Vancouver Separated Bike Lane Business Impact Study

Prepared for:

Vancouver Economic Development Commission
City of Vancouver
Downtown Vancouver Association
Downtown Vancouver Business Improvement Association
The Vancouver Board of Trade

Prepared By:

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One Team. Infinite Solutions.

Executive Summary

Introduction

To support the goals of the City of Vancouver's present long-term transportation plan (adopted in 1997) to increase cycling mode share, two separated two-way bike lanes trials were constructed in Vancouver's downtown core in 2010. The first, completed in June 2010, was built along the north side of Dunsmuir St. from the Dunsmuir Viaduct to Hornby St. The second was completed in December 2010 and was built along the length of the east side of Hornby St., as well as on short sections of Drake, Burrard, and West Hastings Streets. To implement the separated bike lanes, road space was reallocated, parking spaces were moved or eliminated, the illegal use of some loading zones was eliminated, and turning restrictions were introduced.

Upon completion of the separated bike lanes, some downtown businesses expressed concerns that the lanes and the changes in the use of road space had resulted in negative business impacts. In October 2010, prior to the installation of the bike lanes on Hornby, the City of Vancouver committed to conducting a business impact study. In response, the City of Vancouver, the Vancouver Economic Development Commission, The Vancouver Board of Trade, the Downtown Vancouver Business Improvement Association, and the Downtown Vancouver Association came together to hire Stantec Consulting, Ltd. to measure the business impacts of the separated bike lanes and to develop mitigation strategies to address potential negative business impacts in identified „hot spot' blocks. **This is the first-ever such study in North America, and perhaps the world, that has focused on identifying the local business impacts of separated bike lanes. Not only has the study provided an estimate of the business impact, it has developed recommendations to mitigate the negative impacts to the business community and detailed the lessons learned in order to guide future studies of this nature.**

Economic Context

The study focused on collecting basic business economic data on rents, sales, vacancy and lease rates that would indicate the impact of the separated bike lanes, as well as data on the frequency of shopping visits by downtown or Metro Vancouver customers after the implementation of the separated bike lanes. This data was collected in the second quarter of 2011. Other policy changes at all levels of government that have impacted the downtown retail environment include:

- The 2008-2009 national economic downturn;
- Increased parking rates due to the introduction of the harmonized sales tax (HST) in July 2010 and the 14% tax increase for off-street paid parking implemented by TransLink;
- Road closures and access changes due to the 2010 Winter Olympics;
- The opening of the Canada Line rapid transit system in August 2009;
- The fuel tax increase of January 2010;
- Downtown construction that has altered traffic patterns;
- Filming activity in the downtown core;
- The re-introduction of buses on Granville St.; and
- Stricter impaired driving rules.

Methodology

The original intention was to collect as much detailed, authoritative financial data as possible. With the notable exception of four businesses, this proved impossible despite the best efforts of an experienced consulting team. Accordingly, business impacts were determined based on a systematic approach using six separate stakeholder surveys of business owners and managers, customers, and employees on the bike lane corridors and on adjacent comparator corridors (Howe St. for Hornby St. and West Georgia St. for Dunsmuir St.) in order to isolate the impacts caused solely by the separated bike lanes.

The survey was sufficiently detailed geographically to enable the most impacted blocks to be identified, as well as to address specific problems with regard to the removal of parking, loss of illegal loading zones, reduced pedestrian access and visibility, potential cyclist/vehicle conflict/safety issues, and restricted turns at intersections. Detailed studies were completed of the impacted blocks and specific mitigations strategies were recommended to alleviate these conditions. In addition, broader recommendations related to the planning, consultation, implementation and monitoring of the lanes were developed from best practices in other jurisdictions and from the combined expertise brought by the project team members. Finally, based on all of the above, a summary list of lessons learned was created.

Limitations

There are a number of limitations in this study, which include the following:

i) To respond promptly to the business concerns about the impact of the separated bike lanes, this study was completed over two months. Therefore, the results should be viewed as the preliminary and short-term business impacts. As with any major infrastructure change in a city there is normally an adjustment period, so it may take years for the business impacts to become clear and definitive. Impacts may continue to be felt in the coming months but will likely decline as the City takes steps to mitigate the blocks where the impacts are greatest. This process has already been started, with City representatives meeting these businesses to address impact issues, and the City has indicated that it is committed to monitoring and working to mitigate the impacts. The study identified that the Hornby St. bike lanes, in place for six months at the time of the survey, had greater business impacts than those on Dunsmuir St., in place about a year at the time of the survey. This may be due to the fact that the business make-up of the two streets is quite different, with a much larger amount of retail space on Hornby St.

ii) The analysis of the business impacts of the separated bike lanes had to rely on individual responses of businesses to the surveys and their best estimates of the impacts of the separated bike lanes in the surveys. This information may have some response bias, as there is a greater tendency for those who were more affected by the separated bike lanes to respond to a self-administered survey. Despite efforts to increase response with follow-up telephone calls, there is some degree of uncertainty about the randomness of the results obtained. As well, very little detailed sales data from businesses was received. Although the data that was collected indicated that the estimated loss in sales was not as high as reported in the surveys, the responses by businesses have been taken at their word. Perception in the business market does impact the attractiveness of an area to retailers.

iii) Detailed data for stores and blocks could not be put into the final report in order to ensure survey respondent confidentiality.

iv) The study is limited to quantifying the business impacts of the separated bike lanes and does not measure the macroeconomic or other related impacts of the separated bike lanes (e.g. the

implications on the health of residents and employees). Transportation metrics will be addressed in a City staff report to Council in July 2011.

Estimates of Economic Impacts on Businesses

Grade-level Businesses Survey: The main source of useful business data for this study was this survey. An analysis of responses received from 32% of the survey area businesses revealed the following:

- In 2011, the total percentage change in annual sales from the previous year as indicated by survey respondents was:

A:	Hornby St.	-11%
B:	Howe St. (comparator to Hornby St.)	-1%
C:	Dunsmuir St.	-2%
D:	West Georgia St. (comparator to Dunsmuir St.)	2%
E:	Other locations impacted by bike lanes	2%
	Average of all locations	-5%

- In 2011, the net impact on sales that was attributed to the bike lanes (calculated as the bike lane streets' annual sales change minus the annual sales change along the comparator streets) among those who responded was:

  Hornby St.: -10% (Difference between A and B above)
  Dunsmuir St.: -4% (Difference between C and D above)

  These numbers represent the high end of the range of business impacts and have been used to estimate the overall business impacts. Despite the use of comparator lanes to eliminate the impact of the numerous policy changes identified in the Economic Context section above, there may still be some residual impact from these factors in the data.
- The business impacts on the bike lane side of both streets were greater than the impacts on the side without the lanes.
- The largest sales declines reported by respondents on Hornby St. between 2010 and 2011 were experienced along the 500, 600, 900 and 1000 blocks, while on Dunsmuir St. the 600 block noted the greatest decline.
- The financial impact of the bike lanes has been a loss of sales and a loss of profit. The total loss in sales is estimated at $2.4 million over a year. Assuming profit is approximately 20% of sales, the estimated annual loss in profit over a year would be about $480,000. This is relatively moderate based on industry standards and, in general, insufficient to create persistent vacancies. The downtown is and will remain vibrant and the moderate negative impact of the lanes will diminish over time as long as mitigation strategies take effect.

Commercial Property Owners and Property Managers Survey: The responses from 30% of property owners and managers in the survey area indicated little difference in reported impacts between streets with separated bike lanes and comparator streets:

- Separated bike lanes were associated with an estimated loss of sales in the range 6-9% on both streets with separated bike lanes and comparator streets
- Parking tax changes and the HST were associated with an estimated loss of sales of between 9% and 11% on both streets with separated bike lanes and comparator streets

- 2011 vacancy rates were about the same on Dunsmuir Street and its comparator, West Georgia Street. Vacancy rates dropped on Hornby Street during 2011, while rising on its comparator, Howe Street

Customer Exit Survey: The analysis of a random sidewalk survey of 768 customers exiting businesses on Dunsmuir and Hornby Streets revealed the following:

- 79% of respondents on Dunsmuir St. and 76% of respondents on Hornby St. had not changed their shopping patterns as a result of the separated bike lanes. Of those who *had* changed their shopping patterns, the net change (% shopping more minus % shopping less) reported was 11% shopping less on Hornby St. and 3% shopping less on Dunsmuir St.
- Factors that led to shopping less included increased traffic congestion, less parking, turning restrictions, and reduced pedestrian safety.
- Factors that led to shopping more included easier bike access, a safer environment for cyclists, a more pleasant environment for cyclists and pedestrians, and easier access.
- 20% of customers on Hornby and Dunsmuir Streets arrived by automobile, compared with 42% by public transit, 32% on foot, and about 8% by bike. Among automobile drivers, the group most likely to be affected by the changes road use and traffic patterns for the separated bike lanes, 60% had not changed their habits, while 34% were shopping less often and 1% shopping more often.

Metro Vancouver Omnibus Survey: An analysis of the responses from 500 Metro Vancouver residents indicated:

- A large majority of residents (80%) in Metro Vancouver are aware of the separated bike lanes and have not changed their shopping habits on Hornby or Dunsmuir Streets since their construction. A net number (percentage shopping less often minus percentage shopping more often) of 10% of all respondents are shopping less often on Hornby and Dunsmuir. The main reasons given for shopping less often were traffic congestion and a lack of parking, while the principal reason given for shopping more often was a pleasant environment.

Upper Level Tenant Survey: An analysis of a sample of employees working in four buildings, two on the separated bike lanes corridors and two on the comparator off bike lane streets indicated the following:

- Of the employees located on the lanes who responded to the survey, 59% disliked the bike lanes while 20% liked the bike lanes. Meanwhile, 39% of employees located in buildings a block away also disliked the lanes, as opposed to 31% who liked the lanes. The reasons given for disliking the bike lanes are that they have increased the overall commute time and/or reduced ease of access to the building.

Congestion

Some of the survey respondents indicated that they had experienced increased traffic congestion and lengthened travel times downtown due to the separated bike lanes on Dunsmuir and Hornby, and due to the turning restrictions implemented at the time of construction. Travel time studies on Hornby St. by the City of Vancouver have indicated that these delays average about 30 seconds north of West Pender St.,

and the City will continue to monitor and make adjustments to resolve delays. The City will also report on congestion in the broader analysis that will be presented to Council in July 2011.

Analysis of Hot Spots

The study identified „hot spots', or those blocks along the on-lane corridors where the business impacts of the separated bike lanes were negative due to one or more effects from the following factors: loss of parking; reduced visibility; restrictions in turning at specific intersections; reduced access to loading zones; and more difficult pedestrian access. The hot spot blocks, the specific issues identified and the recommended mitigation strategies are listed below:

400 Block of Hornby: The issues are lost parking spaces, reduced access due to new turning restrictions and potential conflicts of cyclists with motorists exiting laneways. The recommended **mitigation strategies** involved creating directional signage to the closest parking structures, allowing right turns on red when turning from Hornby St. northbound east onto West Pender St., and installing caution signs for cyclists to warn of vehicles exiting laneways. The block might be a candidate for a design that allows for seasonal variation by installing flexible reflective poles to delineate the lane marker separating the curb lane from the centre lane. Another option would be to use automatic bollards that can be raised and lowered to establish a separated bike lane when necessary.
500 Block of Hornby: The issues are loss of parking as well as vehicle safety in crossing bike lanes to access and exit from parking garages and laneways. The **mitigation strategies** recommended are to allocate parking in the ground level of the nearest parking structure to local businesses and to install warning lights and mirrors to prevent accidents when vehicles cross bike lanes to enter traffic. As well, the ability to make right turns off Dunsmuir St. onto Hornby St. should be restored, which would also allow drivers to more easily access the large parking garages on this block. This also applies to Seymour St., where right turns off Dunsmuir St. should also be restored.
600 Block of Hornby: The main issues are a loss of parking along with turning restrictions at intersections. The **mitigation strategy** recommended is to provide additional signage on Hornby St. that will direct customers to the nearest parking structure, combined with a parking space counting system that informs them of the remaining number of spaces available.
1000 Block of Hornby: The main issues are a loss of parking and changing vehicle access, as no right turns are permitted for vehicles from Helmcken St. onto Hornby St. The recommended **mitigation strategy** is to provide additional signage to direct customers to the nearest parking structure.
600 Block of Dunsmuir: The issues are a lack of nearby on-street parking (a situation which existed before the bike lanes were implemented) and an inability for vehicles to make right turns from Dunsmuir St. onto Seymour St. The **mitigation strategies** recommended are to allocate businesses designated parking spots in the nearest parking structure, to more clearly identify the loading zone on the south side of the street by introducing painted markings on the asphalt, and to allow right turns onto Seymour St.

Lessons Learned and Recommendations

Based on comments from interviews, workshops and other business interviews, the following lessons learned are provided:

- With increased demands for the use of limited road and sidewalk space by many parties, it is recommended that the City aggressively and creatively pursue opportunities to be flexible in the use

of the public realm, allocating scare space to different uses according to the demand at different times of the day (i.e., peak and non-peak hours), different days of the week (weekdays and weekends) and different times of the year. For example, the City could examine the use of automatic bollards that can be raised and lowered to establish a separated bike lane when necessary. Other cities have installed these bollards to allow road space to be used flexibly for parking, loading zones and vehicle movement, and they could be an important mechanism to deploy in the context of bike lanes.

- More extensive consultation should be conducted in groups and on a one-to-one basis with potential impacted parties before and after implementation of traffic changes, including an explanation of the reasons for these measures. When the overarching goals of changes to transportation infrastructure are better understood, it forms the basis for a better discussion on issues that directly impact businesses. Sufficient time should be permitted between phases of the consultation for stakeholders to digest the information provided by the City, to provide their responses and to flag issues for potential mitigation.
- A regular monitoring program should be established by the City for future cycling lanes or other similar significant changes that reallocate road space (e.g. transit priority lanes for buses, creation of new pedestrian malls, wider sidewalks, streetcar tracks, or light rail transit). The program would have assigned responsibility, budget and reporting mechanisms to monitor traffic, business and other impacts in the immediately impacted corridors and nearby streets. These potential impacts would include changes in sales, vacancy rates, lease rates, and rents. The City should work with the private sector to establish appropriate capitalization rates to gauge the long-term impacts of separated bike lanes and other changes.
- Where specific business impacts from transportation changes are identified, the City should move quickly to meet with the businesses that have been particularly impacted, or that are located in hot spot blocks, in order to mitigate sales losses, lower revenue from rents, and increased vacancies.
- A Downtown Business Transportation Advisory Committee should be formed to keep the downtown business community informed on local transportation issues and to address any current transportation-related problems. Participants would represent their respective business organizations, which could include The Vancouver Board of Trade, Downtown Vancouver Business Improvement Association, the Downtown Vancouver Association, the Gastown Business Improvement Association, the West End Business Improvement Association, the Robson Street Business Association, and the Canadian Federation of Independent Businesses (on major downtown transportation issues).
- Greater time and budget for future studies of this type should be provided to enable a greater refinement of the business databases to ensure greater coverage, to obtain more complete contact information, and to have an enhanced ability to accommodate alternative languages.
- In the future, demand for road space will only increase, not only for vehicles but for pedestrians, transit, cyclists and for the creation of new pedestrian spaces. These are important issues which should be addressed in the City's development of its new Transportation Plan.

The approaches below are recommended to help minimize negative impacts and maximize the positive effects of future changes in the use of road space by the City of Vancouver. Some of these approaches are already used by the City, but they deserve increased attention.

Minimize negative impacts:

- Monitor changes in traffic flow and make changes based on any issues that arise

- Create a list of potential hot spots in coordination with businesses and work out mitigation strategies well before construction through detailed consultation including one-on-one meetings and workshops with businesses, in order to resolve any potential business issues
- Have a targeted safety education campaign ready to implement in the weeks after completion of the separated bike lanes, or other major facilities
- Consider the parking, visibility, loading zone and access needs of businesses block-by-block in undertaking consultation/communication programs
- Closely monitor safety in the period after construction, looking out for pedestrian/cyclist/motorist near misses in order to modify signage, turn signals, etc., with targeted safety education campaigns ready in advance if needed
- Provide a phone number or email address to leave messages about bike lane issue

Maximize positive effects:

- Create joint marketing and promotional events to connect cyclists and business along routes prior to and after construction
- Create bike parking and bike rental stations along separated bike lane routes
- Budget for some beautification and enhancement of streets where bike lanes will be constructed
- Budget for street branding and banners to promote bike lane streets as destinations in cases where lanes are on retail corridors
- Work with private parking companies to implement a linked electronic vehicle count and information system that indicates how full each parking garage is, and if at capacity, shows where other parking facilities with vacancies are located
- Relax by-laws on bike lane streets to allow, for example, larger advertising signage, more outdoor seating, or reduced onsite parking requirements to help businesses attract customers and ease the transition from the start of construction through the post-construction adjustment period, with the option to make some changes permanent

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1.0 Introduction

In 2010, to support the goals of its transportation plan to increase cycling mode share, the City of Vancouver implemented two separated two-way bike lanes – one on Dunsmuir St. in June 2010 and a second route along Hornby St. in December 2010 (Fig. 1) (see Appendix M for additional details). To construct the separated bike lanes, road space was reallocated and a total of 172 parking spaces were removed (156 from Hornby St. and 16 from Dunsmuir St.). Some loading zones were moved and turn restrictions were introduced in five locations to reduce the risk of bicycle collisions, some parking was removed, the illegal use of some loading areas was eliminated, and pedestrians at some locations now must cross bike lanes.

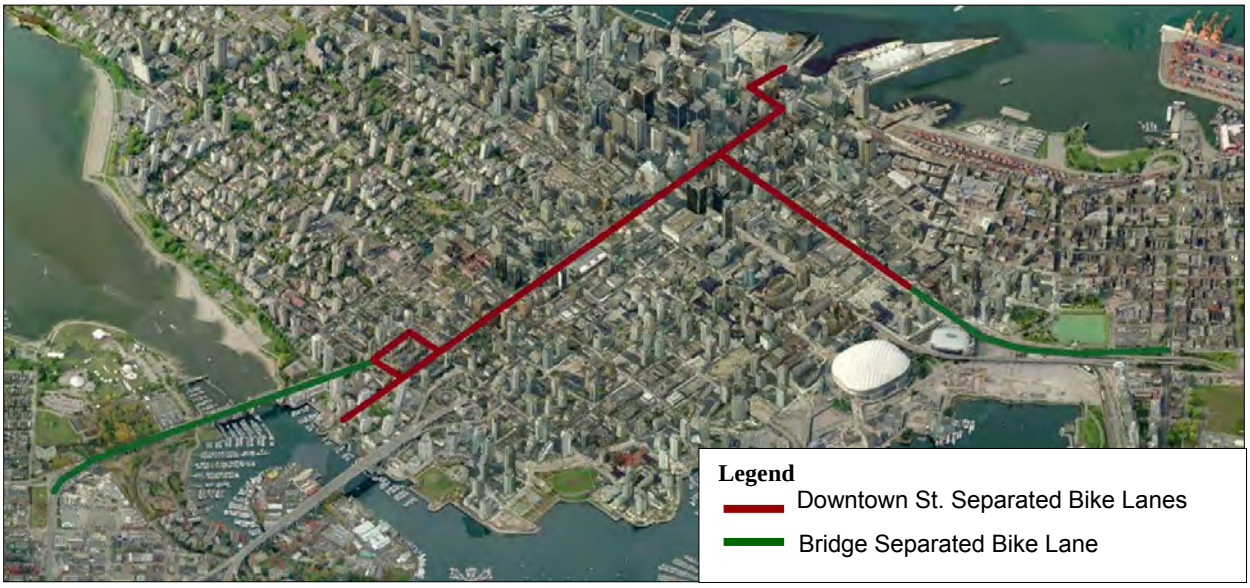


Figure 1: Map of Downtown Street and Bridge Separated Bike Lanes

With the installation of the separated bike lanes, a permeable barrier has been created between vehicles and grade-level businesses. Thus, some businesses have expressed concern that the separated bike lanes are leading to reduced visits from customers both who walk to their businesses or drive and park. In response, the City of Vancouver, Vancouver Economic Development Commission, The Vancouver Board of Trade, Downtown Vancouver Business Improvement Association, and Downtown Vancouver Association have come together and initiated a study that examines the business impact of the separated bike lanes. The consulting team of Stantec Consulting, Site Economics Ltd and Mustel Research completed the study between May and June of 2011.

1.1 STUDY PURPOSE

This study measures and quantifies the business impacts of the separated bike lanes on a variety of business types situated along the separated bike lanes, as well as on intersecting streets where new

turning restrictions have been introduced (e.g. hotels, restaurants, services, etc.). As well, the changes in commercial/retail occupancy levels, sales and lease rates that have resulted from the establishment of the separated bike lanes and the business impacts of implementing turn restrictions to accommodate the bike lanes are quantified.

In addition, mitigation strategies have been assessed to determine how they might be applied to “hot spot” blocks that have seen the greatest estimated business impacts. The purpose of the mitigation strategies is to address the negative impacts as well as maximize business opportunities related to reallocating road space (e.g. traffic lanes, parking, and loading areas) to alternative transportation modes such as cycling, walking, and public transit. These strategies have been further supplemented by suggestions made by the study’s stakeholders in telephone interviews with the consultant (i.e., impacted businesses and property owners).

While previous studies have looked at the overall potential impact of separated bike lanes on business or estimated the general economic benefits that enhanced cycling, pedestrian, or transit infrastructure can have, this study is unique in that it focuses on estimating the actual business impact of separated bike lanes. This research will form part of a broader analysis of the separated bike lanes and related issues that the City of Vancouver is examining and will be reporting to City Council in July 2011. The results of this study will be taken into consideration alongside other related studies. For example, the Insurance Corporation of British Columbia (ICBC) is undertaking an independent study on the impact of the separated bike lanes on traffic collisions, and the City of Vancouver will examine the potential trade-offs involved in the strategies recommended by this study and by its broader analysis. **This is the first-ever study in North America, and perhaps the world, that has focused on identifying the direct business impacts of introducing separated bike lanes.**

It should be noted that this study is limited to quantifying the business impacts of the separated bike lanes. It does not measure the macroeconomic or other related impacts of the separated bike lanes, which include the implications on the health of residents and employees, the health of the environment, and the City’s image and international reputation. Some of these issues have been raised by stakeholders in their survey and e-mail comments, which are summarized in the Appendices, and will be considered in the City of Vancouver broader assessment of the separated bike lanes report at council in July 2011.

The results of this study survey only the preliminary impacts of and attitudes toward the separated bike lanes among respondents within a few months of their introduction and only provide an estimate of the longer-term benefits and costs at one point in time. There has been insufficient time for the leasing and tenant market to react and even store sales records do not represent a full year. If the separated bike lanes remain in place, without adjustments, it is important to state that the longer-term business impacts (negative and positive) will require further longer-term monitoring and further consultation with impacted stakeholders.

1.2 BACKGROUND ON SEPARATED BIKE LANES

There has been a trend in cities throughout the world in recent years to increase investment in public transit, pedestrian, and cycling networks for a variety of reasons: to encourage higher levels of physical activity; to reduce environmental pollution; to reduce traffic congestion; to lower spending on roads; to

reduce noise levels; to enhance mobility; and to attract more economic activity. An increasing number of cities in the world have also reallocated existing road space to build and integrate these networks and make streets more amenable and attractive to pedestrians, cyclists, and public transit users by creating wider sidewalks, pedestrian-only malls, and separated bike lanes, transit priority lanes for buses and tracks for streetcars or light rail transit (LRT) services (see Appendix M for more details).

Looking specifically at cycling infrastructure, many cities have developed or are now in the process of installing separated bike lanes to make cyclists feel safer and use their bicycles for more trips. Examples of completed separated bike lanes can be found in New York, Montréal, Portland, Oregon, San Francisco, Chicago, Long Beach, California, as well as the Australian cities of Melbourne and Sydney (see Appendix N for more details). In Canada, Ottawa is now constructing a separated bike lane on Laurier Avenue, while Toronto has plans to develop a series of separated bike lanes. Research on separated lanes has shown that separated lanes increase cycling activity while providing a greater degree of safety from collisions with automobiles.

While the above cities have not yet quantified the business impacts specifically attributed to the separated bike lanes, there has been research into the overall benefits of their bicycle networks. For example, Portland's bicycle network is estimated to bring $1.2 billion (USD) of economic benefits to the region, $800 million of which will circulate within the local economy. Also, independent research in 2010 quantified the economic benefits of the proposed Inner Sydney Regional Bike Network as delivering a net economic benefit over 30 years of $3.88 for every dollar spent.[1]

1.3 METHODOLOGY

Due to the lack of economic information on the separated bike lane corridors prior to their installation, the business impacts of the separated bike lanes had to be determined by surveying stakeholders (i.e., businesses, property owners, employees, and customers). In total, six surveys were conducted – two on-site surveys, one telephone survey, one web survey, and two paper/web surveys.[2]

The section below describes the survey process.

- Most of the key business impact data was collected by surveying grade-level businesses and owners/managers of commercial properties located along the directly impacted Streets. These stakeholders were given the option to complete the survey online, on paper, or by telephone. To encourage participation and where possible, the surveys were hand-delivered to the potential participants, and follow-ups were made by the survey firm and by members of the business groups who sponsored this work. This included two sets of e-mail notifications that were sent to members of the Downtown Vancouver Business Improvement Association, Downtown Vancouver Association, and The Vancouver Board of Trade encouraging impacted businesses and stakeholders to participate in the surveys. In addition, several iterations of telephone reminders were also conducted by the survey firm, where businesses/property owners were given the opportunity to complete the survey online or on the telephone.
- Follow-up personal interviews were also conducted with those businesses that reported more significant negative business impacts, as well as a balanced representative sample of all

[1] Geller, R. (2010). "Becoming a cycling city: Lessons from Portland". *City of Sydney*. Accessed on June 6, 2011 from http://www.cityofsydney.nsw.gov.au/AboutSydney/ParkingAndTransport/Cycling/LessonsFromPortland.asp (Pg. 33)
[2] See Appendices for detailed survey questions

categories of businesses. To help verify the survey responses, these businesses were also encouraged to provide more detailed financial information (e.g. monthly sales).

- The above data was further supplemented by a customer intercept survey that randomly selected customers who were in or near the businesses along the study corridors. These surveys provided more insights into customers' travel habits and perceptions within the affected areas and helped validate the information provided by the businesses.[3]
- As well, the study included several questions about the separated bike lanes within the Metro Vancouver OMNIBUS telephone survey as a way to access people who no longer shop within the affected areas. This survey randomly selected residents who live anywhere within Metro Vancouver.
- In addition, the employees of upper floor tenants on the subject corridors were surveyed in a sample of buildings that represented smaller (10 stories and below) and larger (above 10 stories) buildings. This was done to assess any impact of office workers in the central business district.
- Lastly, an online survey was developed to collect additional feedback from other customers and employees of the affected corridors. To encourage participation in this survey, the Vancouver Economic Development Commission and the City of Vancouver promoted the survey through the social media tool Twitter. Anyone who lived in Metro Vancouver could respond to this survey, but only a single time.

After collecting and analyzing business data within the directly impacted areas, a grade-level business survey, upper floor tenants employee survey, and property owner/manager survey were also conducted for comparator corridors: Howe St. was used as a comparator for Hornby St. and West Georgia St. as a comparator for Dunsmuir St. The goal was to isolate the impact that other factors may have had on business activity before and after the implementation of the separated bike lanes. These factors included:

- The 2008-2009 economic downturn in Canada;
- Increased parking rates due to the introduction of the harmonized sales tax (HST) in July 2010 and the 14% tax increase for off-street paid parking implemented by TransLink;
- Road closures and access changes due to the 2010 Winter Olympics;
- The opening of the Canada Line rapid transit system in August 2009;
- The fuel tax increase of January 2010[4];
- Downtown construction that has affected traffic patterns;
- Filming activity in the downtown core;
- The re-introduction of buses on Granville St.; and
- Stricter impaired driving rules.

By using a methodology that included comparator streets, an attempt was made to eliminate the impact of these other key factors impacting businesses. However, despite this attempt, there may still be some residual impact included in the responses provided by businesses and property owners along the Dunsmuir and Hornby corridors. The Metro Vancouver area experienced a significant economic downturn

[3] Previous studies in Graz, Austria and Bristol, United Kingdom, that surveyed retailers and customers have found that retailers significantly overestimated the importance of the car and availability of parking, and the percentage of customers traveling by car.
[4] In January, 2010 the fuel tax levied by TransLink increased from 12 cents to 15 cents per litre, resulting in an increase of the total provincial motor fuel tax from 23.5 cents to 24 cents per litre. Source: http://www.sbr.gov.bc.ca/documents_library/notices/Notice_of_Fuel_Tax_Changes_and_Inventory_Requirements.pdf

in the 2008 to 2010 period, with some recovery beginning in 2010 and 2011, as evidenced by the data in Figures 2 to 4, showing real GNP change, retail sales, and cruise ship visits to Vancouver.

Howe and West Georgia Streets were selected as they were similar to Hornby and Dunsmuir in terms of level of business activity, location within the downtown core, and length of corridor.

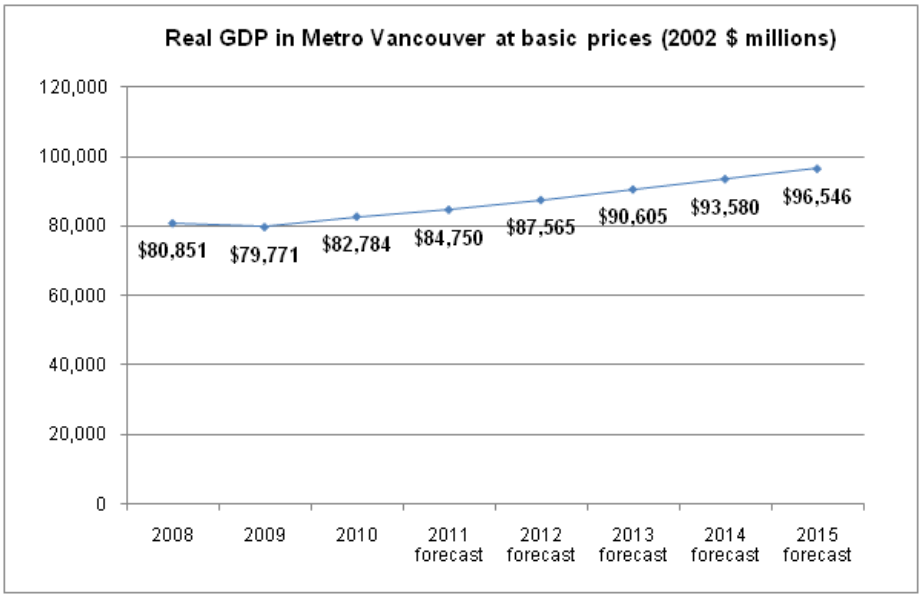


Figure 2 - Real GDP in Metro Vancouver, 2008 to 2015

Source: Conference Board of Canada - Spring 2011 Outlook

Figure 3 - Retail Sales in Metro Vancouver, 2008 to 2015

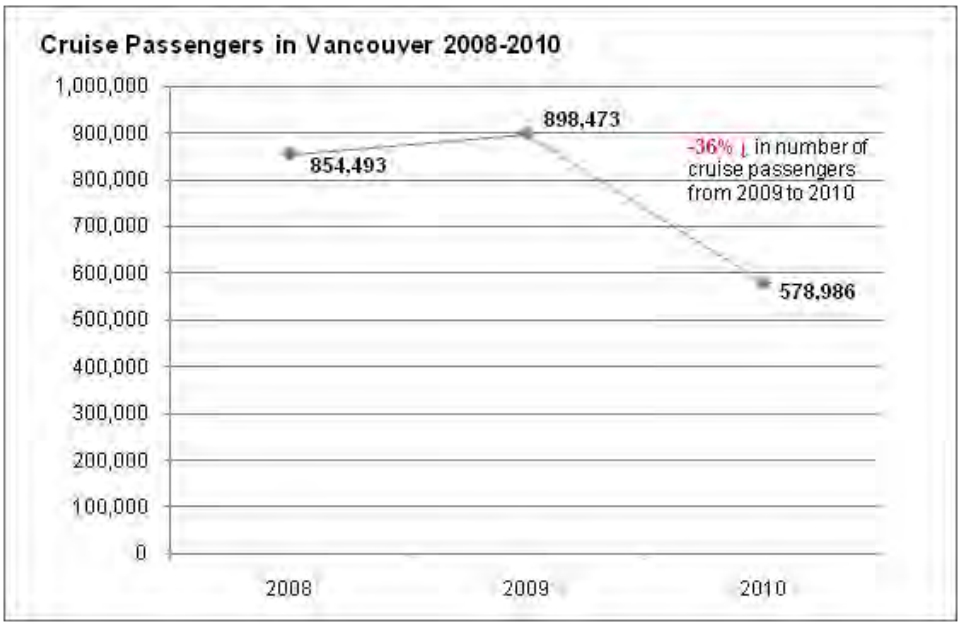


Figure 4 - Number of Cruise Ship Passengers in Vancouver, 2008 to 2010
(Includes embarking, disembarking, and in-transit passengers)
Source: Port of Metro Vancouver: http://www.portmetrovancouver.com/Libraries/ABOUT_Facts_Stats/Port_Metro_Vancouver_2010_Statistics_Overview.sflb.ashx

Sampling Margins of Error

Use of the actual survey results to calculate the effect of the separated bike lanes on grade-level businesses assumes that the survey results reflect the population as a whole (including non-responders). While attempts to reach non-responders resulted in obtaining input from some, it is possible that the sample includes a higher proportion of businesses that experienced greater impact than found in the population. The statistical margin of sampling error for a random sample of grade-level businesses would be as follows:

Grade-level On lane	Universe N	Sample n	Confidence Level at 90%	Confidence Level at 95%
Dunsmuir	28	11	**20%**	**24%**
Hornby	100	32	**12%**	**15%**
Combined	128	43	**10%**	**12%**

Property Owners On lane	Universe N	Sample n	Confidence Level at 90%	Confidence Level at 95%
Dunsmuir	17	5	**30%**	**36%**
Hornby	48	12	**21%**	**25%**
Combined	65	17	**17%**	**21%**

The following map (Fig. 5) shows areas where the grade-level business survey, the customer exit survey, the upper floor tenants employee survey, and the property owner/manager survey were conducted. The OMNIBUS survey and open online survey were not location-specific.

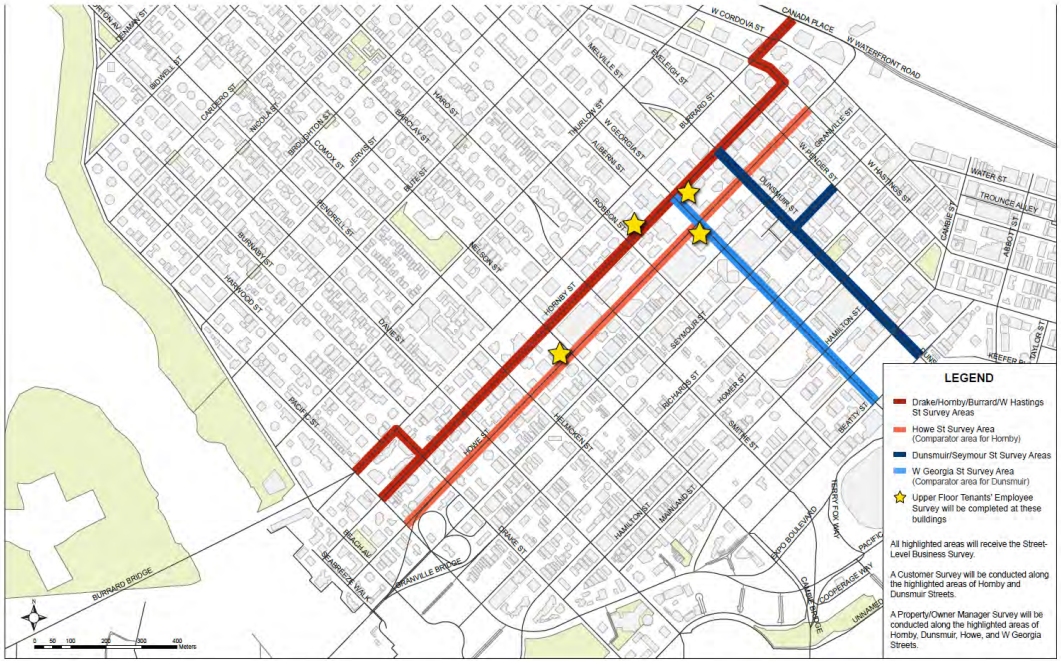


Figure 5: Study Survey Areas Bike Lanes and Comparator Streets

The economic survey data was also cross-referenced with transportation data (e.g., vehicle travel speeds, vehicle volumes) for each block of the affected and comparator corridors to identify possible correlations between these two elements (see Appendix K for more details about transportation trends within Downtown Vancouver and the study corridors).

1.4 EVALUATION CRITERIA

To determine whether or not the separated bike lanes have had a negative or positive business impact on individual businesses, the following key evaluation indicators have been developed for this study:

- Estimated percentage change in sales in study area;
- Estimated percentage change in profit in study area;
- Perceived change in ease of access for employees and customers;
- Estimated percentage change in net rents[5] and vacancy rates in study area; and
- Expressions by businesses of the impact on access for deliveries.

[5] Net rent is the portion of the rent which goes to the landlord while the other two components of rent, Property Taxes and Common Area Maintenance (CAM) typically flow from the tenant, through the landlord to a third party.

These indicators were verified with the study's stakeholders at a stakeholder workshop held on May 12, 2011. It should be noted that the survey questions included many more indicators (e.g. access, visibility, and parking) than those listed here. While important, these secondary indicators ultimately all influence the primary indicators listed above. For example, while the surveys asked businesses to comment on the impact of the separated bike lanes on access and parking, both of these factors ultimately impact sales and profit.

1.5 ORGANIZATION OF THE REPORT

The remainder of this report is organized as follows:

Section 2 provides the market context for Downtown Vancouver, providing a background for the impact study and outlining wider real estate trends.

Section 3 summarizes the results of the surveys, including the overall net impact of the separated bike lanes within the affected corridors and the mitigation strategies that have been attempted by businesses to offset any negative impacts or to take advantage of the positive impacts of the separated bike lanes.

Section 4 defines and summarizes the business-related business impact of the separated bike lanes in Downtown Vancouver. Business impacts are confined to retail tenants (sales), office tenants (loss in value for impacted buildings or sites), and property owners and managers (reduced rents and vacancies). "Hot spot" blocks on each of the bike lane corridor are also identified, where businesses estimate the largest business impact from the separated bike lanes and associated parking, visibility, turning restrictions and loading zone changes.

Section 5 summarizes technical, business/marketing, and land use mitigation strategies that could be used by the City of Vancouver in the 'hot spot' blocks, as well as general mitigation strategies that could be used for the bike lane corridors.

Section 6 examines the lessons learned, and outlines approaches and strategies to maximize the positive impacts and minimize negative impacts of future vehicle and bike lane changes on businesses along bike routes and surrounding streets.

Section 7 provides the conclusions to the study and the next steps.

2.0 Downtown Vancouver Market Context

As the long-term business impact data associated with the separated bike lanes is not yet available, the majority of market information has been derived from surveys of property owners and managers, grade-level tenants, office tenants, customers, and other stakeholders and interested parties. However, these surveys must be assessed within the context of Downtown Vancouver's economic profile and outlook. Thus, this section provides a summary overview of Downtown's main real estate markets - retail, office, residential, and hotels, and establishes context, industry standards, and economic benchmarks. Further background is provided in Appendix A.

These four markets – retail, office, residential, and hotels – are assessed separately, as they all have different ways of interacting with their surrounding infrastructure and serve different customer bases. Businesses that rely on easy pedestrian and auto parking access and good visibility are impacted more by the separated bike lanes than those where these factors are secondary. Therefore, grade-level retailers who rely more on constant customer flows may be more vulnerable to the changes that have resulted from the installation of the separated bike lanes, whereas office and residential, which are destination-oriented markets, may be less vulnerable. The study does not assess the economic cost of additional congestion as it is being dealt with through other studies being conducted by the City of Vancouver.

The main causes of business impacts due to the separated bike lanes are therefore:

- Changes in access for employees and customers on foot or in vehicles;
- Changes to the visibility of various businesses; and
- Changes in access to loading zones for supplies and products shipped to and from various businesses.

As indicated below, Downtown Vancouver accommodates a very vibrant and high value real estate market. Today there are few, if any, persistent vacancies of any kind. In general, demand from retailers, businesses and investors (real estate buyers) for business space far exceeds the limited supply of space within the relatively small area of land that makes up the downtown peninsula.

2.1 GENERAL DESCRIPTION OF DOWNTOWN RETAIL AND OFFICE MARKET

Downtown Vancouver is generally a successful and attractive urban hub and Central Business District (CBD). According to Colliers International (2011 Q1 Investment Survey), the capitalization rates[6] in Downtown Vancouver are the lowest in Canada (e.g. office capitalization rates are between 5.25% and 6.20%, as opposed to rates of 5.75% to 9.00% in other cities such as Toronto, Ottawa, and Montréal), indicating strong investor demand for any type of property in the downtown peninsula. This provides owners with more options and liquidity where they have the opportunity to sell their property at favourable terms.

[6] The ratio between the net operating income produced by an asset and its capital cost. Properties that have high demand and/or low risk have cap rates in the low end of the range, while those that have high risk and/or low demand have high capitalization rates.

Below is a brief description of the retail, office, and residential markets, based on information provided by Colliers International, a commercial real estate brokerage, and CB Richard Ellis (CBRE), a commercial real estate company that provides financing and management services.[7] These points are further expanded in the subsequent sections that follow.

- The downtown retail market in Vancouver includes premises that generate some of the highest rents in Canada. The regional retail infrastructure provides a large and sophisticated selection of stores, which has made the CBD the premiere shopping destination in the region. Increased transit services such as the Canada Line rapid transit service have only reinforced Downtown's dominance of the regional retail market. This has placed Downtown in the unique role of offering a one-of-a-kind shopping experience with both price and selection advantages over suburban malls.
- The downtown peninsula has a daytime employee base of 145,000, mainly in sales and service, business, finance and administration, and management.[8] The office market has been relatively stable and has enjoyed a relatively low vacancy rate of between 4% and 6% over the past four years and it is trending downward. However, the decentralization of office employment into the suburbs has been pronounced over the last 10 years and the CBD has a declining share of the overall regional office market. CBD office space is far more expensive to build and occupy than suburban office space.
- The residential market is strong and the downtown core of Vancouver has one of the highest population densities of any urban area in North America, which at about 15,000 residents per square kilometre, is triple the City of Vancouver's average.[8] These residential land uses have generated property values that are among the highest in Canada, with many condominiums selling for close to $1,000 per sq. ft. In addition, such a large local residential customer base within such a small area has helped downtown retail thrive.
- The hotel market is relatively stable and demand has not grown significantly for the past ten years.

2.2 THE RETAIL MARKET

This sub-section describes the retail market in Downtown Vancouver. Although the issues associated with pedestrian and car volumes are not discussed here, the location of the commercial districts and pedestrian traffic are directly correlated. Areas with low pedestrian traffic counts typically have little or no retail and the areas with the highest pedestrian traffic counts have the premier retail tenants and development.

Overall, the combination of a large downtown population and employment base, an extensive transit and transportation network that allows easy access for regional customers, a large tourist market, and other factors all combine to generate strong demand within a market with a constrained supply of space. This high demand is illustrated by the following map by CBRE (Fig. 6), which shows that net retail rates are relatively high in downtown Vancouver and reach $200 net (income received by property owner) per sq. ft. on parts of Robson St. Other commercial streets that have higher than average rental rates include West Georgia, Granville St., and Burrard St. The rent estimates would to some degree apply to the surrounding streets, with a decline in rates as ones moves from a strong commercial area to a weaker commercial area.

[7] City of Vancouver Core Employment Study (ongoing, Rhonda Howard)
[8] Downtown Vancouver Business Improvement Association. (2009). *Downtown Vancouver: Neighbourhood Profile*. Accessed June 6, 2011 from http://www.bizmapbc.com/neighbourhood-profiles/downtown-neighbourhood.pdf

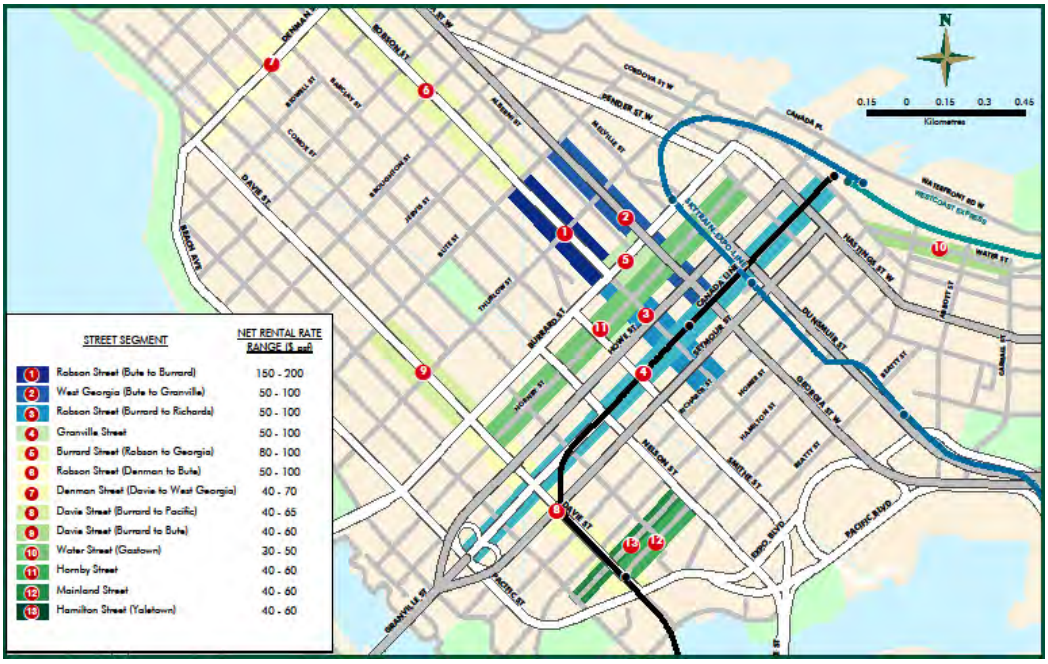


Figure 6: Downtown Retail Rents, 2011
Source: CBRE, 2011

- Hornby St. is ranked as one of the lower to medium rent areas, with net rent averaging $40 per sq.ft. Portions of the street which intersect Robson St. and Granville St. offer more valuable retail space as do areas of Hornby St. which are within the downtown office core.

- However, the downtown section south of Davie St. is not included in the retail map as it has only a few stores and far less customer traffic than the downtown core. This was and remains a modest commercial area that has not generated sufficient sales to warrant having shops and stores along the entire length of each block. The development industry is transforming this area slowly by building large scale new residential and mixed-use high-rise buildings and this area is expected to have more pedestrian traffic and a newer streetscape over the medium term. In the past and currently the area has had persistent vacancies on both Hornby and Howe Streets.

- Dunsmuir St. has too few retailers to be specifically included in the CBRE map, however, in the core area near Granville St., it offers excellent retail space.

- It should be noted that large scale retail projects and those on corners typically are less vulnerable to changes to visibility and access as they have more than one access point and greater visibility.

- The areas most vulnerable to reduced visibility and access would be a row of small scale stores which have no anchor tenant or dedicated parking and which rely primarily on passersby and street traffic as their primary customer base.

As shown in Figures 7 and 8 below, monthly and annual retail sales in the metropolitan region vary widely, mostly with a slow upward trend reflecting population growth and inflation. A change of a few percent every year is expected.

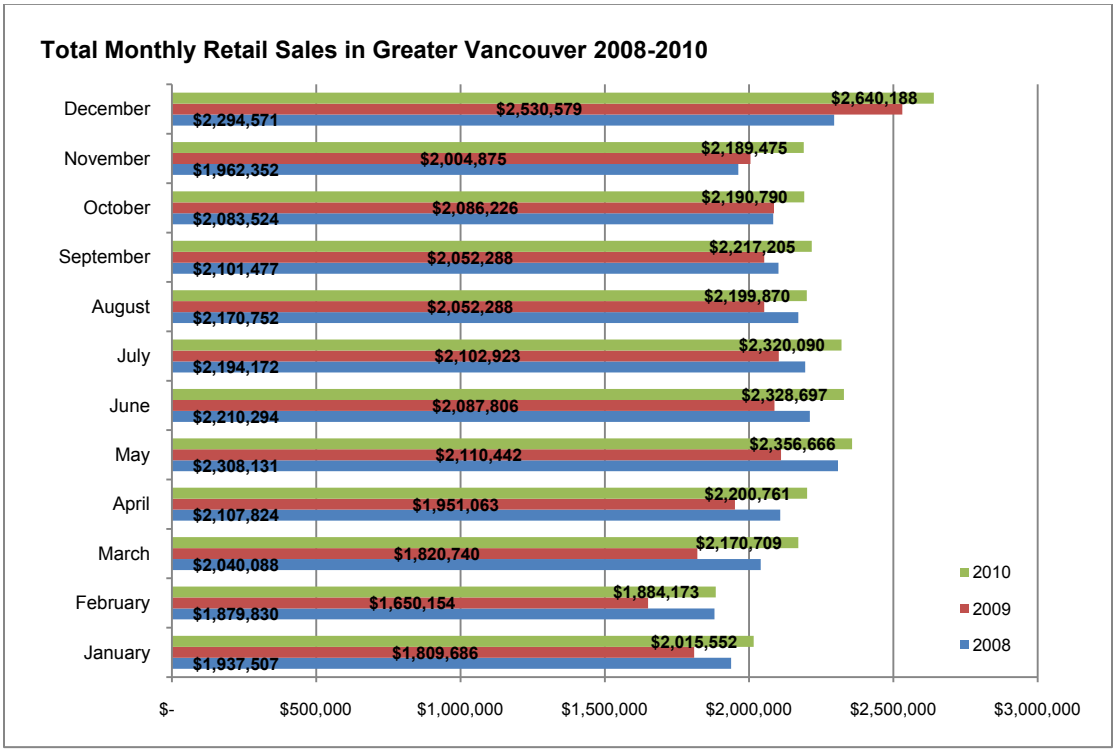


Figure 7 - Total Monthly Retail Sales in Greater Vancouver, 2008-2010

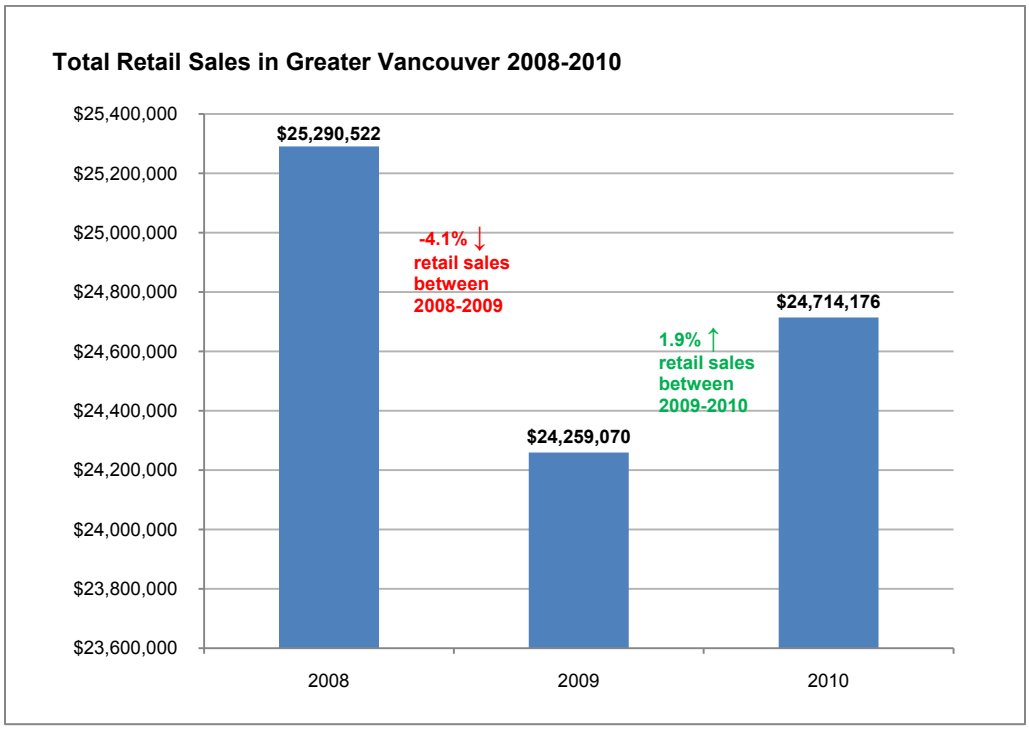


Figure 8 - Total Yearly Retail Sales in Greater Vancouver 2008-2010

2.3 THE OFFICE MARKET

This sub-section describes the office market in Downtown Vancouver, where the historical peak for vacancy rates was in 2000, after which the office market has generally gained strength. Vacancy rates have been in a consistent downward trend, to less than 5% currently (Fig. 9). Demand now consistently exceeds supply, with over 1 million sq. ft. of supply absorbed over the past decade. The only significant new addition of Class A office space to the CBD was the completion of the second phase of the Bentall 5 building in late 2007.

According to Colliers International, the downtown office market represents approximately 24.2 million sq. ft. of existing office space. This is slightly less than half of the Metro Vancouver regional market as there are approximately 27.3 million sq. ft. of office space in the suburbs. Like virtually all North American cities the suburban office market is expected to grow at a much faster rate than the downtown office market, despite several proposed new office buildings. Suburban office space typically consists of smaller scale, more cost-efficient and lower rent buildings located on numerous readily available development sites, many of which have attractive locational features such as proximity to rapid transit stations, the airport, and highways.

Downtown Vancouver is located at the extreme western edge of the region, rather than being in the centre, which limits development potential. In addition, the land base in the CBD is very expensive and largely built out with relatively few potential new office development sites. The various suburbs offer hundreds of potential new office development sites with a large selection of building sizes and at a far lower base costs.

The average net office space rent has been steadily increasing and the vacancy rate has remained relatively low in Downtown Vancouver. It is expected that rents are going to climb significantly over the next few years and that the vacancy rate will drop even lower, increasing office building values. The only potential for vacancy rates to increase is pending new supply in the form of new office tower development.

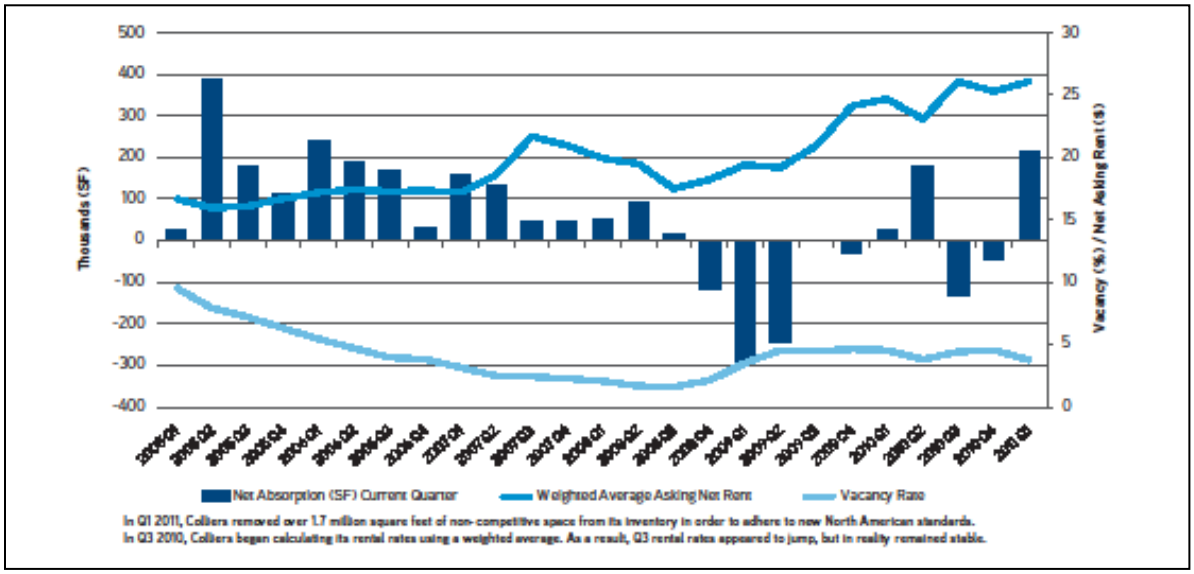


Figure 9: Downtown Historical Performance Colliers 2011 Q1

2.4 RESIDENTIAL MARKET

Residential development is destination-oriented (as opposed to convenience-oriented) and it is not measurably or significantly impacted by access and visibility in the same way as retail, office, or hotel uses.

Downtown Vancouver has some of the most valuable residential lands in Canada, with many condominiums selling for over $1,000 per sq. ft. As a result, rezoning to permit high-density residential development creates additional value for properties. This potential to create value is an important feature of Downtown, as it allows for development flexibility and alternative mixed-use zoning to be considered in the mitigation strategies.

For example, if in the long term, it is deemed that a particular office or hotel site is no longer viable despite infrastructural or technical enhancements or new marketing or businesses, then rezoning to permit high-rise residential development could be an alternative. A residential development site is more than twice as valuable as a commercial development site (the value per buildable sq. ft., as defined by FSR, or floor space ratio, multiplied by site area, of future condominium sites downtown reaches over $200 whereas commercial sites for future office towers are closer to $80 per buildable sq. ft.).

The City of Vancouver can increase value simply by changing land use, offering a possible mitigation solution that could be considered for negatively affected properties.

2.5 HOTEL MARKET

The hotel market, as mentioned before, is site specific; therefore context and historical trends are not as salient as with retail and office space. It is sufficient to mention that this is a less profitable form of real estate than retail, office residential or even industrial. The market is competitive and subject to wide swings in business volumes. The recent recession coupled with the Olympics and other factors make these trends mute. The discussion of impact should rest with the individual hotels, five of which are located adjacent to the separated bike lanes. It should be noted that it is highly likely that any potential impact on access, as with other types of businesses, is more significant if the bike lanes are outside their front door as opposed to across the street.

The CBD accounts for approximately half of all hotel rooms in the Metro Vancouver region. As with office and retail space, this is a declining share of the market as the CBD becomes built out and new hotel development increasingly moves to other parts of the city and the suburbs.

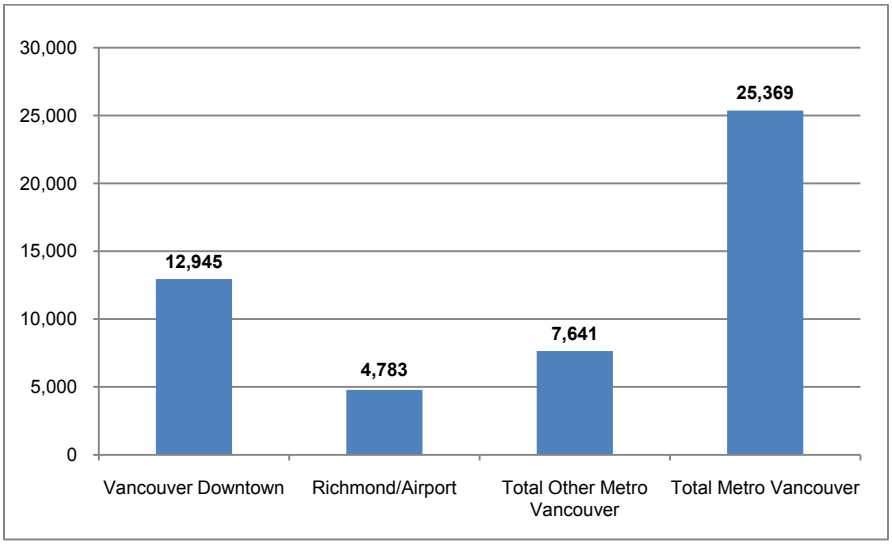


Figure 10 - Hotel/Motel Rooms Available in Metro Vancouver[9]

As noted below, the volume of overnight visitors has not increased in the past ten years. It is not expected that the average of the years 2010 and 2011 will change this long-term trend. Unlike the office, retail and residential markets, all of which enjoy strong growth and thus ever more demand, the hotel industry is more stable and without growing demand, as it is much more competitive. Thus, revenue from this sector has not kept pace with other sectors of the downtown real estate industry.

[9] TBC Accommodation Guide, Tourism Vancouver Membership database, and BC Assessment

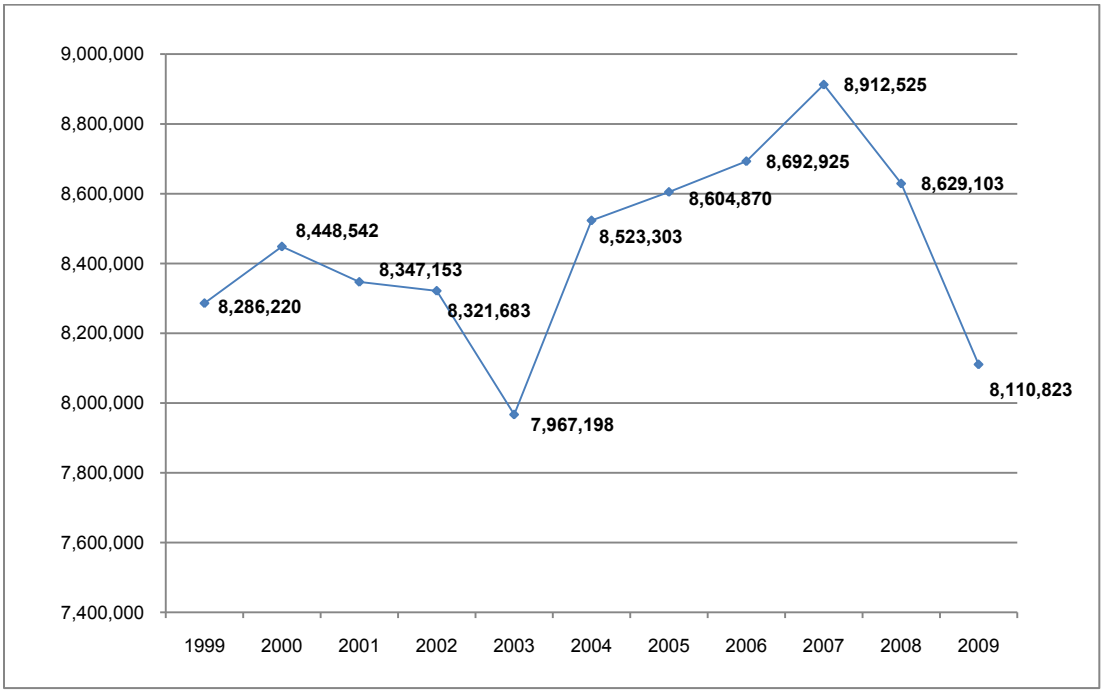


Figure 11 - Historical Overnight Visitor Volume to Metro Vancouver[10]

[10] Tourism Vancouver's Visitor Volume Model, PriceWaterhouseCoopers

3.0 Surveys of Tenants, Owners, Customers and Stakeholders

As the separated bike lanes were installed only within the past year, not enough time has passed to identify any long term economic or financial trends. As such, this study has been conducted as a survey-based business impact analysis. Six surveys were completed to assess the opinions and experience of all affected stakeholders and businesses. The smaller-scale surveys were conducted to provide supplementary data on office users, customers, residents of the region, and various interested parties. The full questionnaires, a chart of all responses, and a summary interpretation are provided in the Appendices of this report.

Overview of Grade-Level Business Tenant and Commercial Property Owners & Property Managers Surveys

The two surveys were conducted with the businesses and property owners and managers located on the separated bike lanes: a grade-level business tenant survey and a commercial property owners & property managers survey. The analysis strategy was to determine recent sales trends within this most affected group and then compare them with a full-scale and directly comparable survey of a comparator street.

Six separate stakeholder surveys – these surveys were conducted along the **two streets with separated bike lanes** (Hornby St. and Dunsmuir St.) along with **two adjacent comparator corridors**, with a similar composition to Hornby and Dunsmuir Streets.

The streets with either separated bike lanes or those impacted directly by them are:

- Hornby St. between Beach Avenue and West Hastings St
- Dunsmuir St. between Beatty St and Burrard St
- Two sections of Burrard St – between Drake St and Pacific St, as well as between West Hastings St and West Cordova St
- Seymour St between Dunsmuir St and West Pender St

The comparable streets and same blocks located nearby, which are used as the comparators are:

- Howe St between Pacific St and West Hastings St
- West Georgia St between Beatty St and Burrard St

The grade-level business tenant and property owners and property managers surveys relied upon voluntary completion and return of detailed questionnaires. There is some variance in the response rate for the grade-level business survey as some surveys were only partially filled out and the analysis had to statistically account for this.

A total of 73 grade-level business tenants responded out of 225 businesses that received the surveys, for a response rate of 32%, which is reasonable for this type of survey in which the business could decide whether they wanted to respond. This response rate differs slightly from the formal Mustel consultant report which had 77 responses, as they included partial responses that did not address the question of

sales. Table 1 below shows the total number of grade-level businesses, as well as the number of responses and non-response by service type. Figure 12 shows the percentage response by service type.

Table 1 – Survey Response Rate for Grade-level Businesses

Total Grade Level	
Food Service	81
Other Service	55
Hotel	16
Convenience Retail	11
Other Retail	44
Other	18
Total	225
Responded	
Food Service	18
Other Service	17
Hotel	3
Convenience Retail	3
Other Retail	22
Other	10
Total	73
Non Response	
Food Service	63
Other Service	38
Hotel	13
Convenience Retail	8
Other Retail	22
Other	8
Total	152

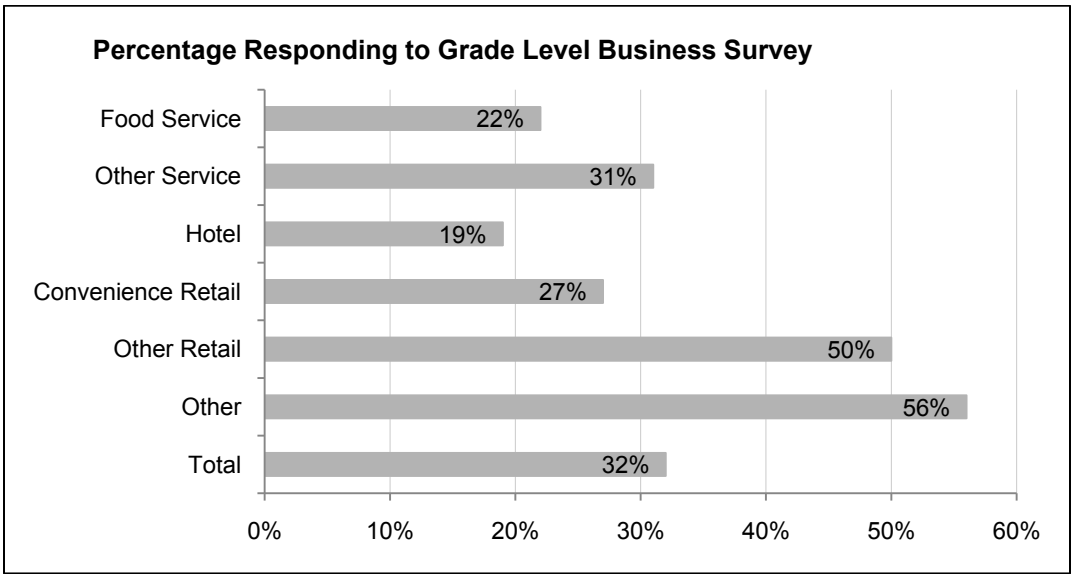


Figure 12 - Percentage Responding to Grade-Level Business Survey

Service businesses are the dominant tenant categories on the blocks surveyed. Food service businesses comprise 36% of all grade-level businesses, hotels 7%, and other service businesses 24%. The remainder are mainly retail businesses, either convenience retail (5%) or other types of retail (20%). The analysis has been conducted for each block or each street but has been removed from publication to ensure respondent confidentiality.

The property owners & property managers survey had a response rate of approximately 30%. With response rates of only 32% and 30% for the main surveys, some assumptions have had to be made about those who did not respond. If businesses that received surveys have been impacted by the construction of the separated bike lanes, it is reasonable to assume they would have replied to the survey. As such, non-respondents may have either experienced a positive impact, a small negative impact, or no impact as a result of the separated bike lanes, or else did not feel that the process was worthwhile to participate in. Moreover, since the averages established in the grade-level and owners surveys may reflect the more vocal minority, they must be moderated to some degree by the non-respondents that make up the majority of businesses.

3.1 THE GRADE-LEVEL BUSINESS TENANT SURVEY

A survey was dropped off at every grade-level business tenant adjacent to the Hornby and Dunsmuir St. separated bike lanes as well as to some business tenants located on ancillary bike lane blocks on Burrard St. The same was done for the comparator streets for the same blocks of Howe and Georgia Streets. The respondents were called back several times to encourage maximum business participation. The primary goals were to determine the sales impacts by store type and location as well as the primary causes of any change in sales.

Responses to the grade-level business tenant surveys were received from **32%** of the survey area businesses.

The grade-level business tenant surveys from all of the study area streets were cross tabulated with available traffic data and converted into an SPSS statistical file in order to determine fine level correlations between variables. The SPSS analysis, however, was hindered by the relatively small sample size and low response rate. It is difficult to establish reliable sales trends for entire city blocks with data from only one or two tenants.

While it is not possible to know why the majority of businesses did not respond to the survey, it is reasonable to assume that either the businesses have not experienced any business impact as a result of the separated bike lanes, or alternatively, they felt that responding to the survey would not result in any future mitigation work that would impact their business. Thus, as mentioned before, any impact established in this analysis should be moderated to some degree by the non-respondents that make up the majority of businesses.

The following are the sales-related highlights, with the full survey findings provided in Appendix B.

OVERALL SALES TRENDS

Grade-level businesses were asked their annual sales trends[11] between 2009 and 2011. Table 2 shows the sales change by business type among respondents to the survey. An analysis by street, block, store type, and year revealed the following responses:

[11] Question 12 in the survey

- In 2009, the percentage change in sales from the previous year among respondents was: Hornby -0.7%, Howe -2.8%, Dunsmuir 6.2%, West Georgia -6%, and Seymour 0.1%. The average change in sales was minimal.

- In 2010, the percentage change in sales from the previous year among respondents was: Hornby 0.2%, Howe 1.8%, Dunsmuir 6.8%, West Georgia 3.3%, and other 2.7%, giving an average increase of 2.5%.

- In 2011, the percentage change in sales from the previous year among respondents was: Hornby -11%, Howe -1%, Dunsmuir -2%, West Georgia 2%, and Seymour -2%. The overall average was -5.2%.

- In 2011, the net impact (the affected street minus the comparator street) among respondents was: Hornby -10% and Dunsmuir -4%. The remaining streets have no comparators.

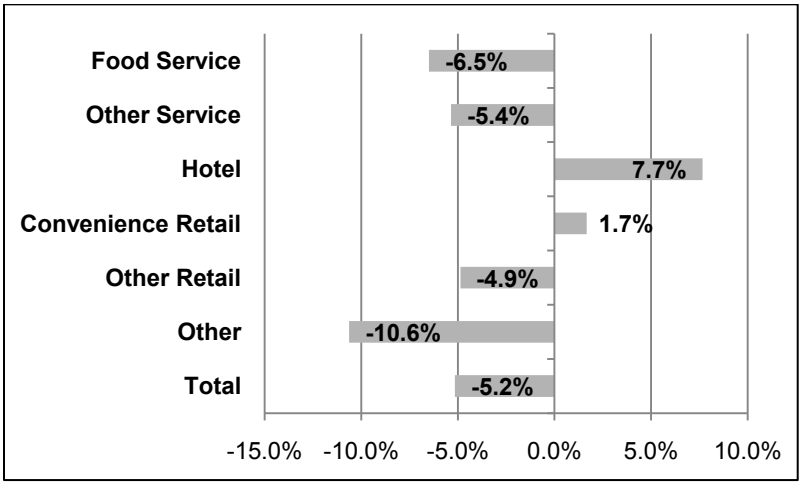
- The largest sales declines among respondents on Hornby St. between 2010 and 2011 were the 500, 600, 900 and 1000 blocks.

- On Dunsmuir St., respondents of the 600 block noted the greatest decline.

- There are other, less affected areas on the separated bike lane streets, as well as blocks such as 500 Seymour St., which has lost some points of access, and 1300 Burrard St., which has reported reduced on-street parking.

The following table summarizes the reported sales change for each street and by each tenant category. This same analysis was conducted for each city block, however this level of detail cannot be revealed in this report to ensure respondent confidentiality.

Table 2 - 2011 Sales Change for Grade-level Businesses by Type (Respondents only)



In 2011, the estimated net impact of having the separated bike lane adjacent to a business as opposed to across the street was reported to be a further change in sales of -8.8% on Hornby St. and -9.4% on

Dunsmuir St. Thus, it is clear that grade-level businesses responding to the survey noted that having the bike lane adjacent to their business was worse for sales than it is for stores across the street.

On Hornby St., food service businesses responded that their sales had declined by -12.5% between 2010 and 2011, while other service businesses reported an 18% drop. In general, food services reported the lowest level of impact, while other service and convenience retail reported the highest impact. This indicates that shops that rely on convenient access with proximate parking have reported the largest impact from the construction of the separated bike lanes. On Dunsmuir St., food service businesses reported a sale decline of 10%.

Based on the question 12, which asked about total sales change from 2010 to 2011, it would appear to be reasonable to attribute a sales decline on the order of -7.5 to -10% to the separated bike lanes with a greater impact on the bike lane adjacent side of the street. This figure corresponds to the customer surveys which also show a -7.5 to -10% decline in patronage.

OTHER QUESTIONS AND REPLIES ABOUT SALES

Grade-level businesses that responded to the survey said that on-street parking loss, reduced visibility, turning restrictions at specific intersections, reduced loading zone access and more difficult pedestrian access were reported to be negative effects of the implemented separated bike lanes, and reasons for negative economic impact.

The most significant impact of any event or change in downtown over the past few years was reported by businesses to be the implementation of the separated bike lanes, with a modest negative effect. Respondents noted that the separated bike lanes caused a decline in sales of 11.9% overall, with a decrease of 13.9% on Hornby St., 7.9% on Howe St., 9% on Dunsmuir St., 3.8% on W. Georgia St. On both Hornby and Dunsmuir, the separated bike lanes were rated as having a greater negative impact than any other factor.

However, the negative impacts from recent tax changes (e.g. HST, parking taxes) and the general economy also appeared to have comparable impacts. Recent tax changes were reported to have caused a 9.3% decline in sales overall, with a 9.8% decline on both Hornby St. and Howe St., while Dunsmuir St. reported a decline of 8.6% and West Georgia St. 3.8%. As well, overall economic conditions were reported to have caused a 7.8% decline in sales overall, with a 9.2% decline on both Hornby St. and a 7.1% decline on Howe St., while Dunsmuir St. reported a decline of 2.8% and West Georgia St. 10%. Positive impacts included the Canada Line, which had a positive impact on sales of 2.4%, as well as the Olympics, which had a positive impact of 1.5%.

In question 14 of the survey, which specifically asks about the impact of the separated bike lanes on sales, Hornby St. tenants reported a mean decline in sales of 11.8%, Howe St. tenants 7.7%, Dunsmuir St. tenants 8.1%, and West Georgia St tenants 5.0%, giving an overall mean decline of 10.3%. The same question was asked about profits and the responses were nearly identical, with mean declines in profit of 11.3% on Hornby St., 8.8% on Howe St., 7.6% on Dunsmuir St., and 5.0% on W. Georgia St., for an overall mean decline of 10.6%.

In question 15 of the survey, which asks about the specific reasons for the decline, respondents reported:

- A loss of parking;
- Visibility reduced on the 500, 700 and 900 blocks of Hornby St.;

- Declining sales resulting from reduced customer access on the 500, 600, 700, 900 and 1000 blocks on both sides of Hornby;
- Declining sales resulting from reduced delivery access in the 400, 600, 700 and 1000 blocks on both sides of Hornby.

Meanwhile, the overall average sales decline (attributed to the separated bike lanes and/or other factors) reported by businesses who responded to the survey on Hornby St. was 16%. The 400 and 500 blocks reported declines of 15%, the 900 block a decline of 21%, and in the 1000 block a decline of 17%. There was no significant difference between different sides of the street.

3.2 THE COMMERCIAL PROPERTY OWNERS & MANAGERS SURVEY AND OTHER SURVEYS

THE COMMERCIAL PROPERTY OWNERS & MANAGERS SURVEY

A survey was mailed to every property owner on the Hornby and Dunsmuir bike lanes (and some ancillary bike lane streets) and comparator streets on the same blocks on Howe and Georgia St. The property owners and managers were called back several times to encourage maximum participation. A response was received from 34 property owners and managers, for a return rate of approximately 30%.

An analysis of the responses to the property owner's survey revealed that the separated bike lanes had a negative impact on leasing arrangements. However, recent tax changes (e.g. HST, parking taxes) were the same or greater in their degree of impact. Owners and managers responded that the separated bike lanes had an effect of between -6% and -8% on comparator streets, and between -6% and -9% on bike lane streets. The recent tax changes such as the parking tax and the HST were found to have been between -9% and -11% on comparator streets and -9% and -10% on separated bike lanes streets.

In terms of vacancy rates on separated bike lanes streets, property owners and managers responded that they were either lower than or similar to vacancy rates on comparator streets. On Hornby St. owners and managers noted that while vacancy rates were on average 11% and 12% in 2009 and 2010 respectively, vacancy rates had dropped to 2% in 2011. In comparison, vacancy rates on the comparator street averaged 11% in both 2009 and 2010, while increasing to 20% in 2011. Vacancy rates on Dunsmuir St. and its comparator street, West Georgia St., were roughly similar in 2011, at 5% on the former and 4% on the latter.

In addition to the two surveys above, four smaller scale surveys were conducted. The findings are summarized below, with the full survey results provided in Appendices C, D, E, and F.

THE OMNIBUS REGIONAL SURVEY

The region-wide random telephone survey was completed for background context. This survey indicated that the large majority of residents (80%) in Metro Vancouver are aware of the separated bike lanes but have not changed their shopping habits on Hornby or Dunsmuir Streets as a result of the implementation of the separated bike lanes. A net number (positive responses minus negative responses) of 10% of all respondents responded that they now shopped less on Hornby or Dunsmuir Streets, mainly due to traffic congestion and a lack of parking. The principal reason given for those shopping more often was a pleasant environment.

Given the regional nature of the survey, a net decrease of 10% in shopping frequency on Dunsmuir and Hornby Streets means that the separated bike lanes have had a noticeable negative effect on the respondents' perception of the impacted corridors.

THE UPPER FLOOR TENANTS EMPLOYEE SURVEY

A sample of four survey buildings was chosen as representative of the building types in the area and also representing the separated bike lane corridors and comparative off bike lane streets. Of the tenants located on the bike lanes, 59% dislike the separated bike lanes while 20% like them. Meanwhile, 39% of commuters located in buildings a block away also dislike the lanes, as opposed to 31% who like the lanes. The reasons given for disliking the bike lanes are that they have increased the length of the overall commute time and/or reduced ease of access to the building.

The commuters' estimate of traffic delay – or extra commute time – due to the separated bike lanes was well over 5 minutes. This is longer than shown in the traffic analysis conducted by the City of Vancouver, which indicated that the bike lanes may be causing delays of less than 2 minutes in the corridor. While these delays for commuters would not be sufficient to cause a business to relocate out of downtown, they do represent a negative impact for employees and customers. The physically impacted area subject to a measurable delay is the core of the CBD. The issue of the business impacts of congestion and its costs are not dealt with in this report, as they will be covered in Vancouver's report to council in July 2011 on the overall impacts of the separated bike lanes.

THE SIDEWALK CUSTOMER SURVEY

A random sidewalk survey of 768 customers of businesses on Dunsmuir and Hornby Streets indicated that 72% responded that they had not changed their shopping habits due to the separated bike lanes, 7% were now shopping more often, while 15% were shopping less often (Fig. 13). When looking only at automobile drivers (Fig. 14), who would be the most likely to be affected by changes in road use and traffic patterns, the majority (60%) had not changed their shopping habits, 1% were shopping more often, and 34% were shopping less often.

Of those who had changed their shopping patterns, the net change was reported to be 11% shopping less on Hornby and 3% shopping less on Dunsmuir due to such factors such as increased traffic congestion, less parking, turning restrictions, and reduced pedestrian safety. Positive factors that led to increased visits included easier bike access, a safer environment for cyclists, a more pleasant environment for cyclists and pedestrians, and easier access. The implied net impact on sales based on the sidewalk customer survey would thus be an 11% decline on Hornby St. and a 3% decline on Dunsmuir St.

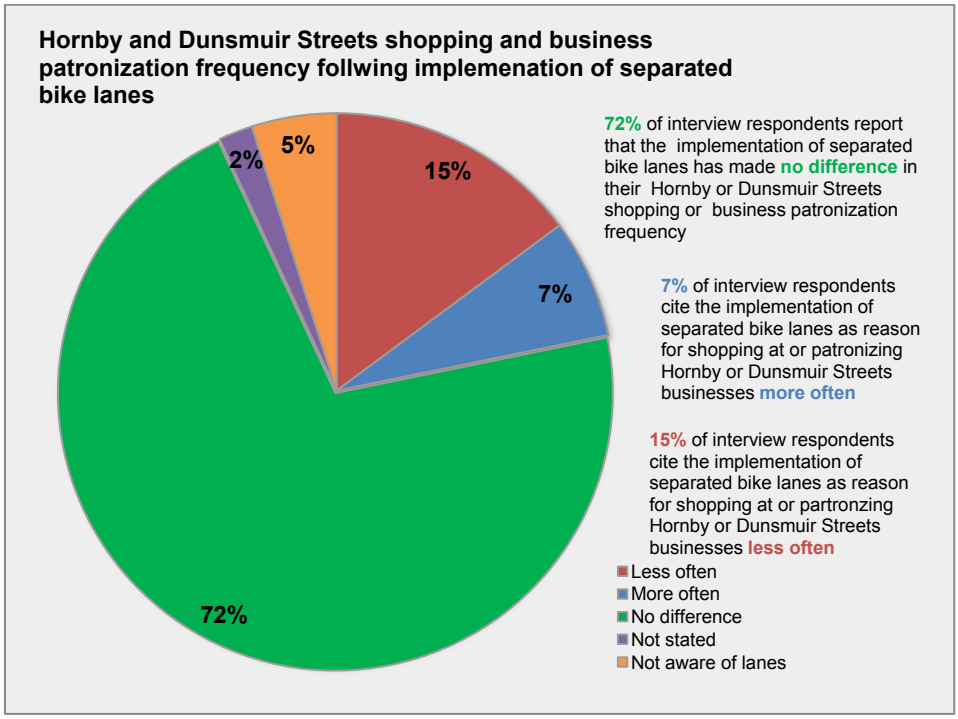


Figure 13 - All Customers - Frequency of Shopping and Business Patronization Following Implementation of Separated Bike Lanes

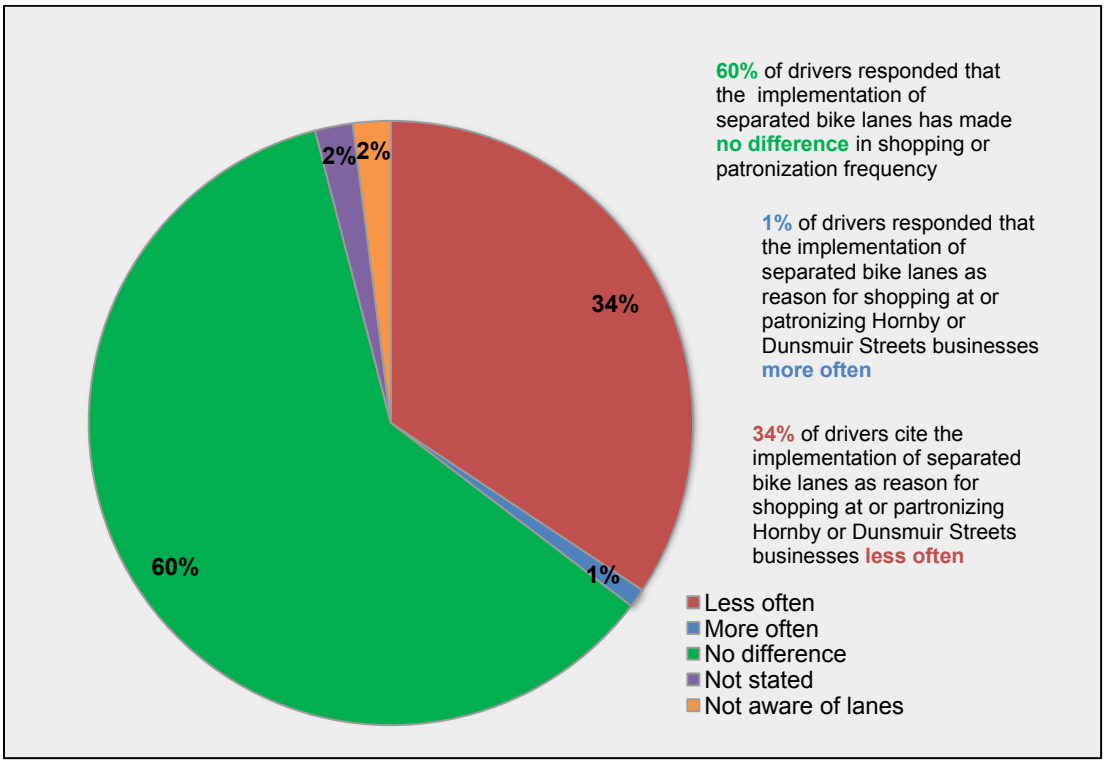


Figure 14 - Automobile Drivers - Frequency of Shopping and Business Patronization Following Implementation of Separated Bike Lanes

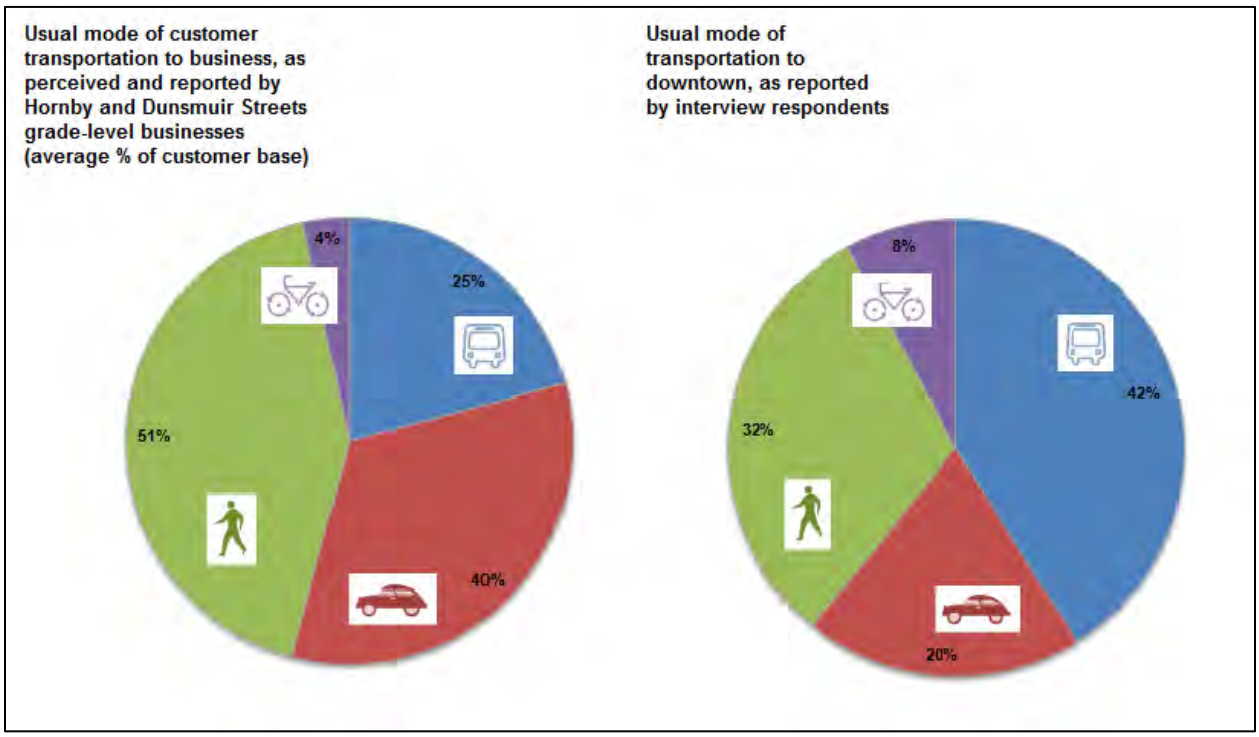


Figure 15 – Usual Mode of Customer Transportation to Downtown: At-Grade Business Responses versus Customer Responses

Interestingly, the percentage of customers travelling downtown by automobile was estimated by at-grade businesses to be roughly double the percentage determined by the customer surveys (Fig. 15). While 20% of customers reported that they drove downtown to shop or patronize businesses, at-grade businesses estimated the percentage at 40%. As well, 42% of customers travelled downtown by public transit, while businesses estimated the percentage to be only 25%. Finally, customers cycling downtown represented 8% of respondents, roughly double what was estimated by at-grade businesses. Thus, there is a potential that issues such as the availability of parking and vehicle access to businesses may not necessarily be as critical as other issues such as visibility, pedestrian access and environment, and goods delivery.

OVERALL FINDINGS FROM SURVEYS

Some overall findings from the survey indicated the following:

- Businesses on a street with a separated bike lane reported greater declines in sales than businesses on parallel streets.
- Businesses on Hornby St. reported greater negative impacts than Dunsmuir St.
- Convenience retail businesses reported greater negative impacts than other businesses
- Businesses on the same side of the street as a bike lane reported greater negative impacts than positive impacts.

3.3 COMMENTS FROM THE SURVEYS

There were a number of comments made about the separated bike lanes from a business perspective, a non-business perspective, and from other perspectives (e.g. health benefits of increased cycling). As

much of the report discusses the negative micro-economic impacts of the separated business lanes based on survey responses from businesses, samples of verbatim comments from the surveys which were supportive of the bike lanes are indicated below:

"These lanes are making it easier for me to convince my friends and family to ride downtown as well. They make me feel like I can stop and use the shops and services without having to navigate car traffic to pull over, and I don't have to worry about being doored by parked car doors opening, so I get to look around, enjoy my ride, and see what shops and activities are happening."

"My partner and I both use the bike lanes to ride to and from our business each day and for deliveries and pick ups. We value the protected bike lanes and use them in all weather, including rain, and at night. The bike lanes were part of the reason we opened a retail store where we did, because we are cyclists and wanted to be somewhere where we could ride safely to work each day. I really value the bike lanes and appreciate them when I am carrying large packages on my bike."

"Separated bike lanes have opened up a section of downtown that I used to avoid. Do more shopping there now and use other services more frequently than I used to."

"I have changed my commute and am now aware of businesses that I didn't know about before, but am now likely to shop at."

"The separated lanes encourage me to do more shopping downtown, rather than in my own neighbourhood, as it is convenient to my workplace (I can go on my lunch break). I feel safer cycling downtown and naturally shop at stores along the bike path as that is most convenient".

"Since the separated lanes went in, my wife and I tend to use Hornby and Dunsmuir more regularly than other streets. I also use businesses on or near these streets more frequently."

"When I bike, I spend more time noticing the people and businesses around me. And, I am MORE likely to spend time and $$$ after work in downtown bars, shops and restaurants now that I bike on the bike lanes, since parking is so expensive and the liquor laws so harsh..."

"I noted that I never stop and shop at places while I'm commuting in the separated bike lane -- that's b/c I'm commuting. I've noticed businesses that I hadn't before (including signage and window ads) that have made me return during non-commutes to shop there. I wonder how many drivers stop mid-commute to shop."

"The restrictions on Right turns onto Hornby make access for customers very difficult and deliveries almost impossible. The bike lanes have had a negative impact on leasing"

4.0 Analysis of Business Impact

4.1 INTRODUCTION

This section defines and summarizes the business-related impacts of the separated bike lanes in Downtown Vancouver for survey respondents. This business impact study does not specifically measure macroeconomic issues such as whether the bike lanes make Vancouver a more livable and sustainable city. The only measurable business impacts analyzed are to the actual business stakeholders, expressed in terms of reduced sales of grade-level businesses who responded to the survey. The measures of business impact are based on the results of the tenant user, and owner surveys, which have been outlined in Section 3. The analysis links the survey results with the potentially impacted areas along the separated bike lanes. The objective is simply to determine which blocks and locations and types of tenants and/or sites, if any, have been impacted and why.

For property owners, the indirect impact of potentially reduced rents due to reduced tenants' sales is not yet evident and cannot be reliably measured. As such, all sales impacts must be considered an impact on grade-level tenants only.

Those who did not respond to the grade-level business and property owners & managers surveys may not have been significantly impacted by the separated bike lanes, but this is in no way certain. Regardless, this analysis estimates business impact only for those businesses who responded to the surveys.

4.2 GRADE-LEVEL BUSINESS TENANTS

In general, the separated bike lanes have only had a consistent and measurable impact on the stores located on the separated bike lane corridors or where access has been impeded by the introduction of turning restrictions.

As clearly indicated in Section 3 of this report and detailed in Appendix B, the survey results indicate that Hornby Street grade-level responders had a *net* decline of 10% in sales and Dunsmuir Street grade-level tenant responders had a 4% net decline. For purposes of this study, changes in gross sales are considered equivalent to direct economic impact. Thus, a decline in gross sales represents a negative economic impact. The extent to which the profit of business owners (who responded to the surveys) is impacted is also considered, in general, industry standard, terms.

In some instances, there is a direct correlation between a decline in sales and a decline in rent or profit. For example, a 10% decline in sales may correspond directly to a 10% decline in tenant profit, or ultimately, after the fixed term of a tenant's lease expires and is renegotiated, the rent may be reduced by some share of the overall reduced sales. Any widespread and measurable level of rent reduction is not possible in this analysis as the impact period is less than one year and tenancies involve a much longer business cycle. However, if the negative business impacts reported in this study persist in the longer term (e.g. due to a lack of mitigation strategies being implemented), then there could be a decline in rent.

As a general principle of retail business, the impact of a decline in sales is amplified and more of a problem for weaker stores who can normally pay only their fixed costs, versus successful stores that can easily meet their fixed costs and are focused only on increasing already strong profits. In general, based upon market indications and their general rent levels, Hornby Street and Dunsmuir Street accommodate stores that have average sales. The exceptions are a few blocks in the downtown core areas near Robson Street and Granville Street. Thus, any negative economic impact resulting from the separated bike lanes or other factors would be expected to be less in the stronger areas.

According to retail-leasing agents from CBRE, the separated bike lanes may have caused a decrease in retail rental rates in the affected areas. They indicate that there is not yet evidence of a -5% or -10% decline but the market has indicated that tenants feel that the separated bike lanes have generally reduced the number of on-street parking stalls and negatively impacted the ease of access to store fronts (e.g. created a physical barrier, perception of reduced safety, reduced visibility, and/or loss of prestige). Having said that, as mentioned before, the rate of change in rental revenue cannot be confirmed at this time and is therefore not used as a measure of impact in this analysis.

BLOCK FACES WITH RETAIL SPACE

Less than half of the block faces along the separated bike lane corridors on Hornby and Dunsmuir Streets house retail space

The following table outlines those block faces which have a many grade-level retail stores. In total there are 48 block faces, with 30 on sections of Hornby Street with bike lanes and 18 on sections of Dunsmuir Street with bike lanes. The 500 block of Seymour Street and 1300 block of Burrard are included in the latter figure. Of these block faces, less than half (21 block faces) have retail space.

It is reasonable to assume that the average retail space for each store is on the order of 1,000 sq.ft. This is based on store depths of 66 feet with 15 feet of business store frontage. Such an estimate would also correspond to a general and reasonable estimated average of 10,000 sq.ft. of net retail – service space per city block face. Certainly most of the bike lane block face streets are not continuous store fronts.

Table 3 - Block Faces with Significant Number of Grade-level Retail Stores

Block Face	Street	Block Face	Street
400 x 2	Hornby Street	1300 x 1	Burrard Street
500 x 1	Hornby Street	500 x 2	Seymour Street
600 x 1	Hornby Street	100 x 0	Dunsmuir Street
700 x 1	Hornby Street	200 x 0	Dunsmuir Street
800 x 1	Hornby Street	300 x 0	Dunsmuir Street
900 x 1	Hornby Street	400 x 0	Dunsmuir Street
1000 x 2	Hornby Street	500 x 1	Dunsmuir Street

1100 x 2	Hornby Street	600 x 2	Dunsmuir Street
1200 x 1	Hornby Street	700 x 0	Dunsmuir Street
1300 x 1	Hornby Street	800 x 2	Dunsmuir Street

THE GRADE-LEVEL BUSINESS ECONOMIC IMPACT MODEL

The business impact model applies industry standard sizes, rents and sales to those businesses that responded to the survey. A reduction or increase in sales levels (in $) are calculated for these businesses based on how they responded to the survey questions (e.g. a 10% increase or decrease in sales reported by grade-level respondents was calculated in dollar amounts per year).

In order to establish average tenant sales, real estate consultants use the traditional „net rent to sales ratio of 10%.' The average net rent per sq. ft. on the study corridors is on the order of $45 per sq. ft. This means average sales of these types of merchants are approximately $450 per sq. ft. The average level of sales cannot be much higher than this or rents would be higher. This industry standard is used by The International Council of Shopping Centres and by real estate valuation firms.[12]

The average net rent per sq. ft. along the study corridors is on the order of $45 per sq. ft. In addition, the average size of each store has been assumed to be 1,000 sq. ft., which is a reasonable and conservative assumption for downtown given the shortage of space and high land values.

The following model (Table 4) provides business impact data only for those businesses that responded to the surveys (i.e. it does not include impacts for the two thirds of all tenants who did not respond) .This is a low business impact scenario. The store counts and change in sales is derived from the survey and other elements are based on industry standards and the market.

[12] A typical source of this industry standard would be Moody's Rating Agency VP Andrea Daniels in her real estate article "A Guide to Occupancy Costs"

Table 4 – Grade-level Sales Impact Model for Respondents Only

HORNBY Total Grade Level	Ratio Of Business	Floorspace 1000	Sales Ave. $ 450	Sales Change Reported	Sales Change Per Category	Profit Change 20%
Food Service	20%	6,000	$ 2,700,000	-8.5%	$ (229,500)	$ (45,900)
Other Service	23%	7,000	$ 3,150,000	2.0%	$ 63,000	$ 12,600
Hotel	0%	-	$ -	0.0%	$ -	$ -
Convenience Retail	7%	2,000	$ 900,000	2.5%	$ 22,500	$ 4,500
Other Retail	30%	9,000	$ 4,050,000	-8.6%	$ (346,500)	$ (69,300)
Other	20%	6,000	$ 2,700,000	-13.3%	$ (360,000)	$ (72,000)
Total	100%	30,000	$ 13,500,000	-6.3%	$ (850,500)	$ (170,100)

DUNSMUIR Total Grade Level	Ratio Of Business	Floorspace 1000	Sales Ave. $ 450	Sales Change Reported	Sales Change Per Category	Profit Change 20%
Food Service	44%	4,000	$ 1,800,000	-15%	$ (270,000)	$ (54,000)
Other Service	33%	3,000	$ 1,350,000	5%	$ 67,500	$ 13,500
Hotel	0%	-	$ -	0%	$ -	$ -
Convenience Retail	11%	1,000	$ 450,000	0%	$ -	$ -
Other Retail	0%	-	$ -	0%	$ -	$ -
Other	11%	1,000	$ 450,000	-5%	$ (22,500)	$ (4,500)
Total	100%	9,000	$ 4,050,000	-6%	$ (225,000)	$ (45,000)

OTHER Total Grade Level	Ratio Of Business	Floorspace 1000	Sales Ave. $ 450	Sales Change Reported	Sales Change Per Category	Profit Change 20%
Food Service	27%	4,000	$ 1,800,000	-5%	$ (90,000)	$ (18,000)
Other Service	33%	5,000	$ 2,250,000	5%	$ 112,500	$ 22,500
Hotel	0%	-	$ -	0%	$ -	$ -
Convenience Retail	0%	-	$ -	0%	$ -	$ -
Other Retail	33%	5,000	$ 2,250,000	-13%	$ (292,500)	$ (58,500)
Other	7%	1,000	$ 450,000	0%	$ -	$ -
Total	100%	15,000	$ 6,750,000	0%	$ (270,000)	$ (54,000)
Decrease in Grade Level Business in first year of Separated Bike Lanes					**$ (1,345,500)**	**$ (269,100)**
			Per Prototype Store Reportin		**$ (34,500)**	**$ (6,900)**

The analysis indicates that an annual sales decline due to the bike lanes is on the order of $1.34 million and that profit declined on the order of $269,000. This is equal to an average annual reported reduction per store of $34,500 in sales and perhaps $6,900 in profit.

This sales change is not expected to remain constant with ongoing changes and possible mitigation and thus the annual cash flow, if discounted, would have to be subject to a very high rate (e.g. 20%).

HIGH IMPACT SCENARIO – RESPONDERS AND NON-RESPONDERS

In order to create a range of potential impacts it is important to estimate what the non-responders may have experienced. The following model therefore provides economic impact data for those businesses which responded to the surveys, *and applies the data to all tenants who did not respond*. The store counts and change in sales is derived from the survey and other elements are based on industry standards and the market.

Table 5 - Grade-level Sales Impact Model for Respondents and Non-respondents - High Scenario

HORNBY	Ratio	Floorspace	Sales Ave.	Sales Change	Sales Change	Profit Change
Total Grade Level	Of Business	1000	$ 450	Reported	Per Category	20%
Food Service	33%	26,000	$ 11,700,000	-8.5%	$ (994,500)	$ (198,900)
Other Service	23%	18,000	$ 8,100,000	2.0%	$ 162,000	$ 32,400
Hotel	0%	-	$ -	0.0%	$ -	$ -
Convenience Retail	8%	6,000	$ 2,700,000	2.5%	$ 67,500	$ 13,500
Other Retail	21%	16,000	$ 7,200,000	-8.6%	$ (616,000)	$ (123,200)
Other	15%	12,000	$ 5,400,000	-13.3%	$ (720,000)	$ (144,000)
Total	100%	78,000	$ 35,100,000	-6.0%	$ (2,101,000)	$ (420,200)
DUNSMUIR	**Ratio**	**Floorspace**	**Sales Ave.**	**Sales Change**	**Sales Change**	**Profit Change**
Total Grade Level	**Of Business**	**1000**	**$ 450**	**Reported**	**Per Category**	**20%**
Food Service	59%	16,000	$ 7,200,000	-15%	$ (1,080,000)	$ (216,000)
Other Service	26%	7,000	$ 3,150,000	5%	$ 157,500	$ 31,500
Hotel	0%	-	$ -	0%	$ -	$ -
Convenience Retail	11%	3,000	$ 1,350,000	0%	$ -	$ -
Other Retail	0%	-	$ -	0%	$ -	$ -
Other	4%	1,000	$ 450,000	-5%	$ (22,500)	$ (4,500)
Total	100%	27,000	$ 12,150,000	-8%	$ (945,000)	$ (189,000)
OTHER	**Ratio**	**Floorspace**	**Sales Ave.**	**Sales Change**	**Sales Change**	**Profit Change**
Total Grade Level	**Of Business**	**1000**	**$ 450**	**Reported**	**Per Category**	**20%**
Food Service	39%	9,500	$ 4,275,000	-5%	$ (213,750)	$ (42,750)
Other Service	31%	7,500	$ 3,375,000	5%	$ 168,750	$ 33,750
Hotel	0%	-	$ -	0%	$ -	$ -
Convenience Retail	0%	-	$ -	0%	$ -	$ -
Other Retail	24%	6,000	$ 2,700,000	-13%	$ (351,000)	$ (70,200)
Other	6%	1,500	$ 675,000	0%	$ -	$ -
Total	100%	24,500	$ 11,025,000	0%	$ (396,000)	$ (79,200)
Decrease in Grade Level Business in first year of Separated Bike Lanes					**$ (3,442,000)**	**$ (688,400)**
			Per Prototype Store Report		**$ (30,460.18)**	**$ (6,092.04)**

The high sales impact analysis indicates that an annual sales decline due to the bike lanes is on the order of $3.4 million and that profit declined by perhaps $688,000. This is equal to an average annual reported reduction per store of $30,400 in sales and perhaps $6,100 in profit. This is slightly lower per store because it is a different store profile and impact than the store mix in the low impact responder only scenario.

This sales change is not expected to remain constant with ongoing changes and possible mitigation and thus the cash flow must be discounted at a high rate such as 20%.

Mid-Point Impact Scenario

There is no technically accurate method to determine the impact on non-responders. In a normal survey with a uniform survey sample the responders' answers would apply to the entire group and include all non

responders. This survey group is not uniform, thus making the whole group the same as the responders would overemphasize any possible impact.

The following summarizes the impact scenarios in terms of high, low and midpoint. The high and low scenarios are both extreme and thus the midpoint is the only reasonable estimate. In this analysis, the cumulative impact is on the order of $2.4 million. This is relatively modest based on industry standards and in general, insufficient to create persistent vacancies.

SCENARIO	ANNUAL PROFIT CHANGE	CAPITALIZED VALUE 20%
LOW	$ (269,000)	$ (1,345,000)
HIGH	$ (688,000)	$ (3,440,000)
MID POINT	**$ (478,500)**	**$ (2,392,500)**

Some businesses have been impacted significantly on some blocks on the separated bike lane system in the downtown. However, the impact on the total downtown market has been modest and is expected to become less and even minimal, over the next few years. This analysis assumes that mitigation strategies are enacted. If they are not then the impact will extend to rents and property values, increasing the scale and scope of the problem.

4.3 THE OFFICE TENANTS

The office tenancy information from leasing agents indicates that the market is strong and that demand for office space in Vancouver is not being impacted by the installation of the separated bike lanes.

OFFICE BROKER INTERVIEW

In order to fully understand the impact of the separated bike lanes, senior office leasing agents at Cushman and Wakefield were interviewed on their effects on office leasing and new office tower projects, as well as the response from tenants on the lanes. The leasing agents noted that the separated bike lanes have had no impact on actual office lease deals. As well, there has been no discussion of separated bike lanes as part of tenant representation or building overview discussion, although some smaller buildings with the bike lane at the front door have provided some negative feedback.

When asked about whether the separated bike lanes would enhance or hinder a new office tower project, agents responded that the bike lanes could hinder a project if they affect access or egress to or from an office lobby, detracts from curb appeal, or reduces access to parking for the retail component. Agents anticipate that rents would climb by 5% in 2011, 5% in 2012, and another 5% in 2013. A number of firms are considering their options for a new building in 2015.

In addition to the broker comments, the office tenant surveys have confirmed that any impact has been mostly related to traffic delays where meeting and appointment times are being missed because visitors are having additional trouble accessing downtown. It is expected that this modest impact will decline with familiarity and ongoing changes to commuters travel patterns.

As mentioned before, this study does not consider issues such as the separated bike lanes encouraging some employees to bike to work and the business impact of this on their health and possible less need of

sick days. Such issues are valid but they amount to a small financial impact and their magnitude would be impossible to calculate and would be beyond the scope of the study.

SPECIFIC IMPACT ON EXISTING OFFICE BUILDINGS

Every block of the separated bike lanes was carefully assessed as to changes in access and visibility. The most important observations about office buildings and the separated bike lanes were:

- Office buildings and office development sites located on corners or which have a large building footprint typically have flexible access. The physical impact is not significant because they are able to offer tenants and users multiple access options (different streets, dedicated loading, parkade access etc.)

- Specific and significant physical impact would therefore tend to be for smaller scale buildings, not located on corners where bike lanes are immediately adjacent.

- The inventory of the separated bike lane adjacent buildings revealed that the only office buildings or sites that match these significant impact criteria are those located on the northeast corner of Hornby & Dunsmuir Streets. This area has been impacted more than any other because:

    1. Both bike lanes intersect at this corner;
    2. The right turn from Dunsmuir St. to Hornby St. has been eliminated;
    3. Adjacent street parking stalls were eliminated; and
    4. Direct vehicular and pedestrian access was impeded, even if slightly.

The building at 885 Dunsmuir St. is a ten-storey, 106,385 sq. ft. building dating from 1970. Although it is on the corner, it is at the intersection of the two separated bike lanes and has them on both street frontages. The building immediately north at 584 Hornby St. is a nine-storey, 54,055 sq. ft. building dating from 1984. The buildings further north include a small parkade and several small scale buildings. This portion of the city block could theoretically be consolidated into a larger scale office and mixed use development at some time in the future.

CHANGES TO THE NORTHEAST CORNER OF DUNSMUIR AND HORNBY ST

According to the City of Vancouver, the following describes the curbside parking regulations adjacent to these buildings:

Prior to June 2010, there were "No Stopping" regulations on the north and south sides of Dunsmuir St. and a painted bike lane on the north side. The parking regulations have not changed. As such, Dunsmuir St. access has not been impact significantly. Prior to December 2010, there were metered parking spaces on the east side of Hornby St. between Dunsmuir and the lane (alley) north of Dunsmuir. North of the lane there was a right turn lane and "No Stopping" regulations.

There were no loading or passenger zones and no opportunity to stop except in a vacant metered parking space or illegally in front of the parking structure driveway, the lane (alley) or in the right turn lane. The metered parking has now been removed. The conditions at the driveway and north of the lane are effectively the same as before with respect to legal stopping. Illegal stopping is probably now less attractive to some drivers as it would now block moving traffic.

In summary, the major changes are restricted right turns, the removal of parking and the physical barrier that the separated bike lanes have created. These are all material changes and in a weak office market they would likely be sufficient to have a measurable impact on office rent. The office leasing and investment market is expected to remain strong which reduces and mitigates business impact. However, the degree of impact is not measureable. Despite the reduced accessibility, it is not possible to estimate an accurate business impact on this corner with its two small office buildings with retail at grade-level.

POTENTIAL NEW OFFICE BUILDING DEVELOPMENT SITES SPECIFIC IMPACT

Downtown Vancouver is currently one of the most valuable commercial real estate locations in North America with approximately 214,944 sq. ft. being absorbed (leased or sold) in the first quarter of 2011. Vacancy rates have also dropped from 4.6% to 3.7% over the same quarter. As demand is projected to remain strong, new office developments are being proposed.

A map of the significant potential future office development sites is shown in Figure 16 below.

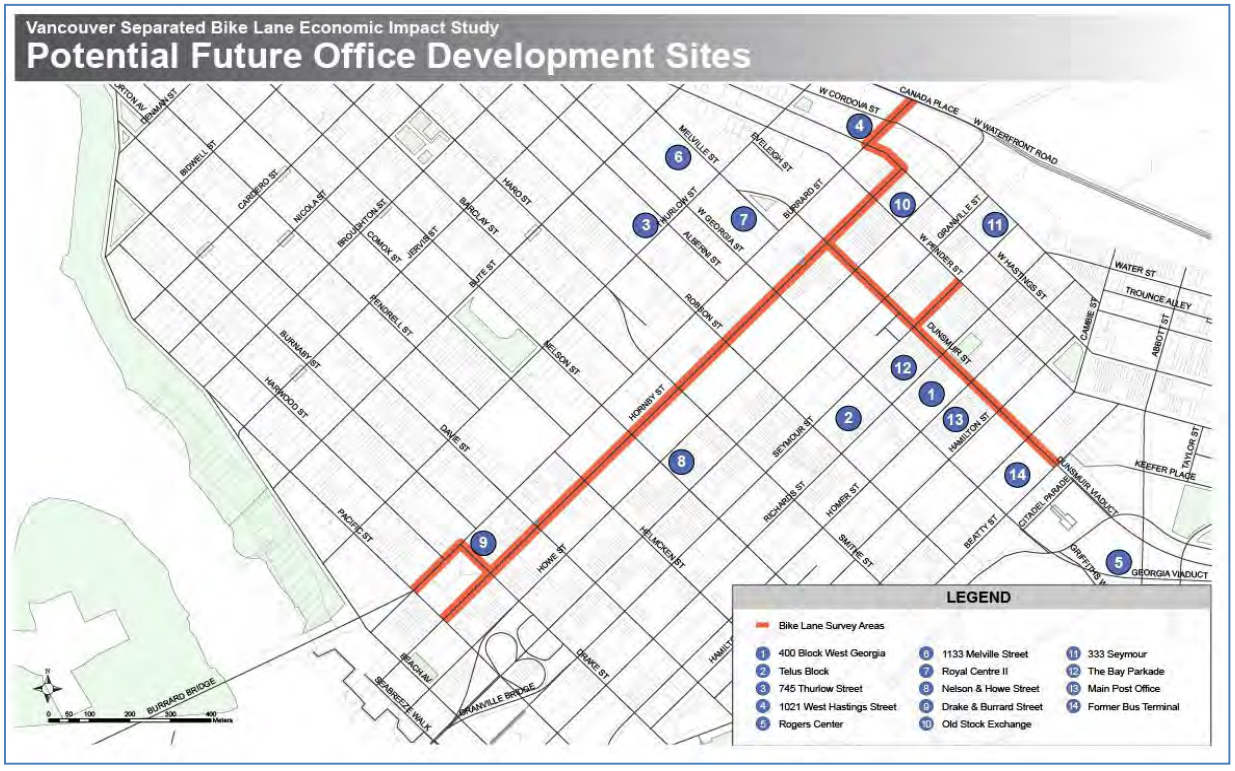


Figure 16 - Potential Future Office Development Sites

The square footage of each project ranges from 200,000 to 420,000 sq. ft. Several of these future office development sites are situated on Dunsmuir St., however, they are large-scale developments. None of the major future office development sites are on Hornby St. or would have separated bike lanes immediately adjacent to them. Thus the separated bike lanes have had no measurable business impact on future office development sites. Even if there were a site adjacent to the bike lanes, careful building design and the strong office market would reduce any potential negative impact.

TRAFFIC CONGESTION AND OFFICE COMMUTERS

The business impact, if any, on the office market is not building specific and must therefore be focused on the costs of congestion as well as changes in travel patterns in the CBD. The focus of the impact on commuters is mainly on office tenants, rather than retail employees, since the primary impact for commuters is during the morning peak commuter period which is often over before most retail stores are open. The cost of traffic congestion is being treated in Vancouver's broader report to Council on the total impacts of the separated bike lanes in July 2011.

MEASURED TRAVEL TIME ON HORNBY ST.

Several days of travel time data has been collected by the City of Vancouver for Hornby St. at different hours of the day before (during the months of September and October 2010) and after (during the months of March and April 2011) the installation of the Hornby separated bike lane. An analysis of this information shows the following:

- Between Pacific and Davie: a minor delay of between 3 and 8 seconds
- Between Davie and Robson: a minor delay at times between 3 and 14 seconds, while at other times travel times have been reduced by 1 and 16 seconds
- Between Robson and Georgia: little to no change
- Between Georgia and Pender: no change or reduced travel time by 10 and 23 seconds
- Between Pender and W. Hastings: a more significant delay of between 6 seconds and 1 minute

Thus, the total change in travel time for the Hornby corridor between Pacific and West Hastings has ranged from a reduction of 5 seconds to an increase of one minute and 37 seconds, of which the latter is equivalent to missing one traffic light. This change could have resulted from the implementation of the bike lanes. However, as travel time data was only collected for a few days at a time, this change could have also simply reflected the natural variability that occurs between different days and time of the year, or other construction projects and lane closures in the downtown core. To determine if these measured travel times actually reflect reduced or increased travel delays for commuters, more data could be collected.

The following maps graphically illustrate the measured average change in travel time for different segments of Hornby St. during the peak morning and afternoon hours.

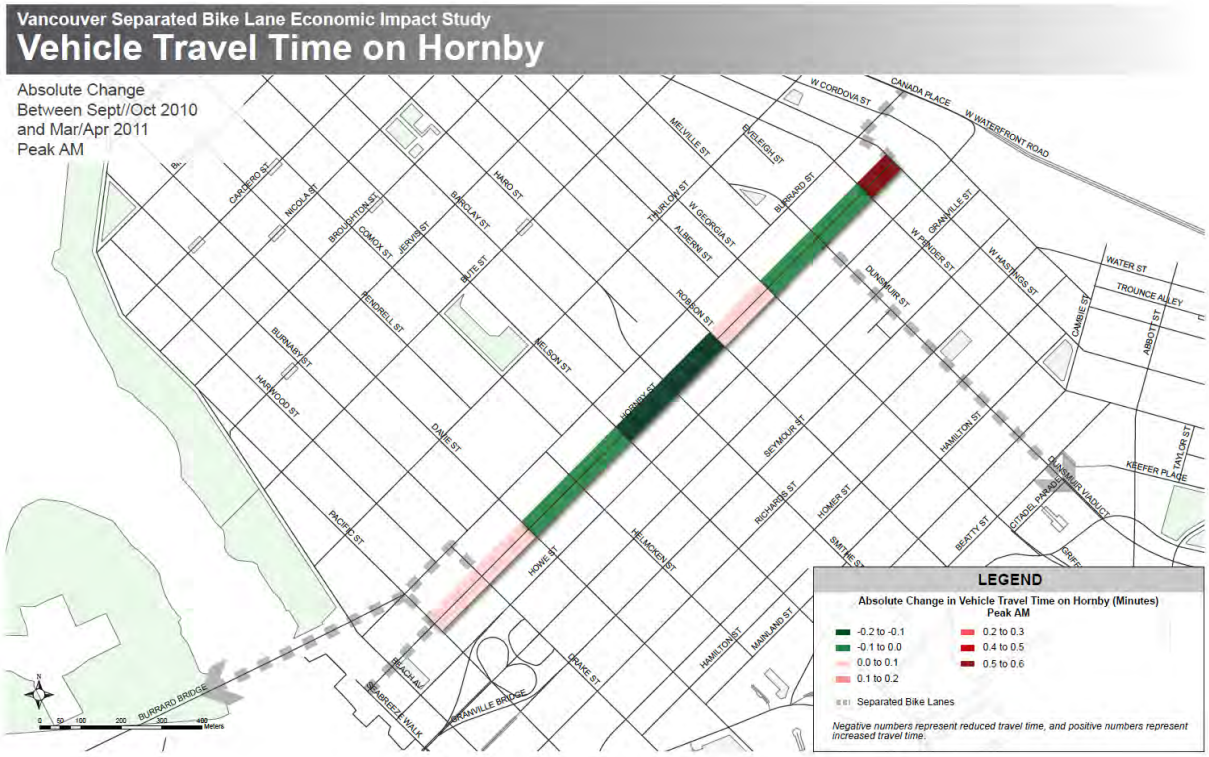


Figure 17 - AM Peak Vehicle Travel Time on Hornby St.

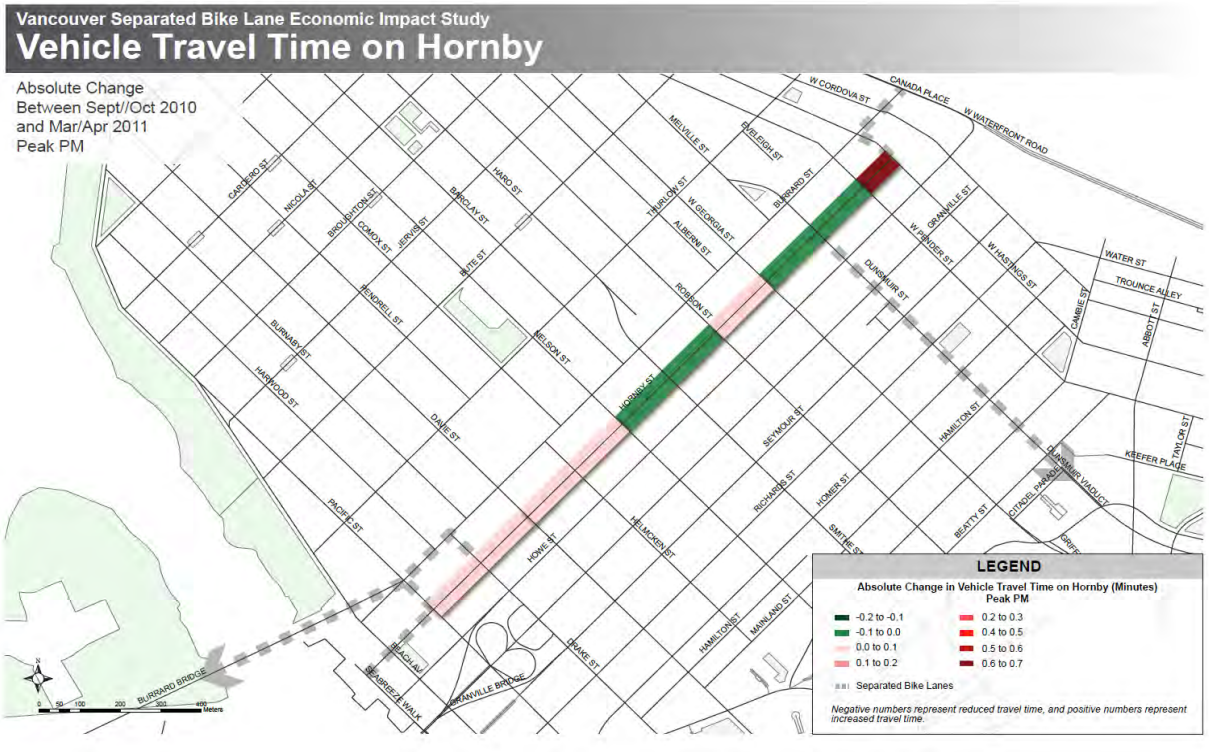


Figure 18 - PM Peak Vehicle Travel Time on Hornby St.

Data was also collected for February 2011, but this data was analyzed separately to see if there was any seasonal variation. Overall the changes seemed similar to March and April 2011.

Perceived Travel Time on Hornby

Meanwhile, when examining the upper floor employee's survey, the results show that the perception is that commute travel time has increased on average by 5 minutes as a result of the Hornby separated bike lane. While this is greater than the measured change in travel time noted above, studies have shown that *perceived travel time* can greatly vary from *objectively measured clock time.*[13] As a person's sense of comfort and security is reduced, perceived time tends to increase. Congestion and lower commute reliability also tends to increase perceived time. Additionally, other factors within Downtown or outside Downtown (e.g. road construction) could impact employees' travel time. Thus, as mentioned before, additional data should be collected to objectively determine what, if any, is the change in commute time as a result of the separated bike lane.

Given these limitations with the available travel time data, along with the fact that there are economic benefits and costs associated with longer commute times that are difficult to quantify and the valuation of travel time depends on the user, trip purpose, and travel conditions, this study is unable to apply a monetary cost to the change in commute travel time along Hornby St.[14] As mentioned before, however, congestion is being addressed in other studies the City of Vancouver is conducting.

4.4 THE PROPERTY OWNERS

The value of real estate is based upon its potential to generate revenue. The source of revenue for property owners is the rental stream from retail, office, hotel, or residential tenants. As such, the financial and business impact on tenants is actually a mirror of the impact on owners.

This analysis has elected to express the business impact of sales declines, in terms of the tenants. The business impact is relatively modest in scale and under no circumstances is any commercial space going to become persistently vacant in downtown Vancouver. If the separated bike lanes remain and drivers become used to them, there will be little or no adjustment in rent and the bike lane impact is expected to decline over the next five years.

In addition to assessing the potential business impact on existing buildings and tenants, there is also a consideration for future office buildings. After an assessment of each block face was completed, it became clear that the separated bike lanes would have no impact on future office residential or retail development potential in 31 out of the total 36 block faces. These are summarized in Appendix A. In general, most of the sites are already either built out, are so large as to be able to compensate for any changes in traffic patterns, are located on a corner, or have residential uses proposed for them.

[13] Yuen-wah Li (2003), "Evaluating the Urban Commute Experience: A Time Perception Approach," *Journal of Public Transportation*, Vol. 6, No. 4, pp. 41-67. Accessed on June 15, 2011 from www.nctr.usf.edu/jpt/pdf/JPT%206-4%20Li.pdf
[14] Litman, T. *Transportation Cost and Benefit Analysis II – Travel Time Costs.* Accessed on June 16, 2011 from http://www.vtpi.org/tca/tca0502.pdf

Table 6 - Blocks with Potential Impact from Bike Lanes on Development

500 Dunsmuir St. Odd	1. Ground level retail strip with second level. 2. Heritage buildings and small sites with minimal density potential. **Moderate development impact**.
600 Dunsmuir St. Odd	1. Mid-rise hotel, high-rise tower, hotel, restaurants, and a coffee shop. 2. Road narrows to 3 lanes. Hotel site redevelopment **moderate impact**, but corner site.
600 Dunsmuir St. Even	1 . Mid-rise office building. Mid-rise educational building, fast food restaurants. 2. **Small scale impact** on Granville corner site redevelopment potential due to poor access.
800 Dunsmuir St. Odd	1. Mid-rise office buildings with some retail and a coffee shop. Long-term redevelopment potential. 2. **Significant impact** on Dunsmuir & Hornby corner, as design cannot improve access, with bike lanes on two sides.
500 Hornby St. Even	1. Mid-rise office buildings (3) and a parkade, with a coffee shop, fast food restaurants, clothing stores and financial services. 2. **Moderate impact** on development potential of parkade and Dunsmuir corner. Potential for rezoning.

Out of the 36 block faces, only the 5 shown above may see a modest to significant impact from the separated bike lanes. Four of them are on Dunsmuir St. and only one is on Hornby St. It should be noted that by the time future development proposals are launched in the years to come, many other changes may happen in the surrounding area that could affect development potential besides the separated bike lanes. There is no certain measure of business impact on development potential, and as such, the owner group is not impacted in a measurable way other than some tenants who have reported reduced sales.

4.5 ANALYSIS OF 'HOT SPOTS'

It is the intention of this study to identify „hot spots', or those block faces along the separated bike lane corridors where the impacts of the lanes on businesses appeared to be especially negative. The purpose of identifying hot spots is to focus the efforts of the City on mitigation measures that will help businesses which have been negatively impacted.

The grade-level business and commercial property owners & managers surveys attempted to capture this impact. However, given the nature of the survey responses, there was limited or no information about many of the block faces. Therefore, it was challenging to conclude decisively which block faces were impacted the most. An alternative method was chosen to identify block faces where both a business owner and a property owner stated negative impacts due to the separated bike lanes. While this method may not necessarily identify the points where the business impacts are most severe, it provides a high level of assurance that the negative impacts due to the separated bike lane are real and therefore worth addressing.

In presenting individual block faces as „hot spots,' there was a concern that the stated business impacts of individual businesses and property owners and managers would be revealed. Therefore, to maintain confidentiality, block faces are aggregated into blocks, and any block where at least one business owner and at least one property owner stated negative impacts due to the separated bike lanes is identified as a „hot spot.' This is considered an acceptable aggregation because mitigation measures are generally applied to an entire block as opposed to only one side of a street.

Five hot spots were identified – the **400, 500, 600 and 1000 block faces of Hornby St.**, and the **600 block of Dunsmuir St**. These blocks appeared to have experienced especially negative impact from the implemented separated bike lanes.

The map below (Fig. 19) shows the location of the „hot spots' as identified using the above method. There are five blocks where negative business impacts due to the separated bike lanes were reported by both a business owner and a property owner: the 400, 500, 600, and 1000 block faces of Hornby St. as well as the 600 block of Dunsmuir St. Note that these are not necessarily the locations with the highest reported revenue declines, either in general or specifically due to the separated bike lanes.

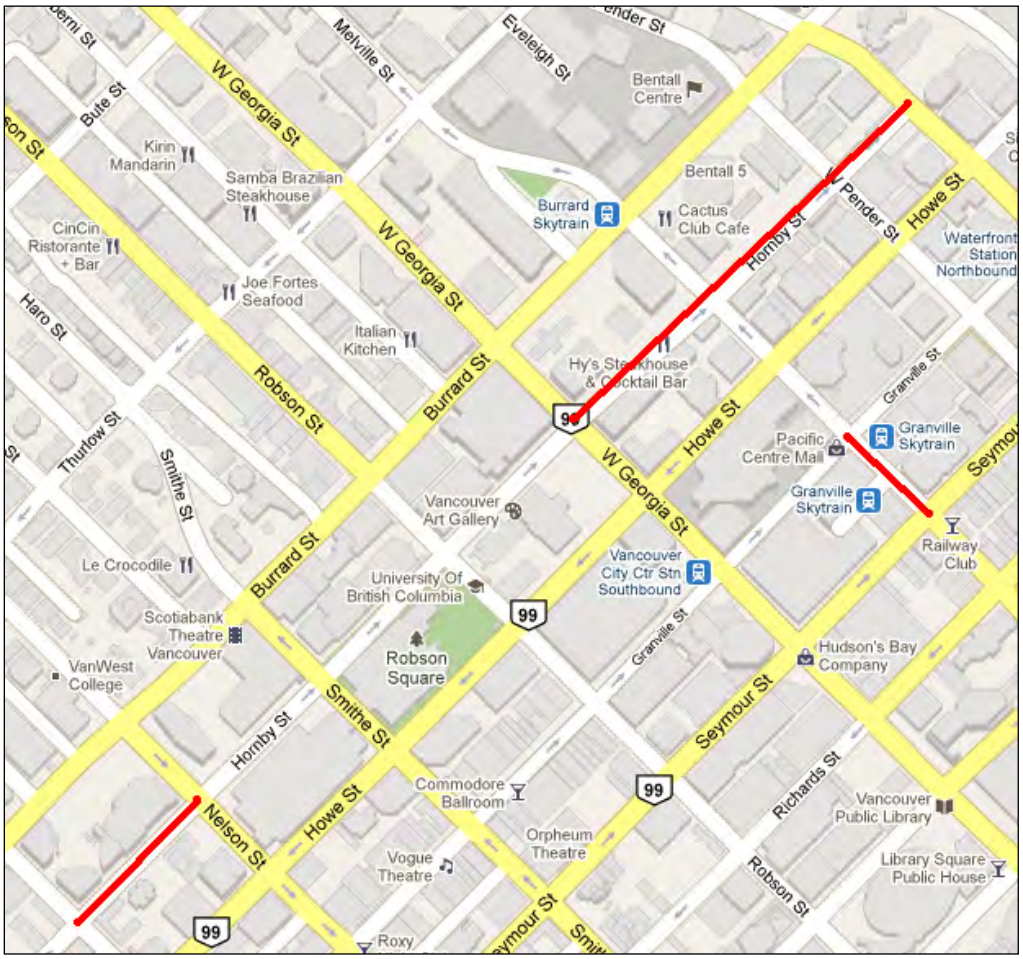


Figure 19 - Map of Hot Spot Blocks

Information provided from the five identified hot spots is provided in Table 7 below, which shows how businesses and property owners and managers characterized the impact of the separated bicycle lanes. For each hot spot, responses regarding parking, visibility, customer access, and deliveries are noted, as are additional negative impacts that might have been provided by respondents, such as navigating streets and passenger loading. The highest rating among the respondents is provided. Potential mitigation strategies for these hot spots are covered in Section 5.

As can be seen from the table, parking was the issue cited most often by grade-level businesses in the hot spot blocks, followed by deliveries and customer access. For property owners and managers, parking was not cited as often relative to issues with customer access and deliveries.

The main issue for both customer access and deliveries was the inability to make right turns on some streets along separated bike lane corridors. Customers and delivery drivers have had to take different routes in order to access businesses.

Table 7 - Hot Spot Blocks

		Level of Impact Reported by Grade-level Businesses on Impacted Corridors (Q. 15 of Grade-Level Business Survey)					Level of Impact Reported by Property Owners on Impacted Corridors (Q. 15 of Property Owner Survey)					
Street	**Block**	**Parking**	**Visibility**	**Customer Access**	**Deliveries**	**Navigating Streets***	**Parking**	**Visibility**	**Customer Access**	**Deliveries**	**Passenger Loading***	**Traffic Flow***
600	Dunsmuir	xxx	xx	xxx	xxx	-	x	-	xxx	xxx	xxx	-
400	Hornby	xxx	-	x	xxx	-	x	x	xxx	xxx	-	xxx
500	Hornby	xxx	x	xx	x	x	x	xxx	xxx	xxx	-	-
600	Hornby	xxx	-	x	-	-	-	-	-	-	-	-
1000	Hornby	xxx	x	xxx	xxx	-	x	x	x	x	-	-

*impact was provided by respondent

Legend
xxx Very negative impact
xx Between little negative and very negative impact
x Little negative impact
- No response or no impact

4.6 HOTELS

The hotel industry requires convenient safe and attractive access. There are a significant number of hotels on the separated bike lanes, however only one hotel responded to the survey. This may be because only this one hotel has experienced some form of negative business impact, or that the mitigation measures that the City of Vancouver has implemented for a number of hotels located on streets with separated bike lanes have been successful. These measures mainly involved changes in the location of loading and passenger zones.

4.7 LIMITATIONS OF DATA USED IN STUDY

There are a number of limitations in this study, which include the following:

i) It would have been ideal to create a business impact survey prior to the construction of the separated bike lanes in order to create benchmarks/baseline for the separated bike lanes and comparator streets that would be monitored over time.

ii) The business impacts of the separated bike lanes, both positive and negative, should be viewed as preliminary and a one-time investigation of the short term business impacts. It may take years for the impact to become clear and definitive. It is too early to know the full business effects of the separated bike lanes. As with any major infrastructure change in a city there is normal adjustment period. Impacts may continue to be felt in the coming months but will likely decline in future years as the City addresses the blocks where the impacts are

highest, with mitigation measures for parking, loading zones, turn restrictions and visibility/access issues. As well, it takes business customers time to adapt. This process has already been started, with City representatives meeting these above-noted businesses to address these issues.

iii) Although comparator streets were used to try to separate out the business impact of the separated bike lanes, there is very likely some residual effect in the responses from other potential factors impacting business losses or gains, in terms of sales, for downtown businesses in the City of Vancouver.

These factors include:

- The 2008-2009 economic downturn in Canada;
- Increased parking rates due to the introduction of the HST in July 2010 and the 14% tax increase for off-street paid parking implemented by TransLink;
- Road closures and access changes due to the 2010 Winter Olympics;
- The opening of the Canada Line rapid transit system in August 2009;
- The fuel tax increase of January 2010[15];
- Downtown construction that has affected traffic patterns
- Filming activity in the downtown core;
- The re-introduction of buses on Granville St.; and
- Stricter impaired driving rules.

In regard to the downturn in the economy between 2008 and 2009, this was very much felt in Metro Vancouver and downtown Vancouver, and a partial recovery only started in 2010. The grade-level business survey indicated that the business impacts contributed by the tax changes and the general economic downturn were also ranked almost as highly as the separated bike lanes as key factors decreasing business sales

iv) The analysis of the business impacts of the separated bike lanes had to rely on individual responses of businesses to the surveys and their best estimates of the impacts of the separated bike lanes in the surveys, in terms of changes in sales. This information is somewhat biased in that the responses were self- selecting, and not a random sample that would provide the greatest level of accuracy. As well, minimal hard sales data was received from the businesses. Although this data indicated that estimated loss in sales was not as high as reported, the responses by businesses have to be taken at their word. Perception in the business market is reality.

v) It should be noted that this study is limited to quantifying the business impacts of the separated bike lanes. It does not measure the macroeconomic or other related impacts of the separated bike lanes, which include the implications on the health of residents and employees, the health of the environment, shift to travel modes which are more sustainable, and the City's image and international reputation. Some of these issues have been raised by stakeholders in their survey and e-mail comments, which are summarized in the Appendices. Transportation metrics will be addressed in a City staff report to Council in July 2011.

[15] In January, 2010 the fuel tax levied by TransLink increased from 12 cents to 15 cents per litre, resulting in an increase of the total provincial motor fuel tax from 23.5 cents to 24 cents per litre. Source: http://www.sbr.gov.bc.ca/documents_library/notices/Notice_of_Fuel_Tax_Changes_and_Inventory_Requirements.pdf

5.0 Mitigation Strategies

5.1 BLOCK-SPECIFIC STRATEGIES FOR HOT SPOTS

In Section 4.5 of this report, five blocks were identified as „hot spots' along the Hornby St. and Dunsmuir St. separated bike lane corridors: the 600 block of Dunsmuir St. as well as the 400, 500, 600, and 1000 blocks of Hornby St. The specific mitigation measures that are recommended for consideration are as follows.

5.1.1 400 Block Hornby (Between Hastings and Pender)

Figure 20 - 400 Hornby St. Before and After Separated Bike Lanes

Survey results from the 400 block of Hornby St found that issues with deliveries were the biggest challenge for both grade-level businesses and property owners. Parking was also a main concern for grade-level businesses, while customer access and traffic flow were cited by property owners. Five parking spaces were removed on the northeast side of the street, replaced by the bike lane.

Right turns are no longer permitted from Hornby St. northbound turning east on West Pender, while right turns for westbound traffic onto Hornby St. are not allowed on a red light. Right turns on red are also not permitted when turning from Hornby St. eastbound onto West Cordova St. Two laneway entrances for delivery vehicles are situated in the middle of the block on both sides of the 400 Block of Hornby St. Vehicles are not allowed to enter the lane on the northeast side of Hornby St.

This combination of turning restrictions and a reduction in the number of parking spaces has made vehicle access more difficult for this block. There is no room in the block for adding back on-street parking, but the addition of signage directing drivers to parking structures either in the 500 block of Hornby St. or on neighbouring streets would help to ease demand for on-street parking. Allowing right turns on red when turning from Hornby St. northbound east onto W. Pender would help alleviate some access issues. Another issue is the speed of cyclists travelling north on Hornby St., since this block is at the bottom of a long hill. Conflicts were visible at the laneway due to the high speeds that cyclists attain by the time the reach the 400 block of Hornby St. Signs indicating „caution' or 'slow' should be placed at the south end of the 400 block to warn cyclists of potential laneway conflicts. In addition, for those vehicles exiting the laneway, convex mirrors could be set up so that drivers can see oncoming traffic without pulling into the separated bike lane.

This segment of the separated bike lanes is relatively little used compared to other segments, since many cyclists appear to reach their destinations prior to reaching this block. The block might be a candidate for a design that allows for seasonal variation by installing flexible reflective poles to delineate the lane marker separating the curb lane from the centre lane. The segment could be designated an exclusive bike lane in the summer months and used as a shared lane for the rest of the year. Another option would be to use automatic bollards that can be raised and lowered to establish a separated bike lane when necessary.

5.1.2 500 Block Hornby (Between Pender and Dunsmuir)

Figure 21 – 500 Hornby St. Before and After Separated Bike Lanes

The 500 block of Hornby has lost 10 parking spaces along the length of the east (right if moving in the direction of traffic) side of the block where the bike lane was constructed and 6 spaces on the opposite side of the street. Right turns for vehicles from Dunsmuir onto Hornby are now prohibited. The combination of reduced parking and vehicle access may be responsible for the negative impacts the bike lanes are having on businesses in this block.

One solution for the parking issue might be for the Diamond Parking lot on the east side of the block at 550 Hornby to offer short-term metered parking on the ground level for customers of businesses in the 500 block of Hornby St. to make up for a lack of on-street parking on this side. Not only would this help businesses, it would also provide an additional revenue stream to this parking facility. As well, signage on Hornby St. directing potential customers to the nearest parking structure could be put in place. This would also help to get drivers in the habit of using parking structures rather than looking for on-street parking.

There is an issue here and elsewhere with vehicle access and egress to parking garages and laneways (e.g. the 800 block of Hornby St. where the parking garage exit ramp is located close to the intersection of Robson and Hornby Streets, creating a congestion issue as vehicles wait for a break in pedestrian, cyclist, and vehicle traffic in order to merge onto the street). To cross the two-way separated bike lanes, vehicles often need to edge into the lanes and in order to see oncoming traffic and then merge into the nearest lane. This creates a conflict zone with cyclists as well as a potential safety hazard. Mitigation strategies that could ease the situation include warning lights to alert cyclists and pedestrians as well as mirrors so that drivers can see oncoming traffic.

The 500 block also has an issue with traffic entering Hornby St. from three separate laneways. It would be worthwhile to monitor signal timing at the intersection of Hornby and Pender to ensure that there is enough time for vehicles to clear the block so that congestion is minimized, especially during rush hours.

As well, reintroducing the ability to turn right onto Hornby St. northbound from Dunsmuir might be considered to improve egress from Dunsmuir block and access to the businesses on Hornby. However, one risk is that additional congestion may result due to cars waiting to turn right. It may also be hazardous to cyclists who are familiar with right turn restrictions at other intersections.

5.1.3 600 Block Hornby (Between W. Georgia and Dunsmuir)

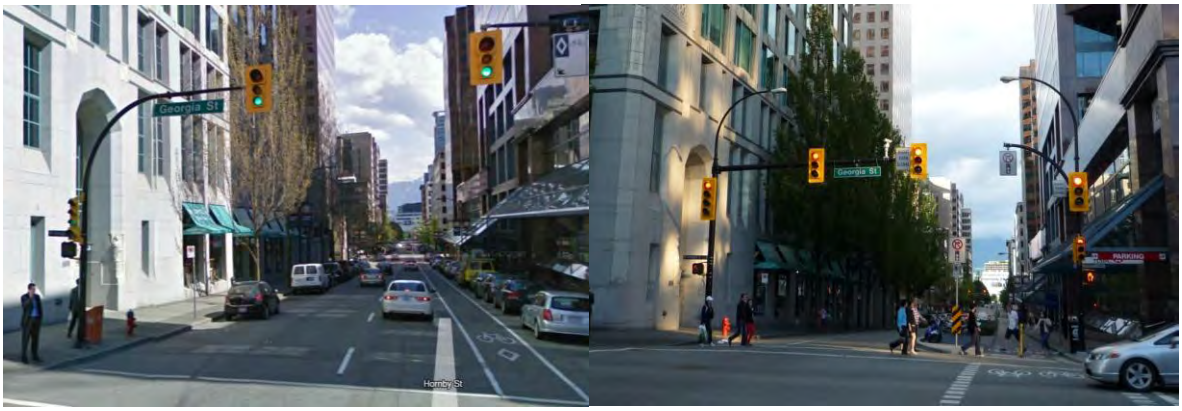


Figure 22 – 600 Hornby St. Before and After Separated Bike Lanes

To construct the separated bike lanes on the 600 block of Hornby, parking spaces were taken out on both sides of the street. As well, right turns are no longer permitted onto Hornby St. from West Georgia St. on a red light. However, a protected right turn signal phase has been introduced. Left turns onto Hornby St. from West Georgia St. have always been illegal between 7am and 6pm. While this block was formerly used for tour bus drop-offs, it no longer serves this function.

Additional signage on Hornby St. directing potential customers to the nearest parking structure, combined with a parking space counting system that informs them of the remaining number of spaces available, could be put in place to alleviate the demand for on-street parking.

5.1.4 1000 Block Hornby (between Helmcken and Nelson)

Figure 23 - 1000 Hornby St. Before and After Separated Bike Lanes

The 1000 block of Hornby St. had 11 on-street parking spaces removed to construct the separated bike lanes. Parking is still permitted on the east side of the street, but the bike lane now runs between the curb

and the parking spaces. While this preserves parking, it means that drivers who park along the block have to cross the bike lane to reach the sidewalk. As well, no right turns for vehicles from Helmcken St. onto Hornby St. on red are permitted. The combination of reduced on-street parking and changing vehicle access on the east side of the street may be causing negative impacts to businesses. The number of loading spaces did not change.

Signage on Hornby St. directing potential customers to the nearest parking structure could be put in place. One issue is that charges in parking structures are higher than for on-street parking, dissuading people from using them. A long-term strategy to eventually charge similar hourly rates for on-street parking as for parking garages would help to increase turnover of on-street parking spaces and make better use of parking garages.

5.1.5 600 Block Dunsmuir (Between Seymour and Granville)

Figure 24 - 600 Dunsmuir St. Before and After Separated Bike Lanes

It is recommended that businesses on these two blocks be allotted designated parking spots in the nearest off-street parking structure so that some parking demands for businesses on these streets are alleviated. Painted markings on the asphalt on the south side of the street indicating a loading zone would make it clearer that this lane is indeed used for loading, at least for part of the day.

A right-turn restriction has been added for vehicles turning right from Dunsmuir northbound onto Seymour, and this may impact access to the 600 block of Dunsmuir if customers of businesses on this block were turning right onto Seymour to access on-street parking. Reintroducing the ability to turn right would improve egress from this block and access to the businesses. With such a change, the City would need to be careful to clearly mark these changes, since cyclists will be familiar with right turn restrictions at other intersections.

The 600 block of Dunsmuir did not have on-street parking prior to the installation of the separated bike lanes, but parking and loading space has been an ongoing issue. Parking regulations on the south (left if moving in the direction of traffic) side of the street did not change after the implementation of the separated bike lanes, but the fact that there are now only two lanes of vehicle traffic due to the addition of the separated bike lane means that traffic must funnel into one lane when vehicles are unloading in the far left lane. On the north side of the street, a painted bike lane was located adjacent to the sidewalk prior to the implementation of the separated bike lane. It is possible that drivers had previously stopped illegally in the bike lane to access some of the businesses on the north side of the street.

Mitigation Strategies

5.2 GENERAL MITIGATION STRATEGIES

Table 8 summarizes the general mitigation strategies for minimizing negative impacts and maximizing the positive impacts of the separated bike lanes on businesses along the Hornby and Dunsmuir Streets corridors and in adjacent areas. Each strategy is followed by some examples of programs that could be introduced, the approximate level of cost, and a priority for the strategy. These strategies will be considered in light of the findings from the concurrent ICBC study looking at the impacts the separated bike lanes have had on safety and traffic, as well as other related issues.

Table 8- General Mitigation Strategies

Mitigation Strategy	Examples	Cost
Alter vehicle parking hours and restrictions	• Restrict peak hour vehicle parking • Allow more valet parking • Create on-street parking spaces • Add angled parking on secondary streets if possible	Low
Use automatic bollards that can be raised and lowered to establish a separated bike lane when necessary.	• Some cities have portions of the separated bike lanes that enable parking or other uses to be allowed by the use of automatic bollards which can rise when the bike lanes are most used and lowered in times of low usage	Medium
Modify bike parking	• Strategic placement of bike parking to encourage cyclists' use of businesses and minimize blockages • Prohibit scooters from parking in bike parking areas	Low/Medium
Add parking space counting system to direct vehicles to parking structures 	• Signage directing vehicles to parking garages could be combined with a parking space counting system, the latter currently in use at three Easypark parking structures in Vancouver. Such a system would ensure potential customers on Hornby St. are not dissuaded from shopping by a lack of on-street parking • A downtown-wide parking management system could be instituted	Low/Medium
Remove the special bike traffic lights to enable right turns, as these turns are now restricted. Bikes would be	• Bike lights at intersections are not used on all separated bike lanes	Low/Medium

Mitigation Strategy	Examples	Cost
treated like pedestrians at corners.		
Consolidate, add, or modify signage	• Add signs at intersections with right-turn signals warning pedestrians and cyclists of delayed signal • Add warning lights and caution signs to notify cyclists that vehicles may be in bike lanes while exiting laneways or parking structures • Allow larger signs on impacted corridors	Low/Medium
Change traffic flow patterns	• Direct more through vehicular traffic to the non-bike lane streets through modifications to the traffic signals, and signage • Add more right hand turns • Add advance right turn signals to reduce pedestrian and vehicle conflicts	Medium/High
Redesign or remove all or portions of separated bike lanes	• Modify bike lanes in „hot spot' blocks to better accommodate vehicles and pedestrians • Paint all bike lanes green in downtown core to increase visibility • Install flexible reflective poles to delineate lane marker separating the curb lane from the centre lane; segment could be designated as exclusive bike lane in summer and a shared lane at other times • Expand bikeway network to spread out impact	Medium/High
Amend by-laws on affected corridors	• Relax by-laws on bike lane streets to allow larger advertising signage, more outdoor seating, or reduced onsite parking requirements to help businesses attract customers and ease the transition from the start of construction through the post-construction adjustment period • Option to make some changes permanent	Low
Introduce programs to increase promote safer riding and driving	• Increase enforcement of illegal cycling behaviour by police or parking patrols and/or cameras • Develop targeted education campaigns to prevent collisions between cyclists, motorists, and pedestrians (e.g. New York City's the LOOK campaign to encourage motorists and cyclists to look out for one another)	Medium
Encourage cyclists to use businesses on bike lane routes	• Build on the Vancouver Area Cycling Coalition's (VACC) Business for Bikes program • Locate future bike share stations at strategic locations along Dunsmuir and Hornby	Low/Medium

Mitigation Strategy	Examples	Cost
Encourage shoppers to visit and spend time on Hornby and Dunsmuir	• Develop a branding program for Hornby and Dunsmuir so they become well-recognized destination corridors • Allow more outdoor café seating • Have City provide free parking to customers of businesses on impacted corridors for an hour or more per day • Introduce car-free days on summer weekends • Bring people on special buses from suburban communities to experience the area, with costs shared by transit and businesses • Utilize bike delivery services	Low/Medium
Make streets on separated bike lanes more attractive through beautification and enhancement program	• Install banners in dividers along bike lanes to promote individual businesses along route • Introduce mid-block crossings for pedestrians to increase accessibility to businesses • Provide storefront improvement grants • Sponsor media and social events	Low/Medium
Rezone to allow more residential development in areas that are most impacted	• Allow office rather than retail use in areas of significant impact	Medium

6.0 Lessons Learned

6.1 OVERALL BUSINESS IMPACT OF SEPARATED BIKE LANES IN THE IMMEDIATE TERM

In completing the study it has been found that the bike lanes have had a negative business impact on some businesses, although the scale of that impact is difficult to accurately measure. As mentioned, the Dunsmuir St. separated bike lane has been in place for about one year, while the Hornby St. bike lane was completed in January 2011. While immediate term impacts were examined, the longer term impacts of the separated lanes are more difficult to predict. The evidence points to Vancouver continuing to have a robust downtown business centre that attracts shoppers, residents, and workers to new retail and office developments and service offerings. Whether the separated bike lanes help to create a better environment for businesses along the corridors remains to be seen, but it is of prime importance that steps be taken to help businesses during any adjustment period.

6.2 APPROACHES AND STRATEGIES TO MAXIMIZE POSITIVE IMPACTS AND MINIMIZE NEGATIVE IMPACTS OF FUTURE VEHICLE AND BIKE LANE CHANGES ON BUSINESSES AND OTHERS

If the City of Vancouver decides to create more separated bike lanes on city streets or other major facilities that may have significant impacts and take away lanes of major roadways in the downtown area (e.g. transit priority lanes for buses, streetcar tracks, wider sidewalks etc.), the following approaches to help minimize negative impacts and also maximize positive effects are recommended.

Minimize negative impacts:

- Monitor changes in traffic flow and make changes based on any issues that arise
- Create a list of potential hot spots in coordination with businesses and work out mitigation strategies well before construction through detailed consultation including one-on-one meetings and workshops with businesses, in order to resolve any potential business issues
- Have a targeted safety education campaign ready to implement in the weeks after completion of the separated bike lanes, or other major facilities
- Consider the parking, visibility, loading zone and access needs of businesses block-by-block in undertaking consultation/communication programs
- Closely monitor safety in the period after construction, looking out for pedestrian/cyclist/motorist near misses in order to modify signage, turn signals, etc., with targeted safety education campaigns ready in advance if needed
- Provide a phone number or email address to leave messages about bike lane issue

Maximize positive effects:

- Create joint marketing and promotional events to connect cyclists and business along routes prior to and after construction
- Create bike parking and bike rental stations along separated bike lane routes
- Budget for some beautification and enhancement of streets where bike lanes will be constructed

- Budget for street branding and banners to promote bike lane streets as destinations in cases where lanes are on retail corridors
- Work with private parking companies to implement a linked electronic vehicle count and information system that indicates how full each parking garage is, and if at capacity, shows where other parking facilities with vacancies are located
- Relax by-laws on bike lane streets to allow, for example, larger advertising signage, more outdoor seating, or reduced onsite parking requirements to help businesses attract customers and ease the transition from the start of construction through the post-construction adjustment period, with the option to make some changes permanent

6.3 FUTURE MONITORING AND DATA COLLECTION STRATEGY

Prior to the implementation of cycling lanes or other major changes in use of road space such as transit priority lanes, a well-defined and continuous monitoring program could be established by the City with an assigned responsibility, budget, and reporting mechanisms. It would create baseline data prior to the start of projects, as well as gauge changes immediately following implementation and in the longer term. Transportation data collection would include vehicle, pedestrian, and cycling volume data on impacted corridors, and where possible, on comparator corridors as well. In addition, economic baseline data (rents, vacancy rates, sales changes etc.) should also be collected to quantify the impact to businesses, both positive and negative.

6.4 RECOMMENDED DESIGN AND CONSULTATION PROCESS TO FOLLOW WHEN PLANNING FUTURE TRANSPORTATION CHANGES WITHIN THE DOWNTOWN

Greater consultation with potential impacted parties

Before and after implementation of transportation related infrastructure projects (e.g. separated bike lanes, new transit priority measures, LRT or streetcar tracks etc.) potential impacted parties need to meet in groups and on a one-on-one basis, in order to explain the reasons underlying measures such as the creation of separated bike lanes and to address potential issues. As well, there needs to be sufficient time in the consultation process for different parties to digest and respond to information before any significant actions are taken towards the implementation of the project. When the overarching goals of changes to transportation infrastructure are better understood, it forms the basis for a better discussion on issues that directly impact businesses.

Engage businesses that are more likely to be impacted by changes to use of road space

Certain at-grade businesses may be more likely to be negatively affected by parking issues and ease of access. As our sample size was small, generalizations from our survey cannot be made as to whether these businesses will always be particularly affected by changes in road space. These business types included:

- Small businesses with tight profit margins, that are heavily impacted by even small changes in sales

- Hotels, which often see a need for loading zones in front as well as delivery access, either by alleyways or from the street
- Hair salons, especially those with elderly clients that prefer on-street parking near the entrance of the business
- Businesses with takeout service

Downtown Business Transportation Advisory Committee

In order to keep the downtown business community informed on local transportation issues and address any current transportation-related problems, a Downtown Business Transportation Advisory Committee could be formed. The Committee could meet monthly or quarterly with City of Vancouver transportation staff to discuss current transportation issues that businesses face, as well as for the City to consult on corridor planning projects, potential changes to traffic patterns, signals, parking, and regulations, as well as access management issues, lane closures and roadwork. By meeting on a regular basis, changes that could economically impact business would be addressed at an early stage and mitigated where possible.

Participants would represent their respective business organizations, which could include The Vancouver Board of Trade, Downtown Vancouver Business Improvement Association, the Downtown Vancouver Association, Gastown Business Improvement Association, West End Business Improvement Association, Robson St. Business Association, and Canadian Federation of Independent Businesses (on major downtown transportation issues).

7.0 Conclusions and Future Steps

The purpose of this study was to:

i) Assess the business impacts of the two separated bicycle lanes created in downtown Vancouver, and specifically, the range of changes in annual business sales and profits since the lanes were opened; and
ii) Identify the hot spots along the separate bicycle lanes (blocks where the business impacts caused by loss of parking, reduced visibility, reduced access by new intersection turning restrictions and/or changes to loading zones were the greatest) and suggest mitigation measures to reduce or eliminate these issues.

The study was not intended to examine the broader economic benefits of separated bicycle lanes in terms of increased mode share by bicycles or the related health, environmental and other benefits. As well, it was also not intended to review the impacts of additional traffic congestion. These areas and many other impacts of the bike lanes will be addressed in a comprehensive report to be presented by Vancouver staff at a council meeting in July 2011.

The business impacts were determined by six surveys of stakeholders (i.e., businesses owners, commercial property owners & managers, office employees, and customers along corridors and in the rest of Metro Vancouver). Business owners were interviewed along the bike lane corridors and on adjacent comparator corridors in close proximity and with similar business types - Howe St. for Hornby and West Georgia St for Dunsmuir - to try to eliminate, as much as possible, the impact that other factors have had businesses before and after the implementation of the bike lanes. Other information for the study was obtained from the following sources:

- Follow-up interviews of businesses that indicated they had experienced negative impacts from the bicycle lanes;
- Feedback from workshop held in May 2011 to hear concerns about the bicycle lanes to which impacted business along Hornby and Dunsmuir were invited; and
- Emails from businesses sent to the consultant representatives.

Results

Grade-level Businesses Survey: This survey was the main source of useful business data for this study. An analysis of responses received from 32% of the survey area businesses revealed the following:

- In 2011, the total percentage change in annual sales from the previous year as indicated by survey respondents was:

A:	Hornby St.	-11%
B:	Howe St. (comparator to Hornby St.)	-1%
C:	Dunsmuir St.	-2%
D:	West Georgia St. (comparator to Dunsmuir St.)	2%
E:	Other locations impacted by bike lanes	2%
	Average of all locations	-5%

- In 2011, the net impact on sales that was attributed to the bike lanes among those who responded was:
  Hornby St.: -10% (Difference between A and B above)
  Dunsmuir St.: -4% (Difference between C and D above)
  These numbers represent the high end of the range of business impacts and have been used to estimate the overall business impacts. Despite the use of comparator lanes to eliminate the impact of the numerous policy changes, there may still be some residual impact from these factors in the data.
- The business impacts were greater on the bike lane side of both streets were greater than on the side without the lanes.
- The largest sales declines reported by respondents on Hornby St. between 2010 and 2011 were experienced along the 500, 600, 900 and 1000 blocks, while on Dunsmuir St. the 600 block noted the greatest decline.
- The financial impact of the bike lanes has been a loss of sales and a loss of profit. The total loss in sales is estimated at $2.4 million over a year. Assuming profit is approximately 20% of sales, the estimated annual loss in profit over a year would be about $480,000. This is relatively moderate based on industry standards and, in general, insufficient to create persistent vacancies. The downtown is and will remain vibrant and the moderate negative impact of the lanes will diminish over time as long as mitigation strategies take effect.

Commercial Property Owners and Property Managers Survey: The responses from 30% of property owners and managers in the survey area indicated little difference in reported impacts between streets with separated bike lanes and comparator streets:

- Separated bike lanes were associated with an estimated loss of sales in the range 6-9% on both streets with separated bike lanes and comparator streets
- Parking tax changes and the HST were associated with an estimated loss of sales of between 9% and 11% on both streets with separated bike lanes and comparator streets
- 2011 vacancy rates were about the same on Dunsmuir Street and its comparator, West Georgia Street. Vacancy rates dropped on Hornby Street during 2011, while rising on its comparator, Howe Street

Customer Exit Survey: The analysis of a random sidewalk survey of 768 customers exiting businesses on Dunsmuir and Hornby Streets revealed the following:

- 79% of respondents on Dunsmuir St. and 76% of respondents on Hornby St. had not changed their shopping patterns as a result of the separated bike lanes. Of those who *had* changed their shopping patterns, the net change (% shopping more minus % shopping less) reported was 11% shopping less on Hornby St. and 3% shopping less on Dunsmuir St.
- Factors that led to shopping less included increased traffic congestion, less parking, turning restrictions, and reduced pedestrian safety.
- Factors that led to shopping more included easier bike access, a safer environment for cyclists, a more pleasant environment for cyclists and pedestrians, and easier access.
- 20% of customers on Hornby and Dunsmuir Streets arrived by automobile, compared with 42% by public transit, 32% on foot, and about 8% by bike. Among automobile drivers, the group most likely to be affected by the changes road use and traffic patterns for the separated bike lanes, 60% had not changed their habits, while 34% were shopping less often and 1% shopping more often.

Metro Vancouver Omnibus Survey: An analysis of the responses from 500 Metro Vancouver residents indicated:

- A large majority of residents (80%) in Metro Vancouver are aware of the separated bike lanes and have not changed their shopping habits on Hornby or Dunsmuir Streets since their construction. A net number (percentage shopping less often minus percentage shopping more often) of 10% of all respondents are shopping less often on Hornby and Dunsmuir. The main reasons given for shopping less often were traffic congestion and a lack of parking, while the principal reason given for shopping more often was a pleasant environment.

Upper Level Tenant Survey: An analysis of a sample of employees working in four buildings, two on the separated bike lanes corridors and two on the comparator off bike lane streets indicated the following:

- Of the employees located on the lanes who responded to the survey, 59% disliked the bike lanes while 20% liked the bike lanes. Meanwhile, 39% of employees located in buildings a block away also disliked the lanes, as opposed to 31% who liked the lanes. The reasons given for disliking the bike lanes are that they have increased the overall commute time and/or reduced ease of access to the building.

Analysis of Hot Spots

The study identified hot spots, or those blocks along the lane corridors where the business impacts of the separated bike lanes appeared to be especially negative due to a number of factors: a loss of parking; reduced visibility; restrictions in turning at specific intersections; reduced access to loading zones; and more difficult pedestrian access. The surveys indicated that the 400, 500, 600 and 1000 blocks of Hornby St., as well as the 600 block of Dunsmuir St. were hot spots. A number of specific mitigation strategies have been looked at to deal with the particular issues that the hot spots were facing. These include:

- Creation of more parking (short-term on-street spaces, dedicated on-street spaces, dedicated spaces in structures, etc.)
- Adjustments to loading zones such as more visible identification of them
- Investments in intersections to allow now unpermitted turns
- Improved parking signage and information about vacancy rates
- Warning signs and flashing signals where pedestrians have to cross the bike lanes
- Flexible zoning and reorientation of buildings

Overall Business Impact using Grade-level Business Model

The business impact model analysis used for this study is based on prototype industry standards and assumptions and data from the at-grade business survey. The cumulative impact is on the order of $2.4 million less sales per year. This is equal to an impact of approximately $478,000 less profit per year (profit 20% of sales). This is relatively moderate based on industry standards and, in general, insufficient to create persistent vacancies. The downtown is and will remain vibrant and the moderate negative impact of the lanes will diminish over time as long as mitigation strategies take effect.

SCENARIO	ANNUAL PROFIT CHANGE	CAPITALIZED VALUE 20%
LOW	$ (269,000)	$ (1,345,000)
HIGH	$ (688,000)	$ (3,440,000)
MID POINT	**$ (478,500)**	**$ (2,392,500)**

Lessons Learned

Prior to the implementation of cycling lanes or other similar significant changes to the use of existing road space (e.g. transit priority lanes), a well-defined monitoring program should be established by the City with an assigned responsibility, budget, and reporting mechanisms. It would create baseline data prior to the start of projects, as well as gauge changes immediately following implementation and in the longer term. Transportation data collection would include vehicle, pedestrian, and cycling volume data on impacted corridors, and where possible, on comparator corridors as well. In addition, economic baseline data (rents, vacancy rates, etc.) should also be collected to quantify the impact to businesses, both positive and negative.

The City needs to examine:

- The combined impacts of factors that have influenced downtown businesses including: general economic conditions, stricter impaired driving rules, increased parking taxes, road closures and changes in conjunction with the 2010 Winter Olympics, the opening of the Canada Line rapid transit system, and the re-introduction of buses on Granville St.; and
- The business impacts of increased congestion in the downtown area when reallocating road space for separated bike lanes, transit lanes and tracks, sidewalk widening, etc. which have many benefits.

Before and after implementation of transportation projects, City staff and potential impacted parties need to meet in groups and on a one-on-one basis, in order to explain the reasons underlying measures such as the creation of bike lanes. As well, impacts that may develop can be dealt with at these meetings at an early stage. Finally, in order to keep the downtown business community informed on local transportation issues, a Downtown Business Transportation Advisory Committee could be formed to discuss current transportation issues that businesses face and future plans by the City of Vancouver. By meeting on a regular basis, changes that could economically impact business would be addressed at an early stage and mitigated where possible.

FUTURE STEPS

Future steps now underway in regard to this study include:

- The City of Vancouver staff will be taking a report that addresses the comprehensive costs and benefits of the separated bike lanes on Hornby and Dunsmuir, and makes recommendations on how business and other impacts (positive and negative) should be addressed or enhanced. The business impacts identified through this study will be included and a copy of the completed study document will be available to the public.

- Vancouver City staff will be meeting with businesses located within the identified „hot spots' to discuss strategies that can be used to mitigate or eliminate impacts related to parking, loading zones, visibility, and intersection turning restrictions, as well as broader strategies that would assist them such as combined marketing initiatives.
- The City of Vancouver will be examining the lessons learned from this study in order to modify both its consultation and monitoring programs in regard to the planning and introduction of new facilities, and on-going monitoring programs such as separated bike lanes that relocate road space.