

58

Hester, Jim TRAN:EX

From: Doug Rhodes [drhodes@farronhill.com]
Sent: Monday, November 12, 2007 5:48 PM
To: Hester, Jim TRAN:EX
Subject: Employment ratio

Hi Jim

It occurred to me after our phone call that I was talking labour force participation rates, which generally are based on population of working age (say, 14 years old and above) rather than total population. When I ran the estimates of employment numbers over total population for 2001 I got 51.2% as a baseline. The projections in the GVRD paper for 2031, divided by the BC Stats projection for total population in 2031, range from a low of 49.0% to a high of 51.5% by my calculation ... suggesting that the projected employment numbers are eminently reasonable, since aging populations would be expected to reduce the percentage employed, mitigated somewhat perhaps by the end of mandatory retirement and people working longer than was the case in 2001.

This gives me extra confidence that use of a ratio of around one half of total population is quite supportable on the data we have.

HTH
Doug

Hester, Jim TRAN:EX

From: Doug Rhodes [drhodes@farronhill.com]
Sent: Monday, November 12, 2007 2:47 PM
To: Hester, Jim TRAN:EX
Subject: Population and employment projections
Attachments: Population projects major centres and others.xls

Hi Jim

Further to your phone request I have done some digging into population and labour force projections. Here are the results:

1) Labour force (employment) projections appear to be by "College Region" which maps reasonably well to GVRD and CRD but breaks down elsewhere. Projections are available to 2011 only. Beyond 2011 employment projections available are aggregated by employment type but not by geographic region per available report here
http://www.aved.gov.bc.ca/labourmarketinfo/reports/COPS_BCUnique_2006.pdf

I did find a GVRD background paper with some comparative projections to 2031 from various sources on page 6
<http://www.gvrd.bc.ca/growth/workinggroup/LRSPReviewEmpLocationIssues-OptionsBckgrndPaper.pdf>
Projections for 2031 there vary from 1,587,700 to 1,619,900 jobs.

2) Historical population stats are available by municipality as well as Regional District, but forward projections are only available by regions: Health Regions, RDs, and School Districts. For our purposes the RDs appeared the best source. I have build you a spreadsheet and derived the projections for the RDs containing Metro Vancouver, Greater Victoria, Nanaimo, Kelowna, Kamloops and Prince George. The first two and possibly Kelowna probably represent the settled areas pretty closely. For example, I checked the Stats Canada figure for the census metropolitan area of Victoria for 2006 and it was within 10% of the figure for the RD. The more rural RDs would be farther off. In the attached spreadsheet I have shown in bold the totals for the major centre RDs and rest of province for 2006 and 2036. They agree in total with the projections you had on the phone, but the RDs are about 10% higher than the totals you had for the major centres, so this all seems to fit reasonably well.

Hope this helps
Doug

Year Population (estimated to 2006; projected thereafter to 2036)
Regional District with major centre in parentheses

	GVRD (Metro Vancouver)	CRD (Victoria)	Nanaimo	Central Okanagan (Kelowna)	Thompson-Nicola (Kamloops)	Fraser-Fort George (Prince George)
1986	1,443,019	275,047	84,992	92,772	101,698	92,466
1987	1,475,542	280,108	86,258	95,100	102,220	91,970
1988	1,518,966	286,114	88,912	97,986	102,466	91,689
1989	1,566,202	293,590	92,762	102,275	103,405	91,975
1990	1,607,911	301,128	98,262	108,676	105,370	92,695
1991	1,647,382	307,650	104,378	114,671	107,024	93,341
1992	1,699,783	313,858	108,335	122,041	108,710	94,242
1993	1,745,358	319,599	113,550	128,907	112,135	96,875
1994	1,797,815	323,972	119,482	133,681	116,060	98,869
1995	1,851,623	328,337	123,219	137,761	119,770	101,077
1996	1,906,500	331,098	126,265	141,623	123,439	103,002
1997	1,954,830	334,604	129,059	145,430	125,021	103,712
1998	1,984,798	335,719	130,053	148,782	125,183	102,634
1999	2,012,410	336,781	130,778	150,349	124,571	101,712
2000	2,040,036	337,441	131,344	152,198	125,639	101,008
2001	2,073,662	340,030	132,555	154,193	124,498	99,479
2002	2,102,341	343,700	134,390	156,442	124,367	98,249
2003	2,129,244	347,940	136,925	159,656	124,447	98,480
2004	2,154,353	351,874	138,844	161,333	125,599	99,068
2005	2,188,468	357,768	142,246	165,659	126,374	97,365
2006	2,218,561	361,744	145,279	170,140	128,024	96,496
2007	2,255,373	364,322	147,729	173,173	128,617	95,986
2008	2,290,568	366,934	150,124	176,227	129,271	95,635
2009	2,325,817	369,775	152,554	179,334	130,017	95,454
2010	2,361,833	372,765	154,939	182,409	130,844	95,392
2011	2,397,466	375,908	157,336	185,514	131,745	95,432
2012	2,434,072	379,094	159,690	188,566	132,707	95,562
2013	2,470,477	382,252	161,998	191,553	133,710	95,766
2014	2,506,254	385,312	164,239	194,440	134,707	95,974
2015	2,541,522	388,281	166,406	197,234	135,683	96,169
2016	2,576,271	391,204	168,523	199,943	136,629	96,385
2017	2,610,677	394,114	170,643	202,624	137,588	96,614
2018	2,644,854	397,035	172,716	205,265	138,539	96,849
2019	2,678,591	399,896	174,744	207,867	139,481	97,111
2020	2,711,859	402,708	176,747	210,438	140,413	97,362
2021	2,744,696	405,455	178,728	212,959	141,337	97,610
2022	2,776,820	408,133	180,657	215,433	142,250	97,863
2023	2,808,217	410,692	182,519	217,866	143,159	98,119
2024	2,838,714	413,154	184,326	220,223	144,063	98,381
2025	2,868,360	415,490	186,062	222,542	144,935	98,636
2026	2,897,192	417,695	187,721	224,811	145,773	98,886
2027	2,925,338	419,806	189,345	227,013	146,628	99,132
2028	2,952,861	421,820	190,929	229,161	147,452	99,389
2029	2,979,681	423,704	192,478	231,270	148,273	99,637

Total Major

Centre RDs	Rest of BC	Total BC			
2,089,994	914,110	3,004,104			
2,131,198	918,962	3,050,160			
2,186,133	929,224	3,115,357			
2,250,209	947,671	3,197,880			
2,314,042	976,772	3,290,814			
2,374,446	999,018	3,373,464			
2,446,969	1,021,476	3,468,445			
2,516,424	1,050,982	3,567,406			
2,589,879	1,085,820	3,675,699			
2,661,787	1,115,217	3,777,004			
2,731,927	1,142,349	3,874,276	2.7	1.1	3.9
2,792,656	1,155,888	3,948,544			
2,827,169	1,155,908	3,983,077			
2,856,601	1,154,741	4,011,342			
2,887,666	1,151,532	4,039,198			
2,924,417	1,154,030	4,078,447			
2,959,489	1,155,924	4,115,413			
2,996,692	1,158,678	4,155,370			
3,031,071	1,172,244	4,203,315			
3,077,880	1,179,953	4,257,833			
3,120,244	1,190,208	4,310,452			
3,165,200	1,199,365	4,364,565			
3,208,759	1,208,749	4,417,508			
3,252,951	1,218,586	4,471,537			
3,298,182	1,228,994	4,527,176			
3,343,401	1,239,753	4,583,154			
3,389,691	1,250,763	4,640,454			
3,435,756	1,261,776	4,697,532			
3,480,926	1,272,506	4,753,432			
3,525,295	1,282,973	4,808,268			
3,568,955	1,293,299	4,862,254			
3,612,260	1,303,589	4,915,849			
3,655,258	1,313,733	4,968,991			
3,697,690	1,323,794	5,021,484			
3,739,527	1,333,780	5,073,307			
3,780,785	1,343,610	5,124,395			
3,821,156	1,353,213	5,174,369			
3,860,572	1,362,617	5,223,189			
3,898,861	1,371,855	5,270,716			
3,936,025	1,380,856	5,316,881			
3,972,078	1,389,573	5,361,651			
4,007,262	1,398,035	5,405,297			
4,041,612	1,406,255	5,447,867			
4,075,043	1,414,185	5,489,228			

4,107,469	1,421,847	5,529,316			
4,138,835	1,429,171	5,568,006			
4,168,892	1,436,187	5,605,079			
4,197,795	1,442,834	5,640,629			
4,225,416	1,449,229	5,674,645			
4,251,756	1,455,282	5,707,038			
4,277,071	1,461,086	5,738,157	4.3	1.5	5.7

Hester, Jim TRAN:EX

From: Maureen Murphy [maureen.murphy@telus.net]
Sent: Monday, December 3, 2007 5:47 PM
To: Little, Tamara M PAB:EX; Hester, Jim TRAN:EX
Subject: RE: Press materials

Hi T, The BG looks v good.

Thoughts:

s.13

Cheers, M

Regards,

Maureen Murphy

Communications, Marketing, Public Affairs
1407-1022 Nelson Street
Vancouver, BC Canada V6E 4S7
604.687.1022 (tel)

s.17

From: Little, Tamara M PAB:EX [<mailto:Tamara.Little@gov.bc.ca>]
Sent: December 3, 2007 1:42 PM
To: Hester, Jim TRAN:EX; Maureen Murphy
Subject: Press materials

Hoping to get your input today.

Key things to consider:

1. what are the key gems to emphasize in the quotes
2. what key objectives to highlight in the NR
3. what to list in the Backgrounder

Can we talk by phone about this later today once the plan is through its recent review?

<<bg_transit plan_Dec 3 07 DRAFT.doc>> <<nr_transit plan_Dec 3 07 DRAFT.doc>>

Tamara Little

Communications Director
Ministry of Transportation
Public Affairs Bureau
Office - 250.387.7787

s.17

Hester, Jim TRAN:EX

From: Maureen Murphy [maureen.murphy@telus.net]
Sent: Monday, December 3, 2007 5:22 PM
To: Little, Tamara M PAB:EX; Hester, Jim TRAN:EX
Subject: RE: Minister's Message

Sounds good, M

Regards,

Maureen Murphy

Communications, Marketing, Public Affairs
1407-1022 Nelson Street
Vancouver, BC Canada V6E 4S7
604.687.1022 (tel)

s.17

From: Little, Tamara M PAB:EX [<mailto:Tamara.Little@gov.bc.ca>]
Sent: December 3, 2007 5:03 PM
To: Maureen Murphy; Hester, Jim TRAN:EX
Subject: RE: Minister's Message

We've been trying to work on this too. I'll call you in the AM.

From: Maureen Murphy [<mailto:maureen.murphy@telus.net>]
Sent: Monday, December 3, 2007 4:25 PM
To: Hester, Jim TRAN:EX
Cc: Little, Tamara M PAB:EX
Subject: Minister's Message
Importance: High

Hi Jim, As discussed, see below my edits to the first two paragraphs of the Minister's Message. Also as discussed, I found numerous other boo boos throughout the document. I will coordinate w/ Tamara to amalgamate our changes.
Cheers, M

s.13

s.13

T – I am free to go through changes until 5 pm and then tomorrow a.m. from 10 a.m. to noon.

Cheers, M

Regards,

Maureen Murphy

Communications, Marketing, Public Affairs
1407-1022 Nelson Street
Vancouver, BC Canada V6E 4S7
604.687.1022 (tel)

s.17

Hester, Jim TRAN:EX

From: Maureen Murphy [maureen.murphy@telus.net]
Sent: Monday, December 3, 2007 5:21 PM
To: Little, Tamara M PAB:EX; Hester, Jim TRAN:EX
Subject: RE: Press materials
Attachments: nr_transit plan_Dec 3 07 DRAFT-MM.doc

Suggested NR edits. Backgrounder to follow. Cheers, M

Regards,

Maureen Murphy

Communications, Marketing, Public Affairs
1407-1022 Nelson Street
Vancouver, BC Canada V6E 4S7
604.687.1022 (tel)

s.17

From: Little, Tamara M PAB:EX [<mailto:Tamara.Little@gov.bc.ca>]
Sent: December 3, 2007 1:42 PM
To: Hester, Jim TRAN:EX; Maureen Murphy
Subject: Press materials

Hoping to get your input today.

Key things to consider:

1. what are the key gems to emphasize in the quotes
2. what key objectives to highlight in the NR
3. what to list in the Backgrounder

Can we talk by phone about this later today once the plan is through its recent review?
<<bg_transit plan_Dec 3 07 DRAFT.doc>> <<nr_transit plan_Dec 3 07 DRAFT.doc>>

Tamara Little
Communications Director
Ministry of Transportation
Public Affairs Bureau
Office - 250.387.7787

s.17

To: Little, Tamara M PAB:EX; Maureen Murphy
Subject: Transit Plan

Met with MKF and staff this AM.
Overall, really likes it.
However, lots of text edits, graphical changes, etc.
I will be available after 1:00 should either of you want to discuss.

Jim Hester, Director
Transit
Ministry of Transportation

Phone: (250) 387- 6024
FAX: (250) 387- 5012
e-mail: Jim.Hester@gov.bc.ca

Pages 11 through 12 redacted for the following reasons:

s.13

Hester, Jim TRAN:EX

From: Maureen Murphy [maureen.murphy@telus.net]
Sent: Saturday, December 1, 2007 1:13 AM
To: Hester, Jim TRAN:EX; Little, Tamara M PAB:EX
Subject: comments on the plan

Hi J & T,

Tx Tamara for dropping the plan off to me today. It looks fantastic so far – great work to all. Love the new maps Beverly did, and love the shots on the front and back cover and conclusion page!

Here are a few items to note:

s.13

Finally, I read the document through and saw numerous little tweaks I would make if there's time. Will I have a chance to proof the final version for grammar and punctuation, typographical errors, and other boo boos?

Cheers, Murph

Regards,

Maureen Murphy

Communications, Marketing, Public Affairs
1407-1022 Nelson Street
Vancouver, BC Canada V6E 4S7
604.687.1022 (tel)

s.17

Hester, Jim TRAN:EX

From: Maureen Murphy [maureen.murphy@telus.net]
Sent: Friday, November 30, 2007 7:05 PM
To: Hester, Jim TRAN:EX
Subject: RE: Transit Plan

Regards,

Maureen Murphy

Communications, Marketing, Public Affairs
1407-1022 Nelson Street
Vancouver, BC Canada V6E 4S7
604.687.1022 (tel)

s.17

From: Hester, Jim TRAN:EX [mailto:Jim.Hester@gov.bc.ca]
Sent: November 30, 2007 6:56 PM
To: Maureen Murphy
Subject: RE: Transit Plan

Hi Maureen. We are okay. Text changes are made and provided back to MKF office.
Redesign complete.
Additional photos added as directed.
Graphics are updated.
We will flow text tomorrow AM and bounce through approvals once again.
My fingers are crossed that we will have approvals in place for Monday.

s.22

Have a good weekend.

From: Maureen Murphy [mailto:maureen.murphy@telus.net]
Sent: Friday, November 30, 2007 6:33 PM
To: Hester, Jim TRAN:EX
Subject: RE: Transit Plan

Anything I can help w/ Jim?

Regards,

Maureen Murphy

Communications, Marketing, Public Affairs
1407-1022 Nelson Street
Vancouver, BC Canada V6E 4S7
604.687.1022 (tel)

s.17

From: Hester, Jim TRAN:EX [mailto:Jim.Hester@gov.bc.ca]
Sent: November 30, 2007 12:31 PM

Hester, Jim TRAN:EX

From: Maureen Murphy [maureen.murphy@telus.net]
Sent: Friday, November 23, 2007 3:33 PM
To: Little, Tamara M PAB:EX; Hester, Jim TRAN:EX
Subject: RE: Q/As
Attachments: Q_A T Plan DRAFT Nov 23-MM thoughts.doc

A few suggestions. Cheers, M

Regards,

Maureen Murphy

Communications, Marketing, Public Affairs
1407-1022 Nelson Street
Vancouver, BC Canada V6E 4S7
604.687.1022 (tel)

s.17

From: Little, Tamara M PAB:EX [<mailto:Tamara.Little@gov.bc.ca>]
Sent: November 23, 2007 11:02 AM
To: Hester, Jim TRAN:EX
Cc: maureen.murphy@telus.net
Subject: Q/As

Jim As discussed here are my early Q/As. I've started answering, but if you want your guy to provide facts to answer, that's great. I'll pretty them up after.

Feel free to add more too (!) - I likely will after this afternoon.

Maureen - no action by you needed except perhaps a quick review to ensure I've captured everything of interest.
Thx. <<Q_A T Plan DRAFT Nov 23.doc>>

Tamara Little
Communications Director
Ministry of Transportation
Public Affairs Bureau
Office - 250.387.7787

s.17

Pages 16 through 18 redacted for the following reasons:

s.13

Hester, Jim TRAN:EX

From: Maureen Murphy [maureen.murphy@telus.net]
Sent: Wednesday, November 21, 2007 12:55 PM
To: Hester, Jim TRAN:EX; Little, Tamara M PAB:EX
Subject: RE: Provincial Transit Plan-20Nov07 Jim's comments.doc
Attachments: Provincial Transit Plan-21Nov07.doc

Hi guys,

Here's the next iteration w/ JH's changes incorporated. Few things to consider:

s.13

The plan to hold a conference call is OK as long as it's on Friday. I will be w/ the photographer all day tomorrow shooting transit.

Cheers, M

Regards,

Maureen Murphy

Communications, Marketing, Public Affairs
1407-1022 Nelson Street
Vancouver, BC Canada V6E 4S7
604.687.1022 (tel)

s.17

From: Hester, Jim TRAN:EX [<mailto:Jim.Hester@gov.bc.ca>]
Sent: November 21, 2007 10:50 AM
To: Maureen Murphy; Little, Tamara M PAB:EX
Subject: Provincial Transit Plan-20Nov07 Jim's comments.doc

<<Provincial Transit Plan-20Nov07 Jim's comments.doc>>

Sorry for delay. Life is interesting. Direction on funding has bounced. Here are my thoughts.
I am only now starting to chase the factoids.
We need to talk about how to manage this forward.
I propose circulating copy to executive today and have a telecon after they have a chance to review.
Your thoughts?

The Provincial Transit Plan: A Vision for Climate Action Leadership

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Message from the Minister

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SkyTrain

Cycling and Walking

Conclusion

Message from the Premier

The Provincial Transit Plan: A Vision for Climate Action Leadership is British Columbia's bold new strategy for expanding fast, reliable, green transit. Our made-in-BC transit plan is a cornerstone of our climate action efforts. It takes on critical transportation issues like traffic congestion, the need for greater transit choices, transit rider safety, and greenhouse gas emissions from cars – a leading cause of climate change.

Our goal is to double transit ridership in British Columbia by 2020, with half of all peak period trips made by transit, bicycle or foot. To achieve this milestone, we envision unprecedented investments in innovative transit solutions that drive urban development around transit stations and corridors. The plan calls for \$13.9 billion in transit investments from the Province and our partners – the Crown corporation BC Transit, TransLink, and federal and local governments – and includes \$11.1 billion in new funding, with \$4.75 billion in direct provincial commitments.

Expanded transit can bring positive changes to our communities. As more and more people live and work near major transit corridors and hubs, the urban form shifts, leading to lower energy use and decreased greenhouse gas emissions. Building denser living and working communities will encourage the use of nearby transit options.

As forward-thinking leaders, we realize we have a responsibility to prepare today for the future success of our children and grandchildren. ***The Provincial Transit Plan: A Vision for Climate Action Leadership*** calls for swift action, imaginative forethought and strong leadership to achieve our objectives. It is a fundamental part of our commitment to lower British Columbia's greenhouse gas emissions and lead the country in taking climate action. ***The Provincial Transit Plan*** calls for a world class transit system for British Columbians that will provide economic, social and environmental advantages for years to come.

Plainly put: it's the right thing to do.

Message from the Minister

British Columbia's transportation network is the life blood of our thriving economy. Safe, efficient movement of people and goods allows British Columbians to do business, travel between home and work, and enjoy all our province has to offer. As a critical part of the province's transportation network, our transit system must be secure, integrated,

seamless and energy efficient to support the province's ongoing economic and environmental vitality.

The Provincial Transit Plan: A Vision for Climate Action Leadership takes proactive steps to foster continued robust growth in jobs and economic opportunities in a way that helps meet our government's ambitious climate action goals. The plan takes direct aim at emissions by getting British Columbians out of cars and onto transit, bicycles and walk-ways. Our transit vision is to build an inter-connected transit grid, providing communities with a range of clean travel options from conventional buses to our new ***RapidBus BC***, as well as SkyTrain and cycling and walking facilities.

The Provincial Transit Plan delivers fast, frequent, reliable transit service. For example, transit passengers travelling between Langley and the University of British Columbia will save 35 minutes in peak hours compared to driving. At the same time, the plan calls for enhanced security facilities to keep passengers safe and support greater transit use, day or night, across the system. This broad vision requires investing in effective transit today for the benefit of British Columbians in the future.

Working closely with BC Transit, the new TransLink Board and Mayor's Council, and our federal and local government partners, we will take rapid action to achieve our objectives. As Minister of Transportation, I am proud to be part of this far-sighted effort on behalf of British Columbians. Like other historic investments in our province, it promises to leave a legacy of prosperity and well being for generations to come.

Highlights of The Provincial Transit Plan

Investing For the Future

The Government of British Columbia is investing in innovative transit options for the benefit of all British Columbians now and in the future. By 2020, the plan calls for government and its federal and municipal partners to commit \$13.9 billion to significantly expand transit in communities across the province, doubling transit ridership and aiming for half of all peak period trips to be taken aboard transit, by bicycle or on foot. This includes \$11.1 billion in new funding with \$4.75 billion in new, direct provincial funding commitments.

Investments include:

- \$X in new, clean technology buses to bolster the provincial fleet and provide many communities with more frequent service to meet transit users' specific needs

- \$X million in a new **RapidBus BC** fleet – energy efficient, high capacity buses on nine major routes in the high growth urban centres of Kelowna, Victoria and Metro Vancouver, providing frequent, fast, reliable service that looks and feels like rapid transit and operates on dedicated lane-ways in some cases
- \$X billion in four new SkyTrain lines serving communities across Metro Vancouver
- \$X to develop a comprehensive, integrated cycling and walking strategy for British Columbians

To achieve these ridership goals, transit must be located close to the places British Columbians live and work. It must also be fuel efficient, frequent, reliable and provide short travel times to destinations. **The Provincial Transit Plan** is designed to:

- Increase transit ridership across the province to over 400 million trips a year
- Attract 17 percent of Metro Vancouver residents
- Reduce greenhouse gas emissions (GHGs) and other air contaminants from cars by 4.7 million tonnes cumulatively, representing a X percent reduction in transportation GHGs and helping lower provincial greenhouse gas emissions by 33 percent over current levels by 2020 and make government operations carbon neutral by 2010
- Support increased population and employment densities near transit hubs and along transit corridors, changing urban forms that will, in turn, increase transit options
- Ease traffic congestion and make urban centres better places to live by switching XX car journeys to transit trips a year
- Improve fare compliance and transit rider safety and comfort by installing security infrastructure on and around transit, particularly SkyTrain
- Expand transportation services for seniors and those with mobility challenges

Fact Box: (one fact per box)

-Transit use is growing rapidly in B.C. and Canada. A total of 1.7 billion transit trips were taken across the country in 2006, representing a 3.2 percent increase over 2005, and a 15.8 percent increase over the five-year period since 2001

-The risk of fatality is 20 times higher for car occupants than transit riders over the same distance.

Canadian Urban Transit Association, 2007

Climate Action

Global climate change is among the most pressing challenges facing the world today. Taking action to reduce transportation-related greenhouse gas emissions is a key part of the solution. To accelerate transit ridership and help lower greenhouse gas emissions, ***The Provincial Transit Plan*** provides British Columbians with a range of energy efficient transit choices that encourage denser populations near transit stations and along transit corridors.

The Provincial Transit Plan will reduce greenhouse gas emissions from the transportation sector – the majority of which come from car and truck traffic. In particular, the plan aims to minimize unnecessary idling in traffic, which produces twice as many GHGs as vehicles moving fluidly. By decreasing car use, increasing transit ridership and reducing traffic congestion that causes excessive idling, we can avoid over 4.7 million tonnes of emissions cumulatively by 2020.

With almost \$14 billion in transit investments, ***The Provincial Transit Plan*** complements the Province's planned 10-year, \$12.5 billion program to improve roads and highways around the province. The goal is to help meet the Province's tough new target requiring a 33 percent reduction in provincial greenhouse gas emissions by 2020 from current levels and confirm British Columbia as a global leader in energy conservation and environmental sustainability.

Fact Box: (one per box)

- Vehicles that idle in traffic create X percent of all greenhouse emissions from cars and trucks in British Columbia.
- Need another green fact / analogy here – e.g. removing 4.7 million tonnes of GHGs is like parking all the cars in Metro Vancouver for a year

Transit Rider Security

Every day in British Columbia, 600,000 passengers use public transit. As a public resource, transit options are open and fully accessible, covering large distances to serve as many riders as possible. In some cases, payment is based on an honour system. As a result, transit is difficult to monitor closely, making it susceptible to criminal activity.

The Provincial Transit Plan takes strong measures to keep transit riders safe and encourage greater transit use through the creation of closed and secure zones for paying transit users. By controlling access to transit facilities and monitoring transit use, we can help ensure fares are paid and passengers are protected. Security investments being evaluated include:

- Installing electronic gates and closed-circuit cameras at SkyTrain stations
- Launching a smart-card system for SkyTrain and buses that users can reload at vending machines or on the Internet
- Prosecuting people who do not pay fares and applying on-the-spot fines
- Increasing security personnel in and around SkyTrain stations
- Improving safety for bus drivers

Fact Box: (one per box)

-Sixty percent of all transit crime – including violent assaults – is committed by fare evaders. Installing secure access points can virtually eliminate fare evasion.

-An X percent increase in population density within a radius of Y kilometres of a SkyTrain station results in a Z percent increase in ridership.

Expanding the Fleet – Customized Solutions for Individual Communities

The Provincial Transit Plan will significantly increase the provincial bus fleet to improve service in many communities around the province. By investing \$X billion in X new, clean energy buses and increasing the hours of service, many transit riders will have access to more buses, more often. The new buses will be selected to meet the specific needs of communities in cost-effective, energy efficient ways.

Clean technologies include:

- Hydrogen
- Hybrid
- Electric
- Natural Gas
- Low emissions diesel

The new fleet will be made up of a variety of bus types customized to meet individual communities' and users' needs. Options include:

- Community shuttles – smaller, quieter vehicles that minimize impacts on neighbourhoods
- Custom transit – specialized vans and minibuses for dial-a-ride, door-to-door handyDART service, and taxi programs to serve mobility challenged transit users and others who cannot access conventional transit
- Para-transit – mini-buses, taxis and vans offering flexible routes and schedules
- Articulated and double-decker buses – high capacity buses to serve passengers on routes where demand is heavy
- Conventional buses

RapidBus BC

New, innovative, point-to-point ***RapidBus BC*** is a key pillar of ***The Provincial Transit Plan***. ***RapidBus BC*** breaks from the past, when conventional buses offered basic transportation to serve passengers unable to access alternatives. Riding ***RapidBus BC***

will be a whole new transit experience, offering high quality, cost-effective, rapid transit-style service for all transit users.

As the core of the transit system in communities like Kelowna, Victoria and Metro Vancouver, **RapidBus BC** offers:

- Frequent, reliable service at regularly spaced intervals
- Express service with few or no stops between main stations
- Priority movement in traffic
- Pre-paid fare collection to minimize boarding delays
- Integrated fare systems, allowing free or discounted transfers between routes and transit modes
- Easy-to-use passenger information and marketing programs

RapidBus BC infrastructure can include:

- Modern, efficient, high capacity vehicles, which are easy to board, quiet, clean and comfortable to ride
- Contemporary, conveniently located bus stations with nearby amenities
- Seamless integration with other transit options and coordination with cycling and walking infrastructure
- Separate lanes on all or some parts of routes
- Use of High Occupancy Vehicle lanes
- Signal priority and queue jumping provisions (I would but signal priority and queue jumping as one line
- Guide-ways to automatically steer the bus on portions of the route
- Effective security measures

As part of **The Provincial Transit Plan**, \$X million will be invested in **RapidBus BC** by 2020. The investment includes X designated bus-ways and approximately Y new **RapidBus BC** stations to accommodate a fleet of Z new, cutting edge, fuel efficient vehicles. **RapidBus BC** will be available along nine lines in British Columbia:

- X to Y in Kelowna from Westbank to the University of British Columbia Okanagan in the central Okanagan
- From Douglas Street in downtown Victoria to Langford on the West Shore
- Highway 1, connecting Lougheed Station to exchanges in Surrey and Langley across the Port Mann Bridge
- Hastings Street from downtown Vancouver to Simon Fraser University
- 41st Avenue from the Canada Line station to the University of British Columbia
- Highway 99 from White Rock to the Canada Line station at XX in Richmond
- King George Highway from Surrey Centre south to White Rock
- Fraser Highway, connecting Langley to the Expo Line in Surrey
- Highway 7 from the Evergreen Line in Coquitlam across the new Golden Ears Bridge

SkyTrain

SkyTrain is Metro Vancouver's automated light rapid transit system. Powered by 90 percent emissions free-electricity, SkyTrain links with a network of buses at stations around the region, and connects with SeaBus to take passengers across the Burrard Inlet to the North Shore. Today, there are X kilometres of SkyTrain line and Y SkyTrain stations serving communities from downtown Vancouver to Surrey, Z kilometres east of the city.

The Provincial Transit Plan calls for three times as much SkyTrain line to be delivered between 2010 and 2020 as was built in the three previous decades. SkyTrain capacity will increase by X times by adding new lines and cars and increasing efficiency. The plan includes \$9.3 billion in new lines, line extensions, new stations, upgrades to existing stations, new SkyTrain cars, and a variety of security measures to keep riders safe.

- Investments include: \$2 billion to construct the new, 19 kilometre Canada Line from downtown Vancouver to Vancouver International Airport in Richmond by end of 2009

- \$1.4 billion to extend the Evergreen Line by 11 kilometres and add 12 new stations, linking neighbourhoods in Coquitlam, Port Moody and the Lougheed area by 2014
- \$2.8 billion to build a new, 12 kilometre SkyTrain line from Broadway Station to the University of British Columbia (UBC) by 2020
- \$3.1 billion to extend the Expo Line another six kilometres to X in Surrey and double capacity by upgrading stations to accommodate twice as many SkyTrain cars by 2020

Cycling and walking

As communities become increasingly dense and the transit grid expands, cycling and walking will become more and more viable transportation options. ***The Provincial Transit Plan*** calls for a new, integrated provincial cycling and walking strategy. The goal is to set out a plan to expand bicycle and pedestrian infrastructure and enable land use change that supports greater cycling and walking.

The plan will complement the Province's existing commitments to providing 1,000 new bike lockers at transit hubs, \$50 million for cycling infrastructure through the Gateway Program, and annual grants of \$2 million to local governments for cycling facilities.

Benefits of encouraging cycling and walking as a viable transportation mode include:

- Reducing car and truck traffic congestion
- Conserving energy and lowering greenhouse gas emissions
- Improving public health and fitness through physical activity
- Making getting around easier and more affordable for those without access to a car
- Easing demand for parking
- Making our communities more desirable places to live, work and visit

Conclusion

The Provincial Transit Plan: A Vision for Climate Action Leadership is the Government of British Columbia's action plan for providing fast, reliable, green transit for the benefit of all British Columbians. The Plan is aimed at doubling transit ridership

by 2020 and encouraging half of all trips to be taken by transit, bicycle or foot. As a key pillar of the Province's climate action strategy, **The Provincial Transit Plan** will reduce transportation greenhouse gases by 4.7 million tonnes cumulatively, supporting the Province's goals of reducing provincial greenhouse gas emissions by 33 percent by 2020 over current levels and making government operations carbon neutral by 2010.

The plan calls for \$13.9 billion in transit investments by 2020 to:

- Add X new, energy efficient buses in British Columbia to provide many communities across the province with more frequent, dependable transit service
- Launch nine new, cutting edge **RapidBus BC** lines to serve the fast growing urban centres of Kelowna, Victoria and Metro Vancouver
- Deliver four new SkyTrain lines – the Canada Line, Evergreen Line, UBC Line and Expo Line – to connect communities across Metro Vancouver
- Create a new strategy to develop an integrated, inter-connected cycling and walking network that supports denser living and working communities

Together, the investments will form a world leading, green transit system for British Columbians for years to come.

Hester, Jim TRAN:EX

From: Maureen Murphy [maureen.murphy@telus.net]
Sent: Tuesday, November 20, 2007 1:01 AM
To: Little, Tamara M PAB:EX; Hester, Jim TRAN:EX
Subject: RE: For your review
Attachments: Provincial Transit Plan-20Nov07.doc

Tamara, Thanks very much for your awesome feedback - most helpful. Please see the next iteration attached.

Jim, Please make your changes to the version attached. If possible, please provide your changes by 9 a.m. I will then incorporate your comments and submit another iteration by 10 a.m. so you can distribute it to John, Peter, Sheila and Frank. I'll be in meetings most of the day but available on cell and blackberry.

T, let me know what happens w/ Ken H RE: approvals for photography at SkyTrain and on buses on Thursday.

Thanks again J&T!

Cheers, M

Regards,

Maureen Murphy

Communications, Marketing, Public Affairs
1407-1022 Nelson Street
Vancouver, BC Canada V6E 4S7
604.687.1022 (tel)
s.17 (cel)

-----Original Message-----

From: Little, Tamara M PAB:EX [<mailto:Tamara.Little@gov.bc.ca>]
Sent: November 19, 2007 9:56 PM
To: Maureen Murphy; Hester, Jim TRAN:EX
Subject: RE: For your review

Here's the bits I had also...

thanks Maureen.

From: Maureen Murphy [<mailto:maureen.murphy@telus.net>]
Sent: Mon 11/19/2007 9:04 PM
To: Hester, Jim TRAN:EX; Little, Tamara M PAB:EX
Subject: For your review

Hi there,

Here's the next iteration for your review. Please provide feedback tonight or by 8:30/9 a.m. tomorrow at the latest. I will send the revised back to you by 10 a.m. before going into meetings at 10:30 a.m. out of the office. I'll be available on cell and blackberry.

Thanks!

Cheers, Maureen

Regards,

Maureen Murphy

Communications, Marketing, Public Affairs

1407-1022 Nelson Street

Vancouver, BC Canada V6E 4S7

604.687.1022 (tel)

s.17

Hester, Jim TRAN:EX

From: Maureen Murphy [maureen.murphy@telus.net]
Sent: Monday, November 19, 2007 9:05 PM
To: Hester, Jim TRAN:EX; Little, Tamara M PAB:EX
Subject: For your review
Attachments: Provincial Transit Plan-19Nov07.doc

Importance: High

Hi there,

Here's the next iteration for your review. Please provide feedback tonight or by 8:30/9 a.m. tomorrow at the latest. I will send the revised back to you by 10 a.m. before going into meetings at 10:30 a.m. out of the office. I'll be available on cell and blackberry.

Thanks!

Cheers, Maureen

Regards,

Maureen Murphy

Communications, Marketing, Public Affairs
1407-1022 Nelson Street
Vancouver, BC Canada V6E 4S7
604.687.1022 (tel)

s.17

The Provincial Transit Plan: A Vision for Climate Action Leadership

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Message from the Premier

The Provincial Transit Plan: A Vision for Climate Action Leadership is British Columbia's bold new strategy for expanding fast, reliable, green transit. Our made-in-BC transit plan is a cornerstone of our climate action efforts. It takes on critical transportation issues like traffic congestion, transit rider safety, the need for greater transit choices and denser urban populations, and greenhouse gas emissions from cars – a leading cause of climate change.

Our goal is to double transit ridership in British Columbia by 2020, with half of all trips made by transit, bicycle or foot. To achieve this milestone, we envision unprecedented investments in innovative transit solutions that drive urban development around transit stations and corridors. The plan calls for \$14.4 billion in transit investments from the Province and our partners – BC Transit, TransLink, and federal and municipal governments – and includes \$11.6 billion in new funding, with \$5 billion in direct provincial commitments.

As forward-thinking leaders, we realize we have a responsibility to prepare today for the future success of our children and grandchildren. It is incumbent upon us to take steps now to preserve for them the opportunities our generation has enjoyed. With this in mind, our plan calls for swift action, imaginative forethought and strong leadership to achieve our objectives.

The Provincial Transit Plan: A Vision for Climate Action Leadership plays an important role in our commitment to lower British Columbia's greenhouse gas emissions and lead the country in taking climate action. It envisions a world class transit system for British Columbians that will provide economic, social and environmental advantages for years to come. Plainly put: it's the right thing to do.

Message from the Minister

British Columbia's transportation network is the life blood of our thriving economy. Safe, efficient movement of people and goods allows British Columbians to do business, travel between home and work, and enjoy all our province has to offer. As a critical part of the province's transportation network, our transit system must be integrated, seamless and energy efficient to support the province's ongoing economic and environmental vitality.

The Provincial Transit Plan: A Vision for Climate Action Leadership takes proactive steps to foster continued robust growth in jobs and economic opportunities in a way that helps meet our government's ambitious climate action goals. The plan takes direct aim at emissions by getting British Columbians out of cars and onto transit, bicycles and walk-ways. By building denser living and working communities, British Columbians will be encouraged to use nearby transit options. As well, fast, frequent, reliable service will promote transit use, saving passengers up to 35 minutes each way on some Metro Vancouver routes during peak hours. At the same time, the plan calls for enhanced security measures to keep transit passengers safe. This broad vision requires investing in effective transit today for the benefit of British Columbians in the future.

Working closely with BC Transit, the new TransLink Board and Council, and our federal and municipal partners, we will take rapid action to achieve our objectives. As Minister of Transportation, I am proud to be part of this far-sighted effort on behalf of British Columbians. Like other historic investments in our province, it promises to leave a legacy of prosperity and well being for generations to come.

Highlights of The Provincial Transit Plan: Investing In Green Transit Leadership

Investing For the Future

The Government of British Columbia is investing in innovative transit options for the benefit of all British Columbians now and in the future. By 2020, the plan calls for government and its federal and municipal partners to commit \$14.4 billion to significantly expand transit in communities across the province, doubling transit ridership and ensuring half of all trips are taken aboard transit, by bicycle or on foot. This includes \$11.6 billion in new funding with \$5 billion in new, direct provincial allocations.

Investments include:

- 2,000 new, clean technology buses to double the provincial fleet and provide many communities with more frequent service to meet transit users' specific needs
- \$X million in a new **RapidBus BC** fleet – energy efficient, high capacity buses on nine major routes in the high growth urban centres of Kelowna, Victoria and Metro Vancouver, providing frequent, fast, reliable service that looks and feels like rapid transit and operates on dedicated lane-ways in some cases
- \$X billion in four new SkyTrain lines serving communities across Metro Vancouver
- \$X to develop a comprehensive, integrated cycling and walking strategy for British Columbians, including security features and cycling and walking infrastructure around the province

To achieve ridership goals, transit must be located close to the places British Columbians live and work. It must also be fuel efficient, frequent, reliable and provide short travel times to destinations. **The Provincial Transit Plan** is designed to:

- Increase transit ridership across the province to over 400 million trips a year
- Attract 17 percent of Metro Vancouver residents
- Reduce greenhouse gas emissions and other air contaminants from cars by 4.7 million tonnes cumulatively to help lower provincial greenhouse gas emissions by 33 percent over current levels by 2020 and make government operations carbon neutral by 2010
- Support increased population and employment densities near transit hubs and along transit corridors

- Ease traffic congestion and make urban centres better places to live by switching XX car journeys to transit trips a year
- Improve fare compliance and transit rider safety and comfort by installing security infrastructure on and around transit
- Expand transportation services for seniors and those with mobility challenges

Fact Box:

Transit use is growing rapidly in B.C. and Canada. A total of 1.7 billion transit trips were taken across the country in 2006, representing a 3.2 percent increase over 2005, and a 15.8 percent increase over the five-year period since 2001

Canadian Urban Transit Association, 2007

Fact Box:

The risk of fatality is 20 times higher for car occupants than transit riders over the same distance.

Canadian Urban Transit Association, 2007

Climate Action

Global climate change is among the most pressing challenges facing the world today. Taking action to reduce transportation-related greenhouse gas emissions is a key part of the solution. To accelerate transit ridership and help lower greenhouse gas emissions, ***The Provincial Transit Plan*** provides British Columbians with a range of energy efficient transit choices that encourage denser populations near transit stations and along transit corridors.

The Provincial Transit Plan is designed to reduce greenhouse gas emissions from the transportation sector – the majority of which come from car and truck traffic. By decreasing car use, increasing transit ridership and reducing traffic congestion that causes excessive idling – a major cause of transportation greenhouse gas emissions – we can avoid over 4.7 million tonnes of emissions cumulatively by 2020. With more than \$14.4 billion in transit investments, ***The Provincial Transit Plan*** complements the Province's planned 10-year, \$12.5 billion program to improve roads and highways

around the province. The goal is to help meet the Province's tough new target requiring a 33 percent reduction in provincial greenhouse gas emissions by 2020 from current levels and confirm British Columbia as a global leader in energy conservation and environmental sustainability.

Fact Box:

Vehicles that idle in traffic create X percent of all greenhouse emissions from cars and trucks in British Columbia.

- Need another green fact / analogy here – e.g. removing 4.7 million tonnes of GHGs is like parking all the cars in Metro Vancouver for a year

Transit Rider Security

Every day in British Columbia, 600,000 passengers use public transit. As a public resource, transit options are open and fully accessible, covering large distances to serve as many riders as possible. In some cases, payment is based on an honour system. As a result, transit is difficult to monitor closely, making it susceptible to criminal activity.

The Provincial Transit Plan takes strong measures to keep transit riders safe and encourage greater transit use. By controlling access to transit facilities and monitoring transit use, we can help ensure fares are paid and passengers are secure. Security investments can include:

- Installing electronic gates and closed-circuit cameras at SkyTrain stations
- Launching a smart-card system for SkyTrain and buses that users can reload at vending machines or on the Internet
- Prosecuting people who do not pay fares and applying on-the-spot fines
- Increasing security personnel in and around SkyTrain stations
- Improving safety for bus drivers

Fact Box:

Sixty percent of all transit crime – including violent assaults – is committed by fare evaders. Installing secure turnstiles can virtually eliminate fare evasion.

Fact Box:

An X percent increase in population density within a radius of Y kilometres of a SkyTrain station results in a Z percent increase in ridership.

Doubling the Fleet

The Provincial Transit Plan doubles the provincial bus fleet to improve service in several communities around the province. By investing \$2 billion in 2,000 new, clean energy buses, many passengers will have access to more buses, more often. The new buses will be selected to meet the specific needs of communities in cost-effective, energy efficient ways.

Clean technologies include:

- Hydrogen
- Hybrid
- Electric
- Natural Gas
- Low emissions diesel

The new fleet will be made up of a variety of bus types customized to meet individual communities' and users' needs. Options include:

- Community shuttles – smaller, quieter vehicles that minimize impacts on neighbourhoods
- Custom transit – specialized vans and minibuses for dial-a-ride, door-to-door handyDART service, and taxi programs to serve mobility challenged transit users and others who cannot access conventional transit
- Para-transit – mini-buses, taxis and vans offering flexible routes and schedules

- Articulated and double-decker buses – high capacity buses to serve passengers on routes where demand is heavy
- Conventional buses

RapidBus BC

New, innovative, point-to-point **RapidBus BC** is a key pillar of *The Provincial Transit Plan*. **RapidBus BC** breaks from the past, when conventional buses offered basic transportation to serve passengers unable to access alternatives. Riding **RapidBus BC** will be a whole new transit experience, offering high quality, cost-effective, rapid transit-style service for all transit users.

As the core of the transit system in Metro Vancouver and other regional centres, **RapidBus BC** offers:

- Frequent, reliable service at regularly spaced intervals
- Express service with few or no stops between main stations
- Priority movement in traffic

RapidBus BC infrastructure can include:

- Separate lanes on all or some parts of routes
- Signal priority
- Shared High Occupancy Vehicle lanes
- Queue jumping provisions
- Guide-ways to automatically steer the bus on portions of the route
- Frequent, high-capacity service to reduce passenger waits, particularly during peak periods
- Modern, efficient vehicles, which are easy to board, quiet, clean and comfortable to ride
- Effective security measures
- Contemporary, conveniently located bus stations with nearby amenities

- Seamless integration with other transit options and coordination with cycling and walking infrastructure
- Pre-paid fare collection to minimize boarding delays
- Integrated fare systems, allowing free or discounted transfers between routes and transit modes
- Easy-to-use passenger information and marketing programs

As part of *The Provincial Transit Plan*, \$X million will be invested in **RapidBus BC** by 2020. In Metro Vancouver alone, the investment includes X designated bus-ways and approximately Y new **RapidBus BC** stations to accommodate a fleet of Z new, cutting edge, fuel efficient vehicles.

RapidBus BC will be available along nine main lines in British Columbia:

- X to Y in Kelowna
- Douglas Street from McKenzie Avenue to XX in Victoria
- Highway One, connecting the Lougheed SkyTrain Station to exchanges in Surrey and Langley across the Port Mann Bridge
- Hastings Street from downtown Vancouver to Simon Fraser University in Burnaby
- 41st Avenue from the SkyTrain Canada Line station at 41st and Cambie Street to UBC
- Highway 99 from White Rock to the SkyTrain Canada Line from Richmond to downtown Vancouver
- King George Highway from Surrey Centre south to White Rock
- Fraser Highway, connecting Langley to the SkyTrain Expo Line in Surrey
- Highway Seven from the SkyTrain Evergreen Line in Coquitlam across the new Golden Ears Bridge

SkyTrain

SkyTrain is the Lower mainland's automated light rapid transit system. Powered by 90 percent emissions free-electricity, SkyTrain links with a network of buses at stations around the region, and connects with SeaBus to take passengers across the Burrard Inlet to the North Shore. Today, there are X kilometres of SkyTrain line and Y SkyTrain stations serving communities from downtown Vancouver to Surrey, Z kilometres east of the city.

The Provincial Transit Plan calls for three times as much SkyTrain line to be delivered between 2010 and 2020 as was built in the three previous decades. SkyTrain capacity will increase by X times by adding cars and increasing efficiency. The plan includes \$9.3 billion in new lines, line extensions, new stations, upgrades to existing stations, new SkyTrain cars, and a variety of security measures to keep riders safe.

Investments include:

- \$1.4 billion to extend the Evergreen Line by 11 kilometres and add 12 new stations, linking neighbourhoods in Coquitlam, Port Moody and the Lougheed area by 2014
- \$3.1 billion to extend the Expo Line another six kilometres to X in Surrey and double capacity by upgrading stations to accommodate twice as many SkyTrain cars by 2020
- \$2.8 billion to build a new, 12 kilometre SkyTrain line from Broadway Station to the University of British Columbia by 2020
- \$2 billion to construct the new, 19 kilometre Canada Line from downtown Vancouver to Vancouver International Airport in Richmond by end of 2009

Cycling and walking

Cycling and walking can be viable transportation options if the necessary infrastructure is in place. ***The Provincial Transit Plan*** calls for a new, integrated provincial cycling and walking strategy. The goal is to build bicycle and pedestrian pathways and connections to new and existing transit options, as well as enhanced bike security.

The plan will complement the Province's existing commitment to providing 1,000 new bike lockers at transit hubs, \$50 million for cycling infrastructure through the Gateway Program, and annual grants of \$2 million to local governments for cycling facilities.

Benefits of encouraging cycling and walking as a viable transportation mode include:

- Reducing car and truck traffic congestion
- Conserving energy and lowering greenhouse gas emissions
- Improving public health and fitness through physical activity
- Making getting around easier and more affordable for those without access to a car
- Easing demand for parking
- Making our communities more desirable places to live, work and visit

Conclusion

The Provincial Transit Plan: A Vision for Climate Action Leadership is the Government of British Columbia's action plan for providing fast, reliable, green transit for the benefit of all British Columbians. The Plan is aimed at doubling transit ridership by 2020 and having half of all trips be taken by transit, bicycle or foot. As a key component of the Province's climate action strategy, ***The Provincial Transit Plan*** is designed to reduce transportation greenhouse gases by 4.7 million tonnes cumulatively, supporting the Province's goals of reducing provincial greenhouse gas emissions by 33 percent by 2020 over current levels and making government operations carbon neutral by 2010.

The plan calls for \$14.4 billion in transit investments by 2020 to:

- Double the number of buses in British Columbia to 4,000, providing many communities across the province with more frequent, dependable transit service
- Launch nine new, cutting edge ***RapidBus BC*** lines to serve the fast growing urban centres of Kelowna, Victoria and Metro Vancouver
- Deliver four new SkyTrain lines – the Evergreen Line, Expo Line, Canada Line and UBC Line – to connect communities across Metro Vancouver
- Create an integrated, inter-connected cycling and walking network through a new, comprehensive provincial strategy

Together, the investments will form a world leading, green transit system for British Columbians for years to come.

Smith, Sheila M TRAN:EX

From: Hester, Jim TRAN:EX
Sent: Wednesday, October 5, 2011 10:02 AM
To: Smith, Sheila M TRAN:EX
Subject: FW: TRIM: Greenhouse Gas reductions based on Transport Canada emissions data

TRIM Dataset: GN
TRIM Record Number: D6253008A
TRIM Record URI: 720480

From: Hnatiuk, James M GTWY:EX
Sent: Thursday, November 22, 2007 10:41 PM
To: Hester, Jim TRAN:EX
Cc: Hayto, Steve GTWY:EX; 'Rodrigo.Disegni@CH2M.com'
Subject: TRIM: Greenhouse Gas reductions based on Transport Canada emissions data

Jim, just a quick note to follow up on the GHG emissions as calculated using the Transport Canada GHG emission rate data. The GHG emission rates determined in this way (0.296 - 0.301 kg CO₂e/km) as documented in the attached memo, vary from the previously used rate (0.32 kg CO₂e/km) by less than 10%. Since the variance is small, and applies equally to the emissions under the various investment scenarios, the effect on the spreadsheet estimate of emission savings between scenarios is also small. In the attached example, changing from 0.320 kg/km to 0.301 kg/km did not change the final results of 3.7 Mt to 5.7 Mt cumulative savings between 2007 and 2020 at the level of two significant figures. The GHG emission rate is stored in cell B3 on the assumptions sheet and linked to the other sheets. Jim



Greenhouse Gas Mshift &GHG
Emission Rates.....pt 26 2007RDV7S

James Hnatiuk, P.Eng.
Manager, Transportation Planning
Port Mann / Highway 1

Gateway Program
2400 MetroTower I
4710 Kingsway Ave
Burnaby, BC V5H 4M2
T: 604.456.2482 604-775-0215
F: 604.439.2585 604-775-0348
our numbers have changed

Greenhouse Gas Emission Rates

This memo presents the Greenhouse Gas (GHG) rates assumed in the Transport Canada's web based Urban Transportation Emissions Calculator for personal vehicles.

(<http://www.tc.gc.ca/programs/environment/UTEC/Default.aspx>)

The Calculator includes two types of personal vehicles: autos (LDPV-A) and trucks (LDPV-T). The latter category includes SUVs, pickups, and vans. The fuel efficiency in litres per 100km assumed for these vehicles is as follows:

Vehicle Type	Gasoline	Diesel
LDPV-A	9.8	7.3
LDPV-T	12.6	10.6

Based on a draft tabulation of vehicle types in the Lower Mainland (2005) prepared by Metro Vancouver's Air Quality department, about 60% of light duty passenger vehicles are autos and the remaining 40% are truck-type vehicles. In addition about 98% of these vehicles have gasoline engines, while the remaining 2% have diesel engines. Other engine types (e.g. hybrids) were not accounted for at the time since their numbers were relatively small.

The Calculator can adjust for operating speed using the following factors:

Min Speed (km/h)	Max Speed (km/h)	Adj Factor
0	11.99	2.8
12	19.99	1.8
20	27.99	1.4
28	35.99	1.2
36	43.99	1.1
44	99.99	1
100	1000	1.1

Using regional model results, an appropriate regional adjustment factor to account for variations in travel speeds would be about 1.1.

The Calculator provides estimates of the amount of direct GHG emissions per litre of fuel used. These are expressed in terms of grams of CO₂ equivalents per litre of fuel. Emission rates are expected to drop slightly over time due to reduced methane and nitrous oxide emissions during fuel combustion. The emission rates are as follows:

Year	Vehicle Type	Gasoline	Diesel
2006	LDPV-A	2479	2793
2006	LDPV-T	2556	2793
2011+	LDPV-A	2443	2793
2011+	LDPV-T	2492	2793

When these assumptions and factors are combined, the weighted average of direct emission of GHGs expressed in grams of CO₂e per kilometre for light duty personal vehicles is **301 g/km in 2006 and 296 g/km in 2011.**

These values could be somewhat higher if more travel occurs at speeds below 35 km/h. A speed adjustment factor of 1.15 instead of 1.1 would raise these values to 315 and 309 respectively. Over time, these values could be lower due to improvements in the fuel efficiency of the fleet and changes in market shares for high efficiency vehicles such as hybrids.

These rates do not include indirect emissions associated with the production and distribution of gasoline and diesel fuels. Indirect emissions can add about 30% to the direct emissions; however, this value can differ significantly by location and fuel feedstock.

Summary of GHG Calculations

Last updated:

23-Oct-07

GHG Emissions 2007 to 2020 (system)	2007	2008	2009	2010	2011	2012	2013
No Investment	6.5	6.7	7.0	7.2	7.5	7.7	8.0
Maintain Market Share	6.5	6.7	6.9	7.2	7.4	7.6	7.9
Preferred Investment	6.5	6.7	6.9	7.1	7.3	7.5	7.7
25% Scenario (25% GVRD + 9.5% CRD + 4% BC Muni)	6.5	6.7	6.8	7.0	7.2	7.4	7.5

Total Transit Trips	2007	2008	2009	2010	2011	2012	2013
No Investment	212	214	217	219	221	224	226
Maintain Market Share	212	218	224	231	237	244	251
Preferred Investment	212	225	240	254	270	286	303
25% Scenario (25% GVRD + 9.5% CRD + 4% BC Muni)	212	229	247	266	285	306	327

Annual VKT	2007	2008	2009	2010	2011	2012	2013
No Investment	21,616	22,372	23,153	23,963	24,800	25,667	26,564
Maintain Market Share	21,616	22,318	23,042	23,790	24,562	25,360	26,184
Preferred Investment	21,616	22,214	22,828	23,457	24,104	24,767	25,448
25% Scenario (25% GVRD + 9.5% CRD + 4% BC Muni)	21,616	22,161	22,718	23,287	23,869	24,464	25,071

Car Trips Taken Off Road compared to No Investment	2007	2008	2009	2010	2011	2012	2013
No Investment							
Maintain Market Share	-	5	11	17	23	30	37
Preferred Investment	-	14	30	46	63	81	100
25% Scenario (25% GVRD + 9.5% CRD + 4% BC Muni)	-	19	39	60	82	106	131

Car Trips Taken Off Road compared to Maint. Mkt	2007	2008	2009	2010	2011	2012	2013
No Investment							
Maintain Market Share							
Preferred Investment	-	9	19	29	40	51	63
25% Scenario (25% GVRD + 9.5% CRD + 4% BC Muni)	-	14	28	43	59	76	94

	No Investment	Maintain Market Share	Preferred Investment	25% Scenario
2007 to 2020				
Total GHG Reduction (2007 to 2020) compared to No Investment (Mega Tonnes)		1.9	5.7	7.6
Total GHG Reduction (2007 to 2020) compared to Maintain Market Share (Mega Tonnes)			3.7	5.7
Car Trips Taken off Road in 2020 (millions) No Inv.		96	265	347
Car Trips Taken off Road in 2020 (millions) Maint. Mkt			169	251
2020 Annual Transit Trips Above 2007 (millions)		93.8	231.2	297.2

	No Investment	Maintain Market Share	Preferred Investment	25% Scenario
2007 to 2030				
Total GHG Reduction (2007 to 2020) compared to No Investment (Mega Tonnes)		6.7	20.0	26.8
Total GHG Reduction (2007 to 2020) compared to Maintain Market Share (Mega Tonnes)			13.3	20.2
Car Trips Taken off Road in 2030 (millions) No Inv.		179	521	689
Car Trips Taken off Road in 2030 (millions) Maint. Mkt			342	510
2020 Annual Transit Trips Above 2007 (millions)		137.1	415.4	549.9

Trips per person	2007	2020	2030
GVRD	3.11	3.83	3.98
CRD	3.60	4.13	4.27
BC Municipal System	1.26	1.44	

General

GHG Emissions 0.301 CO2 kg/km need to check with RWD!

Day to Year Factor

Transit	224.6		
VKT	336.2		
Check 1	2006 Transit Trips	165,000,000	from translink projection
	2007 Transit Trips	170,000,000	
Check 2	2005 GHG Emissions	5,074,000	from Maria
	2007 GHG Emissions	5,227,362	growth from Nancy's spreadsheet

GVRD

	Population	Growth per year	
1996	2,012,410		from BC stats
2004	2,154,353	1.37%	
2007	2,255,373	1.43%	
2020	2,711,659	1.43%	
2030	3,005,697		

Trips Growth

	Trips	Growth per year	
1994	4,600,000		
1999	5,500,000	2.76%	
2004	6,400,000	3.077%	between 1999 and 2004 (growth between 1994 and 2004 is 2.92%)

Trips Growth per year (2007 to 2020)	3.1%
Trips Growth per year (2021 to 2030)	1.4%

Person Trips	1999 Trip diary survey	2004 Trip diary survey	Projection	Projection
Transportation Mode	1999 %	2004 %	2007	2020
Passenger Car	4,064,000	4,718,680	5,168,081	7,663,878
Transit	565,000	691,200	756,997	1,122,584
Other	847,000	989,620	1,084,152	1,607,733
Total	5,476,000	6,400,000	7,009,231	10,394,211

Vehicle Occupancy	2007	2020	Annual Increment	2003 emme model (AM)	1.2
Average Trip Length	12	12.6	0.000	trip diary survey (2004)	1.33
trip length growth		1.05			

	2007	2020	2020	2020	2020
			No Investment	Maintain Market Share	Preferred Investment
Transit Share	10.8%	8.5%	8.5%	10.8%	16%
Auto Share	73.7%	76.0%	73.7%	68.5%	59.5%
	84.5%	84.5%	84.5%	84.5%	84.5%

CRD

	Population	Growth per year
2001	328,200	
2007	354,121	1.85%
2020	406,572	
2028	427,800	0.65%

Trips Growth per year (2007 to 2020)	1.9%
Trips Growth per year (2021 to 2030)	0.85%

Person Trips	2001 %	2007	2020
Transportation Mode			
Passenger Car	896,274	76.5%	1,004,023
Transit	82,012	7.0%	91,871
Other	183,314	16.5%	216,554
Total	1,171,600	100.0%	1,312,448

Vehicle Occupancy	2007	2020	Annual Increment
Average Trip Length	1.15	1.1	-0.004
	6.5	6.8	

	2007	2020	2020	2020	2020
			No Investment	Maintain Market Share	Preferred Investment
Transit Share	7.5%	6.5%	6.5%	7.5%	9.5%
Auto Share	76.0%	77.0%	76.0%	74.0%	74.0%
	83.5%	83.5%	83.5%	83.5%	83.5%

BC Municipal System

	Population	Growth per year	
2002			from BC stats
2007	1,744,870		
2020	1,958,740	0.89%	

	Target transit trips	Transit share	Annual trips	Needs to be confirmed	target transit trips c
2002					
2007	19,810,000	3%	660,333,333		
2020					

Trips Growth per year (2007 to 2020)	1.9%
Trips Growth per year (2021 to 2030)	0.69%

Vehicle Occupancy	2007	2020	Annual Increment
Average Trip Length	1.15	1.15	0.000
	5	5.25	

	2007	2020	2020	2020	2020
			No Investment	Maintain Market Share	Preferred Investment
Transit Share	3.0%	3.0%	3.0%	3.0%	4.0%
Auto Share	83.0%	83.0%	82.0%	81.0%	81.0%
	85.0%	85.0%	85.0%	85.0%	85.0%



BC Ministry of Transportation

BUS RAPID TRANSIT AND TRANSIT SYSTEM MARKET PENETRATION

REPORT

OCT. 31, 2007



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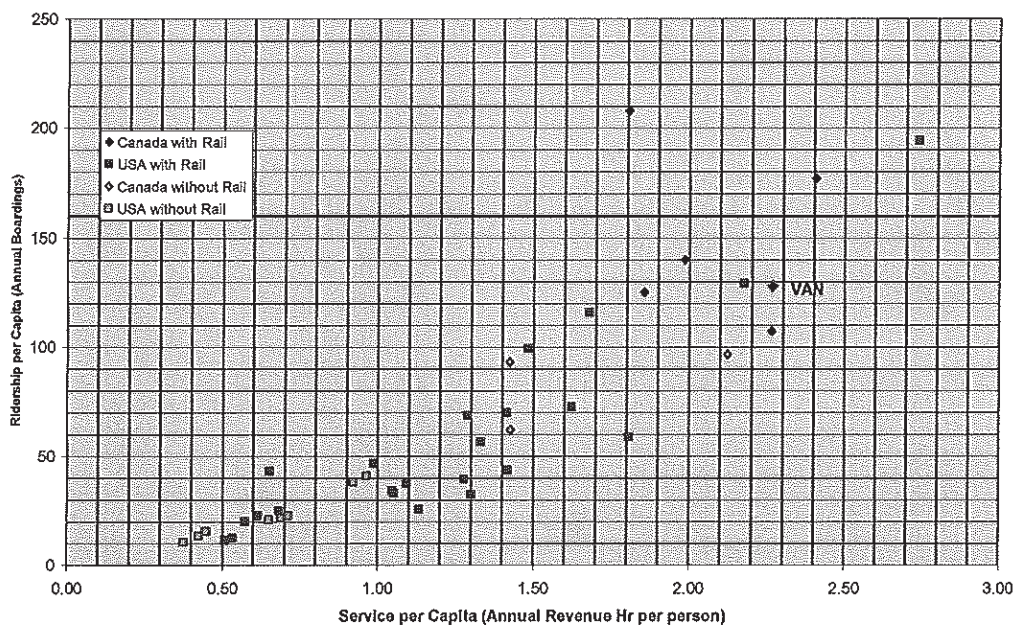
EXECUTIVE SUMMARY

The BC Ministry of Transportation conducted this study to investigate the relationships between types and levels of transit service and the resulting travel market penetration. This brief review of urban transit systems provided an opportunity to compare Vancouver within the context of other Canadian and North American cities. The study used population, transit service and ridership data for US cities, mostly over 2 million residents, and Canadian metropolitan areas over 500,000.

Based upon the subject areas the team was directed to review, the key conclusions from this study include:

1. Cities with a combination of rail and bus services tend to exhibit much higher transit market penetration. The original intent of the assignment was to consider the market penetration of bus services, including Bus Rapid Transit (BRT). However, since the bus service component of most of the larger cities is integrated with rail services in some fashion, estimating the resulting "attraction" of the bus services alone would be highly speculative.
2. As Cities increase in size, a greater amount of transit service is provided per capita, and this results in the payoff of not only greater total ridership, but greater market penetration and higher usage of the service (expressed as boardings per revenue service hour) that is being offered.
3. Greater Vancouver performs fairly well as a transit market by North American standards. Within Canada, only Toronto, Montreal and Ottawa experience a higher number of transit trips per capita, and few U.S. Cities with the exceptions of New York and the San Francisco Bay Area do as well as Vancouver. (Some cities such as Chicago and Boston carry more total riders, but from a much larger population base than Vancouver.)

Exhibit ES-1: Transit Market Penetration versus Level Service, by City Type



4. There is no demonstrable drop in ridership *per capita* as service is added to a bus system. However, depending on how and where the service is added, the number of riders *per service hour* may drop even as the number of riders still increases. The only real limitation to increasing ridership by adding service is where the station or line capacity of a route has maximized and it simply isn't feasible to add more service to present operation.
5. Canadian metropolitan areas include anywhere from 45 to 80 metres of rail and busway network and 2 to 4 stations per 1,000 residents, which is relatively consistent with larger North American cities. Variations in the definition of network, stations and service areas complicate any quantitative comparisons that are made. Within that context, it is notable that Vancouver is comparable to Toronto and Montreal in terms of 'per capita network length' (metres/1000 residents) and number of stations per resident. All three are somewhat lower than either Calgary or Ottawa; this is a result of a more extensive network including commuter rail, which has the effect of increasing service population and has stations set apart at longer distances, thus 'lowering the average' even while providing more service. On a pure numerical basis, Vancouver (both currently and in the next few years once the Evergreen Line is constructed) has an above average number of stations per 100,000 residents compared with most similar sized US cities.
6. The capacity of BRT is influenced by the degree of segregation from and priority over other traffic. The Ottawa Busway is the most successful BRT application in North America and it provides a separate path for transit buses with limited interference from other traffic. The 99 B-Line in Vancouver has very high ridership for a single transit line, but its capacity is limited by traffic conditions along the route it serves, and by dwell times at certain bus stops, because it has very limited transit priority.
7. Successful Bus Rapid Transit systems occur when travel corridors exist with demand for medium to longer-distance travel. Connecting to other BRT routes or rail transit is a significant factor in achieving higher ridership. Some cities connect BRT lines to heavy rail transit as a way of building ridership at lower cost, and waiting for the market to mature, if ever, before implementing a higher-capacity transit mode.
8. BRT systems can operate with as few as 400 to 1000 passengers per hour in the peak direction, and their maximum practical capacity is 6000 to 12000 passengers per hour assuming maximum separation from other traffic, optimal station spacing and configuration, and rapid loading and unloading of passengers. The upper end of this capacity range is also suitable for Light Rail Transit (LRT) and therefore the tradeoffs between rail and BRT should be considered when selecting a mode for intermediate transit service.

The full report, which follows, provides additional discussion of these topics plus appendices with urban transit ridership data and Bus Rapid Transit case studies.

1. INTRODUCTION

The BC Ministry of Transportation is conducting this study to investigate the relationships between types and levels of transit service and the resulting travel market penetration, based on a review of larger urban areas in North America and where possible, comparable worldwide cities.

The study focused on several aspects of successful transit service:

1. Comparing different BRT and conventional bus systems, and determining how factors related to the urban area and the composition of the transit system influence ridership.
2. Comparing the amount of infrastructure, such as track/guideway and stations, for rail and BRT services in North American cities.
3. Identification of successful Bus Rapid Transit (BRT) lines and their operating characteristics.
4. Reviewing the role of urban transit modes including local bus and BRT.

2. METHODOLOGY

This study had three stages: 1) identifying the cities to be investigated; 2) gathering available data on urban transit systems and BRT deployments; and 3) analysing the information to determine what relationships and trends become apparent.

2.1 Selection of Cities

The initial focus of this study was identifying up to sixteen cities of two million or more residents that had Bus Rapid Transit systems that would be comparable to Greater Vancouver. Numerous examples are present in Latin American countries, including Curitiba (Brazil), Bogota (Colombia), and Leon (Mexico), but there are significant social and economic differences with such locations that make them unreliable as benchmarks for North American cities. In particular, levels of auto ownership are much different, and many cities in that part of the world lack integrated public transit services.

Several examples exist in medium to large European cities, but again, one must be cautious making comparisons because the central cities often predate the automobile and by necessity transit has much higher market penetration than is experienced in North America. BRT is often used to fill gaps in the suburban commuter rail network, a situation that also occurs in Australian cities such as Adelaide, Brisbane and the western suburbs of Sydney.

Availability of data was also a consideration; therefore, a selection of Canadian and American cities with less than two million residents was added to the investigation, in particular for reviewing the relationship between urban area characteristics, level of service, and market penetration.

2.2 Data Collection and Analysis

Transit service and ridership data were collected from numerous public sources, including the Canadian Urban Transit Association (CUTA), U.S. National Transit Database (NTD), transit agency websites, and telephone interviews to supplement the printed information. In order to provide a consistent basis for comparison, 2005 transit service and ridership were used for both Canadian and US Cities. When calculating the overall statistics for larger urban areas, data for all of the larger service providers in each transit market were gathered (for example, data for Montreal includes the City's core transit system, the regional commuter rail agency, and three groups of suburban transit systems).

Analysis of the data is presented throughout this report and in the Appendices. For the purpose of most analysis, ridership is defined as the number of vehicle boardings by passengers, including transfer activity. In the United States, this figure is known as "unlinked trips." This is also the only realistic way to measure passenger activity on specific transit routes and stations. (Canadian transit agencies also report "revenue passengers" which excludes transferring activity and relates to trip making activity by individuals. Since this is not readily available for US agencies, it is only presented for the reader's interest in the Appendices.)

3. URBAN TRANSIT SYSTEMS

This chapter of the report presents information about urban transit systems across North America, focusing on larger Canadian and US metropolitan areas. Following the basic information on the urban areas and transit ridership, analysis of different factors related to transit market penetration is presented. Urban transit includes both bus and rail systems operating within metropolitan areas.

3.1 Canadian Urban Transit Systems

Since there are only two metropolitan areas in Canada larger than Greater Vancouver, a selection of cities with populations over a half million has been taken into consideration to help identify common characteristics and trends in "large city" public transit usage.

Exhibit 3-1 summarizes the basic characteristics of the nine largest Canadian metropolitan areas including population, approximate area served by transit, and annual ridership. (Service area population differs from census population where transit service extends into neighbouring areas or does not include remote portions of these urban areas.)

Exhibit 3-1: Canadian Urban Areas – Population, Size and Transit Ridership

Canadian Urban Area	Service Area Population (2005)	Size (km ²)	Population Density (per km ²)	Transit Passengers (Boarding in 2005)	Rides per Capita
Greater Vancouver	2,156,000	1,800	1,198	275,722,000	128
Calgary	956,000	722	1,325	119,512,000	125
Edmonton	824,000	1,979	416	88,267,000	107
Winnipeg (City)	588,000	208	2,830	56,809,000	97
Hamilton	438,000	227	1,930	27,132,000	62
Greater Toronto Area	4,862,000	3,084	1,576	859,780,000	177
Ottawa-Gatineau	1,013,000	1,002	1,010	141,759,000	140
Montreal Region	3,636,000	3,800	957	706,151,000	194
Quebec	518,000	640	809	48,214,000	93

As indicated in the Exhibit, the level of transit ridership is highest in the three largest urban areas, Toronto, Montreal and Vancouver. The population densities shown reflect the entire urban area that is served by some form of transit, which means that Montreal, Toronto, Edmonton and Greater Vancouver all include lower density suburban and rural areas that fall within the boundaries of transit service. The densities for the core cities are substantially higher, and much of the ridership in the larger metropolitan areas is associated with the agency serving the central municipality.

Exhibit 3-2, on the next page, shows the general relationship between city size and market penetration for Canadian metropolitan areas.

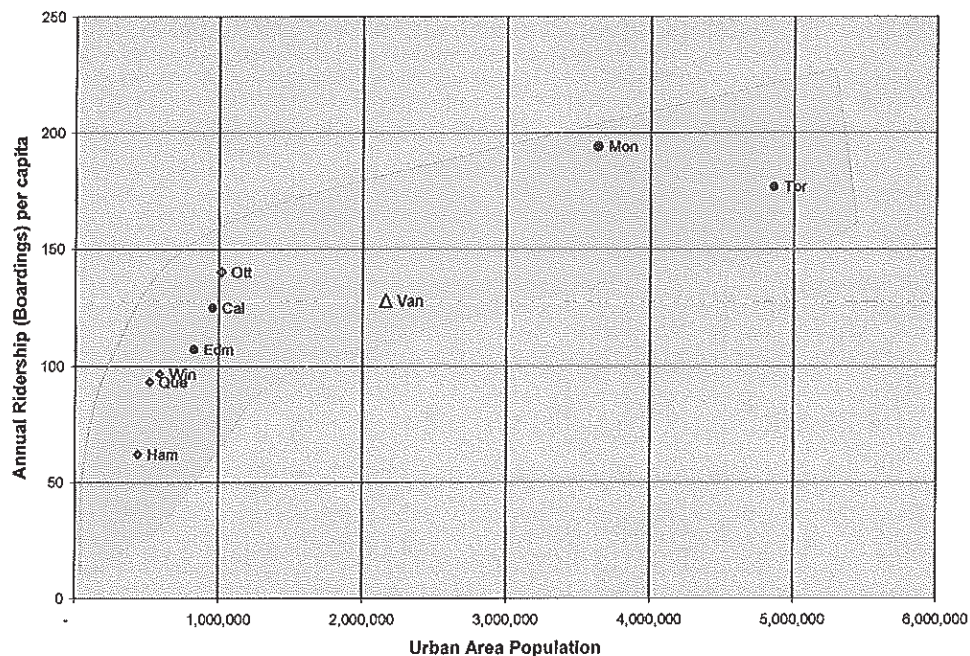
Exhibit 3-2: Ridership Per Capita in Large Canadian Urban Areas

Exhibit 3-3 presents additional characteristics of transit ridership in the largest Canadian urban areas. The measure of riders per service hour reflects the overall efficiency and attraction of the transit services on offer to the public. Taken as regions, Montreal, Toronto and then Ottawa are particularly successful at making good use of the public transportation systems.

Exhibit 3-3: Canadian Urban Areas – Transit Ridership and Types of Service

Canadian Urban Area	Transit Passengers (Boarding in 2005)	Revenue Hours of Service	Riders per Service Hour	Bus	Rail and Other Modes
Greater Vancouver	275,722,000	4,891,000	56	Conventional + BRT	Automated Guideway, Commuter Rail, Passenger Ferry
Calgary	119,512,000	1,774,000	67	Conventional + BRT	LRT
Edmonton	88,267,000	1,866,000	47	Conventional	LRT
Winnipeg (City)	56,809,000	1,250,000	45	Conventional	none
Hamilton	27,132,000	625,000	43	Conventional	none
Greater Toronto Area	859,780,000	11,708,000	73	Conventional + BRT	Heavy Rail, Streetcar/ LRT, Commuter rail
Ottawa-Gatineau	141,759,000	2,012,000	70	Conventional + Busway	LRT (demo)
Montreal Region	706,151,000	6,562,000	108	Conventional + Busway	Heavy Rail, Commuter rail
Quebec	48,214,000	737,000	65	Conventional + Limited stop	none

3.2 United States - Urban Transit Systems

To provide further data for the analysis of urban transit ridership, a broad selection of cities in the United States has been taken into consideration. In this case, the twenty-five most populous areas plus several others with Bus Rapid Transit projects have been included.

Exhibit 3-4 summarizes the basic characteristics of these large American metropolitan areas including population, approximate area served by transit, and annual ridership. Perhaps the most striking difference from Canada is that there are many more U.S. cities with large populations, yet only two urban areas achieve over 100 transit rides per capita compared with six cities in Canada.

Exhibit 3-4: U.S. Urban Areas – Population, Size and Transit Ridership

U.S. Urban Area	Service Area Population (est, 2006)	Size (km ²)	Population Density (per km ²)	Transit Passengers (Boarding in 2005)	Rides per Capita
New York-Northern NJ-Long Island	18,800,000	8,684	2,165	3,455,987,000	184
Los Angeles-Long Beach-Santa Ana	12,950,000	4,320	2,998	664,921,000	51
Chicago	9,500,000	5,499	1,728	601,527,000	63
Dallas-Fort Worth	6,000,000	3,644	1,646	81,848,000	14
Philadelphia	5,800,000	4,662	1,244	352,673,000	61
Houston	5,540,000	3,354	1,652	94,556,000	17
Miami	5,460,000	2,890	1,889	158,501,000	29
Washington DC + MD/VA	5,290,000	2,997	1,765	462,728,000	87
Atlanta	5,140,000	5,084	1,011	150,116,000	29
Detroit	4,470,000	3,269	1,368	47,560,000	11
Boston	4,460,000	4,496	992	399,592,000	90
San Francisco-Oakland	4,180,000	1,365	3,062	416,310,000	100
Phoenix	4,040,000	2,069	1,952	60,011,000	15
Seattle	3,260,000	2,471	1,319	159,276,000	49
Riverside-San Bernardino	3,200,000	1,137	2,814	22,941,000	7
Minneapolis/St Paul	3,180,000	2,315	1,373	81,022,000	25
San Diego	2,940,000	2,025	1,452	88,290,000	30

U.S. Urban Area	Service Area Population (est, 2006)	Size (km ²)	Population Density (per km ²)	Transit Passengers (Boarding in 2005)	Rides per Capita
St Louis	2,800,000	2,147	1,304	46,438,000	17
Tampa-St Petersburg	2,700,000	2,077	1,300	22,992,000	9
Baltimore	2,660,000	1,769	1,504	96,481,000	36
Denver	2,400,000	1,292	1,857	86,262,000	36
Pittsburgh	2,370,000	2,207	1,074	68,952,000	29
Portland	2,140,000	1,228	1,743	110,329,000	52
Cleveland	2,110,000	1,676	1,259	66,587,000	32
Orlando	1,980,000	1,173	1,688	24,807,000	13
Kansas City	1,970,000	1,513	1,302	14,096,000	7
Las Vegas	1,780,000	741	2,403	53,571,000	30
San Jose	1,580,000	673	2,346	39,118,000	25
Sacramento	1,570,000	956	1,643	31,227,000	20
Albuquerque	820,000	580	1,413	7,877,000	10
Eugene	340,000	176	1,931	8,467,300	25

Exhibit 3-5 provides additional summary information for the large US urban areas and their transit systems. Many of the U.S cities include either traditional heavy rail (subway/elevated) or commuter rail that dates back into the late 19th and early 20th centuries, or newer rail and BRT systems funded under several successive public transportation funding programs during the past two decades. Unlike the previous table, the ridership rates presented here (per revenue service hour) show greater similarity to the larger Canadian cities listed earlier in this chapter. Nevertheless, several U.S cities (such as Detroit) report surprisingly low transit ridership.

Exhibit 3-5: U.S. Urban Areas – Transit Ridership and Types of Service

U.S. Urban Area	Transit Passengers (Boarding in 2005)	Revenue Hours of Service	Riders per Service Hour	Bus Services	Rail & Other Modes
New York-Northern NJ-Long Island	3,455,987,000	51,517,000	67	Conventional	Heavy Rail, Commuter Rail (3 systems), LRT, Passenger Ferry
Los Angeles-Long Beach-Santa Ana	664,921,000	17,245,000	39	Conventional + BRT + Busways	Heavy Rail, Commuter Rail, LRT
Chicago	601,527,000	15,424,000	39	Conventional	Heavy Rail, Commuter Rail
Dallas-Fort Worth	81,848,000	3,448,000	24	Conventional	Commuter Rail, LRT
Philadelphia	352,673,000	7,481,000	47	Conventional	Heavy Rail, Commuter Rail, LRT
Houston	94,556,000	3,779,000	25	Conventional	LRT
Miami	158,501,000	7,106,000	22	Conventional + Busway	Heavy Rail, Commuter Rail, Automated Guideway

BUS RAPID TRANSIT AND TRANSIT SYSTEM MARKET PENETRATION

U.S. Urban Area	Transit Passengers (Boarding in 2005)	Revenue Hours of Service	Riders per Service Hour	Bus Services	Rail & Other Modes
Washington DC + MD/VA	462,728,000	8,887,000	52	Conventional	Heavy Rail, Commuter Rail (2 systems)
Atlanta	150,116,000	3,349,000	45	Conventional	Heavy Rail
Detroit	47,560,000	2,389,000	20	Conventional	People Mover
Boston	399,592,000	6,617,000	60	Conventional	Heavy Rail, Commuter Rail, LRT, Passenger Ferry
San Francisco-Oakland	416,310,000	9,099,000	46	Conventional	Heavy Rail, Streetcar/LRT, Passenger Ferry
Phoenix	60,011,000	2,628,000	23	Conventional	LRT (emerging)
Seattle	159,276,000	5,896,000	27	Conventional + Busway	Commuter Rail, LRT, Ferry System
Riverside-San Bernardino	22,941,000	1,437,000	16	Conventional	
Minneapolis/St Paul	81,022,000	3,332,000	24	Conventional + Busway	LRT
San Diego	88,290,000	3,094,000	29	Conventional	Commuter Rail, LRT
St Louis	46,438,000	1,726,000	27	Conventional	LRT
Tampa-St Petersburg	22,992,000	1,377,000	17	Conventional	
Baltimore	96,481,000	2,628,000	37	Conventional	Heavy Rail, Commuter Rail, LRT
Denver	86,262,000	3,406,000	25	Conventional	LRT
Pittsburgh	68,952,000	3,029,000	23	Conventional	LRT, Funicular
Portland	110,329,000	3,031,000	36	Conventional	LRT/Streetcar
Cleveland	66,587,000	2,306,000	29	Conventional	Heavy Rail, LRT
Orlando	24,807,000	1,363,000	18	Conventional + BRT	
Kansas City	14,096,000	747,000	19	Conventional + BRT	
Las Vegas	53,571,000	1,717,000	31	Conventional + BRT	Automated Guideway
San Jose	39,118,000	1,793,000	22	Conventional + BRT	LRT
Sacramento	31,227,000	1,119,000	28	Conventional + BRT	LRT
Albuquerque	7,877,000	349,000	23	Conventional + BRT	
Eugene	8,467,300	313,000	27	Conventional + BRT	

3.3 Systematic Factors Related to Urban Transit Ridership

On an individual basis, the decision to use public transportation for travel purposes is decided by taking into account the cost, travel time, and convenience of the trip to be made. The relative cost of public transit versus the automobile is affected by automobile ownership, operating costs, and parking at the destination¹, versus the cost of transit fares. Travel time is simple enough to understand, but there are components during a trip that carry different weight, namely the in-vehicle time when the person is actually moving toward the destination, versus time accessing the travel mode and waiting for the first (and sometimes successive) vehicle to arrive. The same individual might make a different choice depending on the type of trip, since there may be less sensitivity to travel time for casual travel versus trips made to work during the weekday morning.

All of these factors are reflected on an aggregate basis in the transit ridership observed within each of the Canadian and U.S. urban areas. What this section does is compare the different urban areas to look for trends related to the size of the urban area and the amount (and structure) of transit service provided, to see if there are predictable patterns that can be applied when planning service expansion for Greater Vancouver.

3.3.1 URBAN AREA SIZE CONSIDERATIONS

Exhibits 3-6 and 3-7 (on the next two pages) compare the size of the Canadian and US urban areas with the resulting ridership per capita (market penetration) and the ridership per service hour (the uptake of the transit service that is provided). Several patterns are evident from these graphs:

- The larger U.S. and Canadian cities tend to have one or more forms of rail as part of the urban transit network.
- The larger U.S. and Canadian cities tend to achieve greater ridership per capita than the smaller cities.
- As noted earlier in the chapter, the Canadian cities systematically outperform (achieving higher transit market penetration) those of similar size in the United States.
- Similar patterns are seen on the overall plot of ridership per service hour and the plot of ridership per capita. This suggests that the larger cities achieve higher ridership because the services that are provided are better used than the same unit of transit service in a smaller city.

These observations suggest that the critical mass of a larger city supports a broader range of transit services, and once the transit system becomes a complete basic network of frequent, reliable services, it becomes much more convenient for prospective riders to use and yields greater market penetration. A 'complete basic network' includes a backbone higher-capacity transit service, such as rail or bus rapid transit, fed by express and local bus services. Where multiple corridors exist with high travel demand, successful transit systems include multiple high-capacity transit routes. The stations at transfer points often become the busiest stops in the system. Larger urban areas also have commuter rail systems where the existing railway system can accommodate passenger service, and the alignment of the railways provides a suitable high-speed route across the metropolitan area.

¹ Parking rates in central business districts of larger cities average \$1-2 per hour or higher. Cities with a high incidence of free or employer subsidized parking tend to exhibit lower transit mode split despite the presence of transit service. This pattern is also observed across metropolitan areas, where suburban employment districts tend to be poor performers if parking is abundant or free.

Exhibit 3-6 Transit Market Penetration versus City Size

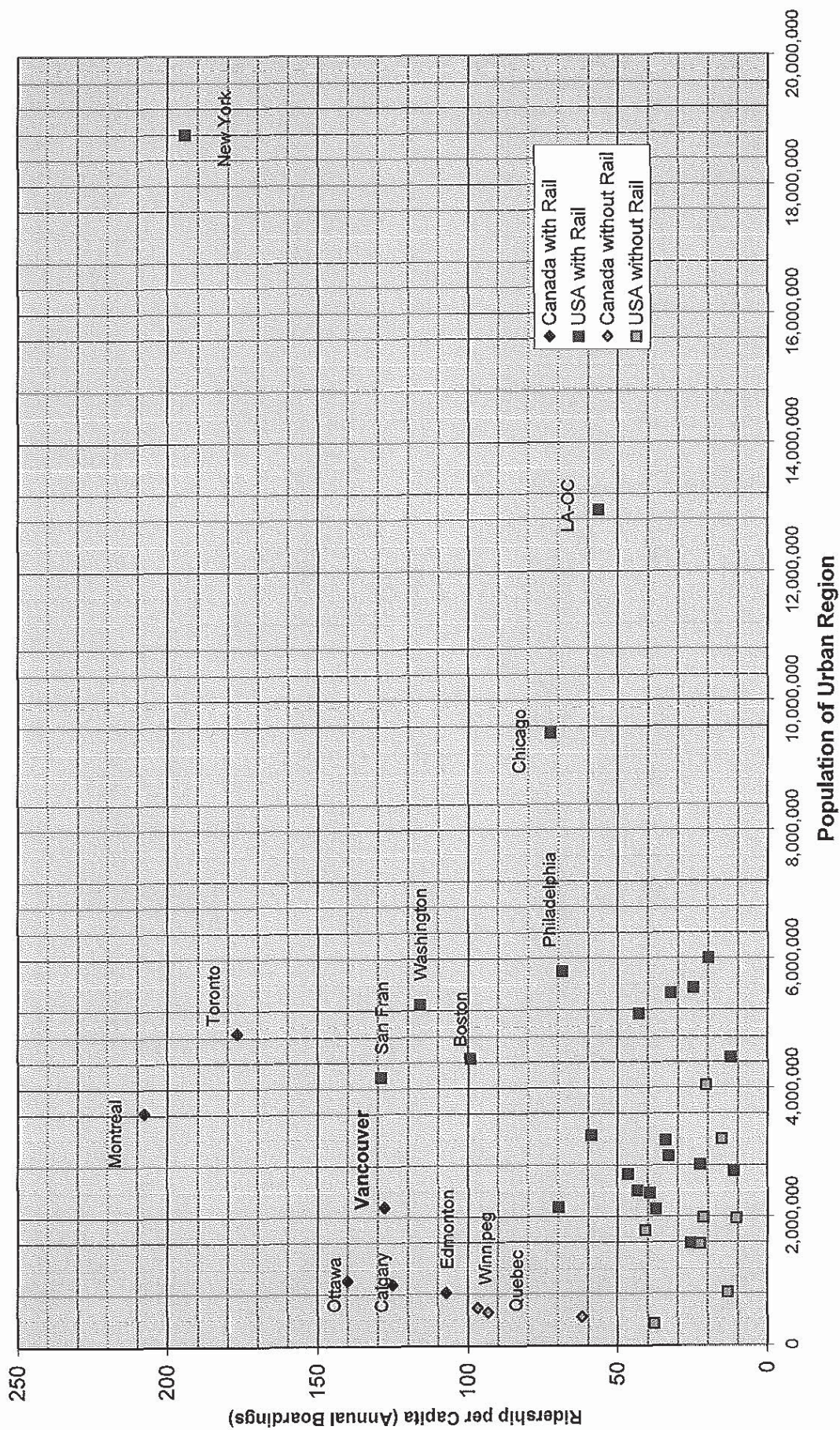
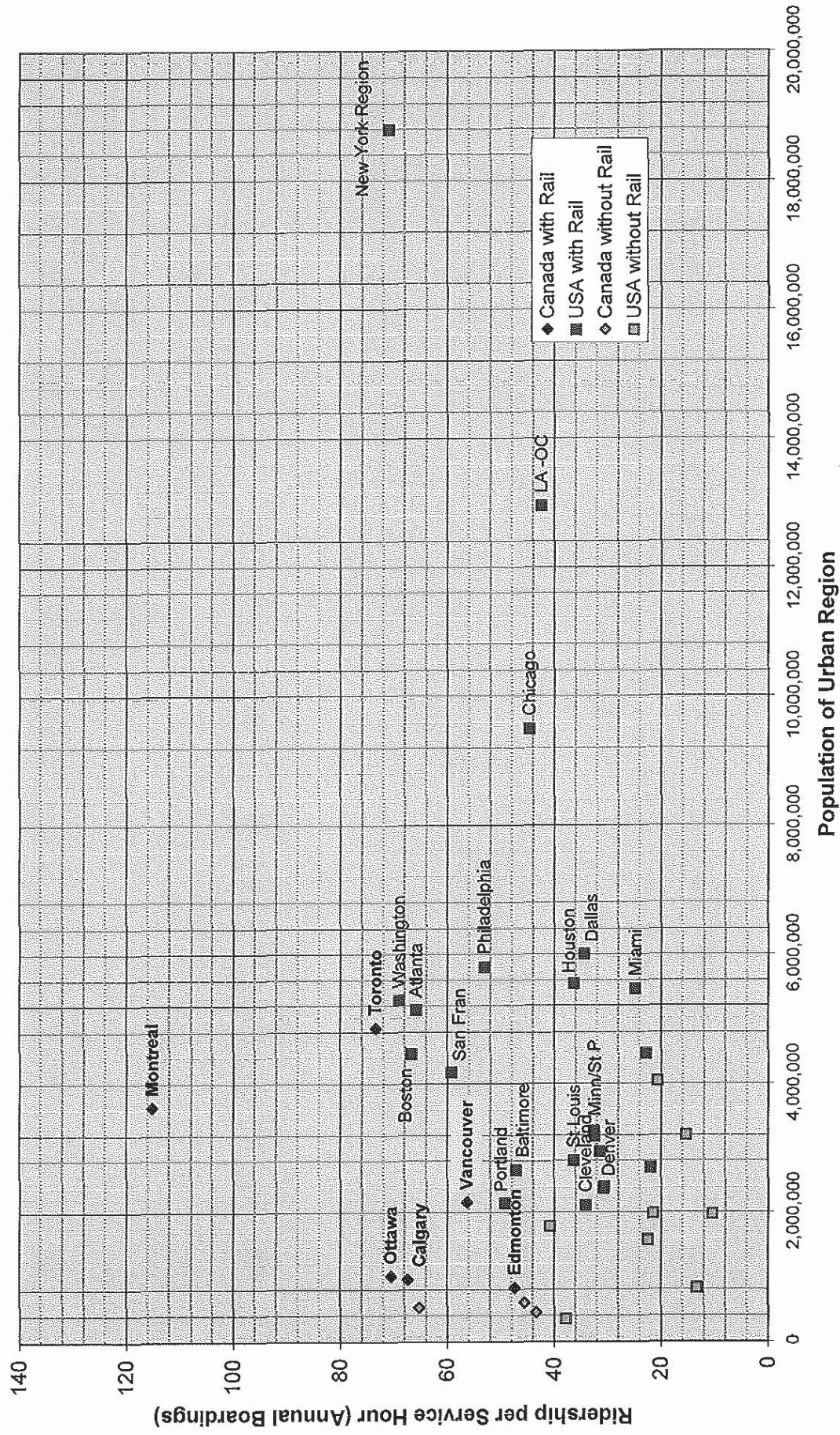


Exhibit 3-7 Transit Ridership versus City Size



3.3.2 URBAN AREA DENSITY

A separate study is being carried out to review population and employment density relationships with rail transit systems. Within this report, a brief comparison of overall service area densities and the resulting ridership will be made for the transit systems as a whole.

Exhibit 3-8 plots the per capita transit ridership for the urban areas versus the overall densities of the metropolitan areas.

Exhibit 3-8: Market Penetration vs. Urban Area Density

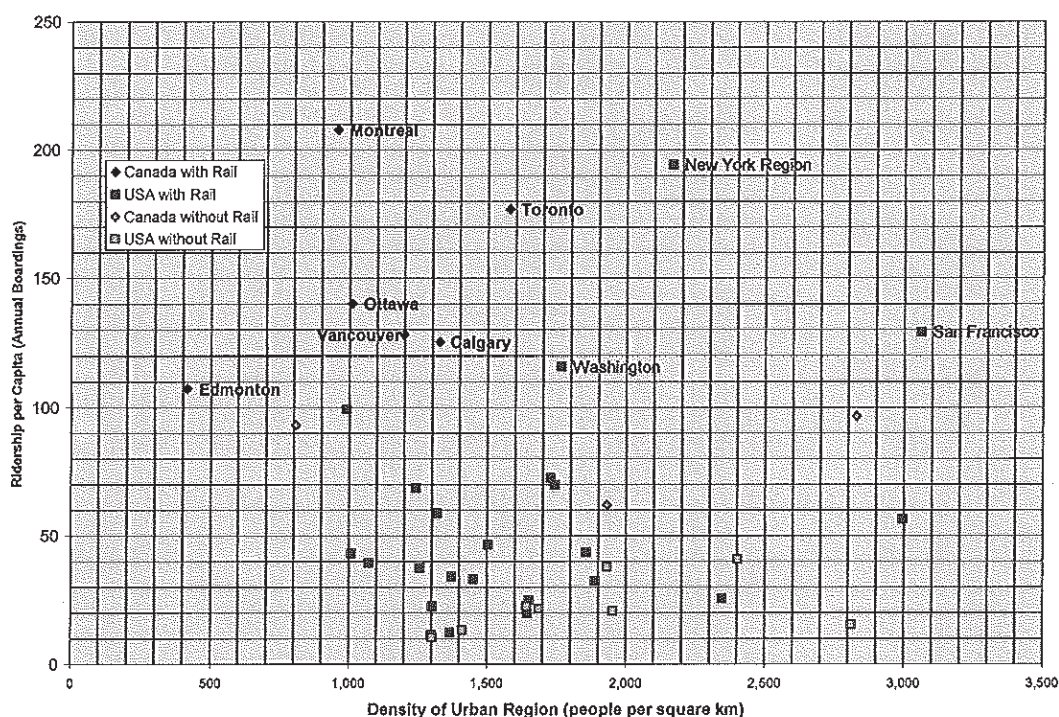


Exhibit 3-8 is only valid as a comparison across different urban areas, and essentially it tells us that the density alone does not predict the transit ridership of a region. For example, if we look at the two highest ridership Canadian cities, Toronto and Montreal, this plot shows them with relatively modest densities. This is due to the fact their extensive commuter rail networks extend well into the surrounding regions, leading to a large catchment area for riders but a lower calculated density in this plot.

Exhibit 3.9 (next page) shows how the densities of the core areas of these two cities compare with the overall metropolitan regions. The higher-density core cities clearly achieve the lion's share of the transit ridership, reinforcing that population density is important to successful transit service.

Exhibit 3-9: Ridership versus Density – Core City and Surrounding Zones

Urban Area	Service Area Population	Size (km ²)	Population Density (per km ²)	Transit Passengers (Boarding in 2005)	Rides per Capita	Revenue Hours of Service	Riders per Service Hour
Greater Toronto	4,862,000	3,084	1,576	859,780,000	177	11,708,000	73
City of Toronto	2,481,494	632	3,926	735,602,129	296	8,452,000	87
Rest of Region	2,380,506	2,452	971	124,177,871	52	3,256,000	38
Montreal Region	3,636,000	3,800	957	706,151,000	194	6,562,000	108
City of Montreal	1,873,813	501	3,744	621,505,000	332	4,690,232	133
Rest of Region	1,762,187	3300	534	84,646,000	48	1,871,768	45

One of the objectives of this study was to determine if there was a point of diminishing returns as transit service is implemented within a region. This data suggests that certainly, it is more challenging to attract transit riders in metropolitan suburbs, but this does not conclusively identify a drop-off point. Given that the evidence in this chapter points to a wide variety of response to transit service, probably dependent on local conditions (such as the travel patterns and how they are addressed by the transit network) within each city as much as any global factor.

3.3.3 LEVEL OF SERVICE AND RESULTING RIDERSHIP

Exhibits 3-10 and 3-11 illustrate an important relationship between the level of transit service provided and the resulting market penetration of the transit system within the overall travel market. The first plot compares per-capita ridership with the per capita number of service hours, and the second considers service kilometres (to see if distance has any implications).

These plots illustrate several interesting trends:

- Per capita transit ridership increases with the level of service offered to the public, measured either in service hours or kilometres. In both cases, the group of points on the plots forms a “funnel” that widens as the amount of transit service increases – there is greater variability among the larger and more successful transit systems in North America.
- Not unexpectedly, the non-rail cities have lower ridership and far less service offered.
- As noted earlier in the chapter, the Canadian cities outperform (achieving higher transit market penetration) their US counterparts with similar transit service levels.
- Despite the average Canadian city in the sample being smaller, the Canadian transit systems provide an average 2.1 service hours per capita compared with only 1.35 for the US cities. Given the strong correlation between service intensity and ridership, this helps to explain the higher Canadian mode splits.

It appears from these plots that cities with more mature transit systems and a mix of different modes have higher overall levels of service than the smaller non-rail cities, and the added convenience of faster rail modes help the transit systems perform better than those with only buses.

Exhibit 3-10 Transit Market Penetration vs Service Hours

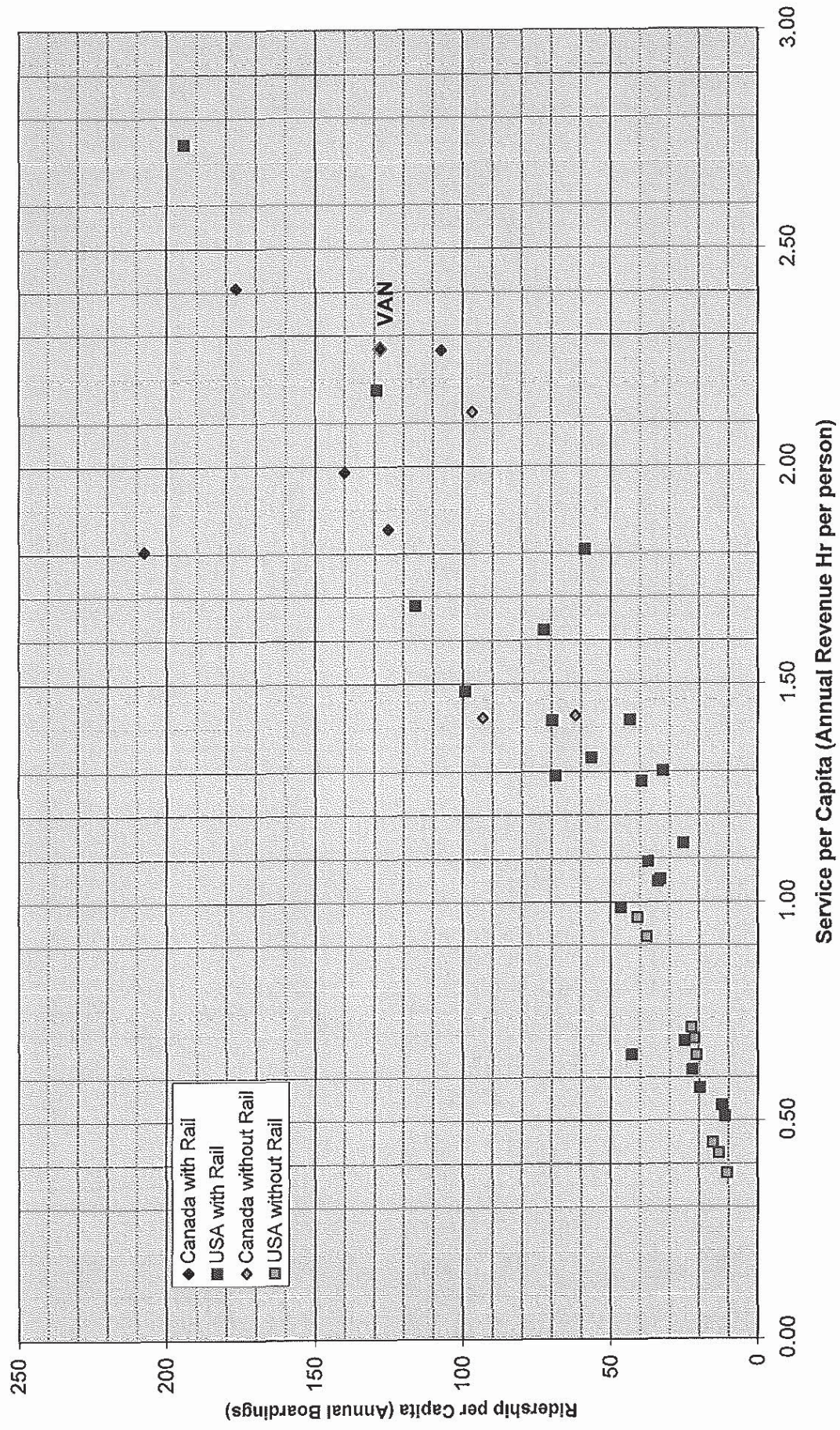
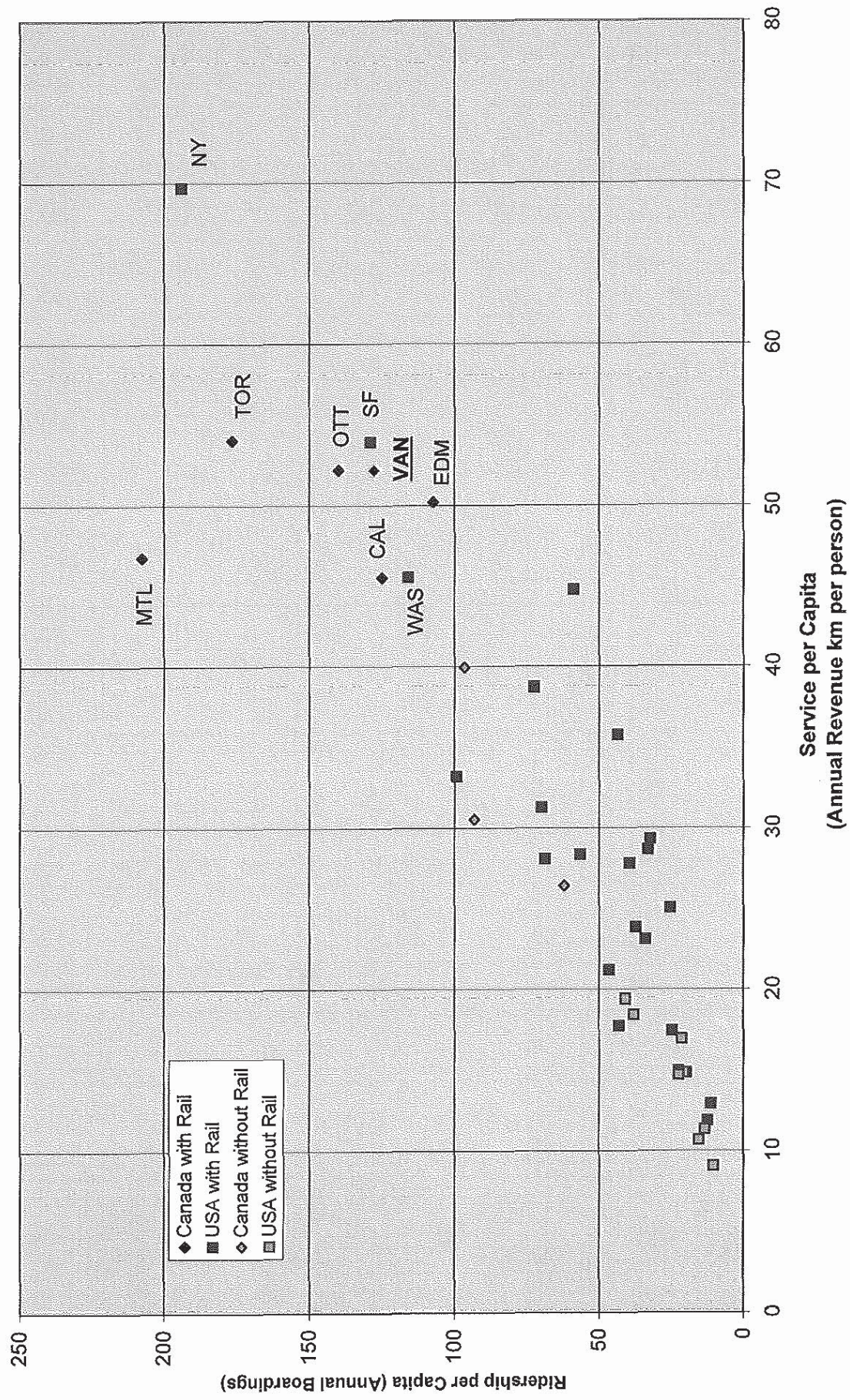


Exhibit 3-11 Transit Market Penetration vs Service Kilometres



3.3.4 REGRESSION ANALYSES

Exhibit 3.12 (next page) shows the results of performing a regression analysis across the set of cities, comparing service hours to ridership. At this level, there is no evidence of a point of diminishing returns as service is added to a transit system. In fact, the cities with more service per capita correspond mostly to the same locations with higher ridership. The converse is particularly true, in that areas with poor transit ridership tend to have lower levels of service being provided, and for political reasons it is challenging to ever increase that service given the ridership track record.

3.3.5 TIME SERIES ANALYSIS

The same topic has been recast within the context of a single urban area, in order to isolate the geographic and socio-economic factors that differ between the cities in the overall analysis group.

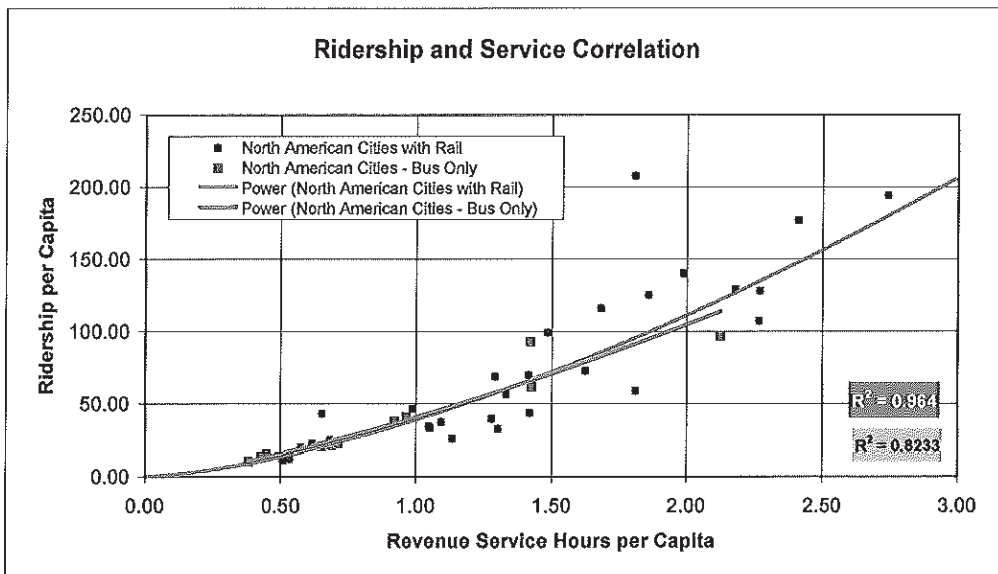
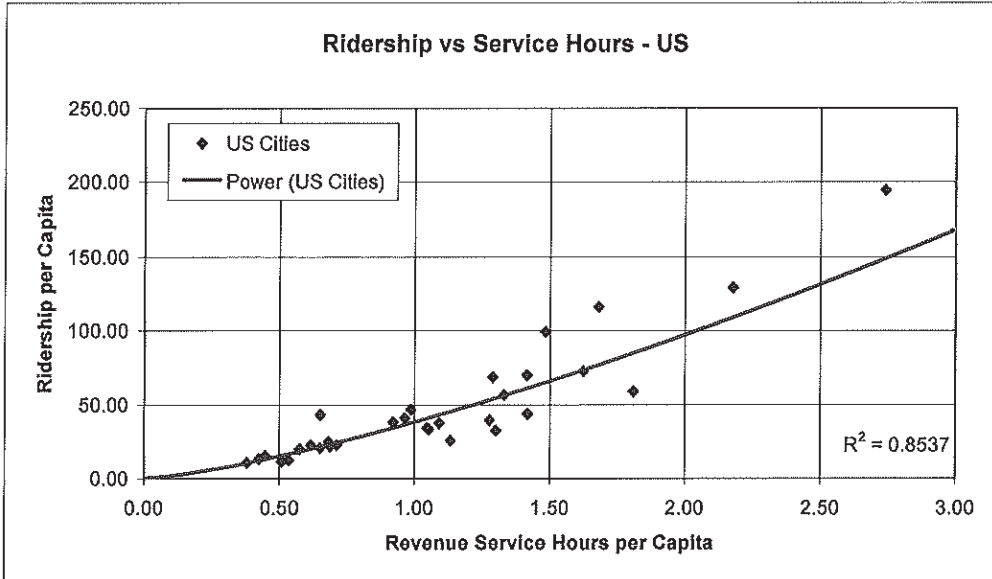
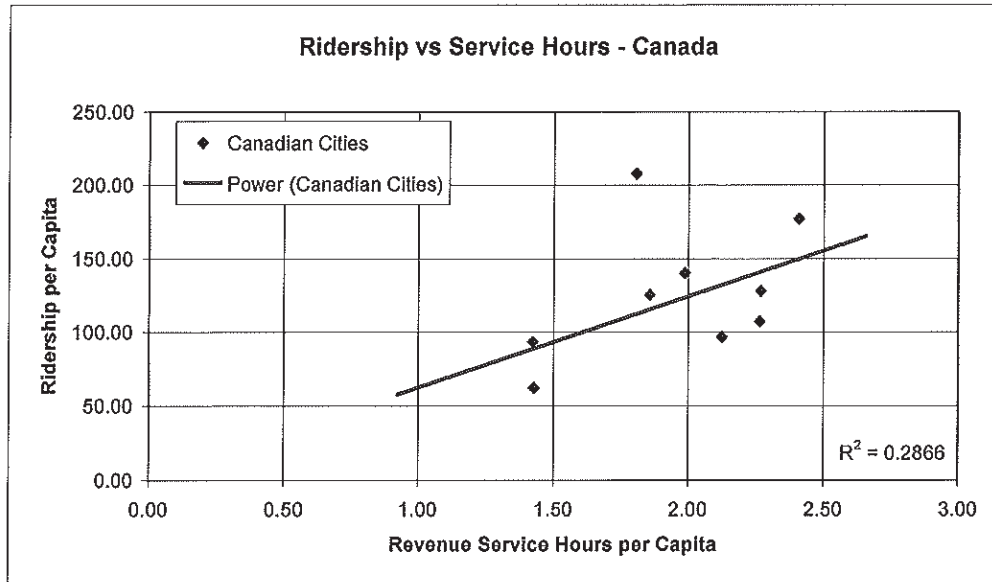
Ridership, service and population data has been compiled for the City of Toronto and its primary public transit service provider, the Toronto Transit Commission (TTC). This is the highest ridership system in Canada and third highest in North America after New York and Mexico City. The TTC achieved its peak ridership years in the 1920's and 1930's when public transit had a very high mode split, and as the automobile became more popular, this value dropped steadily each year. The TTC was able to recapture some of that ridership as the City grew in the 1970's and 1980's and subway and bus services were expanded, resulting in a peak ridership of some 463 million revenue trips (equivalent to nearly 800 million passenger boardings) before large fare increases and subsequent service cuts eroded that ridership, which bottomed out at 370 million.

Exhibit 3-13 shows various measures for surface (bus and streetcar) and total (surface + subway and guideway) transit service. Over the five year period in question, the level of service fluctuated somewhat from year to year, despite the relatively slow change in population within the City. The total amount of service grew as steps were taken to improve and restore service levels, attract more transit passengers and address traffic and environmental concerns. While this appears to have increased the number of revenue trips each year since 2001 (green cells show increasing per capita measures), the number of boardings has not seen a steady increase, possibly due to fewer transfers being made, revisions to fare policies affecting behaviour, and even variation in the ridership sampling used by the TTC to estimate activity.

Exhibit 3-13: Evolution of Transit Service and Ridership – Toronto, 2001-6

Year	Revenue Service Provided (km)		Boarding Activity		Revenue Trips	City Population	Boarding Activity per Capita		Rev Trips per Capita	Service per Capita	Boarding per rev-km
	Surface	Total	Surface	Total			Surface	Total			
2001	109,396,000	189,328,000	448,508,500	727,588,300	419,993,000	2,481,494	180.74	293.21	169.25	76.30	3.84
2002	111,708,000	192,246,000	442,287,500	703,348,300	415,539,000	2,485,800	177.93	282.95	167.17	77.34	3.66
2003	111,504,000	193,191,000	436,103,900	703,979,200	405,412,000	2,490,100	175.14	282.71	162.81	77.58	3.64
2004	112,897,000	195,651,000	448,501,600	721,456,600	418,099,000	2,494,500	179.80	289.22	167.61	78.43	3.69
2005	114,627,000	196,623,000	454,638,400	735,602,100	431,220,000	2,498,900	181.94	294.37	172.56	78.68	3.74
2006	117,509,000	199,308,000	446,026,200	724,773,900	444,544,000	2,503,281	178.18	289.53	177.58	79.62	3.64

Exhibit 3-12
Regression Analysis of Transit Service and Ridership



3.4 Comparative Analysis: Transit Links and Stations

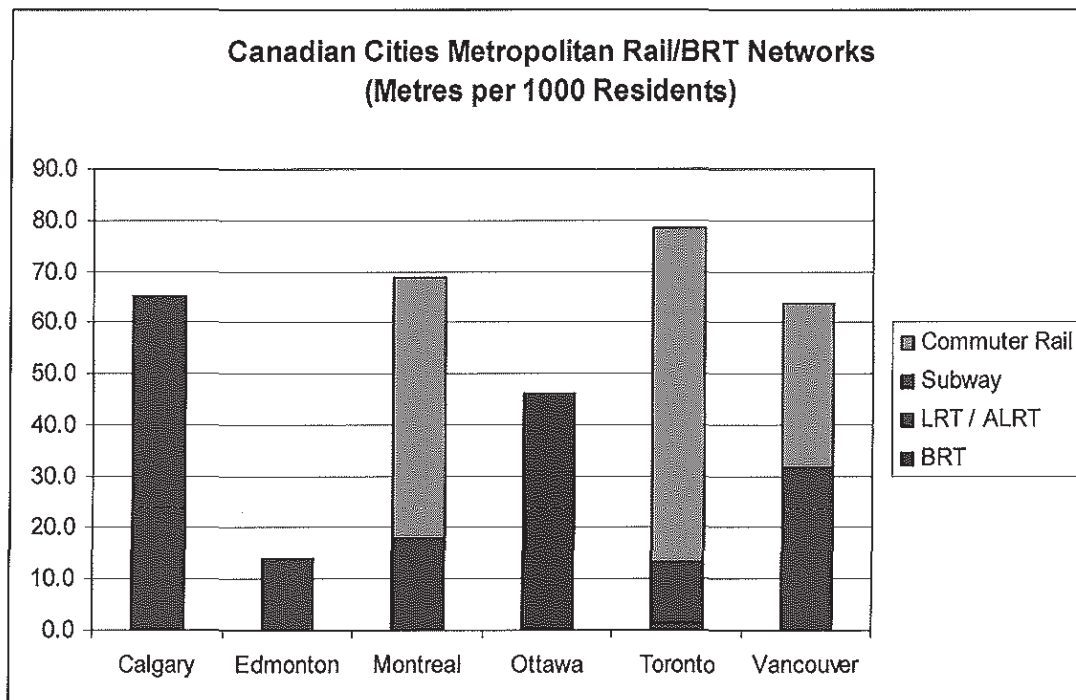
This section analyzes comparative statistics on transit lines and stations among U.S. and Canadian cities. Data for calculating comparative statistics has been assembled from two sources:

- Statistics on the U.S. cities have been assembled from the U.S. Bureau of Transportation Statistics National Transportation Atlas Database 2007, which includes geocoded 2004 data on all fixed guideway transit systems and stations in the U.S.
- Statistics on the Canadian cities are based on transit statistics from individual cities. The Canadian statistics also include Bus Rapid Transit services.

3.4.1 COMPARISON: CANADIAN CITIES RAIL AND BRT NETWORKS

The graph below illustrates comparative statistics on Light Rail/Advanced Light Rail (LRT/ALRT), Bus Rapid Transit (BRT), Commuter Rail and Subway networks in Canadian cities. Vancouver compares fairly well against this peer group of cities.

Exhibit 3-13: Canadian Cities Comparative Transit Network Statistics



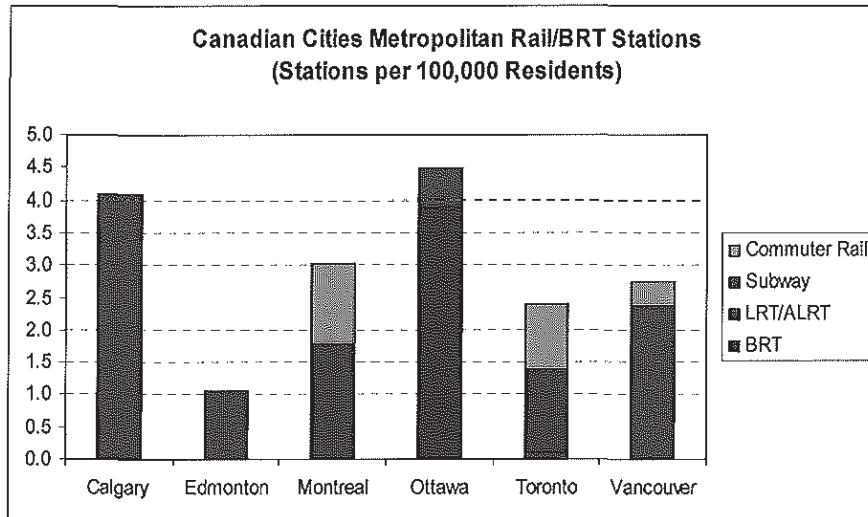
(Source: Canadian Transit Agency Data)

3.4.2 COMPARISON: CANADIAN CITIES RAIL AND BRT STATIONS

The graph on the next page illustrates comparative statistics on Light Rail/Advanced Light Rail (LRT/ALRT), Bus Rapid Transit (BRT), Commuter Rail and Subway stations in Canadian cities. The larger metropolitan areas, namely Toronto and Montreal (and to some extent Vancouver), have

lower numbers because the service areas include large suburban rings with commuter rail, which has greater station spacing and would therefore produce a "lower" result.

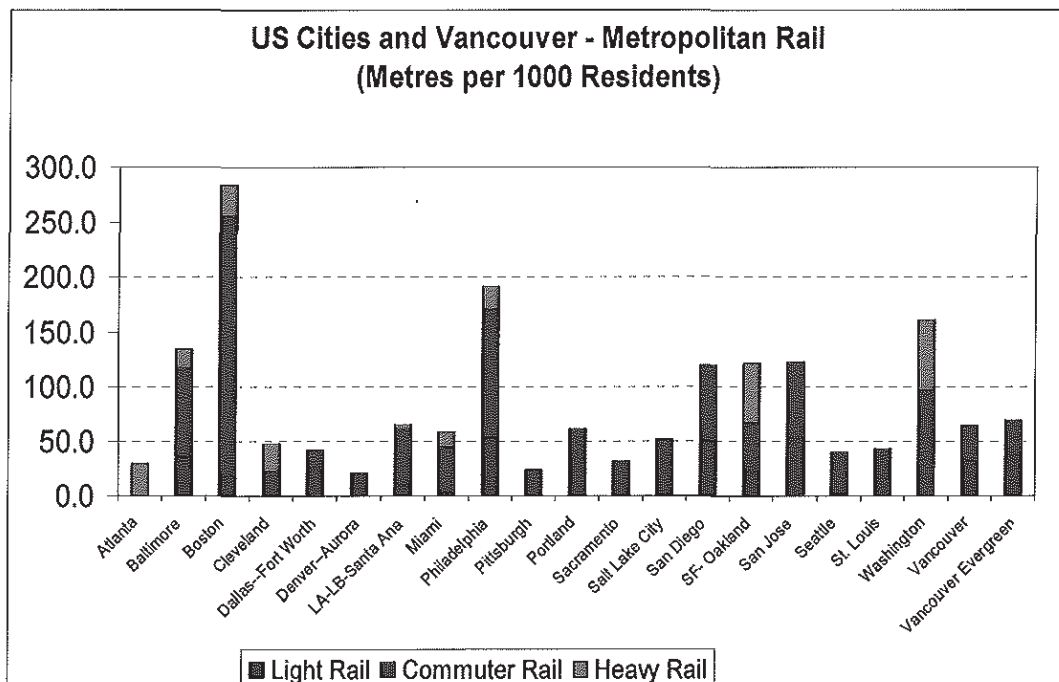
Exhibit 3-14: Canadian Cities Comparative Transit Station Statistics



3.4.3 COMPARISON: U.S. CITIES AND VANCOUVER RAIL NETWORKS

The graph below illustrates comparative statistics on Light Rail, Commuter Rail and Heavy Rail links in U.S. cities and Vancouver. "Vancouver Evergreen" shows the effect of the planned Evergreen Line on the Vancouver statistics.

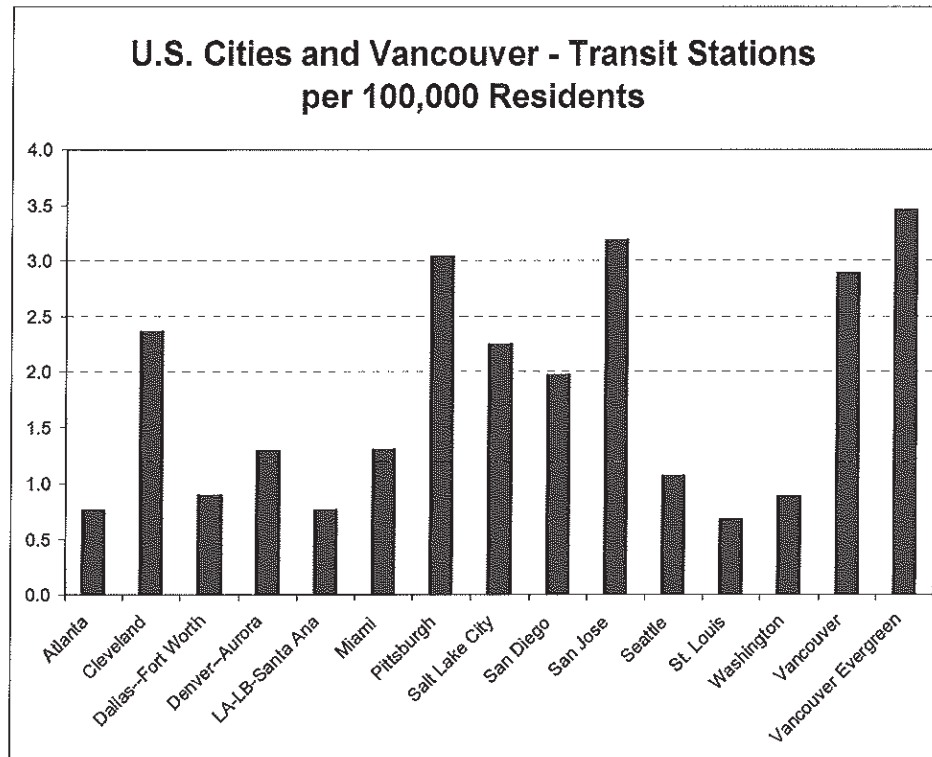
Exhibit 3-15: U.S. Cities and Vancouver Comparative Transit Network Statistics



3.4.4 COMPARISON: U.S. CITIES AND VANCOUVER TRANSIT STATIONS

The graph below illustrates comparative statistics on Light Rail, Commuter Rail and Heavy Rail stations in U.S. cities and Vancouver. This sample for comparison of transit stations is more limited due to variations in transit system parameters which make valid cross-sectional comparisons difficult.

Exhibit 3-16: U.S. Cities and Vancouver Comparative Transit Stations Statistics



For example, Boston, Philadelphia and San Francisco were excluded as their light rail systems essentially consist of a streetcar at the outer end and a small underground train at the downtown end. The station spacing on some of their routes is only 1-2 city blocks for significant sections, thus driving up the "station" count (as seen in Exhibit 3-15). The statistics for Baltimore, Pittsburgh and Portland are similarly affected. In Portland, there are about 60 MAX stations, generously counting two stops per location downtown because it runs one block apart on parallel streets. The Portland Streetcar is mostly a one-way loop with close spacing and stops on two parallel streets, and it would contribute some 40 "stations" to the total for Portland.

Looking at some of the cities in the graph, Seattle appears to include a mix of the so-called historic streetcar (has about 7-10 stops every 2-3 streets along the waterfront), the monorail (2 stops), the Tacoma streetcar that Sound Transit opened a few years back (one way loop, around 10-12 stops) and the Sound Transit Commuter rail system (10-12 stations). These are divided by the entire metropolitan population across several counties. Washington DC – WMATA Metrorail system has 85 stations including service into suburban Maryland and Virginia. The state transportation agency runs a commuter rail service (MARC) with about 30 stations, with 80% of service oriented to WDC and 20% to Baltimore. There is also a commuter rail service into WDC called Virginia Railway Express with approximately 10-15 stops.

4. BUS RAPID TRANSIT SERVICES

This chapter presents an overview of a selection of Bus Rapid Transit services. In several cases, the BRT services are seen as potential building blocks (or were built in lieu of) rail transit service, and therefore a discussion of transit modes and their appropriate application is included in this chapter.

4.1 BRT Case Studies

This section is a brief summary of the review of individual BRT services, both in service and planned, for fifteen cities across North America, and several cases in European Cities for contrast. Descriptions and discussion of these BRT programs are found in the Appendices of this report.

Exhibit 4-1 lists the BRT services and provides a high level explanation of each.

Exhibit 4-1: Recent and Planned Bus Rapid Transit Systems

Location	BRT Service	Length (km)	Service Type	Frequency (Headway)	Daily Ridership
Alameda County	San Pablo Rapid	22.5	Limited stop (21% time saving over local)	12 min	6,000
Amsterdam	Zuidtangent (South Tangent)	25	Limited stop (30% faster than other services in the region)	7 min (peak) 10-15 min (off peak)	27,500
Calgary	Route 301 – North/West BRT	18	Limited stop (20 min time saving over local)	7-10 min (peak) 20 min (week midday) 30min (other)	3,500
Kansas City	MAX	14.5	Limited stop (25% on-board travel time reduction)	9 min (peak) 15-30 min (off peak)	5,800
Kent (SE of London UK)	Fastrack (A/B)	Total 33 (11/22)	Limited stop	6/10min (peak) 10/30min (off peak)	6,000
Los Angeles	LA Metro Rapid (Wilshire / Ventura Rapid)	Total 70 (41/29)	All stop (28% / 23% time saving over local)	2.5-5min (peak) 10 min (off peak)	54,700 (these 2 lines)
Los Angeles	Orange Line	22.5	Limited Stop (16% time saving over previous service)	5 min (peak) 10-20 min (off peak)	21,000
Las Vegas	Metropolitan Area Express (MAX)	12.5	Limited stop (26-43% time saving over previous service)	12min (peak) 20min (off peak)	7,000
Miami	South Miami – Dade Busway	22	Limited stop	2min (peak) 60min (over night)	20,000
Minneapolis	I-35W Bus Rapid Transit	32	Express (0 – 8min saving on a 6km trip, 12min on a 32km trip)	TBD	43,000 estimated in 2030
Orange County	Orange County Transportation Authority BRT Program	112 (3 routes)	Limited stop (30% time saving expected) -- Due to start in phases from 2008-2010	10min (peak) 12min (off peak)	Not in service yet

Location	BRT Service	Length (km)	Service Type	Frequency (Headway)	Daily Ridership
Ottawa	Ottawa Transitway	26	Limited stop, dedicated street	4-8min (peak) 25-30min (off peak) Overlay of other buses on the busway	200,000
Phoenix	RAPID	121 (4 routes)	Limited stop (significant time reliability improvement)	10min (peak only)	3,000
Sacramento	EBus	13	Limited stop (8min time saving)	15min (peak) 29min (off peak)	2,000
San Jose	Rapid 522	41	Limited stop (20% time saving against local buses)	15min	5,500
York Region	VIVA	105 (4 routes)	Limited stop	5-10min (peak) 15min (off peak)	22,000
Vancouver	98 B-Line	16	Limited stop	5-7 minutes (peak and midday)	21,000
Vancouver	99 B-Line	13.4	Limited stop (up to 30% time savings over local service)	4-5 minutes (peak and midday)	31,000

A few points are worth noting about the more successful BRT lines and programs identified in the list:

- The **San Pablo Rapid** complements a regional rail system run by another transit operator within Oakland and neighbouring cities. The service is still fairly new and the ridership potential may not be full realised.
- The **Calgary BRT** service connects downtown to two areas where the City's highly successful C-Train (light rail) does not yet operate. The BRT service is seen as a way to increase transit ridership in certain parts of the City before proceeding with plans to expand the light rail system into new areas, which involves higher costs and without a proven market for the system, greater risk.
- The **Los Angeles Metro Rapid** initiative is considered highly successful within the LA transit marketplace, and after an initial demonstration of two in-street services, has expanded to a broad network of fifteen BRT lines overlaid on the primary transit corridors within the City of Los Angeles and surrounding areas. In addition to these buses, an additional service called the Orange Line, with its own branded vehicles, operates on its own dedicated corridor within the southern San Fernando Valley, acting as a "surface extension" of the MTA Red Line (subway). One of the reasons for expanding this program so quickly, other than its success, was to address concerns about equity in project expenditures since more capital-intensive rail projects, while very attractive to existing and new riders, cannot cover as much of the City for as low a cost as the evolving BRT network. (Part of the reason Orange County, south of LA, is planning to implement BRT is that it serves a large population spread out over a vast suburban area where local bus travel distances and the resulting times are prohibitive to attracting choice riders.)
- The **Ottawa Transitway** is the highest ridership BRT system in North America, due to the number of bus routes that are able to operate on it, and the centralised nature of government offices and related employment along its route. The downtown portion of the system operates on two parallel one-way city streets shared with some mixed traffic, and the outlying portions are dedicated roads for transit buses. There were plans to build

underground bus tunnels below the city streets to carry this part of the busway, but this never occurred due to high costs. At its peak point, a very high capacity is possible because in addition to four principal dedicated busway routes, suburban feeder routes also use the busway. These routes circulate in the suburban communities as peak period local services, and then run as high-speed limited stop routes into central Ottawa. The City also operates a short light rail shuttle perpendicular to the busway, connecting to it at two locations.

- The **VIVA system in York Region** is proving to be successful because it connects a growing region north of the City of Toronto with destinations of critical importance, most specifically the northernmost subway stations in Toronto and York University. The east-west line that stays within York Region is also fairly successful because it provides a fairly competitive travel time in a central travel corridor.
- The **98 B-Line** in Vancouver and Richmond used a combination of signal priority and bus lanes along its route to enhance travel time performance. During peak periods when it is busier, supplemental service is provided to the same stops by two parallel suburban bus routes that operated limited stop into Vancouver. Due to construction of a parallel rail rapid transit line that will ultimately replace the B-Line, much of the bus lane section has been out of service since 2006 and more operation in mixed traffic takes place.
- The **99 B-Line** is the busiest bus route in the Greater Vancouver area. Before late 2006, the service ran entirely in mixed traffic between the Broadway-Commercial Station rapid transit hub and the University of British Columbia, a key transit destination second only to the downtown for total ridership. The capacity of the 99 B-Line during peak period is effectively limited by stations and traffic operations along Broadway and 10th Avenue. At times, the ability to pull buses in at B-Line stops to unload and load passengers is constrained by the presence of one or more buses already at the platform; therefore the headway is limited by this time. Crowding is cited as a frequent problem by passengers, and boardings per service hour average well over 100 even on Sundays, the least busy day. All-door boarding has been implemented at all stops to determine if this would provide operational relief. In addition, the absence of transit priority measures (prior to recent introduction of several short peak period bus lane segments) meant that buses delayed at traffic signals and by congestion would often be "caught" by the following bus, exacerbating the problem at busy bus stops. A parallel limited stop service running on 6th and 4th Streets has been gaining riders due to the practical limitations of the current service.

4.2 Application of Public Transit Modes

A question arises as the public transit system matures in the core parts of the urban area and starts to expand into the suburbs: What mode is most appropriate and cost-effective over the short to medium term? The answer to this is driven by a number of factors, including the population and employment densities of the corridors being contemplated, the existence or emergence of travel markets, and the presence of significant destinations at concentrated locations; these all relate to potential passenger demand. Other considerations include the network hierarchy (local modes feed regional modes, and buses tend to feed into rail) and the speed at which it is desirable to carry passengers.

4.2.1 MAXIMUM CAPACITY OF URBAN TRANSIT MODES

Exhibit 4-2 illustrates common industry applications of transit modes with regard to overall speed of service and potential maximum capacity of that mode.

Each of the shaded boxes on the exhibit represents the range of speeds and maximum capacities typically achieved for each transit mode. The range of speeds reflects the degree of independence of the transit vehicle from other traffic and other transit vehicles along its route, and this varies by degree of segregation from other traffic and spacing of stops. The range of maximum capacity depends on individual vehicle capacity, safety requirements for headways between vehicles, speed, reliability, comfort and seating standards.

4.2.2 TYPICAL USAGE VERSUS CAPACITY

Transit operations do not ideally occur at these theoretical capacity limits, and realistically carry less than the maximum possible number of passengers. At the other end of the scale, these same transit modes are often operated as low as one-fifth of the maximum capacity, primarily because demand does not warrant more frequent operations or conditions and standards restrict how high the capacity is pushed. Surface bus lines can operate with as few as 200 to 600 passengers per hour, BRT at 400 to 1200 passenger per hour, LRT at 1000 to 2000 passengers per hour, and heavy rail rapid transit as low as 4000 to 7000 per hour on the maximum load sections during the peak hour.

In between the low and high extremes, there are many cases where the peak hour sees transit services operate at or near their 'current capacity,' which is the amount of passengers that can be carried given the operating parameters (headway, speeds) for that transit service. It is possible to increase the capacity and reduce crowding on these busy routes by adding more vehicles until the ability to serve the busiest stops starts to limit the number of vehicles/buses that can be put onto the service. The one remaining strategy is to increase the speed and reliability of the service by implementing schedule adherence schemes such as transit signal priority and dedicated bus lanes or busways. Beyond that, once the practical limit has been reached (which includes the practical consideration of capital and operating cost for a large fleet of buses), the next step is to consider higher capacity transit modes.

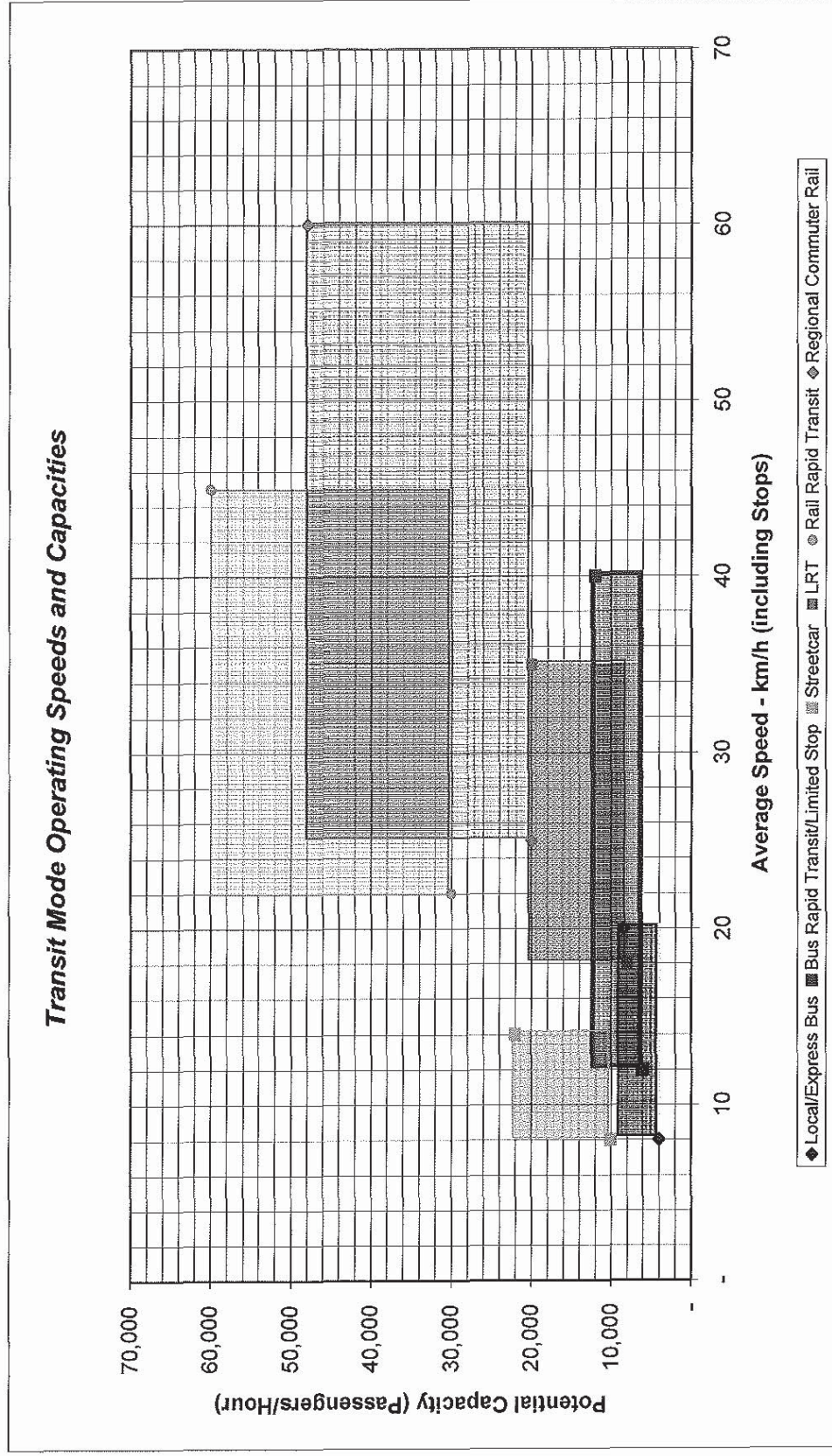
Within Greater Vancouver, the BRT services operate at an average 21 km per hour² and provide peak capacities in the range 1,200 to 1,500 passengers per direction³. This operation reflects the frequency of buses deployed to these routes and the seating and standing passenger capacities of the 18 metre (60-foot) transit providing the service. The average speed of the SkyTrain system is 43 km per hour. The maximum capacity of SkyTrain is achieved where the Expo and Millennium lines overlap between Columbia and Waterfront stations to provide combined service with 2-minute headways between trains. The current fleet of SkyTrain vehicles, deployed in 2-, 4- and 6-car trains, is currently capable of carrying up to 12,000 people per hour⁴ in the peak direction. There are plans underway to increase this capacity through purchase of additional SkyTrain cars, which could then be added to the shorter existing trains while still operating at the same headway.

² This is schedule speed, which includes time moving and at stops/stations. Maximum speed while moving would clearly be higher.

³ This is based on 12 to 15 articulated buses per hour with 54 seats and up to 100 total passengers apiece. TransLink uses a loading standard of 85 passengers for comfortable operation.

⁴ Source: TransLink/BC Rapid Transit Corporation.

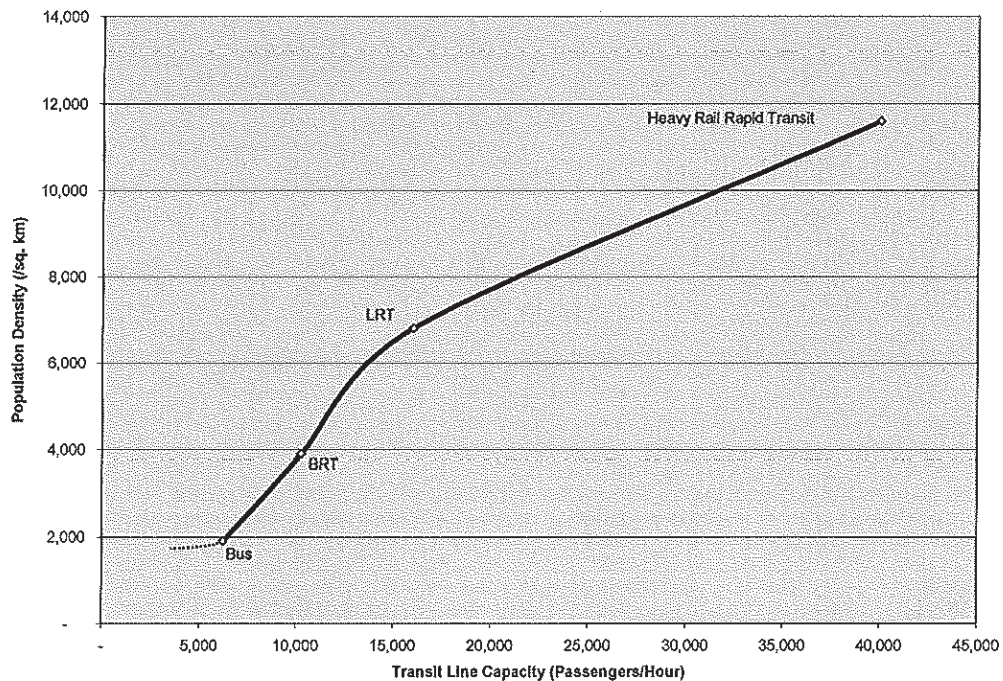
Exhibit 4-2 Comparison of Public Transportation Modes - Speed and Capacity



4.2.3 PRACTICAL APPLICATION RANGES FOR TRANSIT CORRIDORS

Exhibit 4-3 provides another, simpler depiction of transit service, in this case considering corridors in an urban area and showing a progression from warranting local bus service (2000 people per square kilometre is consistent with single family neighbourhoods) into BRT, LRT and heavy rail.

Exhibit 4-3: Application Range for Public Transit Modes



Again, the transit line capacities represent typical maximum points, and real transit lines will operate with fewer passengers per hour during the peak than shown in the exhibit. The points represent the transit line capacity beyond which other modes of public transportation will generally be better suited to handling the demand.

Considering Greater Vancouver in the context of this plot, the average population density was estimated as 1,200 people per square kilometre, but this area also includes the rural and mountainous areas between and around the settled parts of the region. Within the urban areas actually served by transit, the population density is by and large greater than 2,100 people per square kilometre, and this is consistent with the predominant use of local and express bus services to connect most of the region. A parallel report commissioned by the Ministry of Transportation focused on rapid transit services and development densities, and it revealed that population densities along the 98 B-Line and 99 B-Line corridors varied from less than 1,000 to over 7,500 people per square kilometre. (The lower densities can be misleading; they often represent employment and educational districts with few residents, and they act as transit destinations in the morning and produce concentrations of passengers during the afternoon peak. Densities along the original SkyTrain line were fairly high, but the newer portion of the network serves areas with modest population densities. Overall, the range in population density near SkyTrain stations is 2,500 to over 7,500 persons per square kilometre.

5. CONCLUSIONS

This brief review of urban transit systems has provided an opportunity to compare Vancouver within the context of other Canadian and North American cities. Based upon the subject areas the team was directed to review, the key conclusions from this study would be:

1. Cities with a combination of rail and bus services tended to exhibit much higher market penetration. The original intent of the assignment was to consider the market penetration of bus services, including BRT. However, since the bus service component of most of the larger cities is integrated with rail services in some fashion, estimating the resulting "attraction" of the bus services alone would be highly speculative.
2. As Cities increase in size, a greater amount of transit service is provided per capita, and this results in the payoff of not only greater total ridership, but greater market penetration and higher usage of the service (expressed as boardings per revenue service hour) that is being offered.
3. Greater Vancouver performs fairly well as a transit market by North American standards. Within Canada, only Toronto, Montreal and Ottawa experience a higher number of transit trips per capita, and few U.S. Cities with the exceptions of New York and the San Francisco Bay Area do as well as Vancouver. (Some cities such as Chicago and Boston carry more total riders, but from a much larger population base than Vancouver.)
4. There is no demonstrable drop in ridership per capita as service is added to a bus system. However, depending on how and where the service is added, the number of riders per service hour may drop even as the number of riders still increases. The only real limitation to increasing ridership by adding service is where the station or line capacity of a route has maximized and it simply isn't feasible to add more service to present operation.
5. Canadian metropolitan areas include anywhere from 45 to 80 metres of rail and busway network and 2 to 4 stations per 1,000 residents, which is relatively consistent with larger North American cities. Variations in the definition of network, stations and service areas complicate any quantitative comparisons that are made. Within that context, it is notable that Vancouver is comparable to Toronto and Montreal in terms of 'per capita network length' (metres/1000 residents) and number of stations per resident. All three are somewhat lower than either Calgary or Ottawa; this is a result of a more extensive network including commuter rail, which has the effect of increasing service population and has stations set apart at longer distances, thus 'lowering the average' even while providing more service. On a pure numerical basis, Vancouver (both currently and in the next few years once the Evergreen Line is constructed) has an above average number of stations per 100,000 residents compared with most similar sized US cities.
6. The capacity of BRT is influenced by the degree of segregation from and priority over other traffic. The Ottawa Busway is the most successful BRT application in North America and it provides a separate path for transit buses with limited interference from other traffic. The 99 B-Line in Vancouver has very high ridership for a single transit line, but its capacity is limited by traffic conditions along the route it serves, and by dwell times at certain stops, because it has very limited transit priority.
7. Successful Bus Rapid Transit systems occur when travel corridors exist with demand for medium to longer-distance travel. Connecting to other BRT routes or rail transit is a significant factor in achieving higher ridership. Some cities connect BRT lines to heavy rail

transit as a way of building ridership at lower cost, and waiting for the market to mature, if ever, before implementing a higher-capacity transit mode.

8. BRT systems can operate with as few as 400 to 1000 passengers per hour in the peak direction, and their maximum practical capacity is 6000 to 12000 passengers per hour assuming maximum separation from other traffic, optimal station spacing and configuration, and rapid loading and unloading of passengers. The upper end of this capacity range is also suitable for LRT and therefore the tradeoffs between rail and BRT should be considered when selecting a mode for intermediate transit service.

APPENDICES

URBAN TRANSIT DATA FOR SELECTED CITIES

PROFILES – BUS RAPID TRANSIT SYSTEMS

Appendix A-1
Canadian Transit Data, 2005

Location	Service Area Population	Square km	Mode	TOTAL URBAN TRANSIT SERVICE/RIDERSHIP				
				Annual Revenue \$m	Annual Revenue Hours	Revenue Passengers	Boardings (inc Transfers)	Passenger km
Calgary	958,079	722	Calgary Transit	43,518,860	1,774,118	81,120,900	119,511,600	1,030,235,400
Edmonton	712,391	700	Edmonton Transit System	38,957,455	1,718,100	54,413,071	84,807,068	408,098,033
St. Albert	58,310	38	City of St. Albert Transit	1,799,867	71,494	1,004,829	1,849,612	8,000,000
Strathcona-Shawwood park	55,063	1,243	Strathcona County Transit	2,638,335	75,381	1,889,788	2,010,413	41,575,538
Vancouver	2,155,880	1,800	GVTA	112,483,971	4,891,012	159,713,786	275,771,912	1,900,594,053
Winnipeg	589,452	208	Winnipeg Transit System	23,502,217	1,250,420	38,953,515	58,809,000	278,478,000
Ajax-Pickering	178,398	141	Ajax-Pickering Transit Authority (now part of Durham Regional)	2,292,574	127,960	2,413,854	2,708,885	22,328,150
Brampton	401,470	267	Brampton Transit	8,712,266	471,585	9,021,247	13,261,233	71,000,000
Greater Toronto	5,000,000	8,000	GO Transit	21,531,883	800,000	48,832,900	46,832,900	1,498,286,220
Milton	31,500	14	Milton Transit	300,204	12,054	71,502	87,030	500,000
Mississauga	700,000	179	Mississauga Transit	21,550,384	971,601	27,983,954	40,310,480	245,000,000
Oakville	152,400	77	Oakville Transit	2,703,422	133,875	2,378,607	2,652,978	16,000,000
Toronto	2,461,484	632	Toronto Transit Commission (TTC)	190,000,000	8,432,000	431,220,000	735,602,128	3,924,102,000
York Region	918,383	1,775	York Region Transit	15,660,859	738,979	15,222,228	18,028,202	58,000,000
Hamilton	438,000	227	Hamilton Street Railway	11,571,171	625,408	20,918,907	27,132,130	65,000,000
Ottawa	760,221	413	OC Transpo	45,406,436	1,704,894	89,555,383	125,377,536	788,878,478
Gallopau	252,288	589	STO	7,434,488	308,552	15,651,384	18,381,847	381,284,600
Montreal Region	3,400,000	3,800	AMT	10,248,848	241,375	15,590,000	15,590,000	286,210,000
Montreal Region - Small Mairis	1,317,057		CIT Association (12 systems)	18,240,118	502,060	18,334,428	18,334,428	340,000,000
Laval	370,400	247	STL	10,654,874	411,335	19,376,494	22,458,320	218,000,000
Longueuil	384,504	284	RTL	16,000,735	716,525	30,262,968	30,262,968	283,877,414
Montreal	1,873,813	501	STM	114,814,425	4,690,232	359,283,000	621,505,000	2,795,221,740
Quebec	517,820	640	Reseau de transport de la Capitale	15,819,706	737,278	37,665,720	48,213,924	258,152,298

Appendix A-2
U.S. Urban Transit Data, 2005-6

Location	Metro Population (2000)	Metro Population (2005 Est.)	Square Miles	Mode	Agency	Demand Response (DR)			Bus (MB)			Trolley Bus (TB)		
						Annual Revenue Miles (M)	Annual Revenue Hours (H)	Unfilled Trips (U)	Passenger Miles (P)	Annual Revenue Miles (M)	Annual Revenue Hours (H)	Unfilled Trips (U)	Passenger Miles (P)	Annual Revenue Hours (H)
New York-Northern NJ-Long Island	17,789,851	18,800,000	3,353	MTA New York City Transit	MTA New York City Transit	18,917	1,853	1,800	21,903	101,270	12,870	982,418	1,581,117	
				MTA Metro North Railroad	MTA Metro North Railroad	9,125	552	1,034	8,470	75,729	5,185	195,147	987,770	
				MTA LIRR	MTA LIRR					99	19	282	135	
				CTA	CTA					11,982	1,323	85,488	181,500	
				MTA Long Island Bus	MTA Long Island Bus	2,970	209	325	2,845	10,045	889	31,032	152,897	
				Westchester County Bus Line	Westchester County Bus Line	2,043	130	137	2,042	7,089	624	24,947	122,832	
				PATH	PATH									
				NYCDOCT	NYCDOCT					8,774	1,130	24,638	50,650	
				New York Bus Service	New York Bus Service					1,365	126	1,790	22,277	
				Suffolk County - Transportation Division	Suffolk County - Transportation Division	2,787	187	197	2,123	7,418	377	5,313	47,541	
				Academy Line	Academy Line					3,161	316	3,627	239,830	
				Hudson Transit Lines	Hudson Transit Lines					8,613	191	3,246	170,844	
				Suburban Transit Corporation	Suburban Transit Corporation					6,252	389	3,641	128,427	
				Orange-Howard-Elizabeth	Orange-Howard-Elizabeth					2,274	258	12,354	39,882	
				Trans-Hudson Express	Trans-Hudson Express					2,878	284	7,711	48,865	
				SIRTCA	SIRTCA					854	88	4,053	12,573	
				Queens Surface Corporation	Queens Surface Corporation									
				Others - smaller	Others - smaller									
Los Angeles-Long Beach-Santa Ana	11,786,487	12,550,000	1,658	LACMTA	LACMTA	9,232	607	1,138	11,855	23,458	1,538	377,268	1,407,304	
				COCTA	COCTA					11,881	743	14,747	105,224	
				Pedhill Transit	Pedhill Transit	4,368	296	1,129	5,078	7,671	675	28,983	71,335	
				LADOT	LADOT	329	13	76	370	7,486	685	28,985	73,344	
				Long Beach Transit	Long Beach Transit	74	9	27	451	4,947	451	20,543	69,347	
				Santa Monica Big Blue Bus	Santa Monica Big Blue Bus					5,148	458	10,047	23,173	
				LACMTA - Small Operations	LACMTA - Small Operations	3,785	305	1,214	4,734					
				SCRTA/MetroLink	SCRTA/MetroLink									
				Toronto Transit	Toronto Transit	539	34	118	589	2,015	160	4,613	20,918	
				Montreal Bus Lines	Montreal Bus Lines	43	4	16	37	2,802	254	8,567	30,164	
				AVTA	AVTA	522	31	58	744	2,447	195	2,668	34,532	
				City of Guelph	City of Guelph	98	13	33	114	1,601	113	4,556	16,837	
				Calder City Transit	Calder City Transit					1,423	134	5,432	14,372	
				Acacia Services Incorporated	Acacia Services Incorporated	23,421	1,212	2,355	28,600					
				Others - smaller	Others - smaller									
Chicago	8,307,504	9,500,000	2,123	CTA	CTA	14,517	1,153	2,250	17,687	66,812	6,748	303,244	781,978	
				Metra	Metra									
				Pace - Suburban Bus	Pace - Suburban Bus	8,781	595	1,581	11,873	20,366	1,628	33,770	227,270	
				Northern Indiana Commuter Transport District	Northern Indiana Commuter Transport District									
				Others - smaller	Others - smaller									
Philadelphia	5,145,079	5,800,000	1,380	SEPTA	SEPTA	8,885	911	1,554	10,850	39,596	3,830	187,560	553,229	
				PATCO	PATCO									
				Delaware Transit Corporation	Delaware Transit Corporation	7,805	439	712	8,246	5,801	410	8,052	49,503	
				Others - smaller	Others - smaller									
Miami	4,919,036	5,460,000	1,116	Miami Dade Transit	Miami Dade Transit	9,041	769	1,034	10,055	34,222	2,732	76,753	324,237	
				Broward County Transit	Broward County Transit	8,738	618	741	7,781	15,761	1,162	39,737	162,688	
				Palm Tran	Palm Tran	12,042	797	1,354	18,107	8,772	410	8,419	51,005	
				ATS	ATS									
				SFRTA/Tri-Rail	SFRTA/Tri-Rail					270	30	264	722	
				Others - smaller	Others - smaller									
Dallas-Fort Worth	4,145,689	6,000,000	1,407	Dallas Area Rapid Transit (DART)	Dallas Area Rapid Transit (DART)	121	9	36	161	30,407	2,131	53,394	254,706	
				Fort Worth Transportation Authority	Fort Worth Transportation Authority	3,064	164	346	3,741	4,459	359	6,966	29,107	
				Dallas - VPSI	Dallas - VPSI									
				ATC/Vancom	ATC/Vancom	7,020	395	598	8,973					
				Others - smaller	Others - smaller									
Boston	4,032,484	4,460,000	1,736	MBTA	MBTA	11,065	878	1,358	16,806	29,225	2,766	134,382	281,588	
				Brockton Area Transit	Brockton Area Transit	510	48	200	1,173	1,161	98	3,020	14,759	
				Lowell Regional Transit Authority	Lowell Regional Transit Authority	435	43	101	456	911	80	1,418	4,174	
				Others - smaller	Others - smaller									

Appendix A-2
U.S. Urban Transit Data, 2005-6

Location	Metro Population (2000)	Metro Population (2005 Est.)	Square Miles	Mode	Demand Response (DR)				Bus (MB)				Trolley Bus (TB)			
					Annual Revenue Miles (10 ³)	Hours (10 ³)	Utilized Time (10 ³)	Passenger Miles (10 ³)	Annual Revenue Miles (10 ³)	Hours (10 ³)	Utilized Time (10 ³)	Passenger Miles (10 ³)	Annual Revenue Miles (10 ³)	Hours (10 ³)	Utilized Time (10 ³)	Passenger Miles (10 ³)
Washington DC - MDVA	3,993,920	5,290,000	1,157	WMATA Ride-on Montgomery County Transit Fallco Connector Maryland Transit Administration - MARC VRE Prince George County Transit PRTC Others - smaller	12,180 5,025	766 345	1,254 389	13,686 1,081	38,459 12,729	3,423 931	153,362 8,474	453,250 73,123				
Detroit	3,663,377	4,470,000	1,262	City of Detroit DOT SMART (Suburban Mobility) Detroit People Mover	1,664 3,212	137 234	211 745	2,150 4,663	16,136 11,351	1,285 693	35,367 9,866	190,108 57,877				
Houston	3,622,528	5,540,000	1,295	Metro (Harris County)	13,527	738	1,505	16,602	41,555	2,849	81,547	474,575				
Atlanta	3,489,840	5,140,000	1,953	MARTA Georgia Regional Transportation Authority Cobb County Gwinnett County Others - smaller	3,756 209 448 38	206 12 33 5	336 14 61 7	4,312 218 650 23	21,757 21,651 2,801 2,158	1,796 137 146 124	71,056 2,070 3,793 1,637	231,031 17,652 32,770 34,571				
San Francisco-Oakland	3,228,605	4,180,000	527	MUNI BART AC Transit SanTrans Golden Gate Transit (GGT) Peninsula Corridor Joint (Caltrain) ATC/Marin San Francisco International (ATC) Others - smaller	2,530 931 5,623 4,743	208 51 390 424	320 95 988 1,267	3,201 1,007 5,743 7,537	7,303 5,246 17,840 12,729	1,800 341 1,337 368	64,601 7,620 45,220 6,510	200,105 73,838 170,528 22,148				
Phoenix	2,907,049	4,040,000	769	Valley Metro Phoenix VPSI SPTA/Metro Tampa In Motion Others - smaller	4,634 1,623	321 118	514 221	3,850 1,961	17,840 4,857	1,337 383	45,220 5,367	170,528 37,193				
Seattle-Tacoma	2,712,205	3,260,000	954	King County Metro Washington State Ferries Pierce Transit Sound Transit/Central Puget Sound RTA Community Transit/Snohomish Everett Transit City of Seattle Monorail Others - smaller	9,751 2,464 387	681 160 37	1,831 416 91	13,103 3,787 387	30,467 6,907 1,054	2,442 531 90	71,569 12,245 1,557	415,516 46,009 7,143	3,123 440	23,040	1,027	109,854
San Diego	2,674,438	2,940,000	782	San Diego Trolley San Diego MTS MTS contract services NCTD Chula Vista Transit SANDAG Others - smaller	3,023 1,142	178 69	585 202	3,650 1,364	10,987 8,827	830 488	24,425 17,884	83,746 66,853				
Minneapolis-St. Paul	2,388,593	3,180,000	894	Metro Transit Metropolitan Council Metro Mobility	3,655 8,523	251 567	781 1,105	5,462 11,527	24,337 6,198	2,011 379	61,797 9,306	255,949 62,138				
St. Louis	2,077,662	2,800,000	829	Metro (BI State development agency)	5,177	304	676	3,496	16,404	1,250	30,114	123,194				
Baltimore	2,078,354	2,660,000	683	Maryland Transit Administration (except MARC) Others - smaller	5,320	426	617	3,112	23,453	1,922	77,805	337,009				
Tampa-St. Petersburg	2,062,536	2,700,000	802	Pinellas Suncoast Transit Hillsborough County Transit Pasco County	3,243 589 553	110 41 35	265 90	2,206 806	9,189 6,716	570 542	10,204 11,042	47,893 53,429				
Denver	1,964,885	2,400,000	459	Denver RTD	7,007	485	889	6,223	40,065	2,639	74,683	376,454				

Appendix A-2
U.S. Urban Transit Data, 2005-6

Location	Metro Population (2001)	Metro Population (2005 Est.)	Square Miles	Mode	Demand Response (DR)				Bus (BE)				Trolley Bus (TB)			
					Annual Revenue Miles (10 ³)	Hours (10 ³)	Unlimited Trips (10 ³)	Passenger Miles (10 ³)	Annual Revenue Miles (10 ³)	Hours (10 ³)	Unlimited Trips (10 ³)	Passenger Miles (10 ³)	Annual Revenue Miles (10 ³)	Hours (10 ³)	Unlimited Trips (10 ³)	Passenger Miles (10 ³)
Cleveland	1,785,547	2,110,000	647	Agency Greater Cleveland RTA Lakeland Others - smaller	2,859 2,465	202 141	446 383	3,120 3,719	21,658 857	1,742 49	54,533 652	210,122 7,697				
Pittsburgh	1,753,136	2,370,000	852	Port Authority - Allegheny county Access Transportation Systems Others - smaller	11,462	747	1,773	12,138	27,584	2,129	59,107	255,287				
Portland	1,593,138	2,140,000	474	TriMet C-Transit (Clark County WA)	6,162 1,103	438 72	1,028 167	9,009 1,140	23,981 3,702	1,874 231	68,765 5,615	245,065 29,695				
San Jose	1,538,312	1,680,000	280	Santa Clara Valley TA Alamont Commuter Express (ACE)	5,702	395	913	7,314	15,592	1,230	30,784	127,063				
Riverside-San Bernardino	2,603,881	3,320,000	439	Comitians Riverside Transit Authority Others - smaller	2,880 2,893	182 134	545 218	5,664 2,344	8,562 7,425	649 472	15,038 7,140	70,904 47,222				
Sacramento	1,353,498	1,570,000	369	Sacramento RTD Others - smaller	2,703	173	289	2,448	11,668	946	30,938	122,430				
Kansas City	1,361,744	1,970,000	584	KCATa Others - smaller	2,160	104	410	2,730	8,418	630	13,615	49,974				
Las Vegas	1,314,357	1,760,000	286	RTC - Southern Nevada	5,688	365	760	8,735	15,806	1,332	52,811	186,390				
Orlando	1,157,431	1,960,000	453	LYNX/Central Florida RTA	6,860	391	581	7,521	13,398	949	24,069	148,002				
Albuquerque	598,191	820,000	224	ABQ Ride	1,682	94	150	1,662	4,127	255	7,687	19,725				
Eugene	224,049	340,000	68	Lane Transit District	632	49	115	755	3,256	264	8,349	35,005				

Appendix A-2
U.S. Urban Transit Data, 2005-6

Location	Metro Population (2000)	Metro Population (2005 Est.)	Square Miles	Mode	Agency	Annual Revenue Miles (10 ³)	Annual Revenue Hours (10 ³)	Unlinked Trips (10 ³)	Passenger Miles (10 ³)	Annual Revenue Miles (10 ³)	Annual Revenue Hours (10 ³)	Unlinked Trips (10 ³)	Passenger Miles (10 ³)
New York-Northern NJ-Long Island	17,759,861	16,800,000	3,353	MTA New York City Transit New Jersey Transit MTA Metro North Commuter Railroad MTA URR		3,503	94	588	23,937	41	3	103	537
				GTAC Transit Alliance									
				MTA Long Island Bus									
				Westchester County Bus Line									
				PATCO									
				NYC DOT						177	18	2,136	5,777
				MTA Bus Company						177	17	20,034	104,177
				New York Bus Service									
				Suffolk County - Transportation Division									
				Academy Lines									
				Hudson Transit Lines									
				Suburban Transit Corporation									
				Orange-Newark-Elizabeth									
				Trans-Hudson Express									
				SRTDA									
				Queens Surface Corporation									
				Others - smaller									
Los Angeles-Long Beach-Santa Ana	11,785,467	12,850,000	1,668	LACMTA									
				CCTA									
				Foothill Transit									
				LACOT									
				Long Beach Transit									
				Santa Monica Big Blue Bus									
				LACMTA - Small Operations									
				SCRRAMobilityLink									
				Torrance Transit									
				Montebello Bus Lines									
				AVTA									
				City of Gardena									
				Culver City Transit									
				Access Services Incorporated									
				Others - smaller									
Chicago	8,307,904	9,500,000	2,123	CTA									
				Metra									
				Pace - Suburban Bus						7,742	271	1,509	34,242
				Northern Indiana Commuter Transport District									
				Others - smaller									
Philadelphia	5,145,079	5,800,000	1,900	SEPTA									
				PATCO									
				Delaware Transit Corporation									
				Others - smaller									
Miami	4,919,006	5,480,000	1,116	Miami Dade Transit									
				Broward County Transit									
				Palm Tran						142	34	760	3,100
				ATS									
				SFR/ATH-Rail									
				Others - smaller									
Dallas-Fort Worth	4,145,688	6,000,000	1,407	Dallas Area Rapid Transit (DART)						1,412	40	354	15,391
				Fort Worth Transportation Authority									
				Dallas - VPSI						2,663	59	416	15,607
				ATCO/Amcom									
				Others - smaller									
Boston	4,032,664	4,495,000	1,736	MBTA									
				Brockton Area Transit						339	27	1,281	11,741
				Lowell Regional Transit Authority									
				Others - smaller									

Appendix A-2
U.S. Urban Transit Data, 2005-6

Location		Metro Population (2000)	Metro Population (2005 Etc.)	Square Miles	Mode	Vambool (NP)		Ferryboat (FB)		
		Ref Copy			Agency	Annual Revenue Miles (10 ³)	Annual Revenue Hours (10 ³)	Utilized Trips (10 ³)	Annual Revenue Hours (10 ³)	Passenger Miles (10 ⁶)
Washington DC + MD/VA		3,993,920	5,290,000	1,157	WMATA					
					Ride-on Montgomery County Transit					
					Fairfax Connector					
					Maryland Transit Administration - MARC					
					VRE					
					Prince George County Transit					
					PRTC					
					Others - smaller					
Detroit		3,903,377	4,470,000	1,262	City of Detroit DOT SMART (Suburban Mobility) Detroit People Mover					
Houston		3,892,509	5,540,000	1,295	Metro (Harris County)	4,199	134	1,270	35,278	
Atlanta		3,499,840	5,140,000	1,963	MARTA Georgia Regional Transportation Authority	625	13	148	5,505	
					Cobb County					
					Gwinnett County					
					Others - smaller					
San Francisco-Oakland		3,228,605	4,180,000	527	MUNI BART AC Transit					
					SamTrans				184	1,751
					Golden Gate Transit (GGT)					13,682
					Peninsula Corridor JPB (Caltrain)					
					ATC/Vancom					
					San Francisco paratransit (ATC)					
					Others - smaller					
Phoenix		2,907,049	4,040,000	799	Valley Metro Phoenix VPSI	4,100	101	779	22,625	
					RPTA/Valley Metro					
					Tempe in Motion					
					Others - smaller					
Seattle-Tacoma		2,712,205	3,260,000	954	King County Metro Washington State Ferries	9,083	288	1,796	42,791	183,049
					Pierce Transit	3,668	103	734	23,988	
					Sound Transit/Central Puget Sound RTA					
					Community Transit/Snohomish	3,384	62	647	17,481	
					Everett Transit					
					City of Seattle Monorail					
					Others - smaller					
San Diego		2,674,436	2,940,000	782	San Diego Trolley San Diego MTS					
					MTS contract services					
					NCTD					
					Chula Vista Transit	11,910	265	1,275	77,079	
					SANDAG					
					Others - smaller					
Minneapolis/St. Paul		2,388,593	3,180,000	894	Metro Transit Metropolitan Council Metro Mobility	\$53	23	131	4,639	
St. Louis		2,077,662	2,800,000	829	Metro (St. Louis development agency)					
Baltimore		2,078,354	2,660,000	683	Maryland Transit Administration (except MARC)					
					Others - smaller					
Tampa-St. Petersburg		2,062,393	2,700,000	832	Pinellas Suncoast Transit Hillsborough County Transit Pasco County	423	10	46	2,262	
Denver		1,984,889	2,400,000	469	Denver RTD	2,580	58	240	11,407	

Appendix A-2
U.S. Urban Transit Data, 2005-6

Location	Metro Population (2000)	Metro Population (2006 Est.)	Square Miles	Mode	Annual Revenue Miles (10 ³)	Annual Revenue Hours (10 ³)	Unlinked Trips (10 ³)	Passenger Miles (10 ³)	Annual Revenue Miles (10 ³)	Annual Revenue Hours (10 ³)	Unlinked Trips (10 ³)	Passenger Miles (10 ³)
Cleveland	Ref Copy	1,786,547	2,110,000	647	Greater Cleveland RTA							
				Lakeland								
				Others - smaller								
Pittsburgh		1,763,136	2,370,000	852	Port Authority - Allegheny county Access Transportation Systems							
				Others - smaller								
Portland		1,583,138	2,140,000	474	TriMet							
				C-Tran (Clark County WA)	1	0	1	3				
San Jose		1,538,312	1,580,000	280	Santa Clara Valley TA Alamont Commuter Express (ACE)							
Riverside-San Bernardino		2,603,891	3,200,000	439	Compliana							
				Riverside Transit Authority								
				Others - smaller								
Sacramento		1,393,468	1,570,000	369	Sacramento RTD							
				Others - smaller								
Kansas City		1,361,744	1,570,000	584	KCATA	523	13	71	2,520			
				Others - smaller								
Las Vegas		1,314,357	1,780,000	286	RTC - Southern Nevada							
Omaha		1,157,431	1,560,000	453	LYNX/Central Florida RTA	789	23	167	4,888			
Albuquerque		598,191	820,000	224	ABQ Ride							
Eugene		224,049	340,000	68	Lane Transit District	17	0	3	144			

Appendix A-2

U.S. Urban Transit Data, 2005-06		Metro Population (2000)		Metro Population (2000 Est.)		Square Miles	Mode	Heavy Rail (H/R)			Commuter Rail (C/R)			Light Rail (L/R)			Passenger Miles (10 ³)	
Location	Ref. Copy						Agency	Annual Revenue Miles (10 ³)	Annual Revenue Hours (10 ³)	Unlinked Trips (10 ³)	Passenger Miles (10 ³)	Annual Revenue Miles (10 ³)	Annual Revenue Hours (10 ³)	Unlinked Trips (10 ³)	Annual Revenue Miles (10 ³)	Annual Revenue Hours (10 ³)	Unlinked Trips (10 ³)	Passenger Miles (10 ³)
New York-Northern NJ-Long Island	17,789,861	18,800,000	3,353	MTA New York City Transit New Jersey Transit MTA Metro North Commuter Railroad MTA LIRR MTA Long Island Bus Westchester County Bus Line PATH NYCDOT MTA Bus Company New York Bus Service Suffolk County - Transportation Division Academy Lines Hudson Transit Lines Suburban Transit Corporation Orange-Notwick-Buzzards Trans-Hudson Express SIRTDA Queens Surface Corporation Others - smaller	355,650	18,384	1,804,034	8,402,147	57,322 51,827 93,730	1,911 1,481 1,358	72,614 74,267 95,519	1,982,312 1,551,191 1,925,736	2,650	13,702	62,781			
Los Angeles-Long Beach-Santa Ana	11,786,487	12,550,000	1,688	LACMTA OCTA Foothill Transit LADOT Long Beach Transit Santa Monica Big Blue Bus LACMTA - Small Operations SCRRA/MetroLink Torrance Transit Montebello Bus Lines AVTA City of Gardena Glenn City Transit Access Services Incorporated Others - smaller	587,921	3,688	188,780	1,136,465	98,260 3,241	1,238 93	69,591 3,802	1,548,277 106,356	8,114	37,970	268,981			
Chicago	8,307,904	9,500,000	2,123	CTA Metra Papa - Suburban Bus Northern Indiana Commuter Transport District Others - smaller	68,921	3,688	188,780	1,136,465	98,260 3,241	1,238 93	69,591 3,802	1,548,277 106,356						
Philadelphia	5,148,079	5,800,000	1,800	SEPTA PATCO Delaware Transit Corporation Others - smaller	16,013 3,988	818 137	88,046 9,363	391,912 80,677	15,808	595	31,680	456,446	3,320	25,205	63,781			
Miami	4,919,096	5,460,000	1,116	Miami Dade Transit Broward County Transit Palm Tran ATS SPRITA/TH-Rail Others - smaller	9,346	395	17,034	134,854	2,158	67	2,800	84,532						
Dallas-Fort Worth	4,145,688	6,000,000	1,407	Dallas Area Rapid Transit (DART) Fort Worth Transportation Authority Dallas - VPSI ATCO/Vancom Others - smaller	548 528	26 23	1,325 826	15,344 13,008	548 528	26 23	1,325 826	15,344 13,008	5,175	17,487	128,322			
Boston	4,032,484	4,460,000	1,736	MBTA Beckton Area Transit Lowell Regional Transit Authority Others - smaller	20,813	1,427	141,995	500,458	22,342	710	37,890	755,988	4,544	73,793	180,581			

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U.S. Urban Transit Data, 2005-6

Location	Metro Population (2006)	Metro Population (2005 Est.)	Square Miles	Mode	Heavy Rail (HRT)				Commuter Rail (CRT)				Light Rail (LRT)			
					Annual Revenue Miles (10 ³)	Hours (10 ³)	Passenger Miles (10 ³)	Unlinked Trips (10 ³)	Annual Revenue Miles (10 ³)	Hours (10 ³)	Passenger Miles (10 ³)	Unlinked Trips (10 ³)	Annual Revenue Miles (10 ³)	Hours (10 ³)	Passenger Miles (10 ³)	Unlinked Trips (10 ³)
Washington DC + MDVA	Ref Copy	3,683,920	5,290,000	1,157	WMATA	2,460	289,430	1,401,105								
					Ride-on Montgomery County Transit											
					Fairfax Connector											
					Maryland Transit Administration - MARC											
					VRE				4,935	122	6,884	205,155				
					PRTC				1,798	53	3,654	105,256				
					Others - smaller											
Detroit		3,903,377	4,470,000	1,262	City of Detroit DOT											
					SMART (Suburban Mobility)											
					Detroit People Mover											
Houston		3,822,509	5,540,000	1,295	Metro (Harris County)											
Atlanta		3,499,840	5,140,000	1,963	MARTA	875	70,984	481,150					806	58	10,224	25,566
					Georgia Regional Transportation Authority											
					Cobb County											
					Gwinnett County											
					Others - smaller											
San Francisco-Oakland		3,228,605	4,180,000	527	MUNI	1,775	99,296	1,255,541					5,525	575	46,803	121,027
					BART											
					AG Transit											
					SanTrans											
					Golden Gate Transit (GGT)											
					Penninsula Corridor JPS (Caltrain)				5,555	175	8,121	202,708				
					ATCO/Norcom											
					San Francisco paratransit (ATC)											
					Others - smaller											
Phoenix		2,837,049	4,040,000	769	Valley Metro											
					Phoenix VPSI											
					RPT/Valley Metro											
					Tempe in Motion											
					Others - smaller											
Seattle-Tacoma		2,712,205	3,280,000	954	King County Metro											
					Washington State Ferries								39	10	374	380
					Pierce Transit											
					Sound Transit/Central Puget Sound RTA											
					Community Transit/Snohomish				533	14	1,268	31,877		10	885	982
					Everett Transit											
					City of Seattle Monorail											
					Others - smaller											
San Diego		2,674,436	2,940,000	762	San Diego Trolley											
					San Diego MTS											
					MTS contract services								7,060	368	23,334	187,988
					NCTD											
					Chula Vista Transit				1,230	29	1,432	40,140				
					SHINKS											
					Others - smaller											
Minneapolis/St. Paul		2,986,593	3,180,000	894	Metro Transit											
					Metropolitan Council								1,547	101	7,902	53,729
					Metro Mobility											
St. Louis		2,077,662	2,800,000	829	Metro (BI State development agency)											
													4,440	172	15,648	117,725
Baltimore		2,076,354	2,860,000	683	Maryland Transit Administration (except MARC)	4,716	160	12,863					1,494	90	5,196	28,741
					Others - smaller											
Tampa-St. Petersburg		2,062,339	2,700,000	802	Pinalis Suncoast Transit											
					Hillsborough County Transit											
					Pasco County								84	18	565	920
Denver		1,984,889	2,400,000	499	Denver RTD								3,725	214	10,450	47,134

Appendix A-2
U.S. Urban Transit Data, 2005-6

Location	Metro Population (2006)		Square Miles	Mode	Heavy Rail (HR)			Commuter Rail (CR)			Light Rail (LR)		
	Ref Copy	(2006 Est.)			Annual Revenue Miles (10 ³)	Annual Revenue Hours (10 ³)	Unlinked Trips (10 ³)	Passenger Miles (10 ³)	Annual Revenue Miles (10 ³)	Annual Revenue Hours (10 ³)	Unlinked Trips (10 ³)	Passenger Miles (10 ³)	Annual Revenue Miles (10 ³)
Cleveland	1,766,547	2,110,000	847	Greater Cleveland RTA Lakefront Others - smaller	2,373	108	7,473	49,849					1,006
													64
													3,050
													18,303
Pittsburgh	1,753,136	2,370,000	852	Port Authority - Allegheny county Access Transportation Systems Others - smaller									1,852
													138
													7,047
													29,588
Portland	1,583,138	2,140,000	474	TriMet G-Tan (Clark County WA)									6,672
													416
													34,755
													178,499
San Jose	1,538,312	1,580,000	260	Santa Clara Valley TA Altamont Commuter Express (ACE)					783	19	641	33,279	2,450
													148
													6,760
													32,250
Riverside-San Bernardino	2,603,881	3,200,000	439	Omnicolor Povosida Transit Authority Others - smaller									
Sacramento	1,393,498	1,570,000	368	Sacramento RTD Others - smaller									
Kansas City	1,361,744	1,370,000	584	KCA TA Others - smaller									
Las Vegas	1,914,357	1,780,000	286	RTC - Southern Nevada									
Orlando	1,157,431	1,980,000	453	LYNX/Central Florida RTA									
Albuquerque	595,151	820,000	224	ABQ Ride									
Eugene	224,045	340,000	68	Lane Transit District									

Appendix A-2

Location		Metro Population (2010)	Metro Population (2000 Est.)	Square Miles	Mode	TOTAL URBAN TRANSIT SERVICE/OWNERSHIP			
		Ref Copy			Agency	Annual Revenue Miles (10 ³)	Annual Revenue Hours (10 ³)	Unfilled Trips (10 ³)	Passenger Miles (10 ³)
New York-Northern NJ-Long Island			18,800,000	3,353	MTA New York City Transit New Jersey Transit MTA Metro North Commuter Railroad MTA LIRR GTC Transit Alliance MTA Long Island Bus Westchester County Bus Line PATH NYCDOT MTA Bus Company MTA Bus Service New York Bus Service Suffolk County - Transportation Division Assembly Lines Hudson Transit Lines Suburban Transit Corporation Orange-Newark-Elizabeth Trans-Hudson Express SIRTOn Queens Surtees Corporation Others - smaller	456,877 148,338 51,967 58,730 11,982 13,015 9,142 12,868 177 8,774 1,120 1,365 7,885 8,613 3,341 5,252 2,274 2,878 2,102 884	32,507 7,914 1,593 1,595 1,323 1,018 754 71,355 701 20,034 24,539 125 584 315 191 333 255 264 100 884	2,753,252 3,085,270 1,551,863 1,925,736 161,900 153,842 124,974 307,059 104,177 50,500 1,790 5,510 49,664 238,830 170,844 128,427 33,682 7,711 49,365 21,281 4,553	10,375,157 10,375,157 1,551,863 1,925,736 161,900 153,842 124,974 307,059 104,177 50,500 1,790 5,510 49,664 238,830 170,844 128,427 33,682 7,711 49,365 21,281 4,553
Los Angeles-Long Beach-Santa Ana		11,789,487	12,950,000	1,668	LACMTA OCTA Foothill Transit LAUSD Long Beach Transit Santa Monica Big Blue Bus LACMTA - Small Operators SCRAMetroLink Torrance Transit Montebello Bus Lines AVTA City of Gardena Culver City Transit Access Services Incorporated Others - smaller	106,045 32,700 11,681 12,027 7,815 5,021 9,005 2,614 2,945 3,069 1,699 1,423 23,421	8,836 2,445 743 971 708 460 768 194 258 186 126 134 1,212	1,850,219 294,469 105,224 76,413 73,714 69,425 959,938 21,517 9,983 35,276 4,989 14,372 2,555	1,850,219 294,469 105,224 76,413 73,714 69,425 959,938 21,517 9,983 35,276 4,989 14,372 2,555
Chicago		8,307,904	9,500,000	2,123	CTA Metra Pace - Suburban Bus Northern Indiana Commuter Transport District Others - smaller	153,250 38,260 35,919 3,241	11,599 1,238 2,494 93	492,254 1,548,277 273,385 106,356	1,936,110 1,548,277 273,385 106,356
Philadelphia		5,149,079	5,800,000	1,900	SEPTA PATCO Delaware Transit Corporation Others - smaller	86,702 3,969 13,666	6,495 137 849	334,545 80,677 8,764	1,476,918 80,677 8,764
Miami		4,916,036	5,460,000	1,116	Miami Dade Transit Broward County Transit Palm Tran ATIS SPRINT-Rail Others - smaller	44,503 24,944 15,510 12,042 2,469	3,219 1,965 1,028 797 97	103,232 41,591 9,160 18,107 3,064	488,593 175,854 93,186 18,107 85,254
Dallas-Fort Worth		4,145,689	6,000,000	1,407	Dallas Area Rapid Transit (DART) Fort Worth Transportation Authority Dallas - VPS ATC/Vancom Others - smaller	37,663 9,061 2,663 7,020	2,448 546 59 985	72,596 46,138 416 698	413,925 46,138 416 8,973
Seaton		4,032,484	4,480,000	1,736	MBTA Brookline Area Transit Lowell Regional Transit Authority Others - smaller	89,029 1,671 1,346	6,348 146 123	384,853 3,220 1,519	1,738,698 15,672 4,030

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U.S. Urban Transit Data, 2005-6

Location	Metro Population (2000)	Metro Population (2006 Est.)	Square Miles	Mode Agency	TOTAL URBAN TRANSIT SERVICE/SHIP			
					Annual Revenue Miles (10 ³)	Annual Revenue Hours (10 ³)	Annual Revenue Unmanned Miles (10 ³)	Passenger Miles (10 ³)
Washington DC - MDTA	Ref Expt	3,953,920	1,157	WMATA Ride-on Montgomery County Transit Fairfax Connector Maryland Transit Administration - MARC VRE Prince George's County Transit PRTC Others - smaller	112,792 17,754 6,341 4,935 1,786 2,985 2,505	6,649 1,276 422 122 53 216 123	414,076 23,044 6,894 8,894 3,654 2,509 2,067	1,888,081 74,224 57,856 209,155 109,295 12,401 36,737
Detroit		3,903,377	1,282	City of Detroit (DOT) SMART (Suburban Mobility) Detroit People Mover	459	40	1,341	1,905
Houston		3,822,509	1,295	Metro (Harris County)			60,087	94,536
Atlanta		3,488,840	1,963	MARTA Georgia Regional Transportation Authority Cobb County Gwinnett County Others - smaller	48,494 2,280 3,049 2,197	2,879 162 179 129	2,879 142,366 3,854 1,844	716,463 23,376 33,420 34,594
San Francisco-Oakland		3,228,605	527	MUNI BART AC Transit SamTrans Golden Gate Transit (GGT) Peninsula Corridor JPB (Caltrans) ATCA/Vancom San Francisco paratransit (ATC) Others - smaller	25,810 60,004 21,110 9,533 6,381 6,022 9,623 4,743	3,198 1,775 1,800 877 408 229 350 424	216,919 99,296 64,601 14,868 9,466 9,185 689 1,287	429,547 1,265,541 200,106 77,039 89,258 203,400 5,743 7,537
Phoenix		2,907,048	799	Valley Metro Phoenix VPSI RTC/Valley Metro Tempe in Motion Others - smaller	22,444 4,100 6,480 4,273	1,650 101 511 358	45,734 22,625 38,954 22,148	174,418 22,625 38,954 22,148
Seattle-Tacoma		2,712,205	954	King County Metro Washington State Ferries Pierce Transit Sound Transit/Coastal Puget Sound RTA Community Transit/Snohomish Everett Transit City of Seattle Monorail Others - smaller	52,463 951 13,238 442 11,488 1,481 161	3,351 129 734 442 537 127 18	98,610 23,881 73,784 10,969 8,857 2,048 1,596	514,500 183,049 73,784 180,696 94,376 7,530 1,356
San Diego		2,674,436	782	San Diego Trolley San Diego MTS MTS contract services NCTD Chula Vista Transit SANDAG Others - smaller	7,000 10,087 12,703 946 9,159 1,369 11,910	388 830 946 583 109 265	25,334 24,425 18,449 70,503 11,739 3,068 1,275	187,988 93,746 70,503 95,051 10,926 77,079
Minneapolis/St. Paul		2,388,393	894	Metro Transit Metropolitan Council Metro Mobility	25,884 10,847 8,923	2,112 653 567	38,589 10,218 1,105	305,678 72,268 11,527
St. Louis		2,077,662	829	Metro (St. Louis development agency)	26,021	1,726	46,438	250,405
Baltimore		2,076,354	693	Maryland Transit Administration (except MARC) Others - smaller	36,023	2,528	56,481	442,301
Tampa-St. Petersburg		2,062,338	822	Pinellas Suncoast Transit Hillsborough County Transit Pasco County	12,432 7,812 1,464	880 611 66	10,458 11,702 831	50,099 59,981 5,373
Denver		1,994,989	459	Denver RTD	53,377	3,406	85,262	443,216

Appendix A-2
U.S Urban Transit Data, 2005-6

Location	Metro Population (2000)	Metro Population (2005 Est.)	Square Miles	Mode	TOTAL URBAN TRANSIT SERVICE				TOTAL URBAN TRANSIT SERVICE			
					Actual Revenue Miles (10 ³)	Actual Revenue Hours (10 ³)	Unlinked Trips (10 ³)	Passenger Miles (10 ³)	Actual Revenue Miles (10 ³)	Actual Revenue Hours (10 ³)	Unlinked Trips (10 ³)	Passenger Miles (10 ³)
Cleveland	Ref Copy	1,786,547	647	Greater Cleveland RTA		27,568	2,116	65,542	281,384			
				LaSalle		3,353	190	1,045	11,616			
				Other - smaller								
Pittsburgh		1,753,135	852	Port Authority - Allegheny county	40	23,485	2,282	67,179	285,004			
				Access Transportation Systems		11,482	747	1,773	12,138			
				Other - smaller								
Portland		1,583,138	474	TriMet		38,815	2,728	104,546	422,653			
				C-Train (Clark County WA)		4,505	303	5,783	30,888			
San Jose		1,538,312	280	Santa Clara Valley TA		23,824	1,774	38,477	166,667			
				Alamont Commuter Express (ACE)		783	19	641	33,279			
Riverside-San Bernardino		2,603,881	439	Omnitrans		11,482	831	15,583	76,768			
				Riverside Transit Authority		9,788	606	7,368	49,558			
				Other - smaller								
Sacramento		1,383,468	369	Sacramento RTD		14,371	1,119	31,227	124,878			
				Other - smaller								
Kansas City		1,351,744	584	KCATA		11,101	747	14,056	55,224			
				Other - smaller								
Las Vegas		1,314,357	266	RTC - Southern Nevada		21,474	1,717	53,571	195,125			
Orlando		1,157,431	453	LYNX/Central Florida RTA		20,667	1,363	24,867	160,209			
Albuquerque		558,191	224	ABQ Ride		5,789	349	7,877	21,387			
Eugene		224,048	68	Lane Transit District		3,905	313	8,467	35,904			



IDENTIFICATION OF DEVELOPMENT DENSITIES IN THE PROXIMITY OF MASS TRANSIT FACILITIES

FINAL REPORT

October 26, 2007



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APPENDIX A: DATA TABLES

1. EXECUTIVE SUMMARY

The primary purpose of this study is to highlight the evidence on the impact of population and employment densities on transit ridership in cities with light rail systems, and to assemble comparative data on these variables from comparable cities in North America, Western Europe and Australia. For this purpose, detailed estimates of population and employment density around all mass transit stations in U.S. cities and in Vancouver have been developed. Population density estimates around stations in Toronto, and around busway stations in Ottawa have also been developed. Employment densities for stations in Toronto and Ottawa have not been included due to a lack of appropriate employment data.

This report also includes a detailed cross-sectional analysis of 16 light rail transit systems in North America, Europe and Australia. The choice of cities for inclusion in the sample was made primarily on the basis of population, with the intention of identifying cities comparable to Vancouver as it is expected to be in 2031 (i.e. a population of around 3 million). However, a number of smaller cities were included on the basis of the success and ridership of their light rail systems.

A selective review of previous research on the relationship between population and employment density reveals that population and employment density have a major impact on transit ridership, but that other variables such as income, availability of private passenger vehicles, and service levels also have a major influence. A high employment density in the Central Business District was found to be particularly important in boosting transit ridership.

A regression analysis based on census Journey to Work data for Canada and the U.S. indicates a strong relationship between employment in the Central Business District and the share of commuter trips made by public transit. The Canadian cities in the data sample show a higher share than estimated by the regression analysis, suggesting that in general there is a higher propensity to use public transit in Canada than in the U.S..

In order to analyze the impact of population and density on ridership in the vicinity of mass transit stations, more detailed data is required. For this purpose, data at the census tract level of detail was obtained from available sources. This includes data on both the origin and destination of trips to work (i.e. place of residence and place of work), which encompasses both the population density and employment density aspects of interest for this study. A regression of public transit market share of commuter trips on employment and population density at the census tract also showed a significant relationship but a lower goodness of fit.

Estimates of population and employment densities around every mass transit station in the U.S. and in Vancouver have been developed. The sample of transit stations for U.S. cities consists of 1691 mass transit stations identified in the U.S. Bureau of Transportation Statistics National Transportation Atlas Database 2007, defined as stations for services with a fixed guideway. Population density estimates around stations in Toronto, and around busway stations in Ottawa have also been developed. Employment densities for stations in Toronto and Ottawa have not been included due to a lack of appropriate employment data.

The estimates were developed by calculating the area of each census tract (CT) that falls within a 500 m radius of the station, and using that area over the CT area to weight the CT population. The sum of those populations is the estimate of the population within 500 m. The area around each station is about 80 hectares; however, some are smaller if near a body of water. There is overlap of station areas particularly in downtowns, therefore the population and employment numbers can't be added within a city. For Vancouver, both existing and planned stations have been included (i.e. Canada Line stations are included).

These estimates indicate that the population density around stations is generally lower in Vancouver than in San Francisco-Oakland, Boston, Los Angeles-Long Beach-Santa Ana, Philadelphia and Toronto, and similar overall to Portland. The others cities analyzed have a lower population density in the vicinity of stations.

The estimates indicate that Vancouver has lower employment density in the vicinity of transit stations than many U.S. cities, including San Francisco-Oakland, Philadelphia, Boston, Denver-Aurora, Portland, Washington, and Miami.

A review of data from the International Public Transportation Union's Mobility in Cities database indicates that in general Vancouver occupies an intermediate position between the Western European cities and the North American and Australian cities represented in the database. The basis for comparison was developed cities with populations between 2 million and 5 million. The percentage of jobs in the Central Business District in Vancouver is less than that in the European cities, but greater than most U.S. cities. However, Vancouver's Gross Domestic Product per capita more closely approximates the U.S. cities, significantly higher than that reported for the European cities. Vancouver's level of private passenger vehicle ownership is also more similar to the U.S. and Australian cities than to the European examples. The level of public transportation use, as measured by the % of total passenger-kilometres, is also midway between the European cities and the U.S. and most Australian cities.

Comparing Vancouver with Toronto and Montreal, the UITP data indicates that Vancouver has a lower population and employment density, a higher level of private passenger vehicle ownership, and a higher income level. Vancouver also has a lower level of public transport use.

The conclusions suggested by this research include:

- Population and employment density are both important factors in achieving a high market share for public transportation. The evidence suggests that a high concentration of employment in the Central Business District is more important than population density in the vicinity of stations in residential areas.
- Vancouver has a higher overall population density than most U.S. cities, and the areas of higher population density are also more widely distributed. In general, the pattern of transit use for commuter trips follows the distribution of residential density. However, the high density areas are not clustered in the vicinity of the Skytrain stations so the majority of trips depend on bus for at least a portion of the journey.
- Overall employment density is also higher than in U.S. cities, as is the percentage of jobs in the Central Business District. The pattern of transit use in U.S. cities shows a very high concentration of transit trips in the downtown core, and given their low population density this concentration is probably the key factor in enhancing transit market share. Vancouver is somewhat distinctive in that it does appear to have at least one significant employment cluster attracting high transit use outside the Central Business District (Metrotown). The importance of high employment density in the Central Business District may have implications for land use decisions in downtown Vancouver, specifically in the balance between commercial office space and residential construction.
- Vancouver appears to have an average ratio of downtown parking to Central Business District jobs, but parking charges appear to be significantly lower than in comparable cities. The level of parking charges may not be the most important determinant of travel behaviour, but it is the one which is most easily changed.

These conclusions are based on preliminary analysis. The availability of the data which has been assembled in the course of this study will facilitate further research which may generate more definitive and detailed conclusions.

2. INTRODUCTION

The primary purpose of this study is to highlight the evidence on the impact of population and employment densities on transit ridership in cities with light rail systems, and to assemble comparative data on these variables from comparable cities in North America, Western Europe and Australia. For this purpose, detailed estimates of population and employment density around all mass transit stations in U.S. cities and in Vancouver¹ have been developed. Population density estimates around stations in Toronto, and around busway stations in Ottawa have also been developed. Employment densities for stations in Toronto and Ottawa have not been included due to a lack of appropriate employment data.

This report also includes a detailed cross-sectional analysis of 16 light rail transit systems in North America, Europe and Australia. The choice of cities for inclusion in the sample was made primarily on the basis of population, with the intention of identifying cities comparable to the GVRD as it is expected to be in 2031 (i.e. a population of around 3 million). The following cities were chosen for detailed analysis in this study:

North America

Cleveland, Ohio
Dallas, Texas
Denver, Colorado
Los Angeles, California
Minneapolis, Minnesota
Portland, Oregon
San Diego, California
Toronto, Ontario

Europe

Birmingham, England
Dublin, Ireland
Hanover, Germany
Lyon, France

Australia

Adelaide, South Australia
Melbourne, Victoria
Perth, Western Australia
Sydney, New South Wales

For the US cities, the choice was based primarily on city population. The population of cities in the sample ranges from 300,000 to 4 million. Cities that are too small or cities that are not dense enough to have an effective light rail system were excluded. Larger cities such as New York and Chicago were also excluded.

For the European cities, population size was the main factor. The city population ranged from 400,000 to 1.2 million in the city center and 1.1 to 2.6 million in the metro area. Rail system ridership was also a variable, but most European systems were designed before invention of the automobile, which provides a more transit friendly environment with a high city density.

For Australia, urban centre population was the main factor. Two of the cities, Melbourne and Sydney, have a population over 3 million. Adelaide and Perth were picked on the basis of their light rail system, in spite of their lower population (1.0 million and 1.2 million respectively).

¹ For purposes of brevity "Vancouver" in this report is used to refer to the Greater Vancouver Regional District (GVRD).

3. SELECTED PREVIOUS RESEARCH

There have been numerous studies designed to estimate the impact of various factors, including population and employment density, on transit ridership.

A 1996 study by Boarnet and Sarmiento² analyzed the impact of land use variables including population and employment density on non-work auto trips in Southern California. The results suggested that the relationship between non-work auto trips (and implicitly non-work transit use) was weak at best, and suggested that a higher share of transit trips in transit-oriented neighbourhoods may reflect locational choices of residents (i.e. people who want to take transit locate in these areas for that reason) rather than an increase in transit use over all.

A 2003 study done by Taylor and Miller³ used a two-stage least squares model to estimate the impact of a broad array of variables measuring transit system characteristics, auto system characteristics, geography, metropolitan economy, and population characteristics on transit ridership in 265 urbanized areas of the United States. They found that most of the variation in transit ridership can be explained by the size (population and area) of the transit service area, the economic vitality of the urban area (measured by median housing costs), and the number of households who do not have access to a car. Transit fares and levels of service were found to have a significant but lower impact on ridership.⁴ While the final model implicitly included density through the use of the population and area variables, the first stage model found population density to have a positive and significant positive effect on ridership.⁵

A 2005 study by Barnes⁶ estimated the impact of population density, income and distance to mode share for trips to work based on U.S. Census data journey to work data for Minneapolis – St. Paul. The cities were divided into 66 zones by aggregating 1,165 regional traffic analysis zones into non-central city, central city non-downtown, and the two downtown zones with roughly similar population totals. He found that population density and the percentage of low income households explained around 80% of the variation in transit shares across zones was explained by these two variables.⁷ However, he noted that the impact of population density was highly dependent on the destination of trips; the impact was much more significant if the trip destination was the central business district (“downtown”) or similar high employment density clusters in the suburbs:

“The key point of this analysis is that higher residential population density has a much bigger impact on transit share for trips that are going to downtown areas, or, in principle, to suburban areas of similar size and density. ... The impact of higher residential density is very strongly dependent on the characteristics of the areas where the residents work. Increasing the size and density of work locations, at least beyond some minimum threshold, will increase the likelihood of transit use by the people that work there, even if the residential density around their home does not change at all.”⁸

The results of this research support the following conclusions:

- The relationship between land use variables such as population and employment density and non-work travel patterns is relatively weak.
- While population density has a positive and significant impact on transit use for trips to work, there are a number of other variables including household income, regional economic vitality, car ownership, and levels of transit service and fares which have an impact.
- The impact of a high density of employment in the central business district or high density clusters in the suburbs is likely to be greater than the impact of increased population density in residential areas.

² Can Land Use Policy Really Affect Travel Behaviour? A Study of the Link Between Non-Work Travel and Land Use Characteristics Marlon Boarnet and Sharon Sarmiento, University of California Transportation Center, University of California at Berkeley, December 1996.

³ Analyzing the Determinants of Transit Ridership Using a Two-Stage Least Squares Regression on a National Sample of Urbanized Areas Paper submitted for the 2004 Annual meeting of the Transportation Research Board, Brian Taylor and Douglas Miller, July 2003.

⁴ Ibid., p. 2.

⁵ Ibid., p. 11.

⁶ The Importance of Trip Destination in Determining Transit Market Share Gary Barnes, Journal of Public Transportation, Vol. 8, No. 2, 2005.

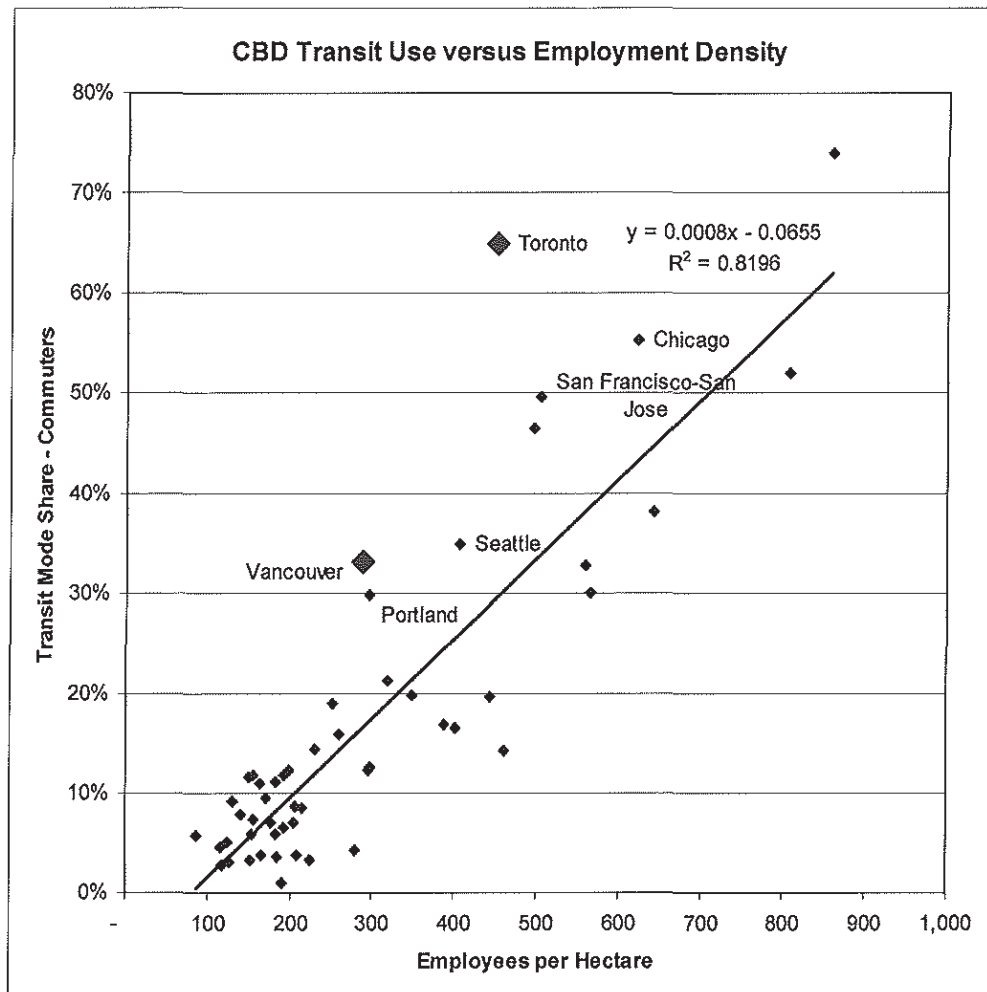
⁷ Ibid., p. 8.

⁸ Ibid., pp. 8-9.

4. EMPLOYMENT AND POPULATION DENSITY AND TRANSIT USE

Comparison of transit ridership across different cities is complicated due to the lack of a standardized method of data reporting by local transit agencies. For this reason, data on mode choice for the journey to work which is collected by U.S. and Canadian census agencies was chosen as the basis for analysis. The data used in this analysis was from the 2000 U.S. census and the 2001 Canadian census. The use of journey to work data is consistent with the findings reported in the review of selected research in the previous section, because the relationship between population and employment density and non-work travel was found to be relatively weak, so the variations in the journey to work data should capture most of the impact of these variables on ridership.

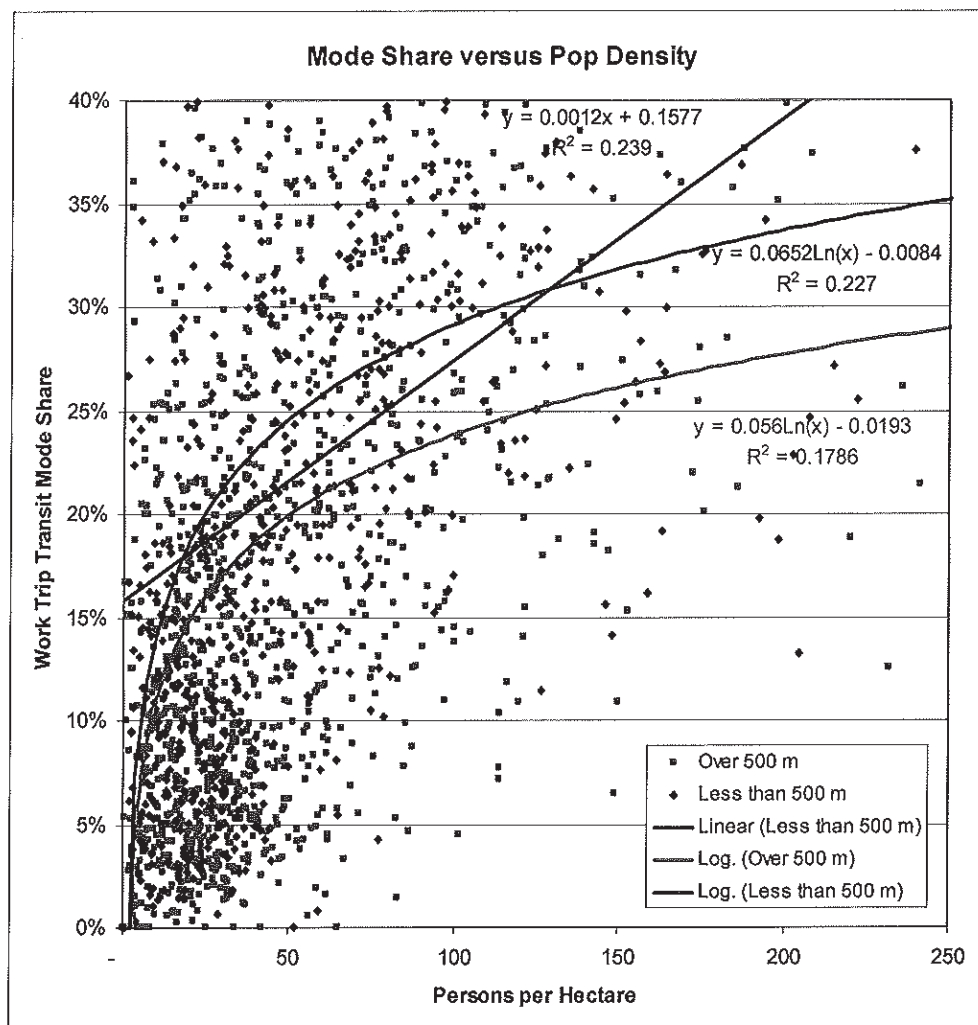
Transit ridership and mode share in the Central Business District of North American cities is highly correlated with employment density. However, as the graph shows, the Canadian cities have a higher rate of transit use than can be explained by this factor alone. This suggests that the higher rate of transit use in Vancouver and Toronto is due to other factors, and that an estimate of transit use based on U.S. experience may significantly underestimate transit use in the Canadian context. The data used to generate this result is shown in Appendix A.



5. MICRO-ANALYSIS OF POPULATION & EMPLOYMENT DENSITY AND TRANSIT RIDERSHIP

In order to analyze the impact of population and density on ridership in the vicinity of mass transit stations, more detailed data was required. For this purpose, data at the census tract level of detail was obtained from available sources.⁹ We assembled journey to work statistics for census tracts with a centroid within a 1000 metre radius of all mass transit stations in the U.S.. This includes data on both the origin and destination of trips to work (i.e. place of residence and place of work), which encompasses both the population density and employment density aspects of interest for this study.

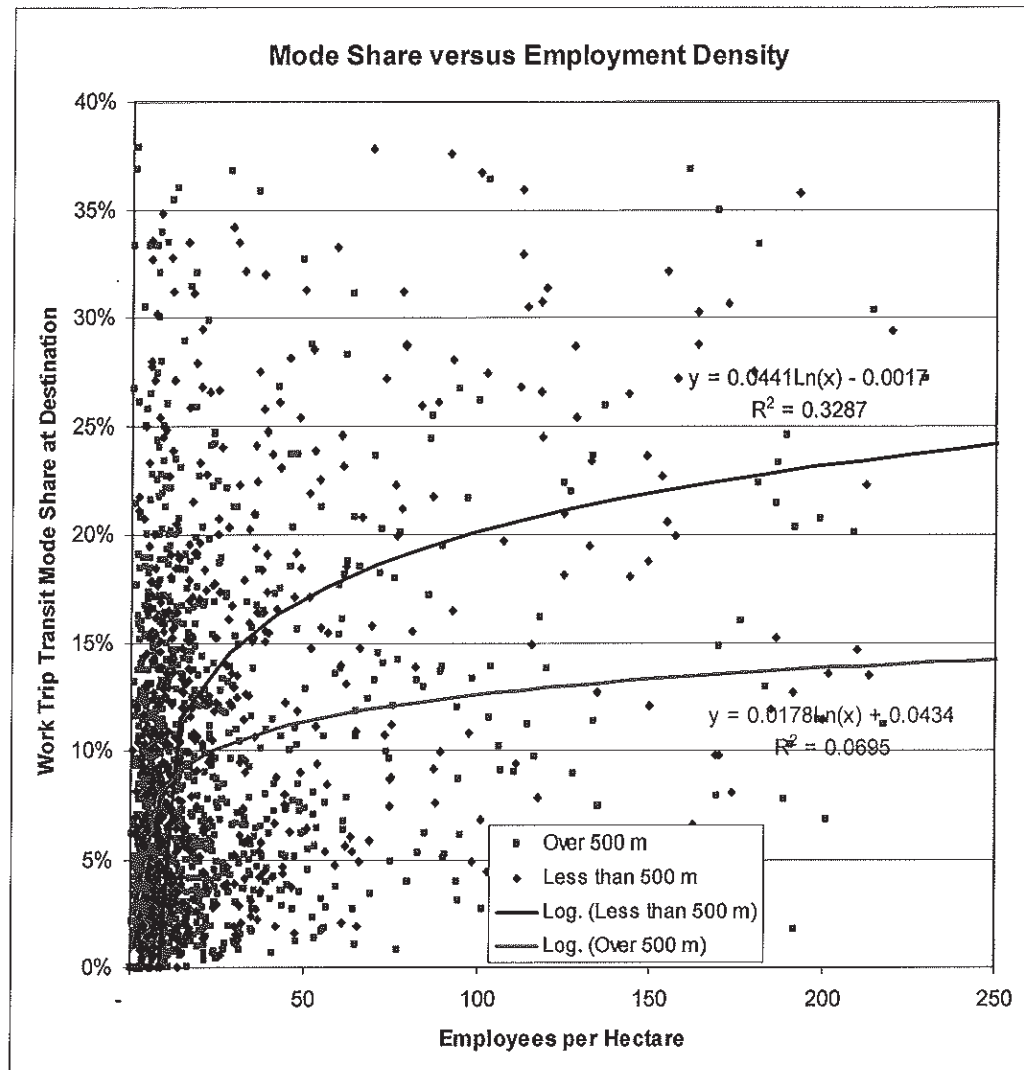
Population Density: The results of regression analysis to estimate the impact of population density in each census tract are illustrated in the graph below. The graph shows the scatter of points for all census tracts with a centroid within 500 metres of a station, and those between 500 and 1000 metres from a station.



⁹ The primary source of data for this analysis was Census Transportation Planning Package data obtained from the U.S. Bureau of Transportation Statistics.

Three models were estimated, a linear model for tracts less than 500 metres from stations, and log linear models for tracts less than 500 metres and for those between 500 metres and 1000 metres from a station. A similar regression of transit mode share on distance from the transit station did not show a significant relationship. Of the population density regressions, the log linear specification for tracts less than 500 metres appears most interesting, in that it seems to indicate that there is a minimum level of density (approximately 50 persons per hectare) which is required for a significant increase in transit mode share. Confirmation of this observation would require development of a more completely specified model which includes other major variables affecting transit use. The omission of these variables from the regression is the probable explanation for the relatively low goodness of fit statistics (R squared) for the current regressions¹⁰.

Employment Density: The estimated coefficient for employment density is lower than for



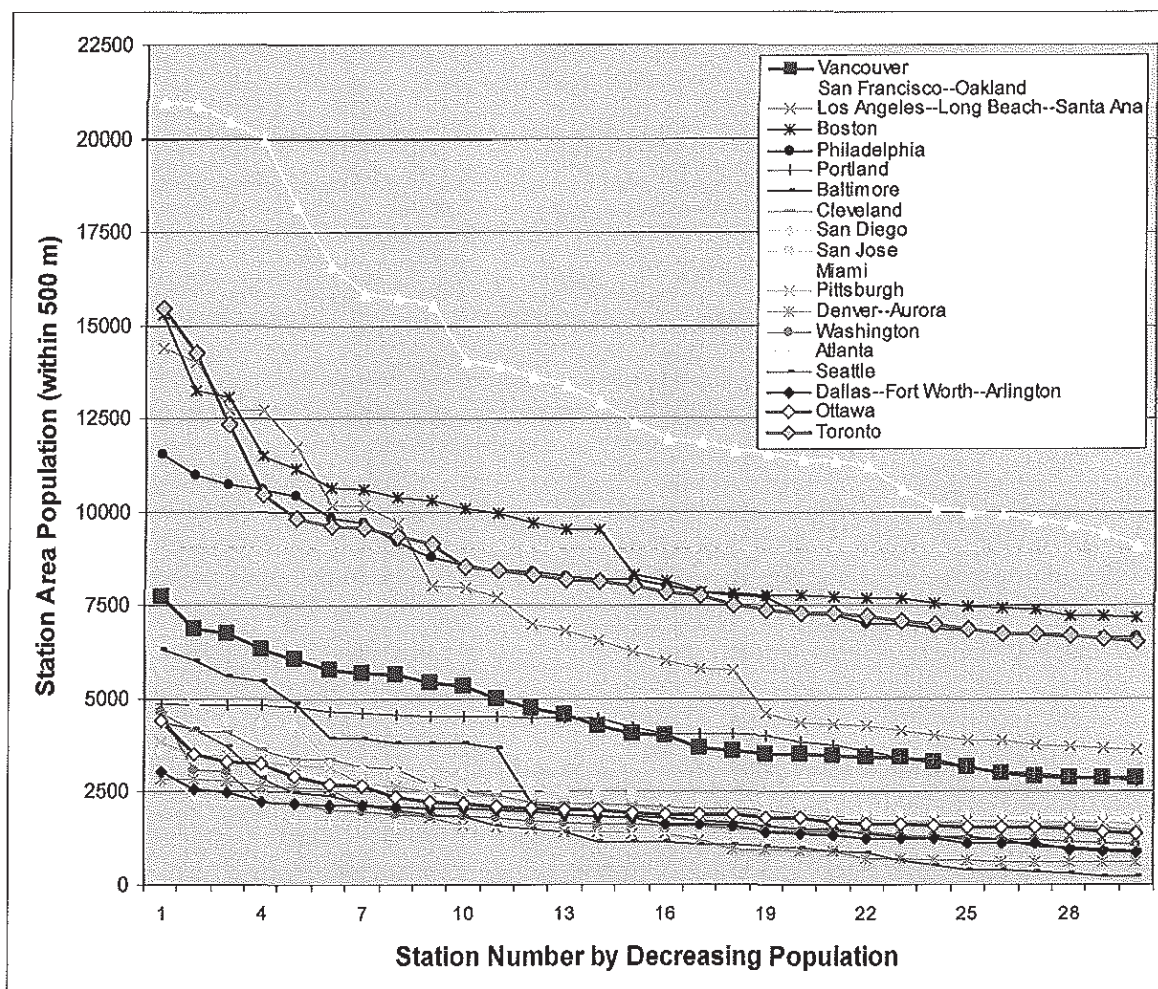
population density in the previous model (.0441 for the log of employment density versus .0625 for the log of population density) but the higher R squared value suggests a stronger relationship.

¹⁰ Technically, the omission of relevant variables can lead to "specification bias" in the model which may bias coefficient estimates for the impact of population and employment density.

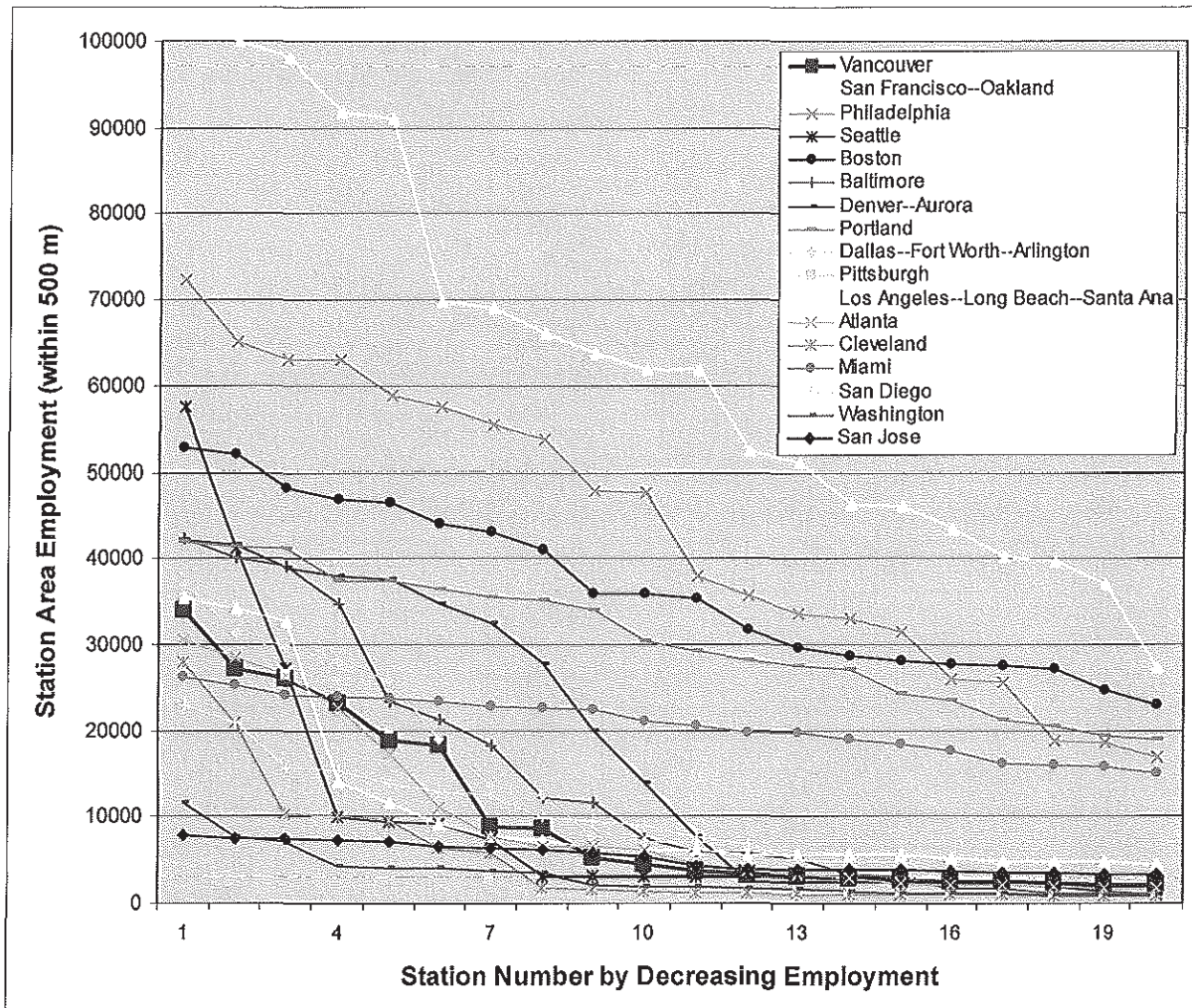
6. POPULATION & EMPLOYMENT DENSITIES AROUND MASS TRANSIT STATIONS IN NORTH AMERICA

Estimates of population and employment densities around every mass transit station in the U.S. and in Vancouver have been assembled. The sample of transit stations for U.S. cities consists of 1691 mass transit stations identified in the U.S. Bureau of Transportation Statistics National Transportation Atlas Database 2007, defined as stations for services with a fixed guideway. Population density estimates around stations in Toronto, and around busway stations in Ottawa have also been developed. Employment densities for stations in Toronto and Ottawa have not been included due to a lack of appropriate employment data.

The estimates were developed by calculating the area of each census tract (CT) that falls within a 500 m radius of the station, and using that area over the CT area to weight the CT population. The sum of those populations is the estimate of the population within 500 m. The area around each station is about 80 hectares; however, some are smaller if near a body of water. There is overlap of station areas particularly in downtowns, therefore the population and employment numbers can't be added within a city. For Vancouver, both existing and planned stations have been included (i.e. Canada Line stations are included). The population densities for stations in each metropolitan area are shown in descending order in the graph below.



The graph indicates that the population density around stations is generally lower in Vancouver than in San Francisco-Oakland, Boston, Los Angeles-Long Beach-Santa Ana, Philadelphia and Toronto, and similar overall to Portland. Ottawa's Busway stations have a relatively low population density. The employment densities for stations in each metropolitan area are shown in descending order below:



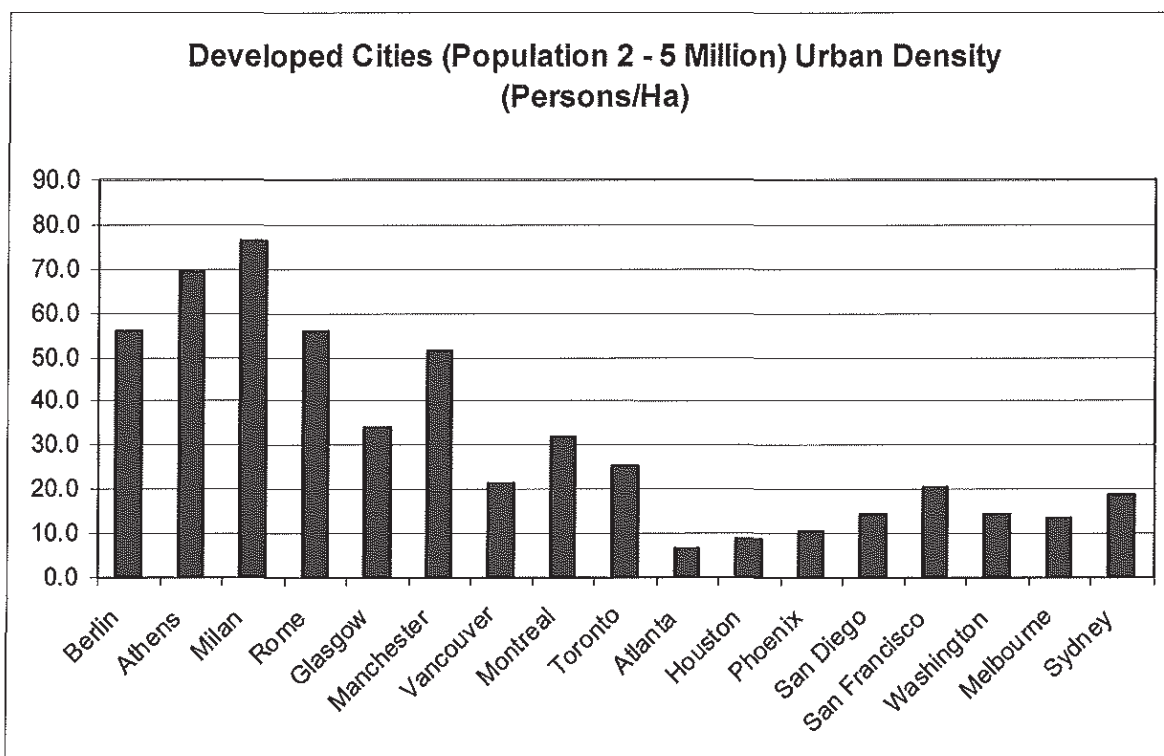
The estimates indicate that Vancouver has lower employment density in the vicinity of transit stations than many U.S. cities, including San Francisco-Oakland, Philadelphia, Boston, Denver-Aurora, Portland, Washington, and Miami.

7. VANCOUVER IN THE GLOBAL CONTEXT

The International Union of Public Transport (UITP) an international organization based in Brussels, has developed a database which provides data on 120 urban mobility indicators across 50 cities.¹¹ This data enables a high level comparison of key variables which is useful in understanding the relative position of Vancouver¹² among global cities with similar characteristics. The UITP database incorporates statistics for 2001. It is important to note that the methodology used by UITP in assembling the database is not extensively documented, and the figures assembled by UITP for specific variables may differ from those from other sources which were used in this report.

For purposes of comparison, cities classified by UITP as Developed Cities in the population range of 2 to 5 million people were chosen. Comparable values of the variables for Vancouver have been added (i.e. the population figure given for Vancouver in the database is below 2 million). Vancouver has been added to the sample for purposes of comparison.

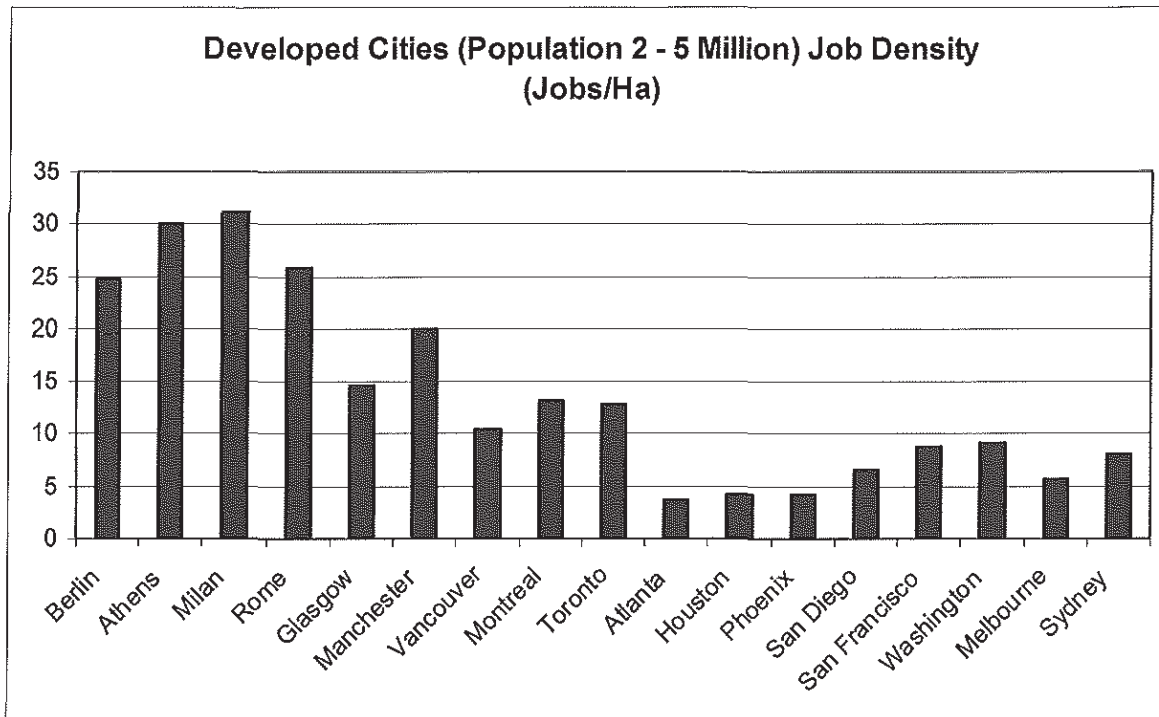
On the basis of population density, Vancouver ranks similar to the other Canadian cities (Montreal and Toronto) midway between the more densely populated European cities, and the less densely populated cities of the U.S. and Australia.



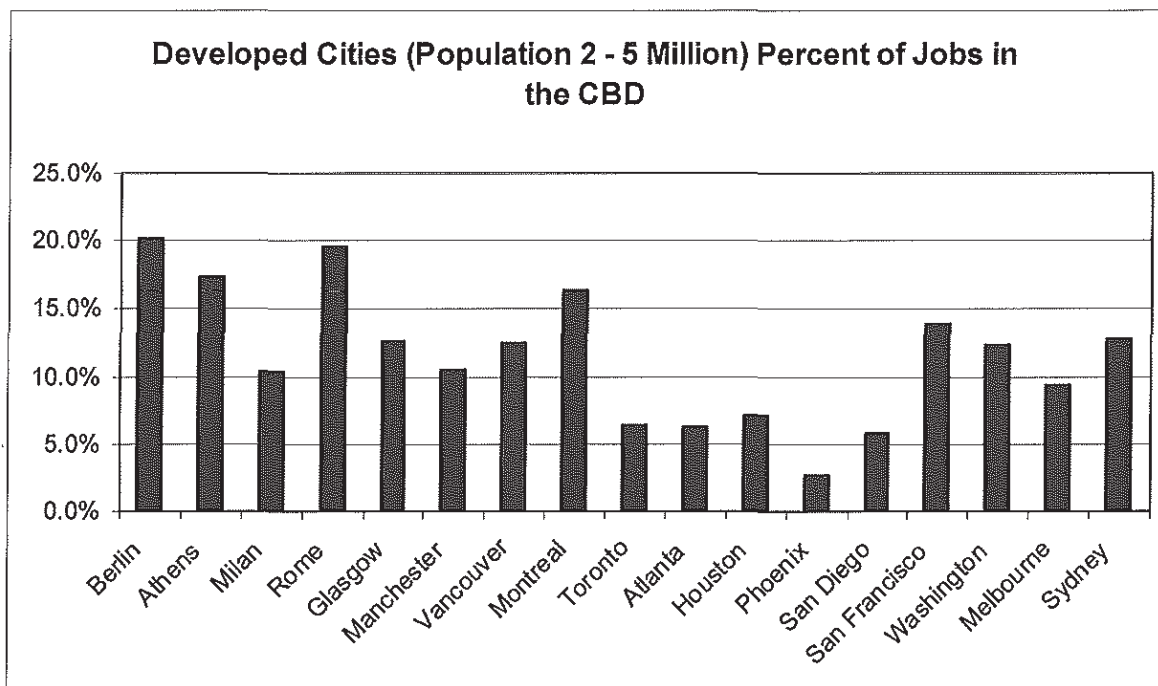
¹¹ Mobility in Cities Database International Association of Public Transport <http://uitp.org/publications/pics/leaflet.pdf>

¹² As noted at the beginning of the report, "Vancouver" in this context refers to the GVRD.

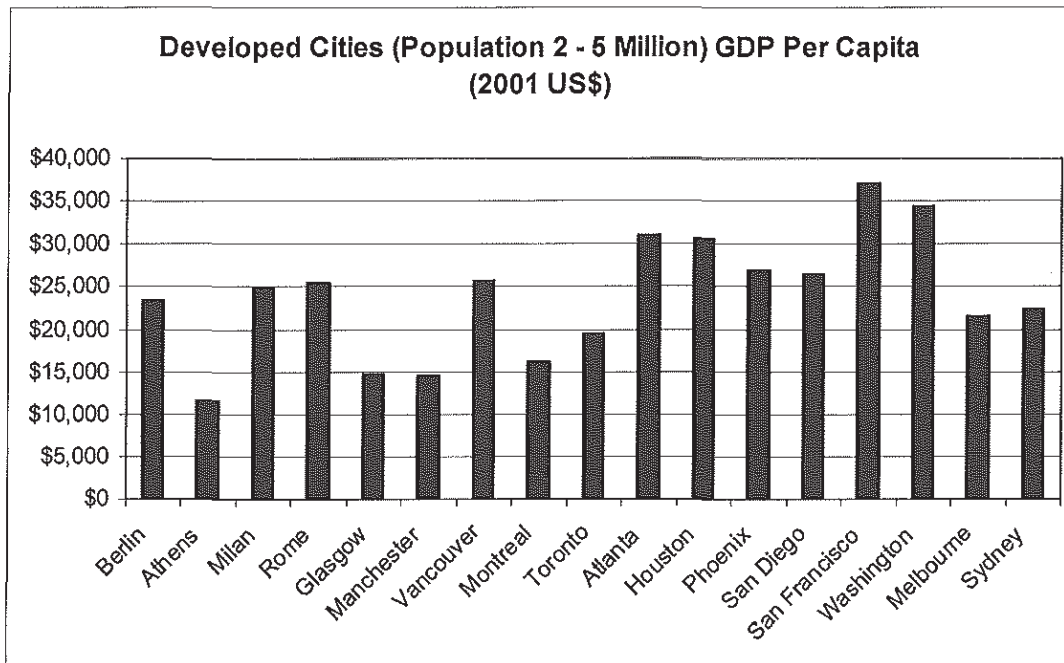
This pattern is repeated in comparing the density of jobs among these cities.



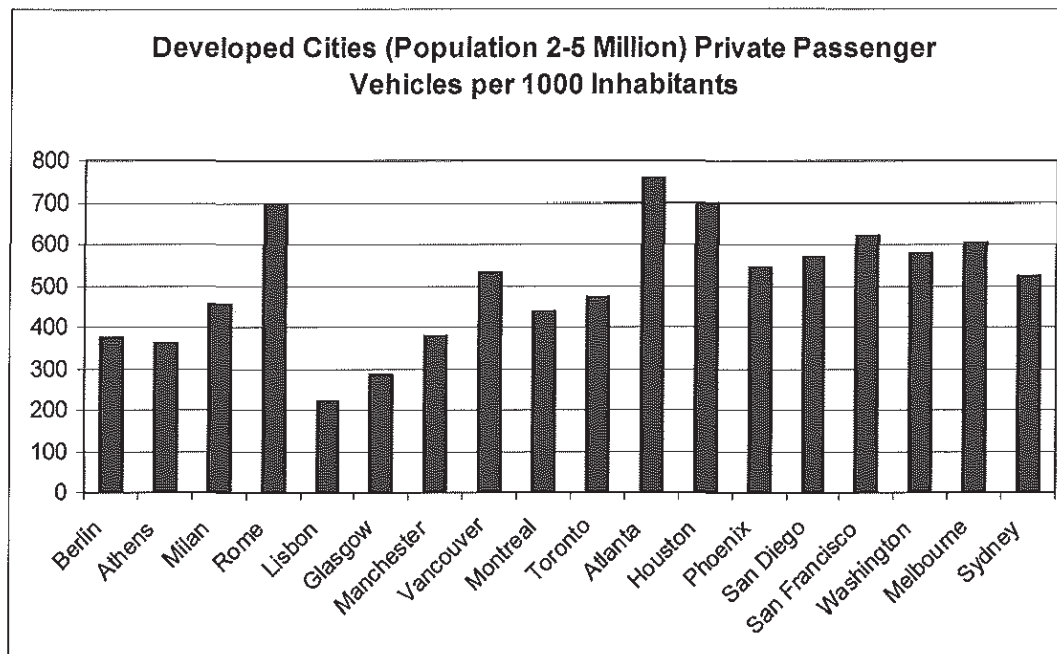
However, Vancouver appears to have a higher percentage of jobs downtown than many of the more densely populated cities.



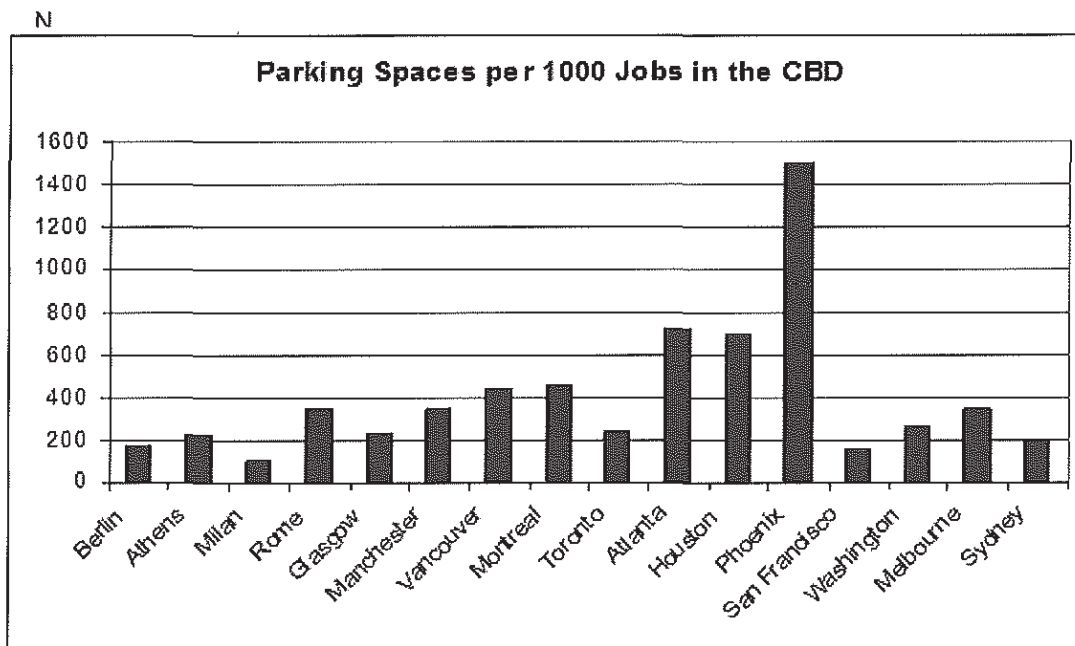
Based on UITP statistics, the North American cities have a higher GDP per capita than European cities, though international income comparisons may be distorted by exchange rates; for example in 2000 the CDN\$-US\$ exchange rate was around .67, which significantly reduces the Canadian GDP figure as measured in U.S. dollars.



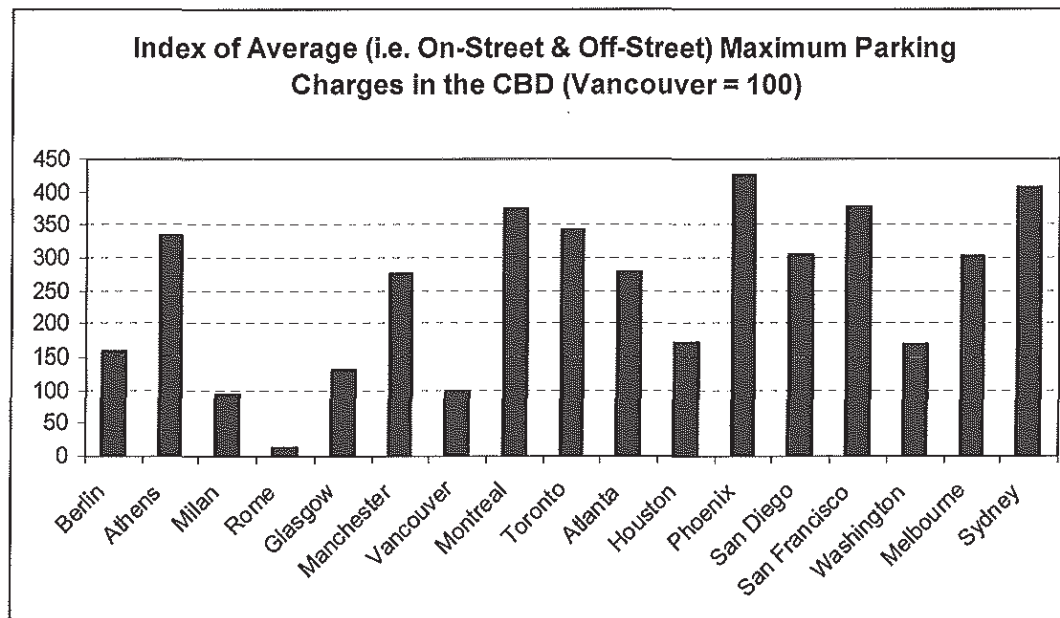
With respect to automobile ownership Vancouver appears to be higher than the European cities but comparable to Most U.S. and Australian cities. The number of vehicle per capita is higher in Vancouver than in Toronto or Montreal.



The availability and cost of parking has been identified as another significant factor in determining transit use. The table below indicates that Vancouver generally has a higher availability of parking than the European cities, but generally less than the U.S. cities.

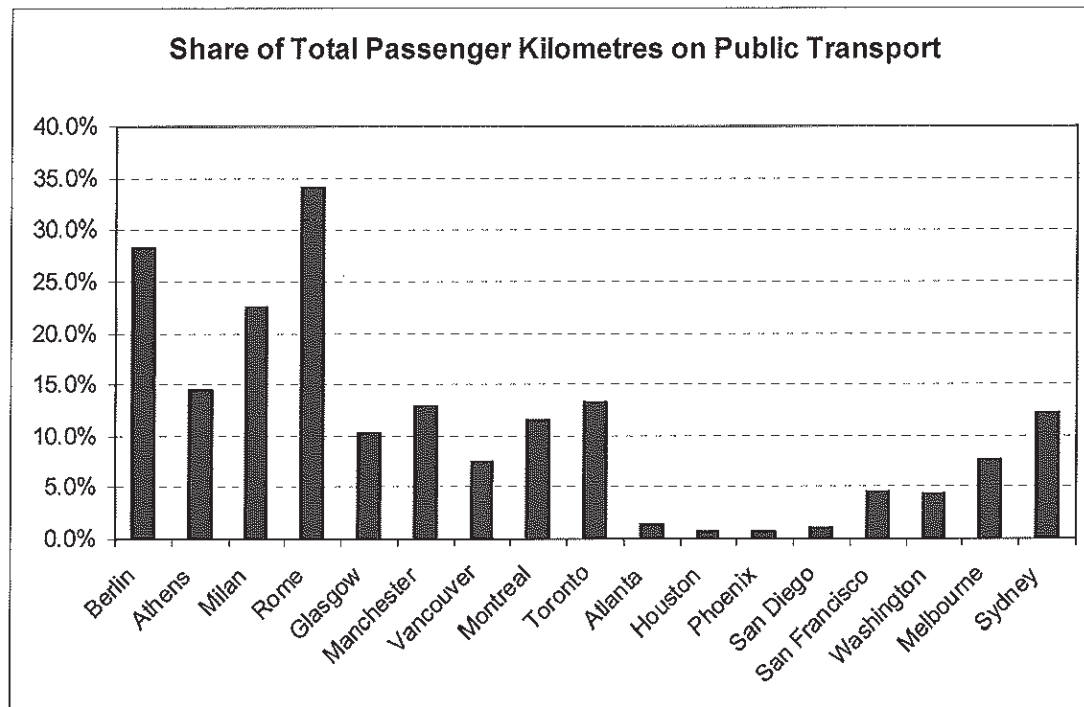


Parking charges in Vancouver are relatively low compared to other cities.



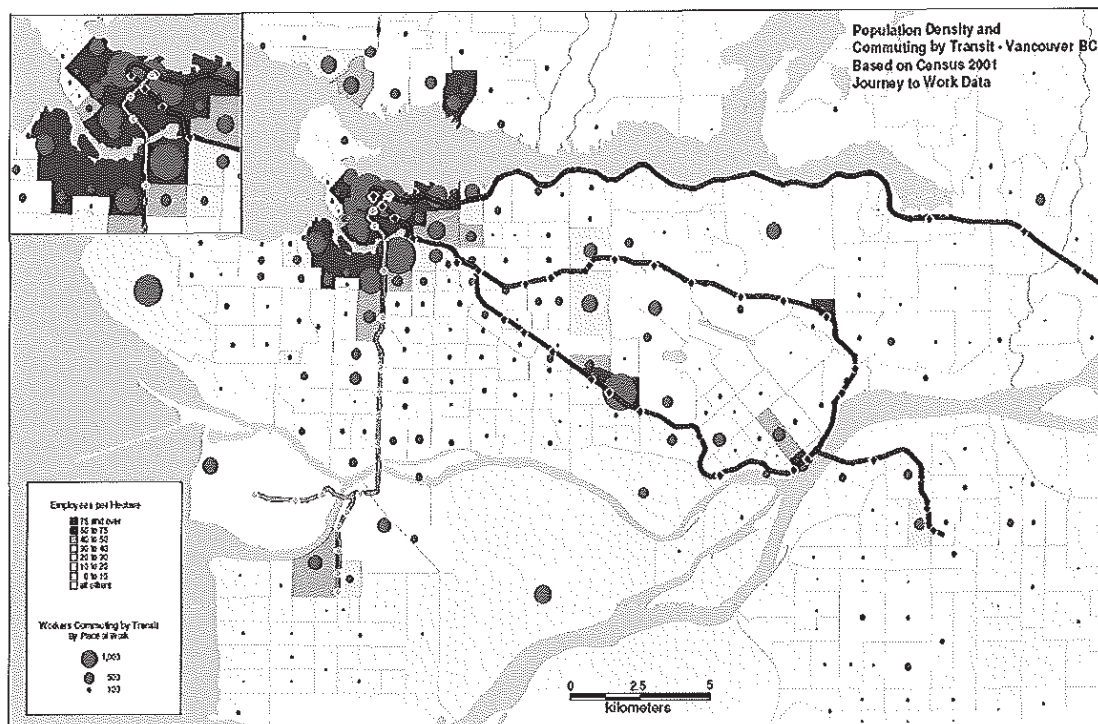
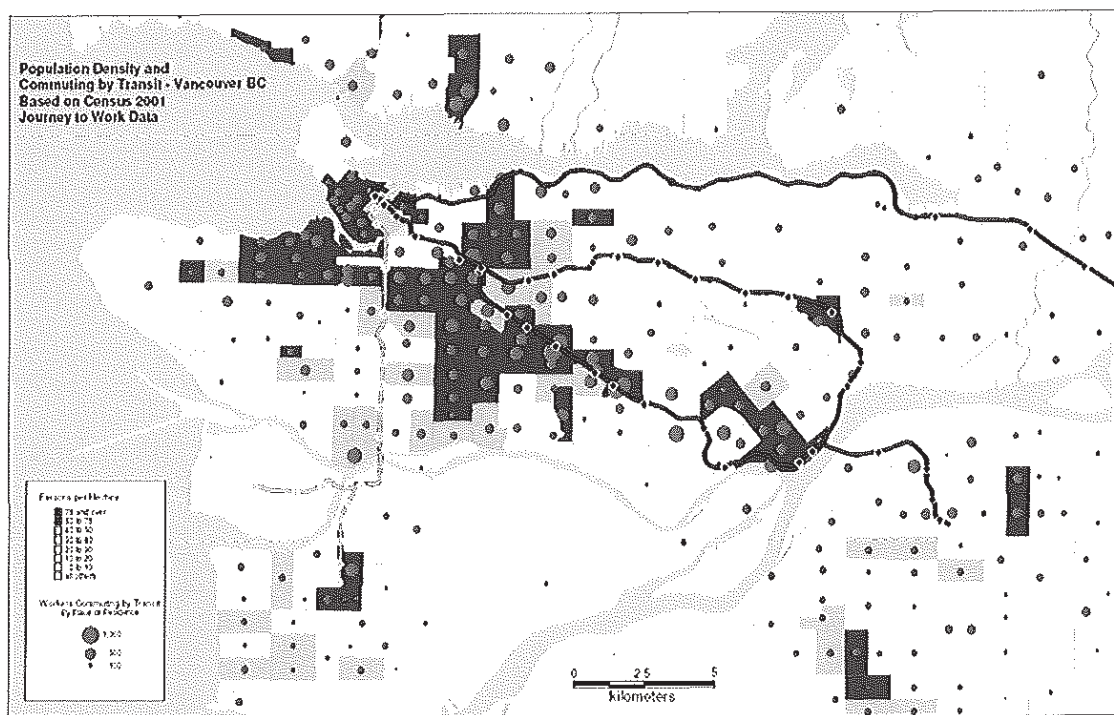
Note: Maximum parking charge statistics are based on the maximum charges for the first hour of parking, measured as a percentage of hourly per capita GDP for each city.

Vancouver's relative position in the share of passenger kilometres captured by public transport is consistent with its intermediate position between the European and North American cities: lower than the European share but higher than the share captured in the U.S. cities. Relative to Montreal and Toronto, Vancouver has lower population and employment density and a higher proportion of private vehicles; the public transport market share is lower than in these two cities.



8. POPULATION AND EMPLOYMENT DENSITY AND TRANSIT RIDERSHIP IN THE GVRD

The relationship between population density and transit ridership in the GVRD is shown below:



October 26, 2002

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9. CONCLUSIONS

The major purpose of this study is to review available statistics and analysis of major structural factors affecting transit ridership with a focus on the impact of population and employment density in the vicinity of light rail stations, and a comparison with current and prospective conditions in Vancouver. While the major task of the study has been the assembly of benchmark data, sufficient information has been assembled to draw some conclusions regarding the influence of structural factors on ridership in comparable cities, and potential lessons for Vancouver which can assist in integrated planning of land use and public transit.

The conclusions suggested by the research in the preceding sections, and by a review of the comparative city profiles which follow, include:

- Population and employment density are both important factors in achieving a high market share for public transportation. The evidence suggests that a high concentration of employment in the Central Business District is more important than population density in the vicinity of stations in residential areas.
- Vancouver has a higher overall population density than most U.S. cities, and the areas of higher population density are also more widely distributed. In general, the pattern of transit use for commuter trips follows the distribution of residential density. However, the high density areas are not clustered in the vicinity of the Skytrain stations so the majority of trips depend on bus for at least a portion of the journey.
- Overall employment density is also higher than in U.S. cities, as is the percentage of jobs in the Central Business District. The pattern of transit use in U.S. cities shows a very high concentration of transit trips in the downtown core, and given their low population density this concentration is probably the key factor in enhancing transit market share. Vancouver is somewhat distinctive in that it does appear to have at least one significant employment cluster attracting high transit use outside the Central Business District (Metrotown). The importance of high employment density in the Central Business District may have implications for land use decisions in downtown Vancouver, specifically in the balance between commercial office space and residential construction.
- Vancouver appears to have an average ratio of downtown parking to Central Business District jobs, but parking charges appear to be significantly lower than in comparable cities. The level of parking charges may not be the most important determinant of travel behaviour, but it is the one which is most easily changed.

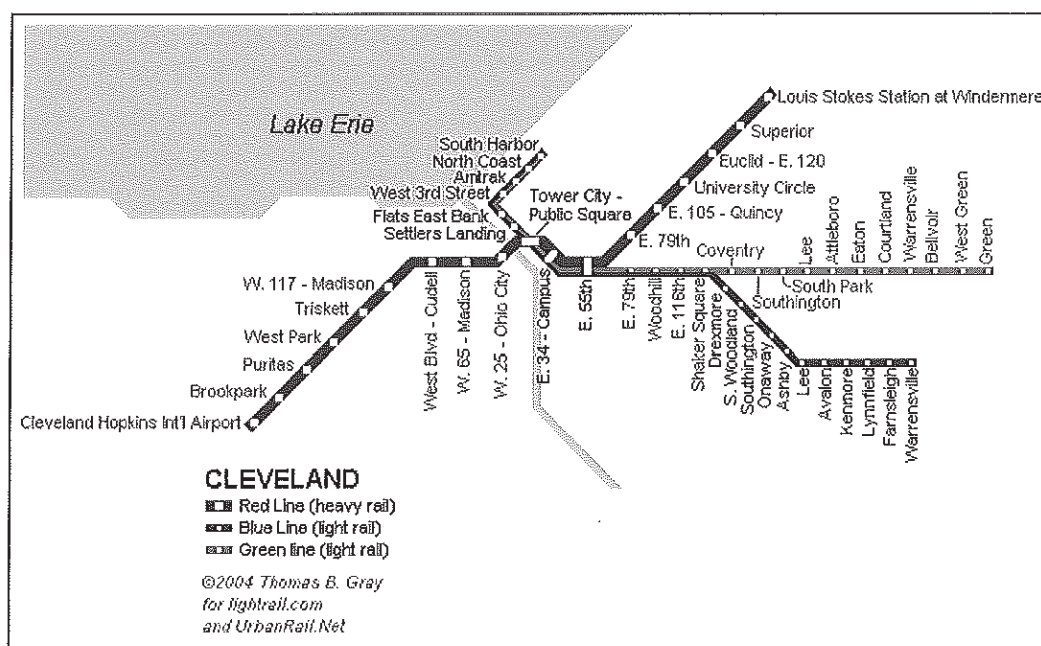
These conclusions are based on preliminary analysis. The availability of the data which has been assembled in the course of this study will facilitate further research which may generate more definitive and detailed conclusions.

10. COMPARATIVE CITY PROFILES

10.1 Cleveland, Ohio

LIGHT RAIL TRANSPORTATION SYSTEM

The transit system in the greater Cleveland Area is operated by the Greater Cleveland Regional Transit Authority. The light rail system consists of the Green and Blue Lines. The heavy rail Red Line is provided for regional commuters. All lines connect at Tower City Center in the heart of downtown Cleveland. The Green/Blue Line operate using 48 rail cars over 29 kilometres of one way track. There are 34 stations along the Green and Blue Line. According to the APTA Transit Ridership Report, the light rail system has an average daily ridership of 10,800. Figure 1.0 shows the Cleveland Light Rail system.



Light rail and heavy rail lines share common trackage for most routes. Each of the stations along the shared track is a multi-level station catering to both technologies.

In 1996 a new extension to the Green and Blue Line, the Waterfront Line, was built to link Tower City to the East Bank. RTA is also currently installing a BRT Silver Line; the project will provide shorter travel times and linkages to other RTA lines. The system will also connect the Central Business District and University Circle, which are the two largest employment centers.

CITY DEMOGRAPHICS

The Greater Cleveland Area has 2.1 million residents and a metropolitan land area of 16,251 kilometres. The city's population is 444,313 people over a land mass of 213 square kilometres. Population density of the City of Cleveland is 20.8 persons per square hectare. The Central Business District, which is the point of connection for all of Cleveland's light rail lines, encompasses 4.0 square kilometres, the largest among the North American cities in our sample.

Employment in the Central Business District is 100,300 over a 4.0 kilometre land area resulting in an employment density of 251 employees per hectare. Within the central business district, 19,100

commute to work with 19 percent using the public transportation system as their primary form of travel to work. The median household income within the city as of 2006 is \$26,535. Car ownership is approximately 76.9%.

RAIL DEVELOPMENT

The opening of the Waterfront Line prompted developers to redevelop the area. Land values have risen, and apartments, restaurants, and hotels have been constructed. Many older buildings located within the warehouse district have undergone restoration or renovation. Just east of the Flats, the old National Terminal Building received a \$26 million renovation, adding 248 units and 9,000 square feet of commercial space. This is consistent with the Transit Oriented Development strategy expressed City's Connecting Cleveland 2020 Plan, which targets high-density development in proximity to transit stations and major bus stops in order to support public transit and strengthen the competitiveness of urban neighbourhoods. The City targets areas in which large tracts of vacant or underutilized land exist around current and future rapid transit stations, and



Cleveland Waterfront Line

encourages high-density residential and mixed use development, exploring Transit-Oriented Development (TOD) opportunities at each to reduce dependence on motorized vehicles to reach employment and shopping destinations.

EMPLOYMENT STATUS AND COMMUTE TO WORK

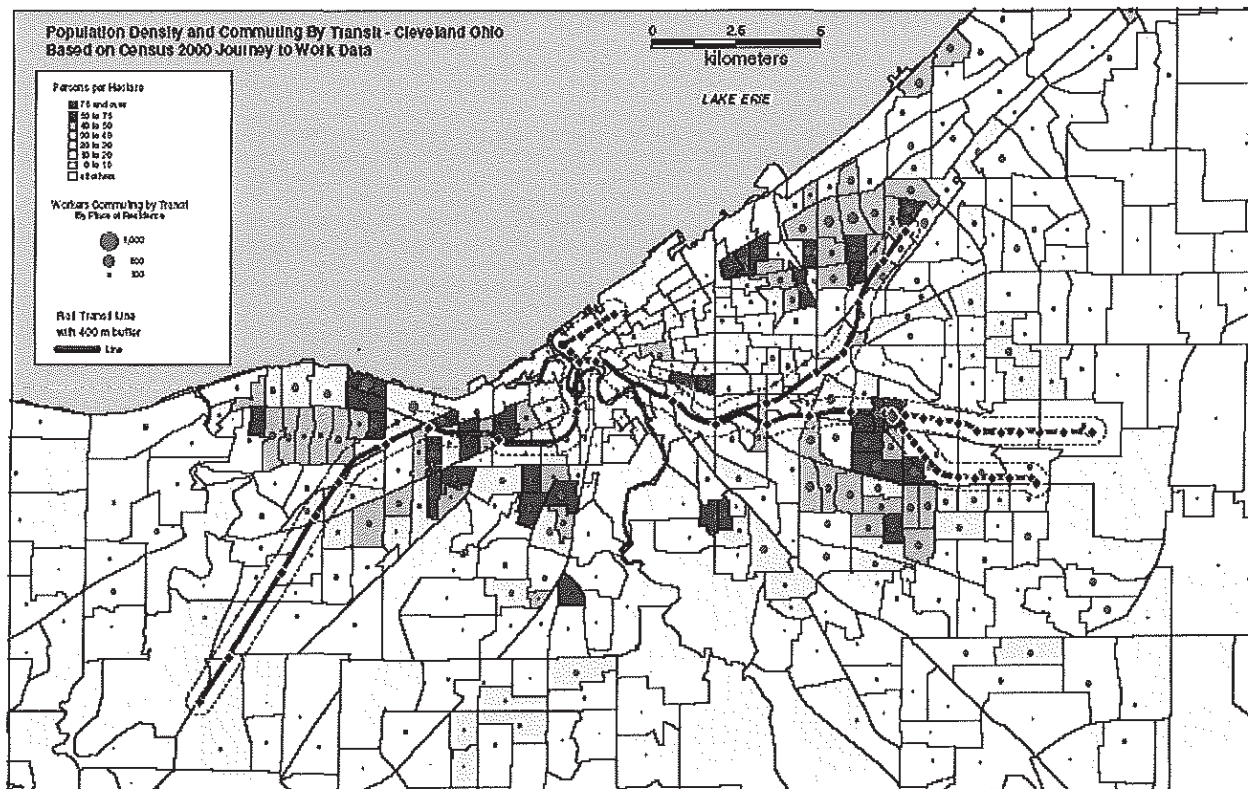
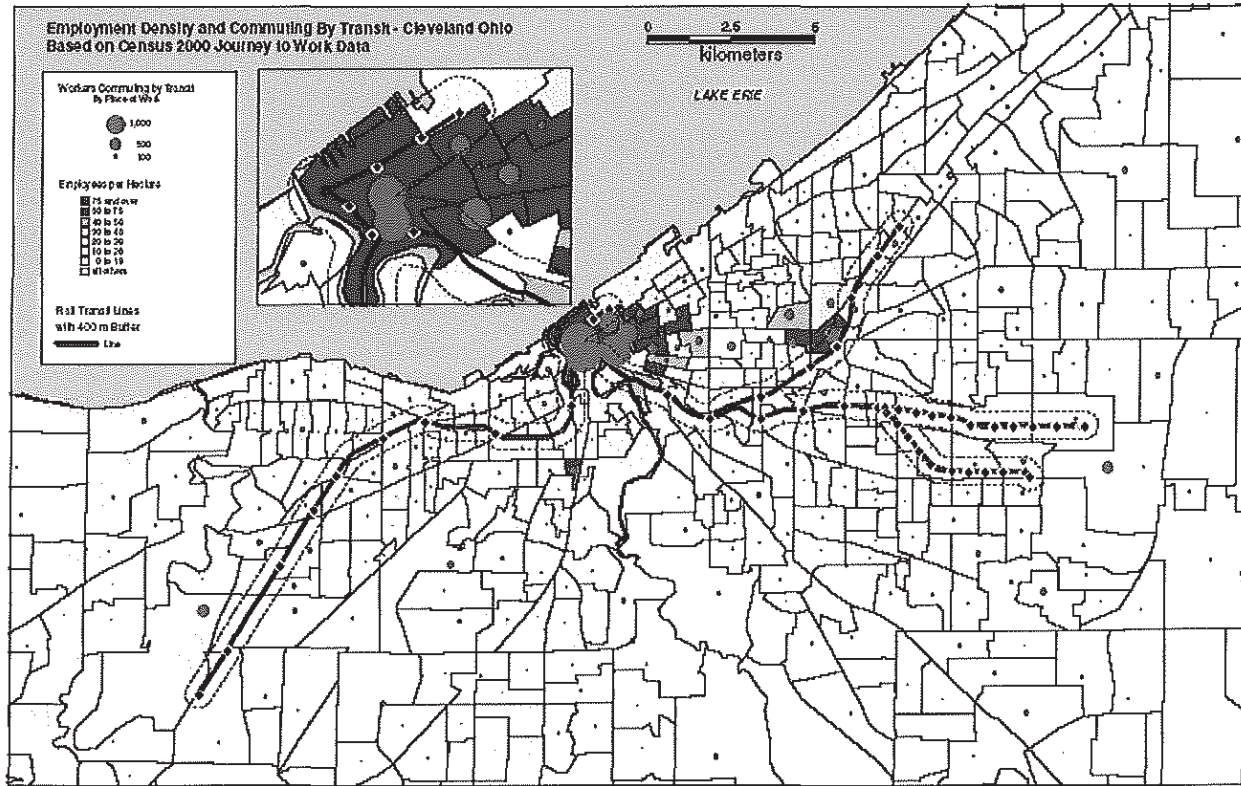
The following information provides 2006 American Community Survey data on the City of Cleveland:

EMPLOYMENT STATUS	
Population 16 years and over	313,613
In labor force	187,986
Civilian labor force	187,897
Employed	157,636
Unemployed	30,261
Armed Forces	89
Not in labor force	125,627

Civilian labor force	187,897
Unemployed	16.10%

COMMUTING TO WORK	
Workers 16 years and over	151,987
Car, truck, or van -- drove alone	105,569
Car, truck, or van -- carpooled	16,580
Public transportation (excluding taxicab)	18,570
Walked	7,133
Other means	1,679
Worked at home	2,456
Mean travel time to work (minutes)	23.5

Cleveland US Census 2006



10.2 Dallas, Texas

LIGHT RAIL TRANSPORTATION SYSTEM

The transit system in Dallas is operated by Dallas-Area Rapid Transit Dallas (DART) and consists of a light rail, commuter rail and bus service.

DART's light rail system opened in 1996, the first in the Southwest of the United States. The rail system stretches over 72 kilometres of track from city center to suburb, and has 35 stations. Two light rail lines are currently in operation: the Red Line and the Blue Line. Current daily ridership is 61,975.

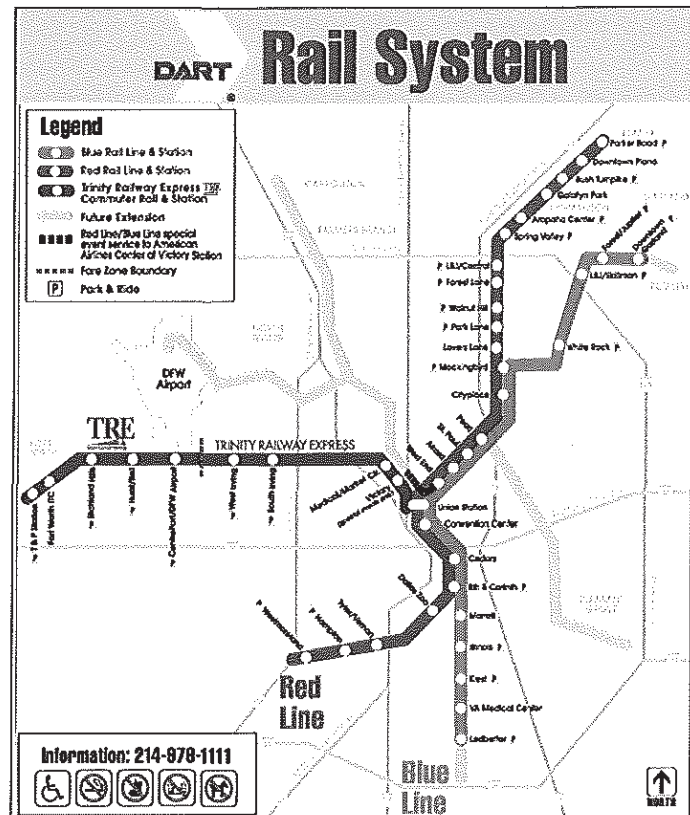
The city center has an "M Line" which acts as a trolley system throughout Downtown Dallas. The system provides the M Line streetcar and the M Line Trolley Bus service.

Growing demand has spurred construction on the Green and Orange lines, which will serve Dallas Fort Worth Airport, downtown and south Dallas. Figure 2.0 displays the rail system.

CITY DEMOGRAPHICS

The Dallas metropolitan region is vast, encompassing a land area of 24,525 square kilometres. Current population is estimated at 6 million people. The region is connected by an extensive system of highways, which facilitates automobile use and contributes to its very low population density of 12.4 persons per hectare. The city of Dallas encompasses 997 square kilometres, second only to Los Angeles among North American cities. The population residing within the city is approximately 1.2 million people.

The central business district of Dallas-Fort Worth employs 79,900 people in an area of 1.7 square kilometres, for a density of 460 employees per hectare. There are 11,400 transit commuters and a transit mode share of 14.3%. The median income level is \$38,276, and 78.1% of households have access to a private vehicle.



RAIL DEVELOPMENT

In 1999, the Center for Economic Development and Research at the University of North Texas conducted a survey on the impact of DART service on property values. Appraisal data on 700 commercial and residential properties located within a pedestrian shed of 15 light rail stations revealed that between 1994 and 1998, total property values increased in 11 of the 15 rail station neighbourhoods. The increase was highest along the Cityplace Mockingbird- Lovers Lane Corridor. These values increased by an overall 66 percent and office property values rose 73 percent. Around Keist station, retail property values rose 84 percent. The largest impact on residential property value was at the VA Hospital Station, which increased by 65 percent.

The study also examined occupancy and rental rates surrounding stations. Among the 200 office buildings examined, occupancy rates for Class A office space increased between 80.2 percent and 88.5 percent. Rents rose from \$7.40 to \$23 per square foot. For retail, rental rates rose 29 percent. Overall, the findings reported that being within walking distance of a light rail station increased land value an average of \$4 per square foot. For properties in the central business district within a quarter mile of the CalTrain commuter rail stop the premium was higher, at over \$ 25 per square foot.

DENSITY INCREASES AROUND STATIONS



Downtown Plano Station

The Eastside Village development at the new Downtown Plano Station includes 500 residential units and 40,000 square feet of retail and commercial space. Mockingbird Station, which is Dallas' first transit village, has residential units near full occupancy and there is a demand for more.

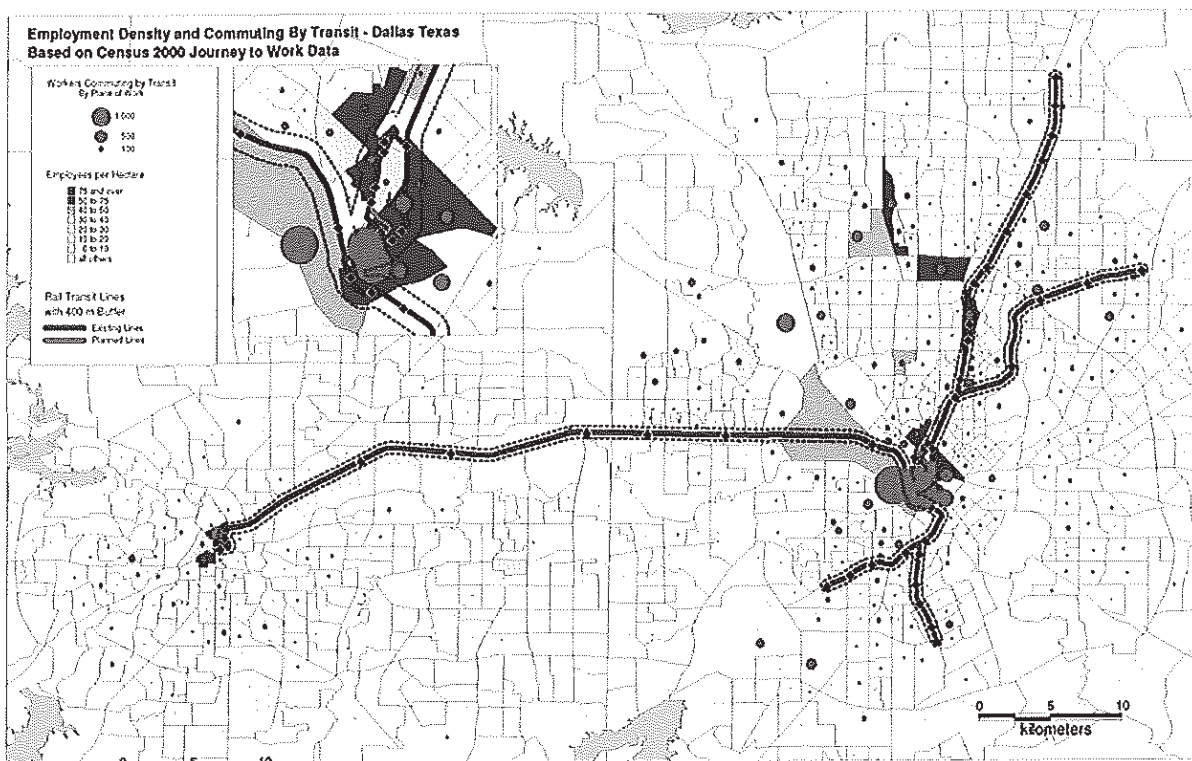
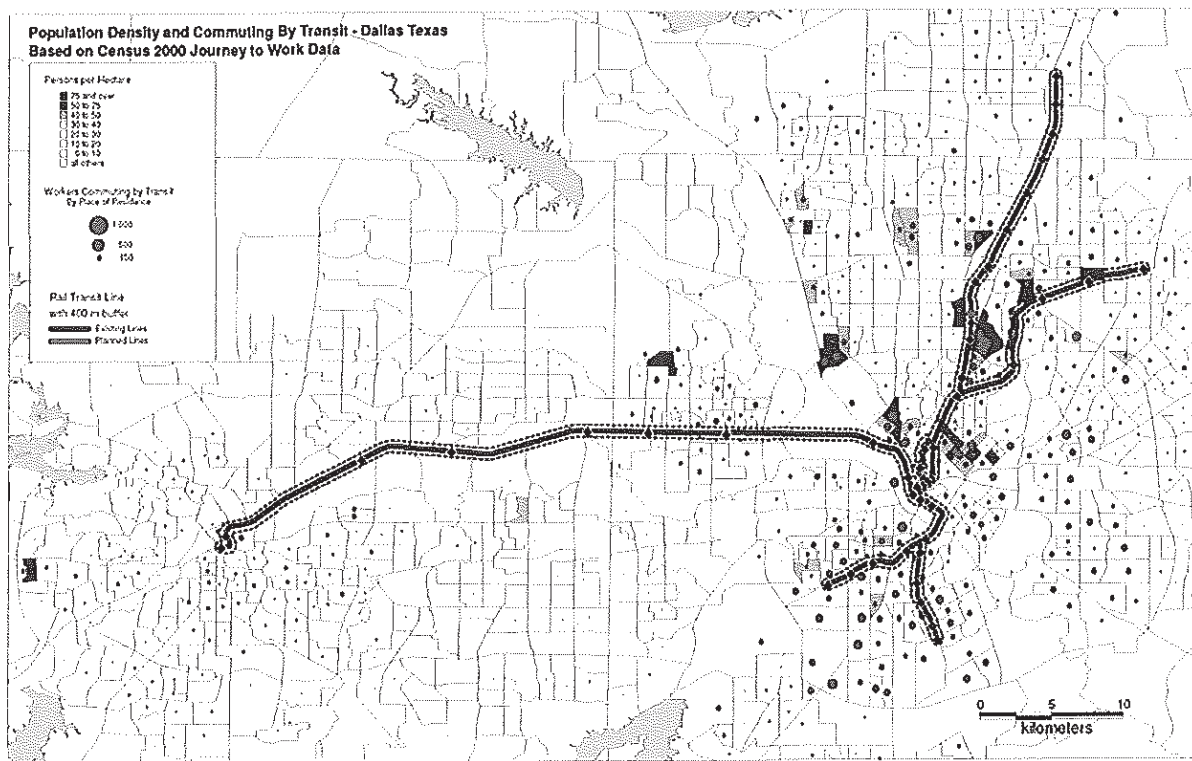
While still very low, the market share of transit has increased. It increased 26.3% between 1983 and 2003, from 0.57% to .72%.

EMPLOYMENT STATUS AND COMMUTE TO WORK

The following information provides 2006 American Community Survey data on the City of Dallas:

EMPLOYMENT STATUS	
Population 16 years and over	899,917
In labor force	620,637
Civilian labor force	620,356
Employed	569,745
Unemployed	50,611
Armed Forces	281
Not in labor force	279,280
Civilian labor force	620,356
Unemployed	8.20%
COMMUTING TO WORK	
Workers 16 years and over	556,494
Car, truck, or van -- drove alone	410,012
Car, truck, or van -- carpooled	86,593
Public transportation (excluding taxicab)	24,443
Walked	10,400
Other means	6,680
Worked at home	18,366
Mean travel time to work (minutes)	25.3

Dallas US Census 2006



10.3 Denver, Colorado

LIGHT RAIL TRANSPORTATION SYSTEM

The Regional Transportation District supplies Denver and the Denver Metropolitan Region with a variety of transit services, including the light rail system. The rail system is composed of six light rail lines over 56 kilometres of track. Park-n-Ride lots are provided at 19 of the system's 36 stations. Current daily ridership of the light rail system is 41,690.

RTD has a program called FasTracks to construct linkages between suburban communities. An 1.2 kilometre extension of the Central Corridor Light Rail Line will increase the number of stations from 18 to 20. It is expected that this will increase ridership by between 31,800 and 37,200 passengers daily. The Gold Line Corridor will be extended by 18 kilometres and incorporate 7 new stations, with an anticipated increase in ridership of between 16,300 and 19,100 passengers. Figure 3.0 shows the light rail system.

The FasTracks program also calls for additional expansions including the I-225 Corridor, South East Corridor Extension, Southwest Corridor Extension, and the West Corridor.

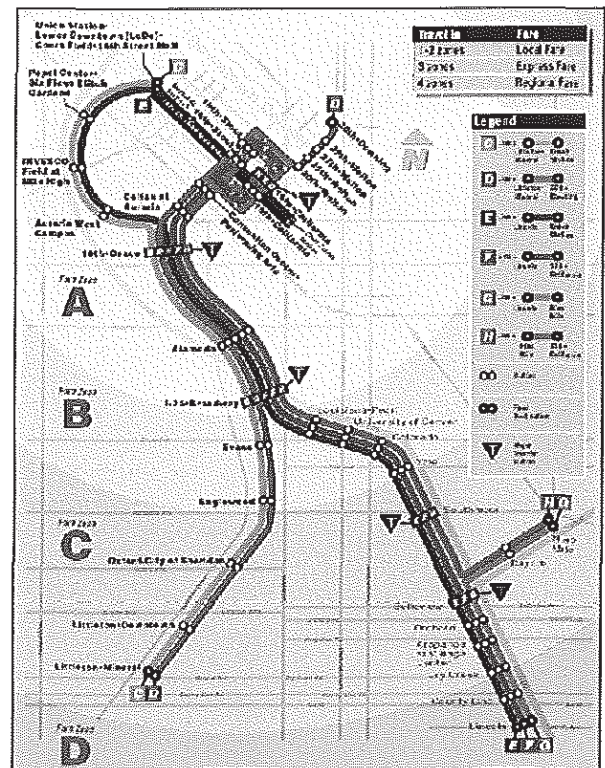


Figure 3

CITY DEMOGRAPHICS

Denver's metropolitan area has an area of 22,149 square kilometres and 2.4 million residents. The City of Denver encompasses 401 square kilometres, and has a population of 566,974. The Central Business District is the third largest among North American cities at 4.0 square kilometres. 126,000 people are employed in the Central Business District, resulting in an employment density of 318 employees per hectare. There are 26,800 transit commuters within Denver's central business district with a public transit mode share of 21.3%. Denver has a median household income of \$40,900 and 79.2% of households have access to a private vehicle.

RAIL DEVELOPMENT

Transit-oriented development (TOD) may be starting to contribute to increases in light rail ridership.

The following table shows a summary of completed projects and projects under construction by light rail corridor.

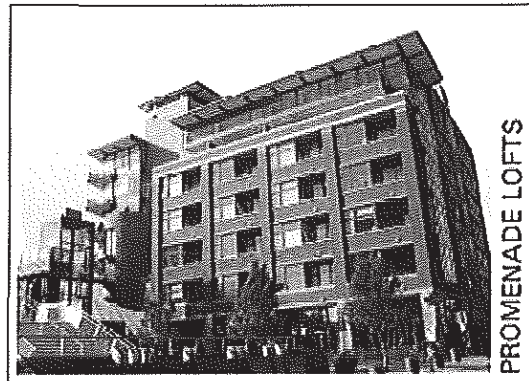
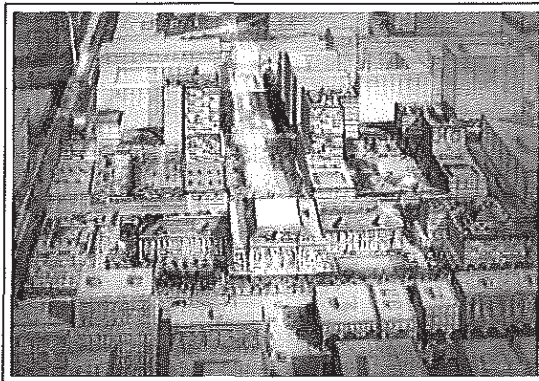
Data	Central CPV	Gold	I-225	North Metro	Southeast	Southwest	US38	West	Grand Total
Residential Units	5,490	410	550	276	3,704	481	914	0	11,825
Hotel Rms	2,214	0	0	0	0	0	0	0	2,214
Retail SF	624,200	266,924	16,000	57,000	459,450	657,804	2,120,400	415,000	4,615,778
Office SF	2,287,600	19,372	0	0	294,000	60,000	159,000	0	2,819,972
Institution SF	2,449,000	0	3,240,000	0	0	0	0	0	5,689,000

This table provides a list of proposed projects by rail corridor.

Data	Central CPV	East	Gold	I-225	North Metro	Southeast	Southwest	US38	West	Grand Total
Residential Units	5,171	24	625	1,273	753	4,372	939	1,173	10	14,340
Hotel Rms	1,052	505	0	260	0	600	300	160	0	2,877
Retail SF	1,142,100	0	0	435,000	0	441,400	1,100,000	164,270	16,000	3,298,770
Office SF	1,877,500	0	0	235,000	0	863,000	0	150,000	0	3,125,500
Institution SF	350,000	68,000	0	5,221,000	0	0	0	0	900,000	6,539,000

(See Exhibit 1-5 for a map of the projects by their respective status along FasTracks and existing transit corridors.)

The "Union Station Neighbourhood" development plan proposes construction of 600 residential units, 68,051 square meters of office, 22,863 square meters of retail, and 1,980 parking spaces within Denver's Central Corridor/Central Platte Valley Spur.



Source: <http://www.rtd-fastracks.com/media/uploads/main/TODStatusReport2006.pdf>

The project is to be completed in 2011, along with street-level improvements, light rail, and an underground commuter rail station and a regional bus facility.

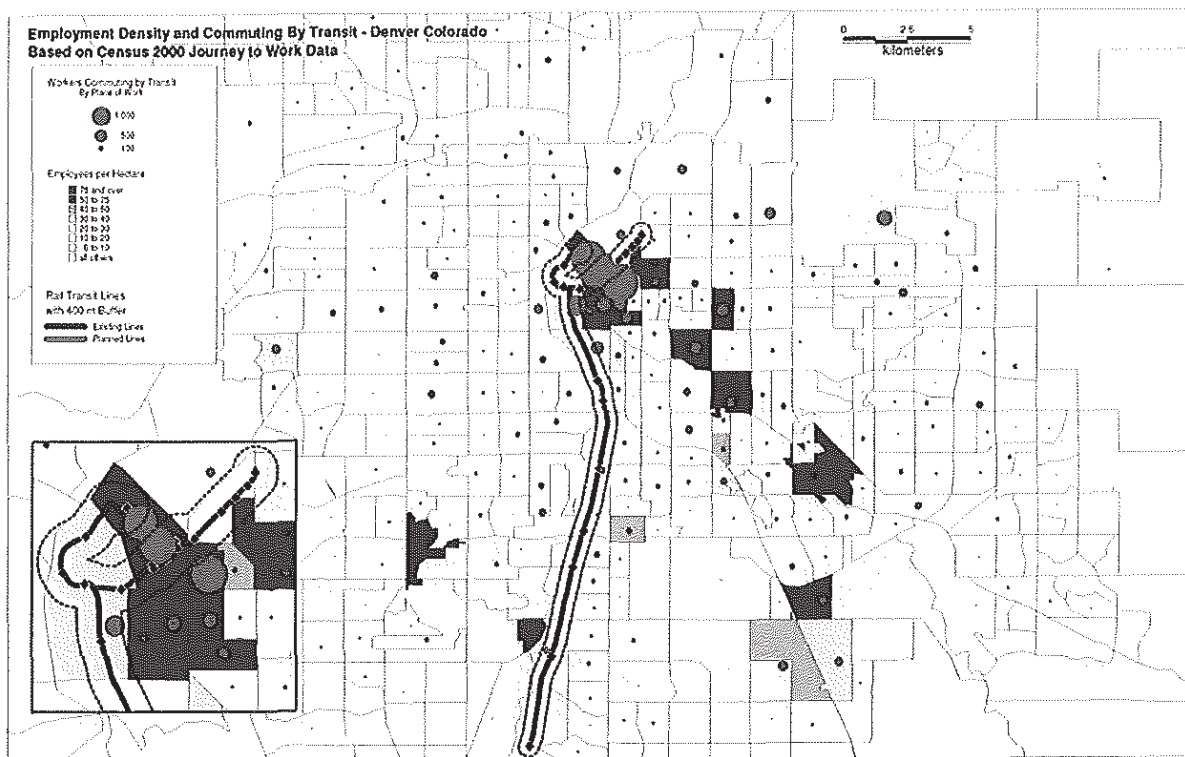
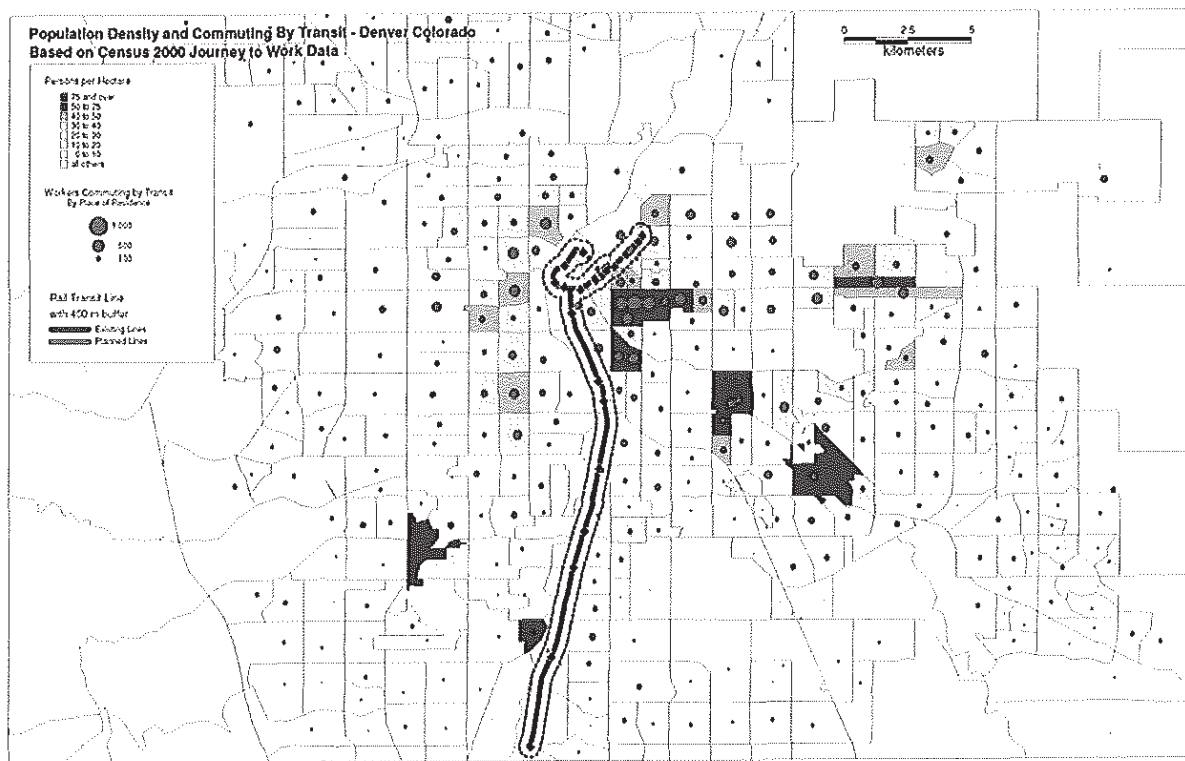
EMPLOYMENT STATUS AND COMMUTE TO WORK

The following information provides 2006 American Community Survey data on the City of Denver:

EMPLOYMENT STATUS	
Population 16 years and over	439,430
In labor force	299,911
Civilian labor force	299,021
Employed	279,380
Unemployed	19,641
Armed Forces	890
Not in labor force	139,519
Civilian labor force	299,021
Unemployed	6.60%

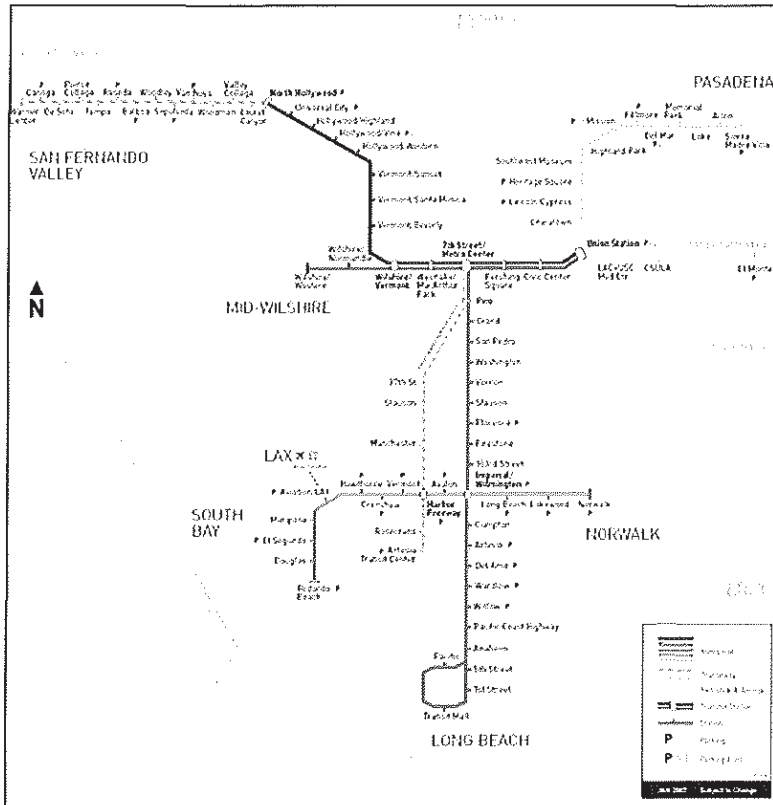
COMMUTING TO WORK	
Workers 16 years and over	272,493
Car, truck, or van -- drove alone	190,620
Car, truck, or van -- carpooled	26,956
Public transportation (excluding taxicab)	20,273
Walked	11,448
Other means	9,504
Worked at home	13,692
Mean travel time to work (minutes)	23.8

Denver US Census 2006



10.4 Los Angeles, California

LIGHT RAIL TRANSPORTATION SYSTEM



The Los Angeles County Metropolitan Transportation Authority and other agencies operate an extensive system of light rail, bus, and subway lines. The light rail system includes the Blue Line, Orange Line, Green Line, and Gold Line. The subway system, which is integrated with the light rail system, provides the Red Line.

The Metro Blue Line opened in 1990, and presently has 75,089 daily boarders. The Line stretches 35 kilometres and provides 22 stations along its course. The Blue Line has the second highest ridership. The Green line has an average daily ridership of 38,941 passengers over 32 kilometres of track; this Line has 14 stations. The Gold Line has 22 kilometres of track and 13 stations, but

there are plans to expand to East Los Angeles. The average daily ridership of the Gold Line is 19,400. The Orange Line, which opened in October 2005, has 24,804 riders daily. It is 22.5 kilometres long and has 13 stations. The Red Line connects to Union Station, and stretches to Wilshire/Western, Hollywood, and North Hollywood. The Red Line has the highest daily boarding at 132,049 riders. It has 16 stations and 28 kilometres of track.

CITY DEMOGRAPHICS

The Los Angeles Metropolitan Area has an area of 91,474 square kilometres and a population of 13.0 million. The City of Los Angeles encompasses 1,290 square kilometres and has a population of 3.8 million residents.

The central business district of Los Angeles encompasses 3.2 square kilometres and has an employment level of 143,700 resulting in an employment density of 444 employees per hectare. There are 28,100 transit commuters within this district and a public transit mode share of 19.6%. Los Angeles has a median household income of \$44,445 and a car ownership level of 81.9%.

RAIL DEVELOPMENT

The Expo Line, expected to open in 2010, will join the Metro Rail/Fixed Guideway network of 141 kilometres of route service in Los Angeles County. It will be the first to connect Downtown Los Angeles to Culver City.

The Metro Gold Line Eastside Extension is to provide a linkage for communities in East Los Angeles to Downtown Los Angeles. The extension will include 9.7 kilometres of new track that will connect directly to the existing Metro Gold Line to Pasadena without passengers having to transfer. A Park-n-Ride lot will be constructed at the Atlantic Station. The project is set to open in late 2009.

The market value of condominiums within the pedestrian shed of the Metro Gold Line station in South Pasadena increased ten to fifteen percent over similar condominiums further away from the station. The new light rail corridor has transformed the corridor into a thriving retail & restaurant environment. The City of South Pasadena is now reconsidering land use along Mission to accommodate additional growth.



Image shows the density before the introduction of light rail corridor – Mission Meridian



Image shows the density after introduction of light rail corridor – Mission Meridian

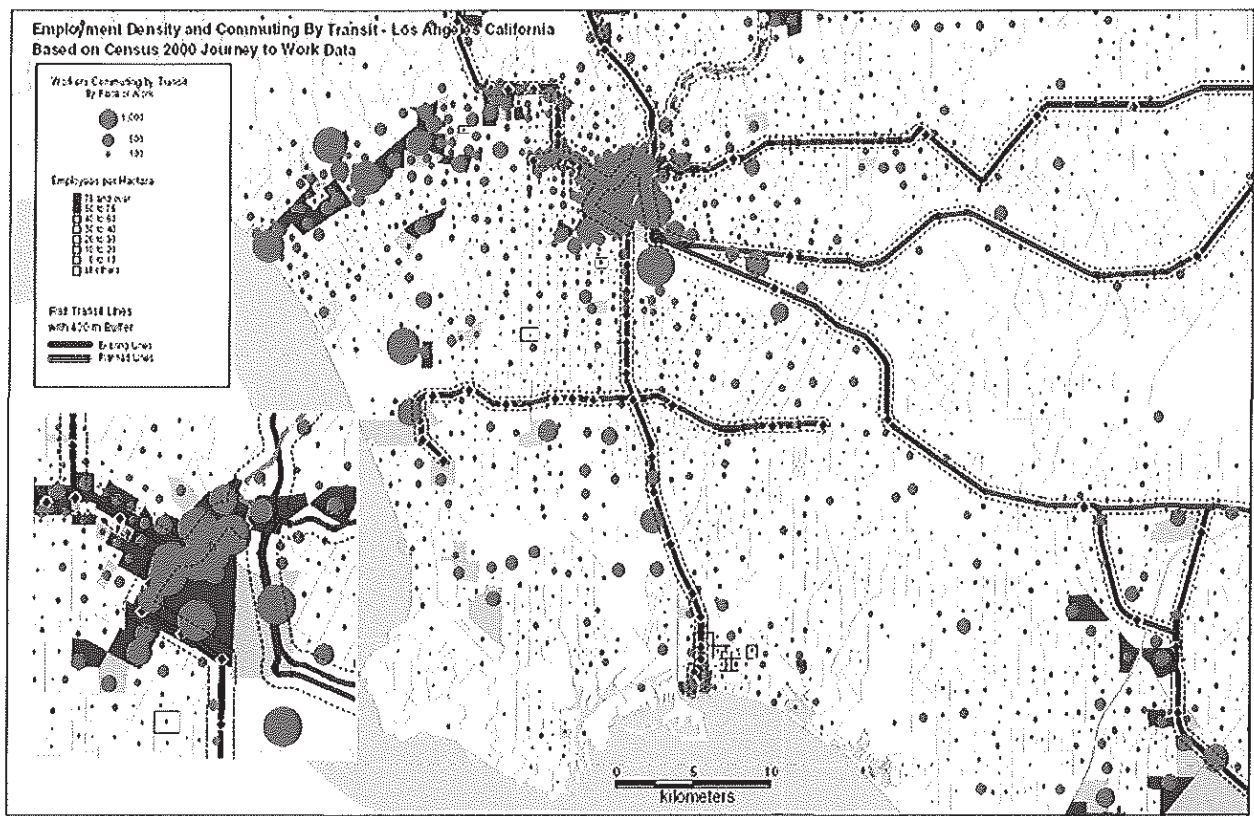
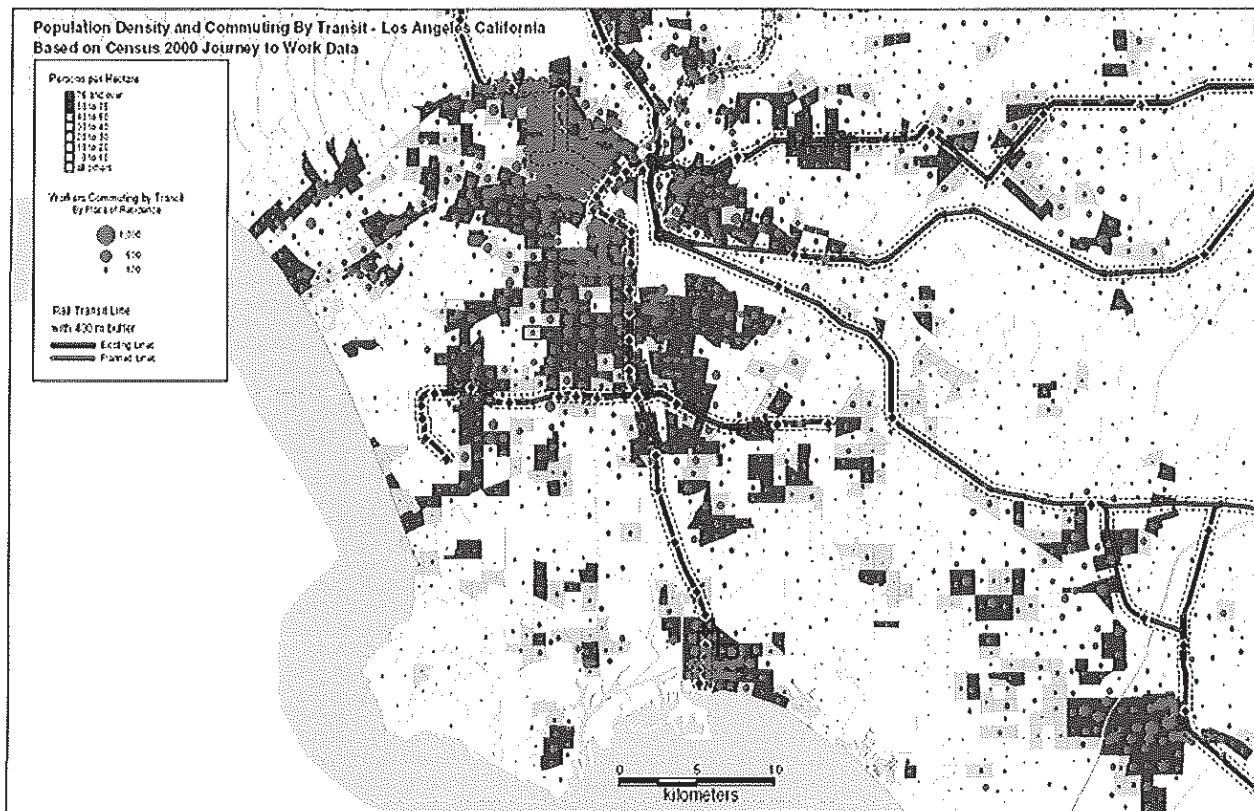
EMPLOYMENT STATUS AND COMMUTE TO WORK

The following information provides 2006 American Community Survey data on the City of Los Angeles:

EMPLOYMENT STATUS	
Population 16 years and over	2,915,706
In labor force	1,912,697
Civilian labor force	1,911,027
Employed	1,782,153
Unemployed	128,874
Armed Forces	1,670
Not in labor force	1,003,009
Civilian labor force	1,911,027
Unemployed	6.70%

COMMUTING TO WORK	
Workers 16 years and over	1,721,778
Car, truck, or van -- drove alone	1,158,451
Car, truck, or van -- carpooled	198,554
Public transportation (excluding taxicab)	188,846
Walked	58,869
Other means	35,580
Worked at home	81,478
Mean travel time to work (minutes)	29.2

Los Angeles Census 2006



10.5 Minneapolis, Minnesota

LIGHT RAIL TRANSPORTATION SYSTEM

The Metropolitan Council's Metro Transit operates the rail system and most of the city's bus fleet. The light rail Hiawatha Line (Route 55) connects Minneapolis-St. Paul International Airport and Mall of America to the city center. It has 19 kilometres of track and 17 stations, with a daily ridership of 19,300 people. The system also offers fully ADA compliant stations and vehicles with four wheelchair locations per vehicle.

Minneapolis has adopted a Transportation Policy Plan addressing transit growth through 2030; the plan is to aid traffic congestion and improve mobility in the region. A commuter rail line in the Northstar corridor between Minneapolis and Big Lake is planned; also a light rail or BRT in the Central Corridor on University Avenue between downtown St. Paul and downtown Minneapolis is underway.



Downtown Stations

CITY DEMOGRAPHICS

The Minneapolis-St. Paul metropolitan region encompasses 16,483 kilometres and has a population of 3.2 million. The City of Minneapolis has an area of 151 square kilometres and has 372,833 residents. The City has put in an active effort to become one of the top ten greenest cities in America by promoting clean air and water, renewable energy use, and alternative modes of transportation.

The land area of the Minneapolis-St. Paul Central Business District is one of the smallest in our North American sample at 1.9 square kilometres. It has an employment level of 105,400 people creating an employment density of 565 employees per hectare. There are 31,700 commuters to the Central Business District and a public transit mode share of 30%. Minneapolis has a median household income of \$43,369 and a car ownership percentage of 74.4%.

RAIL DEVELOPMENT

According to a 2004 survey of the Hiawatha Line, 39% of riders are "converts" to public transit and would be traveling by automobile if not for the LRT.

The results of the survey indicate:

- 23% ride for convenience
- Less than 4 % ride because they don't own a car
- 34% have a household income of more than \$70,000 a year

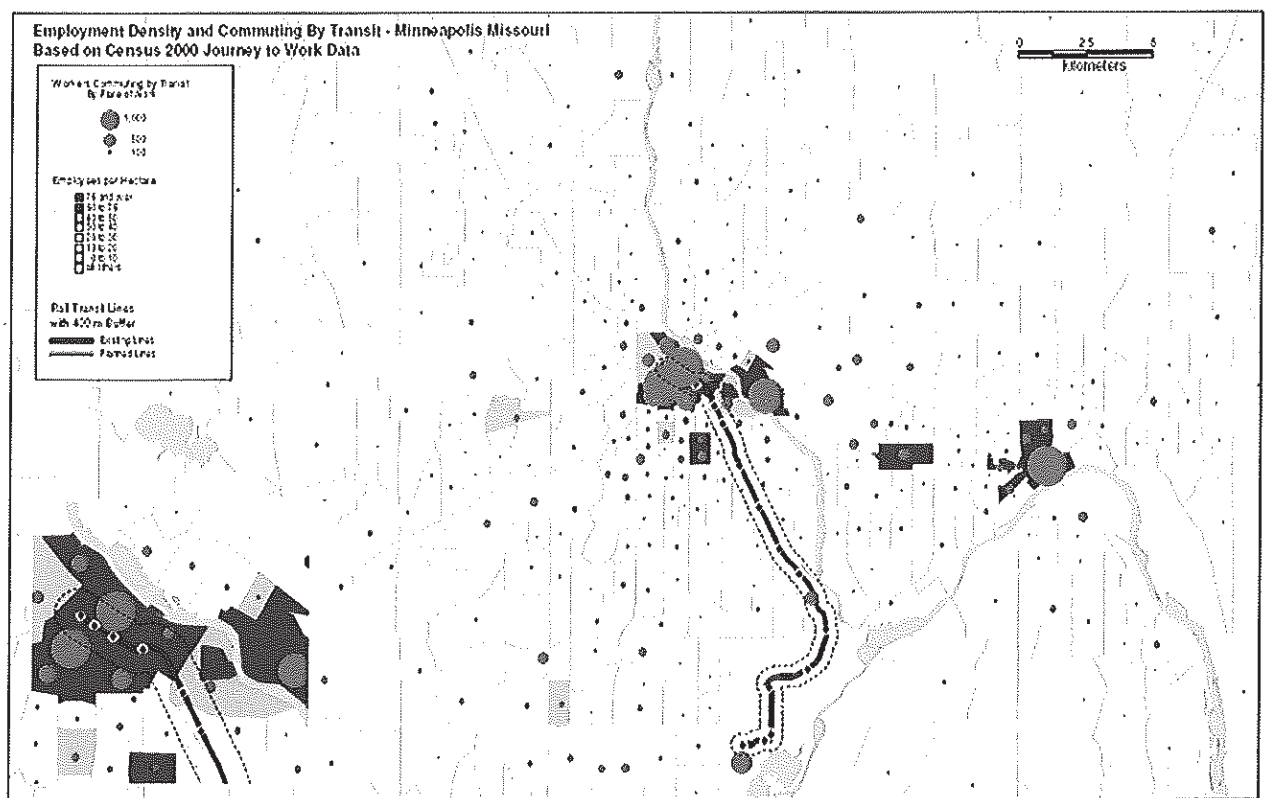
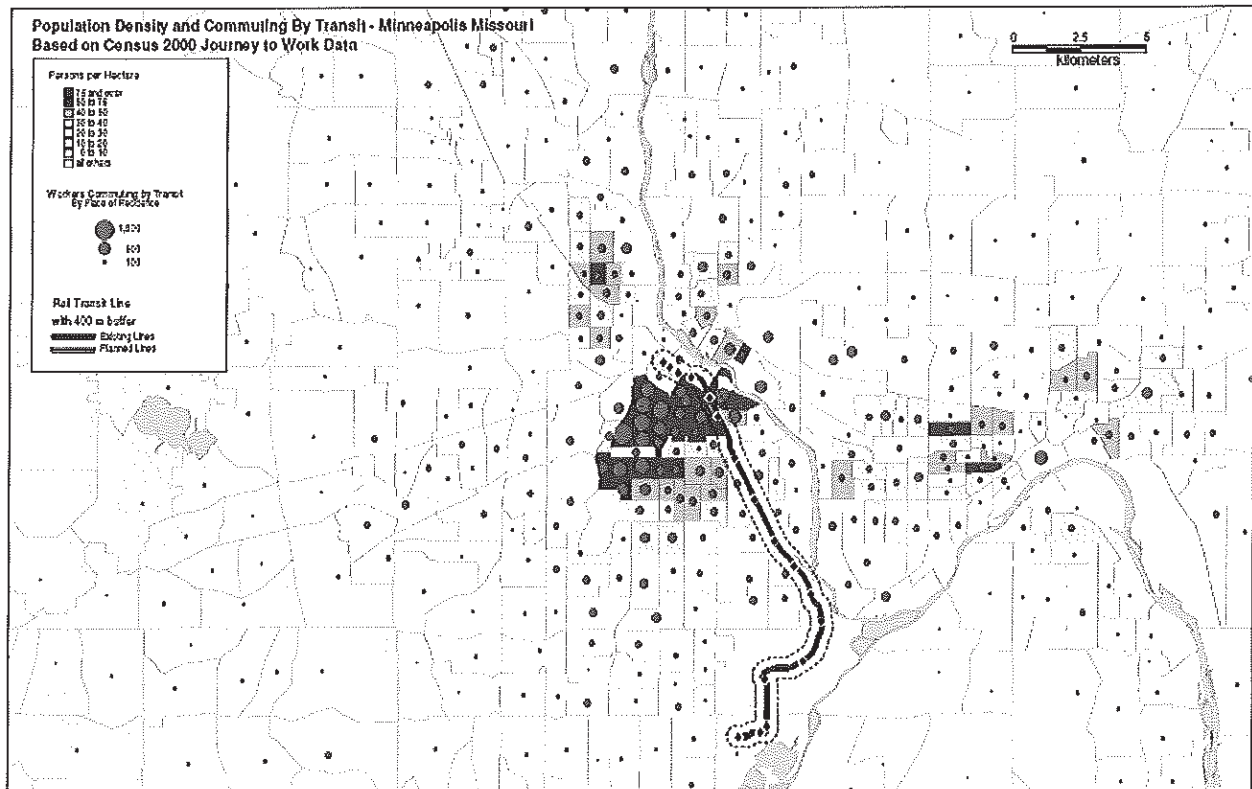
Planned developments adjacent to the Hiawatha Line include a variety of housing options from low-income and market rate apartments to million-dollar condos. Metropolitan council estimates 17, 800 new residents will move into neighbourhoods around the LRT by 2020. Land use planning is designed to encourage development within a half-mile radius of LRT stations.

EMPLOYMENT STATUS AND COMMUTE TO WORK

The following information provides 2006 American Community Survey data on the City of Minneapolis:

EMPLOYMENT STATUS	
Population 16 years and over	293,649
In labor force	215,926
Civilian labor force	215,854
Employed	198,755
Unemployed	17,099
Armed Forces	72
Not in labor force	77,723
Civilian labor force	215,854
Unemployed	7.90%

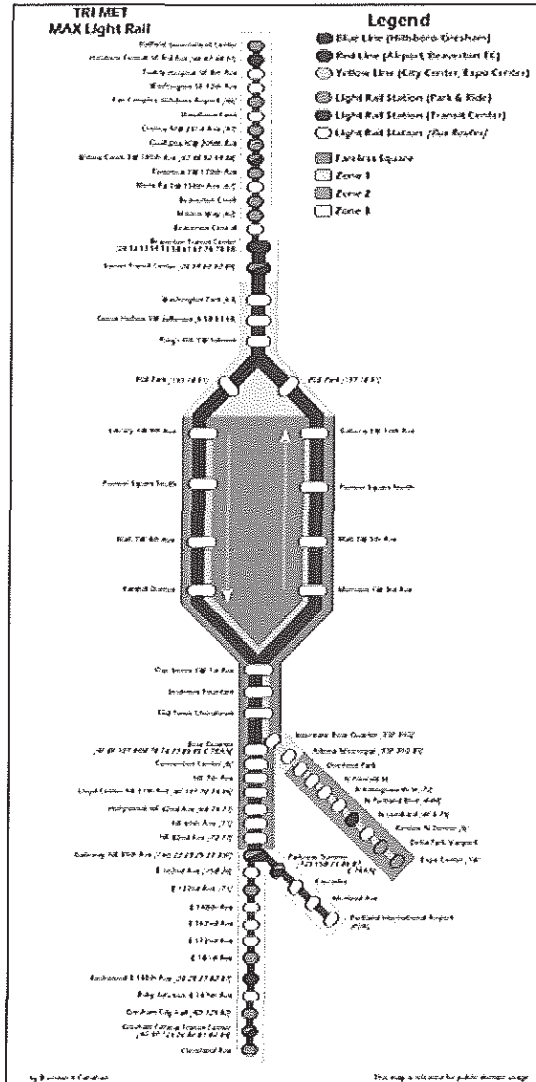
COMMUTING TO WORK	
Workers 16 years and over	193,591
Car, truck, or van -- drove alone	121,196
Car, truck, or van -- carpooled	17,997
Public transportation (excluding taxicab)	25,533
Walked	13,735
Other means	6,507
Worked at home	8,623
Mean travel time to work (minutes)	21.8



10.6 Portland, Oregon

LIGHT RAIL TRANSPORTATION SYSTEM

Land-use planning and transit oriented development is a high priority for the Portland Metropolitan Region. With this mentality, the region offers commuters multiple options for public transportation. TriMet is responsible for the transit system, and operates the MAX light rail system.



The system includes the Blue, Red, and Yellow Lines with a total of 71 kilometres of track and 64 stations. This system has become a national model for community support, land-use/transportation planning, public art and green construction. Daily ridership is 101,350.

The Yellow Line serves North Portland between City Center and the Expo Center via Interstate Avenue. The Red Line connects the airport with key destinations such as the Oregon Convention Center and the Portland City Center. The Westside MAX Blue Line connects Hillsboro, Beaverton and Portland City Center. The Eastside Blue Line connects Gresham and Portland City Center.

Portland also has a streetcar system. It was designed to fit the scale and traffic patterns of its neighbourhoods. The street car runs on an 11.6 kilometre loop connecting NW 23rd Ave to SW Moody and Gibbs in the South Waterfront District where it connects to the Portland Aerial Tram. There are a total of 42 stops located every 3-4 blocks along the route.

CITY DEMOGRAPHICS

The Portland metropolitan region encompasses 18,317 square kilometres and has a population of 2.1 million. The city has an area of 376 square kilometres and a population of 537,081.

The Central Business District encompasses 2.7 square kilometres with an employment level of 79,600 for a density of 296 employees per

hectare. There are 23,700 commuters to the central business district, with a public transit mode share of 29.8%. Portland has a median household income of \$44,273 and a car ownership level of 79.2%.

RAIL DEVELOPMENT

The Portland light rail system started in the 1970s after the public rejected the addition of urban freeways.¹³

The system created an increase in commercial development for Downtown Portland. Between 1970 and 1990, over \$1 billion in private funds was invested in downtown development projects.

About 7,000 dwellings and more than \$505 million of residential and non-residential development have been built, permitted or proposed since 1990 (LRT PE/DEIS began) within one-half mile of west side light rail stations. About 3,600 of the dwellings were completed in 1998. Over 3,000 of them are located in two station areas.¹⁴

A research study examined the impact of the light rail system on single family homes in the Portland Eastside Corridor using distance to stations as a proxy for accessibility and distance to the line itself as a basis for both effects. The study results shows the median-price house at a station had 3% higher value than a comparable unit 200 feet away, 5 % higher 400 feet away, and 7.5% higher 600 feet away.

The residents of Portland support the MAX light rail system; the system has improved residential areas in Portland by enhancing neighbourhoods with new sidewalks, trees, art, paved roads, bike lines and bike lockers. It has also been the catalyst for more than 50 new business open along the line during construction. Future Transit Oriented Development adjacent to I-205 (Cascade Station) is expected to create 10,000 jobs.

In spite of these developments, the public transport market share fell from 2.45% in 1983 to 2.29% in 2003.



Beaverton Round Station

¹³ "LRT helps reshape a city. (Portland's Metropolitan Area Express light-rail transit system)" William D. Middleton, Railway Age 2/1/1990 <http://www.encyclopedia.com/doc/1G1-8626037.html>

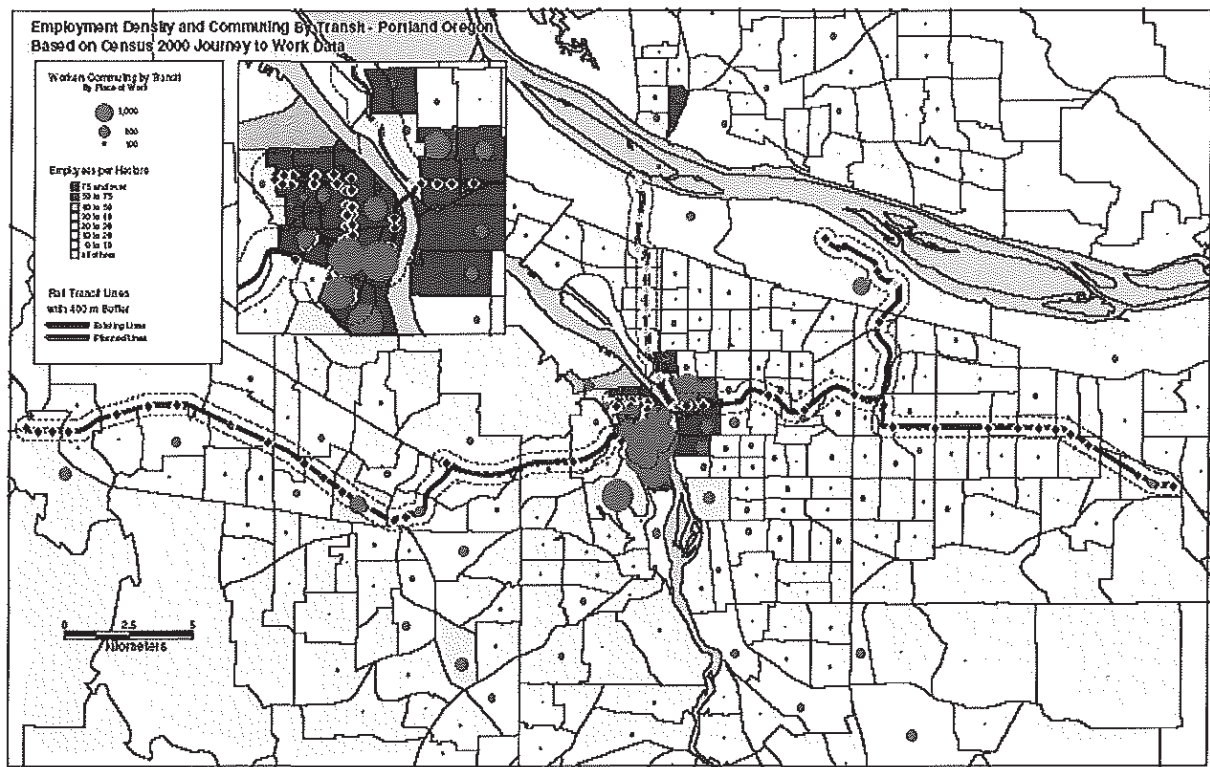
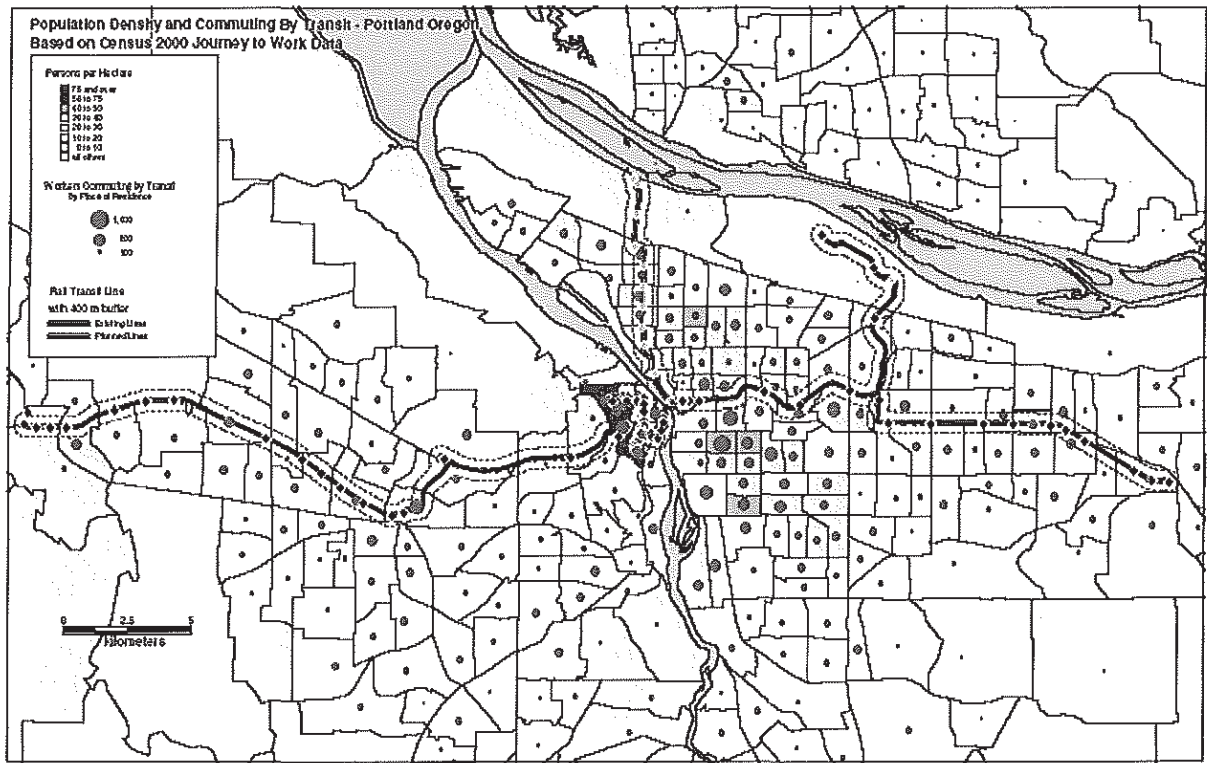
¹⁴ "Westside MAX Light Rail Project Transit Oriented Development (TOD) Program" TOD Case Study, Portland, Oregon <http://www.todadvocate.com/pdxcasesstudy.htm>

EMPLOYMENT STATUS AND COMMUTE TO WORK

The following information provides 2006 American Community Survey data on the City of Portland:

EMPLOYMENT STATUS	
Population 16 years and over	434,816
In labor force	303,846
Civilian labor force	303,653
Employed	284,436
Unemployed	19,217
Armed Forces	193
Not in labor force	130,970
Civilian labor force	303,653
Unemployed	6.30%

COMMUTING TO WORK	
Workers 16 years and over	276,465
Car, truck, or van -- drove alone	167,559
Car, truck, or van -- carpooled	28,895
Public transportation (excluding taxicab)	34,948
Walked	14,264
Other means	14,041
Worked at home	16,758
Mean travel time to work (minutes)	23.2



10.7 San Diego, California

LIGHT RAIL TRANSPORTATION SYSTEM

San Diego provides residents with multiple public transportation options. San Diego's light rail system is operated by San Diego Trolley, Inc, a subsidiary of the Metropolitan Transit System. The system includes 3 lines with approximately 82 kilometres of track.



Image of San Diego Trolley

The Blue, Orange, and Green Lines serve a total of 53 stations. The Blue Line operates between Old Town Transit Center and the US/Mexican border; six of its downtown stations are shared with the Orange Line and eight shared with the Green Line. The Orange Line operates the Bayside in downtown and Gillespie Field. The Green Line operates between Old Town Transit Center and Santee Town Center. Ridership for the entire system averages 102,275 riders per weekday.

Service in North San Diego County is provided by the North County Transit District (NCTD). NCTD operates the COASTER and SPRINTER systems. SPRINTER is a light rail system with

35 kilometres of track and 15 stations and 35 kilometres of track. The COASTER provides commuter rail service over approximately 66 kilometres of track between Oceanside and San Diego, and has 8 stations.

CITY DEMOGRAPHICS

The San Diego metropolitan region encompasses 11,721 square kilometres and has a population of 2.9 million. The city has an area of 963 square kilometres and a population of 1.3 million. The central business district encompasses 3.2 square kilometres and has employment of 61,800 for an employment density of 192 employees per hectare. There are 7,300 commuters to the central business district, with a public transport mode share of 11.8%. San Diego has the household income for the North American cities in our sample, with a median household income of at \$58,815. There is an 85.3% level of car ownership.

RAIL DEVELOPMENT

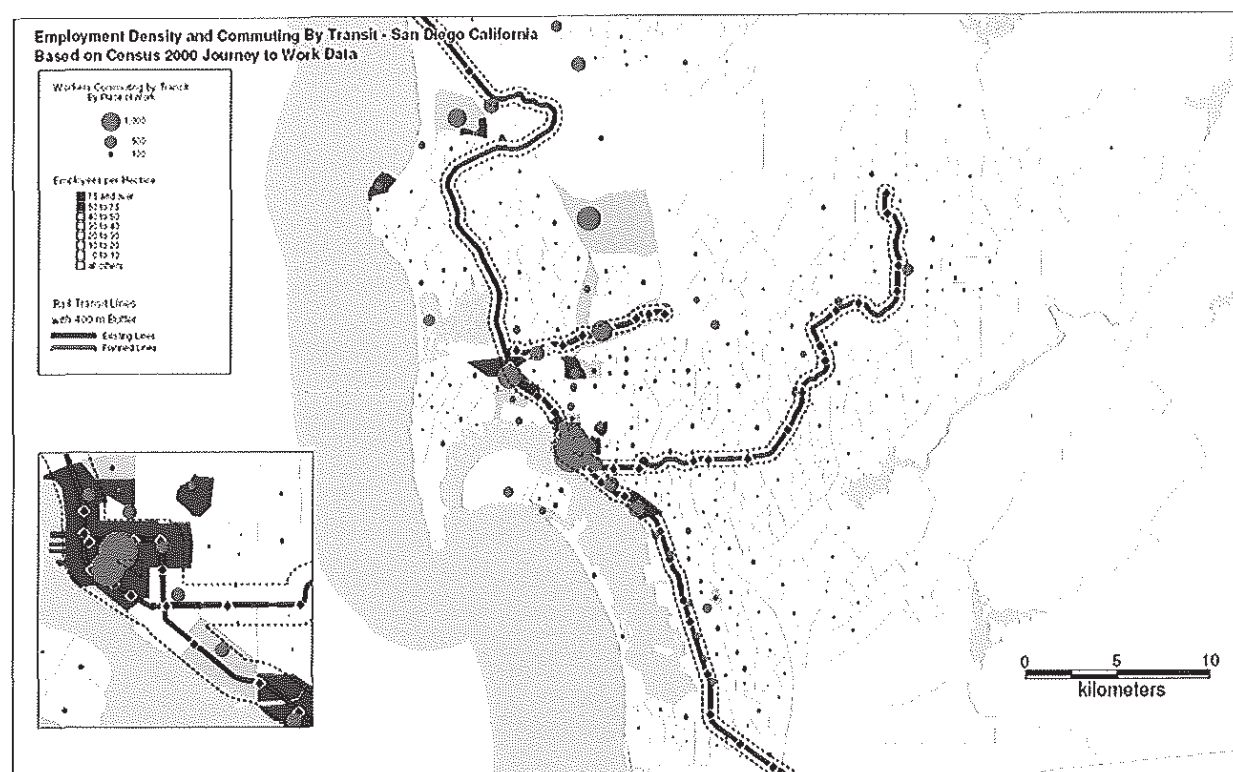
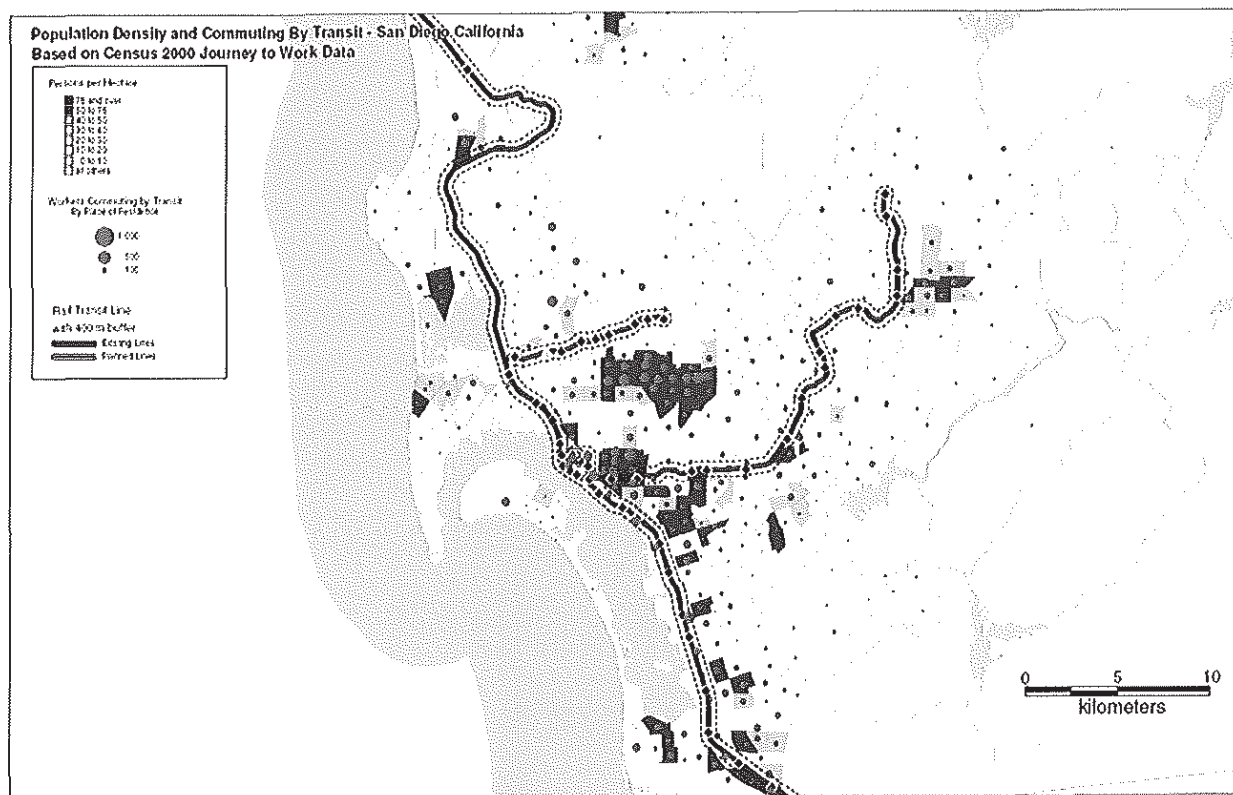
The City of San Diego adheres to "Transit Oriented Development" guidelines to discourage urban sprawl and to promote the creation of places for people instead of automobiles. The guidelines call for the development of places that are pedestrian friendly, connected to transit, and have a mix of uses. The market share of San Diego's Transit system increased from .73 percent to 1.24 percent between 1983 and 2003.

EMPLOYMENT STATUS AND COMMUTE TO WORK

The following information provides 2006 American Community Survey data on the City of San Diego:

EMPLOYMENT STATUS	
Population 16 years and over	998,322
In labor force	672,701
Civilian labor force	639,074
Employed	608,062
Unemployed	31,012
Armed Forces	33,627
Not in labor force	325,621
Civilian labor force	639,074
Unemployed	4.90%

COMMUTING TO WORK	
Workers 16 years and over	623,801
Car, truck, or van -- drove alone	465,805
Car, truck, or van -- carpooled	59,431
Public transportation (excluding taxicab)	25,589
Walked	22,632
Other means	13,307
Worked at home	37,037
Mean travel time to work (minutes)	22.4



10.8 Toronto, Ontario

LIGHT RAIL TRANSPORTATION SYSTEM

The Toronto Transit Commission is responsible for providing transit services in the Greater Toronto Area (GTA). The Government of Ontario also operates an extensive rail and bus system called GO Transit. Go Transit offers an interregional public system connecting the city with the GTA. The system, in its entirety, carries approximately 49 million passengers annually on its train and bus lines.

The Go Transit trains have a daily ridership of 165,000 passengers per day over seven lines and at peak rush hour, the train service is available at all stations. At least 96 percent of the train ridership is to and from Union Station in downtown Toronto. The commuter train, Bi-level railcar and the F59PH locomotive cater to the regional area.

Train service		Bus service	
Lines	7	Terminals *	14
Stations	57	Route kilometres	2,447
		Weekday bus trips, total system	1,804
Route kilometres	361	Weekday Union Station bus trips (included in total above)	421
Weekday train trips	181	Buses	316
Fleet size (number of trainsets)	38		
Locomotives	45		
Bi-level passenger railcars	415		

<http://www.gotransit.com/PUBLIC/aboutgo/whatisgo.htm>

CITY DEMOGRAPHICS

The GTA encompasses 630 square kilometres and has a population of 5.5 million. The city has a land area of 630 square kilometres, and a population of 2.5 million. The city has the highest population density of the North American cities in the sample.

Toronto's central business district has 350,000 people employed in an area of 7.8 square kilometres, creating an employment density of 450 employees per hectare. There are 227,500 transit commuters and a public transit mode share of 65 percent. Toronto has an annual household income of \$49,345 according to 2000 data, and 60.5% of households own a car.

RAIL DEVELOPMENT

The city of Toronto plans to add 120 kilometres of service over the entire city; this will be implemented by the Transit City plan. By 2021, the new lines are forecast to have an annual ridership of 175 million. The system is designed to reduce traffic congestion and combat global warming.

11. EUROPE

11.1 Birmingham, England

Formed and founded before the automobile, the European cities are naturally denser and have a higher level of transit use. Most residents in these cities do have automobiles, but prefer other forms of transportation for shorter distances.

LIGHT RAIL TRANSPORTATION SYSTEM



Birmingham England is a major transportation city offering residents a tram and bus system. Midland Metro is the modern light rail system in the West Midlands and is relatively new to the area. The first line of service, Line One, operates between Birmingham City and Wolverhampton. Expansion of the system is planned over the next 10 years. There are 23 stops found on this line over 20.4 kilometres of track. The system has an annual ridership of 5 million passengers and 17% of Metro customers have given up their car to use the system. Future enhancements include additional stops.

CITY DEMOGRAPHICS

The Birmingham metropolitan borough forms part of the larger West Midlands conurbation, which has a population of 2.3 million (2001 census) and includes several neighbouring towns and cities, such as Solihull, Wolverhampton and the towns of the Black Country. The city has an area of 267.8 square kilometres and approximately 1 million residents. The city population density 37.6 persons per hectare, which is high for most North American cities, yet average for the European cities. Employment in the county of West Midlands is 2.1 million people. The region experiences high levels of traffic congestion, second only to London. Approximately 61.5% of residents in Birmingham have a car.

RAIL DEVELOPMENT

The Midland Metro extensions have the potential to create 14,506 new jobs of which 73.9% will be from Regeneration Zones. The system has zero pollution at point of use, helping to improve air quality and noise levels in the already busy towns. Congestion will be reduced; based on modal transfer achieved for Line 1, the Phase 1 and 2 routes would together remove almost eight million car journeys from West Midland Roads.

11.2 Dublin, Ireland

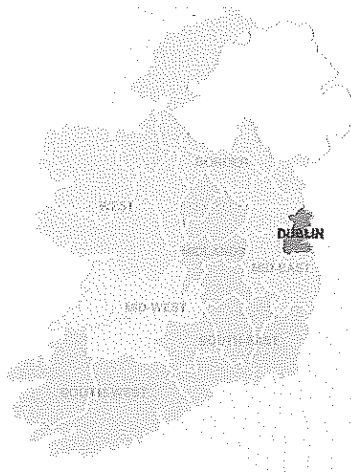
LIGHT RAIL TRANSPORTATION SYSTEM

The Luas is Dublin's Light Rail Tram System. There are two Luas tram lines: Red Line and Green Line. The Red Line is 14 kilometres in length and has 23 stops from Connolly to Tallaght. The Green Line is 9 kilometres and provides 13 stops from St. Stephen's to Sandyford. Along this system, there is an average daily ridership of 80,000 residents. Dublin's Suburban Rail network provides serves to commuters in the metropolitan area.

The popularity of the Red and Green Lines has increased the demand for expansion. Luas Line B1 will extend the Green Line to serve 11 new stops. The Luas Line C1 is the proposed extension of the Luas Red Line and will add four new stations to the route.

CITY DEMOGRAPHICS

Dublin's metropolitan area encompasses a land area of 6,981 square kilometres and has a population of 1.7 million. The city has an area of 920 kilometres and a population of 1.2 million.



Regional Population	1,122,821
Population Density (persons/sq km)	1218
Population City	495,781
Workforce	555,306
Employment Rate	95.90%

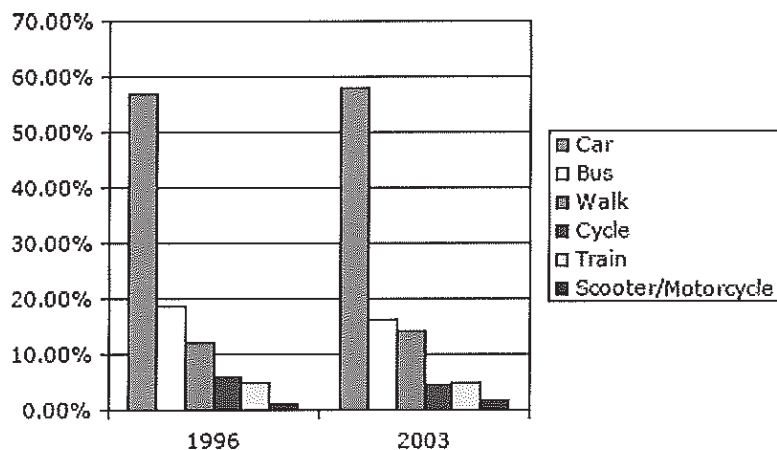
RAIL DEVELOPMENT

The Kildare Route Project identifies the need to invest in public transport in order to improve the quality, speed and reliability of rail services. This will spur a reduction in private car usage. The Project is to facilitate the provision of new commuter stations and upgrade existing facilities. Benefits of the project provide a potential to increase ridership from 11,050 per day to 36,400.

The system will also reduce the amount of automobile traffic, cutting down on Carbon Dioxide emissions and relieving traffic congestion.

TRANSIT MODE AND OTHER VARIABLES

In the late 1990s, Dublin experienced significant economic activity which contributed to rapid traffic growth. This was also matched by significant growth in bus and train ridership. Population has also increased in commuter towns leading to increased car ownership and longer commute times and journey to Dublin's central business district. The extensive Quality Bus Corridor network provides nine bus corridors with more in the planning stages; the system has delivered a mode shift to public transport of up to 18 % on certain corridors. Advancements in the Luas light rail system will also provide more alternatives for transit commuters.



Source: DTO

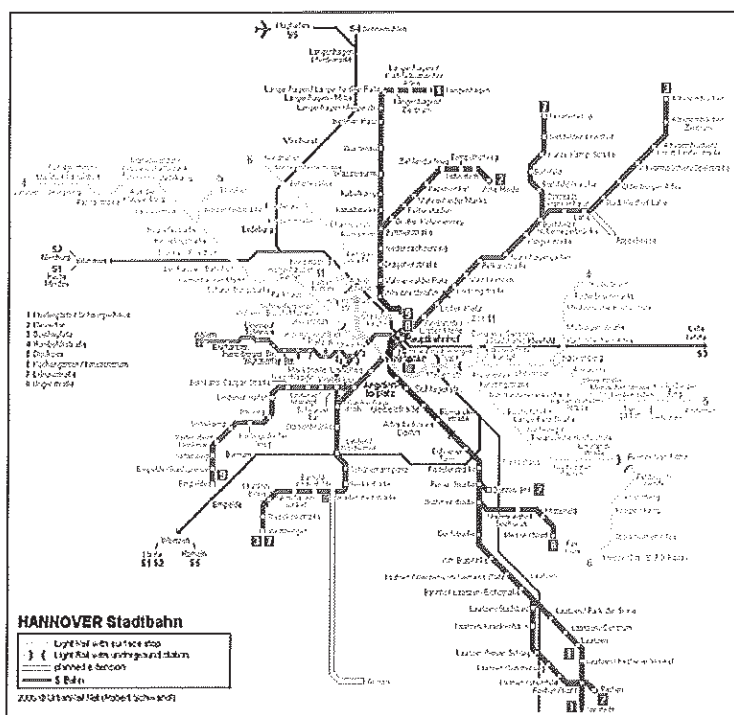
<http://www.cfit.gov.uk/docs/2005/worldcities/worldcities/pdf/comparablemediumcittle.sfinalreport.pdf>

11.3 Hanover, Germany

LIGHT RAIL TRANSPORTATION SYSTEM

The Stadtbahn is a system combining metro/subway and tramway. The track in the city center is underground whereas the rest is on street level. This design gives Hanover a fully functioning transportation system for a metropolitan region, without disrupting surface traffic flow. The network has a length of 121.2 kilometres, 19 of which are underground and 200 stations. Surface stops allow for access to bus lines.

The city's central station, Hanover Hauptbahnhof is a core of the German ICE network for national and international train travel.



CITY DEMOGRAPHICS

The metropolitan region of Hanover Germany encompasses 2,300 square kilometres and has a population of 1.1 million. Hanover has a land area of 204 square kilometres and approximately 516,561 people living in the city. The density is 25.3 residents per hectare.

11.4 Lyon, France

LIGHT RAIL TRANSPORTATION SYSTEM

Lyon has a well-developed public transportation system that includes the TGV (high speed rail) network, 125 bus lines, 4 subway lines, two funiculars, three tramway lines: lines T1 and T2 that opened in 2001, and a third tramway line T3 that opened in April 2006. A fourth line is currently under construction and scheduled to open in 2009.



Lines T1 and T2 total 20 km in length and serve the communities of Lyon, Villeurbanne and Bron. Both lines provide service to the subway system and both have signal priority at intersections.

Line T1 (Montrochet/IUT Feyssine) has a length of 9.4 kilometres and 23 stations. It carries 58,800 passengers per day at 7-minute headways on average. Rush hour headways are 3.5 minutes between IUT Feyssine and Charpenne stations. A planned extension between Montrochet and Musée des Confluences will open in 2009.

Line T2 (Perrache/Saint Priest Bel-Air) offers 14.9 kilometres of track with 29 stations. It carries 57,000 passengers per day, also at 7-minute headways. Rush hour headways are 3.5 minutes between Grange Blanche and Porte-des-Alpes stations.

Line T3 provides service to the outlying suburban areas with a higher speed tram that operates at up to 70 km/h, twice the speed of normal operations, on a former rail line running east of the city of Lyon. It has a length of 14.6 km with 10 stations in total, and free park-and-ride facilities are located at six of the stations (1,200 spaces). Line T3 carries 15,000 passengers per day. Rush hour service frequency is 7.5 minutes and headways outside of rush hour are 16 minutes. A 10-kilometre long bicycle trail was constructed alongside 10 km of the tramway track, which is also lit at night. Free bicycle parking facilities are available at all stations.

There are 17 park-and-ride facilities operated on the TCL (Transports en Commun Lyonnais) network.

Construction began in May 2006 on tramway Line T4 (Jet d'eau Place Mendès France/Cliniques Feyzin) – a 10-km long system with 18 stations. Bus lines will be reorganized so as to avoid redundancy in service coverage.

Lyon is working on adding and improving bicycle paths, including making bicycles available for residents in order to encourage non-automobile trips. In 2005, the Vélo'v bicycle program was launched, making bicycles available to residents at a price of one euro / week. The program has been successful and there will be a total of 4,000 bikes at 340 stations by January 2008. In two years since the program has begun, CO₂ emissions have been reduced by 5,000 tonnes.

A recent survey¹⁵ undertaken of 11,250 households and 26,000 people in the Lyon metropolitan area between November 2005 and May 2006, indicated that 82% of households in the region own cars and 34% have at least two cars. Mode split figures determined from the survey are indicated in the table below:

Transportation Mode	City of Lyon	Rest of Greater Lyon
Average Daily Trips	1,936,000	1,961,000
Automobile	35%	59%
Public Transit	21%	12%
Walking	41%	26%
Bicycle	2%	1%
Motorcycle/Scooter	0%	1%
Other	1%	1%

CITY DEMOGRAPHICS

Lyon is the capital of the Rhône-Alpes region of France and the second most important economic engine in the country after the city of Paris, in terms of both population and economic activity. Founded just over 2,000 years ago, the city's development was largely linked to its strategic location at the confluence of the Rhône and Saône rivers. Growth of the modern city occurred with industrialization in many sectors, particularly textiles, equipment manufacturing, and foundries. The city is currently a center of modern industries in biochemistry, pharmaceuticals, industrial chemicals, packaged foods, textiles, printing, and construction – many of which have located on the periphery of the city where sufficient space is available.

Grand (Greater) Lyon, the metropolitan area, encompasses 487515 square kilometres and had a population of 1.7 million in 2005. The City of Lyon itself has an area of 48.0 square kilometres, and a population of 453,187. The average population density in Greater Lyon is 2,333 persons/km², whereas the average population density in the city proper is 8,680 persons/km².

Population density in the city Lyon ranges from a minimum of 497.4 persons/km² to a maximum of 17,793.4 persons/km² in the 1st arrondissement (district), which is located in the center of the city. Radiating out from the city center, the population densities are as follows:

Total employment in 2005 was 584,384.

RAIL DEVELOPMENT

Lyon is actively pursuing a plan of redevelopment and sustainability through its PLU (Plan Local d'Urbanisme), the official plan for the city that was adopted in 2005. Public transit will play an important role in the future development of the city and is seen as a priority for investment. L'Agence d'urbanisme, the regional planning agency, has partnered with Sytral, the syndicate responsible for public transportation development in Lyon in future planning efforts. The primary goal is to use the transit system as a means to providing access to all residents and segments of the population, and also as a redevelopment tool to raise the standard of living across the city.

Much of the development growth has been occurring in outlying urban areas situated between 20 and 25 km from the city centre. This is attributed to the availability of land and transportation improvements, and also with a consumer desire for single family homes and lower housing prices. Economic activity has also had strong growth in the suburbs, whereas the central city is losing businesses.

¹⁵ Enquête Ménages Déplacements 2006 de l'Aire Métropolitaine Lyonnaise, Principaux Résultats, SYTRAL, Juin 2007.

There are six redevelopment zones within the City, mostly on former industrial lands that are being planned for mixed use development including residential, affordable housing, office/research and industrial, retail, and parks. Transit stations will be integrated in some of these areas.

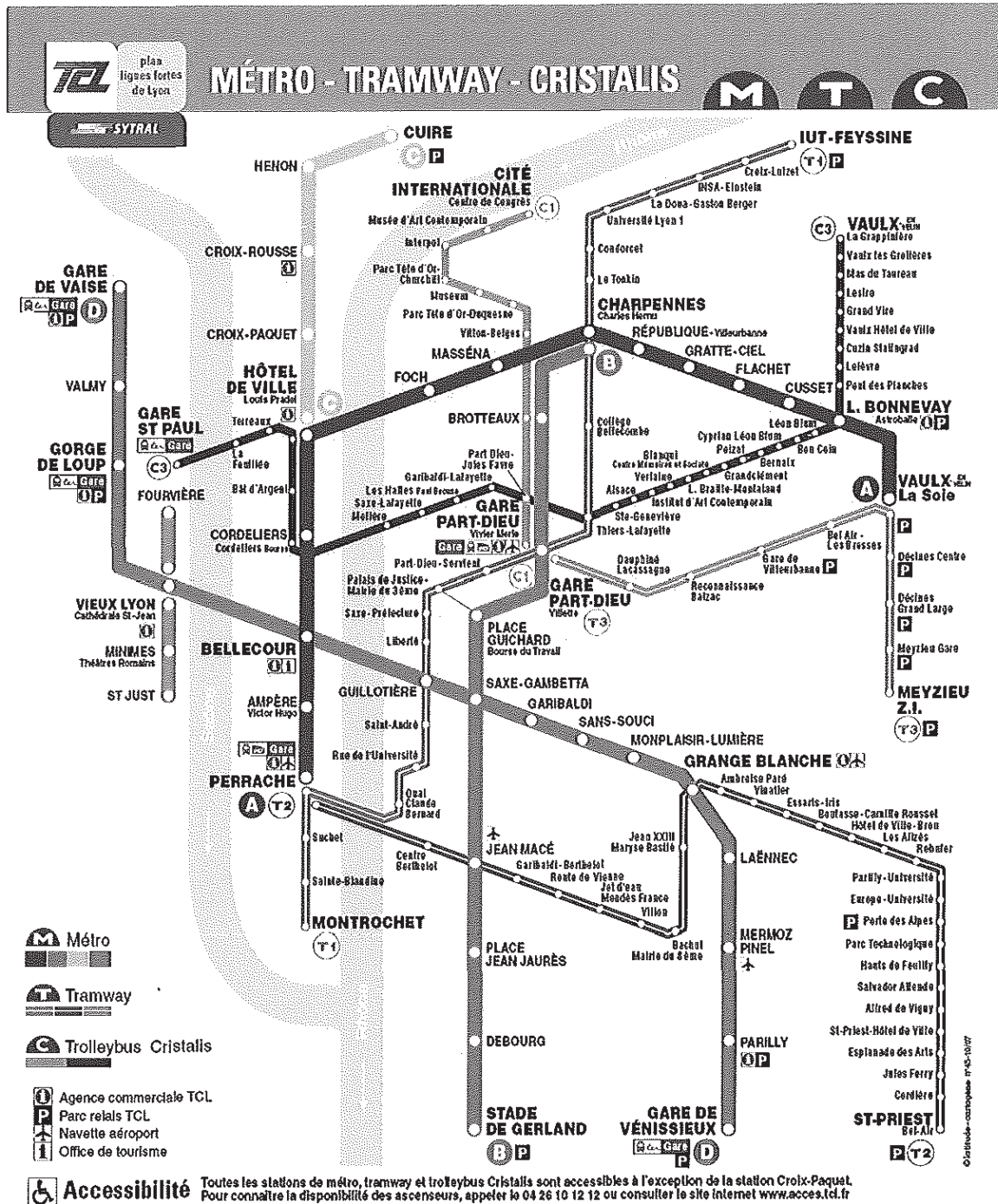
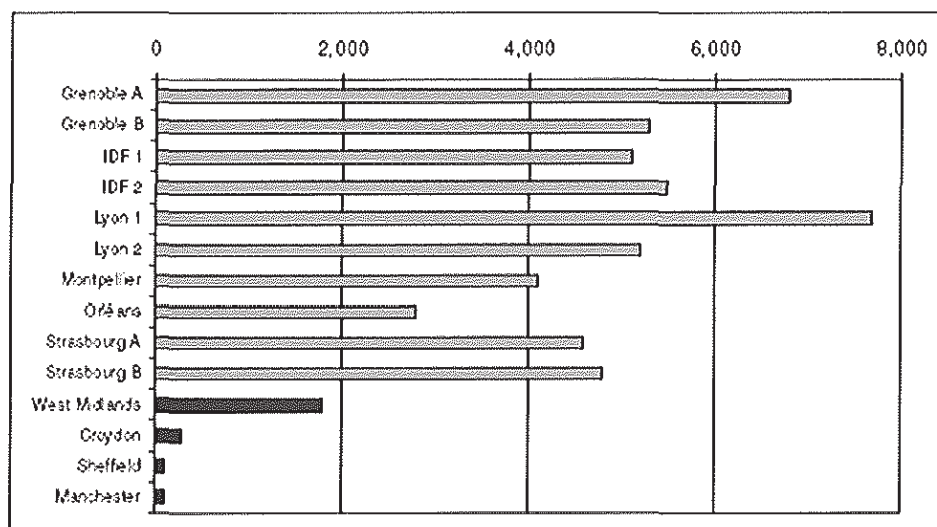


Figure 3-3 Catchment population density (in persons per route kilometre for a 400 m catchment zone around each stop)



Source: COMPARATIVE PERFORMANCE DATA FROM FRENCH TRAMWAYS SYSTEMS¹⁶

Table 3-2 Statistical Sample of Data

Criteria	France				UK			
	N	Mean*	Low	High	N	Mean*	Low	High
Stop spacing (m)	14	524	465	582	6	903	720	1086
Cost per km (€ or £ million)	14	19.9	17.1	22.7	6	7.8	6.1	9.5
Trains per km	14	2.3	1.8	2.9	6	0.9	0.8	1.0
Catchment pop ⁿ ('000s for 400 m)	10	59.5	52.4	66.6	4	13.2	0.4	26.2
Catchment density ('000s per km)	10	5.2	4.5	5.9	4	0.6	-0.1	1.3
Commercial speed (km/h)	14	20.2	18.6	21.8	4	30.4	26.6	34.3
Weekday ridership ('000s)	14	62.0	53.6	70.3	6	51.2	23.9	78.4
Weekday ridership per km ('000s)	14	5.3	4.6	6.1	6	1.4	1.1	1.8
Cost-to-ridership	14	2.9	2.3	3.6	6	5.9	4.4	7.5

* The 'mean' has been calculated for a 90% confidence interval. The 'low' and 'high' are derived from this confidence interval.

¹⁶ Comparative Performance Data from French Tramways Systems Final Report Report for South Yorkshire Passenger Transport Executive, SEMALY and FABER/MAUNSELL, December 2003.

12. AUSTRALIA

12.1 Sydney, Australia

LIGHT RAIL TRANSPORTATION SYSTEM

Sydney, the largest city in Australia, once had the largest tram system in Australia, the second largest in the Commonwealth (after London), and one of the largest in the world. It had about 1,600 cars in service at any one time at its peak during the 1930s. Throughout the first half of the twentieth century, an average of more than one tram journey per day was made by every man and woman, infant and child in the city. Patronage peaked in 1945 at 405 million passenger journeys. The system was in place from 1861 until its winding down in the 1950s and closure in 1961. It had a maximum street mileage of 291 km in 1923.

In September 1997, a new light rail service, from Central Station to Ultimo and Darling Harbour, commenced operations. It operates using low floor articulated trams based on the ASEA-Brown Boveri Variotram design. The transit system also includes commuter trains, a monorail, and a BRT system. The light rail system is defined in two zones: zone one stations and zone two stations. There are a total of 14 light rail stations over 7.2 kilometres of track. The Sydney Monorail station is a loop of 3.6 kilometres around Darling Harbour and has eight stations.



CITY DEMOGRAPHICS

Sydney is located on Australia's east coast and capital to the New South Wales State. The city's metropolitan region encompasses 12,428 square kilometres with a population of 4.1 million residents. The urban centre has an area of 1687 square kilometres and a population of 3.5 million.

RAIL DEVELOPMENT

Currently, Transit Oriented Developments can be found in the Chadstone, Bondi Junction, Parramatta, and Edgecliff suburbs of Sydney. Redevelopment has been marginally popular in the City's Central Business District, North Sydney and Parramatta.

TRANSPORT MODE SHARE AND DENSITY

The following figures demonstrate the significant travel task that Sydney's combined road network and public transport system deals with on a daily basis:

- 14,978,000 trips made on the average weekday
- 142,100,000 kilometres travelled on the average weekday

The breakdown of trips each day was:

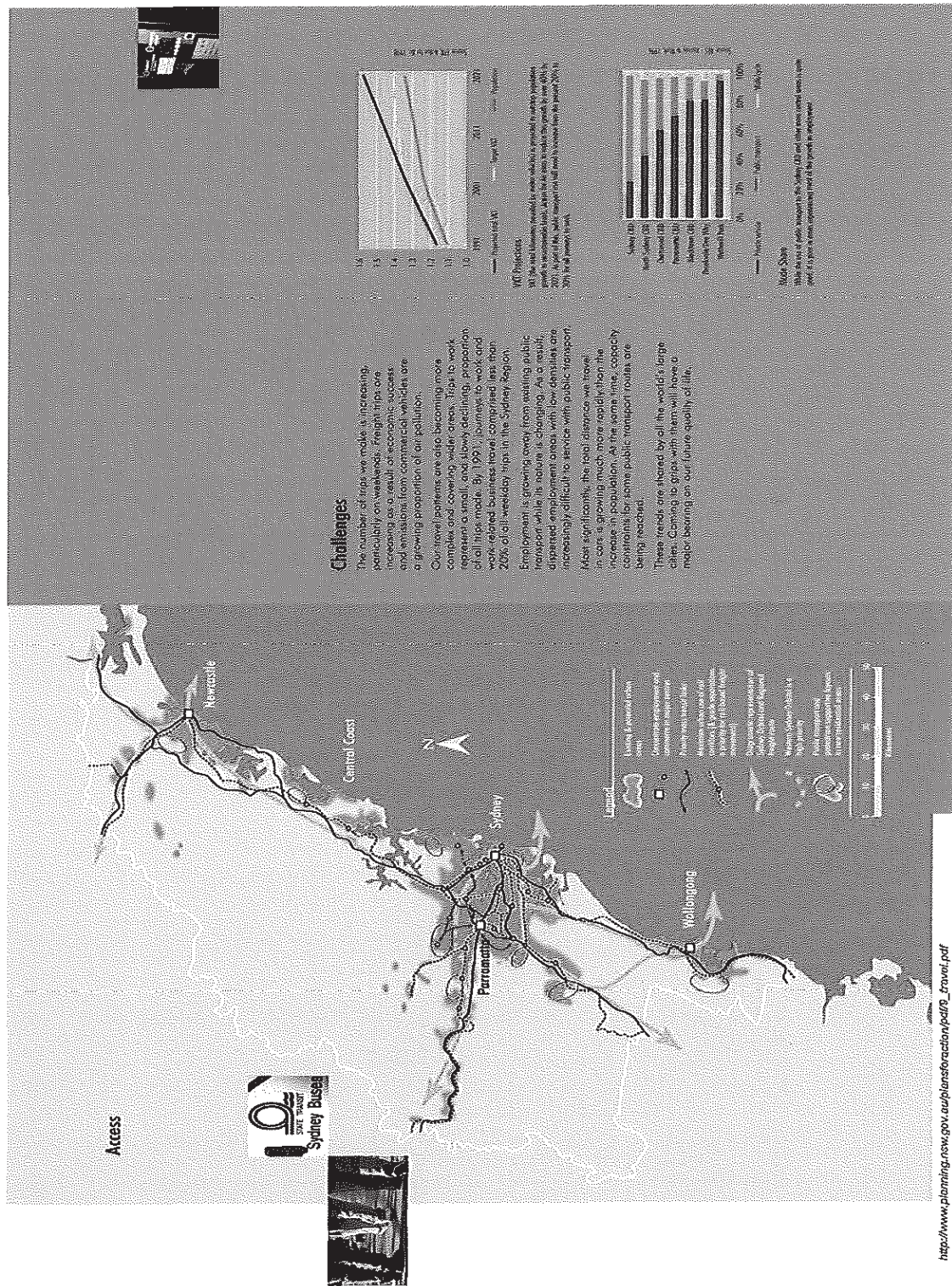
- 10,921,000 private vehicle trips (69.7%)
- 921,000 STA and private bus trips (5.9%)
- 784,000 train trips (5%)
- 119,000 taxi trips (0.8%)
- 34,000 ferry trips (0.2%)

<http://www.transport.nsw.gov.au/inquiries/parry-MoT-submission.pdf>

Transport mode Shares – International Comparisons

Cities	Motorised Private Transport	Public Transport Share	Non-Motorised Transport	Cars per 1000	% Jobs in CBD	Urban Density (persons/ha)
US	88.5	3.4	8.1	587	9.2	14.9
Canada	80.5	9.1	10.4	530	15.7	26.2
Aus/NZ average	79.1	5.1	15.8	575	15.1	15.0
Sydney	69.7	11.1	17.4	662	15.0	3.3
Middle East	55.9	17.6	26.6	134	13.5	118.8
Western Europe	49.7	19.0	31.3	414	18.7	54.9
High Income Asia	41.6	29.9	28.5	210	19.1	150.3
Africa	35.9	31.8	41.4	135	15.4	59.9
Latin America	35.4	33.9	30.7	202	29.4	74.7
Low-Income Asia	32.3	26.3	32.4	105	17.4	204.1
Eastern Europe	26.8	47.0	26.2	332	20.3	52.9
China	15.9	19.0	65.0	26	50.8	146.2

1. Non-Sydney data are 1995 figures from Kenworthy & Laube (Murdoch University).
2. Sydney data is 2000 from Transport Data Centre. However, the geographical boundary of the statistical divisions included may be broader than those used for other cities. As such, it would be reasonable to assume that the urban density of Sydney's established areas would be closer to the Aus/NZ average. See Attachment A for list of cities.



12.2 Melbourne, Australia

LIGHT RAIL TRANSPORTATION SYSTEM

Melbourne has an extensive "tram" service, with 238 route kilometres of double track and around 500 trams, which carry around 400,000 people per day. The trams range from historic W-class trams, introduced in the 1930s, '40s and '50s, to modern B-class articulated vehicles.¹⁷ The much-loved trams have become an icon of the city.

The transportation system for Melbourne was originally developed to connect the city to its surrounding suburbs during the 19th century. The system is one of the world's most complex tram systems. These trams are not only a functional mode of transportation, but also an icon of the city.

Tram journeys accounted for only 9% of commuter trips in 2001, compared to 51% for private vehicles and 37% for rail. Increased fuel prices have increased ridership within the past two years.

CITY DEMOGRAPHICS

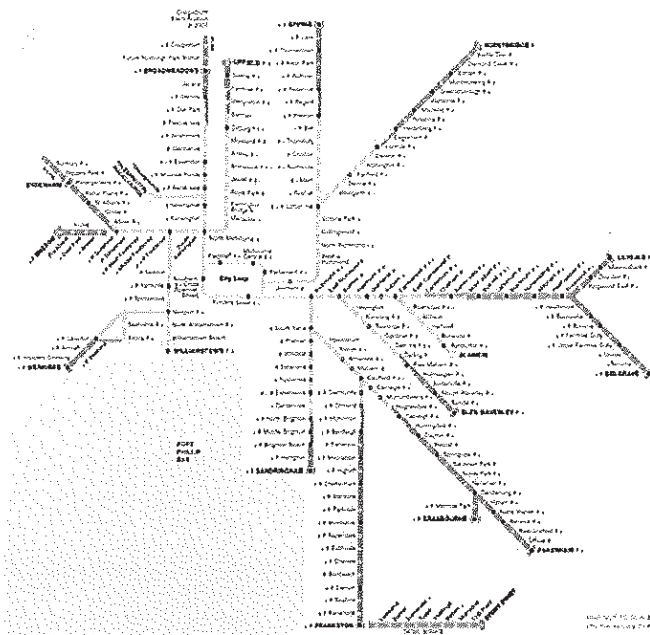
The metropolitan region of Melbourne encompasses 8,097 kilometres and has a population of 3.5 million. The urban centre has an area of 2080 square kilometres and a population of 3.2 million. Melbourne has a median household income equivalent to \$46,800 US.

RAIL DEVELOPMENT

The policy for Melbourne is based on its Melbourne 2030 Strategy. It requires 13 "transit cities" on its commuter rail network. Melbourne however has a much less TOD-oriented past than Sydney and many of its centers, especially large retail, are located off its rail network. The residents of Melbourne are strongly opposed to increasing the heavy rail system, claiming it has slow travel speeds. There have been positive case studies for expansions of its highly popular light rail system.

STATIONS

The map shows the highly detail light rail system in Melbourne, Australia. The yellow identifies the city center and the main "Central Station" called Flinders Square. The Blue represents the extension of the system into Melbourne's suburban area.

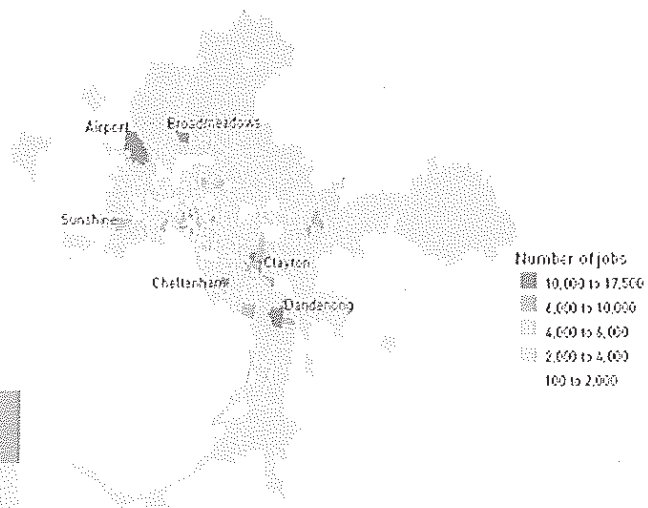


¹⁷ "Introduction to Melbourne's Trams" <http://www.railpage.org.au/tram/melbintr.html>

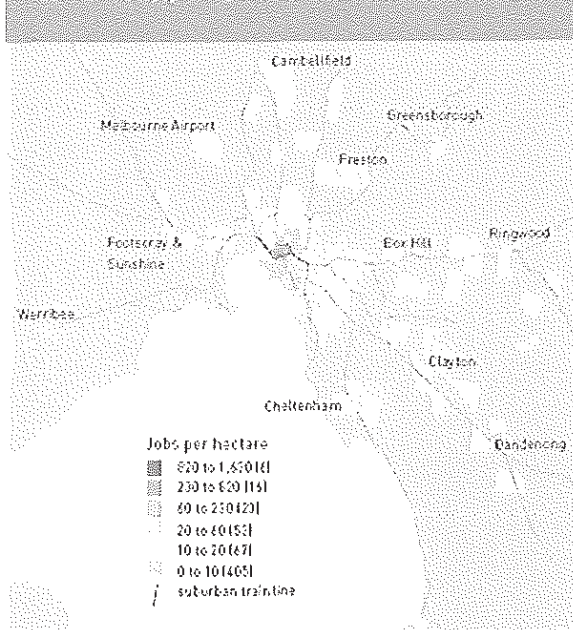
Places of work

Job numbers vary significantly across the 570 job destination zones designated in this analysis of 2001 journeys to work in Melbourne. Job destinations in the central business district (CBD), Carlton, Melbourne Airport, Sunshine, Broadmeadows, Clayton, Cheltenham and Dandenong all had 10,000 or more jobs.

1 Number of jobs in Melbourne's job destination zones, 2001



2 Job density per hectare, 2001



Job density per hectare

Using Melbourne's 570 job destination zones, the density of jobs per hectare can be determined. The most intensive job clusters in 2001 were in central Melbourne, followed by East Melbourne and St Kilda Road. Suburban job clusters were mostly centred on rail lines, such as in Box Hill, Preston and Dandenong. More recent employment nodes such as Monash University at Clayton and Melbourne Airport are on the main road network.

Of the 570 job destination areas making up Melbourne, 165 have 10 or more jobs per hectare (shown as the various brown areas in Map 2).

MELBOURNE'S CENTRAL BUSINESS DISTRICT

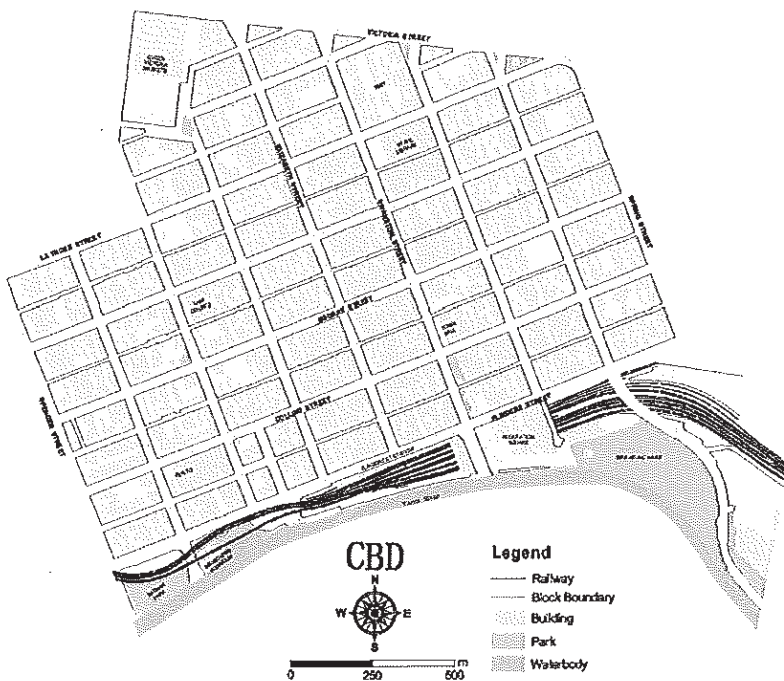


Image of a laneway in the City

Central Business District	
Area	2.744 km ²
Estimated resident population 2006 (2001) ₄	11,598 persons (7,700)
Residents aged under 15 years of age (2001) ₂	6 per cent
Residents aged over 60 years of age (2001) ₂	8 per cent
Residents born overseas (2001) ₂	62 per cent
Most common Language spoken at home, other than English (2001) ₂	Indonesian
Total dwellings 2006 (2001) ₄	9,252 dwellings (5,335)
Total built area 2004 (2002) ₃	9,499,975m ² (8,982,835m ²)
Total employment (workers) 2004 (2002) ₃	179,048 persons (175,919)
Number of business locations 2004 (2002) ₃	7,251 (6,987)
Largest industry by floor area 2004 (2002) ₃	Transport and storage 956,650m ² (205,161 ²)
Largest industry by number of employees 2004 (2002) ₃	Property and business services 44,494 (45,705)
Most common occupation of workers (2001) ₃	Professional (31 per cent)
Largest building by floor area ₃	101 Collins Street: 141,420m ²
Tallest building	Rialto, 505-535 Collins Street 66 Levels / 251m
Oldest building	Mitre Tavern, 5-9 Bank Place: 1837

Note: Melbourne City Research is progressively updating this profile with Australian Bureau of Statistics Census 2006 data and CLUE 2006 data. <http://www.melbourne.vic.gov.au/info.cfm?top=66&pa=779&pg=900>

12.3 Adelaide, Australia

LIGHT RAIL TRANSPORTATION SYSTEM

The Metro consists of a busway, metropolitan railways and the Adelaide Glenelg Tram. The city is located in the central portion of Australia. The Glenelg Tram is part of the Adelaide Metro public transit network. Adelaide Metro ridership is 63.9 million annually and the entire system carries 120,000 passengers daily. In all, six train lines and 1 tram route serve the city.

The Adelaide Glenelg tramline service currently operates from Jetty road on historic Glenelg beachfront, to Victoria Square at the Southern edge of the Adelaide CBD. This existing tramline is 10.8 kilometres in length and is offers passenger and commuter services from the southwest suburbs to the city.

Plans for the extension include 1.62 kilometres of new track to realign the Victoria Square track to the western edge of the square before proceeding north up the centre of King William Street and going west into North Terrace to its termination point opposite the University SA City West Campus. Five tram stops are included in the extension.



CITY DEMOGRAPHICS

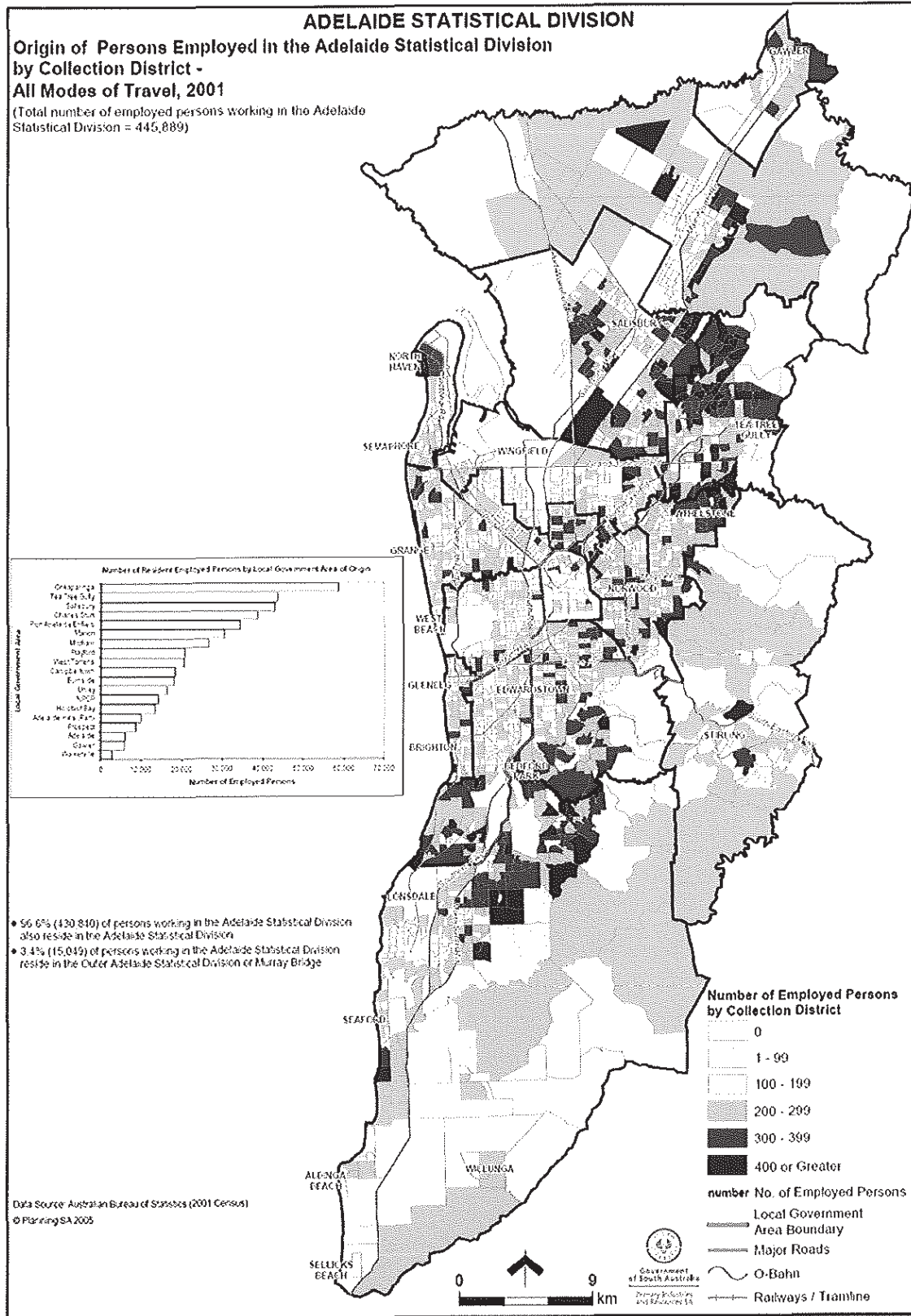
The metropolitan region is the smallest in the study sample with a land mass of only 1,827 square kilometres; the metropolitan region has 1.05 million residents. Adelaide's urban centre has an area of 729 square kilometres and 1 million residents giving it a density of 13.7 persons per hectare. Adelaide has a median household income equivalent to \$40,092 US.

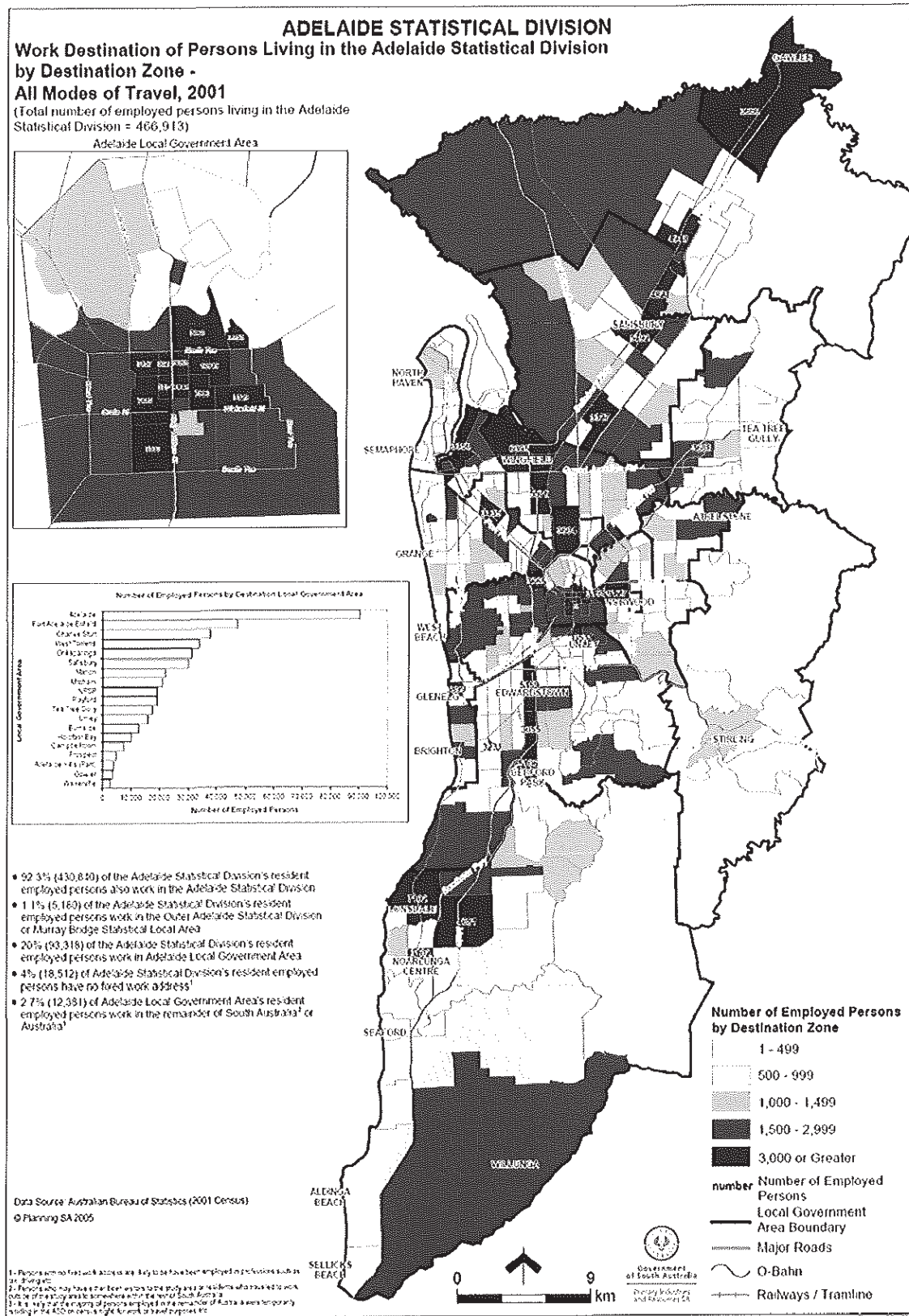
RAIL DEVELOPMENT

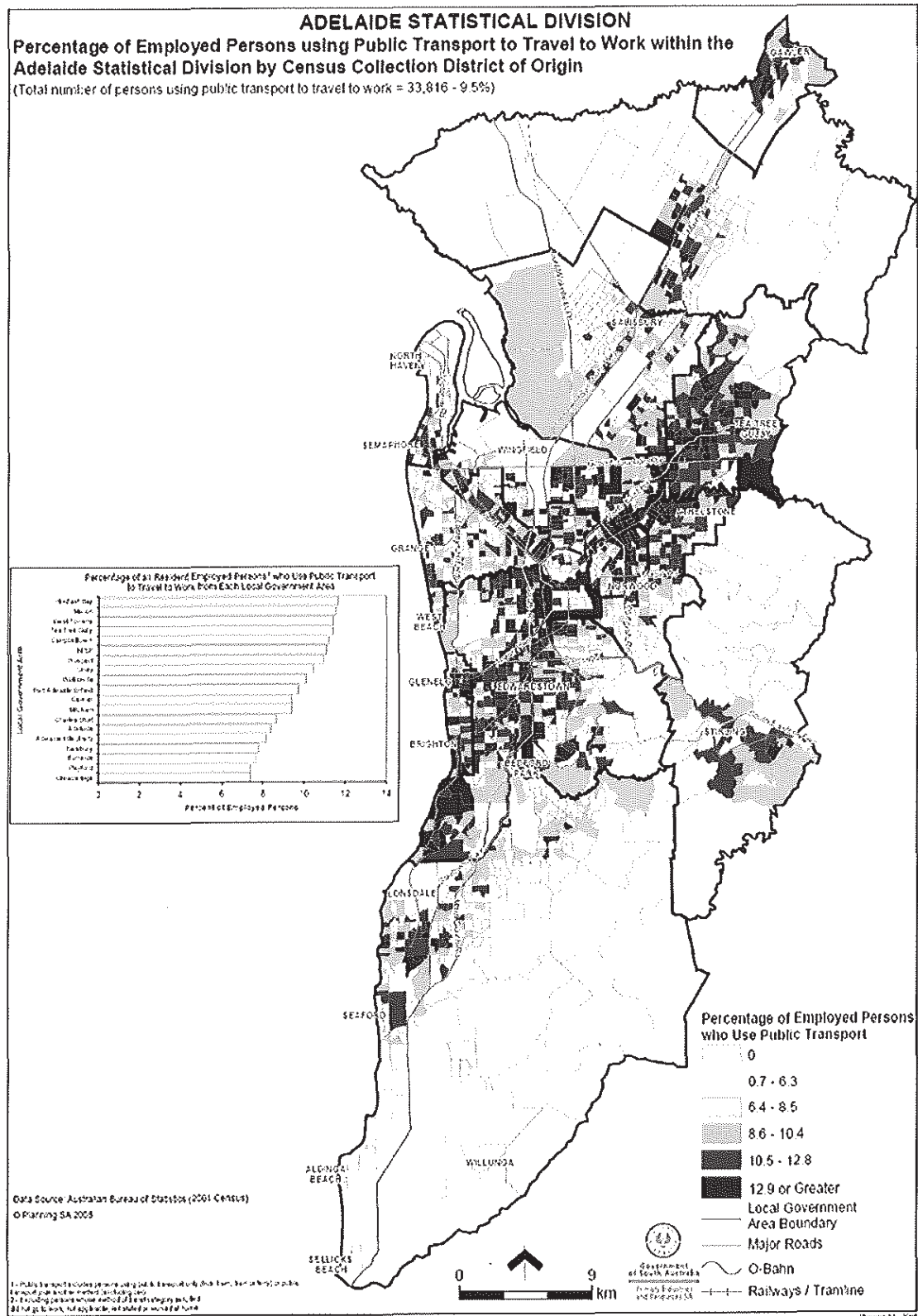
Land Management Corporation, in partnership with other State Government agencies, is identifying opportunities to create Transit Oriented Development to improve the accessibility and attractiveness of public transport ultimately to improve services and increase ridership by 2018. Transit Oriented Development may include a mix of residential, retail, commercial and civic uses around key public transport interchanges such as train, O-Bahn Stations and bus/train interchanges.

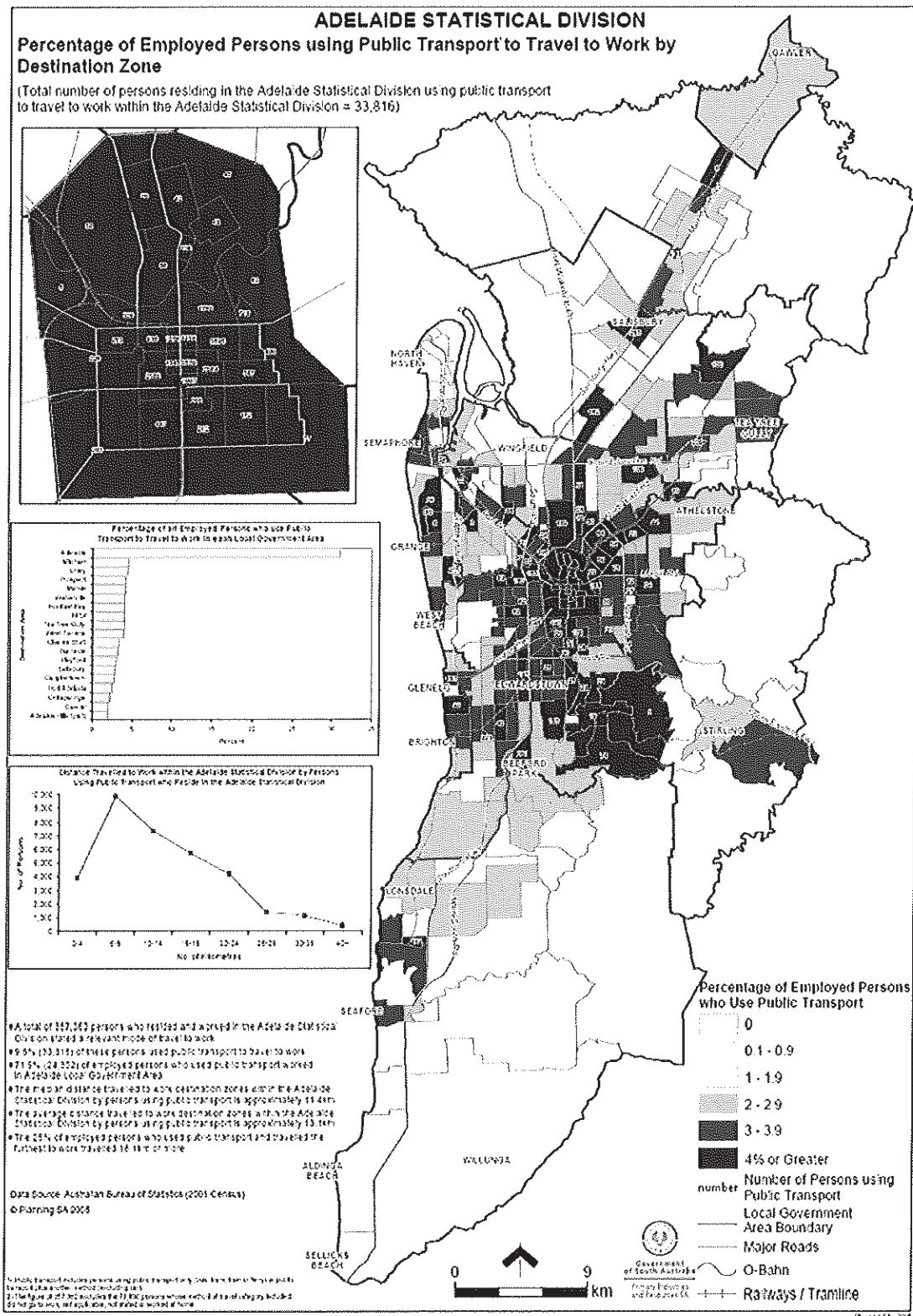
Adelaide's most recent strategic plan was released in April 2005. The plan mitigates growth of suburbs and combats car dependence through focusing on mixed use and high density around public transport.

Adelaide's public transport is ready for re-visioning. Its current rail system is not as efficient as it could be and it is too old to draw in any development to create a TOD. However, there is a new Light Rail replacing the Glenelg tram and being extended to City Station, could be the basis for a new rail vision.









12.4 Perth, Australia

LIGHT RAIL TRANSPORTATION SYSTEM

Transperth, the city's transportation authority, provides the local transport system with railways, buses and a ferry system. There is a "Transit Free" zone within the Central Business District that has considerably reduced inner city traffic. The length of Transperth's rail system is 101 kilometres and it has 9 stations.

CITY DEMOGRAPHICS

Perth is the only major city located on the west coast of Australia and is the capital city of Western Australia. The metropolitan region of Perth encompasses 5,423 square kilometres and has a population of 1.4 million residents. The city has an area of 964 square kilometres, and a population of 1.2 million. Perth has an average household income equivalent to \$47,112 US.

RAIL DEVELOPMENT

Adjacent to Cockburn Central Station, the first station to be completed on the new Southern Suburbs railway, there are six super lots for sale. These lots are located within the heart of Cockburn's Central development. The area is taking shape as a dynamic town center for Perth's south-western suburbs. The center would become a planning model for future public transport-oriented development, offering an urban lifestyle to its residents. The station is set in a suburban context, but is just a 16 minute journey from Perth by train.

Cockburn Central will serve an estimated population of 200,000 in the surrounding suburbs and will provide shopping, entertainment and other services to boost its surrounding economy.

STATIONS

There are plans for development to take place above the William Street railway station. Heritage buildings will be woven into the already existing commercial and retail precinct creating a mix of old and new structures. The Planning and Infrastructure Minister said, "This city station will bring 27,000 people per day into the precinct, ensuring it will be a vibrant commercial and transport hub with heritage links."

Three significant heritage buildings, the Wellington Building, the original Globe Hotel and Baird's Building in Wellington Street will be incorporated into the redevelopment of the site. The redevelopment will help improve the public transport infrastructure creating more than 6,000 jobs and adding approximately \$1 billion into the state economy.

Character of the existing area will be maintained and streetscapes will be improved.

William Street Railway Station and Redevelopment

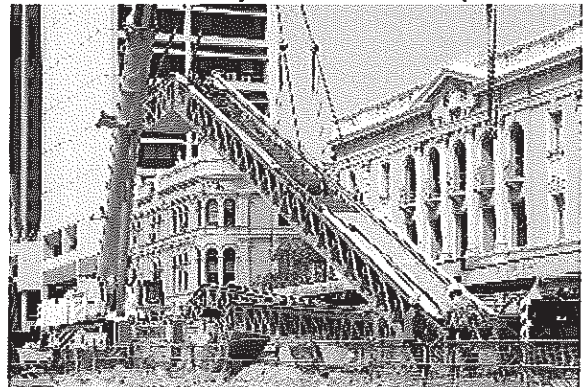
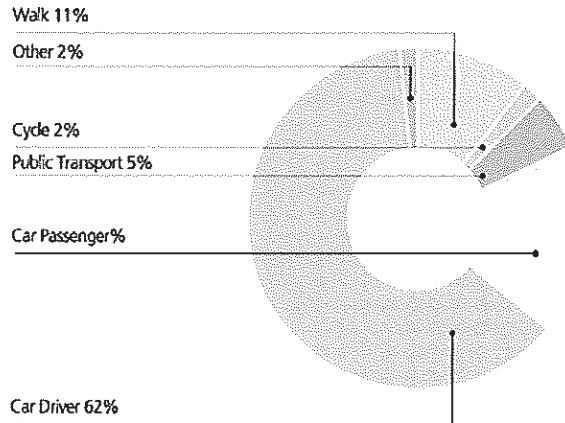
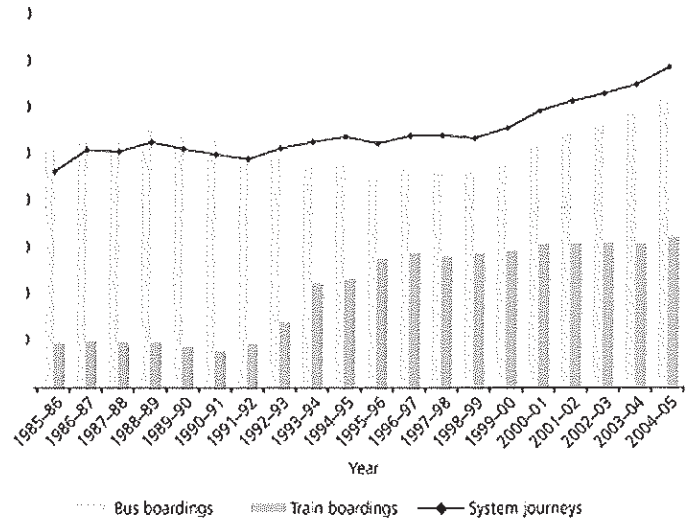


Image courtesy of MetroRail

DENSITY AND MODE SHARE OF PERTH



Mode Share in the Perth Metropolitan region 2003
<http://www.soe.wa.gov.au/report/human-settlements/transport.html>



Most of Perth's metropolitan region consists of development with a 1950s mentality of sprawl and segregated land uses creating low density and high dependence on the private motor vehicle. According the Australian Bureau of Statistics, in March 2006 there were 784 vehicles registered in Western Australia per 1000 population; of the 1.2 million passenger vehicles registered, 77 percent were registered in Perth.

Public transport ridership has increase over the past 20 years, due to the growing size of population and Perth's metropolitan area. However, the mode shares of public transport, walking and cycling, have decreased over this time period, while car mode share has increased (Data Analysis Australia, unpublished). The metropolitan area continues to expand rapidly with poor investment in land planning and connectivity between new suburbs and the city center. Without modes of rail public transport from the new suburbs to Perth's central business district, residents have the private motor vehicle as their only option to getting to the city.

APPENDIX A DATA TABLES

TABLE A-1 Employment and Transit Mode Share in Central Business Districts – North America

City	Employment	Land Area (Square KM)	Density	Transit Commuters	Mode Share	emp/ha
Vancouver	135,000	4.69	28,798	44,550	33.0%	111
Toronto	350,000	7.77	45,045	227,500	65.0%	174
New York	1,736,900	20.25	222,100	1,283,400	73.9%	331
Boston	257,000	3.19	208,900	133,600	52.0%	311
Washington	382,400	5.96	166,300	145,700	38.1%	248
Chicago	541,500	8.70	161,200	299,600	55.3%	240
Minneapolis-St. Paul	105,400	1.86	146,400	31,700	30.0%	218
Pittsburgh	95,600	1.71	144,800	31,300	32.8%	216
San Francisco-San Jose	305,600	6.06	130,600	151,400	49.5%	195
Philadelphia	220,100	4.43	128,700	102,000	46.4%	192
Dallas-Fort Worth	79,900	1.74	119,300	11,400	14.3%	178
Los Angeles	143,700	3.24	115,000	28,100	19.6%	171
Seattle	155,100	3.83	104,800	54,100	34.9%	156
Cincinnati	73,900	1.84	104,100	12,300	16.6%	155
Houston	153,400	3.96	100,300	25,700	16.8%	149
Baltimore	98,500	2.82	90,400	19,500	19.8%	135
Denver	126,000	3.96	82,400	26,800	21.3%	123
New Orleans	81,400	2.75	76,800	10,200	12.6%	114
Portland	79,600	2.69	76,500	23,700	29.8%	114
Buffalo	29,000	0.98	76,300	3,600	12.3%	114
Charlotte	52,800	1.89	72,300	2,300	4.3%	108
Honolulu	50,600	1.94	67,500	8,100	15.9%	101
Cleveland	100,300	3.99	65,100	19,100	19.0%	97
Atlanta	129,800	5.62	59,800	18,600	14.4%	89
Nashville	46,900	2.10	57,900	1,600	3.3%	86
Detroit	78,600	3.65	55,700	6,700	8.5%	83
Austin	86,000	4.12	54,100	3,300	3.8%	81
Phoenix	26,800	1.29	53,600	2,300	8.7%	80
Las Vegas	30,800	1.50	53,100	2,200	7.1%	79
Sacramento	64,800	3.26	51,400	8,000	12.3%	77
Rochester	33,900	1.76	49,900	2,200	6.5%	74
San Diego	61,800	3.21	49,800	7,300	11.8%	74
Oklahoma City	16,400	0.85	49,700	100	0.9%	74
Tampa-St. Petersburg	36,000	1.94	48,000	1,300	3.6%	72
Kansas City	46,700	2.54	47,700	2,700	5.9%	71
Providence	24,300	1.32	47,600	2,700	11.1%	71
Louisville	51,700	2.93	45,800	3,700	7.1%	68
Hartford	62,200	3.65	44,100	5,900	9.5%	66
Virginia Beach	26,100	1.58	42,800	1,000	3.7%	64
St. Louis	72,800	4.48	42,100	8,000	11.0%	63
San Antonio	55,100	3.55	40,200	4,000	7.3%	60
Salt Lake City	42,900	2.77	40,100	5,100	11.8%	60
Richmond	60,900	3.99	39,500	3,600	5.9%	59

City	Employment	Land Area (Square KM)	Density	Transit Commuters	Mode Share	emp/ha
Indianapolis	57,900	3.81	39,400	1,900	3.3%	59
Milwaukee	64,100	4.30	38,600	7,400	11.6%	58
Columbus	88,800	6.40	36,000	7,000	7.8%	54
Miami	98,000	7.54	33,700	9,000	9.2%	50
Orlando	42,500	3.37	32,700	1,300	3.1%	49
Tucson	9,700	0.78	32,300	500	5.0%	48
Jacksonville	51,300	4.35	30,500	1,400	2.7%	46
Memphis	18,200	1.58	29,800	800	4.6%	44
Dayton	26,200	3.00	22,600	1,500	5.8%	34

Table A-2 Summary Statistics for Sample Cities

City	Metro Density Persons/ha	City Density Persons/ha	CBD Area square km	Employment CBD	CBD Density Employees/ ha	CBD Commuters	CBD Transit Share	Car Ownership %	Median Household Income US\$*
North America									
Vancouver, BC	7.4	50.4	4.7	135,000	287.8	44,550	33.0%		
Cleveland, Ohio	1.3	20.8	4.0	100,300	251.4	19,100	19.0%	76.9%	\$26,535
Dallas, Texas	2.4	12.4	1.7	79,900	460.5	11,400	14.3%	78.1%	\$38,276
Denver, Colorado	1.1	14.1	4.0	126,000	318.2	26,800	21.3%	79.2%	\$40,900
Los Angeles, California	1.4	29.8	3.2	143,700	444.9	28,100	19.6%	81.9%	\$44,445
Minneapolis, Minnesota	1.9	24.6	1.9	105,400	565.1	31,700	30.0%	74.4%	\$43,369
Portland, Oregon	1.2	14.3	2.7	79,600	295.9	23,700	29.8%	79.2%	\$44,273
San Diego, California	2.5	13.0	3.2	61,800	192.5	7,300	11.8%	85.3%	\$58,815
Toronto, Ontario	9.4	39.7	7.8	350,000	448.7	227,500	65.0%	60.5%	\$33,639
Europe									
Birmingham, England		36.5		367,141				61.5%	
Dublin, Ireland	2.4	12.9		567,300					
Hanover, Germany	4.9	25.3							
Lyon, France	5.1	86.1		584,384			21.0%	82.0%	
Australia									
Adelaide, South Australia	13.2	13.7						90.0%	\$40,092
Melbourne, Victoria	4.5	15.2							\$46,800
Perth, Western Australia	2.6	12.2							\$47,112
Sydney, New South Wales	26.1	20.8							\$50,046
CDN Income figures converted at average value for 2000 of CDN\$.67/US\$1									

Table A-3 Urban Area Market Share Growth

Urban Area	1983 Public Transport Market Share	2003 Public Transport Market Share	Change
Minneapolis- St. Paul	1.2%	0.9%	-29.4%
Los Angeles- Long Beach-Santa Ana	1.9%	1.6%	-17.0%
Cleveland	3.0%	1.1%	-62.8%
Denver-Aurora	1.5%	1.3%	-12.2%

	1980 Public Transit Market Share	Later Year Public Transit Market Share	Change
Toronto	25.7%	15.2% (1990)	-40.8%
Adelaide	5.8%	4.9% (1990)	-15.5%
Melbourne	7.1%	7.6% (1995)	6.5%
Perth	4.9%	4.5% (1995)	-9.6%
Sydney	13.7%	12.3% (1995)	-10.5%
Vancouver	6.9%	7.5% (1995)	9.6%

Sources: Millennium Cities Data Base (UITP), Newman/Kenworthy, FTA, ATPA, Texas Transportation Institute.

No Investment	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Transit Modal Share	10.8%	10.6%	10.4%	10.3%	10.4%	9.7%	9.7%	10.6%	9.4%	8.2%	8.0%	8.9%	8.7%	8.6%	8.3%	8.1%	8.0%	7.8%	7.6%	7.4%	7.3%	7.1%	6.8%	6.7%
Auto Modal Share	73.3%	73.7%	74.1%	74.3%	74.3%	74.3%	74.3%	73.7%	73.7%	73.7%	73.7%	73.7%	73.7%	73.7%	73.7%	73.7%	73.7%	73.7%	73.7%	73.7%	73.7%	73.7%	73.7%	73.7%
Daily Person Trips (millions)	7.0	7.2	7.4	7.7	7.9	8.2	8.4	8.7	8.9	9.2	9.5	9.8	10.1	10.4	10.6	10.7	10.8	11.0	11.2	11.3	11.5	11.8	12.0	12.0
Avg Trip Length (mi)	12	12.05	12.08	12.14	12.18	12.23	12.28	12.32	12.37	12.42	12.46	12.51	12.55	12.60	12.65	12.69	12.74	12.78	12.83	12.88	12.92	12.95	13.02	13.08
Auto Annual VKMT (millions)	17,367	17,970	18,594	19,239	19,907	20,597	21,311	22,049	22,813	23,603	24,420	25,264	26,138	27,041	27,981	28,958	29,973	30,999	32,000	33,000	34,000	35,000	36,000	37,000
Annual Transit Trips (millions)	170.0	175.2	180.8	186.2	191.8	197.8	203.9	210.2	216.6	223.3	230.2	237.3	244.6	252.1	259.4	267.1	275.1	283.4	291.9	300.6	309.4	318.4	327.5	336.6
Annual GHG Emissions (Mega Tonnes CO2E)	5.23	5.41	5.60	5.79	5.99	6.20	6.41	6.64	6.87	7.10	7.35	7.60	7.87	8.14	8.43	8.69	8.94	9.20	9.46	9.72	9.98	10.24	10.50	10.76
Annual Car Trips Taken off Road (millions) No Inv.	-	4	7	11	16	23	30	38	47	57	68	80	93	107	121	136	151	166	181	197	212	228	244	260

Maintain Market Share	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Transit Modal Share	10.8%	10.6%	10.4%	10.3%	10.4%	10.6%	10.6%	10.6%	10.6%	10.6%	10.6%	10.6%	10.6%	10.6%	10.6%	10.6%	10.6%	10.6%	10.6%	10.6%	10.6%	10.6%	10.6%	10.6%
Auto Modal Share	73.3%	73.7%	73.7%	73.7%	73.7%	73.7%	73.7%	73.7%	73.7%	73.7%	73.7%	73.7%	73.7%	73.7%	73.7%	73.7%	73.7%	73.7%	73.7%	73.7%	73.7%	73.7%	73.7%	73.7%
Daily Person Trips (millions)	7.0	7.2	7.4	7.7	7.9	8.2	8.4	8.7	8.9	9.2	9.5	9.8	10.1	10.4	10.6	10.7	10.8	11.0	11.2	11.3	11.5	11.8	12.0	12.0
Avg Trip Length (mi)	12	12.05	12.08	12.14	12.18	12.23	12.28	12.32	12.37	12.42	12.46	12.51	12.55	12.60	12.65	12.69	12.74	12.78	12.83	12.88	12.92	12.95	13.02	13.08
Auto Annual VKMT (millions)	17,367	17,970	18,594	19,239	19,907	20,597	21,311	22,049	22,813	23,603	24,420	25,264	26,138	27,041	27,981	28,958	29,973	30,999	32,000	33,000	34,000	35,000	36,000	37,000
Annual Transit Trips (millions)	170.0	175.2	180.8	186.2	191.8	197.8	203.9	210.2	216.6	223.3	230.2	237.3	244.6	252.1	259.4	267.1	275.1	283.4	291.9	300.6	309.4	318.4	327.5	336.6
Annual GHG Emissions (Mega Tonnes CO2E)	5.23	5.41	5.60	5.79	5.99	6.20	6.41	6.64	6.87	7.10	7.35	7.60	7.87	8.14	8.43	8.69	8.94	9.20	9.46	9.72	9.98	10.24	10.50	10.76
Annual Car Trips Taken off Road (millions) No Inv.	-	4	7	11	16	23	30	38	47	57	68	80	93	107	121	136	151	166	181	197	212	228	244	260

Preferred Investment	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Transit Modal Share	10.8%	11.2%	11.4%	11.6%	11.8%	12.0%	12.2%	12.4%	12.6%	12.8%	13.0%	13.2%	13.4%	13.6%	13.8%	14.0%	14.2%	14.4%	14.6%	14.8%	15.0%	15.2%	15.4%	15.6%
Auto Modal Share	73.3%	73.7%	73.7%	73.7%	73.7%	73.7%	73.7%	73.7%	73.7%	73.7%	73.7%	73.7%	73.7%	73.7%	73.7%	73.7%	73.7%	73.7%	73.7%	73.7%	73.7%	73.7%	73.7%	73.7%
Daily Person Trips (millions)	7.0	7.2	7.4	7.7	7.9	8.2	8.4	8.7	8.9	9.2	9.5	9.8	10.1	10.4	10.6	10.7	10.8	11.0	11.2	11.3	11.5	11.8	12.0	12.0
Avg Trip Length (mi)	12	12.05	12.08	12.14	12.18	12.23	12.28	12.32	12.37	12.42	12.46	12.51	12.55	12.60	12.65	12.69	12.74	12.78	12.83	12.88	12.92	12.95	13.02	13.08
Auto Annual VKMT (millions)	17,367	17,970	18,594	19,239	19,907	20,597	21,311	22,049	22,813	23,603	24,420	25,264	26,138	27,041	27,981	28,958	29,973	30,999	32,000	33,000	34,000	35,000	36,000	37,000
Annual Transit Trips (millions)	170.0	181.7	194.0	206.9	220.3	234.5	249.2	264.7	280.8	297.8	315.4	333.9	353.3	373.5	394.3	415.8	438.0	460.9	484.6	509.0	534.0	559.5	585.5	612.0
Annual GHG Emissions (Mega Tonnes CO2E)	5.23	5.38	5.54	5.70	5.86	6.03	6.21	6.38	6.57	6.76	6.95	7.15	7.36	7.57	7.79	8.02	8.25	8.48	8.72	8.96	9.20	9.44	9.68	9.92
Annual Car Trips Taken off Road (millions) No Inv.	-	12	24	37	51	66	82	98	115	134	153	174	198	218	239	259	280	302	325	348	371	395	420	445
Annual Car Trips Taken off Road (millions) Maint. Mkt.	-	-	8	17	26	35	46	57	68	80	93	107	121	136	151	166	181	197	212	228	244	260	276	292

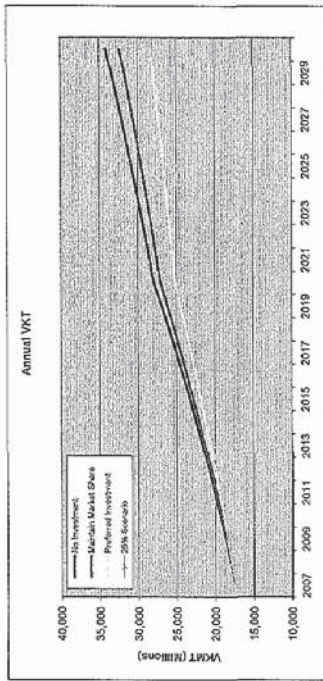
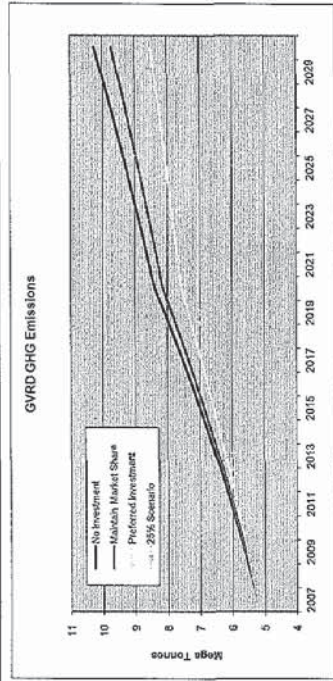
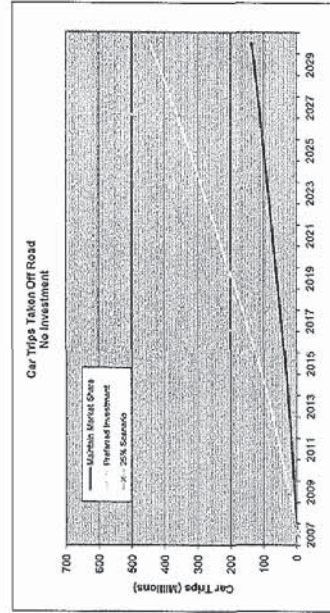
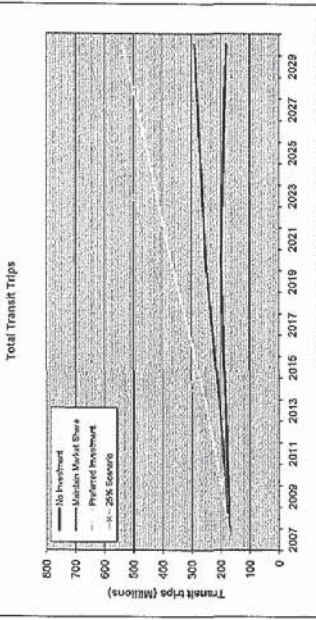
25% Scenario	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Transit Modal Share	10.8%	11.4%	12.0%	12.5%	13.3%	13.9%	14.5%	15.1%	15.7%	16.4%	17.0%	17.6%	18.2%	18.9%	19.4%	20.1%	20.7%	21.3%	21.9%	22.5%	23.1%	23.6%	24.4%	25.0%
Auto Modal Share	73.3%	73.7%	72.5%	71.5%	70.6%	70.0%	69.4%	68.7%	68.1%	67.4%	66.8%	66.3%	65.7%	65.1%	64.4%	63.8%	63.2%	62.6%	62.0%	61.4%	60.8%	60.1%	59.5%	59.0%
Daily Person Trips (millions)	7.0	7.2	7.4	7.7	8.0	8.3	8.6	8.9	9.2	9.5	9.8	10.1	10.4	10.7	11.0	11.2	11.5	11.8	12.1	12.4	12.7	13.0	13.3	13.6
Avg Trip Length (mi)	12	12.05	12.08	12.14	12.18	12.23	12.28	12.32	12.37	12.42	12.46	12.51	12.55	12.60	12.65	12.69	12.74	12.78	12.83	12.88	12.92	12.95	13.02	13.08
Auto Annual VKMT (millions)	17,367	17,970	18,594	19,239	19,907	20,597	21,311	22,049	22,766	23,464	24,153	24,836	25,513	26,185	26,850	27,507	28,157	28,801	29,439	30,072	30,699	31,321	31,938	32,550
Annual Transit Trips (millions)	170.0	185.2	201.3	218.1	235.8	254.4	273.8	294.3	315.7	338.2	361.8	386.5	412.3	439.5	468.0	497.8	528.0	558.6	589.7	621.4	653.6	686.3	719.5	753.2
Annual GHG Emissions (Mega Tonnes CO2E)	5.23	5.35	5.50	5.65	5.81	5.94	6.09	6.25	6.41	6.57	6.73	6.90	7.08	7.25	7.31	7.38	7.46	7.55	7.64	7.72	7.80	7.88	7.95	8.02
Annual Car Trips Taken off Road (millions) No Inv.	-	16	33	51	70	91	112	133	154	176	199	223	248	273	299	325	351	377	403	429	455	481	507	533
Annual Car Trips Taken off Road (millions) Maint. Mkt.	-	12	26	40	55	71	87	105	124	143	164	186	209	234	258	277	300	323	347	372	397	423	448	476

Summary

	No Investment	Maintain Market Share	Preferred Investment	25% Scenario
2007 to 2020				
Total GHG Reduction (2007 to 2020) compared to No Investment (Mega Tonnes)		1.8	5.1	7.0
Market Share (Mega Tonnes)		67	218	301
Car Trips Taken off Road in 2020 (millions) No Inv.		151	234	269.5
2020 Annual Transit Trips Above 2007 (millions)		62.1	203.5	269.5

	No Investment	Maintain Market Share	Preferred Investment	25% Scenario
2007 to 2030				
Total GHG Reduction (2007 to 2030) compared to No Investment (Mega Tonnes)		5.6	18.2	25.1
Market Share (Mega Tonnes)		137	445	613
Car Trips Taken off Road in 2030 (millions) No Inv.		137	445	613

Car Trips Taken Off Road in 2050 (millions) Maint. M4	309	476
2050 Annual Transit Trips Above 2007 (millions)	170.5	502.5



No Investment	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Transit Modal Share	7.5%	7.4%	7.3%	7.3%	7.2%	7.1%	7.0%	7.0%	6.9%	6.8%	6.7%	6.7%	6.6%	6.5%	6.4%	6.3%	6.3%	6.2%	6.1%	6.0%	6.0%	5.9%	5.8%	5.7%
Auto Modal Share	76.0%	76.1%	76.2%	76.2%	76.3%	76.4%	76.5%	76.5%	76.6%	76.7%	76.8%	76.8%	76.9%	77.0%	77.1%	77.2%	77.2%	77.3%	77.4%	77.5%	77.5%	77.6%	77.7%	77.8%
Daily Person Trips (millions)	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
Auto Annual VKMT (millions)	1,895	1,947	2,001	2,069	2,112	2,171	2,230	2,291	2,354	2,418	2,483	2,554	2,624	2,698	2,731	2,768	2,804	2,841	2,871	2,904	2,937	2,969	3,003	3,037
Annual GHG Emissions (Mega Tonnes CO2e)	27.1	22.3	22.5	22.7	22.9	23.1	23.2	23.4	23.6	23.8	24.0	24.1	24.3	24.5	24.4	24.3	24.2	24.1	24.0	23.9	23.8	23.7	23.6	23.5
Annual GHG Emissions (Mega Tonnes CO2e)	0.57	0.6	0.6	0.6	0.6	0.6	0.7	0.7	0.7	0.7	0.7	0.8	0.8	0.8	0.8	0.8	0.8	0.9	0.9	0.9	0.9	0.9	0.9	0.9

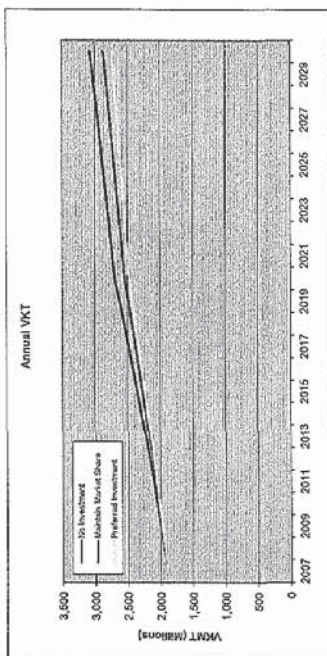
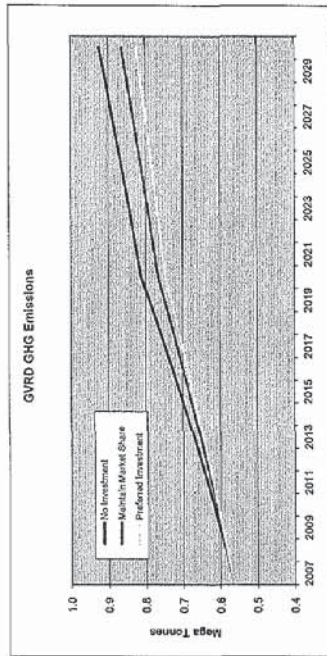
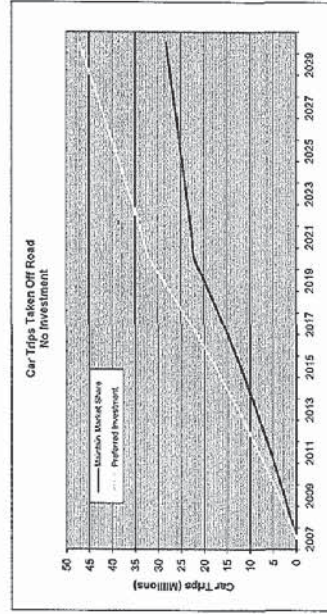
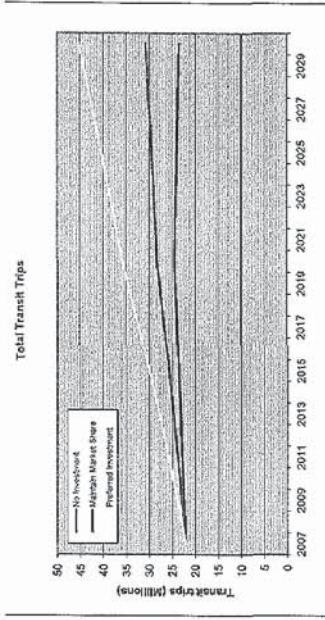
Mainline Market Share	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Transit Modal Share	7.5%	7.5%	7.5%	7.5%	7.5%	7.5%	7.5%	7.5%	7.5%	7.5%	7.5%	7.5%	7.5%	7.5%	7.5%	7.5%	7.5%	7.5%	7.5%	7.5%	7.5%	7.5%	7.5%	7.5%
Auto Modal Share	76.0%	76.0%	76.0%	76.0%	76.0%	76.0%	76.0%	76.0%	76.0%	76.0%	76.0%	76.0%	76.0%	76.0%	76.0%	76.0%	76.0%	76.0%	76.0%	76.0%	76.0%	76.0%	76.0%	76.0%
Daily Person Trips (millions)	1.3	1.3	1.4	1.4	1.4	1.4	1.5	1.5	1.5	1.5	1.6	1.6	1.6	1.7	1.7	1.7	1.7	1.7	1.7	1.8	1.8	1.8	1.8	1.8
Avg. Trip Length (mi)	6.5	6.525	6.55	6.575	6.6	6.625	6.65	6.675	6.7	6.725	6.75	6.775	6.8	6.825	6.85	6.875	6.9	6.925	6.95	6.975	7	7.025	7.05	7.075
Auto Annual VKMT (millions)	1,895	1,938	1,984	2,028	2,076	2,123	2,172	2,222	2,273	2,325	2,378	2,433	2,488	2,545	2,576	2,608	2,639	2,671	2,704	2,737	2,770	2,804	2,838	2,872
Annual GHG Emissions (Mega Tonnes CO2e)	22.1	22.5	23.0	23.4	23.8	24.3	24.8	25.2	25.7	26.2	26.7	27.2	27.7	28.3	28.5	28.8	29.0	29.2	29.5	29.7	30.0	30.3	30.6	30.8
Annual GHG Emissions (Mega Tonnes CO2e)	0.57	0.58	0.61	0.62	0.64	0.66	0.68	0.69	0.71	0.72	0.73	0.74	0.75	0.77	0.78	0.78	0.79	0.80	0.81	0.82	0.83	0.84	0.85	0.86
Annual Car Trips Taken off Road (millions) No Inv.	1	1	3	4	6	7	9	10	12	14	16	18	20	22	23	23	24	24	25	26	26	27	28	28

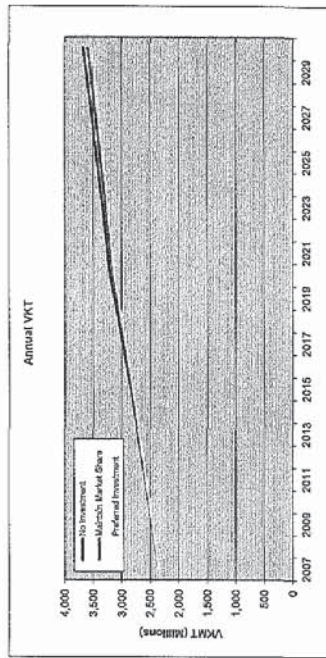
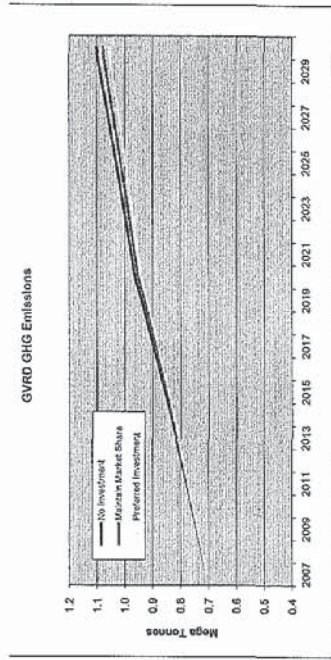
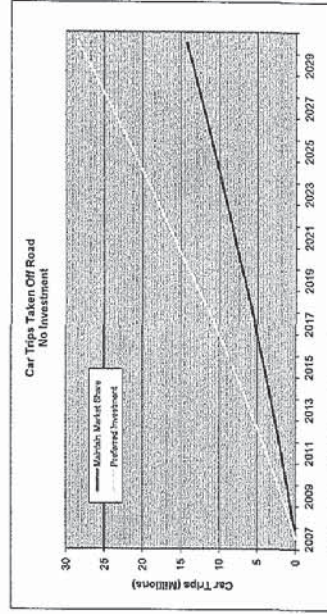
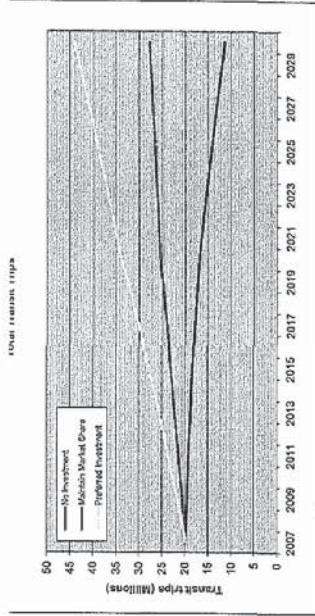
Preferred Investment	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Transit Modal Share	7.5%	7.7%	7.8%	8.0%	8.1%	8.3%	8.4%	8.6%	8.7%	8.9%	9.0%	9.2%	9.3%	9.5%	9.7%	9.8%	10.0%	10.1%	10.3%	10.4%	10.6%	10.7%	10.9%	11.0%
Auto Modal Share	76.0%	75.9%	75.7%	75.5%	75.4%	75.2%	75.1%	74.9%	74.8%	74.6%	74.5%	74.3%	74.2%	74.0%	73.8%	73.7%	73.5%	73.4%	73.2%	73.1%	72.9%	72.8%	72.5%	72.5%
Daily Person Trips (millions)	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
Auto Annual VKMT (millions)	1,895	1,938	1,976	2,017	2,059	2,102	2,146	2,191	2,239	2,289	2,339	2,389	2,439	2,478	2,500	2,528	2,554	2,580	2,605	2,631	2,658	2,684	2,711	2,738
Annual GHG Emissions (Mega Tonnes CO2e)	22.1	23.0	23.9	24.8	25.8	26.8	27.8	28.9	29.9	31.0	32.2	33.4	34.8	35.8	36.7	37.6	38.5	39.4	40.4	41.3	42.3	43.3	44.3	45.3
Annual GHG Emissions (Mega Tonnes CO2e)	0.57	0.58	0.59	0.61	0.62	0.63	0.65	0.66	0.67	0.69	0.70	0.72	0.73	0.75	0.76	0.78	0.79	0.78	0.78	0.79	0.80	0.81	0.82	0.82
Annual Car Trips Taken off Road (millions) No Inv.	2	2	4	6	8	10	13	15	18	20	23	26	29	32	33	35	36	38	39	41	42	44	46	47
Annual Car Trips Taken off Road (millions) Maint Mod	-	1	1	2	3	3	4	5	5	6	7	8	9	10	11	12	12	13	14	15	16	17	18	19

Summary

2007 to 2020	No Investment	Maintain Market Share	Preferred Investment
Total GHG Reduction (2007 to 2020) compared to No Investment (Mega Tonnes)			0.4
Total GHG Reduction (2007 to 2020) compared to Maintain Market Share (Mega Tonnes)			0.13
Car Trips Taken off Road in 2030 (millions) No Inv.			22
Car Trips Taken off Road in 2030 (millions) Maint Mod			30
2020 Annual Transit Trips Above 2007 (millions)			13.7

2007 to 2030	No Investment	Maintain Market Share	Preferred Investment
Total GHG Reduction (2007 to 2030) compared to No Investment (Mega Tonnes)			1.3
Total GHG Reduction (2007 to 2030) compared to Maintain Market Share (Mega Tonnes)			0.4
Car Trips Taken off Road in 2030 (millions) No Inv.			28
Car Trips Taken off Road in 2030 (millions) Maint Mod			47
2030 Annual Transit Trips Above 2007 (millions)			23.2





Summary of GHG Calculations
Last updated:

23-Oct-07

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
GHG Emissions 2007 to 2030 (tyslane)	6.5	6.7	7.0	7.2	7.5	7.7	8.0	8.3	8.6	8.9	9.2	9.5	9.8	10.2	10.4	10.6	10.8	11.0	11.2	11.4	11.6	11.8	12.1	12.3
No Investment	6.5	6.7	7.0	7.2	7.5	7.7	8.0	8.3	8.6	8.9	9.2	9.5	9.8	10.2	10.4	10.6	10.8	11.0	11.2	11.4	11.6	11.8	12.1	12.3
Maintain Market Share	6.5	6.7	6.9	7.2	7.4	7.6	7.9	8.1	8.4	8.7	9.0	9.2	9.5	9.9	10.0	10.2	10.4	10.5	10.7	10.9	11.1	11.3	11.5	11.7
Preferred Investment	6.5	6.7	6.9	7.1	7.3	7.5	7.7	7.9	8.1	8.3	8.5	8.8	9.0	9.3	9.4	9.5	9.6	9.7	9.8	9.9	10.0	10.2	10.3	10.4
25% Scenario (25% GVRD + 9.5% CRD + 4% BC Mkt)	6.5	6.7	6.8	7.0	7.2	7.4	7.5	7.7	7.9	8.1	8.3	8.5	8.7	8.9	9.0	9.1	9.2	9.3	9.3	9.4	9.5	9.6	9.7	9.7

Total Transit Trips	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
No Investment	212	214	217	219	221	224	226	228	230	232	234	236	238	240	242	244	246	248	250	252	254	256	258	260
Maintain Market Share	212	216	224	231	237	244	251	258	265	273	281	289	297	305	310	314	318	322	327	331	335	340	344	349
Preferred Investment	212	225	240	254	270	286	303	320	339	358	378	399	420	443	460	477	494	512	530	549	568	587	607	627
25% Scenario (25% GVRD + 9.5% CRD + 4% BC Mkt)	212	223	247	265	285	305	327	350	373	398	424	451	479	509	532	555	579	603	628	654	680	707	734	762

Annual VKT	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
No Investment	21,616	22,372	23,153	23,963	24,803	25,667	26,564	27,492	28,453	29,448	30,478	31,543	32,643	33,787	34,954	36,144	37,364	38,614	39,894	41,204	42,544	43,914	45,314	46,744
Maintain Market Share	21,616	22,316	23,042	23,790	24,562	25,360	26,184	27,034	27,913	28,820	29,756	30,724	31,722	32,754	33,812	34,899	35,940	36,953	37,941	38,904	39,841	40,751	41,634	42,491
Preferred Investment	21,616	22,214	22,828	23,457	24,104	24,767	25,446	26,147	26,869	27,602	28,356	29,130	29,923	30,740	31,582	32,450	33,343	34,261	35,204	36,172	37,165	38,184	39,228	40,297
25% Scenario (25% GVRD + 9.5% CRD + 4% BC Mkt)	21,616	22,161	22,716	23,287	23,883	24,494	25,121	25,762	26,428	27,119	27,835	28,576	29,342	30,133	30,950	31,792	32,660	33,553	34,471	35,414	36,382	37,375	38,394	39,438

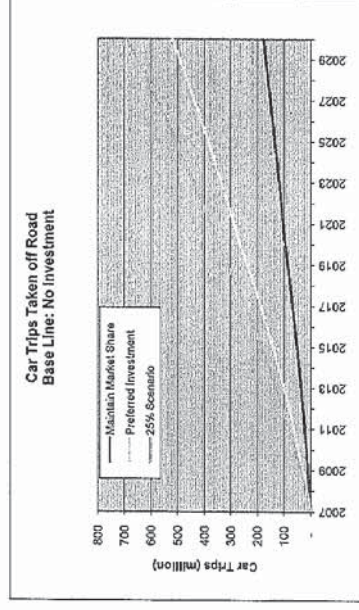
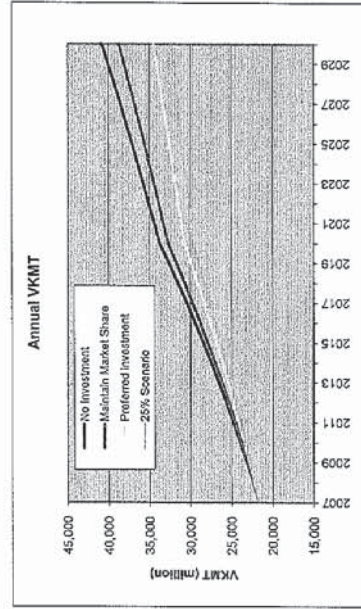
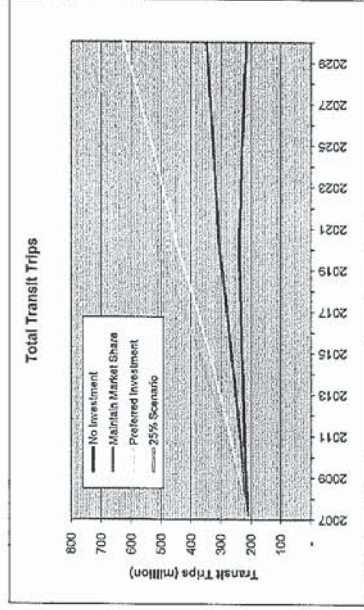
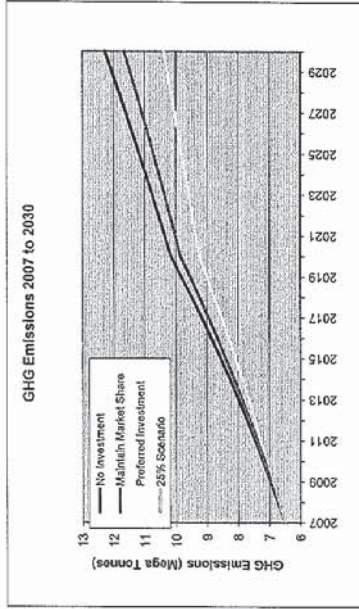
Car Trips Taken Off Road compared to Maint. Mkt	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
No Investment	-	-	5	11	17	23	30	37	44	52	60	68	77	87	96	104	111	119	127	135	144	152	161	170
Maintain Market Share	-	-	14	30	46	63	81	100	120	141	164	187	212	238	265	288	311	335	360	385	411	438	465	492
Preferred Investment	-	-	19	39	60	82	106	131	157	185	214	245	277	311	347	378	409	441	474	508	542	577	614	651
25% Scenario (25% GVRD + 9.5% CRD + 4% BC Mkt)	-	-	19	39	60	82	106	131	157	185	214	245	277	311	347	378	409	441	474	508	542	577	614	651

Car Trips Taken Off Road compared to Maint. Mkt	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
No Investment	-	-	9	19	29	40	51	63	76	90	104	119	135	151	169	184	200	216	233	250	267	285	304	323
Maintain Market Share	-	-	14	28	43	59	76	94	113	133	154	177	200	225	251	274	298	322	347	372	398	425	453	481
Preferred Investment	-	-	19	39	60	82	106	131	157	185	214	245	277	311	347	378	409	441	474	508	542	577	614	651
25% Scenario (25% GVRD + 9.5% CRD + 4% BC Mkt)	-	-	19	39	60	82	106	131	157	185	214	245	277	311	347	378	409	441	474	508	542	577	614	651

	No Investment	Maintain Market Share	Preferred Investment	25% Scenario
Total GHG Reduction (2007 to 2030) compared to No Investment (Mega Tonnes)		1.9	5.7	7.6
Total GHG Reduction (2007 to 2030) compared to Maintain Market Share (Mega Tonnes)			3.7	5.7
Car Trips Taken off Road in 2030 (millions) No Inv.		95	265	347
Car Trips Taken off Road in 2030 (millions) Maint. Mkt			169	251
2030 Annual Transit Trips Above 2007 (millions)		93.8	231.2	297.2

	No Investment	Maintain Market Share	Preferred Investment	25% Scenario
Total GHG Reduction (2007 to 2030) compared to No Investment (Mega Tonnes)		6.7	20.0	26.8
Total GHG Reduction (2007 to 2030) compared to Maintain Market Share (Mega Tonnes)			13.3	20.2
Car Trips Taken off Road in 2030 (millions) No Inv.		179	521	689
Car Trips Taken off Road in 2030 (millions) Maint. Mkt			342	510
2030 Annual Transit Trips Above 2007 (millions)		137.1	415.4	549.9

Trips per person	2007	2020	2030
GVRD	3.11	3.83	3.98
CRD	3.60	4.13	4.27
BC Municipal System	1.26	1.44	





This Amending Agreement, IS MADE THE 7th DAY OF JANUARY, 2008

BETWEEN: **HER MAJESTY THE QUEEN** IN RIGHT OF THE PROVINCE OF BRITISH COLUMBIA REPRESENTED BY
THE MINISTER OF TRANSPORTATION

Address PO Box 9850, STN PROV GOVT, Victoria, British Columbia

V8W 9T5

Postal Code

(hereinafter called the "Province") OF THE FIRST PART

AND:

IBI GROUP

Address #700 - 1285 West Pender Street, Vancouver, BC

V6E 4B1

Postal Code

(hereinafter called the "Contractor") OF THE SECOND PART

WITNESS THAT WHEREAS

A. the parties entered into an Agreement dated the 24th of September, 2007 for:

Acquire and analyze bus rapid transit information.

(hereinafter called the "Agreement")

B. and whereas the parties have agreed to amend the agreement:

NOW THEREFORE in consideration of the covenants and agreements herein contained, the parties agree as follows:

(1) That the Agreement shall be amended as follows:

- Extend Completion Date from September 30, 2007 to December 31, 2007.
- Increase Total Payments from \$25,000.00 by \$2,500.00 to \$27,500.00.

(2) This amendment shall be effective October 1, 2007

That in all other respects, the terms and conditions of the said Agreement are hereby ratified and confirmed.

THE PARTIES ARE DEEMED TO HAVE EXECUTED THIS AMENDING AGREEMENT THE DAY AND YEAR FIRST ABOVE WRITTEN

† AFFIX CORPORATE SEAL HERE †

C. Maguardt
WITNESS AS TO THE CONTRACTOR'S SIGNATURE

[Signature]
SIGNATURE OF CONTRACTOR
[Signature]
Manager, Financial Services
Transportation Planning & Policy Department
SIGNATURE OF DELEGATED MINISTRY AUTHORITY

[Signature]
WITNESS AS TO THE MINISTRY SIGNATURE

DISTRIBUTION: ORIGINAL AND ONE COPY - ACCOUNTS PAYABLE; COPY TO CONTRACTOR; COPY TO CONTRACT FILE

REQUEST FOR AMENDMENT CHECKLIST

(Have you provided all of the items necessary for the Request?)

Please Check ☒ If Included...

or Provide Information Below:

Contract Number	070LM0030
Consultant Name	IBI Group
Amendment Effective Date	October 1, 2007
Completion Date (if revised)	December 31, 2007
Amendment Dollar Amount (if applicable)	\$2,500.00
Fiscal Year Split: (if applicable)	N/A

*List below any **changes** to the following:*

1. PRODUCT (be specific)
2. BUS FUNCTION (be specific)
3. ACTIVITY (be specific)
4. COST TYPE (be specific)

REASON FOR AMENDMENT

(for review by spending authority)

Not asked for work which was consistent with the general theme of the assignment but beyond what was originally anticipated, requiring additional Schedule Revisions (if applicable) time and resources.

Name of Requester: Jon Conquist

Date of Request: December 31, 2007

Please forward this checklist with supporting documentation for the Request for Amendment to Contract Section, for processing.

w:\data\consult\amendment\rf\checklist.doc



January 25, 2008

IBI Group
Suite #700 – 1285 West Pender Street
Vancouver, BC
V6E 4B1

Dear Mr. McNally:

Re: Contract Number 070LM0030
Acquire & Analyze Bus Rapid Transit Information

Enclosed is a signed copy of Amendment Number 1 to the above noted contract for your records.

Please reference our Contract Number **070LM0030** on associated correspondence and invoices.

Thank you for your cooperation.

Yours truly,



Heather Weir
Financial Officer

Enclosure(s)

copy: Payment Services
 Jon Conquist, A/ Director, Planning Branch



IBI Group
700-1285 West Pender Street
Vancouver BC V6E 4B1 Canada
tel 604 683 8797
fax 604 683 0492

January 17, 2008

Ms. Sandra Jackman
Manager, Financial Services
Ministry of Transportation
PO Box 9850 Stn Prov Govt
5C - 940 Blanshard Street
Victoria, BC V8W 9T5

Dear Ms. Jackman:

Contract No. 070LM0030
Acquire & Analyze Bus Rapid Transit Information
Amendment No. 1

Enclosed is Amendment No. 1 for the above-referenced project, signed by Messrs., David Thom, Managing Director, and Andy McNally, Director, authorized to sign on behalf of IBI Group.

Thank you for preparing this Amendment and we look forward to receiving an executed copy for our files.

Yours truly,

IBI GROUP

A handwritten signature in black ink, appearing to read 'R. A. McNally', written in a cursive style.

R. A. McNally, P. Eng.
Director

RAM/cm
VO-15408
Encl.



January 7, 2008

IBI Group
#700 – 1285 West Pender Street
Vancouver, BC
V6E 4B1

Dear Mr. Eagleston:

Re: Contract Number 070LM0030
Acquire & Analyze Bus Rapid Transit Information

Approval has been obtained to amend the above noted contract as per the attached Amendment Number 1.

If you are in agreement, then please sign and have witnessed in the appropriate location(s) on the amendment, and then return all pages to the following address:

Ministry of Transportation
Transportation Planning & Policy Department
PO Box 9850, Stn Prov Govt, 940 Blanshard Street
Victoria, BC
V8W 9T5

When the amendment has been signed by both parties to the contract, a copy will be sent to you for your records.

All other terms and conditions of the contract remain unchanged.

Please reference Contract Number 070LM0030 on associated correspondence and invoices.

Should you have any questions concerning the above, please contact myself or Heather Weir at (250) 953-4960.

Yours truly,

Sandra Jackman
Manager, Financial Services

Attachment(s)

Ministry of
Transportation

Transportation Planning & Policy Department
Finance & Administration Branch

Mailing Address:
PO Box 9850 Stn Prov Gov
Victoria BC V8W 9T5

Location:
5C, 940 Blanshard Street
Victoria BC V8W 3E6

**This Agreement** MADE BETWEEN:

HER MAJESTY THE QUEEN IN RIGHT OF THE PROVINCE OF BRITISH COLUMBIA AS
REPRESENTED BY THE MINISTER OF TRANSPORTATION (HEREIN AFTER CALLED
THE PROVINCE).

5C - 940 Blanshard Street

PO Box 9850 StnProv Gove, Victoria BC V8W 9T5

AND: IBI GROUP

(HEREIN AFTER CALLED THE "CONTRACTOR")

#700 1285 West Pender Street

Vancouver BC V6E 4B1

THE CONTRACTOR HAS OFFERED TO PERFORM THE SERVICES HEREIN DESCRIBED AT THE PRICE AND ON THE TERMS AND CONDITIONS SET OUT IN THIS AGREEMENT; AND THE PROVINCE HAS ACCEPTED THE CONTRACTOR'S OFFER. THIS AGREEMENT INCLUDES ALL ATTACHMENTS INDICATED BELOW.

SHORT DESCRIPTION OF THE WORKS/SERVICES: Acquire and analyze information on bus rapid transit

DETAILS:

Acquire and analyze information on best bus rapid transit (BRT) and conventional bus system market penetration results.

SEE WORKS/SERVICES SCHEDULE

Requestor (Print Name):	Jim Hester	Qualified Receiver (Print Name):	Jon Conquist
COMMENCEMENT DATE (YYYY/MM/DD)	2007-09-04	COMPLETION DATE (YYYY/MM/DD)	2007-09-30
DESCRIPTION OF PRICE(S)/AGREED RATE(S)		ATTACHED SCHEDULES MARKED "X" FORM PART OF THIS CONTRACT	
SEE PAYMENT SCHEDULE		<input checked="" type="checkbox"/>	Terms and Conditions
		<input checked="" type="checkbox"/>	Work/Services Schedule - H0461a
		<input checked="" type="checkbox"/>	Payment Schedule - H0461b
		<input checked="" type="checkbox"/>	Travel Expenses (Group I) - H0461c
		<input type="checkbox"/>	Travel Expenses (Group II - Mgmt) - H0461d-1
		<input type="checkbox"/>	Insurance Specifications - INS-80
		<input type="checkbox"/>	Insurance Professional Services - INS-132
		<input type="checkbox"/>	Certificate of Insurance - H0111
		<input type="checkbox"/>	Special Conditions (Engineering) - H0461d
		<input type="checkbox"/>	Special Conditions (Information Systems) - H0461d-1
<input type="checkbox"/>	Special Conditions (Survey) - H0461d-2		
<input checked="" type="checkbox"/>	Privacy Protection Schedule		
		<input type="checkbox"/>	Other

TOTAL PAYMENTS NOT TO EXCEED \$ 25,000.00

IN SIGNING THIS AGREEMENT, THE CONTRACTOR AGREES THAT HE/SHE HAS READ AND UNDERSTOOD ALL TERMS AND CONDITIONS OF THIS AGREEMENT, INCLUDING THOSE CONTAINED ON ANY AND ALL ATTACHMENTS.

Procurement Process - AIT and TILMA - List of Values Form (mandatory): ☒ Attach H1109 and Fwd to Accounts

Category Type: ☐ BI.BI02 For Works OR; ☒ BN.BN02 For Services **WCB Number:**

Method of Selection: ☐ RISP System; ☐ Selective Invitation; ☐ RFP; ☐ ITQ; OR: ☒ Direct Award (attach explanation)

Attach Risk Review: ☒ H0135 Local Minor Works OR; ☐ H0056 Consulting Services

Signature of Contractor

2007 09 17

Date (yyyy/mm/dd)

Expense Authority Signature

SEP 24 2007

Date (yyyy/mm/dd)

RON EAGLESTON - DIRECTOR

Print Name and Position

Jon Conquist, Manager, Highway Planning

Print Name and Position

Responsibility	Service Line	STOB	Project	TOTAL \$
55070	60720	6001	5506404	\$25,000.00
Responsibility	Service Line	STOB	Project	TOTAL \$
(Info 1) - CFS - Product	Business Function	(Info 2) - Work Activity	(Info 3) - Cost Type	TOTAL \$
06404SPF	CORP SER	MGMT SERV	CONSULT	\$25,000.00



WORKS/SERVICES SCHEDULE

CONTRACT IDENTIFICATION NUMBER

070 | LM | 0030

The Contractor shall:

Identify successful Bus Rapid Transit (BRT) and conventional bus systems in terms of their market share (measured as ridership per capita). This will involve reviewing published sources from around the world. Some of these cities may also have rail rapid transit systems and the systems will be grouped according to those with and without.

Screen cities for similarity/applicability to the Greater Vancouver Regional District (GVRD) based on availability of data. This screening process will be used as the basis for definition of the scope (i.e. number of cities) and selection of cities for inclusion in the survey. The target will be to survey up to sixteen (16) cities, dependent on data availability, including examples in North America, Europe and Australia. The list of cities will be approved by the client before proceeding.

Assemble data from published sources, interviews and other sources as available on the key variables for the cities chosen as comparators. (Variables will include service area, population, overall density, ridership for each mode and service hours of bus/BRT and rail transit service provided per year. Information will also be gathered related to operations such as typical headways of service and integration between modes.) Additional insights would be gathered by phone interview, as time and availability of contacts permits.

The contractor will analyze the assembled data, including quantitative comparisons of service area density, service levels and resulting market share for transit. The structure and operational characteristics of the surveyed transit systems will be discussed to provide context for the resulting market penetration in each city.

The contractor will prepare a draft Technical Memorandum for review by September 21, 2007. This will detail the findings of the research, including key distinguishing features of the transit systems, compilation of data on the key variables identified for the surveyed cities and the GVRD, and conclusions on the findings. The report will include graphics. Charts will be prepared showing the relationship of market share with service provision for different types of network (with/without BRT and with/without rail).

The contractor will prepare and deliver a Final Report (two (2) hard copies and one (1) electronic copy) by September 28, 2007.



PAYMENT SCHEDULE

METHOD OF PAYMENT

Payments to the Contractor shall be based on the following:

CONTRACT IDENTIFICATION NUMBER

070 | LM | 0030

Rates for Project Principals*

Responsible Principal – Andy McNally
- Total person hours – 7

Project Manager – Philip Davies
- Total person hours – 13

Senior Transport Planner – Blair Smith
- Total person hours – 40

Senior Transit Consultant – Doug Langille
- Total person hours – 36

Senior Transit Consultant – Christopher H. Prentice
- Total person hours – 34

Consultant – Shannon Heffernan
- Total person hours – 23

s.21

Total Consultant Fees	\$23,900.00
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Disbursements (delivery, telephone, printing, reproduction)	700.00
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Disbursements (clerical)	<u>350.00</u>
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Total contract value	\$24,950.00
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*Refer to Schedule 1, attached, IBI Group 'Bus Rapid Transit and Conventional Bus System Market Penetration' proposal for breakdown of task descriptions.

TRAVEL EXPENSES

Travel expenses shall be reimbursed in accordance with the rates and terms as set out in the Schedule of Reimbursable Travel Expenses (Group 1) attached.

FREQUENCY OF PAYMENTS

The Contractor shall invoice the Province:

Monthly in arrears for services performed and good received satisfactorily to the Ministry.

MAXIMUM AMOUNT PAYABLE

Total payments shall not exceed \$ 25,000.00.

PAYMENT SCHEDULE TERMS AND CONDITIONS

1. The Contractor shall invoice the Province in accordance with the terms of this Agreement showing the calculation of all amounts claimed.
2. Acceptance of any invoice and subsequent payment for the work/services, or any portion of the work/services, is subject to the invoiced work/services having been completed to the satisfaction of the Province.
3. The Province shall pay the Contractor within 30 days following either the receipt by the Province of the Contractor's invoice OR satisfactory completion of the invoiced work/services, whichever is later.
4. The Contractor shall accept payment as stated above as full and final reimbursement for all costs connected with the work/services.
5. The Contractor shall not commit the Province to any financial liability.
6. Notwithstanding any other provision of this Agreement, the payment of money by the Province to the Contractor is subject to the provisions of the Financial Administration Act.

Schedule 1
Project Budget

BUS RAPID TRANSIT - MARKET PENETRATION

PROJECT TIME, FEES & EXPENSES

Task Description	Responsible		Project Manager		Senior Transport Planner		Senior Transit Consultant		Senior Transit Consultant		Consultant		Total Hours	Total Fees
	Principal		Davies	Smith	Lannille	Prentice	Heffernan							
	McNally													
1.0 Identification of BRT Systems													10	\$1,650
2.0 Screening of Cities													21	\$3,100
3.0 Assembly of Data													51	\$7,500
4.0 Analysis of Data													44	\$7,200
5.0 Prepare Draft Technical Memorandum													14	\$2,300
6.0 Prepare Final Report													13	\$2,150
Total - Person Hours	7		13	40	36	34	23						153	\$23,900
Total - Person Fees														
s.21														
Consultant Staff Time Disbursements														
Delivery, Telephone														
Printing, Reproduction														
Clerical														
Travel														
Total Expenses														
Total Fees & Expenses														
\$23,900														
\$300														
\$400														
\$350														
\$1,050														
\$24,950														



Tick Off Appropriate Box for Procurement Process and then Tick Off Appropriate Box for Trade Agreement Exclusion

PROCUREMENT PROCESS – LIST OF VALUES

- | Code | Description |
|---|--|
| <input type="checkbox"/> 100 | Open competitive process
An open competitive process (e.g., Invitation to Quote, Request for Proposal, Joint Solution Procurement, Invitation to Tender, or other) has been utilized, normally by advertising the opportunity on BC Bid. |
| <input type="checkbox"/> 200 | Direct Award – Public sector organization
Contracts for acquisitions (of goods, services, and construction) and disposals may be negotiated and directly awarded without competitive process where the contract is with another government organization. |
| <input checked="" type="checkbox"/> 201 | Direct Award – Sole source
Contracts for acquisitions (of goods, services, and construction) and disposals may be negotiated and directly awarded without competitive process where the ministry can strictly prove that only one contractor is qualified to provide the goods, services or construction or is capable of engaging in a disposal opportunity. |
| <input type="checkbox"/> 202 | Direct Award – Emergency
Contracts for acquisitions (of goods, services, and construction) and disposals may be negotiated and directly awarded without competitive process where an unforeseeable emergency exists and the goods, services or construction could not be obtained in time by means of a competitive process. |
| <input type="checkbox"/> 203 | Direct Award – Security, order, etc.
Contracts for acquisitions (of goods, services, and construction) and disposals may be negotiated and directly awarded without competitive process where a competitive process would interfere with a ministry's ability to maintain security or order or to protect human, animal or plant life or health. |
| <input type="checkbox"/> 204 | Direct Award – Confidentiality
Contracts for acquisitions (of goods, services, and construction) and disposals may be negotiated and directly awarded without competitive process where the acquisition is of a confidential or privileged nature and disclosure through an open bidding process could reasonably be expected to compromise government confidentiality, cause economic disruption or be contrary to the public interest. |
| <input type="checkbox"/> 205 | Direct Award – Notice of Intent
A Notice of Intent must be posted on BC Bid when a contract for goods valued at more than \$25,000, or a contract for services or construction valued at more than \$50,000, is to be directly awarded on the basis that there is only one vendor that can provide the services required. |
| <input type="checkbox"/> 206 | Direct Award – No justification
Where a direct award has been made which is not justified under one of the exceptional conditions specified in the Core Policy Manual section 6.3.3 a (1), or a Notice of Intent has not been issued, or it is provided for under another policy. |
| <input type="checkbox"/> 207 | Direct Award – Under \$25,000
Use when a direct award has been made for an amount of less than \$25,000 unless one of the 200 to 204 applies. |
| <input type="checkbox"/> 208 | Direct Award – Transfer Payments (Financial Assistance)
A STOB 80 (Transfer under Agreement) contract or agreement that is directly awarded to provide financial assistance to a specified targeted group or population. |
| <input type="checkbox"/> 209 | Direct Award – Transfer Payments (Shared Costs or Public Private Partnership) A STOB 80 (Transfer under Agreement) contract or agreement that is directly awarded and involves a shared-cost agreement or a public private partnership, for which a competitive selection is not appropriate. |
| <input type="checkbox"/> 300 | Direct Invitation to selected vendors
A competitive solicitation which is issued to a limited list of vendors and not advertised on BC Bid. If vendors are on a pre-qualification list, then use 401. |
| <input type="checkbox"/> 400 | Selected vendor from pre-qualification list (RISP<\$100,000)
Use for a contract that is issued to a vendor on a pre-qualification list without undertaking a competitive process. The process followed must be consistent with the rules that were publicised when the pre-qualification list was established. (RISP<\$100,000) |
| <input type="checkbox"/> 401 | Competition among vendors on a pre-qualification list (RISP \$100,00 - \$1,000,000) A competitive solicitation which is issued to a limited list of vendors selected from a pre-qualification list. Cont'd. |

PROCUREMENT PROCESS – LIST OF VALUES Cont'd.

- | Code | Description |
|------------------------------|--|
| <input type="checkbox"/> 401 | Cont'd. Use if a competitive solicitation is issued to a limited list of vendors selected from a pre-qualification list. This solicitation process can include some or all of the vendors on the pre-qualification list but the process followed must be consistent with the rules that were publicised when the pre-qualification list was established. |
| <input type="checkbox"/> 500 | Purchase from a Corporate Supply Arrangement
A purchase from a pre-established corporate supply arrangement such as a MSO, SO, the Queen's Printer or other as identified in the Core Policy Manual section 6.3.2 a (1). |
| <input type="checkbox"/> 600 | Other purchase process
Use for other purchasing process including ministerial appointments. |
| <input type="checkbox"/> 601 | Other – Continuing Agreements
Use for continuing agreements for the component schedules created pursuant to continuing agreements (all STOB 80). A continuing agreement is a specific and optional form of contract that is only to be used in one of the community health and social service areas. Not all contracts in these areas are continuing agreements so look for specific wording on the contract title page that indicates it is a continuing agreement. |
| <input type="checkbox"/> 602 | Other – Grants and Entitlements
This is used for grants and entitlements. |

TRADE AGREEMENT EXCLUSION – LIST OF VALUES

- | Code | Description |
|---|--|
| <input type="checkbox"/> 100 | Purchase subject to AIT / TILMA
The purchase is over the trade agreement thresholds for national advertising (\$10K for goods, \$75K for services and \$100K for construction) and is not excluded or exempt under any other provision of TILMA or other category below. |
| <input checked="" type="checkbox"/> 200 | Purchase below applicable AIT / TILMA thresholds
The purchase is under the trade agreement thresholds (\$10K for goods, \$75K for services and \$100K for construction). |
| <input type="checkbox"/> 300 | Purchase of an exempted commodity/service
The purchase is for goods, services or construction that is exempted from coverage of TILMA or to which TILMA does not apply by virtue of its specific reference in TILMA (e.g., health and social services, grants and entitlements, ministerial appointments). |
| <input type="checkbox"/> 400 | Excluded - Emergency
A purchase where an unforeseeable situation of urgency exists and the goods, services or construction cannot be obtained in time by means of an open procurement. |
| <input type="checkbox"/> 500 | Excluded - Security, order, etc.
A purchase where compliance with the open tendering provisions set out in TILMA would interfere with the Province's ability to maintain security or order or to protect human, animal or plant life or health. |
| <input type="checkbox"/> 600 | Excluded - Product compatibility/exclusive rights
A purchase which must: ensure compatibility with existing products; recognize exclusive rights, such as exclusive licenses, copyright and patent rights; or maintain specialized products that must be maintained by the manufacturer or its representative. |
| <input type="checkbox"/> 700 | Excluded - Procurement of prototype
The procurement of a prototype or a first good or service to be developed in the course of and for a particular contract for research, experiment, study or original development, but not for any subsequent purchases. |
| <input type="checkbox"/> 800 | Excluded - Regional/Economic development
A purchase which, under exceptional circumstances, may be excluded by the Province from the application of TILMA provisions for regional and economic development purposes. |
| <input type="checkbox"/> 900 | Excluded - RISP program (MOT)
The Ministry of Transportation's specific exclusion for its RISP program for hiring engineers. |

TERMS AND CONDITIONS

Contract Identification Number
070 LM0030

- 1) This Agreement shall be governed by and construed in accordance with the laws of the Province of British Columbia.
- 2) Every reference to this Agreement shall include the Local Minor Works/Services Contract (H0593), these Terms and Conditions, any Attachments listed on H0593, and any written instructions issued by the Province subsequent to entering into this Agreement.
- 3) Every reference to the Province shall include the Minister, the Deputy Minister and any person designated by either of them to act on their respective behalf pursuant to this Agreement.
- 4) Every reference to the Contractor shall include the person, partnership, or company named as the Contractor in this Agreement and any person(s) designated or allowed by the Contractor to act on its behalf pursuant to this Agreement.
- 5) This Agreement shall be binding upon the Province and its assigns, and upon the Contractor and its successors and permitted assigns.
- 6) Every reference to the Work shall mean the Contractor's obligations to the Province under this Agreement, including but not limited to the Description of Works/Services.
- 7) Time is material and of the essence in this Agreement.
- 8) Title to and ownership of any material, supplies, property, or rights provided by the Province to the Contractor, or produced by the Contractor as a result of this Agreement, shall at all times remain with the Province.
- 9) Any notice or instruction required or permitted to be given under this Agreement shall be delivered by hand, fax, or prepaid courier to the addresses for the parties shown in this Agreement or at such other address as either party may from time to time designate by notice in writing to the other. Items delivered by courier shall be deemed to be received on the date of delivery.
- 10) The Province may vary the Work at any time, by providing the Contractor with written instructions in the form of An Amendment.
- 11) A waiver of any provision or breach by the Contractor of this Agreement shall be effective only if it is in writing and signed by the Province and shall not be deemed to be a waiver of any subsequent breach of the same or any other provision of this Agreement.
- e) ensure that all persons employed in connection with the provision of the Work are competent to perform their duties, adequately trained, fully instructed, supervised and shall be the employees of the Contractor and not of the Province;
- f) use material and supplies of the brand name, if any, specified in this Agreement or, where no brand name is specified, of the best quality available, and shall provide samples of materials and supplies to be used in performing the Work for approval upon the request of the Province;
- g) upon request of the Province, promptly and fully inform the Province of all Work done in connection with this Agreement and permit the Province at all reasonable times to inspect and review such Work, whether complete or otherwise;
- h) accept instructions from the Province with respect to the Work; however, the Contractor shall not be subject to the control of the Province in respect of the manner in which such instructions are carried out except as specified in this Agreement;
- i) not assign this Agreement, nor subcontract any of its obligations under this Agreement without the prior written consent of the Province;
- j) at all times treat as confidential all documents and other information supplied to or obtained by the Contractor as a result of this Agreement and shall not permit the publication, release or disclosure of the same without the prior written consent of the Province;
- k) Indemnify and save harmless the Province, the Minister and their employees and agents, from and against any and all losses, claims, damages, fines, penalties, actions, causes of action, costs and expenses that the Province, the Minister and their employees and agents may sustain, incur, suffer or be put to at any time or times, whether before, during, or after the expiration or sooner termination of this Agreement, where the same or any of them are based upon, arise out of, or occur, directly or indirectly, by reason of any act or omission of the Contractor or of any agent, employee, officer, Director or subcontractor of the Contractor pursuant to this Agreement;
- l) maintain the work site free of waste materials and rubbish throughout the Term and leave the work site at the end of the Term in a safe, clean and sanitary condition;
- m) comply with all of its obligations, including those contained in any Attachments to this Agreement; and
- n) establish and maintain time records and books of account, invoices, receipts and vouchers of all expenses incurred in form and content satisfactory to the Province and permit the Province to inspect or copy such documents at all reasonable times.

TERMINATION

- 12) Notwithstanding any other provision of this Agreement, the Province may, in its sole discretion, terminate this Agreement:
 - a) on ten (10) days prior written notice of termination to the Contractor and the Province shall pay to the Contractor that portion of the amounts described in the Description of Prices(s)/Agreed Rate(s) or the Payment Schedule which is attributable to the portion of the Work completed to the satisfaction of Province prior to the date of termination and such payment shall discharge the Province from all liability to the Contractor under the Agreement.
 - b) where in the opinion of the Province the Contractor fails to observe, perform or comply with any provision of this Agreement and such termination shall be in addition to any other rights and remedies existing or available to the Province under this Agreement or at law.

13) THE CONTRACTOR WILL:

- a) be an independent contractor and not the servant, employee or agent of the Province;
- b) obtain and supply all tools, equipment, supplies, labour, materials, licences, permits and approvals necessary to complete the Work, at its own expense, unless otherwise stated in this Agreement;
- c) comply with all laws, regulations and bylaws, and cooperate with every authority having jurisdiction in connection with the Work;
- d) at all times maintain a standard of care, skill and diligence in performance of the Work which is normally exercised and observed by persons engaged in the provision of similar Work;

14) PAYMENT

- a) Notwithstanding any other provision of this Agreement, the payment of money by the Province to the Contractor is subject to the provisions of the Financial Administration Act;
- b) The Contractor shall not in any manner whatsoever commit or purport to commit the Province to the payment of any money to any party;
- c) The Contractor shall invoice the Province in accordance with the Description of Price(s)/Agreed Rate(s) and other terms of this Agreement;
- d) Acceptance of any invoice and subsequent payment for the Work, or any portion of the Work, is subject to the invoiced Work having been completed to the satisfaction of the Province;
- e) The Province shall pay to the Contractor the Price(s)/Agreed Rate(s) stated in this Agreement. Payment shall become due and payable 30 days following either the receipt by the Province of the Contractor's invoice OR satisfactory completion of the invoiced work/services, whichever is later.
- f) The Contractor shall accept payment as stated above as full and final compensation for all costs inclusive of taxes, fees and licences incurred in connection with performance of the Work; and
- g) This is to certify that the property and/or services hereby purchased are for the use of, and are being purchased by, the Ministry with Crown Funds, and are therefore not subject to the Goods and Services Tax.



SCHEDULE OF REIMBURSABLE TRAVEL EXPENSES (GROUP I)

When travel expenses are listed in the Payment Schedule as an allowable expense, then transportation, meals, accommodation and board and lodging will be reimbursed provided the same are in the opinion of the Province, necessarily incurred by the Contractor in providing the work/services.

These rates will apply for the duration of the contract.

To obtain Government rates for car rental and accommodation a letter of authority signed by the Ministry contact (sample attached) is required as proof that you are under contract with the Province.

CONTRACT IDENTIFICATION NUMBER

070 | LM | 0030

All claims should be submitted on "Schedule of Reimbursable Travel Expenses for Contractors to Fill in Online – H1170" (see attached) with all receipts attached.
No GST will be reimbursed.

1. TRANSPORTATION

- (a) Air Travel: Receipts are required. The most economical airfare must be obtained. Charter flights must be pre-approved in writing by the Regional, Branch or Project Director.
- (b) Bus, Taxi, and Ferry: Receipts are required. Ferry travel should be by the most economical route. Assured loading tickets and ferry reservations must be pre-approved in writing by the Regional, Branch or Project Director.
- (c) Car Rental: Receipts are required. The Province has negotiated Corporate Supply Arrangements (CSAs) with the following vehicle rental companies and the Corporate Identification Number below is required when requesting a vehicle, to ensure that correct rates are being applied to the rental.

It is up to the discretion of each contractor to determine which company to use for their particular need, based on the most economical rate per kilometre charge available.

- AVIS RENT A CAR – C1460000
- BUDGET RENT A CAR – A162000
- ENTERPRISE RENT A CAR – 4CA1000
- NATIONAL CAR RENTAL – 3614638
- THRIFTY CAR RENTAL – 1660019642
- BEST CHOICE CAR AND TRUCK RENTALS – N/A
- RON RIDLEY RENTALS – N/A

Collision or Loss Damage Waivers (CDW or LDW), or Personal Injury or Accident Insurance (PII or PAI) will not be reimbursed.

Report all accidents to the rental agency and the Ministry contact with 24 hours and submit a Vehicle Accident Report Form (RISK 01) to the Manager, Maint Programs.

- (e) Private Vehicle: No receipts are required. Reimbursement for use of private vehicles will be at the rate of \$0.48/km. This is an all-inclusive rate, i.e., includes the cost of gas and insurance.
- (f) Travel expenses are not reimbursable if incurred within a 32 km radius of the Contractor's office unless pre-approved in writing by the designated Ministry contact.
- (g) Prior approval of the Regional, Branch or Project Director is required before any travel is made crossing the Provincial border.

2. MEALS

No receipts are required. Meals will be reimbursed at the following rates:

Full day per Diem	\$45.50	
Breakfast only	\$11.00	If travel starts before 7:00 am
Lunch only	\$12.75	If travel starts before noon
Dinner only	\$21.75	If travel ends after 6:00 pm
Breakfast & Lunch	\$23.75	As per above
Breakfast & Dinner	\$32.75	As per above
Lunch & Dinner	\$34.50	As per above

3. ACCOMMODATION

Receipts are required. Accommodation expenses are reimbursed at cost, based on the maximum daily rates provided. Refer to Appendix 1 of this Schedule for details on accommodation rates.

Private lodging will be reimbursed at a rate of \$30.00/day.

Accommodation outside the Province will be at the rates pre-approved in writing by the Regional, Branch or Project Director.

4. BOARD AND LODGING

Where specifically pre-approved in writing by the designated Ministry contact, the contractor may claim \$2,000.00 per month for board and lodging in lieu of the accommodation and meal rates specified above.

- (d) Parking and Toll Charges: Receipts are required.

APPENDIX 1 TO SCHEDULE OF REIMBURSABLE TRAVEL EXPENSES **ACCOMMODATION RATE THRESHOLDS FOR CONTRACTORS**

Daily hotel/motel accommodation stays will be reimbursed at cost, not to exceed the maximum rates by city as set out below. Only the single-person provincial government rate for a standard room will be reimbursed. Proof of government-related business may be required when booking.

City	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Downtown Vancouver	\$135	\$135	\$130	\$130	\$165	\$165	\$165	\$165	\$165	\$160	\$120	\$120
Greater Vancouver	\$95	\$95	\$95	\$95	\$130	\$140	\$140	\$140	\$140	\$100	\$95	\$95
Burnaby	\$100	\$100	\$110	\$110	\$125	\$125	\$125	\$125	\$125	\$110	\$100	\$100
Coquitlam/Port Coquitlam	\$95	\$100	\$115	\$115	\$115	\$115	\$115	\$115	\$115	\$115	\$95	\$95
Delta	\$90	\$90	\$90	\$90	\$95	\$95	\$95	\$95	\$95	\$90	\$90	\$90
Langley	\$90	\$90	\$90	\$90	\$100	\$100	\$100	\$100	\$100	\$90	\$90	\$90
New Westminster	\$105	\$105	\$105	\$105	\$120	\$120	\$120	\$120	\$120	\$105	\$105	\$105
North Vancouver	\$100	\$100	\$100	\$100	\$130	\$130	\$150	\$150	\$150	\$100	\$100	\$100
Richmond	\$100	\$100	\$100	\$100	\$130	\$130	\$130	\$140	\$130	\$120	\$100	\$100
Surrey	\$80	\$80	\$80	\$80	\$90	\$90	\$90	\$90	\$90	\$80	\$80	\$80
White Rock	\$80	\$80	\$80	\$80	\$100	\$100	\$100	\$100	\$85	\$80	\$80	\$80
Downtown Victoria	\$90	\$90	\$90	\$90	\$160	\$160	\$165	\$165	\$155	\$130	\$90	\$90
Greater Victoria*	\$80	\$80	\$80	\$85	\$100	\$105	\$130	\$130	\$130	\$95	\$80	\$80
Castlegar	\$90	\$90	\$90	\$90	\$100	\$100	\$90	\$90	\$90	\$100	\$90	\$90
Cranbrook	\$90	\$90	\$90	\$90	\$95	\$95	\$95	\$95	\$95	\$90	\$90	\$90
Dawson Creek	\$85	\$85	\$85	\$85	\$85	\$90	\$90	\$90	\$85	\$85	\$85	\$85
Fort St John	\$120	\$120	\$120	\$120	\$120	\$120	\$120	\$120	\$120	\$120	\$120	\$120
Golden	\$95	\$95	\$95	\$95	\$100	\$100	\$100	\$100	\$95	\$95	\$95	\$95
Kamloops	\$80	\$80	\$80	\$80	\$90	\$90	\$90	\$90	\$90	\$85	\$85	\$85
Kelowna	\$90	\$90	\$90	\$95	\$110	\$120	\$120	\$120	\$120	\$95	\$95	\$95
Nanaimo	\$85	\$85	\$85	\$85	\$95	\$95	\$95	\$95	\$95	\$85	\$85	\$85
Nelson	\$85	\$85	\$85	\$85	\$90	\$95	\$95	\$95	\$95	\$85	\$85	\$85
Penticton	\$75	\$75	\$85	\$85	\$90	\$120	\$130	\$130	\$90	\$85	\$85	\$85
Prince George	\$95	\$95	\$95	\$95	\$95	\$95	\$95	\$95	\$95	\$95	\$95	\$95
Prince Rupert	\$80	\$80	\$80	\$85	\$100	\$100	\$100	\$100	\$100	\$85	\$85	\$85
Smithers	\$80	\$80	\$85	\$85	\$85	\$85	\$85	\$85	\$85	\$80	\$80	\$80
Terrace	\$90	\$90	\$90	\$90	\$90	\$90	\$90	\$90	\$90	\$90	\$90	\$90
Vernon	\$85	\$85	\$85	\$85	\$95	\$95	\$95	\$95	\$95	\$85	\$85	\$85
Whistler	\$150	\$170	\$170	\$100	\$100	\$100	\$100	\$100	\$100	\$100	\$100	\$100
Williams Lake	\$70	\$70	\$70	\$70	\$80	\$80	\$80	\$80	\$80	\$70	\$70	\$70
Other Cities Not Listed	\$80	\$80	\$85	\$85	\$85	\$85	\$85	\$85	\$85	\$85	\$80	\$80

*Central Saanich, Saanichton, Brentwood Bay, Langford, Colwood, Sidney, Saanich, Esquimalt, Oak Bay



Letter of Authorization for Contractors

"Date"

To: All Authorized Province of British Columbia
Travel Industry Suppliers

Re: _____
"Contract Identification Number & Brief Description of Services"

Please be advised that: _____
"Name of Contractor"

is a contractor to the Ministry of Transportation and, as such, is permitted to use provincial government rates during the term of his/her contract as follows:

_____ to _____
"Commencement Date" "Completion Date"

The contractor named above, agrees that the services or goods obtained by virtue of this letter of authorization will be used solely for services supplied to the Province of British Columbia and the cost of the service or goods will be reimbursed to the contractor by the government, at the rate(s) supplied.

Personal or other use of this letter, or services/goods provided through the use of this letter, for other than that stated in the contractor's agreement, is forbidden in accordance with the terms and conditions of the agreement.

Should you require verification of this information, or if you have any questions, please contact the undersigned
at _____
"Phone Number"

Thank you for your co-operation.

Yours truly,

"Name of Ministry Contact"

"Position Title"



SAMPLE

(<http://www.th.gov.bc.ca/forms/getForm.aspx?formid=1070>)

CONTRACT IDENTIFICATION NUMBER
<div style="display: flex; justify-content: space-around; width: 100%;"> <div style="border-bottom: 1px solid black; width: 45%;"></div> <div style="border-bottom: 1px solid black; width: 45%;"></div> </div>

Transportation *in the Schedule of Reimbursable Expenses.)*

* For private vehicle only.

Date (yyyy/mm/dd)	Meal (Breakfast/Lunch/Dinner)	Cost
TOTAL		\$

Accommodation *Reimbursable Expenses.)*

TOTAL

Date (yyyy/mm/dd)	Third Party Travel Expense or Sundry Travel Charges	Cost
TOTAL		\$

TOTAL

TOTAL EXPENSES \$

Schedule E
PRIVACY PROTECTION SCHEDULE

This Schedule forms part of the agreement between Her Majesty the Queen in right of the Province of British Columbia represented by MINISTRY OF TRANSPORTATION (the "Province") and 131 GROUP (the "Contractor") respecting 070440030 (the "Agreement").

Definitions

1. In this Schedule,
 - (a) "access" means disclosure by the provision of access;
 - (b) "Act" means the *Freedom of Information and Protection of Privacy Act* (British Columbia), as amended from time to time;
 - (c) "contact information" means information to enable an individual at a place of business to be contacted and includes the name, position name or title, business telephone number, business address, business email or business fax number of the individual;
 - (d) "personal information" means recorded information about an identifiable individual, other than contact information, collected or created by the Contractor as a result of the Agreement or any previous agreement between the Province and the Contractor dealing with the same subject matter as the Agreement but excluding any such information that, if this Schedule did not apply to it, would not be under the "control of a public body" within the meaning of the Act.

Purpose

2. The purpose of this Schedule is to:
 - (a) enable the Province to comply with its statutory obligations under the Act with respect to personal information; and
 - (b) ensure that, as a service provider, the Contractor is aware of and complies with its statutory obligations under the Act with respect to personal information.

Collection of personal information

3. Unless the Agreement otherwise specifies or the Province otherwise directs in writing, the Contractor may only collect or create personal information that is necessary for the performance of the Contractor's obligations, or the exercise of the Contractor's rights, under the Agreement.
4. Unless the Agreement otherwise specifies or the Province otherwise directs in writing, the Contractor must collect personal information directly from the individual the information is about.
5. Unless the Agreement otherwise specifies or the Province otherwise directs in writing, the Contractor must tell an individual from whom the Contractor collects personal information:
 - (a) the purpose for collecting it;
 - (b) the legal authority for collecting it; and
 - (c) the title, business address and business telephone number of the person designated by the Province to answer questions about the Contractor's collection of personal information.

Accuracy of personal information

6. The Contractor must make every reasonable effort to ensure the accuracy and completeness of any personal information to be used by the Contractor or the Province to make a decision that directly affects the individual the information is about.

Requests for access to personal information

7. If the Contractor receives a request for access to personal information from a person other than the Province, the Contractor must promptly advise the person to make the request to the Province unless the Agreement expressly requires the Contractor to provide such access and, if the Province has advised the Contractor of the name or title and contact information of an official of the Province to whom such requests are to be made, the Contractor must also promptly provide that official's name or title and contact information to the person making the request.

Correction of personal information

8. Within 5 business days of receiving a written direction from the Province to correct or annotate any personal information, the Contractor must annotate or correct the information in accordance with the direction.
9. When issuing a written direction under section 8, the Province must advise the Contractor of the date the correction request to which the direction relates was received by the Province in order that the Contractor may comply with section 10.
10. Within 5 business days of correcting or annotating any personal information under section 8, the Contractor must provide the corrected or annotated information to any party to whom, within one year prior to the date the correction request was made to the Province, the Contractor disclosed the information being corrected or annotated.
11. If the Contractor receives a request for correction of personal information from a person other than the Province, the Contractor must promptly advise the person to make the request to the Province and, if the Province has advised the Contractor of the name or title and contact information of an official of the Province to whom such requests are to be made, the Contractor must also promptly provide that official's name or title and contact information to the person making the request.

Protection of personal information

12. The Contractor must protect personal information by making reasonable security arrangements against such risks as unauthorized access, collection, use, disclosure or disposal, including any expressly set out in the Agreement.

Storage and access to personal information

13. Unless the Province otherwise directs in writing, the Contractor must not store personal information outside Canada or permit access to personal information from outside Canada.

Retention of personal information

14. Unless the Agreement otherwise specifies, the Contractor must retain personal information until directed by the Province in writing to dispose of it or deliver it as specified in the direction.

Use of personal information

15. Unless the Province otherwise directs in writing, the Contractor may only use personal information if that use is:
 - (a) for the performance of the Contractor's obligations, or the exercise of the Contractor's rights, under the Agreement; and
 - (b) in accordance with section 13.

Disclosure of personal information

16. Unless the Province otherwise directs in writing, the Contractor may only disclose personal information inside Canada to any person other than the Province if the disclosure is for the performance of the Contractor's obligations, or the exercise of the Contractor's rights, under the Agreement.
17. Unless the Agreement otherwise specifies or the Province otherwise directs in writing, the Contractor must not disclose personal information outside Canada.

Inspection of personal information

18. In addition to any other rights of inspection the Province may have under the Agreement or under statute, the Province may, at any reasonable time and on reasonable notice to the Contractor, enter on the Contractor's premises to inspect any personal information in the possession of the Contractor or any of the Contractor's information management policies or practices relevant to its management of personal information or its compliance with this Schedule and the Contractor must permit, and provide reasonable assistance to, any such inspection.

Compliance with the Act and directions

19. The Contractor must in relation to personal information comply with:
 - (a) the requirements of the Act applicable to the Contractor as a service provider, including any applicable order of the commissioner under the Act; and
 - (b) any direction given by the Province under this Schedule.
20. The Contractor acknowledges that it is familiar with the requirements of the Act governing personal information that are applicable to it as a service provider.

Notice of non-compliance

21. If for any reason the Contractor does not comply, or anticipates that it will be unable to comply, with a provision in this Schedule in any respect, the Contractor must promptly notify the Province of the particulars of the non-compliance or anticipated non-compliance and what steps it proposes to take to address, or prevent recurrence of, the non-compliance or anticipated non-compliance.

Termination of Agreement

22. In addition to any other rights of termination which the Province may have under the Agreement or otherwise at law, the Province may, subject to any provisions in the Agreement establishing mandatory cure periods for defaults by the Contractor, terminate the Agreement by giving written notice of such termination to the Contractor, upon any failure of the Contractor to comply with this Schedule in a material respect.

Interpretation

23. In this Schedule, references to sections by number are to sections of this Schedule unless otherwise specified in this Schedule.
24. Any reference to the "Contractor" in this Schedule includes any subcontractor or agent retained by the Contractor to perform obligations under the Agreement and the Contractor must ensure that any such subcontractors and agents comply with this Schedule.
25. The obligations of the Contractor in this Schedule will survive the termination of the Agreement.
26. If a provision of the Agreement (including any direction given by the Province under this Schedule) conflicts with a requirement of the Act or an applicable order of the commissioner under the Act, the conflicting provision of the Agreement (or direction) will be inoperative to the extent of the conflict.
27. The Contractor must comply with the provisions of this Schedule despite any conflicting provision of this Agreement or, subject to section 28, the law of any jurisdiction outside Canada.
28. Nothing in this Schedule requires the Contractor to contravene the law of any jurisdiction outside Canada unless such contravention is required to comply with the Act.



January 7, 2008

IBI Group
#700 – 1285 West Pender Street
Vancouver, BC
V6E 4B1

Dear Mr. Eagleston:

Re: Contract Number 070LM4614
Analyze and Acquire Information on Development Densities Around Transit

Approval has been obtained to amend the above noted contract as per the attached Amendment Number 1.

If you are in agreement, then please sign and have witnessed in the appropriate location(s) on the amendment, and then return all pages to the following address:

Ministry of Transportation
Transportation Planning & Policy Department
PO Box 9850, Stn Prov Govt, 940 Blanshard Street
Victoria, BC
V8W 9T5

When the amendment has been signed by both parties to the contract, a copy will be sent to you for your records.

All other terms and conditions of the contract remain unchanged.

Please reference Contract Number 070LM4614 on associated correspondence and invoices.

Should you have any questions concerning the above, please contact myself or Heather Weir at (250) 953-4960.

Yours truly,

Sandra Jackman
Manager, Financial Services

Attachment(s)

**This Agreement** MADE BETWEEN:

HER MAJESTY THE QUEEN IN RIGHT OF THE PROVINCE OF BRITISH COLUMBIA AS
REPRESENTED BY THE MINISTER OF TRANSPORTATION (HEREIN AFTER CALLED
THE PROVINCE).

5C - 940 Blanshard Street

PO Box 9850 StnProvGov, Victoria BC V8W 9T5

AND: IBI Group

(HEREIN AFTER CALLED THE "CONTRACTOR")

#700 1285 West Pender Street

Vancouver BC V6E 4B1

THE CONTRACTOR HAS OFFERED TO PERFORM THE SERVICES HEREIN DESCRIBED AT THE PRICE AND ON THE TERMS AND CONDITIONS SET OUT IN THIS AGREEMENT; AND THE PROVINCE HAS ACCEPTED THE CONTRACTOR'S OFFER. THIS AGREEMENT INCLUDES ALL ATTACHMENTS INDICATED BELOW.

SHORT DESCRIPTION OF THE WORKS/SERVICES: Analyze and acquire information on development densities around rail transit DETAILS:

SEE WORKS/SERVICES SCHEDULE

Requestor (Print Name):	Jim Hester	Qualified Receiver (Print Name):	Jon Conquist
COMMENCEMENT DATE (YYYY/MM/DD)	2007-09-04	COMPLETION DATE (YYYY/MM/DD)	2007-09-30
DESCRIPTION OF PRICE(S)/AGREED RATE(S)			

SEE PAYMENT SCHEDULE

ATTACHED SCHEDULES MARKED "X" FORM PART OF THIS CONTRACT

X	Terms and Conditions
X	Work/Services Schedule - H0461a
X	Payment Schedule - H0461b
X	Travel Expenses (Group I) - H0461c
	Travel Expenses (Group II - Mgmt) - H0461c-1
	Insurance Specifications - INS-80
	Insurance Professional Services - INS-132
	Certificate of Insurance - H0111
	Special Conditions (Engineering) - H0461d
	Special Conditions (Information Systems) - H0461d-1
	Special Conditions (Survey) - H0461d-2
X	Privacy Protection Schedule
	Other

TOTAL PAYMENTS NOT TO EXCEED \$ 30,000.00

IN SIGNING THIS AGREEMENT, THE CONTRACTOR AGREES THAT HE/SHE HAS READ AND UNDERSTOOD ALL TERMS AND CONDITIONS OF THIS AGREEMENT, INCLUDING THOSE CONTAINED ON ANY AND ALL ATTACHMENTS.

Procurement Process - AIT and TILMA - List of Values Form (mandatory): ☒ Attach H1109 and Fwd to Accounts

Category Type: ☐ BI.BI02 For Works OR; ☒ BN.BN02 For Services WCB Number: 370958AQ (007)

Method of Selection: ☐ RISP System; ☐ Selective Invitation; ☐ RFP; ☐ ITQ; OR: ☒ Direct Award (attach explanation)

Attach Risk Review: ☒ H0135 Local Minor Works OR; ☐ H0056 Consulting Services

Signature of Contractor

2007/09/14

Date (yyyy/mm/dd)

Expense Authority Signature

SEP 20 2007

Date (yyyy/mm/dd)

RON EAGLESTON - DIRECTOR

Print Name and Position

Jon Conquist, Manager, Highway Planning

Print Name and Position

Responsibility	Service Line	STOB	Project	TOTAL \$
55070	60720	6001	5506404	\$30,000.00
Responsibility	Service Line	STOB	Project	TOTAL \$
(Info 1) - CFS - Product	Business Function	(Info 2) - Work Activity	(Info 3) - Cost Type	TOTAL \$
06404SPF	CORP SER	MGMT SERV	CONSULT	\$30,000.00

TERMS AND CONDITIONS

Contract Identification Number
070 LM 4614

- 1) This Agreement shall be governed by and construed in accordance with the laws of the Province of British Columbia.
- 2) Every reference to this Agreement shall include the Local Minor Works/Services Contract (H0593), these Terms and Conditions, any Attachments listed on H0593, and any written instructions issued by the Province subsequent to entering into this Agreement.
- 3) Every reference to the Province shall include the Minister, the Deputy Minister and any person designated by either of them to act on their respective behalf pursuant to this Agreement.
- 4) Every reference to the Contractor shall include the person, partnership, or company named as the Contractor in this Agreement and any person(s) designated or allowed by the Contractor to act on its behalf pursuant to this Agreement.
- 5) This Agreement shall be binding upon the Province and its assigns, and upon the Contractor and its successors and permitted assigns.
- 6) Every reference to the Work shall mean the Contractor's obligations to the Province under this Agreement, including but not limited to the Description of Works/Services.
- 7) Time is material and of the essence in this Agreement.
- 8) Title to and ownership of any material, supplies, property, or rights provided by the Province to the Contractor, or produced by the Contractor as a result of this Agreement, shall at all times remain with the Province.
- 9) Any notice or instruction required or permitted to be given under this Agreement shall be delivered by hand, fax, or prepaid courier to the addresses for the parties shown in this Agreement or at such other address as either party may from time to time designate by notice in writing to the other. Items delivered by courier shall be deemed to be received on the date of delivery.
- 10) The Province may vary the Work at any time, by providing the Contractor with written instructions in the form of An Amendment.
- 11) A waiver of any provision or breach by the Contractor of this Agreement shall be effective only if it is in writing and signed by the Province and shall not be deemed to be a waiver of any subsequent breach of the same or any other provision of this Agreement.
- e) ensure that all persons employed in connection with the provision of the Work are competent to perform their duties, adequately trained, fully instructed, supervised and shall be the employees of the Contractor and not of the Province;
- f) use material and supplies of the brand name, if any, specified in this Agreement or, where no brand name is specified, of the best quality available, and shall provide samples of materials and supplies to be used in performing the Work for approval upon the request of the Province;
- g) upon request of the Province, promptly and fully inform the Province of all Work done in connection with this Agreement and permit the Province at all reasonable times to inspect and review such Work, whether complete or otherwise;
- h) accept instructions from the Province with respect to the Work; however, the Contractor shall not be subject to the control of the Province in respect of the manner in which such instructions are carried out except as specified in this Agreement;
- i) not assign this Agreement, nor subcontract any of its obligations under this Agreement without the prior written consent of the Province;
- j) at all times treat as confidential all documents and other information supplied to or obtained by the Contractor as a result of this Agreement and shall not permit the publication, release or disclosure of the same without the prior written consent of the Province;
- k) Indemnify and save harmless the Province, the Minister and their employees and agents, from and against any and all losses, claims, damages, fines, penalties, actions, causes of action, costs and expenses that the Province, the Minister and their employees and agents may sustain, incur, suffer or be put to at any time or times, whether before, during, or after the expiration or sooner termination of this Agreement, where the same or any of them are based upon, arise out of, or occur, directly or indirectly, by reason of any act or omission of the Contractor or of any agent, employee, officer, Director or subcontractor of the Contractor pursuant to this Agreement;
- l) maintain the work site free of waste materials and rubbish throughout the Term and leave the work site at the end of the Term in a safe, clean and sanitary condition;
- m) comply with all of its obligations, including those contained in any Attachments to this Agreement; and
- n) establish and maintain time records and books of account, invoices, receipts and vouchers of all expenses incurred in form and content satisfactory to the Province and permit the Province to inspect or copy such documents at all reasonable times.

TERMINATION

- 12) Notwithstanding any other provision of this Agreement, the Province may, in its sole discretion, terminate this Agreement:
 - a) on ten (10) days prior written notice of termination to the Contractor and the Province shall pay to the Contractor that portion of the amounts described in the Description of Prices(s)/Agreed Rate(s) or the Payment Schedule which is attributable to the portion of the Work completed to the satisfaction of Province prior to the date of termination and such payment shall discharge the Province from all liability to the Contractor under the Agreement.
 - b) where in the opinion of the Province the Contractor fails to observe, perform or comply with any provision of this Agreement and such termination shall be in addition to any other rights and remedies existing or available to the Province under this Agreement or at law.

13) THE CONTRACTOR WILL:

- a) be an independent contractor and not the servant, employee or agent of the Province;
- b) obtain and supply all tools, equipment, supplies, labour, materials, licences, permits and approvals necessary to complete the Work, at its own expense, unless otherwise stated in this Agreement;
- c) comply with all laws, regulations and bylaws, and cooperate with every authority having jurisdiction in connection with the Work;
- d) at all times maintain a standard of care, skill and diligence in performance of the Work which is normally exercised and observed by persons engaged in the provision of similar Work;

14) PAYMENT

- a) Notwithstanding any other provision of this Agreement, the payment of money by the Province to the Contractor is subject to the provisions of the Financial Administration Act;
- b) The Contractor shall not in any manner whatsoever commit or purport to commit the Province to the payment of any money to any party;
- c) The Contractor shall invoice the Province in accordance with the Description of Price(s)/Agreed Rate(s) and other terms of this Agreement;
- d) Acceptance of any invoice and subsequent payment for the Work, or any portion of the Work, is subject to the invoiced Work having been completed to the satisfaction of the Province;
- e) The Province shall pay to the Contractor the Price(s)/Agreed Rate(s) stated in this Agreement. Payment shall become due and payable 30 days following either the receipt by the Province of the Contractor's invoice OR satisfactory completion of the invoiced work/services, whichever is later.
- f) The Contractor shall accept payment as stated above as full and final compensation for all costs inclusive of taxes, fees and licences incurred in connection with performance of the Work; and
- g) This is to certify that the property and/or services hereby purchased are for the use of, and are being purchased by, the Ministry with Crown Funds, and are therefore not subject to the Goods and Services Tax.



WORKS/SERVICES SCHEDULE

CONTRACT IDENTIFICATION NUMBER

070 | LM | 4614

The Contractor shall:

Identify key variables influencing market penetration of transit in major cities with both rapid transit and conventional transit. This will include population density (persons/hectare), employment density, income levels, level of private vehicle ownership, and other factors which may be identified in the course of the research.

Screen cities for similarity with the Greater Vancouver Regional District (GVRD) based on key variables and availability of data. This screening process will be used as the basis for definition of the scope (i.e. number of cities) and selection of cities for inclusion in the survey. The target will be to survey up to sixteen (16) cities, dependent on data availability, including examples in North America, Europe and Australia. The scope will be approved by the client before proceeding.

Assemble data from published sources, interviews and other sources as available on the key variables for the cities chosen as comparators. The contractor will also gather data on development density before and after the construction of the transit facilities, if it is available.

The contractor will compare the assembled data with anticipated features of the GVRD as reflected in forecasts for development density in the vicinity of SkyTrain stations as provided by the Gateway Program office. Analysis will also consider the levels of service and system capacity of the rapid transit lines for the cities under consideration.

The contractor will prepare a draft Technical Memorandum for review by September 21, 2007. This will detail the findings of the research, including key distinguishing features of the transit systems, compilation of data on the key variables identified for the surveyed cities and the GVRD, and conclusions on the findings. The report will include graphics. Mapping analysis of the anticipated density around stations in the GVRD may be provided conditional on provision of the data by the Gateway Program office.

The contractor will prepare and deliver a Final Report (two (2) hard copies and one (1) electronic copy) by September 28, 2007.

**PAYMENT SCHEDULE****METHOD OF PAYMENT**

Payments to the Contractor shall be based on the following:

CONTRACT IDENTIFICATION NUMBER

070 | LM | 4614

Rates for Project Principals*

Responsible Principal – Andy McNally

- Total person hours – 7

Project Manager – Philip Davies

- Total person hours – 15

Lead Land Use Planner – Marsha Bousquet

- Total person hours – 32

s.21

Manager, Land Use Planning – Brian Jackson

- Total person hours – 20

Senior Transport Planner – Blair Smith

- Total person hours – 22

Consultant – Shannon Heffernan

- Total person hours – 86

Total Consultant Fees

\$23,850.00

Disbursements (delivery, telephone, printing, reproduction)

800.00

Disbursements (clerical)

350.00

Sub Total Fees and Expenses

\$25,000.00

Purchase of USA census data, if recommended by the contractor

5,000.00

Total contract value

\$30,000.00

*Refer to Schedule 1, attached, IBI Group 'Development Density in the Vicinity of Transit Stations' proposal for breakdown of project budget.

TRAVEL EXPENSES

Travel expenses shall be reimbursed in accordance with the rates and terms as set out in the Schedule of Reimbursable Travel Expenses (Group 1) attached.

FREQUENCY OF PAYMENTS

The Contractor shall invoice the Province:

Monthly in arrears for services performed and goods received satisfactorily by the Ministry.

MAXIMUM AMOUNT PAYABLE

Total payments shall not exceed \$ 30,000.00.

PAYMENT SCHEDULE TERMS AND CONDITIONS

1. The Contractor shall invoice the Province in accordance with the terms of this Agreement showing the calculation of all amounts claimed.
2. Acceptance of any invoice and subsequent payment for the work/services, or any portion of the work/services, is subject to the invoiced work/services having been completed to the satisfaction of the Province.
3. The Province shall pay the Contractor within 30 days following either the receipt by the Province of the Contractor's invoice OR satisfactory completion of the invoiced work/services, whichever is later.
4. The Contractor shall accept payment as stated above as full and final reimbursement for all costs connected with the work/services.
5. The Contractor shall not commit the Province to any financial liability.
6. Notwithstanding any other provision of this Agreement, the payment of money by the Province to the Contractor is subject to the provisions of the Financial Administration Act.

Project Budget

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TRA-2011-00175



SCHEDULE OF REIMBURSABLE TRAVEL EXPENSES (GROUP I)

When travel expenses are listed in the Payment Schedule as an allowable expense, then transportation, meals, accommodation and board and lodging will be reimbursed provided the same are in the opinion of the Province, necessarily incurred by the Contractor in providing the work/services.

These rates will apply for the duration of the contract.

To obtain Government rates for car rental and accommodation a letter of authority signed by the Ministry contact (sample attached) is required as proof that you are under contract with the Province.

CONTRACT IDENTIFICATION NUMBER

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All claims should be submitted on "Schedule of Reimbursable Travel Expenses for Contractors to Fill in Online – H1170" (see attached) with all receipts attached.

No GST will be reimbursed.

1. TRANSPORTATION

- (a) Air Travel: Receipts are required. The most economical airfare must be obtained. Charter flights must be pre-approved in writing by the Regional, Branch or Project Director.
- (b) Bus, Taxi, and Ferry: Receipts are required. Ferry travel should be by the most economical route. Assured loading tickets and ferry reservations must be pre-approved in writing by the Regional, Branch or Project Director.
- (c) Car Rental: Receipts are required. The Province has negotiated Corporate Supply Arrangements (CSAs) with the following vehicle rental companies and the Corporate Identification Number below is required when requesting a vehicle, to ensure that correct rates are being applied to the rental.

It is up to the discretion of each contractor to determine which company to use for their particular need, based on the most economical rate per kilometre charge available.

- AVIS RENT A CAR – C1460000
- BUDGET RENT A CAR – A162000
- ENTERPRISE RENT A CAR – 4CA1000
- NATIONAL CAR RENTAL – 3614638
- THRIFTY CAR RENTAL – 1660019642
- BEST CHOICE CAR AND TRUCK RENTALS – N/A
- RON RIDLEY RENTALS – N/A

Collision or Loss Damage Waivers (CDW or LDW), or Personal Injury or Accident Insurance (PII or PAI) will not be reimbursed.

Report all accidents to the rental agency and the Ministry contact with 24 hours and submit a Vehicle Accident Report Form (RISK 01) to the Manager, Maint Programs.

- (e) Private Vehicle: No receipts are required. Reimbursement for use of private vehicles will be at the rate of \$0.48/km. This is an all-inclusive rate, i.e., includes the cost of gas and insurance.
- (f) Travel expenses are not reimbursable if incurred within a 32 km radius of the Contractor's office unless pre-approved in writing by the designated Ministry contact.
- (g) Prior approval of the Regional, Branch or Project Director is required before any travel is made crossing the Provincial border.

2. MEALS

No receipts are required. Meals will be reimbursed at the following rates:

Full day per Diem	\$45.50	
Breakfast only	\$11.00	If travel starts before 7:00 am
Lunch only	\$12.75	If travel starts before noon
Dinner only	\$21.75	If travel ends after 6:00 pm
Breakfast & Lunch	\$23.75	As per above
Breakfast & Dinner	\$32.75	As per above
Lunch & Dinner	\$34.50	As per above

3. ACCOMMODATION

Receipts are required. Accommodation expenses are reimbursed at cost, based on the maximum daily rates provided. Refer to Appendix 1 of this Schedule for details on accommodation rates.

Private lodging will be reimbursed at a rate of \$30.00/day.

Accommodation outside the Province will be at the rates pre-approved in writing by the Regional, Branch or Project Director.

4. BOARD AND LODGING

Where specifically pre-approved in writing by the designated Ministry contact, the contractor may claim \$2,000.00 per month for board and lodging in lieu of the accommodation and meal rates specified above.

- (d) Parking and Toll Charges: Receipts are required.

APPENDIX 1 TO SCHEDULE OF REIMBURSABLE TRAVEL EXPENSES **ACCOMMODATION RATE THRESHOLDS FOR CONTRACTORS**

Daily hotel/motel accommodation stays will be reimbursed at cost, not to exceed the maximum rates by city as set out below. Only the single-person provincial government rate for a standard room will be reimbursed. Proof of government-related business may be required when booking.

City	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Downtown Vancouver	\$135	\$135	\$130	\$130	\$165	\$165	\$165	\$165	\$165	\$160	\$120	\$120
Greater Vancouver	\$95	\$95	\$95	\$95	\$130	\$140	\$140	\$140	\$140	\$100	\$95	\$95
Burnaby	\$100	\$100	\$110	\$110	\$125	\$125	\$125	\$125	\$125	\$110	\$100	\$100
Coquitlam/Port Coquitlam	\$95	\$100	\$115	\$115	\$115	\$115	\$115	\$115	\$115	\$115	\$95	\$95
Delta	\$90	\$90	\$90	\$90	\$95	\$95	\$95	\$95	\$95	\$90	\$90	\$90
Langley	\$90	\$90	\$90	\$90	\$100	\$100	\$100	\$100	\$100	\$90	\$90	\$90
New Westminster	\$105	\$105	\$105	\$105	\$120	\$120	\$120	\$120	\$120	\$105	\$105	\$105
North Vancouver	\$100	\$100	\$100	\$100	\$130	\$130	\$150	\$150	\$150	\$100	\$100	\$100
Richmond	\$100	\$100	\$100	\$100	\$130	\$130	\$130	\$140	\$130	\$120	\$100	\$100
Surrey	\$80	\$80	\$80	\$80	\$90	\$90	\$90	\$90	\$90	\$80	\$80	\$80
White Rock	\$80	\$80	\$80	\$80	\$100	\$100	\$100	\$100	\$85	\$80	\$80	\$80
Downtown Victoria	\$90	\$90	\$90	\$90	\$160	\$160	\$165	\$165	\$155	\$130	\$90	\$90
Greater Victoria*	\$80	\$80	\$80	\$85	\$100	\$105	\$130	\$130	\$130	\$95	\$80	\$80
Castlegar	\$90	\$90	\$90	\$90	\$100	\$100	\$90	\$90	\$90	\$100	\$90	\$90
Cranbrook	\$90	\$90	\$90	\$90	\$95	\$95	\$95	\$95	\$95	\$90	\$90	\$90
Dawson Creek	\$85	\$85	\$85	\$85	\$85	\$90	\$90	\$90	\$85	\$85	\$85	\$85
Fort St John	\$120	\$120	\$120	\$120	\$120	\$120	\$120	\$120	\$120	\$120	\$120	\$120
Golden	\$95	\$95	\$95	\$95	\$100	\$100	\$100	\$100	\$95	\$95	\$95	\$95
Kamloops	\$80	\$80	\$80	\$80	\$90	\$90	\$90	\$90	\$90	\$85	\$85	\$85
Kelowna	\$90	\$90	\$90	\$95	\$110	\$120	\$120	\$120	\$120	\$95	\$95	\$95
Nanaimo	\$85	\$85	\$85	\$85	\$95	\$95	\$95	\$95	\$95	\$85	\$85	\$85
Nelson	\$85	\$85	\$85	\$85	\$90	\$95	\$95	\$95	\$95	\$85	\$85	\$85
Penticton	\$75	\$75	\$85	\$85	\$90	\$120	\$130	\$130	\$90	\$85	\$85	\$85
Prince George	\$95	\$95	\$95	\$95	\$95	\$95	\$95	\$95	\$95	\$95	\$95	\$95
Prince Rupert	\$80	\$80	\$80	\$85	\$100	\$100	\$100	\$100	\$100	\$85	\$85	\$85
Smithers	\$80	\$80	\$85	\$85	\$85	\$85	\$85	\$85	\$85	\$80	\$80	\$80
Terrace	\$90	\$90	\$90	\$90	\$90	\$90	\$90	\$90	\$90	\$90	\$90	\$90
Vernon	\$85	\$85	\$85	\$95	\$95	\$95	\$95	\$95	\$95	\$85	\$85	\$85
Whistler	\$150	\$170	\$170	\$100	\$100	\$100	\$100	\$100	\$100	\$100	\$100	\$100
Williams Lake	\$70	\$70	\$70	\$70	\$80	\$80	\$80	\$80	\$80	\$70	\$70	\$70
Other Cities Not Listed	\$80	\$80	\$85	\$85	\$85	\$85	\$85	\$85	\$85	\$85	\$80	\$80

*Central Saanich, Saanichton, Brentwood Bay, Langford, Colwood, Sidney, Esquimalt, Oak Bay



Letter of Authorization for Contractors

"Date"

To: All Authorized Province of British Columbia
Travel Industry Suppliers

Re: _____
"Contract Identification Number & Brief Description of Services"

Please be advised that: _____
"Name of Contractor"

is a contractor to the Ministry of Transportation and, as such, is permitted to use provincial government rates during the term of his/her contract as follows:

_____ to _____
"Commencement Date" "Completion Date"

The contractor named above, agrees that the services or goods obtained by virtue of this letter of authorization will be used solely for services supplied to the Province of British Columbia and the cost of the service or goods will be reimbursed to the contractor by the government, at the rate(s) supplied.

Personal or other use of this letter, or services/goods provided through the use of this letter, for other than that stated in the contractor's agreement, is forbidden in accordance with the terms and conditions of the agreement.

Should you require verification of this information, or if you have any questions, please contact the undersigned
at _____
"Phone Number"

Thank you for your co-operation.

Yours truly,

"Name of Ministry Contact"

"Position Title"



PRIVACY PROTECTION SCHEDULE

This Schedule forms part of the agreement between IBI GROUP (the "Public Body") and MINISTRY OF TRANSPORTATION (the "Contractor") respecting 070LH4614 (the "Agreement").

Definitions

1. In this Schedule,
 - (a) "access" means disclosure by the provision of access;
 - (b) "Act" means the *Freedom of Information and Protection of Privacy Act* (British Columbia), as amended from time to time;
 - (c) "contact information" means information to enable an individual at a place of business to be contacted and includes the name, position name or title, business telephone number, business address, business email or business fax number of the individual;
 - (d) "personal information" means recorded information about an identifiable individual, other than contact information, collected or created by the Contractor as a result of the Agreement or any previous agreement between the Public Body and the Contractor dealing with the same subject matter as the Agreement but excluding any such information that, if this Schedule did not apply to it, would not be under the "control of a public body" within the meaning of the Act.

Purpose

2. The purpose of this Schedule is to:
 - (a) enable the Public Body to comply with its statutory obligations under the Act with respect to personal information; and
 - (b) ensure that, as a service provider, the Contractor is aware of and complies with its statutory obligations under the Act with respect to personal information.

Collection of personal information

3. Unless the Agreement otherwise specifies or the Public Body otherwise directs in writing, the Contractor may only collect or create personal information that is necessary for the performance of the Contractor's obligations, or the exercise of the Contractor's rights, under the Agreement.
4. Unless the Agreement otherwise specifies or the Public Body otherwise directs in writing, the Contractor must collect personal information directly from the individual the information is about.
5. Unless the Agreement otherwise specifies or the Public Body otherwise directs in writing, the Contractor must tell an individual from whom the Contractor collects personal information:
 - (a) the purpose for collecting it;
 - (b) the legal authority for collecting it; and
 - (c) the title, business address and business telephone number of the person designated by the Public Body to answer questions about the Contractor's collection of personal information.

Accuracy of personal information

6. The Contractor must make every reasonable effort to ensure the accuracy and completeness of any personal information to be used by the Contractor or the Public Body to make a decision that directly affects the individual the information is about.

Requests for access to personal information

7. If the Contractor receives a request for access to personal information from a person other than the Public Body, the Contractor must promptly advise the person to make the request to the Public Body unless the Agreement expressly requires the Contractor to provide such access and, if the Public Body has advised the Contractor of the name or title and contact information of an official of the Public Body to whom such requests are to be made, the Contractor must also promptly provide that official's name or title and contact information to the person making the request.

Correction of personal information

8. Within 5 business days of receiving a written direction from the Public Body to correct or annotate any personal information, the Contractor must annotate or correct the information in accordance with the direction.
9. When issuing a written direction under section 8, the Public Body must advise the Contractor of the date the correction request to which the direction relates was received by the Public Body in order that the Contractor may comply with section 10.
10. Within 5 business days of correcting or annotating any personal information under section 8, the Contractor must provide the corrected or annotated information to any party to whom, within one year prior to the date the correction request was made to the Public Body, the Contractor disclosed the information being corrected or annotated.
11. If the Contractor receives a request for correction of personal information from a person other than the Public Body, the Contractor must promptly advise the person to make the request to the Public Body and, if the Public Body has advised the Contractor of the name or title and contact information of an official of the Public Body to whom such requests are to be made, the Contractor must also promptly provide that official's name or title and contact information to the person making the request.

Protection of personal information

12. The Contractor must protect personal information by making reasonable security arrangements against such risks as unauthorized access, collection, use, disclosure or disposal, including any expressly set out in the Agreement.

Storage and access to personal information

13. Unless the Public Body otherwise directs in writing, the Contractor must not store personal information outside Canada or permit access to personal information from outside Canada.

Retention of personal information

14. Unless the Agreement otherwise specifies, the Contractor must retain personal information until directed by the Public Body in writing to dispose of it or deliver it as specified in the direction.

Use of personal information

15. Unless the Public Body otherwise directs in writing, the Contractor may only use personal information if that use is:
 - (a) for the performance of the Contractor's obligations, or the exercise of the Contractor's rights, under the Agreement; and
 - (b) in accordance with section 13.

Disclosure of personal information

16. Unless the Public Body otherwise directs in writing, the Contractor may only disclose personal information inside Canada to any person other than the Public Body if the disclosure is for the performance of the Contractor's obligations, or the exercise of the Contractor's rights, under the Agreement.
17. Unless the Agreement otherwise specifies or the Public Body otherwise directs in writing, the Contractor must not disclose personal information outside Canada.

Inspection of personal information

18. In addition to any other rights of inspection the Public Body may have under the Agreement or under statute, the Public Body may, at any reasonable time and on reasonable notice to the Contractor, enter on the Contractor's premises to inspect any personal information in the possession of the Contractor or any of the Contractor's information management policies or practices relevant to its management of personal information or its compliance with this Schedule and the Contractor must permit, and provide reasonable assistance to, any such inspection.

Compliance with the Act and directions

19. The Contractor must in relation to personal information comply with:
 - (a) the requirements of the Act applicable to the Contractor as a service provider, including any applicable order of the commissioner under the Act; and
 - (b) any direction given by the Public Body under this Schedule.
20. The Contractor acknowledges that it is familiar with the requirements of the Act governing personal information that are applicable to it as a service provider.

Notice of non-compliance

21. If for any reason the Contractor does not comply, or anticipates that it will be unable to comply, with a provision in this Schedule in any respect, the Contractor must promptly notify the Public Body of the particulars of the non-compliance or anticipated non-compliance and what steps it proposes to take to address, or prevent recurrence of, the non-compliance or anticipated non-compliance.

Termination of Agreement

22. In addition to any other rights of termination which the Public Body may have under the Agreement or otherwise at law, the Public Body may, subject to any provisions in the Agreement establishing mandatory cure periods for defaults by the Contractor, terminate the Agreement by giving written notice of such termination to the Contractor, upon any failure of the Contractor to comply with this Schedule in a material respect.

Interpretation

23. In this Schedule, references to sections by number are to sections of this Schedule unless otherwise specified in this Schedule.
24. Any reference to the "Contractor" in this Schedule includes any subcontractor or agent retained by the Contractor to perform obligations under the Agreement and the Contractor must ensure that any such subcontractors and agents comply with this Schedule.
25. The obligations of the Contractor in this Schedule will survive the termination of the Agreement.
26. If a provision of the Agreement (including any direction given by the Public Body under this Schedule) conflicts with a requirement of the Act or an applicable order of the commissioner under the Act, the conflicting provision of the Agreement (or direction) will be inoperative to the extent of the conflict.
27. The Contractor must comply with the provisions of this Schedule despite any conflicting provision of this Agreement or, subject to section 28, the law of any jurisdiction outside Canada.
28. Nothing in this Schedule requires the Contractor to contravene the law of any jurisdiction outside Canada unless such contravention is required to comply with the Act.



Tick Off Appropriate Box for Procurement Process and then Tick Off Appropriate Box for Trade Agreement Exclusion

PROCUREMENT PROCESS – LIST OF VALUES

- | Code | Description |
|---|--|
| <input type="checkbox"/> 100 | Open competitive process
An open competitive process (e.g., Invitation to Quote, Request for Proposal, Joint Solution Procurement, Invitation to Tender, or other) has been utilized, normally by advertising the opportunity on BC Bid. |
| <input type="checkbox"/> 200 | Direct Award – Public sector organization
Contracts for acquisitions (of goods, services, and construction) and disposals may be negotiated and directly awarded without competitive process where the contract is with another government organization. |
| <input checked="" type="checkbox"/> 201 | Direct Award – Sole source
Contracts for acquisitions (of goods, services, and construction) and disposals may be negotiated and directly awarded without competitive process where the ministry can strictly prove that only one contractor is qualified to provide the goods, services or construction or is capable of engaging in a disposal opportunity. |
| <input type="checkbox"/> 202 | Direct Award – Emergency
Contracts for acquisitions (of goods, services, and construction) and disposals may be negotiated and directly awarded without competitive process where an unforeseeable emergency exists and the goods, services or construction could not be obtained in time by means of a competitive process. |
| <input type="checkbox"/> 203 | Direct Award – Security, order, etc.
Contracts for acquisitions (of goods, services, and construction) and disposals may be negotiated and directly awarded without competitive process where a competitive process would interfere with a ministry's ability to maintain security or order or to protect human, animal or plant life or health. |
| <input type="checkbox"/> 204 | Direct Award – Confidentiality
Contracts for acquisitions (of goods, services, and construction) and disposals may be negotiated and directly awarded without competitive process where the acquisition is of a confidential or privileged nature and disclosure through an open bidding process could reasonably be expected to compromise government confidentiality, cause economic disruption or be contrary to the public interest. |
| <input type="checkbox"/> 205 | Direct Award – Notice of Intent
A Notice of Intent must be posted on BC Bid when a contract for goods valued at more than \$25,000, or a contract for services or construction valued at more than \$50,000, is to be directly awarded on the basis that there is only one vendor that can provide the services required. |
| <input type="checkbox"/> 206 | Direct Award – No justification
Where a direct award has been made which is not justified under one of the exceptional conditions specified in the Core Policy Manual section 6.3.3 a (1), or a Notice of Intent has not been issued, or it is provided for under another policy. |
| <input type="checkbox"/> 207 | Direct Award – Under \$25,000
Use when a direct award has been made for an amount of less than \$25,000 unless one of the 200 to 204 applies. |
| <input type="checkbox"/> 208 | Direct Award – Transfer Payments (Financial Assistance)
A STOB 80 (Transfer under Agreement) contract or agreement that is directly awarded to provide financial assistance to a specified targeted group or population. |
| <input type="checkbox"/> 209 | Direct Award – Transfer Payments (Shared Costs or Public Private Partnership) A STOB 80 (Transfer under Agreement) contract or agreement that is directly awarded and involves a shared-cost agreement or a public private partnership, for which a competitive selection is not appropriate. |
| <input type="checkbox"/> 300 | Direct Invitation to selected vendors
A competitive solicitation which is issued to a limited list of vendors and not advertised on BC Bid. If vendors are on a pre-qualification list, then use 401. |
| <input type="checkbox"/> 400 | Selected vendor from pre-qualification list (RISP<\$100,000)
Use for a contract that is issued to a vendor on a pre-qualification list without undertaking a competitive process. The process followed must be consistent with the rules that were publicised when the pre-qualification list was established. (RISP<\$100,000) |
| <input type="checkbox"/> 401 | Competition among vendors on a pre-qualification list (RISP \$100,00 - \$1,000,000) A competitive solicitation which is issued to a limited list of vendors selected from a pre-qualification list. Cont'd. |

PROCUREMENT PROCESS – LIST OF VALUES Cont'd.

- | Code | Description |
|------------------------------|--|
| <input type="checkbox"/> 401 | Cont'd. Use if a competitive solicitation is issued to a limited list of vendors selected from a pre-qualification list. This solicitation process can include some or all of the vendors on the pre-qualification list but the process followed must be consistent with the rules that were publicised when the pre-qualification list was established. |
| <input type="checkbox"/> 500 | Purchase from a Corporate Supply Arrangement
A purchase from a pre-established corporate supply arrangement such as a MSO, SO, the Queen's Printer or other as identified in the Core Policy Manual section 6.3.2 a (1). |
| <input type="checkbox"/> 600 | Other purchase process
Use for other purchasing process including ministerial appointments. |
| <input type="checkbox"/> 601 | Other – Continuing Agreements
Use for continuing agreements for the component schedules created pursuant to continuing agreements (all STOB 80). A continuing agreement is a specific and optional form of contract that is only to be used in one of the community health and social service areas. Not all contracts in these areas are continuing agreements so look for specific wording on the contract title page that indicates it is a continuing agreement. |
| <input type="checkbox"/> 602 | Other – Grants and Entitlements
This is used for grants and entitlements. |

TRADE AGREEMENT EXCLUSION – LIST OF VALUES

- | Code | Description |
|---|--|
| <input type="checkbox"/> 100 | Purchase subject to AIT / TILMA
The purchase is over the trade agreement thresholds for national advertising (\$10K for goods, \$75K for services and \$100K for construction) and is not excluded or exempt under any other provision of TILMA or other category below. |
| <input checked="" type="checkbox"/> 200 | Purchase below applicable AIT / TILMA thresholds
The purchase is under the trade agreement thresholds (\$10K for goods, \$75K for services and \$100K for construction). |
| <input type="checkbox"/> 300 | Purchase of an exempted commodity/service
The purchase is for goods, services or construction that is exempted from coverage of TILMA or to which TILMA does not apply by virtue of its specific reference in TILMA (e.g., health and social services, grants and entitlements, ministerial appointments). |
| <input type="checkbox"/> 400 | Excluded - Emergency
A purchase where an unforeseeable situation of urgency exists and the goods, services or construction cannot be obtained in time by means of an open procurement. |
| <input type="checkbox"/> 500 | Excluded - Security, order, etc.
A purchase where compliance with the open tendering provisions set out in TILMA would interfere with the Province's ability to maintain security or order or to protect human, animal or plant life or health. |
| <input type="checkbox"/> 600 | Excluded - Product compatibility/exclusive rights
A purchase which must: ensure compatibility with existing products; recognize exclusive rights, such as exclusive licenses, copyright and patent rights; or maintain specialized products that must be maintained by the manufacturer or its representative. |
| <input type="checkbox"/> 700 | Excluded - Procurement of prototype
The procurement of a prototype or a first good or service to be developed in the course of and for a particular contract for research, experiment, study or original development, but not for any subsequent purchases. |
| <input type="checkbox"/> 800 | Excluded - Regional/Economic development
A purchase which, under exceptional circumstances, may be excluded by the Province from the application of TILMA provisions for regional and economic development purposes. |
| <input type="checkbox"/> 900 | Excluded - RISP program (MOT)
The Ministry of Transportation's specific exclusion for its RISP program for hiring engineers. |

**This Agreement** MADE BETWEEN:

HER MAJESTY THE QUEEN IN RIGHT OF THE PROVINCE OF BRITISH COLUMBIA AS
REPRESENTED BY THE MINISTER OF TRANSPORTATION (HEREIN AFTER CALLED
THE PROVINCE).

Finance & Management Services Department

5D - 940 Blanshard Street, Victoria, BC V8W 9T5

AND: Tara Holdings Inc.

(HEREIN AFTER CALLED THE "CONTRACTOR")

1407 - 1022 Nelson Street

Vancouver, BC V6E 4S7

THE CONTRACTOR HAS OFFERED TO PERFORM THE SERVICES HEREIN DESCRIBED AT THE PRICE AND ON THE TERMS AND CONDITIONS SET OUT IN THIS AGREEMENT; AND THE PROVINCE HAS ACCEPTED THE CONTRACTOR'S OFFER. THIS AGREEMENT INCLUDES ALL ATTACHMENTS INDICATED BELOW.

SHORT DESCRIPTION OF THE WORKS/SERVICES:

DETAILS:

Provide communications support to the Ministry of Transportation by:

- ☐ providing strategic communications advice;
- ☐ working closely with key Ministry staff, including the Communications Director and the Directors of Climate Action and Transit;
- ☐ producing a brief, accessible, plain-language version (6-8 page) writing project - for public audiences (a plan)
- ☐ managing brand development, design and print production of the plan; and
- ☐ delivering additional communications services, as requested.

Requestor (Print Name):	Jim Hester	Qualified Receiver (Print Name):	Sharon Cowden
COMMENCEMENT DATE (YYYY/MM/DD)	2007-11-07	COMPLETION DATE (YYYY/MM/DD)	2008-02-14
DESCRIPTION OF PRICE(S)/AGREED RATE(S)		ATTACHED SCHEDULES MARKED "X" FORM PART OF THIS CONTRACT	

Hourly rate: s. 21

Daily rate: s. 21

Expenses such as event marketing costs, print production costs, paid advertising and promotional costs, on line marketing-communications etc, will be reimbursed at net cost with original receipts attached.

<input checked="" type="checkbox"/>	Terms and Conditions
<input checked="" type="checkbox"/>	Work/Services Schedule - H0461a
<input type="checkbox"/>	Payment Schedule - H0461b
<input checked="" type="checkbox"/>	Travel Expenses (Group I) - H0461c
<input type="checkbox"/>	Travel Expenses (Group II - Mgmt) - H0461c-1
<input type="checkbox"/>	Insurance Specifications - INS-80
<input type="checkbox"/>	Insurance Professional Services - INS-132
<input type="checkbox"/>	Certificate of Insurance - H0111
<input type="checkbox"/>	Special Conditions (Engineering) - H0461d
<input type="checkbox"/>	Special Conditions (Information Systems) - H0461d-1
<input type="checkbox"/>	Special Conditions (Survey) - H0461d-2
<input type="checkbox"/>	Privacy Protection Schedule
<input type="checkbox"/>	Other

TOTAL PAYMENTS NOT TO EXCEED \$ 23,000.00

IN SIGNING THIS AGREEMENT, THE CONTRACTOR AGREES THAT HE/SHE HAS READ AND UNDERSTOOD ALL TERMS AND CONDITIONS OF THIS AGREEMENT, INCLUDING THOSE CONTAINED ON ANY AND ALL ATTACHMENTS.

Procurement Process - AIT and TILMA - List of Values Form (mandatory):

Category Type: ☒ BI.BI02 For Works OR; ☐ BN.BN02 For Services **WCB Number:** ☒ Attach H1109 and Fwd to Accounts

Method of Selection: ☐ RISP System; ☐ Selective Invitation; ☐ RFP; ☐ ITQ; OR: ☐ Direct Award (attach explanation)

Attach Risk Review: ☒ H0135 Local Minor Works OR; ☐ H0056 Consulting Services

Signature of Contractor: Maureen Murphy Date (yyyy/mm/dd): 2007/12/17
Expense Authority Signature: Jim Hester, Director, Transit Date (yyyy/mm/dd): 2007/12/18
Print Name and Position: Maureen Murphy Print Name and Position: Jim Hester, Director, Transit

Responsibility	Service Line	STOB	Project	TOTAL \$
55020	60485	6001	5502001	\$23,000.00
Responsibility	Service Line	STOB	Project	TOTAL \$
(Info 1) - CFS - Product	Business Function	(Info 2) - Work Activity	(Info 3) - Cost Type	TOTAL \$

TERMS AND CONDITIONS

020 LM 7827

- 1) This Agreement shall be governed by and construed in accordance with the laws of the Province of British Columbia.
- 2) Every reference to this Agreement shall include the Local Minor Works/Services Contract (H0593), these Terms and Conditions, any Attachments listed on H0593, and any written instructions issued by the Province subsequent to entering into this Agreement.
- 3) Every reference to the Province shall include the Minister, the Deputy Minister and any person designated by either of them to act on their respective behalf pursuant to this Agreement.
- 4) Every reference to the Contractor shall include the person, partnership, or company named as the Contractor in this Agreement and any person(s) designated or allowed by the Contractor to act on its behalf pursuant to this Agreement.
- 5) This Agreement shall be binding upon the Province and its assigns, and upon the Contractor and its successors and permitted assigns.
- 6) Every reference to the Work shall mean the Contractor's obligations to the Province under this Agreement, including but not limited to the Description of Works/Services.
- 7) Time is material and of the essence in this Agreement.
- 8) Title to and ownership of any material, supplies, property, or rights provided by the Province to the Contractor, or produced by the Contractor as a result of this Agreement, shall at all times remain with the Province.
- 9) Any notice or instruction required or permitted to be given under this Agreement shall be delivered by hand, fax, or prepaid courier to the addresses for the parties shown in this Agreement or at such other address as either party may from time to time designate by notice in writing to the other. Items delivered by courier shall be deemed to be received on the date of delivery.
- 10) The Province may vary the Work at any time, by providing the Contractor with written instructions in the form of An Amendment.
- 11) A waiver of any provision or breach by the Contractor of this Agreement shall be effective only if it is in writing and signed by the Province and shall not be deemed to be a waiver of any subsequent breach of the same or any other provision of this Agreement.
- e) ensure that all persons employed in connection with the provision of the Work are competent to perform their duties, adequately trained, fully instructed, supervised and shall be the employees of the Contractor and not of the Province;
- f) use material and supplies of the brand name, if any, specified in this Agreement or, where no brand name is specified, of the best quality available, and shall provide samples of materials and supplies to be used in performing the Work for approval upon the request of the Province;
- g) upon request of the Province, promptly and fully inform the Province of all Work done in connection with this Agreement and permit the Province at all reasonable times to inspect and review such Work, whether complete or otherwise;
- h) accept instructions from the Province with respect to the Work; however, the Contractor shall not be subject to the control of the Province in respect of the manner in which such instructions are carried out except as specified in this Agreement;
- i) not assign this Agreement, nor subcontract any of its obligations under this Agreement without the prior written consent of the Province;
- j) at all times treat as confidential all documents and other information supplied to or obtained by the Contractor as a result of this Agreement and shall not permit the publication, release or disclosure of the same without the prior written consent of the Province;
- k) Indemnify and save harmless the Province, the Minister and their employees and agents, from and against any and all losses, claims, damages, fines, penalties, actions, causes of action, costs and expenses that the Province, the Minister and their employees and agents may sustain, incur, suffer or be put to at any time or times, whether before, during, or after the expiration or sooner termination of this Agreement, where the same or any of them are based upon, arise out of, or occur, directly or indirectly, by reason of any act or omission of the Contractor or of any agent, employee, officer, Director or subcontractor of the Contractor pursuant to this Agreement;
- l) maintain the work site free of waste materials and rubbish throughout the Term and leave the work site at the end of the Term in a safe, clean and sanitary condition;
- m) comply with all of its obligations, including those contained in any Attachments to this Agreement; and
- n) establish and maintain time records and books of account, invoices, receipts and vouchers of all expenses incurred in form and content satisfactory to the Province and permit the Province to inspect or copy such documents at all reasonable times.

TERMINATION

- 12) Notwithstanding any other provision of this Agreement, the Province may, in its sole discretion, terminate this Agreement:
 - a) on ten (10) days prior written notice of termination to the Contractor and the Province shall pay to the Contractor that portion of the amounts described in the Description of Prices(s)/Agreed Rate(s) or the Payment Schedule which is attributable to the portion of the Work completed to the satisfaction of Province prior to the date of termination and such payment shall discharge the Province from all liability to the Contractor under the Agreement.
 - b) where in the opinion of the Province the Contractor fails to observe, perform or comply with any provision of this Agreement and such termination shall be in addition to any other rights and remedies existing or available to the Province under this Agreement or at law.
- 13) THE CONTRACTOR WILL:
 - a) be an independent contractor and not the servant, employee or agent of the Province;
 - b) obtain and supply all tools, equipment, supplies, labour, materials, licences, permits and approvals necessary to complete the Work, at its own expense, unless otherwise stated in this Agreement;
 - c) comply with all laws, regulations and bylaws, and cooperate with every authority having jurisdiction in connection with the Work;
 - d) at all times maintain a standard of care, skill and diligence in performance of the Work which is normally exercised and observed by persons engaged in the provision of similar Work;

14) PAYMENT

- a) Notwithstanding any other provision of this Agreement, the payment of money by the Province to the Contractor is subject to the provisions of the Financial Administration Act;
- b) The Contractor shall not in any manner whatsoever commit or purport to commit the Province to the payment of any money to any party;
- c) The Contractor shall invoice the Province in accordance with the Description of Price(s)/Agreed Rate(s) and other terms of this Agreement;
- d) Acceptance of any invoice and subsequent payment for the Work, or any portion of the Work, is subject to the invoiced Work having been completed to the satisfaction of the Province;
- e) The Province shall pay to the Contractor the Price(s)/Agreed Rate(s) stated in this Agreement. Payment shall become due and payable 30 days following either the receipt by the Province of the Contractor's invoice OR satisfactory completion of the invoiced work/services, whichever is later.
- f) The Contractor shall accept payment as stated above as full and final compensation for all costs inclusive of taxes, fees and licences incurred in connection with performance of the Work; and
- g) This is to certify that the property and/or services hereby purchased are for the use of, and are being purchased by, the Ministry with Crown Funds, and are therefore not subject to the Goods and Services Tax.



Tick Off Appropriate Box for Procurement Process and then Tick Off Appropriate Box for Trade Agreement Exclusion

PROCUREMENT PROCESS – LIST OF VALUES

- | Code | Description |
|---|--|
| <input checked="" type="checkbox"/> 100 | Open competitive process
An open competitive process (e.g., Invitation to Quote, Request for Proposal, Joint Solution Procurement, Invitation to Tender, or other) has been utilized, normally by advertising the opportunity on BC Bid. |
| <input type="checkbox"/> 200 | Direct Award – Public sector organization
Contracts for acquisitions (of goods, services, and construction) and disposals may be negotiated and directly awarded without competitive process where the contract is with another government organization. |
| <input type="checkbox"/> 201 | Direct Award – Sole source
Contracts for acquisitions (of goods, services, and construction) and disposals may be negotiated and directly awarded without competitive process where the ministry can strictly prove that only one contractor is qualified to provide the goods, services or construction or is capable of engaging in a disposal opportunity. |
| <input type="checkbox"/> 202 | Direct Award – Emergency
Contracts for acquisitions (of goods, services, and construction) and disposals may be negotiated and directly awarded without competitive process where an unforeseeable emergency exists and the goods, services or construction could not be obtained in time by means of a competitive process. |
| <input type="checkbox"/> 203 | Direct Award – Security, order, etc.
Contracts for acquisitions (of goods, services, and construction) and disposals may be negotiated and directly awarded without competitive process where a competitive process would interfere with a ministry's ability to maintain security or order or to protect human, animal or plant life or health. |
| <input type="checkbox"/> 204 | Direct Award – Confidentiality
Contracts for acquisitions (of goods, services, and construction) and disposals may be negotiated and directly awarded without competitive process where the acquisition is of a confidential or privileged nature and disclosure through an open bidding process could reasonably be expected to compromise government confidentiality, cause economic disruption or be contrary to the public interest. |
| <input type="checkbox"/> 205 | Direct Award – Notice of Intent
A Notice of Intent must be posted on BC Bid when a contract for goods valued at more than \$25,000, or a contract for services or construction valued at more than \$50,000, is to be directly awarded on the basis that there is only one vendor that can provide the services required. |
| <input type="checkbox"/> 206 | Direct Award – No justification
Where a direct award has been made which is not justified under one of the exceptional conditions specified in the Core Policy Manual section 6.3.3 a (1), or a Notice of Intent has not been issued, or it is provided for under another policy. |
| <input type="checkbox"/> 207 | Direct Award – Under \$25,000
Use when a direct award has been made for an amount of less than \$25,000 unless one of the 200 to 204 applies. |
| <input type="checkbox"/> 208 | Direct Award – Transfer Payments (Financial Assistance)
A STOB 80 (Transfer under Agreement) contract or agreement that is directly awarded to provide financial assistance to a specified targeted group or population. |
| <input type="checkbox"/> 209 | Direct Award – Transfer Payments (Shared Costs or Public Private Partnership)
A STOB 80 (Transfer under Agreement) contract or agreement that is directly awarded and involves a shared-cost agreement or a public private partnership, for which a competitive selection is not appropriate. |
| <input type="checkbox"/> 300 | Direct Invitation to selected vendors
A competitive solicitation which is issued to a limited list of vendors and not advertised on BC Bid. If vendors are on a pre-qualification list, then use 401. |
| <input type="checkbox"/> 400 | Selected vendor from pre-qualification list (RISP<\$100,000)
Use for a contract that is issued to a vendor on a pre-qualification list without undertaking a competitive process. The process followed must be consistent with the rules that were publicised when the pre-qualification list was established. (RISP<\$100,000) |
| <input type="checkbox"/> 401 | Competition among vendors on a pre-qualification list (RISP \$100,00 - \$1,000,000)
A competitive solicitation which is issued to a limited list of vendors selected from a pre-qualification list. Cont'd. |

PROCUREMENT PROCESS – LIST OF VALUES Cont'd.

- | Code | Description |
|------------------------------|--|
| <input type="checkbox"/> 401 | Cont'd. Use if a competitive solicitation is issued to a limited list of vendors selected from a pre-qualification list. This solicitation process can include some or all of the vendors on the pre-qualification list but the process followed must be consistent with the rules that were publicised when the pre-qualification list was established. |
| <input type="checkbox"/> 500 | Purchase from a Corporate Supply Arrangement
A purchase from a pre-established corporate supply arrangement such as a MSO, SO, the Queen's Printer or other as identified in the Core Policy Manual section 6.3.2 a (1). |
| <input type="checkbox"/> 600 | Other purchase process
Use for other purchasing process including ministerial appointments. |
| <input type="checkbox"/> 601 | Other – Continuing Agreements
Use for continuing agreements for the component schedules created pursuant to continuing agreements (all STOB 80). A continuing agreement is a specific and optional form of contract that is only to be used in one of the community health and social service areas. Not all contracts in these areas are continuing agreements so look for specific wording on the contract title page that indicates it is a continuing agreement. |
| <input type="checkbox"/> 602 | Other – Grants and Entitlements
This is used for grants and entitlements. |

TRADE AGREEMENT EXCLUSION – LIST OF VALUES

- | Code | Description |
|---|--|
| <input type="checkbox"/> 100 | Purchase subject to AIT / TILMA
The purchase is over the trade agreement thresholds for national advertising (\$10K for goods, \$75K for services and \$100K for construction) and is not excluded or exempt under any other provision of TILMA or other category below. |
| <input checked="" type="checkbox"/> 200 | Purchase below applicable AIT / TILMA thresholds
The purchase is under the trade agreement thresholds (\$10K for goods, \$75K for services and \$100K for construction). |
| <input type="checkbox"/> 300 | Purchase of an exempted commodity/service
The purchase is for goods, services or construction that is exempted from coverage of TILMA or to which TILMA does not apply by virtue of its specific reference in TILMA (e.g., health and social services, grants and entitlements, ministerial appointments). |
| <input type="checkbox"/> 400 | Excluded - Emergency
A purchase where an unforeseeable situation of urgency exists and the goods, services or construction cannot be obtained in time by means of an open procurement. |
| <input type="checkbox"/> 500 | Excluded - Security, order, etc.
A purchase where compliance with the open tendering provisions set out in TILMA would interfere with the Province's ability to maintain security or order or to protect human, animal or plant life or health. |
| <input type="checkbox"/> 600 | Excluded - Product compatibility/exclusive rights
A purchase which must: ensure compatibility with existing products; recognize exclusive rights, such as exclusive licenses, copyright and patent rights; or maintain specialized products that must be maintained by the manufacturer or its representative. |
| <input type="checkbox"/> 700 | Excluded - Procurement of prototype
The procurement of a prototype or a first good or service to be developed in the course of and for a particular contract for research, experiment, study or original development, but not for any subsequent purchases. |
| <input type="checkbox"/> 800 | Excluded - Regional/Economic development
A purchase which, under exceptional circumstances, may be excluded by the Province from the application of TILMA provisions for regional and economic development purposes. |
| <input type="checkbox"/> 900 | Excluded - RISP program (MOT)
The Ministry of Transportation's specific exclusion for its RISP program for hiring engineers. |



WORKS/SERVICES SCHEDULE

CONTRACT IDENTIFICATION NUMBER

020 | LM | 5677

The Contractor shall:

Provide in writing a draft copy of the BC Government Transit Plan by Friday, November 16, 2007.

**SCHEDULE OF REIMBURSABLE
TRAVEL EXPENSES (GROUP I)**

When travel expenses are listed in the Payment Schedule as an allowable expense, then transportation, meals, accommodation and board and lodging will be reimbursed provided the same are in the opinion of the Province, necessarily incurred by the Contractor in providing the work/services.

These rates will apply for the duration of the contract.

To obtain Government rates for car rental and accommodation a letter of authority signed by the Ministry contact (sample attached) is required as proof that you are under contract with the Province.

CONTRACT IDENTIFICATION NUMBER

020 | LM | 5677

All claims should be submitted on "Schedule of Reimbursable Travel Expenses for Contractors to Fill in Online – H1170" (see attached) with all receipts attached.

No GST will be reimbursed.

1. TRANSPORTATION

- (a) Air Travel: Receipts are required. The most economical airfare must be obtained. Charter flights must be pre-approved in writing by the Regional, Branch or Project Director.
- (b) Bus, Taxi, and Ferry: Receipts are required. Ferry travel should be by the most economical route. Assured loading tickets and ferry reservations must be pre-approved in writing by the Regional, Branch or Project Director.
- (c) Car Rental: Receipts are required. The Province has negotiated Corporate Supply Arrangements (CSAs) with the following vehicle rental companies and the Corporate Identification Number below is required when requesting a vehicle, to ensure that correct rates are being applied to the rental.

It is up to the discretion of each contractor to determine which company to use for their particular need, based on the most economical rate per kilometre charge available.

- AVIS RENT A CAR – C1460000
- BUDGET RENT A CAR – A162000
- ENTERPRISE RENT A CAR – 4CA1000
- NATIONAL CAR RENTAL – 3614638
- THRIFTY CAR RENTAL – 1660019642
- BEST CHOICE CAR AND TRUCK RENTALS – N/A
- RON RIDLEY RENTALS – N/A

Collision or Loss Damage Waivers (CDW or LDW), or Personal Injury or Accident Insurance (PII or PAI) will not be reimbursed.

Report all accidents to the rental agency and the Ministry contact with 24 hours and submit a Vehicle Accident Report Form (RISK 01) to the Manager, Maint Programs.

- (d) Parking and Toll Charges: Receipts are required.

- (e) Private Vehicle: No receipts are required.

Reimbursement for use of private vehicles will be at the rate of \$0.48/km. This is an all-inclusive rate, i.e., includes the cost of gas and insurance.

- (f) Travel expenses are not reimbursable if incurred within a 32 km radius of the Contractor's office unless pre-approved in writing by the designated Ministry contact.

- (g) Prior approval of the Regional, Branch or Project Director is required before any travel is made crossing the Provincial border.

2. MEALS

No receipts are required. Meals will be reimbursed at the following rates:

Full day per Diem	\$45.50	
Breakfast only	\$11.00	If travel starts before 7:00 am
Lunch only	\$12.75	If travel starts before noon
Dinner only	\$21.75	If travel ends after 6:00 pm
Breakfast & Lunch	\$23.75	As per above
Breakfast & Dinner	\$32.75	As per above
Lunch & Dinner	\$34.50	As per above

3. ACCOMMODATION

Receipts are required. Accommodation expenses are reimbursed at cost, based on the maximum daily rates provided. Refer to Appendix 1 of this Schedule for details on accommodation rates.

Private lodging will be reimbursed at a rate of \$30.00/day.

Accommodation outside the Province will be at the rates pre-approved in writing by the Regional, Branch or Project Director.

4. BOARD AND LODGING

Where specifically pre-approved in writing by the designated Ministry contact, the contractor may claim \$2,000.00 per month for board and lodging in lieu of the accommodation and meal rates specified above.

APPENDIX 1 TO SCHEDULE OF REIMBURSABLE TRAVEL EXPENSES **ACCOMMODATION RATE THRESHOLDS FOR CONTRACTORS**

Daily hotel/motel accommodation stays will be reimbursed at cost, not to exceed the maximum rates by city as set out below. Only the single-person provincial government rate for a standard room will be reimbursed. Proof of government-related business may be required when booking.

City	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Downtown Vancouver	\$135	\$135	\$130	\$130	\$165	\$165	\$165	\$165	\$165	\$160	\$120	\$120
Greater Vancouver	\$95	\$95	\$95	\$95	\$130	\$140	\$140	\$140	\$140	\$100	\$95	\$95
Burnaby	\$100	\$100	\$110	\$110	\$125	\$125	\$125	\$125	\$125	\$110	\$100	\$100
Coquitlam/Port Coquitlam	\$95	\$100	\$115	\$115	\$115	\$115	\$115	\$115	\$115	\$115	\$95	\$95
Delta	\$90	\$90	\$90	\$90	\$95	\$95	\$95	\$95	\$95	\$90	\$90	\$90
Langley	\$90	\$90	\$90	\$90	\$100	\$100	\$100	\$100	\$100	\$90	\$90	\$90
New Westminster	\$105	\$105	\$105	\$105	\$120	\$120	\$120	\$120	\$120	\$105	\$105	\$105
North Vancouver	\$100	\$100	\$100	\$100	\$130	\$130	\$150	\$150	\$150	\$100	\$100	\$100
Richmond	\$100	\$100	\$100	\$100	\$130	\$130	\$130	\$140	\$130	\$120	\$100	\$100
Surrey	\$80	\$80	\$80	\$80	\$90	\$90	\$90	\$90	\$90	\$80	\$80	\$80
White Rock	\$80	\$80	\$80	\$80	\$100	\$100	\$100	\$100	\$85	\$80	\$80	\$80
Downtown Victoria	\$90	\$90	\$90	\$90	\$160	\$160	\$165	\$165	\$155	\$130	\$90	\$90
Greater Victoria*	\$80	\$80	\$80	\$85	\$100	\$105	\$130	\$130	\$130	\$95	\$80	\$80
Castlegar	\$90	\$90	\$90	\$90	\$100	\$100	\$90	\$90	\$90	\$100	\$90	\$90
Cranbrook	\$90	\$90	\$90	\$90	\$95	\$95	\$95	\$95	\$95	\$90	\$90	\$90
Dawson Creek	\$85	\$85	\$85	\$85	\$85	\$90	\$90	\$90	\$85	\$85	\$85	\$85
Fort St John	\$120	\$120	\$120	\$120	\$120	\$120	\$120	\$120	\$120	\$120	\$120	\$120
Golden	\$95	\$95	\$95	\$95	\$100	\$100	\$100	\$100	\$95	\$95	\$95	\$95
Kamloops	\$80	\$80	\$80	\$80	\$90	\$90	\$90	\$90	\$90	\$85	\$85	\$85
Kelowna	\$90	\$90	\$90	\$95	\$110	\$120	\$120	\$120	\$120	\$95	\$95	\$95
Nanaimo	\$85	\$85	\$85	\$85	\$95	\$95	\$95	\$95	\$95	\$85	\$85	\$85
Nelson	\$85	\$85	\$85	\$85	\$90	\$95	\$95	\$95	\$95	\$85	\$85	\$85
Penticton	\$75	\$75	\$85	\$85	\$90	\$120	\$130	\$130	\$90	\$85	\$85	\$85
Prince George	\$95	\$95	\$95	\$95	\$95	\$95	\$95	\$95	\$95	\$95	\$95	\$95
Prince Rupert	\$80	\$80	\$80	\$85	\$100	\$100	\$100	\$100	\$100	\$85	\$85	\$85
Smithers	\$80	\$80	\$85	\$85	\$85	\$85	\$85	\$85	\$85	\$80	\$80	\$80
Terrace	\$90	\$90	\$90	\$90	\$90	\$90	\$90	\$90	\$90	\$90	\$90	\$90
Vernon	\$85	\$85	\$85	\$85	\$95	\$95	\$95	\$95	\$95	\$85	\$85	\$85
Whistler	\$150	\$170	\$170	\$100	\$100	\$100	\$100	\$100	\$100	\$100	\$100	\$100
Williams Lake	\$70	\$70	\$70	\$70	\$80	\$80	\$80	\$80	\$80	\$70	\$70	\$70
Other Cities Not Listed	\$80	\$80	\$85	\$85	\$85	\$85	\$85	\$85	\$85	\$85	\$80	\$80

*Central Saanich, Saanichton, Brentwood Bay, Langford, Colwood, Sidney, Saanich, Esquimalt, Oak Bay



BRITISH
COLUMBIA

Ministry of
Transportation

SAMPLE

Letter of Authorization for Contractors

"Date"

To: All Authorized Province of British Columbia
Travel Industry Suppliers

Re: _____

"Contract Identification Number & Brief Description of Services"

Please be advised that: _____

"Name of Contractor"

is a contractor to the Ministry of Transportation and, as such, is permitted to use provincial government rates during the term of his/her contract as follows:

_____ to _____

"Commencement Date"

"Completion Date"

The contractor named above, agrees that the services or goods obtained by virtue of this letter of authorization will be used solely for services supplied to the Province of British Columbia and the cost of the service or goods will be reimbursed to the contractor by the government, at the rate(s) supplied.

Personal or other use of this letter, or services/goods provided through the use of this letter, for other than that stated in the contractor's agreement, is forbidden in accordance with the terms and conditions of the agreement.

Should you require verification of this information, or if you have any questions, please contact the undersigned
at _____

"Phone Number"

Thank you for your co-operation.

Yours truly,

"Name of Ministry Contact"

"Position Title"

SAMPLE

**SCHEDULE OF REIMBURSABLE TRAVEL EXPENSES
FOR CONTRACTORS TO FILL IN ONLINE – H1170**

(<http://www.th.gov.bc.ca/forms/getForm.aspx?formid=1070>)

NAME OF INDIVIDUAL CLAIMING EXPENSES

CONTRACT IDENTIFICATION NUMBER

(Receipts are required for all transportation expenses except private vehicle use which is reimbursed as specified)

Transportation *in the Schedule of Reimbursable Expenses.)*

Date (yyyy/mm/dd)	From/To	Km*	Mode	Cost
			TOTAL	\$

* For private vehicle only.

* For private vehicle only.

Meals *(No receipts are required. Meals are reimbursed according to rates specified in the Schedule of Reimbursable Expenses.)*

[illegible]

(Receipts are required for all expenses and are subject to daily maximums as specified in the Schedule of

Accommodation *Reimbursable Expenses.*)

[illegible]

Period Covered From _____ To _____

TOTAL EXPENSES \$



This Agreement,

MADE IN QUADRUPPLICATE ON THE 22nd DAY OF May 2008.BETWEEN: **HER MAJESTY THE QUEEN** IN RIGHT OF THE PROVINCE OF BRITISH COLUMBIA
REPRESENTED BY THE MINISTER OF TRANSPORTATION.

POSTAL CODE

7818 - 6th Street, Burnaby, BC

Ministry Address

V3N 4N8(hereinafter called the "Province")
OF THE FIRST PARTAND: **SNC-Lavalin Inc.**

Name of consulting firm

1800 - 1075 West Georgia Street

Street or mailing address of consulting firm

POSTAL CODE

Vancouver, BC

City / Province

V6E 3C9(hereinafter called the "Contractor")
OF THE SECOND PARTShort Description: **Preliminary and Detailed Design of Hwy 99 Shoulder Bus Lane**

WITNESSETH THAT the parties hereto agree to the covenants and agreements contained in paragraphs 1 through 26, inclusive, on the face and reverse side of this document and in the attached schedules set out below.

COMMENCEMENT DATE (yyyy/mm/dd)

2008/04/07

COMPLETION DATE (yyyy/mm/dd)

2009/12/31

ATTACHED SCHEDULES MARKED "X" FORM PART OF THIS CONTRACT

TERMS AND CONDITIONS:

APPOINTMENT

1. The Province retains the Contractor to provide the services (the "Services") described in the Works/Services Schedule attached hereto.

TERM

2. The Contractor will, notwithstanding the date of execution and delivery of the Agreement, start providing the Services on the commencement date and shall complete all Services to the satisfaction of the Minister by the completion date, both dates hereinbefore stated. The period of time between the aforementioned dates shall hereinafter be referred to as the "Term". Time shall be deemed to be material and of the essence of this contract.

PAYMENT

3. The Province will pay to the Contractor, in full payment for providing the Services and in full reimbursement for expenses incurred in connection therewith, the amounts, in the manner and at the times set out in the Payment Schedule attached hereto and the Contractor will accept the same as full payment and full reimbursement as aforesaid.

- ☒ Terms and Conditions
- ☒ Works/Services Schedule - H0461a
- ☒ Payment Schedule - H0461b
- ☒ Travel Expenses (Group I) - H0461c
- ☐ Travel Expenses (Group II Mgmt) - H0461c-1
- ☒ Special Conditions (Engineering) - H0461d
- ☐ Special Conditions (Information Systems) - H0461d-1
- ☐ Special Conditions (Surveying) - H0461d-2
- ☐ Insurance Specifications - INS-80
- ☒ Insurance Specifications Professional - INS-132
- ☒ Certificate of Insurance - H0111
- ☐ Privacy Protection Schedule

WITNESS WHEREOF THE PARTIES HERETO HAVE EXECUTED THIS AGREEMENT THE DAY AND YEAR FIRST ABOVE WRITTEN

AFFIX CORPORATE SEAL HERE

WITNESS AS TO THE CONTRACTOR'S SIGNATURE

WITNESS AS TO THE MINISTRY SIGNATURE

In signing this Agreement the Contractor certifies that he/she has read and understands the additional conditions appearing on the reverse of this form.

SIGNATURE OF CONTRACTOR

Gregory Matisz, Manager, Financial Services
and Provincial Contract Services

SIGNATURE OF DELEGATED MINISTRY AUTHORITY

DISTRIBUTION: ORIGINAL-CONTRACT FILE, 1 COPY-CONTRACTOR, 1 COPY-ACCOUNTS PAYABLE, 1 COPY-CONTRACT ORIGINATOR

RECORDS

4. The Contractor will:
 - a) where the Payment Schedule provides for payment determined on the basis of time, keep records of all such time; and
 - b) where the Payment Schedule provides for reimbursement of any expense, keep books of account of any such expense incurred;
 and the Minister of Transportation (the "Minister") will have free access at all reasonable times to such records and books of account for the purposes of reviewing or copying (or both) the same.

INDEPENDENT CONTRACTOR

5. The Contractor is an independent contractor and not the servant, employee or agent of the Province of the Minister.
6. The Contractor will not, in any manner whatsoever, commit or purport to commit the Province or the Minister to the payment of any money to any person, firm or corporation.
7. The Minister may, from time to time, give such instructions as he considers necessary to the Contractor in connection with provision of the Services, which instructions the Contractor will comply with, but the Contractor will not be subject to the control of the Minister with respect to the manner in which such instructions are carried out.

REPORTS

8. The Contractor will upon the request, from time to time, of the Minister:
 - a) fully inform the Minister of work done and to be done by the Contractor in connection with provision of the Services; and
 - b) permit the Minister at all reasonable times to inspect, examine, review and copy any and all finds, data, specifications, drawings, working papers, reports, documents and materials whether complete or otherwise (collectively the "Material") that have been produced, received or acquired by, or provided by or on behalf of the Province or the Minister to, the Contractor as a result of this Agreement.

OWNERSHIP

9. The Material produced, received or acquired by, or provided by or on behalf of the Province or the Minister to, the Contractor as a result of this Agreement and any equipment, machinery or other property whatsoever (collectively the "Goods") provided by or on behalf of the Province or the Minister to the Contractor as a result of this Agreement will be the exclusive property of the Province and will, subject to the following proviso, be delivered by the Contractor to the Minister forthwith following the expiration or sooner termination of this Agreement provided that the Minister may, at any time or times prior to the expiration or sooner termination of this Agreement, give written notice to the Contractor requesting delivery by the Contractor to the Minister of all or any part of the Material or the Goods (or both) in which event the Contractor will forthwith comply with such request.
10. The copyright in the Material will belong exclusively to the Province.

CONFIDENTIALITY

11. The Contractor will treat as confidential and will not, without the prior written consent of the Minister, publish, release or disclose or permit to be published, released or disclosed either before or after the expiration or sooner termination of this Agreement, the Material or any information supplied to, obtained by, or which comes to the knowledge of the Contractor as a result of this Agreement except insofar as such publication, release or disclosure is necessary to enable the Contractor to fulfill the obligations of the Contractor under this Agreement.

ASSIGNMENT AND SUB-CONTRACTING

12. The Contractor will not without the prior written consent of the Minister:
 - a) assign, either directly or indirectly, this Agreement or any right of the Contractor under this Agreement; or
 - b) sub-contract any obligation of the Contractor under this agreement.
13. No sub-contract entered into by the Contractor will relieve the Contractor from any obligation of the Contractor under this Agreement or impose any obligation or liability upon the Province to any such sub-contractor.

CONFLICT

14. The Contractor will not, during the term, perform a service for or provide advice to any person, firm or corporation where the performance of the service of the provision of the advice may or does, in the reasonable opinion of the Minister, give rise to a conflict of interest between the obligations of the Contractor to the Province under this Agreement and the obligations of the Contractor to such other person, firm or corporation.

INDEMNITY AND STANDARD OF CARE

15. Notwithstanding any insurance coverage, the Contractor hereby agrees to indemnify and save harmless the Province, its successor(s), assign(s) and authorized representative(s) and each of them from and against those losses, claims damages, actions and causes of action, (collectively referred to as "claims") that the Province may sustain, incur, suffer or

INDEMNITY AND STANDARD OF CARE Cont'd.

15. be put to at any time either before, during or after the expiration or termination of this Agreement that arise out of errors, omissions or negligent acts of the Contractor or their Subcontractor(s) or Subconsultant(s), servant(s), agent(s), or employee(s) under this Agreement.

In completing the assignment the Contractor shall at all times exercise the standard of care, skill and diligence normally provided in the performance of services for work of a similar nature to that contemplated by this contract.

TERMINATION

16. Notwithstanding any other provision of this Agreement, the Province may, in its sole discretion, terminate this Agreement:
 - a) on ten (10) days prior written notice of termination to the Contractor and the Province will pay to the Contractor that portion of the amounts described in the Payment Schedule which is attributable to the portion of the Services completed to the satisfaction of the Province prior to the date of termination and such payment shall discharge the Province from all liability to the Contractor under this Agreement.
 - b) where in the opinion of the Province the Contractor fails to observe, perform or comply with any provision of this Agreement, and such termination will be in addition to any other rights and remedies existing or available to the Province under this Agreement or at law.

NON-WAIVER

17. No provision of this Agreement and no breach by the Contractor of any such provision will be deemed to have been waived unless such waiver is in writing signed by the Minister.
18. The written waiver by the Minister of any breach by the Contractor of any provision of this Agreement will not be deemed a waiver of such provision or of any subsequent breach by the Contractor of the same or any other provision of this Agreement.

APPROPRIATION

19. Notwithstanding any other provision of this Agreement the payment of money by the Province to the Contractor pursuant to this Agreement is subject to:
 - a) There being sufficient monies available in an appropriation, as defined in the Financial Administration Act, S.B.C. 1981, c. 15 (the Financial Administration Act, inclusive of every amendment made thereto and in force being herein collectively called the "Act"), to enable the Province, in any fiscal year or part thereof when any payment of money by the Province to the Contractor falls due pursuant to this Agreement, to make that payment; and
 - b) Treasury Board, as defined in the Act, not having controlled or limited, pursuant to the Act, expenditure under any appropriation referred to in subparagraph a) of this paragraph.

REFERENCES

20. Every reference to the Minister in this Agreement will include the Minister, the Deputy Minister of Transportation and any person designated by either of them to act for or on their respective behalf with respect to any of the provisions of this Agreement.

NOTICES

21. Any notice required or permitted to be given hereunder will be delivered or mailed by prepaid registered mail to the addresses on reverse (or at such other address as either party may from time to time designate by Notice in writing to the other), and any such Notice will be deemed to be received 48 hours after mailing.
22. Either party may, from time to time, give to the other written notice of any change of address of the party giving such notice and from and after the giving of such notice the address therein specified will, for purposes of the preceding paragraph, be conclusively deemed to be the address of the party giving such notice.

MISCELLANEOUS

23. This Agreement will be governed by and construed in accordance with the laws of the Province of British Columbia.
24. The Schedules to the Agreement are an integral part of this Agreement as if set out at length in the body of this Agreement.
25. The headings appearing in this Agreement have been inserted for reference and as a matter of convenience and in no way define, limit or enlarge the scope of any provision of this Agreement.
26. In this Agreement, wherever the singular or neuter is used, it will be construed as if the plural or masculine or feminine, as the case may be, had been used where the context or the parties hereto so require.
27. This is to certify that the property and/or services hereby purchased are for the use of, and are being purchased by, the Ministry with Crown Funds, and are therefore not subject to the Goods and Services Tax. The GST registration number for the Province is R107864738.



CONTRACT IDENTIFICATION NUMBER

153 | CS | 0564

The Contractor shall:

Perform all necessary engineering design, structural, geotechnical investigations, traffic analysis/traffic counts, environmental and archaeological investigations, and other required tasks to complete a preliminary, detailed design, cost estimates and tender documents for widening Hwy 99 in the Westbound direction to accommodate a bus lane in the Westbound direction. Identify and perform all engineering work required to complete the design and the final package for tender.

Provide engineering services during construction, and complete the as-built drawings after construction.

The Consultant shall deliver a Preliminary Design shortly after award of the contract identifying any significant concerns or issues that require addressing in order complete the detailed engineering design and a package for tender.

The Consultant shall confirm the design criteria for the segment of the roadway that are based on the BC Supplement to TAC Geometric Design Guidelines (updated edition: June 2007), Recommended Design Criteria and other relevant guidelines. Changes to the design criteria must be reviewed and approved by the Ministry. Prepare construction cost estimates including contingency.

Confirm all survey information is accurate, complete, and tying in all geotechnical information to the base survey.

TERMS OF REFERENCE

General:

Design of a 4.0 meter wide and about 3 km long shoulder bus lane on Hwy 99 NB from Hwy 91 EB off-ramp exit up to the intersection at Bridgeport Road. The project consists of geometric design, structural, geotechnical, environmental, traffic, and electrical components.

The following is a summary of the requirements. Additional details are provided in the General Requirements and Procedures of this document.

Survey

- Will be provided by the ministry

Geometric Highway Design

- Develop design criteria for the roadway geometric
- Obtain Ministry approval prior to undertaking design
- Conduct preliminary and detailed design
- Prepare cost estimates and tender documents

Structural

- Widening Hwy 99 NB CNR Overhead structure by 0.5 meters on each side.
- Seismic (Safety level 1) upgrade of both the Hwy 99 NB and SB structures are required.

Geotechnical

The geotechnical services required for this project shall include but not limited to:

- Carry out geotechnical assessment as required for the CNR O/P seismic upgrade
- Minimize fill embankment widening by utilizing retaining walls

The Ministry will provide the pavement structure design for the project.

Environmental

- Determine environmental impacts resulting from project requirements.

- Fulfill environmental permit and application needs
- Complete and submit environmental report

Traffic (& Electrical) Component:

- Conduct traffic modeling of the existing and proposed configuration
- Provide mitigation for adverse safety impacts
- Required traffic counts
- Determine bus priority movement arrangement at the intersection of Bridgeport Road and the terminus of the Bridgeport Road off-ramp.
- Provide a traffic reports

Electrical:

- Lighting Design and Signal

GENERAL REQUIREMENTS AND PROCEDURES

Consultant's requirements may include, but not be limited to, the following:

Surveying

The Ministry will provide the required survey information. However, the selected Proponents must verify and notify the ministry about any missing gaps in the survey data prior to undertaking design.

a) Highway Engineering

Design a cost-effective solution for the construction and maintenance of the infrastructure. Explore all reasonable design criteria to achieve a safe solution which has the lowest life cycle cost possible.

Determine Design Criteria for the Assignment at the start of the design process and finalize with signoff prior to the start of the design. Any variance to the accepted Design Criteria Sheet will require formal approval by the appropriate Ministry Representative. Liaise with the Ministry's Contact Person with respect to roadway and drainage design criteria.

Submit a signed and sealed Design Criteria Sheet before starting the design.

Take the lead role in consultation with Ministry sections, District, local, regional, provincial and federal government officials, utility owners, environmental agencies and various related stakeholders for the Project.

Apply reiterative design procedures to:

- Deliver a result that addresses related safety and operational issues.
- Integrate stakeholders' interests to find a workable solution.
- Optimize the solution for a particular situation.
- Fit construction and maintenance costs within the Ministry's budget.

Identify and develop viable design alternatives which are geotechnical and operationally feasible, e.g. open channel and/or enclosed drainage systems while giving consideration to appropriate methods of handling highway runoff. Evaluate and compare alternatives by summarizing the impacts and costs, and making recommendations as to what would be the best solution fulfilling the Assignment requirements. Alternatives should include evaluating layouts for intersections, property impacts, drainage requirements, environmental constraints, etc. as required.

Provide technical support to the Ministry by providing technical reports, plans, drawings etc. necessary for internal use or at stakeholder meetings; and attend meetings and making presentations at meetings involving the Ministry, agencies, consultants or other third parties.

Maintain the schedule and apply a cost control and quality control process during the Assignment.

Utilize relevant Ministry publications such as the latest edition of the BC Supplement to TAC Geometric Design Guide in conjunction with Ministry technical bulletins and the TAC Geometric Design Guide for Canadian Roads in preparing the

design. Reference Manuals, forms and Standard Specifications for Highway Construction are available either on the internet at <http://www.th.gov.bc.ca/publications/repopubs.htm> or through the Queen's Printer.

Use relevant Product Specifications when applicable such as:

- Ministry Qualified Proprietary Structures Guidelines
- Recognized Products List, http://www.th.gov.bc.ca/publications/eng_publications/geotech/rpl.htm

Utilize A Policy on Geometric Design of Highways and Streets (AASHTO) and Master Municipalities Contract Documents (MMCD) as secondary references. Consider MMCD documents/drawings to meet local Municipal government interests and requirements.

Comply with the requirements of Section 1270 of the BC Supplement to TAC Geometric Design Guide. Confirm CAiCE Construction Archive has been reviewed by a Ministry Field Services Representative as meeting Section 1270 requirements prior to completing the Detailed Design.

Begin and complete the assignment using CAiCE software to generate all design and construction information.

Advise the Ministry at appropriate stages of the design when an alternative software program (like LDD) may be beneficial and timely when exploring alternative design concepts. Obtain Ministry approval prior to using an alternative software program (like LDD) and converting the design into CAiCE.

Highway Engineering Deliverables

A sealed Highway Design Criteria Sheet signed-off by the Ministry's Manager, Highway Design and Geomatics.

A Design Report.

A Drainage Report. Include all drainage calculations, design return year periods, etc.

A copy of all relevant Project correspondence, including letters, memos, facsimiles, emails, conversation records, meeting minutes, decision papers, reports, etc.

A copy of all Design Folders.

A completed CAiCE Design Project Electronic Deliverable Quality Checklist (Section 1270.13) indicating what tasks have been completed.

- Preliminary Design Archive for the Preliminary Design.
- Detailed Design Archive for the Detailed Design.
- Construction Archive after tender

b) Geotechnical Works

The Geotechnical Consultant shall produce a report for the detailed geotechnical design as outlined in the Project Schedule upon performing the services explained in the following paragraphs:

1.1. SCOPE OF GEOTECHNICAL DESIGN SERVICES

The Consultant will:

- 1.1.1 Examine and assess all geotechnical information, designs and reports provided by the Project Team to establish the extent of additional geotechnical work required for the project (this work does not constitute a review or appraisal of the geotechnical design). Liaise with the Project Team with respect to the geotechnical design requirements.
- 1.1.2 After consultation with the Project Team, identify and justify all additional geotechnical investigation, review, assessment and design (such as subsurface investigation, laboratory tests, pavement condition surveys, pavement evaluation, slope stability analyses, foundation design, settlement evaluation, seismic stability evaluation, geoenvironmental site assessment and other geotechnical work) required to complete the detailed design. Submit a report to the Ministry Geotechnical Representative within two weeks of the award of this assignment, detailing the proposed geotechnical work.

- 1.1.3 Upon acceptance of the proposed work, undertake a complete and accurate geotechnical investigation using state of the practice methods and equipment in order to provide a detailed geotechnical design supporting the project's detailed roadway, drainage and structural design process, components of which would be expected to encompass, but not be limited to: drill holes, test pits, in-situ testing, sampling, identification, classification, mapping, laboratory testing and evaluation of data along proposed alignments to establish or identify:
- extent, types and properties of soils and rocks,
 - stripping depth for removal of organic and unsuitable materials and a total volume estimate of stripping quantities listed station to station, (Max. 200 meter interval testing with special consideration in areas with observed surficial changes), grubbing requirements.
 - use of excavated cut materials with estimated shrink and swell factors,
 - foundation design including seismic evaluation and design,
 - potential settlement and stability analysis, monitoring and remediation measures.
 - surcharge, instrumentation and special construction techniques to ensure a safe and cost effective design. Identify specific location (x, y & z), monitoring schedule and data collection requirements of any instrumentation required for monitoring during construction. (e.g. Piezometers, Settlement plates, Slope indicators, Extensometers). Detailed installation procedures for special construction techniques (e.g. light weight fill).
 - soil and rock slope and retaining structure design to ensure stability (under static and earthquake loading) for the design life of the project.
 - surface/groundwater/drainage/erosion/siltation/acid rock drainage issues, monitoring and remediation measures.
 - specific recommendations to address ditch depth and width, rockfall and snow catchment, subsurface drainage requirements and side slope seepage problems to prevent erosion of slope faces. (Reference; Manual of Erosion and Shallow Slope Movement, August 1997).
 - geosynthetics specifications, if being recommended for construction of project, with detailed installation procedures.
 - special foundation requirements.
 - pavement structural design, life cycle cost and rehabilitation options for existing structure for the project.
- 1.1.4 Conduct a Stage 1 Preliminary Site Investigation (PSI) to identify potential contaminated sites. In areas of potential environmental concern, identified during the Stage 1 PSI, undertake a Stage 2 PSI to confirm the presence or absence of contamination. Follow the requirements of Contaminated Sites Regulation of the BC Environmental Management Act, BC Reg. 375/96 O.C.1480/96.
- 1.1.5 As the detailed design progresses, reappraise all aspects of the pavement structure design to achieve the most economical solution compatible with the proposed profile and geometric design and submit any modifications to the Ministry Geotechnical Representative.

NOTE 1: Classification and Identification of soils is to be done according to Ministry Standards using the Modified Unified Soils Classification System as outlined in the current Ministry of Transportation "Manual of Test Procedures, Soils and Aggregate".

NOTE 2: All test hole, test pit and seismic lines must be located by survey (to a horizontal accuracy of 2 metres) and by UTM (NAD83) co-ordinates (Northing, Easting and UTM Zone).

1.2. GEOTECHNICAL DESIGN CRITERIA

The geotechnical design will follow applicable sections of the following documents:

- Ministry Technical Circular T-2/92, "Seismic Design and Rehabilitation Criteria" dated February 14, 1992 and the amendment dated March 11, 1994.
- Publication No. FHWA-SA-97-076 " Geotechnical Engineering Circular No. 3 - Design Guidance: Geotechnical Earthquake Engineering for Highways" – Vol. I and II, May 1997.
- CSA S6-00 (Canadian Highway Bridge Design Code, CHBDC)
- B.C. Ministry of Transportation Supplement to S6-00 (Draft - http://www.th.gov.bc.ca/publications/eng_publications/eng_pubs.htm#Bridge_Engineering_Section_Publications)
- B.C. Ministry of Transportation Seismic Retrofit Criteria (June 2005)
- ATC-49 "Recommendations LRFD Guidelines for the Seismic Design of Highway Bridges"
- AASHTO "Standard Specifications for Highway Bridges", Seventeenth Edition, 2002.
- Proceedings of the National Center for Earthquake Engineering Workshop on Evaluation of Liquefaction Resistance of Soils Jan. 5-6, 1996.

Ministry technical circulars are available on the web at: http://www.th.gov.bc.ca/publications/Circulars/technical_circulars.asp

1.2.1 Seismic Design

Seismic Zoning for the Project area will be as defined in the National Building Code of Canada (NBCC, 1995) and British Columbia Code (BCBC, 1992) or through a seismic site response analysis undertaken by the Geological Survey of Canada. This Project will be designed to remain functional following an earthquake having a 10 percent risk of exceedence in 50 years (equivalent to a 1 in 475 year return period). For site specific numerical analyses of site response and soil-structure interaction, the Ministry will provide the acceleration time histories.

Liquefaction potential of the subsoils will be evaluated for structures, walls and embankments, and the design will incorporate ground improvements and other methods of addressing potential liquefaction in accordance with ATC-49 "Recommendations LRFD Guidelines for the Seismic Design of Highway Bridges".

Seismic design of the stability of any retaining walls will be done in accordance with AASHTO, Standard Specifications for Highway Bridges, Seventeenth Edition, 2002.

1.2.2 Soil Slope and Rock Slope Design

The Consultant will conduct state of the practice field investigation to satisfy design requirements; conduct an overall stability assessment; and provide an economic cut/fill slope design including any support measures that may be necessary to ensure stability for the design life of the project.

The rock cut design shall include a practical ditch design based on geometric criteria proposed for the project. Recommendations for the rock cut at the detailed design stage shall be based on a site specific investigation and will take priority over the requirements outlined in Technical Bulletin GM2001 Rock Slope Design. The rockfall containment strategies outlined in the Technical Bulletin may be incorporated in the detailed design if the site specific stability assessment allows and if it is cost effective to do so.

Where the failure of a slope would effect highway operation (i.e. failure envelope encroaches the paved surface, failure causes lane closures for repairs or failure necessitates excessive maintenance):

The minimum Factor of Safety for slope stability under static conditions shall be 1.5 for soil slopes and 1.3 for rock slopes.

The Factor of Safety for existing (already constructed) soil and rock slopes under pseudo-static seismic analysis is not to be less than 1.

The Factor of Safety for planned new soil and rock slopes under pseudo-static seismic analysis is not to be less than 1.1.

1.2.3 Foundation Design

Both shallow and deep foundations design must be completed in accordance with CSA S6-00 and B.C. Ministry of Transportation Supplement to S6-00.

1.2.4. Settlement Analysis

Settlement analysis of pre-existing and new structures/embankments will be performed. Foundations will be designed such that differential settlement are limited to tolerable amounts as specified by the structural design, geometric design and utility considerations.. Settlement analysis must consider and separately tabulate expected static settlement and any seismic induced settlement under the specified earthquake loading conditions.

Embankment settlement will be predicted, and appropriate means to minimize the impacts, such as surcharging, overbuilding, use of lightweight fills and special construction requirements, will be evaluated.

1.2.5 Retaining Wall Design

Slope angles steeper than 45 degrees shall be designed as walls. Wall design must follow the allowable stress method outlined in UAASHTO Standard Specifications for Highway Bridges, Seventeenth Edition, 2002, Section 5, Retaining Walls and must incorporate the Factors of Safety defined in Section 1.2.6 for external and internal stability.

For the design life of components, wherever there is time dependent calculations, use 100 years. Examples would be for corrosion and creep calculations.

1.2.6 MSE Wall Design – External Stability

The following Factors of Safety shall be used for external stability of MSE wall design:

Condition	Minimum Factor of Safety
Bearing Capacity	2.5
Sliding	1.5
Overturning	2.0
Global Stability	1.5

Wall heights, proprietary wall systems and geosynthetic materials are restricted to those shown in the MoT Recognized Products Book (under R in <http://www.th.gov.bc.ca/siteindex.htm>)

1.2.7 Polymeric Reinforcement Specification for MSE Wall Design – Internal Stability

- (1) The Factor of Safety for Polymeric Reinforcement Pullout is 1.5
- (2) The allowable reinforcement tension T_{aB} shall be the lesser of the following two determinations:

$$T_{aIB} = \frac{T_{IB} B}{FD \cdot FC \cdot FS}$$

$$T_{asB} = \frac{T_{wB}}{FD \cdot FC}$$

Where: T_{IB} is $\frac{U_{IB}}{FSB_{CRPB}}$

T_{uIB} is the ultimate tensile strength (kN/m) as per ASTM D6637-01

FSB_{CRPB} is the Partial Factor of Safety for Creep

T_w is the Tensile Strength at 5 % Strain (kN/m) as per ASTM D6637-01 or GGI:GG1

FCB is the Partial Factor of Safety for Construction Damage

FDB is the Durability Partial Factor of Safety for Environmental and ageing losses

FSB is the Partial Factor of Safety for Uncertainties

And

The Partial Factors of Safety are determined by reference to Table 1 below

Table 1: Uniaxial Geogrid Specifications Revised February 2004									
Partial Factors of Safety									
Polymer Type	With Testing and Mill Certificates					Without Testing and Mill Certificates			
	FSB _c RPB	FCP #PB Sand	FCP #PB Grave l	FD	FS"	FSB _{CR} AP PPB	FC	FDB _D B	FS"
HDPE	Min. 3.1	Min. 1.15	Min. 1.25	Min. 1.1	1.5	5.0	3.0	2.0	1.5
Polyester Acrylic Coated	Min. 2.0	Min. 1.15	Min. 1.25	Min. 1.1	1.5	2.5	3.0	2.0	1.5
Polyester PVC Coated	Min. 2.0	Min. 1.15	Min. 1.25	Min. 1.1	1.5	2.5	3.0	2.0	1.5
Polypropylene	Min. 4.0	Min. 1.15	Min. 1.25	Min. 1.1	1.5	5.0	3.0	2.0	1.5
#MOT 2003 " Reference AASHTO Standard Specifications for Highway Bridges 17th Edition 2002 Pg. 158 ^Reference Task Force 27 Page 34. Note: For instantaneous loads lasting less than 60 seconds creep can be ignored i.e. FSB _{CRPB} =1.0									

1.3 ACCESS TO WORK SITE FOR PURPOSES OF INVESTIGATIONS

Access to the work site is subject to traffic control requirements and notification of owners.

In accessing and carrying out field investigations, the Consultant shall make every effort to minimize disturbance or damage to the existing highway pavement structure and to private property and repair disturbance or damage.

The Consultant shall:

- provide written notice to property owners informing them of the extent and type of work that will be performed on their property and meet with them to explain what work will take place on their property.
- Obtain all permits and approvals from municipal, provincial and federal authorities, when and where required.
- Verify location of all buried and overhead utilities prior to commencement of subsurface investigations.

1.4 TRAFFIC CONTROL

Traffic control shall be utilized whenever the consultant's activities will create a hazard or obstruct traffic.

1.5 SAFETY

The Consultant will be responsible for the safety of their personnel while performing fieldwork. At a minimum, the following is required:

- Implement and maintain an acceptable Base Safety Program for the work activity.
- Coordinate the work activities of employees that are related to health and safety.
- Have a reasonably practical process or system for ensuring compliance with the WCB *Occupational Health & Safety Regulation* with respect to the workplace.
- Wear appropriate safety equipment.

The consultant will also observe, abide by and comply with the "Special Conditions" and "Schedule of Site Safety for Consulting Services Contract".

1.6 REPORTING STANDARDS

Draft Report - Fieldwork, data collection, analyses and interpretation have been completed and a report is generated. This report is submitted to MoT for internal discussion.

Final Report - The final report will have addressed any issues and comments raised with earlier deliverables and draft report.

Reports shall follow guidelines for geotechnical reports as contained in the MoT Technical Bulletin GM9801.

Summarize all subsurface data investigation results by plotting on plans, profile and cross sections using computer aided drafting software compatible with the most current Ministry format and provide all electronic data, including any and all survey data used to produce drawings. All drawings must have a unique drawing number in the title block.

All drawings are to be prepared using AutoCAD version 2005.

Summary Logs - All summary testhole/testpit logs must be in accordance with standard Ministry format as described in "Geotechnical and Materials Engineering Standards for Bridge Foundation Investigations (January 1991)" - Section 2 Summary Log. (http://www.th.gov.bc.ca/publications/eng_publications/eng_pubs.htm#top)

Templates in gINT format for the testhole, testpit and rock core logs are available from Information Wranglers Technical Services Inc (IWTSL) through a one time payment for a single copy license. Template support services via e-mail and periodic updates to the templates are also available on an annual subscription basis at additional cost. Licensing details, support services, and costs are outlined on IWTSL's website www.informationwranglers.com.

Survey information on all Logs will include local project referencing (station, offset and elevation above mean sea level) and UTM (NAD83) coordinates (Northing, Easting and UTM zone).

Summary logs will be submitted on a CD in gINT, DXF (AutoCAD) and PDF format. In addition, a scanned Driller's field log is required to be submitted. Scans will be 250 dots per inch, greyscale and in JPEG format, saved at 80% of the maximum quality setting.

All documents produced by the consultant will become the property of the Province and as such will be subject to disclosure under the provisions of the Freedom of Information & Protection of Privacy Act. All input files used in the computer analyses will be provided to the Ministry for Ministry records.

c) Traffic Engineering

Weave analysis at the ramps.

Queuing analysis at the ramps.

Emergency vehicle accommodation when shoulder lane is implemented.

Provide a traffic design in accordance with the *Electrical and Traffic Engineering Manual*.

Liaise with the Ministry's Regional Traffic Engineer with respect to guide sign design policy and practice, and messaging text.

Confirm design of regulatory, warning and guide signs in accordance with the Ministry's Manual of Standard Traffic Signs with Regional Traffic Engineer.

Provide a Traffic Signs and Pavement Marking evaluation, design and recommendation for the installation of appropriate warning, regulatory and guide signs, and pavement markings.

Propose design pavement markings and delineators in accordance with the Ministry's Manual of Standard Traffic Signs and Pavement Marking.

Discuss possible directional guide sign messaging with the Ministry for municipal requirements.

Review preliminary and draft message text designs, layouts and locations for all directional guide signs, and service and attraction signs.

Traffic Engineering Deliverables

A suggested Construction Staging Plan.

Ministry Sign Record (H172) sheets.

Signing and pavement marking drawings at a scale of 1:500.

A Traffic Engineering Design Folder include but not limited to, the following:

- Ramp merge diverge analysis
- Transit and GP Traffic LOS analysis
- Traffic signal warrant calculations (when required)
- Signed and sealed TEC that has been accepted by the Ministry
- Final STS that has been accepted by the Ministry
- Capacity Analysis (e.g. Synchro reports)
- Calculations showing clearance and conflict distances
- Pre-emption calculations and rationale including railway pre-emption & fire signals
- Explanations for non-standard applications
- Sign Records.
- Supporting calculations and necessary explanations for applications

Traffic Count Reports as required. Use the Ministry traffic count spreadsheet "CountSample.xls" expectations. Submit in paper format and Excel spreadsheet for entry in the Ministry Data Management database.

Three copies of the Traffic Engineering Report signed and sealed by a professional engineer.

Submit information in a digital format on compact disc.

d) Electrical Engineering

Prepare electrical designs for the lighting and signalization infrastructure included in the scope. Note existing electrical equipment to be reused, relocated or removed on the tender drawings. Liaise with the Ministry's Electrical Consultant Liaison Engineer with respect to electrical design requirements.

Document the design approach and assumptions, design features, desirable alternatives, challenges and rationale for deviance from Electrical Design Standards if required in an Electrical Design Folder.

Identify and assess any special electrical needs.

Liaise with regional and local authorities to determine requirements for lighting warranted by municipalities and confirm any cost sharing. Review lighting requirements with the Ministry to confirm that they meet the proposed Design Criteria.

Electrical Engineering Deliverables

Electrical Drawings, Special Provisions, Electrical Design Folder and checklists.

e) **Structural Engineering**

CNR OVERHEAD NO.1598 N & S

SEISMIC SAFETY RETROFIT and WIDENING

Design Criteria

Bridge Design Code CAN/CSA-S6-06 and BCMoT Bridge Standards and Procedures Manual

Live Load BCL 625

Seismic Design and Retrofitting Seismic Retrofit Design Criteria (June 30, 2005)

Classification of Bridges Economic Sustainability Route Bridge

Level of Seismic Retrofit Safety level 1

- Service level Significantly limited
- Damage level Significant (no collapse)

Design Standards Ministry design standards shall be used except as noted above.

Parapet Ministry standard concrete parapet and railings shall be used on the widened structure

Consultant Tasks

The Consultant will be required to:

Review the project information provided by the Ministry and advise what additional information is required to complete the work.

Attend a site meeting to familiarize all involved with the existing conditions of the bridges and with the accessibility to the various components of the bridges. Confirm that the structure is in general conformity with the as-built drawings. Note existing utilities that may affect the seismic retrofit.

Conduct a site condition survey on both structures and include any structure deficiencies rehabilitation into the construction contract such as deck joints replacement etc.

Perform all structural, geotechnical and soil structure interaction analysis and assessment work including non-linear analysis if deemed necessary to develop the Seismic Retrofit Strategy according to the *Seismic Retrofit Design Criteria*.

Conduct retrofit strategy meetings to review progress with the Ministry as per milestone deliverables and any other additional meetings if deemed required. The meetings will be held at the Ministry Nanaimo office. The Consultant shall prepare the agenda and minutes of these meetings and distribute them.

Prepare a draft Seismic Retrofit Strategy Report according to the *Seismic Retrofit Design Criteria* and forward three copies to the Ministry for review.

Attend a final retrofit strategy meeting with the Ministry following the Ministry review of the draft Seismic Retrofit Strategy Report to achieve final consensus on the Seismic Retrofit Strategy. Prepare and distribute minutes from the meeting. Modify the draft Seismic Retrofit Strategy Report as necessary and submit two copies of the final Seismic Retrofit Strategy Report to the Ministry.

Perform the detailed design of the retrofitted elements and prepare, in general conformity with the Bridge.

Procedures and Standards Manual, seismic rehabilitation drawings with complete detail geometry to enable the works to be constructed.

Draw up specifications supplementary to the Ministry's Standard Specifications for Highway Construction as may be necessary and compose special provisions as required and incorporate into tender documents.

Prepare detailed quantities and cost estimates, including an appropriate contingency amount to arrive at a reasonably accurate overall estimate of cost. Summarize as a schedule of approximate quantities and unit prices and incorporate into tender documents. Notify the Ministry of any factors which are considered by the Consultant to be beyond his control and which are likely to qualify the accuracy of his cost estimates.

Consult with the District with regards to maintenance and operation procedures, problems, etc. with similar local facilities and include necessary maintenance, emergency and traffic operation features as may be necessary.

Liaise with utility companies or other authorities (if required) who have utilities on the structure which may be affected by or interfere with the retrofit schemes.

Provide progress reports submitted to the Ministry on a monthly basis. These reports will include statements regarding any changes to scope of work that might justify an increase in the assignment and an estimate of the assignment progress, including a summary of man-hours expended on the project. Issues that may affect the schedule shall be reported.

Provide calculations and/or computer input and output files, either on disk or in other acceptable form, to the Ministry upon request. The Consultant shall record all calculations in an organized and complete format for this purpose.

NOTE: The Ministry will no longer be undertaking detailed reviews of the work at various stages of completion. Rather the consultant will be responsible for ensuring adequate quality control and quality assurance takes place, and that a high quality product, free of errors, is produced. Costs associated with this should be built into the proposal.

Ministry Tasks

Provide copies of drawings that the Ministry currently has on file.

Provide copies of the Bridge Inspection Reports

Critically review the work as it proceeds and advise on matters regarding policy.

Use the Structural Design Criteria Sheet to confirm the Project Design Criteria prior to the design.

Prepare structural design drawings with related Special Provisions meeting Ministry standards and requirements.

Obtain and use Drawing and Bridge Numbers as provided by the Ministry.

Structural Engineering Deliverables

A sealed Structural Design Criteria Sheet signed off by the Ministry's Manager, Bridge and Structural Engineering.

Structural design drawings and related Special Provisions.

f) Environmental Engineering

Identify any additional effort needed to investigate environmental impacts and mitigation measures that is in addition to the work currently agreed with the Ministry.

Review existing environmental assessments/reports for the Project area.

Identify all potential environmental issues and constraints associated with the design.

Initiate the approval process by contacting and liaising with environmental approving agencies to receive feedback on proposed options and discuss specific concerns. Environmental approving agencies include, but are not limited to, the Canadian Environmental Assessment Agency (CEAA), the Ministry of Environment and the Department of Fisheries and Oceans, Canada (DFO).

Conduct a Fish and Fish Habitat Inventory, assess the potential compensation requirements, and provide Fish and Fish Habitat Compensation Plans, if required.

Summarize environmental constraints and proposed mitigation measures in the Design Report.

Liaise with the Ministry's Manager of Environmental Services with respect to landscaping design criteria and levels of landscape treatment that may be required.

Consult local jurisdictions and other agencies to determine their willingness to pay for construction and maintenance costs associated with providing landscaping exceeding Ministry warrants.

Environmental Deliverables

CEAA certificates and DFO permits.

g) Utilities

Obtain existing underground plans from the utility owners.

Identify all public and/or private utilities to be removed, relocated, adjusted or protected as a result of the proposed improvements, and contact the owners to review their requirements and time schedule to complete the required modifications.

Provide a cost sharing estimate for proposed utility relocations using the Ministry's Protocol Agreements and include the information in the overall project cost estimate.

h) Cost Estimating

Prepare a Schedule of Approximate Quantities and Unit Prices for the Assignment. Describe and list work items in accordance with the terminology and in the order of the Ministry's Work Breakdown Structure.

Prepare cost estimates for alternatives, including estimated costs of utility relocations, engineering supervision during construction, property acquisition, contingency amounts, and costs of materials and services to be provided by the Ministry and others. Historical unit pricing information is available from the Ministry at:

<http://gwww.th.gov.bc.ca/gwwwpmss/Content/Home/Home.asp>

Notify the Ministry in writing giving details of any factors considered to be beyond the Consultant's control which qualify, or are likely to qualify, the accuracy of cost estimates.

Maintain an updated estimate of all related Project costs as the Assignment progresses. Include estimated costs of utility relocations, engineering supervision during construction, property acquisition, contingency amounts, and costs of materials and services to be provided by the Ministry and others.

Submit further information and recommendations required to assist the Ministry in making an evaluation of such qualifications for the necessary budgeting process and/or for other decision making purposes of the Ministry.

Cost Estimating Deliverable

Cost estimates for the appropriate level of design using Ministry Form H0088:

http://www.th.gov.bc.ca/publications/const_maint/contract_serv/const_files/H_forms/h0088_CreateMinistryEstimate.xls

i) Quality Management

The Ministry is responsible, as part of general project management responsibilities, for assuring that the quality of Work submitted meets the standards and guidelines expected by the Ministry. The Quality Management activity by the Ministry and the Consultant is composed of the following parts:

- Consultant's Quality Management Plan

In the preparation of its Proposal, the Consultant shall include an outline of their formal Quality Management Plan.

Following award of this Assignment, the Consultant shall submit a detailed Quality Management Plan for review by the Ministry.

- The Consultant's Quality Control Plan

The Quality Control Plan shall govern the Consultant's internal review and checking process throughout the entire course of the work.

The Plan shall demonstrate how the Consultant will achieve a quality product.

The Quality Control Plan shall be based on the principles of ISO9001:2000 program and adhere to the Quality Management Accord as agreed to between the Ministry and the Consulting Engineers of British Columbia.

- Evidence of Implementation of the Quality Control Plan

Evidence that the Consultant's Quality Control Plan is functioning effectively shall be provided with each deliverable with quality control reports and check sheets.

Failure to submit an acceptable quality control report and related documents during the submissions may result in the work being returned to the Consultant without further payment, and a poor rating Performance Evaluation as a final entry being entered into RISP.

- Ensure adequate quality control and quality assurance takes place, and produce a high quality product that is free of errors.
- The Ministry will not undertake detailed reviews of the work at various stages of completion.
- Ministry will audit the Consultant's deliverables on how Consultant has implemented its Quality Management Plan.
- Review the Quality Management Accord and acknowledge Consultant will provide and implement a Quality Management Plan.

Quality Management Deliverable

Consultant will follow the Quality Management Accord.

Consultant will:

- Prepare and submit Quality Management Plan for the assignment within the first month of the assignment or prior to any invoice.
- Provide proof the Quality Management Plan has been implemented.
- Deliver copies of quality management checklists with specified deliverables for payment.

Where not identified, the Consultant will include all costs to prepare cost estimates, design adjustments, and calculations in the Fixed Fee for Services to meet the Ministry Standards and Assignment requirements.

j) Drawings

Illustrate complete detail and geometry on the drawings as required.

Confirm the required scale of drawings for the Assignment prior to starting the design.

Use the Drawing series number provided by the Ministry's Contact Person to ensure the drawings have the required record numbering sequence (RX-XXX-000).

Include and incorporate drawings prepared by others (e.g. bridge design / electrical design / landscaping design / utility relocation design) in the Design Assignment.

Ensure drawing conformance with Ministry standards. In particular, ACAD drawings shall conform to standards such as layering, line types, text font, and text size, etc.

Prepare plans in accordance with BC Supplement to TAC Geometric Design Guide using all Ministry standard symbols, C-Lines, line types and fonts.

Prepare reproducible working cross sections as reference information as necessary. Refer to Section 400 of the BC Supplement to TAC for cross section format and content requirements.

Prepare Electrical design drawings in accordance with the *Electrical and Traffic Engineering Manual*.

Prepare Bridge design drawings in accordance with the *Manual of Bridge Standards and Procedures*.

Drawings Deliverables

Original full size design drawings signed and sealed by the Engineer of Record.

Half size (11 x 17) drawings.

Electronic copies (DWG and PDF files).

Cross sections.

Other reference drawings.

k) Design Report

Prepare and submit a Design Report summarizing the following:

- Existing conditions.
- The initial Project scope.
- Design processes that have resulted in revisiting previous designs, and their outcomes.
- Proposed major revisions and/or scope changes and the reasons for them.
- Features of the detailed design that could require special attention from the field inspection staff or the Design Engineer during Detailed Design or construction.
- All utility contacts, potential conflicts and required relocations and their status.
- Critical construction staging and traffic control considerations
- All environmental agency contacts and concerns.
- All provisional sums shown on Schedule 7, including a brief explanation for each.
- All unresolved design issues, all agreements, and any other special conditions and considerations that may impact the construction of the Project.
- Variances in design criteria, including a signed copy of the Design Criteria Sheet with supporting documentation for exceeding or not meeting values specified within the standards.
- Any Design or Constructability issues.

l) Design Constructability

Conduct a constructability review of the various alternatives evaluating them with respect to their constraints.

Identify design constructability issues during the design process to ensure the designed product has been cost effectively evaluated for as many different possibilities and to address design/constructability issues during construction.

Design Constructability Deliverable

A completed Design Constructability checklist identifying possible constructability issues.

m) Tender Documents

Prepare Special Provisions. Follow the Ministry's sample Special Provisions format and wording which can be found at the following link:

http://www.th.gov.bc.ca/Publications/const_maint/contract_serv/contract_services.htm

Tender Documents Deliverable

Prepare all schedules and tender documents meeting Ministry requirements and format for tendering.

DELIVERABLES, MEETINGS, PROGRESS REPORTS AND SCHEDULE

a) Consultant Services Deliverables

The completion date for the Assignment is fixed as shown in the following table. The dates for the rest of the deliverables were left to be provided as part of the proposal submission requirements. The Consultant will be responsible for, but not limited to the following deliverables for the Assignment:

Deliverable	Stage	Requirement	Date
Quality Management Plan.	At start of Project.		Schedule attached
Submission of Design Criteria Sheets for the bridge and roadway.	Preliminary Design (P.D.) Signoff required before proceeding designing.	Submit on Ministry forms.	Schedule attached
Preliminary findings: Structural, geotechnical, environmental, geometric, traffic and electrical	Preliminary P.D.1	Present and review findings	Schedule attached
Design/constructability evaluation and checklist.	Ongoing to be finalized by the end of the Assignment.	Submit at each deliverable.	Schedule attached
Preliminary Design submissions for structural and roadway, environmental, and geotechnical	Preliminary design (P.D.2)	Presentation, review and coordination. Allow two weeks of review time	Schedule attached
Traffic Engineering and Electrical Checklists.	Detailed Design	Submit on Ministry forms.	Schedule attached
90% Design submission (including all reports)	Detailed Design (D.D.1)		Schedule attached
100% Design, reports and contract documents, design folder	Prior to tender.(D.D.2)	Submit on Ministry forms.	Schedule attached
Services and Design changes during construction.			Schedule attached
As-Built Record Drawings.	At end of construction.	Signed off As-Built drawings,	Within 30 days after construction is completed.

The completion date for the Assignment is fixed and cannot be changed. The project must be tendered by September 30, 2008 and construction be completed by the summer of 2009.

b) Planned Meetings

Attend site specific meetings to discuss concerns and issues with the Ministry and stakeholders as necessary.

Attend monthly design review meetings as required, to review and evaluate progress, summarize resolved issues, identify and discuss new issues, outline work to be completed prior to the next meeting, and update costs and schedule. Monthly review may coincide with deliverable review meetings.

Attend meetings with Ministry groups, consultants, municipalities, regional districts, utility owners, environmental agencies, Regional Transportation Authorities, R.C.M.P., or other affected parties as necessary to satisfy the requirements of the Assignment.

Attend formal meetings for the review of deliverables.

Meet with the Ministry's Area Manager with respect to maintenance procedures and operational requirements or problems with existing facilities. Include necessary maintenance, emergency, and traffic operation features as may be necessary both during construction and after the Project is completed.

Maintain effective liaison with Ministry representatives through the Ministry's Regional Highway Design Engineer, Traffic Engineer, or Geotechnical Design Engineer by regular communication and scheduled meetings.

Attend performance evaluation meetings for each deliverable.

Make a formal presentation of the completed design at a tender confirmation meeting or design completion meeting to be scheduled approximately one to two weeks after the contract documents are submitted for Ministry review. Revise drawings and special provisions as required after this meeting.

The Ministry may visit the Consultant's office to informally audit the progress and appropriateness of Work underway on this assignment.

For additional meetings not identified in the original Fixed Fee, the Consultant shall notify in writing to the Ministry as soon as possible.

Planned Meetings Deliverables

Prepare and provide key Ministry personnel with copies of minutes to all related meetings. Prepare and distribute minutes of all meetings.

Prepare and provide Ministry Project Team with minutes of all meetings within one week of the meeting date.

Submission of minutes from meetings with the Ministry and forwarding stakeholder minutes

Provide evidence of meetings with the Ministry's Area Manager with respect to maintenance procedures and operational requirements or problems with existing facilities. Include necessary maintenance, emergency, and traffic operation features as may be necessary both during construction and after the Project is completed.

c) Monthly Progress Report

On the twentieth day or next business day, submit a monthly progress report to the Ministry until the completion of the design. The ministry should approve the report format.

Include a summary of work to date, issues with proposed resolution dates, and proposed activities for the next month and a financial progress spreadsheet in an approved format summarizing consultant costs to date and planned future expenditures.

d) Schedule

The Consultant will maintain open communications with the Ministry by keeping the Ministry Representative informed of the Project's status.

The Consultant will maintain the Project on the agreed schedule and within the scope and approved budget for the assignment. Should the Consultant start falling behind on its schedule, the Consultant will submit action plans to the Ministry outlining proposed steps to ensure that the Project is brought back on schedule. An extension of time will not be permitted without prior authorization.

PERFORMANCE EVALUATIONS

The Ministry will no longer be undertaking detailed reviews of the work at various stages of completion. The consultant will be responsible for ensuring adequate quality control and quality assurance to project deliverables.

The Ministry representative will conduct performance evaluation at the completion of each deliverable and will rate performance of the consultant on a number of attributes. This is to ensure adequate quality control is conducted for each deliverable, and high quality, error free services are delivered.

Form, H0503 – Consultant Performance Evaluation, which rates the Consultant on specific attributes, will be used for the Performance Evaluation. The Performance Criteria are as follows:

Milestone Dates for Performance Evaluation

A performance evaluation will be conducted upon completion of each deliverable. The Ministry representative will arrange a meeting with the Consultant project manager to discuss the results of performance based on the rated criteria for each of the Project deliverables. Each deliverable is assigned a weight and at the end of the contract, the final score will be based on the weighted average and it will be entered in the RISP system. Costs associated with the Performance Evaluation meeting should be built into the proposal.

Performance Evaluation Attributes and Measures for Project Deliverables

Design Deliverable	Attribute	% Attribute Weight	%Deliverable
P.D.1	1. Quality Management	20	15
	2. Deliverable management	25	
	3. Communication	15	
	4. Change Management/Issues	15	
	5. Solutions &Recommendation	15	
	6.Constructability	10	
P.D.2	1. Quality Management	25	25
	2. Deliverable management	30	
	3. Communication	20	
	4. Change Management/Issues	25	
	5. Solutions & Recommendation	10	
D.D.1	1. Quality Management	20	40
	2. Deliverable management	10	
	3. Communication	20	
	4. Change Management/Issues	10	
	5. Solutions & Recommendation	20	
	6. Constructability	20	

D.D.2	1. Quality Management	20	20
	2. Deliverable management	10	
	3. Communication	20	
	4. Change Management/Issues	10	

GENERAL ENGINEERING SERVICES

The Consultant shall respond to requests from the Ministry (Project Manager, Construction Services Manager, or Ministry Representative) to provide the following Engineering Services, if required, during the tender, construction and post-construction stages.

a) Tender Stage

- Prepare language, sketches or drawings for inclusion in addenda to the tender documents.
- Respond to specific queries.

b) Construction Stage

Typical Construction Stage responsibilities may include, but not be limited to, the following:

- Attend a pre-construction meeting and subsequent meetings.
- Respond to specific queries.
- Conduct supplemental surveys.
- Review the contractor's traffic management plans and inspect traffic detours on site.
- Confirm a site inspection schedule, perform periodic site inspections and prepare reports.
- Review all shop drawings.
- Review the contractor's construction procedure.
- Review and evaluate alternative designs (typically within two working days).
- Make design revisions.
- Review reinforcing steel drawings for critical cast-in-place concrete elements.
- Review the contractor's proposed falsework drawings.
- Prepare screed elevations at two metre intervals for bridge deck construction.
- Act as the "Owner's Engineer."

The Consultant accepts and acknowledges that the Construction Company is the Prime Contractor for the purposes of the Workers' Compensation Act and that the Consultant's activities on the site shall always be in accordance with the Prime Contractor's Base Safety Program.

c) Post-Construction Stage

Prepare "as-built" / record drawings in accordance with Ministry digital format standards within 30 days after construction completion. Submit one full size copy, three half size copies and one electronic (CD) copy of the drawings to the Ministry Contact Person. Information and drawing mark-ups will be provided to the Consultant from the Ministry Representative and/or the Construction Contractor.

Project Reference Information

While the Ministry will strive to provide adequate and timely information, the Consultant shall review in detail all information to ensure it provides all the details and completeness necessary for the provision of comprehensive, thorough and accurate surveys and designs.

Engineering Special Conditions

The Consultant shall use Ministry reference documentation until the end of their assignment. They must return all aerial photographs, photo mosaics, mapping sheets, field survey data, geotechnical reports or other reference materials on completion of the assignment.

MINISTRY RESPONSIBILITIES

The Ministry will undertake the following with respect to a project as required:

- Provide access to all available pertinent reports, inventories and correspondence that will assist in the design process.
- Prepare and undertake a communications strategy to communicate and receive input from residents and stakeholders on the design and engineering scope of the Project.
- Take the lead role in advising and consulting with the media, elected officials, community groups, First Nations Bands, the Agricultural Land Commission, private property owners and environmental agencies.
- Review the work as it proceeds and advise on matters regarding standards, guidelines and policy when possible. This review does not constitute an acceptance of liability by the Ministry or its employees, for the design. It is solely conducted as a check to ensure the Ministry's interests are being considered and assured.
- Consider the consultant's advice and recommendation for changes in the scope and delivery.
- Perform detailed inspection and reporting to the Ministry's guidelines for all areas of existing roads.

General Responsibilities

- Provide historical unit prices on a limited basis.
- Evaluate proposed sub-consultants work on the Project as part of the overall Performance Evaluation for the Assignment.
- Review the work as it proceeds and advise regarding standards, guidelines and policy. This review will be conducted solely as a quality assurance check.
- Act as Ministry Manager.
- Provide existing geotechnical data for the existing bridges.
- Provide any other existing Ministry data.

Surveying

- Provide available legal plans. All other updates required shall be the Consultant's responsibility.
- Provide available survey information, drawings, calculations, plans, topographical cross sections, profiles and field survey data.
- Conduct legal surveys.

Highway Engineering

- Provide the source of available "As-Built" or design drawings of existing highways, structures and electrical facilities under Ministry jurisdiction that might be affected by proposed works for each Assignment.
- Provide historical data and documents.

Geotechnical Engineering

- Provide geotechnical advice, comments and recommendations.

Electrical Engineering

- Provide drawing series number for all electrical drawings by the Ministry's Traffic Systems and Electrical Engineering Section, South Coast Region.
- Provide all available record drawings of existing electrical infrastructure.
- Provide details of previous proposed designs.

Traffic Engineering

- Review any detour requirements or traffic issues.
- Provide access to available Ministry traffic counts.
- Discuss directional guide sign messaging with municipalities. Review preliminary / Approve final message text designs, layouts and locations for all directional guide signs, and service and attraction signs.
- Review preliminary and approve final message text designs, layouts and locations for all directional guide signs, and service and attraction signs.

Property Acquisition

- Provide cost estimates for proposed property acquisitions as available.
- Negotiate and acquire highway Right of Way.

Development Approvals

- Provide all relevant information required for reviews of development proposal applications.

Environmental

- If necessary, contact and liaise with the Ministry of Aboriginal Relations and Reconciliation and the Archaeology Branch of the Ministry Tourism, Sport and Arts to identify issues, receive feedback on proposed design options and discuss specific concerns.
- Review and advise with respect to environmental work.
- Conduct a Contaminated Sites overview investigation.
- Conduct an Archaeological Overview Assessment.

Structural Engineering

- Provide bridge contract drawings and special provisions for the structure for incorporation into the contract documents.
- Provide the structural standard requirements.
- Review and advise on structure requirements as may be necessary and provide information with regards to maintenance and operation procedures, problems, etc. with similar local facilities. Provide any available as-built information for similar existing local structures.
- Assign structure identification numbers as required.
- The Consultant will provide a load capacity evaluation for the existing structures with recommendations for maintaining or increasing capacity, investigate increasing traffic capacity, and investigate and present conceptual rehabilitation options that will extend the structures' service life.
- Utilities
- Provide record drawings of existing underground utilities as available.
- Identify all public or private installations to be removed, adjusted or protected because of the proposed improvements and contact the owners to review their requirements and time schedule to complete the required modifications.

Regulatory Liaison

- Make formal application to Transport Canada (National Transportation Agency and Railway Safety Directorate) and make financial arrangements and contacts about future provisions of facilities and safety appurtenances with railway authorities.
- Liaise with railway authorities, the National Transportation Agency and the Railway Safety Directorate with respect to the railway crossing design and obtain all necessary approvals for the same.
- Provide advice regarding utility relocations and copies of any permits for utilities located in the Ministry Right of Way.
- Provide advice regarding the requirements for railway crossings.

Utilities

- Provide Record Drawings of existing underground utilities as available.

The Ministry contact will be: Jan Pazhouh, Highway Design, Consultant Liasion Engineer, Phone: (604) 660-1716.



METHOD OF PAYMENT

Payments to the Contractor shall be based on the following:

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See attached Project Schedule of deliverables and corresponding Fee Schedule.

The Total fixed fee payment for deliverables is \$588,573.

Services during construction and preparation of as-built drawings will be reimbursed on hourly basis against the provisional sum of \$60,000.

FREQUENCY OF PAYMENTS

The Contractor shall invoice the Province:

According to the attached schedule for deliverables upon completion and acceptance of each deliverable by the Ministry Representative.

MAXIMUM AMOUNT PAYABLE

Total payments shall not exceed \$ 648,573.

PAYMENT SCHEDULE TERMS AND CONDITIONS

1. The Contractor shall invoice the Province in accordance with the terms of this Agreement showing the calculation of all amounts claimed.
2. Acceptance of any invoice and subsequent payment for the work/services, or any portion of the work/services, is subject to the invoiced work/services having been completed to the satisfaction of the Province.
3. The Province shall pay the Contractor within 30 days following either the receipt by the Province of the Contractor's invoice OR satisfactory completion of the invoiced work/services, whichever is later.
4. The Contractor shall accept payment as stated above as full and final reimbursement for all costs connected with the work/services.
5. The Contractor shall not commit the Province to any financial liability.
6. Notwithstanding any other provision of this Agreement, the payment of money by the Province to the Contractor is subject to the provisions of the Financial Administration Act.

PLEASE INITIAL

Figure F-3: F

MANAGEMENT AND SENIOR ENGINEERS									
Project Manager	Senior Reviewer	Highway Advisor	Structural Advisor	Quality Manager	Highway Designer	Highway CADD Designer	Drainage and Utilities	Structural C	
R. Wong	S.S. Deepak	T. Stevens	S. Chan	C. Phillips	V. Wang	N. Knudsenberg	K. Pun	Y. Ding	

Task No.	Task Description	Hourly Rate
PROJECT AND QUALITY MANAGEMENT		
4.1.1	Start-up meeting with MOT and Prepare Minutes	
4.1.2	Prepare Quality Management Plan	
4.1.3	Prepare SNCL Project Instructions	
4.1.4	Prepare 7 Quality Control Reports	
4.1.5	Attend 7 submission review meetings	
Project and Quality Management Sub-Totals		
PRE-DESIGN PHASE		
4.2.1	Traffic Data Collection	
4.2.2	Review survey and base mapping	
4.2.3	Site Visit and Structural Site Condition Survey	
4.2.4	Geotechnical Information Review	
4.2.5	Contaminated Sites Investigation	
4.2.6	Prepare Design Criteria	
4.2.7	Development of Synchro Model	
4.2.8	Development of VISSIM Models	
4.2.9	Traffic Report	
4.2.10	Cost Estimates	
PRELIMINARY DESIGN		
4.3.1	Preliminary Geotechnical Analysis and Design	
4.3.2	Preliminary Geotechnical Report	
4.3.3	Draft Detailed Design Drawings	
4.3.4	Draft Drainage Design Report	
4.3.5	Develop Seismic Retrofit Strategy	
4.3.6	Draft Seismic Retrofit Strategy Report	
4.3.7	Draft Structures Design Report	
4.3.8	Conduct 50% RSA	
Pre-Design and Preliminary Design Sub-Totals		
90% DETAILED DESIGN		
4.4.1	Updated Detailed Design Drawings	
4.4.2	Attend a final retrofit strategy meeting	
4.4.3	Modify Retrofit Strategy Report	
4.4.4	Traffic Signal Modifications	
4.4.5	Roadway Lighting	
4.4.6	Updated Cost A Estimate	
4.4.7	Special Provisions	
4.4.8	Value Engineering Report and Response	
100% DETAILED DESIGN		
4.5.1	100% Design Drawings	
4.5.2	100% Cross Sections	
4.5.3	100% Geotechnical Report	
4.5.4	100% Cost A Estimate	
4.5.5	100% Special Provisions	
4.5.6	Final Design Tender Drawings	
4.5.7	Final Special Provisions	
4.5.8	Final Schedules T0, 1, 4, 5	
4.5.9	Design Folders	
4.5.10	CAUDE Construction Archive	

s.21

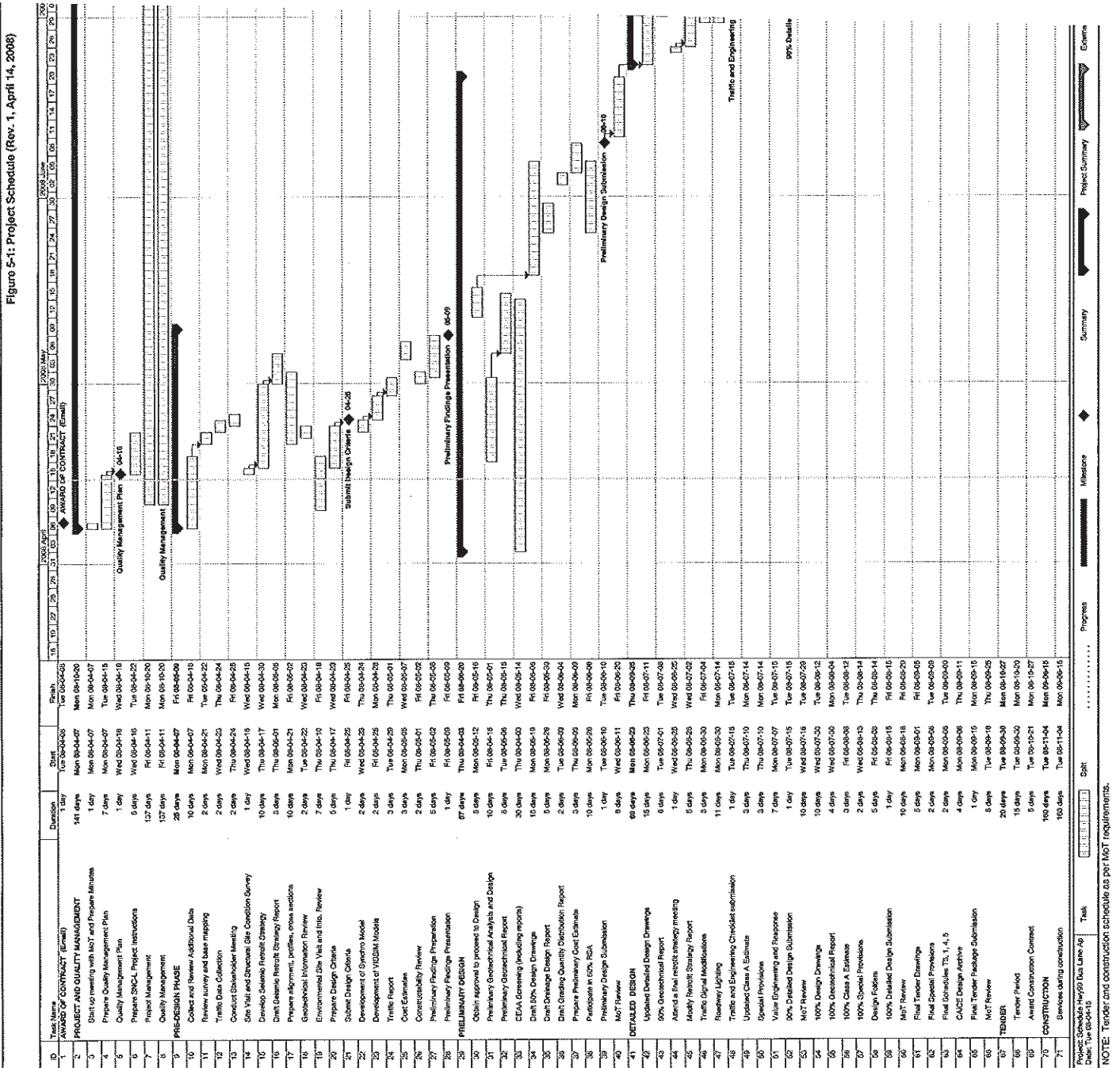
Figure F-3: FE

MANAGEMENT AND SENIOR ENGINEERS									
Project Manager	Senior Reviewer	Highway Advisor	Structural Advisor	Quality Manager	Highway Design	Highway CAD/ Designer	Drainage and Utilities	Structural Designer	
R. Wong	S.S. Deepak	T. Stevens	S. Chan	C. Phillips	V. Wang	N. Krukenberg	K. Pun	Y. Ding	

Task No.	Task Description	Hourly Rate	HRS	COST	HRS	COST	HRS	COST	HRS	COST	HRS	COST	HRS	COST
Detailed Design Sub-Totals														
Disbursements														
1	Management and Design Expenses at 4%	Lump Sum	1		\$22,390									
2	Traffic Counts	Lump Sum	1		\$1,000									
5	Lab Testing Expenses	Lump Sum	1		\$1,000									
6	Geotech Expenses	Lump Sum	1		\$1,500									
8	CEAA Screening and Fisheries Issues	Lump Sum	1		\$2,200									
9	Electrical Engineering Expenses	Lump Sum	1		\$500.00									
Disbursements Sub-Totals														
TOTALS														

HRS	COST	HRS	COST	HRS	COST	HRS	COST	HRS	COST	HRS	COST	HRS	COST	HRS	COST

Figure 5-1: Project Schedule (Rev. 1, April 14, 2008)



NOTE: Tender and construction schedule as per MOT requirements.

**SCHEDULE OF REIMBURSABLE
TRAVEL EXPENSES (GROUP I)**

When travel expenses are listed in the Payment Schedule as an allowable expense, then transportation, meals, accommodation and board and lodging will be reimbursed provided the same are in the opinion of the Province, necessarily incurred by the Contractor in providing the work/services.

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These rates will apply for the duration of the contract.

To obtain Government rates for car rental and accommodation a letter of authority signed by the Ministry contact (sample attached) is required as proof that you are under contract with the Province.

All claims should be submitted on "Schedule of Reimbursable Travel Expenses for Contractors to Fill in Online – H1170" (see attached) with all receipts attached.

No GST will be reimbursed.

1. TRANSPORTATION

- (a) Air Travel: Receipts are required. The most economical airfare must be obtained. Charter flights must be pre-approved in writing by the Regional, Branch or Project Director.
- (b) Bus, Taxi, Parking, Toll Charges and Ferry: Receipts are required, tips cannot be claimed. Ferry travel should be by the most economical route. Assured loading tickets and ferry reservations must be pre-approved in writing by the Regional, Branch or Project Director.
- (c) Vehicle Rental: Receipts are required. The Province has negotiated Corporate Supply Arrangements (CSAs) with the following vehicle rental companies and the Corporate Identification Number below is required when requesting a vehicle, to ensure that correct rates are being applied to the rental.

- AVIS RENT A CAR – C1460000
- BUDGET RENT A CAR – A162000
- ENTERPRISE RENT A CAR – 4CA1000
- NATIONAL CAR RENTAL – 3614638
- THRIFTY CAR RENTAL – 1660019642
- HERTZ CAR RENTAL – N/A

When signing the rental agreement, waive Collision or Loss Damage Waivers (CDW or LDW) and Personal Injury or Accident Insurance (PII or PAI) these costs are included in the CSAs and will not be reimbursed.

Report all accidents to the rental agency and the Ministry contact with 24 hours and submit a Vehicle Accident Report Form (RISK 01) to the Manager, Maint Programs.

- (d) Private Vehicle: No receipts are required. Reimbursement for use of private vehicles will be at the rate of \$0.49/km. This is an all-inclusive rate, i.e., includes the cost of gas and insurance.
- (e) Travel expenses are not reimbursable if incurred within a 32 km radius of the Contractor's office unless pre-approved in writing by the designated Ministry contact.
- (f) Prior approval of the Regional, Branch or Project Director is required before any travel is made crossing the Provincial border.

2. MEALS

No receipts are required. Meals will be reimbursed at the following rates:

Full day per Diem	\$46.25	
Breakfast only	\$11.25	If travel starts before 7:00 am
Lunch only	\$13.00	If travel starts before noon
Dinner only	\$22.00	If travel ends after 6:00 pm
Breakfast & Lunch	\$24.25	As per above
Breakfast & Dinner	\$33.25	As per above
Lunch & Dinner	\$35.00	As per above

3. ACCOMMODATION

Receipts are required. Accommodation expenses are reimbursed at cost, based on the maximum daily rates provided. Refer to Appendix 1 of this Schedule for details on accommodation rates.

Private lodging will be reimbursed at a rate of \$30.00/day.

Accommodation outside the Province will be at the rates pre-approved in writing by the Regional, Branch or Project Director.

4. BOARD AND LODGING

Where specifically pre-approved in writing by the designated Ministry contact, the contractor may claim \$2,000.00 per month for board and lodging in lieu of the accommodation and meal rates specified above.

APPENDIX 1 TO SCHEDULE OF REIMBURSABLE TRAVEL EXPENSES **ACCOMMODATION RATE THRESHOLDS FOR CONTRACTORS**

Daily hotel/motel accommodation stays will be reimbursed at cost, not to exceed the maximum rates by city as set out below. Only the single-person provincial government rate for a standard room will be reimbursed. Proof of government-related business may be required when booking.

City	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Downtown Vancouver	\$145	\$145	\$125	\$125	\$170	\$170	\$170	\$170	\$170	\$145	\$145	\$125
Greater Vancouver	\$110	\$110	\$110	\$150	\$160	\$160	\$130	\$130	\$130	\$110	\$110	\$110
Burnaby	\$100	\$100	\$100	\$100	\$115	\$115	\$115	\$115	\$115	\$100	\$100	\$100
Coquitlam/Port Coquitlam	\$100	\$100	\$115	\$115	\$120	\$120	\$120	\$120	\$120	\$100	\$100	\$100
Delta	\$95	\$95	\$95	\$95	\$95	\$95	\$100	\$100	\$100	\$95	\$95	\$95
Langley	\$100	\$100	\$100	\$100	\$100	\$100	\$110	\$110	\$100	\$100	\$100	\$100
New Westminster	\$105	\$105	\$110	\$110	\$130	\$130	\$130	\$130	\$130	\$110	\$110	\$110
North Vancouver	\$90	\$90	\$105	\$105	\$135	\$135	\$130	\$130	\$130	\$125	\$105	\$105
Richmond	\$120	\$120	\$120	\$120	\$140	\$150	\$150	\$150	\$150	\$140	\$140	\$120
Surrey	\$110	\$110	\$110	\$110	\$120	\$120	\$120	\$120	\$120	\$110	\$110	\$110
White Rock	\$75	\$75	\$75	\$75	\$100	\$100	\$100	\$100	\$75	\$75	\$75	\$75
Downtown Victoria	\$100	\$100	\$100	\$110	\$155	\$155	\$155	\$155	\$155	\$100	\$100	\$100
Greater Victoria*	\$105	\$105	\$105	\$155	\$155	\$155	\$155	\$155	\$155	\$105	\$105	\$105
Castlegar	\$90	\$90	\$90	\$100	\$100	\$100	\$100	\$100	\$100	\$90	\$90	\$90
Cranbrook	\$90	\$90	\$90	\$90	\$95	\$95	\$95	\$95	\$95	\$90	\$90	\$90
Dawson Creek	\$120	\$120	\$120	\$100	\$100	\$100	\$120	\$120	\$120	\$120	\$120	\$120
Fort St John	\$120	\$120	\$120	\$120	\$120	\$120	\$120	\$120	\$120	\$120	\$120	\$120
Golden	\$100	\$100	\$100	\$100	\$100	\$100	\$110	\$110	\$100	\$100	\$100	100
Kamloops	\$95	\$95	\$95	\$95	\$95	\$95	\$95	\$95	\$95	\$95	\$95	\$95
Kelowna	\$90	\$90	\$110	\$110	\$120	\$120	\$130	\$130	\$125	\$110	\$95	\$95
Nanaimo	\$100	\$100	\$100	\$100	\$110	\$110	\$110	\$110	\$110	\$110	\$100	\$100
Nelson	\$90	\$90	\$90	\$90	\$100	\$100	\$100	\$100	\$100	\$90	\$90	\$90
Penticton	\$90	\$90	\$90	\$100	\$110	\$110	\$130	\$130	\$110	\$100	\$100	\$90
Prince George	\$100	\$100	\$100	\$100	\$100	\$100	\$100	\$100	\$100	\$100	\$100	\$100
Prince Rupert	\$90	\$90	\$90	\$90	\$100	\$100	\$100	\$100	\$100	\$100	\$90	\$90
Smithers	\$85	\$85	\$95	\$95	\$95	\$95	\$95	\$95	\$95	\$95	\$90	\$90
Terrace	\$90	\$90	\$90	\$90	\$90	\$90	\$90	\$90	\$90	\$90	\$90	\$90
Vernon	\$90	\$90	\$90	\$90	\$95	\$100	\$120	\$120	\$95	\$85	\$90	\$85
Whistler	\$180	\$180	\$180	\$180	\$115	\$115	\$115	\$115	\$115	\$115	\$115	\$180
Williams Lake	\$80	\$80	\$80	\$80	\$90	\$90	\$90	\$90	\$90	\$90	\$80	\$80
Other Cities Not Listed	\$90	\$90	\$95	\$95	\$95	\$95	\$95	\$95	\$95	\$95	\$90	\$90

*Central Saanich, Saanichton, Brentwood Bay, Langford, Colwood, Sidney, Saanich, Esquimalt, Oak Bay



Letter of Authorization for Contractors

"Date"

To: All Authorized Province of British Columbia
Travel Industry Suppliers

Re: _____
"Contract Identification Number & Brief Description of Services"

Please be advised that: _____
"Name of Contractor"

is a contractor to the Ministry of Transportation and, as such, is permitted to use provincial government rates during the term of his/her contract as follows:

_____ to _____
"Commencement Date" "Completion Date"

The contractor named above, agrees that the services or goods obtained by virtue of this letter of authorization will be used solely for services supplied to the Province of British Columbia and the cost of the service or goods will be reimbursed to the contractor by the government, at the rate(s) supplied.

Personal or other use of this letter, or services/goods provided through the use of this letter, for other than that stated in the contractor's agreement, is forbidden in accordance with the terms and conditions of the agreement.

Should you require verification of this information, or if you have any questions, please contact the undersigned
at _____
"Phone Number"

Thank you for your co-operation.

Yours truly,

"Name of Ministry Contact"

"Position Title"



SAMPLE

(<http://www.th.gov.bc.ca/forms/getForm.aspx?formid=1070>)

NAME OF INDIVIDUAL CLAIMING EXPENSES

CONTRACT IDENTIFICATION NUMBER
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(Receipts are required for all transportation expenses except private vehicle use which is reimbursed as specified in the Schedule of Reimbursable Expenses.)

in the Schedule of Reimbursable Expenses.)

Date (yyyy/mm/dd)	From/To	Km*	Mode	Cost
			TOTAL	\$

* For private vehicle only.

* For private vehicle only.

(No receipts are required. Meals are reimbursed according to rates specified in the Schedule of Reimbursable Expenses.)

[illegible]

(Receipts are required for all expenses and are subject to daily maximums as specified in the Schedule of Reimbursable Expenses.)

Reimbursable Expenses.)

[illegible]

Period Covered From _____ To _____

TOTAL EXPENSES \$



CONTRACT IDENTIFICATION NUMBER

153 | CS | 0564

Where there is a conflict between the following Special Conditions and any other terms and conditions of the Consulting Services Contract and/or the Local Minor Works and Services Contract, the following Special Conditions shall prevail.

INDEMNITY

Notwithstanding any insurance coverage, the Contractor hereby agrees to indemnify and save harmless the Province, its successor(s), assign(s), and authorized representative(s) and each of them from and against those losses, claims, damages, actions and causes of action, (collectively referred to as "claims") that the Province may sustain, incur, suffer or be put to at any time either before, during or after the expiration or termination of this Agreement, that arise out of errors, omissions or negligent acts of the Contractor or their Subcontractor(s) or Subconsultant(s), servant(s), agent(s), or employee(s) under this Agreement.

CONFIDENTIALITY

The Contractor will treat as confidential and will not, without the prior written consent of the Province, publish, release, use or disclose or permit to be published, released, used, or disclosed either before or after the expiration or sooner termination of this Agreement, the Material or any information, including pricing information, supplied to, obtained by, produced, or which comes to the knowledge of the Contractor as a result of this Agreement except insofar as such publication, release, use, or disclosure is expressly permitted by the Province, necessary to enable the Contractor to fulfill the obligations of the Contractor under this Agreement, or is required by law.

The Contractor will implement and maintain procedures to ensure that each employee, named professional, consultant, officer, director, agent, contractor and subcontractor of the Contractor who will perform the Services and the Assignment, or any items or parts of the Services and the Assignment will, before and after the expiration or sooner termination of this Agreement, maintain the Material or any information, including pricing information, supplied to, obtained by, produced, or which comes to the knowledge of the Contractor as a result of this Agreement in strictest confidence, and will not, without the prior written consent of the Province publish, release, use or disclose any such Material or information, except insofar as such publication, release, use, or disclosure is necessary to enable the Contractor to fulfill the obligations of the Contractor under this Agreement, or is required by law.

Without restricting the generality of the paragraphs set out above in this section entitled "Confidentiality", the Contractor will comply with such reasonable directions as the Province may, from time to time, make and implement with respect to ensuring confidentiality, which directions may include restrictions and procedures on time and place of access and methods of reproduction of and uses of the any such Material or information.

This section entitled "Confidentiality" will survive the expiration or termination of this Agreement.

ADDITIONAL CONDITIONS

Definition:

Assignment: For the purposes of this contract, means a specified task or group of tasks, or an amount of work to be accomplished by the performance of "services" as defined herein.

The Ministry will:

Appoint a Ministry Representative, for liaison with the Contractor, to whom all notices and other correspondence and communications will be directed.

Review recommendations, proposals, schemes, sketches, layouts, estimates and any notices, inquiries or disputes submitted by the Contractor and will give written instructions or decisions to enable the timely continuation and completion of the Assignment. Make available to the Contractor the pertinent documentation of any other contract in connection with the work of the Assignment whenever it contains responsibilities required of the Contractor and if the Contractor gives notice in writing to the Ministry, of inconsistency between other contracts and the Assignment, the Ministry will resolve same, either by amendment of the other contract or by revision or addition to the Assignment and the Consulting Services Contract.

GENERAL PROVISIONS AND CONDITIONS

Approvals:

Approvals given by or on behalf of the Ministry to any study, investigation, course of action, design, schematic, drawing, detail or specification relevant to this Contract shall not relieve the Contractor of any of his responsibilities assigned to him under this Assignment.

Other Specialists:

If the Province engages the services of other specialists, the Contractor shall be entitled to rely on the skill, knowledge and documentation of such other specialists unless to do so is deemed to be unreasonable by the Minister and notice as such is provided by the Province to the Contractor.

Supplied Data:

The Contractor acknowledges that adequate discussion and access to sufficient information has transpired to enable the Contractor to undertake the performance of the Assignment. It is agreed that the Contractor shall be entitled to reasonably rely on the accuracy of the data contained in any documentation furnished by the Minister.

Implementation of Services and Liaison:

The Contractor will use the best available methods in performing the Assignment and shall employ only skilled and competent staff, and if required by the Minister, the Services shall be performed or supervised by the personnel designated on the list provided by the Contractor. The Services shall be carried out under the direct supervision of a principal or a senior member of the Contractor's staff to whom all notices will be directed.

Professional Service Requirements:

To the extent that the Assignment is of a professional nature, the Services shall be performed by a fully qualified member of the appropriate professional body duly registered to practice the profession in British Columbia when the professional body is established by a statute of the Province of British Columbia.

Codes:

The Contractor shall comply with all statutes, codes, by-laws and regulations of relevant governmental authorities.

Permits and Licences:

The Contractor shall advise and assist the Province in obtaining all approvals, permits and licences which are necessary to the Assignment from all governmental authorities.

Progress Reports:

In the absence of other directives from the Minister, the Contractor shall submit written monthly reports to the Minister on the progress in performance of the Assignment.

Use of Material:

In the event the Province uses material (as defined), for the purposes other than the Assignment, the Province will indemnify and save harmless the Contractor from and against all claims, demands, losses, damages, costs and expenses which arise out of or in connection with the inappropriateness of such use by the Province.

Documents and Information:

The Contractor shall provide to the Minister, at any time upon request, and otherwise upon completion of the Assignment the originals of documentation, with mylar reproductions of original drawings, where so directed by the Minister, for the purpose of document reproduction and/or retention by the Province. A clean exact copy of the original documents submitted shall be retained by the Contractor.

The professional seal of the Contractor shall be affixed prior to the completion of the Assignment on the prints of drawings required for subsequent construction contract purposes.

Non-Waiver:

Payments made by the Province to the Contractor on account of the Services shall not be construed as a waiver of any right of claim the Province may have against the Contractor arising out of the Contractor's failure to perform the Services in accordance with the provisions of this Contract.

Delivery of Records:

Where the Assignment requires the delivery of documentation to the Minister, such as record drawings, manuals or other similar requirements, the last payment for basic services under this Contract will not be made until such documentation has been delivered.

Statutory Declaration:

The Province may require the Contractor, as a condition of payment, to file with the Minister a Statutory Declaration stating that the Contractor has duly satisfied all the Contractor's financial obligations to third parties in connection with delivery of the Services.

Correction of Errors:

Correction of errors or other problems attributable to the Contractor shall be the responsibility of and at the cost of the Contractor.

Resolution of Dispute:

In the event of a dispute arising under this Contract between the Contractor and the Province, the Contractor shall, within 10 working days of becoming aware of the dispute, give written notice to the Minister detailing the nature of the dispute for resolution or direction by the Minister; notwithstanding the existence of such dispute, the Contractor shall continue the prompt performance of the Services unless otherwise directed by the Minister.

Should the actions of the Minister fail to resolve the dispute to the satisfaction of the Contractor, the Contractor shall, prior to any request for arbitration or recourse in law, request in writing that the Minister reconsider the matter. The Minister shall promptly fully reconsider the matter and advise the Contractor as to its determination. If the Contractor is dissatisfied with such determination the dispute may, with the concurrence of the parties, be submitted to arbitration pursuant to the provisions of the Arbitration Act.

ASSIGNMENT AND SUCCESSORS

If the Contractor is an individual and dies or becomes incapacitated before the Assignment has been completed, this Contract shall terminate automatically as of the date of death or incapacity, and the Province will pay the Contractor's estate for the Services rendered and disbursements made up to and including the date of such termination.

If the Contractor, as an individual, should desire to engage a partner or partners, or is a partnership and desires to bring in another partner or partners to share the benefit and burden of this Assignment, or desires to permit one or more of the Partners to retire, the Contractor shall promptly notify the Minister in writing of such action(s) requesting approval.

If the Contractor is a corporation and a change of control occurs while this Contract is in force, the Contractor shall promptly notify the Province, and the Minister shall then have the option of terminating the Contract, which if terminated, the Province will pay for the services rendered and expenses incurred up to and including the date of termination.

Entire Agreement

This Agreement constitutes the sole and entire Agreement between the Province and the Contractor relating to the Assignment, and no other terms, conditions or warranties, whether express or implied, shall form a part hereof, and this Contract shall not be modified, except by subsequent agreements in writing duly signed by the Authorized Representatives of both parties.

**INSURANCE SPECIFICATIONS
PROFESSIONAL SERVICES
INS-132****LIABILITY INSURANCES including Professional Liability**

Without restricting the generality of the contract indemnity clause, it is a condition of this contract that the Contractor shall prior to commencement of services and at the Contractor's expense, obtain and maintain until all conditions of the contract have been fully complied with, insurance coverage in wording and in amounts as hereinafter specified unless otherwise altered by mutual agreement.

1. ISSUANCE OF INSURANCE

All insurance coverage shall be issued with insurers acceptable to the Ministry, and issued by companies licensed to transact business in the Province of British Columbia.

2. EVIDENCE OF COVERAGE

The Contractor shall file evidence of insurance issued to comply with the requirements outlined in these insurance specifications prior to commencement of services. Should any insurance policies expire before all other conditions of the contract have been complied with, then the Contractor shall file evidence of renewal prior to the expiry date of the policy(s).

Evidence shall be as follows:

- a) For all policies, except Automobile Liability, by way of a duly completed Ministry Certificate of Insurance (H0111), which will be considered to be a part of this Schedule.
- b) For Automobile Liability insurance, either a duly executed I.C.B.C. APV47 or APV250 form, or a Ministry Certificate of Insurance.

The Contractor shall, upon request by the Ministry, file originals or signed, certified copies of all current policies and any endorsements necessary to comply with these insurance specifications and any other requirements outlined elsewhere in the contract. Failure to provide the required insurance may result in payments to the Contractor being withheld.

All documentation shall be filed with: **The Manager, Insurance and Bonds, Ministry of Transportation, PO Box 9850, Stn Prov Govt, 940 Blanshard Street, Victoria, BC V8W 9T5.**

**NO OTHER CERTIFICATES OF INSURANCE ARE
ACCEPTABLE**

Payments to the Contractor may be withheld and/or all work on the site of the contract may be ordered to cease if the Contractor fails to obtain or maintain insurance as required herein, or if the Ministry does not approve any insurance policy or policies submitted to them and the Contractor does not comply with the insurance requirements of the contract and, the Ministry shall also have the right, but not the obligation, to place and maintain such insurance in the name of the Contractor and the Ministry. The cost thereof shall be

payable by the Contractor to the Ministry on demand, and the Ministry may deduct the cost thereof from any monies which are due, or may become due to the Contractor.

3. THIRD PARTY LIABILITY INSURANCE

Comprehensive (Commercial) General Liability insurance shall be arranged with inclusive limits of not less than **TWO MILLION DOLLARS (\$2,000,000.00)** for bodily injury, death, and property damage arising from any one accident or occurrence. Such insurance shall also include all liability arising out of completed operations, blanket written contractual, contingent employers liability, non-owned automobile liability and liability assumed by the Contractor under this contract. The liability insurance shall be extended to apply with respect to any action brought against any one insured by any other insured or by any employee of such insured and any breach of a condition of the policy by any Insured shall not affect the protection given by this policy to any other insured. The liability insurance shall include all premises and operations of the Contractor and the employees, servants or agents of the Contractor. The insurance policy shall indemnify the named insureds under the policy for any sum or sums which the insured may become liable to pay or shall pay for bodily injury, death or property damage or for loss of use thereof, arising out of or resulting from the work of the Contractor or the Ministry under this contract, anywhere within Canada and the United States of America. In addition to the above limits, such liability insurance shall also pay all costs, charges, and expenses in connection with any claims that may require to be contested by the insureds anywhere within Canada and the United States of America.

The named insured shall include "Her Majesty the Queen in Right of the Province of British Columbia as represented by the Minister of Transportation, together with the employees, agents, and servants of the Minister, hereinafter referred to as the Additional Named Insured, is added as an Additional Named Insured, in respect of liability arising from the work or operations of the Insured and the Additional Named Insured, in connection with contracts entered into between the Insured and the Additional Named Insured."

A property damage deductible will be allowed for any one accident or per occurrence for up to **FIVE THOUSAND DOLLARS (\$5,000.00)** or **ONE PERCENT (1%)** of the contract amount, whichever is greater. Payment of any deductible shall be the responsibility of the Contractor. **A BODILY INJURY OR DEATH DEDUCTIBLE IS NOT ALLOWED.**

4. AUTOMOBILE LIABILITY INSURANCE

IF any licensed vehicles are owned, leased, rented or used in the performance of this contract, then Automobile Liability coverage with inclusive limits of not less than **TWO MILLION DOLLARS (\$2,000,000.00)** providing third party liability and accident benefits insurance must be provided for all these vehicles.

5. PROFESSIONAL LIABILITY INSURANCE (Errors and Omissions)

Professional Liability insurance shall be arranged from the date of execution of this contract and for a minimum period of **six (6) years** thereafter. The policy shall contain minimum limits of **\$ 1,000,000.00** per claim, and **\$ 1,000,000.00** annual aggregate insuring against loss or damage arising out of the professional services rendered by the Contractor, the Contractor's Sub-contractor and their servants or employees including personnel on loan to the Contractor and personnel who perform normal services of the Contractor under this agreement. The Ministry may require a separate project policy on certain contracts.

A deductible in an amount no greater than **ten percent (10%)** of the Contractor's insurance policy limits or **FIVE HUNDRED THOUSAND DOLLARS (\$500,000.00)**, whichever amount is the least will be allowed. Payment of any deductible shall be the responsibility of the Contractor.

The required insurance shall not be cancelled, removed, or endorsed to restrict coverage or limits of liability, without **thirty (30) days** notice in writing by Registered Mail to: **The Manager, Insurance and Bonds, Ministry of Transportation, PO Box 9850, Stn Prov Govt, 940 Blanshard Street, Victoria, B.C. V8W 9T5.**

6. PROTECTION AND INDEMNITY INSURANCE

IF vessels are operated in the course of the contract and are not covered under the general liability policy, then the Contractor shall provide Protection and Indemnity insurance applying to all vessels operated in the course of the contract with limits of not less than **TWO MILLION DOLLARS (\$2,000,000.00)** for such vessels. Such Protection and Indemnity insurance shall include four-fourths collision liability insurance.

7. AIRCRAFT INSURANCE

IF aircraft (including helicopters) are owned, leased, rented or used in the performance of this contract, then third party liability coverage with inclusive limits of not less than **FIVE MILLION DOLLARS (\$5,000,000.00)** must be provided.

8. NOTICE OF CANCELLATION, ETC. (applicable to all policies except Automobile Liability and Professional Liability insurance)

The insurance shall not be cancelled, removed, reduced, materially changed or altered without **thirty (30) days** prior written notice by Registered Mail to: **The Manager, Insurance and Bonds, Ministry of Transportation, PO Box 9850, Stn Prov Govt, 940 Blanshard Street, Victoria, BC V8W 9T5.**

THE PROVINCE ASSUMES NO RESPONSIBILITY FOR THE ADEQUACY OF THE INSURANCE EFFECTED IN FAVOUR OF THE CONTRACTOR OR THE MINISTRY UNDER THIS AGREEMENT.



CERTIFICATE OF INSURANCE

Contracts/Leases/Agreements/Permits Number, Location and Description:	Brokers' Reference No.
	Award or Effective Date (yyyy/mm/dd)

INSURED Name _____
Business Address _____

BROKER Name _____
Business Address _____

Type of Insurance	Company and Policy Number	Policy Dates		Limits of Liability / Amounts
		Effective	yyyy/mm/dd Expiry	
Comprehensive (or Commercial) General Liability (including Non-Owned Automobile Liability)				Bodily Injury and Property Damage \$ _____ Inclusive
				\$ _____ Aggregate
				\$ _____ Deductible
Additional Insureds:				
Automobile Liability				Bodily Injury and Property Damage \$ _____ Inclusive
Umbrella/Excess Liability				\$ _____ Limits
				excess of \$ _____ General Liability
				excess of \$ _____ Automobile
<input type="checkbox"/> Builders Risk				\$ _____ Site
<input type="checkbox"/> Installation Floater				\$ _____ Other Location
<input type="checkbox"/> Other:				\$ _____ Transit
Equipment Insurance				\$ _____ Limit
Professional Liability Errors and Omissions				\$ _____ Each Claim
				\$ _____ Aggregate
				\$ _____ Deductible
<input type="checkbox"/> Protection & Indemnity				\$ _____ Limit
<input type="checkbox"/> Hull & Machinery				\$ _____ Limit
<input type="checkbox"/> Builders Risk (Vessels)				\$ _____ Limit
<input type="checkbox"/> Ship Repairers' Liability				\$ _____ Limit
Other:				\$ _____ Limit

The undersigned certifies the undersigned has reviewed the policies of insurance described above and Page 2 of this certificate and further certify that those policies have been issued to the insured named above and are in full force and effect and comply with the insurance requirements set out in the agreement / contract / lease / permit identified above, including the requirements set out on Page 2 of this certificate.

Signature of person authorized to sign on behalf of Insurers
certifying Page 1 and Page 2 of this Certificate

Print or Type Name

Date (yyyy/mm/dd)

ADDITIONAL CONDITIONS ARE SHOWN ON PAGE 2 OF THIS CERTIFICATE OF INSURANCE

Notwithstanding any other terms, conditions or exclusions elsewhere in the insurance policy(s), it is understood and agreed that the insurance policy(s) are extended to include insurance conditions as follows:

**CONDITIONS APPLICABLE TO:
COMPREHENSIVE OR COMMERCIAL GENERAL LIABILITY**

1. Additional Named Insured Clause for Ministry Contracts

Her Majesty the Queen in right of the Province of British Columbia as represented by the Minister of Transportation, together with the employees, agents, and servants of the Minister, hereinafter referred to as the Additional Named Insured, is added as an Additional Named Insured, in respect of liability arising from the work or operations of the Insured and the Additional Named Insured, in connection with contracts, entered into between the Insured and the Additional Named Insured.

2. Extension of Coverage

Such liability insurance shall also include all liability arising out of completed operations, blanket written contractual, contingent employers liability, non-owned automobile liability, and liability assumed by the Contractor in connection with and applicable to the contract.

3. Cross Liability

The insurance as is afforded by this policy shall apply in the same manner and to the same extent as though a separate policy had been issued to each Insured. Any breach of a condition of the policy by any Insured shall not affect the protection given by this policy to any other Insured. The inclusion herein of more than one Insured shall not operate to increase the limit of liability under this policy.

4. Exclusions Not Permitted

If hazardous operations such as excavation, pile driving, shoring, blasting, underpinning, or demolition work or any other operation or work is to be performed by the Ministry or the Contractor, then this type of work or operation shall not be excluded from insurance coverage where such type of work or operation is to be performed by either party under the contract, subject to prior notification to the insurer by the Contractor.

Claims arising out of the legal liability imposed upon the Insured at common law and extended by Statute for bodily injury or death to employees of the Insured. However, exclusions applicable to liability imposed upon or assumed by the Insured under any Workers' Compensation Statutes or for assessment by any Workers' Compensation Board will be allowed.

Liability assumed by the Insured under contract with railroad companies for the use and operation of railway sidings or crossings.

5. Products and Completed Operations Hazard

Products and Completed Operations Hazard coverage shall be provided and such coverage shall remain in full force and effect for a period of twelve (12) months after the contracted work has been completed (twenty four (24) months for Design Build Minor Contracts), irrespective of the expiry date of the policy.

Issuance of this certificate shall not limit or restrict the right of the Ministry of Transportation to request any time certified copies of any insurance policy(s).

**CONDITIONS APPLICABLE TO:
PROPERTY TYPE OF INSURANCE POLICIES
(WHERE IT IS A REQUIREMENT OF THE CONTRACT,
AGREEMENT, LEASE OR PERMIT)**

1. Additional Named Insured Clause

Her Majesty the Queen in right of the Province of British Columbia as represented by the Minister of Transportation, is added as an Additional Named Insured.

2. Loss Payable Clause

Her Majesty the Queen in right of the Province of British Columbia as represented by the Minister of Transportation.

3. Waiver of Subrogation

In the event of any third party loss or damage or any physical loss or damage to the work or Contractor's equipment, the settlement or payment of the subsequent claim shall be made without the right of subrogation against Her Majesty the Queen in right of the Province of British Columbia as represented by the Minister of Transportation or any of the employees, servants or agents of the Minister.

**CONDITIONS APPLICABLE TO:
ALL POLICIES EXCEPT AUTOMOBILE LIABILITY INSURANCE
ISSUED BY I.C.B.C. AND PROFESSIONAL LIABILITY (E&O)
INSURANCE**

1. Cancellation

This policy shall not be cancelled, removed, reduced, materially changed or altered without thirty (30) days prior notice in writing by Registered Mail to:

**CORPORATE INSURANCE AND BONDS MANAGER
MINISTRY OF TRANSPORTATION
PO BOX 9850 STN PROV GOVT
VICTORIA BC V8W 9T5
or
Ministry Representative, as noted in the contract.**

**CONDITION APPLICABLE TO:
PROFESSIONAL LIABILITY / ERRORS AND OMISSIONS
INSURANCE**

1. Cancellation

The required insurance shall not be cancelled, or endorsed to reduce limits of liability, without thirty (30) days notice in writing by Registered Mail to: The Corporate Insurance and Bonds Manager, Ministry of Transportation, PO Box 9850, Stn Prov Govt, 940 Blanshard Street, Victoria, B.C. V8W 9T5. Notification of the policy being endorsed to restrict coverage mid-term, must be provided in writing by Registered Mail to the same address, no later than the effective date of such change.



File: 153CS0564

May 1st, 2008

SNC-Lavalin Inc.
1800 – 1075 West Georgia Street
Vancouver, BC V6E 3C9

Attention: Richard Wong

RE: 153CS0564 Preliminary and Detailed Design of Hwy 99 Shoulder Bus Lane

Approval has been obtained to engage your firm for the above noted services in the amount of \$648,573.00. Enclosed is the complete contract for your signature. If you are in agreement, please **sign and have it witnessed** or affix your seal (if applicable) in the appropriate locations on the contract and then return all of the pages complete with attachments to the mailing address noted below. Upon receipt and execution of the contract by this office, a copy will be returned for your records.

Upon receipt of your signed copy of the contract, you may proceed with the services as required by the Work/Services Schedule. Remuneration will be paid as set out in Payment Schedule and if travel expenses apply, they will be reimbursed in accordance with the Schedule of Reimbursable Travel Expenses.

Please have the Ministry Certificate of Insurance H0111 forwarded to the **Manager of Insurance and Bonds, Construction and Maintenance Branch, PO Box 9850 Stn Prov Govt, Victoria, BC V8W 9T5**. If blanket insurance already exists on file with the Ministry, it is not necessary to complete the certificate of insurance. Please ensure that the coverage is current and will be maintained for the entire term of this contract.

Liaison on behalf of the Ministry will be carried out by Jan Pazhouh, Phone No. (604) 660-1716. Kindly forward all invoices to your liaison person. If there is a requirement for travel please ensure the attached letter permitting the use of Provincial Government rates is signed by the Ministry Liaison prior to travelling.

Please use our Reference Number **153CS0564** on any correspondence and invoices submitted. If you have any questions, please contact the undersigned.

Yours truly,

Gregory Matisz
Manager, Financial Services
and Provincial Contract Services

GM/da

Enclosure

cc: Matt Choquette
Manager, Insurance and Bonds, Victoria



Major Works, Minor Works, Operational Services, Design Build Minor and Consulting Services Contracts General Information:

- The ONLY acceptable Certificate of Insurance is a Ministry of Transportation Certificate of Insurance (H0111).
 - BOTH pages of the Ministry Certificate of Insurance must be submitted and the form conditions on page one and two must NOT be altered or added to.
 - Ensure that the effective award date of the Certificate of Insurance is the earlier of the date of contract award or contract start date.
 - DO NOT add the Ministry of Transportation as an Addition Insured on page 1 of the Certificate of Insurance as the Ministry of Transportation is an Additional Named Insured (as per the insurance specifications and page 2 of the Certificate of Insurance).
 - Always examine your Ministry Certificate of Insurance for policy effective dates and expiry dates and renewal dates in relationship to your contract.
 - Ensure that the Certificate of Insurance includes all required information (name of Insurer, policy numbers, policy effective dates, expiry dates, policy limits, deductibles and aggregates).
 - Double check all documentation to ensure that the project number and description are correct.
 - Always give the sample Ministry of Transportation Certificate of Insurance—again BOTH pages—the Insurance Specifications, the Special Provisions and the Bond Specimens in your tender document to your Insurance Broker as it enables him/her to produce documentation and pricing in accordance with the contract requirements.
 - Ensure that Ministry Certificate is duly signed and are originals or certified copies.
 - If Automobile Liability insurance is required in the Ministry Agreement one of the following must be provided:
 - duly completed H0111 form (must show the ICBC coverage) AND/OR
 - a completed APV47 (ICBC Form) OR
 - a completed APV250 (ICBC Form)
- *Note: Combination of Primary ICBC insurance and other Excess insurance is acceptable but must be clearly evidenced.

Major Works, Minor Works, Operational Service and Design Build Minor Contracts Only:

- Insurance requirements are found in BOTH Schedule 3- Special Provisions and Schedule 6- Insurance Specifications.
- Specimen Bonds are found in Schedule T2 Tender Securities Document INS0264 and Schedule 2 Contract Securities INS0265. Please ensure the bonds provided match the specimen.

Questions should be directed to the Corporate Insurance and Bonds Manager – (250) 387-7580

WCB

Workers' Compensation Board (WorkSafeBC) coverage is required.

- The general WCB of BC information site is <http://www.worksafebc.com/>
- Registration and insurance coverage can be completed online with details found at http://www.worksafebc.com/insurance/registering_for_coverage/register_with_worksafebc/default.asp. To report applicable payroll online, use http://www.worksafebc.com/online_services/reporting_and_remitting/default.asp
- Ensure that your premiums are paid so a clearance letter will be obtainable by the Ministry. For estimating your insurance costs, you may wish to consult the rate guide at http://www.worksafebc.com/insurance/premiums/rate_setting/default.asp.



This Agreement,

MADE IN QUADRUPLICATE ON THE _____ DAY OF _____.

BETWEEN: **HER MAJESTY THE QUEEN** IN RIGHT OF THE PROVINCE OF BRITISH COLUMBIA
REPRESENTED BY THE MINISTER OF TRANSPORTATION.

POSTAL CODE

7818 - 6th Street, Burnaby, BC

Ministry Address

V3N 4N8(hereinafter called the "Province")
OF THE FIRST PARTAND: **SNC-Lavalin Inc.**

Name of consulting firm

1800 - 1075 West Georgia Street

Street or mailing address of consulting firm

POSTAL CODE

Vancouver, BC

City / Province

V6E 3C9(hereinafter called the "Contractor")
OF THE SECOND PARTShort Description: **Preliminary and Detailed Design of Hwy 99 Shoulder Bus Lane**

WITNESSETH THAT the parties hereto agree to the covenants and agreements contained in paragraphs 1 through 26, inclusive, on the face and reverse side of this document and in the attached schedules set out below.

COMMENCEMENT DATE (yyyy/mm/dd)

2008/04/07

COMPLETION DATE (yyyy/mm/dd)

2009/12/31

ATTACHED SCHEDULES MARKED "X" FORM PART OF THIS CONTRACT

TERMS AND CONDITIONS:**APPOINTMENT**

1. The Province retains the Contractor to provide the services (the "Services") described in the Works/Services Schedule attached hereto.

TERM

2. The Contractor will, notwithstanding the date of execution and delivery of the Agreement, start providing the Services on the commencement date and shall complete all Services to the satisfaction of the Minister by the completion date, both dates hereinbefore stated. The period of time between the aforementioned dates shall hereinafter be referred to as the "Term". Time shall be deemed to be material and of the essence of this contract.

PAYMENT

3. The Province will pay to the Contractor, in full payment for providing the Services and in full reimbursement for expenses incurred in connection therewith, the amounts, in the manner and at the times set out in the Payment Schedule attached hereto and the Contractor will accept the same as full payment and full reimbursement as aforesaid.

- ☒ Terms and Conditions
- ☒ Works/Services Schedule - H0461a
- ☒ Payment Schedule - H0461b
- ☒ Travel Expenses (Group I) - H0461c
- ☐ Travel Expenses (Group II Mgmt) - H0461c-1
- ☒ Special Conditions (Engineering) - H0461d
- ☐ Special Conditions (Information Systems) - H0461d-1
- ☐ Special Conditions (Surveying) - H0461d-2
- ☐ Insurance Specifications - INS-80
- ☒ Insurance Specifications Professional - INS-132
- ☒ Certificate of Insurance - H0111
- ☐ Privacy Protection Schedule

WITNESS WHEREOF THE PARTIES HERETO HAVE EXECUTED THIS AGREEMENT THE DAY AND YEAR FIRST ABOVE WRITTEN

AFFIX CORPORATE SEAL HERE:

WITNESS AS TO THE CONTRACTOR'S SIGNATURE

SIGNATURE OF CONTRACTOR

WITNESS AS TO THE MINISTRY SIGNATURE

Gregory Matisz, Manager, Financial Services
and Provincial Contract Services
SIGNATURE OF DELEGATED MINISTRY AUTHORITY

DISTRIBUTION: ORIGINAL-CONTRACT FILE, 1 COPY-CONTRACTOR, 1 COPY-ACCOUNTS PAYABLE, 1 COPY-CONTRACT ORIGINATOR

RECORDS

4. The Contractor will:
 - a) where the Payment Schedule provides for payment determined on the basis of time, keep records of all such time; and
 - b) where the Payment Schedule provides for reimbursement of any expense, keep books of account of any such expense incurred; and the Minister of Transportation (the "Minister") will have free access at all reasonable times to such records and books of account for the purposes of reviewing or copying (or both) the same.

INDEPENDENT CONTRACTOR

5. The Contractor is an independent contractor and not the servant, employee or agent of the Province of the Minister.
6. The Contractor will not, in any manner whatsoever, commit or purport to commit the Province or the Minister to the payment of any money to any person, firm or corporation.
7. The Minister may, from time to time, give such instructions as he considers necessary to the Contractor in connection with provision of the Services, which instructions the Contractor will comply with, but the Contractor will not be subject to the control of the Minister with respect to the manner in which such instructions are carried out.

REPORTS

8. The Contractor will upon the request, from time to time, of the Minister:
 - a) fully inform the Minister of work done and to be done by the Contractor in connection with provision of the Services; and
 - b) permit the Minister at all reasonable times to inspect, examine, review and copy any and all finds, data, specifications, drawings, working papers, reports, documents and materials whether complete or otherwise (collectively the "Material") that have been produced, received or acquired by, or provided by or on behalf of the Province or the Minister to, the Contractor as a result of this Agreement.

OWNERSHIP

9. The Material produced, received or acquired by, or provided by or on behalf of the Province or the Minister to, the Contractor as a result of this Agreement and any equipment, machinery or other property whatsoever (collectively the "Goods") provided by or on behalf of the Province or the Minister to the Contractor as a result of this Agreement will be the exclusive property of the Province and will, subject to the following proviso, be delivered by the Contractor to the Minister forthwith following the expiration or sooner termination of this Agreement provided that the Minister may, at any time or times prior to the expiration or sooner termination of this Agreement, give written notice to the Contractor requesting delivery by the Contractor to the Minister of all or any part of the Material or the Goods (or both) in which event the Contractor will forthwith comply with such request.
10. The copyright in the Material will belong exclusively to the Province.

CONFIDENTIALITY

11. The Contractor will treat as confidential and will not, without the prior written consent of the Minister, publish, release or disclose or permit to be published, released or disclosed either before or after the expiration or sooner termination of this Agreement, the Material or any information supplied to, obtained by, or which comes to the knowledge of the Contractor as a result of this Agreement except insofar as such publication, release or disclosure is necessary to enable the Contractor to fulfill the obligations of the Contractor under this Agreement.

ASSIGNMENT AND SUB-CONTRACTING

12. The Contractor will not without the prior written consent of the Minister:
 - a) assign, either directly or indirectly, this Agreement or any right of the Contractor under this Agreement; or
 - b) sub-contract any obligation of the Contractor under this agreement.
13. No sub-contract entered into by the Contractor will relieve the Contractor from any obligation of the Contractor under this Agreement or impose any obligation or liability upon the Province to any such sub-contractor.

CONFLICT

14. The Contractor will not, during the term, perform a service for or provide advice to any person, firm or corporation where the performance of the service of the provision of the advice may or does, in the reasonable opinion of the Minister, give rise to a conflict of interest between the obligations of the Contractor to the Province under this Agreement and the obligations of the Contractor to such other person, firm or corporation.

INDEMNITY AND STANDARD OF CARE

15. Notwithstanding any insurance coverage, the Contractor hereby agrees to indemnify and save harmless the Province, its successor(s), assign(s) and authorized representative(s) and each of them from and against those losses, claims damages, actions and causes of action, (collectively referred to as "claims") that the Province may sustain, incur, suffer or

INDEMNITY AND STANDARD OF CARE Cont'd.

15. be put to at any time either before, during or after the expiration or termination of this Agreement that arise out of errors, omissions or negligent acts of the Contractor or their Subcontractor(s) or Subconsultant(s), servant(s), agent(s), or employee(s) under this Agreement.

In completing the assignment the Contractor shall at all times exercise the standard of care, skill and diligence normally provided in the performance of services for work of a similar nature to that contemplated by this contract.

TERMINATION

16. Notwithstanding any other provision of this Agreement, the Province may, in its sole discretion, terminate this Agreement:
 - a) on ten (10) days prior written notice of termination to the Contractor and the Province will pay to the Contractor that portion of the amounts described in the Payment Schedule which is attributable to the portion of the Services completed to the satisfaction of the Province prior to the date of termination and such payment shall discharge the Province from all liability to the Contractor under this Agreement.
 - b) where in the opinion of the Province the Contractor fails to observe, perform or comply with any provision of this Agreement, and such termination will be in addition to any other rights and remedies existing or available to the Province under this Agreement or at law.

NON-WAIVER

17. No provision of this Agreement and no breach by the Contractor of any such provision will be deemed to have been waived unless such waiver is in writing signed by the Minister.
18. The written waiver by the Minister of any breach by the Contractor of any provision of this Agreement will not be deemed a waiver of such provision or of any subsequent breach by the Contractor of the same or any other provision of this Agreement.

APPROPRIATION

19. Notwithstanding any other provision of this Agreement the payment of money by the Province to the Contractor pursuant to this Agreement is subject to:
 - a) There being sufficient monies available in an appropriation, as defined in the Financial Administration Act, S.B.C. 1981, c. 15 (the Financial Administration Act, inclusive of every amendment made thereto and in force being herein collectively called the "Act"), to enable the Province, in any fiscal year or part thereof when any payment of money by the Province to the Contractor falls due pursuant to this Agreement, to make that payment; and
 - b) Treasury Board, as defined in the Act, not having controlled or limited, pursuant to the Act, expenditure under any appropriation referred to in subparagraph a) of this paragraph.

REFERENCES

20. Every reference to the Minister in this Agreement will include the Minister, the Deputy Minister of Transportation and any person designated by either of them to act for or on their respective behalf with respect to any of the provisions of this Agreement.

NOTICES

21. Any notice required or permitted to be given hereunder will be delivered or mailed by prepaid registered mail to the addresses on reverse (or at such other address as either party may from time to time designate by Notice in writing to the other), and any such Notice will be deemed to be received 48 hours after mailing.
22. Either party may, from time to time, give to the other written notice of any change of address of the party giving such notice and from and after the giving of such notice the address therein specified will, for purposes of the preceding paragraph, be conclusively deemed to be the address of the party giving such notice.

MISCELLANEOUS

23. This Agreement will be governed by and construed in accordance with the laws of the Province of British Columbia.
24. The Schedules to the Agreement are an integral part of this Agreement as if set out at length in the body of this Agreement.
25. The headings appearing in this Agreement have been inserted for reference and as a matter of convenience and in no way define, limit or enlarge the scope of any provision of this Agreement.
26. In this Agreement, wherever the singular or neuter is used, it will be construed as if the plural or masculine or feminine, as the case may be, had been used where the context or the parties hereto so require.
27. This is to certify that the property and/or services hereby purchased are for the use of, and are being purchased by, the Ministry with Crown Funds, and are therefore not subject to the Goods and Services Tax. The GST registration number for the Province is R107864738.



CONTRACT IDENTIFICATION NUMBER

153 | CS | 0564

The Contractor shall:

Perform all necessary engineering design, structural, geotechnical investigations, traffic analysis/traffic counts, environmental and archaeological investigations, and other required tasks to complete a preliminary, detailed design, cost estimates and tender documents for widening Hwy 99 in the Westbound direction to accommodate a bus lane in the Westbound direction. Identify and perform all engineering work required to complete the design and the final package for tender.

Provide engineering services during construction, and complete the as-built drawings after construction.

The Consultant shall deliver a Preliminary Design shortly after award of the contract identifying any significant concerns or issues that require addressing in order complete the detailed engineering design and a package for tender.

The Consultant shall confirm the design criteria for the segment of the roadway that are based on the BC Supplement to TAC Geometric Design Guidelines (updated edition: June 2007), Recommended Design Criteria and other relevant guidelines. Changes to the design criteria must be reviewed and approved by the Ministry. Prepare construction cost estimates including contingency.

Confirm all survey information is accurate, complete, and tying in all geotechnical information to the base survey.

TERMS OF REFERENCE

General:

Design of a 4.0 meter wide and about 3 km long shoulder bus lane on Hwy 99 NB from Hwy 91 EB off-ramp exit up to the intersection at Bridgeport Road. The project consists of geometric design, structural, geotechnical, environmental, traffic, and electrical components.

The following is a summary of the requirements. Additional details are provided in the General Requirements and Procedures of this document.

Survey

- Will be provided by the ministry

Geometric Highway Design

- Develop design criteria for the roadway geometric
- Obtain Ministry approval prior to undertaking design
- Conduct preliminary and detailed design
- Prepare cost estimates and tender documents

Structural

- Widening Hwy 99 NB CNR Overhead structure by 0.5 meters on each side.
- Seismic (Safety level 1) upgrade of both the Hwy 99 NB and SB structures are required.

Geotechnical

The geotechnical services required for this project shall include but not limited to:

- Carry out geotechnical assessment as required for the CNR O/P seismic upgrade
- Minimize fill embankment widening by utilizing retaining walls

The Ministry will provide the pavement structure design for the project.

Environmental

- Determine environmental impacts resulting from project requirements.

- Fulfill environmental permit and application needs
- Complete and submit environmental report

Traffic (& Electrical) Component:

- Conduct traffic modeling of the existing and proposed configuration
- Provide mitigation for adverse safety impacts
- Required traffic counts
- Determine bus priority movement arrangement at the intersection of Bridgeport Road and the terminus of the Bridgeport Road off-ramp.
- Provide a traffic reports

Electrical:

- Lighting Design and Signal

GENERAL REQUIREMENTS AND PROCEDURES

Consultant's requirements may include, but not be limited to, the following:

Surveying

The Ministry will provide the required survey information. However, the selected Proponents must verify and notify the ministry about any missing gaps in the survey data prior to undertaking design.

a) Highway Engineering

Design a cost-effective solution for the construction and maintenance of the infrastructure. Explore all reasonable design criteria to achieve a safe solution which has the lowest life cycle cost possible.

Determine Design Criteria for the Assignment at the start of the design process and finalize with signoff prior to the start of the design. Any variance to the accepted Design Criteria Sheet will require formal approval by the appropriate Ministry Representative. Liaise with the Ministry's Contact Person with respect to roadway and drainage design criteria.

Submit a signed and sealed Design Criteria Sheet before starting the design.

Take the lead role in consultation with Ministry sections, District, local, regional, provincial and federal government officials, utility owners, environmental agencies and various related stakeholders for the Project.

Apply reiterative design procedures to:

- Deliver a result that addresses related safety and operational issues.
- Integrate stakeholders' interests to find a workable solution.
- Optimize the solution for a particular situation.
- Fit construction and maintenance costs within the Ministry's budget.

Identify and develop viable design alternatives which are geotechnical and operationally feasible, e.g. open channel and/or enclosed drainage systems while giving consideration to appropriate methods of handling highway runoff. Evaluate and compare alternatives by summarizing the impacts and costs, and making recommendations as to what would be the best solution fulfilling the Assignment requirements. Alternatives should include evaluating layouts for intersections, property impacts, drainage requirements, environmental constraints, etc. as required.

Provide technical support to the Ministry by providing technical reports, plans, drawings etc. necessary for internal use or at stakeholder meetings; and attend meetings and making presentations at meetings involving the Ministry, agencies, consultants or other third parties.

Maintain the schedule and apply a cost control and quality control process during the Assignment.

Utilize relevant Ministry publications such as the latest edition of the BC Supplement to TAC Geometric Design Guide in conjunction with Ministry technical bulletins and the TAC Geometric Design Guide for Canadian Roads in preparing the

design. Reference Manuals, forms and Standard Specifications for Highway Construction are available either on the internet at <http://www.th.gov.bc.ca/publications/repopubs.htm> or through the Queen's Printer.

Use relevant Product Specifications when applicable such as:

- Ministry Qualified Proprietary Structures Guidelines
- Recognized Products List, http://www.th.gov.bc.ca/publications/eng_publications/geotech/rpl.htm

Utilize A Policy on Geometric Design of Highways and Streets (AASHTO) and Master Municipalities Contract Documents (MMCD) as secondary references. Consider MMCD documents/drawings to meet local Municipal government interests and requirements.

Comply with the requirements of Section 1270 of the BC Supplement to TAC Geometric Design Guide. Confirm CAiCE Construction Archive has been reviewed by a Ministry Field Services Representative as meeting Section 1270 requirements prior to completing the Detailed Design.

Begin and complete the assignment using CAiCE software to generate all design and construction information.

Advise the Ministry at appropriate stages of the design when an alternative software program (like LDD) may be beneficial and timely when exploring alternative design concepts. Obtain Ministry approval prior to using an alternative software program (like LDD) and converting the design into CAiCE.

Highway Engineering Deliverables

A sealed Highway Design Criteria Sheet signed-off by the Ministry's Manager, Highway Design and Geomatics.

A Design Report.

A Drainage Report. Include all drainage calculations, design return year periods, etc.

A copy of all relevant Project correspondence, including letters, memos, facsimiles, emails, conversation records, meeting minutes, decision papers, reports, etc.

A copy of all Design Folders.

A completed CAiCE Design Project Electronic Deliverable Quality Checklist (Section 1270.13) indicating what tasks have been completed.

- Preliminary Design Archive for the Preliminary Design.
- Detailed Design Archive for the Detailed Design.
- Construction Archive after tender

b) Geotechnical Works

The Geotechnical Consultant shall produce a report for the detailed geotechnical design as outlined in the Project Schedule upon performing the services explained in the following paragraphs:

1.1. SCOPE OF GEOTECHNICAL DESIGN SERVICES

The Consultant will:

- 1.1.1 Examine and assess all geotechnical information, designs and reports provided by the Project Team to establish the extent of additional geotechnical work required for the project (this work does not constitute a review or appraisal of the geotechnical design). Liaise with the Project Team with respect to the geotechnical design requirements.
- 1.1.2 After consultation with the Project Team, identify and justify all additional geotechnical investigation, review, assessment and design (such as subsurface investigation, laboratory tests, pavement condition surveys, pavement evaluation, slope stability analyses, foundation design, settlement evaluation, seismic stability evaluation, geoenvironmental site assessment and other geotechnical work) required to complete the detailed design. Submit a report to the Ministry Geotechnical Representative within two weeks of the award of this assignment, detailing the proposed geotechnical work.

- 1.1.3 Upon acceptance of the proposed work, undertake a complete and accurate geotechnical investigation using state of the practice methods and equipment in order to provide a detailed geotechnical design supporting the project's detailed roadway, drainage and structural design process, components of which would be expected to encompass, but not be limited to: drill holes, test pits, in-situ testing, sampling, identification, classification, mapping, laboratory testing and evaluation of data along proposed alignments to establish or identify:
- extent, types and properties of soils and rocks,
 - stripping depth for removal of organic and unsuitable materials and a total volume estimate of stripping quantities listed station to station, (Max. 200 meter interval testing with special consideration in areas with observed surficial changes), grubbing requirements.
 - use of excavated cut materials with estimated shrink and swell factors,
 - foundation design including seismic evaluation and design,
 - potential settlement and stability analysis, monitoring and remediation measures.
 - surcharge, instrumentation and special construction techniques to ensure a safe and cost effective design. Identify specific location (x, y & z), monitoring schedule and data collection requirements of any instrumentation required for monitoring during construction. (e.g. Piezometers, Settlement plates, Slope indicators, Extensometers). Detailed installation procedures for special construction techniques (e.g. light weight fill).
 - soil and rock slope and retaining structure design to ensure stability (under static and earthquake loading) for the design life of the project.
 - surface/groundwater/drainage/erosion/siltation/acid rock drainage issues, monitoring and remediation measures.
 - specific recommendations to address ditch depth and width, rockfall and snow catchment, subsurface drainage requirements and side slope seepage problems to prevent erosion of slope faces. (Reference; Manual of Erosion and Shallow Slope Movement, August 1997).
 - geosynthetics specifications, if being recommended for construction of project, with detailed installation procedures.
 - special foundation requirements.
 - pavement structural design, life cycle cost and rehabilitation options for existing structure for the project.
- 1.1.4 Conduct a Stage 1 Preliminary Site Investigation (PSI) to identify potential contaminated sites. In areas of potential environmental concern, identified during the Stage 1 PSI, undertake a Stage 2 PSI to confirm the presence or absence of contamination. Follow the requirements of Contaminated Sites Regulation of the BC Environmental Management Act, BC Reg. 375/96 O.C.1480/96.
- 1.1.5 As the detailed design progresses, reappraise all aspects of the pavement structure design to achieve the most economical solution compatible with the proposed profile and geometric design and submit any modifications to the Ministry Geotechnical Representative.

NOTE 1: Classification and Identification of soils is to be done according to Ministry Standards using the Modified Unified Soils Classification System as outlined in the current Ministry of Transportation "Manual of Test Procedures, Soils and Aggregate".

NOTE 2: All test hole, test pit and seismic lines must be located by survey (to a horizontal accuracy of 2 metres) and by UTM (NAD83) co-ordinates (Northing, Easting and UTM Zone).

1.2. GEOTECHNICAL DESIGN CRITERIA

The geotechnical design will follow applicable sections of the following documents:

- Ministry Technical Circular T-2/92, "Seismic Design and Rehabilitation Criteria" dated February 14, 1992 and the amendment dated March 11, 1994.
- Publication No. FHWA-SA-97-076 " Geotechnical Engineering Circular No. 3 - Design Guidance: Geotechnical Earthquake Engineering for Highways" – Vol. I and II, May 1997.
- CSA S6-00 (Canadian Highway Bridge Design Code, CHBDC)
- B.C. Ministry of Transportation Supplement to S6-00 (Draft - http://www.th.gov.bc.ca/publications/eng_publications/eng_pubs.htm#Bridge_Engineering_Section_Publications)
- B.C. Ministry of Transportation Seismic Retrofit Criteria (June 2005)
- ATC-49 "Recommendations LRFD Guidelines for the Seismic Design of Highway Bridges"
- AASHTO "Standard Specifications for Highway Bridges", Seventeenth Edition, 2002.
- Proceedings of the National Center for Earthquake Engineering Workshop on Evaluation of Liquefaction Resistance of Soils Jan. 5-6, 1996.

Ministry technical circulars are available on the web at:
http://www.th.gov.bc.ca/publications/Circulars/technical_circulars.asp

1.2.1 Seismic Design

Seismic Zoning for the Project area will be as defined in the National Building Code of Canada (NBCC, 1995) and British Columbia Code (BCBC, 1992) or through a seismic site response analysis undertaken by the Geological Survey of Canada. This Project will be designed to remain functional following an earthquake having a 10 percent risk of exceedence in 50 years (equivalent to a 1 in 475 year return period). For site specific numerical analyses of site response and soil-structure interaction, the Ministry will provide the acceleration time histories.

Liquefaction potential of the subsoils will be evaluated for structures, walls and embankments, and the design will incorporate ground improvements and other methods of addressing potential liquefaction in accordance with ATC-49 "Recommendations LRFD Guidelines for the Seismic Design of Highway Bridges".

Seismic design of the stability of any retaining walls will be done in accordance with AASHTO, Standard Specifications for Highway Bridges, Seventeenth Edition, 2002.

1.2.2 Soil Slope and Rock Slope Design

The Consultant will conduct state of the practice field investigation to satisfy design requirements; conduct an overall stability assessment; and provide an economic cut/fill slope design including any support measures that may be necessary to ensure stability for the design life of the project.

The rock cut design shall include a practical ditch design based on geometric criteria proposed for the project. Recommendations for the rock cut at the detailed design stage shall be based on a site specific investigation and will take priority over the requirements outlined in Technical Bulletin GM2001 Rock Slope Design. The rockfall containment strategies outlined in the Technical Bulletin may be incorporated in the detailed design if the site specific stability assessment allows and if it is cost effective to do so.

Where the failure of a slope would effect highway operation (i.e. failure envelope encroaches the paved surface, failure causes lane closures for repairs or failure necessitates excessive maintenance):

The minimum Factor of Safety for slope stability under static conditions shall be 1.5 for soil slopes and 1.3 for rock slopes.

The Factor of Safety for existing (already constructed) soil and rock slopes under pseudo-static seismic analysis is not to be less than 1.

The Factor of Safety for planned new soil and rock slopes under pseudo-static seismic analysis is not to be less than 1.1.

1.2.3 Foundation Design

Both shallow and deep foundations design must be completed in accordance with CSA S6-00 and B.C. Ministry of Transportation Supplement to S6-00.

1.2.4 Settlement Analysis

Settlement analysis of pre-existing and new structures/embankments will be performed. Foundations will be designed such that differential settlement are limited to tolerable amounts as specified by the structural design, geometric design and utility considerations.. Settlement analysis must consider and separately tabulate expected static settlement and any seismic induced settlement under the specified earthquake loading conditions.

Embankment settlement will be predicted, and appropriate means to minimize the impacts, such as surcharging, overbuilding, use of lightweight fills and special construction requirements, will be evaluated.

1.2.5 Retaining Wall Design

Slope angles steeper than 45 degrees shall be designed as walls. Wall design must follow the allowable stress method outlined in UAASHTO Standard Specifications for Highway Bridges, Seventeenth Edition, 2002, Section 5, Retaining Walls and must incorporate the Factors of Safety defined in Section 1.2.6 for external and internal stability.

For the design life of components, wherever there is time dependent calculations, use 100 years. Examples would be for corrosion and creep calculations.

1.2.6 MSE Wall Design – External Stability

The following Factors of Safety shall be used for external stability of MSE wall design:

Condition	Minimum Factor of Safety
Bearing Capacity	2.5
Sliding	1.5
Overturning	2.0
Global Stability	1.5

Wall heights, proprietary wall systems and geosynthetic materials are restricted to those shown in the MoT Recognized Products Book (under R in <http://www.th.gov.bc.ca/siteindex.htm>)

1.2.7 Polymeric Reinforcement Specification for MSE Wall Design – Internal Stability

(1) The Factor of Safety for Polymeric Reinforcement Pullout is 1.5

(2) The allowable reinforcement tension T_{aB} shall be the lesser of the following two determinations:

$$T_{aIB} = \frac{T_{IB} B}{FD \cdot FC \cdot FS}$$

$$T_{asB} = \frac{T_{wB}}{FD \cdot FC}$$

Where: T_{IB} is the ultimate tensile strength (kN/m) as per ASTM D6637-01

T_{wB} is the Tensile Strength at 5 % Strain (kN/m) as per ASTM D6637-01 or GGI:GG1

FSB_{CRPB} is the Partial Factor of Safety for Creep

FCB is the Partial Factor of Safety for Construction Damage

FDB is the Durability Partial Factor of Safety for Environmental and ageing losses

FSB is the Partial Factor of Safety for Uncertainties

And

The Partial Factors of Safety are determined by reference to Table 1 below

Table 1: Uniaxial Geogrid Specifications Revised February 2004									
Partial Factors of Safety									
Polymer Type	With Testing and Mill Certificates					Without Testing and Mill Certificates			
	FSB_C RPB	FCP #PB Sand	FCP #PB Grave l	FD	FS"	FSB_{CR} AP PPB	FC	FDB_D B	FS"
HDPE	Min. 3.1	Min. 1.15	Min. 1.25	Min. 1.1	1.5	5.0	3.0	2.0	1.5
Polyester Acrylic Coated	Min. 2.0	Min. 1.15	Min. 1.25	Min. 1.1	1.5	2.5	3.0	2.0	1.5
Polyester PVC Coated	Min. 2.0	Min. 1.15	Min. 1.25	Min. 1.1	1.5	2.5	3.0	2.0	1.5
Polypropylene	Min. 4.0	Min. 1.15	Min. 1.25	Min. 1.1	1.5	5.0	3.0	2.0	1.5
#MOT 2003 " Reference AASHTO Standard Specifications for Highway Bridges 17th Edition 2002 Pg. 158 ^Reference Task Force 27 Page 34. Note: For instantaneous loads lasting less than 60 seconds creep can be ignored i.e. FSB _{CRPB} = 1.0									

1.3 ACCESS TO WORK SITE FOR PURPOSES OF INVESTIGATIONS

Access to the work site is subject to traffic control requirements and notification of owners.

In accessing and carrying out field investigations, the Consultant shall make every effort to minimize disturbance or damage to the existing highway pavement structure and to private property and repair disturbance or damage.

The Consultant shall:

- provide written notice to property owners informing them of the extent and type of work that will be performed on their property and meet with them to explain what work will take place on their property.
- Obtain all permits and approvals from municipal, provincial and federal authorities, when and where required.
- Verify location of all buried and overhead utilities prior to commencement of subsurface investigations.

1.4 TRAFFIC CONTROL

Traffic control shall be utilized whenever the consultant's activities will create a hazard or obstruct traffic.

1.5 SAFETY

The Consultant will be responsible for the safety of their personnel while performing fieldwork. At a minimum, the following is required:

- Implement and maintain an acceptable Base Safety Program for the work activity.
- Coordinate the work activities of employees that are related to health and safety.
- Have a reasonably practical process or system for ensuring compliance with the WCB *Occupational Health & Safety Regulation* with respect to the workplace.
- Wear appropriate safety equipment.

The consultant will also observe, abide by and comply with the "Special Conditions" and "Schedule of Site Safety for Consulting Services Contract".

1.6 REPORTING STANDARDS

Draft Report - Fieldwork, data collection, analyses and interpretation have been completed and a report is generated. This report is submitted to MoT for internal discussion.

Final Report - The final report will have addressed any issues and comments raised with earlier deliverables and draft report.

Reports shall follow guidelines for geotechnical reports as contained in the MoT Technical Bulletin GM9801.

Summarize all subsurface data investigation results by plotting on plans, profile and cross sections using computer aided drafting software compatible with the most current Ministry format and provide all electronic data, including any and all survey data used to produce drawings. All drawings must have a unique drawing number in the title block.

All drawings are to be prepared using AutoCAD version 2005.

Summary Logs - All summary testhole/testpit logs must be in accordance with standard Ministry format as described in "Geotechnical and Materials Engineering Standards for Bridge Foundation Investigations (January 1991)" - Section 2 Summary Log. (http://www.th.gov.bc.ca/publications/eng_publications/eng_pubs.htm#top)

Templates in gINT format for the testhole, testpit and rock core logs are available from Information Wranglers Technical Services Inc (IWTSI) through a one time payment for a single copy license. Template support services via e-mail and periodic updates to the templates are also available on an annual subscription basis at additional cost. Licensing details, support services, and costs are outlined on IWTSI's website www.informationwranglers.com.

Survey information on all Logs will include local project referencing (station, offset and elevation above mean sea level) and UTM (NAD83) coordinates (Northing, Easting and UTM zone).

Summary logs will be submitted on a CD in gINT, DXF (AutoCAD) and PDF format. In addition, a scanned Driller's field log is required to be submitted. Scans will be 250 dots per inch, greyscale and in JPEG format, saved at 80% of the maximum quality setting.

All documents produced by the consultant will become the property of the Province and as such will be subject to disclosure under the provisions of the Freedom of Information & Protection of Privacy Act. All input files used in the computer analyses will be provided to the Ministry for Ministry records.

c) Traffic Engineering

Weave analysis at the ramps.

Queuing analysis at the ramps.

Emergency vehicle accommodation when shoulder lane is implemented.

Provide a traffic design in accordance with the *Electrical and Traffic Engineering Manual*.

Liaise with the Ministry's Regional Traffic Engineer with respect to guide sign design policy and practice, and messaging text.

Confirm design of regulatory, warning and guide signs in accordance with the Ministry's Manual of Standard Traffic Signs with Regional Traffic Engineer.

Provide a Traffic Signs and Pavement Marking evaluation, design and recommendation for the installation of appropriate warning, regulatory and guide signs, and pavement markings.

Propose design pavement markings and delineators in accordance with the Ministry's Manual of Standard Traffic Signs and Pavement Marking.

Discuss possible directional guide sign messaging with the Ministry for municipal requirements.

Review preliminary and draft message text designs, layouts and locations for all directional guide signs, and service and attraction signs.

Traffic Engineering Deliverables

A suggested Construction Staging Plan.

Ministry Sign Record (H172) sheets.

Signing and pavement marking drawings at a scale of 1:500.

A Traffic Engineering Design Folder include but not limited to, the following:

- Ramp merge diverge analysis
- Transit and GP Traffic LOS analysis
- Traffic signal warrant calculations (when required)
- Signed and sealed TEC that has been accepted by the Ministry
- Final STS that has been accepted by the Ministry
- Capacity Analysis (e.g. Synchro reports)
- Calculations showing clearance and conflict distances
- Pre-emption calculations and rationale including railway pre-emption & fire signals
- Explanations for non-standard applications
- Sign Records.
- Supporting calculations and necessary explanations for applications

Traffic Count Reports as required. Use the Ministry traffic count spreadsheet "CountSample.xls" expectations. Submit in paper format and Excel spreadsheet for entry in the Ministry Data Management database.

Three copies of the Traffic Engineering Report signed and sealed by a professional engineer.

Submit information in a digital format on compact disc.

d) Electrical Engineering

Prepare electrical designs for the lighting and signalization infrastructure included in the scope. Note existing electrical equipment to be reused, relocated or removed on the tender drawings. Liaise with the Ministry's Electrical Consultant Liaison Engineer with respect to electrical design requirements.

Document the design approach and assumptions, design features, desirable alternatives, challenges and rationale for deviance from Electrical Design Standards if required in an Electrical Design Folder.

Identify and assess any special electrical needs.

Liaise with regional and local authorities to determine requirements for lighting warranted by municipalities and confirm any cost sharing. Review lighting requirements with the Ministry to confirm that they meet the proposed Design Criteria.

Electrical Engineering Deliverables

Electrical Drawings, Special Provisions, Electrical Design Folder and checklists.

e) **Structural Engineering**

CNR OVERHEAD NO.1598 N & S

SEISMIC SAFETY RETROFIT and WIDENING

Design Criteria

Bridge Design Code CAN/CSA-S6-06 and BCMoT Bridge Standards and Procedures Manual

Live Load BCL 625

Seismic Design and Retrofitting Seismic Retrofit Design Criteria (June 30, 2005)

Classification of Bridges Economic Sustainability Route Bridge

Level of Seismic Retrofit Safety level 1

- Service level Significantly limited
- Damage level Significant (no collapse)

Design Standards Ministry design standards shall be used except as noted above.

Parapet Ministry standard concrete parapet and railings shall be used on the widened structure

Consultant Tasks

The Consultant will be required to:

Review the project information provided by the Ministry and advise what additional information is required to complete the work.

Attend a site meeting to familiarize all involved with the existing conditions of the bridges and with the accessibility to the various components of the bridges. Confirm that the structure is in general conformity with the as-built drawings. Note existing utilities that may affect the seismic retrofit.

Conduct a site condition survey on both structures and include any structure deficiencies rehabilitation into the construction contract such as deck joints replacement etc.

Perform all structural, geotechnical and soil structure interaction analysis and assessment work including non-linear analysis if deem necessary to develop the Seismic Retrofit Strategy according to the *Seismic Retrofit Design Criteria*.

Conduct retrofit strategy meetings to review progress with the Ministry as per milestone deliverables and any other additional meetings if deem required. The meetings will be held at the Ministry Nanaimo office. The Consultant shall prepare the agenda and minutes of these meetings and distribute them.

Prepare a draft Seismic Retrofit Strategy Report according to the *Seismic Retrofit Design Criteria* and forward three copies to the Ministry for review.

Attend a final retrofit strategy meeting with the Ministry following the Ministry review of the draft Seismic Retrofit Strategy Report to achieve final consensus on the Seismic Retrofit Strategy. Prepare and distribute minutes from the meeting. Modify the draft Seismic Retrofit Strategy Report as necessary and submit two copies of the final Seismic Retrofit Strategy Report to the Ministry.

Perform the detailed design of the retrofitted elements and prepare, in general conformity with the Bridge.

Procedures and Standards Manual, seismic rehabilitation drawings with complete detail geometry to enable the works to be constructed.

Draw up specifications supplementary to the Ministry's Standard Specifications for Highway Construction as may be necessary and compose special provisions as required and incorporate into tender documents.

Prepare detailed quantities and cost estimates, including an appropriate contingency amount to arrive at a reasonably accurate overall estimate of cost. Summarize as a schedule of approximate quantities and unit prices and incorporate into tender documents. Notify the Ministry of any factors which are considered by the Consultant to be beyond his control and which are likely to qualify the accuracy of his cost estimates.

Consult with the District with regards to maintenance and operation procedures, problems, etc. with similar local facilities and include necessary maintenance, emergency and traffic operation features as may be necessary.

Liaise with utility companies or other authorities (if required) who have utilities on the structure which may be affected by or interfere with the retrofit schemes.

Provide progress reports submitted to the Ministry on a monthly basis. These reports will include statements regarding any changes to scope of work that might justify an increase in the assignment and an estimate of the assignment progress, including a summary of man-hours expended on the project. Issues that may affect the schedule shall be reported.

Provide calculations and/or computer input and output files, either on disk or in other acceptable form, to the Ministry upon request. The Consultant shall record all calculations in an organized and complete format for this purpose.

NOTE: The Ministry will no longer be undertaking detailed reviews of the work at various stages of completion. Rather the consultant will be responsible for ensuring adequate quality control and quality assurance takes place, and that a high quality product, free of errors, is produced. Costs associated with this should be built into the proposal.

Ministry Tasks

Provide copies of drawings that the Ministry currently has on file.

Provide copies of the Bridge Inspection Reports

Critically review the work as it proceeds and advise on matters regarding policy.

Use the Structural Design Criteria Sheet to confirm the Project Design Criteria prior to the design.

Prepare structural design drawings with related Special Provisions meeting Ministry standards and requirements.

Obtain and use Drawing and Bridge Numbers as provided by the Ministry.

Structural Engineering Deliverables

A sealed Structural Design Criteria Sheet signed off by the Ministry's Manager, Bridge and Structural Engineering.

Structural design drawings and related Special Provisions.

f) Environmental Engineering

Identify any additional effort needed to investigate environmental impacts and mitigation measures that is in addition to the work currently agreed with the Ministry.

Review existing environmental assessments/reports for the Project area.

Identify all potential environmental issues and constraints associated with the design.

Initiate the approval process by contacting and liaising with environmental approving agencies to receive feedback on proposed options and discuss specific concerns. Environmental approving agencies include, but are not limited to, the Canadian Environmental Assessment Agency (CEAA), the Ministry of Environment and the Department of Fisheries and Oceans, Canada (DFO).

Conduct a Fish and Fish Habitat Inventory, assess the potential compensation requirements, and provide Fish and Fish Habitat Compensation Plans, if required.

Summarize environmental constraints and proposed mitigation measures in the Design Report.

Liaise with the Ministry's Manager of Environmental Services with respect to landscaping design criteria and levels of landscape treatment that may be required.

Consult local jurisdictions and other agencies to determine their willingness to pay for construction and maintenance costs associated with providing landscaping exceeding Ministry warrants.

Environmental Deliverables

CEAA certificates and DFO permits.

g) Utilities

Obtain existing underground plans from the utility owners.

Identify all public and/or private utilities to be removed, relocated, adjusted or protected as a result of the proposed improvements, and contact the owners to review their requirements and time schedule to complete the required modifications.

Provide a cost sharing estimate for proposed utility relocations using the Ministry's Protocol Agreements and include the information in the overall project cost estimate.

h) Cost Estimating

Prepare a Schedule of Approximate Quantities and Unit Prices for the Assignment. Describe and list work items in accordance with the terminology and in the order of the Ministry's Work Breakdown Structure.

Prepare cost estimates for alternatives, including estimated costs of utility relocations, engineering supervision during construction, property acquisition, contingency amounts, and costs of materials and services to be provided by the Ministry and others. Historical unit pricing information is available from the Ministry at:

<http://www.th.gov.bc.ca/qwwwpmss/Content/Home/Home.asp>

Notify the Ministry in writing giving details of any factors considered to be beyond the Consultant's control which qualify, or are likely to qualify, the accuracy of cost estimates.

Maintain an updated estimate of all related Project costs as the Assignment progresses. Include estimated costs of utility relocations, engineering supervision during construction, property acquisition, contingency amounts, and costs of materials and services to be provided by the Ministry and others.

Submit further information and recommendations required to assist the Ministry in making an evaluation of such qualifications for the necessary budgeting process and/or for other decision making purposes of the Ministry.

Cost Estimating Deliverable

Cost estimates for the appropriate level of design using Ministry Form H0088:

http://www.th.gov.bc.ca/publications/const_maint/contract_serv/const_files/H_forms/h0088_CreateMinistryEstimate.xls

i) Quality Management

The Ministry is responsible, as part of general project management responsibilities, for assuring that the quality of Work submitted meets the standards and guidelines expected by the Ministry. The Quality Management activity by the Ministry and the Consultant is composed of the following parts:

- Consultant's Quality Management Plan

In the preparation of its Proposal, the Consultant shall include an outline of their formal Quality Management Plan.

Following award of this Assignment, the Consultant shall submit a detailed Quality Management Plan for review by the Ministry.

- The Consultant's Quality Control Plan

The Quality Control Plan shall govern the Consultant's internal review and checking process throughout the entire course of the work.

The Plan shall demonstrate how the Consultant will achieve a quality product.

The Quality Control Plan shall be based on the principles of ISO9001:2000 program and adhere to the Quality Management Accord as agreed to between the Ministry and the Consulting Engineers of British Columbia.

- Evidence of Implementation of the Quality Control Plan

Evidence that the Consultant's Quality Control Plan is functioning effectively shall be provided with each deliverable with quality control reports and check sheets.

Failure to submit an acceptable quality control report and related documents during the submissions may result in the work being returned to the Consultant without further payment, and a poor rating Performance Evaluation as a final entry being entered into RISP.

- Ensure adequate quality control and quality assurance takes place, and produce a high quality product that is free of errors.
- The Ministry will not undertake detailed reviews of the work at various stages of completion.
- Ministry will audit the Consultant's deliverables on how Consultant has implemented its Quality Management Plan.
- Review the Quality Management Accord and acknowledge Consultant will provide and implement a Quality Management Plan.

Quality Management Deliverable

Consultant will follow the Quality Management Accord.

Consultant will:

- Prepare and submit Quality Management Plan for the assignment within the first month of the assignment or prior to any invoice.
- Provide proof the Quality Management Plan has been implemented.
- Deliver copies of quality management checklists with specified deliverables for payment.

Where not identified, the Consultant will include all costs to prepare cost estimates, design adjustments, and calculations in the Fixed Fee for Services to meet the Ministry Standards and Assignment requirements.

j) Drawings

Illustrate complete detail and geometry on the drawings as required.

Confirm the required scale of drawings for the Assignment prior to starting the design.

Use the Drawing series number provided by the Ministry's Contact Person to ensure the drawings have the required record numbering sequence (RX-XXX-000).

Include and incorporate drawings prepared by others (e.g. bridge design / electrical design / landscaping design / utility relocation design) in the Design Assignment.

Ensure drawing conformance with Ministry standards. In particular, ACAD drawings shall conform to standards such as layering, line types, text font, and text size, etc.

Prepare plans in accordance with BC Supplement to TAC Geometric Design Guide using all Ministry standard symbols, C-Lines, line types and fonts.

Prepare reproducible working cross sections as reference information as necessary. Refer to Section 400 of the BC Supplement to TAC for cross section format and content requirements.

Prepare Electrical design drawings in accordance with the *Electrical and Traffic Engineering Manual*.

Prepare Bridge design drawings in accordance with the *Manual of Bridge Standards and Procedures*.

Drawings Deliverables

Original full size design drawings signed and sealed by the Engineer of Record.

Half size (11 x 17) drawings.

Electronic copies (DWG and PDF files).

Cross sections.

Other reference drawings.

k) Design Report

Prepare and submit a Design Report summarizing the following:

- Existing conditions.
- The initial Project scope.
- Design processes that have resulted in revisiting previous designs, and their outcomes.
- Proposed major revisions and/or scope changes and the reasons for them.
- Features of the detailed design that could require special attention from the field inspection staff or the Design Engineer during Detailed Design or construction.
- All utility contacts, potential conflicts and required relocations and their status.
- Critical construction staging and traffic control considerations
- All environmental agency contacts and concerns.
- All provisional sums shown on Schedule 7, including a brief explanation for each.
- All unresolved design issues, all agreements, and any other special conditions and considerations that may impact the construction of the Project.
- Variances in design criteria, including a signed copy of the Design Criteria Sheet with supporting documentation for exceeding or not meeting values specified within the standards.
- Any Design or Constructability issues.

l) Design Constructability

Conduct a constructability review of the various alternatives evaluating them with respect to their constraints.

Identify design constructability issues during the design process to ensure the designed product has been cost effectively evaluated for as many different possibilities and to address design/constructability issues during construction.

Design Constructability Deliverable

A completed Design Constructability checklist identifying possible constructability issues.

m) Tender Documents

Prepare Special Provisions. Follow the Ministry's sample Special Provisions format and wording which can be found at the following link:

http://www.th.gov.bc.ca/Publications/const_maint/contract_serv/contract_services.htm

Tender Documents Deliverable

Prepare all schedules and tender documents meeting Ministry requirements and format for tendering.

DELIVERABLES, MEETINGS, PROGRESS REPORTS AND SCHEDULE

a) Consultant Services Deliverables

The completion date for the Assignment is fixed as shown in the following table. The dates for the rest of the deliverables were left to be provided as part of the proposal submission requirements. The Consultant will be responsible for, but not limited to the following deliverables for the Assignment:

Deliverable	Stage	Requirement	Date
Quality Management Plan.	At start of Project.		Schedule attached
Submission of Design Criteria Sheets for the bridge and roadway.	Preliminary Design (P.D.) Signoff required before proceeding designing.	Submit on Ministry forms.	Schedule attached
Preliminary findings: Structural, geotechnical, environmental, geometric, traffic and electrical	Preliminary P.D.1	Present and review findings	Schedule attached
Design/constructability evaluation and checklist.	Ongoing to be finalized by the end of the Assignment.	Submit at each deliverable.	Schedule attached
Preliminary Design submissions for structural and roadway, environmental, and geotechnical	Preliminary design (P.D.2)	Presentation, review and coordination. Allow two weeks of review time	Schedule attached
Traffic Engineering and Electrical Checklists.	Detailed Design	Submit on Ministry forms.	Schedule attached
90% Design submission (including all reports)	Detailed Design (D.D.1)		Schedule attached
100% Design, reports and contract documents, design folder	Prior to tender.(D.D.2)	Submit on Ministry forms.	Schedule attached
Services and Design changes during construction.			Schedule attached
As-Built Record Drawings.	At end of construction.	Signed off As-Built drawings,	Within 30 days after construction is completed.

The completion date for the Assignment is fixed and cannot be changed. The project must be tendered by September 30, 2008 and construction be completed by the summer of 2009.

b) Planned Meetings

Attend site specific meetings to discuss concerns and issues with the Ministry and stakeholders as necessary.

Attend monthly design review meetings as required, to review and evaluate progress, summarize resolved issues, identify and discuss new issues, outline work to be completed prior to the next meeting, and update costs and schedule. Monthly review may coincide with deliverable review meetings.

Attend meetings with Ministry groups, consultants, municipalities, regional districts, utility owners, environmental agencies, Regional Transportation Authorities, R.C.M.P., or other affected parties as necessary to satisfy the requirements of the Assignment.

Attend formal meetings for the review of deliverables.

Meet with the Ministry's Area Manager with respect to maintenance procedures and operational requirements or problems with existing facilities. Include necessary maintenance, emergency, and traffic operation features as may be necessary both during construction and after the Project is completed.

Maintain effective liaison with Ministry representatives through the Ministry's Regional Highway Design Engineer, Traffic Engineer, or Geotechnical Design Engineer by regular communication and scheduled meetings.

Attend performance evaluation meetings for each deliverable.

Make a formal presentation of the completed design at a tender confirmation meeting or design completion meeting to be scheduled approximately one to two weeks after the contract documents are submitted for Ministry review. Revise drawings and special provisions as required after this meeting.

The Ministry may visit the Consultant's office to informally audit the progress and appropriateness of Work underway on this assignment.

For additional meetings not identified in the original Fixed Fee, the Consultant shall notify in writing to the Ministry as soon as possible.

Planned Meetings Deliverables

Prepare and provide key Ministry personnel with copies of minutes to all related meetings. Prepare and distribute minutes of all meetings.

Prepare and provide Ministry Project Team with minutes of all meetings within one week of the meeting date.

Submission of minutes from meetings with the Ministry and forwarding stakeholder minutes

Provide evidence of meetings with the Ministry's Area Manager with respect to maintenance procedures and operational requirements or problems with existing facilities. Include necessary maintenance, emergency, and traffic operation features as may be necessary both during construction and after the Project is completed.

c) Monthly Progress Report

On the twentieth day or next business day, submit a monthly progress report to the Ministry until the completion of the design. The ministry should approve the report format.

Include a summary of work to date, issues with proposed resolution dates, and proposed activities for the next month and a financial progress spreadsheet in an approved format summarizing consultant costs to date and planned future expenditures.

d) Schedule

The Consultant will maintain open communications with the Ministry by keeping the Ministry Representative informed of the Project's status.

The Consultant will maintain the Project on the agreed schedule and within the scope and approved budget for the assignment. Should the Consultant start falling behind on its schedule, the Consultant will submit action plans to the Ministry outlining proposed steps to ensure that the Project is brought back on schedule. An extension of time will not be permitted without prior authorization.

PERFORMANCE EVALUATIONS

The Ministry will no longer be undertaking detailed reviews of the work at various stages of completion. The consultant will be responsible for ensuring adequate quality control and quality assurance to project deliverables.

The Ministry representative will conduct performance evaluation at the completion of each deliverable and will rate performance of the consultant on a number of attributes. This is to ensure adequate quality control is conducted for each deliverable, and high quality, error free services are delivered.

Form, H0503 – Consultant Performance Evaluation, which rates the Consultant on specific attributes, will be used for the Performance Evaluation. The Performance Criteria are as follows:

Milestone Dates for Performance Evaluation

A performance evaluation will be conducted upon completion of each deliverable. The Ministry representative will arrange a meeting with the Consultant project manager to discuss the results of performance based on the rated criteria for each of the Project deliverables. Each deliverable is assigned a weight and at the end of the contract, the final score will be based on the weighted average and it will be entered in the RISP system. Costs associated with the Performance Evaluation meeting should be built into the proposal.

Performance Evaluation Attributes and Measures for Project Deliverables

Design Deliverable	Attribute	% Attribute Weight	%Deliverable
P.D.1	1. Quality Management	20	15
	2. Deliverable management	25	
	3. Communication	15	
	4. Change Management/Issues	15	
	5. Solutions &Recommendation	15	
	6. Constructability	10	
P.D.2	1. Quality Management	25	25
	2. Deliverable management	30	
	3. Communication	20	
	4. Change Management/Issues	25	
	5. Solutions & Recommendation	10	
D.D.1	1. Quality Management	20	40
	2. Deliverable management	10	
	3. Communication	20	
	4. Change Management/Issues	10	
	5. Solutions & Recommendation	20	
	6. Constructability	20	

D.D.2	1. Quality Management	20	20
	2. Deliverable management	10	
	3. Communication	20	
	4. Change Management/Issues	10	

GENERAL ENGINEERING SERVICES

The Consultant shall respond to requests from the Ministry (Project Manager, Construction Services Manager, or Ministry Representative) to provide the following Engineering Services, if required, during the tender, construction and post-construction stages.

a) Tender Stage

- Prepare language, sketches or drawings for inclusion in addenda to the tender documents.
- Respond to specific queries.

b) Construction Stage

Typical Construction Stage responsibilities may include, but not be limited to, the following:

- Attend a pre-construction meeting and subsequent meetings.
- Respond to specific queries.
- Conduct supplemental surveys.
- Review the contractor's traffic management plans and inspect traffic detours on site.
- Confirm a site inspection schedule, perform periodic site inspections and prepare reports.
- Review all shop drawings.
- Review the contractor's construction procedure.
- Review and evaluate alternative designs (typically within two working days).
- Make design revisions.
- Review reinforcing steel drawings for critical cast-in-place concrete elements.
- Review the contractor's proposed falsework drawings.
- Prepare screed elevations at two metre intervals for bridge deck construction.
- Act as the "Owner's Engineer."

The Consultant accepts and acknowledges that the Construction Company is the Prime Contractor for the purposes of the Workers' Compensation Act and that the Consultant's activities on the site shall always be in accordance with the Prime Contractor's Base Safety Program.

c) Post-Construction Stage

Prepare "as-built" / record drawings in accordance with Ministry digital format standards within 30 days after construction completion. Submit one full size copy, three half size copies and one electronic (CD) copy of the drawings to the Ministry Contact Person. Information and drawing mark-ups will be provided to the Consultant from the Ministry Representative and/or the Construction Contractor.

Project Reference Information

While the Ministry will strive to provide adequate and timely information, the Consultant shall review in detail all information to ensure it provides all the details and completeness necessary for the provision of comprehensive, thorough and accurate surveys and designs.

Engineering Special Conditions

The Consultant shall use Ministry reference documentation until the end of their assignment. They must return all aerial photographs, photo mosaics, mapping sheets, field survey data, geotechnical reports or other reference materials on completion of the assignment.

MINISTRY RESPONSIBILITIES

The Ministry will undertake the following with respect to a project as required:

- Provide access to all available pertinent reports, inventories and correspondence that will assist in the design process.
- Prepare and undertake a communications strategy to communicate and receive input from residents and stakeholders on the design and engineering scope of the Project.
- Take the lead role in advising and consulting with the media, elected officials, community groups, First Nations Bands, the Agricultural Land Commission, private property owners and environmental agencies.
- Review the work as it proceeds and advise on matters regarding standards, guidelines and policy when possible. This review does not constitute an acceptance of liability by the Ministry or its employees, for the design. It is solely conducted as a check to ensure the Ministry's interests are being considered and assured.
- Consider the consultant's advice and recommendation for changes in the scope and delivery.
- Perform detailed inspection and reporting to the Ministry's guidelines for all areas of existing roads.

General Responsibilities

- Provide historical unit prices on a limited basis.
- Evaluate proposed sub-consultants work on the Project as part of the overall Performance Evaluation for the Assignment.
- Review the work as it proceeds and advise regarding standards, guidelines and policy. This review will be conducted solely as a quality assurance check.
- Act as Ministry Manager.
- Provide existing geotechnical data for the existing bridges.
- Provide any other existing Ministry data.

Surveying

- Provide available legal plans. All other updates required shall be the Consultant's responsibility.
- Provide available survey information, drawings, calculations, plans, topographical cross sections, profiles and field survey data.
- Conduct legal surveys.

Highway Engineering

- Provide the source of available "As-Built" or design drawings of existing highways, structures and electrical facilities under Ministry jurisdiction that might be affected by proposed works for each Assignment.
- Provide historical data and documents.

Geotechnical Engineering

- Provide geotechnical advice, comments and recommendations.

Electrical Engineering

- Provide drawing series number for all electrical drawings by the Ministry's Traffic Systems and Electrical Engineering Section, South Coast Region.
- Provide all available record drawings of existing electrical infrastructure.
- Provide details of previous proposed designs.

Traffic Engineering

- Review any detour requirements or traffic issues.
- Provide access to available Ministry traffic counts.
- Discuss directional guide sign messaging with municipalities. Review preliminary / Approve final message text designs, layouts and locations for all directional guide signs, and service and attraction signs.
- Review preliminary and approve final message text designs, layouts and locations for all directional guide signs, and service and attraction signs.

Property Acquisition

- Provide cost estimates for proposed property acquisitions as available.
- Negotiate and acquire highway Right of Way.

Development Approvals

- Provide all relevant information required for reviews of development proposal applications.

Environmental

- If necessary, contact and liaise with the Ministry of Aboriginal Relations and Reconciliation and the Archaeology Branch of the Ministry Tourism, Sport and Arts to identify issues, receive feedback on proposed design options and discuss specific concerns.
- Review and advise with respect to environmental work.
- Conduct a Contaminated Sites overview investigation.
- Conduct an Archaeological Overview Assessment.

Structural Engineering

- Provide bridge contract drawings and special provisions for the structure for incorporation into the contract documents.
- Provide the structural standard requirements.
- Review and advise on structure requirements as may be necessary and provide information with regards to maintenance and operation procedures, problems, etc. with similar local facilities. Provide any available as-built information for similar existing local structures.
- Assign structure identification numbers as required.
- The Consultant will provide a load capacity evaluation for the existing structures with recommendations for maintaining or increasing capacity, investigate increasing traffic capacity, and investigate and present conceptual rehabilitation options that will extend the structures' service life.
- Utilities
- Provide record drawings of existing underground utilities as available.
- Identify all public or private installations to be removed, adjusted or protected because of the proposed improvements and contact the owners to review their requirements and time schedule to complete the required modifications.

Regulatory Liaison

- Make formal application to Transport Canada (National Transportation Agency and Railway Safety Directorate) and make financial arrangements and contacts about future provisions of facilities and safety appurtenances with railway authorities.
- Liaise with railway authorities, the National Transportation Agency and the Railway Safety Directorate with respect to the railway crossing design and obtain all necessary approvals for the same.
- Provide advice regarding utility relocations and copies of any permits for utilities located in the Ministry Right of Way.
- Provide advice regarding the requirements for railway crossings.

Utilities

- Provide Record Drawings of existing underground utilities as available.

The Ministry contact will be: Jan Pazhouh, Highway Design, Consultant Liasion Engineer, Phone: (604) 660-1716.



PAYMENT SCHEDULE

METHOD OF PAYMENT

Payments to the Contractor shall be based on the following:

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See attached Project Schedule of deliverables and corresponding Fee Schedule.

The Total fixed fee payment for deliverables is \$588,573.

Services during construction and preparation of as-built drawings will be reimbursed on hourly basis against the provisional sum of \$60,000.

FREQUENCY OF PAYMENTS

The Contractor shall invoice the Province:

According to the attached schedule for deliverables upon completion and acceptance of each deliverable by the Ministry Representative.

MAXIMUM AMOUNT PAYABLE

Total payments shall not exceed \$ 648,573.

PAYMENT SCHEDULE TERMS AND CONDITIONS

1. The Contractor shall invoice the Province in accordance with the terms of this Agreement showing the calculation of all amounts claimed.
2. Acceptance of any invoice and subsequent payment for the work/services, or any portion of the work/services, is subject to the invoiced work/services having been completed to the satisfaction of the Province.
3. The Province shall pay the Contractor within 30 days following either the receipt by the Province of the Contractor's invoice OR satisfactory completion of the invoiced work/services, whichever is later.
4. The Contractor shall accept payment as stated above as full and final reimbursement for all costs connected with the work/services.
5. The Contractor shall not commit the Province to any financial liability.
6. Notwithstanding any other provision of this Agreement, the payment of money by the Province to the Contractor is subject to the provisions of the Financial Administration Act.



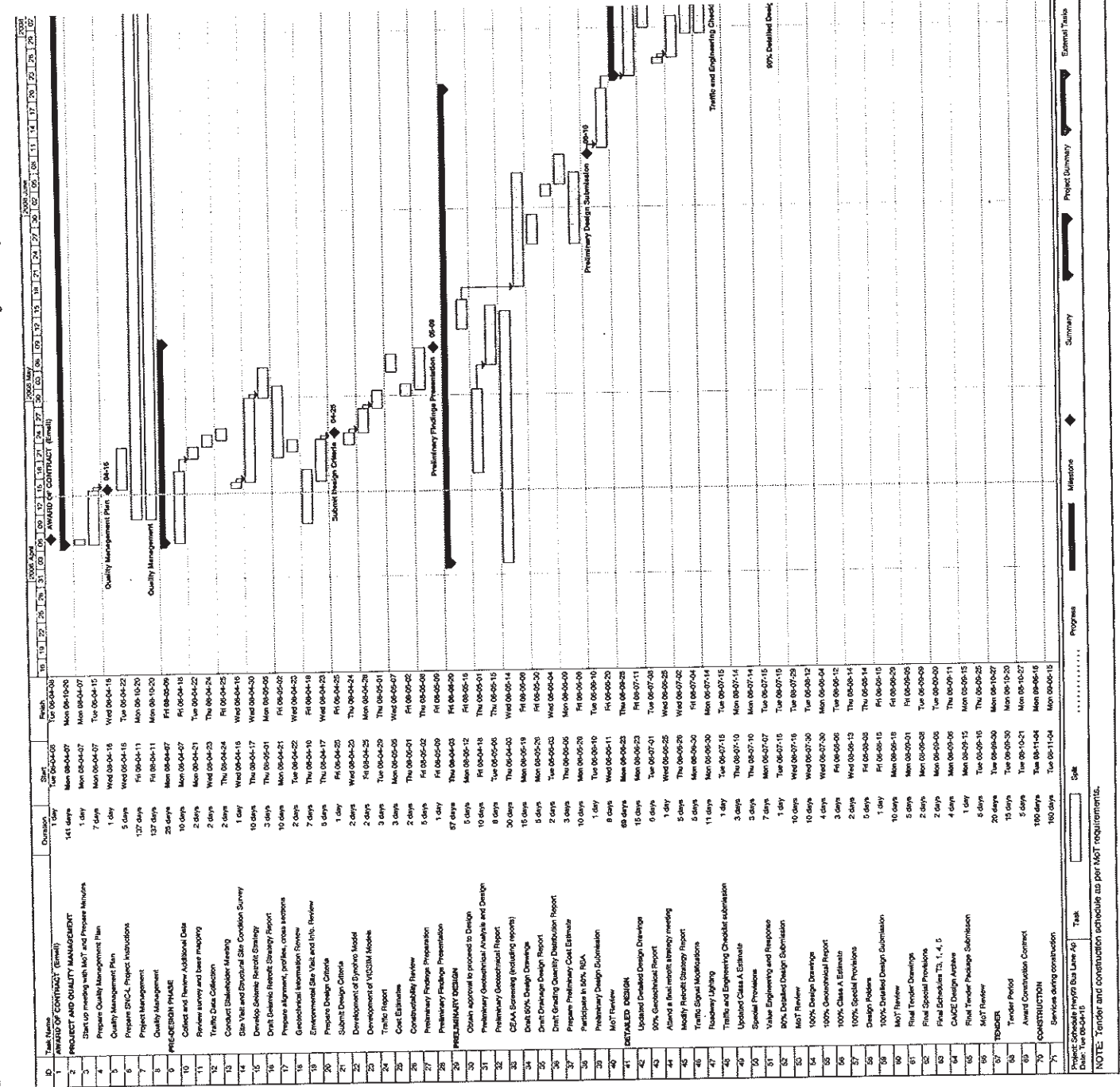
PLEASE INITIAL

Figure F-3: I

MANAGEMENT AND SENIOR ENGINEERS										
Project Manager	Senior Reviewer	Highway Advisor	Structural Advisor	Quality Manager	Highway Design	Highway CADD Designer	Drainage and Utilities	Structural		
R. Wong	S.S. Deepak	T. Stevens	S. Chan	C. Phillips	V. Wang	N. Kucharsberg	K. Pui	Y. Di		

Task No.	Task Description	Hourly Rate
PROJECT AND QUALITY MANAGEMENT		
4.1.1	Start up meeting with MOT and Prepare Minutes	
4.1.2	Prepare Quality Management Plan	
4.1.3	Prepare SNCL Project Instructions	
4.1.4	Prepare 7 Quality Control Reports	
4.1.5	Attend 7 submission review meetings	
Project and Quality Management Sub-Totals		
PRE-DESIGN PHASE		
4.2.3	Traffic Data Collection	
4.2.4	Review survey and base mapping	
4.2.5	Site Visit and Structural Site Condition Survey	
4.2.7	Geotechnical Information Review	
4.2.8	Contaminated Sites Investigation	
4.2.10	Prepare Design Criteria	
4.2.12	Development of Synchro Model	
4.2.13	Development of VISSIM Models	
4.2.15	Traffic Report	
4.2.16	Cost Estimates	
PRELIMINARY DESIGN		
4.3.1	Preliminary Geotechnical Analysis and Design	
4.3.2	Preliminary Geotechnical Report	
4.3.3	Draft Detailed Design Drawings	
4.3.7	Draft Drainage Design Report	
4.3.8	Develop Scheme Retrofit Strategy	
4.3.9	Draft Scheme Retrofit Strategy Report	
4.3.10	Draft Structural Design Report	
4.3.13	Conduct 50% RSA	
Pre-Design and Preliminary Design Sub-Totals		
90% DETAILED DESIGN		
4.4.1	Updated Detailed Design Drawings	
4.4.6	Attend a full retrofit strategy meeting	
4.4.7	Modify Retrofit Strategy Report	
4.4.8	Traffic Signal Modifications	
4.4.9	Roadway Lighting	
4.4.10	Updated Class A Estimate	
4.4.11	Special Provisions	
4.4.13	Value Engineering Report and Response	
100% DETAILED DESIGN		
4.5.1	100% Design Drawings	
4.5.2	100% Cross Sections	
4.5.4	100% Geotechnical Report	
4.5.5	100% Class A Estimate	
4.5.6	100% Special Provisions	
4.5.7	Final Design Tender Drawings	
4.5.10	Final Special Provisions	
4.5.11	Final Schedule T3, 1, 4, 5	
4.5.13	Design Folders	
4.5.14	CAUCE Construction Archive	

Figure 5-1: Project Schedule (Rev. 1, April 14, 2008)



NOTE: Tender and construction schedule as per MOT requirements.



SCHEDULE OF REIMBURSABLE TRAVEL EXPENSES (GROUP I)

When travel expenses are listed in the Payment Schedule as an allowable expense, then transportation, meals, accommodation and board and lodging will be reimbursed provided the same are in the opinion of the Province, necessarily incurred by the Contractor in providing the work/services.

These rates will apply for the duration of the contract.

To obtain Government rates for car rental and accommodation a letter of authority signed by the Ministry contact (sample attached) is required as proof that you are under contract with the Province.

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All claims should be submitted on "Schedule of Reimbursable Travel Expenses for Contractors to Fill in Online – H1170" (see attached) with all receipts attached.

No GST will be reimbursed.

1. TRANSPORTATION

- (a) Air Travel: Receipts are required. The most economical airfare must be obtained. Charter flights must be pre-approved in writing by the Regional, Branch or Project Director.
- (b) Bus, Taxi, Parking, Toll Charges and Ferry: Receipts are required, tips cannot be claimed. Ferry travel should be by the most economical route. Assured loading tickets and ferry reservations must be pre-approved in writing by the Regional, Branch or Project Director.
- (c) Vehicle Rental: Receipts are required. The Province has negotiated Corporate Supply Arrangements (CSAs) with the following vehicle rental companies and the Corporate Identification Number below is required when requesting a vehicle, to ensure that correct rates are being applied to the rental.

It is up to the discretion of each contractor to determine which company to use for their particular need, based on the most economical rate per kilometre charge available.

- AVIS RENT A CAR – C1460000
- BUDGET RENT A CAR – A162000
- ENTERPRISE RENT A CAR – 4CA1000
- NATIONAL CAR RENTAL – 3614638
- THRIFTY CAR RENTAL – 1660019642
- HERTZ CAR RENTAL – N/A

When signing the rental agreement, waive Collision or Loss Damage Waivers (CDW or LDW) and Personal Injury or Accident Insurance (PII or PAI) these costs are included in the CSAs and will not be reimbursed.

Report all accidents to the rental agency and the Ministry contact with 24 hours and submit a Vehicle Accident Report Form (RISK 01) to the Manager, Maint Programs.

- (d) Private Vehicle: No receipts are required. Reimbursement for use of private vehicles will be at the rate of \$0.49/km. This is an all-inclusive rate, i.e., includes the cost of gas and insurance.
- (e) Travel expenses are not reimbursable if incurred within a 32 km radius of the Contractor's office unless pre-approved in writing by the designated Ministry contact.
- (f) Prior approval of the Regional, Branch or Project Director is required before any travel is made crossing the Provincial border.

2. MEALS

No receipts are required. Meals will be reimbursed at the following rates:

Full day per Diem	\$46.25	
Breakfast only	\$11.25	If travel starts before 7:00 am
Lunch only	\$13.00	If travel starts before noon
Dinner only	\$22.00	If travel ends after 6:00 pm
Breakfast & Lunch	\$24.25	As per above
Breakfast & Dinner	\$33.25	As per above
Lunch & Dinner	\$35.00	As per above

3. ACCOMMODATION

Receipts are required. Accommodation expenses are reimbursed at cost, based on the maximum daily rates provided. Refer to Appendix 1 of this Schedule for details on accommodation rates.

Private lodging will be reimbursed at a rate of \$30.00/day.

Accommodation outside the Province will be at the rates pre-approved in writing by the Regional, Branch or Project Director.

4. BOARD AND LODGING

Where specifically pre-approved in writing by the designated Ministry contact, the contractor may claim \$2,000.00 per month for board and lodging in lieu of the accommodation and meal rates specified above.

APPENDIX 1 TO SCHEDULE OF REIMBURSABLE TRAVEL EXPENSES **ACCOMMODATION RATE THRESHOLDS FOR CONTRACTORS**

Daily hotel/motel accommodation stays will be reimbursed at cost, not to exceed the maximum rates by city as set out below. Only the single-person provincial government rate for a standard room will be reimbursed. Proof of government-related business may be required when booking.

City	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Downtown Vancouver	\$145	\$145	\$125	\$125	\$170	\$170	\$170	\$170	\$170	\$145	\$145	\$125
Greater Vancouver	\$110	\$110	\$110	\$150	\$160	\$160	\$130	\$130	\$130	\$110	\$110	\$110
Burnaby	\$100	\$100	\$100	\$100	\$115	\$115	\$115	\$115	\$115	\$100	\$100	\$100
Coquitlam/Port Coquitlam	\$100	\$100	\$115	\$115	\$120	\$120	\$120	\$120	\$120	\$100	\$100	\$100
Delta	\$95	\$95	\$95	\$95	\$95	\$95	\$100	\$100	\$100	\$95	\$95	\$95
Langley	\$100	\$100	\$100	\$100	\$100	\$100	\$110	\$110	\$100	\$100	\$100	\$100
New Westminster	\$105	\$105	\$110	\$110	\$130	\$130	\$130	\$130	\$130	\$110	\$110	\$110
North Vancouver	\$90	\$90	\$105	\$105	\$135	\$135	\$130	\$130	\$130	\$125	\$105	\$105
Richmond	\$120	\$120	\$120	\$120	\$140	\$150	\$150	\$150	\$150	\$140	\$140	\$120
Surrey	\$110	\$110	\$110	\$110	\$120	\$120	\$120	\$120	\$120	\$110	\$110	\$110
White Rock	\$75	\$75	\$75	\$75	\$100	\$100	\$100	\$100	\$75	\$75	\$75	\$75
Downtown Victoria	\$100	\$100	\$100	\$110	\$155	\$155	\$155	\$155	\$155	\$100	\$100	\$100
Greater Victoria*	\$105	\$105	\$105	\$155	\$155	\$155	\$155	\$155	\$155	\$105	\$105	\$105
Castlegar	\$90	\$90	\$90	\$100	\$100	\$100	\$100	\$100	\$100	\$90	\$90	\$90
Cranbrook	\$90	\$90	\$90	\$90	\$95	\$95	\$95	\$95	\$95	\$90	\$90	\$90
Dawson Creek	\$120	\$120	\$120	\$100	\$100	\$100	\$120	\$120	\$120	\$120	\$120	\$120
Fort St John	\$120	\$120	\$120	\$120	\$120	\$120	\$120	\$120	\$120	\$120	\$120	\$120
Golden	\$100	\$100	\$100	\$100	\$100	\$100	\$110	\$110	\$100	\$100	\$100	\$100
Kamloops	\$95	\$95	\$95	\$95	\$95	\$95	\$95	\$95	\$95	\$95	\$95	\$95
Kelowna	\$90	\$90	\$110	\$110	\$120	\$120	\$130	\$130	\$125	\$110	\$95	\$95
Nanaimo	\$100	\$100	\$100	\$100	\$110	\$110	\$110	\$110	\$110	\$110	\$100	\$100
Nelson	\$90	\$90	\$90	\$90	\$100	\$100	\$100	\$100	\$100	\$90	\$90	\$90
Penticton	\$90	\$90	\$90	\$100	\$110	\$110	\$130	\$130	\$110	\$100	\$100	\$90
Prince George	\$100	\$100	\$100	\$100	\$100	\$100	\$100	\$100	\$100	\$100	\$100	\$100
Prince Rupert	\$90	\$90	\$90	\$90	\$100	\$100	\$100	\$100	\$100	\$100	\$90	\$90
Smithers	\$85	\$85	\$95	\$95	\$95	\$95	\$95	\$95	\$95	\$95	\$90	\$90
Terrace	\$90	\$90	\$90	\$90	\$90	\$90	\$90	\$90	\$90	\$90	\$90	\$90
Vernon	\$90	\$90	\$90	\$90	\$95	\$100	\$120	\$120	\$95	\$85	\$90	\$85
Whistler	\$180	\$180	\$180	\$180	\$115	\$115	\$115	\$115	\$115	\$115	\$115	\$180
Williams Lake	\$80	\$80	\$80	\$80	\$90	\$90	\$90	\$90	\$90	\$90	\$80	\$80
Other Cities Not Listed	\$90	\$90	\$95	\$95	\$95	\$95	\$95	\$95	\$95	\$95	\$90	\$90

*Central Saanich, Saanichton, Brentwood Bay, Langford, Colwood, Sidney, Saanich, Esquimalt, Oak Bay



Letter of Authorization for Contractors

"Date"

To: All Authorized Province of British Columbia
Travel Industry Suppliers

Re: _____

"Contract Identification Number & Brief Description of Services"

Please be advised that: _____

"Name of Contractor"

is a contractor to the Ministry of Transportation and, as such, is permitted to use provincial government rates during the term of his/her contract as follows:

_____ to _____

"Commencement Date"

"Completion Date"

The contractor named above, agrees that the services or goods obtained by virtue of this letter of authorization will be used solely for services supplied to the Province of British Columbia and the cost of the service or goods will be reimbursed to the contractor by the government, at the rate(s) supplied.

Personal or other use of this letter, or services/goods provided through the use of this letter, for other than that stated in the contractor's agreement, is forbidden in accordance with the terms and conditions of the agreement.

Should you require verification of this information, or if you have any questions, please contact the undersigned
at _____

"Phone Number"

Thank you for your co-operation.

Yours truly,

"Name of Ministry Contact"

"Position Title"



SAMPLE

(<http://www.th.gov.bc.ca/forms/getForm.aspx?formid=1070>)

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Transportation *in the Schedule of Reimbursable Expenses.)*

* For private vehicle only.

Meals *(No receipts are required. Meals are reimbursed according to rates specified in the Schedule of Reimbursable Expenses.)*

TOTAL	\$
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Accommodation *Reimbursable Expenses.*)

TOTAL	\$
--------------	-----------

TOTAL EXPENSES \$



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Where there is a conflict between the following Special Conditions and any other terms and conditions of the Consulting Services Contract and/or the Local Minor Works and Services Contract, the following Special Conditions shall prevail.

INDEMNITY

Notwithstanding any insurance coverage, the Contractor hereby agrees to indemnify and save harmless the Province, its successor(s), assign(s), and authorized representative(s) and each of them from and against those losses, claims, damages, actions and causes of action, (collectively referred to as "claims") that the Province may sustain, incur, suffer or be put to at any time either before, during or after the expiration or termination of this Agreement, that arise out of errors, omissions or negligent acts of the Contractor or their Subcontractor(s) or Subconsultant(s), servant(s), agent(s), or employee(s) under this Agreement.

CONFIDENTIALITY

The Contractor will treat as confidential and will not, without the prior written consent of the Province, publish, release, use or disclose or permit to be published, released, used, or disclosed either before or after the expiration or sooner termination of this Agreement, the Material or any information, including pricing information, supplied to, obtained by, produced, or which comes to the knowledge of the Contractor as a result of this Agreement except insofar as such publication, release, use, or disclosure is expressly permitted by the Province, necessary to enable the Contractor to fulfill the obligations of the Contractor under this Agreement, or is required by law.

The Contractor will implement and maintain procedures to ensure that each employee, named professional, consultant, officer, director, agent, contractor and subcontractor of the Contractor who will perform the Services and the Assignment, or any items or parts of the Services and the Assignment will, before and after the expiration or sooner termination of this Agreement, maintain the Material or any information, including pricing information, supplied to, obtained by, produced, or which comes to the knowledge of the Contractor as a result of this Agreement in strictest confidence, and will not, without the prior written consent of the Province publish, release, use or disclose any such Material or information, except insofar as such publication, release, use, or disclosure is necessary to enable the Contractor to fulfill the obligations of the Contractor under this Agreement, or is required by law.

Without restricting the generality of the paragraphs set out above in this section entitled "Confidentiality", the Contractor will comply with such reasonable directions as the Province may, from time to time, make and implement with respect to ensuring confidentiality, which directions may include restrictions and procedures on time and place of access and methods of reproduction of and uses of the any such Material or information.

This section entitled "Confidentiality" will survive the expiration or termination of this Agreement.

ADDITIONAL CONDITIONS

Definition:

Assignment: For the purposes of this contract, means a specified task or group of tasks, or an amount of work to be accomplished by the performance of "services" as defined herein.

The Ministry will:

Appoint a Ministry Representative, for liaison with the Contractor, to whom all notices and other correspondence and communications will be directed.

Review recommendations, proposals, schemes, sketches, layouts, estimates and any notices, inquiries or disputes submitted by the Contractor and will give written instructions or decisions to enable the timely continuation and completion of the Assignment. Make available to the Contractor the pertinent documentation of any other contract in connection with the work of the Assignment whenever it contains responsibilities required of the Contractor and if the Contractor gives notice in writing to the Ministry, of inconsistency between other contracts and the Assignment, the Ministry will resolve same, either by amendment of the other contract or by revision or addition to the Assignment and the Consulting Services Contract.

GENERAL PROVISIONS AND CONDITIONS

Approvals:

Approvals given by or on behalf of the Ministry to any study, investigation, course of action, design, schematic, drawing, detail or specification relevant to this Contract shall not relieve the Contractor of any of his responsibilities assigned to him under this Assignment.

Other Specialists:

If the Province engages the services of other specialists, the Contractor shall be entitled to rely on the skill, knowledge and documentation of such other specialists unless to do so is deemed to be unreasonable by the Minister and notice as such is provided by the Province to the Contractor.

Supplied Data:

The Contractor acknowledges that adequate discussion and access to sufficient information has transpired to enable the Contractor to undertake the performance of the Assignment. It is agreed that the Contractor shall be entitled to reasonably rely on the accuracy of the data contained in any documentation furnished by the Minister.

Implementation of Services and Liaison:

The Contractor will use the best available methods in performing the Assignment and shall employ only skilled and competent staff, and if required by the Minister, the Services shall be performed or supervised by the personnel designated on the list provided by the Contractor. The Services shall be carried out under the direct supervision of a principal or a senior member of the Contractor's staff to whom all notices will be directed.

Professional Service Requirements:

To the extent that the Assignment is of a professional nature, the Services shall be performed by a fully qualified member of the appropriate professional body duly registered to practice the profession in British Columbia when the professional body is established by a statute of the Province of British Columbia.

Codes:

The Contractor shall comply with all statutes, codes, by-laws and regulations of relevant governmental authorities.

Permits and Licences:

The Contractor shall advise and assist the Province in obtaining all approvals, permits and licences which are necessary to the Assignment from all governmental authorities.

Progress Reports:

In the absence of other directives from the Minister, the Contractor shall submit written monthly reports to the Minister on the progress in performance of the Assignment.

Use of Material:

In the event the Province uses material (as defined), for the purposes other than the Assignment, the Province will indemnify and save harmless the Contractor from and against all claims, demands, losses, damages, costs and expenses which arise out of or in connection with the inappropriateness of such use by the Province.

Documents and Information:

The Contractor shall provide to the Minister, at any time upon request, and otherwise upon completion of the Assignment the originals of documentation, with mylar reproductions of original drawings, where so directed by the Minister, for the purpose of document reproduction and/or retention by the Province. A clean exact copy of the original documents submitted shall be retained by the Contractor.

The professional seal of the Contractor shall be affixed prior to the completion of the Assignment on the prints of drawings required for subsequent construction contract purposes.

Non-Waiver:

Payments made by the Province to the Contractor on account of the Services shall not be construed as a waiver of any right of claim the Province may have against the Contractor arising out of the Contractor's failure to perform the Services in accordance with the provisions of this Contract.

Delivery of Records:

Where the Assignment requires the delivery of documentation to the Minister, such as record drawings, manuals or other similar requirements, the last payment for basic services under this Contract will not be made until such documentation has been delivered.

Statutory Declaration:

The Province may require the Contractor, as a condition of payment, to file with the Minister a Statutory Declaration stating that the Contractor has duly satisfied all the Contractor's financial obligations to third parties in connection with delivery of the Services.

Correction of Errors:

Correction of errors or other problems attributable to the Contractor shall be the responsibility of and at the cost of the Contractor.

Resolution of Dispute:

In the event of a dispute arising under this Contract between the Contractor and the Province, the Contractor shall, within 10 working days of becoming aware of the dispute, give written notice to the Minister detailing the nature of the dispute for resolution or direction by the Minister; notwithstanding the existence of such dispute, the Contractor shall continue the prompt performance of the Services unless otherwise directed by the Minister.

Should the actions of the Minister fail to resolve the dispute to the satisfaction of the Contractor, the Contractor shall, prior to any request for arbitration or recourse in law, request in writing that the Minister reconsider the matter. The Minister shall promptly fully reconsider the matter and advise the Contractor as to its determination. If the Contractor is dissatisfied with such determination the dispute may, with the concurrence of the parties, be submitted to arbitration pursuant to the provisions of the Arbitration Act.

ASSIGNMENT AND SUCCESSORS

If the Contractor is an individual and dies or becomes incapacitated before the Assignment has been completed, this Contract shall terminate automatically as of the date of death or incapacity, and the Province will pay the Contractor's estate for the Services rendered and disbursements made up to and including the date of such termination.

If the Contractor, as an individual, should desire to engage a partner or partners, or is a partnership and desires to bring in another partner or partners to share the benefit and burden of this Assignment, or desires to permit one or more of the Partners to retire, the Contractor shall promptly notify the Minister in writing of such action(s) requesting approval.

If the Contractor is a corporation and a change of control occurs while this Contract is in force, the Contractor shall promptly notify the Province, and the Minister shall then have the option of terminating the Contract, which if terminated, the Province will pay for the services rendered and expenses incurred up to and including the date of termination.

Entire Agreement

This Agreement constitutes the sole and entire Agreement between the Province and the Contractor relating to the Assignment, and no other terms, conditions or warranties, whether express or implied, shall form a part hereof, and this Contract shall not be modified, except by subsequent agreements in writing duly signed by the Authorized Representatives of both parties.

**INSURANCE SPECIFICATIONS
PROFESSIONAL SERVICES
INS-132****LIABILITY INSURANCES including Professional Liability**

Without restricting the generality of the contract indemnity clause, it is a condition of this contract that the Contractor shall prior to commencement of services and at the Contractor's expense, obtain and maintain until all conditions of the contract have been fully complied with, insurance coverage in wording and in amounts as hereinafter specified unless otherwise altered by mutual agreement.

1. ISSUANCE OF INSURANCE

All insurance coverage shall be issued with insurers acceptable to the Ministry, and issued by companies licensed to transact business in the Province of British Columbia.

2. EVIDENCE OF COVERAGE

The Contractor shall file evidence of insurance issued to comply with the requirements outlined in these insurance specifications prior to commencement of services. Should any insurance policies expire before all other conditions of the contract have been complied with, then the Contractor shall file evidence of renewal prior to the expiry date of the policy(s).

Evidence shall be as follows:

- a) For all policies, except Automobile Liability, by way of a duly completed Ministry Certificate of Insurance (H0111), which will be considered to be a part of this Schedule.
- b) For Automobile Liability insurance, either a duly executed I.C.B.C. APV47 or APV250 form, or a Ministry Certificate of Insurance.

The Contractor shall, upon request by the Ministry, file originals or signed, certified copies of all current policies and any endorsements necessary to comply with these insurance specifications and any other requirements outlined elsewhere in the contract. Failure to provide the required insurance may result in payments to the Contractor being withheld.

All documentation shall be filed with: **The Manager, Insurance and Bonds, Ministry of Transportation, PO Box 9850, Stn Prov Govt, 940 Blanshard Street, Victoria, BC V8W 9T5.**

**NO OTHER CERTIFICATES OF INSURANCE ARE
ACCEPTABLE**

Payments to the Contractor may be withheld and/or all work on the site of the contract may be ordered to cease if the Contractor fails to obtain or maintain insurance as required herein, or if the Ministry does not approve any insurance policy or policies submitted to them and the Contractor does not comply with the insurance requirements of the contract and, the Ministry shall also have the right, but not the obligation, to place and maintain such insurance in the name of the Contractor and the Ministry. The cost thereof shall be

payable by the Contractor to the Ministry on demand, and the Ministry may deduct the cost thereof from any monies which are due, or may become due to the Contractor.

3. THIRD PARTY LIABILITY INSURANCE

Comprehensive (Commercial) General Liability insurance shall be arranged with inclusive limits of not less than **TWO MILLION DOLLARS (\$2,000,000.00)** for bodily injury, death, and property damage arising from any one accident or occurrence. Such insurance shall also include all liability arising out of completed operations, blanket written contractual, contingent employers liability, non-owned automobile liability and liability assumed by the Contractor under this contract. The liability insurance shall be extended to apply with respect to any action brought against any one insured by any other insured or by any employee of such insured and any breach of a condition of the policy by any insured shall not affect the protection given by this policy to any other insured. The liability insurance shall include all premises and operations of the Contractor and the employees, servants or agents of the Contractor. The insurance policy shall indemnify the named insureds under the policy for any sum or sums which the insured may become liable to pay or shall pay for bodily injury, death or property damage or for loss of use thereof, arising out of or resulting from the work of the Contractor or the Ministry under this contract, anywhere within Canada and the United States of America. In addition to the above limits, such liability insurance shall also pay all costs, charges, and expenses in connection with any claims that may require to be contested by the insureds anywhere within Canada and the United States of America.

The named insured shall include "Her Majesty the Queen in Right of the Province of British Columbia as represented by the Minister of Transportation, together with the employees, agents, and servants of the Minister, hereinafter referred to as the Additional Named Insured, is added as an Additional Named Insured, in respect of liability arising from the work or operations of the Insured and the Additional Named Insured, in connection with contracts entered into between the Insured and the Additional Named Insured."

A property damage deductible will be allowed for any one accident or per occurrence for up to **FIVE THOUSAND DOLLARS (\$5,000.00)** or **ONE PERCENT (1%)** of the contract amount, whichever is greater. Payment of any deductible shall be the responsibility of the Contractor. **A BODILY INJURY OR DEATH DEDUCTIBLE IS NOT ALLOWED.**

4. AUTOMOBILE LIABILITY INSURANCE

IF any licensed vehicles are owned, leased, rented or used in the performance of this contract, then Automobile Liability coverage with inclusive limits of not less than **TWO MILLION DOLLARS (\$2,000,000.00)** providing third party liability and accident benefits insurance must be provided for all these vehicles.

5. PROFESSIONAL LIABILITY INSURANCE (Errors and Omissions)

Professional Liability insurance shall be arranged from the date of execution of this contract and for a minimum period of **six (6) years** thereafter. The policy shall contain minimum limits of **\$ 1,000,000.00** per claim, and **\$ 1,000,000.00** annual aggregate insuring against loss or damage arising out of the professional services rendered by the Contractor, the Contractor's Sub-contractor and their servants or employees including personnel on loan to the Contractor and personnel who perform normal services of the Contractor under this agreement. The Ministry may require a separate project policy on certain contracts.

A deductible in an amount no greater than **ten percent (10%)** of the Contractor's insurance policy limits or **FIVE HUNDRED THOUSAND DOLLARS (\$500,000.00)**, whichever amount is the least will be allowed. Payment of any deductible shall be the responsibility of the Contractor.

The required insurance shall not be cancelled, removed, or endorsed to restrict coverage or limits of liability, without **thirty (30) days** notice in writing by Registered Mail to: **The Manager, Insurance and Bonds, Ministry of Transportation, PO Box 9850, Stn Prov Govt, 940 Blanshard Street, Victoria, B.C. V8W 9T5.**

6. PROTECTION AND INDEMNITY INSURANCE

IF vessels are operated in the course of the contract and are not covered under the general liability policy, then the Contractor shall provide Protection and Indemnity insurance applying to all vessels operated in the course of the contract with limits of not less than **TWO MILLION DOLLARS (\$2,000,000.00)** for such vessels. Such Protection and Indemnity insurance shall include four-fourths collision liability insurance.

7. AIRCRAFT INSURANCE

IF aircraft (including helicopters) are owned, leased, rented or used in the performance of this contract, then third party liability coverage with inclusive limits of not less than **FIVE MILLION DOLLARS (\$5,000,000.00)** must be provided.

8. NOTICE OF CANCELLATION, ETC. (applicable to all policies except Automobile Liability and Professional Liability insurance)

The insurance shall not be cancelled, removed, reduced, materially changed or altered without **thirty (30) days** prior written notice by Registered Mail to: **The Manager, Insurance and Bonds, Ministry of Transportation, PO Box 9850, Stn Prov Govt, 940 Blanshard Street, Victoria, BC V8W 9T5.**

THE PROVINCE ASSUMES NO RESPONSIBILITY FOR THE ADEQUACY OF THE INSURANCE EFFECTED IN FAVOUR OF THE CONTRACTOR OR THE MINISTRY UNDER THIS AGREEMENT.



BRITISH
COLUMBIA

Ministry of
Transportation

CERTIFICATE OF INSURANCE

Contracts/Leases/Agreements/Permits Number, Location and Description:	Brokers' Reference No.
	Award or Effective Date (yyyy/mm/dd)

INSURED Name _____
Business Address _____

BROKER Name _____
Business Address _____

Type of Insurance	Company and Policy Number	Policy Dates yyyy/mm/dd		Limits of Liability / Amounts
		Effective	Expiry	
Comprehensive (or Commercial) General Liability (including Non-Owned Automobile Liability)				Bodily Injury and Property Damage \$ _____ Inclusive \$ _____ Aggregate \$ _____ Deductible
Additional Insureds:				
Automobile Liability				Bodily Injury and Property Damage \$ _____ Inclusive
Umbrella/Excess Liability				\$ _____ Limits excess of \$ _____ General Liability excess of \$ _____ Automobile
<input type="checkbox"/> Builders Risk <input type="checkbox"/> Installation Floater <input type="checkbox"/> Other:				\$ _____ Site \$ _____ Other Location \$ _____ Transit
Equipment Insurance				\$ _____ Limit
Professional Liability Errors and Omissions				\$ _____ Each Claim \$ _____ Aggregate \$ _____ Deductible
<input type="checkbox"/> Protection & Indemnity <input type="checkbox"/> Hull & Machinery <input type="checkbox"/> Builders Risk (Vessels) <input type="checkbox"/> Ship Repairers' Liability				\$ _____ Limit \$ _____ Limit \$ _____ Limit \$ _____ Limit
Other:				\$ _____ Limit

The undersigned certifies the undersigned has reviewed the policies of insurance described above and Page 2 of this certificate and further certify that those policies have been issued to the insured named above and are in full force and effect and comply with the insurance requirements set out in the agreement / contract / lease / permit identified above, including the requirements set out on Page 2 of this certificate.

Signature of person authorized to sign on behalf of Insurers
certifying Page 1 and Page 2 of this Certificate

Print or Type Name

Date (yyyy/mm/dd)

ADDITIONAL CONDITIONS ARE SHOWN ON PAGE 2 OF THIS CERTIFICATE OF INSURANCE

Notwithstanding any other terms, conditions or exclusions elsewhere in the insurance policy(s), it is understood and agreed that the insurance policy(s) are extended to include insurance conditions as follows:

**CONDITIONS APPLICABLE TO:
COMPREHENSIVE OR COMMERCIAL GENERAL LIABILITY**

1. Additional Named Insured Clause for Ministry Contracts

Her Majesty the Queen in right of the Province of British Columbia as represented by the Minister of Transportation, together with the employees, agents, and servants of the Minister, hereinafter referred to as the Additional Named Insured, is added as an Additional Named Insured, in respect of liability arising from the work or operations of the Insured and the Additional Named Insured, in connection with contracts, entered into between the Insured and the Additional Named Insured.

2. Extension of Coverage

Such liability insurance shall also include all liability arising out of completed operations, blanket written contractual, contingent employers liability, non-owned automobile liability, and liability assumed by the Contractor in connection with and applicable to the contract.

3. Cross Liability

The insurance as is afforded by this policy shall apply in the same manner and to the same extent as though a separate policy had been issued to each Insured. Any breach of a condition of the policy by any Insured shall not affect the protection given by this policy to any other Insured. The inclusion herein of more than one Insured shall not operate to increase the limit of liability under this policy.

4. Exclusions Not Permitted

If hazardous operations such as excavation, pile driving, shoring, blasting, underpinning, or demolition work or any other operation or work is to be performed by the Ministry or the Contractor, then this type of work or operation shall not be excluded from insurance coverage where such type of work or operation is to be performed by either party under the contract, subject to prior notification to the insurer by the Contractor.

Claims arising out of the legal liability imposed upon the Insured at common law and extended by Statute for bodily injury or death to employees of the Insured. However, exclusions applicable to liability imposed upon or assumed by the Insured under any Workers' Compensation Statutes or for assessment by any Workers' Compensation Board will be allowed.

Liability assumed by the Insured under contract with railroad companies for the use and operation of railway sidings or crossings.

5. Products and Completed Operations Hazard

Products and Completed Operations Hazard coverage shall be provided and such coverage shall remain in full force and effect for a period of twelve (12) months after the contracted work has been completed (twenty four (24) months for Design Build Minor Contracts), irrespective of the expiry date of the policy.

Issuance of this certificate shall not limit or restrict the right of the Ministry of Transportation to request any time certified copies of any insurance policy(s).

**CONDITIONS APPLICABLE TO:
PROPERTY TYPE OF INSURANCE POLICIES
(WHERE IT IS A REQUIREMENT OF THE CONTRACT,
AGREEMENT, LEASE OR PERMIT)**

1. Additional Named Insured Clause

Her Majesty the Queen in right of the Province of British Columbia as represented by the Minister of Transportation, is added as an Additional Named Insured.

2. Loss Payable Clause

Her Majesty the Queen in right of the Province of British Columbia as represented by the Minister of Transportation.

3. Waiver of Subrogation

In the event of any third party loss or damage or any physical loss or damage to the work or Contractor's equipment, the settlement or payment of the subsequent claim shall be made without the right of subrogation against Her Majesty the Queen in right of the Province of British Columbia as represented by the Minister of Transportation or any of the employees, servants or agents of the Minister.

**CONDITIONS APPLICABLE TO:
ALL POLICIES EXCEPT AUTOMOBILE LIABILITY INSURANCE
ISSUED BY I.C.B.C. AND PROFESSIONAL LIABILITY (E&O)
INSURANCE**

1. Cancellation

This policy shall not be cancelled, removed, reduced, materially changed or altered without thirty (30) days prior notice in writing by Registered Mail to:

**CORPORATE INSURANCE AND BONDS MANAGER
MINISTRY OF TRANSPORTATION
PO BOX 9850 STN PROV GOVT
VICTORIA BC V8W 9T5
or
Ministry Representative, as noted in the contract.**

**CONDITION APPLICABLE TO:
PROFESSIONAL LIABILITY / ERRORS AND OMISSIONS
INSURANCE**

1. Cancellation

The required insurance shall not be cancelled, or endorsed to reduce limits of liability, without thirty (30) days notice in writing by Registered Mail to: The Corporate Insurance and Bonds Manager, Ministry of Transportation, PO Box 9850, Stn Prov Govt, 940 Blanshard Street, Victoria, B.C. V8W 9T5. Notification of the policy being endorsed to restrict coverage mid-term, must be provided in writing by Registered Mail to the same address, no later than the effective date of such change.

BRITISH
COLUMBIAMinistry of
TransportationMINISTRY OF TRANSPORTATION
REQUEST FOR CONSULTING
SERVICES CONTRACT

To	Headquarters or Regional Contract Administration Dianne Anderson		8 MAY 2008	Date (yyyy/mm/dd) 2008 04 07
	Address (Street Number, City, Province, Postal Code) 7818 Sixth Street, Burnaby, BC V3N 4N8		CONTRACTS AND FINANCE SOUTH COAST REGION	
From	Requestor (Print Name) Jan Pazhouh		Qualified Receiver (Print Name) Jan Pazhouh	Phone Number 604.660.1716
	Branch, Region, District Name South Coast Region		Contact Responsibility Centre Number 55156	
File Number		Contract Contract Identification Number (Contract Administration Use Only) 1 5 3 C S 0 5 6 4		RISP Selection Number 14161
Contractor	Business Name SNC Lavalin			Phone Number 604.662.3555
	Contact Name Richard Wong			Facsimile Number 604.662.7668
	Business Address (Street Number, City, Province, Postal Code) 1800-1075 Wst Georgia Street, Vancouver, BC V6E 3C9			

Method of Contractor Selection ☒ RISP System ☐ Selective Invitation ☐ RFP ☐ ITQ ☐ Direct Award (attach explanation)Procurement Process and Trade Agreement (AIT / TILMA) Exclusion (mandatory): ☐ Check the Appropriate Boxes on Page 2.Category Type: ☒ BN.BN02 - Consulting Services

Short Description: Preliminary and detailed design of Hwy 99 Shoulder Bus Lane

Commencement Date (yyyy/mm/dd) 2008 04 07

Completion Date (yyyy/mm/dd) 2009 12 31

1. Attachments (Mandatory): <input checked="" type="checkbox"/> Works/Services Schedule (H0461A) <input checked="" type="checkbox"/> Payment Schedule (H0461B)		2. Risk Review: <input checked="" type="checkbox"/> Attach Risk Review Sheet (H0056) Completion Required			
3. Please indicate which of the following forms are to be attached by the Contract Administration Section:					
3a) Schedule of Reimbursable Expenses: <input type="checkbox"/> No <input checked="" type="checkbox"/> Regular H0461c <input type="checkbox"/> Management (Travel 2) H0461c-1		3b) Special Conditions: <input type="checkbox"/> No <input checked="" type="checkbox"/> Engineering Assignments H0461d <input type="checkbox"/> Information Systems H0461d-1 <input type="checkbox"/> Surveying Assignments H0461d-2		3c) Insurance (H0111): <input type="checkbox"/> No <input type="checkbox"/> Insurance Specifications (INS-80) <input checked="" type="checkbox"/> Insurance Specifications Professional Services (INS-132) Professional Liability Limits (Item 5) <input type="checkbox"/> \$ 250,000 <input type="checkbox"/> \$ 500,000 <input checked="" type="checkbox"/> \$1,000,000	
3d) Privacy Protection, does your contract include the collection of personal information? <input type="checkbox"/> No <input type="checkbox"/> Privacy Protection Schedule (PPS)		4. For Contract Admin. Offices Only: <input type="checkbox"/> Register of Companies/Licensed to do Business <input type="checkbox"/> WCB Registration			
Contract Total \$648,573		Fiscal Distribution		Year 2008 Total \$628,573	Year 2009 Total \$20,000
Orca Coding	Responsibility 55153	Service Line 62120	STOB 6001	Project 12014	TOTAL \$ 648,573
Orca Coding	Responsibility	Service Line	STOB	Project	TOTAL \$
CPS Coding	(Info 1) -- CFS-- Product 12014	Business Function Engineer	(Info 2) -- Work Activity Detail Design	(Info 3) -- Cost Type Consult	TOTAL \$ 648,573
Approval to Award	(Expense Authority Signature) 		Print Name: Tracy Cooper		
	(Signature of A.D.M. or D.M. where required) 		Print Position: Regional Director		Date: April 30, 2008
			Print Name: Mike Proudfoot		Date: May 1 / 08

H0390 (2007/07)

Original - Contract Administration/Accounts Payable

Copies - Originator; RISP Operator (if RISP contract);
Insurance & Bonds (if applicable)

05/01/2008 THU 08:39 [TX/RXRA207100175] 002

WORKS/SERVICES SCHEDULE

CONTRACT IDENTIFICATION NUMBER

153 | CS | 0564

The Contractor shall:

Perform all necessary engineering design, structural, geotechnical investigations, traffic analysis/traffic counts, environmental and archaeological investigations, and other required tasks to complete a preliminary, detailed design, cost estimates and tender documents for widening Hwy 99 in the Westbound direction to accommodate a bus lane in the Westbound direction. Identify and perform all engineering work required to complete the design and the final package for tender.

Provide engineering services during construction, and complete the as-built drawings after construction.

The Consultant shall deliver a Preliminary Design shortly after award of the contract identifying any significant concerns or issues that require addressing in order complete the detailed engineering design and a package for tender.

The Consultant shall confirm the design criteria for the segment of the roadway that are based on the BC Supplement to TAC Geometric Design Guidelines (updated edition: June 2007), Recommended Design Criteria and other relevant guidelines. Changes to the design criteria must be reviewed and approved by the Ministry. Prepare construction cost estimates including contingency.

Confirm all survey information is accurate, complete, and tying in all geotechnical information to the base survey.

PROJECT FUNDING AGREEMENT

Project 12014
Highway 99 Shoulder Bus Lane
South Coast Region
Electoral District: Richmond East

SCHEDULE A – PROJECT SCOPE

Objective:

The Project will provide a Priority Bus Lane to improve the operational serviceability, reliability and efficiency for south of Fraser bus routes destined for the future Canada Line Bridgeport Station while travelling northbound on Highway 99.

Deliverables:

Installation of a 4.0 metre wide and 2.8 km long Shoulder Bus Lane on Highway 99 northbound from the exit ramp to Highway 91 eastbound up to the Stop Bar at the terminus of the Bridgeport Road offramp at Bridgeport Road.

The CNR Overhead northbound structure on the proposed bus route will be widened to facilitate the required Bus Lane width.

The CNR Overhead northbound and southbound structures will both be seismically upgraded to Safety Level 1 standards. Note: The Project will be working in conjunction with the Bridge Rehabilitation program to realize the efficiencies of simultaneously conducting the improvements to the overhead structures.

The segment from the end of the Bridgeport Road offramp to the future Bridgeport Station is not in scope.

Implementation:

The Project will be delivered using a Traditional Tender Method. Design / Build was considered but for the following reasons was not pursued -

- The multi-agency involvement and the indefinite variables inherent to the Project including environmental and geotechnical considerations.
- The Team considered the time, deadline and the constraint of having only one construction period and felt that a DB Tender would take too long to prepare.

The Project will be implemented by means of

- Starting on In House Geotech Investigations and Survey layouts immediately
- Retaining consulting services to provide the Detailed Design of the alignment
- Working in conjunction with Stakeholder groups
- Proactively addressing environmental and geotechnical considerations upfront
- Placing construction works on open tender.



Ministry of
Transportation

PROJECT PLAN

Project # 12014 Highway 99 Shoulder Bus Lane

Project Phase: Design & Engineering (D&E)
Project Manager: Matt Choquette
Date: February 15, 2008

Project Purpose:

The Project will provide a priority bus lane to improve the operational serviceability, reliability and efficiency for south of Fraser bus routes destined for the future Canada Line Bridgeport Station while travelling northbound on Highway 99.

Project Scope:

Installation of a 4.0 meter wide and 2.8km long shoulder bus lane on Highway 99 northbound from the Highway 91 eastbound offramp exit up to the intersection at the terminus of the Bridgeport Road offramp exit.

The CNR Overhead northbound structure on the proposed bus route will be widened to facilitate the required bus lane width.

The CNR Overhead northbound and southbound structures will both be seismically upgraded to Safety Level 1 standards. Note: The Project will be working in conjunction with the Bridge Rehabilitation program to realize the efficiencies of simultaneously conducting the improvements to the overhead structures.

The segment from the end of the Bridgeport Road offramp exit to the future Bridgeport Station is not in scope.

Ministry of
Transportation

PROJECT ACTIVITY SHEET

April 30, 2008

<u>Highway 99 Shoulder Bus Lane</u> Name of Project	<u>12014</u> Project #
Location: Richmond	
Constituency: Richmond East	
<u>Traditional Contract</u> Delivery Method	<u>Capital</u> Funding Program
<u>TBD</u> Contract Tender Advertising Date	<u>TBD</u> Contract Award Date
Location of Contractor: TBD	
<u>TBD</u> Contract Value	<u>\$7.044 M</u> Total Project Budget
<u>Tentative – November 2008</u> Work Start Date	<u>November 2009</u> Project Completion Date

Project Description:

The Project will provide a Priority Bus Lane to improve the operational serviceability, reliability and efficiency for south of Fraser bus routes destined for the future Canada Line Bridgeport Station while travelling northbound on Highway 99.

Benefits to Travelling Public:

This Bus Lane will provide a direct route for transit commuters to the Future Bridgeport Canada Line Station which connects with existing rapid transit lines and suburban transit services. Commuters using the Bus Only Lane will experience improved travel times through increased bus operating speed and continuous travel. This project will also create capacity for new bus services and connections for commuters and travelers as it facilitates reliable and consistent transit network (current peak hour headways inconsistent due to congestion).

An estimated reduction in green house gas or CO2 emissions by approximately 220 tonnes per year as buses would consume less fuel from a steady state of bus travel.

Background:**Stakeholders:**

MLA – Richmond East, Hon. Linda Reid
Highway 99 Users
BC Truckers Association
TransLink (Coast Mountain Bus Co.)
Emergency Services
PHCC

Maintenance Contractor: Mainroad Contracting Ltd.

City / RD /Municipality: City of Richmond

Business Sector: Richmond Chambers of Commerce

Tourism Operators: Tourism Richmond

Issues Management: Currently there are no issues.

Consultation: TBD

Traffic Management: TBD

Duration: TBD

Communicated: TMP

Public Messaging: Currently no Public Messaging is required.

TBD

Project Supervisor

Phone

Matt Choquette

Project Manager

604 660 8235

Phone

DMT Approval:

Lower Mainland

Regional Director Approval:

Not Required

Ministry of
Transportation

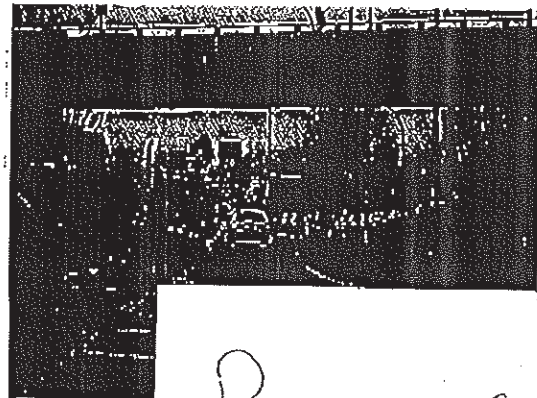
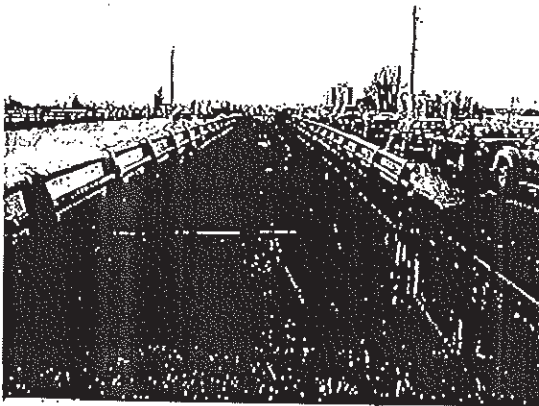
MEMORANDUM

Mike Proudfoot
Assistant Deputy Minister
Highways Department

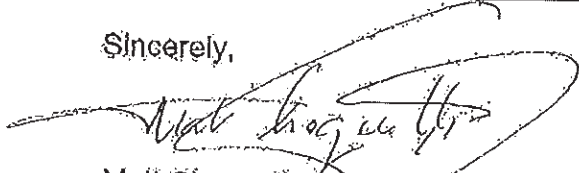
April 29, 2008

Re: Details of Consultant Contract 153 CS 0564 - SNC Lavalin to Design a
Shoulder Bus Lane on Highway 99 in Richmond.

- Design for Widening and Seismic Retrofitting of the Twin 1959 CNR Overhead Structures. These Bridges are very unique; the Pier walls are sitting on Jacks that are sitting on the Pilecaps - no lateral support between the Piers and Piles.
- Design for the Signalization for Ramps - triggered by approaching Buses.
- Geotechnical Component throughout the three kilometer Corridor.
- Tender Package Documents and Construction Engineering.
- Project has a fixed deadline - Bus Lane must coincide with the opening of the Canada Line.



Sincerely,


Matt Choquette
Regional Project Manager
Ministry of Transportation

PREVIOUSLY
SENT
TO ADM

From

Stephanie Shaw
 To: *Sue Padwell*

10
 From: Karen Orrell

Office/Branch: Transportation - Highways

Fax: (250) 387-6431

Pages: 9

Phone: (250) 387-4328

Date: 5/1/2008

Re: Request for Consulting Services Contract - SNC Lavalin - Preliminary & detailed design of Hwy 99 shoulder bus line

☐ **Urgent** ☐ **For Review** ☐ **Please Comment** ☐ **Please Reply** ☐ **Please Recycle**

• **Comments:**

Sue:

Please have Mike Proudfoot sign and return ASAP. Thank you.

Original will be mailed.

This transmission is intended solely for the use of the individual or institution to whom it is addressed and may not be distributed, copied or disclosed to other unauthorized persons. This material may contain confidential or personal information which may be subject to the provisions of Freedom of Information and Protection of Privacy Act. Any other distribution, copying or disclosure is strictly prohibited. If you have received this transmission in error, please notify the sender immediately by telephone and return the entire transmission by mail without making a copy. Thank you.

05/01/2008 THU 08:39 [TX/RX NO 7154] 001

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 CONNECTION TEL
 TX/RX NO

TRANSMISSION OK

 *** TX REPORT ***



File: 153CS0564

May 23, 2008


SNC-Lavalin Inc.
1800 – 1075 West Georgia Street
Vancouver, BC V6E 3C9

Attention: Richard Wong

RE: 153CS0564 Preliminary and Detailed Design of Hwy 99 Shoulder Bus Lane

Enclosed, please find your signed copy of the above Contract.

Thank you for your cooperation in this matter.


Gregory Matisz
Manager, Financial Services
and Provincial Contract Services

GM/da
Attachment

cc: Jan Pazhouh – RISP #14161
Insurance and Bonds – Victoria, BC
Disbursements





SNC-LAVALIN Inc.
1800 - 1075 West Georgia Street
Vancouver, British Columbia
Canada V6E 3C9

Telephone: (604) 662-3555
Facsimile: (604) 662-7688

May 16, 2008

Ministry of Transportation
7818 - 6th Street
Burnaby, BC
V3N 4N8

Attention: Gregory Matisz

Dear Mr. Matisz:

Re: Consulting Services Contract 153-CS-0564
Preliminary and Detailed Design of Hwy 99 Shoulder Bus Lane

Please find enclosed original Consulting Services Contract for above noted Project, duly executed by SNC-Lavalin Inc. Please return a copy to my attention once fully executed.

If you have any questions or concerns, please contact me at 604-605-4944.

Yours truly,

SNC-Lavalin Inc.

A handwritten signature in black ink, appearing to read "D. Hoskin".

Douglas Hoskin
Vice President
Finance & Contracting

Enclosures

cc: Mike Chin



**Major Works, Minor Works, Operational Services, Design Build Minor and
Consulting Services Contracts General Information:**

- The ONLY acceptable Certificate of Insurance is a Ministry of Transportation **Certificate of Insurance (H0111)**.
 - BOTH pages of the **Ministry Certificate of Insurance** must be submitted and the form conditions on page one and two must **NOT** be altered or added to.
 - Ensure that the effective award date of the Certificate of Insurance is the earlier of the date of contract award or contract start date.
 - DO NOT add the Ministry of Transportation as an Addition Insured on page 1 of the Certificate of Insurance as the Ministry of Transportation is an Additional Named Insured (as per the insurance specifications and page 2 of the Certificate of Insurance).
 - Always examine your Ministry Certificate of Insurance for policy effective dates and expiry dates and renewal dates in relationship to your contract.
 - Ensure that the Certificate of Insurance includes all required information (name of Insurer, policy numbers, policy effective dates, expiry dates, policy limits, deductibles and aggregates).
 - Double check all documentation to ensure that the project number and description are correct.
 - Always give the sample Ministry of Transportation **Certificate of Insurance**—again BOTH pages—the **Insurance Specifications, the Special Provisions and the Bond Specimens** in your tender document to your Insurance Broker as it enables him/her to produce documentation and pricing in accordance with the contract requirements.
 - Ensure that Ministry Certificate is duly signed and are originals or certified copies.
 - If Automobile Liability insurance is required in the Ministry Agreement one of the following must be provided:
 - duly completed H0111 form (must show the ICBC coverage) AND/OR
 - a completed APV47 (ICBC Form) OR
 - a completed APV250 (ICBC Form)
- *Note: Combination of Primary ICBC insurance and other Excess insurance is acceptable but must be clearly evidenced.

Major Works, Minor Works, Operational Service and Design Build Minor Contracts Only:

- Insurance requirements are found in BOTH Schedule 3- Special Provisions and Schedule 6- Insurance Specifications.
- Specimen Bonds are found in Schedule T2 Tender Securities Document INS0264 and Schedule 2 Contract Securities INS0265. Please ensure the bonds provided match the specimen.

Questions should be directed to the Corporate Insurance and Bonds Manager – (250) 387-7580

WCB

Workers' Compensation Board (WorkSafeBC) coverage is required.

- The general WCB of BC information site is <http://www.worksafebc.com/>
- Registration and insurance coverage can be completed online with details found at http://www.worksafebc.com/insurance/registering_for_coverage/register_with_worksafebc/default.asp. To report applicable payroll online, use http://www.worksafebc.com/online_services/reporting_and_remitting/default.asp
- Ensure that your premiums are paid so a clearance letter will be obtainable by the Ministry. For estimating your insurance costs, you may wish to consult the rate guide at http://www.worksafebc.com/insurance/premiums/rate_setting/default.asp.



May. 1. 2008 8:34AM

BRITISH
COLUMBIAMIN OF TRANSPORT SOUTH COAST REG
Ministry of
Transportation

No. 2218 P. 2

REQUEST FOR CONSULTING
SERVICES CONTRACT

To	Headquarters or Regional Contract Administration Dianna Anderson		Date (yyyy/mm/dd) 2008 04 07
	Address (Street Number, City, Province, Postal Code) 7818 Sixth Street, Burnaby, BC V3N 4N8		
From	Requestor (Print Name) Jan Pazhouh	Qualified Receiver (Print Name) Jan Pazhouh	Phone Number 604.660.1716
	Branch, Region, District Name South Coast Region		Contact Responsibility Centre Number 55156
File Number	Contract Identification Number (Contract Administration Use Only) 1 5 3 C S 0 5 6 4		RISP Selection Number 14161
Contractor	Business Name SNC Lavalin		Phone Number 604.662.3555
	Contact Name Richard Wong		Facsimile Number 604.662.7668
	Business Address (Street Number, City, Province, Postal Code) 1800-1075 Wst Georgia Street, Vancouver, BC V6E 8C9		

Method of Contractor Selection ☒ RISP System ☐ Selective Invitation ☐ RFP ☐ ITQ ☐ Direct Award (attach explanation)Procurement Process and Trade Agreement (AIT / TILMA) Exclusion (mandatory): ☐ Check the Appropriate Boxes on Page 2.Category Type: ☒ BN.BN02 - Consulting Services

Short Description: Preliminary and detailed design of Hwy 99 Shoulder Bus Lane

Commencement Date (yyyy/mm/dd) 2008 04 07

Completion Date (yyyy/mm/dd) 2009 12 31

1. <u>Attachments (Mandatory):</u> <input checked="" type="checkbox"/> Works/Services Schedule (H0461A) <input checked="" type="checkbox"/> Payment Schedule (H0461B)		2. <u>Risk Review:</u> <input checked="" type="checkbox"/> Attach Risk Review Sheet (H0056) Completion Required	
3. <u>Please indicate which of the following forms are to be attached by the Contract Administration Section:</u>			
3a) Schedule of Reimbursable Expenses: <input type="checkbox"/> No <input checked="" type="checkbox"/> Regular H0461c <input type="checkbox"/> Management (Travel 2) H0461c-1	3b) Special Conditions: <input type="checkbox"/> No <input checked="" type="checkbox"/> Engineering Assignments H0461d <input type="checkbox"/> Information Systems H0461d-1 <input type="checkbox"/> Surveying Assignments H0461d-2	3c) Insurance (H0111): <input type="checkbox"/> No <input type="checkbox"/> Insurance Specifications (INS-80) <input checked="" type="checkbox"/> Insurance Specifications Professional Services (INS-132) Professional Liability Limits (Item 5) <input type="checkbox"/> \$ 250,000 <input type="checkbox"/> \$ 500,000 <input checked="" type="checkbox"/> \$1,000,000	
3d) Privacy Protection, does your contract include the collection of personal information? <input type="checkbox"/> No <input type="checkbox"/> Privacy Protection Schedule (PPS)		4. <u>For Contract Admin. Offices Only:</u> <input type="checkbox"/> Register of Companies/Licensed to do Business <input type="checkbox"/> WCB Registration	
Contract Total \$648,573	Fiscal Distribution	Year 2008 Total \$628,573	Year 2009 Total \$20,000
Area Coding	Responsibility 55151	Service Line 62120	STOB 6001
Area Coding	Responsibility	Service Line	STOB
CPS Coding	(Info 1) -- CFS-- Product 12014	Business Function Engineer	(Info 2) -- Work Activity Detail Design
			(Info 3) -- Cost Type Consult
Approval to Award	(Expense Authority Signature) 		Print Name: Tracy Cooper
	(Signature of A.D.M. or D.M. where required) 		Print Position: Regional Director
			Date: April 30, 2008
			Print Name: Mike Proudfoot
			Date: May 1 / 08

H0390 (2007/07)

Original - Contract Administration/Accounts Payable

Copies - Originator; RISP Operator (if RISP contract);
Insurance & Bonds (if applicable)

05/01/2008 THU 08:39 [TX/RX] NO. 7154175 2002

2002

NOT EXECUTIVE BRANCH

105/01/2008 12:29 FAX 250 387 6431



May. 1. 2008 8:35AM

MIN OF TRANSPORT SOUTH COAST REG

No. 2218 P. 3

BRITISH
COLUMBIA

Ministry of
Transportation

WORKS/SERVICES SCHEDULE

CONTRACT IDENTIFICATION NUMBER

153 | CS | 0564

The Contractor shall:

Perform all necessary engineering design, structural, geotechnical investigations, traffic analysis/traffic counts, environmental and archaeological investigations, and other required tasks to complete a preliminary, detailed design, cost estimates and tender documents for widening Hwy 99 in the Westbound direction to accommodate a bus lane in the Westbound direction. Identify and perform all engineering work required to complete the design and the final package for tender.

Provide engineering services during construction, and complete the as-built drawings after construction.

The Consultant shall deliver a Preliminary Design shortly after award of the contract identifying any significant concerns or issues that require addressing in order complete the detailed engineering design and a package for tender.

The Consultant shall confirm the design criteria for the segment of the roadway that are based on the BC Supplement to TAC Geometric Design Guidelines (updated edition: June 2007), Recommended Design Criteria and other relevant guidelines. Changes to the design criteria must be reviewed and approved by the Ministry. Prepare construction cost estimates including contingency.

Confirm all survey information is accurate, complete, and tying in all geotechnical information to the base survey.

PROJECT FUNDING AGREEMENT

Project 12014
Highway 99 Shoulder Bus Lane
South Coast Region
Electoral District: Richmond East

SCHEDULE A – PROJECT SCOPE

Objective:

The Project will provide a Priority Bus Lane to improve the operational serviceability, reliability and efficiency for south of Fraser bus routes destined for the future Canada Line Bridgeport Station while travelling northbound on Highway 99.

Deliverables:

Installation of a 4.0 metre wide and 2.8 km long Shoulder Bus Lane on Highway 99 northbound from the exit ramp to Highway 91 eastbound up to the Stop Bar at the terminus of the Bridgeport Road offramp at Bridgeport Road.

The CNR Overhead northbound structure on the proposed bus route will be widened to facilitate the required Bus Lane width.

The CNR Overhead northbound and southbound structures will both be seismically upgraded to Safety Level 1 standards. Note: The Project will be working in conjunction with the Bridge Rehabilitation program to realize the efficiencies of simultaneously conducting the improvements to the overhead structures.

The segment from the end of the Bridgeport Road offramp to the future Bridgeport Station is not in scope.

Implementation:

The Project will be delivered using a Traditional Tender Method. Design / Build was considered but for the following reasons was not pursued -

- The multi-agency involvement and the indefinite variables inherent to the Project including environmental and geotechnical considerations.
- The Team considered the time, deadline and the constraint of having only one construction period and felt that a DB Tender would take too long to prepare.

The Project will be implemented by means of

- Starting on In House Geotech Investigations and Survey layouts immediately
- Retaining consulting services to provide the Detailed Design of the alignment
- Working in conjunction with Stakeholder groups
- Proactively addressing environmental and geotechnical considerations upfront
- Placing construction works on open tender.

Ministry of
Transportation

PROJECT PLAN

Project # 12014**Highway 99 Shoulder Bus Lane**

Project Phase: Design & Engineering (D&E)
Project Manager: Matt Choquette
Date: February 15, 2008

Project Purpose:

The Project will provide a priority bus lane to improve the operational serviceability, reliability and efficiency for south of Fraser bus routes destined for the future Canada Line Bridgeport Station while travelling northbound on Highway 99.

Project Scope:

Installation of a 4.0 meter wide and 2.8km long shoulder bus lane on Highway 99 northbound from the Highway 91 eastbound offramp exit up to the intersection at the terminus of the Bridgeport Road offramp exit.

The CNR Overhead northbound structure on the proposed bus route will be widened to facilitate the required bus lane width.

The CNR Overhead northbound and southbound structures will both be seismically upgraded to Safety Level 1 standards. Note: The Project will be working in conjunction with the Bridge Rehabilitation program to realize the efficiencies of simultaneously conducting the improvements to the overhead structures.

The segment from the end of the Bridgeport Road offramp exit to the future Bridgeport Station is not in scope.

Ministry of
Transportation

PROJECT ACTIVITY SHEET

April 30, 2008

Highway 99 Shoulder Bus Lane	12014
Name of Project	Project #
Location: Richmond	
Constituency: Richmond East	
Traditional Contract	Capital
Delivery Method	Funding Program
TBD	TBD
Contract Tender Advertising Date	Contract Award Date
Location of Contractor: TBD	
TBD	\$7.044 M
Contract Value	Total Project Budget
Tentative – November 2008	November 2009
Work Start Date	Project Completion Date

Project Description:

The Project will provide a Priority Bus Lane to improve the operational serviceability, reliability and efficiency for south of Fraser bus routes destined for the future Canada Line Bridgeport Station while travelling northbound on Highway 99.

Benefits to Travelling Public:

This Bus Lane will provide a direct route for transit commuters to the Future Bridgeport Canada Line Station which connects with existing rapid transit lines and suburban transit services. Commuters using the Bus Only Lane will experience improved travel times through increased bus operating speed and continuous travel. This project will also create capacity for new bus services and connections for commuters and travelers as it facilitates reliable and consistent transit network (current peak hour headways inconsistent due to congestion).

An estimated reduction in green house gas or CO2 emissions by approximately 220 tonnes per year as buses would consume less fuel from a steady state of bus travel.

Background:



Stakeholders:

MLA – Richmond East, Hon. Linda Reid
Highway 99 Users
BC Truckers Association
TransLink (Coast Mountain Bus Co.)
Emergency Services
PHCC

Maintenance Contractor: Mainroad Contracting Ltd.

City / RD /Municipality: City of Richmond

Business Sector: Richmond Chambers of Commerce

Tourism Operators: Tourism Richmond

Issues Management: Currently there are no issues.

Consultation: TBD

Traffic Management: TBD

Duration: TBD

Communicated: TMP

Public Messaging: Currently no Public Messaging is required.

TBD
Project Supervisor

Phone

Matt Choquette
Project Manager

604 660 8235
Phone

DMT Approval:
Lower Mainland

Regional Director Approval:
Not Required



Ministry of
Transportation

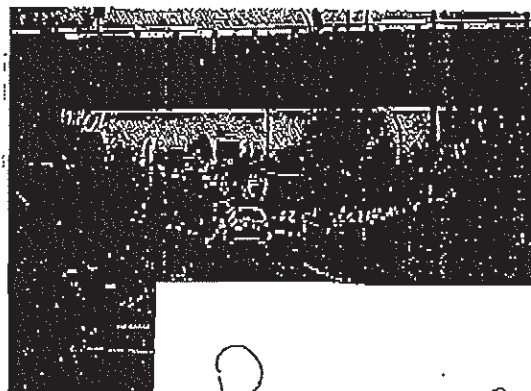
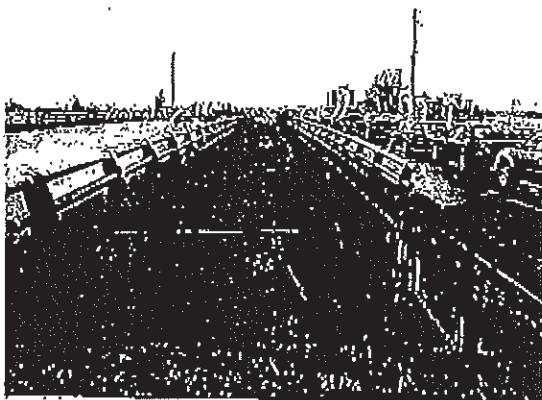
MEMORANDUM

Mike Proudfoot
Assistant Deputy Minister
Highways Department

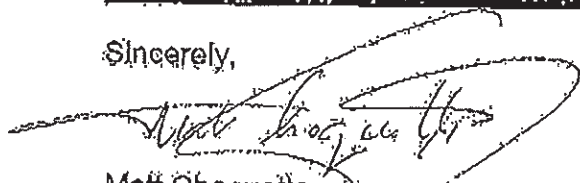
April 29, 2008

Re: Details of Consultant Contract 153 CS 0564 - SNC Lavalin to Design a
Shoulder Bus Lane on Highway 99 in Richmond.

- Design for Widening and Seismic Retrofitting of the Twin 1959 CNR Overhead Structures. These Bridges are very unique; the Pier walls are sitting on Jacks that are sitting on the Pilecaps - no lateral support between the Piers and Piles.
- Design for the Signalization for Ramps - triggered by approaching Buses.
- Geotechnical Component throughout the three kilometer Corridor.
- Tender Package Documents and Construction Engineering.
- Project has a fixed deadline - Bus Lane must coincide with the opening of the Canada Line.



Sincerely,


Matt Choquette
Regional Project Manager
Ministry of Transportation

PREVIOUSLY
SENT
TO ADM

 BRITISH COLUMBIA The Best Place on Earth	MINISTRY OF TRANSPORTATION RECEIVED 1 - MAY 2008 CONTRACTS AND FINANCE SOUTH COAST REGION	Facsimile
Ministry of Transportation		Mailing Address: 7818 6th Street Burnaby BC V3N 4N8 Telephone: 604 660 8200 Facsimile: 604 660 0350

From

Stephanie Shaw
For Sue Padwels

To
From Karen Orrell

Office/Branch: Transportation - Highways

Fax: (250) 387-6431

Pages: 9

Phone: (250) 387-4328

Date: 5/1/2008

Re: Request for Consulting Services Contract - SNC Lavalin - Preliminary & detailed design of Hwy 99 shoulder bus line

☐ **Urgent** ☐ **For Review** ☐ **Please Comment** ☐ **Please Reply** ☐ **Please Recycle**

• **Comments:**

Sue:

Please have Mike Proudfoot sign and return ASAP, Thank you.

Original will be mailed.

This transmission is intended solely for the use of the individual or institution to whom it is addressed and may not be distributed, copied or disclosed to other unauthorized persons. This material may contain confidential or personal information which may be subject to the provisions of Freedom of Information and Protection of Privacy Act. Any other distribution, copying or disclosure is strictly prohibited. If you have received this transmission in error, please notify the sender immediately by telephone and return the entire transmission by mail without making a copy. Thank you.



Anderson, Dianne S TRAN:EX

From: Decker, Giesila TRAN:EX
Sent: Thursday, May 1, 2008 9:43 AM
To: Fabick, Valerie L TRAN:EX; Anderson, Dianne S TRAN:EX; Pazhouh, Jan TRAN:EX
Subject: FW: Document for Tracy to Sign

FYI

On behalf of Matt Choquette

Giesila Decker
Project Management Technician
South Coast Region
Ministry of Transportation
Telephone: (604) 660-4075 Fax: (604) 660-1826
E-Mail: Giesila.Decker@gov.bc.ca

-----Original Message-----

From: Choquette, Matt TRAN:EX
Sent: Thursday, May 1, 2008 9:26 AM
To: Decker, Giesila TRAN:EX
Subject: Fw: Document for Tracy to Sign

----- Original Message -----

From: Orrell, Karen TRAN:EX
To: Choquette, Matt TRAN:EX
Sent: Thu May 01 08:37:03 2008
Subject: RE: Document for Tracy to Sign

Tracy has signed and it has been faxed to ADM for signature.

Karen Orrell
Regional Administration Clerk
Ministry of Transportation
South Coast Region
Ph: (604) 660-0448
Fax: (604) 660-0350
Email: Karen.Orrell@gov.bc.ca

From: Choquette, Matt TRAN:EX
Sent: Wednesday, April 30, 2008 9:40 PM
To: Szekely, Sheila TRAN:EX; Friend, Dianne J TRAN:EX; Malo, Linda TRAN:EX; Orrell, Karen TRAN:EX; Badke, Fernanda TRAN:EX
Subject: Document for Tracy to Sign
Importance: High

Hi All

s.22 and I don't know who will be working in the front office.

I have left an Important Document for Tracy to Sign on Sheila's chair.

Please forward it to Tracy for me.

Thanks

Matt Choquette
Project Manager
Ministry of Transportation

Anderson, Dianne S TRAN:EX

From: Anderson, Dianne S TRAN:EX
Sent: Thursday, May 1, 2008 6:46 AM
To: Choquette, Matt TRAN:EX
Cc: Pazhouh, Jan TRAN:EX
Subject: RE: Hwy 99 transit

Attachments: h0390_RequestCSContract[1].doc



h0390_RequestCS
Contract[1].doc...

I have the basics of the contract already just need the approvals! before I can award and send out for signatures.

Thanks Dianne

-----Original Message-----

From: Choquette, Matt TRAN:EX
Sent: Wednesday, April 30, 2008 6:00 PM
To: Pazhouh, Jan TRAN:EX; Anderson, Dianne S TRAN:EX
Subject: RE: Hwy 99 transit

As per the attached email

I'm going to have to rewrite the H0390 tonight so that it can be on Tracy's desk tomorrow morning to be re-signed

If you get this email and can send me the H document it would save a lot of time.

Matt

-----Original Message-----

From: Schnablegger, John TRAN:EX
Sent: Wednesday, April 30, 2008 4:58 PM
To: Fabick, Valerie L TRAN:EX
Cc: Choquette, Matt TRAN:EX
Subject: Fw: Hwy 99

Val and Matt

Please resolve the budget issue and then arrange for new transmittal. Ensure scoping description is included.

----- Original Message -----

From: Cooper, Tracy J TRAN:EX
To: Schnablegger, John TRAN:EX
Sent: Wed Apr 30 16:51:40 2008
Subject: Fw: Hwy 99

I will need to resign before I send to Mike.

----- Original Message -----

From: Cooper, Tracy J TRAN:EX
To: Schnablegger, John TRAN:EX
Sent: Wed Apr 30 16:50:38 2008
Subject: Hwy 99

John. Mike still needs the new contract request form showing money in 09/10. He has given me verbal approval otherwise Tracy

-----Original Message-----

From: Pazhouh, Jan TRAN:EX
Sent: Wednesday, April 30, 2008 5:51 PM
To: Anderson, Dianne S TRAN:EX
Cc: Choquette, Matt TRAN:EX
Subject: FW: Hwy 99 transit

Hi Dianne,

Can you can start processing the contract documents based on the verbal approval or should it wait till the paper work is in? Thanks


Jan

-----Original Message-----

From: Cooper, Tracy J TRAN:EX
Sent: Wednesday, April 30, 2008 4:59 PM
To: Schnablegger, John TRAN:EX
Cc: Proudfoot, Mike A TRAN:EX; MacDougall, Cindy PAB:EX; Pazhouh, Jan TRAN:EX
Subject: Hwy 99 transit

John. Mike has given his verbal blessing pending final sign off on the paper work.. We need to work with Pab to get a draft release out for my and Mike's approval.
Tracy

BA 6/12/22

	Facsimile
---	------------------

Ministry of Transportation

Mailing Address: 7818 - 6th Street
Burnaby, BC V3N 4N8

Telephone: 604-775-2480
Facsimile: 604-660-0350

To: Sue

From: Sheila Szekely

Office/Branch : [Click here and type name]

Fax: 250 387-6431

Pages: 3

Phone: [Click here and type fax number]

Date: 4/17/2008

Re: Contract 153CS0564

☐ **Urgent** ☐ **For Review** ☐ **Please Comment** ☐ **Please Reply** ☐ **Please Recycle**

● **Comments:**

For Mike's signature and return. Thanks.

FAXED
3:10

This transmission is intended solely for the use of the individual or institution to whom it is addressed and may not be distributed, copied or disclosed to other unauthorized persons. This material may contain confidential or personal information which may be subject to the provisions of Freedom of Information and Protection of Privacy Act. Any other distribution, copying or disclosure is strictly prohibited. If you have received this transmission in error, please notify the sender immediately by telephone and return the entire transmission by mail without making a copy. Thank you.

Return to Jane Razhoush

REQUEST FOR CONSULTING
SERVICES CONTRACT

To	Headquarters or Regional Contract Administration Dianne Anderson		Date (yyyy/mm/dd) 2008 04 07
	Address (Street Number, City, Province, Postal Code) 7818 Sixth Street, Burnaby, BC V3N 4N8		
From	Requestor (Print Name) Jan Pazhouh	Qualified Receiver (Print Name) Jan Pazhouh	Phone Number 604.660.1716
	Branch, Region, District Name South Coast Region		Contact Responsibility Centre Number 55156
File Number	Contact Contract Identification Number (Contract Administration Use Only) 1 5 3 C S 0 5 6 4		RISP Selection Number 14161
Contractor	Business Name SNC Lavalin Inc.		Phone Number 604.662.3555
	Contact Name Richard Wong		Facsimile Number 604.662.7688
	Business Address (Street Number, City, Province, Postal Code) 1800-1075 Wst Georgia Street, Vancouver, BC V6E 3C9		

Method of Contractor Selection ☒ RISP System ☐ Selective Invitation ☐ RFP ☐ ITQ ☐ Direct Award (attach explanation)

Procurement Process and Trade Agreement (AIT / TILMA) Exclusion (mandatory): ☐ Check the Appropriate Boxes on Page 2.

Category Type: ☒ BN.BN02 - Consulting Services

Short Description: Preliminary and detailed design of Hwy 99 Shoulder Bus Lane

Commencement Date (yyyy/mm/dd) 2008 04 07

Completion Date (yyyy/mm/dd) 2009 12 31

1. Attachments (Mandatory): <input checked="" type="checkbox"/> Works/Services Schedule (H0461A) <input checked="" type="checkbox"/> Payment Schedule (H0461B)		2. Risk Review: <input checked="" type="checkbox"/> Attach Risk Review Sheet (H0056) Completion Required	
3. Please indicate which of the following forms are to be attached by the Contract Administration Section:			
3a) Schedule of Reimbursable Expenses: <input checked="" type="checkbox"/> No <input type="checkbox"/> Regular H0461c <input type="checkbox"/> Management (Travel 2) H0461c-1		3b) Special Conditions: <input type="checkbox"/> No <input checked="" type="checkbox"/> Engineering Assignments H0461d <input type="checkbox"/> Information Systems H0461d-1 <input type="checkbox"/> Surveying Assignments H0461d-2	
		3c) Insurance (H0111): <input type="checkbox"/> No <input type="checkbox"/> Insurance Specifications (INS-80) <input checked="" type="checkbox"/> Insurance Specifications Professional Services (INS-132) Professional Liability Limits (Item 5) <input type="checkbox"/> \$ 250,000 <input type="checkbox"/> \$ 500,000 <input checked="" type="checkbox"/> \$1,000,000	
3d) Privacy Protection, does your contract include the collection of personal information? <input type="checkbox"/> No <input type="checkbox"/> Privacy Protection Schedule (PPS)		4. For Contract Admin. Offices Only: <input type="checkbox"/> Register of Companies/Licensed to do Business <input type="checkbox"/> WCB Registration	
Contract Total	Fiscal	Year 2008	Year
\$648,573	Distribution	Total \$648,573	Total \$
Orca Coding	Responsibility	Service Line	STOB
	55153	62120	6001
Orca Coding	Responsibility	Service Line	STOB
CPS Coding	(Info 1) - CFS- Product	Business Function	(Info 2) - Work Activity
	12014	Engineer	Detail Design
			(Info 3) - Cost Type
			Consult
			TOTAL \$
			648,573
Approval to Award	(Expense Authority Signature)		Print Name:
			Print Position:
			Date:
	(Signature of A.D.M. or D.M. where required)		Print Name:
		Date:	



Tick Off Appropriate Box for Procurement Process and then Tick Off Appropriate Box for Trade Agreement Exclusion

PROCUREMENT PROCESS – LIST OF VALUES

- | Code | Description |
|---|--|
| <input type="checkbox"/> 100 | Open competitive process
An open competitive process (e.g., Invitation to Quote, Request for Proposal, Joint Solution Procurement, Invitation to Tender, or other) has been utilized, normally by advertising the opportunity on BC Bid. |
| <input type="checkbox"/> 200 | Direct Award – Public sector organization
Contracts for acquisitions (of goods, services, and construction) and disposals may be negotiated and directly awarded without competitive process where the contract is with another government organization. |
| <input type="checkbox"/> 201 | Direct Award – Sole source
Contracts for acquisitions (of goods, services, and construction) and disposals may be negotiated and directly awarded without competitive process where the ministry can strictly prove that only one contractor is qualified to provide the goods, services or construction or is capable of engaging in a disposal opportunity. |
| <input type="checkbox"/> 202 | Direct Award – Emergency
Contracts for acquisitions (of goods, services, and construction) and disposals may be negotiated and directly awarded without competitive process where an unforeseeable emergency exists and the goods, services or construction could not be obtained in time by means of a competitive process. |
| <input type="checkbox"/> 203 | Direct Award – Security, order, etc.
Contracts for acquisitions (of goods, services, and construction) and disposals may be negotiated and directly awarded without competitive process where a competitive process would interfere with a ministry's ability to maintain security or order or to protect human, animal or plant life or health. |
| <input type="checkbox"/> 204 | Direct Award – Confidentiality
Contracts for acquisitions (of goods, services, and construction) and disposals may be negotiated and directly awarded without competitive process where the acquisition is of a confidential or privileged nature and disclosure through an open bidding process could reasonably be expected to compromise government confidentiality, cause economic disruption or be contrary to the public interest. |
| <input type="checkbox"/> 205 | Direct Award – Notice of Intent
A Notice of Intent must be posted on BC Bid when a contract for goods valued at more than \$25,000, or a contract for services or construction valued at more than \$50,000, is to be directly awarded on the basis that there is only one vendor that can provide the services required. |
| <input type="checkbox"/> 206 | Direct Award – No justification
Where a direct award has been made which is not justified under one of the exceptional conditions specified in the Core Policy Manual section 6.3.3 a (1), or a Notice of Intent has not been issued, or it is provided for under another policy. |
| <input type="checkbox"/> 207 | Direct Award – Under \$25,000
Use when a direct award has been made for an amount of less than \$25,000 unless one of the 200 to 204 applies. |
| <input type="checkbox"/> 208 | Direct Award – Transfer Payments (Financial Assistance)
A STOB 80 (Transfer under Agreement) contract or agreement that is directly awarded to provide financial assistance to a specified targeted group or population. |
| <input type="checkbox"/> 209 | Direct Award – Transfer Payments (Shared Costs or Public Private Partnership) A STOB 80 (Transfer under Agreement) contract or agreement that is directly awarded and involves a shared-cost agreement or a public private partnership, for which a competitive selection is not appropriate. |
| <input type="checkbox"/> 300 | Direct Invitation to selected vendors
A competitive solicitation which is issued to a limited list of vendors and not advertised on BC Bid. If vendors are on a pre-qualification list, then use 401. |
| <input type="checkbox"/> 400 | Selected vendor from pre-qualification list (RISP < \$100,000)
Use for a contract that is issued to a vendor on a pre-qualification list without undertaking a competitive process. The process followed must be consistent with the rules that were publicised when the pre-qualification list was established. (RISP < \$100,000) |
| <input checked="" type="checkbox"/> 401 | Competition among vendors on a pre-qualification list (RISP \$100,00 - \$1,000,000) A competitive solicitation which is issued to a limited list of vendors selected from a pre-qualification list. Cont'd. |

PROCUREMENT PROCESS – LIST OF VALUES Cont'd.

- | Code | Description |
|------------------------------|--|
| <input type="checkbox"/> 401 | Cont'd. Use if a competitive solicitation is issued to a limited list of vendors selected from a pre-qualification list. This solicitation process can include some or all of the vendors on the pre-qualification list but the process followed must be consistent with the rules that were publicised when the pre-qualification list was established. |
| <input type="checkbox"/> 500 | Purchase from a Corporate Supply Arrangement
A purchase from a pre-established corporate supply arrangement such as a MSO, SO, the Queen's Printer or other as identified in the Core Policy Manual section 6.3.2 a (1). |
| <input type="checkbox"/> 600 | Other purchase process
Use for other purchasing process including ministerial appointments. |
| <input type="checkbox"/> 601 | Other – Continuing Agreements
Use for continuing agreements for the component schedules created pursuant to continuing agreements (all STOB 80). A continuing agreement is a specific and optional form of contract that is only to be used in one of the community health and social service areas. Not all contracts in these areas are continuing agreements so look for specific wording on the contract title page that indicates it is a continuing agreement. |
| <input type="checkbox"/> 602 | Other – Grants and Entitlements
This is used for grants and entitlements. |

TRADE AGREEMENT EXCLUSION – LIST OF VALUES

- | Code | Description |
|------------------------------|--|
| <input type="checkbox"/> 100 | Purchase subject to AIT / TILMA
The purchase is over the trade agreement thresholds for national advertising (\$10K for goods, \$75K for services and \$100K for construction) and is not excluded or exempt under any other provision of TILMA or other category below. |
| <input type="checkbox"/> 200 | Purchase below applicable AIT / TILMA thresholds
The purchase is under the trade agreement thresholds (\$10K for goods, \$75K for services and \$100K for construction). |
| <input type="checkbox"/> 300 | Purchase of an exempted commodity/service
The purchase is for goods, services or construction that is exempted from coverage of TILMA or to which TILMA does not apply by virtue of its specific reference in TILMA (e.g., health and social services, grants and entitlements, ministerial appointments). |
| <input type="checkbox"/> 400 | Excluded - Emergency
A purchase where an unforeseeable situation of urgency exists and the goods, services or construction cannot be obtained in time by means of an open procurement. |
| <input type="checkbox"/> 500 | Excluded - Security, order, etc.
A purchase where compliance with the open tendering provisions set out in TILMA would interfere with the Province's ability to maintain security or order or to protect human, animal or plant life or health. |
| <input type="checkbox"/> 600 | Excluded - Product compatibility/exclusive rights
A purchase which must: ensure compatibility with existing products; recognize exclusive rights, such as exclusive licenses, copyright and patent rights; or maintain specialized products that must be maintained by the manufacturer or its representative. |
| <input type="checkbox"/> 700 | Excluded - Procurement of prototype
The procurement of a prototype or a first good or service to be developed in the course of and for a particular contract for research, experiment, study or original development, but not for any subsequent purchases. |
| <input type="checkbox"/> 800 | Excluded - Regional/Economic development
A purchase which, under exceptional circumstances, may be excluded by the Province from the application of TILMA provisions for regional and economic development purposes. |
| <input type="checkbox"/> 900 | Excluded - RISP program (MOT)
The Ministry of Transportation's specific exclusion for its RISP program for hiring engineers. |

153C30564

Anderson, Dianne S TRAN:EX

From: Pazhouh, Jan TRAN:EX
Sent: Thursday, April 17, 2008 2:30 PM
To: Anderson, Dianne S TRAN:EX
Subject: h0390_RequestCSContract99-buslane.doc

Attachments: h0390_RequestCSContract99-buslane.doc

Hi Dianne,

Attached is the completed form h0390. Tracy has signed it and forwarded to ADM for signature. We should have it back soon. I am preparing the rest of the forms by tomorrow, hopefully.
Thanks

Jan



h0390_RequestCSC
ontract99-busl...

*Apr. 29 - asked Van if has
heard or rec'd any response
to the ADM signing of
h0390. Comment rec'd
that the ADM is too busy.
Jan to follow up.
JH.*

Anderson, Dianne S TRAN:EX

From: Anderson, Dianne S TRAN:EX
Sent: Wednesday, April 16, 2008 3:11 PM
To: Pazhouh, Jan TRAN:EX
Subject: FW: h0390_RequestCSContract99-buslane.doc

Attachments: h0390_RequestCSContract99-buslane.doc

153CS0564 -

What is SNC's fax #?

thanks Dianne

From: Pazhouh, Jan TRAN:EX
Sent: Wednesday, April 16, 2008 2:19 PM
To: Anderson, Dianne S TRAN:EX
Subject: h0390_RequestCSContract99-buslane.doc



h0390_RequestCSC
ontract99-busl...

Hi Dianne,

Please review and issue a contract number and email it back to me. Thanks

Jan

REQUEST FOR CONSULTING
SERVICES CONTRACT

To	Headquarters or Regional Contract Administration Dianne Anderson		Date (yyyy/mm/dd) 2008 04 07
	Address (Street Number, City, Province, Postal Code) 7818 Sixth Street, Burnaby, BC V3N 4N8		
From	Requestor (Print Name) Jan Pazhouh	Qualified Receiver (Print Name) Jan Pazhouh	Phone Number 604.660.1716
	Branch, Region, District Name South Coast Region		Contact Responsibility Centre Number 55156
File Number	Contact Contract Identification Number (Contract Administration Use Only) 1 5 3 C S 0 5 6 4		RISP Selection Number 14161
Contractor	Business Name SNC Lavalin <i>— see Registrar of Companies printout & email DMARSON</i>		Phone Number 604.662.3555
	Contact Name Richard Wong		Facsimile Number 604.662
	Business Address (Street Number, City, Province, Postal Code) 1800-1075 Wst Georgia Street, Vancouver, BC V6E 3C9		

Method of Contractor Selection ☒ RISP System ☐ Selective Invitation ☐ RFP ☐ ITQ ☐ Direct Award (attach explanation)

Procurement Process and Trade Agreement (AIT / TILMA) Exclusion (mandatory): ☐ Check the Appropriate Boxes on Page 2.

Category Type: ☒ BN.BN02 - Consulting Services

Short Description: Preliminary and detailed design of Hwy 99 Shoulder Bus Lane

Commencement Date (yyyy/mm/dd) 2008 04 07

Completion Date (yyyy/mm/dd) 2009 12 31

1. Attachments (Mandatory): <input checked="" type="checkbox"/> Works/Services Schedule (H0461A) <input checked="" type="checkbox"/> Payment Schedule (H0461B)		2. Risk Review: <input checked="" type="checkbox"/> Attach Risk Review Sheet (H0056) Completion Required	
3. Please indicate which of the following forms are to be attached by the Contract Administration Section:			
3a) Schedule of Reimbursable Expenses: <input checked="" type="checkbox"/> No <input type="checkbox"/> Regular H0461c <input type="checkbox"/> Management (Travel 2) H0461c-1		3b) Special Conditions: <input type="checkbox"/> No <input checked="" type="checkbox"/> Engineering Assignments H0461d <input type="checkbox"/> Information Systems H0461d-1 <input type="checkbox"/> Surveying Assignments H0461d-2	
		3c) Insurance (H0111): <input type="checkbox"/> No <input type="checkbox"/> Insurance Specifications (INS-80) <input checked="" type="checkbox"/> Insurance Specifications Professional Services (INS-132) Professional Liability Limits (Item 5) <input type="checkbox"/> \$ 250,000 <input type="checkbox"/> \$ 500,000 <input checked="" type="checkbox"/> \$1,000,000	
3d) Privacy Protection, does your contract include the collection of personal information? <input type="checkbox"/> No <input type="checkbox"/> Privacy Protection Schedule (PPS)		4. For Contract Admin. Offices Only: <input type="checkbox"/> Register of Companies/Licensed to do Business <input type="checkbox"/> WCB Registration	
Contract Total \$648,573	Fiscal Distribution	Year 2008 Total \$648,573	Year Total \$
Orca Coding	Responsibility 55153	Service Line 62120	STOB 6001
Orca Coding	Responsibility	Service Line	STOB
CPS Coding	(Info 1) – CFS– Product 12014	Business Function Engineer	(Info 2) – Work Activity Detail Design
			(Info 3) – Cost Type Consult
Approval to Award		(Expense Authority Signature) Print Name: Print Position: Date: (Signature of A.D.M. or D.M. where required) Print Name: Date:	



Tick Off Appropriate Box for Procurement Process and then Tick Off Appropriate Box for Trade Agreement Exclusion

PROCUREMENT PROCESS – LIST OF VALUES

- | Code | Description |
|---|--|
| <input type="checkbox"/> 100 | Open competitive process
An open competitive process (e.g., Invitation to Quote, Request for Proposal, Joint Solution Procurement, Invitation to Tender, or other) has been utilized, normally by advertising the opportunity on BC Bid. |
| <input type="checkbox"/> 200 | Direct Award – Public sector organization
Contracts for acquisitions (of goods, services, and construction) and disposals may be negotiated and directly awarded without competitive process where the contract is with another government organization. |
| <input type="checkbox"/> 201 | Direct Award – Sole source
Contracts for acquisitions (of goods, services, and construction) and disposals may be negotiated and directly awarded without competitive process where the ministry can strictly prove that only one contractor is qualified to provide the goods, services or construction or is capable of engaging in a disposal opportunity. |
| <input type="checkbox"/> 202 | Direct Award – Emergency
Contracts for acquisitions (of goods, services, and construction) and disposals may be negotiated and directly awarded without competitive process where an unforeseeable emergency exists and the goods, services or construction could not be obtained in time by means of a competitive process. |
| <input type="checkbox"/> 203 | Direct Award – Security, order, etc.
Contracts for acquisitions (of goods, services, and construction) and disposals may be negotiated and directly awarded without competitive process where a competitive process would interfere with a ministry's ability to maintain security or order or to protect human, animal or plant life or health. |
| <input type="checkbox"/> 204 | Direct Award – Confidentiality
Contracts for acquisitions (of goods, services, and construction) and disposals may be negotiated and directly awarded without competitive process where the acquisition is of a confidential or privileged nature and disclosure through an open bidding process could reasonably be expected to compromise government confidentiality, cause economic disruption or be contrary to the public interest. |
| <input type="checkbox"/> 205 | Direct Award – Notice of Intent
A Notice of Intent must be posted on BC Bid when a contract for goods valued at more than \$25,000, or a contract for services or construction valued at more than \$50,000, is to be directly awarded on the basis that there is only one vendor that can provide the services required. |
| <input type="checkbox"/> 206 | Direct Award – No justification
Where a direct award has been made which is not justified under one of the exceptional conditions specified in the Core Policy Manual section 6.3.3 a (1), or a Notice of Intent has not been issued, or it is provided for under another policy. |
| <input type="checkbox"/> 207 | Direct Award – Under \$25,000
Use when a direct award has been made for an amount of less than \$25,000 unless one of the 200 to 204 applies. |
| <input type="checkbox"/> 208 | Direct Award – Transfer Payments (Financial Assistance)
A STOB 80 (Transfer under Agreement) contract or agreement that is directly awarded to provide financial assistance to a specified targeted group or population. |
| <input type="checkbox"/> 209 | Direct Award – Transfer Payments (Shared Costs or Public Private Partnership) A STOB 80 (Transfer under Agreement) contract or agreement that is directly awarded and involves a shared-cost agreement or a public private partnership, for which a competitive selection is not appropriate. |
| <input type="checkbox"/> 300 | Direct Invitation to selected vendors
A competitive solicitation which is issued to a limited list of vendors and not advertised on BC Bid. If vendors are on a pre-qualification list, then use 401. |
| <input type="checkbox"/> 400 | Selected vendor from pre-qualification list (RISP < \$100,000)
Use for a contract that is issued to a vendor on a pre-qualification list without undertaking a competitive process. The process followed must be consistent with the rules that were publicised when the pre-qualification list was established. (RISP < \$100,000) |
| <input checked="" type="checkbox"/> 401 | Competition among vendors on a pre-qualification list (RISP \$100,00 - \$1,000,000) A competitive solicitation which is issued to a limited list of vendors selected from a pre-qualification list. Cont'd. |

PROCUREMENT PROCESS – LIST OF VALUES Cont'd.

- | Code | Description |
|------------------------------|--|
| <input type="checkbox"/> 401 | Cont'd. Use if a competitive solicitation is issued to a limited list of vendors selected from a pre-qualification list. This solicitation process can include some or all of the vendors on the pre-qualification list but the process followed must be consistent with the rules that were publicised when the pre-qualification list was established. |
| <input type="checkbox"/> 500 | Purchase from a Corporate Supply Arrangement
A purchase from a pre-established corporate supply arrangement such as a MSO, SO, the Queen's Printer or other as identified in the Core Policy Manual section 6.3.2 a (1). |
| <input type="checkbox"/> 600 | Other purchase process
Use for other purchasing process including ministerial appointments. |
| <input type="checkbox"/> 601 | Other – Continuing Agreements
Use for continuing agreements for the component schedules created pursuant to continuing agreements (all STOB 80). A continuing agreement is a specific and optional form of contract that is only to be used in one of the community health and social service areas. Not all contracts in these areas are continuing agreements so look for specific wording on the contract title page that indicates it is a continuing agreement. |
| <input type="checkbox"/> 602 | Other – Grants and Entitlements
This is used for grants and entitlements. |

TRADE AGREEMENT EXCLUSION – LIST OF VALUES

- | Code | Description |
|------------------------------|--|
| <input type="checkbox"/> 100 | Purchase subject to AIT / TILMA
The purchase is over the trade agreement thresholds for national advertising (\$10K for goods, \$75K for services and \$100K for construction) and is not excluded or exempt under any other provision of TILMA or other category below. |
| <input type="checkbox"/> 200 | Purchase below applicable AIT / TILMA thresholds
The purchase is under the trade agreement thresholds (\$10K for goods, \$75K for services and \$100K for construction). |
| <input type="checkbox"/> 300 | Purchase of an exempted commodity/service
The purchase is for goods, services or construction that is exempted from coverage of TILMA or to which TILMA does not apply by virtue of its specific reference in TILMA (e.g., health and social services, grants and entitlements, ministerial appointments). |
| <input type="checkbox"/> 400 | Excluded - Emergency
A purchase where an unforeseeable situation of urgency exists and the goods, services or construction cannot be obtained in time by means of an open procurement. |
| <input type="checkbox"/> 500 | Excluded - Security, order, etc.
A purchase where compliance with the open tendering provisions set out in TILMA would interfere with the Province's ability to maintain security or order or to protect human, animal or plant life or health. |
| <input type="checkbox"/> 600 | Excluded - Product compatibility/exclusive rights
A purchase which must: ensure compatibility with existing products; recognize exclusive rights, such as exclusive licenses, copyright and patent rights; or maintain specialized products that must be maintained by the manufacturer or its representative. |
| <input type="checkbox"/> 700 | Excluded - Procurement of prototype
The procurement of a prototype or a first good or service to be developed in the course of and for a particular contract for research, experiment, study or original development, but not for any subsequent purchases. |
| <input type="checkbox"/> 800 | Excluded - Regional/Economic development
A purchase which, under exceptional circumstances, may be excluded by the Province from the application of TILMA provisions for regional and economic development purposes. |
| <input type="checkbox"/> 900 | Excluded - RISP program (MOT)
The Ministry of Transportation's specific exclusion for its RISP program for hiring engineers. |

Anderson, Dianne S TRAN:EX

From: Marson, Diane M TRAN:EX
Sent: Thursday, April 17, 2008 8:49 AM
To: Anderson, Dianne S TRAN:EX
Cc: Willow, Vicki TRAN:EX; Sundher, Veena TRAN:EX
Subject: RE: SNC-Lavalin Inc. - BC Registrar report clarification

Hi Dianne,

I have contacted Corporate Registry and they have doubled checked and confirmed the correct legal entity name based on an amalgamation of companies is absolutely correct, they have registered the double company name. That means that the contract name will have to be "SNC-Lavalin Inc. SNC-Lavalin Inc."

This is the first time that I have seen this happen and when I questioned them they said that think that it is probably caused by the french version being identical to the english version and we have seen a few english/french names registered before now. Hope this helps.

Diane Marson, PCMP

Corporate Contract Officer

Corporate Contracting

Ministry of Transportation

☎ (250) 387-7865 📠 (250) 356-8143

email: diane.marson@gov.bc.ca



Please consider the environment before printing this e-mail.

From: Anderson, Dianne S TRAN:EX
Sent: Wednesday, April 16, 2008 3:07 PM
To: Marson, Diane M TRAN:EX
Subject: SNC-Lavalin Inc. - BC Registrar report clarification

<< File: BC Registry SNC Lavalin.pdf >>

Help.....Why does this report have 'SNC-Lavalin Inc. SNC-Lavalin.Inc.' twice? BC Registration # A0074188

Throughout the report is shows the company name as a double naming format? WCB is just SNC-Lavalin Inc. !

thanks Dianne

Anderson, Dianne S TRAN:EX

From: Marson, Diane M TRAN:EX
Sent: Friday, April 25, 2008 2:29 PM
To: Anderson, Dianne S TRAN:EX
Cc: Sundher, Veena TRAN:EX
Subject: Legal Entity

Attachments: Legal Entity Double Name.pdf; Business Corporation Act.pdf

Hi Dianne,

The Business Corporate Act shows that Multilingual Names can be used individually e.g., either the English version only, or the French version only or, both together. This Act is based on the Federal Government requirements and is not applicable to any registration that is other than "Federal Jurisdiction:" e.g., if other than Federal Jurisdiction then both English and French names must be used together as one legal entity name e.g. "KPMG Consulting LP Groupe-Conseil KPMG S.E.C." a Limited Partnership .

Please find attached a copy of the Registrar of Companies for "SNC-Lavalin Inc. SNC-Lavalin Inc." (sorry for this example the english and french versions are exactly the same) but based on the "Foreign Jurisdiction:" being "Federal" the english version is all that should be used e.g., "SNC-Lavalin Inc."



Legal Entity Double
Name.pdf (...)



Business
Corporation Act.pdf (.

Hope this helps.

Diane Marson, PCMP

Corporate Contract Officer
Corporate Contracting
Ministry of Transportation

☎ (250) 387-7865 📠 (250) 356-8143

email: diane.marson@gov.bc.ca



Please consider the environment before printing this e-mail.



BRITISH COLUMBIA
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**Ministry
of Finance**
BC Registry Services

Mailing Address:
PO BOX 9431 Stn Prov Govt.
Victoria BC V8W 9V3
www.corporateonline.gov.bc.ca

Location:
2nd Floor - 940 Blanshard St.
Victoria BC
250 356-8626

Extrajurisdictional Company Summary *

* if Federal
use English
name only

English version

For French version

SNC-LAVALIN INC. SNC-LAVALIN INC.

* if other than
federal you must
use both names
as if one.

Date and Time of Search: April 16, 2008 02:51 PM Pacific Time

Currency Date: March 17, 2008

ACTIVE

Registration Number In BC: A0074188

Name of Extrajurisdictional Company: SNC-LAVALIN INC. SNC-LAVALIN INC.

Cross Reference Name: SNC-LAVALIN INC.

Registration Date and Time: April 08, 2008 03:09 PM Pacific Time as a result of an Amalgamation

Last Annual Report Filed: Not Available

Receiver: No

FOREIGN JURISDICTION INFORMATION

Identifying Number In Foreign Jurisdiction:
445758-7

Name In Foreign Jurisdiction:

SNC-LAVALIN INC. SNC-LAVALIN INC.

Date of Incorporation, Continuation or Amalgamation
In Foreign Jurisdiction:

January 01, 2008

Foreign Jurisdiction:

* **FEDERAL**

* if federal then either name
English or French version can be
used individually

AMALGAMATING CORPORATION(S) INFORMATION

Name of Amalgamating Corporation

FRECHETTE, LALONDE, GIROUARD, LETENDRE & ASSOCIES LTEE

GEOMAR INTERNATIONAL INC.

KILBORN SNC-LAVALIN INC.

LA SOCIETE DE COMMERCE GEOMAR INC.

LALONDE, GIROUARD, LETENDRE & ASSOCIES LTEE

PETROTECH LAVALIN (1991) INC.

QUALITAS ENVIRONNEMENT INC.

SAUDI NATIONAL CONTRACTING INC.

SNC INTEG INC.

SNC-LAVALIN (THAILAND) INC.

SNC-LAVALIN AGRICULTURE (1998) INC.

SNC-LAVALIN ENGINEERS & CONSTRUCTORS INC.

Foreign Co

Foreign Co

Foreign Co

Foreign Co

Foreign Co

Foreign Co

Foreign Co

Foreign Co

Foreign Co

Foreign Co

Foreign Co

A0051294

* if other than federal then
whole name English/French together
Registration Number in BC must be
used.

includes "(EVCC)" unless

- (a) the person is registered under Part 2 of the *Employee Investment Act*, or
- (b) the person is a federal corporation entitled or required to use that inclusion.

Multilingual names

25 (1) The name of a company must be in one or both of

- (a) an English form, and
- (b) a French form.

(2) If the name of a company is in both an English form and a French form, the company may use, and may be legally designated by, either form or a combination of both forms for the purposes of section 27 or any other purpose.

(3) Subject to section 256, a company may translate its name into any other language and may be designated by that translation of the name outside Canada if the translation of the name is set out in

- (a) the memorandum, or
- (b) the notice of articles in accordance with section 11 (f) and in the articles in accordance with section 12 (2) (c) (iii).

Assumed names

26 (1) If the name of a foreign entity contravenes any of the prescribed requirements or any of the other requirements set out in this Division, the foreign entity must, if it wishes to be registered as an extraprovincial company, reserve an assumed name and section 22 applies.

(2) If a foreign entity reserves an assumed name, the registrar may register the foreign entity as an extraprovincial company with its own name, if the foreign entity provides an undertaking to the registrar, in form and content satisfactory to the registrar, that it will carry on all of its business in British Columbia under that assumed name, and on such registration the extraprovincial company is deemed to have adopted the assumed name.

(3) An extraprovincial company that has adopted an assumed name under this Act

- (a) must acquire all property, rights and interests in British Columbia under its assumed name,
- (b) is entitled to all property, rights and interests acquired, and is subject to all liabilities incurred, under its assumed name as if the property, rights and interests and the liabilities had been acquired and incurred under its own name, and
- (c) may sue or be sued in its own name, its assumed name or both.

(4) No act of an extraprovincial company that has adopted an assumed name under this Act, including a transfer of property, rights or interests to or by it, is invalid merely because the act contravenes subsection (3) (a) of this section.

(5) This section does not apply to a federal corporation.



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**Ministry
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BC Registry Services

Mailing Address:
PO BOX 9431 Stn Prov Govt.
Victoria BC V8W 9V3
www.corporateonline.gov.bc.ca

Location:
2nd Floor - 940 Blanshard St.
Victoria BC
250 356-8626

Extraprovincial Company Summary

For

SNC-LAVALIN INC. SNC-LAVALIN INC.

Date and Time of Search: April 16, 2008 02:51 PM Pacific Time

Currency Date: March 17, 2008

ACTIVE

Registration Number in BC: A0074188

**Name of Extraprovincial
Company:** SNC-LAVALIN INC. SNC-LAVALIN INC.

Cross Reference Name: SNC-LAVALIN INC.

Registration Date and Time: April 08, 2008 03:09 PM Pacific Time as a result of an Amalgamation

Last Annual Report Filed: Not Available

Receiver: No

FOREIGN JURISDICTION INFORMATION

Identifying Number in Foreign Jurisdiction:
445758-7

Name in Foreign Jurisdiction:
SNC-LAVALIN INC. SNC-LAVALIN INC.

**Date of Incorporation, Continuation or Amalgamation
in Foreign Jurisdiction:**

January 01, 2008

Foreign Jurisdiction:

FEDERAL

see email DWARSEN

AMALGAMATING CORPORATION(S) INFORMATION

Name of Amalgamating Corporation

FRECHETTE, LALONDE, GIROUARD, LETENDRE & ASSOCIES LTEE

GEOMAR INTERNATIONAL INC.

KILBORN SNC-LAVALIN INC.

LA SOCIETE DE COMMERCE GEOMAR INC.

LALONDE, GIROUARD, LETENDRE & ASSOCIES LTEE

PETROTECH LAVALIN (1991) INC.

QUALITAS ENVIRONNEMENT INC.

SAUDI NATIONAL CONTRACTING INC.

SNC INTEG INC.

SNC-LAVALIN (THAILAND) INC.

SNC-LAVALIN AGRICULTURE (1998) INC.

SNC-LAVALIN ENGINEERS & CONSTRUCTORS INC.

Registration Number in BC

Foreign Co

Foreign Co

Foreign Co

Foreign Co

Foreign Co

Foreign Co

Foreign Co

Foreign Co

Foreign Co

Foreign Co

Foreign Co

A0051294

SNC-LAVALIN INC. SNC-LAVALIN INC.
SNC-LAVALIN MEXICO (S.A.) INC.
SNC-SHAWINIGAN INC.

A0036996
Foreign Co
Foreign Co

HEAD OFFICE INFORMATION

Mailing Address:

455 BOULEVARD RENE-LEVESQUE OUEST
MONTREAL QC H2Z 1Z3
CANADA

Delivery Address:

455 BOULEVARD RENE-LEVESQUE OUEST
MONTREAL QC H2Z 1Z3
CANADA

ATTORNEY INFORMATION

Corporation or Firm Name:

LAWDELL CORPORATE SERVICES LIMITED

Mailing Address:

1600, 925 WEST GEORGIA STREET
VANCOUVER BC V6C 3L2
CANADA

Delivery Address:

1600, 925 WEST GEORGIA STREET
VANCOUVER BC V6C 3L2
CANADA

DIRECTOR INFORMATION

Directors are not recorded for extraprovincial registration types. Go to the incorporating jurisdiction for director information.

Assessment Department Location

Mailing Address

PO Box 5350
Station Terminal
Vancouver BC V6B 5L5

6951 Westminster Highway
Richmond BC
V7C 1C6
www.worksafebc.com

Clearance Section

Telephone 604 244 6180
Toll Free within Canada
1 888 922 2768
Fax 604 244 6390

Ministry of Transportation
7818-6th Street
BURNABY, BC V3N 4N8

April 16, 2008

**Person/Business : SNC-LAVALIN INC , SNC INTEG INC & SNC FENCO INC
349652 AQ (093)**

This letter provides clearance information for the purposes of Section 51 of the *Workers Compensation Act*.

We confirm that the above-referenced firm is active, in good standing, and has met WorkSafeBC's criteria for advance clearance. Accordingly, if the addressee on this letter is the prime contractor, the addressee will not be held liable for the amount of any assessment payable for work undertaken by the above-referenced firm to **July 01, 2008**.

This firm has had continuous coverage with us since October 01, 1985.

Employer Service Centre
Assessment Department

Clearance Reference # : C125071948
CLRAAA-5

For more information about Section 51 and clearance letters visit WorkSafeBC.com

Please refer to your account number in your correspondence or when contacting the Assessment Department.

To alter this document constitutes fraud.

BC OnLine - Microsoft Internet Explorer provided by Shared Services BC

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Address <https://www.bconline.gov.bc.ca/>

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Sign Off News User Guides Price List Links Site Map BC OnLine HELP

sc94584

Select from the list below:

STEPS	Name:	Type:	Number:	Status:
<input checked="" type="checkbox"/> Corporate Search	SNC-LAVALIN (CIBRIA) ENGINEERING INC.	BC Company	BC8557948	Active
<input checked="" type="checkbox"/> Corporate Name Index	SNC-LAVALIN CONSTRUCTORS (PACIFIC) INC.	Extraprovincial Company	A0050046	Active
<input type="checkbox"/> Corporate Information	SNC-LAVALIN DEFENSE PROGRAMS INC. PROGRAMMES DE DEFENSE SNC-LAVALIN INC.	Extraprovincial Company	A0033396	Active
<input type="checkbox"/> Corporate Summary	SNC-LAVALIN ENVIRONNEMENT INC. SNC-LAVALIN ENVIRONNEMENT INC.	Extraprovincial Company	A0068122	Active
SEARCH	SNC-LAVALIN ENVIRONNEMENT INC. (cross-reference name)	Extraprovincial Company	A0068122	Active
Corporate Name Index	SNC-LAVALIN EQUITY (B.C.) INC.	BC Company	BC8533426	Active
Corporate Information	SNC-LAVALIN INC. (cross-reference name)	Extraprovincial Company	A0074188	Active
Corporate Details and documents	SNC-LAVALIN INC. (cross-reference name)	Extraprovincial Company	A0074188	Active
Help Desk (250) 953-8200 or 1-800-663-6102	SNC-LAVALIN PROFAC INC.	Extraprovincial Company	A0046955	Active
April 19, 2006 2:54 PM	SNC-LAVALIN PROFAC SERVICES INC.	Extraprovincial Company	A0065363	Active
	SNC-LAVALIN SERVICES LTD. LES SERVICES SNC-LAVALIN LTD.	Extraprovincial Company	A0056350	Active

1 - 11 of 11 results

Contact the Help Desk: (250) 953-8200 * Toll Free in BC 1-800-663-6102 * Fax: (250) 953-8222 Copyright Terms of Use Privacy

<https://www.corporateonline.gov.bc.ca/corporateonline/coll/search/searchNamesAction.do?action=next&nameIndex=28&org.apache.struts> Local intranet

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➔ For assistance filling out this form, please use the Risk Review Tips and Tricks Form (H1127) located at: <http://gwww.th.gov.bc.ca/Forms/search.aspx> (search for form #H1127)

Describe the work to be performed (include project number):
Provide preliminary and detailed Highway Design Services for the Highway 99- Bus Lane Project Contract No. 153CS0564

IDENTIFYING AND EVALUATING RISKS

Is there potential for the Ministry to suffer financial loss caused by a professional or technical service?
If YES, fill in the area below, listing potential exposures and what type of loss could be incurred.

☒ YES ☐ NO

LIST AND DESCRIBE POTENTIAL EXPOSURES WHICH COULD RESULT IN A LOSS (for examples please refer to The Tips and Tricks page above)	TYPES OF LOSS (Please Check)			SEVERITY AND FREQUENCY (From the potential exposures, estimate the frequency, severity and cost of the loss.)		
	Loss to Ministry Property include damages to property owned by the Ministry.	Loss to a Third Party include property damage, bodily injury and death to a party other than the Ministry or the consultant.	Human Asset Losses include injury or death to employees.	Frequency (Low, Medium, High) L M H	Severity (Low, Medium, High) L M H	Cost (Estimate Only if possible)
Comprehensive General Liability	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> L <input type="checkbox"/> M <input type="checkbox"/> H	<input type="checkbox"/> L <input checked="" type="checkbox"/> M <input type="checkbox"/> H	\$2,000,000
Automobile Liability	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> L <input type="checkbox"/> M <input type="checkbox"/> H	<input type="checkbox"/> L <input checked="" type="checkbox"/> M <input type="checkbox"/> H	\$2,000,000
Professional Liability	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> L <input type="checkbox"/> M <input type="checkbox"/> H	<input type="checkbox"/> L <input checked="" type="checkbox"/> M <input type="checkbox"/> H	\$1,000,000
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> L <input type="checkbox"/> M <input type="checkbox"/> H	<input type="checkbox"/> L <input type="checkbox"/> M <input type="checkbox"/> H	\$
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> L <input type="checkbox"/> M <input type="checkbox"/> H	<input type="checkbox"/> L <input type="checkbox"/> M <input type="checkbox"/> H	\$
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> L <input type="checkbox"/> M <input type="checkbox"/> H	<input type="checkbox"/> L <input type="checkbox"/> M <input type="checkbox"/> H	\$
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> L <input type="checkbox"/> M <input type="checkbox"/> H	<input type="checkbox"/> L <input type="checkbox"/> M <input type="checkbox"/> H	\$
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> L <input type="checkbox"/> M <input type="checkbox"/> H	<input type="checkbox"/> L <input type="checkbox"/> M <input type="checkbox"/> H	\$

PLEASE SEE ADDITIONAL QUESTIONS ON THE NEXT PAGE

SELECTION PROCESS	
After completing the Identifying and Evaluating Risks section, it should be clear if either a system of Risk Control or Risk Financing is needed. The objective of the Selection Process is to establish the most suitable, efficient and economical way(s) to handle exposures.	
Do any exposures occur in medium or high Frequencies?	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
Do any exposures have a medium or high Severity level?	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
Are any of the estimated costs of a potential loss to Ministry Property greater than \$50,000?	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
If any of the answers to these questions were YES, it is recommended a form of Risk Financing (Eg. Insurance) and transferring of risk to another party be established. If all potential exposures were rated as low frequency and severity, no insurance is required.	

Please select the Risk Management Selection Method(s) which most suits the prior listed exposures.

RISK MANAGEMENT SELECTION METHODS	
Risk Transfer: Indemnity Clause (This is used in all Contracts)	
Risk Retention (Self-Insuring- no insurance to be required under the contract) Eg. Risks identified are low frequency and low severity and/or the loss exposure to the Ministry is minimal.	<input type="checkbox"/> YES <input type="checkbox"/> NO
Risk Financing: INSURANCE (for help please access our TIPS AND TRICKS PAGE)	
Comprehensive (Commercial) General Liability (CGL) (INS 80 Required)	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
Automobile Liability (INS 80 Required) (If automobile coverage is required, USUALLY CGL is required as well)	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
Professional Liability (PLI) (INS 132 Required) (Will the consultant be making professional engineering decisions? (If Errors and Omission (Professional Liability Insurance) coverage is required, CGL is USUALLY required as well NOTE: This insurance coverage is not required for technicians.)	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
If YES, in what amount? <input type="checkbox"/> \$250,000.00 <input type="checkbox"/> \$500,000.00 <input checked="" type="checkbox"/> \$1,000,000.00	
INSURANCE SPECIFICATIONS: (Based on your answers above, please indicate which INS specification is required by checking box below)	
INS-80 - General Services - includes CGL and Auto Liability Insurance <input checked="" type="checkbox"/>	
INS-132 - Professional Services - includes CGL, Auto, and Professional Liability Insurance <input checked="" type="checkbox"/>	
Risk Control (Please specify): Some ways to control risks are: Avoidance, Prevention, Reduction, Separation and Combination	

Jan Pazhouh

Completed by

2008/04/15

Date (yyyy/mm/dd)



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Ministry of Transportation

*Mailing Address: 7818 6th Street
Burnaby BC V3N 4N8*

*Telephone: 604 660 8200
Facsimile: 604 660 0350*

To: Sue Pauwels

From: Karen Orrell

Office/Branch: Transportation – Highways

Fax: (250) 387-6431

Pages: 9

Phone: (250) 387-4328

Date: 5/1/2008

Re: Request for Consulting Services Contract – SNC Lavalin – Preliminary & detailed design of
Hwy 99 shoulder bus line

☐ **Urgent** ☐ **For Review** ☐ **Please Comment** ☐ **Please Reply** ☐ **Please Recycle**

● **Comments:**

Sue:

Please have Mike Proudfoot sign and return ASAP. Thank you.

This transmission is intended solely for the use of the individual or institution to whom it is addressed and may not be distributed, copied or disclosed to other unauthorized persons. This material may contain confidential or personal information which may be subject to the provisions of Freedom of Information and Protection of Privacy Act. Any other distribution, copying or disclosure is strictly prohibited. If you have received this transmission in error, please notify the sender immediately by telephone and return the entire transmission by mail without making a copy. Thank you.

REQUEST FOR CONSULTING
SERVICES CONTRACT

To	Headquarters or Regional Contract Administration Dianne Anderson		Date (yyyy/mm/dd) 2008 04 07
	Address (Street Number, City, Province, Postal Code) 7818 Sixth Street, Burnaby, BC V3N 4N8		
From	Requestor (Print Name) Jan Pazhouh	Qualified Receiver (Print Name) Jan Pazhouh	Phone Number 604.660.1716
	Branch, Region, District Name South Coast Region		Contact Responsibility Centre Number 55156
File Number	Contact Contract Identification Number (Contract Administration Use Only) 1 5 3 C S 0 5 6 4		RISP Selection Number 14161
Contractor	Business Name SNC Lavalin		Phone Number 604.662.3555
	Contact Name Richard Wong		Facsimile Number 604.662.7668
	Business Address (Street Number, City, Province, Postal Code) 1800-1075 Wst Georgia Street, Vancouver, BC V6E 3C9		

Method of Contractor Selection ☒ RISP System ☐ Selective Invitation ☐ RFP ☐ ITQ ☐ Direct Award (attach explanation)

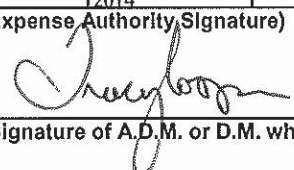
Procurement Process and Trade Agreement (AIT / TILMA) Exclusion (mandatory): ☐ Check the Appropriate Boxes on Page 2.

Category Type: ☒ BN.BN02 - Consulting Services

Short Description: Preliminary and detailed design of Hwy 99 Shoulder Bus Lane

Commencement Date (yyyy/mm/dd) 2008 04 07

Completion Date (yyyy/mm/dd) 2009 12 31

1. Attachments (Mandatory): <input checked="" type="checkbox"/> Works/Services Schedule (H0461A) <input checked="" type="checkbox"/> Payment Schedule (H0461B)		2. Risk Review: <input checked="" type="checkbox"/> Attach Risk Review Sheet (H0056) Completion Required			
3. Please indicate which of the following forms are to be attached by the Contract Administration Section:					
3a) Schedule of Reimbursable Expenses: <input type="checkbox"/> No <input checked="" type="checkbox"/> Regular H0461c <input type="checkbox"/> Management (Travel 2) H0461c-1		3b) Special Conditions: <input type="checkbox"/> No <input checked="" type="checkbox"/> Engineering Assignments H0461d <input type="checkbox"/> Information Systems H0461d-1 <input type="checkbox"/> Surveying Assignments H0461d-2		3c) Insurance (H0111): <input type="checkbox"/> No <input type="checkbox"/> Insurance Specifications (INS-80) <input checked="" type="checkbox"/> Insurance Specifications Professional Services (INS-132) Professional Liability Limits (Item 5) <input type="checkbox"/> \$ 250,000 <input type="checkbox"/> \$ 500,000 <input checked="" type="checkbox"/> \$1,000,000	
3d) Privacy Protection, does your contract include the collection of personal information? <input type="checkbox"/> No <input type="checkbox"/> Privacy Protection Schedule (PPS)			4. For Contract Admin. Offices Only: <input type="checkbox"/> Register of Companies/Licensed to do Business <input type="checkbox"/> WCB Registration		
Contract Total \$648,573		Fiscal Distribution		Year 2008 Total \$628,573	Year 2009 Total \$20,000
Orca Coding 55153	Responsibility 62120	Service Line 6001	STOB 12014	Project 648,573	TOTAL \$
Orca Coding	Responsibility	Service Line	STOB	Project	TOTAL \$
CPS Coding 12014	(Info 1) – CFS– Product Engineer	Business Function Detail Design	(Info 2) – Work Activity Consult	(Info 3) – Cost Type 648,573	TOTAL \$
Approval to Award	(Expense Authority Signature) 		Print Name: Tracy Cooper		
	(Signature of A.D.M. or D.M. where required)		Print Position: Regional Director		Date: April 30, 2008
			Print Name: Mike Proudfoot		Date:



WORKS/SERVICES SCHEDULE

CONTRACT IDENTIFICATION NUMBER

153 | CS | 0564

The Contractor shall:

Perform all necessary engineering design, structural, geotechnical investigations, traffic analysis/traffic counts, environmental and archaeological investigations, and other required tasks to complete a preliminary, detailed design, cost estimates and tender documents for widening Hwy 99 in the Westbound direction to accommodate a bus lane in the Westbound direction. Identify and perform all engineering work required to complete the design and the final package for tender.

Provide engineering services during construction, and complete the as-built drawings after construction.

The Consultant shall deliver a Preliminary Design shortly after award of the contract identifying any significant concerns or issues that require addressing in order complete the detailed engineering design and a package for tender.

The Consultant shall confirm the design criteria for the segment of the roadway that are based on the BC Supplement to TAC Geometric Design Guidelines (updated edition: June 2007), Recommended Design Criteria and other relevant guidelines. Changes to the design criteria must be reviewed and approved by the Ministry. Prepare construction cost estimates including contingency.

Confirm all survey information is accurate, complete, and tying in all geotechnical information to the base survey.

PROJECT FUNDING AGREEMENT

Project 12014
Highway 99 Shoulder Bus Lane
South Coast Region
Electoral District: Richmond East

SCHEDULE A – PROJECT SCOPE

Objective:

The Project will provide a Priority Bus Lane to improve the operational serviceability, reliability and efficiency for south of Fraser bus routes destined for the future Canada Line Bridgeport Station while travelling northbound on Highway 99.

Deliverables:

Installation of a 4.0 metre wide and 2.8 km long Shoulder Bus Lane on Highway 99 northbound from the exit ramp to Highway 91 eastbound up to the Stop Bar at the terminus of the Bridgeport Road offramp at Bridgeport Road.

The CNR Overhead northbound structure on the proposed bus route will be widened to facilitate the required Bus Lane width.

The CNR Overhead northbound and southbound structures will both be seismically upgraded to Safety Level 1 standards. Note: The Project will be working in conjunction with the Bridge Rehabilitation program to realize the efficiencies of simultaneously conducting the improvements to the overhead structures.

The segment from the end of the Bridgeport Road offramp to the future Bridgeport Station is not in scope.

Implementation:

The Project will be delivered using a Traditional Tender Method. Design / Build was considered but for the following reasons was not pursued -

- The multi-agency involvement and the indefinite variables inherent to the Project including environmental and geotechnical considerations.
- The Team considered the time, deadline and the constraint of having only one construction period and felt that a DB Tender would take too long to prepare.

The Project will be implemented by means of

- Starting on In House Geotech Investigations and Survey layouts immediately
- Retaining consulting services to provide the Detailed Design of the alignment
- Working in conjunction with Stakeholder groups
- Proactively addressing environmental and geotechnical considerations upfront
- Placing construction works on open tender.



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Transportation

PROJECT PLAN

Project # 12014

Highway 99 Shoulder Bus Lane

Project Phase: Design & Engineering (D&E)
Project Manager: Matt Choquette
Date: February 15, 2008

Project Purpose:

The Project will provide a priority bus lane to improve the operational serviceability, reliability and efficiency for south of Fraser bus routes destined for the future Canada Line Bridgeport Station while travelling northbound on Highway 99.

Project Scope:

Installation of a 4.0 meter wide and 2.8km long shoulder bus lane on Highway 99 northbound from the Highway 91 eastbound offramp exit up to the intersection at the terminus of the Bridgeport Road offramp exit.

The CNR Overhead northbound structure on the proposed bus route will be widened to facilitate the required bus lane width.

The CNR Overhead northbound and southbound structures will both be seismically upgraded to Safety Level 1 standards. Note: The Project will be working in conjunction with the Bridge Rehabilitation program to realize the efficiencies of simultaneously conducting the improvements to the overhead structures.

The segment from the end of the Bridgeport Road offramp exit to the future Bridgeport Station is not in scope.

April 30, 2008

<hr/>	
Highway 99 Shoulder Bus Lane	12014
Name of Project	Project #
<hr/>	
Location: Richmond	
Constituency: Richmond East	
<hr/>	
Traditional Contract	Capital
Delivery Method	Funding Program
<hr/>	
TBD	TBD
Contract Tender Advertising Date	Contract Award Date
<hr/>	
Location of Contractor: TBD	
<hr/>	
TBD	\$7.044 M
Contract Value	Total Project Budget
<hr/>	
Tentative – November 2008	November 2009
Work Start Date	Project Completion Date
<hr/>	

Project Description:

The Project will provide a Priority Bus Lane to improve the operational serviceability, reliability and efficiency for south of Fraser bus routes destined for the future Canada Line Bridgeport Station while travelling northbound on Highway 99.

Benefits to Travelling Public:

This Bus Lane will provide a direct route for transit commuters to the Future Bridgeport Canada Line Station which connects with existing rapid transit lines and suburban transit services. Commuters using the Bus Only Lane will experience improved travel times through increased bus operating speed and continuous travel. This project will also create capacity for new bus services and connections for commuters and travelers as it facilitates reliable and consistent transit network (current peak hour headways inconsistent due to congestion).

An estimated reduction in green house gas or CO2 emissions by approximately 220 tonnes per year as buses would consume less fuel from a steady state of bus travel.

Background:



Stakeholders:

MLA – Richmond East, Hon. Linda Reid
Highway 99 Users
BC Truckers Association
TransLink (Coast Mountain Bus Co.)
Emergency Services
PHCC

Maintenance Contractor: Mainroad Contracting Ltd.

City / RD /Municipality: City of Richmond

Business Sector: Richmond Chambers of Commerce

Tourism Operators: Tourism Richmond

Issues Management: Currently there are no issues.

Consultation: TBD

Traffic Management: TBD

Duration: TBD

Communicated: TMP

Public Messaging: Currently no Public Messaging is required.

TBD

Project Supervisor

Phone

Matt Choquette

Project Manager

604 660 8235

Phone

DMT Approval:

Lower Mainland

Regional Director Approval:

Not Required

Mike Proudfoot
Assistant Deputy Minister
Highways Department

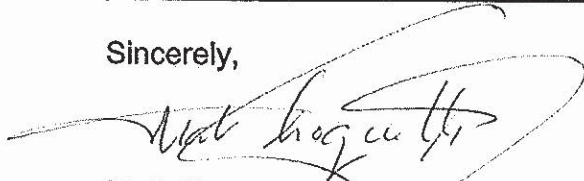
April 29, 2008

**Re: Details of Consultant Contract 153 CS 0564 - SNC Lavalin to Design a
Shoulder Bus Lane on Highway 99 in Richmond.**

- Design for Widening and Seismic Retrofitting of the Twin 1959 CNR Overhead Structures. These Bridges are very unique; the Pier walls are sitting on Jacks that are sitting on the Pilecaps – no lateral support between the Piers and Piles.
- Design for the Signalization for Ramps - triggered by approaching Buses.
- Geotechnical Component throughout the three kilometer Corridor.
- Tender Package Documents and Construction Engineering.
- Project has a fixed deadline – Bus Lane must coincide with the opening of the Canada Line.



Sincerely,



Matt Choquette
Regional Project Manager
Ministry of Transportation

From: Marson, Diane M TRAN:EX
Sent: Thursday, April 17, 2008 8:49 AM
To: Anderson, Dianne S TRAN:EX
Cc: Willow, Vicki TRAN:EX; Sundher, Veena TRAN:EX
Subject: RE: SNC-Lavalin Inc. - BC Registrar report clarification

Hi Dianne,

I have contacted Corporate Registry and they have doubled checked and confirmed the correct legal entity name based on an amalgamation of companies is absolutely correct, they have registered the double company name. That means that the contract name will have to be "SNC-Lavalin Inc. SNC-Lavalin Inc."

This is the first time that I have seen this happen and when I questioned them they said that think that it is probably caused by the french version being identical to the english version and we have seen a few english/french names registered before now. Hope this helps.

Diane Marson, PCMP

Corporate Contract Officer

Corporate Contracting

Ministry of Transportation

☎ (250) 387-7865 📠 (250) 356-8143

email: diane.marson@gov.bc.ca



Please consider the environment before printing this e-mail.

From: Anderson, Dianne S TRAN:EX
Sent: Wednesday, April 16, 2008 3:07 PM
To: Marson, Diane M TRAN:EX
Subject: SNC-Lavalin Inc. - BC Registrar report clarification

<< File: BC Registry SNC Lavalin.pdf >>

Help.....Why does this report have 'SNC-Lavalin Inc. SNC-Lavalin.Inc.' twice? BC Registration # A0074188

Throughout the report is shows the company name as a double naming format? WCB is just SNC-Lavalin Inc. !

thanks Dianne

includes "(EVCC)" unless

- (a) the person is registered under Part 2 of the *Employee Investment Act*, or
- (b) the person is a federal corporation entitled or required to use that inclusion.

Multilingual names

25 (1) The name of a company must be in one or both of

- (a) an English form, and
- (b) a French form.

(2) If the name of a company is in both an English form and a French form, the company may use, and may be legally designated by, either form or a combination of both forms for the purposes of section 27 or any other purpose.

(3) Subject to section 256, a company may translate its name into any other language and may be designated by that translation of the name outside Canada if the translation of the name is set out in

- (a) the memorandum, or
- (b) the notice of articles in accordance with section 11 (f) and in the articles in accordance with section 12 (2) (c) (iii).

Assumed names

26 (1) If the name of a foreign entity contravenes any of the prescribed requirements or any of the other requirements set out in this Division, the foreign entity must, if it wishes to be registered as an extraprovincial company, reserve an assumed name and section 22 applies.

(2) If a foreign entity reserves an assumed name, the registrar may register the foreign entity as an extraprovincial company with its own name, if the foreign entity provides an undertaking to the registrar, in form and content satisfactory to the registrar, that it will carry on all of its business in British Columbia under that assumed name, and on such registration the extraprovincial company is deemed to have adopted the assumed name.

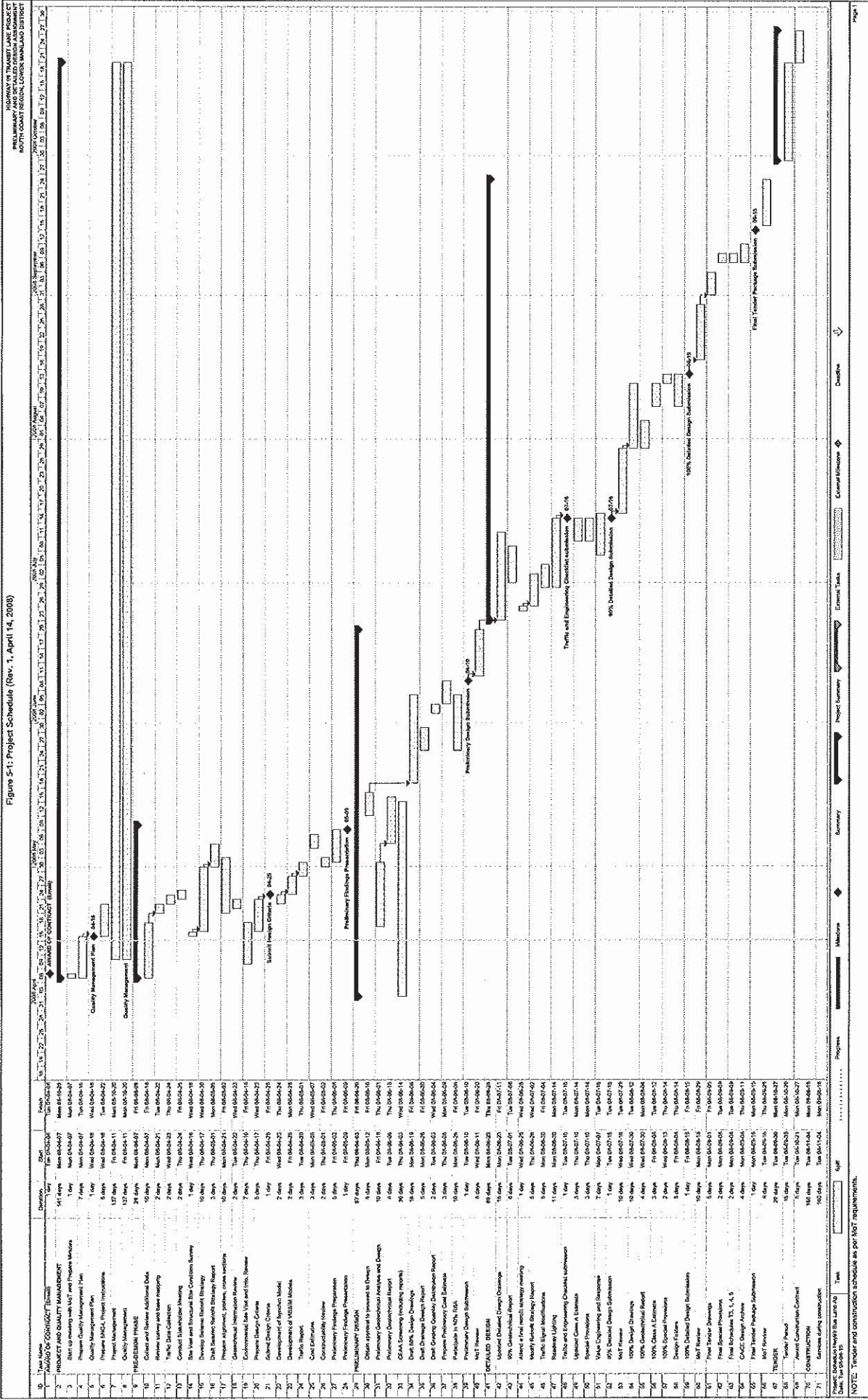
(3) An extraprovincial company that has adopted an assumed name under this Act

- (a) must acquire all property, rights and interests in British Columbia under its assumed name,
- (b) is entitled to all property, rights and interests acquired, and is subject to all liabilities incurred, under its assumed name as if the property, rights and interests and the liabilities had been acquired and incurred under its own name, and
- (c) may sue or be sued in its own name, its assumed name or both.

(4) No act of an extraprovincial company that has adopted an assumed name under this Act, including a transfer of property, rights or interests to or by it, is invalid merely because the act contravenes subsection (3) (a) of this section.

(5) This section does not apply to a federal corporation.

Figure 5-1: Project Schedule (Rev. 1, April 14, 2008)





ORIGINAL

File: 153CS0564

March 31, 2010

SNC-Lavalin Inc.
1800 -1075 West Georgia Street
Vancouver, BC V6E 3C9

Attention: Yuming Ding

RE: 153CS0564 Preliminary and Detailed Design of Hwy 99 Shoulder Bus Lane

Enclosed, please find your signed copy of Amendments No. 02 for the above Consulting Services Contract.

Thank you for your cooperation in this matter.

Liz Hope
Manager, Financial Services
and Provincial Contract Services

LH/dh
Attachment

cc: Jan Pazhouh
Insurance and Bonds
Disbursements



This Amending Agreement, IS MADE THE 31 DAY OF March, 20 10

BETWEEN: HER MAJESTY THE QUEEN IN RIGHT OF THE PROVINCE OF BRITISH COLUMBIA REPRESENTED BY
THE MINISTER OF TRANSPORTATION AND INFRASTRUCTURE

Address 7818 - 6th Street, Burnaby, BC
(hereinafter called the "Province")

V3N 4N8

Postal Code

AND: SNC-Lavalin Inc.

Address 1800 - 1075 West Georgia Street, Vancouver, BC
(hereinafter called the "Contractor")

V6E 3C9

Postal Code

WITNESS THAT WHEREAS

A. the parties entered into an Agreement dated the 22nd of May, 2008 for:
Preliminary and Detailed Design of Hwy 99 Shoulder Bus Lane

(hereinafter called the "Agreement")

B. and whereas the parties have agreed to amend the agreement:

NOW THEREFORE in consideration of the covenants and agreements herein contained, the parties agree as follows:

(1) That the Agreement shall be amended as follows:

Extend Contract Completion Date to December 31, 2010

(2) This amendment shall be effective March 1, 2010

That in all other respects, the terms and conditions of the said Agreement are hereby ratified and confirmed.

THE PARTIES ARE DEEMED TO HAVE EXECUTED THIS AMENDING AGREEMENT THE DAY AND YEAR FIRST ABOVE WRITTEN

AFFIX CORPORATE SEAL BELOW

WITNESS AS TO THE CONTRACTOR'S SIGNATURE

SIGNATURE OF CONTRACTOR

Liz Hope, Manager, Financial Services
and Provincial Contract Services

SIGNATURE OF DELEGATED MINISTRY AUTHORITY

WITNESS AS TO THE MINISTRY SIGNATURE

Hinze, Dawn TRAN:EX

From: INSURANCE and BONDS TRAN:EX
Sent: Friday, April 30, 2010 10:00 AM
To: Pazhouh, Jan TRAN:EX
Cc: Hinze, Dawn TRAN:EX
Subject: SNC Lavaline Inc 153CS0564 Insurance Request Form H1126



SNC_153CS0564_
30Apr2010_Y.doc

Insurance APPROVED.

Suzanne Lim

Insurance and Bonds Officer
Ministry of Transportation and Infrastructure
Corporate Procurement and Risk Management
PO Box 9850, Stn Prov Govt, Victoria BC V8W 9T5
Tel (250)356-9774
Fax (250)356-9724

Mail to: 4D - 940 Blanshard St, Victoria BC V8W 3E6

Insuranceandbonds@gov.bc.ca



CONSULTING AND LMWS CONTRACTS
INSURANCE INFORMATION REQUEST FORM

This form is for insurance information purposes ONLY, it does NOT reflect other requirements of contract

PART 1: - TO BE COMPLETED BY CONTRACT INITIATOR PRIOR TO COMMENCEMENT OF WORK

EMAIL TO: INSURANCEandBONDS@gov.bc.ca

Date (yyyy/mm/dd): 2010/04/01

CONTRACTOR: SNC Lavalin Inc

CONTRACT NO: 153CS0564

DESCRIPTION: Preliminary and Detailed Design of Hwy 99 Shoulder Bus Lane

PART 2: - TO BE COMPLETED BY INSURANCE AND BONDS

Is evidence of insurance on file?

YES ☒

NO ☐

← Insurance & Bonds will advise when evidence
of insurance becomes available.

Insurance Information:

ALL EVIDENCE IS BLANKET.

CGL \$4,400,000.00 Expires: March 31, 2011

EXCESS \$1,000,000.00 Expires: March 31, 2011

PLI \$2,000,000.00 Expires: March 31, 2011

AUTO \$5,000,000.00 Expires: September 01, 2010

VERIFIED BY: Suzanne Lim

DATE (yyyy/mm/dd): 2010-04-30

RETURN TO:

1. Liz Hope

CONTRACT MANAGER

2. Dawn Hinze

CONTRACT ADMINISTRATION

Hinze, Dawn TRAN:EX

From: INSURANCE and BONDS TRAN:EX
Sent: Thursday, April 1, 2010 11:39 AM
To: Pazhouh, Jan TRAN:EX
Cc: Hope, Liz M TRAN:EX; Hinze, Dawn TRAN:EX
Subject: SNC Lavalin Inc 153CS0564 Insurance Request Form H1126



SNC_153CS0564_
1Apr2010_No.doc.

Insurance NOT approved.

Suzanne Lim

Insurance and Bonds Officer
Ministry of Transportation and Infrastructure
Corporate Procurement and Risk Management
PO Box 9850, Stn Prov Govt, Victoria BC V8W 9T5
Tel (250)356-9774
Fax (250)356-9724

Mail to: 4D - 940 Blanshard St, Victoria BC V8W 3E6

Insuranceandbonds@gov.bc.ca



CONSULTING AND LMWS CONTRACTS
INSURANCE INFORMATION REQUEST FORM

This form is for insurance information purposes ONLY, it does NOT reflect other requirements of contract

PART 1: - TO BE COMPLETED BY CONTRACT INITIATOR PRIOR TO COMMENCEMENT OF WORK

EMAIL TO: INSURANCEandBONDS@gov.bc.ca

Date (yyyy/mm/dd): 2010/04/01

CONTRACTOR: SNC Lavalin Inc

CONTRACT NO: 153CS0564

DESCRIPTION: Preliminary and Detailed Design of Hwy 99 Shoulder Bus Lane

PART 2: - TO BE COMPLETED BY INSURANCE AND BONDS

Is evidence of insurance on file?

YES ☐

NO ☒

⇐ Insurance & Bonds will advise when evidence
of insurance becomes available.

Insurance Information:

Evidence of renewal has not been received yet.

VERIFIED BY: Suzanne Lim

DATE (yyyy/mm/dd): 2010-04-01

RETURN TO:

1. Liz Hope

CONTRACT MANAGER

2. Dawn Hinze

CONTRACT ADMINISTRATION



**BRITISH
COLUMBIA**

Ministry of Transportation
and Infrastructure

REQUEST FOR AMENDMENT TO CONSULTING SERVICES CONTRACT

To	Headquarters or Regional Contract Administration		Date (yyyy/mm/dd)
	Dawn Hinze		2010 03 19
	Address (Street Number, City, Province, Postal Code)		
7818 Sixth Street, Burnaby, BC V3N 4N8			
From	Contact Name		Phone Number
	Jan Pazhouh		604.660.1716
	Branch, Region, District Name		Contact Responsibility Centre Number
SCR LMD		55156	
File Number	Contact Contract Identification Number	RISP Number	Amendment Number
	1 5 3 C S 0 5 6 4	14161	2 (two)
Contractor	Business Name		Phone Number
	SNC Lavalin		604 662.3555
	Contact Name		Facsimile Number
	Yuming Ding		604.662.7668
Business Address (Street Number, City, Province, Postal Code)			
1800-1075 West Georgia Street, Vancouver, B.C. V6E 3C9			

Justification for Amendment: The construction of the CNR widening structure is not complete yet, and the consultants are required to to completed the recording drawings at the end of construction. Therefore, the contract completion date needs to be extended till December 31, 2010.

Description of Amendment: Extend the contract completion date from march 31, 2010 to December 31, 2010 to complete the record drawings after the completion of construction of CNR structure widening for the SB Hwy 99

Effective Date of Amendment (yyyy/mm/dd) 2010/04/01

Original Contract Total	Previous Amendments Total	Value of Current Amendment	New Contract Total
\$648,573	\$49,850	\$0	\$698,423
Fiscal Distribution	Year 2010	Year	Year
(for Total Contract Value)	Total \$	Total \$	Total \$
Approval to Amend	(Signature of Expense Authority)	Print Name: Ashok Bhatti	
	(Signature of A.D.M. where required)	Print Title: A/Regional Director	Date: Mar 19/10
		Print Name:	
		Print Title:	Date:



This Amending Agreement, IS MADE THE 6 DAY OF August, 2009

BETWEEN: HER MAJESTY THE QUEEN IN RIGHT OF THE PROVINCE OF BRITISH COLUMBIA REPRESENTED BY
THE MINISTER OF TRANSPORTATION AND INFRASTRUCTURE

Address 7818 - 6th Street, Burnaby, BC
(hereinafter called the "Province")

V3N 4N8
Postal Code

AND: SNC-Lavalin Inc.

Address 1800 - 1075 West Georgia Street, Vancouver, BC
(hereinafter called the "Contractor")

V6E 3C9
Postal Code

WITNESS THAT WHEREAS

A. the parties entered into an Agreement dated the 22nd of May, 2008 for:
Preliminary and Detailed Design of Hwy 99 Shoulder Bus Lane

(hereinafter called the "Agreement")

B. and whereas the parties have agreed to amend the agreement:
NOW THEREFORE in consideration of the covenants and agreements herein contained, the parties agree as follows:

(1) That the Agreement shall be amended as follows:

Works/Services Schedule

To include CNR structure design for the South Bound direction and to review related highway design to ensure safe road condition after South Bound deck widening

- Quality Management through the Design and Engineering process
- 90% and 100% detailed design for the widening of the SB Structure
- Contract Document Package (Special Provisions and Quantities)
- Engineering support through the tendering period
- Services during construction and as-built drawings

Payment Schedule

See attached Hwy 99 CNR South Bound Fee Schedule dated June 22, 2009.

Increase Contract Value by \$49,850.00 not to exceed \$698,423

Extend Contract Completion Date to March 31, 2010

(2) This amendment shall be effective July 6, 2009

That in all other respects, the terms and conditions of the said Agreement are hereby ratified and confirmed.

THE PARTIES ARE DEEMED TO HAVE EXECUTED THIS AMENDING AGREEMENT THE DAY AND YEAR FIRST ABOVE WRITTEN

AFFIX CORPORATE SEAL BELOW

WITNESS AS TO THE CONTRACTOR'S SIGNATURE

SIGNATURE OF CONTRACTOR

Liz Hope, Manager, Financial Services
and Provincial Contract Services
SIGNATURE OF DELEGATED MINISTRY AUTHORITY

WITNESS AS TO THE MINISTRY SIGNATURE

HIGHWAY 99 TRANSIST LANE PROJECT
 CNE Overpass SB DETAILED DESIGN
 ASSIGNMENT

FEE SCHEDULE (June 22, 2009)

MANAGEMENT AND SENIOR ENGINEERS		HIGHWAY DESIGN TEAM										TOTAL	
Project Manager	Structural Advisor	Quality Manager	Highway Designer	Highway CADD Designer	Drainage and Utilities	Structural Design	Structural Design	Structural Design	Structural Design	Structural Design	Structural Design	Structural Design	Structural Design
Y. Ding	S. Chan	C. Phillips	V. Wang	N. Knudsenberg	K. Pun	Y. Ding	L. Zoulik, North	P. Lee	S. Kai	Additional CADD Operations	Chief, Administration, Document Control		
HRS	COST	HRS	COST	HRS	COST	HRS	COST	HRS	COST	HRS	COST	HRS	COST

Task No.	Task Description	Hourly Rate
PROJECT AND QUALITY MANAGEMENT		
1.1	Maintain phone and e-mail contact	
1.2	Assign proper discipline	
1.3	Ensure target dates met	
1.4	Perform proper quality control	
Project and Quality Management Sub-Totals		
90% DETAILED DESIGN		
2.1	Attend a review meeting with MoTI	26-Jun
2.2	Modify NB drawings for SB	17-Jun
2.3	Check Highway Design	16-Jul
2.4	Check Drainage Design	16-Jul
2.5	Check Traffic Plan	16-Jul
2.6	Update Class A Estimate	15-Jul
2.7	Update Special Provisions	15-Jul
90% Detailed Design Sub-Totals		
100% DETAILED DESIGN		
3.1	100% Design Drawings	31-Jul
3.2	100% Class A Estimate	06-Aug
3.3	Final Design Tender Drawings	07-Aug
3.4	Final Class A Estimate	12-Aug
3.5	Final Special Provisions	12-Aug
100% Detailed Design Sub-Totals		
TOTALS		

PLEASE INITIAL

YD

21

REQUEST FOR AMENDMENT TO
CONSULTING SERVICES CONTRACT

To	Headquarters or Regional Contract Administration		Date (yyyy/mm/dd)
	Don Garnier		2009 06 30
From	Address (Street Number, City, Province, Postal Code)		
	7818 Sixth Street, Burnaby, BC V3N 4N8		
	Contact Name	Phone Number	
	Jan Pazhouh	604.660.1716	
Branch, Region, District Name	Contact Responsibility Centre Number		
	SCR LMD		55156
File Number	Contact Contract Identification Number	Amendment Number	
	1 5 3 C S 0 5 6 4	14161	1 (one)
Contractor	Business Name		Phone Number
	SNC Lavalin		604 662.3555
	Contact Name		Facsimile Number
	Yuming Ding		604.662.7668
Business Address (Street Number, City, Province, Postal Code)			
1800-1075 West Georgia Street, Vancouver, B.C. V6E 3C9			

Justification for Amendment: SNC Lavalin provided design engineering for the widening of the Northbound CNR structure and has intimate knowledge of the structure and will be able to expedite a cost effective design for the Southbound structure to accommodate our time schedule

Description of Amendment:

- Replicate the deck widening structural design from the NB structure to the SB structure
- Review related highway design to ensure safe road condition after SB deck widening

Provide:

- Quality Management through the Design and Engineering process
- ✓ - 90% and 100% Detailed Designs
- ✓ - Contract Document Package (Special Provisions and Quantities)
- ✓ - Engineering support throughout the tendering period
- ✓ - Services during construction and as-built drawings
- ✓ - The cost of additional efforts is \$39,850 plus an additional sum of \$10,000 for contingency
- ✓ - Extend the completion date of the contract from December 31, 2009 to March 31, 2010

Effective Date of Amendment (yyyy/mm/dd) 2009 07 06

Original Contract Total	Previous Amendments Total	Value of Current Amendment	New Contract Total
\$648,573	\$0	\$49,850	\$698,423
Fiscal Distribution	Year 2009-2010	Year	Year
(for Total Contract Value)	Total \$49,850	Total \$	Total \$
Approval to Amend	(Signature of Expense Authority)	Print Name:	
		Print Title:	
	(Signature of A.D.M. where required)	Date:	
		Print Name: M. Poudfoot	Date: July 8/09
		Print Title: ADM - Highways	

Garnier, Don TRAN:EX

From: Pazhouh, Jan TRAN:EX
Sent: Thursday, July 9, 2009 8:59 AM
To: Garnier, Don TRAN:EX
Cc: Decker, Giesila TRAN:EX
Subject: FW: Amendment to Consulting SC

Hi Don,

Please process the attached amendment for the consultant signature.
assist if needed. Thanks

s.22

but Giesila could

Regards,

Jan

From: Jamal, Nash TRAN:EX
Sent: Thursday, July 9, 2009 8:44 AM
To: Pazhouh, Jan TRAN:EX; Garnier, Don TRAN:EX
Subject: FW: Amendment to Consulting SC

Approval attached. ✓

Nash Jamal
Regional Manager, Corporate Services
South Coast Region
Tel: (604) 660-8225

From: Kuhnke, Barbara TRAN:EX
Sent: Thursday, July 9, 2009 8:28 AM
To: Jamal, Nash TRAN:EX
Cc: Szekely, Sheila TRAN:EX
Subject: Amendment to Consulting SC

Hi Nash . . . Attached is approved . . . original to follow via House Mail.

~~~~~  
*Barb Kuhnke*

Executive Clerk  
Office of the Assistant Deputy Minister, Highways  
Ministry of Transportation & Infrastructure  
Ph: 250.387.3260 Fax: 250.387.6431  
Email: [barbara.kuhnke@gov.bc.ca](mailto:barbara.kuhnke@gov.bc.ca)

*attached*



## **Proudfoot, Mike A TRAN:EX**

---

**From:** Proudfoot, Mike A TRAN:EX  
**Sent:** Wednesday, July 8, 2009 6:59 PM  
**To:** Jamal, Nash TRAN:EX  
**Cc:** Cownden, Jennifer TRAN:EX  
**Subject:** RE: REQUESTING APPROVAL FOR AMENDMENT TO CS CONTRACT: HWY 99 SHOULDER BUS LANE

Approved. Signed H0291 to follow.

---

**From:** Jamal, Nash TRAN:EX  
**Sent:** Wednesday, July 8, 2009 11:52 AM  
**To:** Proudfoot, Mike A TRAN:EX  
**Subject:** REQUESTING APPROVAL FOR AMENDMENT TO CS CONTRACT: HWY 99 SHOULDER BUS LANE

Mike,

We haven't received your approval to proceed. If you could please review this. Any questions, please let me know.  
Thanks.

Nash Jamal  
Regional Manager, Corporate Services  
South Coast Region  
Tel: (604) 660-8225

---

**From:** Jamal, Nash TRAN:EX  
**Sent:** Friday, July 3, 2009 9:30 AM  
**To:** Proudfoot, Mike A TRAN:EX  
**Subject:** APPROVAL FOR AMENDMENT TO CS CONTRACT: HWY 99 SHOULDER BUS LANE

Mike,

May we please have your approval for an amendment to a consulting services contract for Hwy 99 NB shoulder Bus Lane to include design of the CNR structure for the SB direction and extend the completion date to March 31<sup>st</sup>, 2010. Value of Amendment: \$49,850. Total value of contract will now be \$698,423.

Please let me know if you need additional information. Thanks.

Nash Jamal  
Regional Manager, Corporate Services  
South Coast Region  
Tel: (604) 660-8225

---

**From:** Pazhouh, Jan TRAN:EX  
**Sent:** Thursday, July 2, 2009 3:02 PM  
**To:** Bains, Jessie TRAN:EX  
**Subject:** Amendment approval request for Hwy 99 Transit Project

Hi Jessie,

We are requesting to amend the existing Hwy 99-NB Transit project design contract with SNC Lavalin to include design of the CNR Structure design for the SB direction. The required form, rationale, fee and schedule are attached. Please note the ADM signature is required on the attached H0291 form. The scope of the Amendment is:

**Scope of Amendment #1**

1. 90% and 100 detailed design for the widening of the SB structure (CNR) on Hwy 99
2. Contract documents package preparation (Special Provisions and quantities)
3. Quality Management through the entire project assignment process
4. Engineering support through the tendering process and completion of as-built drawings (hourly basis)
5. Extend the completion date of the contract from December 31, 2009 to March 31, 2010 to allow sufficient time for completing the as-built plans.

**Fee for the amendment #1:**

Fixed Fee: The total value of this amendment is \$49,850. (\$39,850 is the fee for design and tender documents, and \$10,000 contingency to cover the cost of engineering services during construction and preparation of as-built drawings). With this amendment the total value of the SNC contract will be \$698,423

**Justification:**

- The Ministry commitment to deliver this project as soon as possible
- It reduces delivery time of the project delivery
- It will cost less, because the design is very similar to the one completed by SNC has recently completed for the NB direction

Required forms and rationale are attached.

<< File: h0291 Amendment 1-to 153CS0564.doc >> << File: Amendment 1- CNR Hwy99 Rationale.docx >> << File: Hwy 99 CNR SB Fee Schedule June 30.xlsx >>

Regards,

Jan Pazhouh, P.Eng.  
Consultant Liaison Engineer  
Highway Design & Geomatics Engineering  
Ministry of Transportation-SCR  
7818 6th Street, Burnaby, BC, V3N 4N8

Tel: 604.660.1716



File: 153CS0564

August 6, 2009

SNC-Lavalin Inc.  
1800 – 1075 West Georgia Street  
Vancouver, BC V6E 3C9

Attention: Yuming Ding

**RE: 153CS0564 Preliminary and Detailed Design of Hwy 99 Shoulder Bus Lane**

Approval has been obtained to amend the above noted contract as per the attached Amendment No. 01. If you are in agreement, please **sign and have it witnessed** or affix your seal (if applicable), in the appropriate locations on the amending agreement and return as soon as possible to the address noted below:

Ministry of Transportation and Infrastructure  
Contract Administration  
7818 - 6th Street, Burnaby, B.C. V3N 4N8  
Attention: Regional Procurement Officer

When the amendment has been signed by both parties, a copy will be forwarded to you. All other terms and conditions remain unchanged.

Please use our above reference number on all correspondence and invoices submitted.

Thank you.

Liz Hope  
Manager, Financial Services  
and Provincial Contract Services

LH/dg

Attachment



*This Amending Agreement*, IS MADE THE \_\_\_\_\_ DAY OF \_\_\_\_\_, 20

BETWEEN: **HER MAJESTY THE QUEEN** IN RIGHT OF THE PROVINCE OF BRITISH COLUMBIA REPRESENTED BY  
THE MINISTER OF TRANSPORTATION AND INFRASTRUCTURE

Address 7818 - 6<sup>th</sup> Street, Burnaby, BC V3N 4N8  
(hereinafter called the "Province") Postal Code

AND: SNC-Lavalin Inc.

Address 1800 - 1075 West Georgia Street, Vancouver, BC V6E 3C9  
(hereinafter called the "Contractor") Postal Code

#### WITNESS THAT WHEREAS

A. the parties entered into an Agreement dated the 22nd of May, 2008 for:  
Preliminary and Detailed Design of Hwy 99 Shoulder Bus Lane

(hereinafter called the "Agreement")

B. and whereas the parties have agreed to amend the agreement:

**NOW THEREFORE** in consideration of the covenants and agreements herein contained, the parties agree as follows:

(1) That the Agreement shall be amended as follows:

#### Works/Services Schedule

To include CNR structure design for the South Bound direction and to review related highway design to ensure safe road condition after South Bound deck widening

- Quality Management through the Design and Engineering process
- 90% and 100% detailed design for the widening of the SB Structure
- Contract Document Package (Special Provisions and Quantities)
- Engineering support through the tendering period
- Services during construction and as-built drawings

#### Payment Schedule

See attached Hwy 99 CNR South Bound Fee Schedule dated June 22, 2009.

**Increase Contract Value by \$49,850.00 not to exceed \$698,423**

**Extend Contract Completion Date to March 31, 2010**

(2) This amendment shall be effective July 6, 2009

That in all other respects, the terms and conditions of the said Agreement are hereby ratified and confirmed.

THE PARTIES ARE DEEMED TO HAVE EXECUTED THIS AMENDING AGREEMENT THE DAY AND YEAR FIRST ABOVE WRITTEN

AFFIX CORPORATE SEAL BELOW

WITNESS AS TO THE CONTRACTOR'S SIGNATURE

SIGNATURE OF CONTRACTOR

Liz Hope, Manager, Financial Services  
and Provincial Contract Services  
SIGNATURE OF DELEGATED MINISTRY AUTHORITY

WITNESS AS TO THE MINISTRY SIGNATURE



FEE SCHEDULE (June 22, 2009)

| MANAGEMENT AND SENIOR ENGINEERS |  |                    |  | HIGHWAY DESIGN TEAM |         |                 |        |                       |        |                        |                           |                                           |  | TOTAL                 |  |                          |  |                  |  |                       |  |  |
|---------------------------------|--|--------------------|--|---------------------|---------|-----------------|--------|-----------------------|--------|------------------------|---------------------------|-------------------------------------------|--|-----------------------|--|--------------------------|--|------------------|--|-----------------------|--|--|
| Project Manager                 |  | Structural Advisor |  | Quality Manager     |         | Highway Design  |        | Highway CADD Designer |        | Drainage and Utilities |                           | Structural Design                         |  | Structural Design EIT |  | Structural CADD Designer |  | Traffic Engineer |  | SNC Support Resources |  |  |
| Y. Ding                         |  | S. Chen            |  | C. Phillips         | V. Wang | N. Kroschenberg | K. Pun | Y. Ding               | P. Lee | S. Kai                 | Additional CADD Operators | Checked, Administration, Document Control |  |                       |  |                          |  |                  |  |                       |  |  |
|                                 |  |                    |  |                     |         |                 |        |                       |        |                        |                           |                                           |  |                       |  |                          |  |                  |  |                       |  |  |

| Task No.                                         | Task Description                  | Hourly Rate |
|--------------------------------------------------|-----------------------------------|-------------|
| <b>PROJECT AND QUALITY MANAGEMENT</b>            |                                   |             |
| 1.1                                              | Maintain phone and e-mail contact | 26-Jul      |
| 1.2                                              | Assign proper discipline          | 17-Jun      |
| 1.3                                              | Ensure target dates met           | 10-Jul      |
| 1.4                                              | Perform proper quality control    | 10-Jul      |
| <b>Project and Quality Management Sub-Totals</b> |                                   |             |
| <b>100% DETAILED DESIGN</b>                      |                                   |             |
| 2.1                                              | Attend a review meeting with MoTI | 17-Jun      |
| 2.2                                              | Modify NB drawings for SB         | 10-Jul      |
| 2.3                                              | Check Highway Design              | 10-Jul      |
| 2.4                                              | Check Drainage Design             | 10-Jul      |
| 2.5                                              | Check Traffic Plan                | 10-Jul      |
| 2.6                                              | Update Class A Estimate           | 15-Jul      |
| 2.7                                              | Update Special Provisions         | 15-Jul      |
| <b>90% Detailed Design Sub-Totals</b>            |                                   |             |
| <b>100% DETAILED DESIGN</b>                      |                                   |             |
| 3.1                                              | 100% Design Drawings              | 31-Jul      |
| 3.2                                              | 100% Class A Estimate             | 05-Aug      |
| 3.3                                              | Final Design Tender Drawings      | 07-Aug      |
| 3.4                                              | Final Class A Estimate            | 12-Aug      |
| 3.5                                              | Final Special Provisions          | 12-Aug      |
| <b>100% Detailed Design Sub-Totals</b>           |                                   |             |
| <b>TOTALS</b>                                    |                                   |             |

PLEASE INITIAL



MINISTRY OF TRANSPORTATION  
AND INFRASTRUCTURE  
PROCUREMENT

7 AUG 2009

CONTRACTS AND FINANCE  
SOUTH COAST REGION



SNC-LAVALIN Inc.  
1800 - 1075 West Georgia Street  
Vancouver, British Columbia  
Canada V6E 3C9

Telephone: (604) 662-3555  
Facsimile: (604) 662-7688

August 7, 2009

Our Ref.: 020046-30CC

Ministry of Transportation and Infrastructure  
Contract Administration  
7818 - 6<sup>th</sup> Street  
Burnaby, BC V3N 4N8

Attention: Regional Procurement Officer

Dear Sir/Madam,

Subject: **153CS0564 Preliminary and Detailed Design of Hwy 99 Shoulder Bus Lane**  
**Letter dated August 6, 2009**

Further to your above referenced letter, we enclose the signed Amending Agreement No. 1.  
We understand you will forward a copy of the fully signed Agreement to us for our files.

Yours sincerely,

**SNC-Lavalin Inc.**

*for* Yuming Ding, P.Eng.

/lm

Enclosure



File: 153CS0564

August 17, 2009

SNC-Lavalin Inc.  
1800 -1075 West Georgia Street  
Vancouver, BC V6E 3C9

Attention: Yuming Ding

**RE: 153CS0564 Preliminary and Detailed Design of Hwy 99 Shoulder Bus Lane**

Enclosed, please find your signed copy of Amendments No. 01 for the above Consulting Services Contract.

Thank you for your cooperation in this matter.

Liz Hope  
Manager, Financial Services  
and Provincial Contract Services

/da  
Attachment

cc: Jan Pazhouh  
Insurance and Bonds – Victoria, BC  
Disbursements

## Hinze, Dawn TRAN:EX

---

**From:** Lim, Suzanne A TRAN:EX  
**Sent:** Tuesday, November 10, 2009 3:36 PM  
**To:** Pazhouh, Jan TRAN:EX  
**Cc:** Hope, Liz M TRAN:EX; Hinze, Dawn TRAN:EX  
**Subject:** SNC Lavalin Inc 153CS0564 Hwy 99 Shoulder Bus Lane



SNC\_153CS0564\_  
10NOv09\_Y.doc

Insurance APPROVED.

**Suzanne Lim**  
Insurance and Bonds Officer  
Ministry of Transportation and Infrastructure  
Corporate Procurement and Risk Management  
PO Box 9850, Stn Prov Govt, Victoria BC V8W 9T5  
Tel (250)356-9774  
Fax (250)356-9724

[Insuranceandbonds@gov.bc.ca](mailto:Insuranceandbonds@gov.bc.ca)





CONSULTING AND LMWS CONTRACTS  
INSURANCE INFORMATION REQUEST FORM

This form is for insurance information purposes ONLY, it does NOT reflect other requirements of contract

**PART 1: - TO BE COMPLETED BY CONTRACT INITIATOR PRIOR TO COMMENCEMENT OF WORK**

EMAIL TO: INSURANCEandBONDS@gov.bc.ca

Date (yyyy/mm/dd): 2009/10/06

CONTRACTOR: SNC Lavalin Inc

CONTRACT NO: 153CS0564

DESCRIPTION: Preliminary and Detailed Design of Hwy 99 Shoulder Bus Lane

**PART 2: - TO BE COMPLETED BY INSURANCE AND BONDS**

Is evidence of insurance on file?

YES ☒

NO ☐

← Insurance & Bonds will advise when evidence  
of insurance becomes available.

Insurance Information:

ALL EVIDENCE IS BLANKET.

CGL \$4,400,000.00 Expires: March 31, 2010

EXCESS \$1,000,000.00 Expires: March 31, 2010

PLI \$2,000,000.00 Expires: March 31, 2010

AUTO \$5,000,000.00 Expires: September 01, 2010

VERIFIED BY: Suzanne Lim

DATE (yyyy/mm/dd): 2009-11-10

**RETURN TO:**

1. Liz Hope

CONTRACT MANAGER

2. Dawn Hinze

CONTRACT ADMINISTRATION

## Hinze, Dawn TRAN:EX

---

**From:** Lim, Suzanne A TRAN:EX  
**Sent:** Wednesday, October 7, 2009 2:00 PM  
**To:** Hope, Liz M TRAN:EX  
**Cc:** Hinze, Dawn TRAN:EX  
**Subject:** SNC Lavalin Inc 153CS0564 Hwy 99 Shoulder Bus Lane



SNC\_153CS0564\_  
07Oct09\_No.doc

Insurance NOT approved.

Hi Dawn,

Small request, would you mind including the name of the contractor or H1126 along with the contract number in the subject line of your emails.

Thanks,

**Suzanne Lim**  
Insurance and Bonds Officer  
Ministry of Transportation and Infrastructure  
Corporate Procurement and Risk Management  
PO Box 9850, Stn Prov Govt, Victoria BC V8W 9T5  
Tel (250)356-9774  
Fax (250)356-9724

[Insuranceandbonds@gov.bc.ca](mailto:Insuranceandbonds@gov.bc.ca)



CONSULTING AND LMWS CONTRACTS  
INSURANCE INFORMATION REQUEST FORM

This form is for insurance information purposes ONLY, it does NOT reflect other requirements of contract

**PART 1: - TO BE COMPLETED BY CONTRACT INITIATOR PRIOR TO COMMENCEMENT OF WORK**

EMAIL TO: INSURANCEandBONDS@gov.bc.ca

Date (yyyy/mm/dd): 2009/10/06

CONTRACTOR: SNC Lavalin Inc

CONTRACT NO: 153CS0564

DESCRIPTION: Preliminary and Detailed Design of Hwy 99 Shoulder Bus Lane

**PART 2: - TO BE COMPLETED BY INSURANCE AND BONDS**

Is evidence of insurance on file?

YES ☐

NO ☒

← Insurance & Bonds will advise when evidence  
of insurance becomes available.

Insurance Information:

Evidence of renewal has not been received.

VERIFIED BY: Suzanne Lim

DATE (yyyy/mm/dd): 2009-09-07

**RETURN TO:**

1. Liz Hope

CONTRACT MANAGER

2. Dawn Hinze

CONTRACT ADMINISTRATION



CONSULTING AND LMWS CONTRACTS  
INSURANCE INFORMATION REQUEST FORM

This form is for insurance information purposes ONLY, it does NOT reflect other requirements of contract

**PART 1: - TO BE COMPLETED BY CONTRACT INITIATOR PRIOR TO COMMENCEMENT OF WORK**

EMAIL TO: INSURANCEandBONDS@gov.bc.ca

Date (yyyy/mm/dd): 2009/10/20

CONTRACTOR: SNC Lavalin Inc

CONTRACT NO: 153CS0564

DESCRIPTION: Preliminary and Detailed Design of Hwy 99 Shoulder Bus Lane

**PART 2: - TO BE COMPLETED BY INSURANCE AND BONDS**

Is evidence of insurance on file?

YES ☐

NO ☒

⇐ Insurance & Bonds will advise when evidence  
of insurance becomes available.

Insurance Information:

Evidence of renewal has not been received yet, however I have been advised it is 'in the works'.

VERIFIED BY: Suzanne Lim

DATE (yyyy/mm/dd): 2009-10-22

**RETURN TO:**

1. Liz Hope

CONTRACT MANAGER

2. Dawn Hinze

CONTRACT ADMINISTRATION



## Hinze, Dawn TRAN:EX

---

**From:** Lim, Suzanne A TRAN:EX  
**Sent:** Thursday, October 22, 2009 11:38 AM  
**To:** Hope, Liz M TRAN:EX  
**Cc:** Hinze, Dawn TRAN:EX; Pazhouh, Jan TRAN:EX  
**Subject:** SNC Lavalin Inc 153CS0564 Hwy 99 Shoulder Bus Lane



SNC\_153CS0564\_  
22Oct09\_No.doc

Insurance NOT approved.

### **Suzanne Lim**

Insurance and Bonds Officer  
Ministry of Transportation and Infrastructure  
Corporate Procurement and Risk Management  
PO Box 9850, Stn Prov Govt, Victoria BC V8W 9T5  
Tel (250)356-9774  
Fax (250)356-9724

[Insuranceandbonds@gov.bc.ca](mailto:Insuranceandbonds@gov.bc.ca)

**Anderson, Dianne S TRAN:EX**

---

**From:** Pazhouh, Jan TRAN:EX  
**Sent:** Monday, March 30, 2009 10:09 AM  
**To:** Marshall, Lyn C TRAN:EX  
**Cc:** Anderson, Dianne S TRAN:EX  
**Subject:** FW: 153CS0564 SNC Lavalin - Hwy 99 Shoulder Bus Lane

Hi Lyn, Please attach a copy of this email to the invoice. The invoice has been corrected in the system. Thanks

---

**From:** Ding, Yuming [mailto:Yuming.Ding@sncclavalin.com]  
**Sent:** Monday, March 30, 2009 10:04 AM  
**To:** Pazhouh, Jan TRAN:EX  
**Subject:** RE: 153CS0564 SNC Lavalin - Hwy 99 Shoulder Bus Lane

Good morning, Jan,

Thanks for the note. I will let our accountants know the changes.

Regards,  
Yuming

---

**From:** Pazhouh, Jan TRAN:EX [mailto:Jan.Pazhouh@gov.bc.ca]  
**Sent:** March 30, 2009 10:01 AM  
**To:** Ding, Yuming  
**Subject:** FW: 153CS0564 SNC Lavalin - Hwy 99 Shoulder Bus Lane

Hi Yuming,

We made another correction to the invoice 494731 because of an incorrect hourly rate that was entered by SNC office (we discussed the previous correction for miscellaneous Charges). Please pass the information to your accountant and inform them of the mistake.

Thanks,

Jan

---

**From:** Anderson, Dianne S TRAN:EX  
**Sent:** Monday, March 30, 2009 9:17 AM  
**To:** Pazhouh, Jan TRAN:EX  
**Subject:** 153CS0564 SNC Lavalin - Hwy 99 Shoulder Bus Lane

Hi Jan

Invoice 494731 new total is \$4525.00. A difference of \$315.00 for the clerical hours –

s.21

s.21

Dianne Anderson  
Regional Procurement Officer  
Ministry of Transportation and Infrastructure





CONSULTING AND LMWS CONTRACTS  
INSURANCE INFORMATION REQUEST FORM

This form is for insurance information purposes ONLY, it does NOT reflect other requirements of contract

**PART 1: - TO BE COMPLETED BY CONTRACT INITIATOR PRIOR TO COMMENCEMENT OF WORK**

EMAIL TO: INSURANCEandBONDS@gov.bc.ca

Date (yyyy/mm/dd): 2008/10/17

CONTRACTOR: SNC Lavalin Inc

CONTRACT NO: 153CS0564

DESCRIPTION: Preliminary and Detailed Design of Hwy 99 Shoulder Bus Lane

**PART 2: - TO BE COMPLETED BY INSURANCE AND BONDS**

Is evidence of insurance on file?

YES ☒

NO ☐

← Insurance & Bonds will advise when evidence  
of insurance becomes available.

Insurance Information:

CGL \$2,000,000.00 Expires: March 31, 2009

PLI \$1,000,000.00 Expires: March 31, 2009

AUTO \$3,000,00.00 Expires: September 01, 2009

ALL EVIDENCE IS CONTRACT SPECIFIC.

VERIFIED BY: Suzanne Lim

DATE (yyyy/mm/dd): 2008/10/17

**RETURN TO:**

1. Jan Pazhouh

CONTRACT MANAGER

2. Dianne Anderson

CONTRACT ADMINISTRATION





CONSULTING AND LMWS CONTRACTS  
INSURANCE INFORMATION REQUEST FORM

This form is for insurance information purposes ONLY, it does NOT reflect other requirements of contract

PART 1: - TO BE COMPLETED BY CONTRACT INITIATOR PRIOR TO COMMENCEMENT OF WORK

EMAIL TO: INSURANCEandBONDS@gov.bc.ca

Date (yyyy/mm/dd): 2008/05/02

CONTRACTOR: SNC Lavalin Inc

CONTRACT NO: 153CS0564

DESCRIPTION: Preliminary and Detailed Design of Hwy 99 Shoulder Bus Lane

PART 2: - TO BE COMPLETED BY INSURANCE AND BONDS

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YES ☒

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Insurance Information:

|      |                |                             |
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| CGL  | \$2,000,000.00 | Expires: March 31, 2009     |
| PLI  | \$1,000,000.00 | Expires: March 31, 2009     |
| AUTO | \$3,000,00.00  | Expires: September 01, 2008 |

*Contract Specific*

VERIFIED BY: Suzanne Lim

DATE (yyyy/mm/dd): 2008/05/27

RETURN TO:

1. Jan Pazhouh

CONTRACT MANAGER

2. Dianne Anderson

CONTRACT ADMINISTRATION

**Anderson, Dianne S TRAN:EX**

---

**From:** INSURANCE and BONDS TRAN:EX  
**Sent:** Tuesday, May 27, 2008 10:01 AM  
**To:** Anderson, Dianne S TRAN:EX  
**Subject:** RE: REQUEST FOR INSURANCE

Contract Specific

**Suzanne Lim**

Ministry of Transportation  
Insurance & Bonds  
PO Box 9850 Stn Prov Govt  
Victoria BC V8W9T5  
Telephone: (250)356-9774  
Fax: (250)356-9724  
e-mail: Suzanne.Lim@gov.bc.ca

Location: 4C-940 Blanshard St, Victoria BC

---

**From:** Anderson, Dianne S TRAN:EX  
**Sent:** Tuesday, May 27, 2008 9:37 AM  
**To:** INSURANCE and BONDS TRAN:EX  
**Subject:** FW: REQUEST FOR INSURANCE

Blanket or contract specific ??

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**From:** INSURANCE and BONDS TRAN:EX  
**Sent:** Tuesday, May 27, 2008 9:24 AM  
**To:** Anderson, Dianne S TRAN:EX  
**Subject:** RE: REQUEST FOR INSURANCE

Ok, not to worry. If the originals get sent in to your office, please redirect to me. I'm pretty sure we will get both page 1 & 2 from Aon for the CGL & PLI. Quite often they do miss page 2 when they email a pdf but have not missed mailing both pages.

I have approved as is.

**Suzanne Lim**

Ministry of Transportation  
Insurance & Bonds  
PO Box 9850 Stn Prov Govt  
Victoria BC V8W9T5  
Telephone: (250)356-9774  
Fax: (250)356-9724  
e-mail: Suzanne.Lim@gov.bc.ca

Location: 4C-940 Blanshard St, Victoria BC

2008-05-27

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**From:** Anderson, Dianne S TRAN:EX  
**Sent:** Tuesday, May 27, 2008 9:16 AM  
**To:** INSURANCE and BONDS TRAN:EX  
**Subject:** RE: REQUEST FOR INSURANCE

Good morning Suzanne  
That was all that was electronically sent.....

---

**From:** INSURANCE and BONDS TRAN:EX  
**Sent:** Tuesday, May 27, 2008 9:10 AM  
**To:** Anderson, Dianne S TRAN:EX  
**Cc:** Pazhouh, Jan TRAN:EX  
**Subject:** FW: REQUEST FOR INSURANCE

Hi Dianne,

We will accept these as interim evidence of insurance for this SNC Contract 153CS0564 however we do require the original Certificates for our files. One thing to note, where is page 2 for the CGL & PLI Certificate? Aon is ususally pretty good about sending/emailing both pages.

Thanks,

**Suzanne Lim**  
Ministry of Transportation  
Insurance & Bonds  
PO Box 9850 Stn Prov Govt  
Victoria BC V8W9T5  
Telephone: (250)356-9774  
Fax: (250)356-9724  
e-mail: Suzanne.Lim@gov.bc.ca

Location: 4C-940 Blanshard St, Victoria BC

---

**From:** Anderson, Dianne S TRAN:EX  
**Sent:** Monday, May 26, 2008 1:19 PM  
**To:** INSURANCE and BONDS TRAN:EX  
**Cc:** Pazhouh, Jan TRAN:EX  
**Subject:** FW: REQUEST FOR INSURANCE

Good afternoon Suzanne.

Please find attached insurance documents presented by SNC-Lavalin for consulting contract 153CS0564 Preliminary and detailed design of Hwy 99 Shoulder Bus Lane.

Thanks Dianne

---

**From:** Pazhouh, Jan TRAN:EX  
**Sent:** Monday, May 26, 2008 1:15 PM  
**To:** Anderson, Dianne S TRAN:EX

**Subject:** FW: REQUEST FOR INSURANCE

Hi Dianne,

Please let me know whether the attachment meets contract insurance requirement. Thanks  
Jan

---

**From:** Wong, Richard [mailto:Richard.Wong@snclavalin.com]  
**Sent:** Monday, May 26, 2008 12:38 PM  
**To:** Pazhouh, Jan TRAN:EX  
**Subject:** FW: REQUEST FOR INSURANCE

Jan,

Further to your voicemail, here is the pdf version of the insurance.

Richard.

---

**From:** Vasey, Laara  
**Sent:** May 26, 2008 11:10 AM  
**To:** Wong, Richard  
**Cc:** Hoskin, Douglas  
**Subject:** FW: REQUEST FOR INSURANCE

---

**From:** Michaud, Nathalie  
**Sent:** May 26, 2008 10:43 AM  
**To:** Vasey, Laara  
**Subject:** RE: REQUEST FOR INSURANCE

Good day Laara,

Please find attached, the pdf version of the certificates. The originals will follow by mail.

Thank you,

**Nathalie Michaud**  
Administrative Assistant  
SNC-Lavalin Risk & Insurance  
Telephone : (514) 393-1000, ext. 7810  
Fax : (514) 390-6515  
[nathalie.michaud@snclavalin.com](mailto:nathalie.michaud@snclavalin.com)

---

**De :** Vasey, Laara  
**Envoyé :** 21 mai 2008 18:08  
**À :** SL Assurance  
**Cc :** Michaud, Nathalie; Wong, Richard  
**Objet :** REQUEST FOR INSURANCE

2008-05-27



May 21, 2008

Re: Highway 99 Shoulder Bus Lane (Our Project No. 020046)

Please find enclosed Insurance & Bonding Form (IBF), together with the Ministry's form H0111 form for completion (two pages). Included is a copy of the Ministry of Transportation Consulting Services Contract (ID 153 CS 0564), which has been signed by Douglas Hoskin, VP, Finance & Contracting, and sent to the Ministry for their signature and return.

Regards,

Laara Vasey  
Admin. Ass't.  
Engineering, Roads & Infrastructure  
Transportation Division - Vancouver  
(Direct: 604-605-5923)

**Anderson, Dianne S TRAN:EX**

---

**From:** Anderson, Dianne S TRAN:EX  
**Sent:** Monday, May 26, 2008 1:19 PM  
**To:** INSURANCE and BONDS TRAN:EX  
**Cc:** Pazhouh, Jan TRAN:EX  
**Subject:** FW: REQUEST FOR INSURANCE  
**Attachments:** SNC\_Contract 153CS0564\_Cert.pdf; Ministry of Transportation of BC Highway 99 project (3).pdf

Good afternoon Suzanne.

Please find attached insurance documents presented by SNC-Lavalin for consulting contract 153CS0564 Preliminary and detailed design of Hwy 99 Shoulder Bus Lane.

Thanks Dianne

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**From:** Pazhouh, Jan TRAN:EX  
**Sent:** Monday, May 26, 2008 1:15 PM  
**To:** Anderson, Dianne S TRAN:EX  
**Subject:** FW: REQUEST FOR INSURANCE

Hi Dianne,

Please let me know whether the attachment meets contract insurance requirement. Thanks

Jan

---

**From:** Wong, Richard [mailto:Richard.Wong@snc-lavalin.com]  
**Sent:** Monday, May 26, 2008 12:38 PM  
**To:** Pazhouh, Jan TRAN:EX  
**Subject:** FW: REQUEST FOR INSURANCE

Jan,

Further to your voicemail, here is the pdf version of the insurance.

Richard.

---

**From:** Vasey, Laara  
**Sent:** May 26, 2008 11:10 AM  
**To:** Wong, Richard  
**Cc:** Hoskin, Douglas  
**Subject:** FW: REQUEST FOR INSURANCE

---

**From:** Michaud, Nathalie  
**Sent:** May 26, 2008 10:43 AM  
**To:** Vasey, Laara

2008-05-26

**Subject:** RÉ: REQUEST FOR INSURANCE

Good day Laara,

Please find attached, the pdf version of the certificates. The originals will follow by mail.

Thank you,

**Nathalie Michaud**

Administrative Assistant

SNC-Lavalin Risk & Insurance

Telephone : (514) 393-1000, ext. 7810

Fax : (514) 390-6515

[nathalie.michaud@snclavalin.com](mailto:nathalie.michaud@snclavalin.com)

---

**De :** Vasey, Laara

**Envoyé :** 21 mai 2008 18:08

**À :** SL Assurance

**Cc :** Michaud, Nathalie; Wong, Richard

**Objet :** REQUEST FOR INSURANCE

May 21, 2008

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Please find enclosed Insurance & Bonding Form (IBF), together with the Ministry's form H0111 form for completion (two pages). Included is a copy of the Ministry of Transportation Consulting Services Contract (ID 153 CS 0564), which has been signed by Douglas Hoskin, VP, Finance & Contracting, and sent to the Ministry for their signature and return.

Regards,

Laara Vasey

Admin. Ass't.

Engineering, Roads & Infrastructure

Transportation Division - Vancouver

(Direct: 604-605-5923)

**Anderson, Dianne S TRAN:EX**

---

**From:** INSURANCE and BONDS TRAN:EX  
**Sent:** Friday, May 23, 2008 1:52 PM  
**To:** Anderson, Dianne S TRAN:EX  
**Subject:** FW: 153CS0564 SNC-Lavalin Inc. - Preliminary and Detailed Design of Hwy 99 Shoulder Bus Lane

**Attachments:** H1126 NO 02\_May\_08.rtf

Hi Dianne,

Sorry, nothing yet.

**Suzanne Lim**

Ministry of Transportation  
Insurance & Bonds  
PO Box 9850 Stn Prov Govt  
Victoria BC V8W9T5  
Telephone: (250)356-9774  
Fax: (250)356-9724  
e-mail: Suzanne.Lim@gov.bc.ca

Location: 4C-940 Blanshard St, Victoria BC

---

**From:** Anderson, Dianne S TRAN:EX  
**Sent:** Friday, May 23, 2008 9:44 AM  
**To:** INSURANCE and BONDS TRAN:EX  
**Subject:** 153CS0564 SNC-Lavalin Inc. - Preliminary and Detailed Design of Hwy 99 Shoulder Bus Lane

Good morning Suzanne.



H1126 NO  
\_May\_08.rtf (350 KB)

Have you received evidence of insurance for this contract?

Thanks Dianne