Is Hastings Street a “Stroad?”

A Sidewalk Activity Observational Study in Burnaby Heights
About Slow Streets

Slow Streets is a Vancouver based Urban Design and Planning group providing original evidence for people oriented streets. We believe streets serve many uses beyond moving automobiles quickly.

The Slow Street yields the best possible return on investment.

“Streets and sidewalks are a significant part of the public realm.”
(City of Vancouver, 2012, pg. 23)

Slow Streets is an approach that challenges what streets are for, and who they are for. A typical North American city street has been designed to move the maximum number of automobiles through as quickly as possible. Since streets are a public asset, does fast moving traffic bring the best return on our investment? Slow Streets demonstrates through research that designing streets strictly for automobile right-of-ways is ultimately harmful to cities. Therefore at Slow Streets we are calling for slower, more inclusive streets that generate more value and a greater return on our investment.

Slow Streets flips the typical transportation hierarchy and prioritizes what are traditionally ‘slower modes’ over ‘faster modes’. Slow Streets argues that prioritizing slower modes like walking, cycling, and transit will yield a greater return on investment for taxpayers and municipalities. Slowing down our streets also redefines their purpose, creating the potential for new uses other than mobility. Ultimately, streets are multipurpose spaces for people and a platform for creating social and economic value.

A street is more than simply about moving automobiles. Reconsidering the use of streets can achieve significant and positive impacts for cities. We believe these benefits are measurable and observable.

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Contributors: Chris Puzio, Meghan Proulx

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Is Burnaby Heights not reaching its full potential due to a Stroad design?

Executive Summary

This report is a summary of available data on Hastings Street from Boundary Road to Beta Avenue. Slow Streets gathered data on all transportation users on Hastings Street including: vehicle drivers, people walking, cycling and using transit. This report presents observational data conducted by Slow Streets to demonstrate how people walking react to the physical environment around them.

The purpose of this report is to provide information on the quality of the public realm along Hastings Street in Burnaby, called “The Heights” neighborhood. There have been calls from business owners on Hastings street for traffic calming measures. The upcoming Evergreen Rapid Transit Line is being seen as catalyst for change.

Hastings St. is trying to do everything, moving traffic through quickly while trying to sustain a fine grained retail environment for people on foot.

The neighbourhood features many of the urban design elements that support a vibrant and economically viable street, yet the potential is eroded by over 33,000 vehicles that travel down Hastings Street every day. This is demonstrated by the 234 people walking per hour volumes, which is significantly lower than other similar retail streets. Therefore to maximize the economic viability of streets with fine-grained retail uses, the priority should be to provide access for automobiles, not to move them through quickly.

To maximize the economic viability of retail streets, the priority should be to provide access for automobiles, not to move them through quickly.

Investments to improve the sidewalk experience will:
1. Invite more people to shop and visit the Heights.
2. Improve revenues for businesses.
3. Improve safety for people driving, walking, cycling and using transit.

Hierarchy of Modes

1. Walking
2. Cycling
3. Public Transit
4. Shared Vehicles
5. Private Vehicles
Is Hastings Street A Throughfare Or A Neighbourhood?

Hastings Street is a former provincial highway but has been decommissioned and is now under the supervision of Translink as part of the Major Road Network. Hastings Street becomes Barnett Road leading into Coquitlam and the Tri-Cities. The problem identified is that Hastings Street is currently accommodating high volumes of commuters, averaging 33,155 vehicles per day (City of Burnaby, 2015), but it’s current design is not suited to handle such high volumes of traffic efficiently. The residents and retail businesses surrounding Hastings Street in the Heights generate activities that interfere with the efficient movements of vehicles. The vehicles passing through the Heights are faced with frequent stops, pedestrian crossings, and vehicles merging.

People visiting and shopping on the Heights value their street and see it as a place to live, shop, and play. People on foot are faced with an inhospitable sidewalk environment that is loud and toxic, resulting from often being no more than 2-3’ from a vehicle travelling up to 60km/h. With the diversity of architecture, services offered, and short block lengths Hastings St. has all of the elements to flourish as a walkable retail street. However, since Hastings Street is a part of the Major Road Network, it prioritizes the movement of vehicles. In many ways, the street is a “stroad” trying to move traffic quickly at highway speeds while also trying to to maintain a fine-grain retail shopping environment. With this approach you get the worst of both worlds, vehicular traffic cannot be moved efficiently, while the comfort and safety of the sidewalk experience is eroded and business revenues are diminished.

Furthermore the needs of all relevant stakeholders need to be considered when considering change on Hastings Street. There are a number of vested interests in Burnaby Heights, including the residents, businesses and TransLink. Hastings Street serves as an important East-West connection for Vancouver, Simon Fraser University and neighbouring municipalities.

Based on Slow Streets observations, Hastings Street is much more walkable than a typical Stroad, but still lacks many qualities and activities of a comfortable and inviting street. The problems are complex on Hastings Street, but they can be repaired and Slow Streets gives several recommendations on how to do so.

Hastings St. sees 33,155 vehicles every day

Based on Slow Streets observations Hastings Street is much more walkable than a typical Stroad, but lacks many qualities and activities of a comfortable and inviting street.
The Evergreen Line is an extension of the current SkyTrain rapid transit system. It is currently under construction and is scheduled to open in Fall 2016. When the Evergreen Line is complete it will directly connect with the SkyTrain’s existing Millennium Line, which means that Port Moody and Coquitlam will be directly connected to Burnaby and Vancouver by rapid transit.

Currently without the Evergreen Line, Hastings Street is the most direct route between the Tri-Cities and Vancouver, Burnaby and the North Shore, and therefore experiences heavy traffic volumes. The Evergreen SkyTrain Line will provide a faster and more reliable route, and therefore should reduce some of the traffic volume and pressure on Hastings Street. This will provide the opportunity for Hastings Street to be reclaimed from being used a corridor for moving vehicle traffic quickly through a shopping district and community.
Regardless of how people arrive at Hastings Street, all business patrons ultimately access Hastings Street businesses on foot from the sidewalk. Therefore observations of the sidewalk were conducted to determine the typical behaviours and activities of people arriving on Hastings Street. The public life observations were set up to produce data that could be compared between the commuting off-peak and peak hours when the High Occupancy Vehicle lane is in operation.

Over 1,200 people were observed in 10 minute samples at two Burnaby Heights blocks (Gilmore Ave. and Hastings St., Carleton Ave. & Hastings St.) between January 26 and February 20, 2015. The observations were conducted at both sites at various times during the day including weekday midday, evening peak, and weekend midday.

**Sidewalk Observations**

Slow Streets conducted original research through a public space observation of Hastings St. at Gilmore Ave. and Carleton Ave. Throughout this report findings originating from original Slow Streets research will be marked with ★

Who did we observe?

- **Groups**
  - 74%
  - 26%

- **Gender**
  - 53% Female
  - 47% Male

- **Age Groups**
  - 1% Physical Impairment
  - 23% Older Adults
  - 4% Young Children
  - 28% Young Adults
Key Findings

How did they get there?

With 234 people walking per hour this is 64% lower than Commercial Drive (a comparable street) which was counted by Slow Streets in a separate study (Slow Streets, 2015). Despite the good weather, when shopping was observed it appeared to be for necessary errands moving quickly from store to store. Few people were observed leisurely shopping, socializing or lingering on Hastings Street. This indicates that the Hastings Street sidewalk is not providing an inviting, comfortable sidewalk experience. For the full infographic, please refer to the appendix.

Despite the good weather, when shopping was observed it appeared to be for necessary errands moving quickly from store to store.

What did they do?

- 13% Staying and Socializing
- 57% Walked Through
- 27% Shopping
Our observations found that there are significant differences between the peak and non-peak sidewalk counts at Gilmore and Hastings St. During peak hours, the south side of Hastings Street has its parking lane replaced with an HOV lane. This causes a significant increase in noise levels. Slow Streets also found that the north side (where the parking lane is still in effect) only saw half the reduction in foot traffic compared to the south side.

The observations demonstrated that the majority of people were arriving at the study site on foot. Since a high proportion of visitors spend the majority of their time in the Heights walking, it is recommended to focus investments on improving the sidewalk experience. The most effective ways to do this would be to slow down traffic to 30-40 kph, maintain a protected buffer in the curbside lane, and add more sidewalk space.

Since a high proportion of visitors spend the majority of their time in the Heights walking, it is recommended to focus investments on improving the sidewalk experience.
Right Elements, But Where Are The People?

But, they are often empty.

Burnaby Heights offers some good patios.

This is no surprise with over 30,000 vehicles daily.
During a previous Heights project in 2012, an intercept survey was completed asking visitors about their transportation behaviour and activities in the street. A total of 86 respondents completed this survey over the span of 5 weekdays including August 6-9 and August 12.

The majority of people visiting the Heights are local North Burnaby residents whose primary activities are shopping and eating out. A significant proportion of visitors resided within walking distance. The prominent travel method was walking, while 69% of respondents arrived by transit, walking or cycling.

The respondents were also asked an open ended question about whether anything made them feel uncomfortable during their visit. Of the 66 responses to this question, 43% mentioned something to do with the vehicle traffic on Hastings Street. This suggests that the high speed and high volume traffic on Hastings Street may be creating an unpleasant shopping experience in the Heights.

When asked how visitors got to the Heights that day, only a third of respondents stated they drove, while 40% walked and 27% of respondents used transit. This goes against the common belief that prioritizing vehicles is vital for the success of the retail street.
In 1979, Donald Appleyard from the University of Berkeley conducted research on traffic volumes for three different but similar San Francisco streets. The streets were categorized as heavy, moderate, and light streets with 15,000+, 8,700, and 2,000 vehicles/day respectively. The heavy street had more noise generated from more high-speed vehicles searching for parking. The heavy street also had more concerns for safety, degraded trust of their neighbors and people driving through, little social interaction on the sidewalk and higher average yearly collisions. In contrast, people on the light traffic street had three times as many friends and twice as many acquaintances on the street itself than on the heavy street.

**High Car Volumes Degrade Communities**

Noise levels affect the environment and enjoyment of the street. Since the vehicle capacity of the street is close to highway levels, so are the average noise levels. When conducting observations, conversations proved difficult due to the excessive vehicular noise. When you cannot have a conversation on the street, it is very unenjoyable and uncomfortable for people walking, and diminishes the sidewalk experience. People will often just walk through the Heights quickly to run their errands or to get inside.

**Noise Levels**

79dB Sounds like a Garbage Disposal

Noise levels affect the environment and enjoyment of the street. Since the vehicle capacity of the street is close to highway levels, so are the average noise levels. When conducting observations, conversations proved difficult due to the excessive vehicular noise. When you cannot have a conversation on the street, it is very unenjoyable and uncomfortable for people walking, and diminishes the sidewalk experience. People will often just walk through the Heights quickly to run their errands or to get inside.

**Higher traffic volumes affect the social lives of the people living on those streets. Streets prioritizing the comfort and safety of people walking are important for healthy social lives.**

People living on light traffic streets had:

- 3X more friends
- 2X more contacts

than people living on heavy traffic streets.
Vehicle Collisions Are Costly For Everyone

With so many vehicles traveling at high speeds through the Heights, vehicle collisions are inevitable. There were 1,457 vehicular collisions in the Heights on Hastings Street from Boundary Road to Beta Avenue from 2009 to 2013 (ICBC, 2015). This amounts to an average of 364 vehicle collisions per year, or almost 1 vehicle collision every day. These collisions add costs due to the necessary police, clean up and maintenance that we all have to pay. According to the Traffic Injury Research Foundation (2015), road crashes are estimated to cost Canadians $25 billion per year.

Vehicle collisions cost Canadians $25 Billion each year.

Source: (Traffic Injury Research Foundation, 2015)
STROAD: Street Design Where No One Wins

Cities often attempt to combine highway speeds and fine-grain retail uses. “Stroads” have the high maintenance costs of highway infrastructure, but the high volumes of fast moving cars also diminishes business revenues since the sidewalk experience does not feel safe or comfortable for visitors and shoppers to linger. (Strong Towns, 2013)

Safety By Design

Between 2009-2013, there were 12 collisions in the Heights involving vehicles and people walking (ICBC, 2015). Preventable injuries and deaths to people walking should not be considered a business-as-usual cost of mobility. According to a 2010 Burnaby study, vehicles are often speeding on Hastings St. with an average speed of 62 km/hr. Wider intersections such as Willingdon Ave. see many people on foot rushing through them. Currently Hastings St. has extremely wide lanes (3.2-3.6 meters) which encourages fast vehicle speeds and allows dangerous driving. Moving vehicles through quickly does not create a sidewalk environment that feels safe and comfortable. Since everyone eventually ends up on foot to enter businesses this does not support the future prosperity of businesses on the Heights. As a solution parking should be maintained at all times on Hastings St., the lane widths should be reduced, and travelling speeds should be reduced using physical designs.

Wide Streets Are Unsafe For Everyone

Doubling the street width causes 20X more collisions

Source: (VTPI, 1999)
An Abundance Of Parking

Parking: Right In, Right Out

With over 1600 parking stalls (4 per business), there is an abundance of parking in the Heights, 53% of it free. 75% of the Heights parking is available on the side streets and off-street lots. What can be done to encourage greater awareness of the availability and ease of parking in the Heights? In a sidewalk intercept survey, 31% of the respondents stated they drove to the Heights that day. 85% of driving respondents stated they preferred parking off of Hastings Street, with convenience and safety as the top reasons. For most people travelling east through the Heights it is a simple right turn to get to side street and off-street parking stalls. Signs showing clearly where the parking is should be erected possibly with the moniker “Parking in the Heights: Right In, Right Out”.

Between Boundary Rd. & Willingdon Ave.: There are 1697 parking stalls 53% parking is free 25% parking is on Hastings St.

Parking: Right In, Right Out

With over 1600 parking stalls (4 per business), there is an abundance of parking in the Heights, 53% of it free. 75% of the Heights parking is available on the side streets and off-street lots. What can be done to encourage greater awareness of the availability and ease of parking in the Heights? In a sidewalk intercept survey, 31% of the respondents stated they drove to the Heights that day. 85% of driving respondents stated they preferred parking off of Hastings Street, with convenience and safety as the top reasons. For most people travelling east through the Heights it is a simple right turn to get to side street and off-street parking stalls. Signs showing clearly where the parking is should be erected possibly with the moniker “Parking in the Heights: Right In, Right Out”.

Spot the Parking
Get Parking Right

Free parking can cause headaches for visitors and businesses. Shoup asserts that on street parking needs to be priced correctly so that there will always be an available parking space on every block face. Free parking produces low turnover and reduces the ability for more people to shop on a street. The lack of readily available parking spaces forces potential visitors to cruise the area looking for parking, which is dangerous for people on foot and contributes to further traffic congestion. The lack of readily available parking may also force people to shop elsewhere, because why would you spend 15 minutes looking for parking when you can drive somewhere else in 10 minutes? Properly pricing parking benefits the bottom line of businesses because potential visitors spend less time looking for parking and more time shopping. (Shoup, 2005)

Make Parking Work For Businesses

Excessive parking requirements, often mandated through zoning, bring a number of problems such as: inflated building costs, increased rents for businesses and residents enterprises, and spreading businesses further apart. Parking is also expensive, a parking stall can cost $5,000 per stall (VTPI, 2013). Free or underpriced parking has significant construction costs, but it also takes up valuable city real estate and produces little to no returns on investment to cover the construction and maintenance costs. Revenues from properly pricing parking can be spent in the neighborhood for beautification or repairs, so that the money people spend on parking directly benefits them.

Underpriced parking uses valuable city real estate with little to no returns on investment to cover construction and maintenance costs.

Each surface parking stall costs $5,000

Source: (VTPI, 2013)

Slow Streets conducted three on-street Hastings St. parking occupancy observations at various times including weekday midday and evening peak, and weekend midday (at Gilmore Ave., Madison St., and Carleton St.). The observations recorded the occupancies and frequency of vehicle turn-overs on one block face five times over one hour. The total parking stalls available on the observed block face ranged between 11-23 stalls. The average stall occupancy ranged from 1.17 to 2.75 vehicles per hour. The average available block face parking ranged from 1.2 to 13 stalls per hour. The results show that there are not issues with parking availability except during the weekend. Even when the HOV lane removes the southside on-street parking lane the opposite park lane still has 47% vacant parking stalls and the side street parking still have 40% average vacancy rates. Since there is not an issue of parking supply, clearly indicating where the supply of parking is will help get more people out of their cars to shop.

Pricing parking right benefits business revenues since potential visitors spend less time looking for parking and more time shopping.
Supporting More Ways To Visit: Transit

Hastings St. is an important transit corridor with 44,000 daily bus trips and 24 buses operating every peak hour (TransLink, 2014). Transit on Hastings Street is critical for connecting the Heights with the Vancouver downtown business area, Burnaby, Simon Fraser University, the North Shore and the many Burnaby Skytrain stations. Both the Slow Streets 2015 observations and the 2012 intercept survey found a large proportion of Heights’ visitors (27%) are transit users. This high volume of transit riders should be seen as an opportunity for Heights’ businesses. Buses driven in the curb side lane during peak times contributes to an uncomfortable sidewalk experience. Since all transit users eventually end up on foot, improving the sidewalk experience can also entice more transit users to visit.

In the short term, we recommend reducing the width of the road lanes, restoring permanent on-street parking and expanding the sidewalks to include more curbside streetscaping in order to limit the sidewalk exposure to noise and pollution. Reducing the road lane widths should be paired with a speed reduction to 40km/hr to further reduce traffic noise levels. A long term solution could include a bus only lane in the centre of the street, away from the sidewalk.

44,000 people carried on on Heights Hastings St. bus routes daily

27% of Heights visitors use transit

Source: (TransLink, 2015) Source: (HMA, 2012)
Supporting More Ways To Visit: Cycling

Cycling numbers are low on Hastings Street, with an average of 4 people per hour (in a recent study Slow Streets found that Union Street in Vancouver with its retail street protected bike lane saw 289 people per hour cycling). The lower cycling numbers are the result of forcing people who want to cycle to mix with high volumes of dangerous, fast moving vehicles. If proper infrastructure exists for people to cycle comfortably, then they will use it. Today, the businesses in the Heights neighborhood lose access to this growing market and additional customers due to a lack of infrastructure and designated cycling space.

Union Street, the “neighbourhood greenway” four blocks south of Hastings St., shows the potential for higher cycling numbers, should they be invited. According to City of Burnaby cycling counts on Union Street there can be up to eight times more bicycle traffic in the Heights if the appropriate cycling infrastructure were built. The safe and comfortable cycling access on Hastings Street can open up new revenue opportunities for Heights businesses. Furthermore, people cycling are more likely to shop more frequently and spend more overall (Clifton, 2012).

* Hastings St. has: 64 people cycling per day  
  (Based off of 16 hours days)  
  Union St. has: 209–333 people cycling per day  
  (Based off of 16 hours days)

Source: (Burnaby, 2015)

People cycling are more likely to shop more frequently and spend more overall than any other mode. (Clifton, 2012)
Recommendations

While the Heights features many of the urban design elements that support a vibrant and economically viable street, the potential is eroded by the 33,000 vehicles that travel down Hastings Street everyday. The data, collected by Slow Streets, shows that the street is falling short of producing a sidewalk experience that is comfortable for those who wish to linger, stroll or shop. With 234 people walking per hour, these volumes are significantly lower (64%) than similar retail streets like Commercial Drive. Ultimately, this diminishes the commercial viability of what is ultimately one of the Lower Mainland’s best retail streets. Therefore in order to maximize the economic sustainability of streets with fine-grained retail uses, the priority should be to provide access for automobiles, not to move them through quickly.

With the impending launch of the Evergreen Line and the anticipated decrease in traffic levels, there is substantial opportunity to reimagine the Heights as a more vibrant, people-oriented place. Changes should be made to reflect these future changes. Prioritizing the movement of vehicles quickly overlooks the opportunities for increasing business revenues, reducing toxic pollutants and creating a more pleasant sidewalk experience. Adopting a streetscape that prioritizes walking and cycling allows the Heights to generate more value for all of its residents and businesses.

Short Term Solutions

Place Making

Placemaking is a low cost measure that can have immediate benefits for creating an interesting and comfortable place to be. Adding placemaking measures such as more art and street furniture will help distinguish Burnaby Heights from other commercial streets and will highlight to people driving and using transit that they are passing through a neighbourhood and a unique commercial zone. This will also enhance the Height’s identity and improve the overall experience for those on the sidewalk. A number of good examples already exist such as the Heights Swing sign, merchant association banners and murals. Street art would not only create a more interesting place but it would also announce to people driving that they are entering a neighbourhood encouraging them to slow down.
Short Term Solutions

Restoring Parking and Lowering Speeds

Making Hastings St. on-street parking permanent and introducing a lower speed limit are both solutions that could be implemented within a year. Both of these solutions would reduce noise levels and create a more comfortable and inviting sidewalk experience by slowing down and placing moving traffic further away from the curb. While speed limit reductions are immediate and practical, in the long term, Hastings Street’s physical design must be altered to ensure vehicles travel at lower speeds.

Speed reductions from 50 to 30 km/hr typically reduce noise levels by 4-5 decibels, or more in some circumstances.

Source: (VTIP, 1999)

A study from Helsinki shows that not only can speed reductions save lives but they can also move more vehicles.

Source: (Helsinki, 2004)

If people are hit by a car travelling with a speed of:

- 32 km/hr: 9/10 Survive
- 48 km/hr: 5/10 Survive
- 64 km/hr: 1/10 Survive

Medium Term Solutions
A Retail Street Design That Works

Hastings St. traffic lanes were widened (3.2-3.6 meters) when it was converted into a provincial highway. Mixing highway designs with fine-grain retail is a recipe for failure. Trying to move cars through quickly while trying to maintain a comfortable and walkable retail street are two goals at odds with one another. Slow Streets recommends reducing the traffic lane widths to 3 meters and using the extra space to widen the sidewalk. Thinner lanes encourage slower traffic speeds by making driving faster seem unsafe (NACTO, 2015), this would reduce the traffic noise and improve safety dramatically (Speck, 2014).

As streets widen, crashes per mile per year increase exponentially.
Source: (WRI, 2015)

Neighbourhood Traffic Calming

Only implementing traffic calming on Hastings Street would lead to an increase in “rat running” through adjacent neighbourhood streets. Therefore traffic calming should be applied to the whole neighbourhood to ensure that Hastings Street remains the most convenient and direct route, while still providing local access to the neighbourhood for residents. Pender Street, Albert Streets and the back alleys in particular would benefit from slower traffic and being redeveloped to a human scale.
Long Term Solutions

Fill The Gaps

One indicator of the attractiveness of the Heights is the number of mixed use, street facing developments that have recently been completed or are under construction. This means that the Hastings corridor will see a growing number of residents who will likely access amenities in the Heights on foot, contributing to a more interesting and lively streetscape. Many of these new developments feature at grade retail, which contributes to a more rich walking experience. There are nine new developments in the Heights. These are four stories typically with retail space at grade. The developments can add as many as 250-300 new dwelling units and 27 new businesses in a district that is 2.5 km long (City of Burnaby, 2015).

Surface parking lots in the Heights are excessive in number and are never fully utilized. Slow Streets suggests redeveloping these lots with higher revenue generators like housing and businesses. Gradually redeveloping the lots for multiple uses, including more business and residential units, would add more employment and residential density. When redeveloping these surface lots for new uses, parking and car access must be preserved either through underground or above ground parking.

New developments should mimic the existing fine-grain scale with smaller properties to maintain affordable leases that support local “mom and pop” businesses that form the current character of Burnaby Heights.
Long Term Solutions
Maximize The Potential Of Side Streets

In the City of Melbourne, quiet narrow lanes between downtown businesses were given new life when cafes and bars were added to them, which appeals to humans rather than vehicles. There are costs to this proposal as the streets will need to be realigned to accommodate wider sidewalks, adding bike infrastructure, and possibly reducing parking. However, the redevelopment of the side streets into housing and commercial suites will be a tax revenue generator for The City of Burnaby.

Conceptual Rendering Of Madison Street

A conceptual rendering shows what Madison Street could look like if it was oriented for only people walking. The surface parking lots are developed and on-street lots removed, adding more businesses. Creating a safe and comfortable haven for people walking and utilizing the excess parking will invite people to shop, work and play more often regardless of how they get there.
Long Term Solutions
A Complete Street

Slow Streets observations of Hastings Street demonstrated that there were low volumes of people cycling, this is due to the uncomfortable and unsafe cycling experience having to mix with fast moving vehicular traffic. The high volumes of people cycling on the nearby Union Street demonstrate the potential to open up Heights businesses to more people, if cycling in the Heights is made inviting. Using space more efficiently by adding a protected cycling lane to move more people per hour will not only add another way to reach the heights, but it will result in more foot traffic and business revenues.

A Complete Street Conceptual Rendering

A conceptual rendering shows what Hastings Street could look like if it used space efficiently to open access for all modes. There is enough room on Hastings Street to widen the sidewalks, add bikelanes, maintain five vehicular lanes including two parking lanes. A bi-directional protected bike lane can be added at a low cost using the vehicular parking lane as a buffer similar to what was done on Richard Street in Vancouver.
References & Sources


Appendix: Observations

Burnaby Heights
Hastings Street between Gilmore and Carleton

An Analysis of how visitors arrive and their activities

Who did we observe?

![Gender Distribution Graph]

- 53% Women
- 47% Men
- 74% Individuals
- 26% Groups
- 1% Physical Impairment
- 23% Older Adults
- 4% Young Children
- 28% Young Adults

How did they get there?

![Transportation Methods Graph]

- 83% Walking
- 7% Cycling
- 9% Car
- 1% Other
- 234 Count per Hour Arriving at Sidewalk

What did they do?

- 13% Staying and Socializing
- 57% Walking Through
- 27% Shopping

Context

- Sunny Clear Skies
- Jan. 26 to Feb. 20, 2015
- 8°C feels like 8°C
- Highest: 84 dB Busy Street
- Lowest: 63 dB Conversation Average: 79 dB Busy Traffic

* Sound Readings taken over 2 minutes

These findings are the result of carrying out public space observations on Hastings St. from Jan. 26 to Feb. 20, 2015, counting people and their activities. The observations were conducted at varying times including the weekday peak and midday and weekend midday. Over 1,200 people were counted in 10 minute samples.
Appendix: Transit Data

<table>
<thead>
<tr>
<th>Bus No.</th>
<th>Full Bus Route (Eastbound)</th>
<th>Eastbound Peak Hour Buses (per hour)</th>
<th>Eastbound and Westbound Daily Boardings For Whole Bus Route (2013)</th>
</tr>
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<tr>
<td>130</td>
<td>North Vancouver to Metrotown</td>
<td>4</td>
<td>11,300</td>
</tr>
<tr>
<td>135</td>
<td>Downtown to SFU</td>
<td>8</td>
<td>21,000</td>
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<tr>
<td>129</td>
<td>Metrotown to Edmonds Skytrain stations</td>
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<td>7,000</td>
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<td>160</td>
<td>Downtown to PoCO</td>
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<td>4,150</td>
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<tr>
<td>c1</td>
<td>Loop on Boundary, Eton, Willingdon and Hastings</td>
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<td>200</td>
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<tr>
<td>c2</td>
<td>Hastings to Capitol Hill</td>
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<td>200</td>
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<tr>
<td>N35</td>
<td>Downtown to SFU</td>
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<td>150</td>
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Source: (TransLink, 2015)

Cycling Data

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<th>Street and Intersection</th>
<th>Time of Year</th>
<th>Direction</th>
<th>Daily People Cycling Count</th>
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<tbody>
<tr>
<td>Union Street - Macdonald to Ingelton</td>
<td>June - November 2010</td>
<td>Westbound</td>
<td>329</td>
</tr>
<tr>
<td>Union Street - Macdonald to Ingelton</td>
<td>June - November 2010</td>
<td>Eastbound</td>
<td>209-333</td>
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<tr>
<td>People cycling in the Heights</td>
<td>February 2014</td>
<td>Westbound</td>
<td>4 people cycling/hour</td>
</tr>
</tbody>
</table>

Legend
Grey = Burnaby Data
Green = Slow Streets Data

Source: (City of Burnaby, 2015)
## Appendix: Traffic Data

### Table 1: Vehicular Traffic: Source: City of Burnaby

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Westbound Traffic (Beta - Gamma)</strong></td>
<td></td>
</tr>
<tr>
<td>Peak Average (7 - 9 AM)</td>
<td>1,618</td>
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<tr>
<td>Peak Average (4 - 6PM)</td>
<td>960</td>
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<tr>
<td>Weekday Average on Hastings (1 - 5)</td>
<td>17,824</td>
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<tr>
<td>Full Week Average on Hastings (1 - 7)</td>
<td>16,300</td>
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<tr>
<td><strong>Eastbound Traffic (Beta - Gamma)</strong></td>
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<tr>
<td>Peak Average (7 - 9 AM)</td>
<td>512</td>
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<tr>
<td>Peak Average (4 - 6PM)</td>
<td>1,791</td>
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<tr>
<td>Weekday Average on Hastings (1-5)</td>
<td>15,332</td>
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<tr>
<td>Full Week Average on Hastings (1 - 7)</td>
<td>14,958</td>
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<tr>
<td><strong>Combined Eastbound and Westbound Traffic (Beta - Gamma)</strong></td>
<td></td>
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<tr>
<td>Combined Total (average for 24 hours)</td>
<td>33,155</td>
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<tr>
<td>Combined Peak Average (7AM -9AM)</td>
<td>2,130</td>
</tr>
<tr>
<td>Combined Peak Average (4 - 6PM)</td>
<td>2,751</td>
</tr>
</tbody>
</table>

Source: (City of Burnaby, 2015)
Appendix:
Burnaby Heights Modal Survey

HOV Lane Parking Impact – Heights Customer Shopping Survey August 13, 2012

A total of 86 people completed this survey over the span of 5 days including August 6-9 and August 12. The weather could be described as sunny, hot and humid with temperatures in the mid 20’s, high humidity and UV radiation. August 12 experienced partially cloudiness for a portion of the morning. No day saw rain.

There were a large number of refusals; it would be estimated at 50-70% of sampling. This was particularly evident with the Asian demographic which accounts for 25% of the Burnaby heights population.

1. Why are you in the Heights today?
   a. Eating out or shopping
   b. Heading to work
   c. Strolling or visiting
   d. Live in the neighbourhood
   e. Sports or cultural activities
   f. Other

2. How often do you visit the heights on a weekly basis?
   a. 1-3
   b. 4-7
   c. 8-10
   d. More than 10

3. How much do you spend (on Average) per visit in this area?
   a. less than $20
   b. $20-49
   c. $50-99
   d. $100 or more

4. What was your primary mode of transportation to the Heights today?
   a. Bus
   b. walk
   c. Bike
   d. Vehicle
   e. Taxi
Appendix: Burnaby Heights Modal Survey

5. What is your Usual mode of transportation to the Heights?
   a. Bus
   b. walk
   c. Bike
   d. Vehicle
   e. Taxi

6. How was your experience in finding a parking spot?
   a. Very Positive
   b. Positive
   c. Neutral
   d. Negative
   e. Very Negative

7. What type of parking did you use?
   a. On Hastings Street
   b. On a side residential street
   c. In a city owned parking lot
   d. In a businesses’ parking lot
   e. In a paid parking lot

8. What streets did you park between?
9. Where do you prefer to park?
   a. On Hastings Street
   b. On a side residential street
   c. In a city owned parking lot
   d. In a businesses’ parking lot
   e. In a paid parking lot

10. What is attractive about the type of parking that you prefer?
    a. Convenience
    b. Speed
    c. Safety

11. Which statement best describes your shopping habits for multiple errands at the Heights
    I park my vehicle and walk to all my destinations
    a. I park and drive to each of my destinations
    b. a mix of both

Appendix:
Burnaby Heights Modal Survey

12. How would you rate the sidewalk experience in the Heights?
   a Very Positive
   b Positive
   c Neutral
   d Negative
   e Very Negative

13. Do you find the sidewalk experience comfortable?
   a Yes
   b No

14. Have any of the following made your visit today uncomfortable?
   a Crime
   b Unclean appearance
   c High Speed vehicles
   d Lack of parked cars on Hastings St.
   e Large vehicles (e.g. trucks and buses)
   f Other
   g None of the above

15. Do any of the following factors prevent you from shopping at the Heights more often?
   a unpleasant pedestrian experience
   b Street Parking is not available on Hastings Street East Bound 3:30-6pm
   c Street Parking is not available on Hastings Street West Bound 6-8:30am
   d Other
   e None of the above

16. What category below indicates your age?
   a <25
   b 26-35
   c 36-45
   d 46-55
   e 56 or higher

17. What is your gender?
   a female
   b male

18. What city and neighbourhood are you from?