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Development and Investment

The recession which battered real estate values also created some interesting new challenges for land economists, and new approaches to old problems. In this issue, we look at some of the changes:

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Looking along King Street west of Spadina Ave.

What Is Draft Approved Land Worth?

by Geoffrey Grayhurst

Intuitively, it is obvious that a relationship exists between serviced lot prices and draft plan approved land values. In areas with higher serviced lot prices, prices of draft plan approved land are higher. Calculating that relationship can be a useful way to approach land values in today's uncertain market.

Case Study — Brampton

For this article, we have chosen to analyze a typical subdivision with 50 foot lots in Brampton. For a specific property, revenues and servicing costs, along with absorption period and risk, would be considered in detail. However, for illustrative purposes, we have assumed average values, as outlined below.

Revenue

Our surveys of residential lot transactions show that prices for serviced 50 foot lots have fallen from approximately $2,100 per front foot at the beginning of 1994, to $1,850. Today, therefore, the revenue per lot is $92,500.

Costs

Based on our review of development projects and our discussions with various engineering firms, we have estimated the following general servicing costs for a 50-foot lot:

Development Hard Costs	$ 17,000
Development Charges	16,000
Development Soft Costs	10,000
	$ 43,000

The development hard costs include costs for the servicing contract, contingency (calculated at 10% of development hard costs), hydro, landscaping and grading. Additionally, provisions for external costs and deep basement costs are included in the $17,000 estimate.

The development charges include the existing City, Regional and Hydro charges which total approximately $13,500. In Peel Region, Education Development Charges are imminent and may be in effect as early as February, 1996. We have included the proposed amount of Peel's EDCs ($2,665 per lot) for total development charges of $16,000.

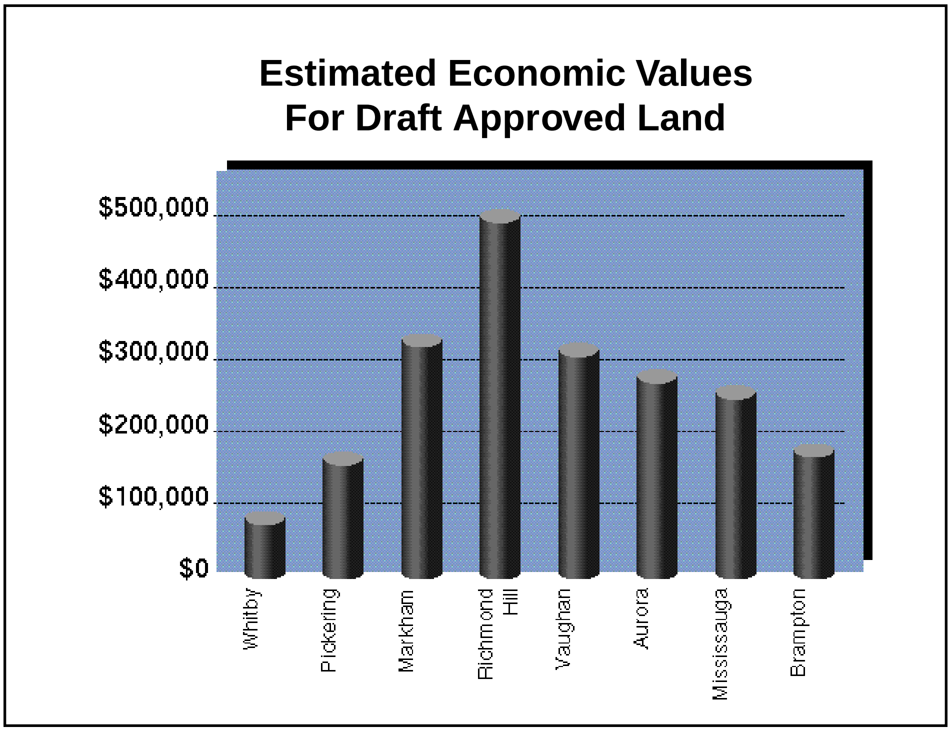
The development soft costs include costs for engineering consultants, municipal engineering charges, surveying, interest, bonding, insurance, miscellaneous consultants (soils, planning, etc.) and management fees. While these costs can range dramatically, especially the interest component which is dependent upon the project size and absorption, the estimate of $10,000 is reasonable.

The total costs outlined above equate to $43,000, or $860 per front foot for the 50 foot lot.

Economic Land Value

With 50 foot lots we have found that yields typically are five units per acre. Therefore, the land value per acre can be calculated as follows:

Excess Revenue Per Lot	
$712 per front foot x 50 feet	$35,600
Economic Land Value Per Acre	
$35,600 x 5 units per acre	$178,000



Source: The Morassutti Group

Price Components

After subtracting $860 in costs from the $1,850 in revenue, $990 is left per front foot to cover the land cost and the potential developer's profit.

While the required profit is usually calculated by developers taking into consideration the equity requirements and the projected timing of the project, this is not possible in our generic example. Therefore, the assumed profit is estimated at 15% of revenue, or 20% of costs. In our experience, this is also a commonly used rule of thumb in the development industry.

	Per Front Foot
Amount for Land Cost and Developer's Profit	$ 990
Developer's Profit 15% of Revenue ($1,850 x 15%)	278
Amount Left for Land Cost	712

General Cautions

While this example demonstrates the relationship between serviced lot prices and economic land values in a general sense, the specific circumstance of a particular project can cause a wide variation in land values. The most obvious and critical comparisons are serviced lot values, the costs of servicing (specifically, those site specific costs such as external servicing and interest costs) and the yield of the land in terms of units per acre.

In reality, the estimate of developer's profit of 15% of revenue also changes depending on the circumstance of the developers. Additionally, developer's profit as a percentage of revenue tends to increase as lot prices increase. In general, development in the stronger Richmond Hill markets tends to be more profitable than development in Oshawa. As a result, land prices in areas where lot prices are high actually are slightly less than the model predicts.

In areas such as Oshawa, where the current serviced lot prices are barely above the servicing costs, a mathematical result of the model would be close to a negative land value. However, land cannot have a negative value and what generally happens is that the developer's profit diminishes to result in a land value higher than the model predicts.

Market Outlook

Serviced lot prices over the past six to nine months have generally been falling in Peel Region — and in Durham, although not to the same magnitude. Lot prices in York Region have been relatively stable, with the exception of price increases in the prime areas of Richmond Hill. However, even Richmond Hill has started to show some signs of weakness.

New home sales were disappointing in the GTA in 1995 and while there are predictions that 1996 will be a better year, many builders and developers are sceptical. Continued uncertainty and job insecurity are significant factors, which lower interest rates alone may not be able to counter.

A significant number of new projects will open in the spring. The level of new home sales at these openings will have a dramatic effect on both serviced lot and land values.

If confidence has not returned to the market and new home sales are weaker than 1995, expect a continued deterioration of $100 to $200 per front foot in serviced lot prices in all markets — even the relatively strong Richmond Hill market. However, if the spring new home market results in new home sales that are stronger than 1995 — which we anticipate — we expect that prices will be stable for the remainder of 1996.

The spring new home sales market will be key, and the performance of this market will be dependent upon that intangible consumer confidence factor.

Geoffrey Grayhurst is a vice president with The Morassutti Group, a real estate consulting and appraisal firm.

GTA Hornet's Nest

The report of the Greater Toronto Area Task Force stirred up a hornet's nest when it was released on January 16. Most people know its major recommendations:

- replace the five Regional governments with a new but more limited Greater Toronto Council, effective January 1, 1998. The GTC would take on responsibility for planning, economic development/marketing (replacing the current 30 municipal offices) and regional infrastructure (highways, transit, water and sewer and waste management, possibly through public/private partnerships)
- give local municipalities added powers and responsibility for delivering social services (such as welfare — although this would be funded by the province — homes for the aged and public health), parks, recreation, urban roads, and some development approvals
- assess properties for property taxes on the basis of "actual values" — a system which combines property characteristics and market values — updated annually and averaged over three years. Tax increases and decreases would be phased in gradually.
- apply uniform rates of education taxes on commercial and industrial properties across the GTA and pool the revenues
- allow the GTC to impose a gasoline tax and user fees on cars and trucks to finance roads and transit

Along with the recommendations outlined above, the GTA Task Force recommended that the GTC take over the district office permitting and approval functions of the Ministries of Environment and Energy, Natural Resources and Agriculture, Food and Rural Affairs. These functions would be carried out on a watershed basis by beefed-up conservation authorities. A regeneration program and accompanying changes to standards and legislation are recommended to redevelop "brownfield" sites. And it calls for changes to development charges, standards and planning to encourage more compact urban form.

The report suggests new boundaries for the city-region, and would almost certainly mean some amalgamations in the face of expanded local responsibilities.

The recommendations for restructuring and for property taxes have created the most controversy, with mayors of several municipalities denouncing the proposals and coming up with their own alternatives.

Changes to the government structure — if they go ahead — should be in place in time for the 1997 municipal elections. The government expects to make a decision on future directions by mid April. In the meantime, a panel has been set up to receive public comments. They are holding hearings across the GTA between February 19 and March 12. If you want to make a submission or get more information, contact the Office of the Greater Toronto Area (416) 314-6400.

Planning For Reinvestment

The new "Reinvestment Area" zoning for two older industrial neighbourhoods in downtown Toronto may not be a panacea. But it's certainly being hailed as a big step in the right direction.

At a recent seminar, Leith Moore, vice president of Landtactix Inc. (The Sorbara Group's land development arm), described the process of redevelopment under the current zoning:

For one industrial-to-residential conversion project, "we preconsulted with politicians, staff and the ratepayers'association," he said. "We had meetings with them to narrow the issues. And at the end, the working committee said: `Here's a list of new issues, and by the way we just disagree'... At the end of three and a half years, we still have to go to the Ontario Municipal Board.

"We will have spent more than $2 million by the time we get through the OMB. That's more than $20,000 a unit — just flushed away ...

"If it were not for these changes that the city's proposing, we would never be back here again."

Expanding The Possibilities

The City's Planning and Development department has drafted Part 11 Official Plan amendments for the King-Spadina and King-Parliament areas. Often referred to as the "shoulders" of downtown, these two areas have many old industrial buildings which are vacant or underused. For years, they have been threatened by industrial relocations, high property taxes and the city's dogged protection of its industrial zoning. Any non-industrial uses required a full rezoning.

The new plan would permit a full range of commercial, light industrial, institutional, recreational and residential uses, including live/work. Density controls would be eliminated, in favour of built form policies setting out height limits and building setbacks. Many conversions and new developments would be "as-of-right", with no rezoning required. Light, view, and privacy standards would be simplified and incorporated into the zoning bylaw. Historically listed buildings would be exempted from parking requirements. The site plan approval process would be used to implement design guidelines, improvements, easements and environmental protection.

"As difficult as a site plan can be," Moore said, "I'd rather be dealing with that than with a rezoning."

Can't Create Demand

How much renivestment the new plan will attract is still open to question. Scott Burns, partner with Hemson Consulting Ltd., pointed out that removing the uncertainty of rezoning will help. "Leases and sales are often conditional on rezoning — and there is a premium because of the risk factor."

However, he said, there are not many buildings that really could be converted to residential uses, because of light and privacy considerations. Dan Leckie, councillor for the King-Spadina area, estimated the number at about 15 to 20 per cent. With major renovations, 30 per cent of existing buildings might be suitable for residential uses. Similar considerations apply to office building conversions.

Gary Stamm, president of Stamm Economic Research and advisor to Mayor Barbara Hall on this initiative, pointed out at the seminar that the city's economy has already strengthened considerably. "People are already making plans (and) I think things could happen very quickly."

However, he said, "the (property) tax load can exceed 10, 15 and sometimes 20 per cent of the value of the buildings" in these areas. "Many a mortgage company would love to knock them down, just because of the cash flow savings." To really make the areas attractive for redevelopment, "we have no choice but to find some way of revising the municipal tax system."

Moore added that other things are needed as well. "The (commenting) agencies need to be co-ordinated. The building code is a tremendous issue — I think Main Streets is dead because of the building code. And the Ontario New Home Warranty Program is considering taking conversions in — that could be a tremendous cost."

A member of the audience mentioned that the first line of redevelopment may well be new residential buildings on vacant land. A quarter of the King/Spadina area is currently vacant or used as parking lots.

A New Philosophy

Larry Saltzman, president of WTF Ltd, which develops in the King-Spadina area, hailed the deregulation of land uses as "truly a break-through idea". As the spokesperson for a large group of property owners, he has been working on proposals for the new regulations, and welcomes the attempt to simplify process.

Ken Greenberg, partner with Berridge Lewinberg Greenberg Dark Gabor Ltd., said that Toronto is “leading the way in North America and maybe in the western world” with this initiative. For the past 40 years, “we’ve had an aberration in the making of cities,” he explained. “We’ve tried to separate uses. But now, this is a resumption of normal city building.” At the same time, “we’re moving away from the split hierarchical model of communities (characterized by bedroom communities) and towards a network model.”

Traditional planning tried to separate and nail down the use of buildings — which is something that people often want to change fairly quickly. That led to wasted time and activities, and sometimes corruption, Greenberg said. “I hope that planning will shift its focus to things that have much greater longevity,” and matter for the long term, such as massing and street layouts.

However, Stan Makuch, partner with Toronto law firm Borden & Elliott, cautioned that the zoning still is zoning. The number of permitted uses will increase and the number of restrictions will decrease, but there still are restrictions and in some cases landowners will find they can do less with their properties.

Also, “the more detailed massing gives more predictability,” he said, “but whenever anyone wants a deviation, that takes it back into a rezoning and the possibility of an Official Plan amendment.” The detail in the zoning bylaw “may also create a certain amount of rigidity and uniformity.”

On the other hand, it may open up new challenges. In response to audience questions, Burns said that planners may be freed up from their focus on fighting regulations, and move to a new role of identifying opportunities. And appraisers will have to evaluate properties based on an almost unlimited number of future potential uses.

The most important change, according to Provincial Facilitator Dale Martin, may be in the planners’ reqlinquishment of control. “The real tragedy in Ontario and in most of the world is that it has been dominated by the disease of prescription in tremendous detail ... The Planning departments have had unbelieveable control, well beyond their statutory controls. Ultra vires behaviour is part of their regular behaviour.”

The revitalization initiative seems to reflect “a genuine interest by the people involved in public administration in being creative instead of policing.” But the real challenge will be implementation, Martin said.

Without a serious commitment to helping development go ahead, “site plan review alone is more than enough to adequately frustrate anybody’s interests.”

The Planning Department is scheduled to report back to Land Use Committee April 9. A draft zoning bylaw is expected to be circulated for public comment in early March, and recommendations for parking and heritage buildings in late March. For more information contact the Planning Department at (416) 392-7333.

Members’ Affairs

David J. Williams, FRTPI, MCIP, PLE, and a past president of this association, has joined Davies Partners Facilitators Inc. as a member of its team of mediators available for alternative dispute resolution (ADR). The company was the first private facilitators’office designed to mediate municipal, environmental, zoning, community development and other land use disputes in Ontario.

Dr. Norman Pearson, PLE, FRTPI, AICP, MCIP, has served recently as an advisor on projects dealing with rural development in Ghana; the impact of environmental policies in Egypt; consequences of oil development in Alaska and regional development in Guyana.

The Association will be publishing a new membership directory for 1997. Those members who wish to place a business card advertisement are asked to contact the office as soon as possible.

Call (416) 340-7818.

Rob G. Dowler, PLE, OPPI, CIP, was accepted for membership in December. As manager of planning and building policy at the Ministry of Municipal Affairs and Housing, Rob is working on the 1997 Ontario Building Code, strategies to encourage private investment in rental buildings, and the new Planning Act and policy statements.

Municipal Tax Equity Consultants Inc. in Hornby has introduced two new members, also accepted at the December Council meeting: **Carla Y. Nell Powell,** PLE, AIMA, Director of Administration, and **Gregory David Powell,** PLE,AIMA, Director of Operations. The firm offers assessment review and support services to municipalities and school boards. Members will remember the report Carla prepared for this Journal last year on Mayor Barbara Hall’s address to an OLE dinner.

Matilde C. Nunez, OPPI, MCIP, PLE, known to members in her association with Planland in Hamilton, has moved to Retired status. So has **Christopher Skeat,** of Toronto. Best wishes to both!

Mary Sargent has performed most of the office functions for OLE for the past several years as an employee of The Business Place Inc. As that company closed its doors at the end of January, Mary has opened up a new company called “Business is Business”. For OLE members, this means a change in the Association’s fax number to (416) 979-9159. The address and phone number stay the same.

The Members’Affairs column features member news and company announce - ments. Please keep us informed of appointments, interesting projects, etc. Call Jim Appleyard at (416) 447-3949 or Rowena Moyes at (416) 466-9829, (fax) 466-6829.

Around Queen's Park

Budget

The spring session of the Legislature is scheduled to begin on March 18. Everyone will be watching the provincial budget, expected in April: the exact mix of cuts in program spending, transfers and income taxes — and the resulting deficit — will have an enormous impact. Last word has it that the tax cut promised in the Conservatives'election campaign (a 30 per cent reduction in provincial taxes, with half of the cut coming in this first budget) is still on.

Planning Act Amendments

Bill 20 received second reading in December and was referred to the Standing Committee on Resources Development. Public hearings began in Toronto on February 12 and travelled the province. Third and final reading is expected late spring or early summer.

In the new Bill, municipal plans must "have regard to" provincial policy statements, rather than "be consistent with" them, and the province's ability to declare matters of provincial interest is more limited. Time frames for approval are shortened; requirements for public meetings are reduced; there is no longer an automatic right to appeal committee of adjustment decisions; and the sections which disallowed prohibitions against basement apartments have been removed.

New Provincial Policy Statements have been drafted and sent out for public consultation.

Development Charges

Bill 20 also places a qualified moratorium on new levies, retroactive to November 16, 1995. Any new charges or amendments (except reductions) must be approved by the Minister of Municipal Affairs and Housing — who has absolute discretion. Also, no appeals are allowed to the OMB.

The government has indicated it wants to limit levies to hard services. In January, the Golden report on the GTA recommended that charges reflect the full costs of development and that education development charges reflect usage patterns typical for different unit types. Industry associations, municipalities and ministry staff are discussing possible changes to the legislation. The current timetable calls for a cabinet submission in June, with new legislation introduced in the fall.

Rent Controls

The Harris government has said it supports market control of rents, rather than regulations — but don't expect it to move in that direction until it's pretty certain private investors will actually start to build new units. Ministry of Municipal Affairs and Housing representatives have been meeting with various groups in the rental industry to explore options. A report prepared for the Ministry last fall identified three major requirements: allowing units to become decontrolled as they come vacant; reliable protection for tenants based on B.C.'s current system of agreed rents and arbitration, and changes to bring property taxes on rental buildings into line with those for ownership housing. Property taxes are also on the table through the Golden report on the GTA. Alternatives for amending regulations in the rental sector have been circulated for discussion.

Water as Contaminant

In a recent "Saxe Faxletter", Toronto lawyer Dianne Saxe describes "yet another demonstration of `common sense' (or turf building?)" — MOEE's prosecution of Inco "for discharging clean water. In accordance with its permits," she says, "Inco put treated water into a creek. During a sudden thaw, the creek began to rise. Inco stopped its discharge but the creek kept rising due to snow melt and rain. Eventually a home of the flood plain was flooded. Inco paid for the damages. This home had often flooded before and would probably have flooded on this occasion even if Inco had not discharged anything. Inco was acquitted. The MOEE did not apologise." (reprinted with permission)

Digital Land Registry

For $500 a year and a small user fee per property searched, you can now use the PC on your desk to access land title information from registry offices in Kent, Middlesex (London), Oxford, Hamilton-Wentworth, Halton, Peel, Metro Toronto, York and Ottawa-Carleton.

The result of a partnership between Ontario's Ministry of Consumer and Commercial Relations and a consortium of private sector firms, the Teraview system already covers more than one million of the four million parcels of land in the province. Enter the municipal address, owner's name, the number of any instrument (plan of subdivision, mortgage, lien, etc.), or a PIN number, and you can get a summary of the documents currently listed on title. By May, you will be able to order copies of the smaller documents to be sent to your fax number. Larger documents such as maps or surveys will be handled by courier.

For the Middlesex registry, digital maps will become available in May — Hamilton and Ottawa maps will be on line before the end of the year. Information and maps from other registries are being added regularly. By 1997, qualified users should be able to register instruments on title or amend those already in place. For more information, contact Teranet Land Information Services (416) 360-5263.

Omnibus Powers Carry Omnibus Responsibilities

by Bonnie Bowerman

After stormy debate, Bill 26 — the Saving and Restructuring Act — was voted into law on January 29, 1996, by a vote of 77 to 47. It is a complex piece of legislation more than 211 pages long with 400 clauses and 17 schedules that enact or amend what appears to be 47 separate pieces of legislation — many of which are completely unrelated.

Bill 26 was designed by the Harris government to provide the province with the tools to successfully cut $6 billion from provincial spending over the next three years. The Harris government deemed it necessary to assume direct control over many of the decisions affecting the delivery of public services, n order to achieve a balanced budget and reduce the current $100 million deficit.

Decisions affecting our provincial services and spending can now be made by regulation, ministerial direction or administrative order without parliamentary debate or the opportunity for public scrutiny. The Bill directly vests previously unheard-of powers into the hands of the provincial Cabinet. For example, there are 13 different areas where the government is giving itself the right of final appeal, sweeping away recourse to independent third parties or to the courts.

Very Large Array Of Issues

While the document appears to touch on almost every facet of spending in the province, there are three key areas: health care reform, civil service and pension changes, and municipal restructuring.

Health Care

The provincial government now has the right to unilaterally close or merge hospitals; dictate the types of services and the volume of each service each hospital will offer; charge user fees for the province's drug plan; deregulate drug prices; determine what are necessary medical procedures and set the fees for these services under the provincial health insurance plan, as well as set quotas dictating where doctors may practice. The Bill also immunizes the Ministry of Health, the Cabinet and the soon-to-be-formed Health Services Restructuring Commission from legal liability resulting from hospital restructuring. Plus, it abrogates all agreements it has signed with the Ontario Medical Association and immunizes itself against any legal action stemming from the abrogation of these agreements.

Civil Service and Pension Changes

The Harris government plans to lay off approximately 13,000 provincial workers. Changes to the Public Service Pension Act and the Ontario Public Service Employees' Union Pension Act exempt the government from laws protecting employees'pensions. Normally, a large layoff could trigger a wind-up of the employees' pension plan and result in enhanced benefits such as immediate vesting and portability of the pension credits.

The Bill allows arbitrators to consider the financial ability of an employer to make pay awards before considering the wages for police, firefighters and hospital workers.

Municipal Restructuring

Changes to the Municipal Act make it easier to amend municipal boundaries and amalgamate municipalities. In fact, under the new restructuring process, the Minister of Municipal Affairs or an appointed commission can make any order at all to implement restructuring. An order of the Commission or the Minister under these regulations, which are as yet unavailable, **prevails over any act or regulation with which it conflicts.**

An upper tier municipality such as Metro will be able to assume certain powers of the lower tier municipalities to provide services and facilities regulated by provincial regulation. It can do this as long as the upper tier council is in favour and a majority of the councils of area municipalities (representing a majority of the upper tier electors) supports the change.

The reverse will also be allowed. Lower tier municipalities will be able to assume upper tier powers prescribed by the regulations, provided the upper tier municipality and the majority of the other area municipalities concur.

In addition, municipalities are to be allowed to charge certain user fees for their services and facilities. This may include tolls on local roads (although in practice this may be difficult to implement). These new revenue sources have been scaled down considerably from the original wording of the Act, which proposed to grant municipalities broad new areas of taxation.

The province itself will be able to charge toll fees on certain provincial highways if it so desires. In the instance of Highway 407, the Bill proposes that motorists using the road have an electronic device installed in their vehicles to allow for the automatic billing of tolls.

Under changes to the Municipal Franchises Act and the Public Utilities Act, local municipal governments can privatize utilities without the current requirement to hold a referendum. This would pave the way for municipalities to sell water and sewage plants, transit systems and electric utilities.

Other Changes

A full 30 pages of the Act apply to mining and prospecting reforms which weaken current environmental regulations, effectively allowing mine owners to regulate themselves when closing a mine. Currently, companies must prepare a shutdown plan for provincial approval.

Amendments to the Conservation Authority Act will make it easier to wind down the authorities and sell lands they currently hold. The government is cutting the funding to conservation authorities, with grants being given only for flood control and protection of **provincially significant** conservation lands.

In Conclusion

It would appear the Harris government has used its majority in the legislature to arm itself with an enormous degree of flexibility in dealing with how provincial services are to be provided and how much they will cost. In light of the enormity of the government's sworn task to reduce the $100 billion debt load, this can be viewed positively.

However, combined with this flexibility is a much larger burden of responsibility to ensure that some of our fundamental rights aren't sacrificed in the zeal to cut costs. What cannot be viewed positively is the special care the Act takes to ensure that the province, the Cabinet and its agents can't be held legally liable or in many instances be subject to judicial review.

Bonnie Bowerman is a Council Member of the Association of Ontario Land Economists, and a senior analyst with a major insurance company.

Population Forecasting:
A Review Of Alternative Methods

by Julius Gorys and Al Ruggero

A common task of municipal planning departments is to provide forecasts of future growth. These projections are used by other government agencies and tribunals, development interests, and merchants and service industries wishing to identify potential markets and their relative size.

The forecasts are intended to reduce uncertainty and increase knowledge about the future for public and private investment purposes. However, there are numerous methods deployed to generate population forecasts, and both their sophistication, and the detail to which population data can be provided, vary considerably. The purpose of this paper is to illustrate the conditional nature of various forecasting techniques and the potential difference in results.

Four Main Approaches

There are four principal approaches to population forecasting, based on: employment, demographics, housing units/rate of development activity, and mathematical calculations using ratio relationships.

Employment-based models
These models operate of the premise that urbanization accompanies industrialization, and population change is a function of labour-induced variables. The most commonly used employment-based model is the **basic/non-basic employment multiplier** concept. Alternative models include: **sectoral, econometric and input-output.**

The **basic/non-basic** concept is essentially predicated on the following relationship:

> "x" jobs in the basic or goods-producing sector (e.g., manufacturing) support "y" jobs in the non-basic or service sector (e.g., teacher, hairdresser, etc.) which in turn generate a population level of "z"

This approach is less useful in those areas where employment instead follows population; for example, an expanding bedroom suburb of a larger community. Also, it is unclear how recent changes in service sector employment levels disrupted traditional sectoral relationships in this model.

Demographic models
In demographic models, two principal components determine population change: natural increase (births less deaths) and net migration (in- less out-migration). The most prevalent demographic-based approach is the age-sex cohort survival model, in which assumptions are made as to the rates of birth, death, survival, labour force participation, household formation, fertility and migration

The existing population is "aged" accordingly for each year into the future, while new migrants, with an altogether different profile, are introduced into the community. This approach is most commonly found amongst larger municipalities, because of their need to generate more detailed information at a desegregate level.

Computerization has made this a more popular method. It has two principal shortcomings: it can undercount population in those communities experiencing considerable development activity on the rural/urban fringe, and shares of migrants accruing to a community must still be estimated — an imprecise science at best.

Development activity approach
Also known as the housing unit method, this is based on the amount of anticipated or actual development activity, as represented by the number of building permits issued, utility service connections attained, or development site plans received. Developments at different stages in the approval process are applied to occupancy levels by unit type and construction timetables in order to generate the forecast.

This is one of the most frequently used techniques in municipalities that are experiencing rapid rates of growth. However, if used alone, it can underestimate the degree of population growth and it ignores the possibility of population decline altogether unless significant demolition of housing units exists.

Mathematical trend extrapolation
These methods largely attempt to extend the historical pattern of growth forward over time, and have been cynically described by some as a game of "connecting the dots".

There are a number of mathematical variations. The share approach assumes that the rate of growth that accrues to a community is a proportion of the larger area total. It can be constant or variable, altered as servicing conditions, or travel times/commuting patterns change.

Other models include the trend line approach, and the more sophisticated least squares approach which uses regression analysis based on a series of previously established dates and their associated populations. Alternatives include the modified exponential and Gompertz s-curve approaches (which recognizes the finiteness of land to support continuous population increase), and the censual ratio method.

The mathematical extrapolation methods are most commonly deployed in smaller municipalities with low rates of growth. There are obvious shortcomings to utilizing past growth trends to project population changes in larger communities or those which experience rapid growth.

Summary

It is important to determine which method has been used to arrive at a particular population forecast in order to understand its relative strengths and shortcomings. The choice of approach can have a profound impact on the final projections of how much land is required or will be absorbed for development purposes, how many units can effectively be marketed and constructed, and what value can be assigned to them.

For an existing community of 325,000, for example, population projections could range between 329,000 and 343,000, depending on which of the above methods is deployed. That is a variance of some 14,000 persons!

If we assume a density split of 50 per cent low (at four units per acre), 35 per cent medium (at 15 units per acre), and 15 per cent high (at 40 units per acre), and three persons per household across the board, that 14,000-person difference translates into a variation of 4,670 units and 710 acres of land.

For some communities, it may be useful to combine several of the approaches to come up with a more meaningful estimate of future population levels. For example, use a demographic model but check or tailor the estimate based on development activity.

Julius Gorys is senior planner in the Ontario Ministry of Transportation. Al Ruggero is senior planner with the Concord planning firm Weston Larkin Inc.