

AN EVALUATION OF THE VANCOUVER PUBLIC BIKESHARE PROGRAM

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THE SYNERGY GROUP

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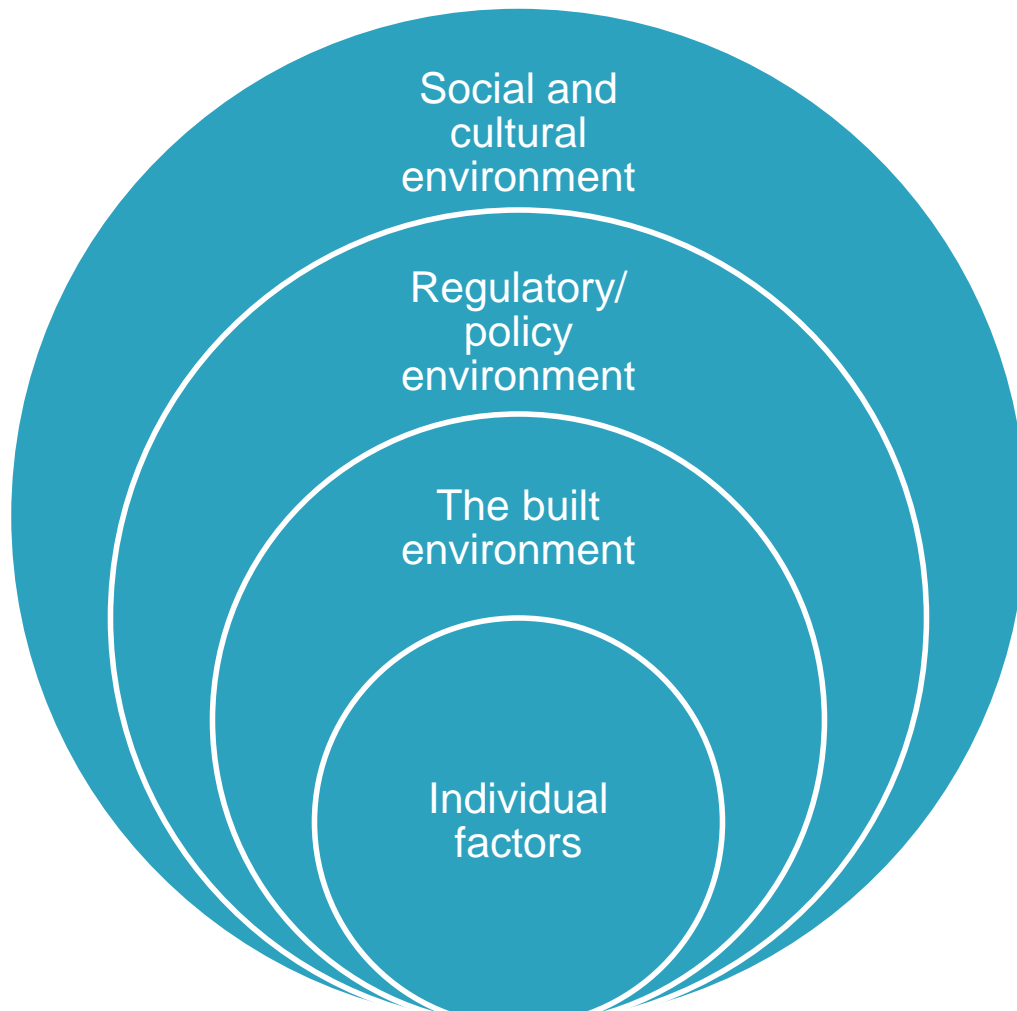


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Program Context



Active Transport



- Improved health through increased physical activity
- Reduced pollution
- Reduced congestion on roads and public transport
- Strengthening of the tourism, business climate and sustainability in alternate transportation modes

Vancouver Public Bikeshare Program

- Increase access to and use of bicycles by placing docking stations through out the city
- Enables individuals to make one way trips for a minimal fee
- Program aims:
 1. Support active living
 2. Extend the reach of transit and walking trips
 3. Replace vehicle and transit trips
 4. Trigger participation in cycling at the broad level



Vancouver Public Bikeshare Program

- Yearly operation – 1000 bicycles at sites across city core
- **UNIQUE!** All users are required to wear helmets
- Program will include helmet vending machines




Stakeholder Diagram



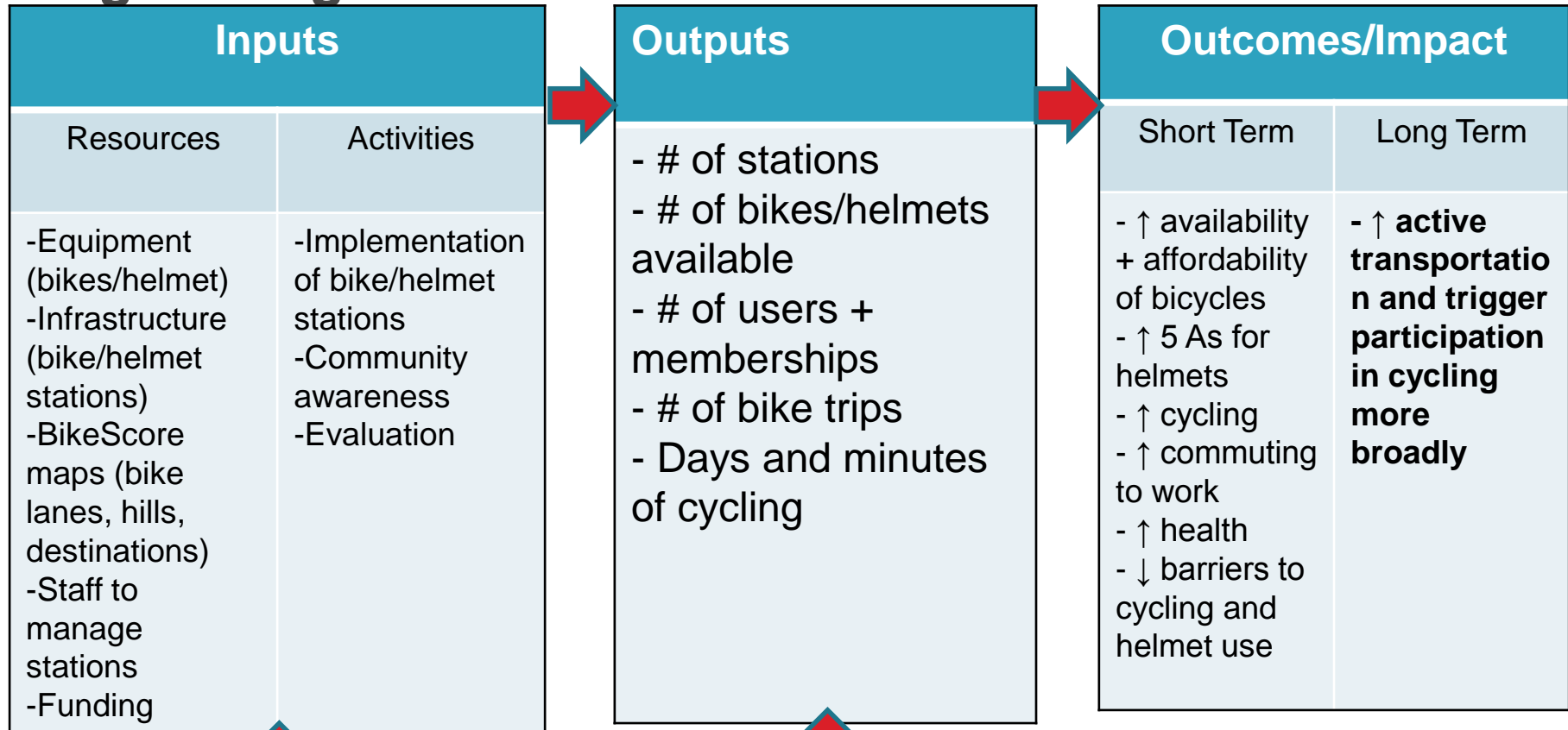
Evaluation Objectives

- Limited evaluation of the population-level impacts of bikeshare programs
- To conduct a process and outcome evaluation to:
 - Determine the uptake of the Vancouver Bikeshare Program
 - Identify barriers and facilitators to the program and the use of helmet vending machines
 - Assess equity of the program in terms of equal access to the program and helmets and equal use of helmets and bikes
 - Compare outcomes of the program to other similar programs in Canada

The image features a collection of interlocking gears of various sizes, rendered in a light blue color. Two dark blue silhouettes of people are positioned on either side of a large central gear, appearing to adjust or interact with it. The background is white, and the entire scene is set against a teal header bar at the top. The text 'Evaluation Methodology' is centered within the large gear.

**Evaluation
Methodology**

Program Logic Model



Assumptions

- Implementation of program is just beginning – basic data from memberships (e.g. demographic) – survey adds data
- Focus on adults 18+
- Proximity of bike and helmet stations to each other

Evaluation Matrix

Q1. What is the uptake of the Vancouver Public Bikeshare Program?

Indicators	Data Sources	Methods
<ul style="list-style-type: none">▪ # bike trips/day per station▪ average # trips per bicycle▪ # bike users▪ # helmets rented▪ average distance per trip▪ # monthly memberships▪ # annual memberships▪ # single day passes▪ # multi-day passes	<p>Demographic information from membership intake form</p> <p>Geographic/spatial information from census data</p> <p>Cycling In Cities Bike Score Index</p>	<p>Data review combined with GIS mapping</p>

Evaluation Matrix

Q2. What are the health, environmental and economic impacts of the program?

Indicators	Data Sources	Methods
<ul style="list-style-type: none">▪ Projected financial savings from using bike transport▪ # minutes of bike use (proxy to physical activity)▪ # days and minutes of total and recreational cycling/week▪ Changes to environmental infrastructure▪ Air pollution▪ Traffic congestion/changes in traffic volume	<p>Health – IPAQ questionnaire (used in Montreal, Fuller 2013)</p> <p>Air quality assessment/ environmental/ meteorological data</p> <p>Trends in traffic reporting</p>	<p>Online survey containing IPAQ question</p> <p>Data review</p>

Evaluation Matrix

Q3. What are the barriers and facilitators of the Vancouver Public Bikeshare Program?

Indicators	Data Sources	Methods	Sample
<ul style="list-style-type: none"> ▪ Biking connectivity (e.g., # roads that have cycling lanes) ▪ Bike route characteristics ▪ Perceived risks of bike safety ▪ Perceived barriers to participation in the program ▪ Benefits identified by participants ▪ Awareness of program services 	Census data, geographical databases	GIS mapping	Users (Monthly-Yearly)
	User & non-user feedback	Online survey	Users (Single-use, no membership)
		Online survey	Non-Users

Evaluation Matrix

Q4. What is the use and accessibility of the helmet vending machines?

Indicators	Data Sources	Methods
<ul style="list-style-type: none">• # helmets rented/day per station• # of helmets available per day/per station• Proximity of helmet station to bike station• # of helmet sizes available in vending machine• User helmet cost• # of bike users who are also helmet renters• # helmet not returned• Acceptability/Accommodation information	<p>Inventory Records</p> <p>Helmet Machine</p> <p>Users/Non-users</p>	<p>Inventory and Helmet Machine Transaction record review</p> <p>Online and telephone surveys</p>

Evaluation Matrix

Q5.0. How equitable is the Vancouver Bikeshare Program?

Indicators	Data Sources	Methods
Demographic data (i.e., age, household composition, families with children, race and ethnic group, income class, people with disabilities)	Census data	GIS mapping
Bike score		

Evaluation Matrix

Q6.0. How do outcomes compare to other similar programs in Canada?

Indicators	Data Sources	Methods
Comparisons will be made based on outcomes available in published literature for relevant indicators listed in the above matrix (e.g., # bike trips per day)	Published outcome information from other programs in Canadian cities	Literature Review

Methods

RECORD REVIEW

TYPE OF RECORDS

- Membership data collected (including type of membership, social demographic information, bike score)
- Inventory of helmet machine transactions

RELATED EVALUATION QUESTIONS

What is the uptake of the program?
What is the use/accessibility of helmet vending machines

BENEFITS

- Will provide valuable demographic data of users
- affordable & low burden

RISKS

- Incomplete data
- Time consuming to complete membership survey

Methods Continued

LITERATURE REVIEW

TYPE OF RECORDS

- Review published literature describing outcome data from other bike sharing programs across Canada

RELATED EVALUATION QUESTIONS

How do outcomes compare to other similar programs in Canada?

BENEFITS

- Will provide valuable comparison data from across Canada
- affordable & low burden

RISKS

- Limited to available published literature on Bike Sharing
- May be limited to certain indicators

SURVEY DATA

ONLINE SURVEY METHOD (for users)

- Online survey will address demographic information, program use, facilitators & barriers to program use
- Closed & open-ended questions used
- Existing validated survey questions will be used, *ex. International physical activity questionnaire*
- **For users with membership:** survey will be emailed to appropriate address
- **For daily/single users:** link to survey will be printed on ticket receipt)
- Incentive will be offered (voucher for a free ride/discount for next years' membership)

RELATED EVALUATION QUESTIONS

What are health, environmental, and economic impacts of the program?
What are the facilitators & barriers of the program?
What is the use & accessibility of helmet vending machines?
(addressing 5 dimensions – availability/accessibility/affordability/acceptability/accommodation)

BENEFITS

- Inexpensive & easy to administer
- Can use existing validated questions
- No interviewer bias

RISKS

- Poor response rate
- Limited for populations of low literacy

TELEPHONE INTERVIEWS

TELEPHONE INTERVIEWS (for non-users)

- Telephone interviews conducted with non-users of the program
- Random-digit-dialing
- Short interview will be conducted relating to use and perceived facilitators and barriers to bike sharing (ex. Why are individuals NOT using bike sharing)?
- Interviews will be tape recorded & transcribed
- Free voucher/membership reduction will be offered as an incentive

RELATED EVALUATION QUESTIONS

What are the facilitators & barriers of the program?
What is the use & accessibility of helmet vending machines?
(addressing 5 dimensions – availability/accessibility/affordability/acceptability/accommodation)

BENEFITS

- Ability to obtain rich, valuable information
- Can probe for additional information

RISKS

- Poor response rate
- Client burden/time consuming

KEY INFORMANT FOCUS GROUP

Description:

- One or two informant focus groups (10 stakeholders maximum) will be conducted with key stakeholders (advisory team, Bike Sharing operators, etc.)
- Used to assess their perceptions regarding facilitators/barriers and implementation of the program
- One hour, tape recorded focus group
- Conducted at a convenient time & location for all stakeholders

RELATED EVALUATION QUESTIONS

What are the facilitators & barriers of the program?

BENEFITS

- Ability to obtain rich, valuable information from an important group
- Can probe for additional information
- Flexible in the course of collecting data

RISKS

- Social desirability effects
- Observer bias

GIS MAPPING

Description:

- Will combine geographic information with demographic data, and program outcomes to create multilayered visual maps
- Will explore how the program is situated within and interacts with its environment
- The layers used:
 - Demographic information
 - Neighbourhood land use
 - Transit use
 - SES
 - Street connectivity
 - Bikeability scores

RELATED EVALUATION QUESTIONS

What is the uptake of the program?
What are the health, environmental and economic impacts of the program?
What are the barriers and facilitators of the program?

BENEFITS

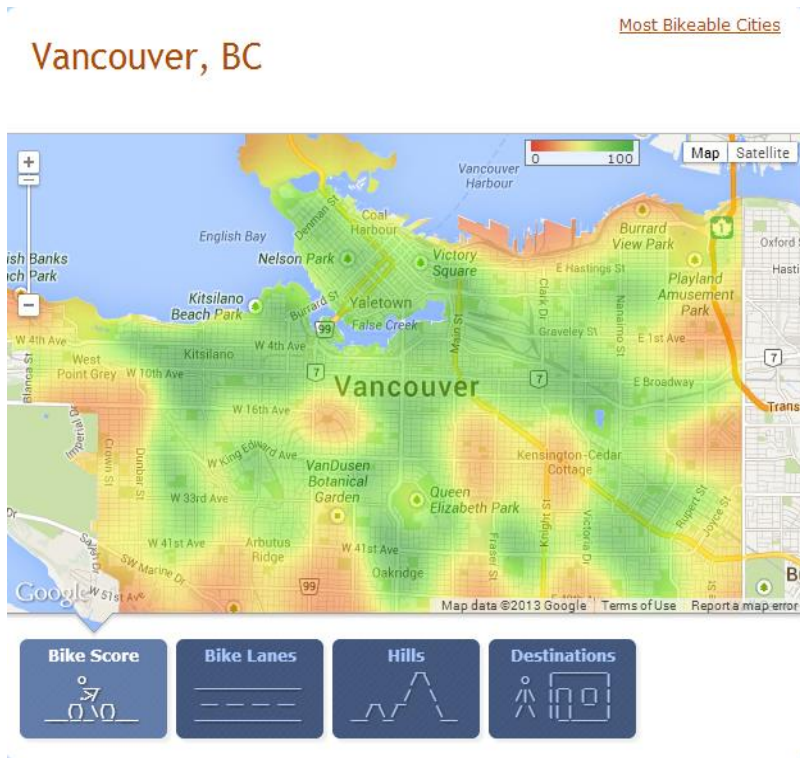
- Well suited for multi-site programs
- Disentangle program outcomes across sites

RISKS

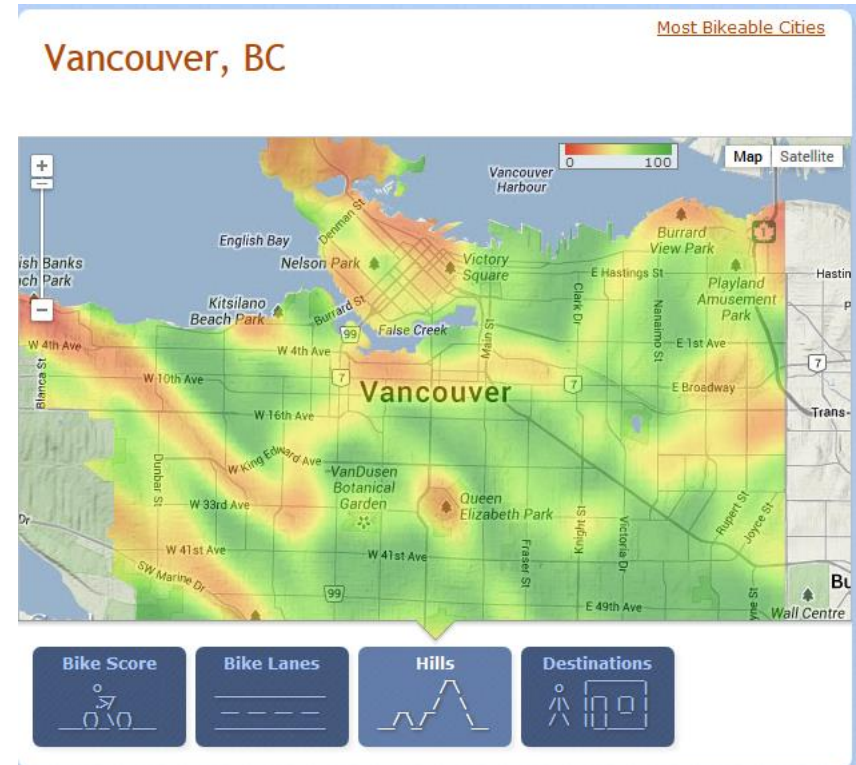
- Expensive
- Data is not always available

GIS Mapping Example

Bike Scores:



Hills:



DATA ANALYSIS PLAN

Quantitative Data

- Quantitative analysis using SPSS
- frequency counts, cross tabulations will be conducted where appropriate

Qualitative Data

- Qualitative analysis using Nvivo10
- Identification of common codes & themes
- Thematic analysis

GIS Mapping

- Analysis will include quantity and density mapping
- GIS maps can be combined/compared with other relevant data
- Patterns will be assessed

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**Challenges &
Solutions**

Key Considerations: Internal Factors

Internal Factors

- | | |
|--|--|
| 1. Access limited to credit card users | → Bikes can only be accessed via a credit card limiting access to other forms of payment and individuals without a credit card
→ Restricts access to individuals under legal limits |
| 2. Helmet and bike transactions | → Lack of integration between helmet and bike rental transactions |

Key Considerations: External Factors

External Factors

- | | |
|--|---|
| 1. Public perceptions around bike safety | - Previous data reveals that women and older adults tend not to use bikeshare programs due to safety concerns |
| 2. Environmental characteristics | - Bike Score may impact program utilization and outcomes (i.e., Bike route density, connectivity with other bike-friendly streets, topography) |
| 3. Helmet use legislation in BC | <ul style="list-style-type: none">- BC legislation upholds mandated helmet use- Limited data on success of helmet vending machines- Proximity to helmet rental to bicycle rental (5 dimensions of access) |

Equity Analyses: Internal & External Factors

Internal and External Factor	Proposed Equity Assessment
1. Limited payment methods/options	→ Utilization data along with online and telephone surveys will be used to determine what extent this inhibits both existing and potential users
2. Environmental characteristics	→ Bikescores will be overlaid with program utilization and outcome data → Examine user and non-user feedback pertaining to geographic and environmental factors affecting program use (environmental justice perspectives)
3. Station location and access	→ Comparing socio-demographic and utilization data assess potential gaps in access and utilization
4. Helmet access and use	→ Location and utilization of helmet vending machines will be assessed in comparison to the feedback received from surveys of user and non-user groups

Possible Challenge and Potential Solutions

Budgetary and time constraints

- Cost-effective data collection tools
- Triangulation of data sources

Limited pre-existing or baseline data

- Establishing baseline measures
- Drawing upon evaluations conducted in other jurisdictions
- Leverage pre-existing data

Possible Challenge and Potential Solutions

Confidentiality and ethical Concerns

- Data collected via group interviews & surveys will not be linked to any identifying information to protect confidentiality and privacy rights

Coverage, geography and number of sites involved

- Data collection tools designed to reach a wide range of users, non-users and program staff
- Incentives will be utilized to promote responses and engage both users and non-users in sharing their perspectives

Possible Challenge and Potential Solutions

Language and cultural appropriation of data collection tools

Identification and integration of linguistic profiles/needs into data collection tools

Next Steps

- Working in conjunction with the evaluation advisory committee to refine the design of the proposed evaluation
- Integrate stakeholder feedback into evaluation design
- Finalize evaluation design and establish timeline and reporting expectations

THANK YOU

Find us

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The Synergy Group

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