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INTERACT FLASH REVIEW

BUS RAPID TRANSIT AND BUSINESS
CONSIDERATIONS

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Question

The City of Saskatoon has proposed the implementation of bus rapid transit (BRT) in Saskatoon and business owners requested research on how BRT or BRT-like transformations have impacted businesses in comparable cities, as documented in the literature. Therefore, the research question was as follows: How does BRT or BRT-like transformations impact local businesses and economic indicators?

Review of measures/methods

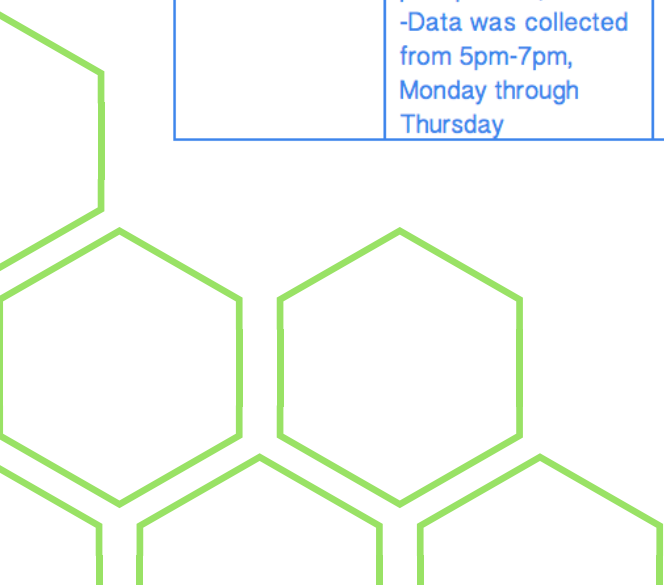
This flash review is not a comprehensive literature review but does capture the main themes that literature outlines. It is necessary to be made aware that research on travel mode and consumer behaviours, as well as the effects of BRT infrastructure implementation on local businesses, is nascent and, thus, remains limited in its scope and utility.

Table 1. Impact of BRT on local businesses and economic indicators

Reference (Author, year)	Measures/methods	Study Details	Findings	Applicability to INTERACT
(Clean Air Partnership, 2009)	<ul style="list-style-type: none">-Methodology based on 2006 research that quantified the relative importance of the various modes of transportation to business activity and the impact of road reallocation from on-street parking to wider sidewalks, in Prince Street, in New York City-The study took place over a two-week period, July 8 to 19, 2009	<ul style="list-style-type: none">Study Type: Surveys-Two surveys used: 1) ground floor merchants along Bloor Street between Spadina Ave. and Bathurst St., 2) pedestrians walking on Bloor St. between Spadina Ave. and Bathurst St.-61 out of 110 approached ground level businesses completed the survey-538 visitors/customers completed the survey	<ul style="list-style-type: none">-On Toronto's Bloor Street, pedestrians spend the most money (as defined by the greatest percentage spending more than \$100 per month), followed by bicyclists, then automobile drivers, and lastly, public transit users.	<ul style="list-style-type: none">-Information provided in this study may be useful, when compared to Clifton et al. 2009 study (below), to support research that suggests non-automotive travelers are competitive consumers.-However, it also indicates that public transit users spend the least when compared to pedestrians, cyclist, and automobile drivers.

Table 1 (continued).

<p>(Clifton, Kelly J., Christopher Devlin Muhs, Sara Morrissey, Tomás Morrissey, Kristina Marie Currans, and Chloe Ritter, 2013)</p>	<p>-89 Portland businesses, each location had information collected by, 1) Customer intercept surveys, 2) establishment information, including site-specific attributes such as gross square footage, number of employees, parking capacity, and other site design characteristics, and 3) archived information about the built environment.</p>	<p>Study Type: Empirical -This study examined travel choices and consumer spending across 89 businesses in the Portland metropolitan area</p>	<p>-Bicyclists, pedestrians and transit riders are competitive consumers -When trip frequency is accounted for, the average monthly expenditures by customer modes of travel demonstrate that bicyclists, transit users and pedestrians are competitive consumers and, for all businesses except supermarkets, spend more on average than those who drive -Store owners tend to overestimate the number of customers arriving by automobile</p>	<p>-Data reflects North America business and consumer behaviour in a Western U.S. city. This information may be generalizable to Canadian cities, but the population size of Portland is over double that of Saskatoon's population. -A large number of businesses were surveyed, which adds to the validity of the findings -This information may be applicable to Saskatoon businesses, specifically to provide them with information on consumer spending by mode choice</p>
<p>(Clifton, K., Christopher D. Muhs, Tomás Morrissey & Kristina M. Currans, 2016)</p>	<p>-5-minute travel intercept survey of customers' existing business establishments in Portland from June through early October 2011. -Data was only collected on days with favourable conditions (no precipitation) -Data was collected from 5pm-7pm, Monday through Thursday</p>	<p>Study Type: Survey -This study examined the relationship between mode of access, consumer spending and frequency of patronage at 78 businesses in Portland. -A total of 697 surveys were collected, however missing information</p>	<p>-Currently, there is little research evidence that confirms or supports the idea that shifting transport modes away from automobiles leads to decreased sales revenues for businesses. -Mode choice was not found to be a significant predictor of spending per trip</p>	<p>-More environmentally sustainable transportation, compared to the private automobile, are economically viable options</p>



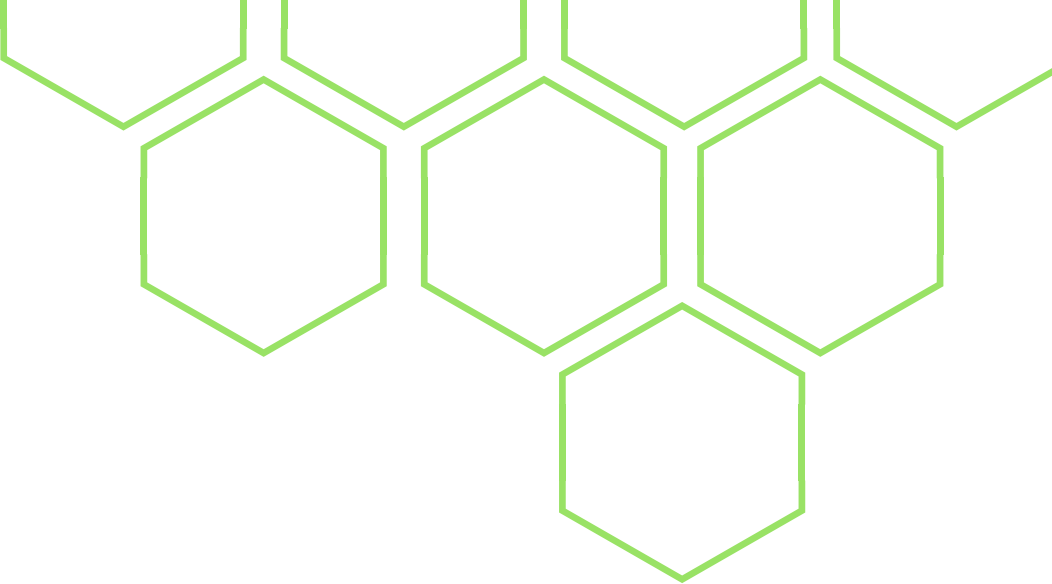


Table 1 (continued).

	<p>-Multiple regression models were estimated to investigate the factors influencing customer expenditures per trip</p>	<p>reduced the final number to 645. --Limited resources of the study, limited site to a) high-turnover (sit-down) restaurants (pizza and Mexican restaurants in this study), 2) convenience markets (24 hours), and 3) drinking revenues</p>	<p>-Non-automobile customers frequented businesses more often compared to automobile customers -Findings from this study do not support the idea that customers who arrive by automobile are more competitive consumers than those traveling by other modes</p>	
<p>(Ingvardson, J.B., and Nielsen, O.A. 2018)</p>	<p>-This review compared the effects obtained by 86 transit systems around the world, including BRT, Light Rail Transit (LRT), metro and heavy rail. -Analysis has two parts: 1) direct operational effects related to travel time, ridership, and modal shift, and 2) the indirect strategic effects in terms of effects on property values and urban development</p>	<p>Study Type: An international review of the literature -Comparative study of the effects of BRT and rail rapid transit implementation and modifications across countries by reviewing current literature</p>	<p>-BRT can attract any passengers if travel time reductions are significantly high - Studies of the impacts of BRT on property values have demonstrated varying results, ranging from +0-30% - In Ottawa, significant urban development occurred in concert with the implementation of BRT. The economic effects of this approach to urban development was assessed to be worth \$675 million.</p>	<p>-Reduction to travel time due to BRT development can attract new passengers to the public transit system -BRT has been shown to increase nearby property values, although this data was not collected in Canadian cities -BRT may act as a catalyst for urban development and economic value creation</p>

Table 1 (continued).

(Rodriguez, D.A., and Targa, F., 2004)	<ul style="list-style-type: none"> -This study quantitatively analyzed the effects of Bogota, Columbia's Transmilenio BRT system on residential property values within a 10-minute walking proximity to trunk stations and feeder lines of the system -Multiple regression analysis through a hedonic model was used to estimate the effects of accessibility to Transmilenio. -Department of Housing Control (DHC) database was use for this study with 2000-2004 data 	<p>Study Type: Quantitate Analysis</p> <ul style="list-style-type: none"> -The total amount of observations registered by the DHC database was 130, 692 housing units -The population of Bogota, in 2004, was estimated at 6.9 million persons 	<ul style="list-style-type: none"> -The research conducted in Bogota, Columbia, suggests that properties located 5 minutes closer to BRT stations have a premium between 6.8% and 9.3% in the asking rental price - Regular buses have no, or very little, impact on land development. BRT may have an impact if planning is enthusiastically pursued, LRT has a distinct advantage due to its greater permanence and physical presence of rail and separated right of way 	<ul style="list-style-type: none"> -Research indicates that the housing market places a premium on properties that are within an immediate walking proximity to feeder lines of the BRT. This may have implications for Saskatoon properties that are along the proposed BRT lines and may be a selling feature of houses in those areas
(Stokenberga, A., 2014)	<ul style="list-style-type: none"> -Specific review methodology is not outlined in the article -The article provides information on the following: <ul style="list-style-type: none"> -Review of BRT-focused research globally, specifically the technical and operational performance metrics -Further, theoretical assumptions and methodologies underlying current research which tries to quantitatively model land-use and/or property value impact of BRT proximity are assessed -Concluding, this paper provides a summary of both quantitative and qualitative evidence that the reviewed studies provide 	<p>Study Type: Review of the Literature</p> <ul style="list-style-type: none"> -Literature review was conducted to examine methodologies, underlying theories, and findings in academic studies on BRT land-use and price impacts, with focus on Latin American and Asian systems 	<ul style="list-style-type: none"> -Quantitative studies from Latin America and Asian cities have identified somewhat higher BRT property premiums compared to studies focused in the USA. -Housing cost premiums are more likely to be reported in strong markets, around transit stations that are walkable, mixed-use, and pedestrian-oriented -Qualitative case studies from the USA and Canada suggest that the BRT has played an important role in inducing real estate development and transit oriented development 	<ul style="list-style-type: none"> -BRT-related housing premiums are more likely to occur in strong housing markets, with mix-land use development -Based on findings from other cities, Saskatoon can anticipate housing premiums near the BRT and transit oriented development if BRT is implemented

Table 1 (continued).

(Zhang, M., 2009).	-Meta-analysis conducted using a simple normalization approach in which bus mode was used as the reference mode and the statistics associated with other transit modes are normalized based on the corresponding statistics related to bus	Study Type: Meta-analysis -The study aims to provide a balanced view of bus versus rail transport -Adds to the discussion on bus versus rail-based mass transit, by looking at costs, operational characteristics, and land use impacts	-Data from Rodriguez and Targa's study demonstrates that a premium of US\$0.05/m ² existed for every meter closer the property was to the BRT station	-Residential property premiums may be an outcome of BRT transformations when properties are located near to BRT stations
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Conclusion

Although research on the impacts of BRT on local businesses is still emerging, the literature provides insight into consumer spending behavior by mode choice, property value and rental price information, and land and redevelopment outcomes. Initial research, from various cities, provides local Saskatoon businesses with examples of the impact that BRT has had on other cities. These other cities, where research studies have been conducted, may or may not be comparable to Saskatoon. Therefore, it should be recognized that this area of research is still in its infancy and that the generalizability of research findings across geographic locations must still be tested.

Areas of Future Study

1. Impact of infrastructure construction time on local businesses: The available literature does not provide examples of construction time for BRT infrastructure requirements and its short-term effects on local businesses.

2. Mid-sized Canadian research on BRT impact(s) on local businesses: Due to the limited amount of research available on the economic effects of BRT implementation and infrastructure on local businesses, particularly for mid-size cities, Saskatoon is in a unique position to lead the way for quality data collection, analysis, and dissemination on this topic if a BRT system is implemented in Saskatoon. Specifically, collecting data from local businesses before and after BRT implementation can serve as a local economic impact assessment.

Research limitations and challenges

This flash review was not developed based on a systematic literature review. It captures the key evidence on business impact but does not claim to provide all the relevant information on this subject matter. Quality research, from comparable cities to Saskatoon, on this topic is sparse. Additionally, available research is often over 10 years old.

References

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