a changing climate in Canada, extreme weather events will impact Metro Vancouver and the multimodal public transit system of the region, operated by TransLink. This study aims to help TransLink identify steps, challenges and climate change adaption considerations when developing a climate action strategy.

TransLink has a legal mandate to plan for the future, considering provincial and regional environmental objectives and in consultation with Metro Vancouver (*SOUTH COAST BRITISH COLUMBIA TRANSPORTATION AUTHORITY ACT*, 1998). Many levels of government are in the process of creating new policies, standards and objectives for climate change adaptation that TransLink could consider in its policies. TransLink has recognized that services, assets and infrastructure may be vulnerable to climate change but has yet to address them in a public facing strategy.

2021 will be a key year for climate change adaptation due to the release of a number of reports, and that will provide a window of opportunity to create and showcase a dedicated climate action and resilience strategy for TransLink. The Sixth Assessment Report of the Intergovernmental Panel on Climate Change is programmed to be published bringing the latest information that will help shape climate policy for the coming years. In 2021, the province of British Columbia plans to release its Climate Ready BC Report and Metro Vancouver's Climate 2050 Transportation Roadmap will also be available. TransLink could consider including data, information and findings from these documents into its climate change adaptation strategies.

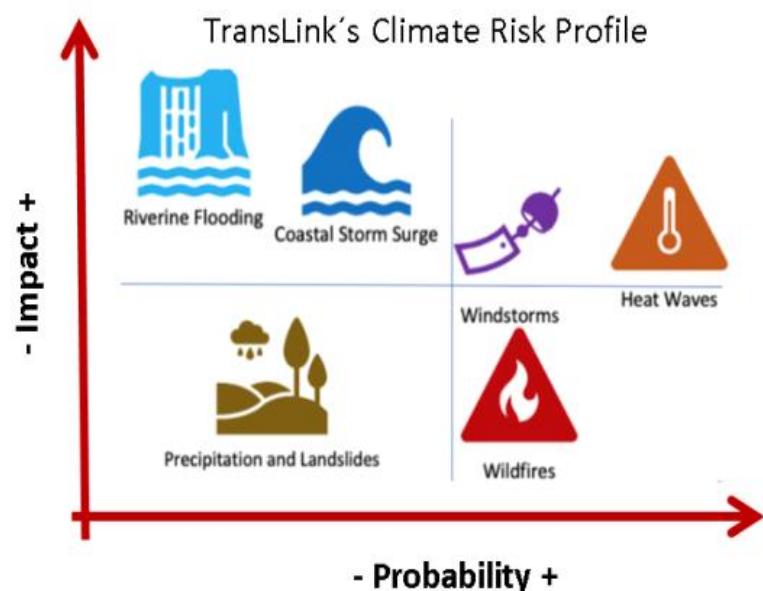
TransLink is one of five leading transportation authorities in North America to gain Platinum level status under the American Public Transportation Association's Sustainability Commitment. TransLink has demonstrated leadership in climate mitigation strategies; however, TransLink has not formally addressed climate adaptation with a public strategy. Climate change adaptation and mitigation have deep synergies and should be addressed jointly to minimize trade-offs and reduce impacts (Klein et al., 2007). Setting steps and milestones is essential to successfully achieve the creation of a climate adaptation strategy. Some of the steps TransLink should consider when developing a climate change adaptation strategy include: building a climate action plan team, performing an in-house risk assessment, engaging collaboration partners, choosing climate standards, performing vulnerability assessments on selected assets, and publishing a climate strategy. TransLink could also consider including adaptation goals in the updated regional transportation strategy, Transport 2050 which is under development, and the third investment phase of the Mayors' 10-Year Vision.

Adapting to climate change using the best climate change management standards has the potential to save TransLink millions of dollars by 2050. A number of studies have found that for every dollar invested in climate change adaptation, six dollars (FCM, IBC-BAC, 2020) to 12 dollars can be saved. Given that TransLink's 10-Year Vision anticipates an 18 billion CAD

investment, following best climate change adaptation standards will be essential to ensure new assets and services are resilient to climate hazards with efficient public investment.

Six actions are recommended for TransLink to develop a climate change adaptation strategy:

- 1) TransLink has carried out efforts to include climate change adaptation in its decisions. Building on these, it should consider incorporating specific actions and goals in key existing and future strategies. It is recommended that these actions be incorporated in Transport 2050 that is currently being developed, and the ongoing phases of the Mayors' 10-Year Vision.
- 2) TransLink should consider prioritizing win-win actions in climate change adaptation strategies. Win-win actions address the adaptation risks without compromising climate mitigation. Examples of international "win-win" best practices include creating permeable green corridors alongside the major road network, painting bus roofs white and polarizing the windows to avoid passenger discomfort during heat waves without increasing emission from increased air conditioning, and planting trees and other plants to provide sheltered bus stops and hubs.
- 3) TransLink should consider prioritizing addressing the six top hazards that create risks on vulnerable assets and operations. TransLink could consider performing an in-house risk assessment for these climate hazards on existing and planned assets and services and, in a later stage, perform vulnerability assessments for existing and planned assets and operations.
- 4) TransLink should consider including best climate change management and building standards adaptation actions; these could save the transportation authority millions of dollars by 2050. Finding the correct balance between hard and soft actions requires the best scientific information and standards. TransLink should consider using the Public Infrastructure Engineering Vulnerability Committee's (PIEVC) Engineering Protocol to assess transportation infrastructure, starting with the hazards outlined in this report.



- 5) TransLink should consider national and international best practices for creating and implementing a climate action and resiliency strategy.
- 6) Increasing revenue streams and creating partnerships will be essential to secure resources for implementing climate adaptation actions. TransLink should consider identifying resources to finance the adaptation component of a climate strategy, including increasing revenue streams and creating new ones. There are different financial resources available for TransLink to develop and implement a climate strategy from the federal government of Canada. TransLink has created revenue streams for climate action with the financial Green Bond and by selling carbon credits under British Columbia's low-carbon fuel program. Nevertheless, climate change adaptation for existing assets has not been formally considered in the 10-Year Investment Plan. This calls for exploring other revenue streams to prepare for climate hazards. Additionally, in collaboration with Metro Vancouver, TransLink could work with municipal governments and jurisdictions in the regional district to secure funds for creating green corridors and active transportation alongside the major road network. This could be a climate change mitigation and adaptation "win-win" strategy. Additionally, partnerships for collaboration and information sharing can be vital to accessing knowledge on climate risks and best practices.

With almost 6 billion CAD in assets, 18 billion in planned investments and the recognition of vulnerabilities to climate change, TransLink will need to invest in climate change adaptation actions. This will require securing resources, performing vulnerability assessments using the best standards and including climate change adaptation objectives in TransLink's guiding policies. Overall, TransLink will benefit from publishing a Climate Action and Resiliency Strategy to showcase its climate mitigation and adaptation efforts.

## TABLE OF CONTENTS

|  |           |
|--|-----------|
| <b>I. INTRODUCTION -----</b>   | <b>5</b>  |
| i. <b>Goal, Research Approach and Justification -----</b>  | <b>6</b>  |
| ii. <b>Review of the Process to Create a Climate Change Adaptation Strategy -----</b>                    | <b>10</b> |
| iii. <b>Finding a Balance Between Different Adaptation Approaches -----</b>                              | <b>16</b> |
| <b>II. CLIMATE CHANGE IMPACTS AND TRANSLINK -----</b>  | <b>21</b> |
| i. <b>About the South Coast British Columbia Transportation Authority (TransLink) -----</b>              | <b>21</b> |
| i. <b>TransLink, Metro Vancouver and BC as Leaders in Climate Change Action-----</b>                     | <b>24</b> |
| iii. <b>Climate Change Adaptation for Metro Vancouver-----</b>   | <b>28</b> |
| iv. <b>Planned Assets and Operations for TransLink -----</b>   | <b>30</b> |
| v. <b>Climate Change Risks for TransLink -----</b>   | <b>33</b> |
| v.1.    Riverine Flooding-----   | 34        |
| v.2.    Coastal Storm Surge + Sea Level Rise-----  | 36        |
| v.3.    Heat Waves-----  | 39        |
| v.4.    Precipitation and Landslides-----  | 40        |
| v.5.    Wildfires -----  | 42        |
| v.6.    Windstorms -----   | 43        |
| <b>PART 1. REVIEW OF BEST PRACTICES FOR CLIMATE CHANGE ADAPTATION IN MULTIMODAL PUBLIC TRANSIT -----</b> | <b>46</b> |
| <b>1.1.    Review of CCAS Strategies for Identified Risks in the Transportation Sector -----</b>         | <b>46</b> |
| 1.1.1.   Canada -----  | 47        |
| 1.1.2.   United States of America -----  | 47        |
| 1.1.3.   Other Countries -----   | 48        |
| <b>1.2.    Summary of Strategies Related to Identified Risks for TransLink -----</b>                     | <b>50</b> |
| 1.2.1.   Riverine Flooding-----  | 50        |
| 1.2.2.   Coastal Storm Surge + Sea Level Rise-----   | 52        |
| 1.2.3.   Heat Waves-----   | 54        |
| 1.2.4.   Wildfires -----   | 57        |
| 1.2.5.   Precipitation and Landslides-----   | 57        |
| 1.2.6.   Windstorms-----   | 60        |

|  |            |
|--|------------|
| <b>1.3. Identifying Gaps and Strategies for Developing a CCAS for TransLink-----</b>                         | <b>62</b>  |
| <b>PART 2. EMPIRICAL DATA SURVEY AND INTERVIEWS ----- 64</b>   |            |
| <b>2.1 About the Survey and Interviews-----</b>  | <b>64</b>  |
| <b>2.2. Summarized Results and Analysis of the Survey and Interviews.-----</b>                               | <b>64</b>  |
| 2.2.1. Internal CCAS development process and changes in governance-----                                      | 65         |
| 2.2.2. External and other stakeholder engagements-----   | 66         |
| 2.2.3. Adaptation risks and approach-----  | 66         |
| 2.2.4. Non-financial resources-----  | 68         |
| 2.2.5. Financial Resources-----  | 68         |
| <b>PART 3. POTENTIAL RESOURCES FOR CCAS DEVELOPMENT AND IMPLEMENTATION ----- 69</b>                          |            |
| <b>3.1. Internal Resources in TransLink for Developing and Implementing a CCAS -----</b>                     | <b>69</b>  |
| <b>3.2. Potential Resources Available for TransLink - CCAS Development-----</b>                              | <b>71</b>  |
| <b>3.3. Potential Resources Available for TransLink - CCAS Implementation -----</b>                          | <b>73</b>  |
| <b>3.4. Resources available to Municipalities in Metro Vancouver (TransLink cannot apply directly).-----</b> | <b>74</b>  |
| <b>3.5. Partnership and Collaboration Opportunities -----</b>  | <b>76</b>  |
| <b>III. RECOMMENDATIONS AND NEXT STEPS ----- 79</b>  |            |
| <b>REFERENCES-----</b>   | <b>89</b>  |
| <b>APPENDICES-----</b>   | <b>107</b> |
| 1. Definitions-----  | 107        |
| 2. Reviews of Climate Change Adaptation Strategies for Public Transit-----                                   | 108        |
| 3. Results of the Survey and Interview on CCAS-----  | 126        |
| 4. Interview Script-----   | 135        |
| 5. Online Survey-----  | 138        |

