

# GREAT STREETS FOR SENIORS UPTOWN STREETScape STUDY

City of New Westminster | Bunt & Associates | UBC School of Community Regional Planning

Alex Taciuk, Filippos Gkekas, Mengying Li

March 20, 2018

# ACKNOWLEDGMENTS

The development of the Great Street for Seniors-Uptown Streetscape study would not have been possible without the involvement of seniors and other community members who shared their concerns, ideas and experiences in the Uptown neighbourhood of New Westminster.

The development of the study was made possible through the commitment and dedication of staff and students from Bunt & Associates, City of New Westminster, and the University of British Columbia's School of Community and Regional Planning (SCARP). The City's Access Ability Advisory Committee provided pivotal feedback during the development of this report's recommendations.

This study was greatly enriched through crash data from the Insurance Corporation of British Columbia (ICBC) and the New Westminster Police Department.

To all who were involved or took an interest in this study, your commitment and dedication to envisioning great streets for seniors is truly appreciated and commendable. It is hoped that the report will help improve independence and enhanced quality of life for the community that gave their time in support.

This study was made possible by:

## City of New Westminster

- Antonia Reynolds, Coordinator, Active Transportation
- Fan Jin, Transportation Technologist
- Jerry Behl, Transportation Engineer
- John Stark, Acting Manager of Planning
- Lisa Leblanc, Manager, Transportation
- Robyn McGuinness, Manager, Seniors and Youth Services

## Bunt & Associates

- Dan Ross, Senior Transportation Planner

## UBC SCARP

- Alex Taciuk, Graduate Student
- Clare Mochrie, Adjunct Professor
- Erick Villagomez, Adjunct Professor
- Filippas Gkekas, Graduate Student
- Dr. Maged Senbel, Associate Director and Professor
- Mengying Li, Graduate Student



# TABLE OF CONTENTS

<b>ACKNOWLEDGMENTS</b> .....	1	3.4.4 Corridors.....	10	5.3.5 6th Street & 8th Avenue.....	42
<b>TABLE OF CONTENTS</b> .....	2	<b>4. STUDY SITE</b> .....	11	5.4 Corridors.....	45
<b>EXECUTIVE SUMMARY</b> .....	3	4.1 Data Analysis.....	13	5.4.1 All Corridors Recommendations.....	46
<b>1. INTRODUCTION</b> .....	1	4.1.1 Crash Data from 2009 - 2017.....	13	5.4.2 6th Street.....	49
1.1 Project Vision & Objectives.....	2	4.1.2 Sidewalk & Intersection Assessment.....	13	5.4.3 6th Avenue.....	51
1.1.1 Project Vision.....	2	4.1.3 Engagement.....	13	5.4.4 8th Street.....	53
1.1.2 Project Goals.....	2	4.2 Gaps.....	14	<b>6. CONCLUSION</b> .....	55
1.1.3 Project Objectives.....	2	<b>5. RECOMMENDATIONS</b> .....	15	<b>7. ENDNOTES</b> .....	56
<b>2. BACKGROUND</b> .....	3	5.1 General, Site-wide Recommendations.....	16	<b>8. APPENDIX</b> .....	57
<b>3. APPROACH &amp; METHODS</b> .....	5	5.1.1 Policy Recommendations Toolbox.....	16	8.1 Appendix A: Policy Context.....	57
3.1 Approach.....	6	5.1.2 Site-Wide Design Recommendations Toolbox.....	19	8.2 Appendix B: Existing Conditions Report.....	59
3.2 Project Design.....	7	5.2 Sidewalk Spots Recommendations.....	21	8.3 Appendix C: Intersection Decision Charts.....	60
3.3 Methods of Inquiry.....	8	5.2.1 Narrow Effective Width.....	22	8.4 Appendix D: Crash Data.....	66
3.3.1 Crash Data from 2009 - 2017.....	8	5.2.2 Cracks, Buckling, & Uneven Surfaces.....	25	8.5 Appendix E: Engagement.....	67
3.3.2 Sidewalk and Intersection Assessment.....	8	5.2.3 Ponding.....	27	8.7 Appendix F: Best Practice Review.....	69
3.3.3 Engagement with Seniors and Other Stakeholders.....	8	5.2.4 All Sidewalk Spot Problem Areas.....	29	8.8 Appendix G: Benches Map.....	73
3.3.4 Best Practice Review.....	8	5.3 Intersections.....	30	8.9 Appendix H: Other Recommendation Locations.....	74
3.4 Methods for Recommendations.....	9	5.3.1 Signalized Intersections Toolbox.....	31		
3.4.1 General, Site-wide.....	9	5.3.2 Signalized Intersections Recommendations.....	34		
3.4.2 Sidewalk Spots.....	9	5.3.3 6th Street & 6th Avenue.....	36		
3.4.3 Signalized Intersections.....	10	5.3.4 8th Street & 6th Avenue.....	39		



# EXECUTIVE SUMMARY

***This data-driven study offers concrete recommendations on how the City of New Westminster's Uptown neighbourhood can be great for senior pedestrians to confidently, comfortably, and safely get around.***

## BACKGROUND

One of the biggest challenges facing aging populations in cities across Canada is safe and accessible mobility. Senior pedestrians are some of our most vulnerable road users. From 2004 to 2008, 35% of nationwide pedestrian fatalities and 63% of pedestrians killed at intersections were seniors, even though they comprised only 13% of the population. There is a gap in providing a safe pedestrian realm for seniors.

At the same time, the ability to independently access services and the community is paramount to seniors' dignity and quality of life. As people often outlive their ability to drive, there is a need to provide safe and comfortable streetscapes for senior pedestrians. Improving streetscape conditions for seniors will increase safety; perception of safety; and ultimately, mobility for a significant and growing segment of the population.

Providing safe streetscapes for seniors means catering to senior pedestrians' unique mobility characteristics. They are slower, require more breaks, have less visual and auditory capacity, and have more difficulty crossing streets than younger pedestrians. Additionally, 55% of all seniors in Canada have some sort of disability. These characteristics must be considered to accommodate senior pedestrians.

## CONTEXT

The City of New Westminster is supporting its aging population and has developed a strong foundation of policies and practices to do so; such as the Age Friendly City Strategy, Dementia-Friendly Community Action Plan, Master Transportation Plan, and Official Community Plan. Based on these policies the City aims to achieve, among other things, no traffic-related fatalities or serious injuries and aims to encourage seniors to walk more by improving pedestrian safety and accessibility. Work is needed to make New Westminster's streetscapes safe and comfortable for seniors.

## STUDY SITE

This project is focused on a prime location to develop great streets for seniors in New Westminster's Uptown neighbourhood. The study site has the highest concentration of seniors in the City and a diverse set of senior destinations. Nearly a third (31%) of the residents are seniors,

compared to 15% in New Westminster as a whole; and 54% of residents are 50 years and older. The site is walkable, with a diverse mix of uses and destinations for seniors including the Century House, New Westminster's only senior centre, and is relatively flat.

Despite this, there were 41 crashes that resulted in the serious injury or death of a pedestrian in the study site from 2009-2017. There were deficiencies on the sidewalk and most intersections can be upgraded to ensure safer crossings for pedestrians.

## AIM

The *Great Streets for Seniors - Uptown Streetscape Study* is a proactive project to answer the question "what is a great streetscape for seniors?" Streetscapes include the entire public realm associated with mobility (sidewalks, crossings, streets, etc.). This study builds on the City's robust policies to be an age-friendly community. It suggests recommendations that are transferable to other sites in the city.

## METHOD

The team analyzed crash data from 2009 to 2017, conducted a sidewalk and intersection assessment, engaged with seniors and key stakeholders, and undertook a best practice review. From this, the team took a senior-focused approach and a problem-focused approach to develop recommendations.





## RECOMMENDATIONS

The City should incorporate these and similar senior-friendly design principles into its design guidelines.

With these recommendations, the City can update policies, designs, and programs to support senior pedestrians in four categories: site-wide, at sidewalk spots, at signalized intersections, and along corridors.

Site-wide policy recommendations broadly focus around bylaw and traffic enforcement, improve snow and leaf clearance, education for pedestrians and drivers, streamline and improve access to *See Click Fix* services to report deficiencies in the pedestrian realm.

This study identifies spots where the city should upgrade sidewalks, based on the following principles: **wide, unobstructed, even, and well-maintained sidewalk surfaces**. These are especially important for senior pedestrians as even small deficiencies can be big barriers for them to get around.

All signalized intersections should have accessible features such as accessible pedestrian signals, direct and well-maintained curb letdowns, and tactile walking surface indicators. The maximum walking speed needed to cross signalized intersections should be 0.8m/s. **Signalized intersection timing should**

**be universally set to a 0.8m/s maximum throughout the site.** Intersections in the site required walking speeds fast as 1.25m/s. Crossing distances should be minimized. The City should take care to design for excellent pedestrian-driver visibility, especially at night. Intersections with the highest incidence of crashes leading to pedestrian injuries and fatalities should be prioritized for upgrades.

The City should prioritize interventions on corridors with high senior pedestrian traffic, such as 6th St, 6th Ave, and 8th St, as well as opportunistically, such as the City's 'Great Streets' program. **These corridors should include the following principles: physical comfort, pedestrian amenities, safety by design, and prioritized pedestrians.**

**Physical comfort** means wide unobstructed sidewalks separated from traffic with street trees that provide protection from the elements. **Pedestrian amenities** include regular areas to rest, sheltered bus stops, and places with the opportunity to socialize. **Safety by design** means adequate lighting, accessible features, even walking surfaces, and safe crossings. **Prioritizing pedestrians** is necessary to achieve the above. This may mean using space currently allocated for vehicles, slowing vehicular traffic, and increasing stoplight wait times for drivers.

## SENIOR-FRIENDLY PEDESTRIAN PRINCIPLES

***Key Principle: Safe and comfortable by design***

Seniors have unique mobility characteristics:

- Slower walking speeds
- Slower reaction times
- Can lack in endurance and require periodic rest breaks
- More difficulty crossing streets
- Physical and cognitive disabilities (including vision and hearing loss)

Senior-friendly pedestrian design:

- Level, wide, and unobstructed walking surfaces
- Narrow crossing distances
- Long crossing times at signalized intersections
- Excellent visibility between vehicles and pedestrians
- Accessible features by default on sidewalks and crossings
- Dementia-friendly features, including landmarks and consistent wayfinding



# 1. INTRODUCTION



*Safe and comfortable mobility is one of the biggest challenges facing aging populations across Canadian cities.*

**This data-driven study offers concrete recommendations on how the City of New Westminster's Uptown neighbourhood can be great for senior pedestrians to confidently, comfortably, and safely get around.**

The 'Great Streets for Seniors - Uptown Streetscape Study' is a proactive project to answer the question "what is a great streetscape for seniors?". Streetscapes include the entire public realm associated with mobility (streets, sidewalks, crossings etc.).

It builds on the City's robust set of policies, strategies, and plans to become an age-friendly community. This study also aims to suggest recommendations that are transferable to other sites in the city.

From 2004 to 2008, seniors represented:

- 63% of pedestrians killed at intersections
- 35% of nationwide pedestrian fatalities
- 13% of the population.<sup>1</sup>

This trend has not decreased. In BC from 2010-2016, 45% of pedestrians killed at intersections were 60 and older.<sup>2</sup>

Improving streetscape conditions for seniors will increase safety, perception of safety, and ultimately, mobility for a significant and growing segment of the population. The ability to independently and safely access services is paramount to seniors' dignity and quality of life. Seniors are increasingly 'aging in place', where they delay moving into care homes until later in life. As people increasingly outlive their ability to drive, it is important to provide a safe and comfortable pedestrian realm.

Local municipal governments must plan streetscapes specifically to accommodate senior pedestrians' mobility needs. **Over half of all seniors in Canada (55%) have some sort of disability**, so planners must accommodate people of all abilities.<sup>3</sup>

This study focuses on a site within the City of New Westminster's (CNW) Uptown neighbourhood, with the highest proportion of seniors in the City. It also houses many seniors' destinations, and attracts seniors from throughout the City and adjacent municipalities.



# 1.1 PROJECT VISION & OBJECTIVES

## 1.1.1 PROJECT VISION

The Uptown pedestrian system should be safe, convenient, and accessible for seniors. It should offer a high quality walking experience. Services and destinations should be accessible for people of all ages and abilities.

## 1.1.2 PROJECT GOALS

This study provides feasible recommendations to make the study site in Uptown an even safer, more comfortable, and inviting environment for senior pedestrians. These recommendations include design upgrades, policy changes, and programs.

## 1.1.3 PROJECT OBJECTIVES

1. Identify and map locations to upgrade in the study site
2. Identify problems in each location
3. Develop recommendations for each upgrade location in conjunction with project partners
4. Prioritize the upgrade locations
5. Recommend changes in City plans and policies
6. Develop recommendation on the transferability of solutions



*Uptown's parklet on Belmont St was first introduced in 2016 and is being used by residents and visitors of all ages,  
Source: [New Westminster Record](#)*





## 2. BACKGROUND



***The City of New Westminster has a strong foundation of policies and practices to support its aging population.***

Senior and accessibility-friendly policies are well integrated into City plans. Existing policies and practices that are supportive of great streets for seniors include:

- Age Friendly City Strategy (2017)
- Official Community Plan Update (OCP) (2017)
- Dementia-Friendly Community Action Plan (2016)
- Public Engagement Strategy (2016)
- Master Transportation Plan (MTP) (2014)
- Age-Friendly Business Initiative (2014)
- Seniors Engagement Toolkit (2011)
- Wheelability Assessment Project (2009)
- Annual Seniors Festival
- Seniors and Access Ability Advisory Committees

A more detailed discussion of City policies can be found in Appendix A: Policy Context.

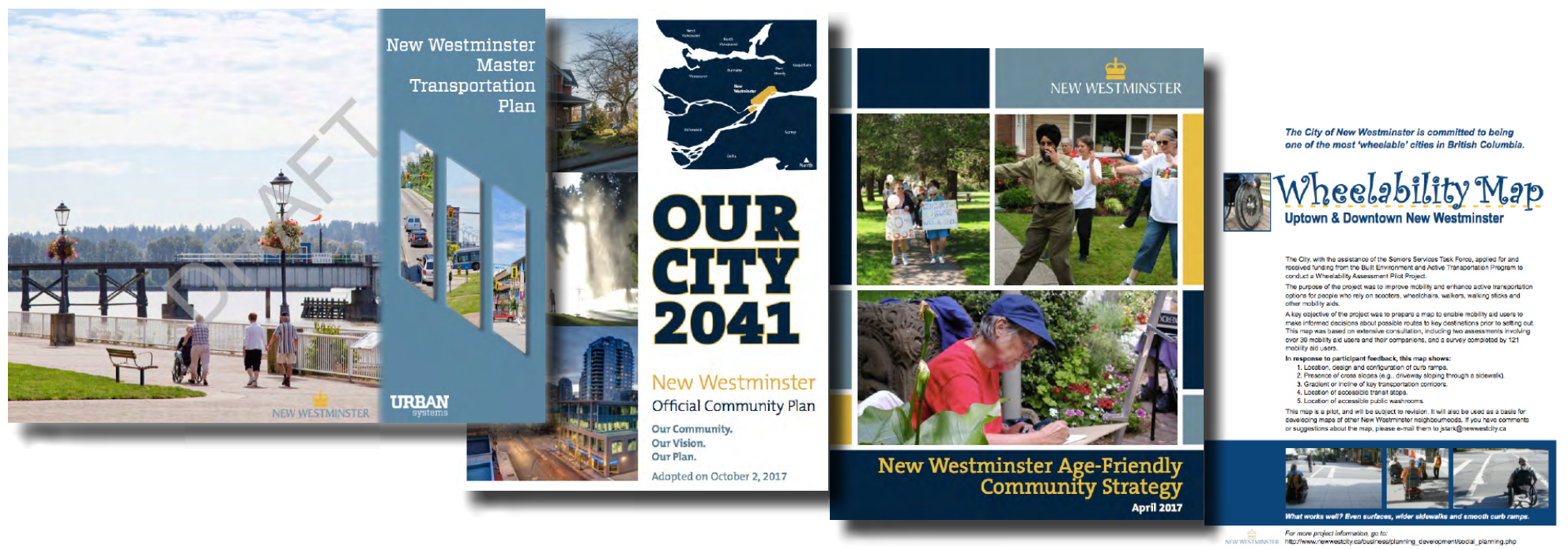
“Prioritize sidewalk improvements, including both new sidewalks and enhancements to existing sidewalks, in areas with high concentrations of vulnerable road users (children, youth and **seniors**) including areas around schools, parks, community centres and seniors’ facilities.”

- MTP Policy 1A.2

Key targets, policies, and actions from CNW policy:

- **Target 1: No traffic-related fatalities or serious injuries most years (MTP)**
- Policy 1C: Improve Pedestrian Safety and Accessibility (MTP)
- Action 10A.2: Work with local partners to establish Best Routes for seniors accessing key community destinations in the city (MTP)
- Action 1A.3: Work towards all sidewalks in the city having a minimum clear width of 1.8 metres, with an enhanced sidewalk clear width of at least 3.0 metres on Great Streets and other areas with high pedestrian activity (MTP)
- Policy 11.3 Encourage people to walk more by making the pedestrian environment safe, comfortable and convenient (OCP)

Four key City documents provide targets, policies, and actions regarding walkability for seniors:





# 3. APPROACH & METHODS



*This study is intended to fit into the City's long-term commitment to becoming an age-friendly community that supports active modes of transportation.*

This study was developed in a seven month period in partnership with the City of New Westminster, Bunt & Associates, and the University of British Columbia's (UBC) School of Community and Regional Planning (SCARP) Masters Studio Course. This study is timely as the City is beginning to plan 'Great Streets' in the site, notably 6th St and 6th Ave.

Section 3 describes the team's general approach (Section 3.1) to the study, methods on how the team studied the site (Section 3.2), and methods on how the team developed recommendations (Section 3.3).



## 3.1 APPROACH

The team followed **two approaches** to identify problem areas in the study site:

### SENIOR FOCUSED APPROACH

The team approached the pedestrian realm from a senior's perspective to identify opportunities and deficiencies in the site. Seniors have unique mobility characteristics. The team took into consideration those characteristics to recommend an even safer and more comfortable pedestrian environment. By meeting the needs of seniors, the team's recommendations will help create great streetscapes for all ages and abilities.

### PROBLEM FOCUSED APPROACH

The team used quantitative and qualitative data to identify problem areas in the site. Based on this approach, the team highlighted areas with issues that hinder walkability for seniors. The team then focused on suggesting recommendations based on those problems.

## SENIOR-FRIENDLY PEDESTRIAN PRINCIPLES

### *Key Principle: Safe and comfortable by design*

Seniors have unique mobility characteristics:

- Slower walking speeds
- Slower reaction times
- Can lack in endurance and require periodic rest breaks
- More difficulty crossing streets
- Physical and cognitive disabilities (including vision and hearing loss)

Senior-friendly pedestrian design:

- Level, wide, and unobstructed walking surfaces
- Narrow crossing distances
- Long crossing times at signalized intersections
- Excellent visibility between vehicles and pedestrians
- Accessible features by default on sidewalks and crossings
- Dementia-friendly features, including landmarks and consistent wayfinding



## 3.2 PROJECT DESIGN

The project was split into **three phases** of work to identify problems and develop recommendations for the City.

### PHASE 1: PROBLEM IDENTIFICATION AND GAP ANALYSIS

The team gathered and analyzed quantitative and qualitative data to identify problems in the study site that prevent it from being a great streetscape for seniors.

- Background research and review
- Engagement with seniors and key stakeholders
- Crash data review
- Best practice review
- Problem identification and analysis of locations that require upgrades

### PHASE 2: OPTION DEVELOPMENT AND ASSESSMENT

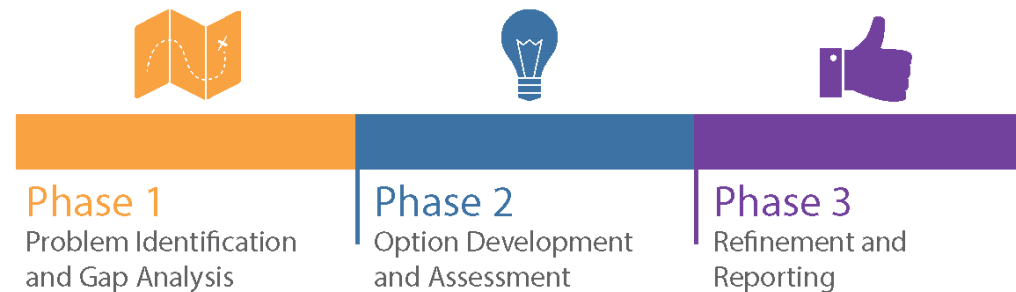
The team developed options to improve the streetscape environment based on best practices, site conditions, and community-generated ideas.

- Option development for problems in the study site
- Stakeholder walk-through
- Presentation to City's Committees

### PHASE 3: REFINING AND REPORTING

Based on the feedback received from project partners and stakeholders, the team refined the options into feasible recommendations.

- Preferred options evaluation
- Refinement of options with project partners
- Report preparation



## 3.3 METHODS OF INQUIRY

The team used **four methods of inquiry** to identify problems in the study site:

### 3.3.1 CRASH DATA FROM 2009 - 2017

The team used the crash data to identify potentially dangerous locations in the study site and ultimately gain an understanding of how the street design could be improved to increase safety for pedestrians. The team analyzed crash data where a pedestrian was seriously injured or killed on the site from ICBC and the New Westminster Police Department. Crash data provides the strongest evidence to identify unsafe locations in the study site.

### 3.3.2 SIDEWALK AND INTERSECTION ASSESSMENT

The team conducted a streetscape survey on the entire site to determine the condition of sidewalks and intersections and identify problem areas. This survey was designed based on the Wheelability Assessment Project and similar streetscape surveys<sup>4,5</sup>. The assessment was important to ensure that the streetscape environment is consistent with the required standards for senior pedestrians to comfortably and safely get around.

### 3.3.3 ENGAGEMENT WITH SENIORS AND OTHER STAKEHOLDERS

Meaningful engagement with seniors and other stakeholders provided a wealth of knowledge on the lived experiences of senior pedestrians in the study site. Engagement was paramount as it generated problem areas and potential interventions. The team:

- Engaged with more than 150 seniors and community stakeholders in two sessions at the Century House
- Administered a paper survey at the Seniors Festival 2017 at the Century House
- Conducted phone interviews with key stakeholders
- Coordinated a walk-through with seniors and City staff members
- Presented to the Access Ability Advisory Committee

Seniors have unique mobility characteristics that are best understood by the seniors themselves. Engaging with seniors and other stakeholders provided insights into opportunities and challenges on the site and ideas for upgrades. Community stakeholders such as City Staff, members of the Century House, Uptown Business Association (UBA), Thornebridge Gardens Retirement Residence, and Moody Park Residents Association provided their input as well.

### 3.3.4 BEST PRACTICE REVIEW

The team examined similar projects and policies from North America and across the world. These offer information on features and conditions required to make the urban streetscape environment safe and comfortable for seniors. These informed many of the upgrades suggested in the recommendations section (Section 5). The team examined:

- 'Safer Streets for Seniors' (New York City)
- 'Vision Zero Safety Plan' (City of Toronto)
- 'Safe Routes for Seniors' (USA)
- 'Age-Friendly Communities in Canada' (Canada)
- 'Mobility and Transport Road Safety Design Guide' (European Commission)
- Canadian Council of Motor Transport Administrators (CCMTA) Design Guidelines
- Transportation Association of Canada (TAC) Design Guidelines
- National Association of City Transportation Officials (NACTO) Design Guidelines
- Americans with Disabilities Act (ADA) Standards for Accessible Design

Reviewing case studies and best practices was essential to provide rigorous recommendations and identify additional design and policy gaps to make Uptown and the CNW a great place for senior pedestrians. For more details see Appendix F: Best Practices Review.



## 3.4 METHODS FOR RECOMMENDATIONS

There were **four pedestrian realm categories of analysis and recommendations**. These captured the varying spatial size of recommendations, as explained in each category below. This section also describes the methods the team employed to study the four categories. The team developed a toolkit of upgrades in each category that can be applied throughout New Westminster.

### 3.4.1 GENERAL, SITE-WIDE

General, site-wide recommendations are non-site specific interventions to improve the general comfort and safety of the pedestrian realm for seniors. The team developed a recommendation toolkit for the City, which includes programs, policies, and design guidance.

The team identified site-wide problems and recommendations through:

- Engagement with seniors and other stakeholders
- Review of best practices, case studies, and street design guidelines

### 3.4.2 SIDEWALK SPOTS

These are problems that occur at certain spots on sidewalks. These spots do not necessarily reflect entire corridors.

Safety is the ultimate priority in New Westminster sidewalk design. The team conducted a sidewalk and intersection assessment on the site to assess challenges to safety. The team recorded sidewalk widths, sidewalk effective widths, spots of cracking, buckling and uneven surface, ponding, and inconsistent pavement materials. Three major problem types stood out to the team, described below. The team analyzed the problem types in ArcMap GIS. They mapped the problems by adjacent building parcel frontage and ranked them by severity. The team presented the ten highest ranked problem areas of narrow effective width and cracks, buckling, or uneven surfaces, based on the Natural Breaks (Jenks) classification method. The five largest ponding events were also highlighted.

The three major sidewalk spot problem types are described as follows:

1. **Narrow effective width** refers to sidewalk widths that are uncomfortably narrow and may not accommodate two wheelchairs abreast. The team believes that widths below 1.0m are uncomfortable for people using mobility aids. TAC's Geometric Design

Guide for Canadian Roads cites 0.9m as the minimum operating width for a wheelchair and 1.2m with a service animal. The ADA cites 1.2m as the minimum width for unimpeded travel.

2. **Cracks, buckling, and uneven surfaces** stood out to the team as potentially dangerous for senior pedestrians, especially those who use mobility aids. Community participants in the Wheelability Assessment Project noted that cracks larger than 1.25cm are potential trip hazards.
3. **Ponding** along sidewalks and crossings creates uncomfortable and potentially unsafe areas. They could limit seniors from accessing destinations during rainy or freezing conditions. Small ponding instances like puddles may freeze in colder weather, creating slip and fall hazards.





### 3.4.3 SIGNALIZED INTERSECTIONS

These recommendations are applicable over all signalized intersections in the site. Intersections are the most complicated parts of the pedestrian realm, with a great variety of possible designs. Most crashes between pedestrians and vehicles occur at intersections, so they have the biggest opportunity to enhance the real and perceived safety of the pedestrian realm.

The team used qualitative and quantitative data to analyze signalized intersections. The team undertook a sidewalk and intersection assessment, which provided data on curb letdowns and intersection walk signal timing. The team analyzed crash data to learn how and where crashes were happening. Engagement with seniors and other stakeholders provided information on which intersections felt unsafe, why they felt unsafe, and potential interventions on how to fix them. For a more detailed description of the intersection conditions see Appendix B: Existing Conditions Report.

The team developed a toolkit of intersection upgrades for the City to apply at intersections throughout New Westminster, based on:

- Review of best practices and case studies
- Review of City plans and policies
- Engagement

The team developed decision charts to determine if problems existed at intersections and what upgrades should be put in place to address those problems. The charts may be found in Appendix C: Decision Charts.

The team used the toolkit and decision charts to develop recommendations for all signalized intersections on the site.

The team also produced detailed short-term and long-term upgrades on three intersections with the highest amount of pedestrian crashes. The short-term upgrades are quick wins to improve safety. The long-term upgrades are aspirational designs to maximize safety and comfort for senior pedestrians.

The three primary intersections are:

1. **6th St and 6th Ave**
2. **8th St and 6th Ave**
3. **6th St and 8th Ave**

### 3.4.4 CORRIDORS

There are recommendations that are best suited across corridors. Corridors have common characteristics and/or are designated as corridors in City documents.

The team identified three key senior pedestrian corridors based on:

- Review of City plans and policies
- Engagement
- Sidewalk assessment
- Review of best practices and case studies

Three corridors were identified:

1. **6th St**, from 5th Ave to 8th Ave
2. **6th Ave**, from 6th St to 8th St
3. **8th St**, from 6th Ave to 8th Ave

Both 6th St and 6th Ave are designated as 'Great Streets' in the MTP, which means they are to be re-imagined as major pedestrian corridors. 8th St was identified by seniors, who told the team it was an important pedestrian route for seniors.

The team developed a toolbox of recommendations that is informed by best practices, City policies, and engagement. The team applied the toolbox to the corridors to show potential changes the City should consider, especially when planning their 'Great Streets'.





## 4. STUDY SITE

***This is a walkable environment, it has the highest concentration of seniors in the City, and it could support great streets for seniors.***

This study focused on the northernmost part of Uptown in New Westminster. The site boundaries are 6th St to 10th St and 5th Ave to 8th Ave, as shown in the maps below. The team conducted a site analysis and the key findings are summarized below.

Uptown is one of New Westminster's 'Local Centres' that provides a mix of housing types, local-serving commercial activities, and frequent transit access.<sup>7</sup> It is considered an important mixed-use node in the city.

The site has a healthy supply of rental housing as well as senior-designated non-market and co-op housing. Seniors in the study site, however, are at risk of social isolation as they generally live alone and are less affluent than the City average.

The population in Uptown has grown and aged dramatically in the past 25 years. This growth is projected to continue into the future, particularly in older demographics.<sup>8</sup>

Nearly a third (30.5%) of the residents in the study site are seniors (65+), compared to 23.5% in the Uptown neighbourhood and 15.4% in New Westminster as a whole. The study site

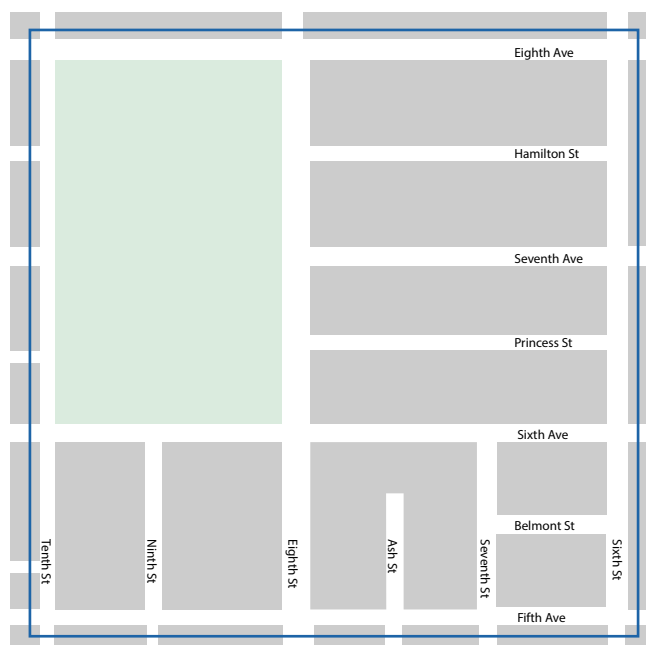
population will continue to age as [more than half \(53.7%\) of residents are 50 years of age and over](#).<sup>9</sup> This makes the site a prime location to have great streets for seniors.

The study site provides a mix of attributes that support walkability. It has a diverse mix of uses and destinations for seniors to walk to. There is an abundance of commercial activity, especially along 6th St and 6th Ave. The site has cultural and recreational centres and seniors' services, including the Century House, New Westminster's only senior centre.

The topography of the study site supports walkability as it is relatively flat. Ascending from Downtown New Westminster, this part of Uptown is a gentle-sloping plateau. This makes the study site ideal for promoting walkability for all ages and abilities.

The site is well served by buses. Both 8th St and 6th St are part of the Frequent Transit Network (FTN), which means that transit service runs at least every 15 minutes in both directions throughout the day. The City has noted that more bus shelters are needed throughout the study site.<sup>10</sup>





Study site in New Westminster



Traffic calming measures along Princess St improve safety for pedestrians and encourage more responsible driving

Although, this is a very walkable and senior-friendly area, there is a significant amount of vehicular traffic in the study site that must be considered when examining the pedestrian experience. The site has a mix of collector and local streets with speed limits varying from 30 km/h to 50 km/h that serve traffic to and through the site. Traffic volumes on 8th St are the highest in the site. Additionally, more than 6,000 vehicles per day use 8th St, 6th St, 8th Ave and 6th Ave.<sup>11</sup> Notably, **41 pedestrians were killed or seriously injured at intersections in the study site between 2009 and 2017.**<sup>12,13</sup>

The City has identified walkability and pedestrian safety as priorities in the MTP and OCP, as described in Appendix A: Policy Context. The City has taken steps to improve the pedestrian experience in the study site, including adding curb extensions, crosswalks, and a parklet. City policies recognize that more steps must be taken to provide a safe pedestrian realm.

In order to propose upgrades it is crucial to understand gaps in the pedestrian experience. The following sections outline data analysis results and resulting gaps between site conditions and the City's aims.



## 4.1 DATA ANALYSIS

There are significant gaps in making this site great for senior pedestrians. The team concluded this after analyzing the methods of inquiry described above. Key supporting evidence is presented in this section.

### 4.1.1 CRASH DATA FROM 2009 - 2017

From 2009-2017, 41 pedestrians were killed or seriously injured at intersections or crosswalks in the study site. From the available crash descriptions, turning vehicles and poor pedestrian-driver visibility are recurring reasons. It is clear that more can be done to reduce conflicts between pedestrians and vehicles. Details can be found in Appendix D: Crash Data. Three intersections had more than five crashes that injured or killed pedestrians:

1. 8th St & 6th Ave
2. 6th St & 6th Ave
3. 6th St & 8th Ave

### 4.1.2 SIDEWALK AND INTERSECTION ASSESSMENT

There are deficiencies on sidewalks and intersections that create barriers for senior pedestrians to comfortably and safely get around.

There are ten spots in the site where sidewalks are narrower than 1m, including spots on highly traveled streets such as 6th St and 8th St. There are 51 sidewalk segments in the study site that have an effective width narrower than 1.5m. Of those, 21 of these have a total width of less than 1.5 m. Cracks, buckling, and uneven surfaces were common throughout the site, especially in the south-west quadrant. Several ponding events on the north-east quadrant formed notable barriers to pedestrian travel.

The majority of intersections in the site meet TAC crossing speed guidelines, with crossings speeds at or below 0.8m/s. Some do not meet these guidelines and are as high as 1.25m/s. The intersection of 8th St and 6th Ave is notable. Nearly all intersections in the site lack accessible features, and visibility between drivers and pedestrians is problematic. More details can be found in Appendix B: Existing Conditions Report.

### 4.1.3 ENGAGEMENT

Seniors and other stakeholders identified fourteen problem locations as well as general problems across the site. Recurring issues included:

- Not enough time to cross intersections
- Uneven sidewalk surfaces
- Illegal vehicular movements
- Feeling 'invisible' as a pedestrian
- Driver not being able to see pedestrians
- Inadequate lighting
- Lack of places to rest
- Snow and leaf removal issues

More details can be found in Appendix E: Engagement.



## 4.2 GAPS

### ***The City has identified pedestrian safety and walkability as priorities in the MTP and OCP.***

The overarching aim of these priorities are to encourage and enable pedestrians of all ages and abilities to walk. The City has worked towards meeting these priorities but more is yet to be done. The team has identified where there are gaps in achieving this aim. Specifically, there are gaps in meeting the following goals, actions, and policies which support the City's the aim. Understanding the gaps in the study site is key to providing recommendations for a great streetscape for seniors.

The City has the goal of “no traffic-related fatalities or serious injuries most years” (Target 1, MTP). However, forty-one pedestrians were killed or seriously injured in the study site alone, between 2009 and 2017. Clearly more must be done to keep pedestrians safe.

The City aims to provide a safe pedestrian experience that is accessible to everyone, especially vulnerable road users like seniors (Policy 1C, MTP). This means providing a comprehensive suite of accessible features across the pedestrian realm. There is work to be done in the study site to achieve this goal, especially in providing proper curb letdowns, narrow crossings, accessible pedestrian signals, and

ensuring pedestrians and drivers can see each other.

The City has specified a goal for minimum clear sidewalk widths: at least 1.8m on all sidewalks and at least 3.0m on 'Great Streets' or areas with high pedestrian activity (Action 1A.3, MTP). This goal is supported throughout City policies, including the OCP, MTP, and the New Westminster Design Criteria. This goal has not been met in the site. A detailed analysis of the gaps may be found in Appendix B: Existing Conditions Report.

The OCP states that the City will provide a safe, comfortable, and convenient pedestrian environment in order to encourage people to walk more (Policy 11.3). This means providing safe crossings and closing gaps in the pedestrian network. Inadequate walk signal timing, for example, was identified by many seniors as a barrier to walkability in the site. Uneven sidewalks are another issue, as they are potentially hazardous for seniors, especially those using mobility aids.

The City has built a strong foundation of goals, actions, and policies with the aim of supporting pedestrians of all ages and abilities. Reconceptualizing the pedestrian realm with a senior-focused lens will help achieve this aim. The following recommendations provide a roadmap to achieve this aim in Uptown.



*Obstructions on the sidewalk can come in many forms, such as this streetlight on Princess Street*





# 5. RECOMMENDATIONS



This section provides feasible recommendations to make the study site great for seniors to confidently and comfortably get around.

The City has made significant efforts into creating a safe and comfortable streetscape environment for seniors. A clear focus on walking needs to remain a priority, especially with keeping all ages and abilities in the forefront when proposing future projects.

In this section, recommendations are presented across the site (Section 5.1), on sidewalk spots (Section 5.2), at intersections (Section 5.3), and across corridors (Section 5.4). The team structured this section so that recommendations are transferable throughout New Westminster. Recommendation locations that do not fit into the above categories are discussed in Appendix H: Other Recommendation Locations.

# 5.1 GENERAL, SITE-WIDE RECOMMENDATIONS

The team developed recommendations to address problems that are not location-specific, but rather broad issues that hinder walkability. These include policies, programs, and design guidelines to make the streetscape environment even more comfortable for senior pedestrians.

Recommendations are expressed as upgrades in two toolboxes: a policy recommendation toolbox (Section 5.1.1) and a design recommendation toolbox (Section 5.1.2).



The team vets their recommendations with seniors and City staff

## 5.1.1 POLICY RECOMMENDATIONS TOOLBOX

Problem Type	Upgrade	Description	Timeframe	Project Type
Obstructions along sidewalks <i>Bushes and vegetation along sidewalks can obstruct the sidewalk or hinder the visibility between pedestrians and drivers. Sandwich boards can narrow the effective width of the sidewalk.</i>	Bylaw enforcement	Bylaw enforcement can help address some issues that hinder a streetscape from becoming great for seniors. Sandwich boards, especially in commercial areas, should not impede senior pedestrians' experience  Regular maintenance of the City's vegetation and ensuring that private properties' vegetation is not obstructing the sidewalks or hindering the pedestrian-vehicle visibility	Ongoing	Operations
	Enforce sandwich board ban	The City could consider banning sandwich boards at specific locations, as they can be obstacles on the sidewalk and narrow the effective width	Ongoing	Operating
	See Click Fix	Streamline and improve access to <i>See Click Fix</i> services to report deficiencies in the pedestrian realm. Offer <i>See Click Fix</i> support at senior-focused locations like the Century House	Medium-Term	Planning



## 5.1.1 POLICY RECOMMENDATIONS TOOLBOX (CONTINUED)

Problem Type	Upgrade	Description	Timeframe	Project Type
<b>'Invisible' pedestrians, especially at night</b> <i>Visibility of pedestrians is critical to avoid accidents or near misses. Seniors expressed that they feel 'invisible,' and drivers felt they couldn't see pedestrians at night</i>	Conduct luminosity study and add lighting as necessary	Study the nighttime brightness of the site at senior-level visual abilities to ensure sidewalks and crossings are well lit and pedestrians are visible	Quick win	Planning
<b>Aggressive or impatient drivers and lack of enforcement for drivers disobeying traffic laws</b> <i>Seniors and other stakeholders identified drivers as being aggressive towards pedestrians and not abiding to traffic laws. This is a critical problem that needs to be addressed</i>	Measure traffic speeds and review speed limits	Traffic speeds should be studied on streets, especially those with high vehicular volumes. The City should review speed limits or consider design upgrades for vehicles to abide to the speed limits	Quick Win	Planning
	Ensure speed limit signs are visible	Visible speed limit signs are also crucial, seniors reported that speed limit signs along 8th St are not visible to drivers. Specific signs warning drivers that they are entering a high senior pedestrian area are used across the world	Quick Win	Operating
	Develop traffic calming guide for residents	Provide an easy-to-use methodology for residents to propose traffic calming in their neighbourhoods	Quick Win	Planning
	Education for pedestrians	Educate pedestrians on the safety risks and leading causes of collisions for seniors and steps they can take to be more risk averse as pedestrians	Short-Term	Planning
	Education for drivers	Educate drivers on causes of collisions and areas with high concentrations of seniors	Short-Term	Capital, Operating
	Traffic enforcement	Target traffic law enforcement of dangerous driving activities	Ongoing	Operations
	Install driver speed feedback signs and senior awareness signs	Driver speed feedback signs return a smiley face when drivers are below the speed limit. Studies have shown that they positively impact drivers' obedience to speed limits	Short-Term	Planning



## 5.1.1 POLICY RECOMMENDATIONS TOOLBOX (CONTINUED)

Problem Type	Upgrade	Description	Timeframe	Project Type
<b>Snow and leaf clearance</b> <i>Snow and ice are potential hazards to senior pedestrians, especially those using mobility aids. Sidewalks must be completely clear in order to allow safe passage. Leaves are a seasonal hazard that create a slippery surface for seniors and may hinder their ability to safely walk</i>	Bylaw enforcement	Improve snow and leaf clearance by either adjusting the maintenance schedules (for snow clearance and sweeping) or increasing the frequency of maintenance during Fall and Winter and especially along routes with high-senior traffic	Ongoing	Operations
<b>Need to support seniors with cognitive impairments</b> <i>Dementia and cognitive impairment are rated as one of the top three concerns for seniors and can lead to social isolation. CNW is the first Council in BC to become a Dementia-Friendly Council</i>	Senior-friendly orientation and wayfinding	Ensure clear directional signage, enforce regulations related to non-permitted signage (visual clutter, obstruction of sidewalks), review City standards related to public realm signage (consistent, easily-recognizable, uncluttered) to ensure they are consistent (use colours, symbols)	Medium-Term	Capital
<b>Budget constraints</b> <i>Municipalities have limited resources to allocate for improvement and maintenance of the streetscape environment</i>	Financial commitments to improving pedestrian realm	Allocation of funds from the annual budget for improvements on the pedestrian realm	Long-Term	Capital
<b>Effectiveness of upgrades</b> <i>It is crucial to have detailed information on the deficiencies of the streetscape environment, conduct before and after studies of upgrades to determine their effectiveness, as well as identify and proactively solve problems that might affect senior pedestrians</i>	Collect more data (monitoring and reporting)	Streamline long-term data collection to determine causal factors, target upgrades, and identify and respond to changing conditions.  Conduct 'before' and 'after' studies to identify the impact of the upgrades	Long-Term	Capital, Planning





## 5.1.2 SITE-WIDE DESIGN RECOMMENDATIONS TOOLBOX

Problem Type	Upgrade	Description	Timeframe	Project Type
<b>Lack of accessible features</b> <i>Intersections, sidewalks, and rest spaces should safely and comfortably accommodate all pedestrians. There are features that should be installed across the site. Planners must take care to accommodate the 55% of Canadian seniors who have disabilities.</i>	Automatic walk signals at all signalized intersections	Walk signals should automatically be triggered during light cycles at all signalized intersections without the need to press a button. This is crucial for those who have a hard time accessing push buttons such as mobility aid users	Quick Win	Operating
	Accessible pedestrian signals at all signalized intersections	These provide auditory signals about the 'walk' and 'don't walk' signal intervals. They may count down the time remaining in the 'walk' interval	Short-term	Capital
	Install tactile walking surface indicators	These bumpy surfaces provide tactile marking of curb letdowns for people with visual impairments	Short-term	Capital
	Ensure all bus stops are accessible	The City is aiming to have 100% accessible bus stop. This will require work in partnership with Translink and advertisers. Many of the bus stops in the site are currently accessible	Short-Term	Capital
	Good pedestrian push button placement	The distance between pedestrian push buttons and crosswalk should be short. This is important for mobility aid users	Long-Term	Capital
<b>Lack of places to rest</b> <i>Seniors may need more frequent rest spots than other pedestrians</i>	Regular places to rest	Add areas to rest at least every 100m on each side of the street	Quick Win, Short-Term	Capital
<b>Visibility issues</b> <i>Pedestrians should be able to clearly see sidewalks, crossings, and vehicles, especially at night</i>	Improve sidewalk lighting	This improve visibility of pedestrians, their ability to see deficiencies on the sidewalk or crossings, and will help pedestrians feel safe at night, according to Crime Prevention Through Environmental Design principles	Short-Term	Capital
	All crosswalks should be high visibility crosswalks	The crosswalks can be marked with decorative designs to create a visually appealing facility and ensure they stand out visually to motorists	Short-Term	Capital





## 5.1.2 SITE-WIDE DESIGN RECOMMENDATIONS TOOLBOX (CONTINUED)

Problem Type	Upgrade	Description	Timeframe	Project Type
<b>Fast intersection signal timing</b> <i>Pedestrians of all abilities should be able to cross intersections safely within the light cycle</i>	Maximum 0.8m/s walk signal timing	All signalized intersections should be timed for a maximum walking speed of 0.8m/s. Slower signal speeds should be considered on areas with high percentages of senior pedestrians using mobility aids such as walkers	Quick Win	Operating
<b>Narrow, uneven sidewalks</b> <i>Sidewalks that are narrow or uneven can be uncomfortable or unsafe for seniors, especially those who use mobility aids</i>	Remove obstructions	The effective width of sidewalk in the study site with obstructions should be allowed people with wheelchairs or walkers to move smoothly. Ensure that sandwich board bylaws are enforced.	Quick Win, Ongoing	Capital, Operating
	Widen sidewalks	The minimum clear width is 1.8 m in multi-family residential areas or areas with moderate pedestrian or wheelchair traffic, with 2.0 m preferred; the minimum clear sidewalk widths on Great Streets is 1.8 m and 3.0 m.	Long-Term	Capital
	Repair or repave sidewalks	The City should repair or repave sidewalks to maintain an even walking surface. Residents should be able to notify City staff of deficiencies in the sidewalk.	Short-Term	Capital

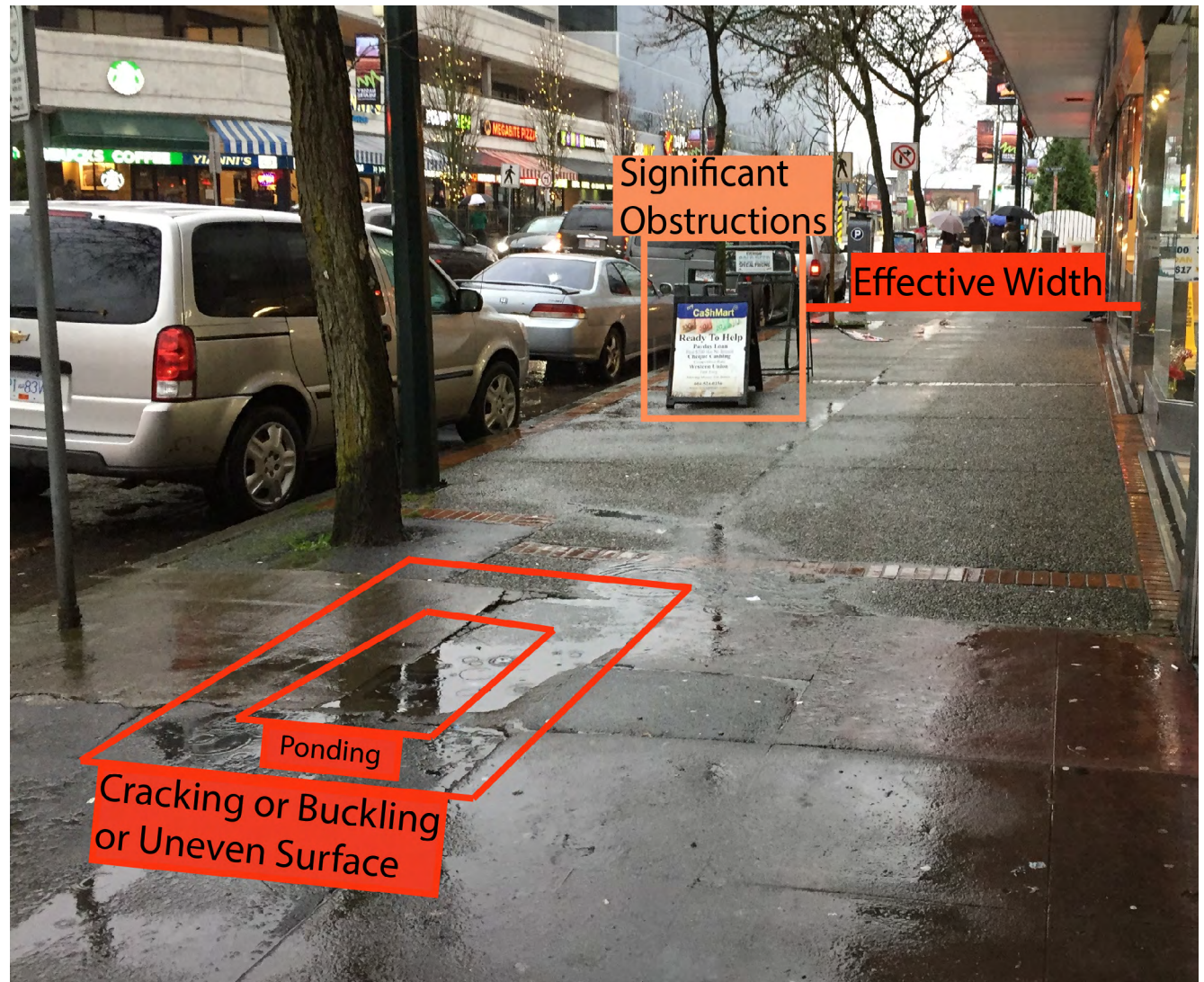


## 5.2 SIDEWALK SPOTS RECOMMENDATIONS

This section contains a summary of the problem spots on sidewalks in the study site, and recommendations of how to address them. The problems and recommendations have been split into three parts to address locations on site by problem type.

1. Narrow effective width
2. Cracks, buckling, and uneven surfaces
3. Ponding

The adjacent image illustrates the three problem types in red.



Problems that the team focused on in this section (Location: 6th St)





## 5.2.1 NARROW EFFECTIVE WIDTH

***The MTP set out the action of having minimum clear sidewalk widths of 1.8m on all sidewalks in the city and 3.0m on Great Streets.***

### DESCRIPTION

The 'effective width' of a sidewalk is the width of the sidewalk at its narrowest point.

Obstructions in the study site include poles, sandwich boards, benches, trash bins, advertising boards, and trees. They can make sidewalks uncomfortably narrow and potentially unsafe for seniors, especially those using mobility aids.

Sidewalks in the City must have a minimum width of 1.5m, which increases to 1.8m in multi-family residential areas, according to the City's Design Criteria. The minimum sidewalk widths in the study site should be at least 1.8m. This is because the study site is mostly multi-family residential with some wheelchair traffic and has high pedestrian traffic volumes along 6th St and 6th Ave. In areas with moderate pedestrian or wheelchair traffic, 2.0m is preferred. Further, the MTP has set out an action of having minimum clear sidewalk widths of 1.8m and 3.0m on Great Streets. These minimum widths are supported by TAC and ADA guidelines.

Based on the City's Design Criteria, the team categorized the total and effective sidewalk widths in the study site into four categories:

- Less than 1.5m: below the City's minimum width guidelines
- Between 1.5m and 1.8m: above the minimum guidelines but below the criteria for multi-family residential areas
- Between 1.8m and 2.5m: in the range recommended for areas of multi-family residential areas or areas with moderate pedestrian or wheelchair traffic
- Above 2.5m: supports high pedestrian or wheelchair traffic



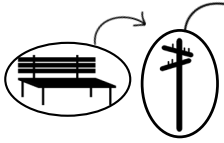

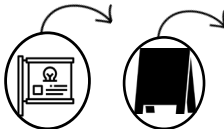


*One of the narrowest effective widths in the study site was recorded on 6th St between Hamilton St and 8th Ave*





## NARROW EFFECTIVE WIDTH TOOLBOX

Problem Type	Upgrades	Description	Symbol	Timeframe	Project Type
Narrow Effective Width	Widen Sidewalk	Extend the sidewalk to road		Long-Term	Capital
		Pave grass near the sidewalk		Quick Win	Capital
	Remove Obstructions	Remove obstructions such as park benches, garbage cans, trees, signs, poles	  	Quick Win, Short-Term	Operating









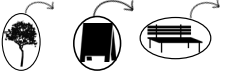



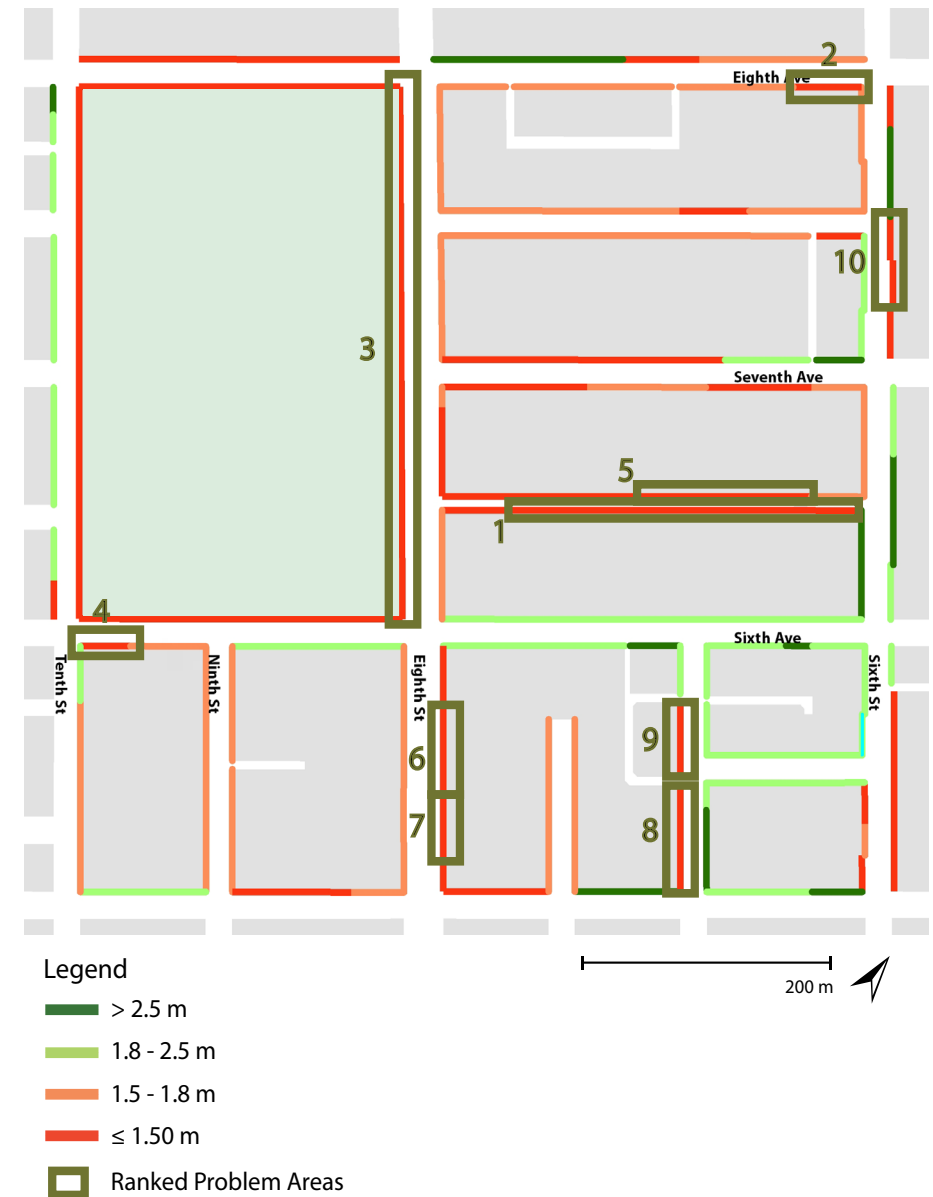
*Sandwich board that creates a significant obstruction and limits the effective width of the sidewalk (Location: 6th Ave & 10th St)*



## EFFECTIVE WIDTH PROBLEM AREAS AND RECOMMENDATIONS

There are 10 sidewalk segments that have effective widths smaller than 1.0 m. These should be the highest priority areas to address.

Spot Number	Problem Description	Upgrades
1	Trees and poles, without grass.	
2	Narrow sidewalk with grass and poles	
3	Narrow sidewalk with grass	
4	Narrow sidewalk with grass and poles	
5	Narrow sidewalk with large poles and grass	
6	Narrow sidewalk with grass	
7	Narrow sidewalk with grass	
8	Narrow sidewalk with trees and poles	
9	Small trees and other obstructions	
10	Poles bench and garbage bin	



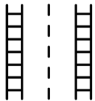


# 5.2.2 CRACKS, BUCKLING, AND UNEVEN SURFACES

## DESCRIPTION

Cracks, buckling, and uneven surfaces are potentially dangerous for senior pedestrians, especially those who use mobility aids or have a low-raised walking gait. The treatment for this problem type is simple: repair or repave the sidewalk surface.

## CRACKS, BUCKLING, AND UNEVEN SURFACES TOOLBOX

Problem Type	Upgrade	Description	Symbol	Timeframe	Project Type
Cracks, buckling, and uneven surfaces	Repair or repave sidewalk surface	Reduce dangerous cracks, buckling and uneven surface		Quick Win, Short-Term	Operating



Extended damage of the sidewalk, leading to uneven surface in a high senior pedestrian traffic location right outside the Century House on 8th St



Instance of cracking along Hamilton St





CRACKS, BUCKLING, AND UNEVEN SURFACE PROBLEM AREAS AND RECOMMENDATIONS

Instances of deficient pavement are common throughout the site, especially south of 6th Ave in the south-western quadrant.

Spot Number	Problem Description	Upgrade
1-10	Sidewalk with cracks and buckling	





# 5.2.3 PONDING

## DESCRIPTION

Ponding along sidewalks and crosswalks creates uncomfortable and potentially unsafe areas that could limit seniors from accessing destinations during rainy or freezing conditions. Small ponding instances like puddles may freeze in colder weather, creating slip and fall hazards.

## PONDING TOOLBOX

Problem Type	Upgrade	Description	Symbol	Timeframe	Project Type
Ponding	Add catchment	Installing or upgrade drainage		Short-Term	Capital
	Repair potholes or damage surface	Reduce the amount of the damage occur in the future		Quick Win	Operating



Instance of heavy ponding on the intersection of 8th St & 8th Ave





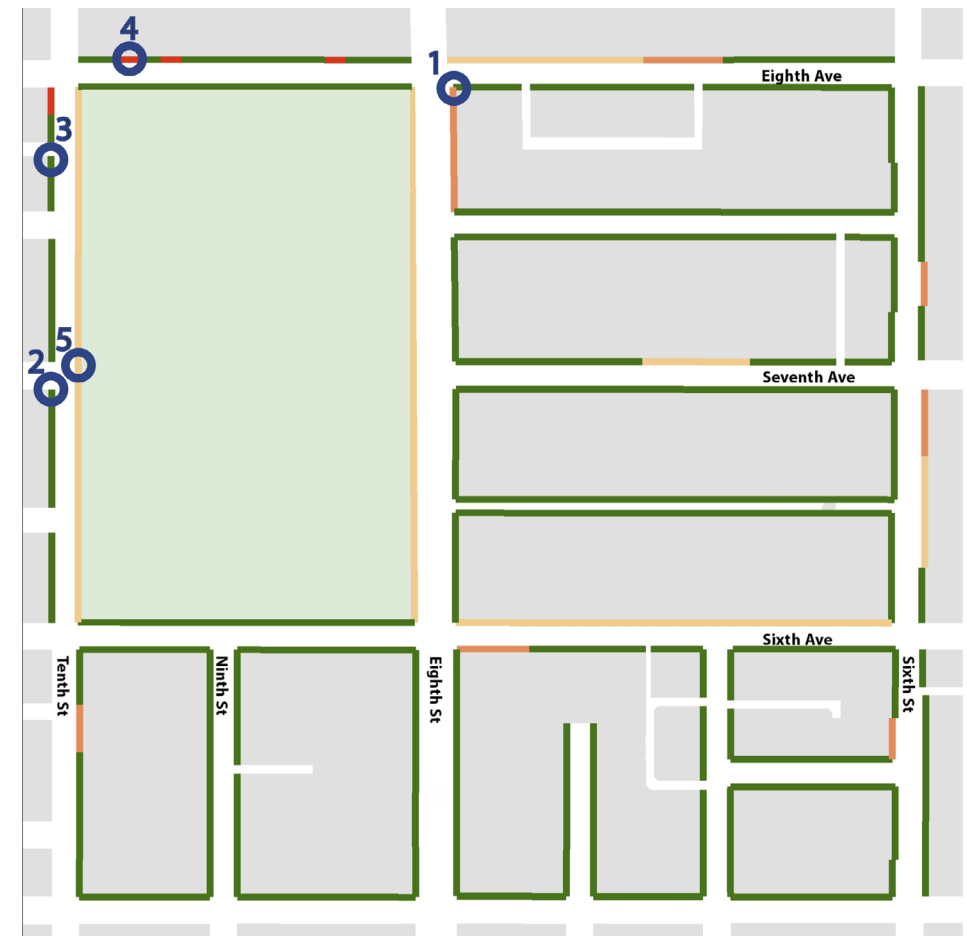
Instance of ponding on the intersection of 10th St & Kingston St








## PONDING PROBLEM AREAS AND RECOMMENDATIONS

There were instances of ponding on sidewalks adjacent to Moody Park, on 8th Ave, 6th Ave, and 6th St. The team identified the five most impeding instance of ponding.

Spot Number	Problem Description	Upgrade
1-2	Ponding at the crossing of the intersection	
3-5	Ponding on the sidewalk	



### Legend

-  No Ponding
-  0 - 0.01 Pondings/m
-  0.01 - 0.03 Pondings/m
-  0.03 - 0.07 Pondings/m
-  Ranked Problem Areas



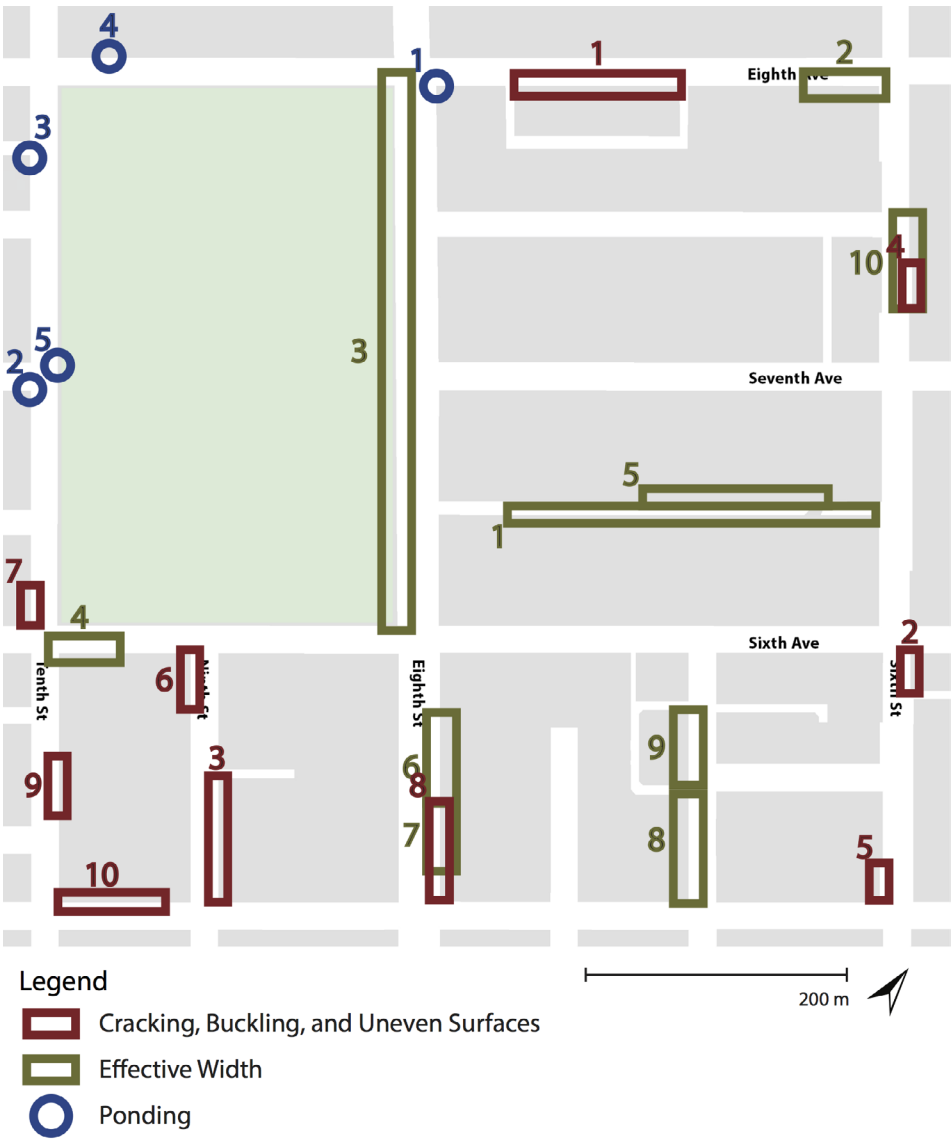


# 5.2.4 ALL SIDEWALK SPOT PROBLEM AREAS

This map shows the problem hotspots, and may enable the City to tackle multiple problems at once, which may be easier to justify and more cost-effective.

There are two main hotspots in the study site: On 6th St between 7th Ave and Hamilton St the sidewalk width is narrow and the surface is subpar. There is the same issue at 8th St between 6th and 7th Ave.

Spot Number	Upgrades				
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					



## 5.3 INTERSECTIONS

### *The majority of crashes in the site involving pedestrians and senior pedestrians occur at intersections.*

There is a wealth of knowledge on intersection design to inform the development of senior-focused recommendations for intersections.

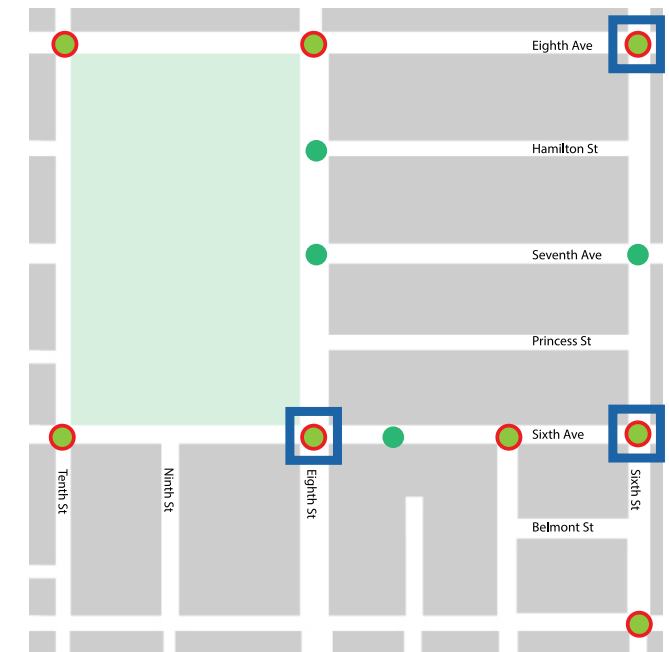
The first part of this section (Section 5.3.1) is a toolbox that details problem types and upgrades to address them.

In the second part (Section 5.3.2), problems are listed and potential upgrades are recommended for all signalized intersections in the site. These recommendations were informed by decision charts found in Appendix C: Intersection Decision Charts.




Last, detailed short-term and long-term recommendations are provided for the three intersections that had the highest amount of crashes that led to pedestrian injuries or fatalities (Section 5.3.3). All three are the largest intersections on the site terms of vehicular volume, and are all along Great Streets. They are the priority intersections for the City to upgrade and re-conceptualize.

The recommendations will aim to provide a safe and comfortable pedestrian experience for seniors. Intersections should accommodate slower walking speeds, have accessible curb letdowns, and ensure that pedestrians are visible to vehicles.

The suggestions here are location-specific. Recommendations such as adding tactile walking surface indicators and accessible pedestrian signals are site-wide. They can be found in the general, site-wide recommendations section (Section 5.1).



### LEGEND

-  Traffic light
-  Pedestrian-controlled traffic light
-  Detailed recommendation provided below



## 5.3.1 SIGNALIZED INTERSECTIONS TOOLBOX <sup>14,15,16,17,18</sup>

Problem Type	Upgrade	Description	Timeframe	Project Type
<b>Problem #1:</b> <b>Fast crossing signal speed</b> <i>All pedestrians should be able to cross an intersection within a light cycle. Seniors may not be as quick as other adults so proper intersection crossing speed is key to safe and comfortable senior-focused intersection design. This is a critical problem to address.</i>	Increase walk signal timing	Changing intersection timing to give more time for pedestrians to cross. Crossing speeds between 0.6 - 0.9 m/s are ideal for seniors	Quick Win	Operating
	Leading pedestrian intervals (LPIs)	Give pedestrians an advance walk signal so that they may begin crossing the street safely and visibly. A paper published by the Transportation Research Board concluded that LPIs reduce pedestrian-vehicle collisions by almost 60%	Quick Win, Short-Term	Operating
	Decrease crossing distances	Curb extensions, pedestrian refuge islands, or widening sidewalks limit pedestrian exposure to vehicles	Quick Win	Capital
	Puffin crossings	A 'pedestrian user friendly intelligent crossing' senses pedestrians and adjusts crossing timing in to accommodate slower walking speeds	Short-Term	Capital
	Senior crossing cards	Seniors can extend the light cycle by tapping an RFID card on a sensor at the intersection	Medium-Term	Operating, Capital
<b>Problem #2:</b> <b>Poor pedestrian visibility</b> <i>Maintaining good sight lines between pedestrians and drivers is a key way to enable safe and comfortable travel. This may include clearing visual obstructions from the intersection such as items on the sidewalk and parking spots. This is a critical problem to address.</i>	Remove on-street parking within 15m of the intersection	The Geometric Design Guide for Canadian Roads recommends having 15 clear metres before intersections to improve sightlines between pedestrians and vehicles. This means removing parking, taxi stands, or other vehicular stop zones	Quick Win, Short-Term	Operating
	Remove on-sidewalk visual blockages near the intersection	The Geometric Design Guide for Canadian Roads recommends clearing visual blockages such as utility or newspaper boxes near the intersection that can interfere with sight lines	Quick Win,	Operating
	Install high visibility or raised crosswalks	Drivers are more likely to notice pedestrians crossing high visibility crosswalks such as zebra-striped crosswalks. Raised crosswalks perform a similar function	Quick Win	Capital, Operating
	Leading pedestrian intervals (LPIs)	Give pedestrians an advance walk signal so that they may begin crossing the street safely and visibly before cars. They are effective in reducing crashes.	Quick Win, Short-Term	Operating
	Install lighting on both sides of crosswalk	Installing overhead lighting on both sides of the crosswalk greatly increases the chance that pedestrians are seen by vehicles at night	Short-Term	Capital





### 5.3.1 SIGNALIZED INTERSECTIONS TOOLBOX (CONTINUED)

Problem Type	Upgrade	Description	Timeframe	Project Type
	Add curb extensions	Curb extensions improve sight lines between pedestrians and drivers and can shorten turn radii, slowing vehicles	Short-Term	Capital
<b>Problem #3: Lack of accessibility features</b>  <i>Intersections must accommodate people with differing needs. Thought is needed to enable independence for the 55% of seniors who have disabilities. This is a critical problem to address.</i>	Install curb letdowns that directly face intersections	These allow seniors to directly enter and egress crosswalks from the sidewalk without needing to maneuver once on the street	Quick Win, Short-Term	Capital
	Install tactile walking surface indicators	These notify people with visual impairments where the curb letdowns meet the crosswalks. All curb letdowns should have them installed	Quick Win, Short-Term	Capital
	Add accessible pedestrian signals (APS)	APS systems notify people with visual impairments when to cross the crosswalk, the location of crosswalk pushbuttons, and how much time is remaining in the pedestrian cycle	Short-Term	Capital
	Install highly visible crosswalks	These help people with visual impairments to locate crosswalks	Quick Win	Capital
	Decrease crossing distances	Decreasing crossing distances reduces exposure to vehicles	Short-term, Medium-Term	Capital
	Remove obstacles around intersections	Space must be provided for people with mobility aids to navigate curb extensions and crosswalks safely and comfortably	Quick Win, Short-Term	Capital
<b>Problem #4: Poor crosswalk condition</b>  <i>Smooth crosswalks provide safe and comfortable pedestrian experience.</i>	Repave crosswalks	Repave to ensure a smooth travel surface	Quick Win, Short-Term	Capital, Operating
	Install catch basin	If there is ponding at the intersection, a catch basin may be necessary	Short-Term	Capital



### 5.3.1 SIGNALIZED INTERSECTIONS TOOLBOX (CONTINUED)

Problem Type	Upgrade	Description	Timeframe	Project Type
<b>Problem #5</b> <b>Long crossing distance</b> <i>Crossing distances at intersections should be minimized to reduce exposure to vehicles.</i>	Decrease crossing distances	This measure is a proven way to decrease pedestrian exposure to vehicles. Measures to decrease crossing distance include: <ul style="list-style-type: none"> <li>• Add curb extensions</li> <li>• Add pedestrian refuge islands</li> <li>• Widen sidewalks</li> <li>• Narrow or remove vehicular travel lanes</li> </ul>	Quick Win, Short-term, Medium-term	Capital
<b>Problem #6</b> <b>Conflicts with vehicles</b> <i>Intersections with documented conflicts between pedestrians and vehicles should be prioritized.</i>	Install scramble phase timing	Scramble timing gives an exclusive signal phase to pedestrians, where no vehicles can cross or turn. Historically they decrease pedestrian crashes but may lead to increased jaywalking	Short-term	Operations, Planning
	Simplify intersection movements for vehicles	Simplify and improve clarity of roads through of roads with striping, removing turning lanes, and ban left/right turns	Medium-Term	Capital
	Install driver speed feedback devices	These devices measure driver speed and let drivers know if they are driving at or above the speed limit to discourage speeding	Short-Term	Planning
	Install senior pedestrian zone signs	These have been implemented in many cities to warn drivers there are many senior pedestrians	Quick win	Operations
	Increase traffic enforcement	Increased traffic enforcement is a proven way to decrease speeding and illegal driving activity	Short-term	Operations
	Implement traffic calming	Traffic calming measures aim to decrease vehicle speeds and volumes, often as part of a road diet	Medium-term	Capital
	New corner radius design	Smaller corner radii are effective in forcing cars to slow down in order to turn corners	Medium-term	Capital





## 5.3.2 SIGNALIZED INTERSECTIONS RECOMMENDATIONS

Intersection	Problem Type	Upgrades
6th St and 6th Ave	1. Fast crossing signal speed 2. Poor pedestrian visibility 3. Lacks accessibility features 6. Conflicts with vehicles	Increase walk signal timing Remove on-street parking within 15m of intersection Add LPIs Add curb extensions, where appropriate Install crosswalk-facing letdown on NW corner Puffin crossings
8th St and 6th Ave	1. Fast crossing signal speed 2. Poor pedestrian visibility 3. Lacks accessibility features 5. Long crossing distances 6. Conflicts with vehicles	Increase walk signal timing Add LPIs Add curb extensions, where appropriate Install crosswalk-facing letdowns on NE and SE corners Simplify vehicular movements, especially left turns Install high visibility crosswalks Add puffin crossings Shorten crossing distance
6th St and 8th Ave	2. Poor pedestrian visibility 3. Lacks accessibility features 6. Conflicts with vehicles	Add LPIs Add accessible pedestrian signals Add curb extensions, where appropriate Simplify vehicular movements, especially left turns Install high visibility crosswalks
8th St and 8th Ave	1. Fast crossing signal speed 2. Poor pedestrian visibility 3. Lacks accessibility features 4. Poor crosswalk condition 6. Conflicts with vehicles	Increase walk signal timing Add LPIs Add catch basin to solve ponding on SE corner Add accessible pedestrian signals Add curb extensions, where appropriate Install high visibility crosswalks



### LEGEND

-  Traffic light
-  Pedestrian-controlled traffic light







## 5.3.2 SIGNALIZED INTERSECTIONS RECOMMENDATIONS (CONTINUED)

Intersection	Problem Type	Upgrades
7th St and 6th Ave	2. Poor pedestrian visibility	Add LPIs
	3. Lacks accessibility features	Add curb extensions, where appropriate
	4. Crosswalk condition	Re-install high visibility crosswalks
	6. Conflicts with vehicles	Install crosswalk-facing letdowns on NW, NE, &n SE corners Install overhead lighting for crosswalks
10th St and 6th Ave	2. Poor pedestrian visibility	Add curb extensions, where appropriate
	3. Accessible features	Install high visibility crosswalks Install overhead lighting for crosswalks Install crosswalk-facing letdown on NW corner
6th St and 7th Ave	1. Fast crossing signal speed	Increase walk signal timing
6th St and 5th Ave	1. Fast crossing signal speed	Increase walk signal timing
	3. Lacks accessibility features	Add accessible pedestrian signals Install crosswalk-facing letdown on SW corner
8th St and 7th Ave	2. Poor pedestrian visibility	Add direct lighting on both sides of street
	5. Long crossing	Install high visibility crosswalks Consider pedestrian refuge islands
8th St and Hamilton St	1. Fast crossing signal speed	Increase walk signal timing
	2. Poor pedestrian visibility	Add accessible pedestrian signals
	3. Lacks accessibility features	Add direct lighting on both sides of street
	5. Long crossing	Install high visibility crosswalks Consider pedestrian refuge islands



### LEGEND

-  Traffic light
-  Pedestrian-controlled traffic light



### 5.3.3 6TH STREET & 6TH AVENUE

This is one of the busiest and most significant intersections for seniors and pedestrians in the study site. Both 6th St and 6th Ave are designated as Great Streets. Both streets have bus routes. One of the entrances to the Royal City Centre opens directly into the intersection, which is a major destination for seniors. The intersection serves as a gateway to other commercial activity as 6th St is the primary commercial corridor in the study site. There is a senior's home on 6th Ave just east of the study site, in close proximity to this intersection.

#### PROBLEMS

1. Insufficient crossing time for seniors
2. Poor pedestrian visibility
3. Non-accessible curb letdown on north-west corner
6. Conflicts with vehicles

#### OPPORTUNITIES

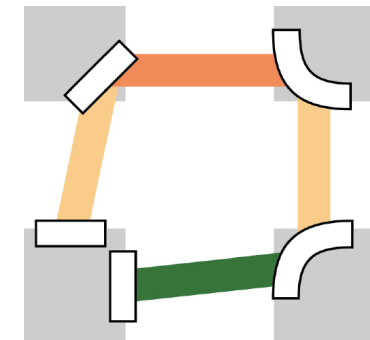
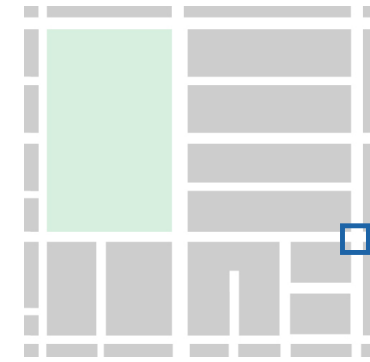
- Accessible Pedestrian Signals installed
- Highly visible crosswalks
- Left-turn prohibitions in all directions
- Most curb letdowns are effective for people using mobility aids.

#### ADDITIONAL INFORMATION

- 7 crashes that resulted in a pedestrian injury or death (2009-2017)
- Mentioned 5 times by seniors during engagement sessions



*The intersection has crosswalks with a different colour and texture, which are more visible to drivers. The curb letdown at the closest corner (the north-west corner) is suboptimal as it enters into the intersection*



#### WALK SIGNAL TIMING

- 0.9 - 1.0 m/s
- 0.8 - 0.9 m/s
- 0.7 - 0.8 m/s



6TH ST & 6TH AVE - PRIORITY POTENTIAL UPGRADES

Intervention Type	Description	Problem
Change walk signal timing to 0.8m/s maximum	All crosswalks	1
Leading pedestrian intervals	All crossings	1, 2
Remove parking spot/ taxi stand nearest to intersection	This provides better pedestrian visibility	2
Install proper letdown on northwest corner	Improve accessibility for seniors using mobility aids	3



LEGEND



Remove parking



Increase crossing time



Install corner letdown





## 6TH ST & 6TH AVE - LONG TERM POTENTIAL UPGRADES

Intervention Type	Description	Problem
Change walk signal timing to 0.8m/s maximum	All crosswalks	1
Curb extensions	Add curb extensions where appropriate. Possible because only one travel lane through intersection in each direction.	1, 2, 3
Leading pedestrian intervals	Give pedestrians an advance walk signal so that they may begin crossing the street safely and visibly	1, 2
Puffin crossing	All crosswalks	1
Maintain left turn prohibitions	All crossings	6
Scramble timing	All crossings	6



### LEGEND



Install curb letdown



Remove parking



Upgrade single curb letdown



## 5.3.4 8TH STREET & 6TH AVENUE

This intersection sees high vehicular traffic and has the widest pedestrian crossing in the site at 22.5m. It is an important connection for seniors travelling west to destinations and commercial activity on 6th St and 6th Ave as well as those travelling east to the Century House or Moody Park.

### PROBLEMS

1. Fast crossing signal speed
2. Poor pedestrian visibility
3. Lacks accessibility features
5. Long crossing distances
6. Conflicts with vehicles

### OPPORTUNITIES

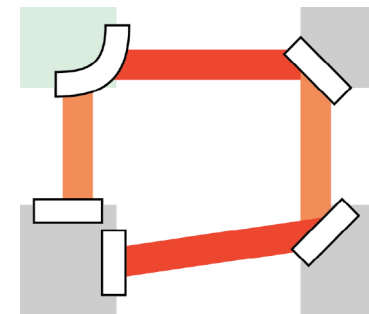
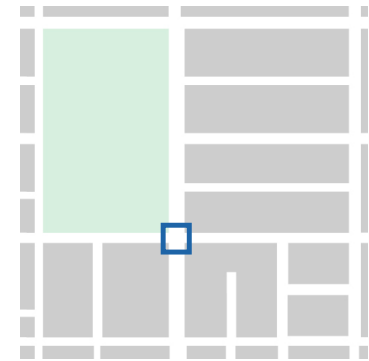
- 30 km/h zone north of the intersection
- Most curb letdowns are effective for people using mobility aids.
- No parking near the intersection

### ADDITIONAL INFORMATION

- 6 crashes that resulted in a pedestrian injury or death (2009-2017), 4 due to left turns
- Mentioned 5 times by seniors during engagement sessions



*Three senior pedestrians are unable to cross 8th St on the north side in time for the light cycle. The light has turned yellow. None of them are using walking aids*



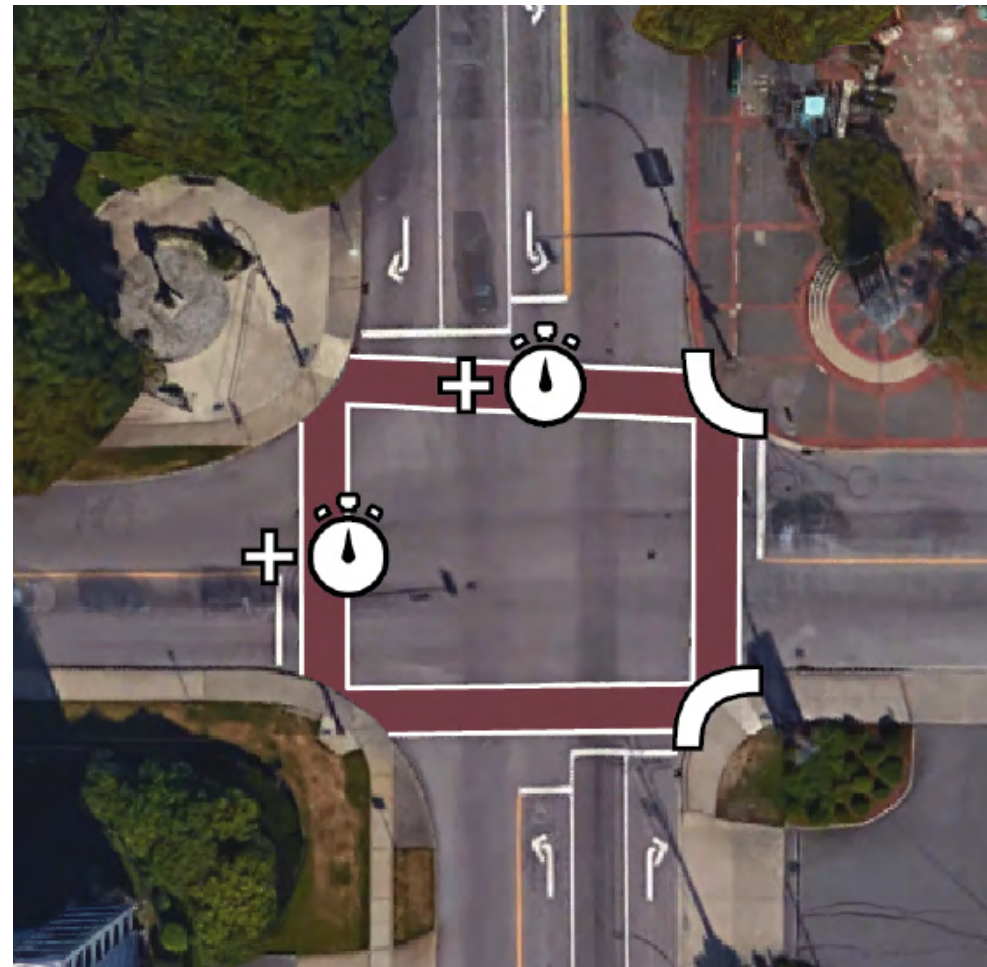
### WALK SIGNAL TIMING

- 1.1-1.25 m/s
- 0.9 - 1.0 m/s



## 8TH ST & 6TH AVE - PRIORITY POTENTIAL UPGRADES

Intervention Type	Description	Problem
Change walk signal timing to 0.8m/s maximum	North, west, and east crossings	1
Puffin crossings	All crosswalks	1
Leading pedestrian intervals	All crossings	2
Install high visibility crosswalks	All crosswalks	2
Install proper letdown on east corners	Improve accessibility for seniors using mobility aids	3



### LEGEND



Increase crossing time



Install high visibility crosswalk



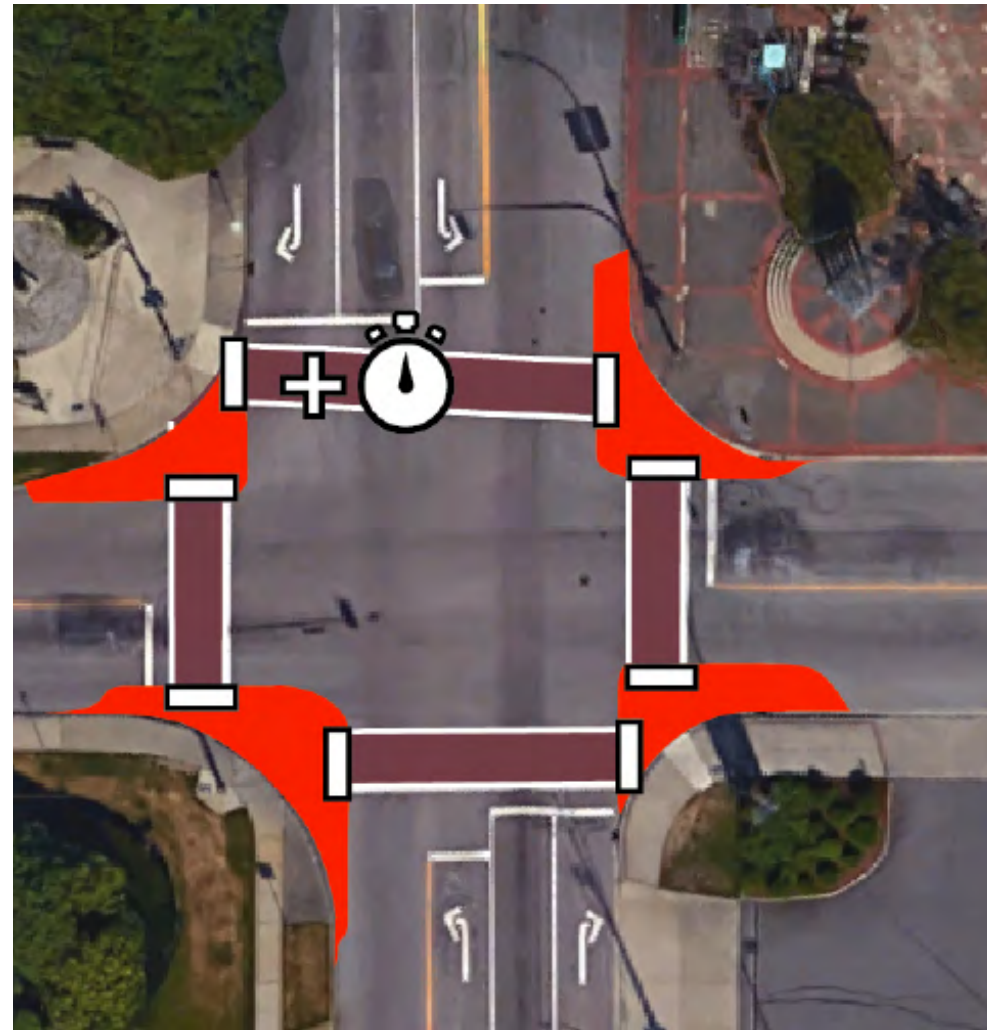
Upgrade corner letdown





## 8TH ST & 6TH AVE - LONG TERM POTENTIAL UPGRADES

Intervention Type	Description	Problem
Change crossing timing to 0.8m/s maximum	All crossings	1
Puffin crossing	All crosswalks	1
Curb extensions	Add curb extensions - where possible given turning movements	1, 2, 5
Install high visibility crosswalks	All crosswalks	2
Leading pedestrian intervals	Give pedestrians an advance walk signal so that they may begin crossing the street safely and visibly	2
Accessible curb letdowns	All crosswalks	3
Consider simplifying vehicular movements	For left turns where feasible	6



### LEGEND



Install curb extension



Install high visibility crosswalk



Increase crossing time



Add single letdown



### 5.3.5 6TH STREET & 8TH AVENUE

This intersection sees high vehicular traffic and has one of the highest amounts of crashes resulting in a pedestrian injury or fatality in the site. It anchors the northern end of the commercial area of 6th St. Thornbridge Gardens, a seniors home, is located on the north-west corner of the intersection. Seniors would need to cross the intersection from the home to access destinations on 6th St.

#### PROBLEMS

2. Poor pedestrian visibility
3. Lacks accessibility features
6. Conflicts with vehicles

#### OPPORTUNITIES

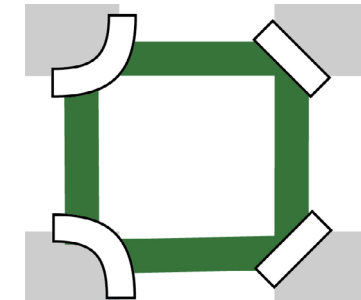
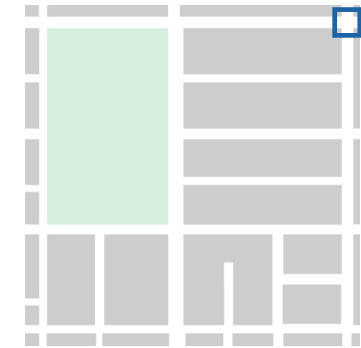
- Crossing times are adequate
- Places to rest in proximity
- Two accessible curb letdowns

#### ADDITIONAL INFORMATION

- 6 crashes that resulted in a pedestrian injury or death (2009-2017)
- Was not mentioned as a problem area by seniors in engagement sessions



*The curb letdowns on the east side of the intersection are not ideal (south-east pictured here). The crosswalks are worn*



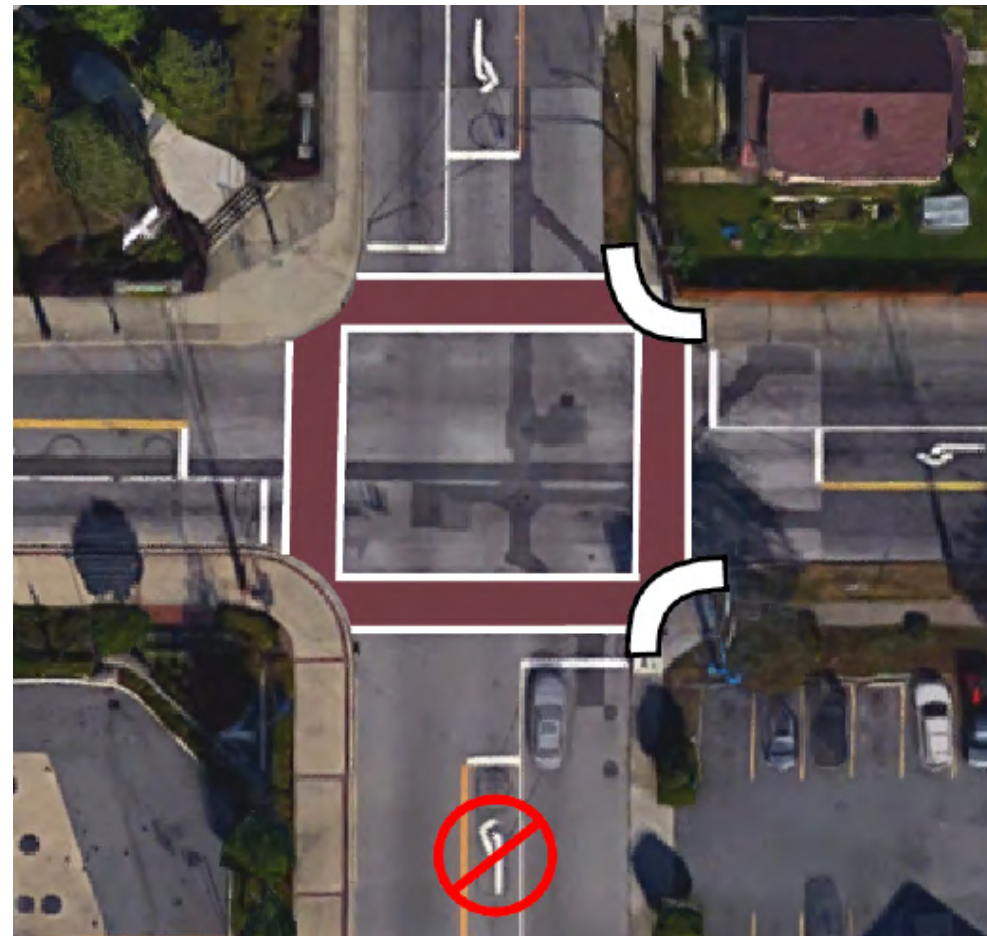
#### WALK SIGNAL TIMING

- 0.7 - 0.8 m/s



## 6TH ST & 8TH AVE - PRIORITY POTENTIAL UPGRADES

Intervention Type	Description	Problem
Install high visibility crosswalks	All crosswalks	2
Leading pedestrian intervals	All crossings	2
Install proper curb letdowns	Eastern corners	3
Consider simplifying vehicular movements	Potential ban on left turns travelling north on 6th St	6



### LEGEND



Install high visibility crosswalk



Left turn ban



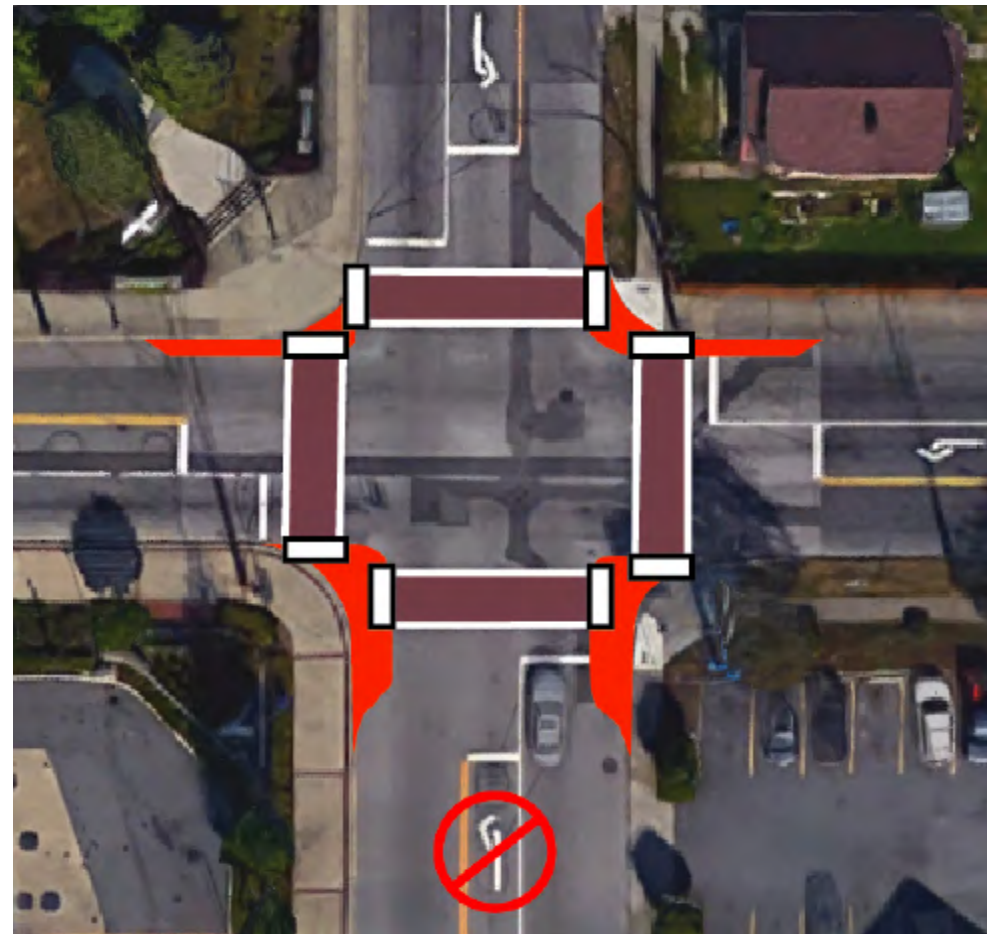
Install corner letdown



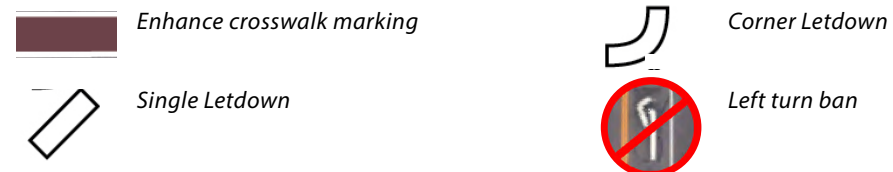


## 6TH ST & 8TH AVE - LONG TERM POTENTIAL UPGRADES

Intervention Type	Description	Problem
Curb extensions	Add curb extensions where appropriate	2
Leading pedestrian intervals	All crossings	2
Enhance crosswalk marking	Improve the visibility of pedestrians	2
Install proper curb letdown on east corners	Improve accessibility for seniors using mobility aids	3
Add accessible pedestrian signals	All crosswalks	3
Consider left turn prohibitions	Travelling north on 6th St	6



### LEGEND



## 5.4 CORRIDORS

The team provided recommendations for three corridors in the study site. Long strips of streets were chosen for further analysis and potential recommendations to make them great for seniors to comfortably walk around.

The corridors that will be showcased in this section have been selected for specific reasons:

- They provide destinations for seniors
- They were highly mentioned at our engagement sessions
- Two were classified as Great Streets

The team was informed by the City's next steps and considered those corridors as potential candidates for long-term or aspirational recommendations.

Corridors should also incorporate the best practices from sidewalk spots, intersections, and site-wide recommendations provided previously in this study.

The following four characteristics and qualities should be found across all corridors:

### 1. PRIORITIZE PEDESTRIANS

Prioritize pedestrians over motor vehicles when designing great streets for seniors. The MTP (p.134) puts first vehicles and pedestrians follow.

### 2. PHYSICAL COMFORT

Wide sidewalks, sidewalks separated from traffic, street trees that can provide weather protection.

### 3. PEDESTRIAN AMENITIES

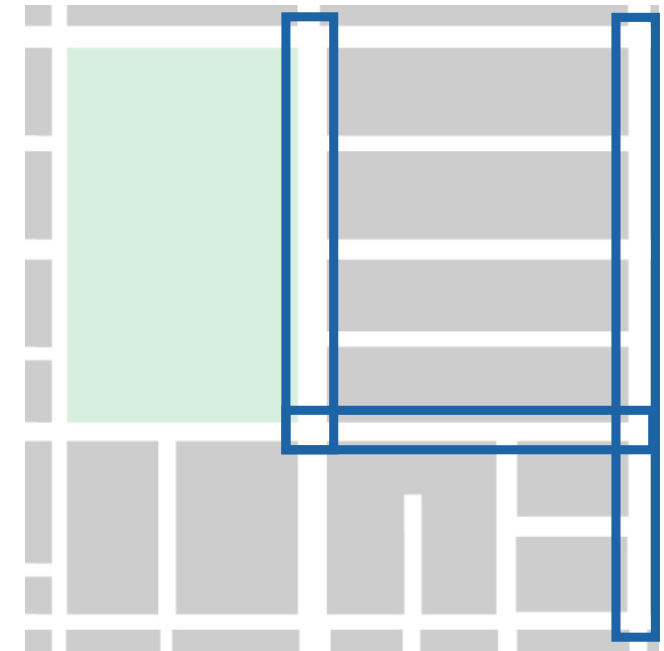
Benches, bus stops with sheltered benches and other design elements that allow for pedestrians to rest and have an opportunity to socialize.

Appendix G: Benches Map shows locations of city benches and where there are gaps in the site.

### 4. PEDESTRIAN SAFETY

Overhead lighting at all signalized crosswalks, accessible pedestrian signals for all intersections (tactile strips, timer signals, sound notification), adequate crossing time for intersections so that they follow the minimum for seniors. Consider urban braille features when repaving sidewalks.

Each corridor, however, has its own unique character and therefore has its own principles and vision. Upgrades are recommended that will fit the vision for each corridor but embody the four corridor characteristics and qualities described above.



#### LEGEND

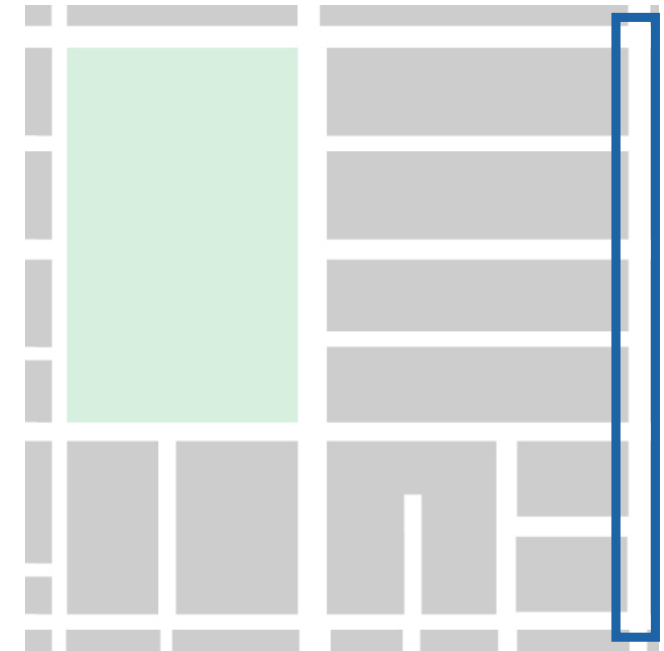


*Detailed recommendations provided below*



## 5.4.1 ALL CORRIDORS RECOMMENDATIONS

Corridor	Problems	Upgrades
6th Street	<ul style="list-style-type: none"> <li>Narrow effective sidewalk width</li> <li>Inconsistent sidewalk surfaces</li> <li>Uneven surfaces</li> <li>Aggressive and impatient drivers</li> <li>Insufficient intersection crossing time</li> <li>Crashes involving senior pedestrians</li> <li>Insufficient places to rest</li> </ul>	<ul style="list-style-type: none"> <li>Increase the width of the sidewalk by decreasing the pavement width of vehicular lanes</li> <li>Ensure 3m of effective sidewalk width</li> <li>Ensure that sandwich boards do not block effective sidewalk widths</li> <li>Eliminate sidewalk crossfalls</li> <li>Consider repaving corridor so streets and sidewalks are level</li> <li>Consider reducing the speed limit from 50 km/h to 30 km/h</li> <li>Install boulevard with street trees, turning lanes, and pedestrian refuge islands</li> <li>Develop and implement pedestrian wayfinding</li> <li>Partner with the UBA to rethink plazas and public space</li> <li>Consider the inclusion of public art or symbols as beautification and wayfinding</li> <li>Provide rest areas at minimum every 100m (weather-protected if possible)</li> </ul>



### LEGEND



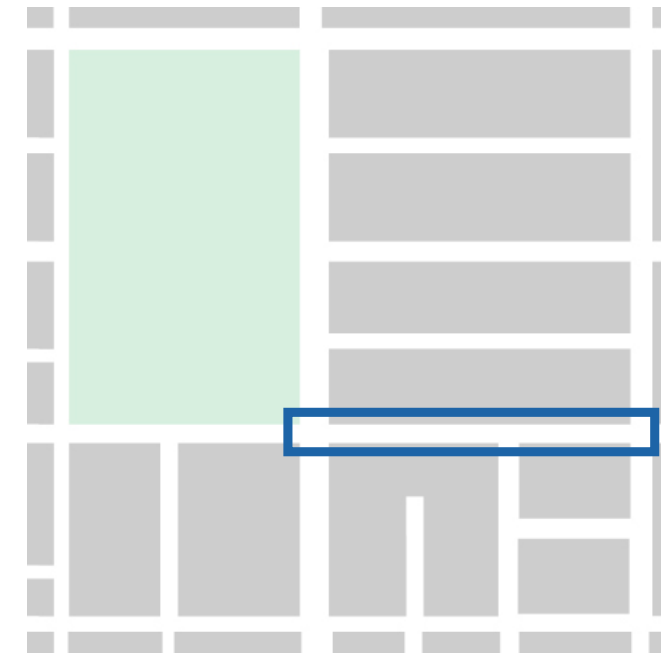
*Detailed recommendations provided below*





## 5.4.1 ALL CORRIDORS RECOMMENDATIONS (CONTINUED)

Corridor	Problems	Upgrades
6th Avenue	<ul style="list-style-type: none"> <li>Narrow sidewalks</li> <li>Inconsistent sidewalk pavement surfaces</li> <li>Insufficient intersection crossing time</li> <li>Every intersection on 6th Ave had at least one crash leading to a pedestrian injury</li> <li>Insufficient places to rest</li> </ul>	<ul style="list-style-type: none"> <li>Remove on-street parking and increase sidewalk width</li> <li>Ensure 3m of effective sidewalk width</li> <li>Work with local businesses and Royal City Centre to ensure that sidewalk pavement is well-maintained</li> <li>Eliminate sidewalk crossfalls</li> <li>Repave sidewalks to ensure that they are level and consistent</li> <li>Redesign sidewalks around vehicular entrances adjacent to the Royal City Centre</li> <li>Consider eliminating the eastern entrance/exit to the gas station on 6th Ave (adjacent to the Public Library)</li> <li>Consider adding more library book drop-off points across the city</li> <li>Develop and implement pedestrian wayfinding</li> <li>Consider the inclusion of public art or symbols to serve both as beautification and wayfinding for seniors</li> <li>Integrate plaza (outside of the Public Library) with the street, creating a social space on the street</li> <li>Provide rest areas at minimum every 100m (weather-protected if possible)</li> </ul>



### LEGEND

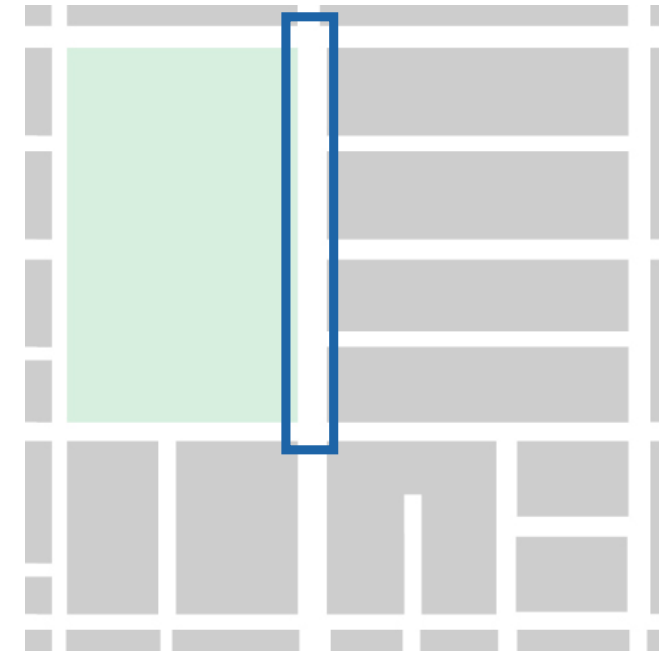


*Detailed recommendations provided below*



## 5.4.1 ALL CORRIDORS RECOMMENDATIONS (CONTINUED)

Corridor	Problems	Upgrades
8th Street	<ul style="list-style-type: none"> <li>Narrow sidewalks</li> <li>Aggressive and impatient drivers</li> <li>Drivers disobeying traffic laws (speeding, illegal turns, running red lights)</li> <li>Insufficient intersection crossing time</li> <li>Accidents along corridor</li> <li>Insufficient places to rest</li> </ul>	<ul style="list-style-type: none"> <li>Ensure 2m of effective sidewalk width</li> <li>Work with Park Board and Century House to ensure adequate effective sidewalk widths on the west sidewalk</li> <li>Review where property lines end and extend the sidewalk where effective width is below 2m</li> <li>Ensure vegetation does not impede effective sidewalk width</li> <li>Eliminate sidewalk crossfalls</li> <li>Clarify pedestrian movement on 8th St &amp; Princess St intersection</li> <li>Add curb extensions across 8th St on the intersections with 6th Ave and 8th Ave</li> <li>Consider high visibility crosswalks</li> <li>Consider red light camera on 8th St and 7th Ave, pending analysis</li> <li>Increase visibility of speed signs</li> <li>Enforce speeding laws</li> <li>If the City decides that this part of 8th St should be a 30 km/h street, then it should reduce the width of the travel lanes for motor vehicles.</li> <li>Provide rest areas at minimum every 100m (weather-protected if possible)</li> </ul>



### LEGEND

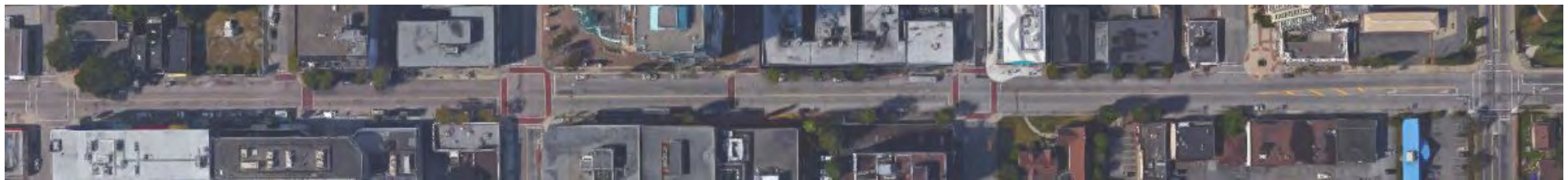
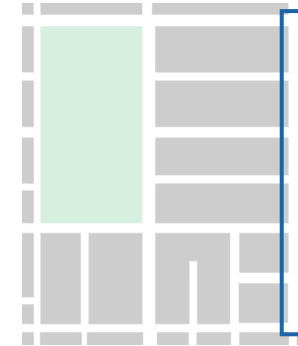


*Detailed recommendations provided below*



## 5.4.2 6TH STREET

6th St is the most vibrant street in the Uptown neighbourhood. It is a commercial corridor with many destinations that attract seniors. 6th St is designated as a Great Street. This street is part of TransLink's Frequent Transit Network, which means that there is high frequency of buses throughout the day. There are two seniors residences adjacent to the corridor. The team learned through engagement that seniors frequently walk along this street. This corridor has the highest potential to become not only a Great Street for Seniors but a Great Street for people of all ages and abilities. The City is beginning to plan the transformation of this street into a Great Street, so there is an opportunity for the team to propose recommendations that will make this street even more attractive for seniors to visit.



### PROBLEMS

- Narrow effective width sidewalks (especially along northern section)
- Inconsistent sidewalk pavement surfaces
- Cracks, buckling and uneven surfaces along corridor
- Sandwich boards impede effective width of sidewalks
- Aggressive and impatient drivers
- Intersections with insufficient crossing time
- Crashes involving senior pedestrians along the corridor
- Insufficient places to rest

### OPPORTUNITIES

- High senior pedestrian activity (high potential for impact)
- Vibrant commercial corridor
- Seniors' destinations
- Part of the Frequent Transit Network
- Mid-block crosswalk on Princess St
- Crosswalks with coloured pavement
- Excellent senior focused intersection on 6th St & 7th Ave

### STREET CHARACTERISTICS

**Width of the street:** 15-17m

**Width of the right-of-way:** 20-22m

**Approximate lane widths:** 4m

**Speed limit:** 50 km/h





## 6TH STREET CORRIDOR RECOMMENDATIONS

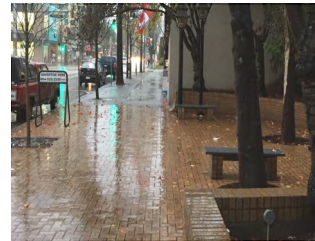
From a senior's perspective the 'Great Street' principles of the City's MTP for 6th St are aligned with the goal of making the streetscape environment safer and more comfortable. This segment of 6th St should be a prime example of pedestrian-oriented street as it sees high volumes of senior and pedestrian traffic in general. The following recommendations add specificity to those principles and provide alternative recommendations.



*Consistent, easily-recognizable, and uncluttered signage should be considered for dementia-friendly wayfinding, Source: [Pinterest](#)*



*Pedestrian refuge islands increase visibility, and yielding behavior, Source: [NACTO](#)*

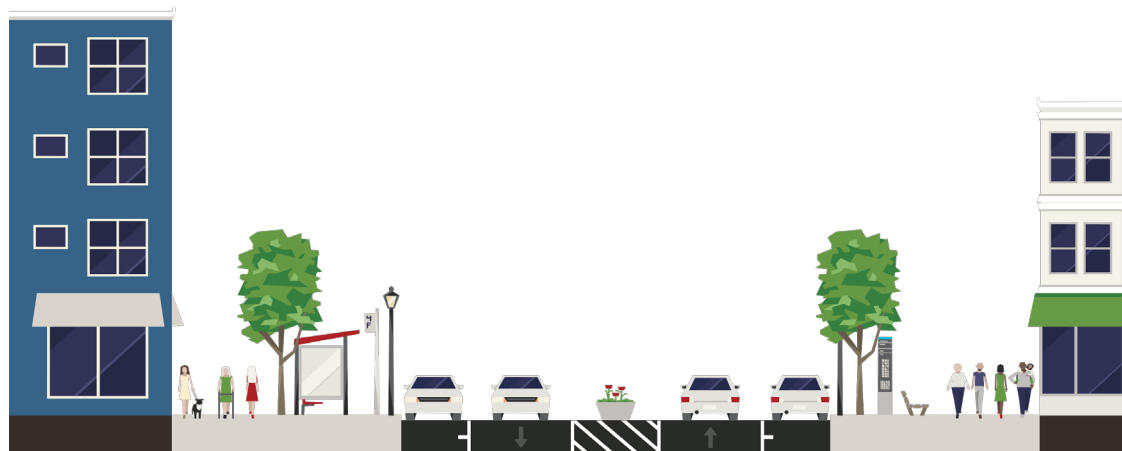


*Segments of 6th St already have 3m of effective sidewalk width. The City should ensure that this is consistent along this corridor*

### RECOMMENDED UPGRADES

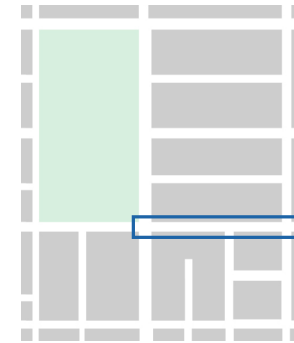
- Decrease the pavement width of vehicular lanes from 15-17m to 12-14m to increase the width of the sidewalk
- Ensure 3m of effective sidewalk width
- Work with local businesses along the corridor to ensure that sandwich boards do not block effective sidewalk widths
- Eliminate sidewalk crossfalls (especially on the north side of the corridor)
- Consider repaving streets and sidewalks are level
- Reduce speed limit to 30 km/h
- Consider introducing a boulevard with street trees, turning lanes, and pedestrian refuge islands
- Develop and implement pedestrian wayfinding and consider developing a city-wide strategy with special care to be accessible to people with dementia
- Partner with the UBA to rethink the plazas that are in place and how to make them even better utilized by pedestrians (notably 6th St & 6th Ave, 6th St & Princess St, 6th St & Hamilton St)
- Consider the inclusion of public art or symbols to serve both as beautification and wayfinding for seniors
- Provide rest areas at minimum every 100m (weather-protected if possible)

### RECOMMENDED CROSS SECTION



## 5.4.3 6TH AVENUE

6th Ave is designated as a Great Street in the City's MTP. This section of 6th Ave is a mix of commercial and civic use and contains major destinations for seniors. Two senior residences are located in proximity to 6th Ave. From engagement the team learned that high volumes of seniors walk along this corridor. There is one lane of travel and one lane of parking for each direction. It is an east-west connector within the City with relatively high vehicular volumes of traffic. There are two bus routes along this street. It is an enhanced transit corridor and the City and TransLink are exploring options to increase transit priority.



### PROBLEMS

- Narrow sidewalks
- Inconsistent sidewalk pavement surfaces
- Intersections with insufficient crossing time for seniors
- Every intersection on 6th Ave had at least one crash leading to a pedestrian injury
- Insufficient places to rest

### OPPORTUNITIES

- High senior pedestrian activity (high potential for impact)
- Vibrant commercial corridor
- Seniors' destinations
- Crosswalks with coloured pavement
- Excellent senior focused crossing on 6th Ave across from the library

### STREET CHARACTERISTICS

**Width of the street:** 12-14m

**Width of the right-of-way:** 18-20m

**Approximate lane widths:** 3.5m

**Speed limit:** 50 km/h



## 6TH AVENUE CORRIDOR RECOMMENDATIONS

Similarly with 6th St, the principles that are laid out in this 'Great Street', designated in the City's MTP, are in accordance with the principles that make a street great for seniors. The following recommendations add specificity to those principles and provide alternative recommendations.



*The City should consider partnering with the UBA to redesign the sidewalk around vehicular entrances adjacent to the Royal City Centre*



*The City should consider integrating the plaza (outside of the Public Library) with the street, Source: [NewWestRecord](#)*



*Smooth, wide, and clear sidewalks are essential to allow seniors to walk comfortably, Source: [NACTO](#)*

## RECOMMENDED UPGRADES

- Remove on-street parking and increase sidewalk width
- Ensure 3m of effective sidewalk width
- Work with local businesses and Royal City Centre to ensure that sidewalk pavement is well-maintained
- Eliminate sidewalk crossfalls (notably between 8th St and 6th St)
- Repave sidewalks to ensure that they are level and consistent
- Redesign sidewalks around vehicular entrances adjacent to the Royal City Centre
- Consider eliminating the eastern entrance/exit to the gas station on 6th Ave (adjacent to the Public Library)
- Consider adding more library book drop-off points across the city
- Develop and implement pedestrian wayfinding and consider developing a city-wide strategy with special care to be accessible to people with dementia
- Integrate plaza (outside of the Public Library) with the street, creating a social space on the street
- Consider the inclusion of public art or symbols to serve both as beautification and wayfinding for seniors
- Provide rest areas at minimum every 100m (weather-protected if possible)

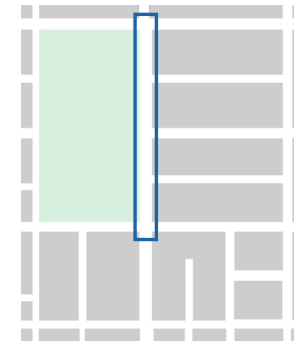
## RECOMMENDED CROSS SECTION





## 5.4.4 8TH STREET

8th St is a local street that runs north into Burnaby and becomes a major thoroughfare. It has two travel lanes plus parking in each direction. It has the highest vehicular traffic in the study site. The section of this street that the team provides recommendations on is unique because it is a 30 km/h zone, as it is next to Moody Park. The Century House (New Westminster's only senior centre) is located on the west side of the street. Both seniors and City staff were concerned about speeding and vehicles reportedly running red lights (especially at pedestrian signalized intersections). It is part of the Frequent Transit Network. In the MTP the street is to be reclassified from a local street to a city collector. The team aims to provide recommendations to improve the safety and comfort for senior pedestrians on this corridor.



### PROBLEMS

- Narrow sidewalks
- Aggressive and impatient drivers
- Drivers disobeying traffic laws (speeding, illegal turns, running red lights)
- Intersections with insufficient crossing time for seniors
- Accidents along corridor
- Insufficient places to rest

### OPPORTUNITIES

- Seniors' destinations
- Segments with wide sidewalks
- Part of the Frequent Transit Network
- Excellent senior focused intersection at 8th St & 7th Ave

### STREET CHARACTERISTICS

**Width of the street:** 20m

**Width of the right-of-way:** 23-25m

**Approximate lane widths:** 3.5m

**Speed limit:** 30 km/h



## 8TH STREET CORRIDOR RECOMMENDATIONS

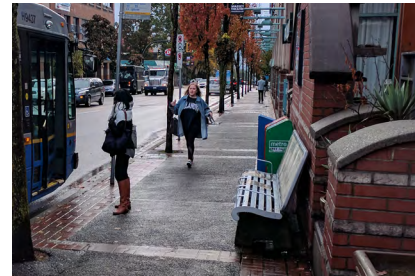
8th St should be redesigned as a 30 km/h street or redesignated as a collector (50 km/h) with enhanced senior safety for pedestrians. The following recommendations will improve safety at intersections and along the sidewalk.



*As a quick-win and where is feasible, the City could extend the sidewalk in order to accommodate an effective width of 2m*



*The City should consider installing high visibility crosswalks in all pedestrian intersections, Source: [Alta](#)*



*8th St is lacking rest areas for pedestrians*

## RECOMMENDED CROSS SECTION



## RECOMMENDED UPGRADES

- Ensure 2m of effective sidewalk width
- Work with Park Board and Century House to ensure adequate effective sidewalk widths on the west sidewalk
- For the east sidewalk, the City should review where property lines end and extend the sidewalk where effective width is below 2m
- Ensure vegetation does not impede effective sidewalk width
- Eliminate sidewalk crossfalls (e.g., outside Century House)
- Clarify pedestrian movement on 8th St & Princess St intersection
- Add curb extensions across 8th St on the intersections with 6th Ave and 8th Ave
- Consider high visibility crosswalks
- Consider red light camera on 8th St and 7th Ave, pending analysis
- Increase visibility of speed signs
- Enforce speeding laws by the City of New Westminster Police Department (monitor speeds)
- If the City decides that this part of 8th St should be a 30 km/h street, then it should reduce the width of the travel lanes for motor vehicles.
- Provide rest areas at minimum every 100m (weather-protected if possible)



# 6. CONCLUSION

The City is committed to making New Westminster an age-friendly community. This means that seniors can lead a high quality of life, independently and with dignity. City Council has adopted a suite of plans, policies, and practices in support of this vision. The ability to access the community as a pedestrian is crucial to these goals. By recommending ways to make the pedestrian realm safe and comfortable for senior pedestrians, this study directly supports this vision.

**One key messages stood out to the team: making the pedestrian realm great for seniors is necessary, simple, and helps everyone.**

## MAKING THE PEDESTRIAN REALM GREAT FOR SENIORS IS NECESSARY

Senior pedestrians are one of the most vulnerable road users. Seniors make up the majority of pedestrians killed at intersections. It is imperative that streetscapes are designed to protect seniors and cater to their mobility characteristics.

The City's infrastructure must support seniors' needs to enable safe and comfortable pedestrian experiences. If seniors perceive the streetscapes to be safe, and if streetscapes are safe, seniors are more likely to be able to lead independent lives.

## MAKING THE PEDESTRIAN REALM GREAT FOR SENIORS IS SIMPLE

Upgrading streetscapes to be safe and comfortable for seniors is a choice that does not necessarily require expensive retrofits of city streets. The principles can be incorporated into design guidelines, maintenance schedules, and policies. It can be as simple as the choice to prioritize seniors' safety over maximum vehicular throughput when setting light cycle timing.

Principles:

- Level, wide, and unobstructed walking surfaces
- Narrow crossing distances
- Long crossing times at signalized intersections
- Excellent visibility between vehicles and pedestrians
- Accessible features by default on sidewalks and crossings
- Dementia-friendly features, including landmarks and consistent wayfinding

## MAKING THE PEDESTRIAN REALM GREAT FOR SENIORS HELPS EVERYONE

Senior-friendly principles incorporates the best practices of safe and comfortable street design and accessible design features. Children and people of all abilities benefit from a slower and safer pedestrian realm.

## RECOMMENDED NEXT STEPS

The senior-friendly principles and recommendations from this report could be incorporated as items into 'Great Street' requirements, street design guidelines, and traffic signal guidelines. The City should proactively implement 'quick win' upgrades, address the most severe problem spots, and retrofit streetscapes opportunistically (through development and maintenance schedules).

The team recommends that the City prioritize interventions on streets with high pedestrian traffic (6th St, 8th St, 6th Ave, and 8th Ave).

This study site is a prime location to pilot senior-friendly pedestrian design principles.

***The City of New Westminster has built the foundation to become an age-friendly community. This study provides another step to bring this vision to life.***





# 7. ENDNOTES

1. Transport Canada. (2011). *Road Safety in Canada*.  
Statistics Canada. (2016). *2016 Census*.
2. BC's Coroners Service. (2016). *Pedestrian Deaths 2010-2016*.
3. Statistics Canada. *National Household Survey*.
4. University of South Carolina. (2002). *Sidewalk Assessment Tool*
5. Champaign County Regional Planning Commission. (2016). *Sidewalk Network Inventory and Assessment*.
6. New Westminster Police Department data
7. City of New Westminster. (2014). *Master Transportation Plan*.
8. City of New Westminster. (2017). *Official Community Plan*.
9. Ibid.
10. City of New Westminster. (2014). *Master Transportation Plan*.
11. Ibid.
12. ICBC data
13. New Westminster Police Department data
14. Transportation Association of Canada. (2012). *Pedestrian Crossing Control Guide*.
15. Mead, Zegeer, and Bushell. (2014). *Evaluation of Pedestrian-Related Roadway Measures: A Summary of Available Research*.
16. Toronto Public Health. (2014). *Health Streets: Evidence Review*
17. Transportation Association of Canada. (2016). *Geometric Design Guide for Canadian Roads 2017*.
18. Walsh. (2016). *Local Policies and Practices That Support Safe Pedestrian Environments*.



# 8. APPENDIX

## 8.1 APPENDIX A: POLICY CONTEXT

### MASTER TRANSPORTATION PLAN (MTP)

The MTP provides long-term guidance on transportation policies, priorities, and investments for New Westminster's transportation network. The MTP's first priority is to make New Westminster a community that ensures walking is universally accessible, safe, and convenient, especially for vulnerable road users like seniors. This will be accomplished through programs, policies, and infrastructure. The MTP emphasizes that it is important for New Westminster to have infrastructure that enables seniors to be mobile without a vehicle. There are several policies and actions in the MTP related to improving pedestrian environments for seniors. These include improving safety, addressing barriers, promoting walking.

### RELEVANT TARGETS, POLICIES AND ACTIONS:

- Target 1: No traffic-related fatalities or serious injuries most years
- Policy 1C: Improve Pedestrian Safety and Accessibility
- Action 10A.2: Work with local partners to establish Best Routes for seniors accessing key community destinations in the city
- Action 1A.3: Work towards all sidewalks

in the city having a minimum clear width of 1.8 metres, with an enhanced sidewalk clear width of at least 3.0 metres on Great Streets and other areas with high pedestrian activity

### CITY OF NEW WESTMINSTER'S OFFICIAL COMMUNITY PLAN (OCP)

The OCP provides a 30-year vision, goals, and policies for the city to connect the residents' aspirations with the tools needed to achieve it. Most relevant to this project, the OCP advocates for building 'Great Streets' that are comfortable, livable, animate the public realm and encourage people of all ages to mingle and socialize. Great Street amenities include wider sidewalks, curb bulges, seating and plantings. They contribute to a healthy community by fostering active transportation, encouraging social interaction and enhancing livability. Two of the streets in the study site, 6th St and 6th Ave, are designated as Great Streets.

### RELEVANT POLICY:

- Policy 11.3: Encourage people to walk more by making the pedestrian environment safe, comfortable and convenient.

### AGE FRIENDLY COMMUNITY STRATEGY

The recently passed Age Friendly Strategy unifies the City's foundation of age and access-friendly policies and programs into a vision and framework to ensure future interventions are deliberate and purposeful.

### MOST RELEVANT POLICIES:

- Policy 7.2: Buildings, parks and open spaces, and transportation systems must be accessible, comfortable and safe to build trust and confidence in the built environment
- Policy 8.2: The City conduct a review and audit of civic facilities and infrastructure related to the significant aging of the population and that it use this audit to inform capital and operating budgets.
- Policy 11.1: That the City continue to implement its Master Transportation Plan (2014), with particular reference to Policy C (Improve Pedestrian Safety and Accessibility) and Actions 1C.1 to 1C.15 and Policy 3F (Improve Safety and Accessibility of Transit) and Actions 3F.1 to 3F.4.
- Policy 11.2: That the City provide a safe, convenient and accessible pedestrian



system which offers a quality walking experience.

## WHEELABILITY ASSESSMENT

The Wheelability Assessment was undertaken with City staff, Councilors and volunteers in 2009. It assessed the accessibility of the pedestrian realm for mobility aid users in key areas of the Uptown and Downtown neighbourhoods of New Westminster. The assessment recorded information in the pedestrian realm such as sidewalk letdowns, surface treatments, and locations of cross-slopes. The Great Streets for Seniors - Uptown Streetscape Study builds on the Wheelability Assessment by adding detail to the accessibility conditions of the study site and providing recommendations for intervention locations.





# 8.2 APPENDIX B: EXISTING CONDITIONS REPORT

(Available upon request)

## TABLE OF CONTENTS

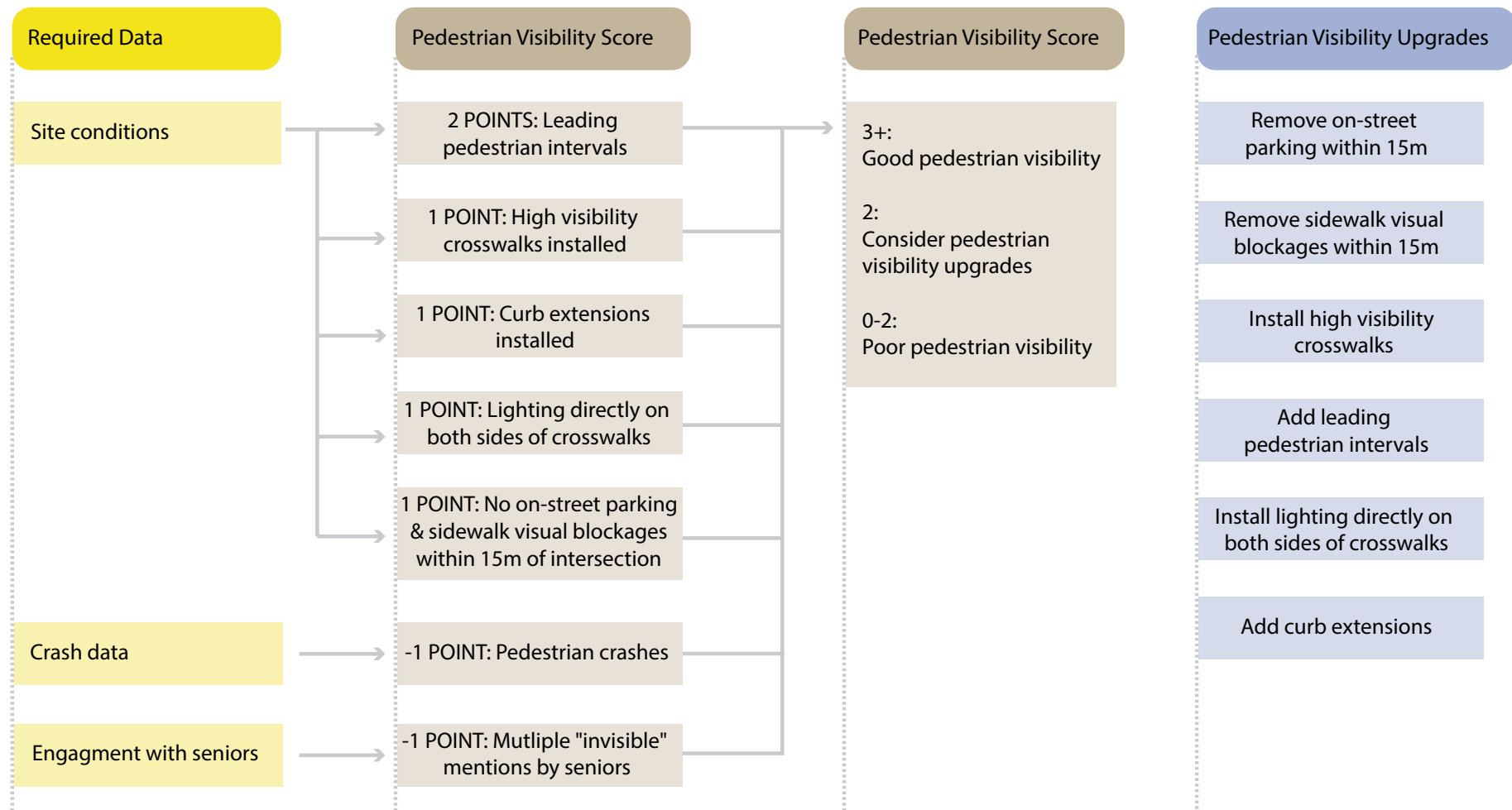
INTRODUCTION.....	3
Project Vision and Objectives.....	4
POLICY CONTEXT.....	5
STUDY SITE.....	7
SITE CHARACTERISTICS.....	8
Site Demographics.....	8
Site Description.....	9
Key Site Destinations for Seniors.....	10
TRANSPORTATION CONTEXT.....	15
Traffic Conditions.....	15
Transit Conditions.....	17
School Walking Routes and Bike Routes.....	18
SIDEWALK AND INTERSECTION CONDITIONS.....	19
Intersections: Walk Light Speeds and Curb Letdown Design.....	26
PROBLEM AREAS.....	27
Sidewalk Problem Areas.....	28
Intersection Problem Areas.....	32
Policy Problems.....	33
CONCLUSION.....	34
APPENDIX.....	35



## 8.3 APPENDIX C: INTERSECTION DECISION CHARTS

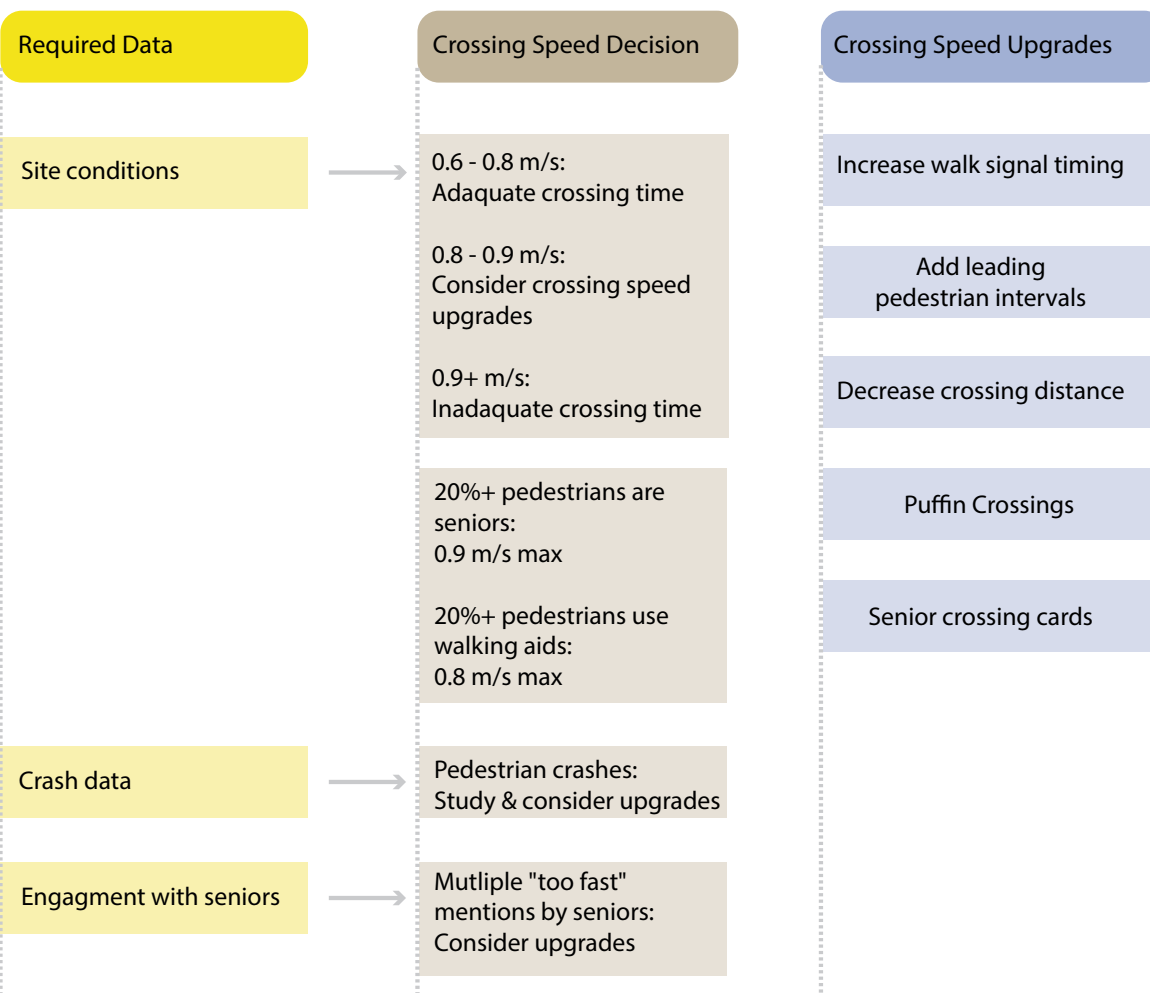
### Pedestrian Visibility

Upgrade decision chart



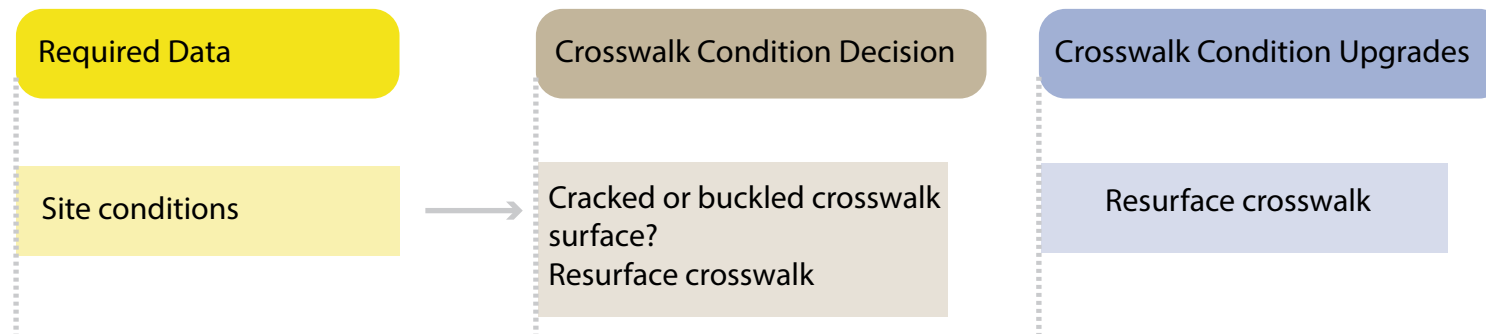
## Crossing speeds

Upgrade decision chart



## Crosswalk Condition

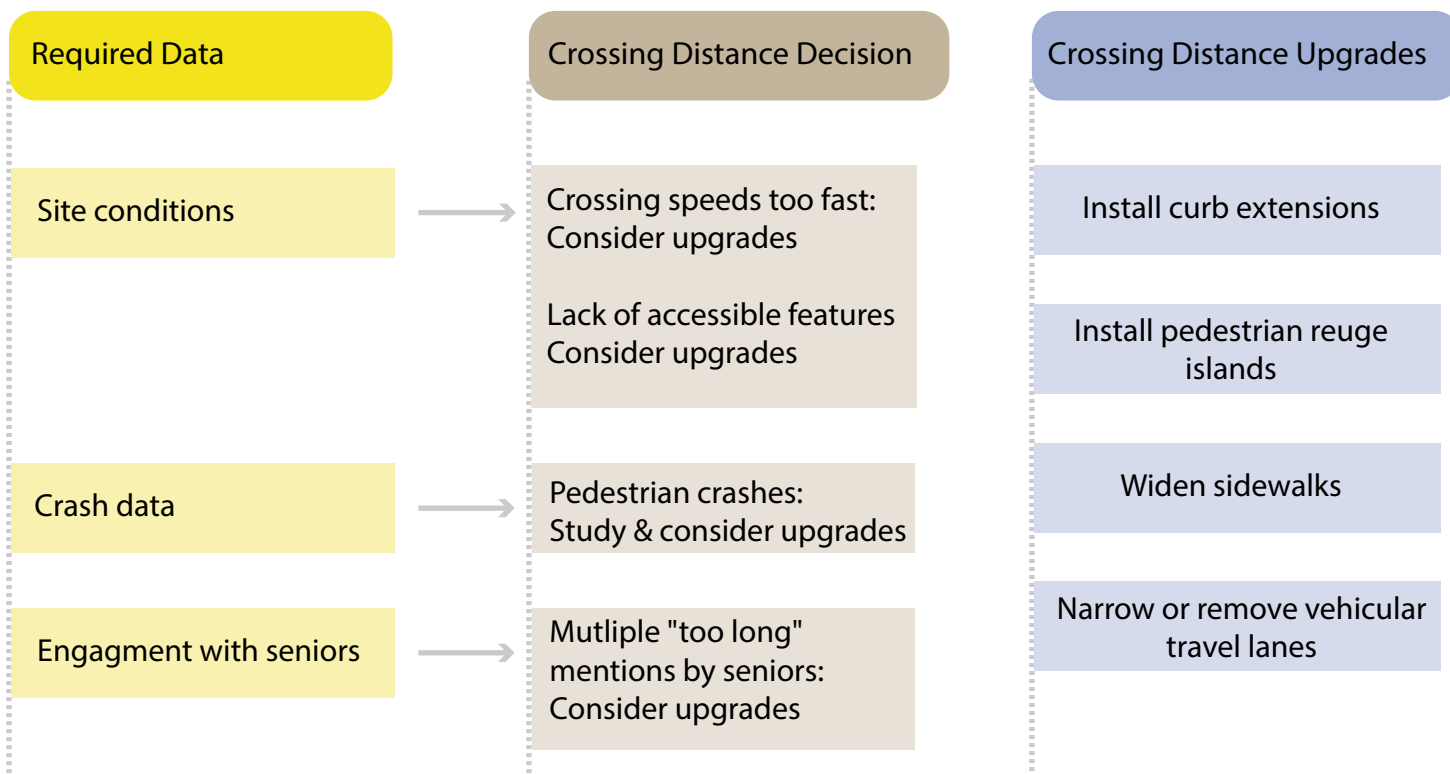
Upgrade decision chart





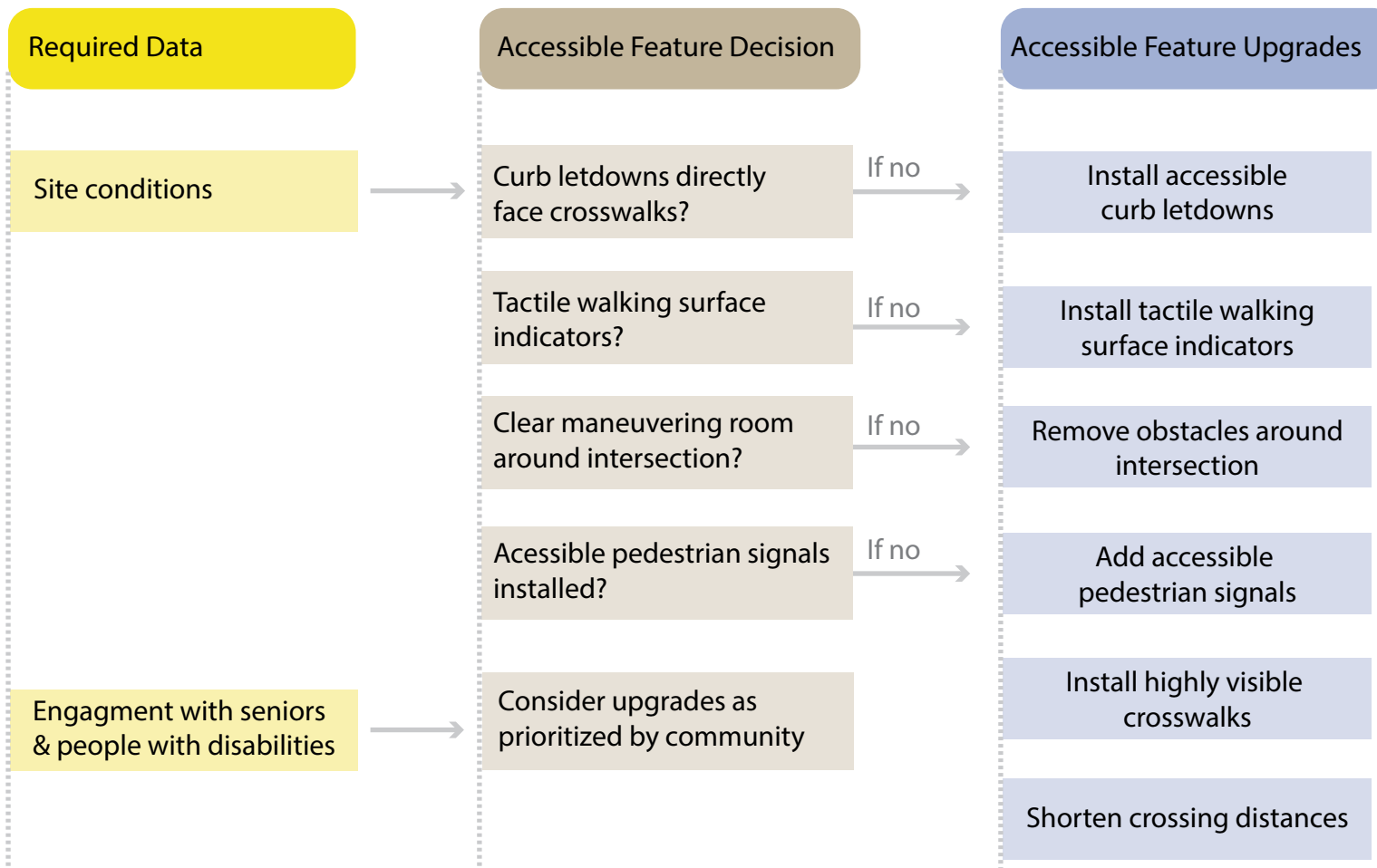
## Crossing Distances

Upgrade decision chart



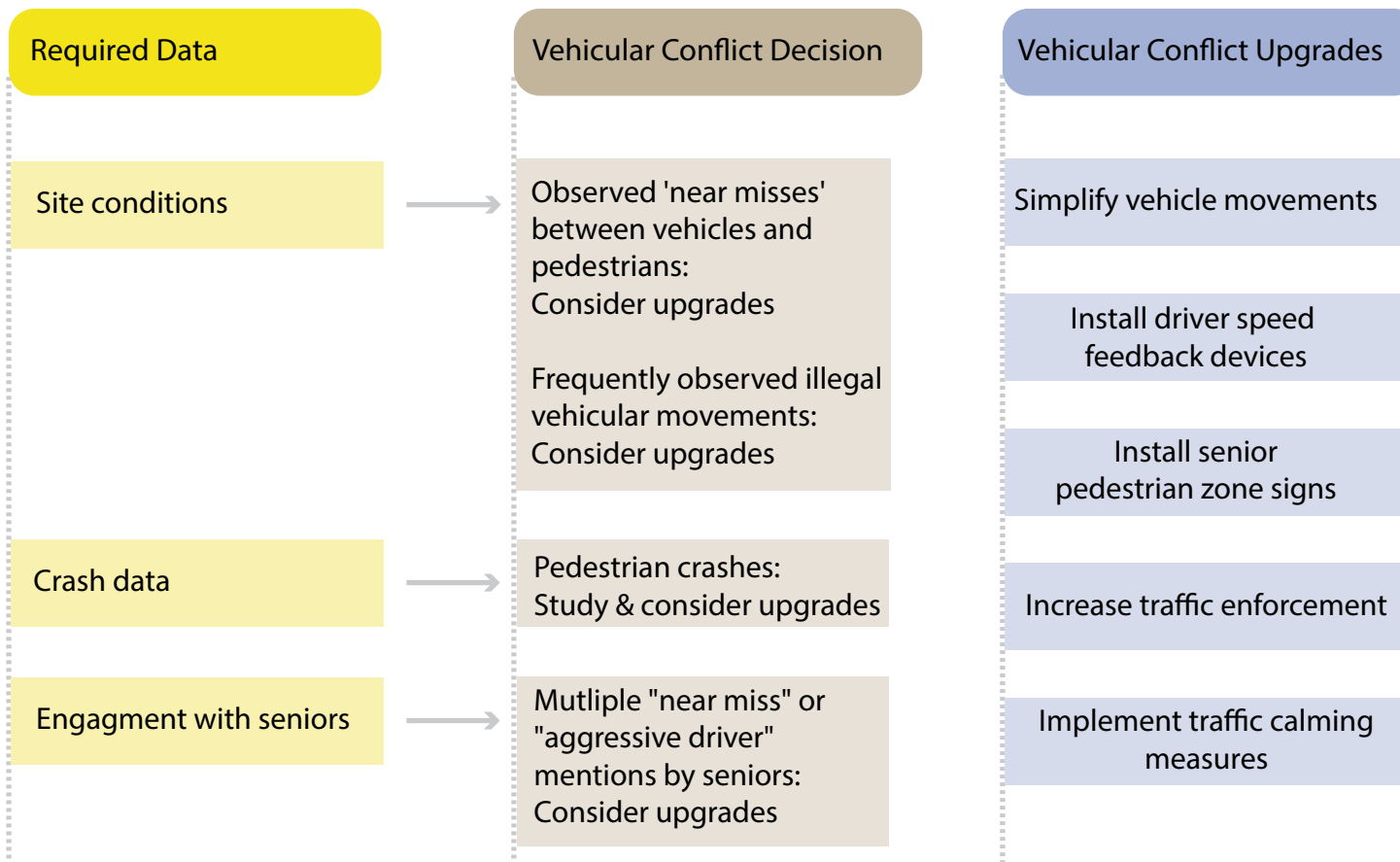
# Accessible Features

Upgrade decision chart

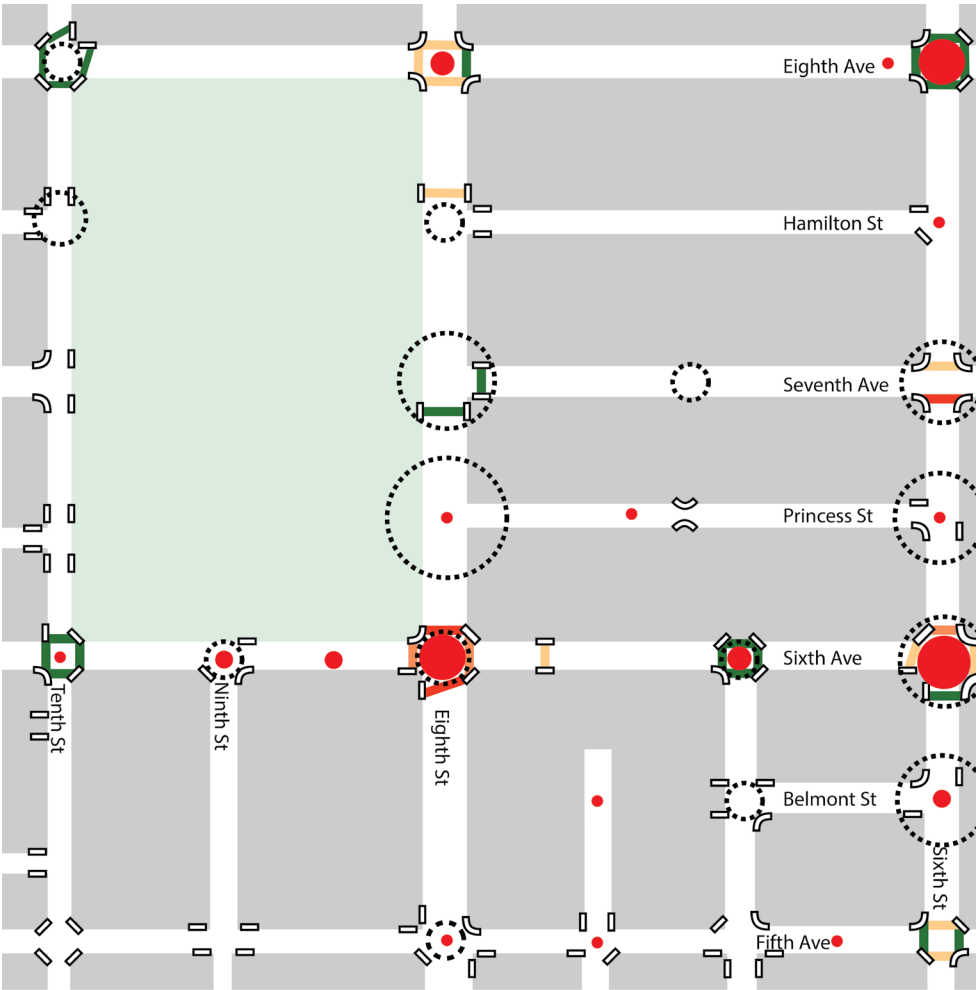


## Conflicts with Vehicles

Upgrade decision chart



# 8.4 APPENDIX D: CRASH DATA



Legend

Pedestrian Crash Fatality and Injury, 2009-2016

1

2

3

4

6

7

Problem Locations Identified by Seniors, by Frequency at 2017 Seniors Festival and Century House Lunch Session

1

2

3

4

9

Crossing Speed

 >1.0 m/s

200 m

Location	Pedestrian of all age Crash Fatality and Injury	Senior Crash Fatality and Injury (known)
6th Ave & 10th St	1	0
6th Ave & 9th St	2	0
800 Blk of 6th Ave	2	2
6th Ave & 8th St	6	1
6th Ave & 7th St	3	0
6th Ave & 6th St	7	2
8th Ave & 8th St	3	0
600 Blk 8th Ave	1	1
8th Ave & 6th St	6	0
Hamilton St & 6th St	1	0
Princess St & 6th St	1	1
739 Princess Street	1	1
Princess St & 8th St	1	0
5th Ave & 8th St	1	1
5th Ave & Ash St	1	0
Ash St near the library	1	0
5th Ave near the LifeLabs	1	0
Belmont St & 6th St	2	0



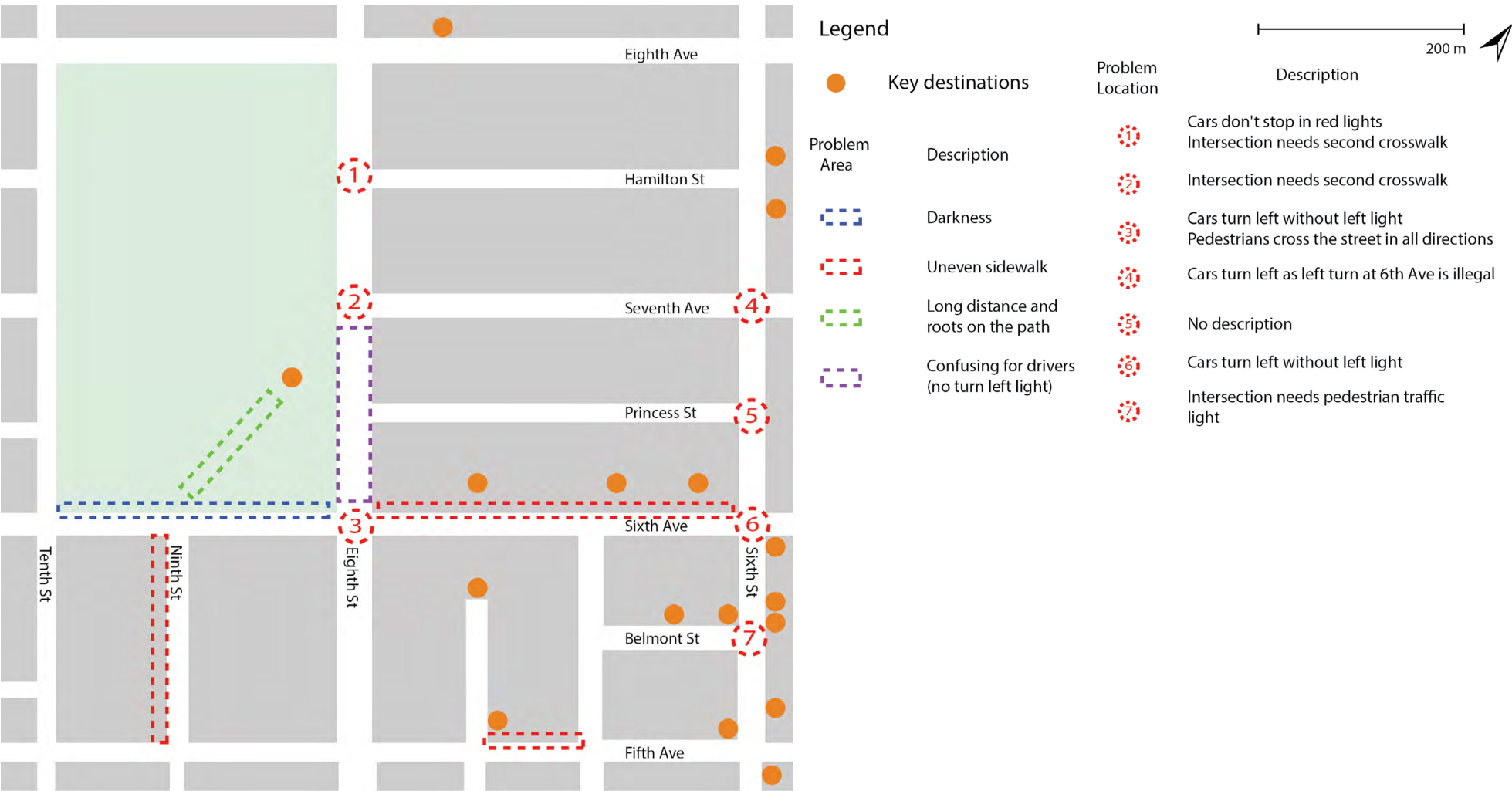


## 8.5 APPENDIX E: ENGAGEMENT

Location	Mentioned Frequency	Problem
8th St & Hamilton St	1	Cars don't stop in red lights; Intersection needs second crosswalk
8th St & 7th Ave	4	Intersection needs second crosswalk; People don't stop for the red light; No parking for disabled seniors
8th St & Princess St	9	Cars or trucks turn left as left turn is illegal; No crosswalk lights; Cars don't see pedestrians when they cross
8th St & 6th Ave	2	Cars turn left without left light; Pedestrians cross the street in all directions; Not enough time for pedestrians to cross the 8th street and 6th Ave
8th St & 5th Ave	1	Cars don't see pedestrians when they cross the Street
10th St & 8th Ave	1	Cars don't see pedestrians when they cross the 10th St
10th St & Kingston St	2	No sidewalk
6th Ave & 9th St	1	No traffic lights
6th Ave & 7th St	1	No description
6th Ave & 6th St	4	Cars turn left without left light; Not enough time for pedestrians to cross street; No crosswalk lights
7th St & Belmont St	1	Sidewalk needs repair
6th St & Belmont St	4	Intersection needs pedestrian traffic; Pedestrians and drivers don't see each other; Sidewalk needs repair
6th St & Princess St	4	The intersection is too narrow for two vehicles to pass
6th St & 7th Ave	3	Cars turn left as left turn at 6th Ave is illegal; A senior was killed
In the middle of the 7th Ave	1	Uneven sidewalk



# 8.6 APPENDIX E: ENGAGEMENT



## 8.7 APPENDIX F: BEST PRACTICE REVIEW

The team examined the most relevant best practices to present options for improving the comfort and safety of the pedestrian realm for seniors. Cases were chosen based on a review of the literature and input from project partners. Similar safety interventions proposed throughout the cases, mainly: increasing walk times at traffic signals, decrease crossing distances for pedestrians, and slow down vehicles.

### TORONTO'S VISION ZERO ROAD SAFETY PLAN

In 2017, the City of Toronto launched a Vision Zero Road Safety Plan (RSP) to eliminate traffic-related fatalities and serious injuries on Toronto's streets. The main reason for this plan were a surge in traffic-related collisions. It was developed through a data-driven and map-based process that leveraged the experience of other North American cities that have adopted similar strategies. The RSP aims to bring together local partners who independently support and undertake road safety initiatives.

The RSP emphasizes the safety of seniors through creating senior safety zones, as well as streetscape interventions and policy recommendations. Toronto planners took a data-driven approach to develop senior safety zones and emphasis areas. They were selected based on collision data for the past eleven and especially five years, public input, and direction from City

Council. Emphasis areas are the sites that are prioritized for interventions. The City is then implementing interventions within emphasis areas like senior safety zones.

The following section describes succinctly 1) Streetscape Interventions and 2) Policy Recommendations set out in the RSP that are directly to seniors safety.

#### Streetscape Interventions

- Increase crossing times near seniors facilities
- Introduce new mid-block pedestrian crossings
- Reduce crossing distance

#### Policy Recommendations

- Launch education and awareness initiatives for older adults
- Enhance enforcement strategies
- Prioritize snow removal in areas with high concentrations of seniors

Detailed list of interventions that were directly focused on seniors safety:

#### Streetscape Interventions

##### Increase crossing times near seniors facilities

Traffic signals were modified near facilities for older adults to allow more time for them to cross signalized intersections. Alternative actuation

methods for seniors would be piloted such as automated pedestrian detection.

*Justification: Longer walk signal times and automated pedestrian detection reduce the risk of an older adult pedestrian being unable to finish crossing an intersection during a traffic signal cycle.*

##### New mid-block pedestrian crossings

Locations for mid-block crossings were installed at collision prone locations and areas of high seniors' trip generation rates at a rate of 5 new mid-block pedestrian crossings per year. Signalized intersections include mid-block pedestrian signals and PXOs that require traffic to stop when activated.

*Justification: Signalized crossings provide greater protection for vulnerable road users at mid-blocks than uncontrolled crossings*

##### Reduced crossing distance

Curb extension, or neckdowns, reduce crossing distances on local and collector roads near schools and areas frequented by seniors.

*Justification: Provide additional visibility and protection for older adults in addition to calming traffic.*

#### Policy Recommendations



## Education and awareness initiatives for older adults

Public education and training materials would be developed to build skills, educate, and ultimately raise awareness of safety risks and what can seniors do to avoid collisions. A communications strategy was developed to support existing and new safety campaigns, including printed brochures and posters. This strategy will include teaching and presentation materials for public health nurses that visit older adult facilities.

*Goal: Improve awareness of how seniors pedestrians can avoid collisions.*

## Enhanced enforcement strategies

Based on a data-driven approach, locations near facilities for seniors and areas visited by seniors would be identified for targeted police enforcement of dangerous driving activities. Additional enforcement will be provided for new pedestrian crossing facilities and signalized intersections with increased pedestrian crossing times.

## Priority snow removal

The plan increased the priority for snow removal on roads and sidewalks near areas with high seniors' trip generation rates and school zones.

List of interventions and initiatives included in the RSP, that were not directly focused on seniors

but indirectly benefit them.

- Geometric Safety Improvements (Traffic Safety Unit)
- Transportation Safety and Local Improvements Program (TSLIP)
- Accessible Pedestrian Signals (APS)
- Traffic Calming
- Annual Sidewalks Capital Program
- Reduced Speed Limits on Local and Collector Roads in TEY
- Pedestrian Priority Zones
- Pedestrian Street Lighting Improvements
- Automated Pedestrian Detection
- Pavement Marking Improvements
- Accessibility Improvements
- Transportation Services Program Delivery (13 FTEs)
- Advance Green for Pedestrians (Leading Pedestrian Intervals)
- New Corner Radius Design
- No Right-Turn-On-Red Prohibition
- Accessible Pedestrian Signals (APS)
- Missing Links Sidewalk Program
- Traffic Calming Guide for Residents
- Mobile "Watch Your Speed" Program (WYSP)
- Road Safety Audits at High-Risk Locations
- Enhanced Data Analysis and Reporting
- Enhanced Data Collection (Permanent Count Stations)

## NEW YORK CITY SAFE STREETS FOR SENIORS

In 2008 the City of New York launched Safe Streets for Seniors, a senior pedestrian safety initiative that has been imitated throughout North America. The initiative was carried out through senior pedestrian safety interventions at 37 Senior Pedestrian Focus Areas (SPFAs) in the City's five boroughs. NYC Department of Transportation (NYC DOT) staff selected SPFAs based on hotspots for senior (65+) pedestrian accidents that resulted in fatalities or severe injuries over the previous five years. The project has been successful for all road users. Since it began, annual senior pedestrian fatalities decreased 16% citywide, accompanied by a 15% reduction in pedestrian injuries and a 10% decrease in total injuries.

NYC DOT staff suggested and implemented interventions at SPFAs to improve safety for seniors areas through engagement with seniors, site analysis, traffic counts, speed studies, and through partnerships with other City agencies and departments. Staff would NYC DOT describes a toolbox of 12 safety interventions. The team has categorized those tools into five types of safety interventions:

- Shorten crossing distances
- Increase crossing times for pedestrians
- Slow down vehicular traffic
- Improve the visibility of pedestrians





- Make sidewalks and crossings more accessible to persons with disabilities

### **New York City DOT Safer Streets for Seniors Intervention Toolbox:**

- Daylighting: Better driver-pedestrian visibility
- Countdown Signals: Tell pedestrians how much more time they have to cross
- Prioritize Pedestrians: Clarify pedestrian desire lines, add LPIs or split phases
- Road Diet: Organizes traffic, less speeding
- Close Slips/Normalize turns: Creates safer turns and improves driver to pedestrian visibility
- Simplify intersection movements: Ban low volume left turns that conflict with high volume crosswalks
- Accessible Pedestrian Signals: Provide audible signal in areas with visibility-impaired populations
- Repair pedestrian ramps: Repair pedestrian ramps on intersections with safety projects
- Provide more time to cross: Add more time to cross the street where possible
- Shorten crossing distances: Narrow lanes and pedestrian crossings in large intersections
- Pedestrians Safety Islands: Shorten crossings on wide streets, provides safer crossings

- Sidewalk Extensions: shortens crossing distances, slows down cars

### **SAFE ROUTES FOR SENIORS**

Safe Routes For Seniors is a project introduced by America Walks with a goal to improve the pedestrian environment in areas that are highly populated or frequently visited by seniors. It was inspired by the New York Safe Streets for Senior program and endorsed by Transportation for America in 2011. The program suggests data to collect in order to determine if interventions are needed:

- Number and circumstances of pedestrian crashes
- Traffic volumes and speeds
- Demographics (densities of senior populations)
- Adequacy of existing infrastructure (gaps, crosswalks etc)
- Residents' concerns about mobility

### **AGE-FRIENDLY COMMUNITIES IN CANADA: COMMUNITY IMPLEMENTATION GUIDE - TOOLBOX**

The age-friendly communities concept was launched in Canada as a pilot project in 2007 to help cities safely accommodate growing older populations. The age-friendly communities concept identifies eight themes emphasizing the goal of healthy aging and a checklist of essential

features of age-friendly cities. The most relevant points are summarized below:

### **Streetscape Conditions**

- Sidewalks are well maintained, free of obstructions, non-slip, wide enough for wheelchairs and have dropped curbs to road level.
- Pedestrian crossings are sufficient in number and safe for people with different levels and types of disability, with non-slip markings, visual and audio cues and adequate crossing times.
- Public areas are clean and pleasant.
- Public toilets and outdoor seating are sufficient in number and well maintained.
- Outdoor safety is promoted by good street lighting.
- Traffic signs and intersections are visible and well placed.
- Roadways are free of obstructions that block drivers' vision.
- Transit stops and stations are conveniently located, accessible, safe, clean, well lit and well marked, with adequate seating and shelter.
- Traffic flow is well regulated.
- Priority parking and drop-off spots for people with special needs are available and respected.



## Policy Recommendations

- Drivers yield to pedestrians at intersections and pedestrian crossings.
- Promote safety on streets through traffic law enforcement and community education.
- Driver education and refresher courses for all drivers.

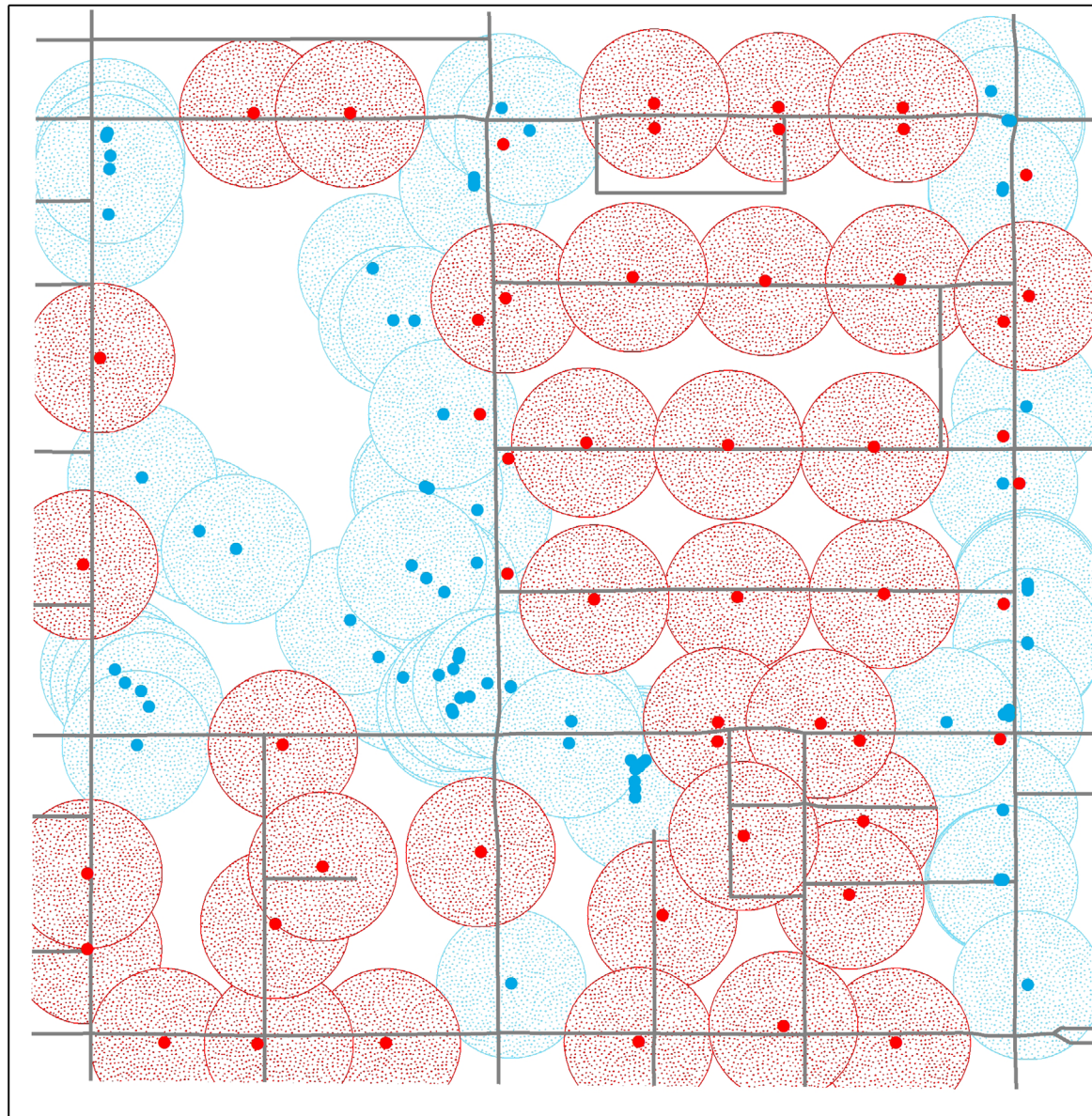
## EUROPEAN COMMISSION MOBILITY AND TRANSPORT ROAD SAFETY DESIGN GUIDE

This European Commission offers road design guidance based on European best practices. Features for safer pedestrian crossings, especially elderly pedestrians, include:

- Reducing crossing distances with sidewalk extensions and/or a median island
- Adding traffic lights at pedestrian crossings
- Increasing traffic light cycle times to accommodate the slower walking speed of the elderly
- Reducing traffic speeds or banishing vehicles in areas with high pedestrian traffic



## 8.8 APPENDIX G: BENCHES MAP



### Legend

- New Benches (100m)
- Benches
- Streets
- New Bench Buffer (radius=50m)
- Bench Buffer (radius=50m)

In the MTP, the City wants to provide benches at frequent intervals along the corridor to allow people, such as seniors and people with disabilities to sit and rest. The benches map was produced at 100 meters interval distance, according to the City of Vancouver's Accessible Street Design Guide which recommends having a place to rest every 100m for people with mobility impairments.

In the map, the blue points represent the existing benches in the study site and the red ones are the proposed benches. Every bench has a 50-meter service radius. The team identified three corridors, 8th St (from 6th Ave to 8th Ave), 6th St (from 5th Ave to 8th Ave), and 6th Ave (from 6th St to 8th St). Those three corridors should have benches every 100m on both street sides, as 6th St & 6th Ave are designed to be Great Streets and 8th St has a key destination for seniors, the Century House.





## 8.9 APPENDIX H: OTHER RECOMMENDATION LOCATIONS

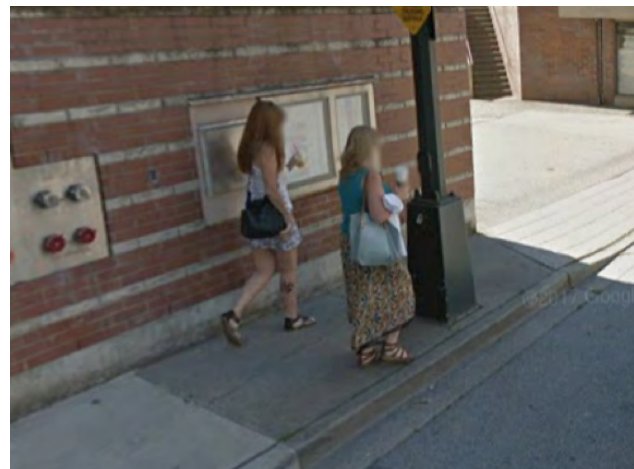
### 10TH ST RAISED CROSSWALK

The intersection of 10th St and 7th Ave was designed to facilitate safe crossing for school children. It follows many of the same principles of excellent senior pedestrian friendly intersection design. It is an uncontrolled intersection with crosswalks next to an elementary school. The intersection was raised, curb bulges and high visibility crosswalks were added, and parking was pushed back 15m from the stop line. To make it even safer, the hedges on the north east side could be removed to ensure excellent visibility of pedestrians to drivers. It is an excellent example of safe intersection design for a low vehicular-volume street.



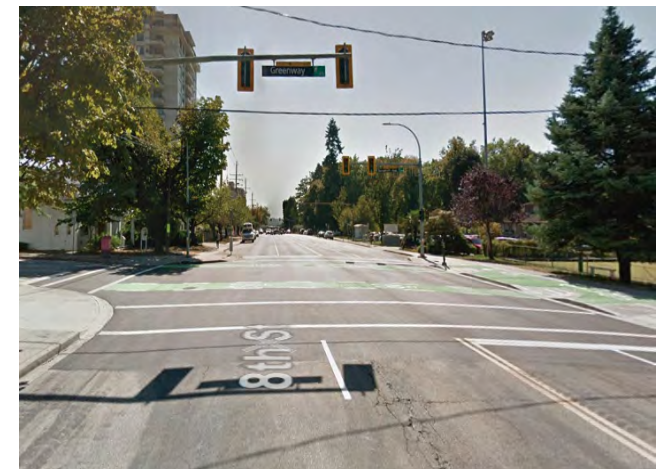
### POLE ON PRINCESS ST

Utility poles and street lights on Princess St lead to very narrow effective widths, as low as 0.5m on the south side of the street. This is too narrow for a wheelchair user to pass through. The City should consider moving these obstructions off of the sidewalk, possibly in partnership with neighbouring buildings. The neighbouring Royal City Centre mall, for example, may be invested in ensuring that senior pedestrians can safely and comfortably access the mall entrance on Princess Street.



### 7TH AVE & 8TH ST

This intersection was recently redesigned as a pedestrian-controlled intersection with senior-friendly principles: slow crossing times, accessible pedestrian signals and curb bulges. There were no crashes with pedestrians that lead to serious injuries or deaths from 2009-2016. Despite this, it was mentioned four times by seniors in engagement sessions. The main themes were that the crossing times were too short and that drivers had been observed running the red light. It is possible that even slower crossing times should be considered, the crosswalk could be repainted as a high visibility crosswalk, and travel lanes could be narrowed further to decrease crossing distances. The City may also consider studying driving habits along 8th St next to Moody Park.





## 7TH AVE & 6TH ST

The intersection of 7th Ave and 6th St is designed with many senior-friendly principles: curb bulges, high visibility crosswalks, and good curb letdowns.

## PRINCESS & 8TH

This intersection was marked as problematic by both City staff and seniors. There were three main problems: vehicles turning left from Princess St onto 8th Ave, which is prohibited, pedestrians crossing 8th St, which is prohibited, and pedestrians feeling vulnerable crossing Princess St travelling north or south on 8th St.

Bollards could be installed to prevent vehicles from turning left off of Princess St.

A sign on the either side of Princess states “No Pedestrian Crossing” (crossing 8th St) but the team witnessed jaywalkers. The signs are small and were difficult for seniors to read. The City could consider larger signs, signs that face the near side, or installing a pedestrian controlled intersection to facilitate safe crossings.

Finally, the City should install crosswalk markings on the pavement across Princess St, could remove the parking spots nearest to the intersection to increase visibility, add curb bulges, or shorten the turning radius by building the sidewalk further into the street.

## 6TH AVE & LIBRARY

The City recently installed overhead lighting on both sides of this mid-block crosswalk on 6th Ave, which increases the visibility of pedestrians after dark. This added to the other visibility features, such as flashing lights, sign post reflectors, curb bulges, and a painted crosswalk.

## 8TH AVE

The team recommends that the City add a mid-block crossing or signalized intersection at approximately 700 8th Ave, at the intersection of the school and arena driveway. This was recommended by City staff and through engagement with stakeholders. There is currently no crosswalk along 8th Ave from 8th St to 6th St. Benches should also be installed along 8th Ave to provide rest areas for seniors.

## BELMONT & 6TH

The City should consider installing a crosswalk across 6th St at Belmont Ave.



