



## Memorandum

<b>Date:</b>	February 26, 2021
<b>To:</b>	Doug Annand, UrbanMetrics; Robert Feldgaier, Altus Group; Audrey Jacob, IBI Group; Russell Mathew, Hemson Consulting Ltd.
<b>Cc:</b>	Michael Kovacevic, Solicitor, City of Hamilton; Heather Travis, Senior Project Manager, Growth Management Strategy
<b>From:</b>	Antony P. Lorius
<b>Subject:</b>	City of Hamilton Land Needs Assessment (LNA) to 2051

### Purpose

The purpose of this memorandum is to provide an initial response to the preliminary questions and information requests made in regards to the draft results of the City of Hamilton Land Needs Assessment (LNA) over the period to 2051. The focus is on four documents that were presented at the December 14<sup>th</sup>, 2020 General Issues Committee:

- *City of Hamilton Land Needs Assessment to 2051 – Technical Working Paper – Draft Summary of Results, “Appendix B”;*
- *Residential Intensification Market Demand Analysis “Appendix C”;*
- *Residential Intensification Supply Update “Appendix D”;* and
- *Existing Designated Greenfield Area Density Analysis, “Appendix E”.*

The preliminary questions and information requests are summarized and addressed in turn in the sections that follow. Where applicable, the City has provided an initial response in the form of base background information, which continues to be reviewed and assessed as the current “GRIDS2” and Municipal Comprehensive Review (MCR) process unfolds.

Following review of this memorandum, we anticipate further follow up to discuss the results, implications for overall land need and approach moving forward.

**City of Hamilton Land Needs Assessment to 2051 – Technical Working Paper – Draft  
Summary of Results (December 2020) “Appendix B”**

- 1. In Table 4, is the forecast growth by dwelling type forecast household growth or forecast growth of new housing units?**

The forecast growth by dwelling type shown in Table 4 is growth in new housing units, particularly units occupied by usual residents. The population in units not occupied by usual residents (the non-household population) is added later in the analysis as part of the estimation of *Growth Plan* density for the three main LNA scenarios.

- 2. Have allowances been made for units lost within the existing housing stock (e.g., through demolitions) changes in dwelling type within the existing housing stock (e.g., through creation of accessory units within single-detached dwellings) and/or for a change in the number of vacant units?**

No adjustments are made to the base forecasts in the Hemson report (2020) or subsequent draft LNA to 2051 for units lost through demolition or change in the number of vacant units. However, in the 2020 Hemson forecasts the Census definition of housing unit types is restated to account for the creation of accessory units within single-detached units.

The starting assumption is that all duplex units as defined by the Census are in pre-existing single and semi-detached units. Half of those units are allocated to a new category titled “accessory units” to better reflect how these units are typically treated from a planning perspective. The number of purpose-built duplexes in southern Ontario markets are few, if any. The few we are aware of in Toronto are replacements of existing houses, providing the same net effect as the one house plus one apartment approach. For convenience, these accessory units are included as apartments for the purposes of the draft LNA because ground-related units rather than apartments generate land need.

- 3. Why are the figures for housing need by dwelling type in Table 4 the same as in the Hemson report (2020) for row units but different for other dwelling types in 2031, 2041 and 2051?**

In the Hemson report (2020), the unit-type occupancy patterns used to prepare the housing forecast in Appendix B were adjusted from 2016 and from 2021 estimated rates to provide a market-based outlook for housing type. In that work, Hemson described the market mix of housing to generally reflect the average mix demonstrated over the most recent 15 or 20 years plus some further adjustment to reflect an aging population or to reflect a particularly strong recent shift in the housing market by unit type.

A standardized approach to setting the housing market mix was taken in the 2020 Hemson report because of the need to consider a large number of local markets simultaneously and within an overall GGH-wide forecast control total. Following the release of the Hemson report, a more detailed analysis specific to Hamilton was undertaken. The market mix was refined from the one that was applied in the Hemson report in August of 2020: the difference being a small downward adjustment in the number of new accessory units and a corresponding increase in apartment building units.

**4. In Tables 6,7, and 8 what is the basis for the specific adjustments made to the market-based growth by dwelling type for each of the scenarios and for the specific allocations of growth by dwelling type between the built-up area and designated greenfield area for each of the scenarios?**

The basis for the specific adjustments made to the market-based growth by dwelling type is summarized on page 19 of Appendix B. There are three steps:

- First, a ‘typical’ housing unit mix is set for inside and outside the built boundary. The mix inside the built boundary is focussed on apartments rather than ground-related units and vice versa for the designated greenfield (DGA) and rural area.

The specific housing unit mix is shown near the top of Tables 6 and 7 and broadly comprises an 80/20% split of apartment versus ground-related units inside the built boundary and roughly the opposite in the DGA and rural area, which comprises a 94/6% split of ground-related versus apartment units. This ‘typical’ housing unit mix is maintained for each of the three main LNA scenarios.

- Second, the housing mix for inside and outside the built-up area is applied to the total housing growth from 2021-2051 (110,320 units) in accordance with the intensification target applied to each LNA scenario; which ranges from 50% of new units over the period to 2051 in the *Growth Plan* Minimum scenario to an average of 55% and 60% in the *Increased Targets* and *Ambitious Density* scenarios, respectively.
- Third, the resulting housing forecast, by type, for inside and outside the built-up area is combined to create an overall City-wide housing mix of growth to 2051, with the result that the growth is “shifted” away from ground-related units (under the market-based forecast) towards apartment units to accommodate the mandated *Growth Plan* intensification target or the higher scenario rates.

The specific adjustments to the market-based forecast are shown in Tables 6 and 7:

- As shown in Table 6, under the *Growth Plan* minimum scenario (50% intensification) approximately 20,730 new households that would otherwise occupy ground-related housing are shifted to apartments; and
- As shown in Table 7, under the Current Trends scenario (40% intensification) a lesser shift is required: approximately 12,570 units. The shift to apartments is greater under the *Increased Targets* and *Ambitious Density* scenarios because they are based on higher rates of intensification. These details are not shown in the report but can certainly be provided as necessary. The resulting allocations and City-wide unit mix for the three main scenarios is summarized in Table 8.

**5. In Tables 7, 8 and 9, for ground-related units within the built-up area what is the split between single and semi-detached and row units?**

For Tables 7 and 8, ground-related housing demand in the built-up Area is allocated largely to rows (75% of the total) since a greater proportion of rowhouses and other multiple forms tend to be achieved through intensification than single and semi-detached units. Single and semi-detached units are grouped together for the purposes of the Hemson forecast and draft LNA results, but semis are typically small in number in the Hamilton market at approximately 3% of the total units.

The remaining Rowhouse market is allocated as a residual to the DGA in accordance with the intensification target applied to the analysis. This approach has the effect of allocating a gradually increasing share of greenfield rowhouses within the ground-related category for the *Growth Plan* Minimum, *Increased Targets* and *Ambitious Density* Scenarios. Table 9 does not show supply within the built-up area.

**6. What analysis has been undertaken to confirm that the ground-related dwellings allocated to the built-up area in Tables 7 can be accommodated within the built-up area apart from the analysis presented in Appendix C and Appendix D?**

No specific analysis has been undertaken beyond the material presented in Appendix C and Appendix D. However, it should be noted that a conservative approach was taken to the estimate of ground-related supply since there are many challenges associated with identifying all potential intensification units with accuracy, especially over the extended 30-year planning horizon to 2051. For ground-related units in particular, there is likely to be some intensification beyond the supply potential identified by City staff.

Additional small-scale development opportunities can be expected to arise over time as a source of intensification for ground-related units, especially rows. This type of supply typically includes non-residential lots that may become underutilized or obsolete over time, school or place of worship sites that become available for neighbourhood infill development and other current or future surplus public lands not yet known. While some of these types of opportunities can be reasonably identified in advance, many simply cannot.

**7. For the supply information in Table 9, are the units in registered plans based on units for which building permits have not been issued, units not yet started or units not yet completed.?**

For the Vacant Residential land Inventory (VRLI) the units in registered plans in are based on units where building permits have not yet been issued.

**8. Can you please provide additional details for the supply information in Table 9 similar to the previous response to the 2016 Residential Land Budget (Deloitte)?**

Details are forthcoming. However, there would be relatively little change from the previous details provided in terms of overall supply, with the exception of some additional details for known growth areas such as Waterdown South and Fruitland-Winona.

9. For Table 10, can you please provide the CMHC data and building permit data that were used to estimate completions from year end 2019 to mid-year 2021 in the DGA?

For the draft LNA, the City-wide completions over the 2016-2021 period were estimated by Hemson Consulting Ltd. in June 2020. The CMHC data and associated completions estimate is shown on the following page. Summing the total estimated completions by unit type for 2020 and the first half of 2021 (2021F) yields the estimated completions on a City-wide basis from year-end 2019 to mid-year 2021 that is shown in Table 10.

<b>Completions to 2016-2021 Estimated</b>							
	<b>2016S</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021F</b>	<b>TOTAL</b>
Single	376	719	509	522	607	243	2,976
Semi	90	94	14	44	64	25	331
Row	448	735	839	1,002	1,056	423	4,503
Apt	219	348	0	5	727	347	1,645
	1,133	1,896	1,362	1,573	2,454	1,038	9,456
<b>Add 1,500 accessory units and total used is:</b>					<b>9,456</b>	<b>1500</b>	<b>10,956</b>

Source: Hemson Consulting Ltd. 2020

Since the CMHC data are not disaggregated between the built-up and designated greenfield area, the estimated share of DGA completions to mid-year 2021 is based on City of Hamilton building permit data for the first half of 2020 (to the end of June). The information by dwelling type and policy area is summarized in the table below.

<b>2020 Residential Activity: Jan-June 2020</b>			
<b>Dwelling Type</b>	<b>Built Boundary</b>	<b>DGA</b>	<b>Total</b>
Single Family Dwelling	48	122	170
Semi-Detached Dwelling	18	10	28
Townhouses	29	124	153
Apartments	771	257	1,028
<b>Total</b>	<b>866</b>	<b>513</b>	<b>1,379</b>

Source: City of Hamilton 2020

This information indicates a share of approximately 66% single and semi-detached units, 81% rowhouse and 25% apartments within the DGA during the first half of 2020. The shares are rounded for the purposes of the DGA supply adjustment:

- The single and semi-detached share is rounded to 70%;
- The townhouse (Rows) share is rounded to 80%; and
- The apartment share is maintained at 25%.

The application of the rounded shares to the City-wide estimate completions from year-end 2019 to mid-year 2021 yields the adjusted DGA unit supply potential shown in Table 10. These figures will be updated given the availability of more recent housing market information since the original estimates were prepared for June 2020.

**10. Can you please provide any supporting documentation to support the net-to-gross ratio of 50% applied in Tables 14-17?**

The net-to-gross ratio of 50% was based on a sample of large new residential communities in the DGA. Residential and non-residential land areas for the sample communities is provided below and shows an average ratio of approximately 50% which is the rate applied in the LNA to determine gross (buildable) land need.

Mplan	Hamilton Subdivisions Registered	Year	Gross(ha)	Core(ha)	GrossNet (ha)	TakeOut (ha)	Net (ha)	% Net to Gross	
1249	Caterini - Phase 1	2018	10.18	0.00	10.18	6	4.18	41%	59%
1252	Binbrook Heights Addition Phase 2	2018	3.51	0.00	3.51	0.86	2.65	75%	25%
1255	Cortland	2018	2.93	0.00	2.93	0.98	1.95	67%	33%
1258	50 Albright	2018	5.52	0.00	5.52	0.23	5.29	96%	4%
1250	Central Park	2018	25.13	0.00	25.13	9.85	15.28	61%	39%
1257	Red Hill, Ph.3-4	2018	39.43	12.50	26.93	27.35	12.08	31%	69%
1251	Summit Park - Phase 10, Stage 1	2018	27.09	0.00	27.09	12.83	14.26	53%	47%
1254	Eringate Court	2018	1.90	0.00	1.90	0.43	1.47	77%	23%
1244	Victory Ridge Phase 5A/5B	2017	2.29	0.56	1.73	1.42	0.87	38%	62%
1241	Foothills of Winona, Ph.2/3	2017	13.33	0.00	13.33	3.57	9.76	73%	27%
1239	Ancaster Woodlands, Ph.2	2017	13.57	3.00	10.57	10.01	3.56	26%	74%
1237	Ancaster Meadows, Ph2b	2017	19.13	0.00	19.13	3.75	15.38	80%	20%
1243	Kaleidoscope, Ph.2	2017	2.35	0.00	2.35	1.14	1.21	52%	48%
1245	Ancaster Glen Phase 3	2017	2.36	0.00	2.36	0.3	2.06	87%	13%
1240	198 First Road West, Ph.2	2017	4.64	0.00	4.64	0.65	3.99	86%	14%
1238	Waterdown Bay, Ph.2	2017	35.54	0.00	35.54	14.8	20.74	58%	42%
	<b>TOTAL 2017-2020</b>		<b>208.90</b>	<b>16.06</b>	<b>192.84</b>	<b>94.17</b>	<b>114.73</b>	<b>55%</b>	<b>45%</b>
	<b>Large Subdivisions</b>		<b>183.39</b>	<b>15.50</b>	<b>167.89</b>	<b>88.16</b>	<b>95.23</b>	<b>52%</b>	<b>48%</b>

Source: City of Hamilton 2020

**11. What specific PPU assumptions by dwelling type were used to estimate *Growth Plan* density for the expansion scenarios and what adjustments were used to include non-household population and the undercount?**

The *Growth Plan* density is estimated by applying the PPU factors for new units from the City's 2019 Development Charge (DC) Background Study: 3.405 for low density and 2.437 for medium density units, and adjusted to include non-household population (at a rate of 1.67%) and the undercount (at a rate of 2.86%) based on 2016 Census information.

Apartment unit growth is not included in the estimate of *Growth Plan* density for the purposes of the LNA, meaning that the density figures are somewhat conservative. Population related employment is estimated at a rate of 1 job per 8.0 new residents for the purposes of the LNA which is different from the employment calculated in Appendix E.

- 12. Can you please explain the differences between the estimated total population and employment for the existing designated greenfield area shown in Table 19 and the figures shown in the City's greenfield density analysis (Table 4 in Appendix E): 106,170 versus 114,710 persons? Also, what are the effective dates of the population counts shown for both Tables?**

There is a typographical error in Table 4 of Appendix E. The Draft Approved Population which is noted as 14,400 should read "17,400". The number of units is correct. Correcting the misprint results in a population of approximately 109,000. With the Census net under-coverage (the "undercount") added, the total population in Table 4 Appendix E is consistent with the figure of 114,700 shown in Table 19 Appendix B. The effective date of the population counts is December 2019.

- 13. Can you please explain the differences between the residential supply information shown in Appendix E and the City's year-end 2019 Vacant Residential Land Inventory (VRLI) outside the built boundary. Can you please provide a breakdown and the basis for the total units by dwelling type and for unit counts not based on the 2019 VRLI?**

The residential supply information provided in Appendix E includes an additional component of housing unit potential: 'Other Residential Supply Opportunities' which are not included in the VRLI. The VRLI only considers lands which are vacant and designated for residential development. Other sites within the existing DGA which are not vacant but may represent potential designated supply opportunities include:

- Larger parcels currently developed with a single detached dwelling, but which may offer the potential for severance and future additional residential development; and
- Land assembly opportunities for parcels currently developed with single detached dwellings, which may offer the potential to be developed at a higher density.

These potential supply opportunities do not form part of the VRLI because they are not vacant. However, because these lands are designated for residential development and represent longer-term potential, a portion is included in the ultimate DGA density calculation. The unit breakdown by type for these units is approximately: 300 singles and semi-detached units, 500 townhouses, and 200 apartment units.

These additional units are not included in the LNA because of their uncertain development timing and in accordance with the mandated Provincial method for completing the LNA, which requires that the housing supply potential in the DGA be based on the vacant, designated and available inventory of dwellings by type (p.11 of 21).

**14. Were the PPU's on page 10 of Appendix E used to calculate the population shown in Table 19 in Appendix B and Table 4 in Appendix E? What assumptions were used to adjust the population shown in Table 19 in Appendix B and Table 4 in Appendix E for non-household population and the undercount?**

The PPU's used to calculate population in new units in Table 4 of Appendix E and Table 19 of Appendix B are the same as the PPU's used to estimate *Growth Plan* density and are from the City's 2019 Development Charge (DC) Background Study – 3.405 for low density and 2.437 for medium density units. Apartment units are included at a PPU of 1.663. The total population is adjusted to include non-household population (at a rate of 1.67%) and the undercount (at a rate of 2.86%) based on 2016 Census information.

The PPU's shown on page 10 of Appendix E by unit type are the PPU's used to calculate the population within existing units in the DGA and are based on average household size by unit type and period of construction data provided by Statistics Canada.

The wording in regards to the PPU's in Appendix E will be revised to clarify this distinction.

**15. Can you please explain how the number of jobs were calculated for the existing designated greenfield area shown in Table 19 in Appendix B and Table 4 in Appendix E?**

The number of jobs calculated for the existing DGA is based on the City's employment survey information adjusted to align with the known 2016 Census employment total. The number of jobs in the new DGA is based on the build-out of existing vacant Commercial lands (at 60 jobs per net ha) and Institutional lands (at 38 jobs per net ha).

“Work at home” employment is estimated at 3% of the total DGA population, which has been adjusted for the non-household population and undercoverage at the same rates noted previously. The breakdown is as follows:

- Employment survey (adjusted) – 5,100 jobs;
- Work at home (3% of total population) – 1,740 jobs;
- Vacant commercial potential – 5,180 jobs;
- Vacant institutional potential – 1,250 jobs.

The resulting employment of approximately 13,270 is used to provide the estimated ratio of total DGA employment to population of 1 job per 8.6 residents as shown in Table 19 in Appendix B. This ratio is distinct from the ratio of 1 job per 8.0 persons applied to the estimate of *Growth Plan* density for the various LNA scenarios, as noted previously.

This ratio is also slightly lower for the new DGA (meaning proportionately more population-related jobs) to take into account the potential for increased levels of remote working that are anticipated to arise out of the abrupt changes brought about by the COVID Pandemic. The wording in Appendix E will be revised to clarify this approach.



**16. Can you please explain why stacked townhouse units are included within the row category in Tables 15, 16, and 17 when that is not consistent with the Census of Canada definition of row houses that forms the basis for the forecast of housing by type in Table 4?**

It is acknowledged that the Census definition of rows includes standard street or condo townhouses as well back-to-back townhouses and rowhouses attached to an apartment building. "Stacked" towns, along with similar forms where at least part of a unit is above or below another, is considered an apartment of less than 5 storeys.

Where it can be discerned, the reported Census structure types are not always fully consistent with the definitions, which is understandable recognizing that there are some "grey areas" in the definition as well as some uncertainty in the source data relied upon for these data. Overall, stacked townhouses and rows in apartment buildings make up only a very small part of the housing market and an extremely small part of the total housing stock.

On review, however, it is apparent that the wording in Appendix B suggests that stacked towns will play a significant role in achieving the *Increased Targets* and *Ambitious Density* scenarios. This conclusion was not the intent in the draft LNA.

The intent was to include stacked towns notionally as part of future demand for a broad grouping of higher-density rowhouse forms including smaller lot townhomes, back-to-back units and occasionally side-to-back units that tend to develop at higher densities than traditional street-related or "block" towns. This approach also reflects the expectation that higher density row-like forms will primarily be constructed on lands designated for townhouse development.

Notwithstanding, the forecast of housing by type that is shown in Table 4 is for row houses as defined by the Census. Similarly, the City's VRLI for row houses is for traditional street or block towns and contains no stacked units. The City of Hamilton also considers stacked towns to be multiple dwellings for building permit tracking, official plan and zoning purposes. Accordingly, the wording in the final reporting for the LNA will be clarified to indicate that Stacked Towns are considered apartment units as defined for the Census.

### **Residential Intensification Market Demand Analysis (December 2020) "Appendix C"**

**17. Can you please provide the breakdown of the annual intensification in Hamilton by dwelling type for the 2008-2019 period? Could you also clarify if any of these units are in collective dwellings such as student housing or seniors' residences?**

The breakdown of the annual intensification in Hamilton by dwelling type for the 200-2019 period is shown in the chart below. In some cases, the intensification figures include student housing but only in situations where a new apartment development occurs outside of post-secondary school campuses.

Residential Intensification by Dwelling Type - City of Hamilton												
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
<b>Single Family</b>												
InBuiltLine	342	232	280	194	228	185	190	159	119	137	108	95
OutBuildLine	730	443	1,030	712	982	835	672	943	693	375	383	474
<b>Total</b>	<b>1,072</b>	<b>675</b>	<b>1,310</b>	<b>906</b>	<b>1,210</b>	<b>1,020</b>	<b>862</b>	<b>1,102</b>	<b>812</b>	<b>512</b>	<b>491</b>	<b>569</b>
<b>Intense Rate Singles</b>	<b>32%</b>	<b>34%</b>	<b>21%</b>	<b>21%</b>	<b>19%</b>	<b>18%</b>	<b>22%</b>	<b>14%</b>	<b>15%</b>	<b>27%</b>	<b>22%</b>	<b>17%</b>
<b>Semi-Detached</b>												
InBuiltLine	31	18	28	1	9	9	10	13	9	10	2	30
OutBuildLine	10	0	40	17	84	78	102	24	76	84	20	26
<b>Total</b>	<b>41</b>	<b>18</b>	<b>68</b>	<b>18</b>	<b>93</b>	<b>87</b>	<b>112</b>	<b>37</b>	<b>85</b>	<b>94</b>	<b>22</b>	<b>56</b>
<b>Intense Rate Semis</b>	<b>76%</b>	<b>100%</b>	<b>41%</b>	<b>6%</b>	<b>10%</b>	<b>10%</b>	<b>9%</b>	<b>35%</b>	<b>11%</b>	<b>11%</b>	<b>9%</b>	<b>54%</b>
<b>Townhouse</b>												
InBuiltLine	238	100	116	3	222	70	146	57	78	42	14	270
OutBuildLine	616	267	650	366	541	372	661	552	806	970	845	693
<b>Total</b>	<b>854</b>	<b>367</b>	<b>766</b>	<b>369</b>	<b>763</b>	<b>442</b>	<b>807</b>	<b>609</b>	<b>884</b>	<b>1,012</b>	<b>859</b>	<b>963</b>
<b>Intense Rate Towns</b>	<b>28%</b>	<b>27%</b>	<b>15%</b>	<b>1%</b>	<b>29%</b>	<b>16%</b>	<b>18%</b>	<b>9%</b>	<b>9%</b>	<b>4%</b>	<b>2%</b>	<b>28%</b>
<b>Apartments</b>												
InBuiltLine	224	46	242	375	124	354	464	942	401	470	1,146	907
OutBuildLine	19	15	0	34	142	0	0	128	1	477	22	331
<b>Total</b>	<b>243</b>	<b>61</b>	<b>242</b>	<b>409</b>	<b>266</b>	<b>353</b>	<b>464</b>	<b>1,070</b>	<b>402</b>	<b>947</b>	<b>1,168</b>	<b>1,238</b>
<b>Intense Rate Apts</b>	<b>92%</b>	<b>75%</b>	<b>100%</b>	<b>92%</b>	<b>47%</b>	<b>100%</b>	<b>100%</b>	<b>88%</b>	<b>100%</b>	<b>50%</b>	<b>98%</b>	<b>73%</b>
<b>Total Units</b>												
InBuiltLine	835	396	666	573	583	618	810	1,171	607	659	1,270	1,302
OutBuildLine	1,375	725	1,716	1,129	1,749	1,284	1,435	1,647	1,576	1,906	1,270	1,524
<b>Total</b>	<b>2,210</b>	<b>1,121</b>	<b>2,382</b>	<b>1,702</b>	<b>2,332</b>	<b>1,902</b>	<b>2,245</b>	<b>2,818</b>	<b>2,183</b>	<b>2,565</b>	<b>2,540</b>	<b>2,826</b>
<b>Intense Rate Total</b>	<b>38%</b>	<b>35%</b>	<b>28%</b>	<b>34%</b>	<b>25%</b>	<b>32%</b>	<b>36%</b>	<b>42%</b>	<b>28%</b>	<b>26%</b>	<b>50%</b>	<b>46%</b>

Source: City of Hamilton 2020

## Residential Intensification Supply Update (December 2020) "Appendix D"

### 18. For units shown in Table 1 and Table 2, can you please provide a breakdown on the units by dwelling type?

For Tables 1 and 2, the supply potential by dwelling type reflects the location of the residential intensification area in question. The unit breakdowns by location and dwelling type for the identified supply potential are broadly as follows:

- Downtown – 100% high-density apartments, no ground-related units;
- Nodes and Corridors – 90% high-density apartments, 10% ground-related units;
- Neighbourhoods – 80% high-density apartments, 20% ground-related units.

These shares translate into an estimated ground-related supply of approximately 7,500 units based on the figures shown in Table 2 of Appendix D. This supply potential is largely in balance with the future demand for approximately 8,830 units in the *Current Trends* scenario as shown in Table 7 of Appendix B. For higher density LNA scenarios, however, additional ground-related intensification is expected to occur beyond the City-identified supply potential: up to 5,800 units for the *Ambitious Density* scenario. The potential for these additional units has been considered as noted previously in the response to Question #6.

We trust that this memorandum is of assistance. As noted, the City of Hamilton continues to review and revise its base residential and greenfield area land supply and density information as part of the current LNA process, which may affect the results of the analysis. A process of consultation is also underway, including for the LNA, which will have a bearing on the outcomes of the current GRIDS2 and Municipal Comprehensive Review (MCR) Process.

We look forward to discussing the results, implications on overall land need and preferred approach moving forward within the context of the current MCR process.