An evaluation of the Vancouver Public Bikeshare Program

EIM

Evaluation in Motion ➡ Moving your project forward

Presentation Overview

- Overview of the program

- Evaluation questions and design

- Methods and analysis plan

- Challenges, solutions, and considerations

Cycling

- Healthy, fun, inexpensive way to travel
- Public Bikeshare Systems are gaining popularity in Canada as a form of transportation
- Numerous benefits associated with cycling:
  - Environmental
  - Socioeconomic
  - Health

Cycling in Vancouver

- Separated bicycle lanes
  - Introduced in 2010
  - Increased cyclist comfort
  - Attracted new cyclists

- Public bicycle system
  - City received interest in April 2012
  - Plans underway to launch this service
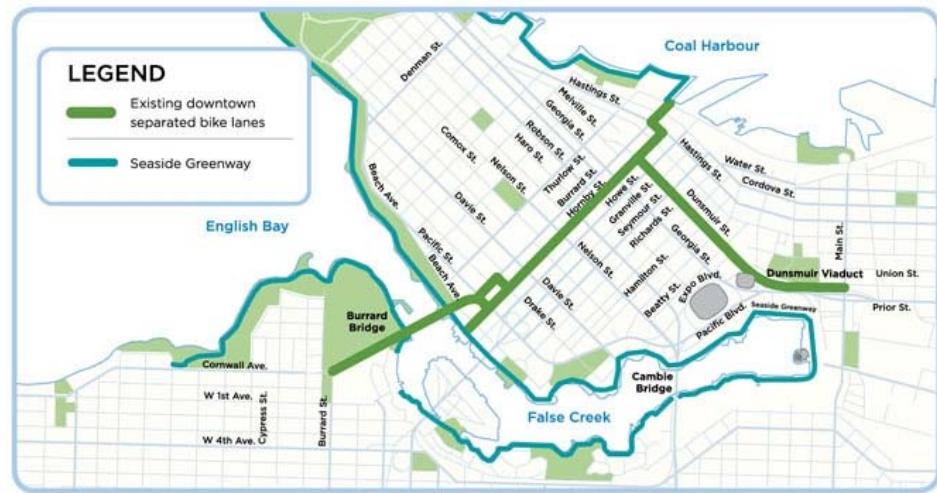
Cycling in Vancouver

- Increased bicycle parking
  - City and private businesses have installed bicycle racks and corrals on public and private property

- Bicycle-friendly events
  - City encouraging event planners to promote active transportation
  - Improvements to valet parking and public transit options

Vancouver Public Bikeshare Program

- Year-round program
- Approximately 1000 bikes in the city core
- Bikes can be rented for a desired amount of time
- Program reaches and serves the downtown population, commuters and tourists
- Stations have helmet vending machines to meet legislated helmet use

Program Goals

- increase active transportation
- support active living
- extend the reach of transit and walking trips
- replace vehicle and transit trips
- trigger participation in cycling more broadly
- improve environmental sustainability of the City of Vancouver

Stakeholder Relationships

Program Target:
- Vancouver residents
- Commuters
- Tourists

Key Stakeholders

- Director of Evaluation
- Evaluation Advisory Group
- City of Vancouver

Relevant organizations:

- Vancouver Area, BC Cycling, and other active transportation coalitions

- **National and provincial health** organizations (i.e. HSF)
- Transport Canada

VANCOUVER PUBLIC BIKESHARE PROGRAM

Evaluation Advisory Committee

- Involves representatives from each stakeholder group
  - Provide feedback and assist in designing evaluation plan
  - Liaise and facilitate dissemination and uptake of findings
- Ensures that diversity of opinions and concerns are addressed in the evaluation and by the program

Evaluation Purpose

1. Is the program being used? If so, who are the program users?
2. How does the program compare to other Bikeshare programs in Canada?
3. What are the health, environmental, and economic impacts of the program?
4. Are program users wearing helmets? What are the barriers and facilitators to the helmet vending machines?
5. Is the program equally accessible to all Vancouver residents?

LOGIC MODEL

OVERALL AIM

INCREASE ACTIVE TRANSPORTATION (

VANCOUVER PUBLIC BIKESHARE PROGRAM

Rationale: Evidence of Health, Environmental and Economic Benefits of Cycling (

	AVAILABILITY(	ACCESSIBILITY(	AFFORDABILITY(	ACCOMODATION(	ACCEPTABILITY(
BIKES	**INPUTS(** - ~1,000 bikes, (**OUTPUTS(** - # of bikes used	**INPUTS(** - stations ~ 300 - 500m apart - links to rapid transport (**OUTPUTS(** - usage of each station	**INPUTS(** - annual memberships $90 - single, multi-day, monthly passes **OUPUTS(** - # of passes purchased	**INPUTS(** - adjustable 'city-style' bikes for people of all ages (**OUTPUTS(** - usage rates	**INPUTS(** - built environment, Vancouver bike trail /lane system **OUTPUTS(** - amount of bike traffic - # of trails/lanes
HELMETS	**INPUTS(** - helmet vending machines at every bike station - patrons may bring their own **OUPUTS(** - # of helmet rentals	**INPUTS(** - close proximity of vending machine to docking station - integration of all major credit cards **OUTPUTS(** - usage of each helmet station	**INPUTS(** - low cost rentals **OUTPUTS(** - # of helmet rentals	**INPUTS(** - helmet cleanliness - comfort - structural integrity **OUTPUTS(** - # of helmet rentals	**INPUTS(** - size, fit and adjustability of helmets **OUTPUTS(** - # of helmet rentals

SUPPORT ACTIVE LIVING

TRIGGER PARTICIPA-TION IN CYCLING MORE BROADLY

EXTEND REACH OF TRANSIT AND WALKING

REPLACE VEHICLE AND TRANSIT TRIPS

AIMS

EQUAL ACCESS TO BIKES AND HELMETS FOR ALL ((

Evaluation Methods

Primary Data Collection Methods
- Survey
- Focus Groups
- Key Informant Interviews

Secondary Data Collection Methods
- Document/Literature Review
- Environmental Scan

1. Survey

Rationale	A multiple choice census survey • Distribute to a large population • Allows for comparing findings over time and across sites • Can reach a large number of respondents quickly and at a low cost
What will this answer?	• usage of the program • safety issues • uptake of the program • barrier/facilitators to the program • use of helmet vending machines • equity of the program • health impacts • Comparison to other bike share programs in Canada
Sample	The entire population of Vancouver that is 15 or more years of age, 71.2% of the population between 15-64
Recruitment	Actual Users – telephone interviews, emails, web app Potential Users – Distribute at public events, mailed, telephone

1. Survey

Procedure	Pretest on at least 10 individuals prior to administration
	- Will remove confusing wording, jargon, can help to clarify the purpose of questions and provide suitable detail
	Will be distributed by a number of means:
	- Paper – mailed to households with a stamped envelope for return
	- Online – with an introductory email
	- Telephone – random digit dialing
	- Social Media Web Application – More detail later
	Two components on the survey
	- Additional questions to answer if you are a user of the program
Data Analysis	Use of SPSS for detailed analyses, descriptive statistics, standard deviations, correlations

Social Media Web Application
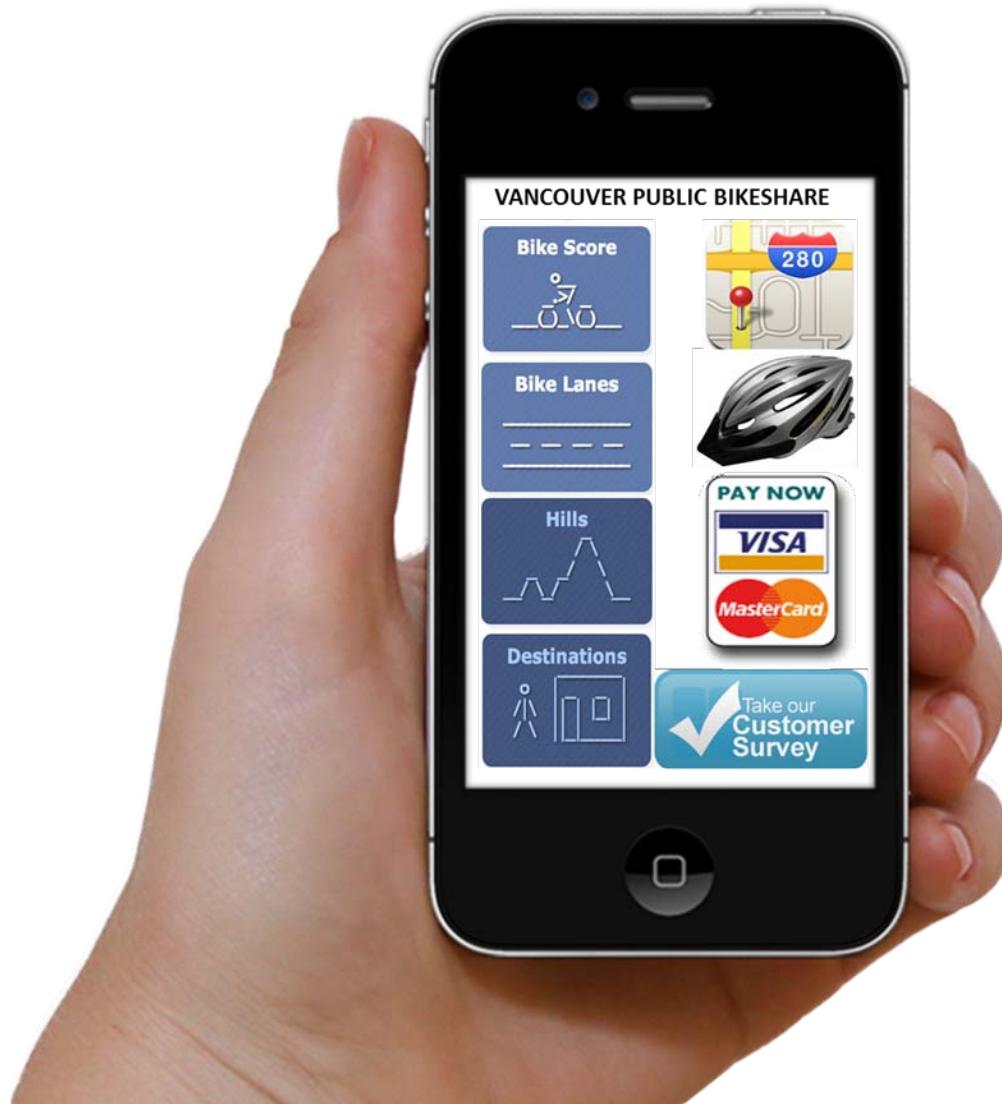
2. Focus Groups

Rationale	Small group discussions will offer rich data that is more in depth than interviews, can help us to explore new ideas and discuss issues that have not been considered
What will this answer?	- Uptake of program - Health impacts - Barriers/facilitators to the program - Use of helmet vending machines - Equity of the program
Sample	- NGO groups, Bike share Members, General Public
Recruitment	Actual Users – Member contact information, Web App Potential Users – Flyers, distribute at public events, through survey
Data Analysis	Transcribe tapes and notes, thematic analysis, NVIVO - Social Marketing Analysis Approach – Deductive approach - Initial coding starts with a previous theory - More specific themes emerge from the data

3. Key Informant Interviews

Rationale	Interviews with the experts allow for more detailed and in depth information to assess the impact of the program
What will this answer?	- Health impacts - Environmental impacts - Economic impacts
Sample	Stakeholder groups: - Director of evaluation - Evaluation Advisory Group
Data Analysis	NVIVO, thematic analysis - transcribe notes, code themes, organize into patterns

4. Document/Literature Review

Rationale	Many programs have extensive documentation available that provide additional information, assesses processes involved in providing service
What will this answer?	- Health impacts - Environmental impacts - Economic Impacts - Comparison to other bike share programs in Canada
Procedure	- Evaluators will look over program documents, including policies, procedures, program descriptions, budgetary information, service reports, census, Statistics Canada - Will assess quantity of work done and success of work (numbers of participants)
Data Analysis	Develop framework, search for patterns, compare to other findings

5. Environmental Scan

Rationale	A scan of the bike share program, bike trails, bike infrastructure may help to generate additional insights not available through other strategies
What will this answer?	- Environmental impacts - Barriers/facilitators to the program - Use of helmet vending machines - Equity of the program - Comparison to other bike share programs in Canada
Procedure	- Use standardized rating to produce quantitative and qualitative information to describe the setting - Assess maintenance, visibility, street cleanliness - Trained observers
Data Analysis	Review observation protocol and notes after observation, identify themes, organize into meaningful subsections, not frequencies, search for patterns

Evaluation Matrix

Evaluation Question	Indicator	Data Source	Methods	Feasibility*
1. Rationale/Relevance: To what extent is the Vancouver Public Bikeshare Program relevant?				
1.2 Is there empirical evidence to demonstrate the effectiveness of a Bikeshare program and positive health/environmental/economic outcomes?	- Evidence of causal relationship between cycling and availability/accessibility to bicycles and positive health and environmental outcomes -Expert opinion	- Literature on cycling and health, reduced car emissions and environmental impact -Expert	-Literature review -Expert panel	High
1.4 To what extent does the program consider inequities in land use, housing, and/or transportation?	-Identified socio-demographics of the city of Vancouver residents	-Canadian census -City of Vancouver residents	-Document review -Surveys and public meetings	High
2. Design and Delivery: Is the Vancouver Public Bikeshare Program designed and delivered effectively?				
Design				
2.1 Has the program been designed to support active living, extend transit and walking trips, replace vehicle and transit trips, and trigger cycling?	-Evidence of a causal relationship between accessibility to bikes and active living and behaviour change	-Literature on built environment and health promotion/active transportation -Literature on previous implemented built environment interventions -Expert	-Literature review -Document review -Key informant interviews -Surveys	Medium
2.3 To what extent does the program follow Zanotto's adapted health care access model?	-The extent to which helmet use meets the five dimensions of access: availability, accessibility, affordability, acceptability, and accommodation	-Expert and public opinion -Documents reviewed from Bikeshare program -Actual availability, accessibility, affordability, acceptability, and accommodation of helmets	-Surveys -Environmental scan	High
2.5 How does the Vancouver Bikeshare program compare with other similar programs in Canada?	-The extent to which the program is designed similarly to other programs in Canada (cost, availability, accessibility, use)	-Bikeshare programs in Ottawa, Montreal, and Toronto	-Document review -Environmental scan	High

Evaluation Matrix cont..

Delivery				
2.7 Does the Vancouver Public Bikeshare Program reach the targeted Vancouver population?	-The extent to which the program reaches intended users and actual cyclists	-Potential and intended users -Expert	-Program document review: administrative files	Medium
3. Impact: To what extent do the program activities contribute to the attainment of the program objectives? i.e., positive impacts on the environment, economic, and health				
3.5 To what extent does the program have the potential of promoting population health through environmental benefits?	-Evidence of a causal relationship between reducing fuel emissions through cycling and long-term environmental benefits	-Literature on environmental impact of fuel emissions	-Literature review	High
4. Alternatives/Cost-Effectiveness: Are there any more effective and efficient methods for achieving program objectives?				
4.3 Can any of the program activities be conducted at a lower cost?	-Difference between the cost of bike rentals with the Bikeshare program and the activities of other similar programs -Expert opinion	-Cost of bike rentals and memberships -Cost of transit passes -Expert	-Document review: Financial documents (i.e. budget, expenses) -Expert panel -Environmental scan	Medium

Planned Dissemination of Findings

Stakeholder Group	Possible Dissemination Methods	Rationale
•Director of evaluation, Evaluation Advisory Group and the City of Vancouver	•Evaluation report •Website •Presentation to the Director of Evaluation and the Advisory Group	•Evaluation requested
•Cycling/active transportation coalitions and health organizations	•Website •Presentations to interested coalitions and organizations	•To provide stakeholders with updates regarding progress and outcomes
•Actual and potential users (Vancouver residents, commuters, tourists)	•Website •Promotional materials (advertisement, newspapers, flyers)	•To increase awareness of the Bikeshare program , associated benefits, and usage

Challenges & Solutions

1. Accommodating diverse cultures and languages , as well as range of age groups and literacy levels in the evaluation tools.

- Create an app and online interface that has graphic components to minimize text, as well as language options.
- Utilize wide range of survey formats to accommodate different demographics.
- Ensure multi-cultural representation on the EAC and data analysis team.

Challenges & Solutions

2. Logistical challenges of working with a large number of diverse stakeholders.

- Utilize large-scale evaluation tools with a wide reach such as online surveys and social media apps.

Challenges & Solutions

3. Ensuring representation from urban and rural settings.

- Evaluation tools are available through a variety of media including online and via telephone to increase convenience of participation.

Additional considerations

- Ethics
  - Community ethics board
  - Anonymous and confidentiality

- Equity of access

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Thank you.
Merci de votre attention

EIM
Evaluation in Motion ➜ Moving your project forward

Gandhi's wise adage: 'first they ignore you, then they laugh at you, then they fight you, then you win'

Be it glacial, change is nonetheless inevitable.

Cars developed in 1885, were not in full use until 1907.

Soon, bikes will re-dominate the roads!

| Method	Strengths	Limitations
Survey	- Can get lots of data from all around the country in a short amount of time - Will add to our responses from before, increasing power - Many means of completion helps those with different disabilities - Done in same manner, evaluators have experience	- Low response rate - Those who are illiterate will not be able to complete - Participants may complete the wrong survey - Non Canadians could access survey
Photo Voice	- Fun - Lots of information in short time and space - Allows different perspectives to be taken - Appropriate for marginalized groups - Public database – can have people agreeing with others	- Recruitment may be slow and difficult - Cannot be used with the visually impaired - Limited to those with a camera, mobile device, computer, internet access - Public database may deter users

Method	Strengths	Limitations
Social Media Application	- Convenient - Organized - Recruits for Photovoice as participants go online to complete survey	- Limited to those with a mobile device, computer, internet access
Focus Groups	- More in depth information of user experience - More in depth than other methods - Inexpensive - Quick, easy	- Recruitment may be slow - Difficult to conduct across the country - Holding different focus groups for different populations is always a challenge

Method	Strengths	Limitations
Document and Literature Review	- Evaluators will have a better understanding of issues and concerns people with various disabilities face	- May be time consuming
Environmental Scan	- Can help evaluators to find "easy fixes"	- May be time consuming and difficult to conduct across Canada
Case Review	- Easily identifiable barriers	- Individual case reviews are not generalizable, putting them all together may not be feasible or relevant

New 2040 Target

By 2040, at least two-thirds of all trips will be made on foot, bike, or transit. The total number of trips by sustainable m will grow significantly, while motor vehicle volumes will slightly decline.

Collisions

Pedestrians 1% — Cyclists 1% — Motorcyclists 1% — Motor Vehicle Occupants 97%

Fatalities

Motorcyclists 9% — Cyclists 5% — Pedestrians 45% — Motor Vehicle Occupants 42%
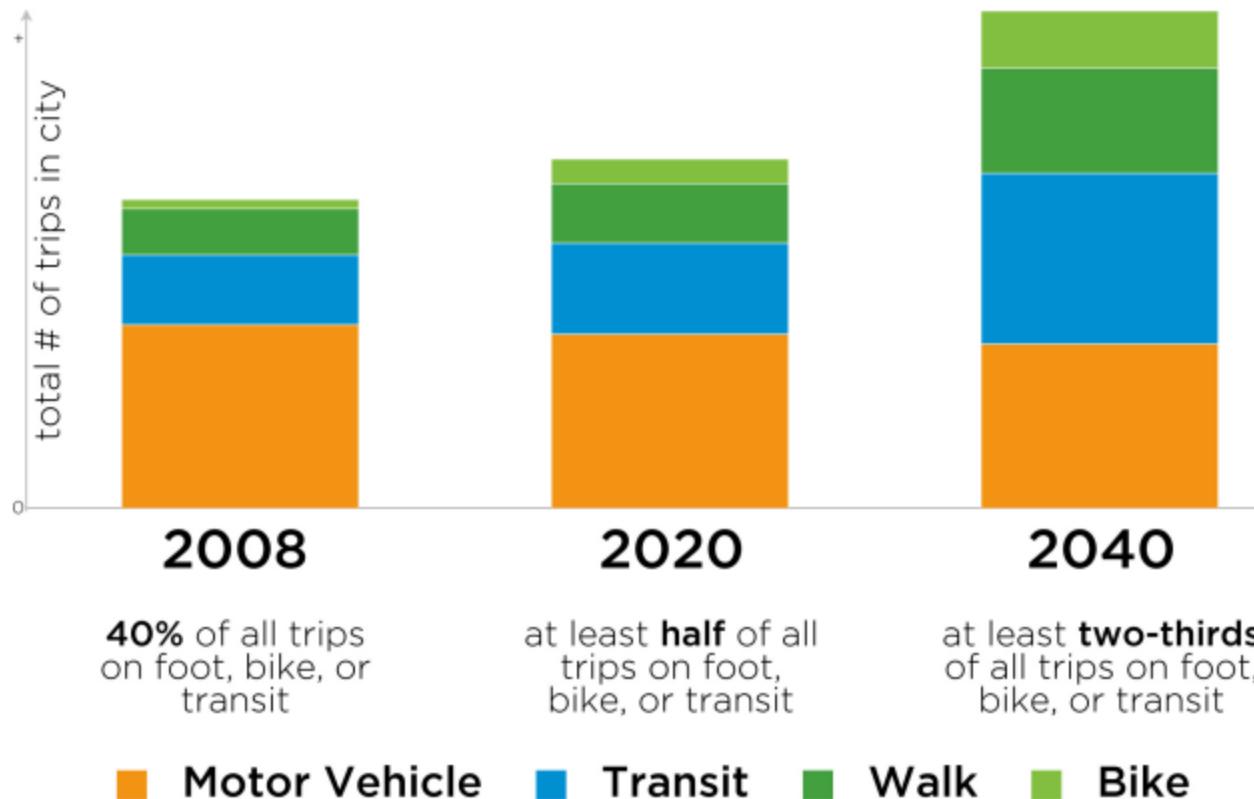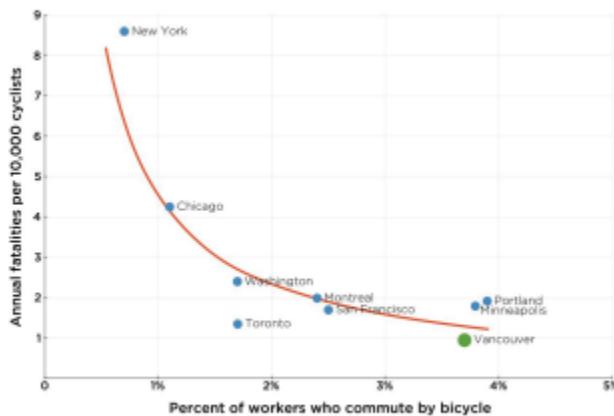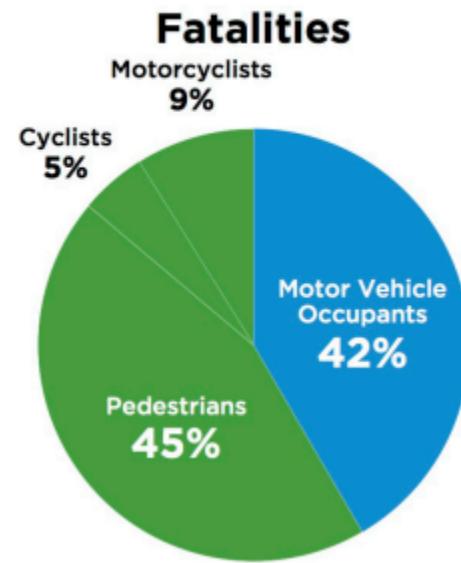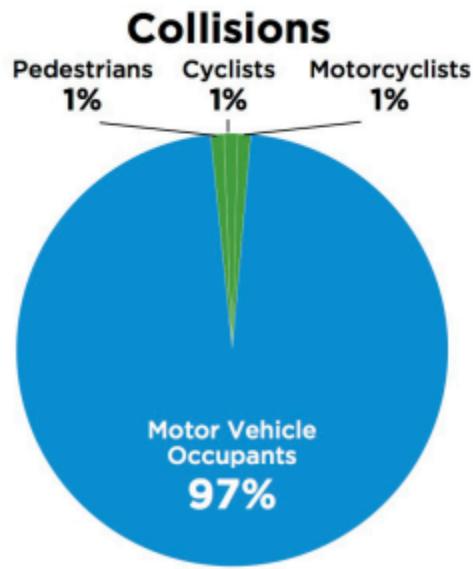
Source: Pucher, J. and Buehler R., "Analysis of Bicycling Trends and Policies in Large North American Cities: Lessons for New York", University Transportation Research Center, March 2011