

A Comparison of Bridge Capacity

Metro Portland vs. the Lower Mainland

By Get Moving BC

October 2007

Table of Contents

Table of Contents	page 2
1. Introduction	page 3
2. The Population of Portland: 1.6 million people	page 3
3. The Population of the Lower Mainland: 2.3 million people	page 4
4. Comparing the Lower Mainland's Population to the Population of Portland	page 4
5. The Bridges of Portland	page 5
6. The Bridges of the Lower Mainland	page 6
7. Comparing the Lower Mainland's Bridges to the Bridges of Portland	page 7
8. Conclusion	page 8
APPENDIX A: Portland Population Facts	page 9
APPENDIX B: Vancouver Population Facts	page 13
APPENDIX C: Portland Area Bridges	page 15
APPENDIX D: Lower Mainland Area Bridges and Tunnels	page 16
APPENDIX E: Saskatoon Bridge and Population Facts	page 17

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1. Introduction

The first step in any fair comparison of bridge capacities between metro Portland and the Lower Mainland is to establish the correct size of each region's respective population and the land area that each covers.

The Lower Mainland and Portland are often thought to have similar populations (in the range of 2.1 million people) but this is not actually correct. In fact, the Portland region has 30% fewer people than the Lower Mainland, and nearly double the Lower Mainland's population density. The Portland region also has 60% more bridges crossing the Willamette River than the Lower Mainland has bridges crossing the Fraser River, even though Portland's population is much smaller.

Portland's bridges also have more traffic lanes than the bridges crossing the Fraser River. In fact, there are 75% more bridge lanes crossing the Willamette River than there are bridge lanes crossing the Fraser River (54 lanes cross the Willamette River versus 31 lanes crossing the Fraser River).

2. The Population of Portland: 1.6 million people

Based upon a detailed analysis of Portland's regional population, we have established that the Portland area has an estimated 2006 population of 1,597,708 people and that it covers a land area of 1366.48 square kilometres. These population and land area figures include the population and land area of Camas, Washougal and Vancouver, Washington which are considered part of the greater Portland area. For all intents and purposes, the population of the Portland area can be rounded off to 1.6 million people.

The 1.6 million population figure for the Portland area should not be confused with the 2.1 million population figure that is frequently, but erroneously, cited for Portland. The confusion is easily understood. The 2.1 million population figure represents the number of people living in a 7-county area straddling Washington and Oregon states. This 7-county area is known as a Metropolitan Statistical Area or MSA. A Metropolitan Statistical Area is a geographic entity defined by the U.S. Office of Management and Budget for use by Federal statistical agencies (like the U.S. Census Bureau) in collecting, tabulating, and publishing Federal statistics. In the case of Portland, the 2.1 million population figure represents the total population of the Portland-Vancouver-Beaverton OR-WA Metropolitan Statistical Area, which is a 7-county Statistical Area that covers a whopping 17,436.10 square kilometres—an area that is nearly 13 times larger than the metro Portland area with its population of 1.6 million people and nearly 4-1/2 times larger than the Lower Mainland with its population of 2.3 million people.

Further information about Portland’s population is available in Appendix A of this report.

3. The Population of the Lower Mainland: 2.3 million people

Based upon a detailed analysis of the Lower Mainland’s population, we have established that the Lower Mainland has a 2006 population of 2,351,267 covering a land area of 3926.22 square kilometres—nearly 3 times more land area than metro Portland. These figures for the Lower Mainland include the populations and land areas of the incorporated communities in the Greater Vancouver Regional District (now called Metro Vancouver) and the Fraser Valley Regional District as far east as Chilliwack and Hope. For all intents and purposes, the population of the Lower Mainland can be rounded off to 2.3 million.

Further information about the Lower Mainland’s population is available in Appendix B of this report.

4. Comparing the Lower Mainland’s Population to the Population of Portland

When we compare the 1.6 million people living in the Portland area with the 2.3 million people living in the Lower Mainland area we can see that the Portland area has 30% fewer people than the Lower Mainland.

We can also see that the Portland area has an estimated 2006 population density of 1169.21 persons per square kilometre compared to the Lower Mainland’s 2006 population density of 598.86 persons per square kilometre. In other words, the population density of the Portland area is nearly double that of the Lower Mainland, a higher density which greatly increases the viability of rapid transit projects like light rail.

5. The Bridges of Portland

There are 11 bridges crossing the Willamette River in the Portland area with a total of 54 lanes.

These bridges are:

- St. Johns Bridge (4 lanes)
- Fremont Bridge (8 lanes)
- Broadway Bridge (4 lanes)
- Steel Bridge (3 lanes with a fourth used by light rail)
- Burnside Bridge (5 lanes)
- Morrison Bridge (6 lanes)
- Hawthorne Bridge (4 lanes)
- Marquam Bridge (8 lanes)
- Ross Island Bridge (4 lanes)
- Sellwood Bridge (2 lanes)
- George Abernethy Bridge (6 lanes)

There are two other bridges that also serve the Portland area. These bridges span the Columbia River and connect Oregon State to Washington State; more specifically, they connect the Vancouver, Washington area with the Portland area.

These two bridges are:

- Glenn L. Jackson Memorial Bridge (8 lanes)
- Interstate Bridge (6 lanes).

An important item to note here is the fact that the Interstate Bridge is now considered obsolete. The Oregon Department of Transportation and the Washington State Department of Transportation are currently working to replace the Interstate Bridge with a new bridge that will have five or six lanes in each direction – doubling its current capacity. An obvious comparison can be made with the project to twin the Port Mann Bridge. The Oregon-Washington bridge replacement project is called the Columbia River Crossing Project and more information can be found on the project's website at www.columbiarivercrossing.org.

The new Columbia River Crossing is being planned to address the congestion, mobility and safety problems on the Interstate Bridge and along the I-5 corridor between Vancouver, Washington and downtown Portland. It will include a lane for bus or light rail rapid transit.

Further information about the bridges of Portland is available in Appendix C of this report.

6. The Bridges of the Lower Mainland

The Lower Mainland currently has 7 major bridges crossing the Fraser River with 31 lanes.

These bridges are:

- Arthur Laing Bridge (4 lanes)
- Oak Street Bridge (4 lanes)
- Knight Street Bridge (4 lanes)
- Alex Fraser Bridge (6 lanes)
- Pattullo Bridge (4-lanes)
- Port Mann Bridge (5 lanes)
- Mission Bridge (4 lanes)

These 7 major crossings of the Fraser River are supported by a series of smaller crossings which serve as continuations of the major crossings. These smaller crossings are the result of the branching of the Fraser River into two “arms” as it approaches the Gulf of Georgia.

Examples of these smaller crossings include: the Queensborough Bridge, which serves as a continuation of the Alex Fraser Bridge system; the Massey Tunnel, which serves as a continuation of the Oak Street and Knight Street bridges; and the Dinsmore and No. 2 Road Bridges which serve as extensions of the Arthur Laing Bridge. These smaller crossings do not represent complete crossing points and are therefore not counted as such.

When the Golden Ears Bridge is completed it will provide an additional six lanes of bridge across the Fraser River. The Twinned Port Mann Bridge will provide three more bridge lanes across the river. These nine new bridge lanes will provide a total of 40 bridge lanes crossing the Fraser River, which is still 14 lanes fewer than what the Portland area’s 1.6 million residents already have access to.

It is interesting to note that, within the City of Vancouver, there are 26 bridge lanes compared to the 31 that currently cross the Fraser River. These bridges are:

- Burrard Street Bridge (6 lanes)
- Granville Street Bridge (8 lanes)
- Cambie Street Bridge (6 lanes)
- Georgia and Dunsmuir Viaducts (6 lanes)

Given the number of bridges and bridge lanes within the City of Vancouver, it is more than a little bit ironic that so much of the opposition to the twinning of the Port Mann Bridge has come from residents of Vancouver. There are 20 bridge lanes that can get a person from one

side of False Creek to the other, but only 5 bridge lanes are available to get across the Port Mann Bridge. That works out to four times as many bridge lanes crossing False Creek than there are crossing the Port Mann Bridge.

Further information about bridges in the Lower Mainland is available in Appendix D of this report.

7. Comparing the Lower Mainland's Bridges to the Bridges of Portland

Despite having 30% fewer people than the Lower Mainland, the Portland area has significantly more bridges crossing their main water barrier, the Willamette River, than the Lower Mainland has crossing its main water barrier, the Fraser River. When compared to the Lower Mainland's 7 major Fraser River crossings, Portland's 11 bridges represent 60% more bridges.

Portland's bridges also have significantly more lanes than do the bridges crossing the Fraser River: The 11 Portland area bridges that cross the Willamette River have a total of 54 lanes compared to 31 lanes on the 7 major bridges that cross the Fraser River. This represents 75% more bridge lanes crossing the Willamette River in the Portland area than there are bridge lanes crossing the Fraser River.

When you further consider the fact that the Portland area has 30% fewer people than the Lower Mainland, with access to 75% more bridge lanes, one can easily see that the Portland area has substantially more bridge capacity than the Lower Mainland. In fact, if we scale Portland's population up by 30% to match the population of the Lower Mainland, and scale Portland's 54 bridge lanes up by 30% as well, it works out to the equivalent of having 70 lanes of bridge in Portland.

In other words, a person living in the Portland area effectively has twice as many bridge lanes crossing the Willamette River as a person living in the Lower Mainland has crossing the Fraser River. Imagine what it would be like if there were twice as many bridge lanes crossing the Fraser River. There would be 8 lanes on the Arthur Laing, Oak and Knight Street bridges instead of 4. The Alex Fraser Bridge would have 12 lanes. The Pattullo and Mission bridges would each have 8 lanes, and the Port Mann Bridge would have 10 lanes – two more lanes than the current bridge twinning project calls for. It isn't difficult to imagine the kind of flexibility we would have in terms of dedicated rapid-bus lanes, dedicated truck lanes, light rail and dedicated HOV lanes if we had twice as many bridge lanes crossing the Fraser River as we have at present.

Likewise, if we had twice as many bridge lanes as we do right now, one can easily imagine how much shorter people's commuting times would be. Shorter commuting times would mean more time to spend with family and friends, less stress and a lot less pollution from idling vehicles stuck in traffic. If we had twice as many bridge lanes truck drivers would be able to make their deliveries on time and with less frustration, leading to lower costs for the goods we purchase.

8. Conclusion

When compared to the Portland area – which the Lower Mainland frequently is – it’s clear to see that the Lower Mainland is underserved in terms of bridge capacity across the Fraser River. Nearly one million people now live south of the Fraser River. Another million people are expected over the next 20 years. Clearly, the shortfall in bridge capacity across the Fraser River must be addressed to ensure that the Lower Mainland does not descend into “Total Gridlock.”

Expanding the Port Mann Bridge by 3 lanes and constructing the new Golden Ears Bridge will certainly help to address the shortfall in the Lower Mainland’s bridge lane capacity. However, these bridge projects alone are obviously not going to be enough to bring the Lower Mainland up to the standard set by Portland or even to the standard set by some other western Canadian cities that we are currently looking at as part of our ongoing research¹ (see appendix E). For that reason, Get Moving BC should urge the relevant governmental bodies to fast-track the replacement of the Pattullo Bridge and the replacement of the Massey Tunnel with a new bridge.

Get Moving BC should also urge the relevant governmental bodies to consider a completely new bridge crossing for the Fraser River somewhere west of the Port Mann Bridge.

By moving forward with the planning for a new Pattullo Bridge, and the planning for a new bridge to replace the Massey Tunnel, the Lower Mainland region would be moving closer to having the appropriate and realistic level of transportation infrastructure needed to serve our population. Committing to projects like these (in addition to the twinning of the Port Mann Bridge) will also allow us to plan for, and then build, a comprehensive transit system that can properly serve the needs of Lower Mainland commuters.

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¹ For example, the Saskatoon area has 5 bridges that cross the South Saskatchewan River and a population of 235,000 people. These 5 bridges have a total of 22 lanes, and Saskatoon is planning to build 2 more bridges in the near future. Each of these 2 new bridges will have 4 lanes. That will give the Saskatoon area 30 bridge lanes to serve an eventual population of 400,000 people. Compare that to the Lower Mainland where there are currently only 31 lanes crossing the Fraser River serving a regional population of 2.3 million people; nearly half of them living south of the Fraser River.

APPENDIX A: Portland Population Facts

- The **Portland** area has a population of 1.6 million (including Vancouver, WA)
- Portland is located at the junction of the Columbia and Willamette rivers
 - Portland is served by two intercontinental rail lines and an international airport
 - Portland is located at the confluence of two navigable rivers
 - Portland is a gateway and distribution center for domestic inland and international markets
- According to the Population Research Center at Portland State University, the **City of Portland**:
 - has an estimated 2006 population of 562,685
- According to the US Census Bureau, the **City of Portland**:
 - has an estimated 2006 population of 537,081
 - has a 2006 land area of 347.06 square kilometres
 - has a 2006 population density of 1547.52 persons per square kilometre
- According to Portland **Metro**¹ (US Census Bureau estimates), **Metro Portland**:
 - has an estimated 2006 population of 1,412,958
 - has a land area of 1198.65 square kilometres
 - has an estimated 2006 population density of 1178.79 persons per square kilometre
 - ¹**Metro** is an elected level of regional government in the Portland metropolitan area that serves 1.4 million residents in the 25 incorporated urban communities that make up the Portland metropolitan area together with the urban residents living in the adjacent but unincorporated sections of Clackamas, Multnomah and Washington counties
 - **Metro's** 2006 estimated population of 1,412,958 represents 90% of the population of Clackamas, Multnomah and Washington Counties in Oregon living on 10% of the combined land area of those 3 counties
 - **Metro** has a land area of 462.8 square miles or 1198.65 square kilometres
 - **Metro's** land area is slightly larger than the area covered by the Urban Growth Boundary which covers a land area of 397.5 square miles or 1029.52 square kilometres
- **Portland's** metropolitan zone extends across the Columbia River into the Washington state and includes the communities of **Camas, Washougal and Vancouver**, Washington
 - **Camas, Washougal and Vancouver** have:
 - an estimated combined 2006 population of 184,750
 - a combined land area of 167.83 square kilometres
 - a combined population density of 1100.82 persons per square kilometre

- According to the Washington State Office of Financial Management:
 - **Vancouver**, Washington had an estimated 2006 population of 156,600
 - **Camas**, Washington has an estimated 2006 population of 15,880
 - **Washougal**, Washington has an estimated 2006 population of 12,270
 - **Vancouver**, Washington has a land area of 125.61 square kilometres
 - **Camas**, Washington has a land area of 29.37 square kilometres
 - **Washougal**, Washington has a land area of 12.85 square kilometres
 - **Vancouver** had a 2006 population density of 1246.72 persons per square kilometre
 - **Camas** had a 2006 population density of 540.67 persons per square kilometre
 - **Washougal** had a 2006 population density of 954.86 persons per square kilometre
- The Portland region (**Metro** plus the communities of **Camas, Washougal and Vancouver, WA**) has:
 - an estimated 2006 population of 1,597,708
 - a land area of 1366.48 square kilometres
 - an estimated 2006 density of 1169.21 persons per square kilometre
- According to US Census Bureau, the **Portland-Vancouver-Beaverton, OR-WA Metropolitan Statistical Area**:
 - has an estimated 2006 population of 2,137,565
 - has a land area of 17,436.10 square kilometres
 - has a 2006 population density of 122.59 persons per square kilometre
 - A **Metropolitan Statistical Area (MSA)** is a geographic entity defined by the [U.S. Office of Management and Budget \(OMB\)](#) for use by Federal statistical agencies in collecting, tabulating, and publishing Federal statistics
 - Each **Metropolitan Statistical Area (MSA)** consists of one or more counties and includes the counties containing the core urban area, as well as any adjacent counties that have a high degree of social and economic integration (as measured by commuting to work) with the urban core
 - the **Portland-Vancouver-Beaverton OR-WA Metropolitan Statistical Area (MSA)** includes:
 - **Clackamas** County, OR (374,230), **Columbia** County, OR (49,163), **Multnomah** County, OR (681,454), **Washington** County, OR (514,269), **Yamhill** County, OR (94,678), **Clark** County, WA (412,938), **Skamania** County, WA (10,833)
 - The US Census Bureau considers the four counties of **Clackamas, Clark and Multnomah in Oregon state** and **Clark County in Washington State** to be the “central counties” in the **Portland-Vancouver-Beaverton, OR-WA Metropolitan Statistical Area**
 - The “outlying counties” of **Columbia** and **Yamhill** in Oregon state and **Skamania County** in Washington state are included in the **Portland-Vancouver-Beaverton, OR-WA Metropolitan Statistical Area** because they have strong commuting ties to one or more of the four central counties (i.e., greater than 25% of the work force in these counties commute to or from one of the MSA counties – but not necessarily to the Portland area)

- 38.5% of the commuting population of **Skamania County** in Washington State commute to jobs in Clark County, Washington
- According to the Population Research Center at Portland State University, the **Portland-Vancouver-Beaverton Metropolitan Statistical Area (MSA)**:
 - has an estimated 2006 population of 2,121,910
 - Includes: **Clackamas** County, OR (367,040), **Columbia** County, OR (46,965), **Multnomah** County, OR (701,545), **Washington** County, OR (500,585), **Yamhill** County, OR (91,675), **Clark** County, WA (403,500), **Skamania** County, WA (10,600)
 - (Note: population estimates for **Clark** and **Skamania** counties were obtained by the Population Research Center from Washington’s Office of Financial Management)
- The combined area of the 7 counties that make up the **Portland-Vancouver-Beaverton Metropolitan Statistical Area (MSA)** is 6,760.2 square miles or 17508.84 square kilometres (1 square mile = 2.58998811 square kilometres)

County	Area in sq. miles
Yamhill County	718.00
Multnomah County	465.00
Clackamas County	1,879.00
Columbia County	687.00
Washington County	727.00
Skamania County	1,656.00
Clark County	628.20
	6,760.20

- Source: Oregon Bluebook and Washington Office of Financial Management 2005 Data Book (<http://bluebook.state.or.us/local/counties/counties.htm> and www.ofm.wa.gov)

Area and Population – Counties in the Portland-Beaverton-Vancouver MSA

County	Land Area in Square Kilometres	2006 Population Estimate (US Census Bureau)
Clackamas County	4,870.47	374,230
Multnomah County	1,204.34	681,454
Washington County	1,882.92	514,269
Yamhill County	1,859.61	94,678
Columbia County	1,701.62	49,163
Clark County	1,627.08	412,938
Skamania County	4,290.06	10,833
	17,436.10	2,137,565

- The **City of Portland** is the 30th largest city in the US
- The **Portland-Vancouver-Beaverton Metropolitan Statistical Area (MSA)** is the 23rd largest in the US

County	sq. ft.	acres	sq. miles
Clackamas Co.	52,425,825,320	1,203,531	1,880.5
Clark Co.	18,306,587,238	420,261	656.7
Multnomah Co.	12,967,061,950	297,683	465.1
Washington Co.	20,251,330,025	464,907	726.4
Region	103,859,013,840	2,386,382.1	3,728.7

Area Description	sq. ft.	acres	sq. miles
Metro Boundary	12,902,331,627	296,196.8	462.8
Urban Growth Boundary	11,081,817,163	254,403.5	397.5

source: Metro RLIS Lite, May 2005

APPENDIX B: Vancouver Population Facts

- The **Lower Mainland** has a population of over 2.3 million (**GVRD** plus **FVRD**)
 - According to BC Stats, **Greater Vancouver** has a projected 2007 population of 2,211,221
 - According to BC Stats, the **Fraser Valley** has a projected 2007 population of 273,394
 - According to BC Stats, the **Mainland/Southwest Development Region** has a projected 2007 population of 2,553,063
- **Vancouver** is the main western terminus of Canada's transcontinental highway and rail routes
 - The Port of Vancouver is Canada's largest and most diversified port
 - The Port of Vancouver trades more than \$43 billion in goods with more than 90 trading economies annually
 - Port activities generate 62,200 jobs
- **Vancouver** is located midway between Europe and Asia
 - Vancouver's business community is able to communicate with all continents during the course of a regular business day
 - Vancouver's business community is able to monitor business activity in Europe in the early morning, watch North American markets during the day, and schedule conference calls with Asia in the afternoon
- The **City of Vancouver** has an estimated 2007 population of 600,000
- According to Statistics Canada, the **City of Vancouver**:
 - has a 2006 population of 578,041
 - has a 2006 land area of 114.71 square kilometres
 - has a 2006 population density of 5039.0 persons per square kilometre
- According to Statistics Canada, the **Vancouver Census Metropolitan Area (CMA)**:
 - has a 2006 population of 2,116,581
 - has a 2006 land area of 2,877.36 square kilometres
 - has a 2006 population density of 735.6 persons per square kilometre
- the **Vancouver Census Metropolitan Area (CMA)** includes:
 - Langley (93,726), Langley City (23,606), Surrey (394,976), White Rock (18,755), Delta (96,723), Richmond (174,461), Greater Vancouver A (11,050), Vancouver City (578,041), Burnaby (202,799), New Westminster (58,549), Coquitlam (114,565), Belcarra (676), Anmore (1,785), Port Coquitlam (52,687), Port Moody (27,512), North Vancouver (82,562), North Vancouver City (45,165), West Vancouver (42,131), Bowen Island (3,362), Lions Bay (1,328), Pitt Meadows (15,623), Maple Ridge (68,949), Semiahmoo (109), Tsawwassen (674), Musqueam 2 (1,371)
- According to the **Greater Vancouver Regional District**, the **GVRD**:
 - has an estimated 2006 population of 2,180,737 (based upon BC Stats population projections)
 - has a land area of 2,878.52 square kilometres

- The **Greater Vancouver Regional District** includes:
 - Anmore (1,728), Belcarra (727), Bowen Island (3,501), Burnaby (205,477), Coquitlam (119,319), Delta (102,939), Langley City (25,789), Langley Township (99,537), Lions Bay (1,418), Maple Ridge (75,783), New Westminister (57,645), North Vancouver District (87,518), North Vancouver City (49,248), Pitt Meadows (17,532), Port Coquitlam (55,712), Port Moody (30,120), Richmond (176,599), Surrey (402,150), Vancouver (587,891), West Vancouver (44,272), White Rock (19,545), Unincorporated Areas (16,287)

- According to the **Fraser Valley Regional District**, the **FVRD**:
 - has a population of 237,550
 - has a land area of 13,905.56 square kilometres

- According to Statistics Canada, the portion of the **FVRD** representing incorporated communities:
 - has a 2006 population of 240,082
 - has a 2006 land area of 1058.73 square kilometres
 - has a 2006 population density of 226.76 persons per square kilometre

- The **GVRD** and **FVRD** combined urban area:
 - Has a 2006 population of 2,351,267
 - Has a 2006 land area of 3926.22 square kilometres
 - Has a 2006 population density of 598.86 persons per square kilometre

- The **City of Vancouver** is Canada's eighth largest municipality

- The **Vancouver Census Metropolitan Area (CMA)** is the third largest in the country

APPENDIX C: Portland Area Bridges

Portland Bridges

Willamette River Bridge Crossings – 54 lanes	
St. Johns Bridge	4 lanes
Fremont Bridge (I-405)	8 lanes (double deck bridge, 4 lanes on each level)
Broadway Bridge	4 lanes
Steel Bridge	3 lanes for vehicles (one other used by light rail)
Burnside Bridge	5 lanes
Morrison Bridge	6 lanes
Hawthorne Bridge	4 lanes
Marquam Bridge (I-5)	8 lanes (double deck bridge, 4 lanes on each level)
Ross Island Bridge	4 lanes
Sellwood Bridge	2 lanes
George Abernethy (I-205) Bridge	6 lanes
Columbia River Crossings (to Vancouver, Washington) – 14 lanes	
Glenn L. Jackson Memorial Bridge	8 lanes
The Interstate Bridge (I-5)	6 lanes (considered obsolete – limited capacity)

- The **Portland** area has a population of **1.6 million** (including Vancouver, WA)
- The Oregon Department of Transportation and the Washington State Department of Transportation are planning to replace the existing six-lane Interstate Bridge across the Columbia River on I-5 with a new bridge
 - The new bridge will have five or six lanes in each direction
 - three “through” lanes and two or three on/off lanes for both northbound and southbound travel, to allow vehicles to safely enter and exit the highway
 - The new bridge also would have a lane for bus or light rail rapid transit.
- The new bridge is being planned to address the congestion, mobility and safety problems on I-5 Interstate Bridge and along the I-5 corridor between Vancouver, Washington and downtown Portland.
 - The existing bridge does not meet current or future demands for Interstate service.
 - There are significant congestion, safety, and mobility problems in the five-mile project area between State Route 500 in Vancouver and Columbia Boulevard in Portland.
 - If no changes are made, congestion will grow from today’s six hour daily traffic jam to 16 hours per day by 2030.
 - This section of I-5 is unsafe
 - it has an accident rate more than double that of similar urban freeways
 - Narrow lanes, short on-ramps, and a lack of safety shoulders on the bridge contribute to accidents

APPENDIX D: Lower Mainland Area Bridges and Tunnels

Lower Mainland Bridges and Tunnels

Fraser River Bridge Crossings – 31 lanes		
Arthur Laing Bridge	4 lanes	Vancouver - Richmond
Oak Street Bridge	4 lanes	Vancouver - Richmond
Knight Street Bridge	4 lanes	Vancouver - Richmond
Alex Fraser Bridge	6 lanes	Richmond - Delta
Pattullo Bridge	4 lanes	New Westminster - Surrey
Port Mann Bridge	5 lanes	Coquitlam - Surrey
Mission Bridge	4 lanes	Abbotsford - Mission
Vancouver Bridges (within Vancouver's city limits) – 26 lanes		
Georgia and Dunsmuir Viaducts	6 lanes	Vancouver - Vancouver
Cambie Street Bridge	6 lanes	Vancouver - Vancouver
Granville Street Bridge	8 lanes	Vancouver - Vancouver
Burrard Street Bridge	6 lanes	Vancouver - Vancouver
Burrard Inlet Bridge Crossings – 9 lanes		
Lions Gate Bridge	3 lanes	Vancouver – West Vancouver
Second Narrows Bridge	6 lanes	Vancouver – North Vancouver
Other Lower Mainland Bridges, Ferries & Tunnels		
No. 2 Road Bridge	4 lanes	Richmond – Sea Island
Dinsmore Bridge	2 lanes	Richmond – Sea Island
Moray Bridge	2 lanes	Richmond – Sea Island
Sea Island Bridge	3 lanes	Richmond – Sea Island
George Massey Tunnel	4 lanes	Richmond – Delta
Queensborough Bridge	4 lanes	New Westminster – New Westminster
Derwent Way Bridge	2 lanes	New Westminster – Delta
Pitt River Bridge	4 lanes	Coquitlam – Pitt Meadows
Glover Road Bridge	2 lanes	Langley – Maple Ridge
Westham Island Bridge	2 lanes	Ladner – Westham Island
Fraser Valley Bridges		
Agassiz-Rosedale Bridge (Hwy #9)	2 lanes	Rosedale – Agassiz
The Fraser Bridge (Hwy #1 at Hope)	2 lanes	Hope - Hope

- The **Lower Mainland** has a population of over **2.3 million (GVRD plus FVRD)**
- Twinning the Port Mann Bridge will provide in 8 bridge traffic lanes (4 westbound and 4 eastbound) with provisions to widen the bridge for light rapid transit in the future
- The new Pitt River Bridge will have 3 lanes of westbound traffic and 4 lanes of eastbound traffic
- The Golden Ears Bridge will provide a new 6 lane bridge across the Fraser River in the 200th Street corridor

APPENDIX E: Saskatoon Bridge and Population Facts

Saskatoon Bridges

South Saskatchewan River Crossings – 22 lanes (8 more being planned)		
Circle Drive Bridge	6 lanes	Recently expanded from 4 lanes
University Bridge	4 lanes	1,407 feet long
Broadway Bridge	4 lanes	
Victoria Bridge	2 lanes	
Senator Sid Buckwold Bridge	6 lanes	
Planned Bridges		
Planned South Bridge	4 lanes	* see below
Planned North Bridge	4 lanes	* see below

- The Saskatoon area has a population of **235,000**
- **Saskatoon** is situated on the banks of the South Saskatchewan River
 - **Saskatoon** is Saskatchewan’s largest city
 - **Saskatoon** is centrally located in the province of Saskatchewan
 - the **Saskatoon region** is the world's largest exporter of uranium
 - nearly two-thirds of the world's recoverable potash reserves are located in the **Saskatoon region**
 - **Saskatchewan** grows half of all Canada’s major export crops: wheat, oats, barley, rye, flaxseed and canola
- The city of Saskatoon has just widened the **Circle Drive Bridge** from 4 lanes to 6 – a new pedestrian walkway was also added below and between the eastbound and westbound structures
- Saskatoon is often called the "City of Bridges" for its seven river crossings (2 rail bridges, 5 car bridges)
- The **City of Saskatoon** has an estimated 2007 population of 207,700
 - seven bridges cross the South Saskatchewan River within the **Saskatoon city limits**
- Saskatoon is known as the “Paris of the Prairies”
- The city of Saskatoon has identified the need for two new bridges across the South Saskatchewan River to serve the city when it reaches a population of 250,000. One bridge will be located to the north of the city along the Perimeter Highway corridor. The other bridge will be located to the south of the city along the Circle Drive corridor.
 - The primary purpose of the new south river crossing is to serve internal commuter traffic. It is also expected to be utilized by truck traffic thereby enhancing goods movements with and through the city.
 - The city of Saskatoon is planning for an eventual population of 400,000 people

- The majority of future development in Saskatoon is expected to occur in north Saskatoon
- According to Statistics Canada, the **City of Saskatoon**:
 - has a 2006 population of 202,340
 - has a 2006 land area of 170.83 square kilometres
 - has a 2006 population density of 1184.4 persons per square kilometre
- According to Statistics Canada, the **Saskatoon Census Metropolitan Area (CMA)**:
 - has a 2006 population of 233,923
 - has a 2006 land area of 5,206.70 square kilometres
 - has a 2006 population density of 44.9 persons per square kilometre
- the **Saskatoon Census Metropolitan Area (CMA)** includes:
 - Thode (156), Dundurn No. 314 (632), Dundurn (647), Shields (172), Corman Park No. 344 (8,349), Saskatoon (202,340), Langham (1,120), Warman (4,764), Blucher No. 343 (1,593), Martensville (4,968), Bradwell (182), Allan (631), Dalmeny (1,560), Elstow (91), Osler (926), Colonsay No. 342 (275), Clavet (345), Meacham(70), Colonsay (425), Whitecap (235), Vanscoy No. 345 (2,629), Delisle (898), Vanscoy (339), Asquith (576)
- According to the Saskatoon Regional Economic Development Authority, The Saskatoon CMA:
 - has an estimated 2007 population of 237,446
- The **City of Saskatoon** is Canada's twenty-third largest
- The **Saskatoon Census Metropolitan Area (CMA)** is the seventeenth largest in the country