

# APPENDIX F

## Detailed Land Demand Calculations

## a) Employee Number Estimates

**Table 1. Yukon Home-Based vs. Non-Home Based Businesses, 2017**

	% Home-Based Businesses – YT (2017)	% Non-Home-Based Businesses - YT (2017)
Mining & Oil & Gas Extraction	26.5	73.5
Utilities; Manufacturing	13.7	86.3
Construction	43	57
Wholesale Trade	4.1	95.9
Transportation & Warehousing	12.2	87.8
Waste Mgmt & Env Remediation Services	11.6	88.4
Professional, Scientific and Technical Services	43.5	56.5

Source: 2017 Yukon Business Survey, Yukon Bureau of Statistics

**Table 2. Whitehorse Employees as a Percentage of Total Yukon Employees, 2008-2017**

Year	% of Whitehorse employees
2008	84
2010	80
2013	76
2015	76
2017	81
Average	79.5

Source: 2017 Yukon Business Survey, Yukon Bureau of Statistics

**Table 3. Number of Yukon Employees by Key Industry Sector, 2008-2018**

Industry Sector (NAICS)	Number of YT Employees						Average Annual Growth Rate (#)
	2008	2010	2012	2014	2016	2018	
Mining & Oil & Gas Extraction (Support)	355	425	750	565	480	775	38.2
Utilities; Manufacturing	480	435	510	455	465	460	-1.8
Construction	1420	1885	1855	1525	1615	1830	37.3
Wholesale Trade	330	315	305	320	315	335	0.5
Transportation & Warehousing	775	695	775	800	940	1125.0	31.8
Waste Mgmt & Env Remediation Services	25	35	65	90	80	80.0	5.0
Professional, Scientific and Technical Services	735	710	785	845	865	905.0	15.5

Source Data: Statistics Canada via pers. comm with Yukon Bureau of Statistics

**Table 4. Estimated Number of Whitehorse Non-Home-Based Employees by Key Industry Sector, 2030 and 2040**

	Total 2018 YT employees	AAGR (#)	Total 2030 YT employees	2030 Whse <sup>1</sup> employees	2030 Whse non-home based employees <sup>2</sup>	Total 2040 YT employees	2040 Whse <sup>3</sup> employees	2040 Whse non-home <sup>4</sup> based employees
Mining & Oil & Gas Extraction (Support)	775	38.2	1233	980	721	1615	1284	944
Utilities; Manufacturing	460	-1.8	438	348	300	420	334	288
Construction	1830	37.3	2277	1810	1032	2650	2107	1201
Wholesale Trade	335	0.5	340	271	260	345	274	264
Transportation & Warehousing	1125.0	31.8	1507	1198	1051	1825	1451	1273
Waste Mgmt & Env Remediation Services	80.0	5.0	140	111	98	190	151	134
Professional, Scientific and Technical Services	905.0	15.5	1090	867	490	1245	990	559

Source Data: Statistics Canada via personal communication with Yukon Bureau of Statistics, Yukon Business Survey (Yukon Bureau of Statistics)

## b) Retail and Food Services Growth Projections

**Table 5. Projected Whitehorse Population Growth, 2030 and 2040**

Retail Trade Growth	2019*	2030	2040
Whitehorse Area Population (Preferred)	32,120	38,850	44,650
Incremental Population relative to 2019		6730	12,530

Source Data: Yukon Bureau of Statistics

**Table 6. Household Spending on Food, Whitehorse and Yukon, 2019**

2019 Household Spend Food	Whitehorse, YT			Yukon, YT		
	Total Expenditure	Expenditure per Household	%	Total Expenditure	Expenditure per Household	%
<b>Food</b>	<b>\$165,234,764</b>	<b>\$12,757</b>		<b>\$200,441,258</b>	<b>\$11,962</b>	
Food purchased from stores	\$109,350,831	\$8,443	66%	\$133,097,720	\$7,943	66%
Food purchased from restaurants	\$55,883,933	\$4,315	34%	\$67,343,538	\$4,019	34%
Restaurant meals	\$49,005,683	\$3,784	30%	\$58,957,802	\$3,518	29%
Restaurant dinners	\$25,981,686	\$2,006	16%	\$31,064,614	\$1,854	15%
Restaurant lunches	\$17,996,469	\$1,389	11%	\$21,739,101	\$1,297	11%
Restaurant breakfasts	\$5,027,528	\$388	3%	\$6,154,087	\$367	3%
Restaurant snacks and beverages	\$6,878,250	\$531	4%	\$8,385,737	\$500	4%

Source Data: Sitewise Online

<sup>1</sup> Based on AAGR from Statistics Canada data and average percentage (79.5%) of Whitehorse-based employees from 2008, 2010, 2013, 2015, and 2017 Yukon Business Surveys conducted by the Yukon Bureau of Statistics (YBS).

<sup>2</sup> Based on breakdown, by sector, of home-based vs. non-home based employees from 2017 Yukon Business Survey conducted by YBS.

<sup>3</sup> Based on average percentage (79.5%) of Whse-based employees from 2008, 2010, 2013, 2015, and 2017 Yukon Business Surveys.

<sup>4</sup> Based on breakdown, by sector, of home-based vs. non-home based employees from 2017 Yukon Business Survey conducted by YBS.

**Table 7. Whitehorse Restaurant Spending Estimate, 2019**

	Total Expenditure	HH Expenditure	Per Capita Expenditure	HH Size
Food purchased from restaurants	\$55,883,933	\$4,315	\$1813	2.38
Alcoholic beverages served on licensed premises	\$35,141,482	\$2,713	\$1140	
<b>Restaurant Food &amp; Beverage spending estimate</b>	<b>\$91,025,415</b>	<b>\$7,028</b>	<b>\$2953</b>	

Source Data: Sitewise Online

**Table 8. Projected Whitehorse Resident Food Services Demand, 2030 and 2040**

	2030	2040
Incremental population growth (Whitehorse Metro Area)	6730	12,530
Associated restaurant spending (total annual) <sup>5</sup>	\$19,873,000	\$37,000,000
Estimated market capture within Whitehorse <sup>6</sup>	65%	\$12,917,000
Projected \$/ft <sup>2</sup> restaurant productivity <sup>7</sup>	\$600	\$24,050,000
Projected incremental need - restaurant space (ft <sup>2</sup> ) <sup>8</sup>	21,500	40,100

Source Data: Yukon Bureau of Statistics, Sitewise Online

**Table 9. Projected Whitehorse Per Capita Retail Support, 2030 and 2040**

Per Capita Retail Support - Incremental	sq. ft./cap	2030	2040
Lower ratio <sup>9</sup>	45	303,000	564,000
Higher ratio <sup>10</sup>	55	370,000	689,000
	sq. ft./cap	2030	2040
Regional-serving proportion <sup>11</sup> :	55%	45	167,000
		55	204,000
Local-serving proportion <sup>12</sup> :	45%	45	136,000
		55	166,000

Source Data: Yukon Bureau of Statistics, Sitewise Online

<sup>5</sup> Assumes 2019 per capita spending of \$2359 remains constant through 2030/2040.

<sup>6</sup> Assumes 35% of restaurant spending occurs during trips away from Whitehorse.

<sup>7</sup> Based on industry averages provided by Urban Systems.

<sup>8</sup> Population growth driven portion only.

<sup>9</sup> Based on retail industry averages provided by Urban Systems.

<sup>10</sup> Based on retail industry averages provided by Urban Systems.

<sup>11</sup> Based on 2016 Edmonton-based market research undertaken by Urban Systems.

<sup>12</sup> Based on 2016 Edmonton-based market research undertaken by Urban Systems.

## c) Future Land Need Estimates

### i. IS/IH and CIM zoning oriented sectors

**Table 10. Estimated Gross Land Needs by Key Industry Sector, 2030 and 2040**

Industry Sector	Total Whitehorse Non-HB New Employees (from 2018)		Required Floor Area per Employee (ft <sup>2</sup> ) <sup>13</sup>	Site Coverage <sup>14</sup>	Required Land (ha)	
	2030	2040			2030	2040
Mining & Oil & Gas Extraction (Support)	258	481	900	20%	10.8	20.1
Utilities; Manufacturing	-22	-35	700	25%	0	0
Construction	184	353	800	25%	5.5	10.5
Wholesale Trade	-2	2	700	25%	0	0
Transportation & Warehousing	250	471	1000	25%	9.2	17.5
Waste Mgmt & Env Remediation Services	41	76	700	20%	1.3	2.5
Professional, Scientific and Technical Services	74	144	500	40%	0.9	1.7

Source Data: Statistics Canada via pers. comm with Yukon Bureau of Statistics, Yukon Business Survey (Yukon Bureau of Statistics)

**Table 11. Estimated MU-I/C and Industrial Designated Land Needs by Key Industry Sector, 2030 and 2040**

Industry Sector	Land Allocation		Required Land (ha)					
	2030 Total Need	2040 Total Need	MU-I/C	IND	MU-I/C Land Need 2030	IND Land Need 2030	MU-I/C Land Need 2040	IND Land Need 2040
Mining & Oil & Gas Extraction (Support)	10.8	20.1	10%	90%	3.8	7.0	7.0	13.1
Utilities & Manufacturing	0	0	35%	65%	0.0	0.0	0.0	0.0
Construction	5.5	10.5	35%	65%	1.9	3.6	3.7	6.8
Wholesale Trade	0	0	50%	50%	0.0	0.0	0.0	0.0
Transportation and Warehousing	9.2	17.5	20%	80%	1.8	7.4	3.5	14.0
Waste Management and Env. Remediation	1.3	2.5		100%	0.0	1.3	0.0	2.5

<sup>13</sup> Based on industry averages provided by Urban Systems.

<sup>14</sup> Based on ground-truthing/Google Earth survey of Whitehorse industrial areas for all sectors except Professional (Etc.) Services – an estimated average coverage factoring in higher-density development for office uses (i.e. CIM zoning) and lower density development in industrial areas.

ii. CH and CIM zoning oriented sectors

**Table 12. Projected MU-I/C Land Needs for Professional, Technical and Scientific Services, 2030 and 2040**

2030 Total Land Need (ha)	2040 Total Land Need (ha)	Downtown or Comm-Service Allocation <sup>15</sup>	MU-I/C Allocation <sup>16</sup>	2030 Total MU-I/C Land Need (ha)	2040 Total MU-I/C Land Need (ha)
0.9	1.7	50%	50%	0.4	0.8

**Table 13. Projected Gross Land Needs for Retail, 2030 and 2040**

		Sub-Total 2030 Need (ft <sup>2</sup> )	Site Coverage <sup>17</sup>	2030 Total Land Need <sup>18</sup> (ft <sup>2</sup> )	2030 Total Land Need (ha)	Sub-Total 2040 Need (ft <sup>2</sup> )	Site Coverage	2040 Total Land Need (ft <sup>2</sup> )	2040 Total Land Need (ha)
Regional-serving proportion	Low ratio	167,000	30%	556,667	5.2	310,000	30%	1,033,333	9.6
	High ratio	204,000	30%	680,000	6.3	379,000	30%	1,263,333	11.7
Local-serving proportion	Low ratio	136,000	40%	340,000	3.2	254,000	40%	635,000	5.9
	High ratio	166,000	40%	415,000	3.9	310,000	40%	775,000	7.2

**Table 14. Projected MU-I/C Land Needs for (High-Ratio) Retail, 2030 and 2040**

Retail Orientation	2030 Total Land Need – High (ha)	2040 Total Land Need (ha)	Downtown Allocation <sup>19</sup>	Comm-Service Allocation	MU-I/C Allocation <sup>20</sup>	2030 Total MU-I/C Land Need (ha)	2040 Total MU-I/C Land Need (ha)
Regional serving	6.3	11.7	85%	5%	10%	0.6	1.2
Local serving	3.9	7.2	15%	56.7%	28.3%	1.1	2.0

**Table 15. Projected Gross Land Needs for Food Services, 2030 and 2040**

Sub-Total 2030 Need (ft <sup>2</sup> )	Site Coverage <sup>21</sup>	2030 Total Land Need <sup>22</sup> (ft <sup>2</sup> )	2030 Total Land Need (ha)	Sub-Total 2040 Need (ft <sup>2</sup> )	Site Coverage	2040 Total Land Need (ft <sup>2</sup> )	2040 Total Land Need (ha)
21,500	30%	71,667	0.7	40,100	30%	133667	1.2

<sup>15</sup> Based on Urban Systems observations of local market and industry behaviour.

<sup>16</sup> Based on Urban Systems observations of local market and industry behaviour.

<sup>17</sup> Based on industry averages provided by Urban Systems.

<sup>18</sup> Assumes 85% of new local-serving retail businesses will operate outside of Downtown and 15% of new regional-serving businesses will operate outside of Downtown.

<sup>19</sup> Based on Urban Systems observations of local market and industry behaviour.

<sup>20</sup> Based on Urban Systems observations of local market and industry behaviour.

<sup>21</sup> Based on industry averages provided by Urban Systems.

<sup>22</sup> Assumes 15% of new food serving businesses will operate outside of Downtown.

**Table 16. Projected MU-I/C Land Needs for Food Services, 2030 and 2040**

2030 Total Land Need (ha)	2040 Total Land Need (ha)	Downtown Allocation <sup>23</sup>	Comm-Service Allocation <sup>24</sup>	MU-I/C Allocation <sup>25</sup>	2030 Total MU-I/C Land Need (ha)	2040 Total MU-I/C Land Need (ha)
0.7	1.2	85%	5%	10%	0.07	0.1

**d) Latent Land Demand Estimates**

**Table 17. Projected MU-I/C Land Needs for Food Services, 2030 and 2040**

OCP Designation	Example	# of Lots	Average Lot Size (ha)	Absorption Time (yrs)	Avg Annual Absorption (lots/yr)	Avg Annual Absorption (ha/yr)	Adjust Factor	Adjust Annual Absorption	“Lag” Time (yrs)	Latent Demand (ha)
IND	Mount Sima Phase 1/2	53	1.2	9	5.9	7.1	50% <sup>26</sup>	3.5	9	31.5
MU-I/C	Titanium Way (CIM)	48	0.2	10	4.8	0.96	-	-	2	1.8
MU-I/C	Highway Commercial					n/a <sup>27</sup>				4

<sup>23</sup> Based on Urban Systems observations of local market and industry behaviour.

<sup>24</sup> Based on Urban Systems observations of local market and industry behaviour.

<sup>25</sup> Based on Urban Systems observations of local market and industry behaviour.

<sup>26</sup> The 50% adjustment factor reflects the fact that land absorption doesn’t typically occur in a linear fashion, but rather in “bursts” and “lulls”, wherein new supply satisfies pent-up demand and it takes a number of years for demand to accumulate. It is assumed that the Mount Sima development would have largely satisfied demand and the rate of absorption would have decreased in the years afterwards. The factor also accounts for the average lot sizes of Mount Sima being over double those of older industrial areas (MacRae and Taylor, specifically).

<sup>27</sup> Instead of actual lot sales (which were not available for this type of property), the Team made an estimate based on the input of an experienced local realtor, which represents latent demand of approximately double the area of the most recently developed Highway Commercial property in Whitehorse.