Ontario

Projection Methodology Guideline

A Guide to Projecting Population, Housing Need, Employment and Related Land Requirements

Planning reform in Ontario

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Where to Get Help

This document has been prepared jointly by the Ministry of Municipal Affairs; the Ministry of Housing; the Ministry of Finance; and the Ministry of Agriculture, Food and Rural Affairs.

Questions should be directed in the first instance to the Plans Administration Branch, Ministry of Municipal Affairs, 14th Floor, 777 Bay Street, Toronto, Ontario, M56 2E5; Tel. 416-585-6014, Fax 416-585-4245. Specialized assistance is available as follows:

Population Projections: Strategic Economics Issues Branch, Ministry of Finance, 3rd Floor, Frost Building North, 95 Grosvenor Street, Toronto, Ontario, M7A 1Y9; Tel. 416-325-0816, Fax 416-325-0841.

Housing Need Projections: Housing Development and Buildings Branch, Ministry of Housing, 2nd Floor, 777 Bay Street, Toronto, Ontario, M5G 2E5; Tel. 416-585-6515, Fax 416-585-7531.

GTA Projections: Office for the Greater Toronto Area, 10 Bay Street, Suite 300, Toronto, Ontario, Toronto, Ontario, M5J 2R8; Tel. 416-314-6400, Fax 416-314-6440.

To assist regional and county staff with the initial steps in preparing the housing need and employment projections, a package has been prepared containing a computerized spreadsheet, Ministry of Finance population projections, special housing and employment data tabulations from the 1991 Census and a "how to" manual. The package is available at no charge from the Ministry of Housing at the address shown above.

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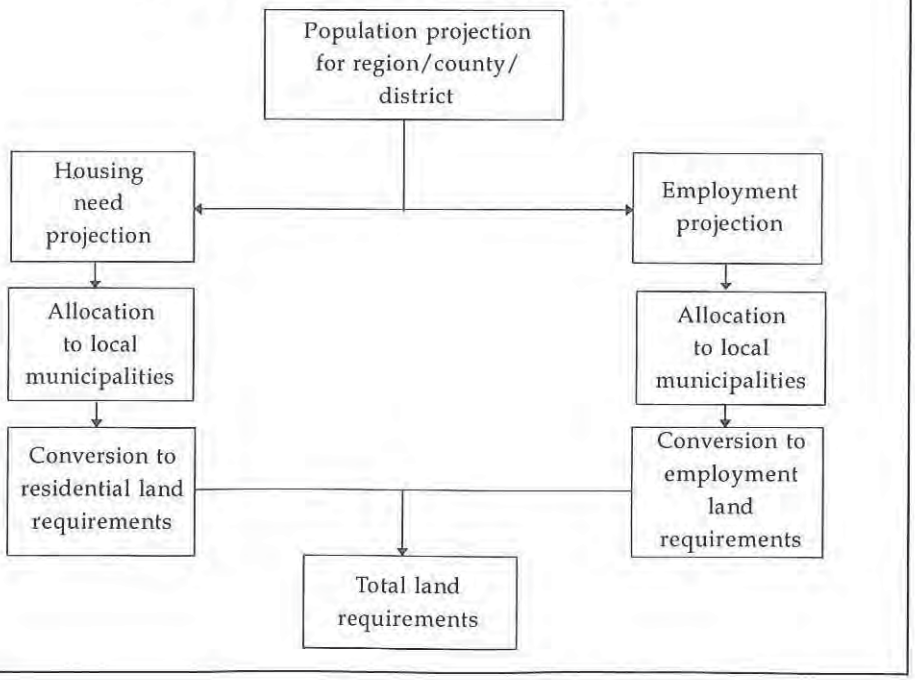
1 Overview

Purpose of Guideline

This document provides municipalities and other land use planning decision-makers with a co-ordinated set of methods for making projections of population, housing need, employment, and related land requirements to assist in implementation of the reforms to the planning system that came into effect on March 28, 1995.

Figure 1.1 provides an overview of the steps involved in making projections. As will be seen, there are two streams in the process — housing need and employment. When added together, the two sets of land requirements indicate the total land requirement for growth, which is one of the key factors to be considered in determining the appropriateness of extending settlement areas (the parts of a municipality that are built up or are designated for new development).

Figure 1.1
Projection Methodology Steps



Organization of Guideline

The document is divided into five chapters:

- Chapter 1 provides an overview and discusses general issues.
- Chapter 2 describes the population projections for regions, counties and districts available from the Ministry of Finance and discusses how the projections can be utilized.
- Chapter 3 outlines an approach for converting population projections into projections of housing need and residential land requirements.
- Chapter 4 outlines an approach for converting population projections into projections of employment and related land requirements.
- Chapter 5 sums up the land requirements calculated in accordance with the previous chapters and discusses some of the issues involved in the expansion of settlement areas.

A glossary of the terms used in the document and a copy of the most recent Housing Information Bulletin are included as Appendices A and B respectively. A separate package to assist with some of the calculations is available from the Ministry of Housing at the address shown inside the cover page. The package consists of a computerized spreadsheet, Ministry of Finance population projections, special data tabulations from the Census and a "how to" manual.

Use of Guideline

The methods presented here are meant as "best practices." They incorporate analytical principles, data definitions and data sources that will be readily understood by provincial ministries and other approval authorities. However, they are not the only way to project growth and are not mandatory. Municipalities may develop alternative approaches, but where they do so, they should be prepared to document how and why the alternative approach departs from the approach recommended in this guideline.

The guideline uses a series of flow charts to explain the various steps and operations in the projection process. It is important to note that not all the operations have to be per-

formed precisely in the sequence indicated. The projection process involves back-and-forth discussion between tiers of municipal government where upper-tier planning exists, and among municipalities where it does not. It is alright to depart from the order of operations shown where this makes sense provided that all the factors are considered at some point in the process.

The document provides not only approaches for larger municipalities, but also simpler methods suitable for smaller, rural municipalities. The latter municipalities would generally have a population of less than 10,000 and be located some distance from major urban centres. Descriptions of these simpler approaches are found at the end of Chapters 2, 3 and 4.

The guideline was developed primarily to support implementation of the new planning policies and system introduced under the Planning and Municipal Law Amendment Act, 1994. The methodology and growth estimates derived from it may, however, also be useful in calculating development charges in accordance with the Development Charges Act.

Why Projections Needed

The Comprehensive Set of Policy Statements issued by the Ontario Government under section 3 of the Planning Act requires land use planning decisions to take into account projections of future growth. The relevant policies include:

- B8 and B9, which say that the amount of land proposed to be designated for urban development (i.e., within settlement areas) must be justified based on the amount of land already available for development within the settlement area, and on future population projections and employment targets;
- B10, which requires that residential development in the rural area of a municipality be justified based on the projected population for the municipality and on the amount of suitable land available for development in the municipality's settlement areas;
- C1 through C9, which direct municipalities to plan to meet present and expected housing needs and to maintain a sufficient supply of land for residential development and intensification;

- D1, which says that extensions of settlement areas affecting prime agricultural lands will be permitted only if the growth and settlement policies under Goal B are met (in particular, that prime agricultural areas are to be included in settlement area extensions only where there is no reasonable alternative); and
- other policies, such as B4 (economic development), B5 (efficient use of land, infrastructure and public service facilities) and E2 (efficient modes of transportation).

To fully understand the policy context for the methods presented in this document, the reader will need to consult the Comprehensive Set of Policy Statements and the implementation guidelines for the policies. Copies of these documents are available from the Ontario Government Bookstore, Main Floor, 880 Bay Street, Tel. 416-326-5300 or toll-free in Ontario at 1-800-668-9938.

While the Projection Methodology Guideline focuses on the technical dimension of projecting future growth, this is not a purely technical exercise. The "raw" projection numbers will need to be adjusted to reflect local and provincial policy considerations at various points in the process. Examples of such considerations include the type of urban form desired, the intensification of built-up areas, the encouragement of a broad range of housing types and the preservation of agricultural land.

Time Frames

The methods described in the following chapters of this document incorporate common underlying principles relating to time frames, geographic areas, scenarios, assumptions and densities.

The maximum time frame for municipal projections of population, housing need and employment for official plan purposes will normally be twenty years. Provincial policies B8 and B9 specifically provide that population and employment projections should be undertaken for a "planning horizon" of not more than fifteen to twenty years. A longer time frame may only be used where it has been established for a specific regional municipality through a comprehensive provincial planning exercise, as has occurred in the Greater Toronto Area.

The Housing Policies do not mention a maximum time frame, but stipulate that a minimum of ten years' supply of land for residential development be maintained at all times. The objective is to avoid shortages that would drive up land and housing costs. While provincial policies do not specify a minimum time frame for employment uses, maintaining a ten-year minimum supply of land for employment uses is sound planning practice as well.

Geographic Basis of Projections

The intent of the provincial policies is that projections of population, housing need and employment be prepared in the first instance on a broader geographic basis. This is normally the regional or county level.

In the new planning system, upper-tier official plans play a critical role in the implementation of provincial policies. They set out the policies on growth and servicing on which local official plans are based. Even where upper-tier planning does not exist, projections of future trends are more reliable when they take into account the broader economic unit.

The Housing Policies specify the broader area to be used for projecting and assessing housing needs. This is the "housing market area," which is defined as:

> *an area with a high degree of social and economic interaction which forms a separate and distinct market for accommodation. A housing market area generally is equivalent to the area within the boundaries of a regional municipality, county, separated municipality, city in the North, planning board, or planning authority. Where housing markets extend significantly beyond these boundaries, then the housing market area will be based on the larger market area.*

A map showing the boundaries of housing market areas is found in Appendix B. It will be noted that with the exception of the Greater Toronto Area, Ontario's counties, districts and regional municipalities have been defined as the housing market areas. This is the initial determination.

Where projection areas cover more than one upper-tier municipality (as in the Greater Toronto Area) or where upper-tier planning does not exist (e.g., where there is a separated city or town in a county), the projection and allocation of future growth have to be

done through intermunicipal discussion. Advisory working groups composed of municipal staff will often be useful for this purpose. Regional municipalities in the Greater Toronto Area should use the projections of population, employment and households developed through the Office for the Greater Toronto Area.

Where upper-tier planning exists, projecting and allocating growth is best done by the regional or county council. This does not mean that a "top down" process is appropriate, however. Dialogue between the upper-tier government and the local municipalities is key to ensuring workable results. Again, advisory working groups may often prove useful for this purpose.

Allocations should not be based solely on past housing market or employment shares. They also require consideration of such factors as a region or county's plans for servicing and future urban structure and the Province's policies on intensification, agricultural land protection and other matters.

Scenarios

In the interest of simplicity, no provision has been made in the methodology presented in this guideline for ranges of scenarios. It is recognized, however, that these can be useful for planning future growth. Some municipalities develop "high," "low" and "reference" scenarios based on different sets of assumptions about the inputs to the analysis.

This is acceptable provided that the scenarios are justified having regard to the length of the planning horizon. For example, the use of a "high" scenario for a twenty-year projection is not advisable as it could result in land being set aside for development unnecessarily. A municipality will have opportunities to make needed adjustments long before the end of the planning period. Conversely, the use of a "low" scenario for the early years of a projection should be avoided because this might lead to land shortages.

The objective is to be sure to have an adequate supply of land for the shorter term while being careful not to designate an excess supply for the long term.

Assumptions

Whatever projection approach is utilized, the underlying assumptions should always be clearly stated and should be reasonable and justifiable in light of both general trends in

the province and specific conditions in the municipality. For example, where a municipality is projecting a dramatic increase in its employment base, it should be able to justify this based on such factors as a planned extension of infrastructure and land shortages in adjacent areas.

On the other hand, assumptions should not simply reflect the status quo. Municipalities should try to take into account future economic, social and policy directions where these are known. For instance, the planned mix of housing should include not only the dwelling types that have traditionally been produced in the municipality, but newer types possible through more compact urban form, alternative development standards and higher densities of development.

Densities

The final step in the projection methodology is the calculation of future residential and employment land requirements based on estimated densities of future development. Densities are normally expressed as the number of dwelling units or employees per hectare of land, or as so many residents and employees per hectare.

Different municipalities define the land base that forms the denominator of the density equation differently, however. Some use a "net" density calculated on a base that includes only the lands directly required for the houses or employment facilities. Others use a "gross" density that also includes related lands for roads, schools, community facilities, parks and neighbourhood commercial uses.

To facilitate cross-municipal comparisons in connection with the use of this guideline, municipalities are asked to use a gross density that includes all the lands to be designated for new development except:

- those needed for hydro corridors, railway right-of-ways and provincial highways; and
- those not available for development because of the Comprehensive Set of Policy Statements (wetlands, floodplains, significant woodlands, etc.).

In the case of land for housing, the gross residential density standard used should capture the land needed not only for the housing, but also for roads, parks and community facilities (schools, fire halls and libraries) and for neighbourhood commercial uses

that generate "population-related" employment. In the case of land for employment, the density standard should capture all the employment to be accommodated within the settlement area(s) apart from the population-related employment captured in the residential calculations. Given the interrelationship between the two density standards, it is important that care be taken when developing a municipality's residential standard to ensure that it accounts for non-residential uses located in residential areas.

Assumed densities should not be based solely on the historic pattern and density of development in the municipality. Rather, they should take into account the urban structure and built form expected for the future. In accordance with the Comprehensive Set of Policy Statements, they should facilitate compact urban form, mixed uses and the efficient use of infrastructure and public services.

2 Population Projections

Overview

The starting point for the projection of housing needs and employment and the related land requirements is a projection of population over the relevant planning horizon.

The Ontario Ministry of Finance prepares population projections for the province as a whole and for the various counties, districts and regional municipalities. These are updated every five years following the Census of Canada. The most recent update is based on the Statistics Canada postcensal estimates derived from the 1991 Census. The projections are used by provincial ministries and agencies for a variety of planning purposes. The projections for the counties, districts and regional municipalities can be used by municipalities for land use planning purposes and are available in electronic form in the data package supporting this guideline.

As has been noted, municipalities have the option of preparing their own population projections. However, if they do so, the supporting documentation should indicate how and why the projection differs from the Ministry of Finance's. Municipalities in the Greater Toronto Area should use the population projections developed through the Office for the Greater Toronto Area.

Province-Wide Projections

The most recent Ministry of Finance projections for the Province were published in January 1994 in a report entitled "Ontario Population Projections to 2021." The document also presented for discussion purposes preliminary projections of the total populations of counties, districts and regional municipalities.

The projections for Ontario as a whole are based on the postcensal population estimates of the Ontario population released by Statistics Canada. These include upward adjustments to the 1991 census to account for net Census "undercoverage."

Figure 2.1 shows the steps involved in the method employed by the Ministry of Finance for projecting the population of Ontario as a whole. Population counts by single years of age and sex in the base year are the starting point. The base population is "aged" one year at a time, with the expected number of births, deaths, international migrants and interprovincial migrants being added and subtracted each year. The assumptions about the components of demographic change are based on a review of the historical data, comparison with trends and projections in other jurisdictions and discussions with demographers, economists and public policy experts.

The Ministry of Finance projections present three scenarios of future population growth in the province - "high," "low" and "reference." The reference scenario is recommended for most purposes. The high and low scenarios frame the range within which the future population may reasonably lie. The projections for counties, districts and regional municipalities are based on the province-wide "reference" projection.

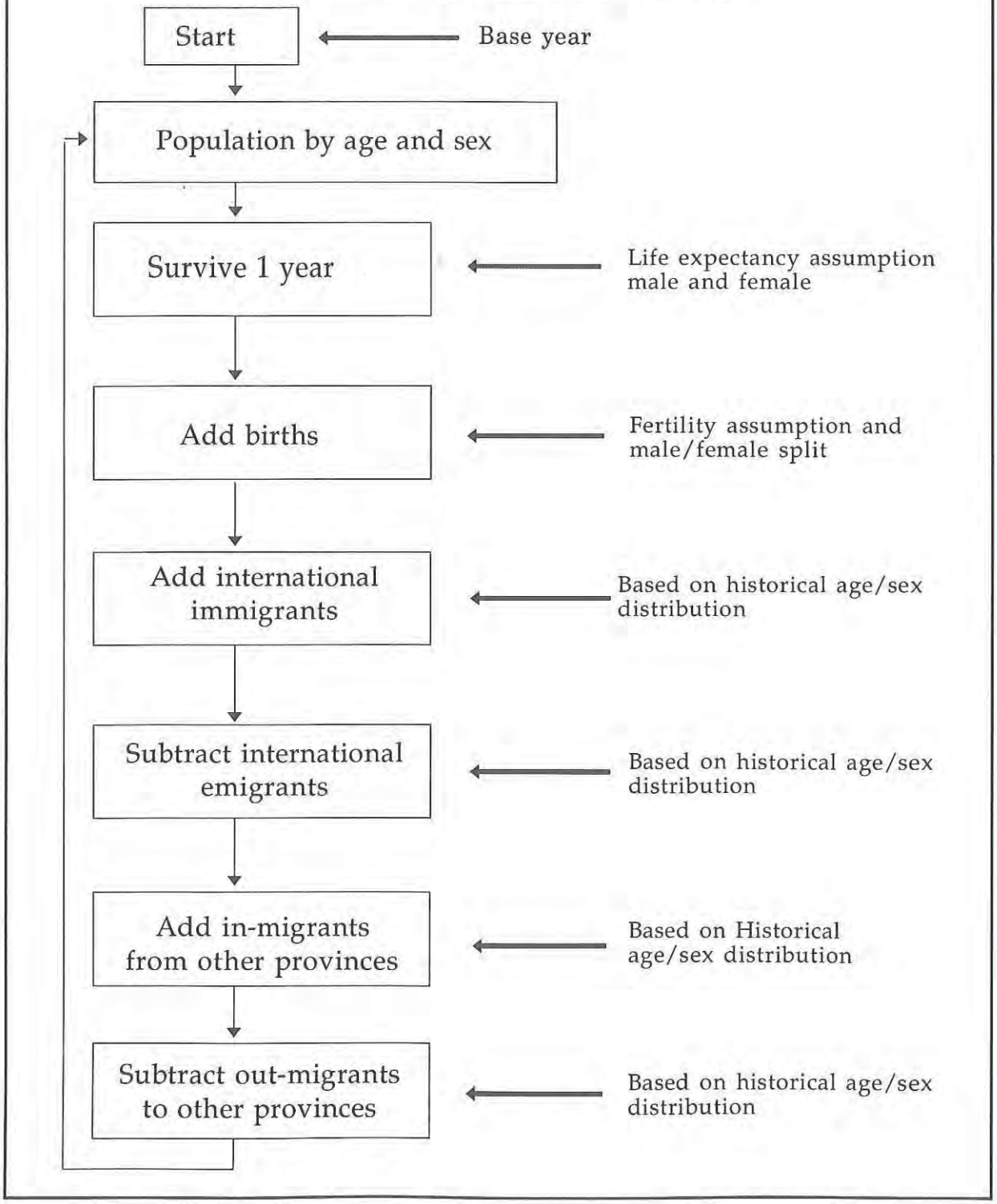
Projections for Regions, Counties & Districts

As with projections for Ontario as a whole, the projections for counties, districts and regional municipalities are based on Statistics Canada's 1991 postcensal estimates for these areas by single years of age and sex. Projections are generated by single years of age and sex for every future year. This level of detail is, however, not required for the projection of housing need and employment using the methods described in this guideline. Accordingly, the population projections being made available in connection with the guideline are by five-year age groups, and they do not include a breakdown by sex.

The projections for counties, districts and regional municipalities are derived through a disaggregation of the province-wide projections. The methodology is an expanded version of the methodology set out in Figure 2.1, with the assumptions for counties, districts and regional municipalities being indexed to the corresponding assumption at the provincial level. This permits essential regional differences in demographic variables to be captured while ensuring that the sub-provincial projections correspond to provincial totals. The sub-provincial projections also incorporate assumptions about migration among counties, districts and regional municipalities.

The projections for counties, districts and regional municipalities are mathematical calculations of what the future population might be, given plausible assumptions about

Figure 2.1
Population Projection Methodology



future trends in fertility, mortality, and migration. They do not incorporate specific assumptions about infrastructure investment or public policies relating to regional development, nor are they built up from local official plans or locally prepared projections.

More details on the methodology are provided in the Ministry of Finance's July 1989 Demographic Bulletin entitled, "Population Projections for Regional Municipalities, Counties and Districts of Ontario to 2011." While the numbers in that publication have now been superseded by the updated projections being issued now, the explanation of the methodology in the earlier document is still relevant.

Where There Is No Upper-Tier Planning

In regional municipalities and in counties designated to provide upper-tier planning, the responsibility for preparing population, housing need and employment projections and allocating them among local municipalities properly rests with the upper-tier government. Where upper-tier planning does not exist, local municipalities will have to proceed on their own, ideally through a "shares" approach.

With this method, a municipality looks at its past shares of the county or district population according to past Censuses and determines whether this has been rising or falling. The expected future share is then applied to the Ministry of Finance projections for the county or district to provide a projected population for the local municipality.

Another approach is the growth rate approach, under which a municipality projects its future population based on its current population in accordance with historic growth rates. A major drawback of this method is that it does not take account of developments in surrounding municipalities. It should only be used by smaller, rural municipalities or by municipalities in northern Ontario that are far removed from other municipalities.

In all instances, local municipalities in areas without upper-tier planning should consult with neighbouring municipalities when preparing population projections on their own.

3 Housing Need Projections

Introduction

Implementation of Housing Policies

This chapter presents a methodology to assist municipalities in undertaking the analysis required to meet the Housing Policies in terms of creating the opportunity for a range of housing types, minimum affordability targets and an adequate land supply for residential growth.

The relevant policies include:

- C1, which says that the opportunity for housing types to meet the present and expected needs of the full range of households in the housing market area will be provided;
- C2(a), which says that opportunities will be provided for no less than 30 per cent of new dwelling units created through development and intensification to be affordable housing;
- C2(b), which says that, wherever feasible, no less than half of the new housing required under policy C2(a) should be affordable to the lowest 30th per cent of the household income distribution for the housing market area; and
- C7, which says that minimum supplies of land for residential development and intensification will be maintained in order to avoid shortages that could drive up housing costs.

The chapter opens with an overview of the methodology for projecting housing needs and then presents a detailed step-by-step explanation of the process. A description of simpler methods more appropriate for smaller, rural municipalities follows. The chapter closes with a discussion of monitoring.

Methodology Overview

Figure 3.1 sets out the housing need projection methodology in general terms. It begins with projections of population, households and housing need for the housing market area, and then allocates the projected need among the component municipalities. Following an analysis to ensure that the 30 percent affordability target can be met, the projected need for each local municipality is translated into appropriate densities to determine the amount of additional land (if any) required for new residential development.

Figure 3.1 indicates that where upper-tier planning exists, the primary responsibility for the initial steps (e.g., projection of housing need) rests with the regional or county government, while the primary responsibility for the later steps (e.g., the affordability check) rests with the local municipalities. In practice, this distinction is somewhat artificial since all the steps will entail consultation between the tiers of government. For example, when the region or county has prepared the projection of overall housing need, this should be circulated to the local municipalities for review. Similarly, the upper-tier government will need to be involved in the calculation of land requirements where these are incorporated in the regional or county official plan.

Where upper-tier planning does not exist, local municipalities will have to carry out their housing need analysis in consultation with other municipalities in the housing market area.

Here is a summary of the steps involved in the housing need projection process:

1. **Population Projection**

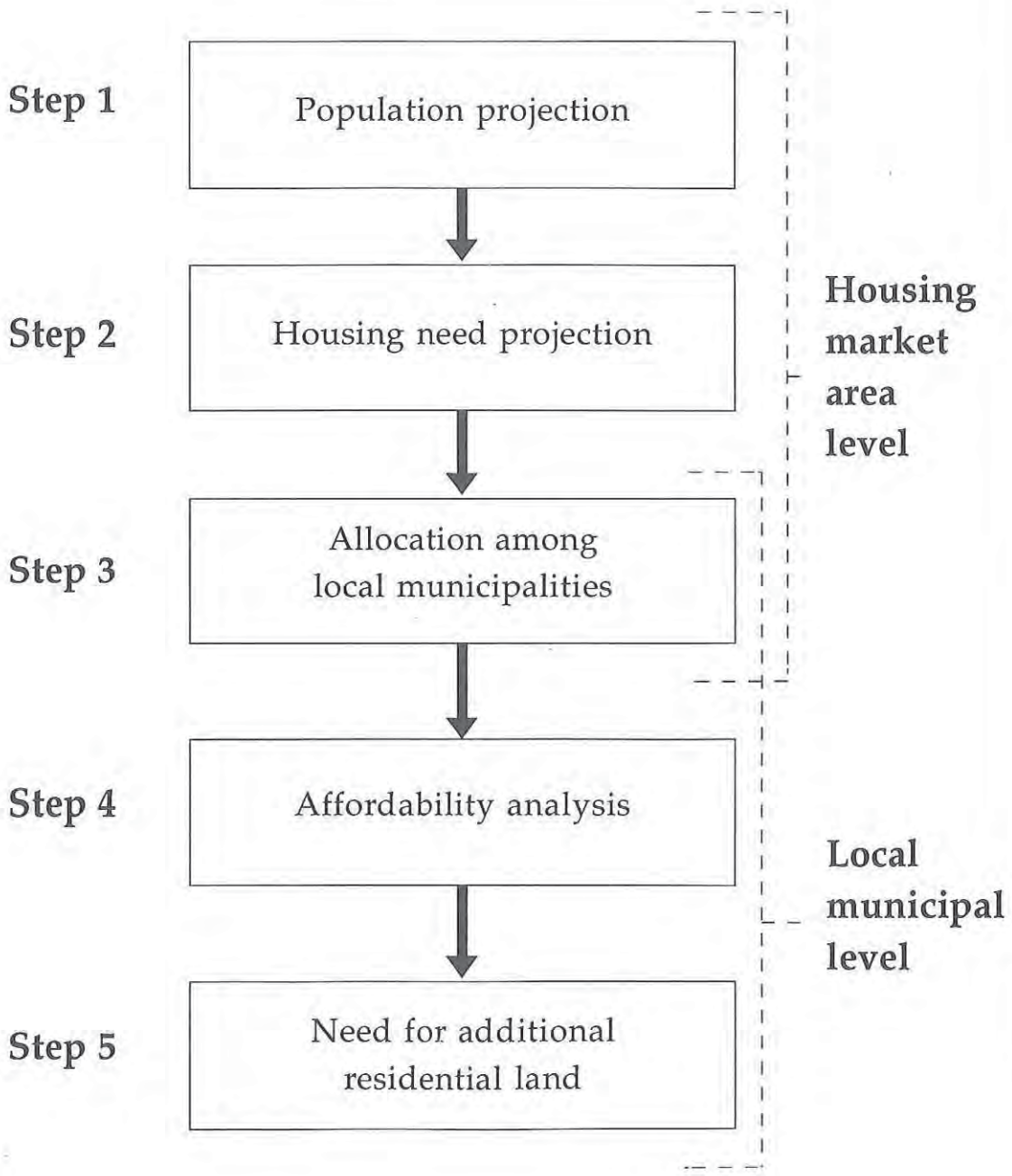
    - A population projection by age group for the housing market area forms the starting point. As explained in Chapter 2, this can be the projection provided by the Ministry of Finance or a projection developed by the municipality on its own.

2. **Housing Need Projection**

    - Through the use of "headship rates" and propensities to occupy particular dwelling types (single-detached, high-rise apartment, etc.), the population projection is converted into a projection of households by type of dwelling for the housing market area.

    - The number of households in the base year is subtracted, yielding projected household growth.

Figure 3.1
Housing Projection Methodology Overview



- This may then need to be adjusted for: the units added since the base year, the replacement of units that will be lost through demolitions and other factors; changes in the level of vacancies; and a "market contingency factor" (for shorter time periods). The end result is the projection of total housing need by dwelling type.

3. **Allocation of Housing Needs**

   - The projected housing need for the housing market area is then allocated among the component municipalities. Under policy C9, where upper-tier planning exists, the regional or county government should, in consultation with the local municipalities, make the allocation among the municipalities based on such factors as past market shares, planned urban structure and potential for intensification.

4. **Affordability Analysis**

   - Prices of projected housing types are analysed by local municipalities to ensure that the projections will meet the minimum affordability targets of the Housing Policies (e.g., that planning policies permit a range of housing types of which a minimum of 30 percent of opportunities for new units will be affordable to the bottom 60 percent of the household income distribution for the housing market area).

   - If necessary, the projected mix of dwelling types is adjusted so that it will meet the affordability targets.

5. **Need for Additional Residential Land**

   - The number of draft-approved and registered units, the estimated volume of residential intensification activity in built-up areas and the number of units that will be created outside the urban boundary are deducted from projected housing need.

   - Separate densities are estimated for the different housing categories, and projected needs are divided by the densities.

   - The amount of land currently designated for residential development but not yet draft-approved is subtracted.

- The end result is the amount of additional land (if any) to be designated for new residential development through extension of the settlement area(s).

As noted previously, not all the various operations are strictly sequential. The projection will be an iterative process involving back-and-forth discussion between tiers of municipal government where upper-tier planning exists, and among neighbouring municipalities where it does not. In some cases, it is possible to depart from the order of operations shown provided each factor is considered at some point in the process.

To assist municipal staff in doing the calculations for the projection of housing need for housing market areas, a computerized spreadsheet with a special Census tabulation of households by tenure and dwelling type is available from the Ministry of Housing, along with a manual that explains how to use the model.

We turn now to a detailed examination of the steps involved in the projection of housing need and related land requirements.

Population Projection (Step 1)

A population projection by five-year age group for the housing market area forms the starting point for projecting housing need and related land requirements. Municipalities may use either the projection provided by the Ministry of Finance described in Chapter 2 or another projection. In the latter case, the assumptions and analysis underlying the projection should be documented.

Whatever population projection is used, it must contain the type of information presented in Table 3.1 in order to be utilized in the housing need projection model presented here. The projection must be by five-year age groups and must cover the planning horizon of the official plan. The use of Census years in the examples shown is not meant to imply that the time horizon for planning for housing need has to begin or end in Census years. The most recent Census year is convenient to use as the base year because it is the latest year for which comprehensive data are available. However, the actual starting point in the official plan will almost certainly be different from that, while the final projection year can be any year within the planning time frame. The most recent population projections from the Ministry of Finance include projections for each year through 2021.

Table 3.1

Information Required in Population Projection

Regional Municipality of X

Age Group	1991	1996		2011	2016
0-4	8,700	8,800	• • •	7,800	8,100
5-9	8,700	9,600		7,900	8,300
10-14	8,000	9,000		8,800	9,300
15-19	8,700	8,700		10,400	10,900
20-24	11,700	8,700		11,300	11,800
25-29	12,900	10,400		10,700	11,200
30-34	12,100	14,400		10,500	11,000
35-39	10,600	12,800	• • •	10,500	11,000
40-44	9,700	11,300		12,100	12,700
45-49	7,800	9,900		16,000	16,700
50-54	6,400	8,100		13,900	14,600
55-59	6,000	6,600		11,900	12,400
60-64	5,900	6,100		10,100	10,600
65-69	5,800	5,700		7,800	8,200
70-74	4,500	5,200	• • •	5,900	6,200
75+	6,600	8,200		12,400	12,900
Total	**134,000**	**143,500**		**168,000**	**175,900**

In the illustrative examples included in this chapter and in chapter 4, the municipalities are assumed to be adopting official plans with a twenty-year time frame. The base year is 1991, the initial year of the planning horizon is 1996 and the end year is 2016.

Housing Need Projection (Step 2)

Projecting Future Households

The next step is to convert the population projection into a projection of the number of households that will occupy each type of housing at a given point in the future and then, by subtraction, the growth over the base year. Growth in the number of households is the principal source of demand for additional housing.

The population projection from Step 1 captures the two main factors that drive household growth — population growth and changes in the age structure of the population. Other factors such as affordability and changing lifestyle choices, of course, also affect household growth, but the impact tends to be less.

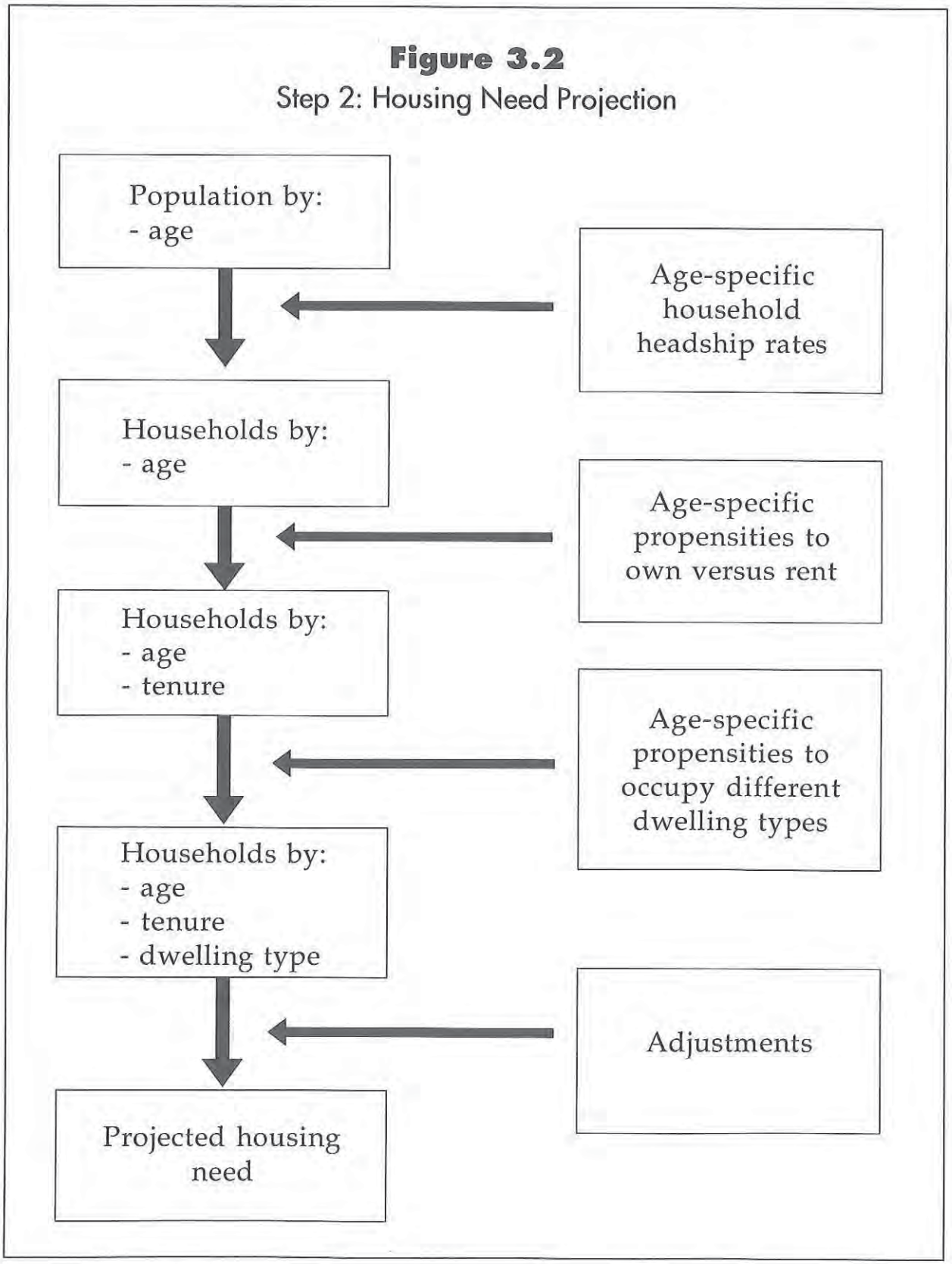
The specific approach to projecting households is outlined in Figure 3.2. This is simpler than such full-fledged demographic projection models as the Canada Mortgage and Housing Corporation's Potential Housing Demand model and the models in use in some regional municipalities, but still involves several steps. Starting from the population projection by age group, it provides increasingly detailed information about the future housing choices of households of various ages. The computerized spreadsheet model and special data tabulation available from the Ministry of Housing will be of assistance in the calculations.

The results of the projection process are:

- **Households by age** — derived by applying age-specific headship rates to the projection of population by age group;
- **Households by age and tenure** — derived by applying age-specific propensities to own versus rent to the projections of households by age;
- **Households by age, tenure and dwelling type** — derived by applying age/tenure-specific propensities to choose different types of dwellings to the projections of households by age and tenure; and, finally,
- **Total households by dwelling type** — the sum of all households, by age and type, projected to occupy dwelling type. This constitutes the key result from the projection, from which the estimate of future residential land requirements will be derived.

Figure 3.2

Step 2: Housing Need Projection



Age Groups and Headship Rates

Household projection models are based on the fact that housing choices differ for people in different age groups and that as people age, these choices evolve in a fairly predictable pattern. While factors such as economic trends and lifestyle changes also affect people's ability and willingness to form households and to occupy different housing forms, age is by far the most important factor.

In order to convert a population projection into a projection of households, a household "headship rate" must be formulated for each age group in the population. The headship rate is the proportion of the number of people in a given age group who are household maintainers. The Census Dictionary defines a household maintainer as the person who is responsible for the major payments (rent, mortgage, taxes or electricity, etc.) for the dwelling. The headship rate serves as an indicator for the propensity (i.e., tendency) of people in a given age group to form separate households.

$$\frac{\text{Household Maintainers}}{\text{Population}} = \textbf{Headship Rate}$$

The headship rates for all age groups in Ontario according to the 1991 Census are shown in the third column in Table 3.2. The computerized spreadsheet model available from the Ministry of Housing provides the rates by age group in each housing market area.

As shown in Table 3.2, the household headship rate for the youngest age group (15-19) in Ontario was 0.021. This figure is calculated by dividing the 14,100 households in that age group by the 679,100 people in the group. A headship rate of 0.021 means that 2.1 percent of the people in this group were heading households in 1991.

Table 3.2

Households, Population and Headship Rates by Age
Ontario, 1991

	Households	/	Population	=	Headship Rate
0-14	0		2,055,000		0.000
15-19	14,100		679,000		0.021
20-24	133,900		741,000		0.181
25-29	357,000		905,000		0.394
30-34	443,900		915,000		0.485
35-39	429,700		826,000		0.520
40-44	418,500		772,000		0.542
45-49	334,300		602,000		0.555
50-54	277,100		497,000		0.558
55-59	259,900		461,000		0.564
60-64	256,800		447,000		0.574
65-69	244,200		411,000		0.594
70-74	190,800		303,000		0.630
75+	278,200		470,000		0.592
Total	**3,638,400**		**10,084,000**		

Source: Based on Census of Canada data

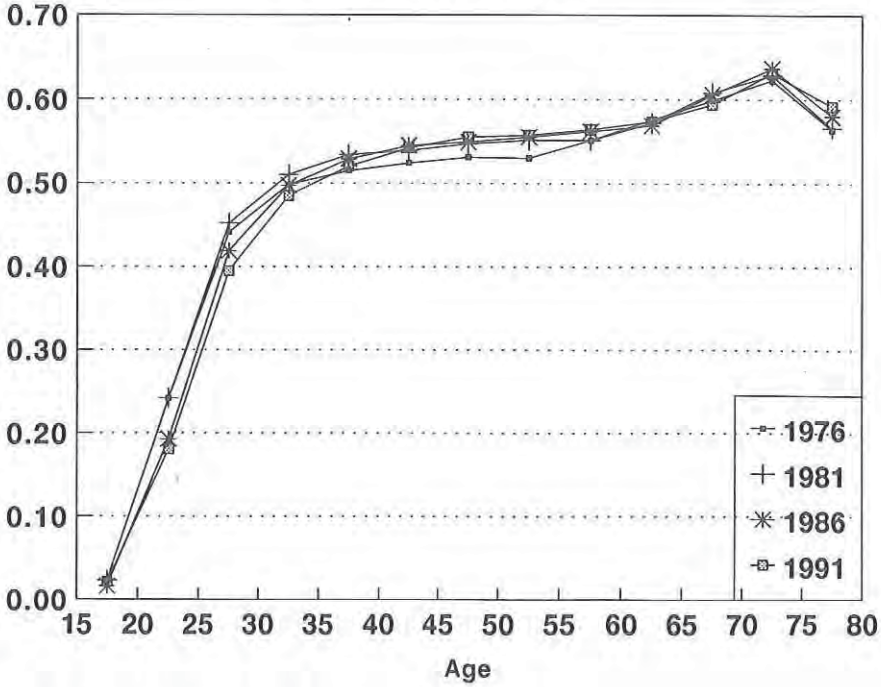
As can be seen, the headship rates rise significantly for each five-year age group after the 15-19 age group until the 30-34 age group (0.485). After that, they rise more slowly until peaking in the 70-74 age group (0.630). The decline after age 75 reflects the movement of people into extended families and nursing homes.

These are the rates calculated from the most recent Census (1991). The use of "constant" (i.e., most recently available) headship rates is one of the simplifying assumptions underlying the projection methodology presented in this guideline. This can be justified given

Figure 3.3

Headship Rates

Ontario, 1976-1991



Source: Based on Census of Canada Data

the stability that overall headship rates tend to exhibit over time. As can be seen in Figure 3.3, the 1991 rates for Ontario are not significantly different from those recorded in the previous three Censuses.

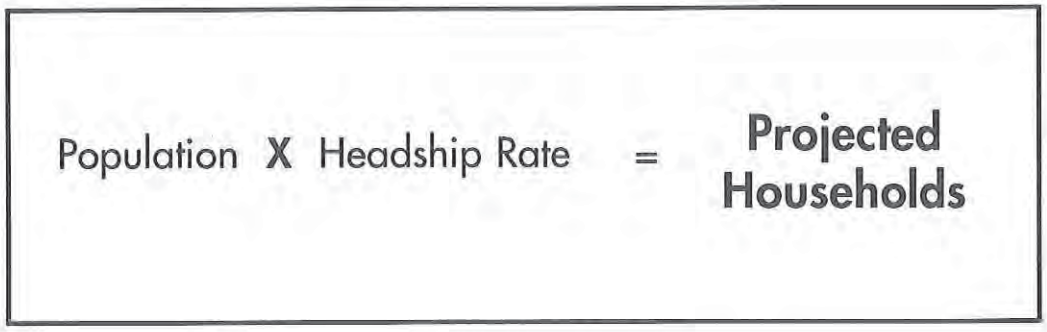
To be sure, headship rates do fluctuate to some degree, and some projection models attempt to forecast future changes in headship rates and other propensities. This, however, is a highly complex exercise, requiring detailed study of such matters as:

- differences in the needs, wants and resources of new migrants to the community compared to the base population;
- changes in family formation patterns such as delays of first marriage;
- changes in real incomes and, therefore, ability to maintain a separate dwelling;

- availability of affordable housing (either subsidized or private market);
- changing lifestyle trends that impact on the desire to live separately (e.g., divorce rates); and
- changes in the availability of social support.

Even experienced demographers and economists find it difficult to forecast such changes with any degree of confidence.[1] For this reason, and because not all municipalities have the resources for this type of analysis, the methodology presented here relies on "constant" headship rates (e.g., the rates derived from the most recent Census) for the various housing market areas. This reduces the complexity of the process while still capturing the most important factors driving future housing needs — namely, the growth and changing age structure of the population.

Once a headship rate for each age group has been calculated, the projected population is multiplied by the headship rate to determine the total number of households for any future benchmark year within the planning time frame.



[1] See Andrejs Skaburskis, "Determinants of Canadian Headship Rates," *Urban Studies* (1994).

Households by Tenure

The next step in the process is the projection of households by tenure.[2] The age groups of household maintainers are broken down into those households that own their home and those that rent. Applying these tenure propensities to the projections of households by age of head gives age-specific projections of households by tenure for the housing market area.

The step is not included in the process because municipalities are expected to try to regulate the tenure of new housing. That would be beyond the terms of the land use planning system. The objective is simply to get an idea of the volume of rental housing required by different age groups.

Households by Dwelling Type

To be useful in projecting housing need, household projections by age and tenure must now be broken down by types of dwellings occupied. This stage applies age- and tenure-specific propensities to occupy various types of housing to the projections by age and tenure calculated previously.

Nine different dwelling types are used in the Census.[3] For the purposes of this analysis, it is desirable to collapse these into a more manageable number more directly related to municipal planning practices. The four categories employed here are:

- **Single-detached house** — A single dwelling not attached to any other dwelling or structure (except its own garage or shed). A single-detached house has open space on all sides, and has no dwellings either above or below it. A link home (a single house

[2] Other household projection models such as CMHC's Potential Housing Demand projection model include an additional stage before consideration of tenure and dwelling type — households by type (non-family, families with/without children, etc.). Household types are undoubtedly important determinants of housing choices. They are not included in the model provided here because holding headship rates and propensities to occupy different dwelling types constant at their 1991 Census levels means that consideration of households by type would not affect the results of the projections.

[3] The nine types are: single-detached house, semi-detached house, row house, other single attached house, apartment or flat in a detached duplex, apartment in a building that has five or more storeys, apartment in a building that has less than five storeys, mobile home and other movable dwelling.

which is not attached to any other dwelling above ground) is classified as a single detached house.

- **High-rise apartment**[4] — A dwelling unit in a high-rise building which has five or more storeys.
- **Low-rise apartments** — A dwelling unit attached to other dwelling units, commercial units, or other non-residential space in a building that has less than five storeys.
- **Other dwellings** — All others.

These particular categories cover a full range of densities from low-density (single-detached), through medium-density (other dwelling types) to high-density (low-rise and high-rise apartments). The computerized model accompanying the methodology, however, provides the flexibility for a municipality to define the four categories in a different manner if it wishes to do so (e.g., to combine semi-detached dwellings with single-detached dwellings).

The relative shares of each dwelling type for owners and renters in three selected age groups (15-19, 30-34 and 65-69) for Ontario are shown in Table 3.3. This table shows that dwelling type choices vary according to both tenure and age. For owners, the predominant type of housing chosen by all age groups is the single-detached house. For renters, the predominant choices are low- and high-rise apartments. The relative shares of each type also vary depending on the age of the household maintainer.

The figures in Table 3.3 are for the province as a whole. Dwelling type choices will, of course, vary significantly from one housing market area to another. The computerized spreadsheet model and special Census tabulations available from the Ministry of Housing provide unique dwelling type propensities for each housing market area. Applying these rates to the projections of households by age and tenure in the housing market area yields projections of households by age, tenure and dwelling type.

[4] "Apartment", of course, refers to a structural type not a tenure choice. Apartments can be either rental or ownership (i.e., condominium).

Table 3.3

Distribution of Total Households by Tenure and Dwelling Type for Selected Age Groups

Ontario, 1991

Household Maintainers	Own	Rent	Total
Aged 15-19			
Single-detached house	64%	14%	18%
High-rise apartment	11%	22%	21%
Low-rise apartment	7%	41%	38%
All other	19%	23%	23%
Total	**100%**	**100%**	**100%**
Aged 30-34			
Single-detached house	79%	19%	52%
High-rise apartment	3%	33%	16%
Low-rise apartment	2%	24%	12%
All other	17%	24%	20%
Total	**100%**	**100%**	**100%**
Aged 60-69			
Single-detached house	83%	9%	64%
High-rise apartment	5%	54%	18%
Low-rise apartment	2%	26%	8%
All other	10%	11%	11%
Total	**100%**	**100%**	**100%**

Source: 1991 Census of Canada

Projection Process Illustrated

Let us now go through the projection process for the hypothetical Regional Municipality of X.

The starting point is the region's projection of population by age group. Each age group is treated as a separate component for projection purposes. In the example shown in Table 3.4, the 30-34 age group and the year 2016 are used. It is assumed that there will be 11,000 people in this age group in 2016.

Household headship rates are calculated from the 1991 Census and applied to the population projection for this age group. Applying a headship rate of 0.498 to the 11,000 population results in projected households of 5,478 for the 30-34 age group in the year 2016.

A similar calculation is carried out for each age group. Total projected households for a housing market area is the sum of the projected households for each age group.

Once household projections by age group are complete, tenure choice propensities are then applied to the projected number of households by age to project the number of owners and renters by age group. The tenure choice propensities for the housing market area are also derived from the most recent Census. Table 3.5 illustrates this calculation for the 30-34 age group.

To determine the breakdown of households by dwelling type, dwelling type propensities are applied to the household projections by tenure. Like headship rates and tenure propensities, dwelling type propensities are derived from the Census. Table 3.5 applies dwelling type propensities to the projected number of owner and renter households in the 30-34 age group. In this example, 1,031 households, or almost 19 percent of the total projected households, would reside in low-rise apartments in 2016.

The process is then repeated for each remaining age group. Adding up the dwelling type choices for each age/tenure group yields projections of the total number of households by dwelling type for a given projection year. Table 3.6 shows the calculations for the Regional Municipality of X for the year 2016.

Table 3.4

Household Projections: 30-34 Age Group

Regional Municipality of X

	1991 (Actual)	2006 (Projected)	2011 (Projected)	2016 (Projected)
Population by Age				
15-19	8,700	10,700	10,400	10,900
20-24	11,700	10,100	11,300	11,800
25-29	12,900	9,900	10,700	11,200
30-34	12,100	9,900	10,500	11,000
35-39	10,600	11,600	10,500	11,000
etc.				
Household Headship Rates				
15-19	0.041	0.041	0.041	0.041
20-24	0.270	0.270	0.270	0.270
25-29	0.442	0.422	0.442	0.442
30-34	0.498	0.498	0.498	0.498
35-39	0.522	0.522	0.522	0.522
etc.				
Total Households by Age of Head				
15-19	357	439	426	447
20-24	3,159	2,727	3,051	3,186
25-29	5,702	4,376	4,729	4,950
30-34	6,026	4,930	5,229	5,478
35-39	5,533	6,055	5,481	5,742
etc.				

Table 3.5

Tenure/Dwelling Type Projections:30-34 Age Group

Regional Municipality of X, 2016

Tenure Projections	Own	Rent	Total
Percent	48%	52%	100%
Number of Households	2,629	2,849	5,478
Dwelling Type Projections for 30-34 Age Group	**Own**	**Rent**	**Total**
Percent			
Single-detached	79.9%	16.3%	46.8%
High-rise apartment	0.9%	18.4%	10.0%
Low-rise apartment	1.3%	35.0%	18.8%
All other	17.9%	30.3%	24.4%
Total	100.0%	100.0%	100.0%
Number of Dwellings by Type for 30-34 Age Group			
Single-detached	2,101	464	2,565
High-rise apartment	24	524	548
Low-rise apartment	34	997	1,031
All other	471	863	1,334
Total	2,629	2,849	5,478

Table 3.6

Total Projected Households by Dwelling Type

Regional Municipality of X, 2016

Age group	Single-detached	High-rise apartment	Low-rise apartment	All others	Total
15-19	59	52	241	98	450
20-24	482	553	1,523	631	3,189
25-29	1,385	688	1,624	1,336	5,474
30-34	2,565	548	1,031	1,334	5,478
35-39	3,509	445	750	1,034	5,738
40-44	4,640	491	687	1,037	6,855
45-49	6,441	670	823	1,163	9,097
50-54	5,806	753	649	869	8,077
55-59	4,934	696	559	707	6,896
60-64	4,323	760	578	552	6,213
65-69	3,256	769	546	431	5,002
70-74	2,409	808	461	325	4,003
75+	3,960	2,089	1,208	544	7,801
Total	**43,769**	**9,322**	**10,680**	**9,984**	**73,755**

Table 3.7

Projected Households Growth (Unadjusted) by Dwelling Type

Regional Municipality of X, 1991 to 2016

	Single-detached	High-rise apartment	Low-rise apartment	All others	Total
Projected households, 2016	43,769	9,322	10,680	9,984	73,755
Existing households, 1991	28,291	6,389	8,554	7,800	51,034
Projected household growth	15,478	2,933	2,126	2,184	22,721

The final output is a set of projections of total households by dwelling type for each fifth year in the projection period. Projected gross household growth is the difference between these projections and the number of households in the base year (1991). Table 3.7 shows the calculation of growth in the Regional Municipality of X to 2016.

Adjustments

With the projected future household growth in hand, we are close to having an estimate of future housing need in the housing market area. However, certain final adjustments may be needed at this point in respect of:

- additions to the existing stock since the base year;
- under or overstatement of need because of unusually low or high vacancies in the base year;
- replacement of stock loss through demolitions, conversions and abandonments; and
- a "market contingency factor" for shorter time periods.

Additions to Stock

Because of the two to three years required to process the results of each Census, the base year for a municipal household projection will normally not coincide with the first year of the municipal planning horizon. In order not to overstate housing need, the additions to the housing stock since the base year of the projections must be subtracted from the household projection. The best source of this information is building permits, classified by dwelling type, available from municipal building departments.

Vacancy Factor

Because housing markets are characterized by cycles, it is sometimes necessary to allow for the fact that the base year for the projections of housing need had an over or undersupply of housing. If significant, this should be taken into account when projecting housing need into the future.

For example, if rental vacancy rates for apartments are very low (i.e., less than 3%), it might be appropriate to increase the projections for high-density housing to make up for this. Conversely, if there was a significant oversupply of apartments when the base year Census was carried out, it might be appropriate to reduce the projected need for new apartments by some amount to allow for absorption of the temporary oversupply. Any adjustments should take into account the character of the units (size, quality, rent, etc.) in the apparent over or undersupply.

Generally speaking, fluctuations in vacancies are not a significant factor in projecting future housing need. A vacancy allowance should only be included if the over or undersupply of housing is significant. CMHC analysts are a good source of information on vacancies.

Replacement Factor

Another factor that may need to be taken into account is the erosion of the existing housing stock by demolitions, fires and abandonments. If significant, this should also be factored into the projections of housing need. Municipalities will have information on these losses from permits and other data sources. In general, such losses account for only a small proportion of the stock, and it is not worth making specific provision for them.

Market Contingency Factor

Finally, events not captured by a household projection can affect the supply of and demand for additional housing. Examples include:

- Swings in the housing market could cause temporary decreases (or increases) in the supply of new housing outside the average trend reflected in the projections.
- Changes in the economy and lifestyles could produce a greater (or lesser) demand for housing than projected using constant household headship rates.
- Landowners might be unwilling or unable to develop their lands in accordance with the schedule assumed for purposes of the official plan.

It may be prudent in certain circumstances to include a cushion in the projection of housing need to offset the risk of shortages developing from unanticipated events. This can be referred to as a "market contingency factor." One way to provide for this is to simply increase the projected units required by some percentage. Where a market contingency factor is included, the municipality should be able to show that this is based on an understanding of the potential volatility of its housing market.[5] A market contingency factor may be used for the short- and medium-term projections, but is not necessary for the long-term projections because municipalities should be monitoring their housing supply situation and can take corrective action on a timely basis.

Adjustments Illustrated

Table 3.8 illustrates the translation of the household projection into a housing need projection. In accordance with policy C7 regarding the maintenance of supplies of land for residential development, needs have been calculated for the short term (at least a three-year supply of draft-approved and registered land) and the medium term (at least a continuous ten-year supply of land designated for new development or redevelopment to be maintained at all times). With respect to medium-term need, a "continuous ten-year supply" effectively means that at least fifteen years should be provided for at each update of the official plan assuming an update every five years. Long-term need is also

[5] Two works that may be useful in this regard are Kelly Roark, *Land for Housing: Developing a Research Agenda,* Lincoln Institute of Land Policy, Monograph 85-3, 1985, and V. Gail Easly, *Staying Inside the Lines,* Planning Advisory Service, American Planning Association, 1992.

Table 3.8

Calculation of Projected Housing Need

Regional Municipality of X

Projected household growth

	1991	1996	2001	2006	2011	2016
Single-detached	28,291	32,211	35,905	38,926	41,808	43,769
High-rise apartment	6,389	6,921	7,540	8,159	8,910	9,322
Low-rise apartment	8,554	8,669	9,049	9,538	10,207	10,680
All others	7,800	8,366	8,736	9,080	9,535	9,984
Total	51,034	56,167	61,230	65,703	70,460	73,755

Short-term housing need

	Growth 1991-2001	Average Annual	x3 Years	+10%
Single-detached	7,614	761	2,284	2,513
High-rise apartment	1,151	115	345	380
Low-rise apartment	495	50	149	163
All others	936	94	281	309
Total	10,196	1,020	3,059	3,365

Projected Three-Year Need

Medium-term housing need

	Growth 1991-2011	Units (Net) Constructed to Date (1991 to 1995)	Remaining	+5%
Single-detached	13,517	800	12,717	13,353
High-rise apartment	2,521	250	2,271	2,385
Low-rise apartment	1,653	300	1,353	1,421
All others	1,735	350	1,385	1,454
Total	19,426	1,700	17,726	18,612

Projected Need to 2011

Long-term housing need

	Growth 1991-2016	Units (Net) Constructed to Date (1991 to 1995)	Remaining
Single-detached	15,478	800	14,678
High-rise apartment	2,933	250	2,683
Low-rise apartment	2,126	300	1,826
All others	2,184	350	1,834
Total	22,721	1,700	21,021

Projected Need to 2016

shown since municipalities have the option of designating land to accommodate the needs for a full twenty-year planning horizon.

As can be seen in Table 3.8, first, the number of units constructed since the base year net of any residential demolitions is deducted from medium- and long-term need. In this example, units constructed from 1991 and 1995, net of demolitions, are subtracted. (This is not necessary for short-term need since this is calculated as three years' worth of average annual growth over the first decade of the projection.) Short- and medium-term need are then increased by 10 percent and 5 percent respectively to account for a "market contingency factor" (note: these figures are for purposes of illustration only). In this example, it is assumed that no adjustments are required for vacancies or replacement.

The end result is a set of projections of dwelling units by type required for selected years over the projection period. This is the base information required to determine the amount of additional housing that should be planned for over the short, medium and long term.

Allocation of Housing Needs (Step 3)

To this point, all the analysis has been at the upper-tier level (in an area with upper-tier planning). To be reflected in appropriate land use designations, the projections need to be distributed to the component municipalities. This is a step requiring considerable judgement. As a minimum, the following factors should be considered:

- past shares of housing market activity by type;
- planned urban structure for the region or county;
- current and planned infrastructure;
- availability of developable land;
- potential for intensification in built-up centres;
- provision of a range of housing types and the achievement of the affordability targets; and
- other provincial policies governing the designation of land for development.

As an illustration, the Council of the Regional Municipality of X's thinking might go something like this: The Local Municipality of A currently accounts for the bulk of the population of the region, but is totally built up. Even with its aggressive intensification policies, this municipality will not be able to accommodate all anticipated additional housing demand. The Region's townships also have a limited ability to accommodate growth because most of the hamlets are on private services and most of the undeveloped land is prime agricultural land. The Local Municipality of B, by contrast, has been the region's focus of growth for the last two decades and is scheduled to receive the bulk of the addition to the region's sewer and water capacity.

Accordingly, the regional official plan provides that half of the new dwelling units required by the Region over the next twenty years should be located in the Municipality of B. The details of B's share of regional housing needs are shown in table 3.9.

Table 3.9
Regional Need Allocation
Local Municipality of B

Dwelling Type	Projected Regional Housing Need	B's Projected Need to 2016
Single-detached	14,678	7,338
High-rise apartment	2,683	1,313
Low-rise apartment	1,826	967
All others	1,834	892
Total	21,021	10,510

As previously noted, while the ultimate responsibility for these decisions in areas with upper-tier planning rests with the regional or county council, this does not mean that a "top down" process is required. Dialogue between the two tiers of government is essential to ensure a sound basis for the policies adopted. Advisory staff working groups may be useful in this regard. The analysis behind the upper-tier's final distribution of expected residential development should be documented.

Where upper-tier planning exists, the allocation process is relatively straightforward since there is a system of government in place with the authority to allocate growth. Where it does not exist, discussion and co-operation among neighbouring municipalities will be necessary to ensure that projected residential growth is accommodated. Preferably, this would be done by one of the municipalities preparing the projection of housing need for the entire housing market area and then all the municipalities agreeing on an apportionment of that need. Alternatively, the municipalities could agree to simply apportion the population projection for the housing market area using the "shares" approach described in Chapter 2 and then project their housing needs separately.

Affordability Analysis (Step 4)

Policy Requirements

Under the Housing Policies, in addition to the projection and provision of a range of housing types, opportunities should be provided for the provision of affordable housing. This is defined in terms of a general target and a sub-target:

- At least 30 percent of planned new dwellings (ownership and/or rental) should be affordable to households with incomes below the 60th income percentile.
- Where feasible, no less than half of this planned affordable housing should be affordable to households with incomes below the 30th percentile.

In order to assess whether the projected range of housing will allow these targets to be met, a further analysis of the likely prices and rents of the housing must be carried out.

Measuring Affordability

The affordability analysis involves three steps:

1. Identify the affordable house prices and rents which households with incomes at the 60th and 30th percentiles can afford.
2. Determine which new housing types can be produced at these affordable prices and rents.
3. Review projected housing need from step 3 and, if necessary, increase it in order to ensure that, as a minimum, 30 percent of projected units are affordable.

The Ministry of Housing is responsible for step 1. Affordable house prices and rents are provided for each housing market area in the Ministry's annual Information Bulletin. The 1995 Bulletin is included as Appendix B.

The other two steps are discussed in some detail below.

Identifying Affordable Housing Types

In order to identify the types that are priced at affordable levels, the municipality should review available data on new house prices. This information is available from various sources including:

- The Ministry of Housing has compiled new house price data from the Ontario New Home Warranty Program for all municipalities for various years. The information is updated on a regular basis and is available from the Ministry on request.
- CMHC collects information on new house prices in urban areas by house type. This data is available on request from the housing market analyst in the nearest CMHC local office.
- In addition to assessed values of properties, the Ministry of Finance's OASIS initiative will provide data on type, sales, lot size and square footage of residential properties. The data will be available to municipalities shortly at no charge via CD ROM. Information on assessment data can be obtained from the Data Services and Development Branch of the Ministry of Finance, at 33 King Street West, 6th floor, Oshawa, L1H 8H5, (905) 433-5688.
- Some municipalities have initiated monitoring procedures to collect information on intended prices and rents for new housing units. Developers and builders are required to complete forms indicating the number and type of units that will be priced at or below the affordable price targets.
- Information can also be obtained from builders, developers and real estate agents and appraisers and real estate consultants active in the municipality. They should be able to provide reasonable estimates of the range of market prices and rents for various types of new housing.

Table 3.10

Density and Prices for a Range of Housing Forms

Greater Toronto Area, 1993

Built Form	Net Density	Price Range
Detached	(u.p.a.)	($ 000s)
Single Family >50'	<7.9	260+
Single Family 50'	8.0	245-340
Single Family 46'	8.6	240-275
Single Family >40'	9.9	235-265
Interlot 33'	20.0	175-225
Single Family >32'	12.4	185-215
Single Family >30'	14.5	180-210
Semi-Detached		
Semi-Detached 30' x2	13.2	170-195
Semi-Detached 27' x2	14.7	160-185
Semi-Detached 24' x 2	16.5	160-175
Semi-Detached 22.5' x 2	17.6	160-170
Attached		
On Street Townhouse 27.5'	22.0	185-200
On Street Townhouse 22.5'	19.4	160-180
On Street Townhouse 20'	21.8	155-175
On Street Townhouse 18'	24.2	155-170
Quattroplex	20+	150-170
Block Townhouse	14.0	125-140
Block Townhouse (freehold)	14.0	125-160
Low-apartment 3-4 Storey	14-23	100-160
Casitas	20-22	135-165
Mid-Rise Apartment (Up to 8 Storeys)	35-65	
Apartment	65+	

Source: Greater Toronto Area (GTA) House Forms and Densities Steering Committee Report, prepared by Hemson Consulting Ltd., Milus Bollenberghe Topps Watchorn, Baird/Sampson Architects, September 1993.

In addition to gathering information on past trends in prices and rents of various housing types in the local market, municipalities should consider two points:

- Whether changes in planning policies or development standards could provide opportunities for units of existing types of housing or development to be offered at lower prices or rents. Examples are smaller units, smaller lots and reduced rights-of-way.
- Whether there are innovative affordable housing types that have not been built locally. Examples include medium-density forms such as convertibles, quatroplexes and stacked townhouses (see the Glossary for definitions). It may be possible to derive estimates of the prices from information from other municipalities. Table 3.10 shows the prices of a wide variety of house forms and densities available in the Greater Toronto Area.

The role of residential density is an important consideration when undertaking an affordability analysis. Within each of the four structure types used in the housing needs model, the affordability of dwelling units will be greatly influenced by factors such as the size of the units and the density at which the units are constructed. The impact of density on house prices is clearly evident in Table 3.10.

To adequately assess whether the projected number of housing units by type is sufficient to meet the affordability requirements of the housing policies, municipalities will need to estimate the likely densities at which housing units will be developed. For example, it will be necessary to estimate what number of single-detached houses will be built on small lots (20 to 30 foot frontages), medium size lots (30 to 40 ft) or large lots (50 feet plus). The same analysis must also be carried out for the other three structure types used in the housing needs projections.

The data sources discussed above may be able to provide insight into house prices for units of different size and density. For example, the assessment-related data available from the Ministry of Finance includes detailed information on housing units and lot characteristics.

The work on density carried out as part of the affordability analysis will be used to contribute to the development of the gross residential density standard used to calculate future residential land requirements, discussed later in this chapter.

Adjusting the Mix

It is necessary to determine whether the initial projection of housing needs includes sufficient units of the affordable housing types to ensure that the affordability targets in the Housing Policies are accommodated. If not, then the projection should be adjusted by increasing the number of units of the affordable types. Table 3.11 illustrates how this would be done in the Local Municipality of B. As will be seen, no adjustment is required

Table 3.11
Housing Mix Adjustment
Local Municipality of B

		Projected Three-year Need	Affordable Supply	Adjusted Planned Need	Affordable Supply
Short-term housing need	Single-detached	1,131	0%	1,131	0%
	High-rise apartment	220		220	
	Low-rise apartment	170	32%	170	32%
	All other	140		140	
	Total	1,661	32%	1,661	32%
		Projected Need to 2011		**Adjusted Planned Need**	
Medium-term housing need	Single-detached	6,009	0%	6,009	
	High-rise apartement	1,000		1,100	
	Low-rise apartment	700	28%	750	30%
	All other	650		675	
	Total	8,359	28%	8,534	30%

[6] It will be noted that no reduction is made in the other categories to offset the increase in the affordable units, as this could lead to shortages of the other types. The additional units are unlikely to have a significant impact on the amount of land designated for new development since they will generally be in the higher-density categories. Such adjustments should only be made for the short- and medium-term projections.

in the short term since the projected three-year requirement of the affordable dwelling types is more than 30 percent. However, an upward adjustment is required for the medium term.[6] Irrespective of any adjustments, the final projection of need by dwelling types has to be translated into appropriate densities in planning documents to achieve the built forms required.

Need For Additional Land (Step 5)

Policy Requirements

The product of the projection process to this point is a projection of the short, medium and long-term housing needs by dwelling type in the municipality. Prepared in the manner set out in this chapter, the projections should meet the objectives of the Housing Policies with respect to providing the opportunity for both the full range of households in the housing market area and the affordable housing goals as well. The next step is to convert these requirements into the amount of additional land (if any) needed for residential development.

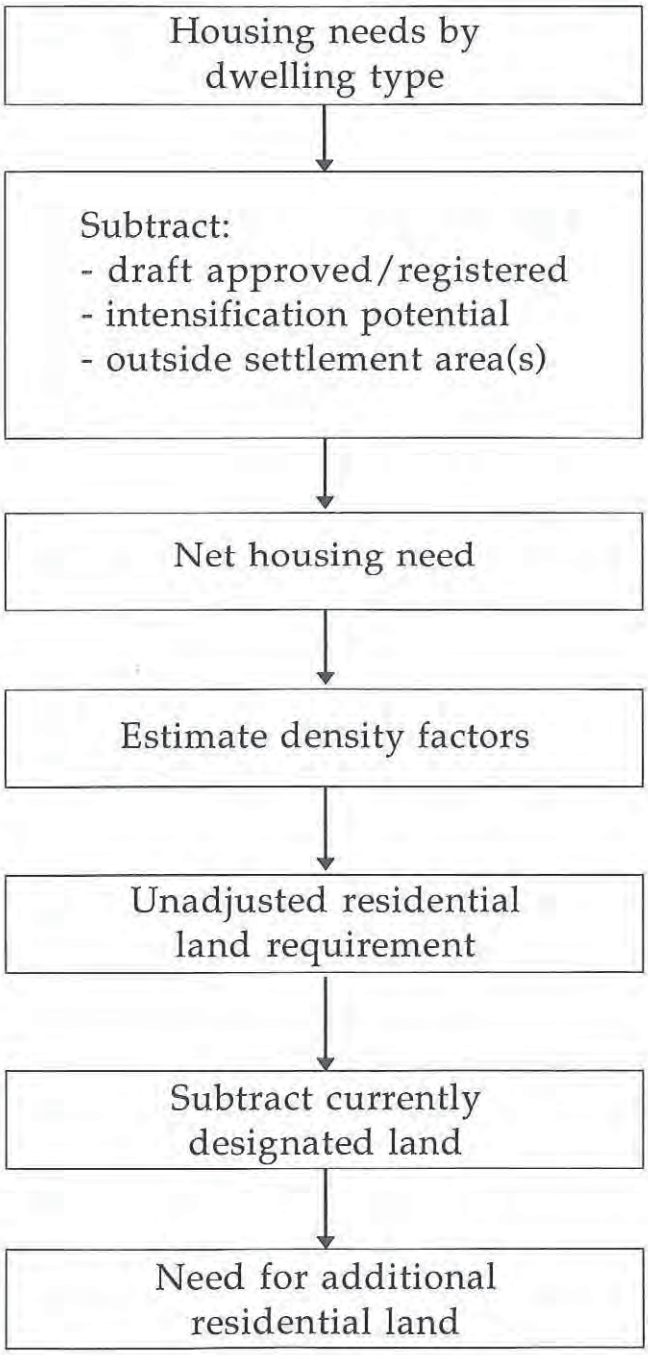
Policy C 7 provides that a sufficient supply of land for new development and intensification will be maintained in accordance with policies under Goal B to allow for the housing types required to meet the needs of the full range of present and expected households in the housing market area. Specifically:

- Municipalities are to maintain at least a continuous ten-year supply of land designated for residential development or redevelopment. (As previously noted, this means a fifteen-year supply should be included in each official plan update assuming five-year updates.)
- Where new development is to occur, municipalities are to maintain at least a continuous three-year supply of land for such development in draft-approved/registered plans of subdivision.

The objective of this policy is to ensure that there is an adequate supply of residential land designated, draft-approved and registered to ensure that shortages do not develop, thereby forcing up the price of land and housing.

Figure 3.4

Step 5: Need for Additional Residential Land



The amount of any new land to be designated for new development should be net of:

- units that can be created through intensification;
- existing units in draft-approved/registered plans not yet built;
- existing supplies of land designated for new development;
- units created through consents, etc., in rural areas.

Figure 3.4 provides an overview of the process.

Intensification Potential

In addition to constructing housing units in previously undeveloped areas, it is possible to add new dwelling units in existing built-up areas through residential intensification. Residential intensification includes:

- redevelopment of vacant or underutilized sites;
- redevelopment through demolition;
- conversion of industrial, commercial, or institutional buildings to residential use;
- subdividing/adding on to existing residential buildings (e.g., creating apartments in houses and rooming houses); and
- infill (the creation of housing between or behind existing structures without the need for demolition).

As part of determining land requirements to accommodate future housing needs, it is important to consider the amount of new growth that can be achieved through intensification. The Comprehensive Set of Policy Statements (viz., policies B8 and C4) directs municipalities to provide opportunities for additional dwelling units in existing built-up areas. The provision of housing through intensification reduces the amount of land consumed for new development. In fully built-up municipalities, all new housing must, of course, come through intensification.

The first step is for a municipality to establish a target for the portion of total housing need that will be met through residential intensification within a particular planning horizon. This should be done when a municipality is preparing a new official plan or an official plan amendment that involves a major extension to the settlement area.

In order to ensure that this is a realistic target, the municipality should estimate the number of units likely to be created through intensification under current or anticipated conditions. This analysis should consider:

- *technical feasibility factors* such as:
  - site size, configuration, and the pattern of land ownership;
  - availability of hard services; and
  - environmental constraints (including contaminated soils and adjacent incompatible land uses).
- *market factors* that influence the demand and supply for new housing units within existing built-up areas, including:
  - the range and affordability of housing that could potentially be built;
  - whether the profile of households favours the creation of the smaller units most likely to be created through intensification;
  - the availability of alternative sources of supply (e.g., housing on "greenfields" sites);
  - consumer willingness to move into existing neighbourhoods; and
  - any infrastructure improvements (e.g., road improvements) planned for those neighbourhoods.
- *planning/political factors* such as:
  - the extent to which supportive official plan policies have been or are being put in place;
  - the willingness of the committee of adjustment to grant minor variances to permit residential intensification;
  - the commitment on the part of the municipality to provide the necessary infrastructure;
  - the existence of opposition to new housing in existing neighbourhoods; and
  - development charges and parkland dedication fees.

If the above analysis concludes that the intensification target is unlikely to be met under current or anticipated conditions, the municipality should consider the measures that it can take to facilitate additional intensification. Many such steps, which can involve creating a more favourable planning environment or reducing the costs of new dwelling units in existing built up areas, are described in the implementation guideline for policies B8 - 11.

It is important for a municipality to monitor subsequent building permit activity to determine whether intensification is "on track" to meet the target. If this is not the case, further measures would need to be considered.

Existing Land Supplies

Municipalities also need to inventory existing land supplies designated for development before designating additional land for new development. Inventories should separately identify housing units that are within draft-approved plan or registered land covered by a development application that is not yet draft approved and land that is designated but with no formal application yet received. Housing units in registered plans must, of course, be net of any sites for which building permits have been issued.

The inventory of draft-approved and registered land will, when compared to the projections of short-term housing need, show whether the municipality is meeting the goal of the Housing Policies which states that at least a three-year supply must be maintained at all times. The number of units in the development approvals process, plus some estimate of the likely timing of draft approvals, will provide an indication of whether supply problems are likely to occur in the near future.[7]

Rural Units

A final adjustment should be made for the number of units that are likely to be created outside of the urban boundary through consents and other types of rural development. Land will not need to be designated within the urban boundaries to accommodate this expected activity.

[7] The GTA Residential Land Inventory Survey coordinated by the Ministry of Housing and CMHC, and the Regional Municipality of Ottawa-Carleton land supply survey are examples of municipal land monitoring exercises.

Density

Prior to calculating future land requirements it is necessary to determine the likely density at which new residential growth will occur. As was explained in Chapter 1, gross residential densities should be used for this purpose, and neighbourhood-scale commercial and institutional uses such as neighbourhood parks, roads, institutionals (schools or recreation centres) and commercial uses should be included.

The total number of housing units by type is then divided by the assumed gross density standard for each housing type. A municipality's total residential land requirement is the sum of the land needs for each unit type.[8]

Table 3.12
Calculation of Future Land Requirements
Local Municipality of B

	Single-detached	High-rise apartment	Low-rise apartment	All others	Total
Long-term housing need 1991-2016	7,338	1,313	967	892	10,510
Subtract					
Draft approved and registered	1,500	100	100	150	1,850
Intensification potential	250	50	75	100	475
Units outside urban boundaries	125	-	-	-	125
Remaining dwelling units	5,463	1,163	792	642	8,060
Density (units per hectare)	20	100	60	45	
Hectares required	273	12	13	14	312
Substract:					
Currently designated					100
Required to be designated					212

[8] The housing units per hectare can be converted into residents per hectare where the municipality is using a combined residents/employees per hectare standard.

In accordance with the Comprehensive Set of Policy Statements, assumed densities should facilitate compact urban form, mixed uses, the efficient use of infrastructure and public services as well as the provision of a range of housing and the achievement of housing affordability objectives. Documents such as the Transit Supportive Land Use Planning Guidelines and the Urban Density Study prepared for the Office for the Greater Toronto Area provide useful background information in determining appropriate densities.

As mentioned in Chapter 1, gross density does not include land which is used for hydro corridors, railway right-of-ways and provincial highways, or those lands not available for development because of the Comprehensive Set of Policy Statements.

Putting It All Together

Estimating the amount of additional designated land required to accommodate future new residential development is a relatively straightforward exercise once all the information outlined above has been compiled. Table 3.12 shows the calculations step-by-step.

- Long-term housing need allocated to the hypothetical Local Municipality of B is the starting point. In the example in shown, this is a total of 10,510 units.
- The number of units available on draft-approved and registered land is deducted first. This is 1,850 units. (Units constructed since the base year would first be deducted if this has not been done previously in the process.)
- The estimated number of units that will be provided through intensification is deducted next. This is 475 units of various types.
- An estimate of the number of units that will be created outside the urban boundary is deducted next. In this example, 125 units (all single-detached) will be built outside the urban boundary within the projection period.
- With these three deductions, there remain 8,060 units to be provided through new development within the urban boundary.
- The amount of new land required to accommodate future residential growth is calculated by applying a gross residential density to each dwelling unit category.
- Land that is already designated for residential development but is not yet draft-approved or registered is then subtracted from the total land requirements.

- The final amount of land needed to be designated in order to accommodate expected residential growth to the year 2016 works out to 212 hectares.

Simpler Methodology

The methodology outlined above is considered appropriate for municipalities in urban or urbanizing areas. Smaller municipalities in rural parts of the province may because of problems with data availability or other issues wish to adopt a simpler methodology in determining future housing needs. This section presents a simple methodology to project future housing needs appropriate for smaller municipalities. The methodology is illustrated for a hypothetical municipality in Table 3.13.

The first step is to obtain a population projection for the municipality. Chapter 2 explains how the Ministry of Finance's population projections for regional municipalities, counties and districts can be used to derive a population projection for a local municipality. In the example shown, the population is projected to grow from 6,000 in 1991 to 7,500 in 2016.

The next step is to determine the average number of people per household and apply this to the projection of population to obtain a projection of households. In the hypothetical example, the average household size is assumed to be 3.0 persons. Applying this to the population projection yields projected total households of 2,500 in 2016, an increase of 500 from the current number. Over the period 1991-2001 average annual household growth is projected at 20 units a year.

The mix of dwelling types can be based on an examination of past trends in housing built in the municipality in recent years. Building permit information is the best source. In the example, total units built between 1986 and 1995 is assumed to have been 160. Most of the units were single-detached although some semi/row units and apartments were built as well. This breakdown can then be applied to estimate the expected future mix of households by dwelling type.

In the case of short-term housing need, since the 1991-1996 period is already well underway, the average annual growth in the overall 1991-2001 period should be used for estimating short-term housing need. The process as shown in Table 3.13 is as follows:

Table 3.13

Simple Housing Need Projection Methodology

Local Municipality of C

	1991	1996	2001	2006	2011	2016
Population projection	6,000	6,300	6,600	6,900	7,200	7,500
Average household size	3.0	3.0	3.0	3.0	3.0	3.0
Household projection	2,000	2,100	2,200	2,300	2,400	2,500

Housing mix

1986-1994 Units Constructed		
Single-detached	112	70%
Semi/Row	16	10%
Apartment	32	20%
Total	160	100%

Short-term housing need

Dwelling Unit Growth 1991-2001

	Growth 1991-2001	Average Annual	x3 Year	+20%	
Single-detached	140	14	42	63	
Semi/Row	20	2	6	9	**Projected Three-Year Need**
Apartment	40	4	12	18	
Total	200	20	60	90	

Medium-term housing need

	Growth 1991-2011	Units (net) constructed to date (1991 to 1995)	Remaining	+10%	
Single-detached	210	40	170	213	
Semi/Row	30	10	20	25	**Projected Need to 2011**
Apartment	60	0	60	75	
Total	300	50	250	313	

Long-term housing need

	Growth 1991-2016	Units (net) constructed to date (1991 to 1995)	Remaining	
Single-detached	350	40	310	
Semi/Row	50	10	40	**Projected Need to 2016**
Apartment	100	0	100	
Total	500	50	450	

- Determine the total housing need and expected mix of housing over the 1991-2001 period. This is 200 units in the example.
- Convert the projected need to average annual growth for the period. This is 20 units in the example.
- Estimate the three-year housing need (60 units in the example).
- If appropriate, make a further adjustment in respect of vacancies, replacement and a "market contingency factor."

Because of the relatively crude nature of the simple methodology, the adjustment for a "market contingency factor" may be more significant than when the methodology discussed earlier in the chapter is used. In Table 3.13, the projected short-term need has been increased by 20 percent and the medium-term need by 10 percent. These figures are offered by way of illustration only. The extent of the upward adjustment if any will depend on local circumstances and knowledge of local market conditions.

The process for calculating medium-term housing need is relatively straightforward. The steps are:

- Overall growth to the end of the fifteen-year projection period is determined. In the hypothetical example, the total growth is 300 units, with most of it comprised of single-detached houses.
- Building activity to date is deducted to obtain projections of the amount of housing need remaining. This is 250 units in the example.
- Again, because of the crude nature of this particular projection methodology, a "market factor" adjustment may also be desirable for the medium-term projections. In the example, the projections for the medium-term have been increased by 10 percent for purposes of illustration.

In the case of long-term housing need, the approach is similar to the process shown for medium-term need. However, no "market factor" adjustment is necessary because there should be ample opportunity in the intervening years to adjust the projected long-term need to accommodate changes in land consumption before the land is actually required for development.

For each planning horizon, the municipality applies the affordability check outlined previously in the chapter and makes adjustments to the housing mix as appropriate.

The final stage of the process is to estimate the amount of additional land needed using assumed densities. This involves the same procedure outlined earlier in this chapter.

Monitoring

Many factors can arise that may lead to either greater or lesser need for housing than is projected. Therefore, the projections and affordability analysis should be monitored on a regular basis to ensure that plans for future growth continue to meet the goals of the Housing Policies.

Municipalities should monitor the volumes and types of housing activity on a regular basis. The accuracy of the projections of housing need can be monitored through building permits or housing starts information from CMHC. It is unlikely that housing production will exactly mirror the projections since housing activity is cyclical. However, if housing production appears likely to be significantly higher or lower than the projections for a sustained period, the assumptions on which the projection was based (especially the population projection) should be re-examined and corrective actions taken.

In particular, the short-term projection of need must be monitored against the supply of draft-approved and registered land. If housing production significantly exceeds the projected volume of need in one or more of the dwelling types and/or if the supply of draft-approved or registered land is not maintained at three years supply, shortages could occur which would result in rising prices and deterioration in affordability. Maintaining a three-year supply of draft-approved or registered land will help avoid significant increases in housing prices beyond the increases that would be dictated by inflation.

Projections should be revisited at least every five years following the release of the latest results of the Census and the updated population projections from the Ministry of Finance. Even if the population projection remains the same, the more up-to-date detailed Census data on household headship rates and dwelling type propensities will allow municipalities to recalibrate their projections to ensure they reflect changes in market trends and housing choices to the greatest extent possible.

Following the completion of these revised projections, it may be necessary to adjust the estimated amount of land required, both in total and for different housing forms.

4 Employment Projections

Introduction

Implementation of Policies

This chapter presents a methodology to assist municipalities in preparing an employment projection and for identifying related land requirements in accordance with the Comprehensive Set of Policy Statements.

The following policies are particularly relevant:

- B4, which says that communities should be planned and developed for opportunities for a diverse economic base that supports a healthy and stable economy;
- B5, which says that communities should be planned for the efficient use of land, infrastructure and public service facilities, including public transit where it exists or may be introduced;
- B8 and B9, which say that extensions to settlement areas will be permitted only if a number of conditions are met, one of the primary conditions being that the amount of land within the proposed extension be justified taking into account the amount of land already available for development within the settlement area(s) and a population projection and an employment target for the municipality over a planning horizon of fifteen to twenty years;
- D1, which says that extensions of settlement areas affecting prime agricultural areas will be permitted only if the policies of Goal B are met;
- E2, which says that municipalities should be planned to promote the most efficient modes of transportation and to reduce the need for the private automobile.

This chapter begins with an overview of the recommended methodology. It then takes the reader through the process step by step in some detail. The chapter concludes with a brief discussion of simpler methods suitable for smaller, rural or low-growth municipalities.

Basic Approach

The methodology is based in the first instance on an "activity rate," which is defined as the number of jobs in a municipality divided by the number of residents. A municipality's current activity rate can be calculated from the place of residence/place of work data from the last Census. (The data for all municipalities are included in the computerized spreadsheet package supporting this guideline.)

$$\frac{\text{Total Employment}}{\text{Total Population}} = \textbf{Activity Rate}$$

Municipalities are asked to predict whether their activity rate will increase, decrease or stay the same over the planning horizon. In making such a prediction, it is necessary to make judgements about future circumstances and their likely impacts. These may include changes in employment trends, the arrival of a major new employer, constraints and opportunities with respect to infrastructure or land supply constraints in adjacent urbanizing areas. These assumptions must be documented.

In making predictions about its future activity rate, a municipality can benefit from the preparation of an economic development strategy. This could include an assessment of the growth potential of employers in the municipality and an evaluation of future trends in the regional economy. Although such work will entail more extensive analysis and a greater use of assumptions, it is a legitimate input into the activity rate prediction provided assumptions are reasonably constructed and assessed.

A more sophisticated approach to forecasting future employment would be through an econometric modelling exercise. This would take into account such variables as long-term structural changes in the economy and the labour force. However, this approach is complex and has a wide "margin of error" at the sub-provincial level. As a result, and given that the activity rate approach is consistent with approaches used by many Ontario municipalities and consultants in recent years, the methodology presented in this guideline is based on the use of an activity rate for projecting employment.

Methodology Overview

Figure 4.1 provides an overview of the steps involved in the methodology. It can be noted that the process bears many resemblances to that described in the previous chapter for projecting housing need except that the population is not broken down by age, tenure or dwelling type and there is no step corresponding to the housing affordability "check."

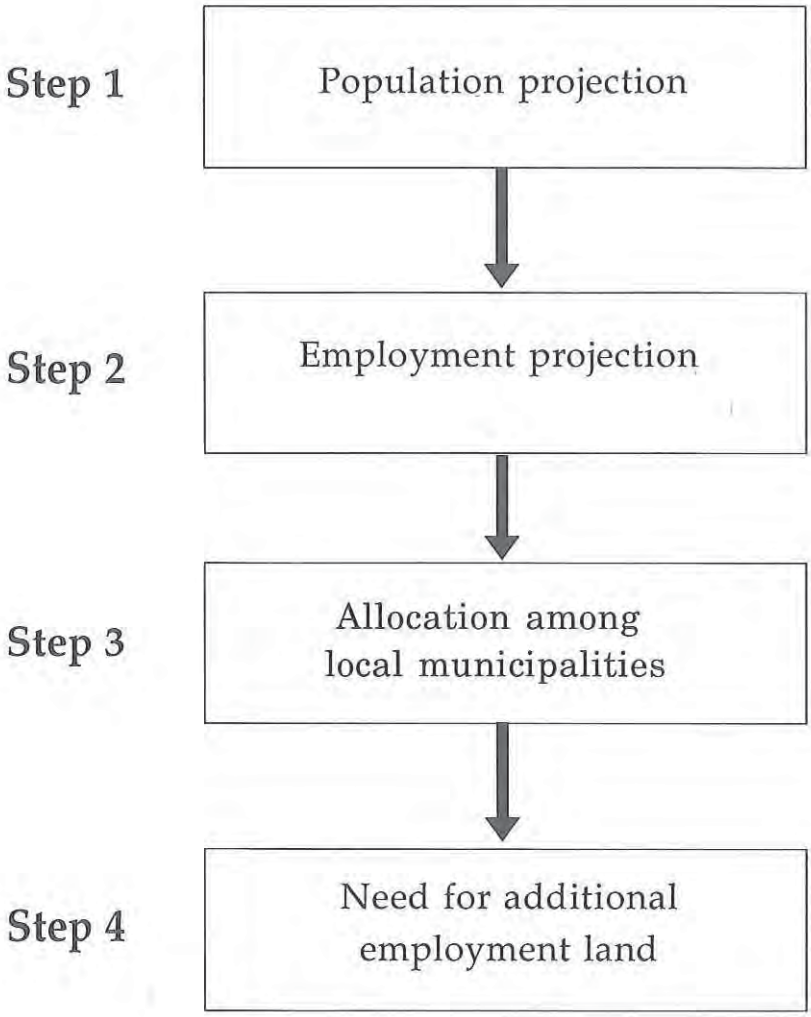
Where upper-tier planning exists, the initial steps are primarily the responsibility of the regional or county municipality. As with the housing need projection process, not all the operations are strictly sequential. The process will involve back-and-forth discussions between the upper and local tiers of government where there is upper-tier planning, and between municipalities, where there is not. In certain instances, the order can be varied provided every factor is considered at some point in the process. For instance, although deducting intensification potential is discussed as part of Step 4, it could alternatively be addressed as part of Step 2.

Here is a summary of the steps involved in the employment projection process:

1. **Population Projection**
   - The municipality may use the Ministry of Finance population projection described in Chapter 2 or develop a projection of its own. In the latter case, the differences from the Ministry's projection should be documented.

2. **Employment Projection**
   - Project an "activity rate" for the municipality (e.g., 40 jobs per 100 residents or 0.4 jobs per resident = a 40 percent activity rate).

Figure 4.1
Employment Projection Methodology Overview



- Apply the activity rate to the population projection to get a total employment projection for the municipality.
- Break the employment projection down into employment types — "primary," "population-related," "employment land," etc. (This is not necessary for municipalities using the simpler methodology described at the end of the chapter.)
- Estimate the amount of any employment generated by unique or uncommon uses having discrete and specific land requirements (correctional facilities, higher education facilities, etc.).

3. **Allocation among Local Municipalities**
   - Where upper-tier planning exists, the regional or county government should allocate a share of the upper-tier projection of employment to the constituent local municipalities. Where upper-tier planning does not exist, a local municipality's projections can be based on its share of the total county or district population.

4. **Need for Additional Employment Land.**
   - Estimate and then deduct employment that can be accommodated through intensification of existing employment lands and through people working at home. (This can, alternatively, be done as part of Step 2.)
   - Estimate employee densities for the categories established in accordance with Step 2. (A municipality using the simpler methodology described at the end of the chapter would employ a single density.)
   - Divide the categorized employment projections by the assumed densities to determine the amount of land required to accommodate the projected employment for each category.
   - Deduct the current supply of employment land, including existing built-up employment lands, registered and draft-approved lots/blocks and vacant designated lands (with or without a development application).

- Sum the results to arrive at the amount of additional employment land needed to accommodate a municipality's employment projection through extension of its settlement area(s).

We now turn to a more detailed description of the operations involved.

Population Projection (Step 1)

As with housing need projections, the starting point for projecting employment is a population projection for the chosen planning horizon. This can either be derived from the Ministry of Finance projection described in Chapter 2 or from an alternative projection developed by the municipality.

The time frame of the population projection should be consistent with the planning horizon that the municipality is planning to use in its official plan. Ideally, the time frame for an employment projection should be the same as that chosen for the population projection. In no case should it be longer.

Employment Projection (Step 2)

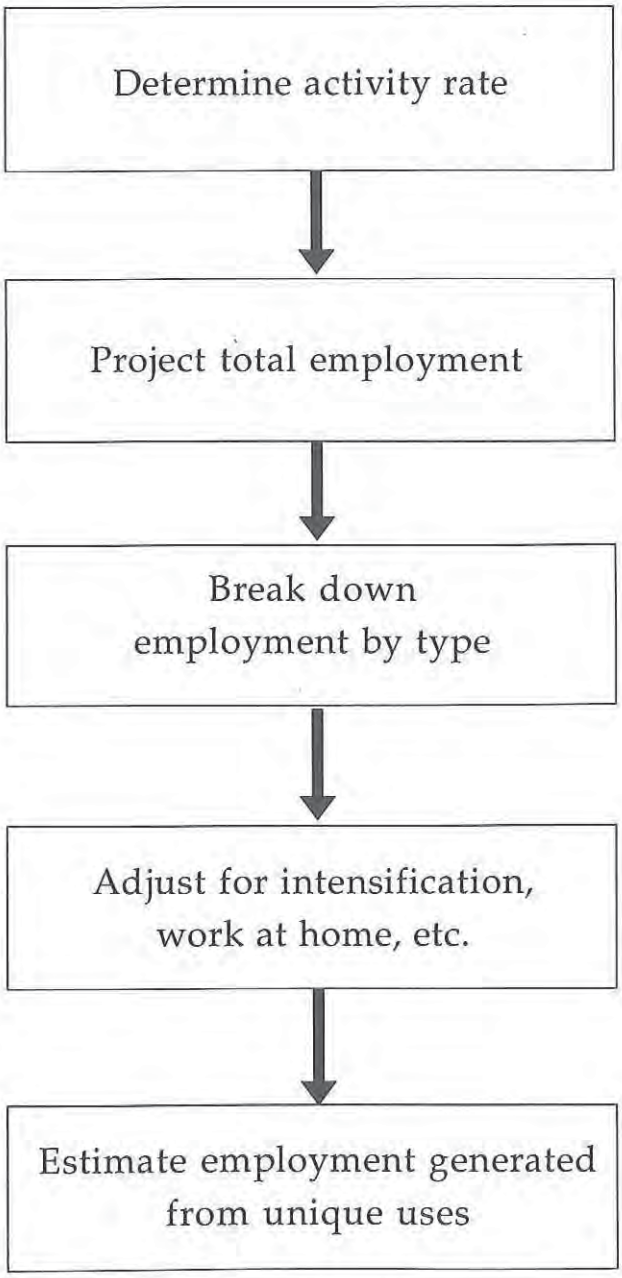
Figure 4.2 shows the various operations involved in converting the population projection to a projection of future employment.

Activity Rate

As noted above, the methodology outlined in this chapter is based on an "activity rate." This is defined as the ratio of total jobs in a municipality to the total number of residents. An activity rate of 50 percent would mean that there is 1 job for every 2 residents, or 50 jobs for every 100 residents. The base data from which to begin estimating a future activity rate comes from the responses to the place of work and place of residence questions in the Census. The Census provides details on the number of jobs in a municipality by employment type (manufacturing, retail, etc.).

It should be noted that unlike a measure of labour force activity, which reveals the extent to which residents of a municipality are working, the activity rate used here does not assume any relationship between the jobs in a municipality and where the holders of those jobs

Figure 4.2
Step 2: Employment Projection



live. It is simply a measure of the total number of jobs in the municipality relative to the total number of residents of that municipality with no consideration given to commuting patterns. A municipality with a large number of in-commuters will therefore have a higher activity rate than a municipality with a high number of out-commuters.

Adjustment of Rate

Once the current activity rate has been calculated, a judgment has to be made whether it should be adjusted upwards or downwards or left the same.

This can be done with various degrees of refinement. If a municipality does not foresee any significant changes over the planning horizon, it can simply use the activity rate calculated from the most recent Census. A more refined estimate can be developed by studying historical trends in the rate over a number of previous Census periods. By capturing several economic cycles, this may yield a more accurate estimate. This can be particularly useful in assessing the impact of unemployment on a municipality's existing and projected activity rate.

Further adjustments may be warranted where significant changes impacting on the employment base are anticipated. Examples would be the arrival of a major new employer, the installation of major new infrastructure or the emergence of significant land constraints in neighbouring municipalities. In such cases, an increase in the rate may be warranted. Conversely, anticipated servicing, transportation or environmental constraints may argue in favour of projecting a future rate lower than the current rate.

To illustrate two different scenarios, assume that the Regional Municipality of X currently has 100,000 residents and 40,000 employees. Then:

- The current activity rate is 40 percent (i.e., 1 job for every 2.5 residents or 40 jobs/100 residents). If no changes are anticipated over the planning horizon, 40 percent is the rate that the municipality should apply to its population projection to arrive at its employment projection.
- If, however, adjacent areas are expected to run out of developable land in the near future, then an increase in the activity rate to 50 percent (i.e., 1 job for every 2 residents) might be reasonable. This, rather than the current rate, would be used to project future employment.

An additional input for estimating a future activity rate would be the preparation of an economic development strategy. This could include an assessment of the growth potential of employers within the municipality or an evaluation of trends in the regional economy. It should be noted that such a strategy does not by itself constitute justification under policies B8 and B9 for designating additional land for urban development. Any projected increase in a municipality's activity rate must be supported by documented assumptions that are reasonable and defensible.

Where a municipality undertakes an employment projection in the absence of upper-tier planning, any increase in its activity rate should take account of trends in the regional economy and the employment projections of neighbouring municipalities. The municipality will likely be only one of several local municipalities seeking a share of future county or district employment. The municipality should try to ensure that its projected share is reasonable and that the sum of its projection and those of other local municipalities does not exceed what could reasonably be expected for the county or district as a whole.

Projecting Future Employment

The next step is to project total future employment. This is done by applying the projected activity rate to the population projection referred to in Step 1.

Population Projection	X	Activity Rate	=	**Employment Projection**

By way of illustration, assume that according to the last Census, the Regional Municipality of X has an activity rate of 40 percent. The municipality believes that this will remain constant over the next twenty years. From Step 1, X has projected that its population will double from 100,000 to 200,000 over the same period.

Total projected employment at the end of the twenty years is calculated by applying the 40 percent activity rate to the 200,000 population projection. The result is an employment projection of 80,000 jobs (0.4 x 200,000 = 80,000). Alternatively, if the activity rate is projected to increase from 40 to 50 percent, projected employment would be 100,000 jobs (0.5 x 200,000 population projection = 100,000 jobs).

Classification by Type

Once the total projected employment is known, the next step is to break the projection down into employment types. This allows for a more refined projection of land requirements since different types of employment uses have different densities and hence different land needs. Certain types of employment (e.g., agricultural, resource and work-at-home jobs) can simply be deducted from the employment projection because they do not require the specific designation of land within settlement areas. In addition, various retail, personal service and institutional jobs ("population-related" jobs) will be accounted for as part of the residential land need calculations, specifically, through the identification of a gross residential density.

The classification of employment by type is generally desirable for municipalities with a population of more than 10,000 population that are located near larger urban centres. This step can be skipped by municipalities using the simpler methodology described at the end of the chapter.

The data to be used in conjunction with this methodology comes from the Census. A special census tabulation of the total number of jobs by type for each municipality is available in electronic form as part of the computerized model supporting this guideline. However, as discussed below it can be difficult to relate the Census employment categories to the land use designations in official plans. Where a municipality undertakes an employment survey, this may provide a better source of information as to the location and type of jobs within a municipality. Where a survey is not available, the Census data should be used subject to the "checks" described on the following pages.

The employment categories available from the Census are:

- primary
- manufacturing
- construction
- transportation, storage and communications
- wholesale
- retail
- accommodation, food and other services
- financial, insurance and real estate
- business services
- government services
- education, health and social services
- accommodation, food and other services
- work at home

These categories need to be grouped or classified into categories bearing more of a relation to the land use designations used in official plans. Five categories are recommended for use in connection with this methodology:

- primary
- population-related
- employment lands
- major office (optional)
- service commercial (optional)

Primary employment

"Primary" jobs include agricultural and resource-based jobs. The Census provides a specific category for primary jobs. The projected number of a municipality's primary jobs should be deducted from its total employment projection because these jobs occur primarily outside settlement areas. Therefore, they do not require the specific designation of land within or through the extension of a municipality's settlement areas.

Population-Related Employment

"Population-related" jobs are typically defined as those jobs that provide direct services related to serving the personal needs of the resident population. It is therefore recommended that the following Census categories be added together to derive population-related employment: retail; financial, insurance and real estate; business services; government services; education, health and social services; and accommodation, food and other services.

The projected number of a municipality's population-related jobs should also be deducted from its total employment projection requiring the specific designation of land in settlement areas because land needs for these types of jobs will have been accounted for:

- in existing downtown, commercial and office areas;
- through retail, small-scale office and personal service uses in plazas located internally to residential neighbourhoods and thus accounted for in the gross density assumptions for residential lands;
- through schools and other neighbourhood institutional uses (e.g., fire halls, libraries, etc.) which will also be accounted for in the density assumptions for residential lands.

Employment Lands Employment

"Employment lands" jobs are those that have traditionally been called "industrial" and are found in specifically designated industrial or business parks. These are the jobs that require the designation of specific employment lands within settlement areas. More recently they have come to be referred to as "employment lands" as opposed to "industrial lands" because of the breadth of uses that now tend to locate within these areas. "Employment lands" is the term used in this guideline.

It is recommended that the following Census categories should be added together to derive employment lands employment: manufacturing, construction, transportation/ storage/communications and wholesale.

Assessing the Mix

The major difficulty in grouping the Census categories is that there has been a much greater variety in recent years of employment uses occurring within what used to be called "industrial areas." Office uses (both accessory and self-contained), a variety of commercial and personal service uses and even retail outlets are finding their way into the what used to be called "industrial" lands.

As a result, it is likely that a certain number of jobs in the population-related employment categories will be found within employment lands. This must be addressed if a municipality is to provide enough specifically designated employment lands to accommodate the full range and amount of employment seeking such locations.

There are two approaches to assessing the accuracy of the Census category groupings of population-related and employment lands jobs recommended above. The first is to identify the municipality's existing supply of developed employment lands. An assumed employment density can be applied to this land base to estimate the number of employment lands jobs currently in existence. This figure is then compared against the Census data to determine the degree of "fit."

The second approach relies on a benchmark based on experience in municipalities generally. In large urban settlement areas such as in the Greater Toronto Area a factor of 1 population-related job for every 5 residents has been used, while in smaller urban or rural settlement areas a factor of 1 to 6 may be more appropriate. By dividing the municipality's current population by a population-related employment factor, the existing population-related employment can be estimated. This figure can be compared against the number of population-related jobs identified from the recommended grouping of population-related Census categories, and the degree of fit between the two numbers can be determined.[9]

[9] These benchmarks would not necessarily apply to tourism or recreation-based communities.

By way of illustration, suppose that the Regional Municipality of X currently has 40,000 jobs which, when classified according to the grouping of Census categories recommended above, are 50 percent employment lands jobs, 40 percent population-related jobs and 10 percent primary jobs (see Table 4.1).

The two checks for "fit" would be carried out as follows:

- The municipality determines that it has 500 gross hectares of currently developed employment lands and applies a density assumption of 40 employees per gross hectare. Multiplying the hectares by the density leads the municipality to estimate that it should expect 20,000 of its current jobs to be "employment lands" jobs. If 20,000 jobs represent about 50 percent of the municipality's total existing jobs (which in Table 4.1 it does), the conclusion would be that the grouped Census data accurately reflect the existing employment lands jobs.

- X could also undertake a comparison from the population-related side by assuming that it will have a population-related employment factor of 1 job for every 6 residents. If its existing population is 100,000, the municipality would expect currently to have 16,666 population-related jobs. If the figure of 16,666 jobs works out to about 40 percent of the municipality's total existing jobs base (see Table 4.1), the conclusion would be that the grouped Census data can be used to accurately estimate existing population-related jobs.

Table 4.1
Initial Classification of Current Employment
Regional Municipality of X, 1991

20,000	(50% employment land jobs)
16,000	(40% population related jobs)
4,000	(10% primary jobs)
40,000	Jobs

Adjusting the Mix

While the checks may indicate a "good fit," alternatively they may reveal differences. For instance, suppose on the basis of the grouped Census categories, the Regional Municipality of X estimates that it currently has 45 percent population-related jobs, 45 percent employment land jobs and 10 percent primary jobs. However, in undertaking a notional check of its current employment land and population-related jobs (as described above), it estimates that its existing job breakdown is 50 percent employment land jobs and 40 percent population-related jobs.

On the basis of this comparison, there is a discrepancy of 5 percentage points. The grouped Census data suggests that there are 45 percent population-related jobs and 45 percent employment land jobs, while the "check" suggests that there are 40 percent population-related jobs and 50 percent employment land jobs.

The most likely explanation is that 5 percent of the jobs classified as population-related by the Census categories, are in fact located on employment lands. This would be explained by more recent trends whereby traditional population-related retail and office jobs are locating on employment lands.

In order to ensure that the municipality provides employment lands for these population-related jobs, the initial employment breakdown by Census categories should be adjusted. This is accomplished by increasing the employment lands component to more closely reflect the results of the check. In this case that would mean raising the employment lands job component from 45 percent (as estimated by the Census) to 50 percent (as estimated by the check). The population-related component would be adjusted downward from 45 to 40 percent. (It should also be noted that the reverse may also hold true and that the checks may show that the Census-derived categories overestimate employment land jobs, although this is less likely.)

Table 4.2 shows the adjustment of the employment classification following the checks described above.

Table 4.2

Adjustment of Current Employment Classification

Regional Municipality of X, 1991

Initial Census Classification	
18,000	(45% employment land jobs)
18,000	(45% population related jobs)
4,000	(10% primary jobs)
40,000	Jobs
Adjusted Classification	
20,000	(50% employment land jobs)
16,000	(40% population related jobs)
4,000	(10% primary jobs)
40,000	Jobs

Optional Categories

Major Office Areas

In more highly urbanized parts of the province, there may be distinct areas of major office development outside the existing downtown or commercial areas. In the absence of a detailed employment survey, a municipality can estimate the number of its current jobs located in major office areas in a manner similar to that for estimating employment lands jobs.

To prepare such an estimate, the municipality needs to calculate the gross hectares of its existing major office development. It then multiplies this area by an assumed density factor for major office development. The result would be an estimate of existing "major office" jobs.

The estimated number of major office jobs should then be deducted from the population-related grouping of Census categories since these categories (business services, financial/insurance/real estate, government services, etc.) are the most likely sources of major office jobs. The municipality could then assume what proportion of its total future employment projection would be made up of major office jobs, apply the density assumption for major office development to this and calculate how much land would be required for this type of land use.

Service Commercial Areas

Often a component of a municipality's population-related jobs are associated with service commercial uses such as car dealerships, lumberyards and furniture outlets. These jobs are often not found and hence not accounted for within the downtown, shopping centres or residential areas. Further, projected growth of service commercial jobs may not be able to be fully accommodated in existing commercial areas. A municipality may therefore want to estimate the amount of employment currently occurring in service commercial areas and project the future amount of service commercial employment separately in order to be sure that a sufficient amount of land to accommodate this form of employment growth is provided.

This can be done solely based on extrapolating an estimate of current service commercial employment. A more accurate approach would be to assess the current service commercial base and undertake some form of market analysis to determine the potential and/or need for expansion. In either case, the municipality would project the number of future service commercial jobs and apply a density assumption for this type of employment. The results of such a process can then be added into the equation for determining a municipality's needs for accommodating its various employment types.

Table 4.3 shows a more refined classification that includes specific identification of major office and service commercial jobs. (It should be noted that whereas Tables 4.1 and 4.2 reflected the existing employment structure of Municipality X, Tables 4.3, 4.4 and 4.5 reflect the projected employment projection twenty years into the future.)

Table 4.3

Refined Employment Classification of Projected Employment

Regional Municipality of X, 2016

36,000	(45% employment land jobs)
28,000	(35% population related jobs)
8,000	(10% major office jobs)
4,000	(5% service commercial jobs)
4,000	(5% primary jobs)
80,000	Jobs

Projecting Changes to Employment Structure

A municipality may simply assume that its existing job structure will remain constant over its planning horizon. Alternatively, it may anticipate that its job structure will change — i.e., that the distribution of jobs among the primary, population-related and employment lands categories will shift over the planning horizon. If so, it may wish to project changes to the current job structure. As with all assumptions, projected changes in a job structure should be supported by reasonable assumptions.

Further Adjustments

Further adjustments should now be considered for three additional factors — intensification, work at home and special land requirements.

Intensification

Historically, many industrial areas were developed at relatively low densities, in many instances to allow for future expansion of industrial operations. This creates the potential for increasing employment density over time as some of these unused lands are developed. More recently, changing land values and locational considerations have led to the redevelopment of some industrial lands with much more intensive employment uses. The result is that there is the potential to intensify the amount of employment within existing built-up employment areas. As in the case of providing for housing needs, intensification should be recognized as a means of accommodating employment growth within existing settlement areas.

Intensification offers benefits in terms of better utilization of existing infrastructure, revitalization of existing settlement areas, more compact, transit-friendly urban form and reduced consumption of agricultural lands. Municipalities need to assess and account for intensification that could potentially occur in their settlement areas and to factor intensification into their land use budgeting. This can be done through an assessment of its intensification potential (through a detailed analysis of its employment land utilization) or by assuming that a reasonable percentage of its employment projection is going to be accommodated through intensification.

Work at Home

A growing trend in the employment structure of many municipalities is an increase in the number of people working out of their homes. This is particularly true for the business services and other services categories of the Census where the knowledge-based economy and innovations in communications are making working at home a viable arrangement for increasing numbers of people. The 1991 Census indicated that about 7.5 percent of the workforce was working at home. Municipalities should factor the work at home sector into the calculations in order to more accurately estimate their employment land requirements. Work at home data for all municipalities forms part of the 1991 Census data included in the computerized model accompanying this guideline.

Major Institutional Requirements

There are certain employment-generating land uses that have not been captured by the methodology. Examples include correctional facilities and universities. It is reasonable to add specific land requirements for such uses where they are supported by firm commitments and the employment attributed to them is not accounted for elsewhere in the methodology.

Table 4.4 presents an example of an employment projection adjusted for intensification, work at home and major institutional requirements. The jobs in these categories have been deducted from the jobs originally shown in the employment lands and population-related categories based on the Census data.

Table 4.4
Final Employment Breakdown
Regional Municipality of X

32,000	(40% employment land jobs)
24,000	(30% population related jobs)
8,000	(10% major office jobs)
4,000	(5% service commercial jobs)
4,000	(5% primary jobs)
4,000	(5% major institutional jobs)
2,400	(3% work at home jobs)
1,600	(2% jobs through intensification)
80,000	Jobs

Allocation of Employment (Step 3)

Where upper-tier planning exists and the regional municipality or county has prepared a total employment projection, the projection should be allocated among the local municipalities in the county or region. This should occur in consultation with the local municipalities and be based on such factors as historical employment shares, existing and

planned urban structure, servicing strategies, resource and environmental considerations and other policy directions. The allocation may simply reflect a continuation of the employment shares the local municipalities have had historically, or it may incorporate policy-led decisions to change the shares.

Where upper-tier planning does not exist, discussions and co-operation among municipalities will be necessary to ensure that projected employment growth is accommodated. Ideally, this could be done by one of the municipalities preparing the projection of employment growth for the entire county and district and all the municipalites agreeing on an apportionment of that growth. Alternatively, the municipalites could agree to simply apportion the population projection for the county or district using the "shares" approach described in chapter 2 and then project their employment growth separately.

Need For Additional Land (Step 4)

Once a local municipality has an employment projection, a last set of calculations is required in order to identify the amount of land required to accommodate the projected employment through the extension of settlement area(s). Figure 4.3 shows the operations involved in undertaking the last stage of this methodology.

Densities

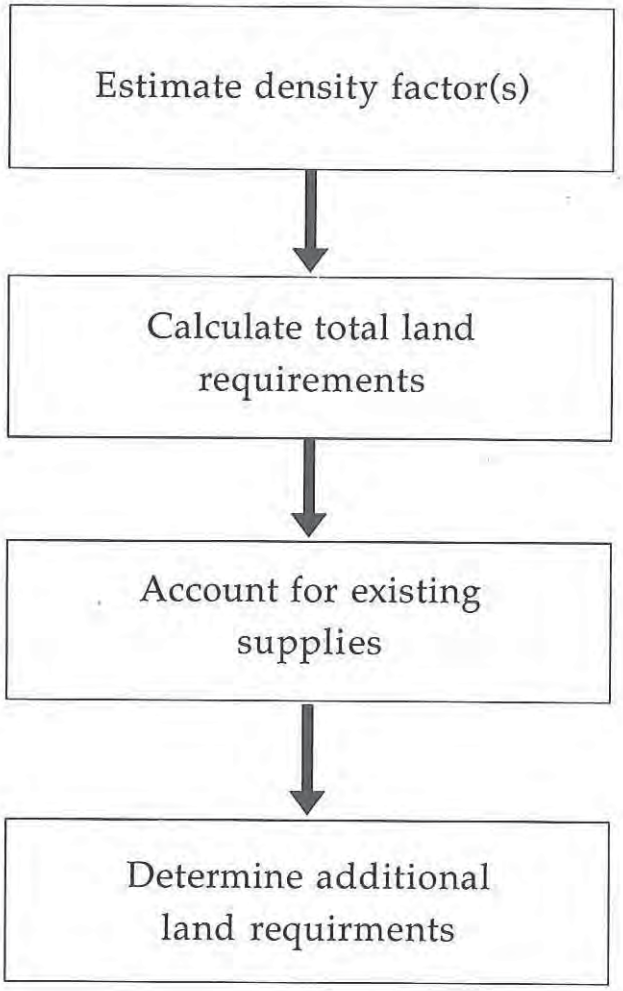
Once the total amount of employment has been projected, whether classified by type or as a single figure, assumptions regarding employment densities must be made to determine how much land is required to accommodate the employment projection.

If employment has been classified by type, a density assumption will need to be generated for employment lands employment and, where they are used, for the major office and service commercial employment categories as well. No density assumption needs to be generated for population-related jobs since these jobs will be provided for in existing commercial areas or will be accounted for in the definition of gross residential density discussed previously. Nor is any density assumption needed for primary jobs since these generally occur outside of settlement areas and have already been deducted.

Assumed densities can be derived from measuring a municipality's current density levels for the various employment types. These can be refined by a trend analysis of density

Figure 4.3

Step 4: Calculation of Need for Additional Land



changes over time. This information can be used in conjunction with assumptions regarding future density trends or policy-led decisions regarding employment types and density in order to identify appropriate density assumptions.

Total Potential Land Requirements

Once density assumptions have been determined, a calculation can be made to determine the total amount of land the municipality will require to accommodate its employment projection through extension of the settlement area. This is accomplished by dividing the employment projection by the relevant density assumption.

By way of illustration, in Table 4.4 the Regional Municipality of X had a total employment projection over a twenty-year period of 80,000 jobs. Some 32,000 (40 percent) of these jobs were to be employment lands jobs. Suppose X identifies a density assumption of 45 employees per gross hectare for this category of employment. The municipality then divides its projected 32,000 jobs by a density assumption of 45 jobs/gross hectare to conclude it needs 711 hectares to accommodate its projected 32,000 employment land jobs. The same sort of calculations are then carried out for the major office and service commercial job projections identified in Table 4.4.

No land requirements need to be calculated for primary or population-related jobs because primary jobs do not require land in settlement areas and population-related jobs are accounted for within existing downtown and commercial areas and through the gross density assumption generated for residential areas. Here is an example of how a municipality would calculate land needs for a projection of employment lands and major office jobs:

32,000 employment land jobs/ 45 employees per hectare	=	711 hectares
8,000 major office jobs/ 90 employees per hectare	=	89 hectares
Total		**800 hectares**

Need for Additional Land

Application of density assumptions to an employment projection is used to identify how much total land a municipality requires to accommodate its projected employment — either as a single total or a cumulative total by employment categories. The next step is to determine how much employment can be accommodated within the existing boundaries of a municipality's settlement areas. This is done by preparing an inventory of the following types of land supplies within the municipality's existing settlement areas:

- existing developed employment lands;
- registered lots and blocks;
- draft-approved lots or blocks;
- designated lands with or without an application (e.g., proposed plan of subdivision or site plan).

All categories of designated lands need to be included since they all either currently accommodate or have the potential to accommodate a portion of the total projected employment. It will therefore be necessary for a municipality to determine its total inventory of lands in all the above categories.

Table 4.5
Need for Additional Employment Land

Existing Developed Lands:	162 hectares
Registered Lots/Blocks	20 hectares
Draft Approved Lots/Blocks	40 hectares
Designated Lands with application	40 hectares
Designated Lands without application	40 hectares
	302 hectares

Once the existing supplies are determined, these must be subtracted from the total land requirement needed to accommodate a municipality's employment projection. As indicated in Table 4.5, the result will be the amount of additional land a municipality needs to provide through the extension of its settlement area(s) in order to accommodate its employment projection .

Calculations Illustrated

Table 4.6 provides an example of the calculations set out in this methodology. (Note: No provision for special uses, such as universities, is made in this example).

The Local Municipality of B has determined it needs 183 gross hectares to accommodate 9,500 employment land jobs based on a density assumption of 45 employees/gross hectare. It has undertaken an inventory that indicates a total existing supply of employment land of 110 hectares. Subtracting this from the total required land supply of 183 hectares leaves 73 hectares of employment lands beyond current supply that needs to be provided through extension of the municipality's settlement area(s). Similar calculations are made for major office lands and service commercial lands. The results are then tabulated to arrive at the total amount of land needed to accommodate a municipality's employment projection through the extension of its settlement areas — 84 hectares in this example.

Table 4.6

Calculating Employment Land Requirements

Local Municipality of B, 2016

	Employment lands	Major office	Service commercial	Population-related	Primary
20-year employment projection	9,500	3,000	500	6,000	1,000
Subtract					
Intensification	1,000	1,000	-	-	-
Work at home	250	250	-	-	-
	8,250	1,750	500	6,000	1,000
Density (employees/hectares)	45	90	25	-	-
Total hectares required	183	19	20	0	0
Subtract					
Existing developed land (ha)	60	5	7	0	0
Registered & draft approved lands (ha)	20	5	3	0	0
Designated vacant lands (ha)	30	3	5	0	0
New land requirements (hectares)	73	6	5	0	0
Total employment land requirements	84	hectares			

Simpler Methodology

There are circumstances where it is inappropriate for a municipality to go through all the operations shown in Table 4.6. In smaller or low-growth municipalities, it may not be necessary to break down the employment projection into categories. Accordingly, such municipalities can work with an undifferentiated employment projection and estimate their land needs to accommodate the total projection net of estimated intensification, primary jobs and work at home employment.

The steps in the simplified methodology are:

- Identify a population projection for the selected planning horizon.
- Prepare an employment projection by applying an activity rate to the population projection.
- If the projection has been done by a regional or county municipality, allocate the total employment projection among the local municipalities.
- Project the number of jobs in the primary sector and deduct them from the employment projection.
- Project the number of work at home jobs and those to be accommodated through intensification and deduct from the total employment projection.
- Identify an overall density assumption and divide it into the employment projection (excluding primary, work at home and intensification jobs) to arrive at the total employment land required.
- Identify the existing supply of employment land (including developed; registered and draft-approved lots and blocks; and designated land with or without an application).
- Deduct this from the total land requirement to arrive at the amount of additional employment land required to be designated through the extension of the municipality's settlement area(s).

Table 4.7 shows the calculations involved in applying the simplified methodology.

Table 4.7
Simplified Employment Projection Methodology

Municipal population projection, 2016	10,000
Activity rate	45%
20-year employment projection	4,500 jobs
Less "primary" employment*	1,000 jobs
Less intensification and work at home	250 jobs
Total jobs to be located in settlement area(s)	3,250 jobs
Employees per hectare	45 employees per hectare
Total hectares required to accommodate employment in settlement areas	72 hectares
Existing hectares of employment lands in settlement areas	52 hectares
Total additional land employment lands required	20 hectares

* *It may also be appropriate to deduct major non-primary employment projected for the rural area (e.g., recreation/tourism).*

5 Summing Up

Review of Projection Process

Having gone through the projection steps in Chapters 2, 3 and 4, let us now revisit the objectives of the process and add up the results of the land requirement calculations.

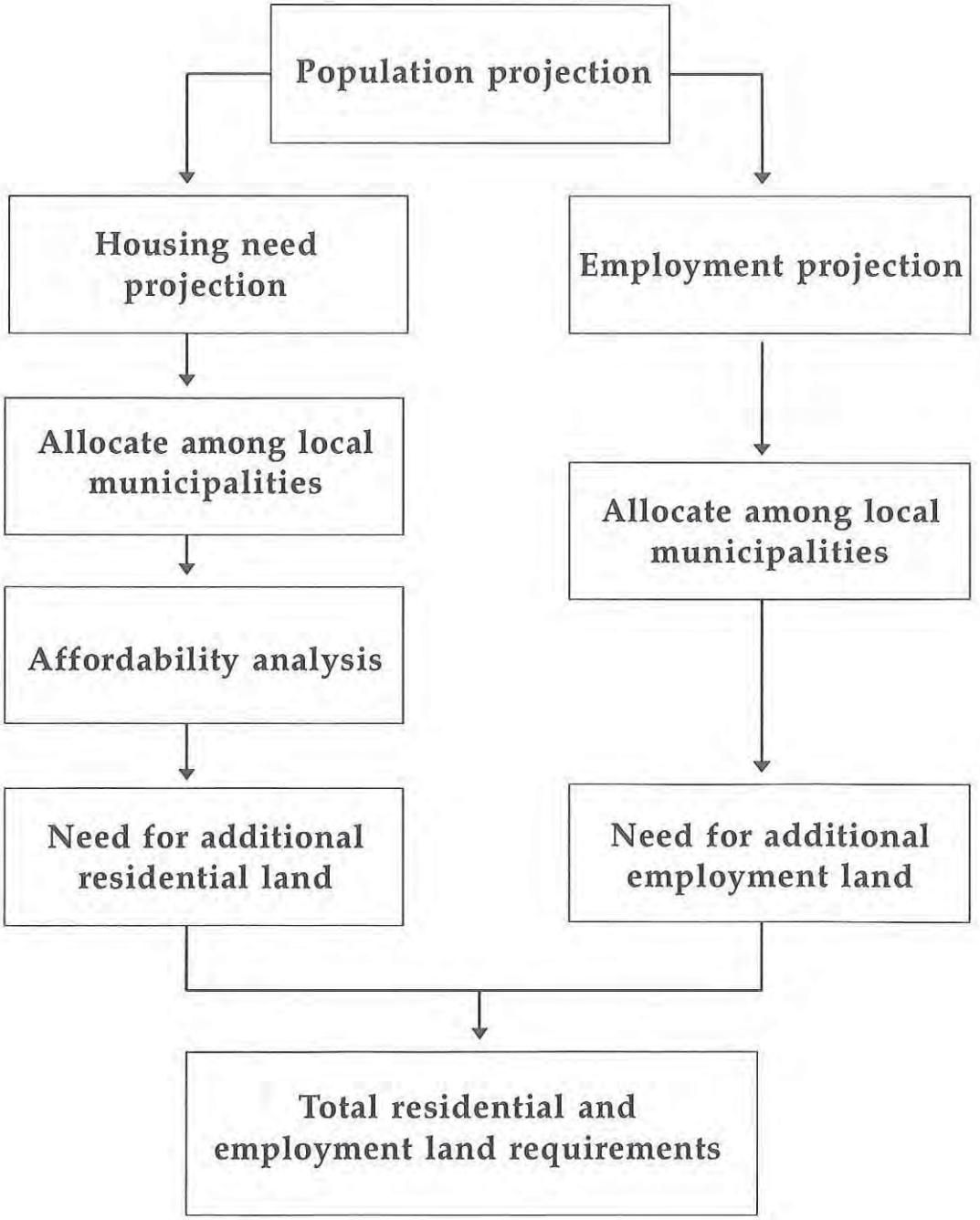
Chapter 2 described the population projections available from the Ministry of Finance for regional municipalities, counties and districts in Ontario. A methodology for projecting population and a population projection itself are fundamental tools in undertaking land use planning. The estimated future population of a municipality is important to understanding the need for and planning of housing, social services, infrastructure, employment lands and overall community structure.

Chapter 3 provided a methodology for projecting housing need based on a population projection. Coupled with the affordability analysis, this work can greatly assist a municipality in determining the types of housing its existing and future residents will require. This in turn is used to estimate the amount of land required to accommodate the needed housing types, including the amount of any additional land required through the extension of settlement areas.

Chapter 4 described a methodology for projecting the future employment structure of a municipality based on projected population, existing employment structure and assumed changes to this structure. This employment projection forms the basis for further calculations to estimate the amount of land required to accommodate future employment, including the amount of any additional land required through the extension of settlement areas.

The various steps in the two projection streams are shown in Figure 5.1.

Figure 5.1
Total Land Requirements



Focus on Settlement Areas

The projection methodologies presented here provide estimates of the total future population, housing needs and employment of a municipality. However, the last step in the process, the calculation of the additional land needed for new development, focuses on lands associated with the extension of settlement areas. The methodologies have therefore been structured to identify and account for that portion of a municipality's housing and employment growth that is expected to occur through extensions to existing settlement areas.

The reason for focusing on settlement areas is that this is where the vast majority of new development occurs. Historically, the concentration of development in settlement areas occurred for a variety of practical reasons ranging from economies of scale in the provision of services to the need for social and business interaction.

The projections developed in accordance with this guideline will, of course, also serve to frame development in the parts of a municipality that are outside settlement areas. Policy B10 says that development in rural areas should be based on projections of population and employment.

Policy Framework

More recently, policy imperatives have increasingly directed development to settlement areas in order to protect agricultural and environmentally sensitive lands, promote energy conservation, reduce pollution, maintain economic and social health of existing communities and to foster economies of scale in the provision of services.

The Comprehensive Set of Policy Statements were developed with these objectives in mind. Taken collectively, the policies set out the broad vision for community building and land use management within Ontario. They contain specific provisions to ensure that the positive attributes and characteristics of our landscape and communities are maintained and enhanced while avoiding the negative impacts associated with unsustainable development practices.

There are significant negative impacts associated with urban sprawl and scattered or unplanned development beyond settlement areas. Conversely, there are significant economic, social and environmental benefits with ensuring that land is used and our com-

munities planned in the most effective, efficient and sustainable way. It is within this policy framework that the Projection Methodology Guideline has been prepared.

The guideline therefore places strong emphasis on how a municipality accommodates its projected population and employment growth — whether by development within its existing settlement area boundaries or through the extension of its settlement areas. It also contemplates rigour in developing assumptions on such matters as densities, housing and employment types and identifying how much land within existing settlement areas is available to accommodate growth.

As such, the assumptions and calculations developed for the projections must take account of the policy framework as well as economic and social trends. This guideline is designed to serve as a tool for planners, politicians, administrators, the development industry and the public to use in understanding the implications of projecting population, housing and employment in guiding and managing the planning and development of our communities.

Adding Up Land Requirements

The results of the land requirement calculations undertaken in Chapters 3 and 4 must be combined to obtain an estimate of the total land required to accommodate a municipality's projected population and employment, and the amount of land needed through the extension of its settlement area(s). Some municipalities may find that they currently have sufficient designated lands to accommodate their projected growth within their existing settlement areas. In such cases, the extension of currently designated settlement areas would not be required.

Both the housing and employment projection methodologies are derived from the initial population projection. Following similar steps, both methodologies contain operations that translate the housing need and employment projections into associated land requirements. After taking account of density assumptions, the existing supply of residential and employment land and the amount of growth to be accommodated through intensification, the result is an estimate of the additional land required for both residential and employment purposes through the extension of settlement areas.

The total land required is calculated by adding together the land requirements generated through the steps in Chapters 3 and 4. Since both housing and employment land requirements are calculated on the basis of gross hectares, they are compatible for addition. Table 5.1 shows the calculations for a hypothetical local municipality.

Table 5.1
Total Land Requirements
Local Municipality of B

Residential land	Hectares	
Single-detached	246	
High-rise apartment	15	
Low-rise apartment	17	
All others	19	
Total	297	
Subtract:		
Currently designated land	100	
New residential land required	197	197
Employment land		
Employment lands	73	
Major office	6	
Service commercial	5	
New employment land required	84	84
Total municipal new land requirements		113

Next Steps

Once the total land needs required through the extension of settlement areas have been identified, it is necessary to move fully into the policy realm. This guideline has stressed that the methodologies presented need to be framed in the context of assumptions, existing characteristics and conditions of a municipality as well as local, regional and provincial policy directives. This is necessary in order to provide context for the numerical calculations by recognizing that projections are rooted in a complex series of considerations about the past, present and future.

Thus far, the emphasis has been the projection of numbers — the amount of population and employment growth, the amount of different types of housing and the amount of land required to accommodate those portions of this growth that are to locate in settlement areas. To be sure, policy intervention was required at several points in the process. For example:

- The allocation of housing need and employment by the regional municipality or county required consideration of such judgmental factors as future urban structure, servicing strategies and resource and environmental considerations.
- Residential built forms and densities had need to be assessed against the affordability targets in policy C2.
- The amount of new land for development was net of the amount of development that could be accommodated through intensification.

The non-quantitative considerations really come to the fore after the number of hectares of additional land required through extension of the settlement area has been calculated. The next step is a qualitative analysis to determine where to locate the quantities of the required land on the landscape. It is not enough to determine that an amount of land is required to accommodate projected growth. What must be done is to determine the most appropriate locations for extending settlement areas to accommodate this growth.

These decisions will be guided by the local, regional and provincial policy framework for directing growth. The Comprehensive Set of Policy Statements contain clear policies directing development away from or prohibiting development on lands which contain certain characteristics. Wetlands, floodplains, hazard lands, mineral aggregate resource areas and speciality crop and Class 1, 2 and 3 agricultural soils are the major considerations.

In addition, local, regional and provincial interests with respect to the provision of servicing, transportation infrastructure and overall community structure also constitute important considerations. Taken together, these matters form the policy overlay for evaluating the locational advantages of growing in one direction versus another and for identifying which municipal settlement areas should be targeted for growth.

While not the focus of this guideline, the qualitative analyses are essential. The integration of the quantitative outputs of the projection methodology with the qualitative analysis of policy and locational considerations is a fundamental challenge of good land use planning. The reader is encouraged to read the full set of implementation guidelines prepared in support of the Comprehensive Set of Policy Statements, which present the vision as to how integrated and comprehensive land use planning can be undertaken.

Appendix A: Glossary

The terms marked with a single asterisk are found in the Comprehensive Set of Policy Statements. Those marked with a double asterisk are found in the Statistics Canada Census Dictionary. Reference should be made to these documents for a full understanding of the meaning of the terms.

Affordable housing*

"means accommodation which is affordable to households with incomes in the lowest 60 per cent of the income distribution for the housing market area, including not-for-profit housing."

Dwelling unit**

"refers to a set of living quarters in which a person or group of persons resides or could reside."**

Dwelling type**

"refers to the structural characteristics and/or dwelling configuration, that is, whether the dwelling is a detached single house, apartment in a high-rise, a row house, a mobile home, etc."**

Gross density

includes all the lands to be designated for new development except those needed for hydro corridors, railway right-of-ways and provincial highways; and those not available for development because of the Comprehensive Set of Policy Statements (wetlands, floodplains, significant woodlands, buffers, etc.).

Headship rate

is the proportion of the number of people in a given age group who are household maintainers. A headship rate indicates the propensity or tendency of individuals of a certain age group to form households.

Household**

"refers to a person or group of persons (other than foreign residents), who occupy the same dwelling and do not have a usual place of residence elsewhere in Canada. It may consist of a family group (census family) with or without other non-family persons, of two or more families sharing a dwelling, of a group of unrelated persons, or of one person living alone. Household members who are temporarily absent on Census Day (e.g.,temporarily residents elsewhere) are considered as part of their usual household. For census purposes, every person is a member of one and only one household. Unless, otherwise specified, all data in household reports are for private household only." The terms "private household" and "private dwelling" do not refer to the ownership of the property in which they are located. They relate solely to the privacy of the living arrangements.

Household maintainer**

"refers to the person, or one of the persons in the household who pays the rent, or the mortgage, or the taxes, or electricity, etc., for the dwelling. If such a person is not present in the household then Person 1 is assigned as the household maintainer."

Housing market area*

"refers to an area with a high degree of social and economic interaction which forms a separate and distinct market for accommodation. The housing market area generally is equivalent to the area within the boundaries of a regional municipality, county, separate municipality, city in the North, planning board, or planning authority. Where housing markets extend significantly beyond these boundaries, then the housing market area will be based on the larger market area."

Housing need
is the projected household growth over a defined projection horizon (e.g., 1991 to 2016), net of additions to the housing stock since the base year and adjusted (where necessary) for vacancies, replacement and a market contingency factor. In the case of a local municipality in an area with upper-tier planning, the share of upper-tier housing need allocated to the local municipality.

Settlement area*
"means built-up areas and that surrounding land which has been designated for development over the long term planning horizon. In some cases, the settlement area may be no larger than the built-up area."*

Small-scale intensification*
"means the residential intensification which adds dwelling units without redevelopment and includes infill; rooming, boarding and lodging houses; and apartments in houses."

Upper-tier municipality
a county or regional municipality. In the new planning system, separated cities and cities in the north may perform many of the responsibilities of upper-tier municipalities.

Census Dwelling Types

Single-Detached House:**
"a single dwelling not attached to any other dwelling or structure (except its own garage or shed). A single-detached house has open space on all sides, and has no dwellings either above or below it. A link home (a single house which is not attached to any other dwelling above ground) is classified as a single detached house."

Semi-detached house:**
"one of two dwellings attached side by side (or back to front) to each other, but not to any other dwelling or structure (except its own garage or shed). A semi-detached dwelling has no dwellings either above it or below it and the two units together have open space on all sides."

Row house:**
"one of three or more dwellings joined side by side (or occasionally side to back), such as a town house or garden home, but not having any other dwellings either above or below."

Apartment or flat in a detached duplex:**
"one of two dwellings, located one above the other, but not attached to any other dwelling or structure (except its own garage or shed). The two units together have no other dwellings attached to the back, front or sides, and have open space on all sides."

Apartment in a building that has five or more storeys:**
"a dwelling unit in a high-rise building which has five or more storeys."

Apartment in a building that has fewer than five storeys:**
"a dwelling unit attached to other dwelling units, commercial units, or other non-residential space in a building that has less than five storeys."

Other single-attached house:**
"a single dwelling that is attached to another building and that does not fall into any of the other categories. Examples are a single dwelling attached to a non-residential structure (e.g.,store or church) or occasionally to another residential structure (e.g., apartment building)."

Mobile home:**
"a single dwelling, designed and constructed to be transported on its own chassis, and capable of being moved on short notice. It may be placed on a temporary foundation such as blocks, posts or prepared pad."

Other movable dwelling:**
"a single dwelling, other than a mobile home, used as a place of residence, but capable of being moved on a short notice, such as a tent, recreational vehicle, travel trailer or houseboat."

Primary employment:
includes agricultural and resource based jobs. The Census provides a specific category for primary jobs.

Population-related employment:
are those jobs that provide direct services related to serving the personal needs of the resident population. Population-related employment includes employment found under the following census categories: retail, financial, insurance, real estate, business services, government services, education, health and social services, accommodation, food and other services.

Employment lands employment:
are those jobs that have traditionally been called industrial and found in specifically designated industrial or business parks. Employment land should include employment found under the following census categories: manufacturing, construction, transportation/storage/communications, and wholesale.

Convertible house:
is a single-detached house that contains a separate self-contained apartment. The house is designed to allow for conversion to two units and deconversion to a single-unit house without the need for exterior or major structural changes.

Quatroplex:
consists of four dwelling units, attached to each other at their sides and rear walls on a lot. This residential structure often has the appearance of a semi-detached house.

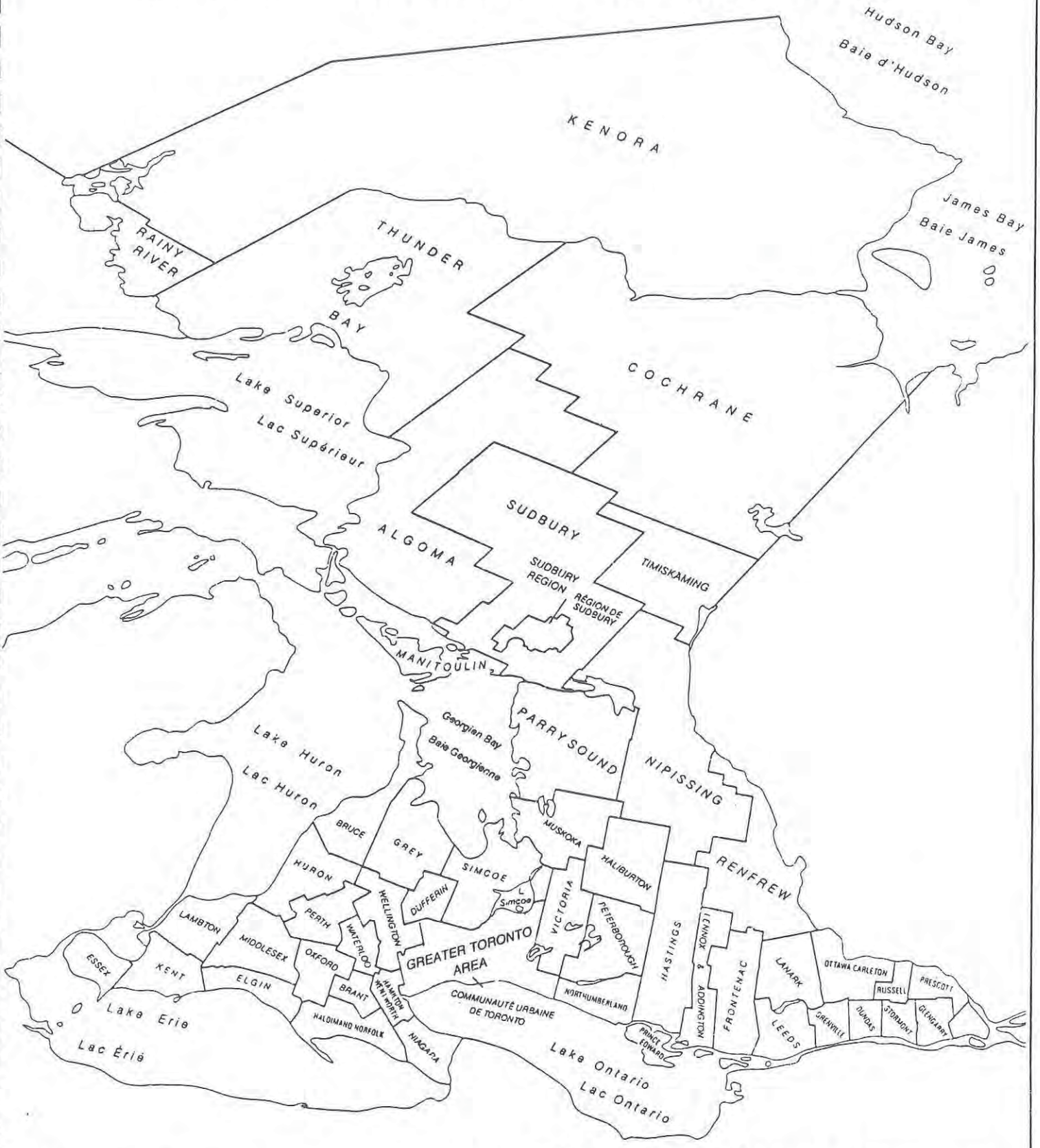
Stacked townhouses:
a residential building that allows for the vertical layering of dwelling units over each other while maintaining a street-related entrance for each unit. This house form usually has three floors (a one-storey ground-floor unit and a two-story unit on top of the ground-floor unit.

Appendix B: Housing Information Bulletin

Note: This was the most recent Bulletin as of the time of writing of the Projection Methodology Guideline. The Bulletin is updated annually.

Information Bulletin

1995 Income and Affordable Housing Price Data



Ministry of Housing

April, 1995

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For more information about the Information Bulletin, please contact:

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Ministers' Message

As part of the Province's planning reform initiative, new housing policies have been developed to replace the 1989 Land Use Planning for Housing Policy Statement.

A key change in the new Housing Policies is the requirement that municipalities provide opportunities for at least 30 percent of new housing to be affordable to households with income up to the 60th income percentile in the housing market area. In addition, the policies state that where possible at least half of the new affordable housing should be targeted to households in the lowest 30th percent of the household income distribution.

The 1995 Information Bulletin includes several changes. First, the housing market areas are used in place of housing regions in accordance with the requirements of the new Housing Policies. Second, the downpayment used to calculate the affordable house price targets has changed from 25 percent to 10 percent. Third, the mortgage rate used is now based on a ten-year average of mortgage rates rather then a three year average.

The Province has prepared this Information Bulletin to assist municipalities in achieving the objectives of the Housing Policies. It sets out household incomes, affordable house price and rent targets for each housing market area. It is intended that the bulletin will be updated annually.

We welcome comments on the new format and assumptions used in the Information Bulletin. You may forward your comments to the Housing Development and Buildings Branch, 2nd floor, 777 Bay Street, Toronto, M5G 2E5.

Sincerely,

Richard Allen
Minister of Housing

Ed Philip
Minister of Municipal Affairs

1300 (07/92)

HOUSEHOLD INCOMES AND AFFORDABLE HOUSE PRICES

Information Bulletin, April 1995

Region	Income 20th Percentile	Affordable Price	Income 30th Percentile	Affordable Price	Income 40th Percentile	Affordable Price	Income 50th Percentile	Affordable Price	Income 60th Percentile	Affordable Price
Greater Toronto Area	$25,400	$64,000	$35,200	$88,500	$44,700	$112,500	$54,700	$138,000	$65,000	$163,500
Haldimand-Norfolk Reg. Mun.	$21,300	$53,500	$28,500	$72,000	$36,300	$91,500	$43,800	$110,500	$51,000	$128,500
Hamilton-Wentworth Reg. Mun.	$19,700	$49,500	$27,400	$69,000	$35,400	$89,000	$44,100	$111,000	$52,700	$133,000
Muskoka District Municipality	$20,000	$50,500	$26,000	$65,500	$32,800	$82,500	$39,100	$98,500	$46,500	$117,500
Niagara Regional Municipality	$20,300	$51,500	$28,000	$70,500	$35,900	$90,500	$43,800	$110,500	$51,800	$130,500
Ottawa-Carleton Reg. Mun.	$25,400	$64,000	$35,000	$88,500	$44,300	$111,500	$54,100	$136,000	$64,300	$162,000
Sudbury Regional Municipality	$19,400	$49,000	$27,700	$69,500	$36,700	$92,500	$46,200	$116,500	$55,800	$140,500
Waterloo Regional Municipality	$23,500	$59,000	$32,200	$81,000	$40,100	$101,000	$48,200	$121,500	$56,200	$142,000
Brant County	$20,600	$52,000	$27,600	$69,500	$35,000	$88,000	$42,800	$108,000	$50,600	$127,500
Bruce County	$19,400	$49,000	$25,700	$65,000	$32,900	$83,000	$40,900	$103,000	$50,100	$126,500
Dufferin County	$26,500	$66,500	$36,100	$91,000	$45,100	$114,000	$53,800	$135,500	$62,000	$156,500
Elgin County	$20,700	$52,000	$28,000	$70,500	$35,800	$90,000	$43,300	$109,000	$50,300	$127,000
Essex County	$19,600	$49,500	$27,800	$70,000	$36,700	$92,500	$44,600	$112,500	$53,000	$133,500
Frontenac County	$19,600	$49,500	$27,600	$69,500	$35,700	$90,000	$43,500	$109,500	$51,800	$130,500
Grey County	$19,200	$48,500	$24,900	$63,000	$31,600	$79,500	$37,900	$95,500	$45,900	$115,500
Haliburton County	$18,100	$45,500	$22,800	$57,500	$28,000	$70,500	$33,300	$84,000	$38,800	$98,000
Hastings County	$19,100	$48,000	$25,600	$64,500	$33,200	$83,500	$40,000	$101,000	$47,500	$119,500
Huron County	$21,000	$53,000	$27,000	$68,000	$33,800	$85,000	$39,600	$100,000	$46,800	$118,000
Kent County	$19,700	$49,500	$26,900	$68,000	$34,200	$86,000	$41,300	$104,000	$49,100	$123,500
Lambton County	$21,400	$54,000	$30,200	$76,000	$38,900	$98,000	$47,700	$120,000	$56,800	$143,000
Lanark County	$21,200	$53,500	$28,100	$71,000	$36,000	$91,000	$44,100	$111,000	$52,400	$132,000
Leeds & Grenville Un. Counties	$21,200	$53,500	$28,200	$71,000	$35,300	$89,000	$42,700	$107,500	$50,200	$126,500

Assumptions:

PIT =	30.0%	of Gross Household Income	Down Payment=	10.0%	
Taxes=	0.125%	of House Value/Month	Mortgage Rate=	10.88%	
Mortgage Insurance=	0.00008	of House Value/Month	Mortgage Factor=	0.0095429	
Amortization=	25 years				

Incomes and Prices Continued...

HOUSEHOLD INCOMES AND AFFORDABLE HOUSE PRICES

Information Bulletin, April 1995

Region	Income 20th Percentile	Affordable Price	Income 30th Percentile	Affordable Price	Income 40th Percentile	Affordable Price	Income 50th Percentile	Affordable Price	Income 60th Percentile	Affordable Price
Lennox and Addington County	$21,600	$54,500	$28,400	$71,500	$35,900	$90,500	$44,000	$111,000	$51,500	$129,500
Middlesex County	$20,800	$52,500	$28,400	$71,500	$36,300	$91,500	$44,300	$112,000	$52,900	$133,500
Northumberland County	$22,200	$56,000	$30,000	$75,500	$37,500	$94,500	$45,300	$114,000	$52,500	$132,500
Oxford County	$21,400	$54,000	$29,300	$74,000	$36,700	$92,500	$44,200	$111,500	$51,900	$131,000
Perth County	$21,400	$54,000	$29,000	$73,000	$35,800	$90,000	$43,100	$108,500	$50,600	$127,500
Peterborough County	$19,900	$50,000	$26,500	$67,000	$33,500	$84,500	$41,000	$103,500	$48,900	$123,500
Prescott & Russell Un. Counties	$20,500	$52,000	$29,900	$75,500	$38,600	$97,500	$46,500	$117,000	$54,800	$138,000
Prince Edward County	$19,100	$48,000	$25,900	$65,500	$33,800	$85,000	$40,000	$101,000	$46,900	$118,000
Renfrew County	$18,900	$47,500	$25,100	$63,500	$32,100	$81,000	$38,700	$97,500	$45,800	$115,500
Simcoe County	$22,900	$58,000	$31,500	$79,500	$39,900	$100,500	$48,100	$121,500	$56,200	$141,500
Stormont, Dundas & Glengarry	$18,300	$46,000	$24,000	$60,500	$31,500	$79,500	$38,900	$98,000	$46,600	$117,500
Victoria County	$20,100	$50,500	$26,700	$67,000	$33,500	$84,500	$41,400	$104,500	$49,100	$124,000
Wellington County	$24,500	$61,500	$32,900	$83,000	$41,100	$103,500	$49,300	$124,500	$57,600	$145,000
Algoma District	$17,700	$44,500	$25,100	$63,000	$33,100	$83,500	$40,900	$103,000	$48,700	$123,000
Cochrane District	$18,100	$45,500	$25,300	$63,500	$34,600	$87,000	$43,300	$109,000	$51,500	$130,000
Kenora District	$19,900	$50,000	$26,700	$67,000	$34,400	$87,000	$43,000	$108,500	$51,100	$128,500
Manitoulin District	$14,900	$37,500	$20,000	$50,500	$24,800	$62,500	$30,300	$76,500	$35,800	$90,500
Nipissing District	$17,500	$44,000	$23,700	$60,000	$31,100	$78,500	$38,700	$97,500	$47,100	$118,500
Parry Sound District	$17,400	$44,000	$22,200	$56,000	$28,200	$71,000	$34,500	$87,000	$40,900	$103,000
Rainy River District	$18,000	$45,500	$24,800	$62,500	$32,600	$82,000	$39,700	$100,000	$47,900	$121,000
Sudbury District	$16,800	$42,500	$23,700	$59,500	$31,200	$78,500	$40,800	$103,000	$48,300	$121,500
Thunder Bay District	$20,800	$52,500	$30,200	$76,000	$39,200	$99,000	$47,700	$120,000	$56,100	$141,500
Timiskaming District	$14,600	$37,000	$20,200	$51,000	$26,800	$67,500	$33,900	$85,500	$41,300	$104,000

Assumptions:

PIT =	30.0%	of Gross Household Income	Down Payment=	10.0%
Taxes=	0.125%	of House Value/Month	Mortgage Rate=	10.88%
Mortgage Insurance=	0.00008	of House Value/Month	Mortgage Factor=	0.0095429
Amortization=	25 years			

TENANT HOUSEHOLD INCOMES AND AFFORDABLE RENTS

Information Bulletin, April 1995

Region	Income 20th Percentile	Affordable Rent	Income 30th Percentile	Affordable Rent	Income 40th Percentile	Affordable Rent	Income 50th Percentile	Affordable Rent	Income 60th Percentile	Affordable Rent
Greater Toronto Area	$16,050	$400	$23,020	$580	$29,870	$750	$36,470	$910	$43,990	$1,100
Haldimand-Norfolk Reg. Mun.	$13,710	$340	$19,190	$480	$23,600	$590	$29,680	$740	$35,530	$890
Hamilton-Wentworth Reg. Mun.	$12,540	$310	$16,500	$410	$21,840	$550	$27,270	$680	$33,220	$830
Muskoka District Municipality	$13,660	$340	$17,120	$430	$21,190	$530	$26,330	$660	$32,850	$820
Niagara Regional Municipality	$12,090	$300	$15,790	$390	$20,320	$510	$25,440	$640	$31,390	$780
Ottawa-Carleton Reg. Mun.	$15,460	$390	$22,200	$560	$28,540	$710	$34,680	$870	$41,380	$1,030
Sudbury Regional Municipality	$12,080	$300	$15,240	$380	$19,710	$490	$25,240	$630	$32,040	$800
Waterloo Regional Municipality	$14,860	$370	$20,250	$510	$25,600	$640	$31,090	$780	$36,730	$920
Brant County	$13,300	$330	$17,500	$440	$22,020	$550	$26,790	$670	$31,880	$800
Bruce County	$12,360	$310	$16,760	$420	$21,160	$530	$26,650	$670	$31,960	$800
Dufferin County	$14,570	$360	$19,380	$480	$26,470	$660	$31,570	$790	$38,100	$950
Elgin County	$13,370	$330	$17,160	$430	$21,470	$540	$26,710	$670	$31,880	$800
Essex County	$11,660	$290	$14,970	$370	$19,340	$480	$24,610	$620	$31,100	$780
Frontenac County	$12,920	$320	$17,420	$440	$22,700	$570	$28,360	$710	$34,580	$860
Grey County	$12,620	$320	$15,390	$380	$19,830	$500	$24,250	$610	$28,970	$720
Haliburton County	$13,750	$340	$16,740	$420	$20,530	$510	$26,060	$650	$32,650	$820
Hastings County	$13,310	$330	$17,590	$440	$22,050	$550	$27,330	$680	$33,370	$830
Huron County	$14,060	$350	$18,720	$470	$23,850	$600	$28,180	$700	$33,580	$840
Kent County	$12,860	$320	$16,960	$420	$21,900	$550	$27,260	$680	$33,000	$830
Lambton County	$12,530	$310	$16,600	$410	$21,210	$530	$27,160	$680	$33,090	$830
Lanark County	$13,180	$330	$17,000	$430	$21,580	$540	$26,530	$660	$32,790	$820
Leeds & Grenville Un. Counties	$13,200	$330	$17,380	$430	$22,240	$560	$26,650	$670	$31,850	$800

Assumption:
Monthly Rent = 30% of montly income
Rents are calculated based on tenant household incomes.

Incomes and Rents Continued...

TENANT HOUSEHOLD INCOMES AND AFFORDABLE RENTS

Information Bulletin, April 1995

Region	Income 20th Percentile	Affordable Rent	Income 30th Percentile	Affordable Rent	Income 40th Percentile	Affordable Rent	Income 50th Percentile	Affordable Rent	Income 60th Percentile	Affordable Rent
Lennox and Addington County	$12,500	$310	$16,580	$410	$20,770	$520	$24,590	$610	$29,600	$740
Middlesex County	$13,670	$340	$18,470	$460	$23,240	$580	$28,380	$710	$34,200	$860
Northumberland County	$14,320	$360	$18,940	$470	$23,040	$580	$29,260	$730	$34,610	$870
Oxford County	$14,500	$360	$18,900	$470	$24,360	$610	$30,370	$760	$36,170	$900
Perth County	$13,700	$340	$18,250	$460	$23,140	$580	$28,610	$720	$33,400	$840
Peterborough County	$12,770	$320	$16,250	$410	$20,090	$500	$24,140	$600	$29,990	$750
Prescott & Russell Un. Counties	$12,140	$300	$15,630	$390	$19,530	$490	$24,540	$610	$31,980	$800
Prince Edward County	$12,220	$310	$15,180	$380	$19,580	$490	$26,330	$660	$33,480	$840
Renfrew County	$12,650	$320	$17,070	$430	$22,060	$550	$28,320	$710	$33,500	$840
Simcoe County	$15,370	$380	$20,450	$510	$25,990	$650	$32,420	$810	$39,450	$990
Stormont, Dundas & Glengarry	$11,960	$300	$15,070	$380	$18,990	$470	$22,840	$570	$28,070	$700
Victoria County	$12,260	$310	$15,820	$400	$19,730	$490	$23,560	$590	$29,140	$730
Wellington County	$14,730	$370	$20,380	$510	$26,220	$660	$31,760	$790	$37,410	$940
Algoma District	$11,520	$290	$14,110	$350	$17,480	$440	$22,170	$550	$28,100	$700
Cochrane District	$11,490	$290	$14,410	$360	$18,950	$470	$24,550	$610	$31,940	$800
Kenora District	$14,050	$350	$19,180	$480	$24,820	$620	$32,160	$800	$39,410	$990
Manitoulin District	$11,760	$290	$14,110	$350	$17,840	$450	$22,140	$550	$25,270	$630
Nipissing District	$11,690	$290	$14,680	$370	$19,360	$480	$23,870	$600	$29,490	$740
Parry Sound District	$11,980	$300	$15,500	$390	$20,360	$510	$25,900	$650	$30,460	$760
Rainy River District	$12,370	$310	$14,320	$360	$16,870	$420	$21,300	$530	$27,630	$690
Sudbury District	$11,110	$280	$12,880	$320	$17,120	$430	$22,920	$570	$31,200	$780
Thunder Bay District	$12,370	$310	$15,940	$400	$21,080	$530	$27,820	$700	$35,330	$880
Timiskaming District	$10,880	$270	$12,080	$300	$15,640	$390	$20,390	$510	$26,140	$650

Assumption:
Monthly Rent = 30% of montly income
Rents are calculated based on tenant household incomes.

NOTES:

Household Income Data

The data comes from a special tabulation from the 1991 Census of Population (covering 1990 incomes). In order to restate these figures to 1995, an inflation factor of 1.091 was used. This factor is based on the consumer price index for Ontario.

House prices were calculated based on income for all households (owner and renter households combined). Rents were calculated based on tenant household income only.

House Price Targets

House prices were calculated using the following assumptions:

- a 10 percent downpayment;
- a 30 percent gross debt service ratio (including principle, interest and property taxes);
- a monthly property tax rate equal to 0.125 percent of house value.
- a mortgage interest rate of 10.88 percent amortized over 25 years, based on five-year term mortgage rates averaged over 10 years (1986 to 1995 projected);
- mortgage insurance of 0.00008 percent of house value per month;
- rounded to the nearest $500.

Rental Targets

Rent price targets were calculated using the following assumptions:

- 30 percent of monthly tenant household income, including utilities;
- rounded to the nearest $10.

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