The County of Grande Prairie No. 1

Land Requirements and Impacts of City of Grande Prairie Annexation Application

Prepared for: The County of Grande Prairie No. 1

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Introduction

In November 2010, the City of Grande Prairie filed its Notice of Intent to annex a 30-year supply of land comprising 6,316 hectares from the County of Grande Prairie. The Notice of Intent followed by a few months the adoption of a new Intermunicipal Development Plan (IDP) by the two municipalities. A predecessor IDP had been in place since 2001.

During the period from mid-2011 to mid-2013, the two municipalities undertook a number of public consultation initiatives relating to the proposed annexation, and engaged in negotiation discussions, which concluded unsuccessfully in June 2013. The City subsequently submitted its Report on Negotiations and Public Consultations on June 25 2013, and its formal Annexation Application on July 23, 2013. A number of key supporting documents to the City's Application were made available later, on November 29, 2013.

This summary and the more detailed report that follows describe the assessment by Nichols Applied Management (NAM) of the City's growth needs and annexation impacts as documented in the Annexation Application and supplementary materials. NAM provides also its alternative view of the City's land requirements.

Regional Background

The City of Grande Prairie and the County of Grande Prairie play significant roles in the economy and growth of northwestern Alberta and they provide service and support functions that extend to northeastern B.C. as well. The two municipalities, with a combined population approaching 80,000, have grown historically at rates higher than the province as a whole.

The Grande Prairie regional economy is tied strongly -- directly and indirectly -- to the resource sectors, particularly oil and gas, forestry, and agriculture. Major transportation assets of the Grande Prairie area include the regional highway connections offered by Highways 2, 43, and 40, the Grande Prairie Airport, and railroads and pipelines, and those transportation systems provide economic linkages and integration within a provincial and inter-provincial context. The City of Grande Prairie is the primary residential, commercial, and administrative service centre in the region. The County's Clairmont Urban Area, with a growing population and a substantial and expanding industrial/commercial zone, adjoins the City of Grande Prairie to the north. Clairmont is the County's major long-term growth node for residential and non-residential development.

Planning in the Grande Prairie Area

The City and the County of Grande Prairie have cooperated in various planning and development initiatives for more than three decades. In 1982, the two municipalities adopted a City/County Joint General Municipal Plan, the first of its kind in the province. That was followed by a new Intermunicipal Development Plan in 2001, and by the current Intermunicipal Development Plan in 2010. The periodic renewal of these joint plans reflected legislative changes, evolving growth patterns, new local and regional planning, services, and infrastructure needs, and emerging development opportunities.

These collaborative plans between the two municipalities were complemented by various revenue-sharing agreements, infrastructure and servicing initiatives, cost-sharing and service sharing arrangements, and by a number of cooperative, non-contested annexations. From its perspective, the County recognizes the importance of maintaining strong cooperative relationships with its municipal neighbors within the region, while at the same time endeavoring to provide quality municipal services and infrastructure to its own residents and encouraging community and economic development across the municipality. The current City-County IDP remains an important strategic element in the County's collaborative relationship with the City of Grande Prairie.

Annexation in the Context of the IDP

The identification and protection of new growth areas for the City formed a key element within the current IDP. That importance reflected both the significant growth occurring in the Grande Prairie area during the decade leading up to the new IDP and also the need to take a longer-term perspective to the planning and strategic needs of the two municipalities. During the decade preceding the new IDP, the two municipalities agreed to several incremental boundary adjustments.

The 2010 IDP identified lands that would meet the City's growth needs to 2057 and it further defined within that future growth area a "short-term" and a "long-term" annexation phasing that would accommodate the City's 30-year and 50-year growth needs, respectively. The City's Municipal Development Plan (MDP) contains a policy to maintain a 30-year land supply.

The analytical growth underpinnings for the IDP -- and for the City's proposed annexation -- included two studies prepared for the City: the *City of Grande Prairie Population and Employment Forecast (2008)* and the *City of Grande Prairie Growth Study (2008)*.

The IDP contemplates that the City would initiate the annexation process for the defined "short-term" annexation within two years of Plan adoption. The IDP recognizes

also that the proposed annexation and annexation timing might be modified based on periodic plan reviews and growth monitoring to reflect changing circumstances.

The County has advised that it understood from the outset of the IDP process that under the Municipal Government Act a formal process for annexations would need to be followed irrespective of the IDP, and that annexation applications must adhere to a number of procedural steps, including consultations with affected parties and negotiations between the two municipalities, and that annexations are subject to review and evaluation by the Municipal Government Board (MGB) based on established principles and criteria. The County recognized as well that because of the potential impacts of the proposed annexation on the affected property owners and on its other ratepayers, it was incumbent on the municipality to consider their views and concerns and to conduct a full examination of any annexation application that came forward as part of its due diligence responsibilities to its residents.

It is clear as well that the IDP does not address various implementation and negotiation considerations, including proposed conditions, that are integral to annexations. These can be critical in terms of stakeholder support, inter-municipal equity, and impact mitigation, but are not considered within the IDP.

The City's Case for the Annexation

The City's proposed annexation was grounded largely on two background reports, relating to population and employment forecasts and to the City's growth requirements. Both reports, completed in January, 2008, were prepared near the peak of a particularly robust period of local and regional growth, which has since moderated. As well, the very optimistic forecasts of City growth and growth needs incorporated in the reports at that time were further magnified by a number of questionable methodologies and assumptions.

The land requirements identified in the City's 2008 Growth Study were materially overstated by the adoption of:

- Unduly high City population and employment forecasts at the time.
- Extraordinarily high industrial land needs forecasts, fashioned under "sustainability" and "level playing field" arguments based on an unorthodox interpretation of Provincial Land Use Policies, and quite divorced from any evidence of market demand or land absorption.
- Public land requirements over-estimated based on the application of assumed land ratios applied to the overestimates for the other land uses, and a "double-counting" with provisions in other land use estimates.

- The underestimation, at the time of the Growth Study and in the preparation of the IDP, of the City's existing supply of vacant lands available for future growth.

The combined effects of the assumptions and approaches taken were to very significantly overestimate the City's future land requirements -- and most dramatically in terms of industrial development, which the City's studies suggested would account for well over one-half of its total growth requirements for residential, non-residential, and public lands.

At the end of November 2013, the City submitted a number of updated materials, including revised population and employment forecasts and updates to the 2008 Growth Study. These recent supplements to the Annexation Application modify the City's earlier land requirements estimates that informed the IDP.

Relevant changes reflected in the City's latest reports include:

- A more than 25% reduction in the City's expected population growth over a 30-year period;

- An upwardly revised estimate of available land supply within the City's current boundaries, notwithstanding the passage of five years' time since preparation of the earlier estimates;

- New assumptions and approaches to the estimation of industrial and public land needs.

These and other changes within the City's most recent reports have the net effect of more than halving the City's 2008 estimates of its 30-year land requirements. Countering that reduced need however is the City's claim that a full one-third of the annexation area -- 2,056 ha -- is now considered non-developable for various reasons and is unavailable to serve the City's future growth needs. Those provisions for non-developable lands appear overstated, in part because of excessive estimates for reserves and setbacks, in part because the provisions double-count requirements for parks, open space, and other public lands, and in part because the "developed" lands in the annexation area contain vacant areas and provide growth opportunities through redevelopment and higher density. NAM's limited examination of those considerations suggests that a sizeable proportion of the City's estimates of non-developable lands in the STAA may indeed be available to meet a mix of long-term residential, non-residential and public land requirements.

Notwithstanding the significant reduction in 30-year land needs as reflected in the City's recent report, and in combination with the new arguments for undevelopability within

the annexation area, the City has proposed no adjustment to the annexation area as first defined in the IDP and in the City's original Notice of Intent to Annex.

The proposed annexation is not supportable by the City's 30-year land requirements analyses. The City's own reports show that only 2% to 3% of the proposed annexation area would be required within 30 years for residential and commercial purposes. The reports indicate that about two-fifths of the annexation area would be absorbed within that same period for industrial purposes but the methodology on which that finding rests is without merit and is not supported on the basis of any historical or demand-based evidence. Furthermore, the City's public land needs are over-estimated, in part by deriving them through a ratio approach from the overestimates of industrial and other lands.

The City's case for seeking a large mass of industrial lands does not rest on historical demands or absorption experienced by the City, on any imminent shortages of vacant lands, or on analyses of current or anticipated industrial land demands within the City or the wider sub-region. Rather, the City's arguments and conclusions -- as advanced in its Growth Study and in the more recent Growth Study Update -- are based on 1) a fundamental misapplication of Provincial Land Use Policies, 2) the absence of any reference or relationship to the historical or projected market demands for industrial land, and 3) the use of inappropriate approaches and factors to estimate the City's requirements.

The Provincial Land Use Policies encourage municipalities to establish "land use patterns which provide an appropriate mix of land uses developed in an orderly, efficient, compatible, safe and economical manner". Under the provincial policies, municipalities also are encouraged to establish land use patterns which contribute to the provision "of a wide range of economic development opportunities" and which embody the principles of sustainable development, thereby contributing "to a healthy environment, a health economy, and a high quality of life". These policies are valid and the City is justified in seeking lands sufficient to meet the growth needs and economic and market opportunities available to it. However, the City's growth studies go further. Under the guise of a "level playing field approach", the studies seek "a significant land mass to better attract industry as a means of better balancing residential with non-residential uses". There is no suggestion or evidence that the City's residential/non-residential balance is deficient -- to the contrary, the City has a strong assessment base and balance. Nor is there evidence provided in the growth studies or in other parts of the City's Application to indicate that there is sufficient potential demand to support the "significant land mass" requested. An excessive mass of undeveloped industrial land will not enhance the fiscal health and sustainability of the City.

Under its "level playing field" principle, the Growth Study argues further that the City should have industrial lands available to it equivalent to what the County has -- on a per capita basis. This "level playing field" approach, quite aside from its disconnection from marketplace realities, overlooks a fundamental difference between rural and urban jurisdictions and their land use patterns. Rural municipalities can be generally characterized as having extensive land uses and low density populations. Land prices typically are lower than in urban market centres; rural jurisdictions appeal in particular to industries needing to be proximate to resources (e.g., agricultural commodities, natural gas, water, gravel deposits, etc.) or requiring large parcels of land or buffering from potential land use conflicts (e.g., noise, odors, heavy traffic, etc.).

Urban centres, by contrast, are attractive to more intensive land uses and to industries desiring market and labour force proximity, and high levels of service. Higher land prices in urban jurisdictions support more intensively developed industrial uses. In summary, urban and rural jurisdictions have comparative economic advantages in meeting different industry needs.

The Growth Study's translation of the County's ratio of industrial land to population to the City's needs ignores those basic features and leads to quite absurd results. This is quite aside from the City's derivation of the County's ratio by including undeveloped lands and land uses inapplicable to the City's circumstances. As a precedent, the approach would have dramatic -- and wasteful -- land use implications at the provincial level. The attraction by the County of a new industrial user would imply that the City would be "rewarded" with additional industrial lands -- presumably annexed from the County -- but roughly three times larger because of the City's bigger population. By way of illustration the siting of a new gas plant in the County (sited because of area-specific natural gas reserves) and occupying perhaps 160 acres, would imply that the City would be entitled -- by way of "level playing field" -- to annex a further 420 acres of potential industrial lands from the County. Using the same logic and formula basis, the development of a new 160-acre gravel pit operation in Rocky View County, for example, could support a request by the City of Calgary for more than 4,800 acres of additional industrial lands from its neighbor. The impacts of the Growth Study's approach would be far-reaching and economically wasteful. The City's land needs estimates based on this approach are without merit and to describe them under the term "land **demand**" is inaccurate. The City's estimates are derived more in the way of "supply" desirability than on the basis of "demand" rationale.

Annexation Impacts and Conditions

The City's fiscal impact analysis incorporates assumptions that serve to: 1) overstate the fiscal benefits of annexation to the City and the potential tax reductions to City residents that will accrue from annexation, and 2) underestimate the County's future fiscal

position and strength. The results also are to understate the negative taxation impacts on affected property owners from transferring to the City's jurisdiction. The City is shown to expand its industrial assessment base by almost 150% over 30 years, while the County's non-residential tax base is estimated to grow by less than 60% over the same period. The City's industrial growth is based on its growth study projections, while the County's are extrapolated based in proportion to population. This implies that the County's non-residential growth will be reduced from past levels notwithstanding that the County has a strongly established market presence, growth momentum, and supply opportunity in the regional industrial marketplace. The City's projections of relative City-County industrial development and assessment growth also are inconsistent with past experience and the evidence provided in the report regarding relative City-County industrial development over the past decade or more.

A yet more questionable premise within the FIA is that annexation **per se** will increase the sum total of sub-regional (i.e., City and Clairmont areas) industrial development by more than $1 billion in property assessments. Annexation is shown to significantly increase the City's industrial development but -- excepting the immediate loss of some industrial properties through annexation -- the County's industrial development is shown to be unaffected. There is no evidence to indicate that regional industrial development is being impeded by a lack of industrial land nor that a change in municipal boundaries will enlarge the aggregate level of industrial development in the area. Furthermore, the City cannot logically show itself benefiting by a large expansion in new industrial development through annexation while at the same time indicating that the County's industrial development and fiscal circumstances will be unaffected.

The City's FIA assumes that development will proceed in accordance with the forecasts embodied in the City's growth studies. It does not assess the potential implications of a more protracted absorption of the annexation area -- a very strong likelihood in NAM's view, and in the view as well of many landowners in the annexation area. Our conclusion is that the City's costs of administering the annexation area -- in both its undeveloped and developing states -- are underestimated. This would have the effect of reducing the City's identified fiscal benefits of annexation, and more so if the rate of industrial development lags the City's expectations and projections.

For affected property owners, the most significant financial impact relates to the expected increase in property taxes with annexation. For properties other than linear properties and new developments, which would face the higher City taxes immediately when annexation takes effect, the City proposes tax protection for varying periods of time -- depending on the type of property -- that would delay the impact of expected property tax impacts. However, the full impacts would be felt at such time as the protection ends, and the City's overestimation of land absorption implies that many of

those properties will be subject to the higher taxes for many decades and until such time as future development reaches those lands.

In sum, the City's FIA overstates the fiscal benefits to the City of Grande Prairie, and understates the taxation impacts to affected property owners and to the County. The study findings imply as well that, to the extent that the annexation lands are not absorbed for many years beyond the study horizon of 30 years, the affected property owners will sustain negative tax impacts well after that time under the tax protection plan proposed by the City.

The annexation conditions and compensation plan proposed by the City are not compatible with the extraordinary size of the annexation and the very long-term horizon for absorption of the annexation area.

Alternate Assessment of City's Land Needs

With the aforementioned conclusions, NAM has undertaken its own analysis of the City's land needs, modifying a number of assumptions taken by the City and relying on more conventional approaches for estimating land requirements. NAM has used two approaches for projecting industrial land demand: the first, based on the City's existing ratio of industrial land development to population, and the second, based on an accelerated absorption of industrial land, reaching 35 g.ha. annually, roughly one-half of estimated regional industrial land demand.

The NAM forecasts indicate that the City's **existing** lands will satisfy residential and commercial requirements for more than 30 years. The City has sufficient lands currently to meet industrial land demands for between 18 and 26 years, depending on the estimation approach assumed. Additional lands through annexation would be required to ensure 30 years' supply of industrial lands for the City.

With the proposed STAA lands included, and relying on the NAM forecasts, the City would have sufficient residential lands to meet 73 years' growth requirements -- and for considerably beyond that time under the likelihood, as contemplated in the IDP, that other residential lands identified within the Long-Term Annexation Area to the east and west of the City will be annexed well before then. The proposed annexation will meet the City's non-residential land requirements for 80 to 120 years, again depending on the estimation approach used.

The extraordinarily long-term horizon anticipated for absorption of the annexation lands suggests that the associated conditions and compensation arrangements also would need to be extended and increased to reflect the abnormal size of the annexation and the likely timeframe for development of those lands within the City.

Under the alternative of matching the annexation to the City's 30-year requirements, it is estimated that 400 hectares of developable lands for industrial purposes would need to be annexed to the City.

1. Introduction and Purposes

This report has been prepared by Nichols Applied Management (NAM), management and economic consultants, for the County of Grande Prairie No. 1. The report examines a number of key elements within the application by the City of Grande Prairie to annex lands in the County totaling approximately 6,300 hectares.

The City's annexation proposal is premised in significant part on the longer-term growth requirements of the community, and the supporting bases for those forecasted needs are examined in this report. The Annexation Application also includes reports that address the fiscal impacts of the proposed annexation vis-à-vis each of the two municipalities and the affected landowners. Those analyses also have been reviewed by NAM. Our report is pertinent to a number of the annexation principles and criteria examined by the Municipal Government Board in its review of annexation applications.

2. City Land Requirements

2.1 Background to the Analysis

In late 2010, the County received notice of the City's intent to annex lands identified in the IDP as the short-term annexation area (STAA). Subsequently, the County began its internal evaluation of the proposed annexation. The County was obliged to undertake its due diligence in respect of a very substantial proposed land transfer from its jurisdiction to the City of Grande Prairie and to ensure also that the impacts to affected property owners and to other ratepayers were adequately understood and considered in determining appropriate mitigative terms and conditions for annexation. Those matters were not addressed in the IDP.

The County needed also to inform itself adequately in preparation for legislatively-required negotiations with the City, and to respond to the annexation-related enquiries of affected property owners and others.

From the outset, the proposed annexation was deemed to be unusual relative to the size of past annexations involving the City and County, and indeed relative to recent and proposed annexations involving much larger cities such as Calgary and Edmonton.

As well, the very predominant focus of the annexation was toward non-residential and, yet more specifically, industrial land uses. Those uses comprised roughly three-fifths of the City's identified land needs, and the industrial lands component of the annexation area exceeded existing industrial development in the City by a factor of several times. Moreover, the City studies identified an undeveloped supply of vacant industrial lands within the City that approached the total amount of industrial absorption that had occurred in the community since its inception.

The City's residential land requirements can for some decades be satisfied by current land availability in the City. And much of the City's long-term residential needs are expected to be met from lands to the east and west of the City defined in the IDP's long-term annexation area. The current annexation does contain potential residential lands but these are for the most part located in the outer periphery of the planned industrial zones.

These factors suggested that an important focus of the County's examination of the annexation proposal be devoted toward the City's land requirements to accommodate its future growth and the expected time horizon for development of the annexation area. The latter issue is especially relevant to the impacts on affected property owners.

2.2 General Overview of City Requirements

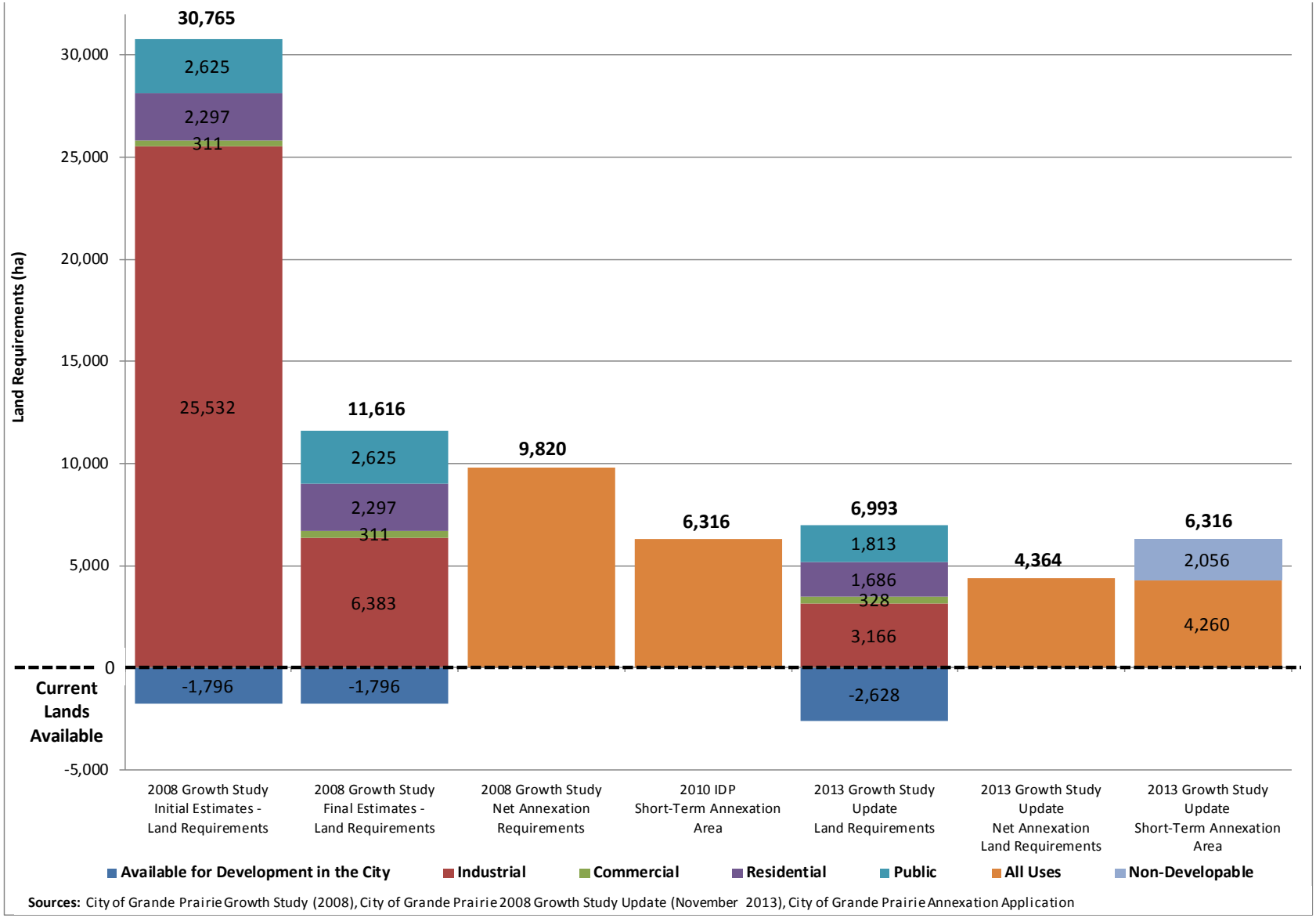
NAM's initial review of the City's land needs was based primarily on two documents: the *City of Grande Prairie Population and Employment Forecast 2007 to 2057 (January 2008)*, and the *City of Grande Prairie Growth Study (January 2008)*. These studies, completed in early 2008, served as cornerstone documents in defining and supporting the short- and long-term annexation needs of the City as expressed in the IDP, which was approved in 2010. They also were included in the City's Annexation Application submitted in July 2013.

The two 2008 studies were updated more recently, with the new reports submitted in November 2013. The methodologies, assumptions, baseline data, and findings of these new reports depart in a number of ways from the earlier 2008 reports. These new studies have been reviewed also by NAM in its examination of the City's land requirements.

Given the different estimates of City land requirements expressed within the two sets of City reports, an appropriate starting point is to summarize the overall differences in estimates and to compare the report findings also with the annexation proposal. Figure 2.1 provides that summary.

The City's forecasts provide growth estimates at 30- and 50-year horizons. Figure 2.1 summarizes the estimates for 30 years' requirements. That timeframe is aligned with the short-term annexation provisions and defined area within the IDP. It also is consistent with the land supply policy embodied in the City's MDP.

Figure 2.1 Evolution of the City of Grande Prairie's Estimates of 30-Year Land Requirements and Annexation Needs



Sources: City of Grande Prairie Growth Study (2008), City of Grande Prairie 2008 Growth Study Update (November 2013), City of Grande Prairie Annexation Application

A number of key features can be drawn from Figure 2.1:

- The City's estimates of its gross land requirements (that is, absorption) over 30 years have changed significantly over time: from more than 30,000 hectares in the first 2008 Growth Study estimation, to a modified 11,600 hectares in the final 2008 Growth Study estimates, to 7,000 hectares in the recent Growth Study Update report.

- Industrial land requirements consistently have formed the dominant land use need throughout those studies, ranging from 45% to 80% of total land requirements (including public lands), and from roughly 60% to 90% of combined residential, commercial, and industrial land needs.

- The City's anticipated 30-year residential land needs have fallen, as between the 2008 and 2013 reports, due primarily to downward-revised population projections for the City.

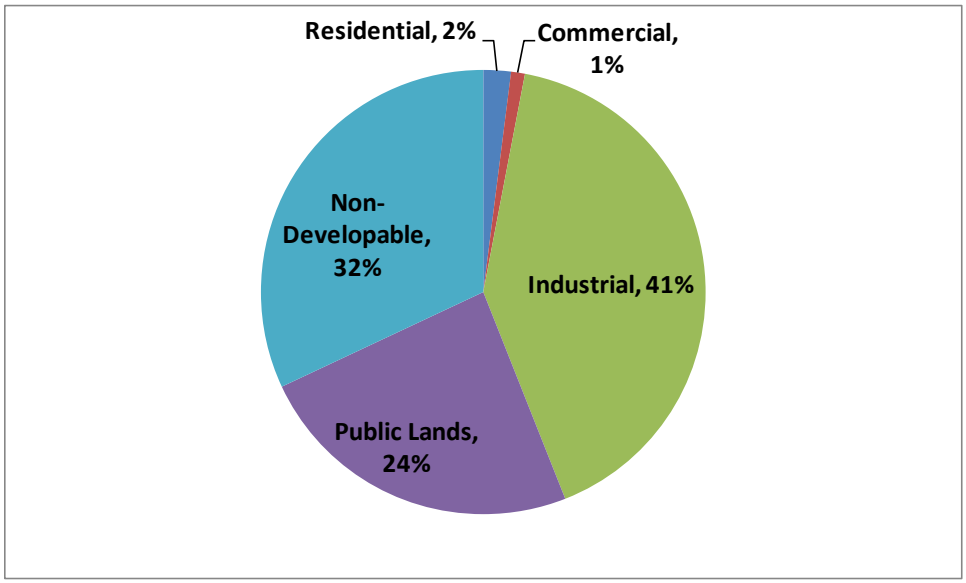
- Notwithstanding the passage of five years' growth between the 2008 Growth Study and the 2013 Growth Study Update, the estimates of vacant lands currently available in the City to accommodate new development have been adjusted upwards, from 1,800 ha originally to more than 2,600 ha in the most recent study.

- While the City's estimated future growth needs have been reduced between 2008 and 2013, and the estimates of developable lands available for growth within the City have increased, the proposed annexation area has not changed. The net reduction in external land requirements for development purposes has been offset by new City estimates of non-developable lands within the annexation area. The estimates for non-developable lands are now shown to account for one-third of the entire annexation area.

Based on information derived from the City's Growth Study Update, Figure 2.2 provides a pie chart showing the relative shares of the STAA by land use allocation. As indicated, residential and commercial uses account for an almost negligible share of the City's identified 30-year annexation requirements. The City reports suggest that industrial demands will absorb about two-fifths of the STAA. Public land uses are to absorb one-quarter and non-developable lands one-third. The annexation area is largely undeveloped and three-quarters of the non-developable allocation relates to environmental reserves, lakes, road allowances, and proposed highway bypasses and interchanges, etc. The picture shown by Figure 2.2 appears unusual in terms of the prominence of proposed industrial usage in the STAA relative to other market-related development uses and also in terms of the very large share of STAA lands expected to

comprise public and non-developable lands which together account for more than one-half of the annexation area.

Figure 2.2 City's Estimates of STAA Land Allocations



Source: 2013 Growth Study Update. Percentages rounded.

2.3 The Basis for the City's Estimates

The City's 2008 Growth Study and the 2013 Growth Study Update provide forecasted estimates of the City's 30-year land requirements. The two reports rely in part on separate Population and Employment forecasts prepared alongside the respective growth documents. The growth studies conclude with different requirements forecasts because of changes in the methodologies, assumptions, and baseline data within the two population and employment forecasts, and also because of changes as well in the land forecasting methodologies, assumptions, and baseline data. The different "moving parts" among the various forecasts make comparisons of the approaches used somewhat difficult. As discussed later in this report, NAM disagrees with a number of approaches taken in these studies that have the effect of significantly overstating the City's land requirements.

In general terms, the City's population and employment forecasts factor directly and indirectly into the City's estimated land requirements for residential, commercial, industrial, and public lands. And clearly, to the extent that those forecasts may be excessively ambitious, this will over-estimate expected land requirements. However, other factors and assumptions are at play as well: for example, assumed residential density factors, jobs per acre, land use ratios, and so forth. The analysis and implications of the more significant of these assumptions are examined in this report.

NAM's most significant concerns with the forecasting approaches taken relate to the City's estimates of industrial land requirements and the methodologies employed to develop those forecasts. The City's industrial land requirements -- the largest element of the proposed annexation lands -- are extraordinarily overestimated. Those and other land use overestimates, in turn have the effect of inflating also the City's forecasts of its public land needs, because of the land ratio extrapolations utilized in the growth studies. At their foundation, the industrial land forecasts are entirely removed from any reference to absorption history or to apparent market demand. The basic tenet inherent in the forecasts is that the provision of a large land mass or land supply to the City will equate automatically to land *development*. The forecasts are based on so-called "sustainability" and "level playing field" arguments that have little merit with regard to the purposes at hand (i.e., determining land demand) and would form a precedent with significant and economically undesirable impacts if applied more widely across the province in other jurisdictions.

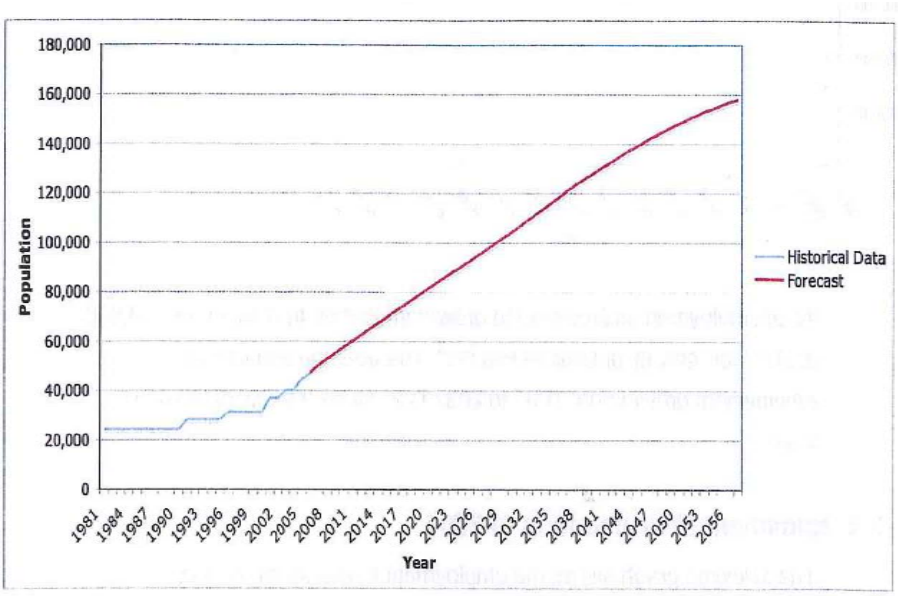
2.4 Population and Employment Projections

The City's long-term population and employment projections are important underpinnings of the City's land needs analyses, the annexation area definitions in the IDP, and the annexation proposal itself.

The first of those population and employment projections was completed in early 2008 and provided inputs to the 2008 Growth Study.

Those forecasts were tied to a single scenario based on "high growth". The forecasts were prepared at a time of particularly robust provincial, regional, and local growth -- which has since tempered -- but they defined a very high trajectory of long-term growth. Shown as Figure 2.3 is a reproduction of the City's 50-year population forecast, taken directly from the 2008 population and employment document prepared in 2008. It is apparent from that graph that the City's population was projected to grow at a high long-term rate that far exceeded historical growth experience, as displayed within the graph for the 1981-2008 period. The underlying bases for the forecasts were premised on very optimistic anticipations of regional economic and employment growth. For example, while the City was shown to account in 2007 for 1.4% of total provincial employment, over the forecast period the City was expected to generate more than three times that share of **new** provincial employment growth.

Figure 2.3 City of Grande Prairie Population Forecast to 2057



Source: Reproduced from Figure 4, City of Grande Prairie Population and Employment Forecast 2007 to 2057. Final Report, Applications Management Consulting Ltd. January 2008.

The City's population projections also appeared incompatible with the province's projections during that time. While the City accounted for approximately one-half of Census Division 19's population, under the City's projections Grande Prairie would account for well over 100% of the province's base growth projections for all of CD 19 and almost 90% of the province's high growth projections for the CD.

Those very ambitious population and employment projections were subsequently incorporated in the land requirements provisions within the 2008 Growth Study. The separate growth and population studies provided important guidance to the IDP and to the definition of short- and long-term annexation requirements in that Plan.

By 2012 -- five years after the initial projections were developed -- the City's actual population had already trended almost 10% below the levels forecasted. Figure 2.4, which shows City housing starts over the past ten years, illustrates how the City's growth appears to have resumed more normalized rates than were projected at the peak of growth in 2006-2007 period.

In 2012, a revised set of population projections was prepared by City consultants and incorporated in a draft Fiscal Impact Analysis (FIA). The detailed projections were not released, but the limited population data included in that draft FIA indicated that the new population projections for the City had been substantially reduced from those in the 2008 reports.

Updated population and employment projections were made available by the City in November 2013, and these have been utilized in the Growth Study Update to prepare the City's latest land requirements analysis. A comparison of the 2008 and the latest 2013 30-year population forecasts is shown graphically in Figure 2.5.

The City's latest forecasts show a moderated population expectation compared to the 2008 forecasts. By 2037, the City's projected population is now expected to be almost 20% lower than was anticipated at that time in the 2008 report. The new forecasts adopt different methodologies and assumptions than were used in 2008, as well of course as more recently available baseline data. The latest employment forecasts (which "feed" into the population forecasts) derive from growth rate estimates of local employment in various "driver" industries, including the oil and gas, manufacturing, and forestry industries. The net results of the new forecasts are to show:

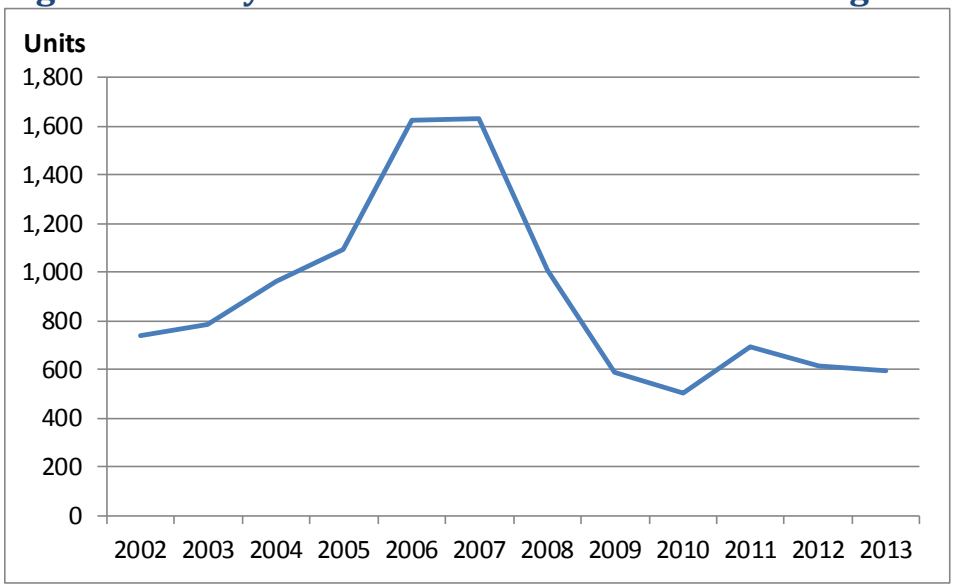
- The City's population at a 30-year horizon substantially below those in the 2008 report.

- The City's population at a 50-year horizon only modestly lower (6.2%) than projected in 2008. The reduced growth in the latest forecasts during the initial 30 years is largely counter-balanced over time by the higher levels of growth now projected over the 30 to 50 year period. Figure 2.6 shows the comparative year-to-year growth forecasts in absolute population change as between the earlier and most recent 2013 forecasts.

- "Industry-type" employment (jobs likely to locate on industrial lands) are shown to increase significantly in absolute and relative terms in the City's most recent forecast. The 2008 forecasts estimated that these jobs would remain at a constant proportion of about 32% of all jobs; the recent forecasts show those jobs rising to about 50% of total employment by 2056.

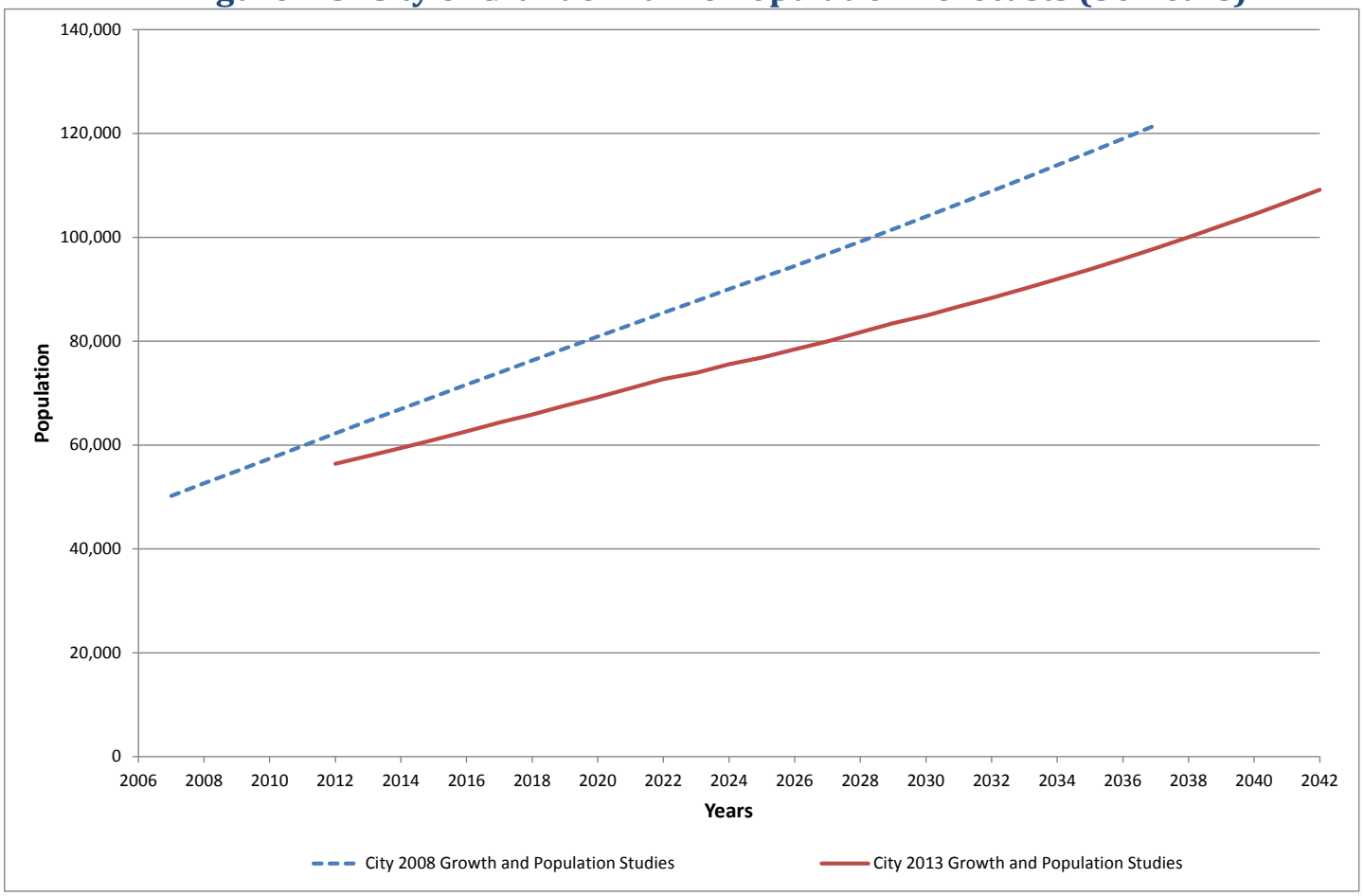
These results factor into the City's land requirements methodologies and FIA findings.

Figure 2.4 City of Grande Prairie - Annual Housing Starts, 2002-2013



Source: Housing Now - Prairie Region. CMHC Table 2.1c: Starts by Submarket and by Dwelling Type.

Figure 2.5 City of Grande Prairie Population Forecasts (30 Years)



In NAM's view, the City's original populations projections, which "fed" into the 2008 Growth Study and the IDP land needs provisions, can now be disregarded as demonstrably overstated. This is affirmed as well by the City's updated and latest projections. NAM's population projections for the City (see Figure 5.1, page 37) are not materially different from the recent update estimates provided by the City, **in respect of the 30-year forecasts**. However, the City's latest population projections deviate progressively from the NAM projections in the 30 to 50 year timeframe. Figures 2.6 and 2.7 both show the dramatic upswing in the City's forecasts of growth in the 20-30 year timeframe and beyond. The longer-term surge in the City forecasts appear to be generated largely by the relatively high forecasted growth rates assumed for employment in the local resource and related manufacturing sectors.

Figure 2.6 Comparative City of Grande Prairie Population Projections: 2008 and 2013 Forecasts, Absolute Population Growth Per Year

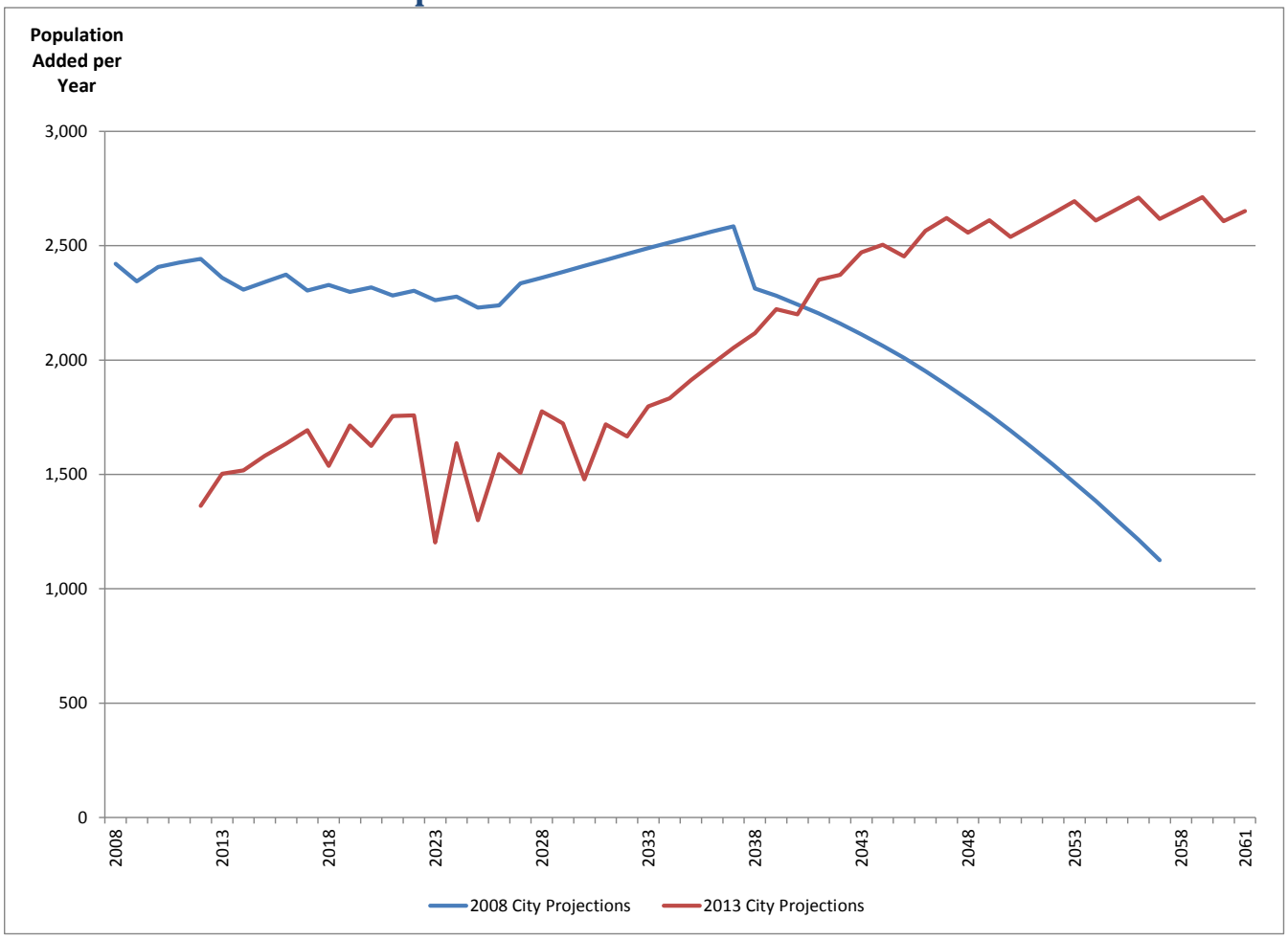
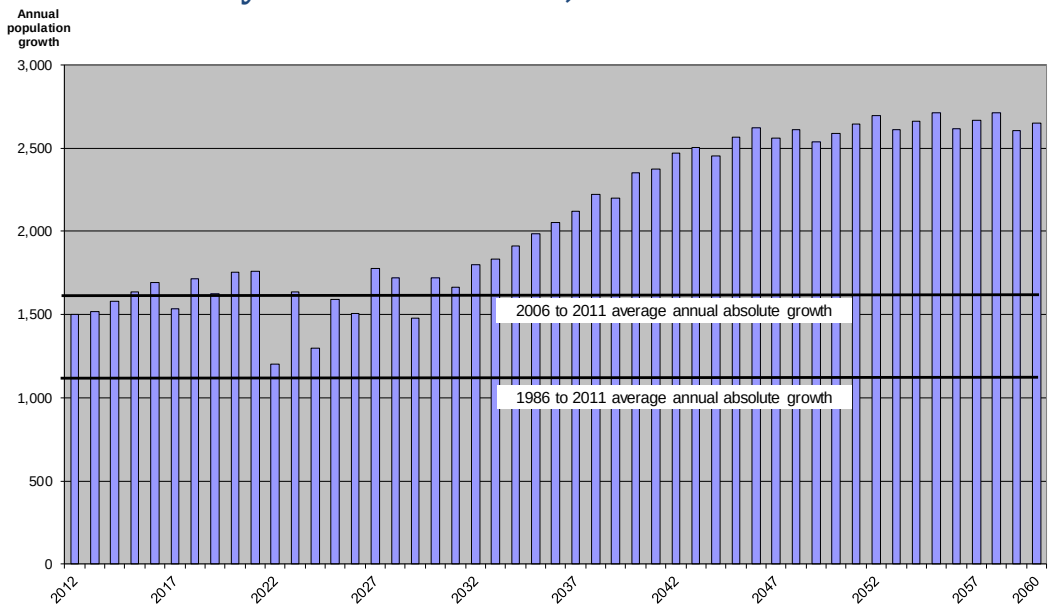


Figure 2.7 Comparisons of Forecasted and Historical Growth, City of Grande Prairie, Absolute Growth Per Year[1]



1. City forecasts based on City's updated 2012-2061 population projections, prepared in 2013.
2. Horizontal lines define actual average annual growth for periods indicated.

2.5 Land Requirements by Type of Use

This section of the report examines the City's forecasted 30-year land requirements for each type of land use.

2.5.1 Industrial Land Requirements

The City's industrial land requirements are an important focus of the current annexation proposal and the review of City land needs begins with that land use.

There are a number of approaches that typically are employed to project future industrial land needs. These include market demand analyses, projections based on historical land absorption, extrapolations of industrial land need based on indicated relationships to future population or residential development, and the translation of employment projections to industrial land requirements. The use of multiple approaches is generally preferred to a single methodology, in order to help "triangulate" or cross-verify forecasts using different methods. A common approach that has been used in past annexation applications is the projection of current industrial development to population ratios to future population forecasts.

The 2008 Growth Study employs three approaches: a forecast based on projected industrial employment (which then is converted to land needs on a jobs:land ratio measure); a forecast based on a ratio of industrial land to residential land demand; and

a forecast based on a so-called "fiscal sustainability" approach. However, the latter approach is relied on exclusively for the City's final estimates of need in the 2008 Growth Study and is the only approach used in the 2013 Growth Study Update. The "sustainability" approach adopted by the City in the Growth Study cannot be accepted as a legitimate land *demand* or land *requirements* approach. Indeed, the use of the term "industrial land demand" in the Growth Study and Growth Study Update to describe the City's land requirements is, in NAM's view, inappropriate because the approach used does not relate to "demand", but rather to a land "supply" argument.

The 2008 Growth Study's industrial land requirements estimates using the "sustainability" approach range from roughly twenty to more than thirty times the estimates developed in that study based on more acceptable employment and land ratio approaches, though even the latter two are imperfectly related to demand. The "sustainability" approach taken by the Growth Study and Growth Study Update to support the City's need for a large amount of industrial lands warrants discussion.

The City's Growth Study begins with a review of critical assumptions and includes references to the Provincial Land Use Policies and to principles of sustainability. The report proceeds then to advance a number of unsubstantiated statements that provide a preview of its later -- and quite questionable -- growth requirements methodology. More specifically:

> *. . . to remain fiscally sustainable . . . the City of Grande Prairie requires a more balanced residential to non-residential land base ratio similar to that enjoyed by its surrounding rural neighbor. (2008 Growth Study, Page 3)*

The report does not explain the connection between fiscal sustainability and land base ratios (what is "land base" without development? How does land mass alone attract industry and better balance residential with non-residential uses?) nor is there anything in the report to substantiate the City's need for a **more balanced** land base ratio, or to suggest that the current ratio will not support continued fiscal sustainability. And certainly, given the very different geographic, economic, development intensity, servicing, and land use characteristics that typically exist between urban and rural municipalities, there is no valid basis for imputing the City's need for a non-residential land base ratio that is based on a land:population ratio derived from the County.

Nor does the Growth Study provide any evidence to show that the City has faced, or faces, fiscal sustainability issues or imbalances associated with its land base. However, these questionable themes, advanced early in the study, are relied on subsequently to argue for lands far in excess of indicated land absorption or identifiable industrial demands.

It is simplistic to state as in the Growth Study (page 3) that rural municipalities have a greater capability (than urban municipalities) to achieve financial health because of low populations and a large land base that can support "unlimited revenue generating industrial uses". There is much more to municipal financial health than a large land base and low population. Rural municipalities bear significant costs (i.e., road provision and maintenance) related to their larger land areas -- and often to a sparsely populated user base. Rural land base and land capability alone do not necessarily equate to industrial location -- one need only look at the absence of industrial development in many rural areas. Numerous factors may affect industry location. Often, too, industrial uses in rural jurisdictions are tied to natural resources or are of a nature that limits their suitability within more urbanized environments.

It is equally simplistic for the Growth Study to state that many industries locating near urban centres could just as easily operate in those urban centres if they had "sufficient land to provide development options and competitive land costs" and further that those industries "are reliant on the urbans to exist". Locating in or near urban centres can certainly be important to some businesses, for example, in terms of offering proximity to labour force and markets, and providing access to required utility and other services. But certainly within the greater Grande Prairie area, other locational factors are at work as well -- and a number of those have favoured sites beyond the City. Many local industries are resource-related and serve the outlying region, and an urbanized location may neither be relevant nor important. A number of utility services -- if required -- (e.g., water and sanitary services) are equally available in the City and in the Clairmont area of the County. And businesses have varying locational criteria and needs in terms of parcel size, visibility, highway and rail accessibility, servicing standards and amenities, access to nearby customers and suppliers, land pricing and development charges, available developer and municipal marketing and development support, labour force accessibility, on-going taxes and operating costs, and so forth. Competition and choice are important and do not guarantee a preference for urban locational choice. These different factors help explain the successful location, for example, of industrial parks and industrial developments outside of Calgary in Rocky View County, outside of Edmonton in Leduc County, Parkland County, and Strathcona County, outside of Red Deer in Red Deer County, and outside of Grande Prairie in the County of Grande Prairie.

The City's Growth Study advances the argument that providing urban municipalities with "significant land mass" will allow them to better attract industry and thereby to better balance residential and non-residential uses. It argues for reconsidering "the traditional approach to determining land demand". It argues that "urban municipalities must be provided with the same opportunities for achieving financial health as the rurals", presumably, as shown later in the study, by transferring a significant land mass unrelated to market demand or requirements or anticipated growth needs. It couches this argument for required land mass in terms of providing a "level playing field"

approach for achieving financial health, and suggests this is the intent of the Provincial Land Use Policies. This is the fundamental principle of the Growth Study, and it is flawed.

NAM's primary observations regarding the Growth Study's "fundamental principle" are these:

- The Province's Land Use Policies do encourage an appropriate mix of land uses that contribute to the provision of a wide range of economic development opportunities, and they support as well land use patterns that complement municipal financial management strategies and contribute to financial health. These policies are reasonable and they are relevant to urban and rural municipalities alike, but they cannot be construed as legitimizing the provision of a "significant land mass" that is unrelated to potential demand and the effective use of that land.

- The Growth Study takes the simple view that having a significant land mass will equate to more industry and therefore to a better residential/non-residential land balance and to improved financial health. Industry growth and expansion will drive industrial land demand in the Grande Prairie area; land supply will not drive industrial land use. And this certainly is the case where there is no apparent evidence of shortage in industrial land availability in and near Grande Prairie.

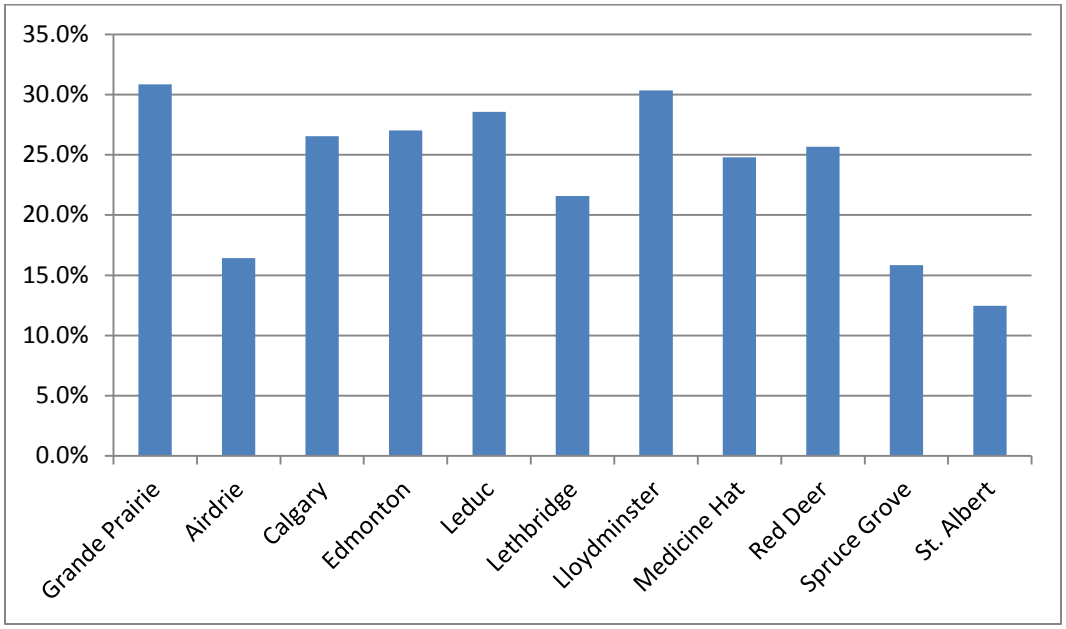
The Growth Study makes no persuasive case for reconsidering "the traditional approach to determining land demand". In general, industrial growth stimulates the need for land supply, not the other way around, and therefore future land need cannot be divorced from consideration of local and regional industrial land demand. The City's future land needs cannot logically be based on an arbitrary, non-comparable, irrelevant, and non-market related land base ratio pertaining to a rural neighbour.

Section 2 of the City's Growth Study makes a number of other statements that the Study builds on later in advancing its case for a significant industrial land mass unsupported by evidence of market demand or projected absorption.

It compares Grande Prairie with Fort McMurray, indicating that Grande Prairie is without a significant industrial base. The comparison is not valid -- communities may have quite different economic structures and growth drivers -- and in any event no information is provided to suggest the City is without a strong industrial base. Nor is there any evidence provided in the report to suggest that the City has experienced shortages of industrial land or that the City supply of land has constrained its industrial development. The Study suggests further (page 6) that the City must plan to attract sufficient "revenue generating development" to offset housing and other costs.

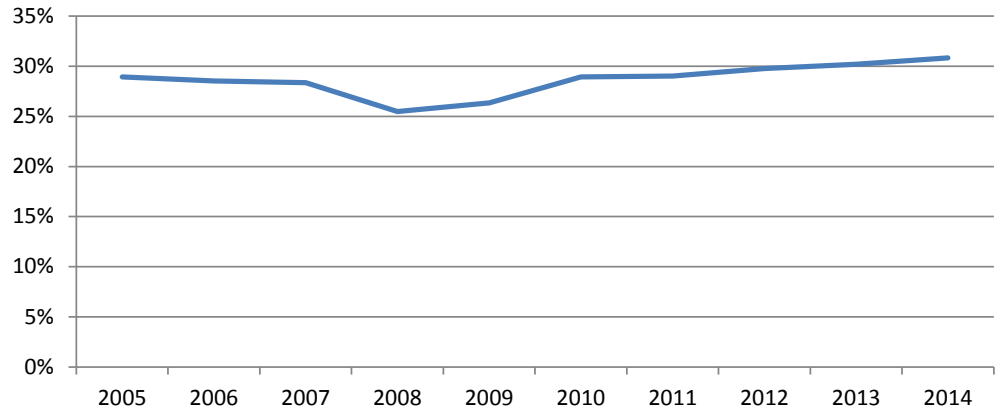
However, the City has a strong non-residential assessment base that is buoyed by both industrial and commercial development, the latter a testimony to the City's strong position as a retail and commercial services centre for northwestern Alberta, and northeastern BC as well. Figure 2.8 compares the City's non-residential share of assessments with other large cities in the Province. Indeed, Grande Prairie has the highest ratio of non-residential assessments to total assessment among Alberta cities with a population greater than 25,000. Figure 2.9 indicates as well that the City's ratio of non-residential assessments -- or non-residential/residential assessment balance -- has remained largely unchanged over the past ten years. That ratio is a positive indicator of the City's financial strength.

Figure 2.8 Non-Residential Share of Equalized Assessments for Alberta Cities over 25,000 Population, 2014



Source: Official Provincial 2014 Equalized Assessment Report

Figure 2.9 City of Grande Prairie Non-Residential Share of Equalized Assessment, 2005-2014



Source: Provincial Equalized Assessment Figures

The City's Growth Study (Section 3) projects the City's 30- and 50-year requirements for residential, commercial, and industrial land. In Section 2 of the report (page 14) the Study begins to serve notice of its subsequent use of the County's industrial land-to-population ratio to extrapolate the City's industrial land requirements. This approach lacks merit, from a number of standpoints.

The Growth Study approach is not based in any way on the demand for industrial development. The City's use of its County-derived land:population ratio suggests a total City "requirement", **as at 2007**, of more than 10,500 gross hectares of industrial land, or more than twenty times its developed industrial land base at that time, and roughly ten times the total **combined** industrial base of the City and the County's Clairmont area developed to that time. There is no evidence whatsoever to suggest even remotely that the local industrial market has a **current** unsatisfied demand of roughly 10,000 hectares. The added provision of the amount of land suggested by the City's proposed ratio is unlikely to materially change the aggregate level of industrial land absorption in the City and surrounding area.

The 2008 Growth Study and the 2013 update apply the "sustainability" approach to estimating the City's industrial land requirements, although the base numbers used in the calculations reflect different baseline data and population projections, and the two studies employ different methodologies in applying the desired industrial land ratios to future population. At its simplest, the City's industrial land needs are based on applying the County's ratio of industrial land to population (or an arbitrary variant of that ratio) to the City's forecasted population or population growth.

A number of further observations reveal significant issues with this approach and also with the City's application of that approach to developing its industrial land estimates, most notably the following:

- Having advanced the argument for a "level playing field" amount of industrial land in the City using the County's ratio of industrial land to population, the Growth Study first applies the same ratio, thus yielding a "requirement" of additional industrial lands within 50 years amounting to roughly one-half of Edmonton's total area. With that result, the Growth Study arbitrarily applies one-half of the County ratio, and then settles on one-quarter of the ratio. The applied ratio, of course, is derived from a rural jurisdiction having a unique set of economic and geographic circumstances and having very much a land-extensive pattern of development that is generally inapplicable to an urban situation.

- The industrial land ratios developed in the 2008 Growth Study and the 2013 Growth Study Update are based on figures that are mislabeled and miscalculated. The derivation of the County's industrial land ratio in the 2013 Growth Update (Table 2.7) indicates that the County's industrial area totals 5,428 ha based on CM, RM-1 to RM-4, and RM-DC industrial zones. In fact, that total includes EX (extractive industrial) and UR (urban reserve-industrial) zones as well, which together account for more than one-fifth of the total. The inclusion of EX is in contradiction to a note following the table indicating that the table recognizes that extractive and some forms of primary resource industries cannot be located in an urban centre. The ratio includes those types of activity and applies the results to the estimated City needs.

- The intention of the City's use of the ratio is to estimate future developed lands, and the industrial land numbers used in the calculation of current ratios are represented as "developed" lands. The City, however, has compiled aggregate **zoning areas**, not developed lands, and very materially overstates the amount of lands currently developed in the County. More than one-half of the County's purported developed industrial lands comprise the EX and RM-DC (highway industrial direct control) zones that mostly include gravel processing, natural gas processing, pulp mills, and other natural resource facilities that have small development footprints to land areas. And other industrial zones have vacant and undeveloped areas. The total lands in all of these zoning areas are included in the County's "developed" industrial land base that is used to calculate the City's "requirements". In effect, the growth study and update ratio calculations compare the City's industrially **developed** lands with the County's total **zoned** non-residential lands, a considerable part of which is undeveloped or only minimally developed and which includes as well extractive and other uses that may not be appropriate or relevant in an urbanized environment.

Many of the industrial land uses in the county are of a land-extensive nature -- larger parcels with a small development footprint -- and the City's Growth Study extrapolation

of those patterns to an urbanized environment -- where more intensified development consistent with urban markets, services, land pricing and other features -- is not appropriate or realistic and would result in wasteful and inefficient land usage. By illustration, based on a City population of roughly three times that of the County, if the County were to attract a new gas plant, for example, that occupies a quarter section of land, the City's Growth Study approach would argue that the City's boundary should now be expanded by three times that one-quarter section, or by three quarter sections, to "level the playing field". Using the same logic and approach, the development of a new 160-acre gravel pit operation in Rocky View County, for example, would support a request by the City of Calgary for more than 4,800 acres of additional industrial lands from its neighbor. Aside from the obvious inequities to the County, there is no plausible economic argument for adopting the City's proposed approach. The addition of industrial lands to urban neighbors, as illustrated in the earlier examples, is entirely divorced from local market and growth demands -- which, in the illustrations, have not changed.

The illustration above touches on an important issue that arises when the City's land requirements are rationalized on the "sustainability" approach proposed, and not on the basis of demonstrated growth or market demands. The industrial land market in the Grande Prairie sub-region is being mostly served by industrial areas in the City and in the nearby Clairmont area of the County. No evidence has been presented by the City, nor is there any evidence, that industrial development is being constrained in the sub-region or in either municipality by a shortage of industrial land. The City has, as indicated in its reports, in the order of 500+ hectares of industrial land available for development. The County has significant areas available for future industrial development as well. The addition of a "significant land mass" to the City under the formula proposed in the Growth Study is unlikely to materially affect the aggregate level of industrial land demands in the area, and the added land mass certainly won't be translated into developed industrial by a mere change of municipal jurisdiction independent of industrial demand and locational competition.

The County of Grande Prairie will continue as well to appeal as a location for new industry in the region. The County has a strong industrial presence in the Clairmont area, development momentum, and capacity for further growth. It satisfies a range of servicing and parcel size preferences. Its industrial areas are accessibly located. It will continue to absorb an important share of industrial growth in the region, and the potential industrial land demands of the area are not infinite. The Growth Study's expression of the County's industrial land ratio to establish City requirements is inappropriate, and without substance in isolation from any examination of market growth and competition.

2.5.2 Residential Land Requirements

Required lands for residential purposes comprise a relatively small share of the proposed annexation area. The City's Growth Study Update suggests that less than 2% of the Short-Term Annexation Area (STAA) is required for residential purposes within a 30-year horizon, and that **existing** residential lands within the City will meet requirements until 2040.

The earlier 2008 Growth Study, which informed the IDP, projected substantially larger residential land needs, and envisaged a 30-year residential land shortfall in the absence of annexation of more than 1,000 hectares.

The changes in expected requirements between the City's 2008 and 2013 studies reflect 1) reduced 30-year population projections, 2) marginally higher estimates of persons per dwelling unit, and 3) upwardly revised estimates of available vacant lands.

Though the City's indicated land requirements for residential purposes form a small part of the annexation area, the forecasted residential needs remain overstated, in NAM's view, both in terms of associated 30-year population growth and in terms also of the unduly low estimate of population per dwelling unit. Both factors serve to elevate the City's residential land requirements, although under even the City's forecasts little of the annexation lands are required to meet the 30-year requirements.

As discussed later, the estimates of residential land requirements has a further implication to the City's estimates of its public land requirements, which are derived on a ratio basis from the estimates of residential, commercial, and industrial land needs.

2.5.3 Commercial Land Requirements

Commercial lands typically comprise a modest share of urban land uses, and with recognition of currently available commercial lands in the City, Grande Prairie's indicated requirements for additional commercial lands over a 30-year time frame are small. In the Growth Study Update, approximately 50 hectares of the proposed annexation area (less than 1%) would be absorbed for commercial purposes within 30 years. The earlier Growth Study estimated larger needs -- about 200 hectares beyond the City's current land availability.

The commercial land forecasts presented in the 2008 Growth Study and as modified in the more recent 2013 Update are driven by the following factors: 1) City population forecasts; 2) City employment forecasts (by industry); and 3) assumed commercial jobs per hectare. The forecasts of additional land needs for commercial purposes have been reduced in the latest Update report through the application of the more recent -- and

lower -- population and employment forecasts, and also, upwardly revised estimates of vacant commercial land availability within the City.

The estimates of City commercial land requirements are viewed to be overstated for two primary reasons: 1) the City population forecasts are deemed to be high particularly in the longer-term stages of the latest 50-year forecasts, and 2) the inherent assumption within the City's studies that **all** non-industrial jobs will locate on commercial lands. The latter serves to overstate future commercial land requirements. It is clear that a sizeable share of total services employment, for example health and education jobs, recreation and cultural employment and public service employment, will locate on public and institutional lands, as opposed to commercial lands. The Growth Study and Growth Study Update have made significant provision for the City's public land needs and those lands would accommodate a share of the jobs that the two growth studies now allocate to commercial lands and which thereby serves to exaggerate the related land requirements.

The Growth Study Update contains a very questionable assumption which further exaggerates the needs for both commercial and industrial lands through annexation. In terms of land "requirements", the background studies rely on the use of the County's industrial land ratio to derive overstated estimates of City industrial land requirements. In the 2008 Growth Study, that had the effect of suggesting that industrial land demands would account for 55% of total City land needs to 2037 and 71% of combined residential, commercial and industrial land needs (Refer to Table 3.6-4). This would imply that industrial land uses would, over the forecast period, assume a much larger share of total land use than the City had experienced historically. Notwithstanding that background, the Growth Study Update has allocated the non-residential lands within the proposed annexation area, not on the basis of its respective commercial and industrial land forecasts, but on the basis of the **current (2012) ratio of commercial to industrial lands**. That is, while the non-residential land needs are predicated largely on the City's industrial land forecasts, the Growth Study Update apportions those lands based on **current** land use ratios. Predictably, the end result is that an excessive share of the non-residential lands in the short-term annexation area (STAA) is allocated to commercial use, with the result that little of those lands are shown to be absorbed for that use within 30 or even 50 years, with a large land surplus remaining. And, predictably as well, as shown in Table 2-8 of the Update, the industrial land demands are shown to exceed the allocated lands within the STAA by 2033, resulting in a net deficit by the end of the 30-year period.

These results cannot be accepted -- they flow from arbitrary land ratio assumptions that are quite inconsistent with the initial premises and bases for the Growth Study estimates of industrial land requirements.

2.5.4 Public Land Requirements

The 2008 Growth Study and the 2013 Growth Study Update indicate that public land uses, which comprise a significant share of City land uses (35%-40%), will need to expand over time with the City's growth. The 2008 Growth Study assumed that the existing (2007) ratio of public:residential lands would apply to future growth requirements. The 2013 Growth Study Update estimates that public land uses will add 35% to the City's requirements for residential, commercial, and industrial lands. The 2008 Growth Study and the Update define the public lands as encompassing "public service and park and open space" land uses, and suggest that this land use category includes "public service, education and health" facilities as well as accommodating such uses as "art galleries, theatres, urban forests, specialty health services and major arenas". It also appears to include provisions for environmental reserves (see reference to Bear Creek in Section 2.6 of the Growth Study Update).

The specific approaches taken to quantify the City's public land needs employ subtle differences as between the 2008 and 2013 studies. The earlier Growth Study indicated that 40% of the City's developed land base was related to public land uses and another 35% to residential, and used the ratio between the two to estimate public land requirements based on the study's estimates of future residential land requirements. In the more recent Growth Study Update, the study assumes public lands needs estimates equal to 35% of combined residential, commercial, and industrial land needs and relies on its estimates of the **aggregate annual** requirements for those three land uses to derive public land requirements.

NAM questions whether current public land ratios in the City will apply in the future. A number of major public land uses -- for example, post-secondary institutions, regional hospitals, theatres, city halls, etc., are unlikely to be duplicated or may be expanded on existing sites and therefore present opportunities to gain some public land use economies as the City grows.

The change in the methodological approach taken in the Growth Study Update relative to the 2008 Growth Study implies that the City's estimates for public land needs are now driven to a large degree by the City's high industrial land forecasts. As discussed earlier, the latter in particular are overstated by the application of the City's "sustainability" argument (that is, land need derived from the County's industrial land ratios) that was used in the underlying growth studies to estimate the City's industrial land needs. But the overestimation of residential and commercial lands would serve also to exaggerate public land requirements.

It would seem as well that the City's expected provisions of public lands are inconsistent with the land projections being advanced in the Growth Studies. To illustrate, the Growth Study Update (Table 2-1) shows the City's current residential, commercial, and

industrial land uses to be in the ratios of 36%:13%:16%. Under the "demand" forecasts developed, the equivalent ratio of demands (Table 2-10, Update Study) for the coming thirty years is forecasted to be 24%:5%:45%. Clearly, in the unlikely event that the proportion of industrial land uses in the City were to change from less than one-half the residential proportion currently to almost three times the residential proportion in future growth areas, then the public land requirements **as a share of the total** would be expected to fall significantly. Public land uses are tied much more closely to residential and population factors than to industrial land use. And further, many of those public land uses would not suitably be located in the non-residentially oriented STAA.

It should be noted that the City's public lands provisions also are generously estimated for reasons beyond the application of the ratio formula to the other land use estimates, particularly in terms of industrial lands. The demand estimates for residential lands in the Growth Study and the Growth Study Update are expressed on a gross area basis, and they implicitly include provisions for public lands including school sites and parks and recreation areas. Typically, and as confirmed in a review of a sample of approved City residential developments, public land uses comprise approximately 10% of the Gross Developable Areas. The separate and additional estimation of public lands requirements serves to "double-count" public land requirements.

It is noteworthy as well that the City's Annexation Application, including the Growth Study Update, estimate separately provisions for undevelopable lands that include environmental reserves setbacks and lakes, for example, those totaling more than 550 hectares. Undoubtedly, some of those lands would be able to meet a portion of the City's open space needs. This would have the effect also of off-setting some of the public land requirements defined in the City's Growth Study Update.

By way of illustration, the City's Growth Study Update (page 11) refers specifically within the section that documents public land needs that the large public lands area required is premised in part on the City's "commitment to conserving the Bear Creek valley as a natural feature". Later, in the City's Annexation Application, estimates of non-developable lands in the STAA include setbacks from water bodies and watercourses, including the Bear River corridor. That is, on the one hand the related public land needs are included in the City's "requirements" or "needs" analysis, and on the other, the protection areas are deducted from the STAA land supply and developability estimates.

A more logical approach to this may be to estimate non-developable lands including environmental reserves on an area-specific basis but to include municipal reserve dedications and additional public service/institutional needs on the land requirements side. In the City's growth studies, these are commingled and duplicative.

2.5.5 Summary of City's Land Requirements

A detailed review of the City's 2008 Growth Study and the more recent Growth Study Update indicates to NAM that the City's estimates of 30-year land needs are significantly overstated. This is particularly so in respect to industrial land needs, which account for a substantial part of the City's indicated needs and of the STAA. The City's industrial land needs are overstated primarily due to the "level playing field" approach that was adopted and, secondarily, to overly optimistic City population forecasts.

Residential and commercial land needs also are overstated in NAM's view, for reasons discussed earlier, but these represent less substantial parts of the forecasted requirements. The public land needs advanced by the City are confusing and skewed in part by their derivation from the other land use estimates and from "double-counting" needs already incorporated in the gross land requirements estimates and also in the City's non-developable land calculations.

3. Undevelopable Lands Provisions

The City's Annexation Application, including the Growth Study Update, suggests that a very substantial part of the proposed annexation area -- one-third -- relates to non-developable and previously developed lands that cannot meet the City's defined growth needs. These lands (totaling 2,056 ha) are shown to roughly "bridge" the difference between the total annexation area of 6,316 ha and the City's 30-year growth needs of 4,364 ha. They are seen to equate to a reduction in the effective developable land supply that would come with the STAA lands.

Given the amount of land area deemed by the City to be non-developable or previously developed, NAM has examined the supporting documentation and rationale provided in the Annexation Application in more depth.

The relevant lands identified by the City are shown in the map in Figure 6, page 38 of the Annexation Application. The City also has provided, in disclosures to the County, a breakdown of the "non-developable" areas by category or nature of development constraint, as well as some additional explanations. A summary of that information is provided in Table 3.1:

Table 3.1 City Estimates of STAA Undevelopable Lands[1]

Previously developed (residential, commercial, industrial, institutional)		569 ha
Non-developable		
Road allowances (existing)	244	
Environmental reserves	389	
Lakes	168	
Highway 43X and southwest bypass (right of ways and Crown lands)	436	
Future arterials	59	
Airport expansion	30	
Oil and gas buffers/setbacks	161	
Sub-total (non-developable)		1,487 ha
Total Area Unavailable for Development (rounded)		2,056 ha

1. Source: City of Grande Prairie Annexation Application and disclosures

These estimates appear to significantly overstate the development constraints that exist within the STAA and thereby understate the potential capacity of these lands to meet a portion of the growth needs of the City. More particularly:

- Much of the previously developed lands, more than 80% of which is residential, is developed at low density and offers scope for new development and urban

intensification. A number of the parcels identified by the City as "previously developed" are large, with very limited development or building footprints.

- The City identifies potential environmental reserves (ER) totaling 389 ha. these estimates include buffers around lakes and watercourses as well as previously registered ER parcels. The City notes its assumptions of 150m buffers around the waterbodies and 50m along watercourses. A decision by the MGB (MGB 110/07) that related specifically to Grande Prairie, dealt with appropriate setbacks from critical wildlife habitats in urban settings such as Grande Prairie, and suggested that a 30m setback was generally adequate in those areas.

  > *A 30-metre buffer, to be dedicated as an environmental reserve parcel is required to reduce the impact of the proposed development on the adjacent environmentally sensitive area (page 20).*

  The potential reduction of the assumed buffer zones, adjacent to lakes and watercourses in the STAA, would have the effect of increasing development capacity within the annexation area.

- The City's provisions for environmental reserves and waterbody and oil and gas setbacks within the "undevelopable" category suggest also that a portion of the public lands estimates within the Growth Study and Growth Study Update reports might be satisfied through those reserves and setback estimates.

- The estimates of non-developable land include approximately 435 ha for Hwy 43X right of ways and bypasses. Alberta Transportation has indicated that surplus lands following construction of the proposed transportation infrastructure are generally disposed of and available for other land uses. Lands excess to ultimate transportation needs may be acquired for various reasons, for example, the facilitated purchase of large parcels, and the interim need for storage and laydown areas during construction. Figure 6 of the Annexation Application identifies large tracts of undevelopable land at the interchange junction of Hwy 43X and Hwy 43 west of the City and also at a potential transportation access point in the northwest part of the STAA along the planned Hwy 43X. A brief examination of completed interchanges elsewhere in the provincial highways systems suggest that those areas may be well in excess of ultimate transportation requirements and that there is likely to be substantial availability of further -- and high-valued -- development potential for other land uses in those locations.

A rudimentary examination of the above considerations suggests that a sizeable proportion of the City's non-developable land estimates may be available to meet a mix of long-term residential, commercial, industrial and public land requirements.

4. Fiscal Impacts of Annexation

4.1 Assessment of City's Fiscal Studies

The City has prepared two fiscal impact studies (FIAs) relating to the proposed annexation. The reports examine the 30-year financial impacts of annexation to the City, to the County, and to the property owners within the annexation area. The first report, dated February 29, 2012, remains as a "Draft Final Report".

The initial report is not helpful in ascertaining the effects of the proposed annexation, for the following reasons:

- The growth underpinnings of that report are not based on the City's 2008 Growth Study or the associated 2008 population projections, nor are they aligned with the most recent 2013 Growth Study Update and related population projections. Furthermore, the forecasts and projections on which the draft FIA is supported have never been released by the City. Therefore, the study cannot be properly examined nor can it be matched with either the original (2008) or the latest (2013) growth forecast bases for the annexation.

- The usefulness of the draft report also is limited by the absence of financial spreadsheets and other modelling details, as were provided for the most recent FIA, and which would offer a better opportunity to examine the report.

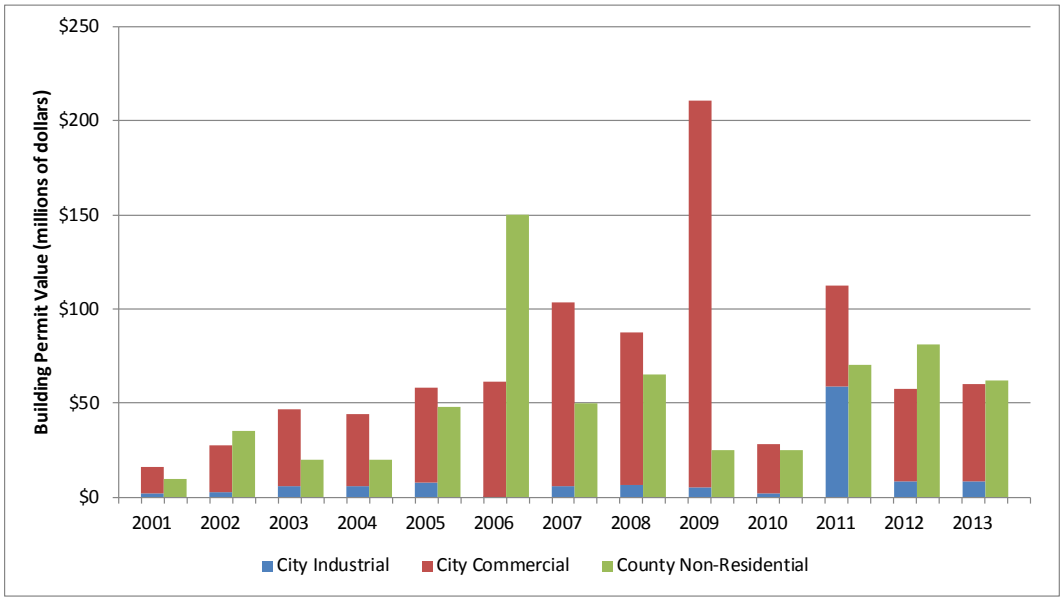
- The Draft FIA is now also dated in terms of baseline information, growth forecasts, conditions offered, and other matters.

In light of the above comments, the County is of the view that the Final Report, issued November 29, 2013, should be relied on primarily in providing the City's assessment of the fiscal impacts of annexation. The growth bases for that final FIA appear to be congruent with the City's latest growth study update and its associated population and employment projections.

The City's FIA essentially compares the financial differences between "with annexation" and "without annexation" scenarios from the standpoint of each of the two municipalities, and also the ratepayers in the annexation area. These impacts are projected over a 30-year period and are driven by numerous forecasts and assumptions which can have significant effects on the resultant fiscal impacts. The FIA also shows the immediate effects of annexation on the two municipalities in terms of population, dwelling units, area, roads, and tax assessments.

The City's fiscal impact analysis incorporates assumptions that serve to: 1) overstate the fiscal benefits of annexation to the City and the potential tax reductions to City residents that will accrue from annexation, and 2) underestimate the County's future fiscal position and strength. The results also are to understate the negative taxation impacts on affected property owners from transferring to the City's jurisdiction. The City is shown to expand its industrial assessment base by almost 150% over 30 years, while the County's non-residential tax base is estimated to grow by less than 60% over the same period. The City's industrial growth is based on its growth study projections, while the County's are extrapolated based in proportion to population. This implies that the County's non-residential growth will be reduced from past levels notwithstanding that the County has a strongly established market presence, with a growth momentum supported by increasing economies of agglomeration, and it has as well continued land supply opportunity in the regional industrial marketplace. These projections of relative City-County industrial development and assessment growth also are inconsistent with past experience, as evidenced in Figure 4.1.

Figure 4.1 Comparative Non-Residential Building Permits Value of Construction



Source: City building permits data 2001-2013. County of Grande Prairie building permits data 2011-2013. County figures for 2001-2010 estimated from albertacommunityprofiles.com permits information. http://albertacommunityprofiles.com/Profile/Grande_Prairie_No_1_County_of/22

Figure 4.1 shows that historically the City's non-residential growth has been dominated by commercial development, which has contributed particularly to the City's strong non-residential assessment base. At the same time, the County's non-residential development, a large share of which is of an industrial nature, and almost two-thirds of which is located in the Clairmont area, has expanded consistently over the past decade

or more and has, in all but one of the 13 years displayed, considerably exceeded the levels of industrial development in the City. The City's FIA assumes a dramatic reversal of the County's relative industrial performance, with the assumption that annexation will "create" an additional $1 billion of new industrial development in the region -- to the City's benefit -- that would not otherwise occur.

There is no evidence to indicate that regional industrial development is being impeded by a lack of industrial land nor that a change in municipal boundaries will enlarge the aggregate level of industrial development in the area. Furthermore, the City cannot logically show itself benefiting by a large expansion in new industrial development through annexation while at the same time indicating that the County's industrial development and fiscal circumstances will be unaffected.

What the City's various assumptions and forecasts lead to are the following:

- An underestimation of the County's future fiscal position and strength on a going forward basis, and a picture of higher tax levels in the County than are likely, under both "with" and "without" annexation scenarios.

- An overstated estimation of the fiscal benefits of annexation to the City and of the potential tax reductions that would accrue to City residents from annexation (see Figure 3, FIA).

- Following from the above, an understatement of the negative taxation impacts to affected property owners in the STAA of transferring from County to City jurisdiction. The importance of this latter issue is magnified by 1) the differences in tax rates between the City and the County and 2) the length of time likely to occur before the STAA industrial lands are absorbed -- and hence the extended period over which landowners will be subject to the higher City tax rates.

The City's FIA assumes that development will proceed in accordance with the forecasts embodied in the City's growth studies. It does not assess the potential implications of a more protracted absorption of the annexation area -- a very strong likelihood in NAM's view, and in the view as well of many landowners in the annexation area. Our conclusion is that the City's costs of administering the annexation area -- in both its undeveloped and developing states -- are underestimated. This would have the effect of reducing the City's identified fiscal benefits of annexation, and more so if the rate of industrial development lags the City's expectations and projections.

For affected property owners, the most significant financial impact relates to the expected increase in property taxes with annexation. For properties other than linear properties and new developments, which would face the higher City taxes immediately when annexation takes effect, the City proposes tax protection for varying periods of

time -- depending on the type of property -- that would delay the impact of expected property tax impacts. However, the full impacts would be felt at such time as the protection ends, and the City's overestimation of land absorption implies that many of those properties will be subject to the higher taxes for many decades and until such time as future development reaches those lands.

In the unlikely event that the City's ambitious industrial land projections as reflected in the City's growth studies and the FIA are realizable, the minimal long-term fiscal impacts to the County of annexation as shown (Figure 4, FIA) in the FIA would be significantly underestimated. The City cannot logically show itself benefiting by more than one billion dollars in new industrial assessment through an annexation-related boundary adjustment and at the same time indicate that the County's industrial development and assessment growth and fiscal circumstances will be unaffected.

4.2 Implications of Delayed Absorption of Annexation Lands

The City's FIA assesses the fiscal impacts of the proposed annexation under the assumption that development will proceed in accordance with the forecasts embodied in the Growth Study and Growth Study Update.

The FIA, as presented, does not assess the implications of potentially delayed absorption of the annexation area. Based on NAM's review of the City's forecasts and projections, that is a very strong eventuality. It also is a view shared by many landowners that will be directly affected by the annexation.

In NAM's view, the City's FIA understates the taxation impacts to affected property owners. To the extent that the annexation lands are not absorbed for many years beyond the City's 30-year growth horizon, the effect will be to compound the duration and magnitude of negative taxation impacts after the tax protection plan proposed by the City lapses. The annexation conditions and compensation plan proposed by the City are not compatible with the extraordinary size of the annexation and the very long-term horizon for absorption of the annexation area.

The City's FIA, as modelled, appears to understate the future costs of providing services to the annexation area, and therefore understates as well the fiscal impacts to the City of administering the area in its current state and as it develops over time. It is useful to note that the proposed annexation would increase the City's area by 86%, its existing road networks by 14%, and its population base by 1.9%. And while it is appreciated that a significant share of City expenses pertains to "people"-related service costs, it is questionable whether the immediate effects of the annexation in its current state would be to increase City operating costs by only 0.9%. The City has assumed very modest (Table 3, FIA) marginal costs estimates for a number of services to the annexation area

including planning and development, recreation and culture (no additional costs), community costs, and general government services.

As further development in the annexation area is assumed to occur, the fiscal modelling assumptions in the FIA are such as to understate the likely future costs of annexation. The municipal operating and capital costs estimated in the model are based on population or a derivative of population (km per capita). However, the proposed annexation area is largely dedicated to industrial land uses and certainly, within the 30-year FIA horizon, most of the development that is expected by the City to occur in the annexation area would be of an industrial nature. The fiscal model and the City's costs do not sufficiently reflect the industrial orientation of the area, nor its large size, which together do not sufficiently factor into the mostly population-derived cost estimations in the FIA. The industrial area, for example, will increase the City's road system and road operating costs, but those effects would not appear to be adequately reflected in the fiscal impacts.

NAM's conclusion is that the City's costs of administering the annexation area -- in both its undeveloped and developing state -- are underestimated. This would reduce the City's identified fiscal benefits of annexation, and particularly so if development of the area considerably lags the City's projections.

4.3 Other Considerations

A financial consideration to annexation that is not referenced in the City's FIA relates to potential, short-term inequitable effects on the County and County ratepayers of higher education requisitions in the absence of appropriate mitigative conditions.

When an urban municipality annexes land from a rural municipality, the impact the annexation will have on the education component of the property tax must be take into consideration. It is important to note that the process of collecting education requisitions involves a lag of one year because the education requisitions are calculated using equalized assessments. As a result, when land is transferred from one municipality to another due to annexation the amount of education taxes requisitioned by the Province is based on each municipality's **previous year's** assessments.

For smaller annexations, the amount of taxes requisitioned by the province is relatively minor and the impact is often not addressed. In the case of the proposed Grande Prairie annexation, the potential impact would be significant. The estimated impact based on 2013 mill rates is as follows:

- Requisition impact: $480,000
- Grande Prairie County education tax rate impact : +2.6%

- City of Grande Prairie education tax rate impact: -2.3%

Without mitigation measures, ratepayers remaining in the County will be paying $480,000 (+2.6%) too much in education requisitions in the first year after the annexation comes into effect. Conversely, ratepayers in the City will be paying $480,000 (-2.3%) too little in education requisitions in the first year of annexation.

There are two possible solutions to addressing the issue of lagging requisitions. In Bulletin No. 09-04 (dated September 2009), Alberta Municipal Affairs suggests transferring the education tax revenues raised on the annexed properties (within the City in this case) back to the annexed municipal authority (the County) in the year the annexed properties become taxable in the annexing municipality. The second solution – which was requested in a recent annexation involving the City of Airdrie and Rocky View County – was that the effective date of the annexation be December 31, rather than January 1. Either of these two possible alternatives offers an equitable solution to the issue of lagging education requisitions as a result of an annexation.

5. Alternative Assessment of City's Land Needs

As described more fully earlier in this report, NAM has serious concerns with the City's land needs analysis and findings. The most significant concern relates to the City's industrial land projections -- and by extension through a linked methodology -- to the City's estimated public land requirements. NAM is also of the view that the non-developability provisions with the STAA are excessive, as discussed in Section 3.

With these findings, NAM has undertaken its own analysis of the City's land needs. The key differences in assumptions and approach taken in this alternative analysis are the following:

- The population growth for the City is projected on the basis of 1,575 persons per year. That level of **absolute** growth is consistent with the average growth achieved by the City during the period 2006 to 2011, and is compared in Figure 2.7 with historical growth and with the City's most recent growth projections. NAM's population projections are compared in Figure 5.1 with 30- and 50-year forecasts prepared by the City in 2008 and, more recently, in 2013. NAM's forecasts are close to those of the City's most recent projections over the initial two decades or so, but the two forecasts deviate progressively beyond that time. By 2061, NAM's population estimates for the City are 16% lower than the estimates in the City's latest forecasts.

- NAM, in addition to relying on its alternative population forecasts above, has assumed a constant 2.60 persons per dwelling, rather than the estimates of 2.60 declining to 2.08 by 2061 in the City's forecasts.

- The City growth studies rely on estimates of commercial employment to derive commercial land requirements, based on an assumed ratio of employees to land area. NAM does not accept the implicit assumption that all non-industrial jobs, including for example health care workers, educators, and public administrators, will locate on commercial lands, but rather, a portion will locate on public and institutional lands, the requirements for which are separately quantified in the City's studies. A result of the City's assumption is to overstate commercial land requirements. Based on a review of the City's employment composition by industry sector, it is assumed that 27.5% of non-industrial jobs will locate on public/institutional lands.

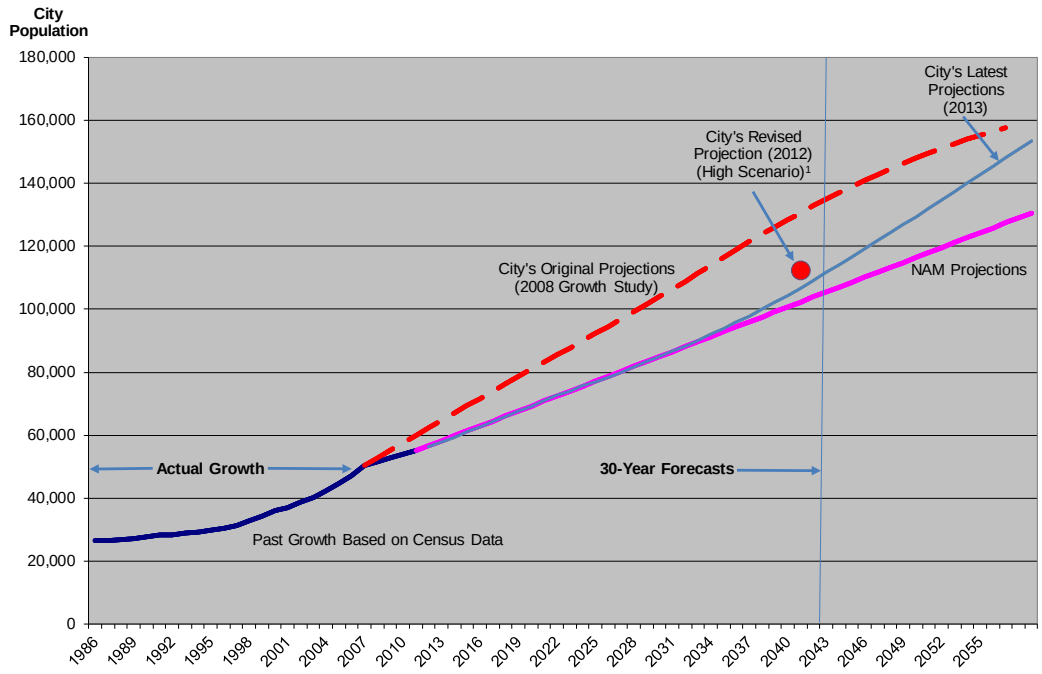
- NAM has applied two alternatives to the City's industrial land requirements. The first scenario, considered the base case, assumes City requirements at 0.013 g.ha. per capita, the current industrial land ratio in the City. The second scenario assumes that the City's industrial land absorption rises to 35 g.ha. per

year over a 10-year period following annexation or roughly one-half the approximate combined absorption of industrial lands in the City/Clairmont sub-region. The latter estimate is above the City's indicated historical absorption experience and the City's recent share of sub-regional industrial land demand but provides for growth based on a potential elevation in the City's industrial development. By comparison, the 2008 Growth Study applied an initial estimate of need at 0.21 ha/person to the City's full population, and then at one-half, and finally settling at one-quarter of that ratio or about 0.05 ha/person. In the latest 2013 Update, the City's estimates are based on a ratio of 0.06 ha/person, but the ratio is applied only to incremental annual population growth, rather than total population as in the 2008 Growth Study.

- The City's public land needs estimates are confusing and misleading. On the requirements side (see Table 2-10 Growth Study Update), the City adds its estimates for public lands, but some provisions for these uses also appear to be embodied within the gross residential land estimates. Under the **deductions** for non-developable lands within the STAA, the City includes estimates for environmental reserves and setbacks, yet the estimated public lands requirements also **include** open space, urban forests, and conservation areas.

  NAM has estimated the need for additional public lands (above those included within the residential land figures) to be 10% of the revised commercial and industrial land forecasts, under the assumption that where municipal reserves are not included, the equivalent cash-in-lieu may be used to acquire similar amounts of land elsewhere. As well, an additional 2.5% of residential land requirements are included in our estimates to account for larger, district- or city-wide public service uses. In NAM's view, environmental reserve requirements are best determined on the basis of identified natural condition and features rather than encompassed within a calculated percentage of land requirements.

Figure 5.1 Comparison of City of Grande Prairie Growth Projections



1 As indicated in City of Grande Prairie Fiscal Impact Analysis of Proposed Annexation. Draft Final Report. February 29, 2012.

Figure 5.2 provides a summary comparison between the City's and NAM's estimates of current land sufficiency within the City, expressed in terms of years' supply, without considering the proposed annexation lands. In the City's Growth Study Update, the available residential lands within the City will meet requirements for 28 years. In NAM's analysis, 35 years.

By far the greatest difference between the City and NAM estimates relates to non-residential lands. Figure 5.2 shows years' supply for commercial and industrial lands on a consolidated non-residential basis. The City's reports show existing commercial and industrial land availability within the City sufficient to meet requirements for 25 years and 5 years, respectively, or on an aggregated non-residential basis, seven years. In NAM's analysis, the City has sufficient commercial lands to meet requirements for 39 years, while the industrial land supply will suffice for roughly 18 to 26 years, depending on the alternative demand/absorption scenarios employed. On an aggregated non-residential basis, it is estimated the City currently has sufficient lands for 21 to 29 years' growth.

With the STAA added to the City, Grande Prairie would have sufficient residential lands for 47 years, based on City projections, and for 73 years, based on the NAM analysis. However, these projections assume that all City residential growth after the build out of

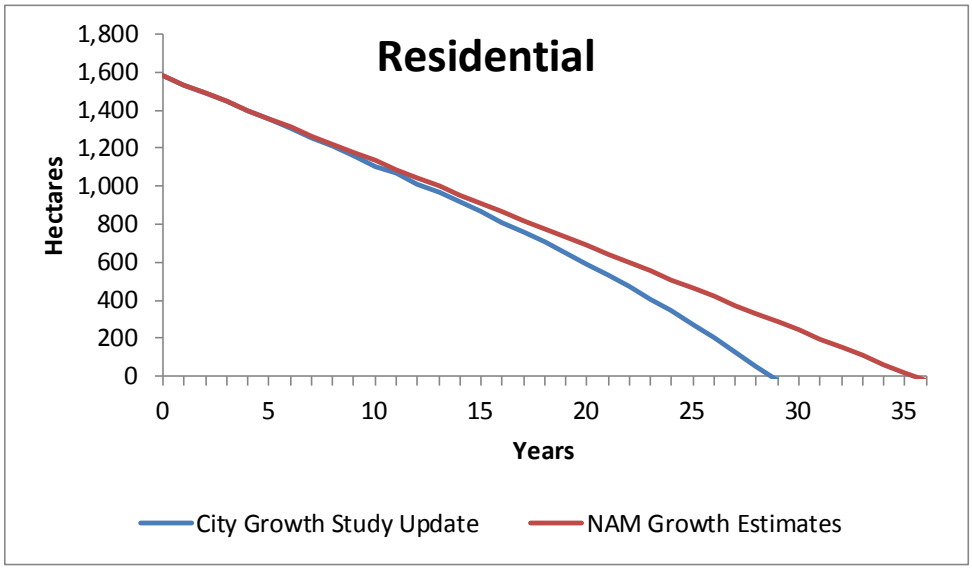
current residential lands would be met from within the STAA. That is not plausible, nor is it contemplated in the IDP. The long-term annexation plan (30 years plus) would encompass the addition of primarily residential lands to the east and west of the City, and it is likely that those lands would accommodate much of the City's future needs for residential lands and might well be developed in advance of some of the residential lands in the STAA. Under those eventualities, with residential development shared with other areas outside the STAA, it is reasonable to expect that the STAA's residential lands would not be fully absorbed for many decades -- and under the County's projections for well beyond 75 years.

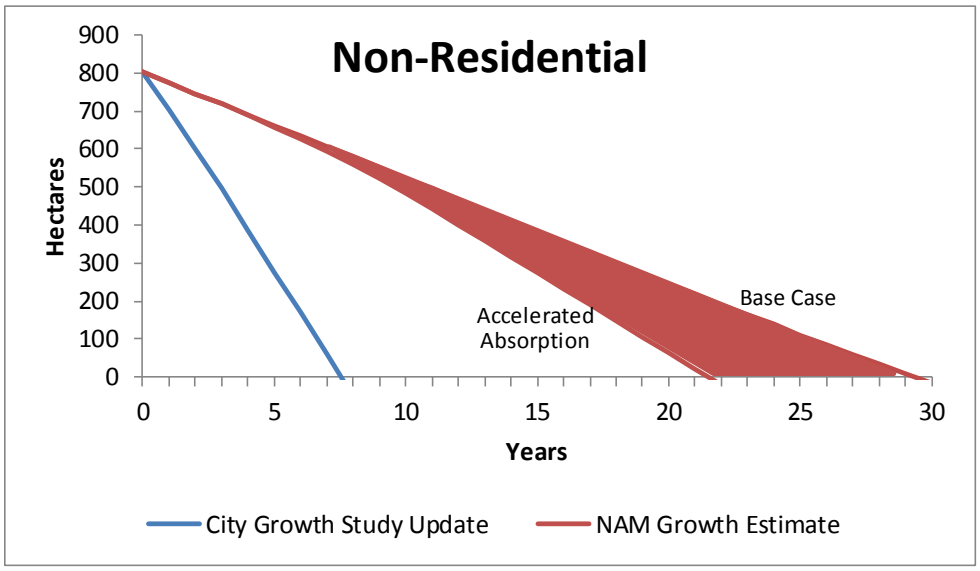
Figure 5.3 compares also the City's non-residential land supply horizon, **with annexation**, under both the City's Growth Study Update and the NAM projections. On the basis of the City's most recent estimates, Grande Prairie would deplete its current vacant non-residential land supply and the annexation lands in 29 years. In NAM's projections, the STAA would meet the City's non-residential land needs for in the order of 80 (accelerated absorption) to 120 years (base case), depending on the development scenario applied. The longer-term estimate is based on industrial development consistent with historical and current proportions. The shorter, accelerated timeframe assumes an enlarged industrial growth rate and share of regional industrial development for the City.

NAM also has considered the City's public land needs. As discussed earlier, the City's residential land requirements inherently include public lands provisions, most particularly municipal reserve dedications. NAM's 30-year estimates of additional public land requirements over and above that amount to roughly 115-150 hectares, well within the City's estimate of currently available and unutilized public lands.

In summary, and based on NAM's growth projections, the City's 30-year land requirements can be met by the annexation of roughly 400 hectares of future industrial lands. That amount of land would satisfy the higher of the two forecast approaches used in the analysis.

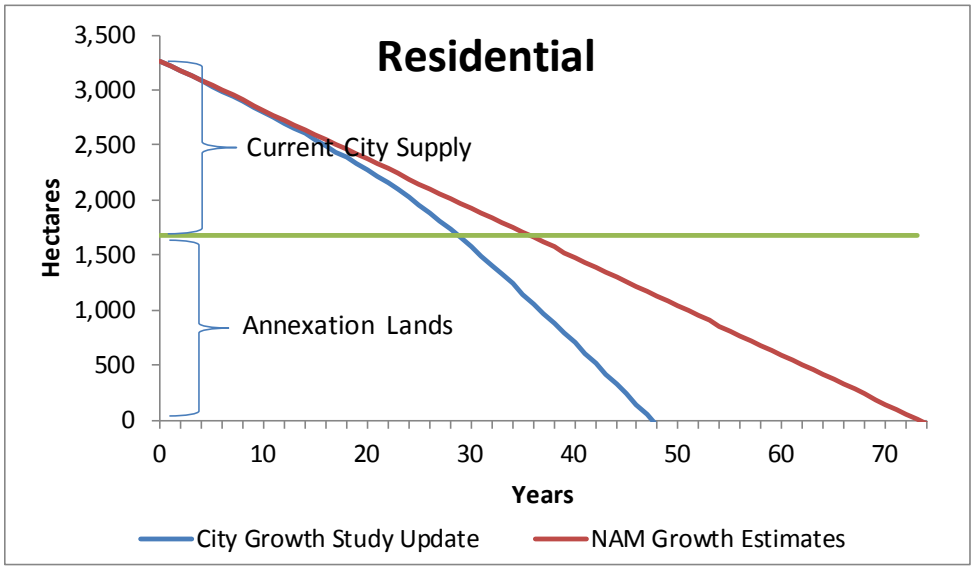
Figure 5.2 Years' Supply of Existing Residential and Non-Residential Lands - City of Grande Prairie



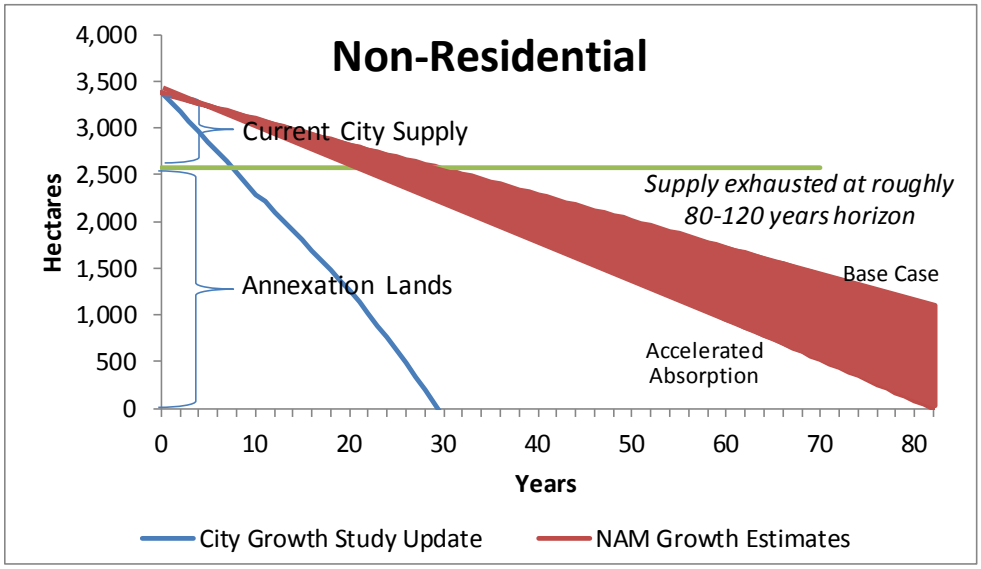


Footnote: Commercial and industrial demand forecasts and land supply are consolidated.

Figure 5.3 Years' Supply of Residential and Non-Residential Lands with Annexation, City of Grande Prairie



Footnote: Both sets of projections assume that all City residential needs are met from existing vacant residential lands and from the STAA.



A. Appendix - Resumes of Study Team

Peter C. Nichols

Principal, Nichols Applied Management

Core Specializations:
Municipal development, organization, and finance
Economic analysis
General management

Education:
B.Comm., University of Alberta
M.B.A., University of California, Berkeley

Associated with firm since: 1973

Previous Experience:
Management and economic consulting

Mr. Nichols has been engaged as an economic and management consultant and financial analyst for forty years. During that time he has carried out a wide range of domestic and international assignments, including more than twenty overseas evaluations as a consultant to The World Bank and the Canadian International Development Agency.

Mr. Nichols has participated in many economic studies of western and northern Canada over the years. He has examined the socio-economic, urban and regional impacts associated with major resource, tourism, industrial, and commercial developments and completed a number of industry sectoral studies, including major evaluations of the services sector and business services industries. His clients have included many regional, provincial, territorial, and federal government agencies and departments as well as a considerable number of resource, real estate development, and industrial corporations.

A continuing and major focus of his work is the municipal sector. He has been involved in amalgamation, annexation, dissolution, and regionalization studies, municipal service and infrastructure evaluations, and municipal growth and development analyses, and has appeared as an expert witness on a number of occasions in the field of municipal finance and development. Mr. Nichols has consulted on more than two dozen annexation projects spanning a period of several decades.

He has advised municipalities and utility organizations in respect to their financial policies and has participated in numerous studies pertaining to property assessment, municipal and education finance and taxation, and revenue- and cost-sharing. He has prepared business and strategic planning guidelines for municipalities and assisted in the development of performance measures and budget and financial plans for local government.

As a management consultant, Mr. Nichols has undertaken a number of assignments relating to marketing analysis and planning, local service delivery, strategic planning, organizational analysis, and program evaluation on behalf of private companies, community-based groups, public institutions, and local and senior government authorities.

Mr. Nichols has participated as a speaker at a number of conferences, seminars, and symposia and has written numerous articles on municipal management and innovation.

Gerry Fardoe

Principal, Nichols Applied Management

Core Specializations:
Municipal operations; infrastructure financing; municipal benchmarking; financial and statistical analysis; demographic analysis and modeling.

Education:
B.A. (Econ.), University of Alberta
M.B.A., University of Alberta

Associated with firm since: 1989

Previous Experience:
Education finance, university management advisory services

Mr. Fardoe is a senior practitioner with particular expertise in the municipal sector, extensive experience in financial, demographic, statistical analysis, and boundary adjustment reviews including participating in a number of amalgamation studies as well as assisting in approximately twenty annexation projects.

Over the years, Mr. Fardoe has completed a host of assignments relating to the municipal field and particularly to matters of finance, taxation, and infrastructure. He has developed financial planning and fiscal modeling and decision-support systems for several municipalities; evaluated the implications of alternative amalgamation, annexation and inter-municipal cost- and revenue-sharing initiatives; assessed the local financial impacts of development and policy changes; and examined preferred approaches for financing urban infrastructure systems. He also has developed a framework for inter-municipal financial benchmarking and municipal financial monitoring.

Mr. Fardoe has participated in a number of project, program and operational evaluations, including reviews of senior government programs in support of the education and municipal sectors, emergency service operations, property assessment and taxation systems, land rent programs, and transportation management systems.

He also has applied his expertise in demography to the development of population forecasting models and within the context of a number of project socio-economic impact studies.