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鄭家莊



WELCOME 歡迎
華卡
埠城
CALGARY
CHINATOWN
熊貓

CHINATOWN MOBILITY STUDY

EVALUATION OF TRANSPORTATION NETWORK AND MARKET CONDITION



Land Acknowledgements

This study focuses on an area on the south banks of the Bow River that is currently known as Chinatown and, in part, examines the development of this neighbourhood within the larger context of European colonialization and settlement. The City of Calgary must be recognized as being situated within the traditional territories of the Blackfoot and the people of the Treaty 7 region in Southern Alberta, which includes the Siksika, the Piikuni, the Kainai, the Tsuut'ina, and the Stoney Nakoda First Nations, including Chiniki, Bearspaw, and Wesley First Nation. Chinatown, distinctly, sits near the intersection of the Bow and Elbow Rivers and the traditional Blackfoot name of this place is "Mohkinstsis". The City of Calgary is also home to the Métis Nation of Alberta, Region III.



Prepared by:

The Urban Lab

School of Architecture, Planning, and Landscape

University of Calgary

Kwangyul Choi, Ph.D.

Francisco Alaniz Uribe, B.Sc.Arch, MPDU, MEdes, RPP, MCIP

Sidharth Agarwal, MPlan

Karly Do, MLA

All photography by Francisco Alaniz Uribe unless otherwise noted.

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Executive Summary

Collaborating with the City's Community Planning, Planning & Development department, the University of Calgary research team examined demographic changes in Calgary's Chinatown and its surrounding communities over time and evaluated transportation supply and demand in the area as well as some aspects of business activities. In addition, in-person and online surveys were conducted to understand transportation/mobility needs from the community and visitors to the community.

The purpose of this report is to provide the most up-to-date information about demographics, transportation supply and demand, and consumers' travel behaviour of Calgary's Chinatown in support of Tomorrow's Chinatown, the City's proposed Cultural Plan and Area Redevelopment Plan for Chinatown. This report is intended to inform relevant transportation policies based on the research findings in order to make Chinatown a great place to live, work, play, eat, shop, learn and visit.

This report consists of four main sections. The first section (Chapter 2) details the demographic and socio-economic characteristics of Chinatown and its surrounding communities. The next section (Chapter 3) briefly illustrates current business activities, and the following section (Chapter 4) presents transportation supply and demand in Chinatown, its surrounding communities, and the city. The last major section (Chapter 5) summarizes the results from two surveys (in-person and online) in regard to the travel behaviour of Chinatown affiliates and visitors.

Throughout this research, we found that Chinatown and its surrounding communities have continued to grow. However, in Chinatown, there has been a significant population growth of older adults. Unlike other communities in Calgary, we found that pedestrian-based transportation has been the primary mode of travel for Chinatown. Thus, it is critical to improve pedestrian

facilities in the community to increase safety, comfort, and convenience for the residents and visitors while ensuring sufficient provision of other modes of transportation infrastructure to accommodate the population growth and consumer activity. Policy recommendations are suggested under each main section based on the research findings. The authors hope that the information and recommendations contained in this report will be the cornerstone of the planning process.

Based on the findings from this study, our overall recommendations are as follows:

Recommendation #1: Supporting Inclusive Policies

Chinatown as well as other communities in this study have witnessed an increase in population, but their demographic compositions vary (e.g., age, gender, ethnicity, language, income, etc.). It is critical to ensure that transportation infrastructure can sufficiently accommodate this population growth. At the same time, the needs of aging population and other vulnerable groups of the community should be properly accommodated.

Recommendation #2: Encouraging Pedestrian-based Travel

The majority of the population in Chinatown travel by alternative transportation (e.g., walking, biking, and transit). Therefore, it is important to support pedestrian/cyclist activities for the areas specified in Chapter 3 and 4. Additionally, the expansion of direct route transit service should be considered while enhancing last-mile connectivity to encourage pedestrian-based travel within, to, and from Chinatown.

Recommendation #3: Promoting Diverse Land Use

Commercial land uses need to be supported and increased if possible to support the consumer activity in Chinatown. Any new development should include these kinds of land uses at the ground level.

Recommendation #4: Enhancing Safety

Safety of visitors, workers, and residents using non-motorized modes of transportation on the busy streets in Chinatown should be a priority. Additionally, other safety concerns raised by pedestrian in the greater area should also be addressed.

Recommendation #5: Conducting Comprehensive Preliminary Study

Traffic impacts of new development or changes on the community should be studied in a comprehensive way. Additionally, a more detailed parking study (for both short- and long-term) is recommended.

Recommendation #6: Engaging the Community

At all time, the Chinatown community has to be included in the planning process.

However, the authors acknowledge that this study has some limitations that need to be addressed in future discussions. Due to the interruption by COVID-19, the format of the survey had to be modified from in-person to online, which led to other modifications (e.g., questions and settings). This resulted in a reduced number of responses and might have limited participation from some population groups such as older adults. Additionally, the perception of health risk under the pandemic situation might affect responses from the survey participants.

Nonetheless, the authors hope that this report will help the Chinatown community and The City of Calgary discuss transportation issues in comprehensive and inclusive ways.

LAND ACKNOWLEDGEMENTS

EXECUTIVE SUMMARY

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INTRODUCTION

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01

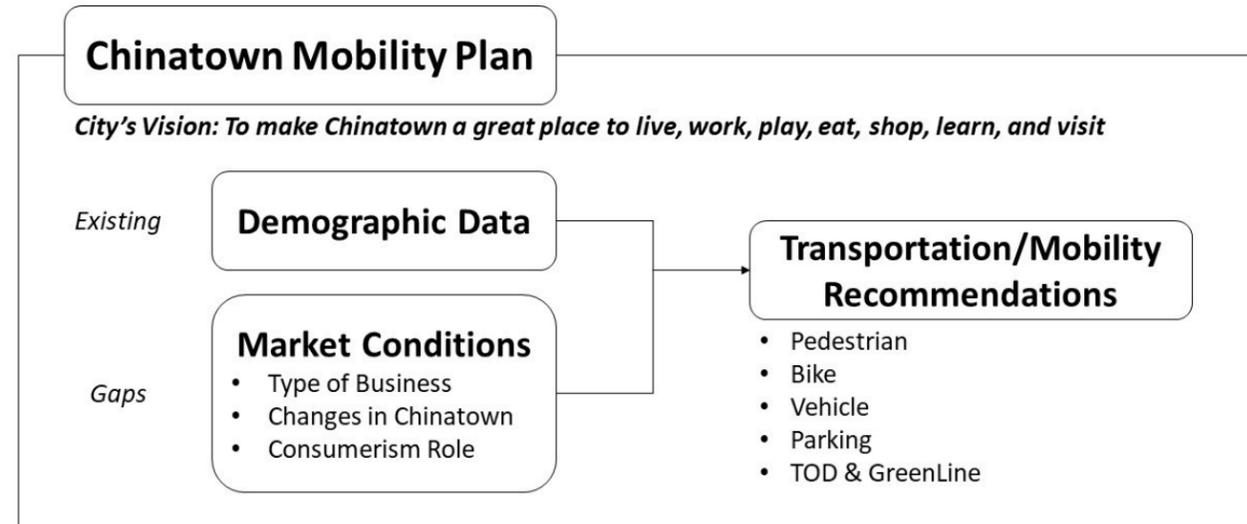
INTRODUCTION

1.1 Background

Calgary's Chinatown consists of approximately 49 acres of land bounded mainly by the Bow River on the north, Macleod Trail on the east, mainly 2 ST SW on the west and 3 AV SW to the south, with a bump-out extending one block south along Centre Street South and two blocks across 4 AV SE (Chinatown Historical Context Paper, July 2018). Despite its central location and it being one of six Centre City communities located in close proximity to the downtown core, Calgary's Chinatown has experienced difficulties in attracting people and development while conserving its cultural identity. The City of Calgary has taken the initiative of developing an Local Area Plan simultaneously with a Cultural Plan to address the need for guidance and direction for future development while preserving and enhancing the character of Chinatown.

In 2016, the City of Calgary hired a Toronto-based consulting firm to undertake a Chinatown Business Vitality Study. While a working copy final draft was received in September 2016, several Chinatown community stakeholders objected to the methodology and findings, and the report was never finalized. Although the draft study provided a clear snapshot of the condition in Chinatown at the time of the study, the report contained some limitations that have not allowed the City to advance and develop appropriate policies on public realm, urban design and mobility. For instance, the report only gave an idea how Chinatown looked during the most vibrant time of year (summer) but did not address the aspect of seasonality. Additionally, the report did not take into account the historical changes that have affected Chinatown over the past decades. Finally, the draft report paid little to no attention to transportation and the mobility aspects of Chinatown, which are crucial for a community to be vibrant.

This current research project emerged in collaboration with the City's Community Planning, Planning & Development department and was designed to identify gaps that the City particularly wanted to address in order for them to develop appropriate transportation/mobility policies for all modes of transportation.



1.2 Study Objectives

Focusing on demographics and businesses and the transportation supply/demand of Chinatown, we completed the following three objectives.

Objective 1 – Analysis of Changes in Population and Community Trend for Chinatown

The first part of the study involves a comprehensive understanding of the changes to Chinatown and the surrounding communities over the years. We describe who has lived in the study area (i.e., demographic composition), what types of residential properties have been there, and what types of businesses, facilities, and amenities are available. Extensive data from several decades were gathered from The City of Calgary and Statistics Canada to understand how Chinatown and the surrounding communities have transitioned over the decades.

Objective 2 – Analysis of Current Supply/Demand of Transportation Network and Parking

The second part of the study focuses on understanding the transportation supply and demand of the study area. The City’s Community Planning, Planning & Development department provided us with their geodatabase, and we have created thematic maps using the spatial data in the database. We describe various aspects of transportation—network, volume, service coverage, and parking—by four (4) modes of transportation—walking, bike, transit, and auto.

Objective 3 – Analysis of Consumer/Business Activities with a Focus on Mobility

For this objective, we planned on conducting three sets of in-person surveys over the course of the project to reflect seasonal variations. Each set of the survey was to consist of two surveys—weekday and weekend. We completed one set of in-person surveys in November 2019. However, on March 11, 2020, the World Health Organization (WHO) declared COVID-19 a pandemic. After considering several options, we made a transition from an in-person survey to an online survey. The online survey began at 11:00 AM on Monday, May 25, 2020 and remained available online for the next three (3) weeks (ending on June 14). In total, only two sets of surveys were completed, instead of the three originally planned. In both surveys, we examined who (consumers), why (purposes), how (modes of transportation), when and from where people come to Chinatown. Additionally, we tried to understand how they travel around Chinatown.

1.3 Study Area

Given that Chinatown as a community, has interacted with the surrounding communities, particularly within walkable distance, our study area consists of nine communities with Chinatown as the primary study area and eight neighbouring communities as the context area, which are within a 30-minute walking (2,400 m) distance from the centre of Chinatown. Chinatown is located at the heart of Calgary, surrounded by Eau Claire to the west, Bow River to the north, East Village to the east, and Downtown Commercial Core to the south. Downtown West End, Sunnyside, Crescent Heights, and Bridgeland/Riverside are also located within the walking distance, as is a significant portion of Beltline.

Key landmarks in the study area include the Harry Hays Building and Calgary Chinese Cultural Centre in Chinatown and The Calgary Tower, City Hall, Fort Calgary, The Bow office tower and Telus Sky hotel/residential tower in the neighbouring communities.

The rest of the report is divided into five (5) chapters. Chapter 2 illustrates the demographic characteristics of the study area, and Chapter 3 shows businesses in Chinatown. Chapter 4 presents transportation supply and demand of the study area and Chapter 5 summarizes the results of two surveys. This report ends with a conclusion summarizing the main findings and policy recommendations.

Community Name	Community Code	Distance from Chinatown (km)
Chinatown	CHN	-
Downtown Commercial Core	DNC	0.9
Downtown East Village	DNE	1.2
Eau Claire	EAU	1.3
Crescent Height	CRE	1.6
Sunnyside	SSD	1.8
Downtown West End	DNW	2.2
Bridgeland-Riverside	BRD	2.2
Beltline	BLN	2.8

Study Area





02
DEMOGRAPHICS



2. Demographics

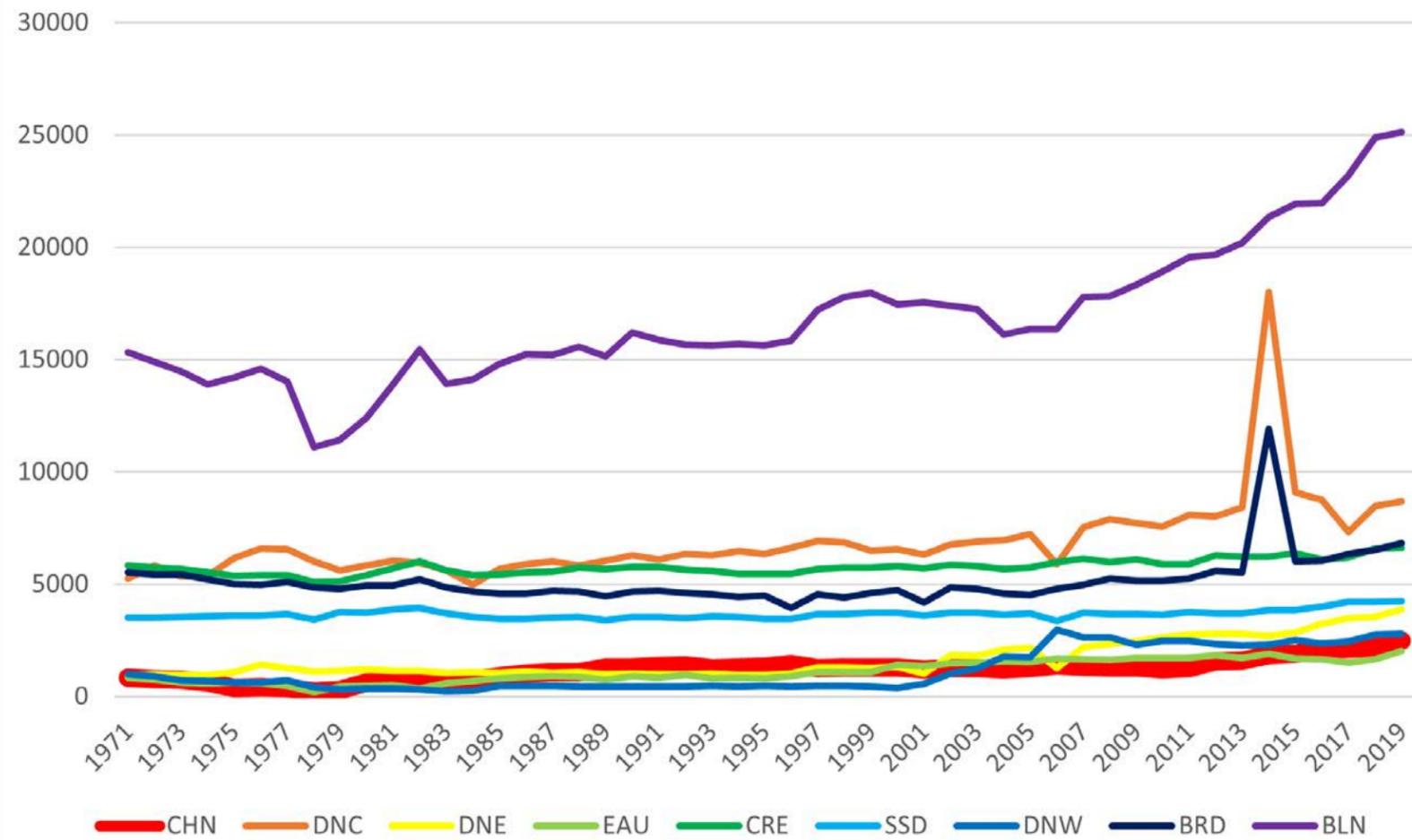
An analysis of the demographic makeup of Chinatown and the surrounding communities is vital to understanding the characteristics of the residents of Chinatown and recommend policies that will best benefit them. We used a combination of Canada’s national census data and Calgary’s civic census for the analysis, drawing data from both the Statistics Canada website for the national census and the City of Calgary’s Open Data portal for the civic census. The national census is conducted every 5 years starting from 1971; any data from the years 1971, 1976, 1981, 1986, 1991, 1996, 2001, 2006, 2011, or 2016 was retrieved from the national census. The City of Calgary’s civic census is conducted every year and is presented in this report for every year that the national census was not conducted.

Following a thorough analysis of the demographic data, we provided a series of recommendations for the development of policies that would support the desirability of Chinatown as a destination and as a place to live and conduct business. The summary of policy recommendations below is followed by the detailed demographic data analysis.

2.1 Policy Recommendations

- Overall, every community is seeing an increase in population. Policy recommendations should be cognizant of these growing communities and ensure that transportation infrastructure can sufficiently accommodate the increasing population. **(section 2.2)**
- Centre City residents can be valuable customers/users of the community. Policy should support residential development in the community and communities nearby. **(section 2.2)**
- All policy recommendations should be inclusive of and consider the safety and wellbeing of all age groups and all genders. **(section 2.3 & section 2.4)**
- In Chinatown, policies should pay special attention to older adults to accommodate their needs. **(section 2.3)**
- Policy recommendations should keep in mind that Asian communities like Chinatown tend to slowly become home to a multitude of ethnic groups and shouldn’t cater to just the majority ethnic group in the community. **(section 2.5)**
- While the composition of languages has changed over time, Asian-based languages continue to be the majority. Signs with these languages can increase the sense of community. **(section 2.6)**
- While household income has increased over time it remains in the lower range of those in the city. This needs to be considered when new housing is proposed, to provide a diversity of housing units at a broad range of cost. **(section 2.7)**
- The majority of the population commutes to work by walking. Policy should support improvement of pedestrian facilities in Chinatown and the surrounding communities to increase safety, comfort, and convenience. **(section 2.8)**

Change in Population in Chinatown and Adjacent Communities (1971-2019)



	1971	1976	1981	1986	1991	1996	2001	2006	2011	2016	2019	Change (1971-2019)
CHN	847	393	709	1,027	1,340	1,455	1,210	1,370	1,269	2,104	2,471	191.7%
BLN	15,315	14,589	13,896	15,230	15,870	15,830	17,554	16,355	19,556	21,958	25,129	64.1%
BRD	5,534	4,965	4,944	4,588	4,685	3,955	4,175	4,800	5,254	6,052	6,835	23.5%
CRE	5,818	5,400	5,694	5,515	5,750	5,455	5,710	5,970	5,895	6,097	6,620	13.8%
DNC	5,246	6,581	6,053	5,882	6,095	6,610	6,320	5,895	8,071	8,758	8,683	65.5%
DNE	916	1,416	1,140	1,113	990	1,010	1,025	1,255	2,747	3,242	3,893	325.0%
DNW	980	635	336	476	440	435	570	2,965	2,483	2,344	2,785	184.2%
EAU	835	591	497	876	840	895	1,360	1,685	1,711	1,666	2,030	143.1%
SSD	3,516	3,619	3,872	3,462	3,540	3,460	3,605	3,360	3,751	3,990	4,230	20.3%

2.2 Population

With a current population of 2,471 (as of 2019), the population in Chinatown has increased by 191.74% since 1971. Historically, Chinatown has had a lower population than the surrounding communities due to its relatively smaller geographic size but has steadily increased since 1971. Today, the population of Chinatown is comparable to that of Downtown West End. Like Chinatown, the surrounding communities have also increased in population with the Beltline being the most populous of all the communities in this study, with a population of 25,129.

Note: CHN=Chinatown; DNC=Downtown Commercial Core; DNE=Downtown East Village; EAU=Eau Claire; CRE=Crescent Height; SSD=Sunnyside; DNW=Downtown West End; BRD=Bridgeland-Riverside; BLN=Beltline

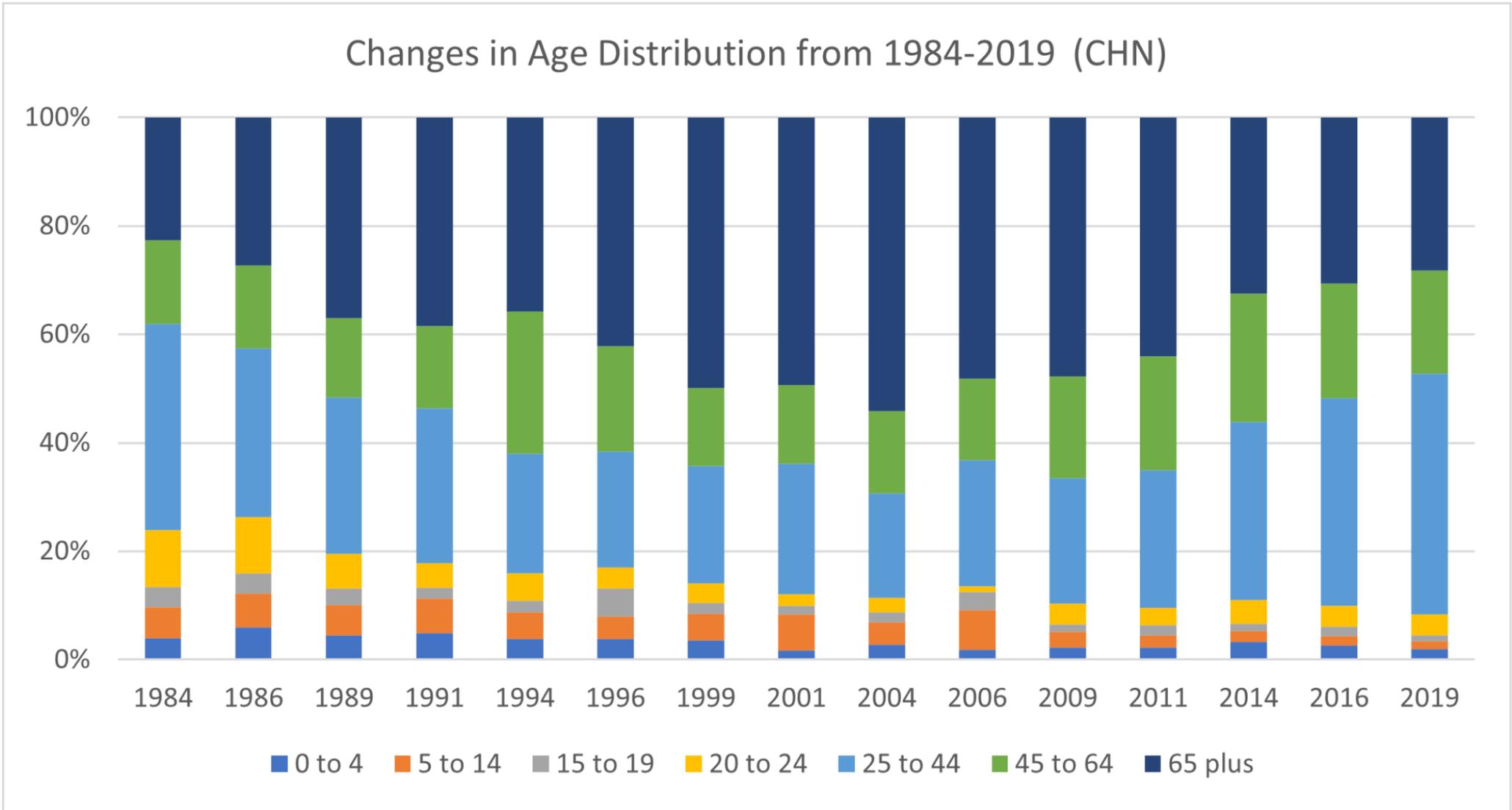
2.3 Age

Today, residents between the ages of 25 and 44 make up most Chinatown’s residents, comprising 44.3% of the population. The next largest age group is the 65 plus group, comprising 28.1% of the population. Historically, the census data shows that between 1984 and 2004, the proportion of 65 plus residents increased until they comprised most of the population of Chinatown. Since 2004, the 25-44 age group has increased to make up the majority of Chinatown’s residents. However, there is currently a considerably larger proportion of older adults (65 years and older) as compared to the surrounding communities. Older adults have historically made up a considerable portion of Chinatown’s population and as of 2019, this group comprised 28% of the total population in Chinatown. Since 2009, there has also been an increase in the number of residents between the ages of 25 and 44. A similar trend is also observed in the Downtown East Village, which saw an increase in residents ages 25 to 44 since 2016. These increases might be attributed to increased development and more affordable housing costs (see section 2.10.2 Monthly Rent) in these communities as opposed to the other inner-city communities. For all communities, the proportion of residents ages 24 and under has consistently comprised a minority of the population of the community. This trend may show that Chinatown as well as surrounding communities have not been home to younger generations (e.g., young people and young families, etc.).

	1986					1991				
	POP	65+	% of pop	25-44	% of pop	POP	65+	% of pop	25-44	% of pop
CHN	1,027	280	27.3%	320	31.2%	1,340	510	38.1%	380	28.4%
DNC	5,882	804	13.7%	2,754	46.8%	6,095	775	12.7%	2,835	46.5%
DNE	1,113	409	36.7%	305	27.4%	990	460	46.5%	165	16.7%
EAU	876	71	8.1%	395	45.1%	840	95	11.3%	315	37.5%
CRE	5,515	507	9.2%	2,817	51.1%	5,750	505	8.8%	3,055	53.1%
SSD	3,462	212	6.1%	1,903	55.0%	3,540	270	7.6%	2,025	57.2%
DNW	476	22	4.6%	267	56.1%	440	30	6.8%	185	42.0%
BRD	4,588	1,157	25.2%	1,552	33.8%	4,685	1,140	24.3%	1,780	38.0%
BLN	15,230	1,646	10.8%	7,377	48.4%	15,870	1,895	11.9%	7,500	47.3%
	1996					2001				
	POP	65+	% of pop	25-44	% of pop	POP	65+	% of pop	25-44	% of pop
CHN	1,455	610	41.9%	310	21.3%	1,210	595	49.2%	290	24.0%
DNC	6,610	750	11.3%	3,145	47.6%	6,320	750	11.9%	3,015	47.7%
DNE	1,010	465	46.0%	200	19.8%	1,025	470	45.9%	160	15.6%
EAU	895	140	15.6%	310	34.6%	1,360	265	19.5%	385	28.3%
CRE	5,455	450	8.2%	2,855	52.3%	5,710	490	8.6%	2,765	48.4%
SSD	3,460	220	6.4%	1,935	55.9%	3,605	260	7.2%	1,860	51.6%
DNW	435	45	10.3%	195	44.8%	570	60	10.5%	260	45.6%
BRD	3,955	630	15.9%	1,805	45.6%	4,175	540	12.9%	1,915	45.9%
BLN	15,830	1,725	10.9%	7,660	48.4%	17,554	1,665	9.5%	8,315	47.4%
	2006					2011				
	POP	65+	% of pop	25-44	% of pop	POP	65+	% of pop	25-44	% of pop
CHN	1,370	655	47.8%	315	23.0%	1,269	559	44.1%	323	25.5%
DNC	5,895	745	12.6%	2,680	45.5%	8,071	766	9.5%	4,125	51.1%
DNE	1,255	475	37.8%	340	27.1%	2,747	545	19.8%	1,118	40.7%
EAU	1,685	325	19.3%	475	28.2%	1,711	377	22.0%	441	25.8%
CRE	5,970	480	8.0%	2,680	44.9%	5,895	594	10.1%	2,751	46.7%
SSD	3,360	185	5.5%	1,740	51.8%	3,751	191	5.1%	2,002	53.4%
DNW	2,965	195	6.6%	1,380	46.5%	2,483	202	8.1%	1,201	48.4%
BRD	4,800	860	17.9%	1,915	39.9%	5,254	1,177	22.4%	2,019	38.4%
BLN	16,355	1,360	8.3%	8,465	51.8%	19,556	1,419	7.3%	11,439	58.5%
	2016					2019				
	POP	65+	% of pop	25-44	% of pop	POP	65+	% of pop	25-44	% of pop
CHN	2,104	645	30.7%	807	38.4%	2,471	695	28.1%	1,095	44.3%
DNC	8,758	763	8.7%	4,757	54.3%	8,683	820	9.4%	4,683	53.9%
DNE	3,242	626	19.3%	1,356	41.8%	3,893	675	17.3%	1,911	49.1%
EAU	1,666	490	29.4%	382	22.9%	2,030	422	20.8%	414	20.4%
CRE	6,097	659	10.8%	2,870	47.1%	6,620	750	11.3%	3,241	49.0%
SSD	3,990	249	6.2%	2,238	56.1%	4,230	316	7.5%	2,270	53.7%
DNW	2,344	244	10.4%	1,157	49.4%	2,785	310	11.1%	1,399	50.2%
BRD	6,052	1,278	21.1%	2,498	41.3%	6,835	1,259	18.4%	2,957	43.3%
BLN	21,958	1,431	6.5%	13,498	61.5%	25,129	1,605	6.4%	16,357	65.1%

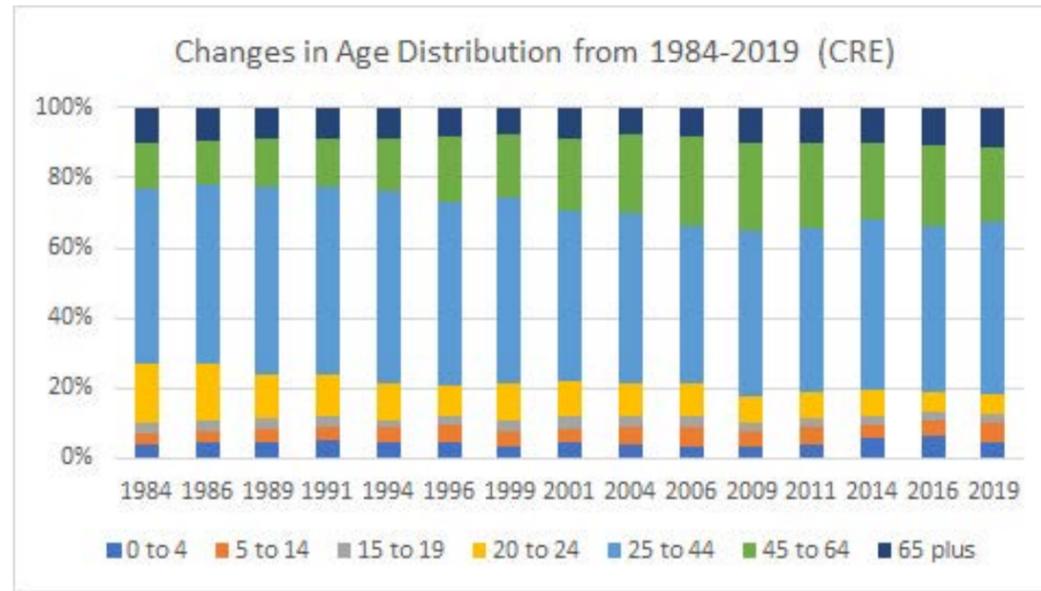
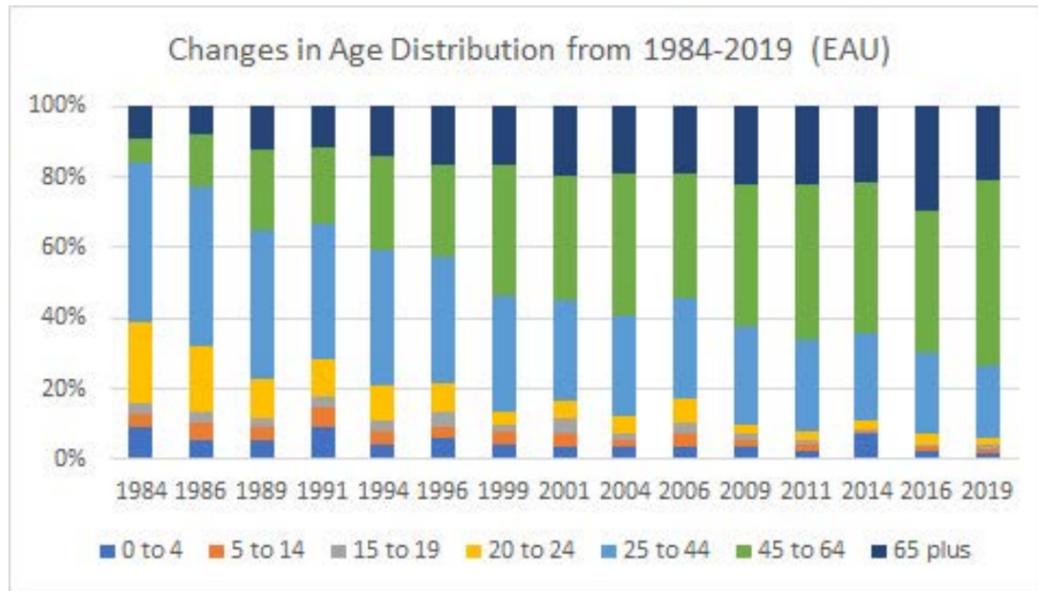
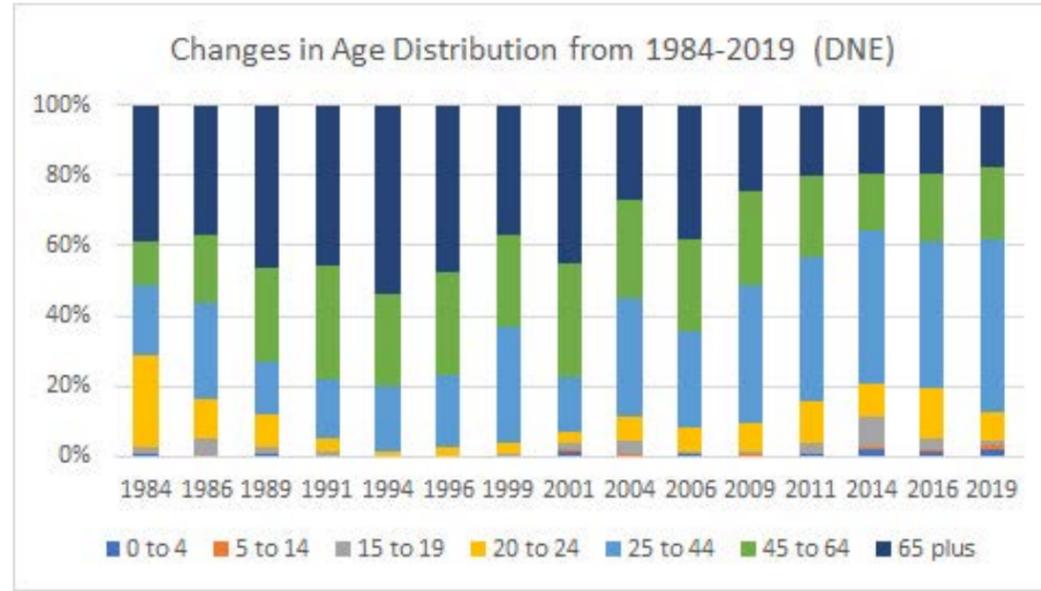
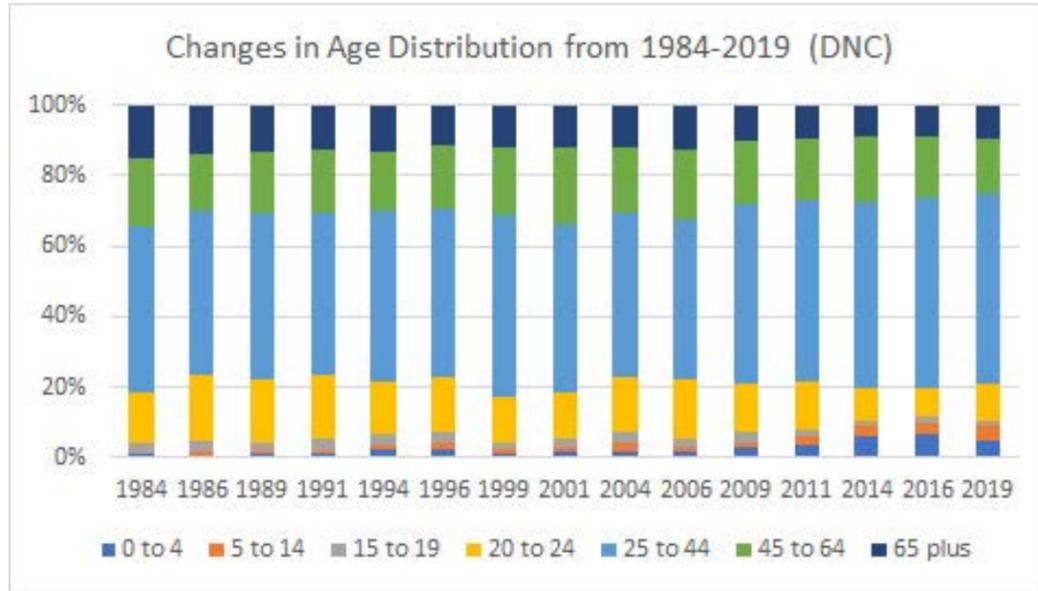
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2.3 Age (continued)



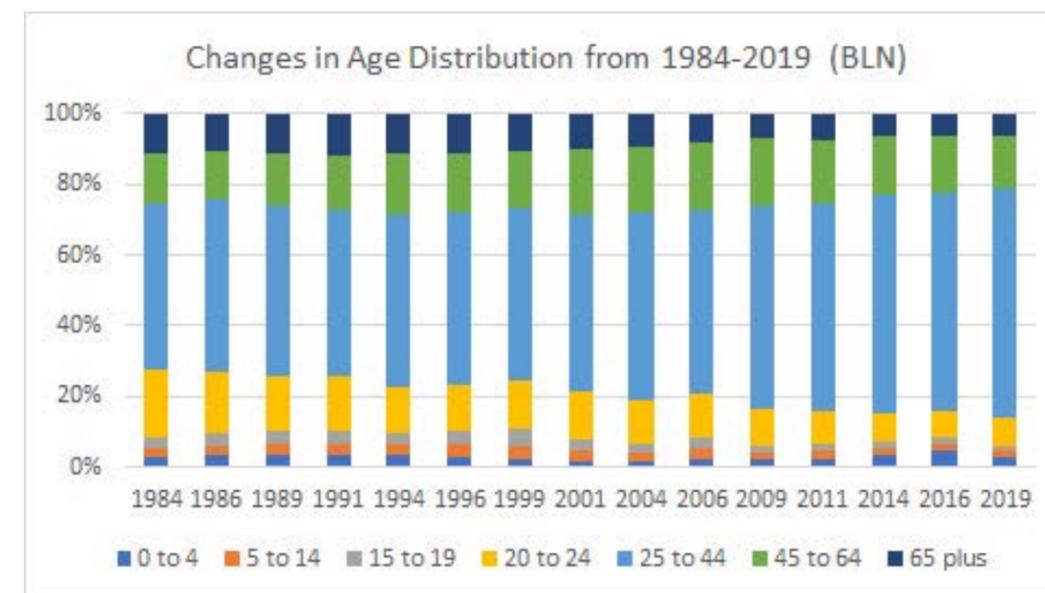
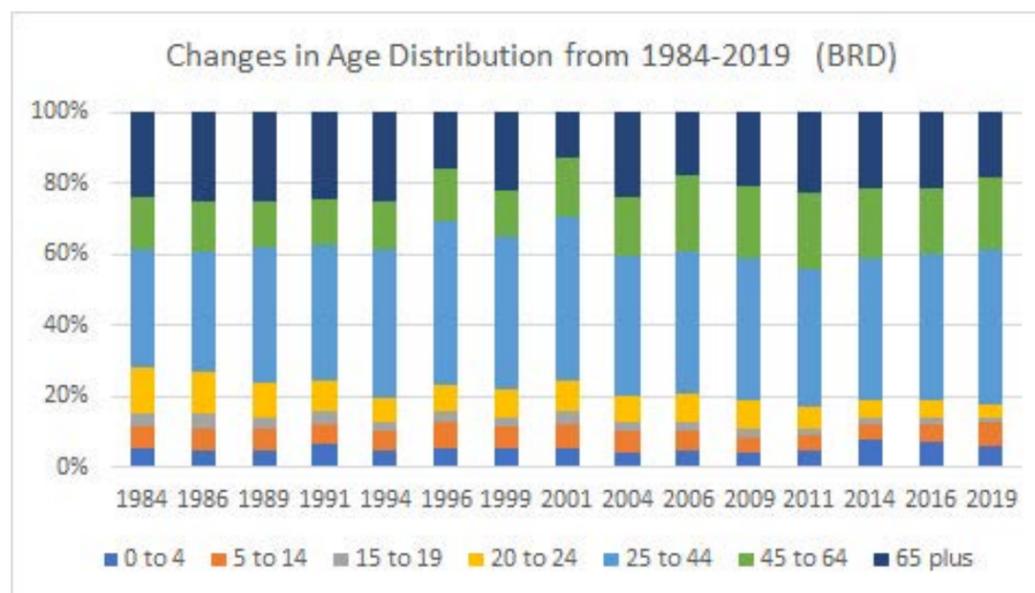
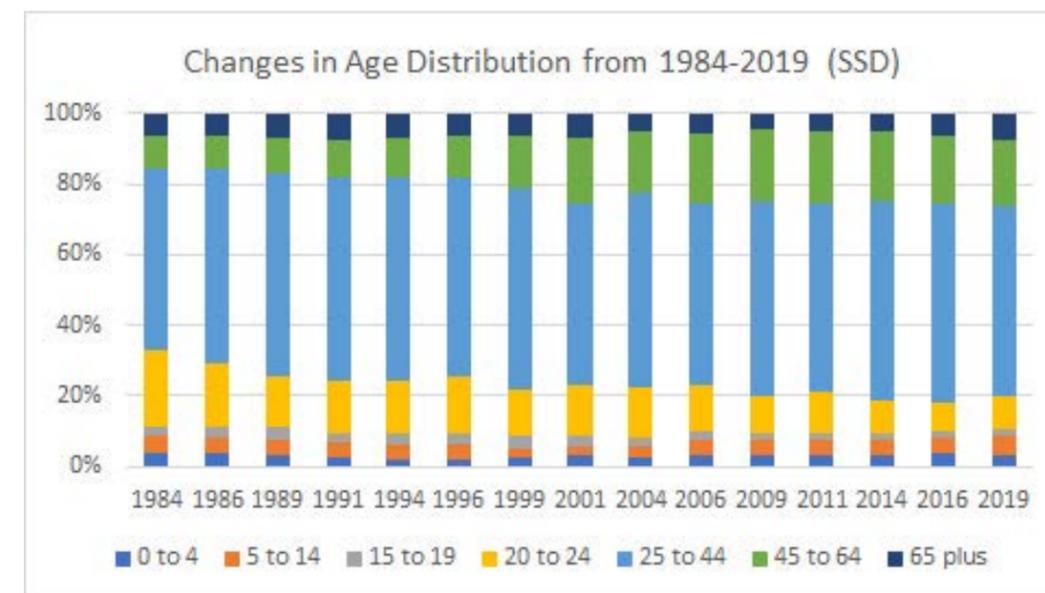
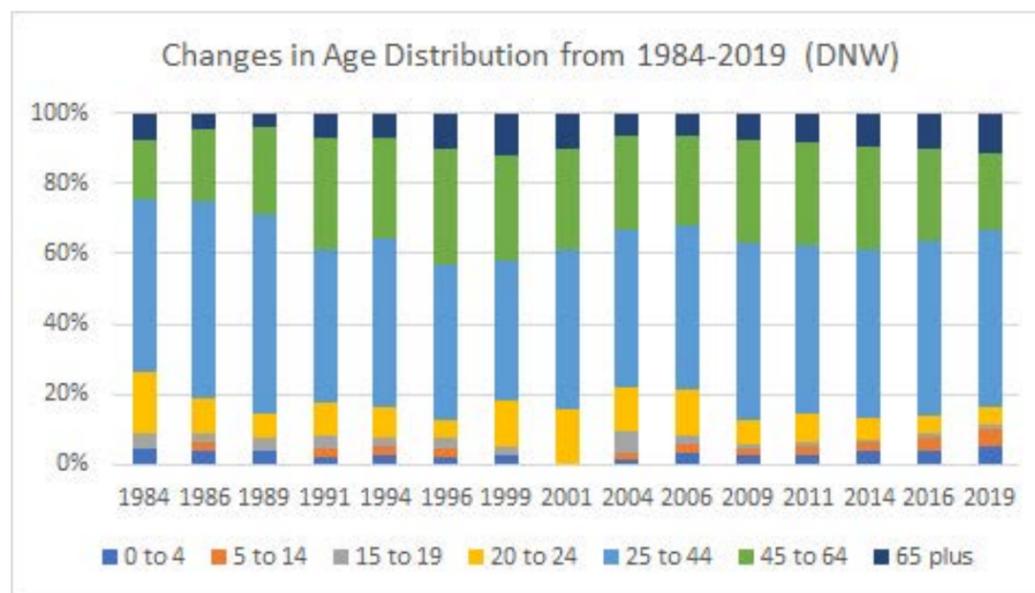
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2.4 Gender

Presently, female residents comprise 51% of the population in Chinatown. Since 2016, the census data shows that the ratio of males to females in Chinatown has been approximately 1:1. The data shows that previously, there were more female than male residents, particularly between 1991 and 2011. This is consistent with the fact that females tend to have slightly longer life spans than men (World Health Organization, 2020) and that Chinatown is also home to many elderly residents.

	1986			1991			1996			2001		
	M	F	M:F	M	F	M:F	M	F	M:F	M	F	M:F
CHN	513	514	1.0:1	625	715	0.9:1	640	810	0.8:1	485	725	0.7:1
DNC	3,055	2,827	1.1:1	3,350	2,740	1.2:1	3,600	3,010	1.2:1	3,495	2,825	1.2:1
DNE	731	376	1.9:1	615	380	1.6:1	670	340	2.0:1	595	430	1.4:1
EAU	439	437	1.0:1	410	425	1.0:1	445	450	1.0:1	685	675	1.0:1
CRE	2,840	2,675	1.1:1	2,935	2,815	1.0:1	2,785	2,670	1.0:1	2,935	2,780	1.1:1
SSD	1,746	1,716	1.0:1	1,800	1,735	1.0:1	1,725	1,735	1.0:1	1,800	1,805	1.0:1
DNW	296	173	1.7:1	250	185	1.4:1	255	180	1.4:1	355	215	1.7:1
BRD	2,253	2,335	1.0:1	2,180	2,505	0.9:1	1,940	2,010	1.0:1	2,040	2,135	1.0:1
BLN	8,128	7,102	1.1:1	8,250	7,620	1.1:1	8,435	7,395	1.1:1	8,925	7,590	1.2:1
	2006			2011			2016			2019		
	M	F	M:F	M	F	M:F	M	F	M:F	M	F	M:F
CHN	590	780	0.8:1	543	726	0.7:1	1038	1,066	1.0:1	1,205	1,250	1.0:1
DNC	3,145	2,755	1.1:1	4,285	3,786	1.1:1	4,564	4,194	1.1:1	4,387	4,160	1.1:1
DNE	695	560	1.2:1	2,078	661	3.1:1	2,313	929	2.5:1	2,301	1,574	1.5:1
EAU	870	810	1.1:1	942	769	1.2:1	896	765	1.2:1	1,017	1,009	1.0:1
CRE	3,035	2,935	1.0:1	2,961	2,934	1.0:1	3,037	3,060	1.0:1	3,312	3,282	1.0:1
SSD	1,665	1,700	1.0:1	1,887	1,864	1.0:1	1,955	2,035	1.0:1	2,057	2,140	1.0:1
DNW	1,635	1,325	1.2:1	1,331	1,152	1.2:1	1,281	1,063	1.2:1	1,452	1,326	1.1:1
BRD	2,250	2,550	0.9:1	2,459	2,795	0.9:1	2,827	3,225	0.9:1	3,273	3,549	0.9:1
BLN	9,000	7,355	1.2:1	10,696	8,860	1.2:1	11,855	10,103	1.2:1	13,040	11,302	1.2:1

Note: CHN=Chinatown; DNC=Downtown Commercial Core; DNE=Downtown East Village; EAU=Eau Claire; CRE=Crescent Height; SSD=Sunnyside; DNW=Downtown West End; BRD=Bridgeland-Riverside; BLN=Beltline

	1991						1996					
	Eur.	Can.	Asian	Abor.	Blk	Oth.	Eur.	Can.	Asian	Abor.	Blk	Oth.
CHN	120	0	1220	0.0	10.0	25	60	15	1360	0	0	10
DNC	3,405	170	750	100.0	75.0	2620	6415	940	1305	195	0	205
DNE	925	45	100	20.0	0.0	270	1085	120	95	40	0	45
EAU	580	25	180	15.0	0.0	275	960	150	95	10	0	30
CRE	3,830	210	275	55.0	20.0	2670	7135	1290	500	185	0	270
SSD	1,925	115	140	45.0	10.0	1955	5105	790	90	90	0	210
DNW	280	0	60	0.0	0.0	150	425	75	70	25	0	0
BRD	2,515	180	220	65.0	25.0	1815	5255	500	180	180	0	160
BLN	10,500	445	1295	220.0	160.0	6670	16885	2710	1140	445	0	495
	2001						2006					
	Eur.	Can.	Asian	Abor.	Blk	Oth.	Eur.	Can.	Asian	Abor.	Blk	Oth.
CHN	10	25	1,160	0	0	0	140	70	1,230	10	20	0
DNC	5,735	1,105	890	130	0	200	4,310	1,220	2,300	115	280	295
DNE	925	45	100	20	0	270	1,085	120	95	40	0	45
EAU	1,445	185	230	10	0	60	1,810	345	425	10	45	115
CRE	7,590	1,485	535	110	0	155	7,640	2,350	850	310	165	200
SSD	5,280	930	170	90	0	135	5,300	1,350	250	160	35	165
DNW	645	125	45	10	0	10	2,195	655	990	45	95	220
BRD	5,060	860	305	180	0	120	4,910	1,640	455	200	160	285
BLN	17,210	3,275	1,450	360	0	525	16,040	5,400	2,820	710	765	925
	2011						2016					
	Eur.	Can.	Asian	Abor.	Blk	Oth.	Eur.	Can.	Asian	Abor.	Blk	Oth.
CHN	100	35	1,150	0	30	0	460	150	1,065	30	110	75
DNC	2,915	685	3,160	155	525	340	4,080	855	3,170	220	700	815
DNE	925	45	100	20	0	270	1,085	120	95	40	0	45
EAU	935	175	380	30	0	20	1,470	250	375	25	50	60
CRE	4,150	845	1,280	155	200	165	6,125	1,310	985	215	295	385
SSD	2,915	640	345	150	80	100	4,875	915	435	185	45	295
DNW	1,065	230	920	20	45	55	1,435	275	795	35	90	220
BRD	3,190	995	640	160	290	90	5,880	1,240	860	285	350	385
BLN	11,130	2,930	4,415	415	1,010	790	21,145	3,655	4,315	655	885	1,920

Note: CHN=Chinatown; DNC=Downtown Commercial Core; DNE=Downtown East Village; EAU=Eau Claire; CRE=Crescent Height; SSD=Sunnyside; DNW=Downtown West End; BRD=Bridgeland-Riverside; BLN=Beltline

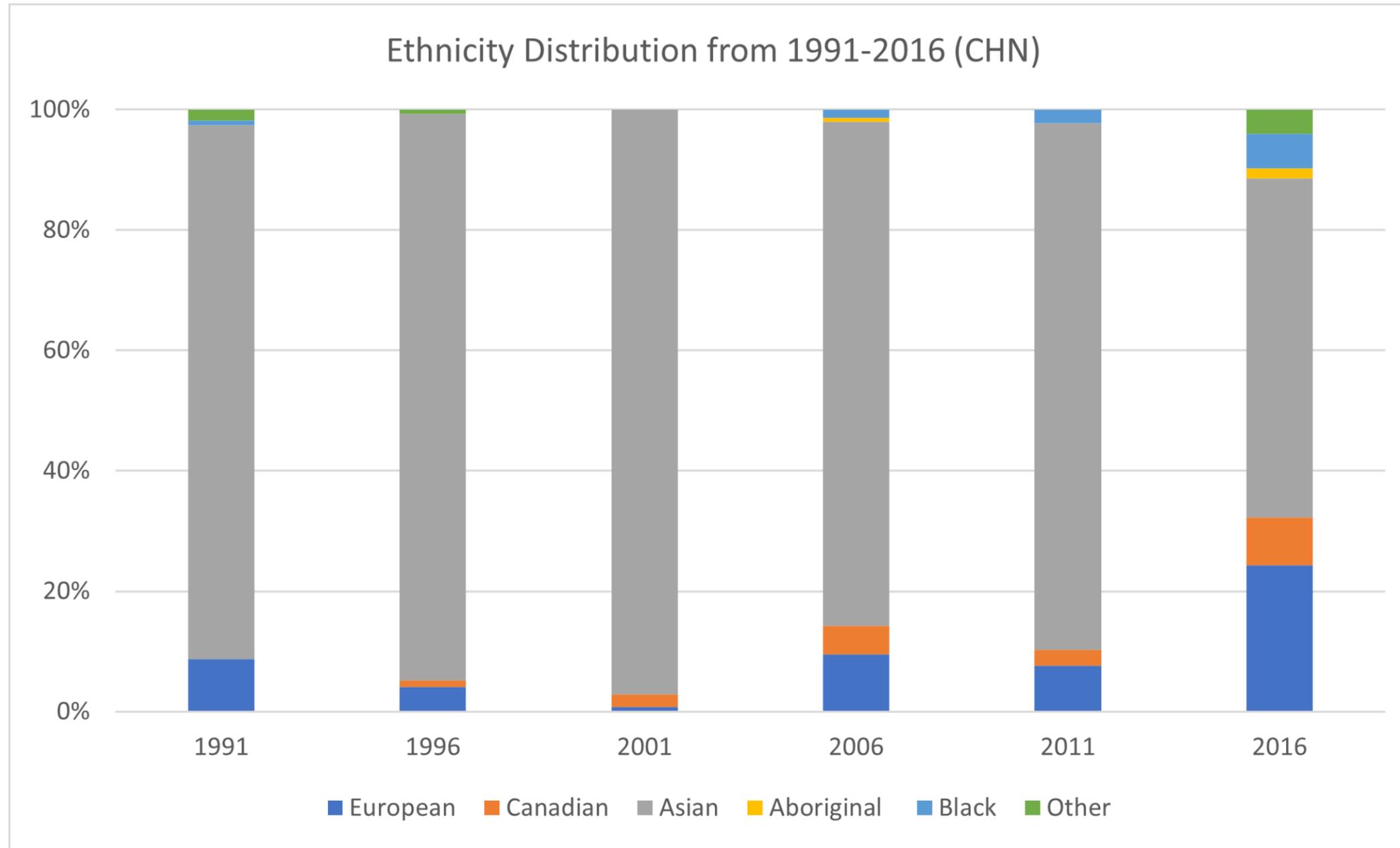
2.5 Ethnicity

In this section, the data shown represent the ethnic origins of residents of Chinatown and surrounding communities. For clarity, ethnic origins are defined as follows, based on the Statistics Canada Census Dictionary:

- **European:** Comprises individuals of British Isles, French, Western European, Northern European, Eastern European, Southern European, and other European origins
- **Canadian:** Comprises individuals who are not of North American Aboriginal origins but consider themselves to be of Canadian origins
- **Asian:** Comprises individuals of West Central Asian, Middle Eastern, South Asian, East, and Southeast Asian origins
- **Aboriginal:** Comprises individuals of North American Aboriginal origins, including all First Nations, Inuit, and Metis
- **Black:** Comprises individuals of Central and West African, North African, Southern, and East African origins, as well as those who identify themselves as Black without further specification
- **Other:** Comprises individuals of Caribbean, Latin/Central/South American, Oceania, and Pacific Islands origins

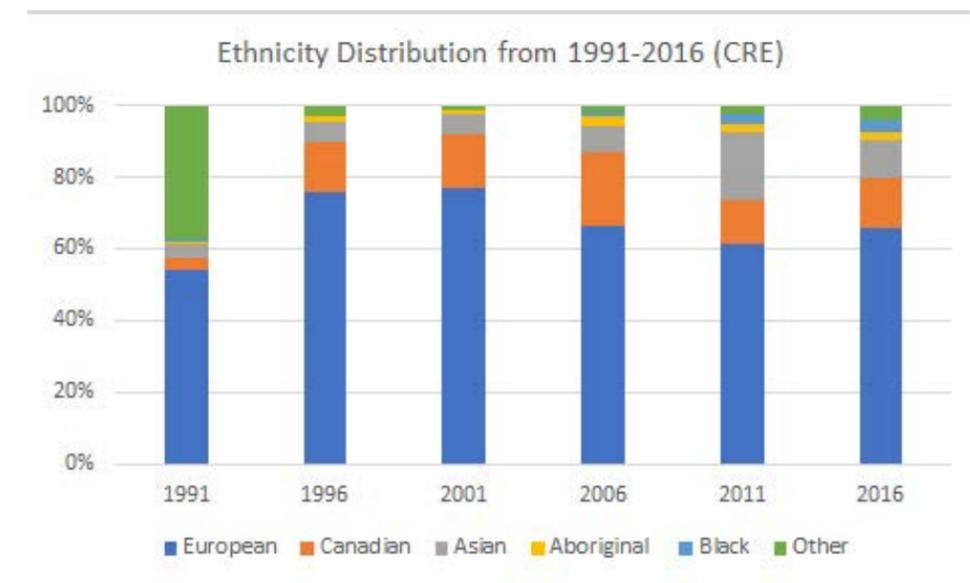
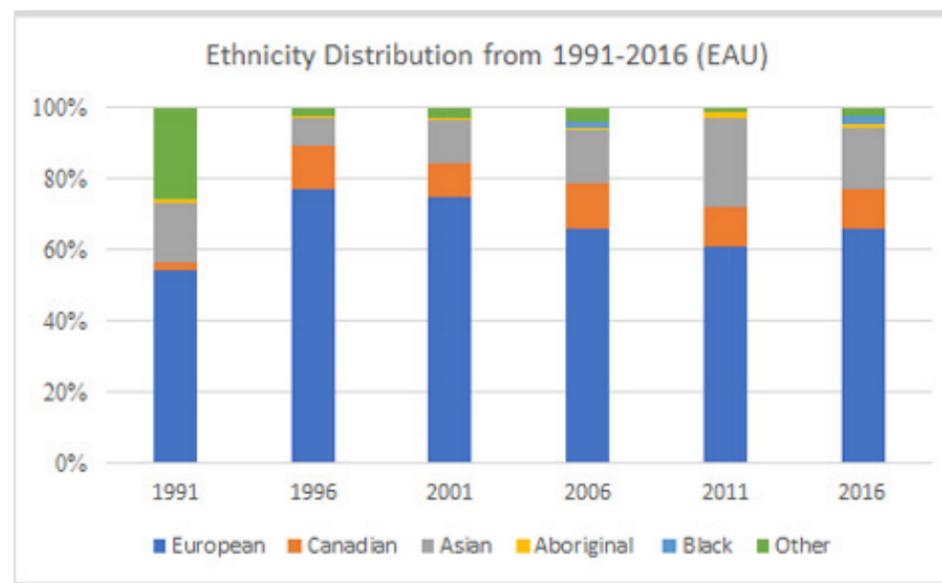
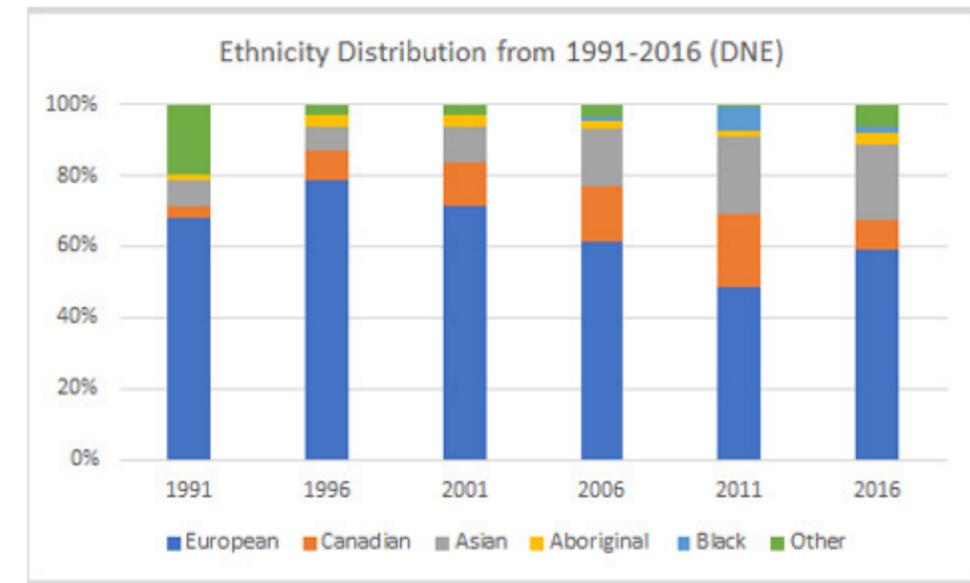
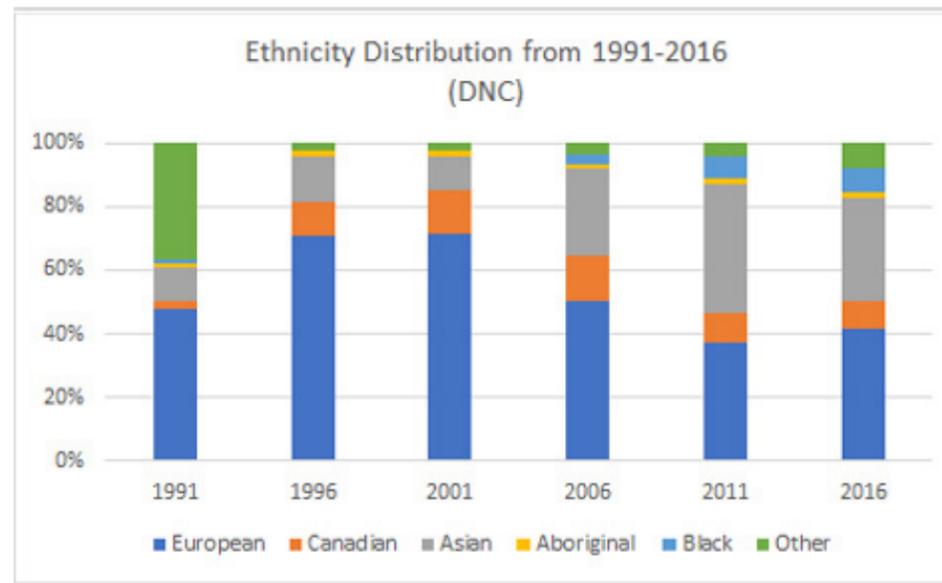
Historically, the residents in Chinatown have been primarily of Asian descent, with residents of other ethnicities contributing only a small percentage of the total population. Chinatown has the highest proportion of Asian residents of any of the communities that were included in this analysis. However, the 2016 census data show that there has been a considerable increase in the proportion of residents of European descent living in Chinatown. As of 2016, residents of Asian descent comprise 56% of the total population in Chinatown (as compared to 1991, where residents of Asian descent comprised 88% of the total population).

2.5 Ethnicity (continued)



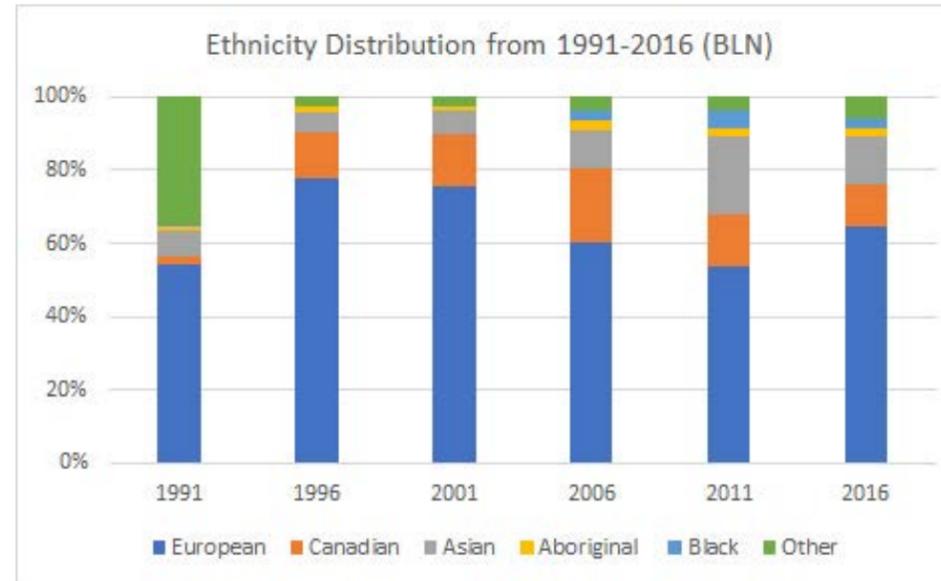
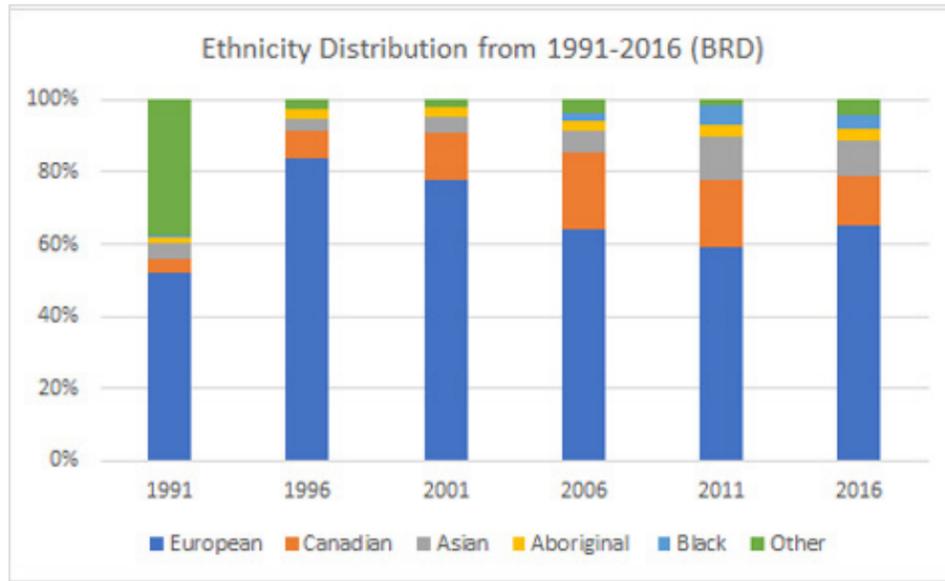
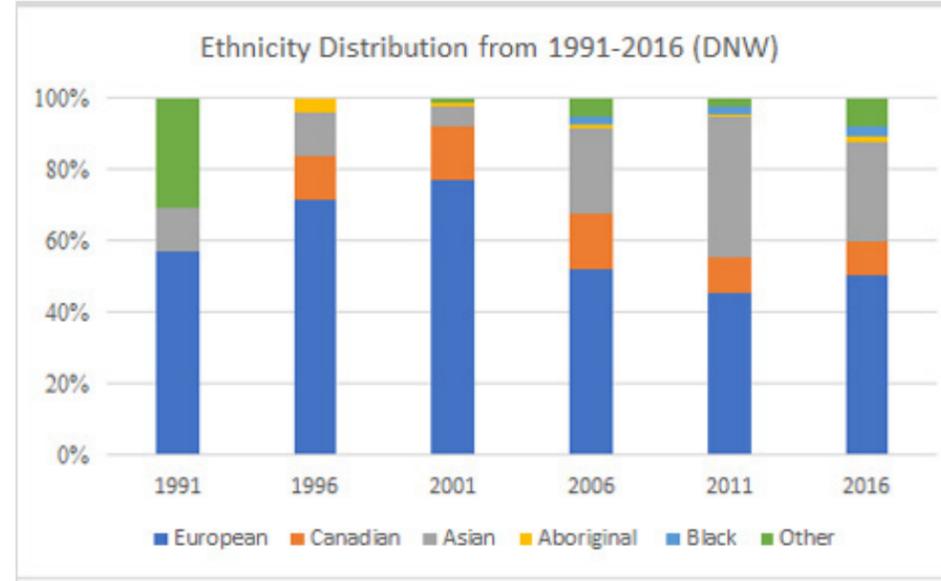
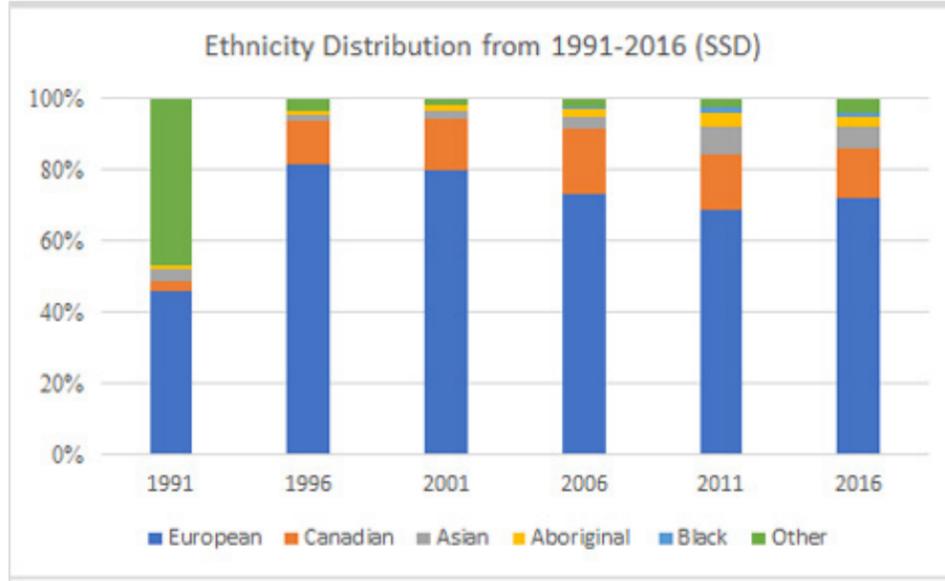
Note: CHN=Chinatown; DNC=Downtown Commercial Core; DNE=Downtown East Village; EAU=Eau Claire; CRE=Crescent Height; SSD=Sunnyside; DNW=Downtown West End; BRD=Bridgeland-Riverside; BLN=Beltline

2.5 Ethnicity (continued)



Note: CHN=Chinatown; DNC=Downtown Commercial Core; DNE=Downtown East Village; EAU=Eau Claire; CRE=Crescent Height; SSD=Sunnyside; DNW=Downtown West End; BRD=Bridgeland-Riverside; BLN=Beltline

2.5 Ethnicity (continued)



Note: CHN=Chinatown; DNC=Downtown Commercial Core; DNE=Downtown East Village; EAU=Eau Claire; CRE=Crescent Height; SSD=Sunnyside; DNW=Downtown West End; BRD=Bridgeland-Riverside; BLN=Beltline

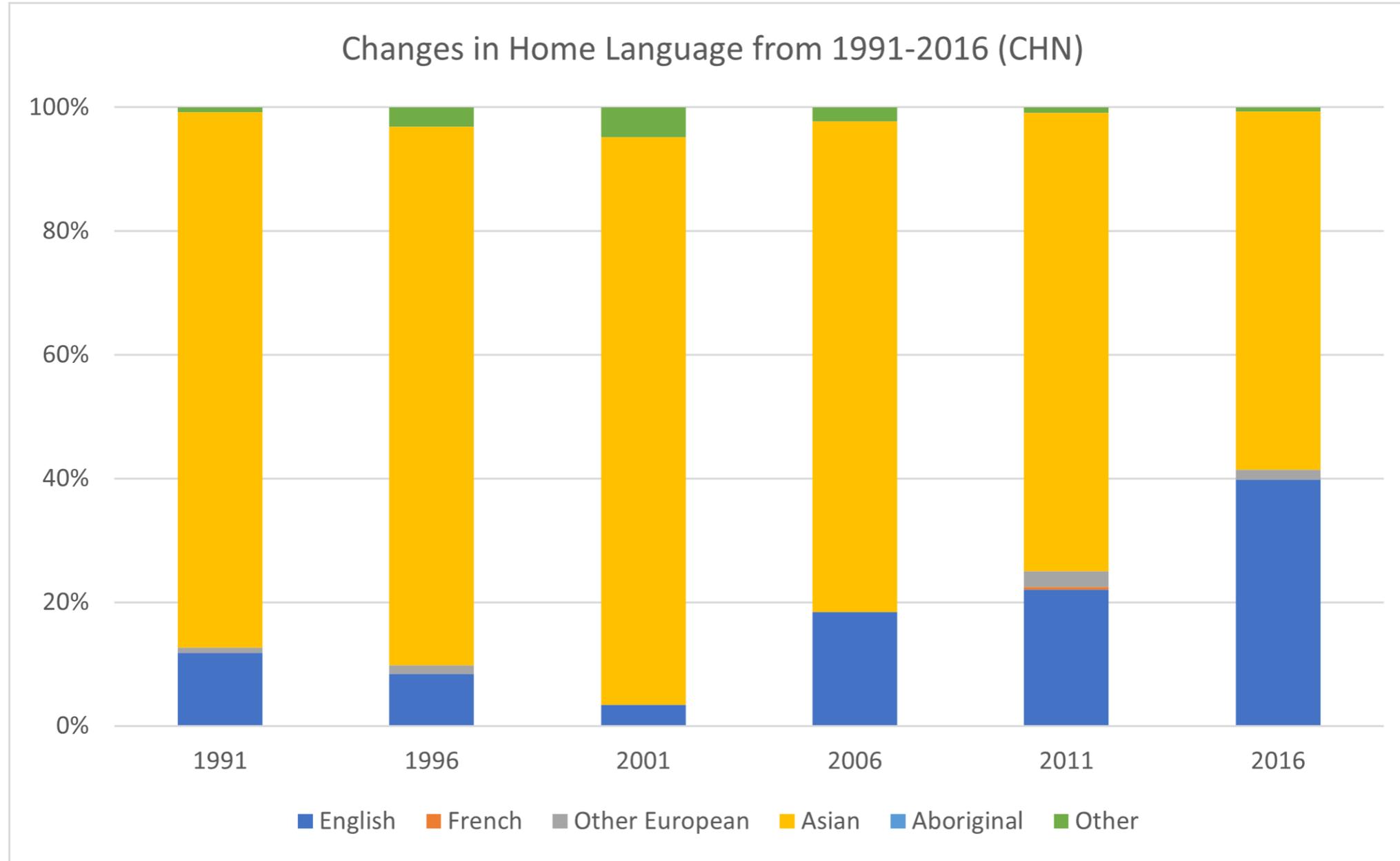
2.6 Language

The census data show that Asiatic languages are, and historically have always been, the most common language spoken at home by residents of Chinatown, which differs from its adjacent communities where English is the most common language spoken at home. The proportion of residents speaking Asian languages at home in Chinatown has decreased since 2001 and the proportion of residents speaking English at home has increased. The data also shows that Asiatic languages, while not the majority, comprise the second most-spoken language at home in all of the adjacent communities.

	1991						1996					
	Eng.	Fr.	Oth. Eur.	Asian	Abor.	Oth.	Eng.	Fr.	Oth. Eur.	Asian	Abor.	Oth.
CHN	150	0	10	1,095	0	10	120	0	20	1,250	0	45
DNC	5,025	50	230	485	0	60	5,025	35	220	870	0	290
DNE	845	0	20	95	0	20	845	10	10	65	10	70
EAU	620	0	40	135	0	0	745	10	25	70	0	20
CRE	5,450	20	75	85	0	10	4,800	65	130	250	0	70
SSD	3,375	10	25	40	0	20	3,265	10	45	65	0	25
DNW	290	0	60	60	0	0	340	0	0	55	0	0
BRD	3,545	10	320	125	0	10	3,365	10	235	110	0	115
BLN	12,905	35	1,115	1,205	0	260	12,885	90	815	925	0	695
	2001						2006					
	Eng.	Fr.	Oth. Eur.	Asian	Abor.	Oth.	Eng.	Fr.	Oth. Eur.	Asian	Abor.	Oth.
CHN	35	0	0	950	0	50	250	0	0	1,075	0	30
DNC	4,495	0	100	390	0	90	3,765	35	215	1,545	0	225
DNE	830	0	10	65	0	30	995	15	0	180	0	25
EAU	1,020	0	10	100	0	25	1,395	15	95	135	0	10
CRE	4,935	15	75	140	0	0	5,160	35	160	375	0	145
SSD	3,315	20	30	10	0	30	3,210	15			0	0
DNW	460	0	10	10	0	0	2,295	20	155	460	0	10
BRD	3,160	10	165	135	0	85	4,090	15	250	250	0	110
BLN	12,705	10	465	505	0	340	12,735	175	980	1,585	0	585
	2011						2016					
	Eng.	Fr.	Oth. Eur.	Asian	Abor.	Oth.	Eng.	Fr.	Oth. Eur.	Asian	Abor.	Oth.
CHN	265	5	30	890	0	10	615	0	25	895	0	10
DNC	4,110	65	370	1,985	0	150	4,230	70	375	2,750	0	65
DNE	995	10	45	175	0	0	1,310	15	30	390	0	0
EAU	1,170	20	65	135	0	0	1,300	10	70	210	0	0
CRE	4,900	60	170	530	0	55	5,025	30	130	455	0	55
SSD	3,305	30	120	110	0	15	3,590	55	40	145	0	0
DNW	1,550	25	85	375	0	10	1,480	30	85	435	0	10
BRD	4,395	35	170	275	0	105	4,615	40	170	420	10	50
BLN	14,095	195	1,095	1,935	0	410	16,555	145	1,125	2,370	0	105

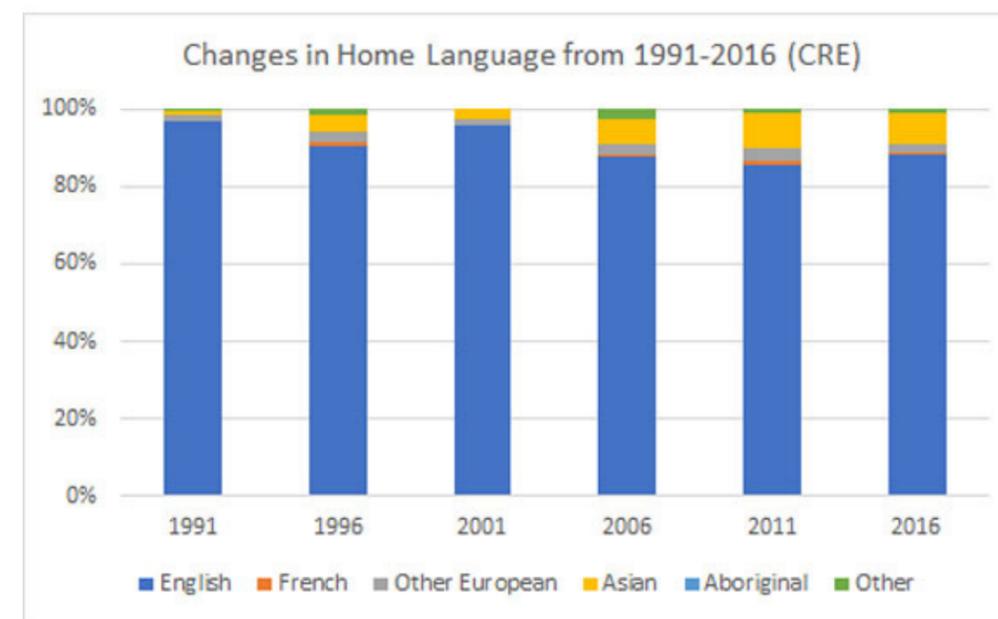
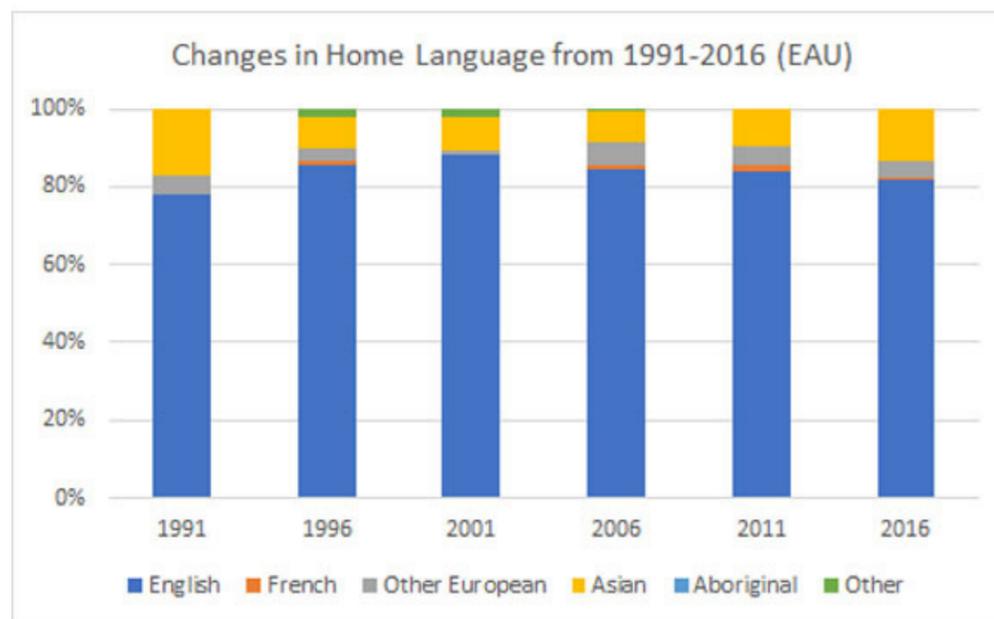
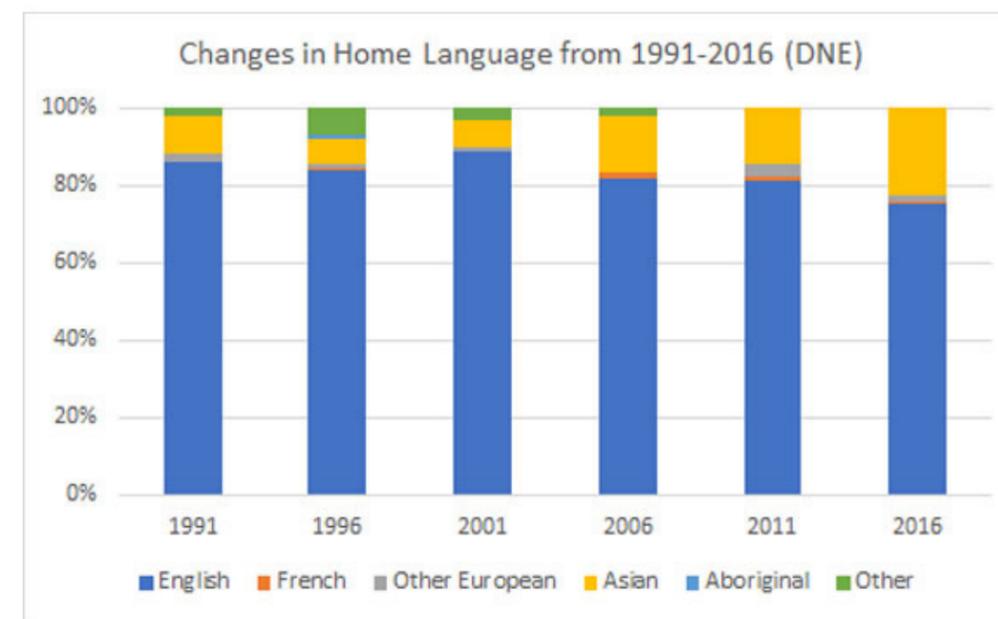
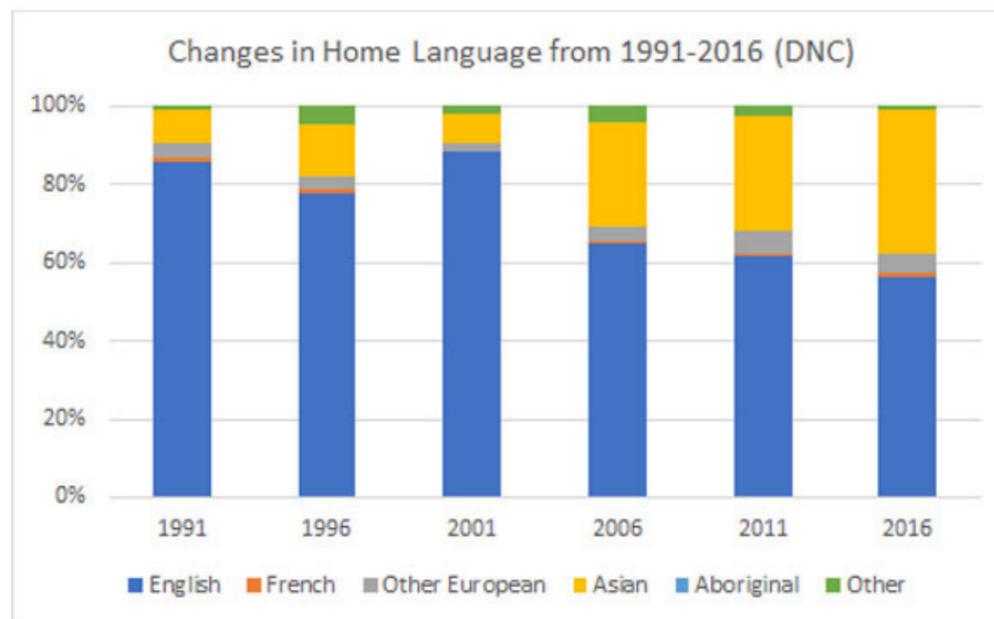
Note: CHN=Chinatown; DNC=Downtown Commercial Core; DNE=Downtown East Village; EAU=Eau Claire; CRE=Crescent Height; SSD=Sunnyside; DNW=Downtown West End; BRD=Bridgeland-Riverside; BLN=Beltline

2.6 Language (continued)



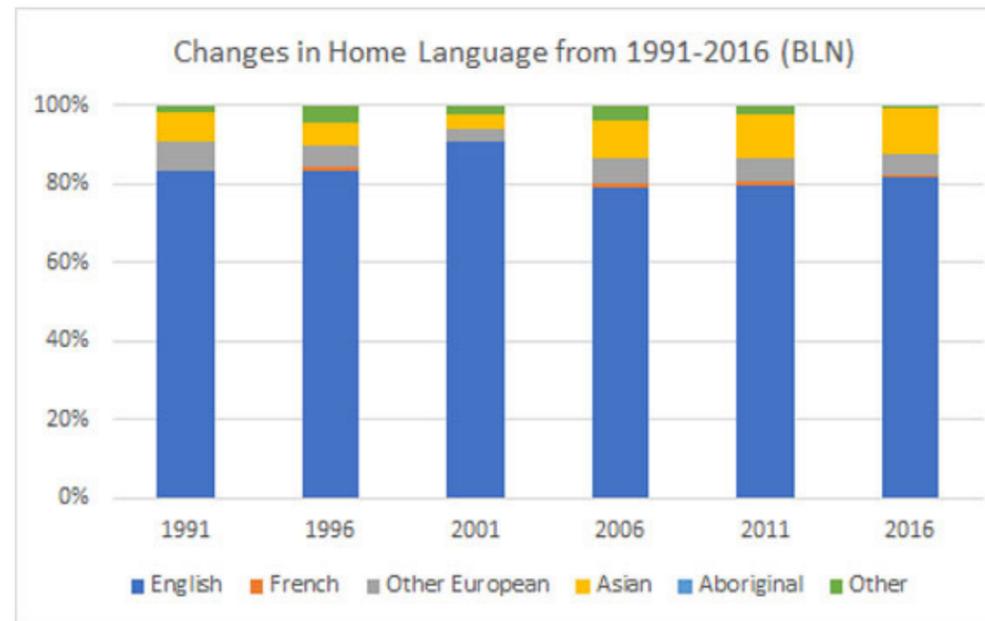
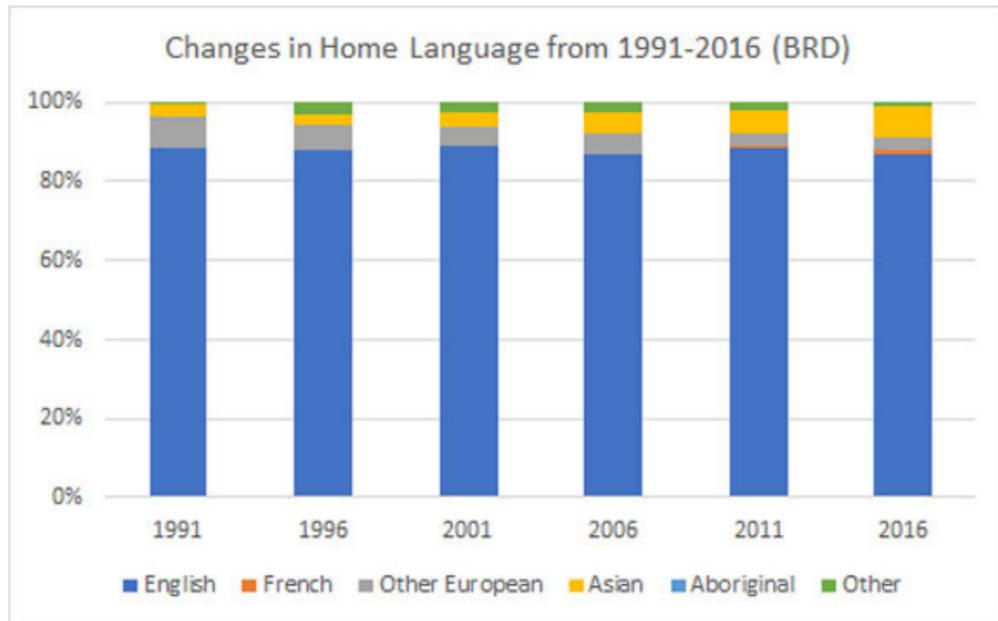
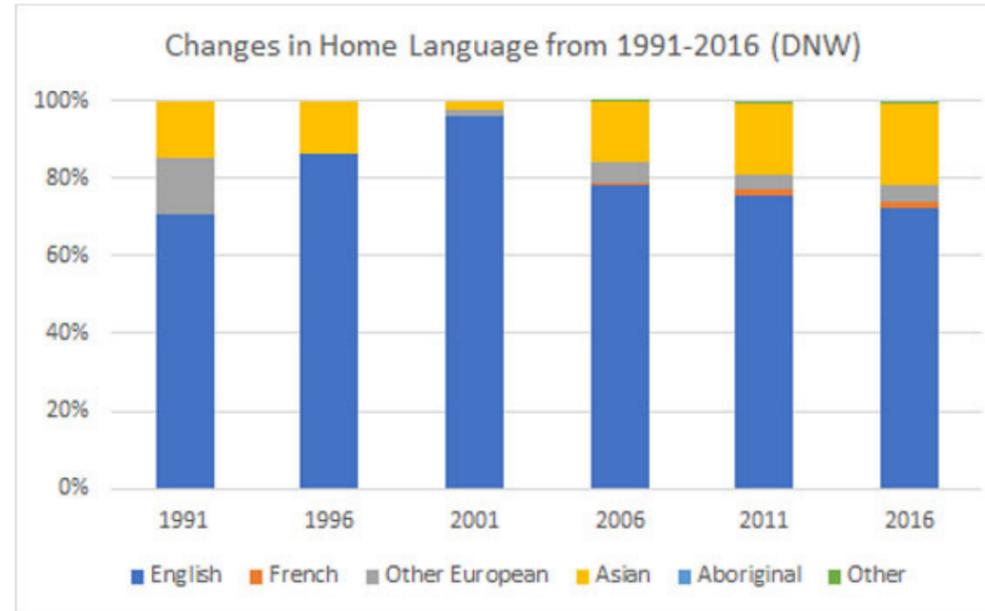
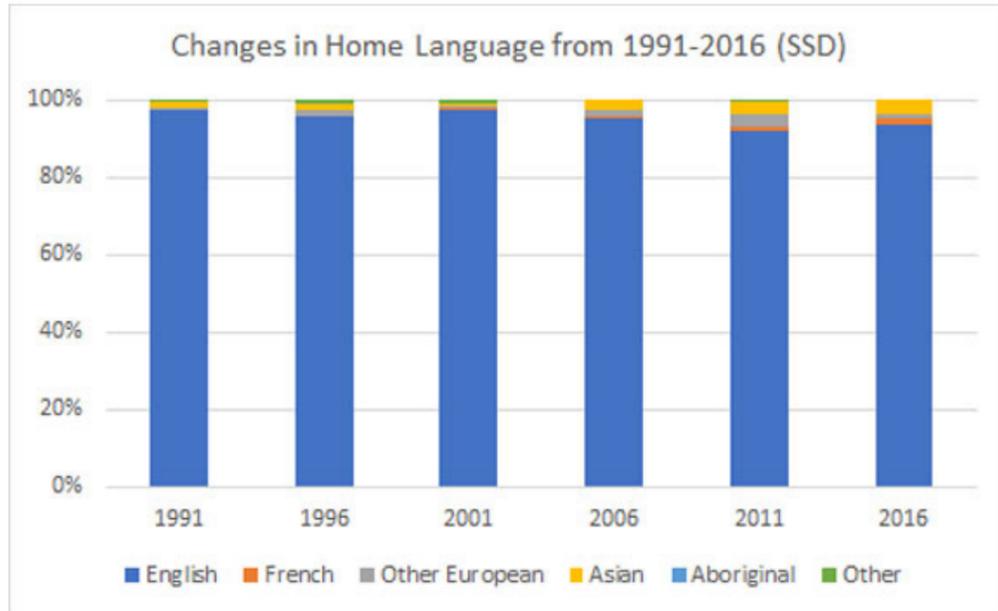
Note: CHN=Chinatown; DNC=Downtown Commercial Core; DNE=Downtown East Village; EAU=Eau Claire; CRE=Crescent Height; SSD=Sunnyside; DNW=Downtown West End; BRD=Bridgeland-Riverside; BLN=Beltline

2.6 Language (continued)



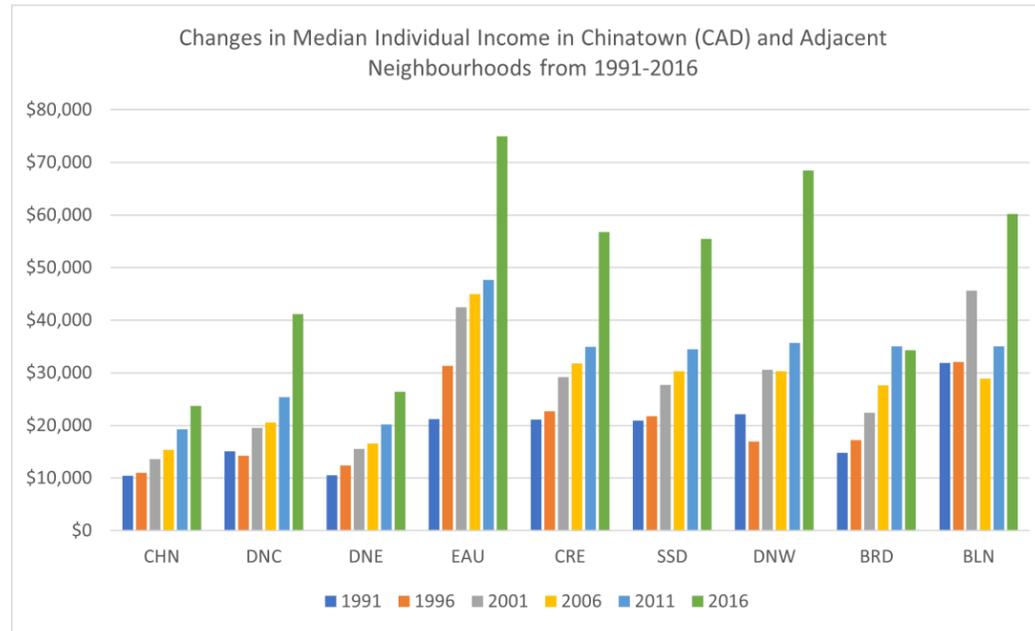
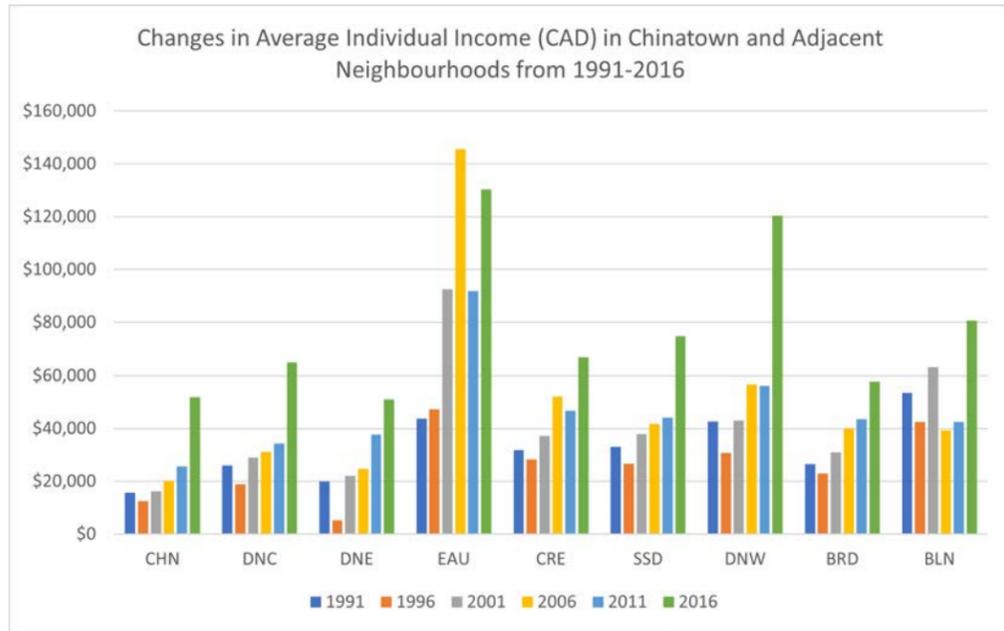
Note: CHN=Chinatown; DNC=Downtown Commercial Core; DNE=Downtown East Village; EAU=Eau Claire; CRE=Crescent Height; SSD=Sunnyside; DNW=Downtown West End; BRD=Bridgeland-Riverside; BLN=Beltline

2.6 Language (continued)



Note: CHN=Chinatown; DNC=Downtown Commercial Core; DNE=Downtown East Village; EAU=Eau Claire; CRE=Crescent Height; SSD=Sunnyside; DNW=Downtown West End; BRD=Bridgeland-Riverside; BLN=Beltline

2.7.1. Individual Income



	1991	1996	2001	2006	2011	2016	Change (1991-2016)
CHN	15,666	12,410	16,233	20,135	25,572	51,943	231.58%
DNC	25,913	18,813	28,920	31,187	34,318	65,052	151.04%
DNE	19,882	5,294	22,105	24,673	37,759	51,043	156.73%
EAU	43,769	47,366	92,614	145,630	91,919	130,350	197.81%
CRE	31,778	28,301	37,149	52,017	46,760	67,053	111.00%
SSD	33,111	26,604	37,889	41,749	44,069	74,944	126.34%
DNW	42,579	30,801	43,057	56,724	56,112	120,365	182.69%
BRD	26,552	22,990	30,883	40,006	43,472	57,779	117.61%
BLN	53,473	42,555	63,168	39,374	42,532	80,578	50.69%

	1991	1996	2001	2006	2011	2016	Change (1991-2016)
CHN	10,461	11,046	13,553.5	15,404	19,252	23,718	126.73%
DNC	15,085	14,256	19,572	20,556	25,390	41,188	173.04%
DNE	10,539	12,422	15,585	16,529	20,184	26,423	150.72%
EAU	21,200	31,308	42,506	44,973	47,699	74,992	253.74%
CRE	21,077	22,673	29,225.5	31,796	34,933	56,768	169.34%
SSD	20,924	21,762	27,670	30,317	34,517	55,430	164.91%
DNW	22,100	16,932	30,553.5	30,308	35,721	68,490	209.91%
BRD	14,844	17,185	22,380.5	27,627	35,028	34,273	130.90%
BLN	31,915	32,061	45,646.5	28,881	35,081	60,248	88.78%

Note: CHN=Chinatown; DNC=Downtown Commercial Core; DNE=Downtown East Village; EAU=Eau Claire; CRE=Crescent Height; SSD=Sunnyside; DNW=Downtown West End; BRD=Bridgeland-Riverside; BLN=Beltline

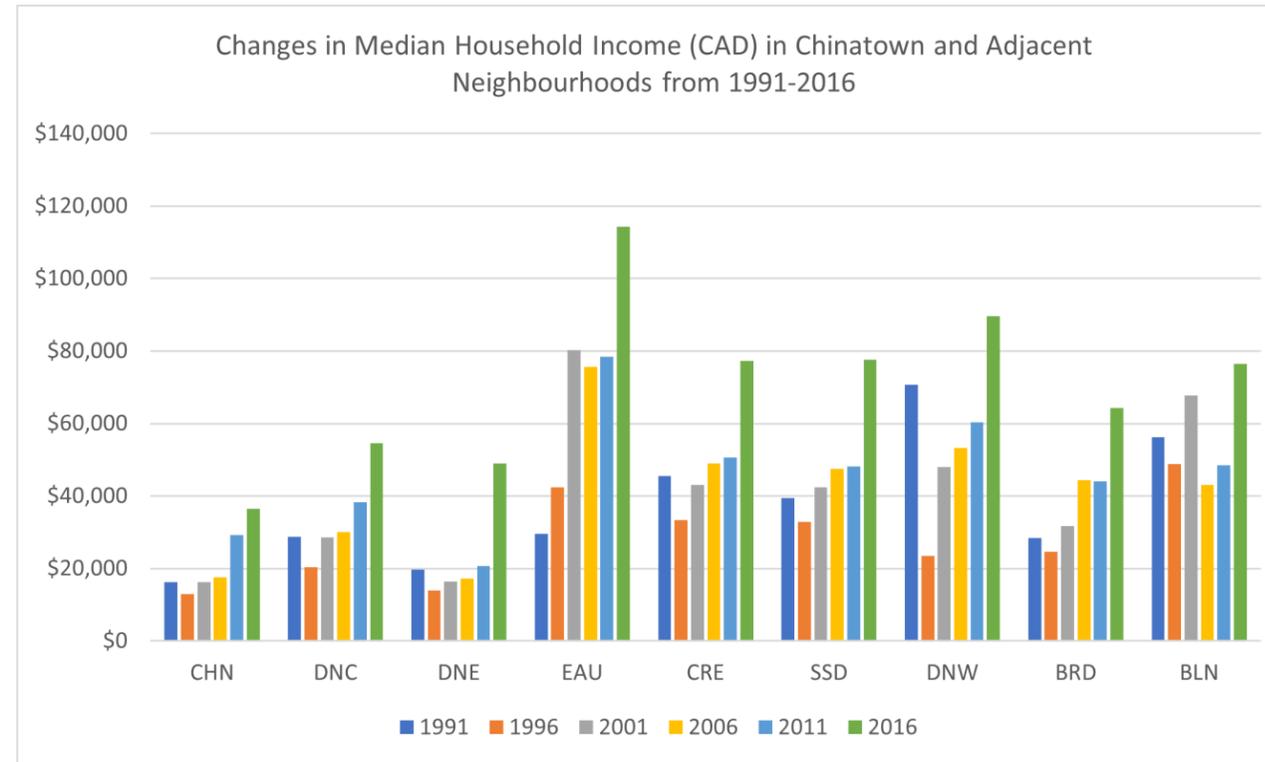
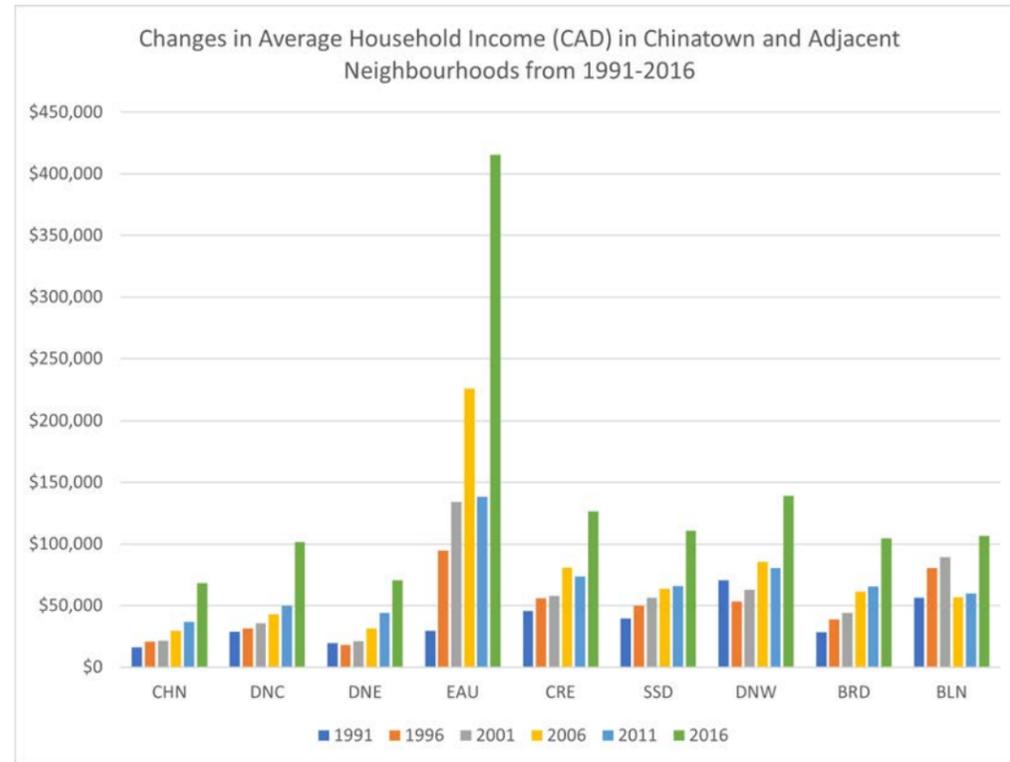
2.7 Income

The average and median incomes (both individual and household) in Canadian dollars are presented in this section as part of the demographic analysis. Although the average is a commonly used statistic to represent the middle of a dataset, it can be heavily influenced by outliers (that is, extreme highs or lows), especially with regards to income. As such, the median individual and household incomes are also presented to represent the “true middle” of the dataset.

Average and median individual income in Chinatown has increased by 231.58% and 126.73%, respectively, but both numbers remain relatively low compared to the surrounding communities. A similar trend can be observed in household income, where the average and median income have increased by 317.74% and 123.44% respectively but remain lower compared to the surrounding communities. This could be because there is a notable senior population in Chinatown, so these residents could be retired and are no longer reporting an annual income. However, it is worth noting that despite the considerably low reported individual and household income, the average rent cost of a dwelling in Chinatown is similar to that of the adjacent communities (see section 2.10 Dwellings).

2.7 Income (continued)

2.7.2. Household Income



	1991	1996	2001	2006	2011	2016	Change (1991-2016)
CHN	16,310	20,622	21,574	29,616	59,828	68,133	317.74%
DNC	28,746	31,560	35,846	43,122	49,846	101,506	253.11%
DNE	19,692	17,952	20,914	31,460	44,150	70,437	257.69%
EAU	29,533	94,739	134,074	225,948	138,255	415,498	1306.89%
CRE	45,581	55,916	57,822	81,035	73,563	126,563	177.67%
SSD	39,434	49,764	56,468	63,777	65,995	110,737	180.82%
DNW	70,626	53,464	63,010	85,448	80,465	139,225	97.13%
BRD	28,387	38,796	44,274	61,358	36,700	104,666	268.71%
BLN	56,239	80,456	89,493	56,870	65,566	106,564	89.48%

	1991	1996	2001	2006	2011	2016	Change (1991-2016)
CHN	16,310	12,952	16,174	17,590	29,242	36,443	123.44%
DNC	28,746	20,275	28,658	30,126	38,323	54,502	89.60%
DNE	19,692	13,862	16,334	17,253	20,660	48,913	148.39%
EAU	29,533	42,372	80,210	75,606	78,388	114,310	287.06%
CRE	45,581	33,406	43,123	49,039	50,571	77,209	69.39%
SSD	39,434	32,906	42,325	47,425	48,186	77,535	96.62%
DNW	70,626	23,417	47,964	53,321	60,262	89,642	26.92%
BRD	28,387	24,689	31,786	44,363	43,994	64,201	126.16%
BLN	56,239	48,801	67,803	43,087	48,441	76,408	35.86%

Note: CHN=Chinatown; DNC=Downtown Commercial Core; DNE=Downtown East Village; EAU=Eau Claire; CRE=Crescent Height; SSD=Sunnyside; DNW=Downtown West End; BRD=Bridgeland-Riverside; BLN=Beltline

1996								
	Car (Driver)	Car (Pass.)	Transit	Walk	Bike	Motor.	Taxi	Other
CHN	85	10	100	165	0	0	0	0
DNC	860	145	1,365	1,400	20	0	20	40
DNE	30	20	85	40	0	0	0	0
EAU	180	15	45	220	10	0	10	0
CRE	1,890	220	395	840	95	0	10	45
SSD	1,130	110	515	570	90	0	10	0
DNW	75	20	115	50	0	0	0	10
BRD	1,195	120	305	255	55	0	20	35
BLN	4,185	495	1,590	3,040	255	10	50	45
2001								
	Car (Driver)	Car (Pass.)	Transit	Walk	Bike	Motor.	Taxi	Other
CHN	85	0	55	205	20	0	0	0
DNC	930	140	1,050	1,720	45	10	15	35
DNE	105	10	40	80	0	0	0	0
EAU	220	10	45	375	20	0	0	10
CRE	2,040	135	420	1,050	150	0	10	30
SSD	1,070	45	420	790	115	10	0	25
DNW	115	10	85	105	25	0	0	0
BRD	1,300	105	395	445	120	0	15	10
BLN	4,255	480	1,580	4,400	320	30	50	140
2006								
	Car (Driver)	Car (Pass.)	Transit	Walk	Bike	Motor.	Taxi	Other
CHN	30	10	180	140	25	0	0	0
DNC	665	65	1,480	1,325	25	10	10	50
DNE	185	15	95	185	0	0	0	10
EAU	240	40	80	540	0	0	0	10
CRE	1,785	205	715	1,050	150	10	0	25
SSD	855	100	490	700	175	0	10	10
DNW	575	75	540	655	25	0	0	0
BRD	1,445	120	535	355	75	10	10	10
BLN	4,010	515	2,100	4,500	280	15	60	95

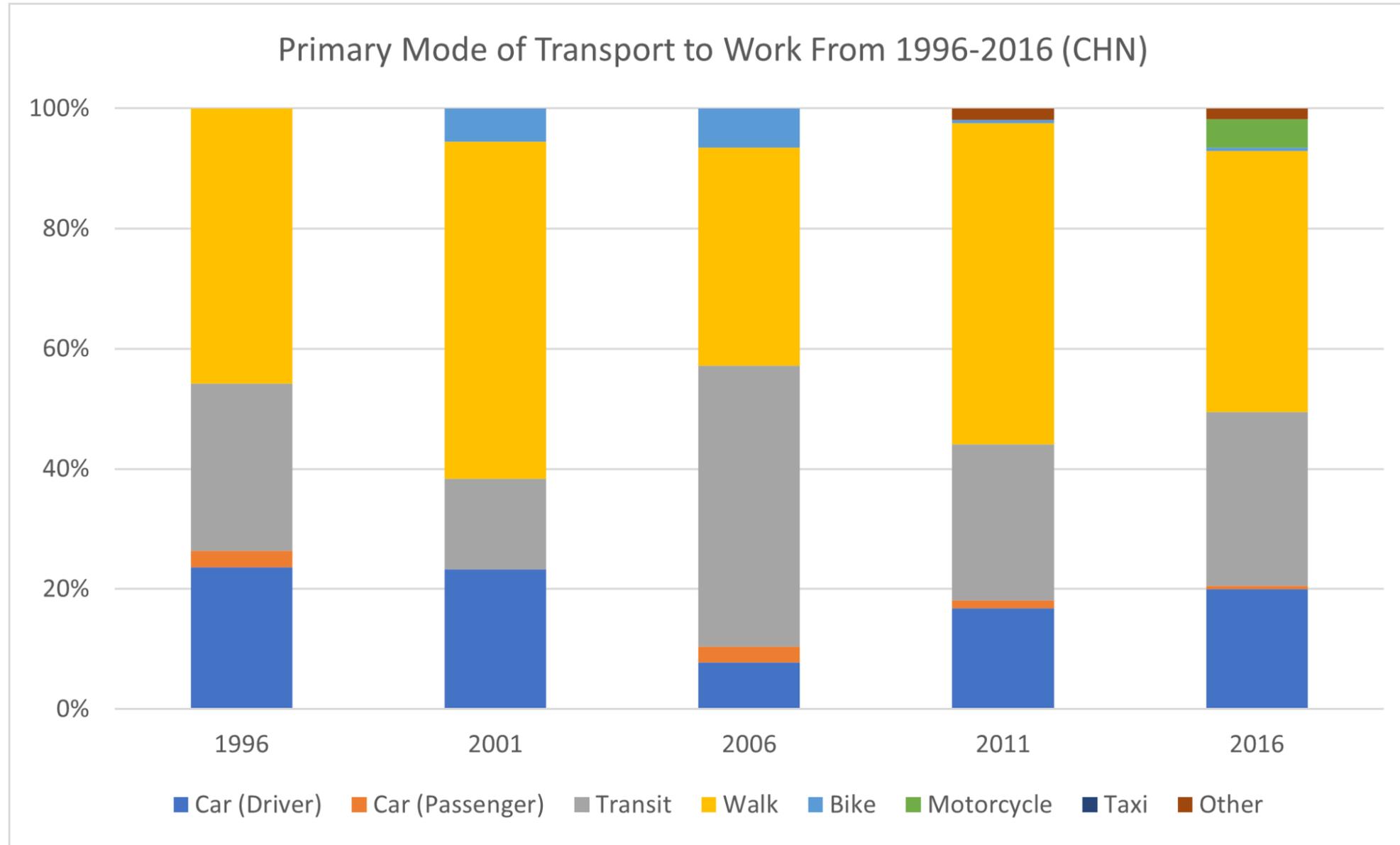
2011								
	Car (Driver)	Car (Pass.)	Transit	Walk	Bike	Motor.	Taxi	Other
CHN	61	5	94	194	2	-	0	7
DNC	564	34	1,389	1,267	21	-	0	38
DNE	177	-	62	156	10	-	0	4
EAU	182	6	33	486	2	-	0	13
CRE	1,398	27	445	685	50	1	0	79
SSD	618	22	540	448	55	1	0	85
DNW	327	8	372	332	4	1	0	40
BRD	991	31	469	235	40	2	0	60
BLN	3,215	96	1,546	3,651	89	5	0	207
2016								
	Car (Driver)	Car (Pass.)	Transit	Walk	Bike	Motor.	Taxi	Other
CHN	208	6	301	453	5	49	0	19
DNC	815	24	1,361	1,287	74	186	0	48
DNE	320	5	197	224	31	-	0	10
EAU	185	4	30	388	39	-	0	5
CRE	1,380	36	400	615	118	3	0	213
SSD	670	5	504	521	158	33	0	24
DNW	325	4	514	299	18	3	0	9
BRD	1,171	43	399	338	124	25	0	120
BLN	3,927	111	2,166	4,440	328	350	0	182

Note: CHN=Chinatown; DNC=Downtown Commercial Core; DNE=Downtown East Village; EAU=Eau Claire; CRE=Crescent Height; SSD=Sunnyside; DNW=Downtown West End; BRD=Bridgeland-Riverside; BLN=Beltline

2.8 Mode of Transportation to Work

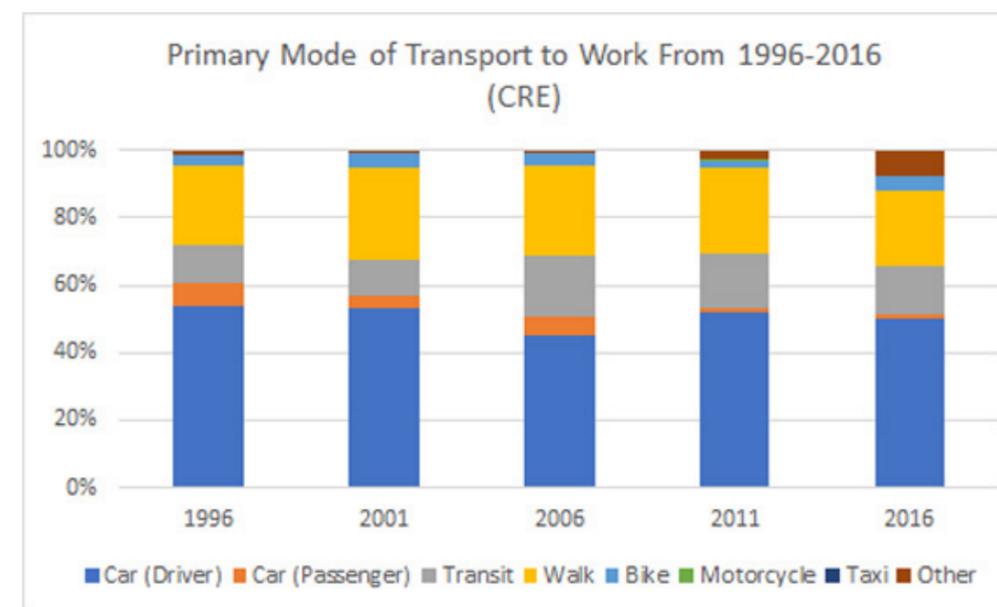
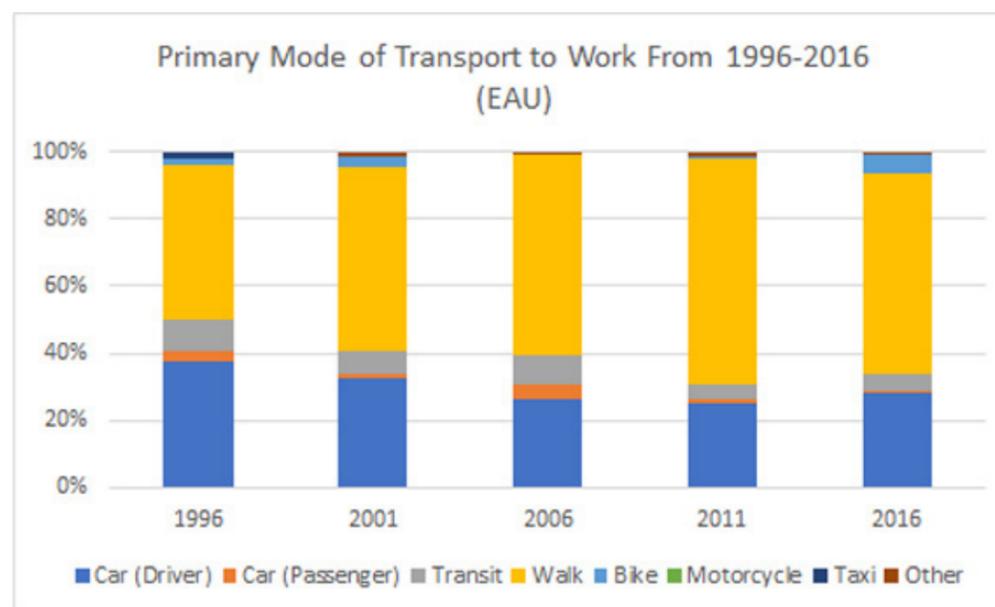
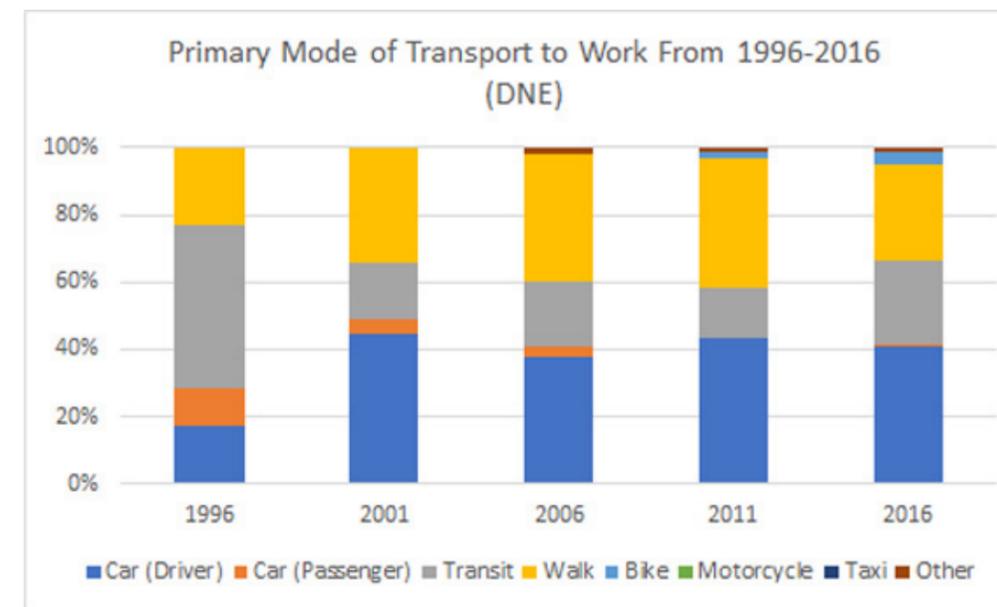
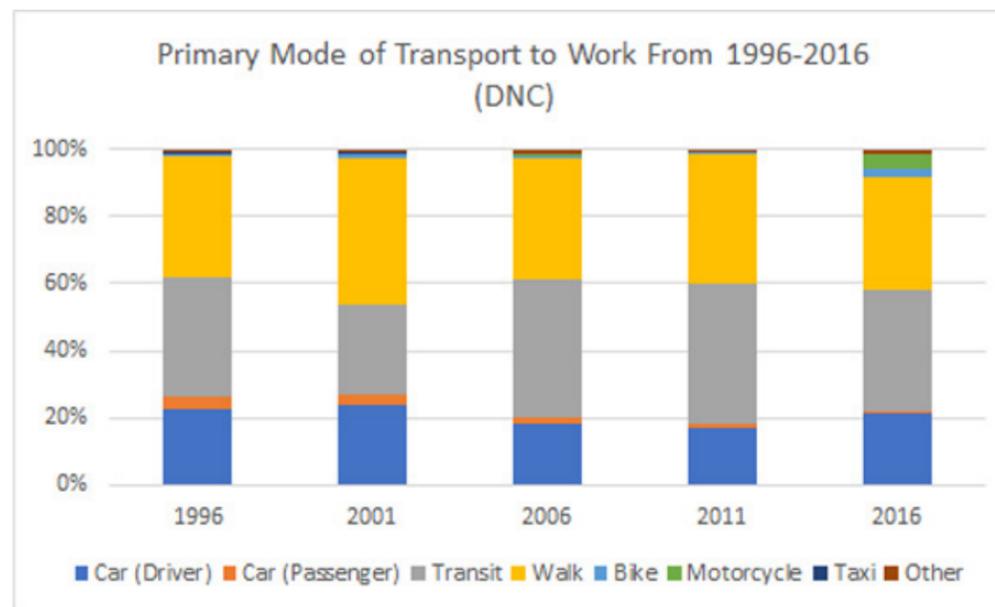
Since 1996, walking has been the primary mode to commute to work for residents of Chinatown and this number has continued to increase, which is interesting to note considering the auto-centric nature of Calgary (the 2016 census reported that 76% of the city as a whole favours personal cars, either as drivers or passengers, as the primary mode to commute to work). Since 2011, the use of both public transportation and the personal automobile has also increased. Chinatown appears to have a lower proportion of residents who drive to work as compared to the adjacent communities. Neighbouring communities who also favour walking as the primary mode of transportation to work are Eau Claire and Beltline.

2.8 Mode of Transportation to Work (continued)



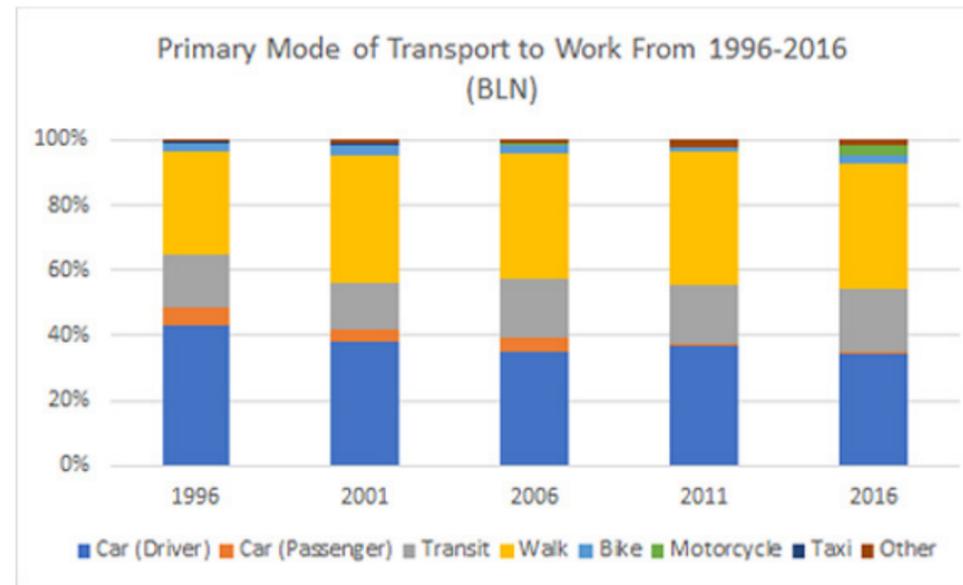
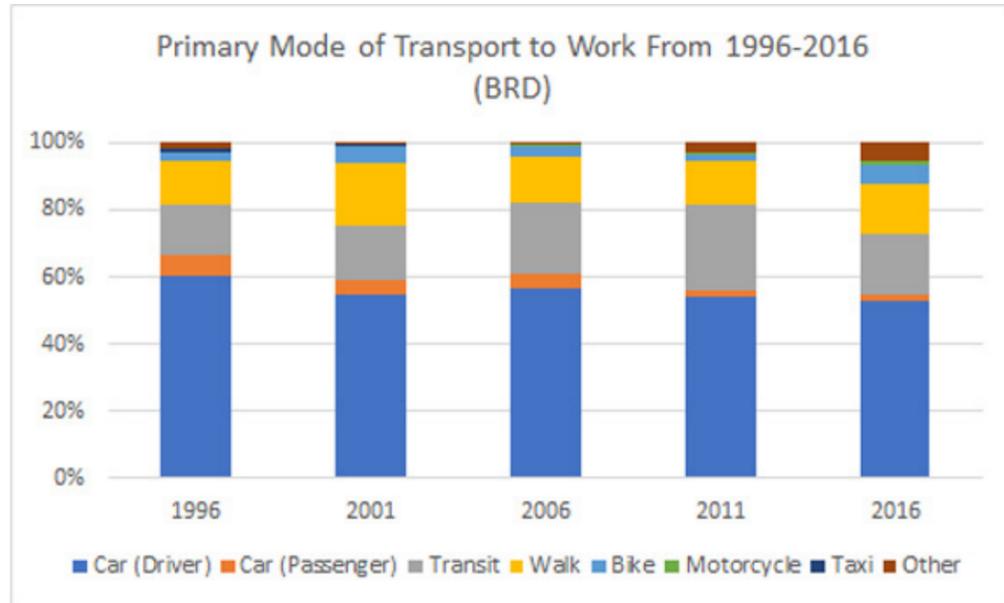
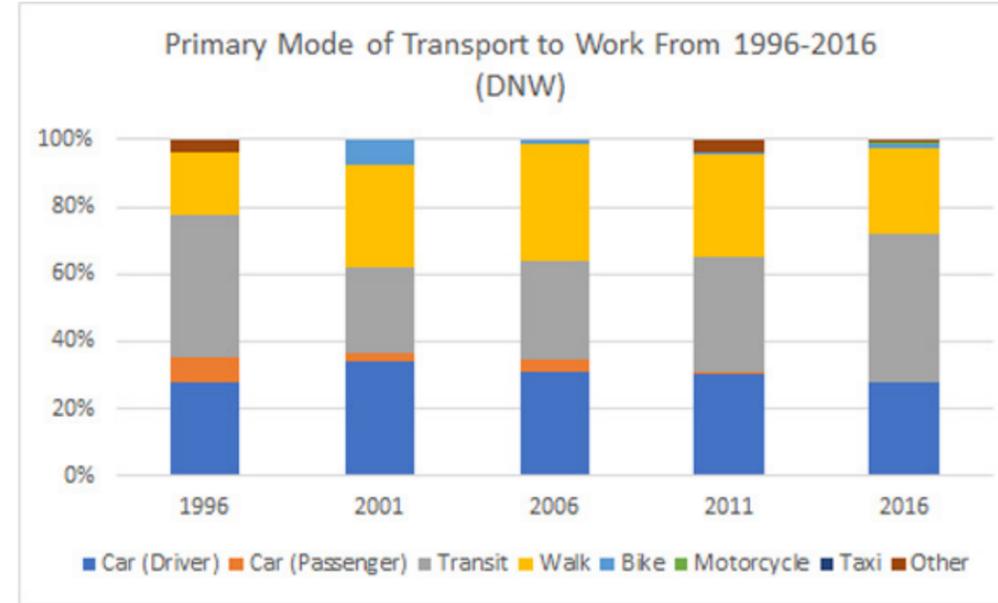
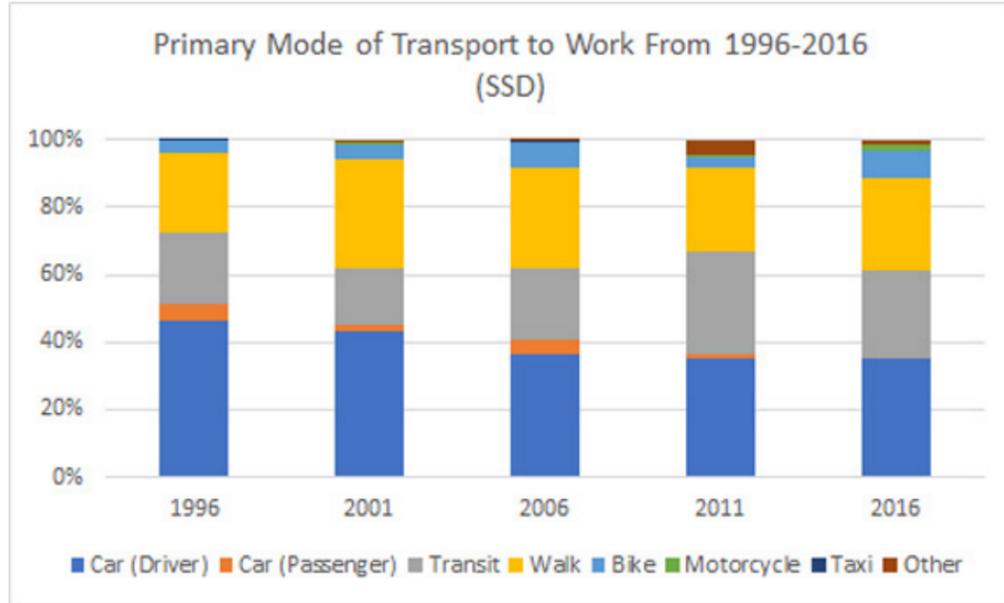
Note: CHN=Chinatown; DNC=Downtown Commercial Core; DNE=Downtown East Village; EAU=Eau Claire; CRE=Crescent Height; SSD=Sunnyside; DNW=Downtown West End; BRD=Bridgeland-Riverside; BLN=Beltline

2.8 Mode of Transportation to Work (continued)



Note: CHN=Chinatown; DNC=Downtown Commercial Core; DNE=Downtown East Village; EAU=Eau Claire; CRE=Crescent Height; SSD=Sunnyside; DNW=Downtown West End; BRD=Brigeland-Riverside; BLN=Beltline

2.8 Mode of Transportation to Work (continued)

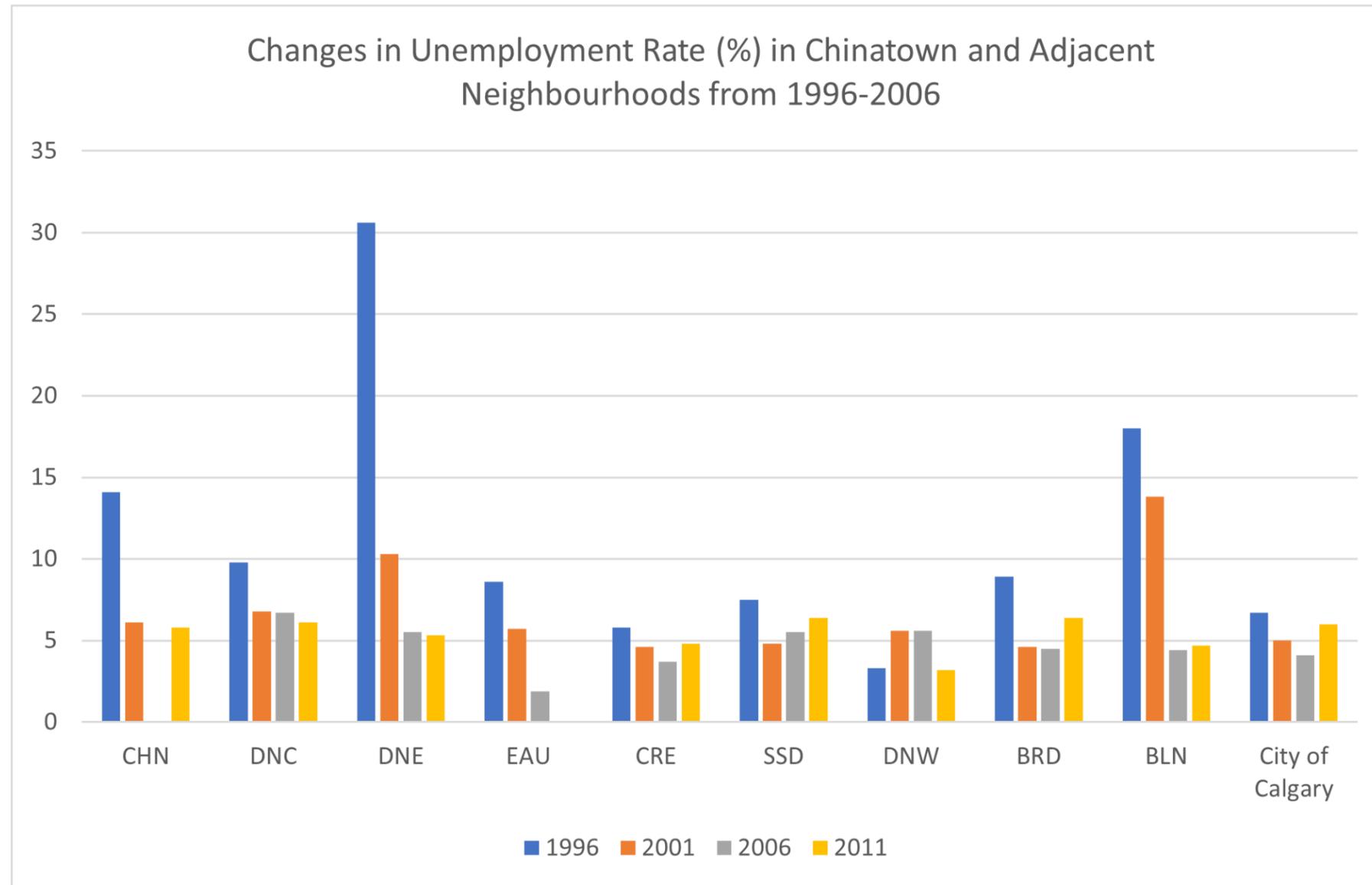


Note: CHN=Chinatown; DNC=Downtown Commercial Core; DNE=Downtown East Village; EAU=Eau Claire; CRE=Crescent Height; SSD=Sunnyside; DNW=Downtown West End; BRD=Bridgeland-Riverside; BLN=Beltline

2.9 Unemployment

The data shown represent the unemployment rate of Chinatown and surrounding communities, retrieved from the Canada national census. As of 2011, the unemployment rate of Chinatown is 5.8%, which is nearly on par with the city-wide unemployment rate of 6%. The City of Calgary unemployment rates were retrieved from the Government of Alberta website. The census data show that all of the communities analyzed in this study saw a decrease in the unemployment rate. As of 2011, the reported unemployment rate in Eau Claire is 0%, but it is not clear as to whether or not this is the actual unemployment rate or if it is due to a lack of available data. Between 2006 and 2011, the unemployment rate increased for all communities except Downtown Commercial Core, Downtown East Village, and Eau Claire. The increase in the unemployment rates during this time was likely due to the 2008 recession.

	1996	2001	2006	2011	Change (1996-2011)
CHN	14.1	6.1	0	5.8	-58.87%
DNC	9.8	6.8	6.7	6.1	-37.76%
DNE	30.6	10.3	5.5	5.3	-82.68%
EAU	8.6	5.7	1.9	0	-100.00%
CRE	5.8	4.6	3.7	4.8	-17.24%
SSD	7.5	4.8	5.5	6.4	-14.67%
DNW	3.3	5.6	5.6	3.2	-3.03%
BRD	8.9	4.6	4.5	6.4	-28.09%
BLN	18	13.8	4.4	4.7	-73.89%
Calgary	6.7	5.0	4.1	6	-10.45%



Note: CHN=Chinatown; DNC=Downtown Commercial Core; DNE=Downtown East Village; EAU=Eau Claire; CRE=Crescent Height; SSD=Sunnyside; DNW=Downtown West End; BRD=Bridgeland-Riverside; BLN=Beltline

2.10 Dwellings

In this section, we present three characteristics pertaining to housing in Chinatown and surrounding communities.

2.10.1. Dwelling Type

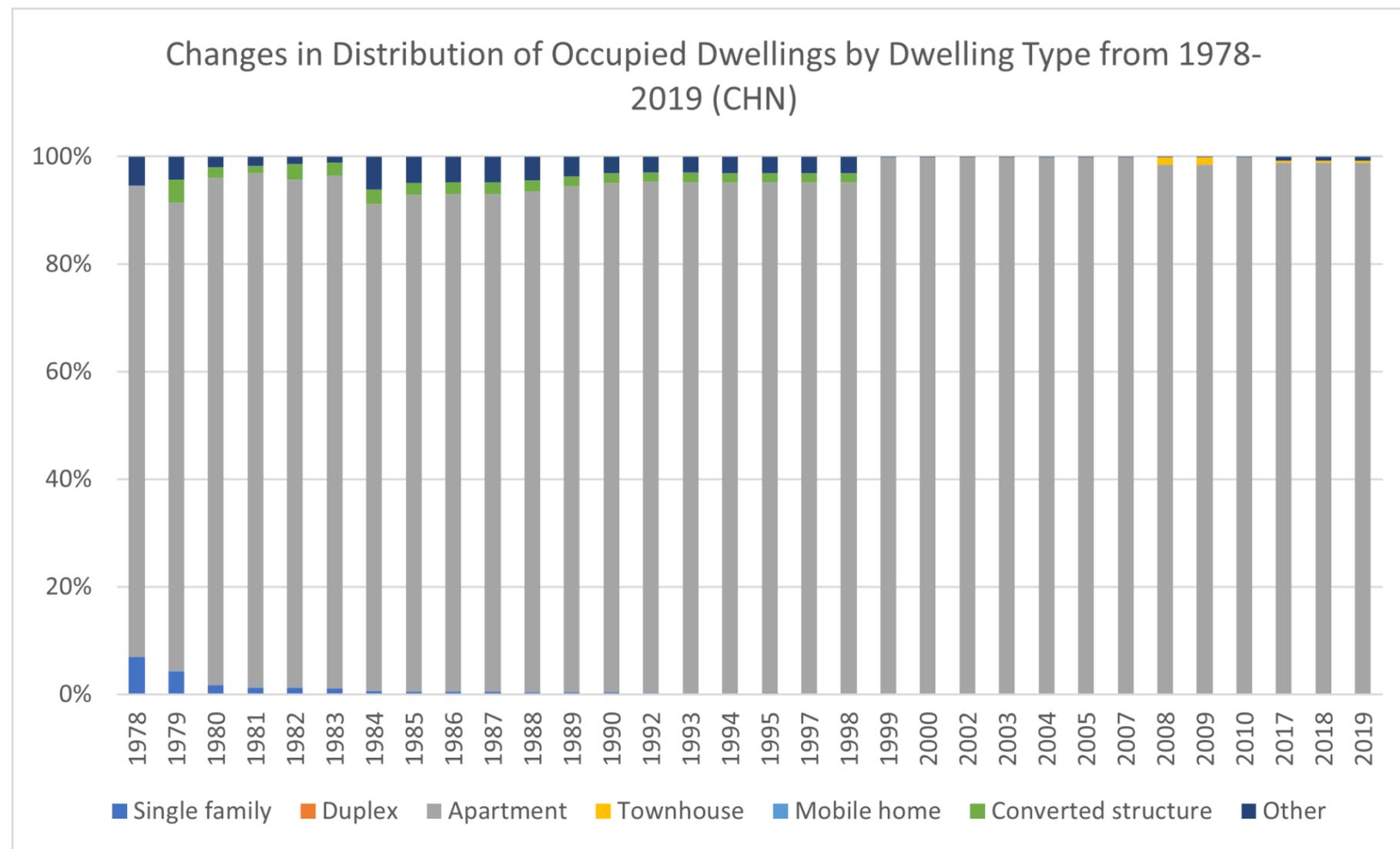
For clarity, the dwelling types are defined as follows, as per the City of Calgary civic census dictionary:

- **Single-family home (SF):** A structure containing one dwelling on one or two levels
- **Duplex (Dup):** A structure originally designed and built to contain two dwelling units
- **Apartment (Apt):** A structure containing three or more dwellings on three or more levels
- **Townhome (Row):** A structure designed to contain three or more attached or semi-detached dwelling units
- **Mobile home (Mob):** A structure built to be movable, whether it is still movable or attached to a permanent foundation. Also referred to as a manufactured home
- **Converted structure (Con):** The additional dwelling unit in a structure that contained more units than the building was originally built to contain

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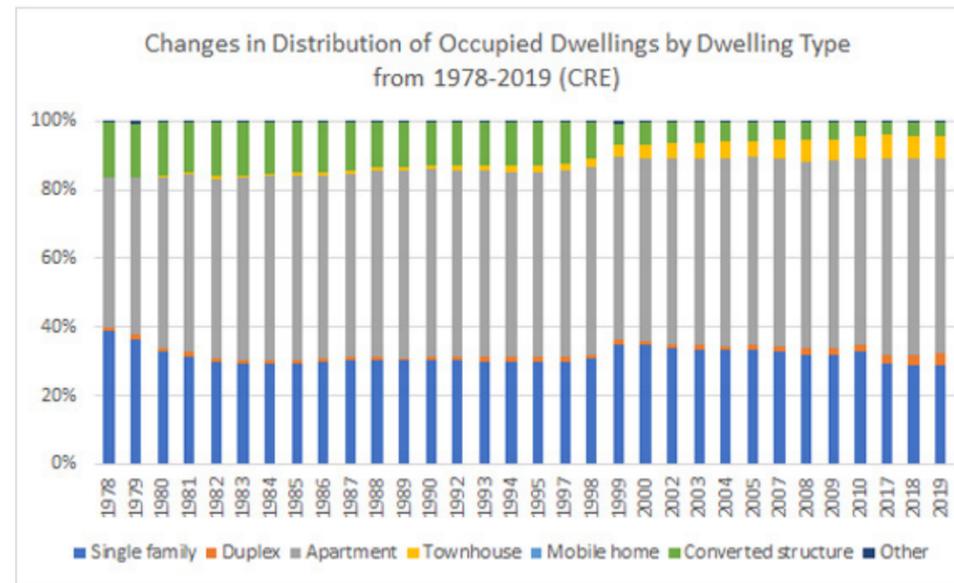
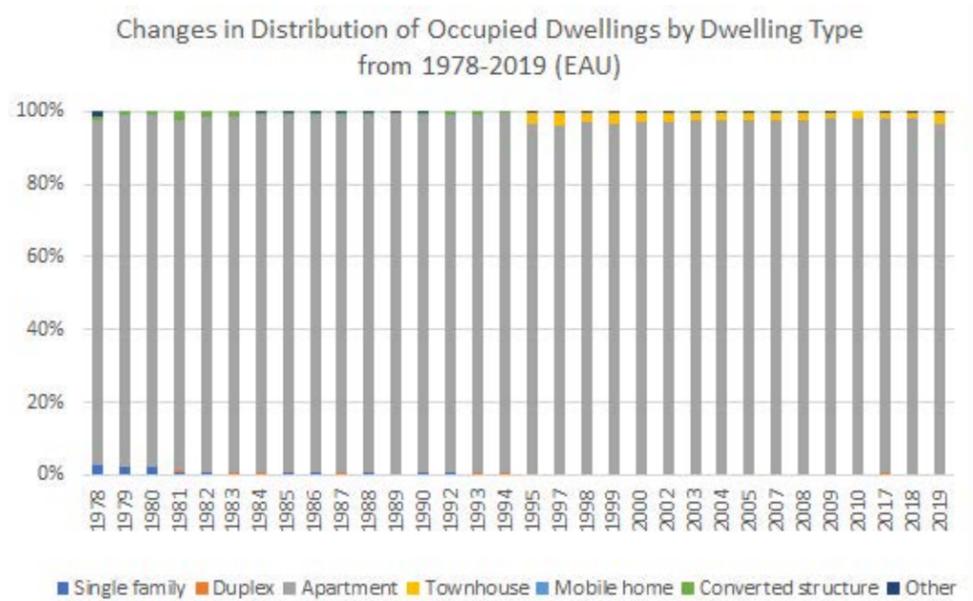
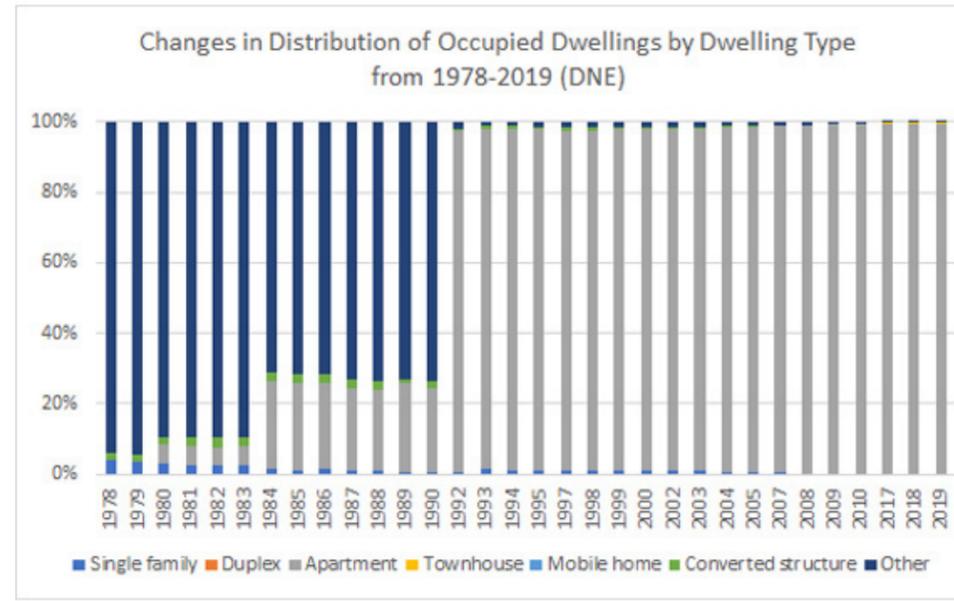
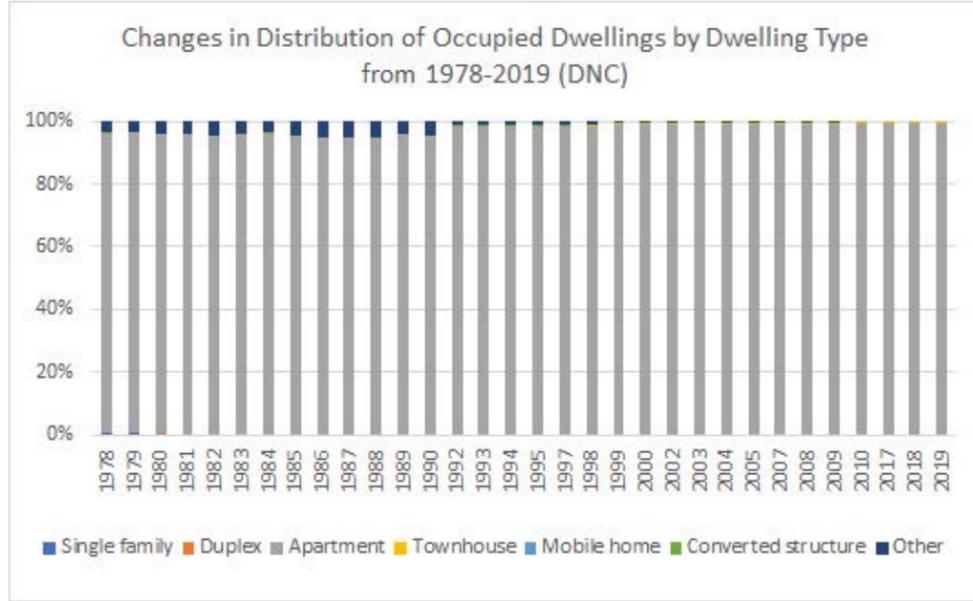
	1980								1985							
	SF	Dup	Apt	Row	Mob	Con	Oth	Tot	SF	Dup	Apt	Row	Mob	Con	Oth	Tot
CHN	7	0	381	0	0	8	8	404	3	0	570	0	0	14	30	617
DNC	17	8	4,607	0	0	4	198	4,834	10	5	4,662	0	0	4	226	4,907
DNE	20	0	34	0	0	12	558	624	10	0	196	0	0	18	568	792
EAU	7	1	318	0	0	3	0	329	4	1	684	0	0	4	1	694
CRE	1031	31	1545	18	0	479	13	3,117	1,006	36	1,835	29	0	497	13	3,416
SSD	486	22	1377	94	0	192	15	2,186	485	20	1,390	123	0	207	11	2,236
DNW	37	3	145	0	0	59	0	244	30	0	272	0	0	26	0	328
BRD	699	124	709	27	0	557	233	2,349	689	102	950	27	0	574	231	2,573
BLN	263	27	7609	50	0	771	383	9,103	215	23	9,664	44	0	564	273	10,783
	1990								1995							
	SF	Dup	Apt	Row	Mob	Con	Oth	Tot	SF	Dup	Apt	Row	Mob	Con	Oth	Tot
CHN	3	0	712	0	0	14	23	752	2	0	760	0	0	14	24	800
DNC	11	5	4,644	0	0	2	235	4,897	7	2	4,655	0	0	10	66	4,740
DNE	5	0	198	0	0	14	611	828	6	0	667	0	0	5	11	689
EAU	4	1	687	0	0	4	1	697	2	0	602	20	0	0	2	626
CRE	1,044	36	1,871	33	0	428	14	3,426	1,031	46	1,869	57	0	437	12	3,452
SSD	493	24	1,411	129	0	178	13	2,248	483	27	1,418	143	0	196	5	2,272
DNW	22	0	272	0	0	21	0	315	17	0	272	0	0	21	2	312
BRD	744	89	957	27	0	453	295	2,565	742	73	955	36	0	461	113	2,380
BLN	208	23	9,888	88	1	473	274	10,955	188	18	9,942	140	0	348	296	10,932
	2000								2005							
	SF	Dup	Apt	Row	Mob	Con	Oth	Tot	SF	Dup	Apt	Row	Mob	Con	Oth	Tot
CHN	1	0	760	0	0	0	1	762	0	0	758	0	0	0	1	759
DNC	4	0	4,656	20	0	1	27	4,708	2	0	4,780	20	0	0	28	4,830
DNE	7	0	667	0	0	3	11	688	6	0	877	0	0	3	10	896
EAU	1	0	891	23	0	0	3	918	1	0	1,115	23	0	0	1	1,140
CRE	1,199	42	1,838	141	0	211	19	3,450	1,198	49	1,970	178	0	193	9	3,597
SSD	550	29	1,447	173	0	112	8	2,319	537	54	1,460	183	0	110	7	2,351
DNW	17	0	770	0	0	15	3	805	10	0	1,620	0	0	3	3	1,636
BRD	940	71	988	143	0	274	20	2,436	933	75	966	153	0	287	16	2,430
BLN	233	17	10,457	282	0	187	90	11,266	158	20	11,043	324	0	128	85	11,758
	2010								2019							
	SF	Dup	Apt	Row	Mob	Con	Oth	Tot	SF	Dup	Apt	Row	Mob	Con	Oth	Tot
CHN	0	0	753	0	0	0	1	754	0	0	1,967	7	0	1	14	1,989
DNC	0	0	4,293	16	0	0	9	4,318	1	1	5,645	20	0	0	12	5,679
DNE	0	0	918	0	0	0	5	923	0	1	2,680	14	0	0	4	2,699
EAU	1	1	1,074	20	0	0	0	1,096	1	2	1,309	42	0	0	1	1,355
CRE	1,065	64	1,742	208	0	133	7	3,219	1,119	128	2,208	267	0	149	11	3,882
SSD	493	49	1,369	176	0	73	5	2,165	493	61	1,810	188	0	72	2	2,626
DNW	1	0	1,526	0	0	0	2	1,529	3	0	2,055	0	0	0	3	2,061
BRD	830	72	1,299	155	0	209	17	2,582	869	163	2,490	226	0	222	18	3,988
BLN	73	10	11,486	324	0	56	51	12,000	71	15	17,771	341	0	45	65	18,308

2.10 Dwellings (continued)



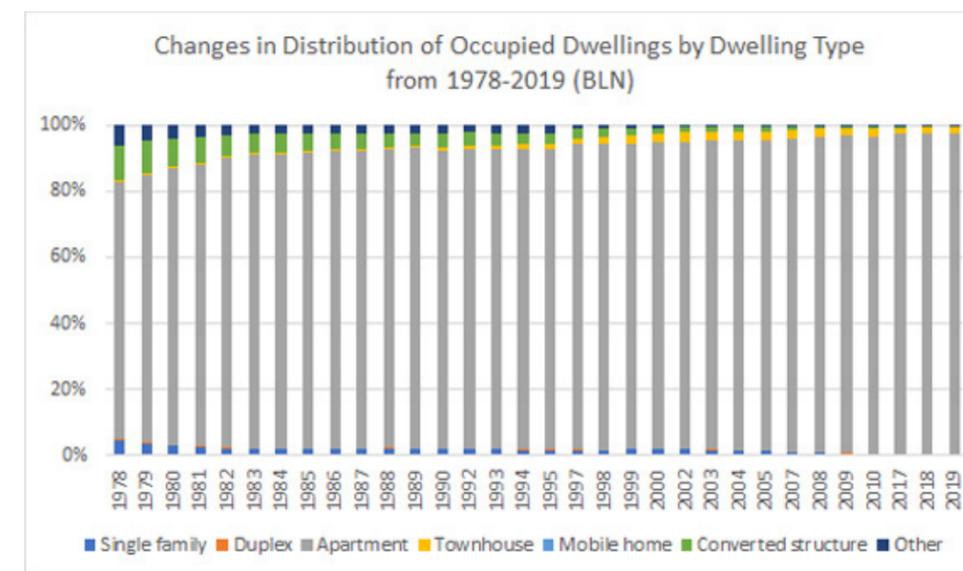
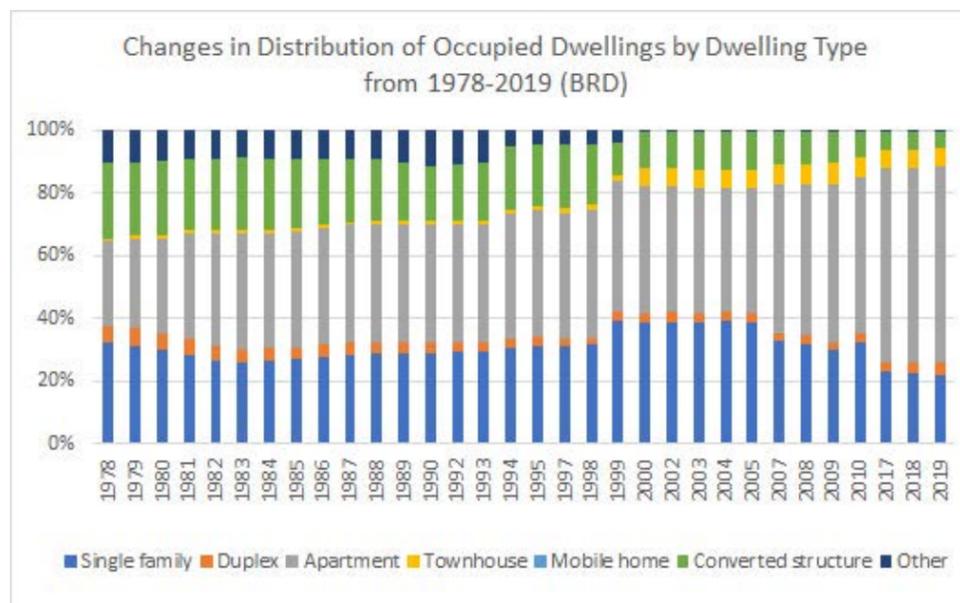
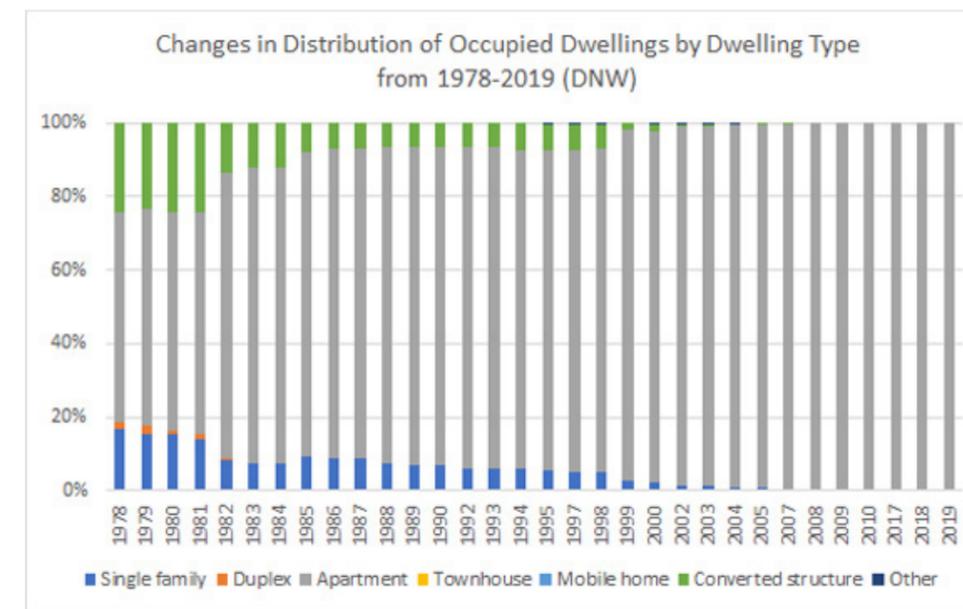
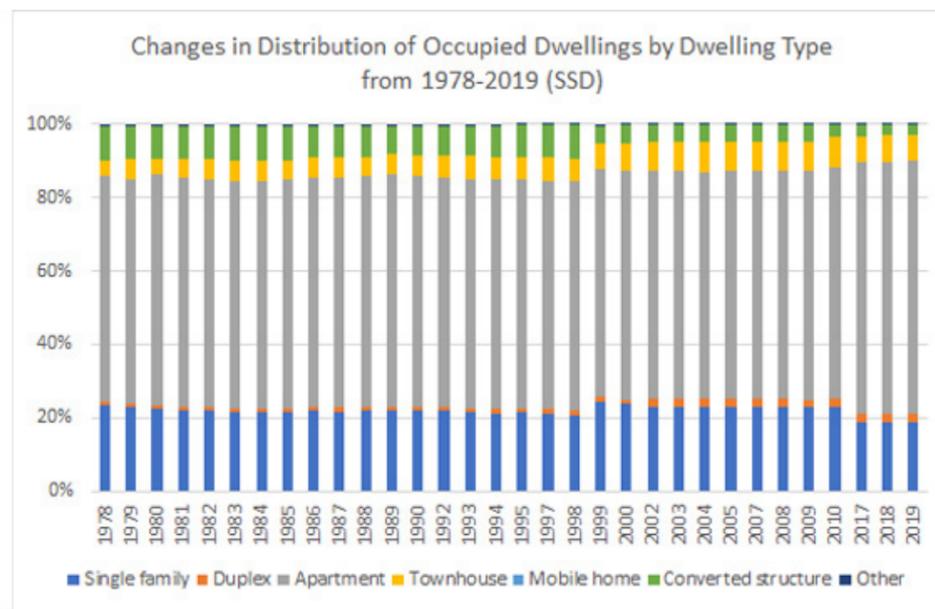
Note: CHN=Chinatown; DNC=Downtown Commercial Core; DNE=Downtown East Village; EAU=Eau Claire; CRE=Crescent Height; SSD=Sunnyside; DNW=Downtown West End; BRD=Bridgeland-Riverside; BLN=Beltline

2.10 Dwellings (continued)



Note: CHN=Chinatown; DNC=Downtown Commercial Core; DNE=Downtown East Village; EAU=Eau Claire; CRE=Crescent Height; SSD=Sunnyside; DNW=Downtown West End; BRD=Bridgeland-Riverside; BLN=Beltline

2.10 Dwellings (continued)



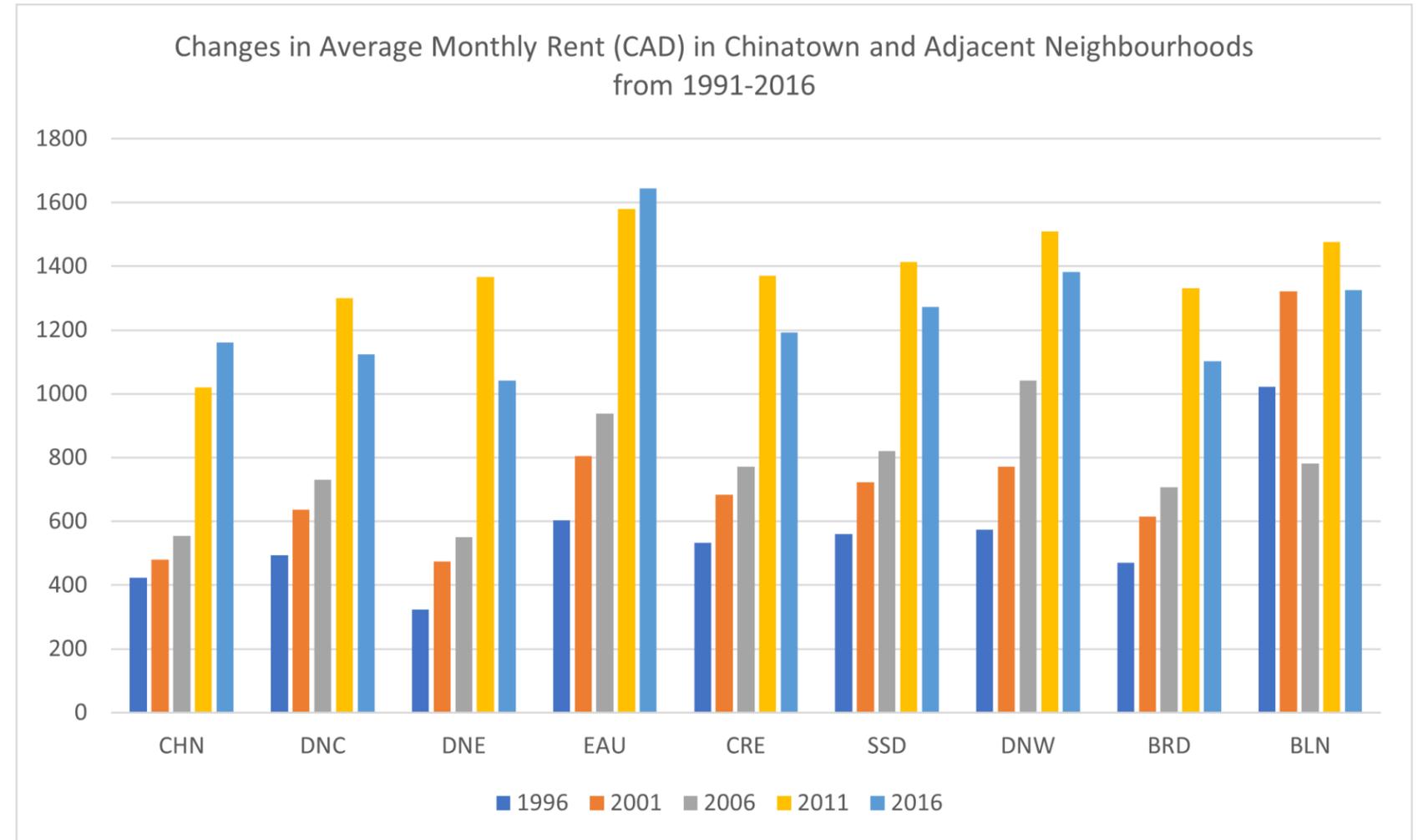
Note: CHN=Chinatown; DNC=Downtown Commercial Core; DNE=Downtown East Village; EAU=Eau Claire; CRE=Crescent Height; SSD=Sunnyside; DNW=Downtown West End; BRD=Bridgeland-Riverside; BLN=Beltline

2.10 Dwellings (continued)

2.10.2. Monthly Rent

The data shown represent the average monthly cost of all rental units for Chinatown and the surrounding communities. The average cost of rent has increased since 1996 for all of the communities analyzed in this study, with the average monthly rent cost in Chinatown increasing by 174.47% since 1996. As previously mentioned, the average monthly rent in Chinatown as of 2016 is like that of the surrounding communities, even though the average and median incomes reported in Chinatown are relatively low compared to the adjacent communities.

	1996	2001	2006	2011	2016	Change (1996-2016)
CHN	423	479	554	1,020	1,161	174.47%
DNC	494	637	731	1,300	1,124	127.53%
DNE	324	474	551	1,366	1,041	221.30%
EAU	604	804	938	1,580	1,645	172.35%
CRE	533	684	771	1,370	1,192	123.64%
SSD	560	722	820	1,413	1,272	127.14%
DNW	573	771	1,042	1,510	1,383	141.36%
BRD	471	615	707	1,332	1,102	133.97%
BLN	1,023	1,322	781	1,477	1,325	29.52%

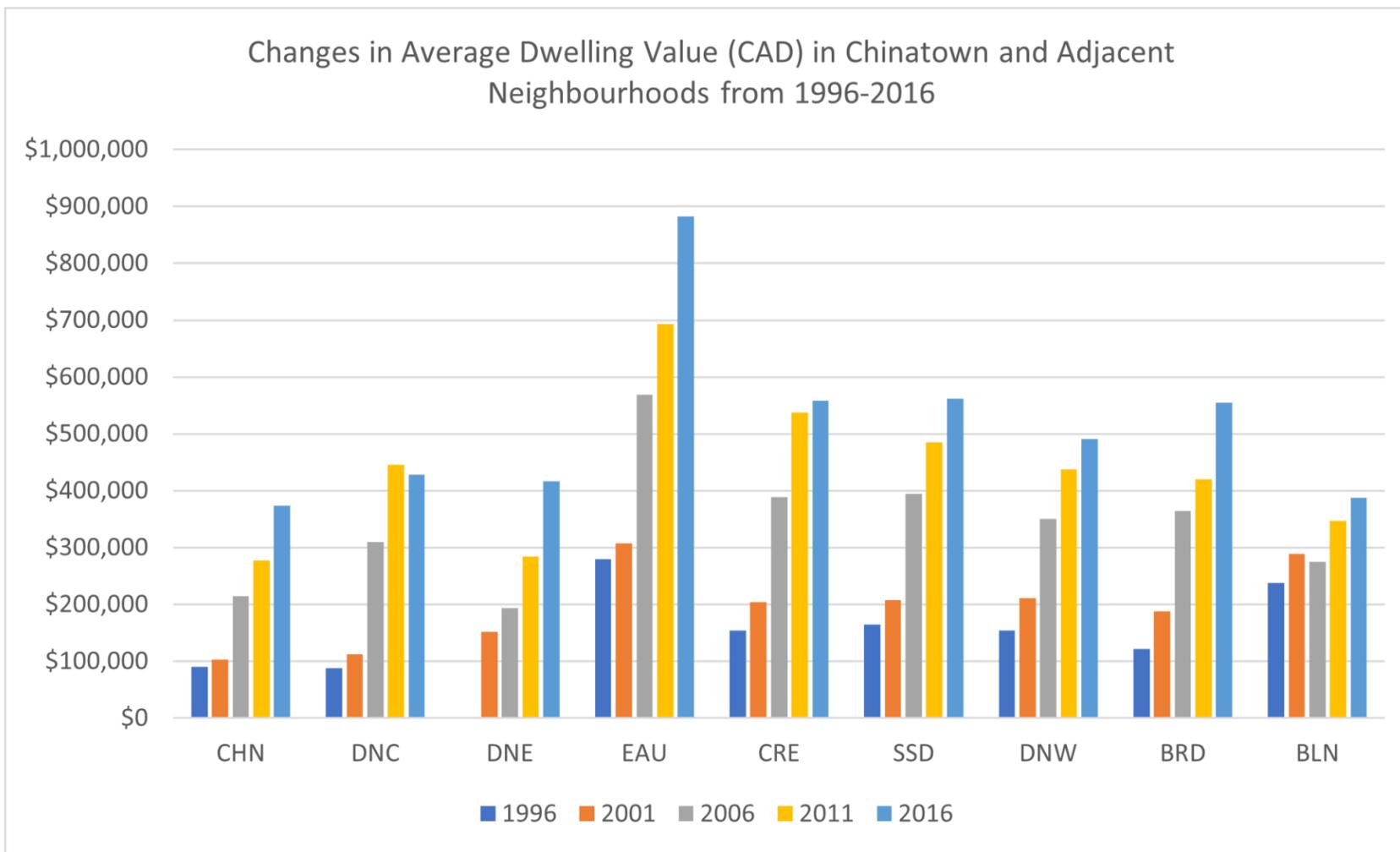


Note: CHN=Chinatown; DNC=Downtown Commercial Core; DNE=Downtown East Village; EAU=Eau Claire; CRE=Crescent Height; SSD=Sunnyside; DNW=Downtown West End; BRD=Bridgeland-Riverside; BLN=Beltline

2.10 Dwellings (continued)

2.10.3. Dwelling Value

The data shown represent the average dwelling value for all private dwellings in Chinatown and surrounding communities, including the value of the land that the dwelling is on and any other structure on the property (such as a garage). The average dwelling value in Chinatown has increased by over 300% since 1996, which is the third-highest reported increase in average dwelling value after the Downtown Commercial Core and Bridgeland-Riverside. A similar trend can be observed in the adjacent neighbourhoods as well. However, the average dwelling value as of 2016 is still slightly lower in Chinatown than the surrounding neighbourhoods. It could be interesting to see how the introduction of the Green Line LRT network will influence the average dwelling value in Chinatown.



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	1996	2001	2006	2011	2016	Change (1996-2016)
CHN	90,312	102,890	214,668	277,233	373,394	313.45%
DNC	87,863	112,182	309,889	445,375	428,168	387.31%
DNE	N/A	152,234	194,288	284,326	416,989	173.91%
EAU	279,478	307,722	568,945	692,874	881,941	215.57%
CRE	153,728	203,872	388,992	537,906	557,898	262.91%
SSD	164,950	207,715	394,851	485,125	562,079	240.76%
DNW	154,756	210,743	350,528	437,376	490,999	217.27%
BRD	122,264	187,728	364,813	420,733	555,034	353.96%
BLN	238,179	289,091	274,639	347,406	387,688	62.77%



03
BUSINESSES IN
CHINATOWN



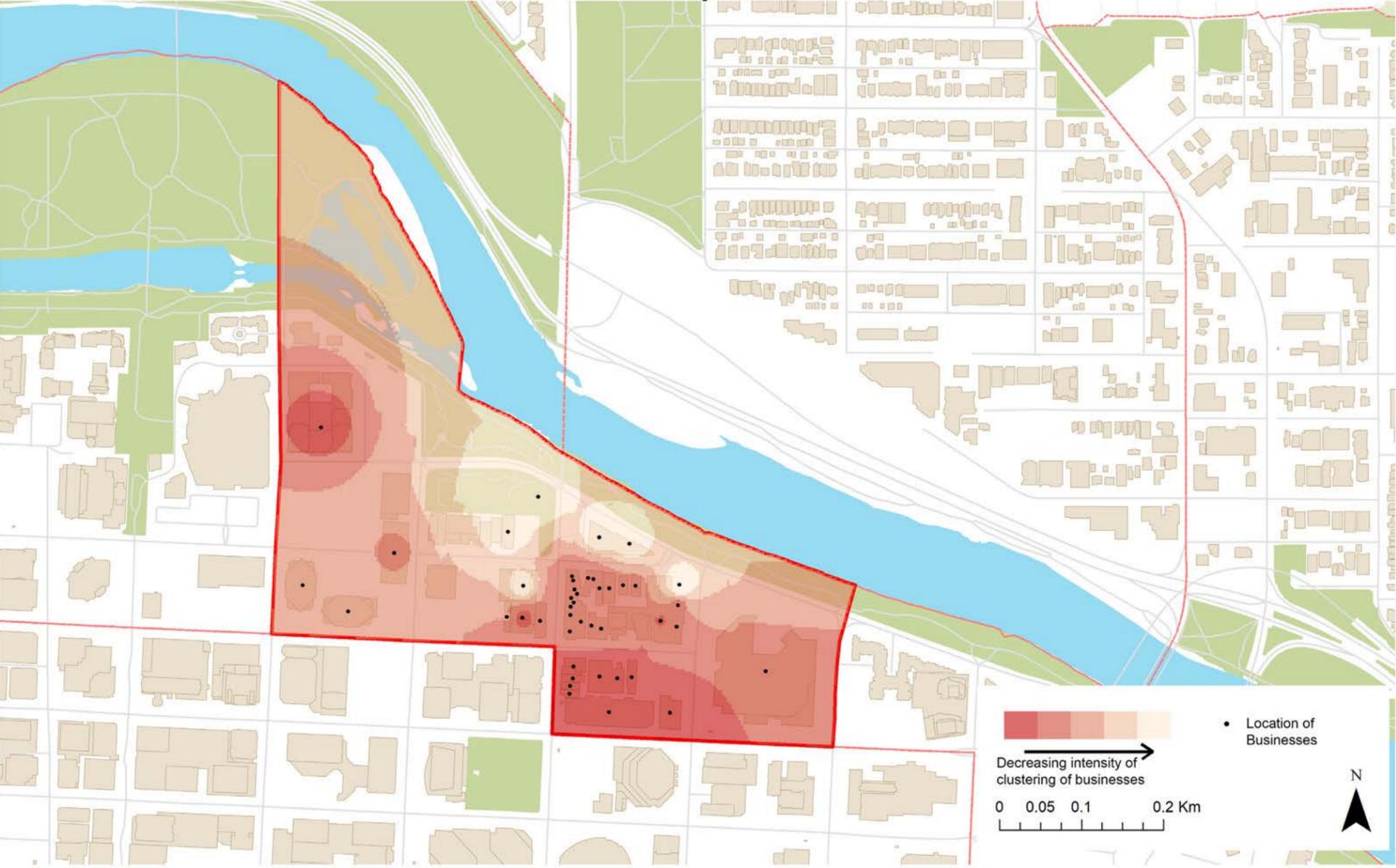
3. Businesses in Chinatown

In this section, we mapped the businesses in Chinatown using the latest Business License data from the City of Calgary (June 2020). We present the business hotspots, the status of business licenses, as well as the type of businesses present in Chinatown.

3.1 Policy Recommendations

- Prior to any new development in the community, a comprehensive traffic impact assessment needs to be completed. The possible impacts on business activities also need to be studied.
- Policy should support pedestrian/cyclist activities for the following areas that have been identified as hotspots for commercial activity and great assets for Chinatown's businesses commercial viability. **(section 3.2)**
 - 2 St SW & Riverfront Ave SW (hotspot)
 - Centre St S & 4 Ave SE (hotspot)
 - Centre St S & 3 Ave SW (hotspot)
 - 2 Ave SE (between Centre St. S & Riverfront Ave SE) (currently not a hotspot but with great potential)
- Policy should support diversification of businesses that can take advantage of the existing businesses and the locational potential (i.e., its central location and proximity to the bow river and the pathway system) of the community. **(section 3.3)**

Chinatown Business Licenses - Hot Spots



3.2 Business Hotspots

We mapped the hot spots of business licenses in Chinatown, i.e. a rudimentary idea of density and clustering of businesses within the community. Most businesses are clustered in the south and east of Chinatown along Centre Street and 4th Ave, with decreasing intensity of clustering as we move towards the river. The area close to 2 St SW and Riverfront Ave SW seems to be another spot with relatively intense business activities. This may indicate a higher intensity of traffic movement in these areas.

3.3. Types of Businesses

Most businesses in Chinatown are Food Services (~32%), followed by Retail Dealers (25%) and Drinking establishment (~11%). There are other businesses that are similar in nature to the ones mentioned before but classified differently as per the City of Calgary. This indicates a high number of business establishments dependent on direct customer service, i.e. customers visit these establishments in person.

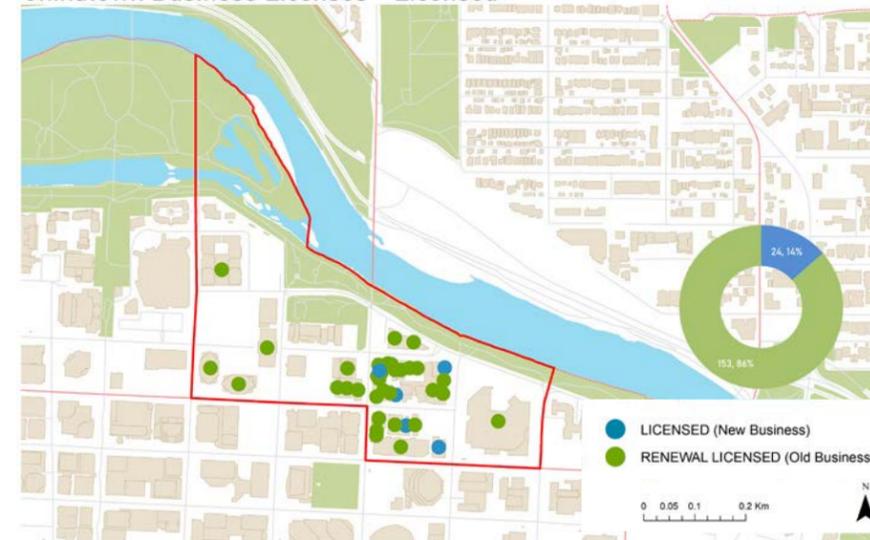
License Type	Number of License	Percentage
Alcohol Beverage Sales (Drinking Est/Restaurant)	1	0.4%
Alcohol Beverage Sales (Drinking Establishment)	1	0.4%
Alcohol Beverage Sales (Restaurant)	22	9.8%
Apartment Building Operator (4 Or More Storeys)	2	0.9%
Body Rub Centre (Grandfathered Massage Centre Commercial)	4	1.8%
Charitable Organization	6	2.7%
Contractor (No Provincial Licence Required)	2	0.9%
Entertainment Establishment	4	1.8%
Food Service - Premises	17	7.6%
Food Service - Premises (No Seating)	12	5.4%
Food Service - Premises (Seating)	43	19.2%
Liquor Store	1	0.4%
Manufacturer	6	2.7%
Massage Centre (Commercial)	5	2.2%
Motor Vehicle Repair And Service (2-Prov N/R)	1	0.4%
Outdoor Patio	2	0.9%
Personal Service	17	7.6%
Personal Service (Independent Chair Operator)	2	0.9%
Personal Service (Tattoo)	2	0.9%
Photographer	3	1.3%
Retail Dealer - Premises	56	25.0%
School (Driver Education)	2	0.9%
School (Prov. Not Required)	1	0.4%
Second-hand Dealer	3	1.3%
Tobacco Retailer	6	2.7%
Wholesaler	3	1.3%
Total	224	100.0%

3.4. Status of Business Licenses

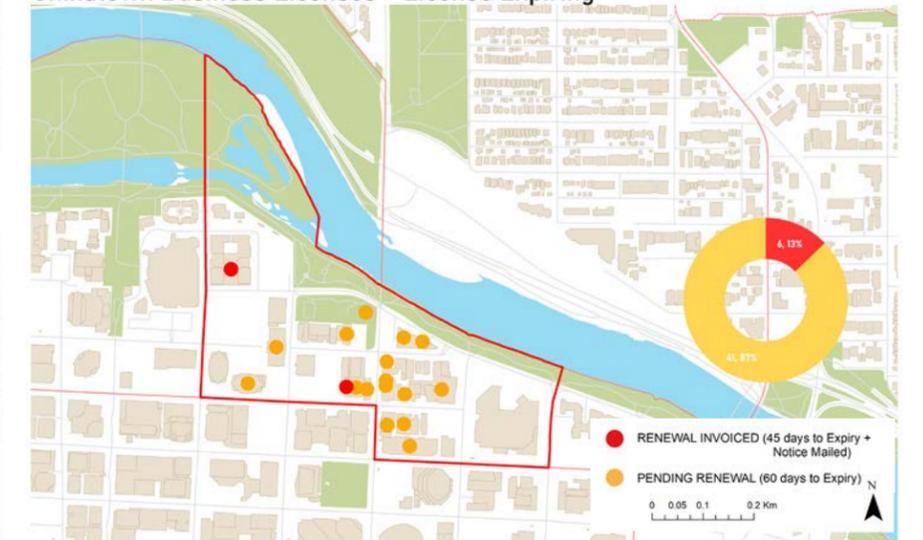
There are a total of 224 licensed businesses in Chinatown. Around 21% of the businesses in Chinatown have their licenses pending for renewal, while the others were about to expire within 60 days (June 2020). Of the pending licenses, 87% (41) were about to expire within 60 days, and 13% (7) were about to expire in 45 days with the invoice mailed to the business. While compared to the study area and the city (9% each), Chinatown has a slightly higher percentage of new businesses (11%), indicating a slight influx of business activity within the community while having a fairly similar rate of businesses requiring renewal (21% for Chinatown, 22% for study area and 20% for Calgary).

Status of License	Number of Businesses	Percentage (Chinatown)	Percentage (Study Area)	Percentage (Calgary)
Licensed	24	11%	9%	9%
Renewal Licensed	153	68%	69%	71%
Renewal Invoiced	6	3%	5%	5%
Pending Renewal	41	18%	17%	15%
Total	224	100%	100%	100%

Chinatown Business Licenses - Licensed



Chinatown Business Licenses - License Expiring



Most of the licensed businesses in Chinatown are old businesses (153), i.e. they have had their licenses renewed and there are around 24 new businesses (new license).



04
TRANSPORTATION

4. Transportation

In this section, we spatially analysed the transportation infrastructure within Chinatown and other communities of interest. For this analysis, we used spatial datasets available from the city of Calgary open data platform, as well as data requested from the City of Calgary via Spatial and Numeric Data Services at the University of Calgary. Data used is primarily from August to October 2019.

We conducted a comparative analysis of transportation infrastructure (pedestrian, bike, private vehicles, transit & parking) for each community as well as a broader comparison in the overall context of Calgary.

4.1. Policy Recommendations

- Overall, policy should support improvement of the quality of pedestrian/cyclist facilities.
 - 2 Ave and 3 Ave have potential for being converted into pedestrian-oriented street closed for motorized traffic, or into shared streets. **(section 4.2.1)**
 - Temporary restriction of vehicular movement on certain roads (e.g., one block on 2 Ave SE & 3 Ave SE), which may allow for outdoor seating (patios), etc., can attract more visits by non-motorized travellers.
 - Improve access for pedestrians from the river pathways into Chinatown on Centre Street through Riverfront Ave **(section 4.2.2)**
 - Identify dark spots and improve lighting on sidewalks and parking lots to provide a greater sense of safety and activate the streets during evenings/night **(section 4.2.2)**
- Policy should support provision of dedicated bikeways and bike facilities. **(section 4.2.3 & section 4.4.2)**
 - Consider more bike parking (without impeding pedestrian areas) outside businesses on Centre Street, 2 Ave, 3 Ave and 4 Ave
 - Explore design/management options to support year-round biking, e-scooter/ e-bike usage within Chinatown
- Policy should explore possibility of direct bus routes to/from Chinatown (besides Centre Street), including multi-modal connectivity to the new Green Line LRT station after carefully studying future traffic impact within the community. **(section 4.2.4)**
- Policy should enhance last-mile connectivity from the proposed LRT station on 2nd Ave, using non-motorized solutions. **(section 4.2.4)**
- Policy should ensure safety of visitors, workers and residents using non-motorized modes on high volume streets such as Centre Street and 4th Ave **(section 4.3.1)**
- Urban design elements along the river pathways approaching and within Chinatown should be added to make bikers aware of Chinatown as a potential destination. These can include signage (informational/ directional), unique street furnishings (light posts, paving, rails, benches, etc.), advertisements, street paintings, etc. **(section 4.3.2, section 4.4.1 & section 4.4.2)**
- Policy should support the increase in transit connectivity towards Southeast Calgary in the short-/medium-term (until the Green Line is operational) through more BRT and bus routes, especially on weekends. In addition, policy should also support improvement of last-mile connectivity from bus stops and LRT stations through investments in pedestrian and bike infrastructure, as well as promoting e-bikes/e-scooters as an option. **(section 4.4.3)**
- A more detailed parking study (for both short- and long-term) is recommended to assess demand/supply gaps and factors dictating parking prices in Chinatown in Calgary as compared with other prominent Chinatowns/downtown business districts in Canada and North America. **(section 4.6 & section 4.7)**

4.2. Transportation Network

4.2.1. Road Network

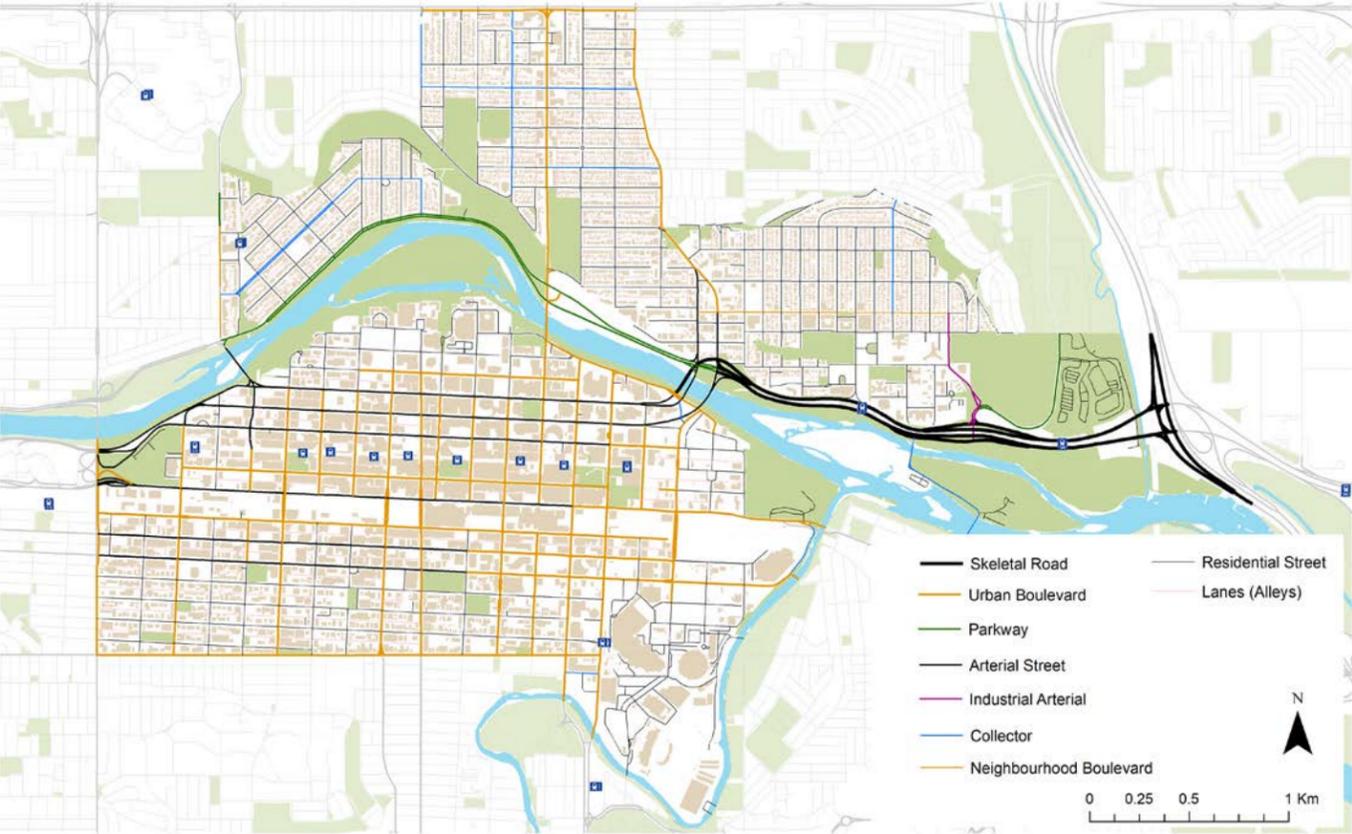
Most of downtown comprises of Urban Boulevards (i.e. high traffic roads along high density corridors) going north-south, with Arterials (i.e. high traffic roads for direct traffic connections) going east-west. Urban Boulevards provide greater priority to active modes while still carrying high traffic volumes while arterials give greater priority to vehicular traffic. This indicates that east-west corridors are city-level connectors for vehicular traffic moving through Downtown, while north-south corridors are important local connectors for traffic and pedestrians moving within downtown.

	Road Length (km)	Road Density (km/km ²)
CHN	4.9	19.6
DNC	29.0	21.9
DNE	10.5	20.1
EAU	6.6	12.8
CRE	40.8	25.1
SSD	19.8	19.3
DNW	9.6	26.2
BRD	48.8	16.0
BLN	54.6	18.6
YYC	9860.6	11.6

The area north of 4th Avenue is primarily Residential Streets, indicating lower traffic and more residential character. Chinatown is well connected with major roads such as Centre Street in the middle and McLeod Trail on the east. It is primarily bounded by Urban Boulevards, with Residential Streets in the middle indicating high traffic movement at the edges and lower volumes in the core, creating a contained unit. The southern boundary is demarcated by an Urban Boulevard (3rd Ave) and Arterial Street (4th Ave), western boundary by a Residential Street (2nd Street SW), eastern boundary by a major Urban Boulevard (Macleod Trail), and the Northern Boundary by another Urban Boulevard (Riverfront Ave SE). The eastern half of Chinatown (east of Centre Street) witnesses more traffic, and which indicates more intensity in activity.

Note: CHN=Chinatown; DNC=Downtown Commercial Core; DNE=Downtown East Village; EAU=Eau Claire; CRE=Crescent Height; SSD=Sunnyside; DNW=Downtown West End; BRD=Bridgeland-Riverside; BLN=Beltline

Road Network



Road Network - Chinatown



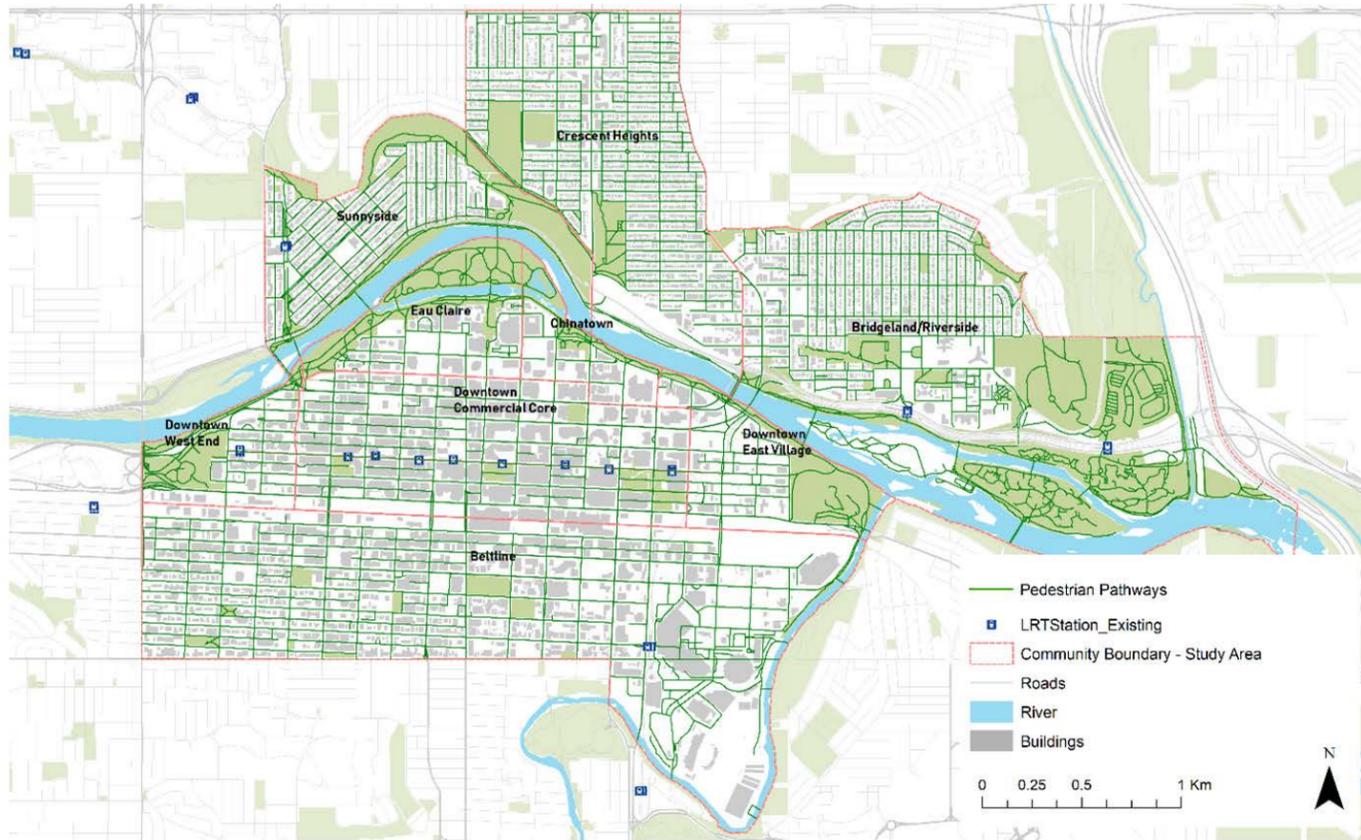


4.2.2. Pedestrian Network

Because of its proximity to the Bow River, Chinatown has a high density of pathways and sidewalks compared to the abutting communities. This indicates smaller block sizes, finer built fabric and good potential for walkability in the community (pending further investigation into quality of sidewalks).

Note: CHN=Chinatown; DNC=Downtown Commercial Core; DNE=Downtown East Village; EAU=Eau Claire; CRE=Crescent Height; SSD=Sunnyside; DNW=Downtown West End; BRD=Bridgeland-Riverside; BLN=Beltline

	Pathway Length (km)	Pathway Density (km/km ²)
CHN	7.7	31.1
DNC	29.6	22.3
DNE	14.1	27.1
EAU	14.5	28.2
CRE	45.7	28.1
SSD	28.2	27.6
DNW	12.3	33.8
BRD	74.7	24.5
BLN	57.5	19.5
YYC	11274.1	13.3



Pedestrian Pathways - Chinatown

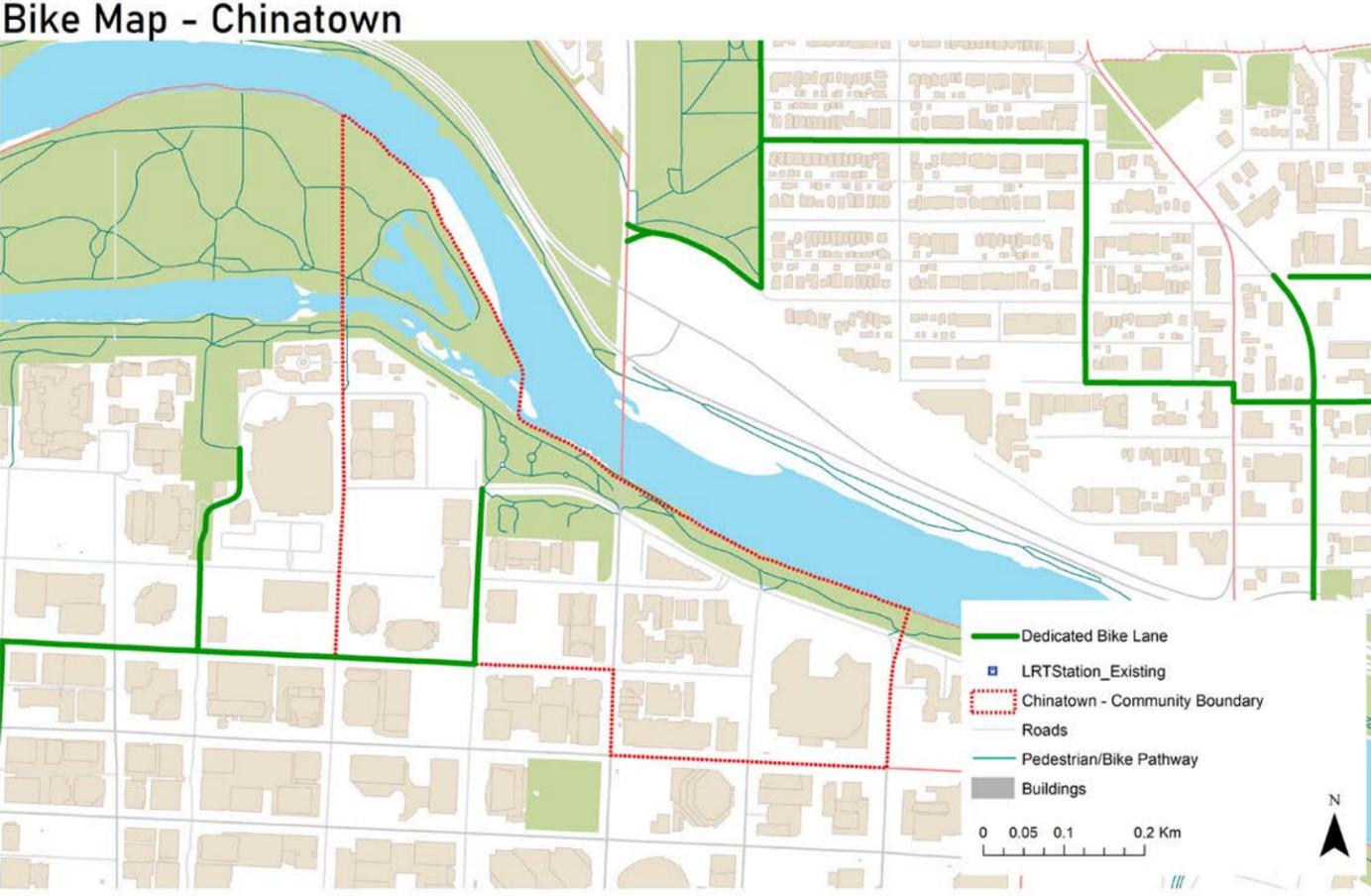
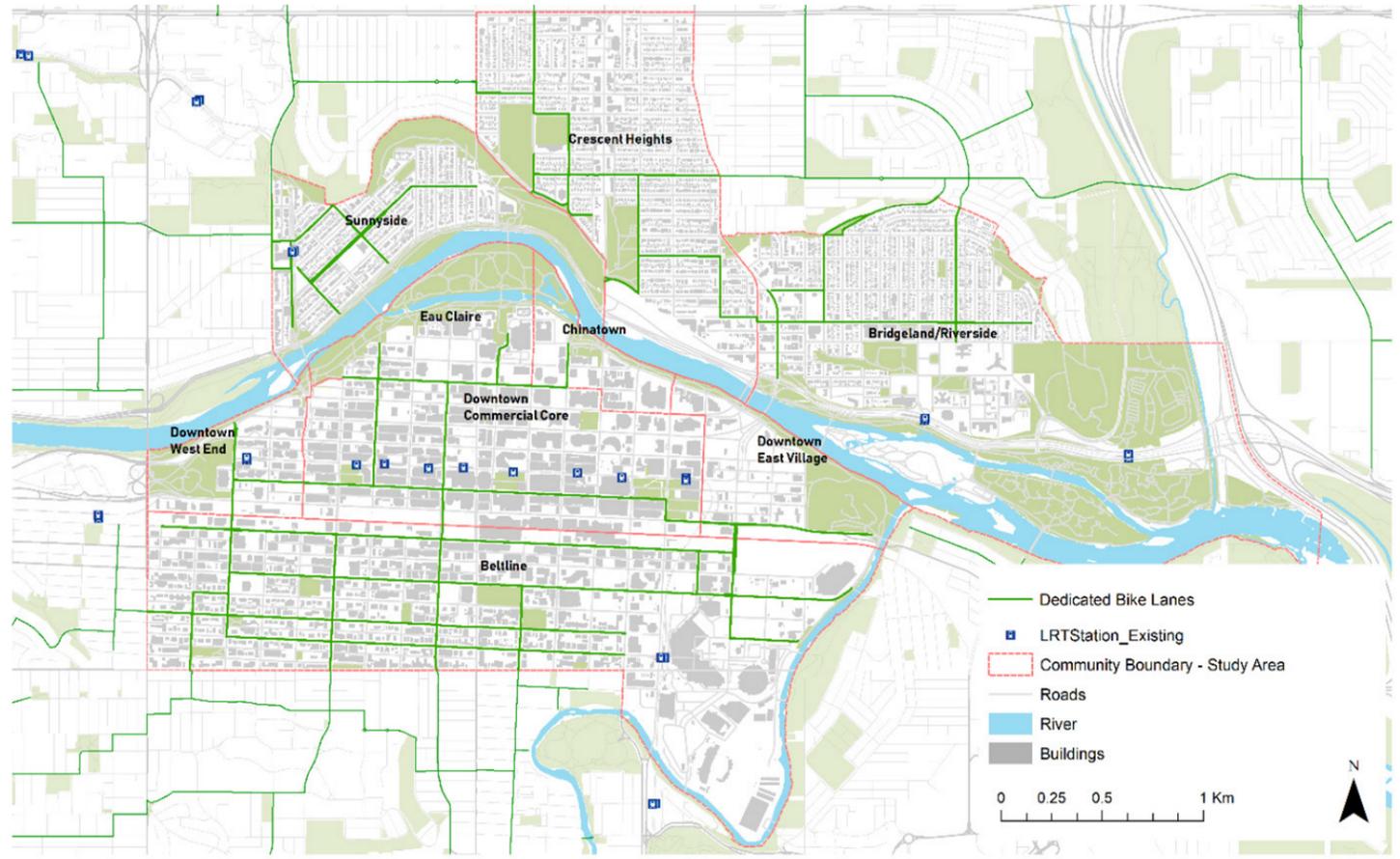


4.2.3. Bike Network

The bike network in the study area is more extensive and concentrated, mostly due to its central location and presence of attractions (businesses, river, etc.). Beltline has the most extensive network and highest density of bike paths among all communities in the study area. Chinatown has the lowest length of dedicated bikeways among the communities, along with one of the lowest densities of bikeways. This can be attributed to its relatively small geographic size, and mostly residential character.

Note: CHN=Chinatown; DNC=Downtown Commercial Core; DNE=Downtown East Village; EAU=Eau Claire; CRE=Crescent Height; SSD=Sunnyside; DNW=Downtown West End; BRD=Bridgeland-Riverside; BLN=Beltline

	Length of Dedicated Bikeways (m)	Bikeway Density (m/km ²)
CHN	562	2,270
DNC	4,705	3,541
DNE	1,640	3,149
EAU	1,662	3,221
CRE	8,268	5,087
SSD	4,920	4,813
DNW	1,310	3,594
BRD	5,403	1,772
BLN	18,557	6,302
YYC	487,716	575





4.2.4. Transit Network

The study area is one of the most well-connected areas in Calgary through transit, with presence of two LRT lines (the only place in Calgary to have both LRT lines), 12 LRT Stations, 43 bus routes and almost 300 bus stops.

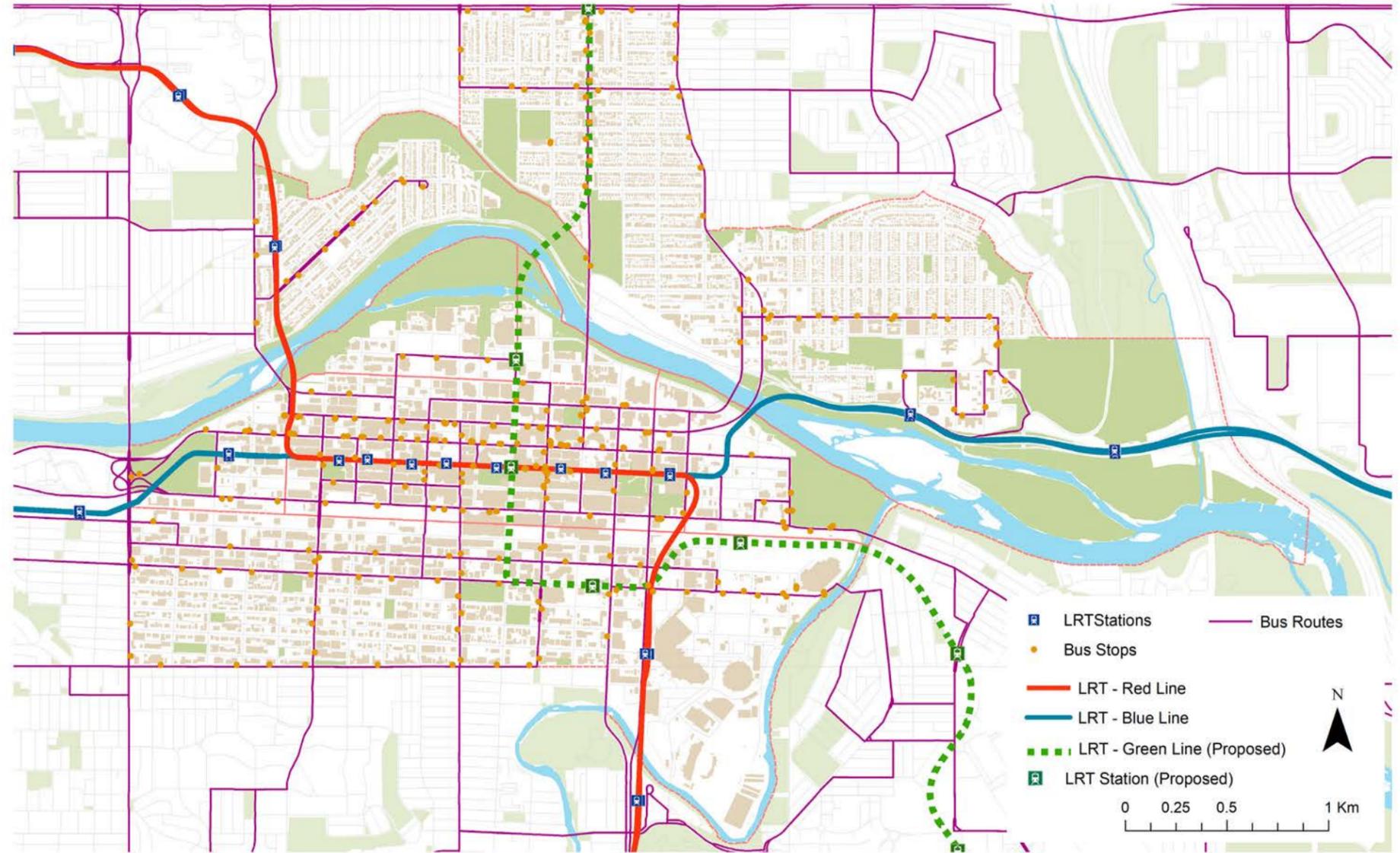
Chinatown has one of the lowest number of bus stops (4) and bus stop densities among the communities being studied, but is accessible by one route on the west (Route 449 – Eau Claire/Parkhill) and 12 bus routes along centre street station alone (2, 3, 17, 62, 64, 109, 16, 142, 300 and 301), though many of the bus stops for these routes are just outside the community boundary. The nearest LRT station (1st Street Station) is approximately 500m (around 5 – 8 minutes walk) from the centre of the community. Since most of the transit connectivity is just outside the actual community boundary, it is important to maintain and enhance last-mile connectivity for other modes such as walking, e-scooters, and biking.

The proposed LRT Green Line also passes through the western edge of Chinatown, with the 2nd Street Station being proposed at 2nd Ave and 2nd Street. The new LRT line should enhance Chinatown’s connectivity to the southeast quadrant of Calgary, with the first phase going from 16 Ave N to Shepherd in the SE.

	Bus Stops	Bus Stop Density (stops/km ²)	Bus Routes	LRT Stations (Existing)	LRT Routes (Existing)	Distance to nearest LRT Station
CHN	4	16	14	-	0	450m
DNC	134	101	38	8	2	-
DNE	12	23	18	-	2	400m
EAU	3	6	1	-	0	650m
CRE	33	20	16	-	0	1800m
SSD	15	15	4	1	1	-
DNW	19	52	19	1	1	-
BRD	24	8	4	2	1	-
BLN	63	21	13	-	1	950m

Note: CHN=Chinatown; DNC=Downtown Commercial Core; DNE=Downtown East Village; EAU=Eau Claire; CRE=Crescent Height; SSD=Sunnyside; DNW=Downtown West End; BRD=Bridgeland-Riverside; BLN=Beltline

Public Transit Network



4.3. Transportation Volumes

4.3.1. Road Traffic (Study Area)

The daily average weekday traffic volumes reveal high traffic volumes on 4th Ave (~30,000 vehicles per day), and Centre Street (~22,000 vehicles per day), followed by Riverfront Ave (~10,000 vehicles per day) and 3rd Ave (~7000 vehicles per day). This indicates that high traffic roads on the boundaries going east-west (except Centre Street which is in the middle and goes north-south) may create more pedestrian/vehicle conflicts. Efforts should be made to improve pedestrian and bike safety especially at the street intersections where people get across these high traffic roads.

In terms of the overall study area, the most drastic shift in traffic can be seen on Memorial Drive, which has actually seen a decrease in average daily traffic (decrease from 30,000 – 50,000 range to 10,000 – 30,000 range).

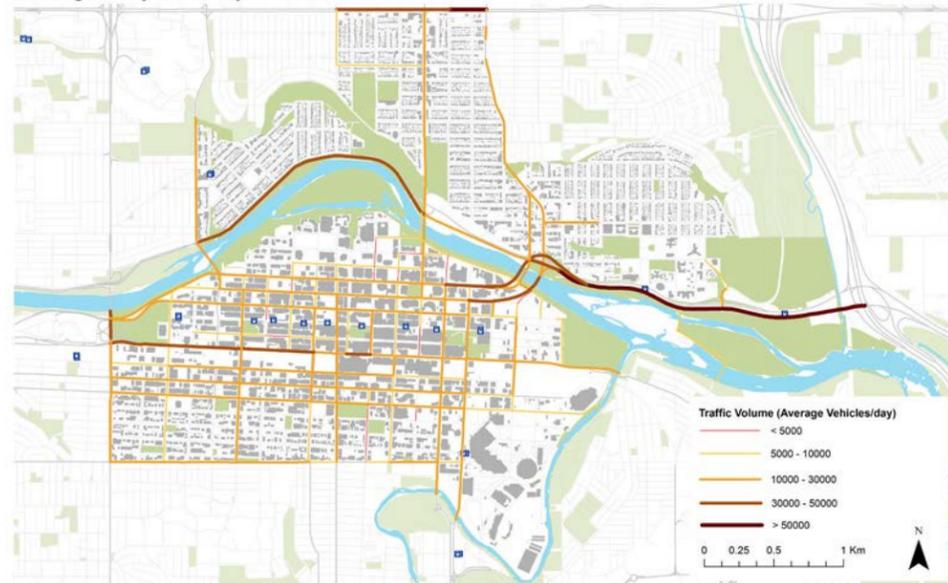
Average Daily Weekday Traffic (2015)



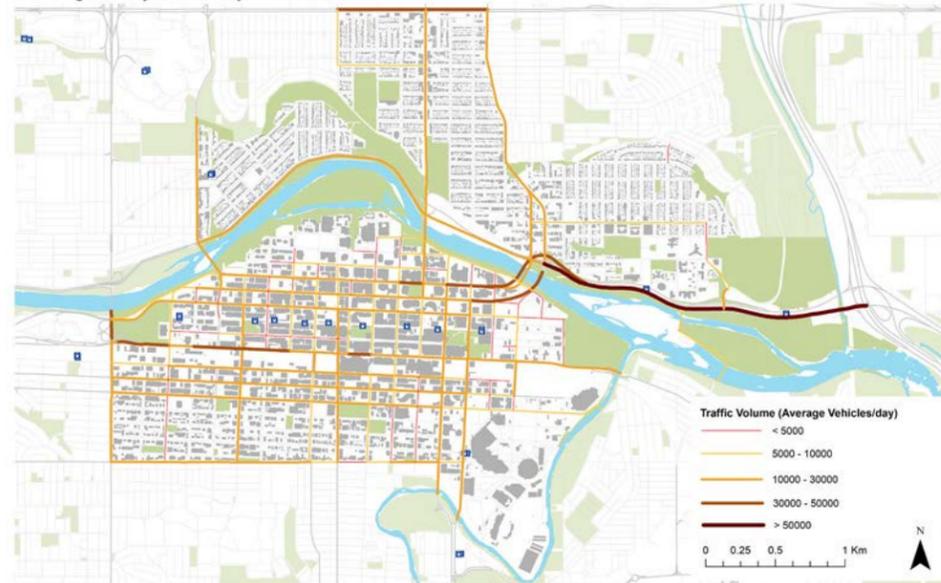
Average Daily Weekday Traffic (2016)



Average Daily Weekday Traffic (2017)



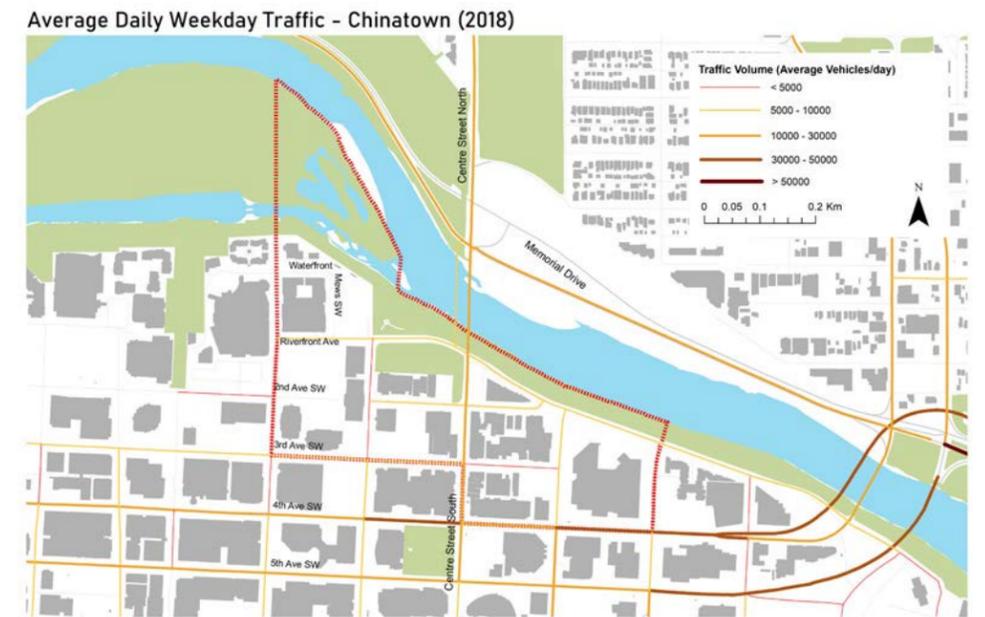
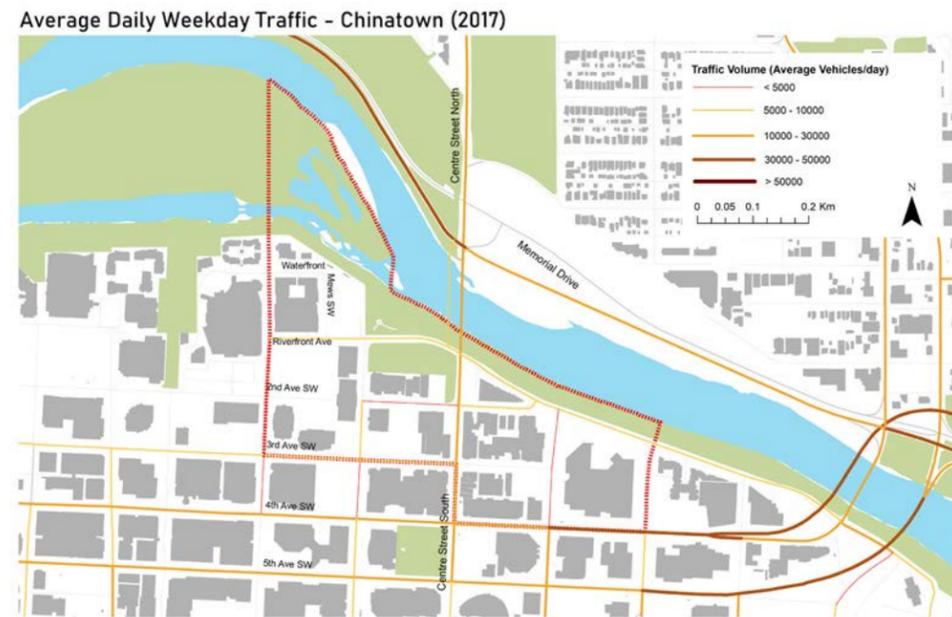
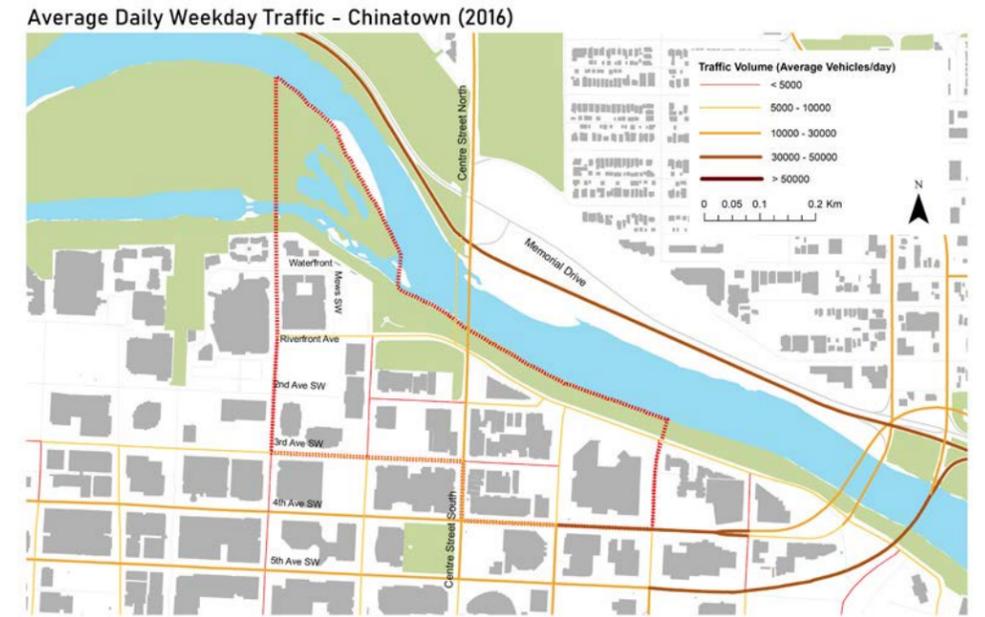
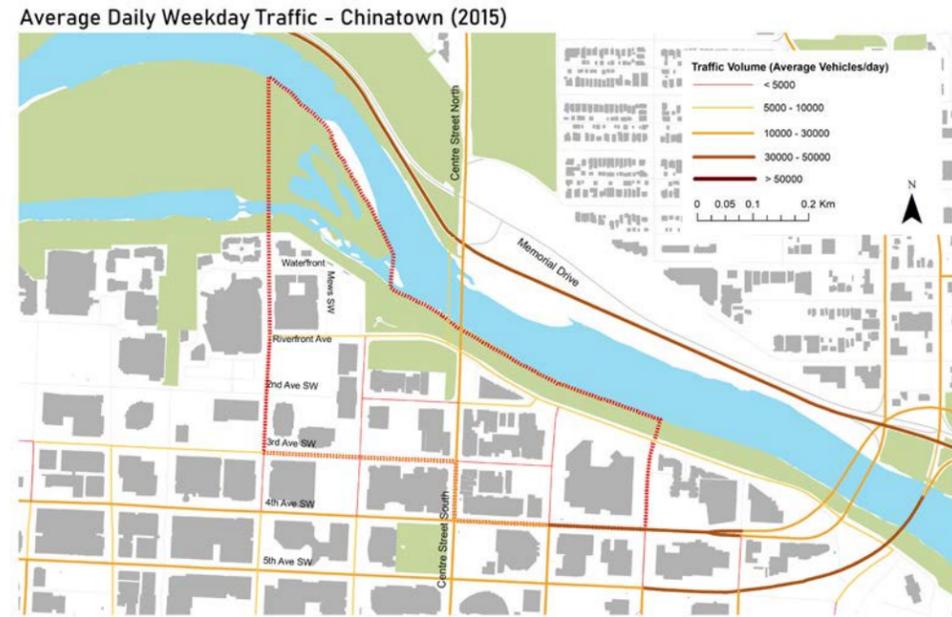
Average Daily Weekday Traffic (2018)





4.3.1. Road Traffic (Chinatown)

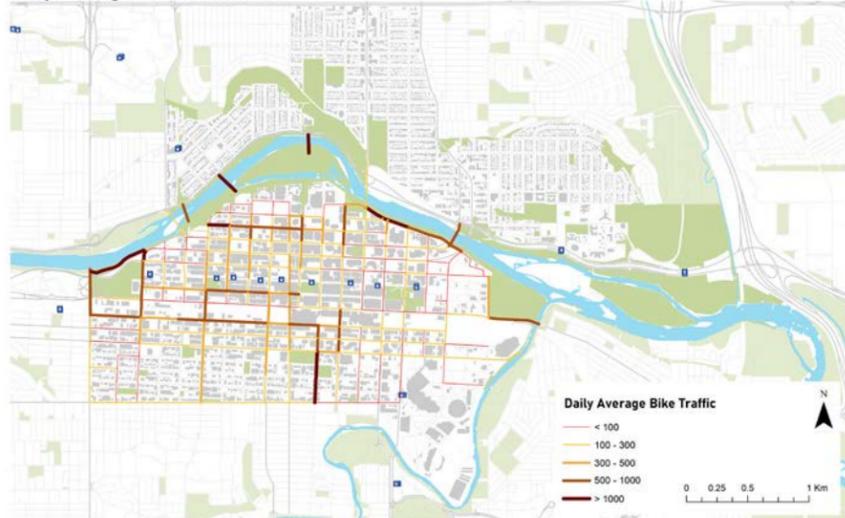
The evolving traffic volume study reveals an overall trend of stable average daily weekday traffic within Chinatown. Major increases in traffic between 2015 and 2018 have occurred on 4th Ave (traffic above 30000 vehicles per day, almost exceeding the intended capacity), 2nd Ave (traffic above 5000 vehicles per day), as well as 1st Street East and 1st Street West (traffic above 5000 vehicles per day).



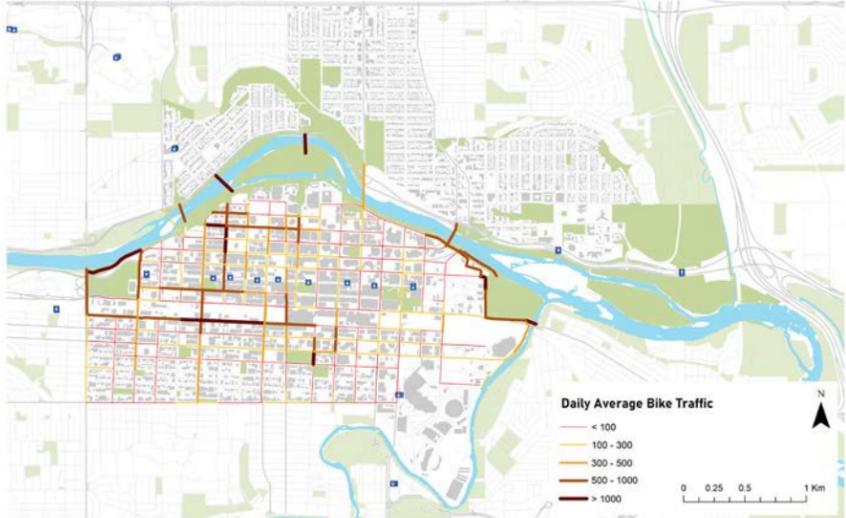
4.3.2. Bike Traffic (Study Area)

High bike volumes are observed along the river pathways, western end of 3rd Ave (In Eau Claire and Downtown West End), as well as consistently high bike volume along 5th Street, 8th Ave and 12th Ave. These high volumes can be attributed to presence of dedicated bikeways on these streets.

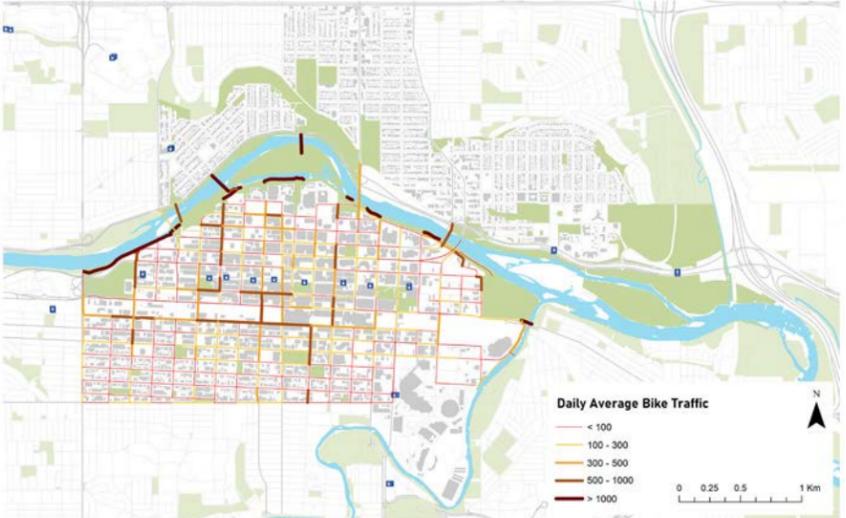
Daily Average Bike Traffic (2012)



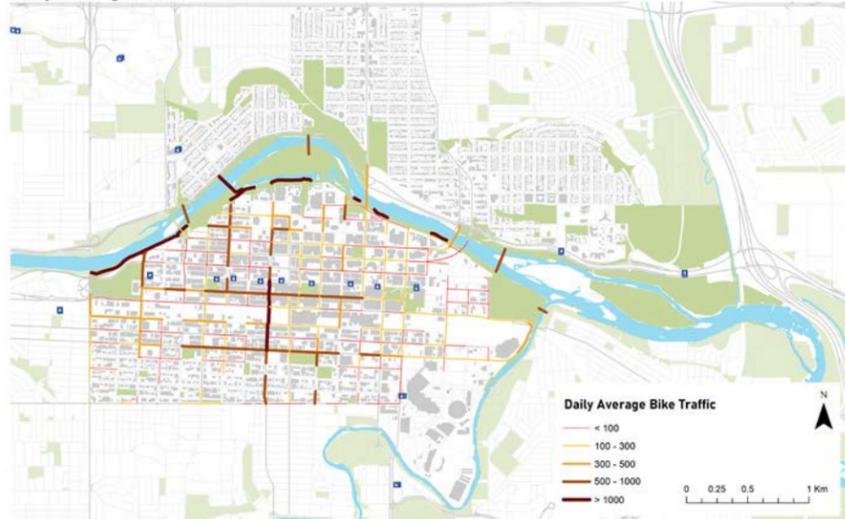
Daily Average Bike Traffic (2013)



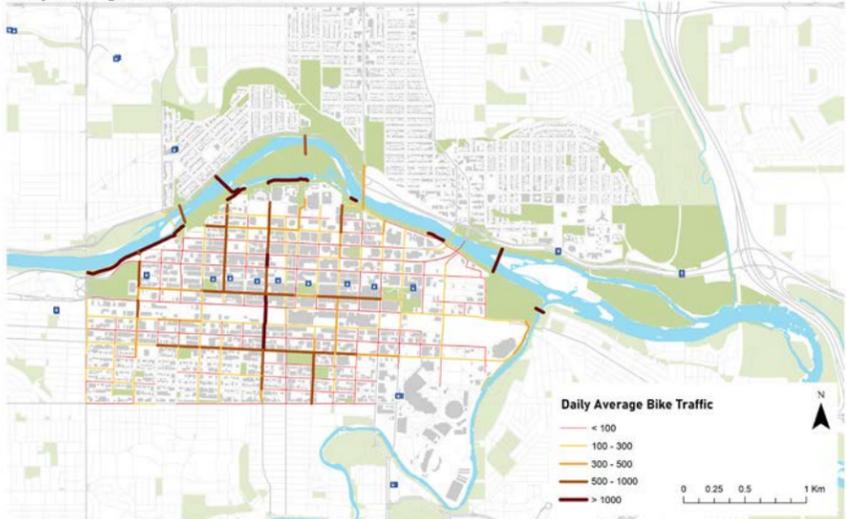
Daily Average Bike Traffic (2014)



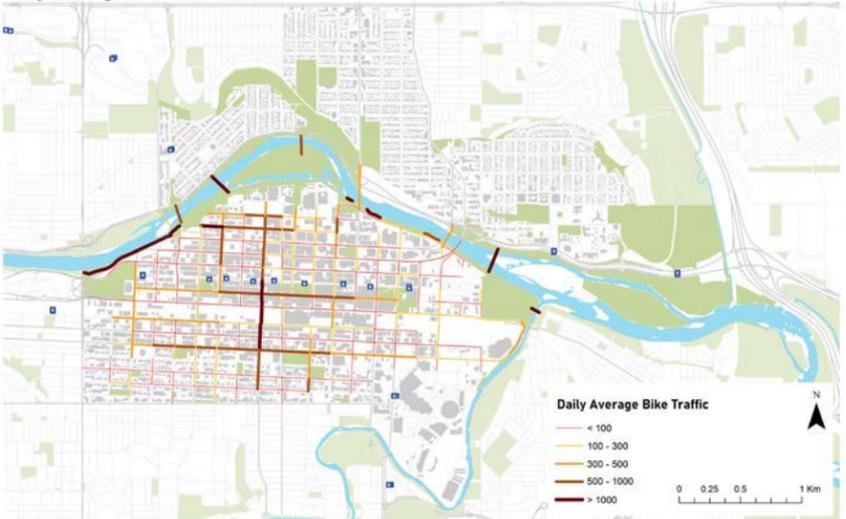
Daily Average Bike Traffic (2015)



Daily Average Bike Traffic (2016)



Daily Average Bike Traffic (2017)

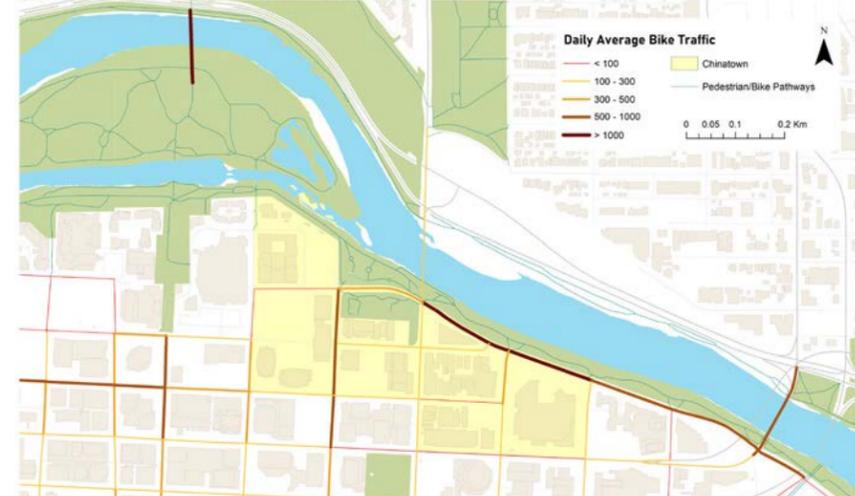




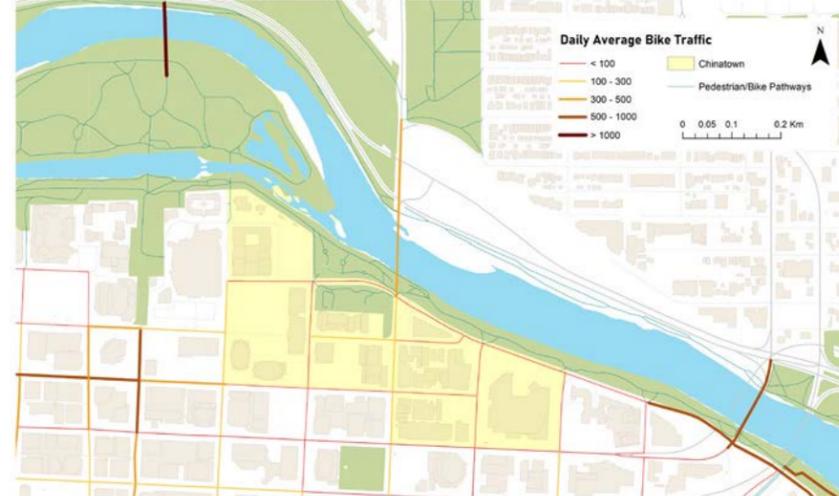
4.3.2. Bike Traffic (Chinatown)

Overall, much of Chinatown's bike traffic has remained stagnant between 2012 and 2017, though it has seen a noticeable decrease in volume of bike traffic on 1st Street West and Riverfront Ave, as well as along river pathway. A more detailed assessment of bikeway projects in downtown will reveal the reason(s) for the same.

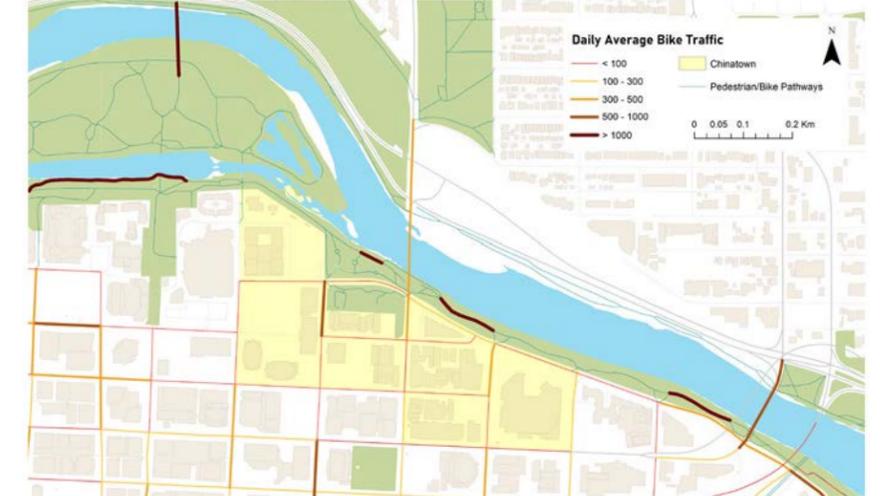
Daily Average Bike Traffic - Chinatown (2012)



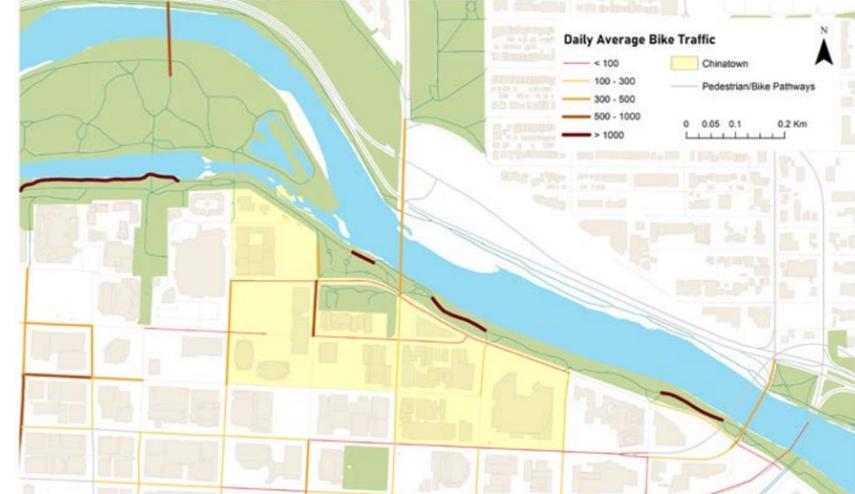
Daily Average Bike Traffic - Chinatown (2013)



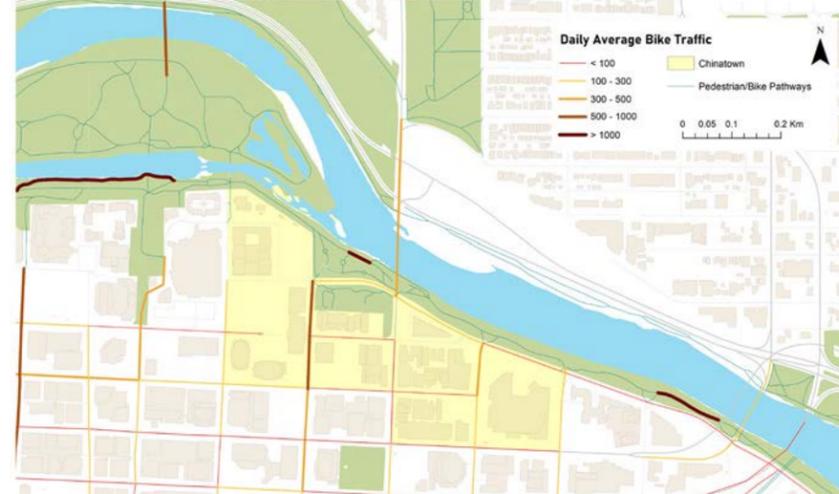
Daily Average Bike Traffic - Chinatown (2014)



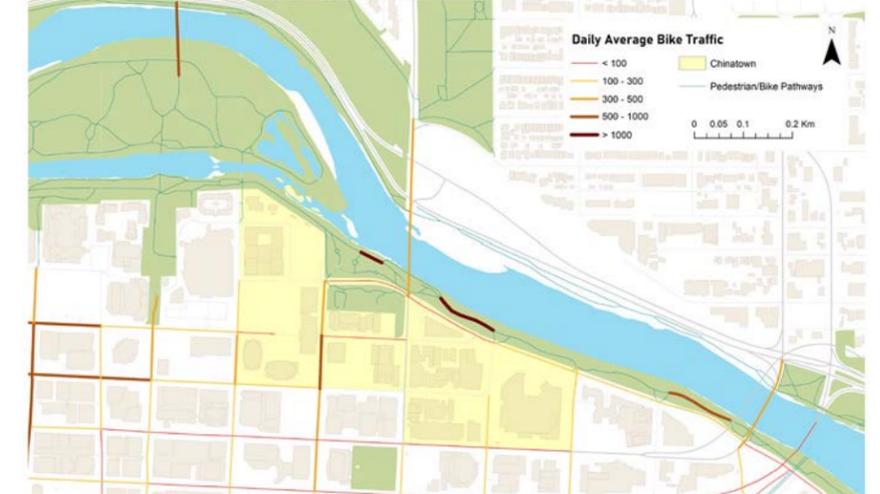
Daily Average Bike Traffic - Chinatown (2015)



Daily Average Bike Traffic - Chinatown (2016)



Daily Average Bike Traffic - Chinatown (2017)



4.4. Service Coverage by Different Modes

In this section, the service coverage for different modes of transportation (i.e. the area within which a person can travel using a particular mode of transportation from a point within a certain time) was calculated using GIS. The point of origin is constant for all modes of transportation, i.e. intersection of 2 Ave SW and Centre Street South. For each mode of transportation, the service coverage was calculated for five different time durations – 10, 20, 30, 45 and 60 minutes.

The analysis was further supplemented by calculating the warp ratio for different transportation modes (except public transit), i.e. the ratio of the actual area one can cover in different directions (as per the pathways available for that particular mode) in a certain time duration compared to the area one can cover if a person travels linearly (or ‘as the crow flies’) in any direction from the same point. A higher ratio would indicate better accessibility from that mode of transportation.

The main objective for this analysis is to understand ease of accessibility using available modes of transportation from Chinatown to different services, landmarks and residential communities of the city, as well as providing a comparative assessment of the different modes.

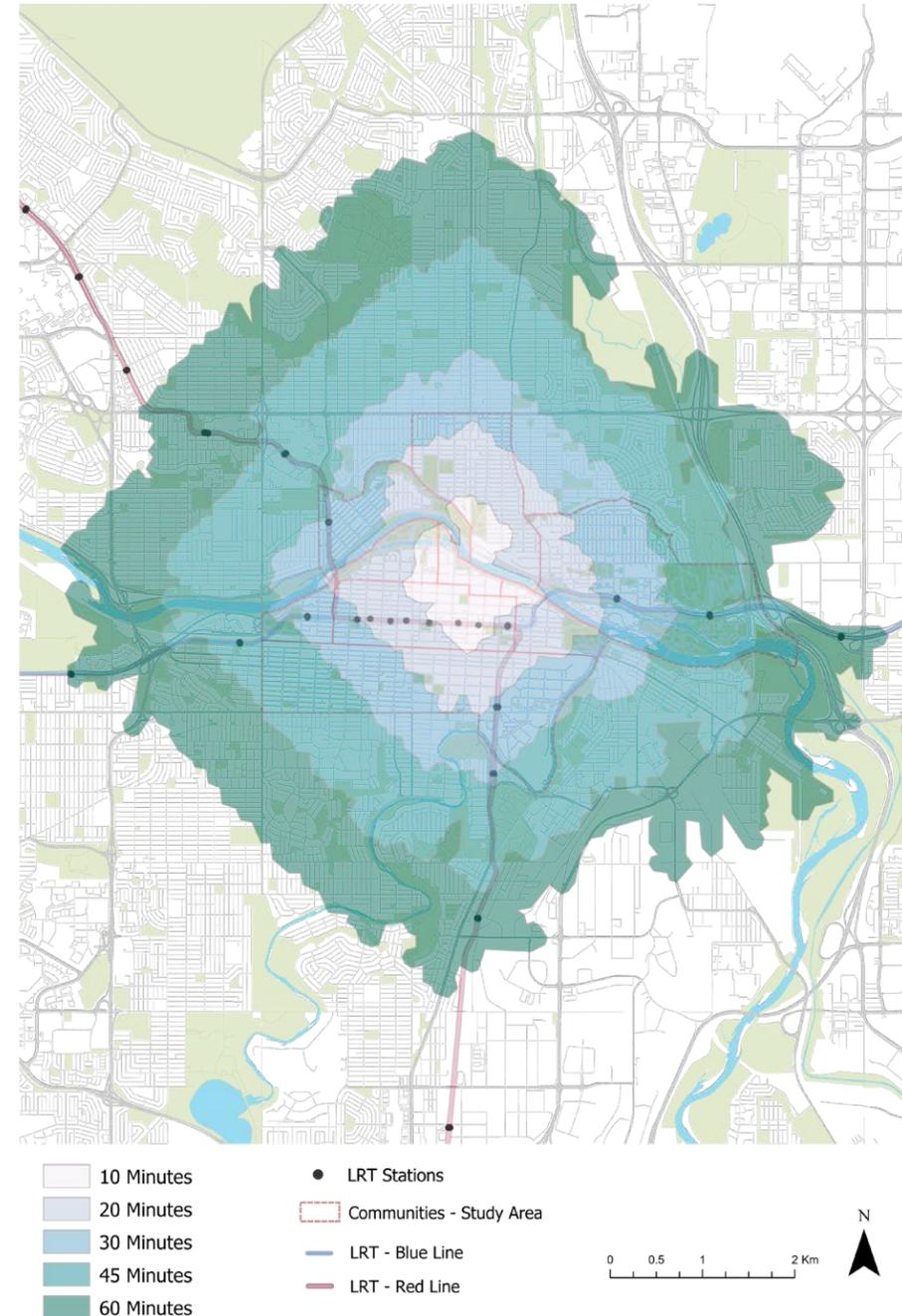
4.4.1. Walksheds

Walkshed is the area within reach of a person by walking in a fixed time duration in any direction from a point. For calculating walkshed, we assumed an average walking speed of 80 m/minute (4.8 km/h or 3 miles/hr), the person walking does not take a break while walking, does not have to wait for a significant amount of time at intersections. Based on these assumptions, a person can walk 800m in 10 minutes, 1600m in 20 minutes and so on. On the ArcGIS platform, we used the network analyst tool to calculate the walking service coverage along roads (except major arterials) and pathways. We calculated the service coverage, the warp ratio as well as communities that are accessible from the selected point in Chinatown (2 Ave and Centre Street). Moreover, we also identified major services and attractions within a 10 minute walking distance. The findings are presented below.

Access	Within 10 min	Within 20 min	Within 30 min	Within 45 min	Within 60 min
Area (km ²)	1.38	5.62	12.68	27.86	48.05
% of Calgary Accessible	0.16%	0.66%	1.50%	3.28%	5.67%
Warp Ratio ¹	0.69	0.70	0.70	0.68	0.66
Communities Accessible (Intersect)	8	13	21	37	57
Communities Accessible (Major portion ²)	2	7	11	23	38
Area of Calgary – 848 km ² Total Communities in Calgary - 306					

Unsurprisingly, the spatial area covered by walking from Chinatown is not significant at the city level, though within a walk of 30 minutes one can access 21 communities (significant portion of 11 communities), and by walking for 60 minutes (though unlikely), one can access 57 communities (significant portions of 38 communities) which is quite significant. The walk warp measure is quite high within the first 30 minutes, and starts to reduce as one walks further out, indicating superior walkability within close proximity to Chinatown. Much of it can be attributed to the grid pattern of streets within Chinatown and inner-city communities, which typically have a superior walkability as compared to other street typologies.

Pedestrian Access - Walkshed



Facilities accessible within a 10-minute walk

Services/Facilities	Number	Name
Recreational	14; 11 Major Parks ³	Olympic Plaza, Eau Claire Plaza, Sien Lok Park, James Short Park, Rotary Park, Eau Claire YMCA, Prince's Island Park, Fort Calgary, McHugh Bluff, Riverfront Promenade, Poppy Park
Health	-	-
Education	4	Alberta Chung Wah School, Calgary Chinese Private School, Bow Valley College, W.H. Cushing Workplace School
Emergency Services	2	EMS Station and Fire Station
Major Shopping Centres		Eau Claire Market
Attraction	8	Glenbow Alberta Museum, Trans Canada Trail Pavillion, Calgary Chinese Cultural Centre, Arts Commons, Telus Convention Centre, Calgary Tower, Rocky Mountaineer Rail Tours, Contemporary Calgary Art Gallery
Transit Stops	Bus Stops - 67 LRT Stations - 2	-
Others	1	Alberta Court of Appeal

¹ Warp is the ratio of Actual Area to the Radial Area (i.e. area of the circle whose radius is equal to the linear distance travelled within that time by walking). The value obtained would be in a range of 0 to 1, with values closer to 1 indicating a street/road pattern that provides excellent mobility and values closer to 0 indicating a street/road pattern providing poorer mobility.

² Walkshed is within 100m of the community centroid

³ Classified as Regional Parks as per City of Calgary

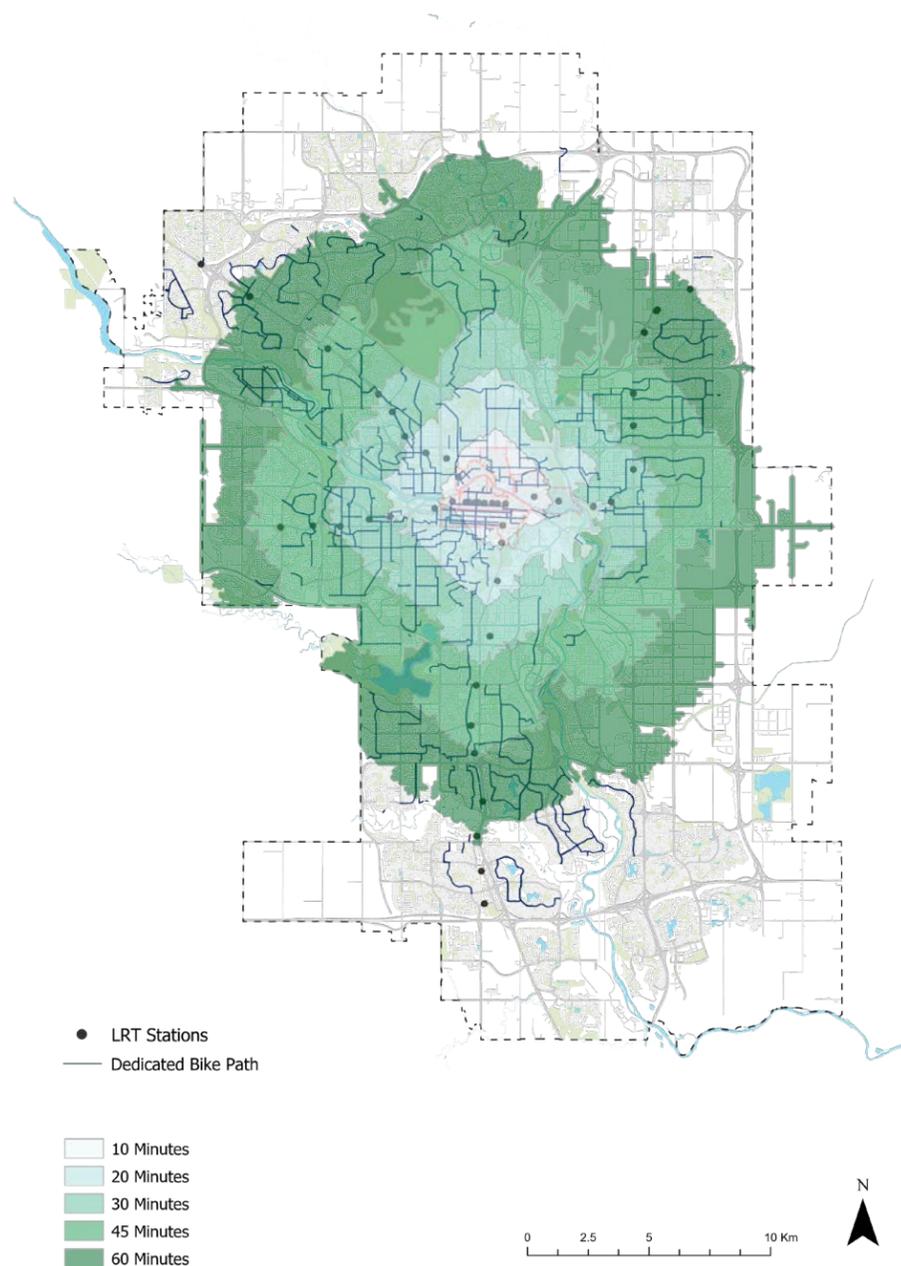
4.4.2. Bikesheds

Bikeshed is the area within reach of a person by biking in a fixed time duration in any direction from a point. For calculating Bikeshed, we assumed an average biking speed of 250 m/minute (15 km/h), the person biking does not take a break while biking and does not have to wait for a significant amount of time at intersections. Based on these assumptions, a person can bike 2,500m in 10 minutes, 5,000m in 20 minutes and so on. On the ArcGIS platform, we used the network analyst tool to calculate the biking service coverage along roads (except major arterials) and pathways. We calculated the service coverage, the warp ratio as well as communities that are accessible from the selected point in Chinatown (2 Ave and Centre Street). Moreover, we also identified major services and attractions within a 10 minute biking distance. The findings are presented below.

Access	Within 10 min	Within 20 min	Within 30 min	Within 45 min	Within 60 min
Area (km ²)	14	52	119	259	450
% of Calgary Accessible	2%	6%	14%	31%	53%
Warp Ratio ⁴	0.71	0.66	0.67	0.65	0.64
Communities Accessible (Intersect)	23	63	112	176	233
Communities Accessible (Major portion ⁵)	14	42	93	152	203
Area of Calgary – 848 km ² Total Communities in Calgary - 306					

From Chinatown, 53% of Calgary is accessible within a 60-minute bike ride⁶ with almost 233 communities (and a significant portion of 203 communities) accessible, indicating a surprisingly good bike accessibility from Chinatown. The warp measure decreases with increase in time and distance, indicating poorer biking access as we move away from Chinatown.

Bike Access - Bikeshed



Facilities accessible within a 10-minute bike ride

Services/Facilities	Number
Recreational	Parks – 88; 19 Major Parks ⁷ , Athletic/ Leisure Centres - 3
Health	PHS Clinic - 1
Educational	University Campuses – 3 College - 1 Schools - 14
Emergency Services	Fire Station – 3 EMS Station – 2 Police Service - 1
Major Shopping Centres	2 - The Core, Eau Claire Market
Attractions	Museums - 2 Convention Centre - 2 Galleries - 3 Historic Sites - 1 Others – 4 Arenas - 2
Transit Stops	Bus Stops - 406 LRT Stations - 19
Others	Courts – 4 Community Centres – 6 Social Dev Centre – 1 Library - 1

⁴ Warp is the ratio of Actual Area to the Radial Area (i.e. area of the circle whose radius is equal to the linear distance travelled within that time by biking). The value obtained would be in a range of 0 to 1, with values closer to 1 indicating a street/road pattern that provides excellent mobility and values closer to 0 indicating a street/road pattern providing poorer mobility.

⁵ Bikeshed is within 100m of the community centre

⁶ Driving at an average speed of 15 kmph

⁷ Classified as Regional Parks as per City of Calgary



4.4.3. Transitsheds

Transitshed is the area within reach of a person using public transit (mix of walking, bus and Light Rail) in a fixed time duration in any direction from a point. For calculating Transitshed, we used the General Transit Feed Specification (GTFS) data from October 2019, made available by Calgary Transit. The GTFS data is published by Transit agencies containing information regarding current transit schedules, fare and the geographic components of the transit system. On the ArcGIS platform, we used the network analyst tool to model and calculate the transit service coverage using the GTFS data, combined with roads and pathways. Since we could use actual transit schedules, we mapped the transit service coverage during four distinct times during a typical weekday (Thursday) and a weekend (Saturday), given the difference in schedules on weekdays and weekends. The time slots chosen were 8 AM, 1PM, 5PM and 7PM to reflect peak traffic hours and also match with our first in-person user survey time slots (except 8AM in the morning). We also analysed how many communities are accessible from the selected point in Chinatown (2 Ave and Centre Street).

The transit service covers anywhere between 40 – 49% of Calgary within 60 minutes of Chinatown (depending on the day and time), providing access to 225 – 251 communities (to some extent), and a significant portion of 184 – 212 communities within Calgary. This indicates good accessibility through public transit though surprisingly, biking is more accessible and has a higher coverage area than transit from Chinatown. Furthermore, it was seen that transit coverage was significantly better on weekdays (45-49% of the city depending on the time) as compared to weekends (40-42% of the city depending on the time). This indicates poorer service coverage on weekends, which might discourage potential visitors from using transit to visit Chinatown or even forgo visiting Chinatown altogether, especially people who are reliant on public transit.

Communities Accessible

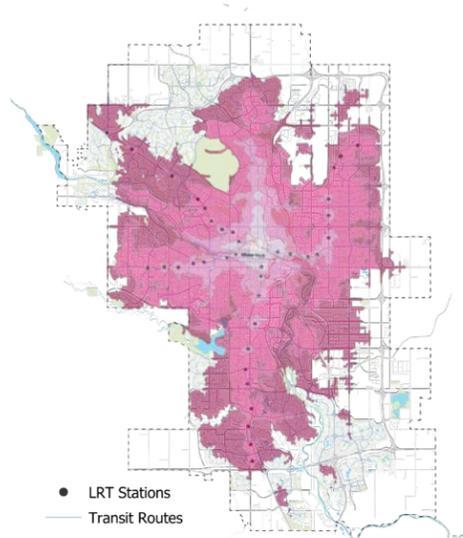
Time	% of Calgary Accessible	Comm. Accessible - 10 min	Comm. Accessible - 20 min	Comm. Accessible - 30 min	Comm. Accessible - 45 min	Comm. Accessible - 60 min
WD - 8am	49%	8	37	102	202	251
WD - 1pm	45%	8	25	90	185	235
WD - 5pm	49%	8	29	92	196	251
WD - 7pm	47%	8	28	97	188	240
WE - 8am	42%	9	35	95	188	229
WE - 1pm	40%	8	22	75	173	225
WE - 5pm	41%	9	29	80	174	227
WE - 7pm	40%	9	35	87	176	226
Area of Calgary - 848 km²						
Total Communities in Calgary - 306						

Significant Portion of Community

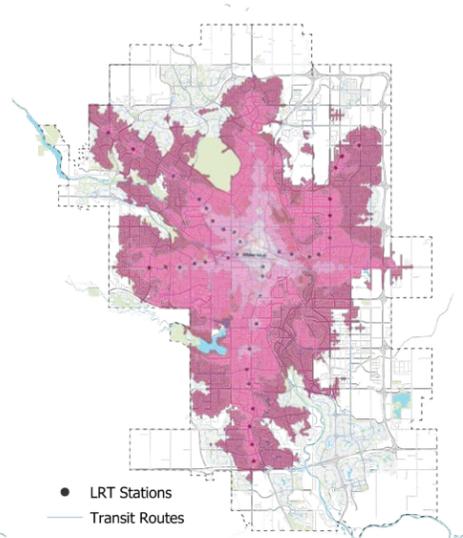
Time	Comm. Accessible - 10 min	Comm. Accessible - 20 min	Comm. Accessible - 30 min	Comm. Accessible - 45 min	Comm. Accessible - 60 min
WD - 8am	3	14	46	154	206
WD - 1pm	3	13	44	131	201
WD - 5pm	3	15	40	142	212
WD - 7pm	3	12	40	136	194
WE - 8am	3	15	44	130	191
WE - 1pm	3	12	36	117	184
WE - 5pm	3	16	41	121	184
WE - 7pm	3	17	47	119	184
Area of Calgary - 848 km²					
Total Communities in Calgary - 306					

Note: WD=weekday; WE=weekend; Comm.=communities

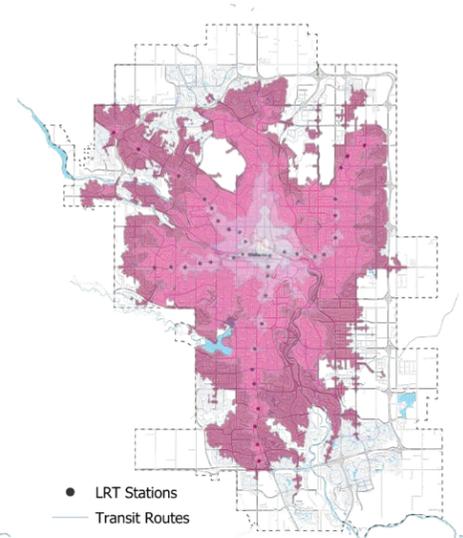
Transit Access - Weekday (8am)



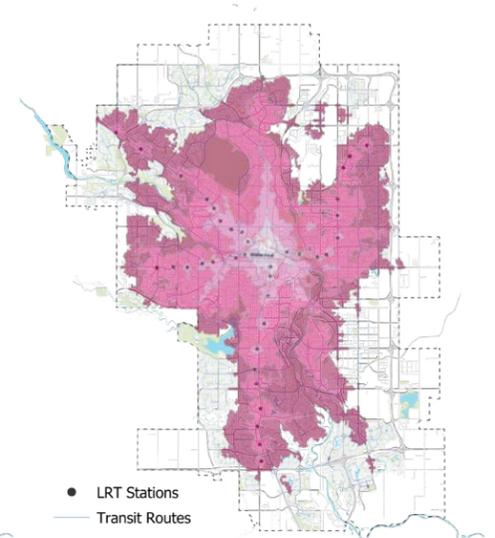
Transit Access - Weekday (1pm)



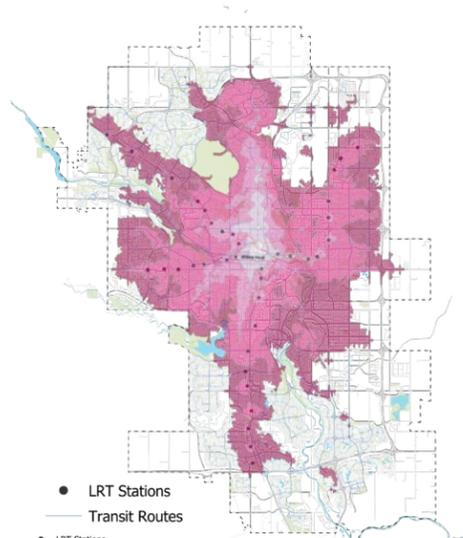
Transit Access - Weekday (5pm)



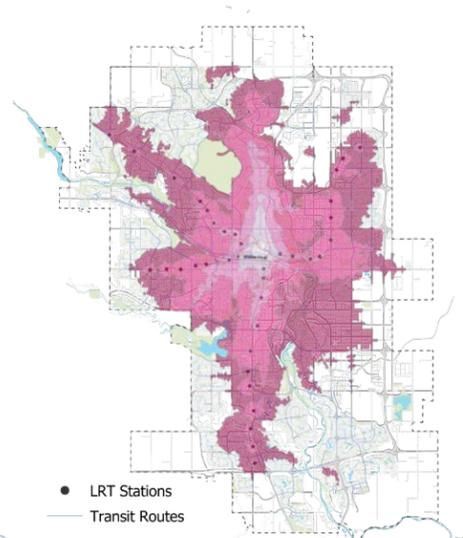
Transit Access - Weekday (7pm)



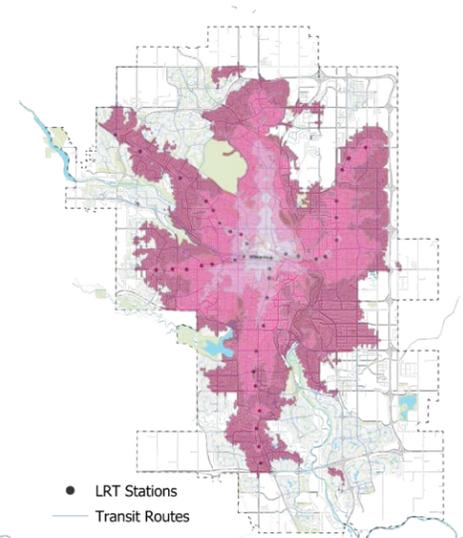
Transit Access - Weekend (8am)



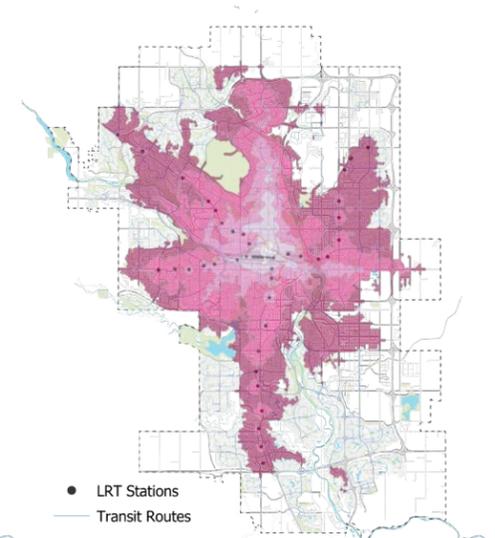
Transit Access - Weekend (1pm)



Transit Access - Weekend (5pm)



Transit Access - Weekend (7pm)





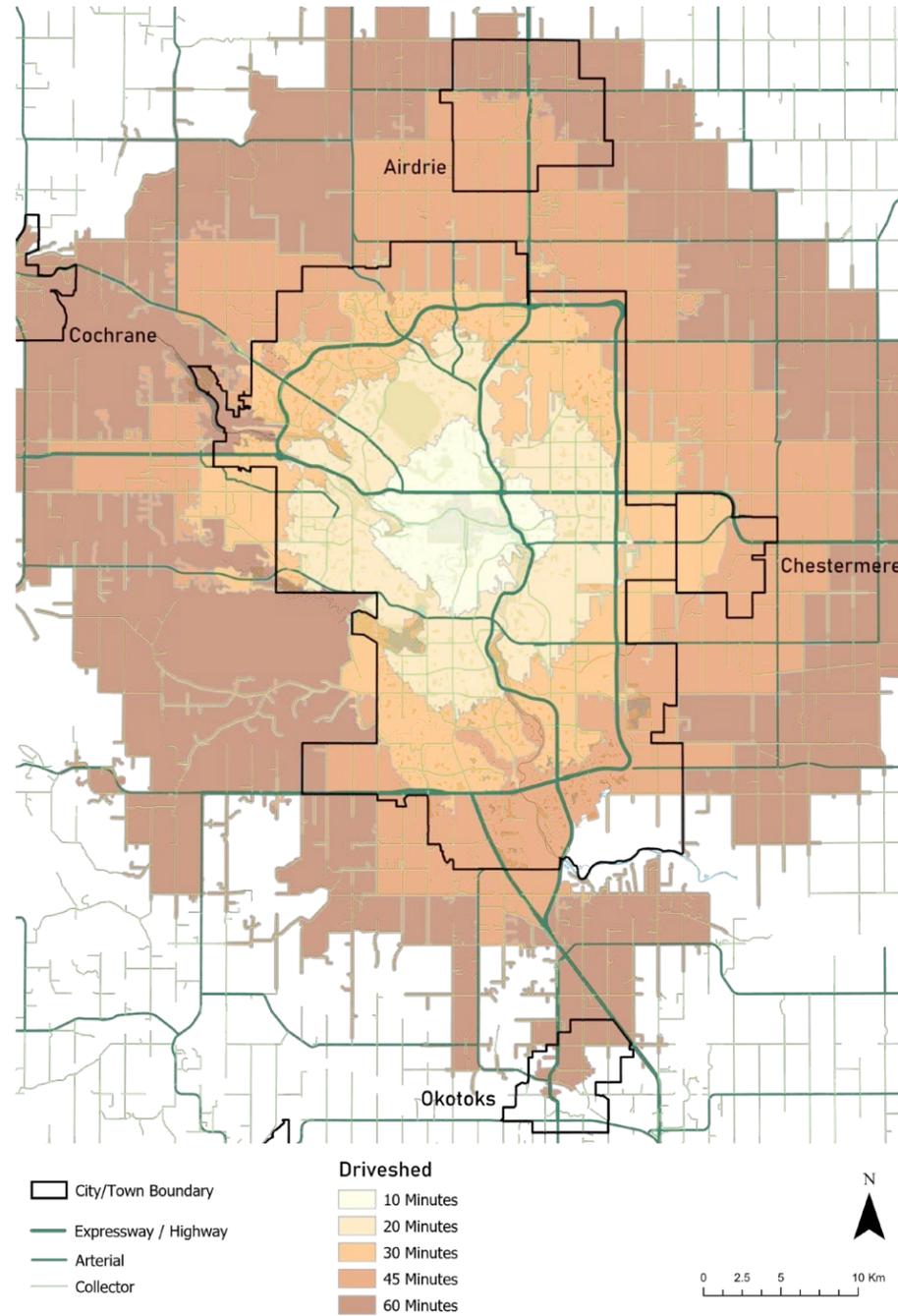
4.4.4. Drivesheds

Driveshed is the area within reach of a person by driving in a fixed time duration in any direction from a point. For calculating Driveshed, we assumed an average driving speed of 40 km/h and the person driving does not take a break while driving. Based on these assumptions, a person can drive 6.67km in 10 minutes, 13.34km in 20 minutes and so on. On the ArcGIS platform, we used the network analyst tool to calculate the driving service coverage along all motorized roads within and outside Calgary (using regional roads data from Alberta Open Data). We calculated the service coverage, the warp ratio as well as communities that are accessible from the selected point in Chinatown (2 Ave and Centre Street). Moreover, we also identified major services and attractions within a 10 minute driving distance. The findings are presented below.

Access	Within 10 min	Within 20 min	Within 30 min	Within 45 min	Within 60 min
Total Area (km ²)	88	344	721	1496	2879
Area within Calgary (km ²)	88	342	623	808	823
Warp Ratio ⁸	0.63	0.62	0.57	0.53	0.57
% of Calgary Accessible	10%	40%	73%	95%	97%
Communities Accessible	94	209	282	306	306
Communities Accessible (Major portion ⁹)	70	178	259	299	303
Area of Calgary – 848 km ²					
Total Communities in Calgary - 306					

Driving is the primary transportation choice for Calgarians¹⁰ and a simple driveshed analysis shows that almost 97% of Calgary, as well as 306 communities (and a significant portion¹¹ of 303 communities) is accessible within a 60-minute drive¹² of Chinatown. Even within a 30 min. drive from Chinatown, more area and communities are accessible than a 60 min. journey using Bike or Public Transit. This clearly shows driving is still the most accessible mode of transportation from Chinatown

Car Access - Driveshed



Facilities accessible within a 10-minute drive

Services/Facilities	Number
Recreational	Parks – 464; 41 Major Parks ¹³ ; Athletic/Leisure Centres – 4
Health	PHS Clinic – 3; Hospitals - 1
Educational	University Campuses – 3; College – 1; Schools - 45
Emergency Services	Fire Station – 10; EMS Station – 8; Police Service - 3
Major Shopping Centres	5
Attractions	14; Museums – 4; Convention Centre/Auditorium; Galleries - 3 Others – 7; Arenas - 8
Transit Stations/ Stops	Bus Stops – 1450 LRT Stations - 43
Others	Courts – 4; Community Centres – 41; Social Dev Centre – 4; Library - 4

⁸ Warp is the ratio of Actual Area to the Radial Area (i.e. area of the circle whose radius is equal to the linear distance travelled within that time by driving). The value obtained would be in a range of 0 to 1, with values closer to 1 indicating a street/road pattern that provides excellent mobility and values closer to 0 indicating a street/road pattern providing poorer mobility.

⁹ Bikeshed is within 100m of the community centre

¹⁰ Almost 78% of all trips to work in Calgary were made by a car/truck/van in Calgary in 2015, Census 2016, Statistics Canada

¹¹ Driveshed is within 100m of the community centre

¹² Driving at an average speed of 40 kmph

¹³ Classified as Regional Parks as per City of Calgary

4.5. Travel Mode Comparison

Comparing the accessibility from Chinatown through different modes of transport, it is clear that driving is the most accessible mode of transport with an average travel time to any part of the city¹⁴ being 18 minutes. Active modes of transportation such as Public Transit and Biking provide almost the same accessibility from Chinatown to different parts of Calgary with the same average travelling time of 48 minutes. Even at really low average driving speeds (20 kmph) driving is still significantly faster than active modes of transportation for reaching different destinations from Chinatown.

Modes	Median Travel Time	Mean Travel Time
Public Transit (LRT/Bus + Walking)	46 minutes	48 minutes
Driving (40 km/h)	18 minutes	18 minutes
Driving (30 km/h)	24 minutes	24 minutes
Driving (20 km/h)	36 minutes	36 minutes
Bike (15 km/h)	48 minutes	48 minutes
Bike (10 km/h)	72 minutes	72 minutes

¹⁴ Mean distance/travel time based on origin-destination performed from the intersection of Centre Street and 3rd Ave to every intersection in the city using Network Analyst tool on GIS

¹⁵ Source - <https://en.parkopedia.ca/>

¹⁶ Source – City of Calgary

¹⁷ Source - <https://en.parkopedia.ca/>

¹⁸ Assuming one stall as 6m in length

¹⁹ Source - <https://en.parkopedia.ca/>

²⁰ Tentative figures mean the data is not conclusive, as it may be based on third-party sources (parking management websites, etc.)

4.6. Parking Capacity

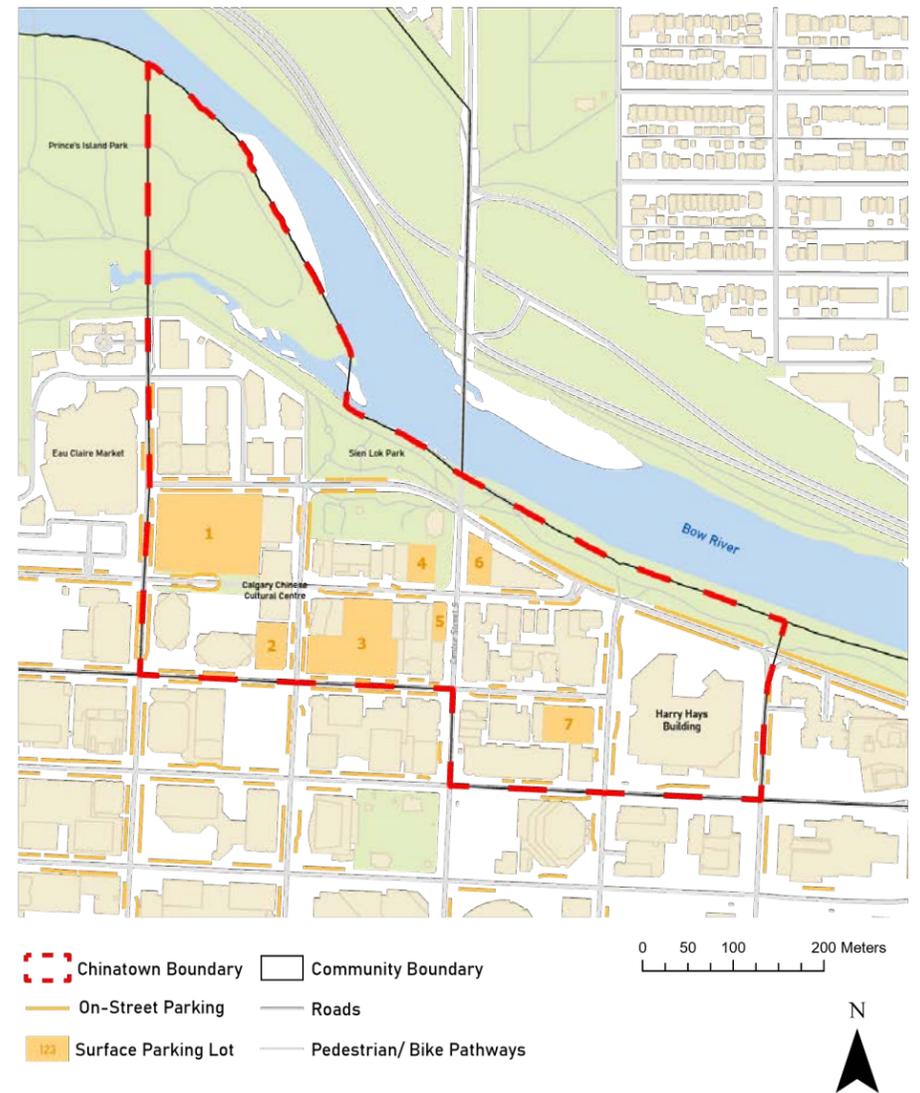
Chinatown has a mix of surface and on-street parking within its community boundary. The total surface parking capacity is 736 stalls in six private and one city-owned parking lot. Much of this capacity is within a single parking lot on Riverfront Ave and 2 Street SW (314 stalls, or 43% of total). Based on preliminary research, there may be an additional 611 stalls within 100 m of the boundary of Chinatown¹⁵.

Sno.	Ownership	Capacity (1) ¹⁶	Capacity (2) ¹⁷	Lot Area (m ²)
1	Private	314	321	10,018
2	Private	48	49	1,802
3	Private	211	181	6,499
4	Private	40	40	1,299
5	Private	19	19	646
6	City of Calgary	38	50	1,349
7	Private	66	66	2,259
Total		736	726	23,873

Chinatown has 1,980 metres of on-street parking, with an approximate capacity for 328 stalls¹⁸ within its boundary and an additional 1,300m (approx. 228 stalls) within 100m of the boundary. Moreover, there are several other underground parking lots in and around Chinatown, and preliminary research reveals a capacity of around 893 underground stalls within Chinatown and an additional 2,392 underground stalls within 100m of the boundary¹⁹, although these figures are tentative and could vary. The parking capacity in and around Chinatown is summarized below.

Type of Parking	In Chinatown	Within 100m of Chinatown
Surface Parking	726-736	611 (Tentative)
Underground (Tentative ²⁰)	893	2,392
On-Street	328	228
Total	1,947-1,957	3,231

CHINATOWN PARKING MAP



4.7. Parking Prices

Parking prices vary widely within Chinatown depending on type and time of parking. This section only discusses the current parking prices. More details about the historical downtown parking strategy can be found [here](#).

4.7.1. On-Street Parking

On-street parking in Chinatown (and in downtown) is managed by the Calgary Parking Authority. Parking between 6pm and 9am is free to use, while between 9am and 6pm, it is paid hourly. The prices vary depending on the time and day of the week. During weekdays (Mon to Fri), the paid parking is divided into 4 different time slots with different hourly rates, while for weekends the parking is paid only between 9am – 6pm on Saturdays and free on Sundays. Hourly rates vary by location, and the City of Calgary employs a demand-based variable pricing model where hourly parking rates for a location are adjusted annually based on demand^{21,22}.

Time Slot	Hourly rates (\$/hr)
Mon - Fri (9am – 11am)	\$4.50 - \$4.75
Mon - Fri (11am – 1:30pm)	\$4.75 - \$5.00
Mon - Fri (1:30pm – 3:30pm)	\$4.50
Mon - Fri (3:30pm – 6pm)	\$3.50 - \$4.25
Mon - Fri (6pm – 9am)	Free (with restrictions as per signage)
Sat (9am – 6pm)	\$1.00 - \$1.75
Sundays + Holidays	Free

4.7.2. Surface Parking Lots

Pricing of surface parking lots is more variable and complex than with on-street parking, as it is owned and managed by different entities. A person can be expected to spend as much as \$40.00 per day on parking alone at one of these lots, with monthly rentals going as high as \$625.00 per month. As with on-street parking, prices vary between day-time (usually 6am to 6pm) and night-time (usually 6pm to 6am), as well as with weekdays and weekends, to respond to the difference in demand. Weekdays are usually busier as they typically are workdays. Also time of day affects parking, as mornings usually mean people entering downtown to park their cars and evenings mean people leaving the parking lots to commute home. Hourly rates vary from \$6.00 an hour to \$12.00 an hour during day and \$1.00 to \$3.00 per night, with maximum whole day pricing between \$22.00 - \$40.00 and maximum whole night pricing between \$3.00 to \$5.00. Surface parking lots also offer monthly rentals for parking spaces between \$280.00 - \$625.00 per month, depending on location and if the parking is reserved or unreserved. Also, almost all parking lots offer early bird discounts for day time parking that is conditioned on a car entering the lot before a certain time in the morning (usually before 9am)^{23,34}. The parking rates, when compared to other Chinatowns in Canada (Vancouver and Toronto), seem quite high with 2-3 times higher hourly/daily rates²⁵.

4.7.3. Underground Parking Lots

While the pricing for underground parking lots was not studied in as much detail as the other parking in Chinatown, the pricing structure and hourly/daily/monthly rates were fairly similar to surface parking lots.

²¹ Calgary Parking Authority; <https://www.calgaryparking.com/findparking/onstreet-rates>. In areas where occupancy is below 50%, prices will decrease by \$0.25; In areas where occupancy is above 80%, prices will increase by \$0.25; And in areas where occupancy is between 50-80%, prices will stay the same.

²² Calgary Parking Authority; <https://www.calgaryparking.com/findparking/onstreet>

²³ Calgary Parking Authority; <https://www.calgaryparking.com/findparking/onstreet>

²⁴ <https://en.parkopedia.ca/>

²⁵ <https://en.parkopedia.ca/>



05
CONSUMER
SURVEYS



5. Consumer Surveys

As part of the study, three sets of surveys were initially planned. However, only two sets of survey—one in-person and one online—were conducted due to the interruption of COVID-19.

5.1. Policy Recommendations

- A comprehensive parking studies that assess actual parking demand and supply within Chinatown need to be done in addition to site-by-site parking studies. **(section 5.4 & section 5.5)**
- Policy should support investment in pedestrian infrastructure within Chinatown, which includes but not limited to, improving connectivity to the river pathway system, identifying dark spots to improve street lighting, and safety on crosswalks **(section 5.4)**
- Policy should consider making active transportation more convenient and time effective – more frequent transit service (bus routes that go through Chinatown beside Centre Street and connectivity with the upcoming LRT station on 2nd Ave) and improved walkability to neighbouring communities and bike infrastructure (bike parking, dedicated bike lanes/ multi-use lanes, etc.) **(section 5.4 & section 5.5)**
- Commercial land uses need to be supported and increased if possible. Any new development should include these kinds of land uses at the ground level. New developments should facilitate the establishment of this land use providing potential patio space for food/drink uses, display space for retail uses, small commercial unit spaces for multiple tenants rather than a large commercial unit with one tenant, flexibility of commercial units so that they could either be retail or food/drink uses, for example provide potential food/drink preparing infrastructure with gas and water access (i.e. street vendors, street food) **(section 5.5)**
- Policy should reduce concerns of those who may be deterred by safety issues while using public transportation, with special emphasis on lighting, frequent patrolling, and encouraging active round-the-clock land uses close to LRT stations (eyes on the streets) **(section 5.6)**
- Policy should address concerns regarding inconvenience & inefficiency by the use of alternative transportation (i.e., means of travel other than a car) – improving last-mile connectivity from the 2nd Ave station with possibilities for good multi-modal interchanges (walk, bike, e-scooter, e-bike, bus, cars, etc.), improved pedestrian/bike infrastructure, multi-language signage/ way-finding/ information and universal design (at the station and on major pathways from the station to major destinations within the community) **(section 5.6)**

5.2. Survey Method and Overview

5.2.1. Survey Preparation

Over the summer of 2019 the research team worked on the application for the institutional ethics review by the Conjoint Faculties Research Ethics Board (CFREB) at the University of Calgary. The questionnaire for the survey was developed and submitted as part of the application. The CFREB approved the project on September 10, 2019 (Ethics ID: REB19-0956). The questionnaire was initially written in English and consists of four sections and a total of 27 questions. Prior to the in-person survey, the questionnaire was translated to simplified and traditional Chinese to produce a total of three (3) versions of the survey. The English version of the questionnaire is appended to this report.



Photo taken by Kwangyul Choi.

5.2.2. In-Person/On-Street Survey

The in-person surveys were conducted on the street (Centre St. S & 3 Ave SE) in Chinatown in November 2019. Each version of the survey was then transferred to a tablet through the mobile application, JotForm (jotform.com), to collect the data. The survey was administered over two days (Thursday and Saturday) in the same week and collected responses for four (4) hours of each day (10-11AM, 12-1PM, 5-6PM, 7-8PM). On the day of the survey, each researcher had a tablet with the three surveys uploaded to the JotForm app for participants to fill out. Hard copies of each of the three surveys were printed and also brought to the site on the day that the in-person surveys were conducted in the event that the electronic versions of the survey on the tablets didn't work. Data was collected by approaching people in Chinatown and requesting their participation in the survey.

After the surveys were conducted, the results were collected and analyzed by exporting the responses from the mobile application to Microsoft Excel.

Survey Date	English	Chinese Simplified	Chinese Traditional	Total
Thursday, November 14	52	4	5	61
Saturday, November 16	52	6	10	68
Total	104	10	15	129

5.2.3. Online Survey

Because of the physical distancing measures in place due to COVID-19, we were unable to conduct the next sets of in-person surveys (slated for winter and summer). Upon discussions with the City of Calgary, it was decided that the second set of surveys would be undertaken online.

Prior to the online survey, we made necessary adjustments to the survey questionnaire to accommodate an online format and make it easier to understand (as a surveyor would not be present to explain the question). With the same three versions of survey—English, Simplified Chinese, and Traditional Chinese—we used the online survey platform Qualtrics to generate a URL for each of the three versions and proceeded to undertake mock tests to ensure data was being recorded correctly. After running the mock-tests and troubleshooting any potential issues, the surveys were ready to be passed onto potential respondents.

The survey URLs were given to The City of Calgary's Community Planning team to be disseminated to identified survey respondents. The City of Calgary maintained the list of respondents which included a mix of Chinatown respondents, visitors (regular/casual), and workers. The survey began at 11 AM on May 25, 2020 and ended on June 17 2020. We received a total of 90 responses which included 58 complete responses (people who answered all or most of the questions), 28 incomplete responses (people opened the survey link but answered very few or none of the questions) and 4 semi-complete responses (people answered some of the questions). After the closure of the online survey, we once-again exported the responses to Microsoft Excel.

Survey Date(s)	English (complete)	Chinese Simplified (complete)	Chinese Traditional (complete)	Semi-complete	Incomplete	Total
May 25 – June 17, 2020	52	2	4	4	28	90

5.3. Description of Survey Participants

This section presents the profiles of the participants for both surveys. Throughout the surveys, the participants were asked to describe themselves in terms of age, gender, ethnicity, marital status, employment status, residency, and type of association with Chinatown.

Age: We have slightly more people aged between 55 and 64 (21.5%), followed by the group of aged 25 to 34 years old (18.8%) and the group of 18 to 24 years old (14.7%).

Age Group	2019		2020		Total	
	n	%	n	%	n	%
Under 18 years	18	14.0	0	0.0	18	9.4
18 to 24 years	25	19.4	3	4.8	28	14.7
25 to 34 years	29	22.5	7	11.3	36	18.8
35 to 44 years	15	11.6	8	12.9	23	12.0
45 to 54 years	11	8.5	6	9.7	17	8.9
55 to 64 years	15	11.6	26	41.9	41	21.5
65 to 79 years	13	10.1	11	17.7	24	12.6
80 to 99 years	2	1.6	1	1.6	3	1.6
100 years and over	1	0.8	0	0.0	1	0.5
Total	129	100.0	62	100.0	191	100.0

Gender: 52.9% were male participants while 45% were females.

Gender	2019		2020		Total	
	n	%	n	%	n	%
Male	64	49.6	37	59.7	101	52.9
Female	61	47.3	25	40.3	86	45.0
Prefer not to disclose	4	3.1	0	0.0	4	2.1
Total	129	100.0	62	100.0	191	100.0

Ethnicity: 42% of the respondents were Chinese and a total of 18% considered themselves Asian. We also have responses from 14% of European.

Ethnicity	2019		2020		Total	
	n	%	n	%	n	%
No answer	2	1.5	28	30.4	30	13.3
Chinese	50	37.6	44	47.8	94	41.8
South Asian (e.g., East Indian, Pakistani, Sri Lankan, etc.)	8	6.0	2	2.2	10	4.4
Filipino	10	7.5	1	1.1	11	4.9
Southeast Asian (e.g., Vietnamese, Cambodian, Thai, etc.)	15	11.3	1	1.1	16	7.1
West Asian (e.g., Iranian, Afghan, etc.)	2	1.5	0	0.0	2	0.9
Korean	2	1.5	0	0.0	2	0.9
Japanese	0	0.0	0	0.0	0	0.0
European	23	17.3	8	8.7	31	13.8
African	3	2.3	0	0.0	3	1.3
Latin American	6	4.5	2	2.2	8	3.6
Arab	2	1.5	1	1.1	3	1.3
Aboriginal	0	0.0	0	0.0	0	0.0
Other	10	7.5	5	5.4	15	6.7
Total	133	100.0	92	100.0	225	100.0

Marital Status: 45% of participants were married while 40% of them were single. 11% of them lived with a partner.

Marital Status	2019		2020		Total	
	n	%	n	%	n	%
Married	43	33.3	43	69.4	86	45.0
Living with a partner	13	10.1	8	12.9	21	11.0
Single	67	51.9	10	16.1	77	40.3
Other	6	4.7	1	1.6	7	3.7
Total	129	100.0	62	100.0	191	100.0

Employment: 58% of the participants indicated that they were employed as either full-time, part-time or self-employed while 17% of the participants were retired. 16% of the participants were students.

Employment	2019		2020		Total	
	n	%	n	%	n	%
Employed full time	51	37.2	28	44.4	79	39.5
Employed part time	19	13.9	2	3.2	21	10.5
Self-employed full time	5	3.6	10	15.9	15	7.5
Self-employed part time	3	2.2	2	3.2	5	2.5
Student	29	21.2	2	3.2	31	15.5
Full time homemaker	3	2.2	0	0.0	3	1.5
Disabled / unable to work	2	1.5	0	0.0	2	1.0
Unemployed	9	6.6	2	3.2	11	5.5
Retired	16	11.7	17	27.0	33	16.5
Total	137	100.0	63	100.0	200	100.0

Residency in Calgary: 15% of participants were born in Calgary while 54% have lived in Calgary for more than 5 years. About 9% of the participants had lived in Calgary for less than a year.

Years in Calgary	2019		2020		Total	
	n	%	n	%	n	%
No answer	6	4.7	29	32.2	35	16.0
Born in Calgary	20	15.5	13	14.4	33	15.1
Less than a year	19	14.7	1	1.1	20	9.1
1 to 3 years	9	7.0	0	0.0	9	4.1
3 to 5 years	4	3.1	0	0.0	4	1.8
5 to 10 years	19	14.7	3	3.3	22	10.0
More than 10 years	52	40.3	44	48.9	96	43.8
Total	129	100.0	90	100.0	219	100.0

Type of Affiliation with Chinatown: In terms of association type with Chinatown, 40% of the total respondents classified them as a casual visitor to Chinatown. About 25% of the respondents were either residents or workers of surrounding communities. We have 14% of Chinatown residents, 4% of Chinatown business owners, and 6% of Chinatown workers.

Association with Chinatown	2019		2020		Total	
	n	%	n	%	n	%
Chinatown resident	17	12.1	11	17.7	28	13.9
Chinatown business owner	3	2.1	5	8.1	8	4.0
Chinatown worker	6	4.3	6	9.7	12	5.9
Downtown (local) worker	16	11.4	8	12.9	24	11.9
Resident of community nearby	18	12.9	9	14.5	27	13.4
Casual visitor	69	49.3	12	19.4	81	40.1
Tourist	10	7.1	11	17.7	21	10.4
Other	1	0.7	0	0.0	1	0.5
Total	140	100.0	62	100.0	202	100.0

Note: Chinatown resident, business owner, and worker are considered **Chinatown Affiliates** while all others are considered **Chinatown Visitors** in the following sections.

For the next sets of questions (**sections 5.4 & 5.5**), we categorized our survey participants into two groups (Chinatown Affiliates vs. Chinatown Visitors) based on the response to this question (how are you associated/connected with Chinatown?). If a survey participant indicated either 'Chinatown Resident', 'Chinatown Business Owner', or 'Chinatown Worker', we categorized them as **Chinatown Affiliates**, which comprised 24% of the total respondents, and we categorized the rest of respondents (i.e., Downtown Worker, Resident of Community nearby, Casual Visitor, and Tourist) as **Chinatown Visitors**.

5.4. Travel by Chinatown Affiliates

In this section, we summarize the responses from Chinatown Affiliates in terms of their travel behaviour and transportation improvement they wanted to see in their community.

Travel Mode: Unlike the recent Canadian census results for this community, our survey result has more auto commuters (compared to 20.5% in the Canadian census) and fewer commuters using alternative transportation (compared to 72.9% in the Canadian census). 46% of Chinatown Affiliates use a car as the primary mode of transportation (either driver or passenger) for their regular day while 32% use transit and 20% walk to work.

Travel Mode for Chinatown Affiliates	2019		2020		Total	
	n	%	n	%	n	%
Car (Driver)	10	35.7	11	50.0	21	42.0
Car (Passenger)	0	0.0	2	9.1	2	4.0
Uber/Taxi	0	0.0	1	4.5	1	2.0
CTrain	8	28.6	2	9.1	10	20.0
Bus	6	21.4	0	0.0	6	12.0
Walk	4	14.3	6	27.3	10	20.0
Total	28	100.0	22	100.0	50	100.0

Reasons for Travel Mode: It seems that the respondents who chose convenience and travel time were likely to be the auto commuters while those who chose cost, availability of parking, and cost of parking are likely to be commuters with other means of transport than a car.

Reasons for Travel Mode for Chinatown Affiliates	2019		2020		Total	
	n	%	n	%	n	%
Convenience	27	42.2	17	32.7	44	37.9
Cost	8	12.5	2	3.8	10	8.6
Travel time	8	12.5	11	21.2	19	16.4
Bus waiting time	4	6.3	0	0.0	4	3.4
Availability of parking	6	9.4	4	7.7	10	8.6
Cost of parking	3	4.7	5	9.6	8	6.9
Access to a car for emergencies	1	1.6	1	1.9	2	1.7
Car required for work	1	1.6	4	7.7	5	4.3
Environmental concern	2	3.1	1	1.9	3	2.6
Weather	0	0.0	1	1.9	1	0.9
Do not own a car	3	4.7	1	1.9	4	3.4
No transit available	0	0.0	0	0.0	0	0.0
Personal health	1	1.6	4	7.7	5	4.3
Other	0	0.0	1	1.9	1	0.9
Total	64	100.0	52	100.0	116	100.0

Transportation Improvements: Our result indicates that approximately 38% of the respondents wanted to see changes in parking (reduced parking cost and parking capacity increase). 21% of responses were about transit service improvement such as more regular and rapid bus services. 16% of responses were about improvement to pedestrian facilities while 12% of responses were related to bike infrastructure. 9% of responses were road expansion, and 4% of responses were about safety issue.

Transportation Improvements for Chinatown Affiliates	2019		2020		Total	
	n	%	n	%	n	%
Widening existing roadways	8	14.8	2	3.5	10	9.0
Building more parking lots	10	18.5	6	10.5	16	14.4
Reducing parking cost	12	22.2	14	24.6	26	23.4
Adding new bus routes	6	11.1	3	5.3	9	8.1
Improving bus service with more frequent service	7	13.0	3	5.3	10	9.0
Extending a rapid transit service to Chinatown	1	1.9	3	5.3	4	3.6
Building more bike lanes and separated bike lanes and multi-use pathways	2	3.7	6	10.5	8	7.2
Providing bike parking at key destinations	2	3.7	3	5.3	5	4.5
Improving pedestrian facilities (e.g., sidewalk, street furniture, street lights, etc.)	5	9.3	13	22.8	18	16.2
Lowering speed limits for existing roadways	0	0.0	4	7.0	4	3.6
Other	1	1.9	0	0.0	1	0.9
Total	54	100.0	57	100.0	111	100.0

5.5. Travel by Visitors

This section summarizes the responses from Chinatown Visitors in terms of their visits, travel preference, and transportation improvements for the community from the visitor perspective.

Frequency of Visit: 67% of the visitors in our survey were frequent visitors, meaning they were likely to visit to Chinatown at least twice a month while the weekly visitor is the most dominant group of the visitors.

Frequency of Visit to Chinatown for Visitors	2019		2020		Total	
	n	%	n	%	n	%
Daily	15	15.3	2	5.6	17	12.7
Weekly	30	30.6	21	58.3	51	38.1
Bi-weekly	15	15.3	6	16.7	21	15.7
Monthly	21	21.4	3	8.3	24	17.9
Quarterly	3	3.1	3	8.3	6	4.5
Yearly	6	6.1	1	2.8	7	5.2
First time	8	8.2	0	0.0	8	6.0
Total	98	100.0	36	100.0	134	100.0

Hours to Stay: 74% of the visitors tend to stay in Chinatown less than 2 hours while 24% of the visitors were likely to stay more than 3 hours.

Hours to stay in Chinatown for Visitors	2019		2020		Total	
	n	%	n	%	n	%
Less than 30 minutes	12	12.4	1	2.8	13	9.8
30 minutes to 1 hour	15	15.5	9	25.0	24	18.0
1 to 2 hours	45	46.4	16	44.4	61	45.9
2 to 3 hours	16	16.5	9	25.0	25	18.8
More than 3 hours	6	6.2	1	2.8	7	5.3
N/A	3	3.1	0	0.0	3	2.3
Total	97	100.0	36	100.0	133	100.0

Amenities for Visit: The surveyed visitors came to Chinatown mainly for consumer amenities, followed by social amenities and services, and ethnic resources. And 15% of responses say that they came to Chinatown because of its proximity to river, park, and pathways.

Amenities to make you visit to Chinatown for Visitors	2019		2020		Total	
	n	%	n	%	n	%
Ethnic resources (e.g., museum, atmosphere, streetscape, buildings, etc.)	20	13.7	11	12.9	31	13.4
Customer amenities (e.g., food, retail, etc.)	69	47.3	34	40.0	103	44.6
Social amenities and services (e.g., community associations, cultural classes, etc.)	15	10.3	18	21.2	33	14.3
Proximity (e.g., the city centre)	16	11.0	5	5.9	21	9.1
Accessibility to river/park/pathway nearby	23	15.8	12	14.1	35	15.2
Other	3	2.1	5	5.9	8	3.5
Total	146	100.0	85	100.0	231	100.0

Purpose for Visit: The main reason to go to Chinatown is the commercial offerings in place, and commercial land use is really important for Chinatown’s vitality. 58.1% of the respondents visited Chinatown to shop and dine while 19.1% came to the community for socializing.

Purpose to visit to Chinatown (General)	2019		2020		Total	
	n	%	n	%	n	%
Dining	66	41.3	31	34.1	97	38.6
Shopping	33	20.6	16	17.6	49	19.5
Socializing	27	16.9	21	23.1	48	19.1
Business/work meeting	3	1.9	9	9.9	12	4.8
Sightseeing	12	7.5	2	2.2	14	5.6
Passing through	18	11.3	5	5.5	23	9.2
Other	1	0.6	7	7.7	8	3.2
Total	160	100.0	91	100.0	251	100.0

5.5. Travel by Visitors (continued)

Travel Mode: 45.1% people access Chinatown by private vehicle (car/motorbike) while 54.9% use pedestrian-based modes (27% use Ctrain, 18% walk, and 7% take bus) to come to Chinatown). There were 2% of the participants that chose bike as the primary mode of transportation to visit Chinatown. This number is, however, underestimated because of the fact that we didn't get any response from those with bikes on the survey days in 2019.

Travel mode to visit to Chinatown (General)	2019		2020		Total	
	n	%	n	%	n	%
Car (Driver)	32	33.7	20	55.6	52	39.7
Car (Passenger)	4	4.2	2	5.6	6	4.6
Uber/Taxi	0	0.0	0	0.0	0	0.0
Ctrain	31	32.6	5	13.9	36	27.5
MAX (rapid transit)	1	1.1	0	0.0	1	0.8
Bus	6	6.3	2	5.6	8	6.1
Motorcycle	0	0.0	1	2.8	1	0.8
Bike	2	2.1	1	2.8	3	2.3
Lime/Bird (e-bike or scooter)	0	0.0	0	0.0	0	0.0
Walk	19	20.0	5	13.9	24	18.3
Other	0	0.0	0	0.0	0	0.0
Total	95	100.0	36	100.0	131	100.0

Reasons for Travel Mode: The reasons for travel mode for Chinatown visitors are very similar to the responses from the Chinatown Affiliates. The responses of convenience and travel time are likely to come from the car users while cost, cost of parking, and availability of parking are mostly likely to be responses from the others.

Reasons for travel mode (General)	2019		2020		Total	
	n	%	n	%	n	%
Convenience	67	37.9	29	31.9	96	35.8
Cost	17	9.6	8	8.8	25	9.3
Travel time	37	20.9	18	19.8	55	20.5
Bus waiting time	4	2.3	0	0.0	4	1.5
Availability of parking	8	4.5	10	11.0	18	6.7
Cost of parking	10	5.6	13	14.3	23	8.6
Access to a car for emergencies	0	0.0	1	1.1	1	0.4
Car required for work	0	0.0	2	2.2	2	0.7
Environment concern	6	3.4	4	4.4	10	3.7
Weather	4	2.3	2	2.2	6	2.2
Do not own a car	17	9.6	1	1.1	18	6.7
No transit available	1	0.6	1	1.1	2	0.7
Personal health	6	3.4	2	2.2	8	3.0
Other	0	0.0	0	0.0	0	0.0
Total	177	100.0	91	100	268	100

Transportation Improvements: The visitors have similar responses with Chinatown Affiliates for Parking and Transit when it comes to transportation improvement wishes. But the visitors want to see slightly more improvement of walkability than the Chinatown Affiliates. About 8% of the responses were about improvement for bike facilities.

Transportation Improvements from Visitors	2019		2020		Total	
	n	%	n	%	n	%
Widening existing roadways	12	6.9	4	5.1	16	6.3
Building more parking lots	26	15.0	9	11.4	35	13.9
Reducing parking cost	43	24.9	22	27.8	65	25.8
Adding new bus routes	14	8.1	0	0.0	14	5.6
Improving bus service with more frequent service	14	8.1	3	3.8	17	6.7
Extending a rapid transit service to Chinatown (e.g., Max Purple)	15	8.7	5	6.3	20	7.9
Building more bike lanes and separated bike lanes and multi-use pathways	6	3.5	5	6.3	11	4.4
Providing bike parking at key destinations	7	4.0	4	5.1	11	4.4
Improving pedestrian facilities (e.g., sidewalk, street furniture, street lights, etc.)	26	15.0	21	26.6	47	18.7
Lowering speed limits for existing roadways	7	4.0	3	3.8	10	4.0
Other	3	1.7	3	3.8	6	2.4
Total	173	100.0	79	100.0	252	100.0

5.6. Greenline

During the survey, we asked two questions regarding the future Greenline. The first question was about travel preference by the new Greenline, and the second question was about the reasons for the stated preference.

Travel by Greenline: 66% of the participants show their willingness to take Ctrain while 19% of the participants still want to come to Chinatown by other modes of transportation.

Travel by Greenline	2019		2020		Total	
	n	%	n	%	n	%
No answer	1	0.8	32	35.6	33	15.1
Absolutely	68	52.7	20	22.2	88	40.2
Most likely	22	17.1	9	10.0	31	14.2
Perhaps	14	10.9	11	12.2	25	11.4
Not really	15	11.6	10	11.1	25	11.4
Not at all	9	7.0	8	8.9	17	7.8
Total	129	100.0	90	100.0	219	100.0

Reasons for using Greenline: Those with willingness to use the new greenline (i.e., absolutely, most likely, and perhaps) chose convenience, availability, affordability, and efficiency as the reasons for using it.

Reasons for using Greenline	2019		2020		Total	
	n	%	n	%	n	%
Convenience	90	37.0	29	32.6	119	35.8
Affordability	33	13.6	10	11.2	43	13.0
Availability	43	17.7	13	14.6	56	16.9
Reliability	20	8.2	10	11.2	30	9.0
Efficiency	30	12.3	12	13.5	42	12.7
Environment concern	15	6.2	10	11.2	25	7.5
Personal health	2	0.8	2	2.2	4	1.2
Safety reason	8	3.3	3	3.4	11	3.3
N/A	2	0.8	0	0.0	2	0.6
Other	0	0.0	0	0.0	0	0.0
Total	243	100.0	89	100.0	332	100.0

Reasons for not using Greenline: Interestingly, those indicating not using the new greenline chose inconvenience and inefficiency as the reasons for not using it. They also chose safety as an obstacle to use the new greenline

Reasons for not using Greenline	2019		2020		Total	
	n	%	n	%	n	%
Inconvenience	12	36.4	18	38.3	30	37.5
Unaffordability	1	3.0	3	6.4	4	5.0
Unreliability	1	3.0	3	6.4	4	5.0
Inefficiency	1	3.0	10	21.3	11	13.8
Safety reason	3	9.1	7	14.9	10	12.5
N/A	11	33.3	2	4.3	13	16.3
Other	4	12.1	4	8.5	8	10.0
Total	33	100.0	47	100.0	80	100.0



06

CONCLUSIONS



6. Conclusions

We conclude this report by making six recommendations that are based on ideas that promote active travel, enhance safety, and revitalize the local businesses. These recommendations also correspond to the sustainability principles and key directions in the recently updated Calgary Transportation Plan (CTP) and Municipal Development Plan (MDP).

Recommendation #1: Supporting Inclusive Policies

Overall, every community in this report has witnessed an increase in population, but its demographic composition varies (e.g., age, gender, ethnicity, language, income, etc.). It is critical to ensure that transportation infrastructure can sufficiently accommodate this population growth. At the same time, the needs of vulnerable groups of the population including, but not limited to, older adults, ethnic minorities, and low-income households should be properly accommodated.

Recommendation #2: Encouraging Pedestrian-based Travel

As one of the center city communities, the majority of the population in Chinatown travel by other modes of transportation (e.g., walking, biking, and transit) than passenger vehicles. Therefore, it is important to support pedestrian/cyclist activities for the areas specified in Chapter 3 and 4. Additionally, the expansion of direct route transit service should be considered. It is also important to enhance last-mile connectivity to encourage pedestrian-based travel within, to, and from Chinatown.

Recommendation #3: Promoting Diverse Land Use

The main reason to go to Chinatown is the commercial offerings in place, and commercial land use is really important for Chinatown's vitality. In this regard, commercial land uses need to be supported and increased if possible. Any new development should include these kinds of land uses at the ground level. New developments should facilitate the establishment of this land use by providing potential patio space for food/drink uses, display space for retail uses, small commercial unit spaces for multiple tenants rather than a large commercial unit with one tenant, and flexibility of commercial units so that they could either be retail or food/drink uses.

Recommendation #4: Enhancing Safety

Centre Street and 4th Avenue are high volume streets, and Centre Street passes through Chinatown. Safety of visitors, workers, and residents using non-motorized modes of transportation on these streets should be a priority. Additionally, other safety concerns raised by pedestrian in the greater should also be addressed.

Recommendation #5: Conducting Comprehensive Preliminary Study

Traffic impacts of new development or changes on the community should be studied in a comprehensive way. For instance, prior to any new development in the community, comprehensive traffic impact assessments, particularly for local businesses, need to be completed. Additionally, a more detailed parking study (for both short- and long-term) is recommended.

Recommendation #6: Engaging the Community

At all time, the Chinatown community has to be included in the planning process.

07

APPENDIX

7.1. Survey Questionnaire (English)

Chinatown Mobility Plan Project Survey

Survey No. _____; This survey starts at _____.

Section 1: Demographic Information

1. What is your age?

- Under 18 years 18 to 24 years 25 to 34 years 35 to 44 years
 45 to 54 years 55 to 64 years 65 to 79 years 80 to 99 years
 100years and over

2. What is your gender?

- Male Female Prefer not to disclose
 You don't have an option that applies to me. I identify as _____

3. What is your ethnic origin? (Check all that apply)

- Chinese South Asian (e.g., East Indian, Pakistani, Sri Lankan, etc.) Filipino
 Southeast Asian (e.g., Vietnamese, Cambodian, Laotian, Thai, etc.)
 West Asian (e.g., Iranian, Afghan, etc.) Korean Japanese European
 African Latin American Arab Aboriginal Other

4. What is your current relationship status?

- Married Living with a partner Single Other

5. Do you have a child (under 18)? If so, how many?

- Yes, _____ No

6. What is your current employment status? (Check all that apply)

- Employed full time Employed part time Self-employed full time
 Self-employed part time Student Full time homemaker
 Disabled/unable to work Unemployed Retired Other

7. How many years have you lived in Calgary?

- Born in Calgary Less than a year 1 to 3 years 3 to 5 years
 5 to 10 years More than 10 years

8. How are you associated/connected with Chinatown? (Check all that apply)

- Chinatown Resident Chinatown Business Owner Chinatown worker
 Downtown (local) worker Resident of Community nearby Casual Visitor
 Tourist Other (specify): _____

***Note: If you are a Chinatown resident, business owner, or worker, please complete the section 2. If you are a visitor to Chinatown, please complete the section 3.**

Section 2: Travel Behavior for Chinatown residents, business owners, workers

1. How long have you lived, run your business, or worked in Chinatown?

- Less than a year 1 to 3 years 3 to 5 years 5 to 10 years More than 10 years

2. What is the primary mode of transportation for your regular day?

- Car (Driver) Car (Passenger) Uber/Taxi CTrain MAX (rapid transit)
 Bus Motorcycle Bike Lime/Bird (e-bike or scooter) Walk
 Other (specify): _____

3. What are the most important factors for using the mode of transportation above? (select up to three)

- Convenience Cost Travel time Bus waiting time
 Availability of parking Cost of parking Access to a car for emergencies
 Car required for work Environment concern Weather
 Do not own a car No transit available Personal health
 Other (specify): _____

4. What transportation system improvements would you like to have in and around Chinatown? (select up to three)

- Widening existing roadways
 Building more parking lots
 Reducing parking cost
 Adding new bus routes
 Improving bus service with more frequent service
 Extending a rapid transit system to Chinatown (e.g., Max Purple)
 Building more bike lanes and separated bikes lanes and multi-use pathways
 Providing bike parking at key destinations
 Improving pedestrian facilities (e.g., sidewalk, street furniture, street lights, etc.)
 Lowering speed limits for existing roadways
 Other (specify): _____

Section 3: Travel Behavior for Chinatown visitors

1. Where do you live? Please enter your first three digits of the primary home postal code (for example: T2N). _____

2. How often do you visit Chinatown?

- Daily Weekly Bi-weekly Monthly Quarterly Yearly
 First time

3. If you frequently visit to Chinatown, how long do you usually stay in Chinatown?

- Less than 30 minutes 30 minutes to 1 hour 1 to 2 hours 2 to 3 hours
 More than 3 hours N/A

4. What amenities or features would make you visit Chinatown? (select up to three)
- Ethnic resources (e.g., museum, atmosphere, streetscape, buildings, etc.)
 - Customer amenities (e.g., food, retail, entertainment, etc.)
 - Social amenities and services (e.g., community associations, cultural classes, etc.)
 - Proximity (e.g., the city centre)
 - Accessibility to river/park/pathway nearby
 - Other (specify): _____

*Note: You will be asked three questions about TODAY's trip to Chinatown.

5. What is your main purpose of visit to Chinatown **TODAY**? (Check all that apply)
- Dining Shopping Socializing Business/work meeting Sightseeing
 - Passing through Other (specify): _____

6. What is the primary mode of transportation to come to Chinatown **TODAY**?
- Car (Driver) Car (Passenger) car2go Uber/Taxi CTrain
 - MAX (rapid transit) Bus Motorcycle Bike Lime/Bird (e-bike or scooter)
 - Walk Other (specify): _____

7. What are the most important factors for using the mode of transportation above **TODAY**? (select up to three)
- Convenience Cost Travel time Bus waiting time
 - Availability of parking Cost of parking Access to a car for emergencies
 - Car required for work Environment concern Weather
 - Do not own a car No transit available Personal health
 - Other (specify): _____

*Note: You will be asked four questions about your trip to Chinatown in general.

8. What is your main purpose of visit to Chinatown **IN GENERAL**? (Check all that apply)
- Dining Shopping Socializing Business/work meeting Sightseeing
 - Passing through Other (specify): _____

9. What is the primary mode of transportation to come to Chinatown **IN GENERAL**?
- Car (Driver) Car (Passenger) car2go Uber/Taxi CTrain
 - MAX (rapid transit) Bus Motorcycle Bike Lime/Bird (e-bike or scooter)
 - Walk Other (specify): _____

10. What are the most important factors that influence your choice of transportation **IN GENERAL**? (select up to three)
- Convenience Cost Travel time Bus waiting time
 - Availability of parking Cost of parking Access to a car for emergencies
 - Car required for work Environment concern Weather
 - Do not own a car No transit available Personal health
 - Other (specify): _____

11. What transportation system improvements would you like to have in and around Chinatown? (select up to three)
- Widening existing roadways
 - Building more parking lots
 - Reducing parking cost
 - Adding new bus routes
 - Improving bus service with more frequent service
 - Extending a rapid transit system to Chinatown (e.g., Max Purple)
 - Building more bike lanes and separated bikes lanes and multi-use pathways
 - Providing bike parking at key destinations
 - Improving pedestrian facilities (e.g., sidewalk, street furniture, street lights, etc.)
 - Lowering speed limits for existing roadways
 - Other (specify): _____

Section 4: Chinatown & Green Line

1. If there was an LRT station (Green Line) in or near Chinatown, would you use CTrain or come to Chinatown by CTrain?

- Absolutely Most likely Perhaps Not really Not at all

2. If you answered "Yes," what are the most important factors for using the CTrain? (select up to three)

- Convenience Affordability Availability Reliability Efficiency
- Environment Concern Personal health Safety Reason N/A
- Other (specify): _____