CITY OF OTTAWA

GROWTH MANAGEMENT STRATEGY

IMPLEMENTATION MODELLING

Intent

The intent of the exercise is to model the extent of change needed to deliver on the targets of the Growth Management Strategy (GMS) and new Official Plan (OP). This is one of several possible ways to model the implementation of the GMS. It is premised on a methodology that takes into consideration a series of reasonable assumptions of lot uptake and turnover over 25 years (life of the plan), so as to inform the extent of change for the new zoning framework, inform the future new Zoning By-law work plan and validate the feasibility of achieving these targets within the life of the plan.

This implementation model has been developed to consider the zoning implications necessary to achieve the Growth Management Strategy's directions for net new units and large-household dwellings in the built-up area and guide development of a new zoning framework. The following stages were evaluated:

- Existing – determination of net new/large units based on existing permissions
- Phase 1 – development of a new zoning framework with expanded permissions
- Phase 2 – rezoning of Hubs and Mainstreet Corridors, as well as Neighbourhoods within 150m of a Hub and Mainstreet Corridor, using the new zoning framework
- Phase 3 – rezoning of Neighbourhoods and Minor Corridors

The above is an iterative process, involving consideration for how the new zoning framework will need to adapt and what permissions will need to be expanded or altered in order to achieve the necessary targets.

Data Sources

The model has been informed by the following data sources:

- 5 years of Building Code permit history data indicating type and location of construction (and net new units associated)
- GIS count of existing zoned parcels
- Review of lot turnover[1] associated with zones and geographic contexts over 5 years

[1] Lot turnover means complete demolition and reconstruction; it excludes additions, internal reconfigurations or the addition of new units within existing buildings.

- Review of permission uptake (extent to which development takes advantage of unit-count permissions) over the last 5 years.
- Review of sample floor plans from previous development proposals and applications.

The following tables provide detail on the sources of data used in the exercise. Table 1 indicates the kinds of development that have occurred in each zone, indicating a diversity of permissions uptake over the years. In particular, it is notable that even though a zone may provide density and unit count permissions, whether a developer chooses to take full advantage of that is variable based on land economics, market demand and perceived or real market preference.

Table 1: Dwelling Type of New Construction By Zone, 2015-2019

	Zone				
Building Type	**R1**	**R2**	**R3**	**R4**	**Grand Total**
Single	556	33	202	29	816
Duplex		3	20	30	53
Semi-Detached		137	156	42	319
Long Semi-Detached		2	2	19	23
Triplex			45	79	124
Rowhouse			87	11	98
Stacked			5	18	23
Low-Rise Apartments				110	110
Grand Total	**563**	**177**	**521**	**325**	**1586**

Table 2 provides a breakdown of the existing parcels of land within all residential zones across the City, used as the basis for the residential growth portion of the model.

Table 2: Existing Residential-Zoned Parcels

Zone	**Downtown**	**Inner Urban**	**Outer Urban**	**Suburban**	**Total by Zone**
R1	128	10,740	36,417	36,933	**84,218**
R2	3	5,048	9,274	12,033	**26,358**
R3	126	9,934	8,950	33,823	**52,833**
R4	5,957	7,992	2,040	589	**16,578**
R5	665	765	985	342	**2,757**
Total by Transect	**6,879**	**34,479**	**57,666**	**83,720**	**182,744**

Table 3 provides the current average yearly lot turnover rates by zone for 2015 through 2019. Separate rates are provided for lots located within and outside the Mature Neighbourhoods Overlay (as defined by the Zoning By-law).

Table 3: Lot Turnover by Zone (2015-2019)

	Inside MNO*	Outside MNO*
R1	0.67%	0.19%
R2	1.01%	0.29%
R3	0.63%	0.35%
R4	0.57%	0.25%

* MNO = Mature Neighbourhoods Overlay, as defined in Zoning By-law 2008-250

Assumptions

This section documents the assumptions that have been made to generate the model, based on the above information. This includes:

- The future anticipated lot turnover, given the granting of new permissions and development rights;
- The anticipated uptake on new development permissions, given the granting of new permissions and development rights;
- The anticipated densities associated with redevelopment of lots in Hubs and Mainstreet Corridors, given new height and density permissions from the new Official Plan;
- The anticipated uptake on percent of large-household units associated with development of certain unit counts, taking into consideration:
    - Policy requirements for a certain percentage of development to be large-household units;
    - Policy allowance for zoning to define a “floor area-equivalent” to a 3-bedroom unit (large household units); and
    - Geographic context, as it affects land values and unit sizes within.

The following provides more detail on the assumptions used. Table 4 indicates the iteratively-developed modelled zoning framework that will need to be considered as the underpinning for the amendments to development permissions through a new Zoning By-law. Note that the below framework is a preliminary model for purposes of this modelling exercise, and is subject to further amendment and review through the forthcoming new Zoning By-law project following adoption of the Official Plan.

Table 4: Modelled Zoning Framework

Current Zone	Allows	Modelled Conceptual Zone	Would allow
R1	1 unit*	N1	2 units**, 70 DU/ha***
R2	2 units**	N2	4 units, 135 DU/ha
R3	3 units**		
R4A-R4L	4 units		
R4UA	8 units	N3	Up to 8 units, 225 DU/ha
R4UB	12 units	N4	Up to 12 units, 275 DU/ha
R4UC-R4UD	By bldg envelope	N5	More than 12 units, up to 600 DU/ha
R5	By bldg envelope	N6	Mid-Rise, More than 600 DU/ha
R5	By bldg envelope	N7	High-Rise, By bldg envelope

* 2 including SDU's
** 4 including SDU's
***including SDU's

Where:

- N1 is low-rise up to 2 principal units per lot
- N2 is low-rise up to 4 units per lot
- N3 is low-rise up to 8 units per lot
- N4 is low-rise up to 12 units per lot
- N5 is low-rise with more than 12 units per lot
- N6 is mid-rise
- N7 is high-rise

Table 5 provides the potential unit counts associated in the future with each zone, based upon a low, medium or high rate of uptake of the development permissions. As an example, a current lot in an R3 zone has, as identified in Table 1 above, seen a significant number of detached homes and semi-detached built, despite existing permissions for up to 3 units.

We anticipate this diversity of uptake would continue going forward under a new zoning framework with some developments taking advantage of the full density potential, while others may take partial or minimal advantage depending on market or individual choice. Note that the existing R5 and future zone unit counts for N5, N6 and N7 are capped at 12 units, though it is likely that more than 12 units would be provided were development to occur. This is because past 12 units, lot consolidation/assembly or larger lot development is increasingly likely to occur. This likely results in undercounting of the true potential of development in these higher-permission zones, but we expect this would largely impact the net new unit count, and have less impact on availability of large-household units by virtue of the multi-unit typologies involved.

Table 5: Uptake potential: Unit Counts for low, mid and high uptake scenarios (Existing and Modelled)

Zone	Current Zoning				Zone	Modelled Zoning Framework		
	Low	Mid	High			Low	Mid	High
R1	1	1	1		N1	1	1	2
R2	1	1	2		N2	1	2	4
R3	1	2	3		N3	2	4	8
R4	1	2	8		N4	4	8	12
R5	1	2	12		N5	4	8	12*
					N6	4	8	12*
					N7	4	8	12*

*As this model does not contemplate lot consolidation and large-lot development, high-unit count low-mid and high-rise with more than 12 units in a pure residential context are not captured in the above, and would be supplemental to the net new unit calculations. R5 zoned lots currently constitute approximately 1.5% of the total available lot count.

Table 6 provides the existing and future uptake on development permissions, based on the modelled amendments to the zones, and picks up on the diversity of unit types previously developed in zones as documented in Table 1. The Table illustrates that under this model, in the Downtown Core and Inner Urban transects, 40% of future development would take advantage of the maximum density and unit count permissions in the zone. In the Outer Urban Transect, 40% of future development would take partial advantage of new permissions, while in the Suburban Transect, 40% of future development would largely not take full advantage of the new permissions.

Note these are average numbers, and uptake will vary depending on specific context. For example, we expect a lot close to a major transit station may likely utilize the full potential of zoning, by virtue of land economics and market demand. Similarly, a lot further from transit and corridor activities may be less likely to do the same.

Table 6: Future Development Permissions Uptake

Transect	Permissions Uptake		
	Low	Mid	High
Downtown Core	30%	30%	40%
Inner Urban	30%	30%	40%
Outer Urban	30%	40%	30%
Suburban	40%	30%	30%

Table 7 indicates the modelled lot turnover, in consideration for the change in development permissions and policy forecasts by transect for the geographic context. In reviewing permit records, the vast majority of redevelopment to create new units comprised the removal of a single detached unit on a lot, with or without associated severances. While development has occurred where other forms of housing were displaced, including multi-unit and secondary dwelling units etc., staff are of the opinion that for the purposes of this model, it is sufficient to consider displacement to consist of removal of a detached principal unit for purposes of calculating net gain.

Table 7: Modelled Lot Turnover

	Inside Greenbelt	Outside Greenbelt
Hubs/Non-R Zones	0.35%/year (Downtown/Inner Urban), 0.30%/year (Outer Urban)	0.30%/year
R Zones	0.80%/year	0.40%/year

Table 8 provides the assumptions relating to inclusion of large-household units within future developments. We note that the new Official Plan will be providing minimum requirements for some building forms. However, we have anticipated that zoning will have authority to consider certain larger floor-area 2-bedroom units to likewise be considered large-household equivalent.

In the Downtown Core and Inner Urban Transects, we anticipate land economics and market demand to trend towards smaller units, while in the Outer Urban and Suburban Transects, we anticipate that there is more opportunity for 3-bedroom or floor-area equivalent units to be included within multi-unit development. As such, we expect 10% of units within the Downtown Core and Inner Urban Transects to be large-unit equivalent (either in bedroom count or in floor area), while in the Outer Urban and Suburban Transects it is not unreasonable to consider that 25% of units may be considered large unit or equivalent.

Table 8: Large-Household Unit Proportion included within modelled Development

Modelled Zone	Downtown Core & Inner Urban				Outer Urban and Suburban		
	% Low	% Mid	% High		% Low	% Mid	% High
N1	100%	100%	100%		100%	100%	100%
N2	100%	100%	100%		100%	100%	100%
N3	100%	100%	10%		100%	100%	50%
N4	100%	10%	10%		100%	50%	25%
N5	100%	10%	10%		100%	50%	25%
N6	100%	10%	10%		100%	50%	25%
N7	100%	10%	10%		100%	50%	25%

Evaluation Results

In summary,

- Existing zoning may be sufficient to accommodate net new units, but does not provide the permission framework for achieving the large-household units target.
- A new zoning framework and roll-out city-wide (including balancing permissions so neighbourhoods outside of 150m from a Mainstreet Corridor generally retain similar development permissions as currently) achieves the permission potential for net new units, and provides significant opportunity for large-household units. This involves:
  - Permitting 2-unit developments in a single housing form to occur as of-right where 1-unit is currently the maximum;
  - Permitting 4-unit developments to occur as-of right where currently a max of 2-units+S are permitted;
  - Broadening the existing R3 and R4 zones to permit a wider range of “missing middle” low-rise housing;
  - Developing a new zone (or zones) that better contemplate more significant housing forms, including >12 unit low-rise and mid-rise housing varieties.
- Rezoning of Hubs and Mainstreet Corridors, and associated upzoning of neighbourhood lots within 150m of Hubs and Mainstreet Corridors to allow higher density permissions associated with mid- and upper-tier missing-middle development further increases net new unit and large household unit potential.
- Upzoning of approximately 50% of remaining R1 and R2 neighbourhoods (outside of 150m of a Hub or Mainstreet Corridor) to some degree ranging from minor amendment of subzones up to moving to the next zone category (example: R1 to R2) is necessary to fully achieve the net new units and large-household

units potential targets in the GMS. This can be accomplished through follow-on community planning work either through a Secondary Plan process or neighbourhood-specific zoning study, guided by the approved Official Plan policies and in coordination with other neighbourhood initiatives arising from associated Master Plans including infrastructure, parks & recreation, and transportation etc.

Table 9 summarizes the analysis results.

Table 9: Modelled Number of Units Enabled By Zoning Phase
(Based on assumed rates of turnover and uptake over 25 years)

	Large Units	Small Units	Total Units
Current Zoning	26,000	69,000	**95,000**
Phase 1 – General Recode	39,000	69,000	**108,000**
Phase 2 – Hubs and Mainstreets	41,000	82,000	**123,000**
Phase 3 - Neighbourhoods	50,000	84,000	**134,000**

The analysis indicates that, based on assumed turnover rates and uptake potential over the 25 year life of the plan, and as modelled in this report, there is a significant shortfall in the potential for development of large-household units in the existing zoning. While there appears to be availability for small unit production, this is generally concentrated in concrete mid- and high-rise construction encompassing smaller units, and is representative of the concerns noted in the Growth Management Strategy and new Official Plan for a need to provide greater diversity of housing for more household types across all areas. As has been noted in prior City documents, this concentration of smaller units in concrete construction is representative of housing forms that are not well-positioned to be affordable to low- and moderate-income earners.

Under this model, the new Zoning by-law would be rolled out in three phases, the timing of which would each be subject to the approval by Planning Committee of the Zoning By-law Work Plan.

- **Phase 1** considers a recode of the residential zones to expand missing-middle forms out from the existing R4, and more broadly across neighbourhoods, and expands the low-density R1 and R2 zones to provide more low-density housing opportunities within a comparable building envelope to existing permissions. Doing so results in a substantial jump in potential opportunity for large-household unit production, balanced with the constraints on lot turnover and permission uptake as noted in the assumptions above.
- **Phase 2** considers the establishment of updated and amended permissions for low-, mid- and high-rise development, including changes in rules for height and density, and opening of permissions for new building forms, including expansion

of opportunities for low-rise missing middle development in neighbourhoods within approximately 150m of Mainstreet Corridors. While the impact on large-household units is incremental, as the majority of this will consist of large units as a portion of units within a larger building, it is anticipated this will provide opportunity for development that will expand supply for large and small units more accessible to moderate income streams, particularly with new opportunities for mid-rise as following New Official Plan policies.

- **Phase 3** considers more comprehensive amendments to the zones and subzones associated with the interior of Neighbourhoods outside of 150m from Hubs and Mainstreet Corridors, to better align these with Official Plan direction and municipal services, and provides fulsome opportunity for development of large-household units, in addition to increasing the opportunity and supply of net new units overall. It is anticipated that Neighbourhoods in the Inner Urban transect would be reviewed and considered for amendment as a priority, followed by Neighbourhoods in the Outer Urban and Suburban Transects with access to transit, roads and services befitting a change in permissions in keeping with their context and opportunity. As this portion of the plan would likely consist of more focused neighbourhood-specific studies, the roll-out of this phase may occur over a longer time frame than Phases 1 and 2 above.

Finally, we note that the above model results focus on principal units only, and does not consider uptake of secondary dwelling units or coach houses. Additional dwelling units currently form a subset of housing associated with particular typologies, and while the new Official Plan will look to expand permissions, it is reasonable to expect that in future, there will continue to be a subset of development that will provide additional units to the principal. In combination with any net new units associated with new mid and high-rise developments, this will have the effect of increasing the net new units.

Risks

Risks associated with the model include:

- ***Uptake on development permissions.*** While the model assumes "the past is the key to the future" and that a similar rate of uptake will go forward, this is based on market demand, and the ability for the industry to increase production of "missing middle" type housing forms in line with the new permissions.
- ***Future lot turnover.*** While the model has considered past rates of turnover in geographic context, lot turnover is fully dependent on private market decisions and transactions.
- ***Large-household proportion.*** While it is anticipated that nearly all ground-oriented housing forms will, as a function of development, be of a size to be considered large-household units, there is uncertainty regarding the extent to which this may occur going forward in "missing middle" forms, given the new

permissions. While zoning will have the ability to determine a floor area that is recognized as a large-household unit – and may do so based on geographic context – the achievement of the large-household target is a monitoring issue that will need to be evaluated as the plan unfolds.

- ***Delays or appeals***. While the new Official Plan makes clear that the zoning by-law must move towards a form-based approach that increases opportunity for diversity and equity across neighbourhoods – and this evaluation makes clear the extent of what that new zoning framework must achieve – there are on the ground realities and complexities involved in major zoning and land use exercises that may impact timing and extent of roll-out of new policies. Further, while the new Official Plan is not subject to appeal, the new Zoning By-law is.

Conclusion

The analysis above demonstrates that the net new units and large-household unit targets are achievable given pragmatic assessments of turnover and uptake within established neighbourhoods, notwithstanding the risks outlined above, and can be used to inform the future new Zoning By-law re-write work plan in terms of scope of change and timing. A monitoring framework and evaluation will be necessary to review progress towards the unit targets, and inform future policy and land use decisions.